



# DRAFT for Engagement Shoreline Adaptation Plan: Waiheke Island

[Draft adaptation strategies]

August 2024 DRAFT

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# DRAFT Waiheke Island Shoreline Adaptation Plan: Draft adaptation strategies

August 2024

Auckland Council

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## Front Cover

Shoreline Adaptations Plan area overview map for Waiheke Island. Prepared for Auckland Council by Tonkin + Taylor 2023.

## Purpose and use of this document

The purpose of this document is as a consultation document. It does not represent a complete draft of a finalised Shoreline Adaptation Plan for Waiheke Island. This document has been prepared solely to enable the community engagement process for the development of the Waiheke Island Shoreline Adaptation Plan (SAP) area. The draft document provides a foundation to guide an understanding of the preliminary recommendations for adaptation strategies (across three timeframes) informed by the technical inputs of the Coastal Management Team within the Engineering, Assets & Technical Advisory department of Auckland Council.

DRAFT for Engagement

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## Glossary

Annual Exceedance Probability (AEP)	<ul style="list-style-type: none"> <li>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.</li> </ul>
AVD-46	<ul style="list-style-type: none"> <li>Auckland Vertical Datum – 1946 was the mean sea level established in 1946 and used to define the zero datum for land development.</li> </ul>
Biodiversity focus area (BFA)	<ul style="list-style-type: none"> <li>An area of ecological significance prioritised by Auckland Council for conservation actions.</li> </ul>
Coastal Marine Area	<ul style="list-style-type: none"> <li>The coastal marine area is defined as the area of sea from the line of Mean High Water Springs (MHWS) to 12 nautical miles off the coast.</li> </ul>
Fetch	<ul style="list-style-type: none"> <li>The length of an area of the harbour, estuary or sea in which waves are generated by wind, measured in the direction of the wind.</li> </ul>
Highest Astronomic Tide (HAT)	<ul style="list-style-type: none"> <li>The highest tidal level that can be predicted to occur under average meteorological conditions and any combination of astronomical conditions.</li> </ul>
Mean High Water Springs (MHWS)	<ul style="list-style-type: none"> <li>The average of high levels of spring tide.</li> </ul>
Significant Ecological Areas	<ul style="list-style-type: none"> <li>Identified areas of significant indigenous vegetation or significant habitats of indigenous fauna located either on land or in freshwater environments or in the coastal marine area.</li> </ul>

# 1.0 The Shoreline Adaptation Plan programme

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 Waitematā. 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. In 2021, Auckland Council began developing a series of area-based Shoreline Adaptation Plans (SAPs) as the first step for the SAP programme in achieving a resilient future for Auckland's coasts.

## 1.1 Purpose and scope

SAPs are non-statutory, strategic documents that support the sustainable management of Auckland Council-owned coastal land and assets (including but not limited to, reserves, coastal defence structures and public facilities), over the next 100 years.

These plans consider the potential impacts of coastal erosion, coastal inundation, rainfall flooding, and climate-change (including sea-level rise). They seek to provide an adaptive planning approach that responds to the changing nature of Auckland's coastal environment, asset and infrastructure owners' requirements, and the needs and values of local iwi and local communities.

This 'first generation' (Series 1) of plans have been developed in response to the *Coastal hazards and climate change guidance* from the Ministry for the Environment<sup>1</sup>. SAP area plans provide a 'roadmap' for changing coastal management strategies over time (over three timeframes) which can be further developed to implement Dynamic Adaptive Policy Pathways. The SAP area plans' development process also ensures consultation and the initiation of an opportunity for collaboration with mana whenua and communities to develop and implement the strategies identified in the SAP area plans. While this 'series' of SAP reports applies specifically to Auckland Council-owned land and assets, the programme acknowledges the need for holistic 'systems' thinking both in relation to coastal management and adaptation. The draft reports represent the initial technical recommendations ahead of the development of the full SAP report for the Waiheke Island area ahead of community engagement and detailed engagement with programme partners.

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<sup>1</sup> Ministry for the Environment (2024). Coastal Hazards and Climate Change – Guidance for Local Government

## 1.2 Limitations

The SAP Series 1 reports are strategic documents which set a high-level direction for shoreline management and the assets within those areas. It is important to note there are limitations to the scope of these plans:

- They are not developed with the intention of applying directly to privately-owned land and/or assets within the wider SAP area.
- As the focus is on Auckland Council-owned land and assets, they are developed with limited consideration of third-party land, assets, interests and values.
- Draft adaptation strategies are selected using technical knowledge and understanding of coastal management. Analysis is supported by the best available information as set out in this report and supporting reports.
- They do not consider site-specific options assessments for what may be delivered in implementing each of the adaptive strategies.
- They do not consider any site or parcel-specific legal mechanisms, covenants or requirements or identify specific conditions or actions associated with individual resource consents (such as consents for coastal structures or discharge consents associated with water infrastructure).

## 2.0 Waiheke Island Context and overview

### 2.1 Waiheke Island SAP area overview

This SAP area covers Waiheke Island, Auckland's most populous island in the Hauraki Gulf. The island has 133 km of coastline with diverse wave exposures and natural features. The northern coastline varies from coastal cliffs and rocky foreshores, to dynamic sandy beaches contained between headlands. This north-facing coastline is exposed to significant fetch distances from the northern swell window and receives both longer period swell events generated significant distances away, and more localised, shorter period storm waves generated by strong onshore winds. The exposed sandy beaches are dynamic, constantly shifting in response to coastal processes. Small dune systems are present in places, and are susceptible to periodic storm event driven erosion.

The southern and eastern facing coastlines range from coastal cliffs, headlands and rocky foreshores, to shallow embayments that transition from intertidal flats to established mangroves or pocket beaches. These coastlines are sheltered from longer period swell events, but are exposed to more localised shorter period wind waves. With the predominant wind direction being southwest, and with fetch distances in the order of 12-15 km, the southern coastline is frequently exposed to low period wind waves. Vessel wakes generated by ferry movements at the Matiatia and Kennedy Point ferry terminals and other marine craft also contribute to the wave climate.

The coastal cliffs along the Waiheke Island coastline are subject to slow ongoing weathering and erosion, with occasional episodic failures or slips occurring.



Figure 2-1: Unit areas for Waiheke Island

## 2.2 Units and stretches

The Waiheke Island SAP area is divided into 7 separate unit areas to enable a more detailed and comparative view of how risk from coastal hazards is attributed across the SAP area. Within each unit, smaller coastal 'stretches' have been identified based on coastal processes, the presence of Auckland Council-owned land and asset location, public-land boundaries, and infrastructure considerations. A stretch is the smallest scale at which the SAP plans apply bespoke adaptation strategies.

## 2.3 Natural hazards and climate change

This SAP report considers natural hazards relating to sea-level rise, catchment flooding, coastal inundation, coastal erosion and land instability. Other hazard types, including inland land instability, drought, tsunami and wildfires, are not within the scope of this assessment. Risks from low probability but high potential impact events, such as volcanic, tsunami, and earthquake events, are also not addressed through land use planning. Instead, they are addressed through emergency management measures put in place by groups such as Auckland Emergency Management (Civil Defence).

Natural processes, such as coastal inundation and erosion, become hazards when they have the potential to negatively impact things of value. Tāmaki Makaurau / Auckland is frequently affected by natural hazard events and is likely to experience more frequent and severe events in the future due to climate change. Sea-level rise will increase the zone of exposure. For shoreline areas with assets and infrastructure, or cultural heritage sites near the coastal edge (including recreational and environmental areas), the impacts of coastal hazards can be significant.

For this work, the following timeframes are used to evaluate how the risk of coastal inundation, erosion and instability and sea-level rise adversely impacting the coast may change over time as a result of climate change, noting that projected conditions may occur sooner or later depending upon rates of climate change:

- Short-term, 2021-2050
- Medium-term, 2051-2080
- Long-term, 2081-2130.

### 2.3.1 Sea-level rise

Sea level influences how coastal processes interact with the landward edge, and can significantly impact the exposure of assets and facilities. As the climate changes and sea levels rise, this rise, combined with coastal storm surge (discussed further under coastal inundation below) will dictate the frequency and magnitude of future coastal inundation events. Over time, sea-level rise will alter the position of mean high-water spring levels and the land-sea interface.

The NZ SeaRise: Te Tai Pari O Aotearoa Programme (NZ SeaRise, 2024) has completed sea-level rise projections for the New Zealand coastline. This is based on Intergovernmental Panel on Climate Change (IPCC) Assessment Report 6 (AR6) projections and including climate-ocean responses, earth

crustal, gravitational changes and vertical land movement (VLM) specific to New Zealand. The combination of projected sea-level rise and vertical land movement results in relative sea-level rise indicating more localised changes in sea level.

Ministry for the Environment guidance recommends using the high-end emission scenarios SSP5-8.5 for coastal planning (Ministry for the Environment, 2024). This is because the world has been on a high emissions trajectory over the past few decades, and the physical interactions at play that drive sea-level rise operate on very long timeframes (decadal to centuries). This means that there is a certain amount of sea-level rise that is ‘locked in’ for the future because of this long timeframe, but the timeline of this is uncertain. There is uncertainty on future emissions and planetary tipping points, which would mean the ‘expected’ sea-level rise might happen on a faster timescale than is expected (Ministry for the Environment, 2024). **Error! Reference source not found.** below sets out MfE’s projections for the years in which absolute sea-level rise could be reached for a central location in New Zealand.

Table 2-1: Summary of approximate year when absolute sea-level rise (SLR) heights could be reached using the recommended projections for a central location in Aotearoa New Zealand (Source: Ministry for the Environment, 2024)

SLR (metres)	Year achieved for SSP5 -8.5 H+ (83 <sup>rd</sup> percentile)	Year achieved for SSP5 -8.5 (median)	Year achieved for SSP3-7.0 (median)	Year achieved for SSP2-4.5 (median)	Year achieved for SSP1-2.6 (median)
0.2	2035	2040	2045	2045	2050
0.3	2050	2055	2060	2060	2070
0.4	2055	2065	2070	2080	2090
0.5	2065	2075	2080	2090	2110
0.6	2070	2080	2090	2100	2130
0.7	2080	2090	2100	2115	2150
0.8	2085	2100	2110	2130	2180
0.9	2090	2105	2115	2140	2200
1.0	2095	2115	2125	2155	>2200
1.2	2105	2130	2140	2185	>2200
1.4	2115	2145	2160	>2200	>2200
1.6	2130	2160	2175	>2200	>2200
1.8	2140	2180	2200	>2200	>2200
2.0	2150	2195	2200	>2200	>2200

### 2.3.2 Coastal inundation

Coastal inundation is the flooding of low-lying coastal land that is normally dry, due to elevated sea levels. Extreme high sea-water levels (commonly referred to as storm tides) are a result of storm surge. Storm surge occurs due to relatively low atmospheric pressure (the “inverted barometer” effect of 1 cm rise in sea level per 1 hPa fall in pressure) combined with water level set-up at the coast from onshore or alongshore winds. When king tides (the highest spring tides that occur over the year) occur, the risk of coastal inundation is greatest. In the future, present day temporary coastal inundation extents (e.g. during storms) will become permanent inundation as what is presently dry land will become intertidal due to sea-level rise.

A coastal inundation event with 1% Annual Exceedance Probability (AEP) (1% probability of occurring in any given year) has been considered in the short term, with no sea-level rise. In the medium term, 0.5 m of sea-level rise will increase the depth and extent of coastal inundation for the places that are exposed in the short term. The frequency of coastal inundation events is predicted to increase over time. In the long-term, 1.0 m of sea-level rise will further increase the depth and extent of coastal inundation for the places exposed in the short and medium term. Some areas that were not previously exposed, may now be exposed to coastal inundation. These maps are available through Auckland Councils Geomaps tool online.



the distance (in metres) landward of the current coastline that is predicted to be susceptible to coastal instability and erosion, for a given time. These maps are available through Auckland Council's Geomaps tool online.

Areas with higher exposure to erosive forces are more at risk to coastal instability and erosion, where waves interact directly with cliff faces (e.g. no beach) or where cliffs are steep with little vegetation cover. As sea-level rise occurs, waves will interact with a larger portion of the cliff and slope instability and erosion along the coast are expected to increase. Evaluation of projected shorelines in this report considers predicting Auckland's exposure to coastal instability and erosion, Technical Report (Roberts, 2020), as well as site specific understanding based on recent observations. If observational trends change, this assessment of cliff erosion would require updating.



Figure 2- 3: Coastal instability and erosion susceptibility for Waiheke Island, prepared by T+T for Auckland Council (2023) based on Roberts, R., N. Carpenter and P Klinac (2020). Predicting Auckland's exposure to coastal instability and erosion, Auckland Council, technical report TR2020/021

### 2.3.4 Catchment flooding

Flooding, as a result of extreme rainfall when the drainage capacity of the natural and/or built environment systems cannot cope, is a natural occurrence and is Auckland's most commonly occurring natural hazard. The flooding event with the highest probabilistic risk is a 1% AEP event (1% probability of occurring in any given year), because an event of such intensity is likely to result in more severe consequences than flooding events that are more common but of lesser intensity.

Auckland Council's web-based portal GeoMaps (Natural hazard theme) models the spatial extent of potential flooding. The maps, developed at catchment scale, indicate areas – flood plains, flood prone areas, flood sensitive areas, and overland flow paths - which may be affected by a rainfall event that has a 1% AEP, assuming maximum probable development in the catchment (as per the AUP:OP) and future climate change.

The map at Figure 2- 4 illustrates that flooding hazards are focused in lower-lying areas where streams and overland flow paths within the catchment drain to the coast. Overland flow paths and floodplains cross throughout the SAP area.



Figure 2- 4 Flood Plain areas 1% AEP (1 per cent annual exceedance probability) hazard, Auckland Council Flood viewer.

### 2.3.5 Other natural hazards

In addition to coastal inundation, coastal instability, coastal erosion, and flooding, Auckland is affected by a number of natural hazards that occur less frequently. Wildfire, volcanic activity,

tsunami, earthquakes, severe wind (such as cyclones), and tornadoes are other notable but less frequently occurring natural hazards that may impact Auckland. This report does not specifically consider risks from any of these aforementioned hazards in the development of these DRAFT adaptation strategies.

## 2.4 Adaptation strategies and timeframes

Adaptation strategies are then assigned to each coastal ‘stretch’ over three timeframes:

- Short term (0-20 years)
- Mid term (20-60 years)
- Long term (60-100 years)

The adaptation strategies are described below and are applicable to all council owned land and assets and may respond to more than one hazard risk, for example coastal erosion, coastal inundation and catchment flood risks may all be relevant considerations in some coastal areas.

Strategy name	Summary	What does this mean?
Hold the line	<ul style="list-style-type: none"> <li>• The coastal edge is fixed at a certain location.</li> </ul>	<ul style="list-style-type: none"> <li>• Defence of the coastal edge may be through nature-based options (e.g. beach nourishment) or engineered hard structures (e.g. sea walls).</li> <li>• Nature-based options are the preferred method where possible, but in most cases engineered hard structures would be required.</li> <li>• An identified use or service is maintained within its existing location, e.g. a road is maintained in a fixed location or parks' land uses are maintained in an existing location.</li> <li>• This approach could result in losing some intertidal areas or beach space due to preventing landward realignment of the coast in response to sea-level rise.</li> </ul>
Limited intervention	<ul style="list-style-type: none"> <li>• Maintaining and managing existing assets, uses and land.</li> </ul>	<ul style="list-style-type: none"> <li>• Repair and maintenance of existing protection structures.</li> <li>• Works may support localised realignment of individual assets.</li> <li>• Maintain uses or assets within a general area, not in a fixed location.</li> <li>• Does not support a fixed coastline.</li> </ul>
Managed Retreat / Adaptation priority area	<ul style="list-style-type: none"> <li>• Further adaptation planning is required to manage risks to council owned land and assets.</li> </ul>	<ul style="list-style-type: none"> <li>• Further engagement with multiple partners, communities and stakeholders will be required to ensure risk from coastal hazards can be managed and other values maintained.</li> <li>• Assets and land uses are relocated or realigned from hazard areas to reduce risk to assets/activities and maintain identified values (ecological, cultural, recreational etc).</li> <li>• Relocation is planned and undertaken proactively over time.</li> </ul>

		<ul style="list-style-type: none"> <li>• Planning to retreat or relocate assets and land uses are responsive to community, cultural and ecological opportunities needs and aspirations.</li> <li>• Supports opportunity for nature-based solutions, and maintenance of coastal values.</li> </ul>
No active intervention	<ul style="list-style-type: none"> <li>• Natural processes are allowed to continue.</li> <li>• Pro-active management of risk to council land and assets is not identified</li> </ul>	<ul style="list-style-type: none"> <li>• Includes no investment in the provision or maintenance of any hazard protection structures associated with coastal hazards and flood protection (does not apply to the management of land stability or subsidence or other hazard risk management).</li> <li>• This strategy is identified for areas of the coastline where Auckland Council-owned land and assets are not identified as exposed/vulnerable to coastal hazard and catchment flooding risk.</li> <li>• Does not preclude the management of risk if required.</li> </ul>

## 2.5 Next steps

The draft strategies and supporting notes included in this document are designed to inform the community and enable feedback through the engagement process.

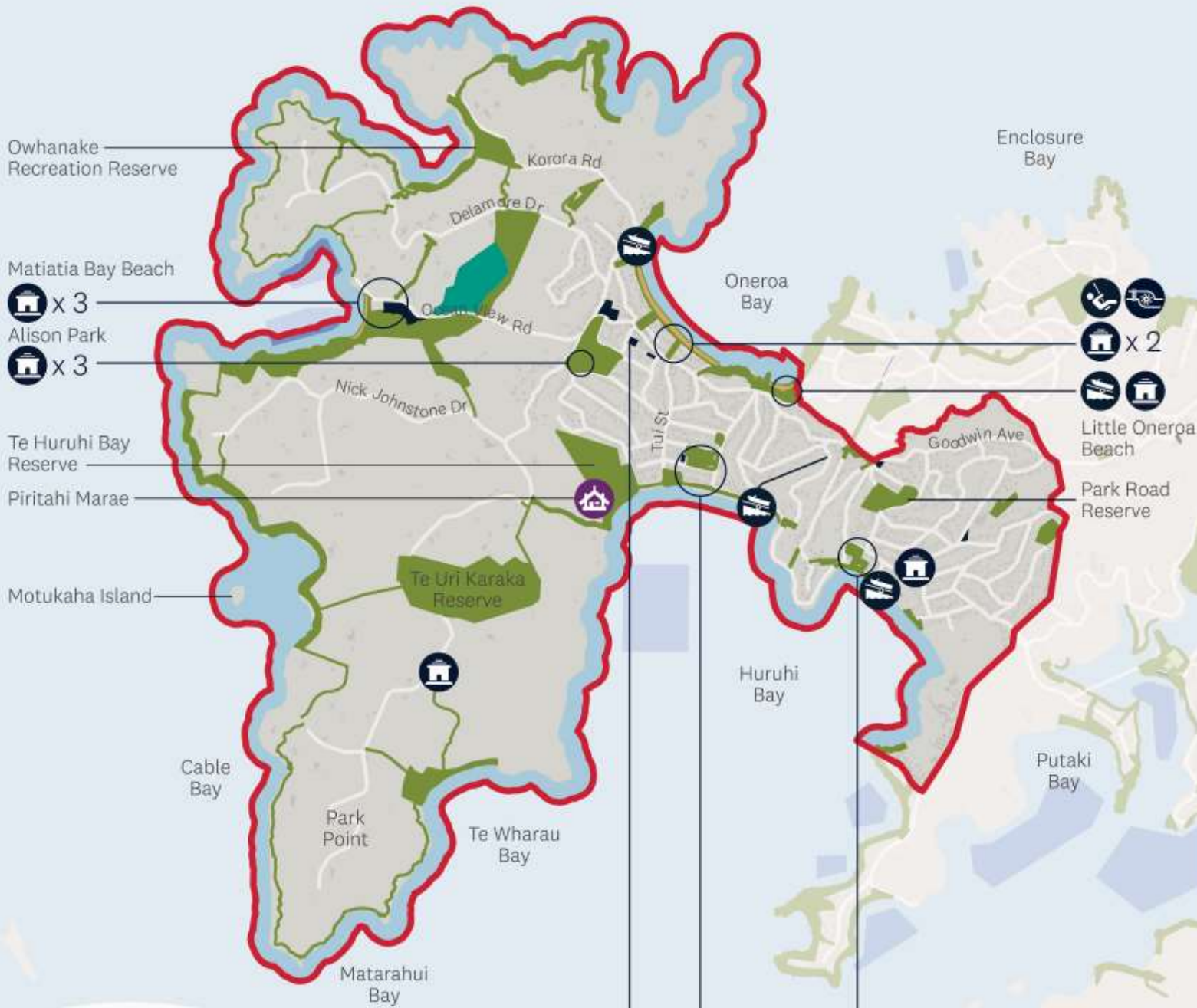
Following the close of the engagement all feedback will be reviewed and analysed. This is used to inform the develop of community objectives, which are applicable to all areas within the SAP and considered in the decision-making framework. Unit and stretch specific feedback on the adaptation strategies will be considered alongside feedback and advice from asset owners, mana whenua and technical experts. This information will be used to support review of the draft strategies alongside use of a decision-making framework to confirm the selection of final strategies.

The final Shoreline Adaptation Plan will include guidance notes to support implementation and may refer to key values, features and considerations required. These notes may also reference feedback received through this engagement process.



# Unit 1

## Waiheke Island



- Unit boundary
- Informal recreation park
- Mooring management area
- Watercare asset
- Auckland Council owned land
- Playground
- Community buildings
- Boat ramp
- Pump station
- Marae



## Unit 1: Waiheke West (Te Huruhi Bay – Oneroa Bay)

Unit 1 includes the western end of Waiheke Island. Including Huruhi Bay, Te Wharau Bay, Matarahui Bay, Cable Bay, Church Bay, Te Miro Bay, Matiatia Bay, Owhanake Bay, and Oneroa bay (including Oneroa beach and little Oneroa beach). This includes a key transport link at Matiatia, the village of Oneroa and the coastal suburbs of Church Bay, Blackpool and Surfdale. The unit culminates on the northern coast at the eastern end of little Oneroa beach and on the southern coastline at the point adjacent to Esslin road end.



## DRAFT adaptation strategy summary for stretches 1.1 to 1.16

Stretch	Short term	Medium term	Long term	Explanatory note
1.1: Donald Bruce Road, Huruhi Bay south Commences adjacent to Esslin road and culminates adjacent to Mitchell Road /Hooks lane 'key hole'.	NAI	NAI	NAI	No active intervention is reflective of the limited Auckland Council land and assets present within hazard areas (noting schools are Ministry of Education). No active intervention does not preclude the management of risk to roading infrastructure. Management of risk through location and design of assets is preferred to the use of protection structures.
1.2: Surfdale Commences adjacent to Mitchell road and concludes to the west at the end of the Surfdale Hall Reserve & Foreshore	LI	LI	MR	Limited intervention supports the maintenance of existing coastal defences in relation to coastal erosion and the maintenance of access to the coast. Management of inundation risk over time may require initial localised relocation of some assets within existing landholdings. In the long-term managed retreat indicates the coastal inundation risk may mean that current land uses and assets require further consideration to manage risk and maintain values (amenity, coastal character, environmental and cultural) for the beachfront area. This includes the location and design of structures, infrastructure and activities within reserve areas.
1.3: Matenga Point (The esplanade) This stretch commences at Surfdale beach and concludes at the western end of Blackpool beach.	LI	MR	MR	Limited intervention in the short term relates to the maintenance of this important coastal connection which is currently subject to coastal defences (for erosion) in multiple locations. In the mid to long term risk from projected coastal erosion, coastal cliff instability, and coastal inundation will require further consideration of the management of risk to activities and the maintenance of access in its current form. Managed retreat is signalled to enable engagement and further consideration of how risk can be managed.
1.4: Blackpool Commencing at the western end of the esplanade and Matenga Point and culminating in the east where the Piritaha Esplanade Reserve culminates, including the Blackpool bay area.	LI	MR	MR	Limited intervention in the short term provides for the maintenance of existing coastal defences (sea walls) in particular those between Moa Avenue and Kiwi Street. In the medium term increasing risk from coastal inundation, catchment flooding and ongoing coastal erosion, for this low lying area, will require a further consideration of the management of risk to council owned land areas. Managed retreat is identified to ensure that important assets and activities and access to and along this stretch can be considered and the cultural, environment, amenity

Stretch	Short term	Medium term	Long term	Explanatory note
				and social values and landscapes of this stretch appropriately responded to. NOTE: this stretch includes important cultural sites and assets as well as multiple community uses and values.
1.5: Maunganui Point (Te Huruhi Bay west) Commencing in the west at the end of the Blackpool beach area and culminating at Te Wharau Bay.	NAI	NAI	NAI	No active intervention is reflective of the limited council land and assets located within this stretch.
1.6: Park Point (Te Roreomaiaea) Commencing at the northern end of Te Wharau bay and culminating at the northern extent of Cable Bay.	LI	LI	LI	Limited intervention supports continued access to the coast and along the coast as feasible. Noting that design and location of access structure are preferred to manage risk as opposed to the use of coastal defence structures. Inundation risk to low-lying areas of walkway and reserve areas increases in the mid to long term.
1.7: Te Rere Point Commencing in the south at Cable Bay and culminating to the south of the Church Bay esplanade reserve.	NAI	NAI	NAI	No active intervention is reflective of the limited council land and assets located within this stretch. This does not preclude the maintenance of accessways to the coast or associated connections inland of coastal hazard areas.
1.8: Motukaha Island Includes the island.	NAI	NAI	NAI	No active intervention is reflective of the limited council land and assets located within this stretch.
1.9: Church Bay to Matiatia South Commencing at Church Bay esplanade reserve and including the coastal areas north, culminating at the southern end of Matiatia Bay.	LI	LI	LI	Limited intervention relates to the management of risk to reserve areas an important coastal connections including a portion of the Te Ara Hura (Waiheke's walking track network). Management of risk, primarily erosional risk with inundation risk increasing for low lying areas over time, to coastal connections through design and location of assets and walking tracks is preferred to the use of protection structures, noting the coastal character, ecological and cultural values within this stretch.
1.10: Matiatia Bay south Commencing at the southern end of the embayment, including the stream, culminating at the boat ramp access and wharf area.	LI	LI	MR	Limited intervention is reflective of the maintenance of risk to landholding and assets, noting the coastline is not fixed and erosion and inundation hazards are currently experienced within the stretch. In the long term managed retreat identifies that coastal inundation and erosion hazard extents may require proactive consideration to ensure activities,

Stretch	Short term	Medium term	Long term	Explanatory note
				assets can be maintained within the local area and identified values supported. NOTE: this stretch includes cultural sites, historic heritage, environmental values and community lease facilities.
1.11: Matiatia Wharf Commencing south of the wharf and boat ramp facilities and culminating to the north of the Oceanview road end and dingy boat access/storage area.	HTL	HTL	HTL	Hold the line reflects the established infrastructure, location of the coastal edge and importance of the transport connection, including boat ramps boat access and wharves. Design and location of uses within the stretch will need to respond to their function location in the coastal environment, the values present and increasing inundation risk over the mid to long term.
1.12: Owhanake – Matiatia Walkways Commences north of the Matiatia wharf area and includes the northern coastline and embayment of Owhanake bay, culminating at the end of the reserve adjacent to Double U (fossil) bay.	LI	LI	LI	Limited intervention is identified to manage risk to the council-maintained walking connections (accommodated both on council reserve land and through easements on third party land). Management of risk, primarily erosional risk with inundation risk increasing for low lying areas over time, to coastal connections through design and location of assets and walking tracks is preferred to the use of protection structures, noting the coastal character, ecological geological and cultural values within this stretch.
1.13: Hakaimango Point Commencing at Double U (Fossil) Bay and including the northern coastline east to Oneroa Bay	NAI	NAI	NAI	No active intervention is reflective of the limited council land and assets located within this stretch.
1.14: Oneroa Bay Commencing at the western end of the bay and culminating to the east of the road access	LI	MR	MR	Limited intervention in the short term supports the continued management of risk (from erosion and inundation) to council land and assets. In the mid to long term managed retreat is proactively signalled due to the limited landholdings, high amenity and coastal character values of the bay and the preference to manage risk through location and design of activities, ensure maintenance of access to the coast and beach, and support the values of the beach/coastal area.
1.15: Oneroa east & Little Oneroa Commencing east of Oneroa Bay including the headland and	LI	LI	MR	Limited intervention supports the continued management of risk utilising design and location of structures and supporting the maintenance of existing defences, including dune planting. In the long term managed retreat signals increased

Stretch	Short term	Medium term	Long term	Explanatory note
the embayment of Little Oneroa.				inundation risk both from the catchment and from the coast may require integrated design of play, recreation, roading and other land uses. The need to manage risk to coastal connection in the western cliffed area of the stretch over all timeframes through location and design is identified and the importance maintaining access to the coast throughout this stretch.
1.16: Little Oneroa north This stretch includes a small section of the coastline north from Little Oneroa bay to the end of the unit.	LI	LI	LI	Limited intervention relates to support for the management of risk to council maintained walkways and associated structures within the coastal reserves. Management of risk through design and location of assets and walking tracks is preferred to the use of protection structures.

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# Unit 2

## Waiheke Island



- Unit boundary
- Informal recreation park
- Mooring management area
- Auckland Council owned land
- Playground
- Community buildings
- Boat ramp



## Unit 2: North West Coast (Hekerua Bay to Onetangi west)

Unit 2 includes Waiheke’s northern coast from little Oneroa in the west culminating at the western end of Onetangi Beach. This unit includes the bays, headlands and islands between Hekerua Bay and Opopoto Bay, Hekerua Bay, Sandy Bay, Enclosure Bay, Mawhitipana Bay (Palm Beach), Repo Bay, Waiheke Bay, and Opopoto Bay.



DRAFT adaptation strategy summary for stretches 2.1 to 2.9

Stretch	Short term	Medium term	Long term	Comments
2.1: Newton Reserve Commencing north of Little Oneroa bay and including the coastline north culminating at the eastern extent of the Newton reserve	LI	LI	LI	Limited intervention relates to support for the management of risk to council-maintained walkways and associated structures within the coastal reserves. Management of risk through design and location of assets and walking tracks is preferred to the use of protection structures. Access to coastal areas is identified as a priority and the need to managed flood and inundation risk to low lying areas is also identified.
2.2: South Hekerua Bay From the Newton reserve in the west culminating adjacent to the Te Aroha Accessway Reserve in the east.	LI	LI	LI	Limited intervention relates to the management of risk to roading connections within this stretch responding to potential for erosional hazard risk.
2.3: Hekerua Bay Commencing adjacent to the Watters Glen and Te Aroha Accessway Reserve and culminating south of Sandy Bay.	LI	LI	LI	Limited intervention relates to support for the management of risk to council-maintained walkways and associated structures within the coastal reserves. Management of risk through design and location of assets and walking tracks is preferred to the use of protection structures. Access to coastal areas is identified as a priority.
2.4: Sandy Bay Commencing at the southern extent of the bay, including Great barrier Road end, and culminating at the northern extent of the embayment.	LI	MR	MR	Limited intervention in the short term supports the continued management of risk (from erosion and inundation) to council land and assets. In the mid to long term managed retreat is proactively signalled due to the high amenity and coastal character values of the bay and the need to support access to the coast (including boat launching activities) manage flooding risks from the catchment and resulting impacts on the beach and appropriately locate activities within limited land holdings, limiting the use of coastal defences which may be inconsistent with the amenity and character of the beach area.
2.5: Sandy Bay to Enclosure Bay From the norther end of Sandy bay, including the norther coast east culminating at enclosure bay.	NAI	NAI	NAI	No active intervention is reflective of the limited council land and assets located within this stretch.

<p>2.6: Enclosure Bay Commencing at western end of the embayment and culminating to the east of the bay.</p>	HTL	MR	MR	<p>Hold the line in the short term responds to the fixed portions of the coast edge associated with the existing seawall, noting the limited reserve space and location of Great Barrier road to the south of this. In the mid to long term the hazardscape, including coastal erosion, inundation and catchment flooding to road and reserve areas prompts the need to proactively consider managed retreat to ensure that current activities and access can be safely maintained while responding to the values of the coastal environment within this stretch.</p>
<p>2.7: Enclosure Bay to Mawhitipana Bay (Palm Beach) Commencing east of enclosure bay and culminating at the western extent of Mawhitipana reserve</p>	NAI	NAI	NAI	<p>No active intervention is reflective of the limited council land and assets located within this stretch.</p>
<p>2.8: Palm Beach Commencing in the west at Mawhitipana reserve and culminating in the east end of the beach reserve south of Repo Bay.</p>	LI	LI	MR	<p>Limited intervention in the short and medium term is reflective the management of risk to assets and landholdings within council reserve areas. Design and location of assets are preferred considerations to manage risk and maintain the values of the stretch, including the support of natural systems (dune management). In the long term continuing to maintain access to the beach and coastal areas (through walkway connections and roads) is identified as a priority, noting the management of current activities assets may need to be carefully considered to ensure the values of the beach are maintained and flooding and erosional processes are appropriately responded to. This includes the management of stormwater outlet to the beach. No active management of risk to reserve areas in cliffed eastern areas of this stretch is anticipated beyond the management of existing accessways.</p>
<p>2.9: Thompsons Point Commencing north of Mawhitipana reserve including Repo bay and Thompsons Point, culminating in the east at Onetangi Beach</p>	NAI	NAI	NAI	<p>No active intervention is reflective of the limited council land and assets located within this stretch. This strategy does not preclude the management of risk to roading connections should hazard risk eventuate. Note: specific consideration of land instability risk is beyond the scope of this plan.</p>



# Unit 3

## Waiheke Island



- Unit boundary
- Informal recreation park
- Auckland Council owned land
- Playground
- Community buildings
- Boat ramp

0 500m 1km

## Unit 3: Onetangi Bay

This unit commences in the west at the western extent of the Onetangi beach area, adjacent to the Sea View Esplanade reserve (just south of Needle Rocks) in the West to Belle Terrace Foreshore Reserve (west of Piemelon bay) in the East. This unit includes multiple reserve areas, roading connections and key coastal access points.



DRAFT adaptation strategy summary for stretches 3.1 to 3.3






Stretch	Short term	Medium term	Long term	Explanatory notes
3.1: West Onetangi Commencing at the Sea View esplanade reserves and culminating at the formed end of The Strand Road in the east	NAI	NAI	NAI	Land holdings (and associated assets) within this stretch are limited, no active intervention is identified as the predominant strategy. This strategy does not preclude the need for council to maintain any relevant legal obligations associated with access for properties west of The Strand Road end.
3.2: Central Onetangi Commencing at the western end of the formed Strand Road and culminating at (and including) the Garratt Road accessway reserve.	LI	MR	MR	Limited intervention supports management of risk to existing land and assets through maintenance of existing protection measures; both hard and nature based initiatives (due management) and the management of risk to assets and activities through design and location within existing land areas. Managed retreat is proactively identified in the mid to long term, this is due to limited council land holdings, the current diversity of activities, accessways, assets and uses within coastal areas and a need to manage impacts on the values of the Onetangi beach, including retention of high tide beach areas. Catchment flooding in eastern areas of the stretch also presents an increasing risk over time to assets, activities and land in this area. Access to the beach and connections to surrounding areas are identified and included in relation to coastal adaptation actions for this stretch.
3.3: East Onetangi Commencing north east of the Garratt Road accessway reserve and including the Belle Terrace reserves, culminating west of Piemelton Bay.	NAI	NAI	NAI	No active intervention is reflective of the limited council land and assets located within this stretch.



# Unit 4

## Waiheke Island



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



## Unit 4: Waiheke East (North and South coast)

This unit covers the northeast end of Waiheke between Piemelon Bay, east of Onetangi (Unit 3) and Opopo Bay north of Man 'O' War Bay (Unit 5). This unit also includes the southeast of Waiheke between the Te Matuku Bay, west of the Waiheke Cemetery Reserve and Kauaroa Bay to the east of the Whakanewha Regional Park area.

In the northeast this includes Piemelon Bay, Woodlands Bay, Carey Bay, Cactus Bay, Garden Cove, Owhiti Bay, Ruruwhango Bay, Te Patu / Thumb Point, Hooks Bay, Anita Bay, Garden Bay Waiti Bay, Huse Bay and Opopo Bay. In the south this includes the western half of Te Matuku Bay, Sandy Bay, Little Bay, Whites Bay, Circular Bay, Awaawaroa Bay, Deadmans Bay, Woodside Bay, Kaikuku Bay, and Kauaroa Bay. This unit includes the catchment in the western Onetangi area which drains to the southern coast of the island at Rangihoua (Units 6 & 7).

Council landholdings are limited within this unit with many areas of open space / reserve land being owned by the Crown and managed by the Department of Conservation and the Pokai Wawahi Ika (Hunterville Reserve) subject to Treaty Settlements. Roding access and areas identified as road at Awaawaroa Bay and Woodside Bay are exposed to coastal and flood hazards and other portions of the road network are exposed to flood hazards in various locations.



DRAFT adaptation strategy summary for stretches 4.1 to 4.2

Stretch	Short term	Medium term	Long term	Comments
4.1: Waiheke East - North coast Commencing at Piemelon bay in the west and including the coast east, culminating at the headland north of Man 'o' War bay (at	NAI	NAI	NAI	This stretch includes no council owned land holdings at the coast. Access to coastal areas is limited to water access and roading assets are generally set back from coastal hazard areas. Flood risk to areas of roading infrastructure is identified and this strategy does not preclude the maintenance of safe access in relation to transport assets. Note: this stretch includes the Stony Batter Historic reserve and coastal access walkways located within and managed by the Department of Conservation landholdings. This strategy does not preclude council support for the

<p>the end of the unit area) in the east</p>				<p>management of risk to historic or cultural heritage or ecological outcomes within this stretch and unit extent.</p>
<p>4.2: Waiheke East – southern coast Commencing west of the Pioneer cemetery in the east and including the coat west, culminating at Kauaroa Bay and the Whakanewha Regional park in the south west.</p>	<p>LI</p>	<p>LI</p>	<p>LI</p>	<p>This stretch includes limited council landholdings, primarily located at Awaawaroa and Woodside bay areas, where inundation and catchment flood hazards are identified in relation to roading assets and land holdings. The Te Matuku to Awaawaroa Walkway traverses this stretch located beyond coastal hazard extents. Limited intervention is identified solely in relation to these roading and limited reserve areas and the need to manage risk to access and assets within these areas. In the long term frequency and extent of inundation hazards may require consideration of the level of service provided to roading connections.</p>

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# Unit 5

## Waiheke Island



Punui Island / Chamberlins Island

## Unit 5: Man O’War Bay to Te Matuku Bay

Unit 5 includes the southeastern area of Waiheke. Commencing at Man ‘O’ War bay in the north and culminating at Te Matuku Bay in the south. This Unit includes the Orapiu, Man O’War Bay, Wairere Bay, Karipaka Bay, Waikopou Bay, Awakiriapa Bay, Days Bay, Cowes Bay, Arran Bay, Silver Bay, Pasadena Bay, Connells Bay, Waikorariki Bay, Patio Bay, Omaru Bay, Orapiu Bay, Pohutukawa Bay, Otakawhe Bay, Pearl Bay and eastern Te Matuku Bay.



DRAFT adaptation strategy summary for stretches 5.1 to 5.9

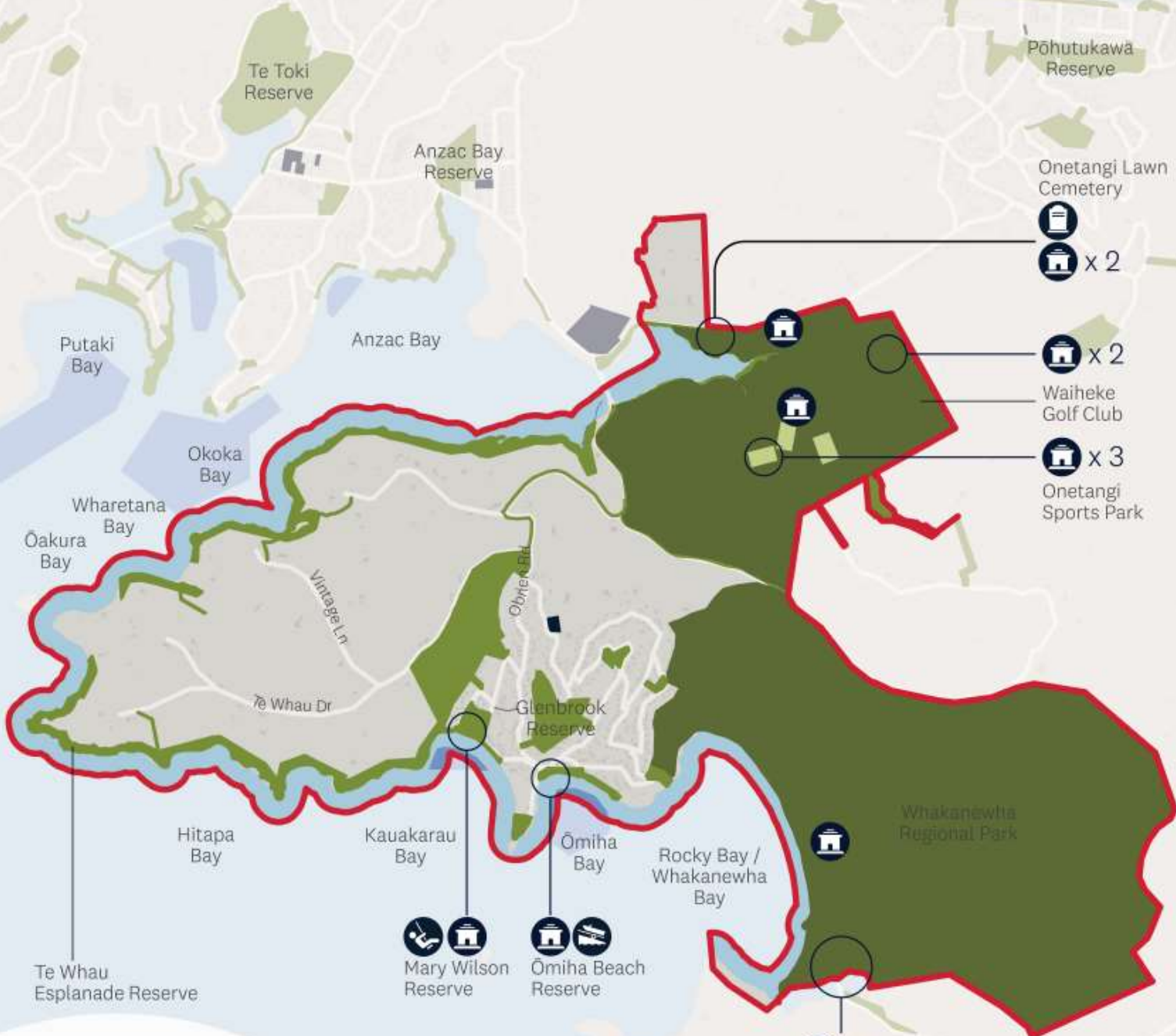
Stretch	Short term	Medium term	Long term	Explanatory notes
<p>5.1: <b>North Man O'War</b> bay</p> <p>Commencing at the start of the unit this stretch includes the northern coast of the Man O'War bay coast, culminating at the northern end of Man 'o War Bay Reserve, where the road turns toward the coast.</p>	NAI	NAI	NAI	This stretch includes limited council owned land holdings or assets at the coast. Note: this stretch includes the Man 'o' War Bay wharf, a private wharf accessed through private landholdings.
<p>5.2: <b>Man O'War Bay</b></p> <p>Commencing in the north where the road turns to meet the coast and including the reserve frontage south to the</p>	LI	LI	LI	Limited intervention reflects the exposure of road and reserve areas to flood, coastal inundation and coastal erosion in this low lying coastal area. Management of risk to assets and uses through design and location is preferred.
<p>5.3: Rangitawhiri Point</p> <p>Commencing in the south of Man o'War bay and including the coastline south to Waikopou Bay.</p>	NAI	NAI	NAI	No active intervention is reflective of the limited council land and assets located within this stretch. This does not preclude the management of risk to Cowes Bay road as required.
<p>5.4: Waikopou Bay</p> <p>Commencing at the northern end of the bay and culminating at the southern end of the reserve area within the bay.</p>	LI	LI	LI	Limited intervention is reflective of the risk to limited esplanade reserve areas at Waikopou Bay. The management of risk through design and location of activities and assets may be required.
<p>5.5: Eastern coast</p> <p>Commencing in the south of Waikopou bay and including the majority of the eastern coastline, including Cowes bay, Arran Bay, Pasadena, Conells and Orapiu bays, culminating to the north of Orapiu wharf where Anzac road meets the coast.</p>	NAI	NAI	NAI	This stretch includes minimal Auckland Council-owned land holdings at the coast. Note: this stretch includes numerous cultural and historic heritage sites. This strategy does not preclude management of risk to roading assets, noting they are generally located outside of coastal hazard areas.
<p>5.6: Orapiu wharf</p> <p>Commencing in the north where Anzac road meets the coast and including the wharf area, culminating to the south</p>	HTL	HTL	HTL	Hold the line confirms the location of this harbour access point, coastal defences that support it location and the roading connection to the south (Anzac road) which serve this connection. In the long term coastal inundation risk will increase and the design of assets and location of facilities will require further consideration.

<p>5.7: Hunterville &amp; Otakawhe Bay Commencing south of the wharf and including the coastline of Otakawhe Bay culminating in the north west prior to Pearl bay</p>	LI	LI	LI	<p>Limited intervention is applicable to the walking connections and vehicle access connections located within the Anzac and Hunterville road, Neil, Wallingford and Nepean Avenue road connections. Areas of access (pedestrian and vehicle) are subject to coastal instability and erosion and inundation. Management of risk to assets through design and relocation is preferred.</p>
<p>5.8: Pearl Bay &amp; north Commencing south of Pearl Bay and culminating to the north of Te Matuku Point</p>	NAI	NAI	NAI	<p>No active intervention is reflective of the limited council land and assets located in this stretch. This strategy does not preclude the management of risk to walking access ways to/within this stretch as required. This does not preclude actions to manage risk to cultural, geological or ecological features located within this stretch.</p>
<p>5.9: Te Matuku Bay This stretch includes the coast north of Te Matuku point to the end of the unit, culminating to the west of the Waiheke pioneer cemetery where Orapiu Road turns north away from the coastal edge (Passage Rock Vineyards)</p>	LI	LI	LI	<p>Limited intervention is identified due to reserve and roading assets located in this stretch. Management of erosional risk and in low-lying areas (Stockyards and Oraipu Road) inundation risk through design and location of assets.</p>



# Unit 6

## Waiheke Island



- Unit boundary
- Informal recreation park
- Regional park
- Sport and active recreation zone
- Mooring management area
- Auckland Council owned land
- 🏞️ Playground
- 🏠 Community buildings
- 🚤 Boat ramp
- 🏪 Cemetery



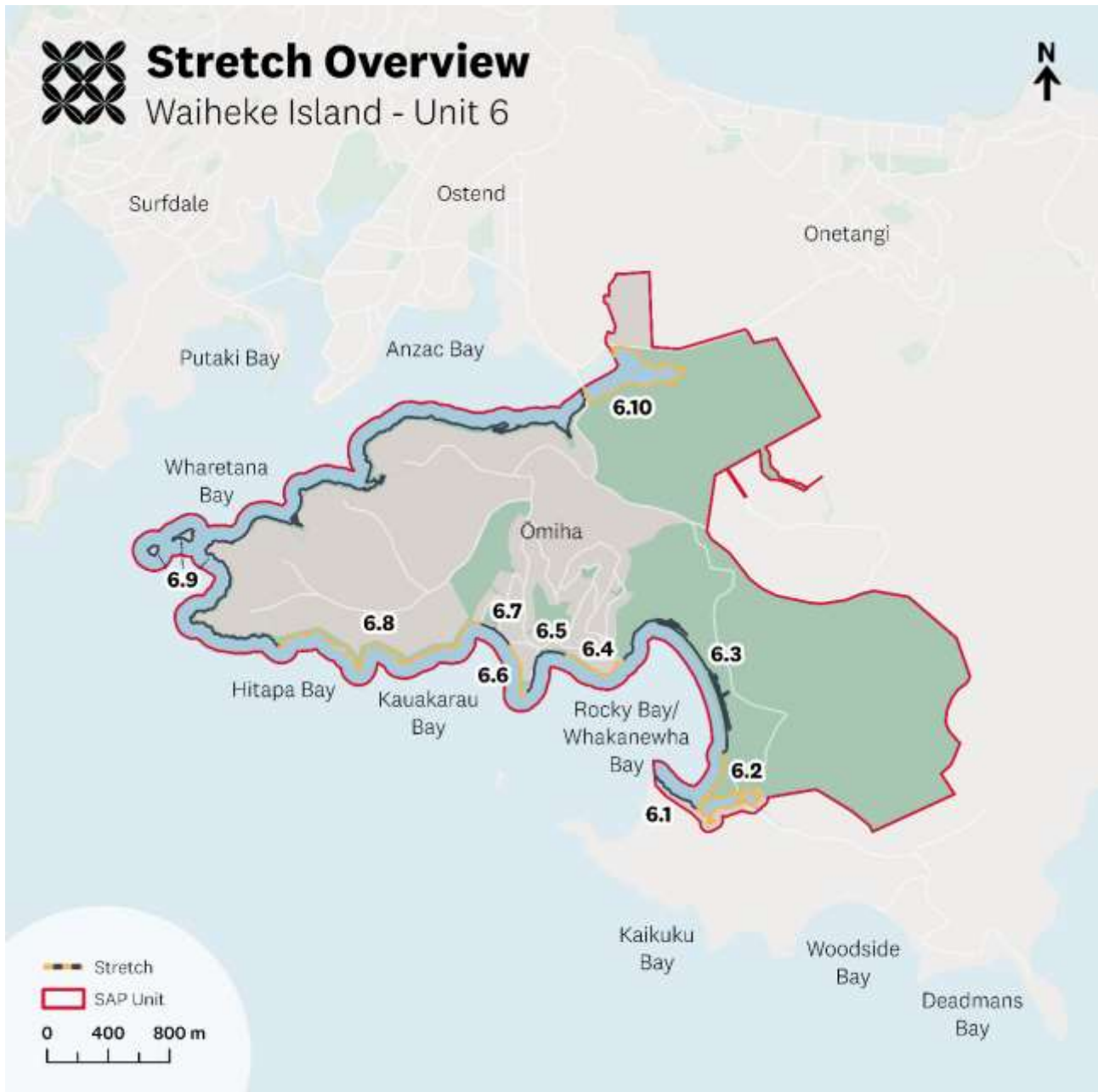
- Onetangi Lawn Cemetery
- 🏠 x 2
- 🏠 x 2
- Waiheke Golf Club
- 🏠 x 3
- Onetangi Sports Park

- 🏠
- 🏠
- 🏠
- 🏠
- Mary Wilson Reserve
- Ōmiha Beach Reserve

🏠 x 8

## Unit 6: Ōmiha, Whakanewha / Rocky Bay to Rangihoua Wetland

Unit 6 covers Waiheke’s southern coastline between Whakanewha / Rocky Bay to Rangihoua Wetland. This includes Whakanewha, Rocky Bay, Ōmiha Bay, Kuakarau Bay, Te Akau o Hine, Hitapa Bay, Te Whau Bay, Ōakura Bay, Wharetana Bay, Okoka Bay, and Rangihoua Creek.



DRAFT adaptation strategy summary for stretches 6.1 to 6.10

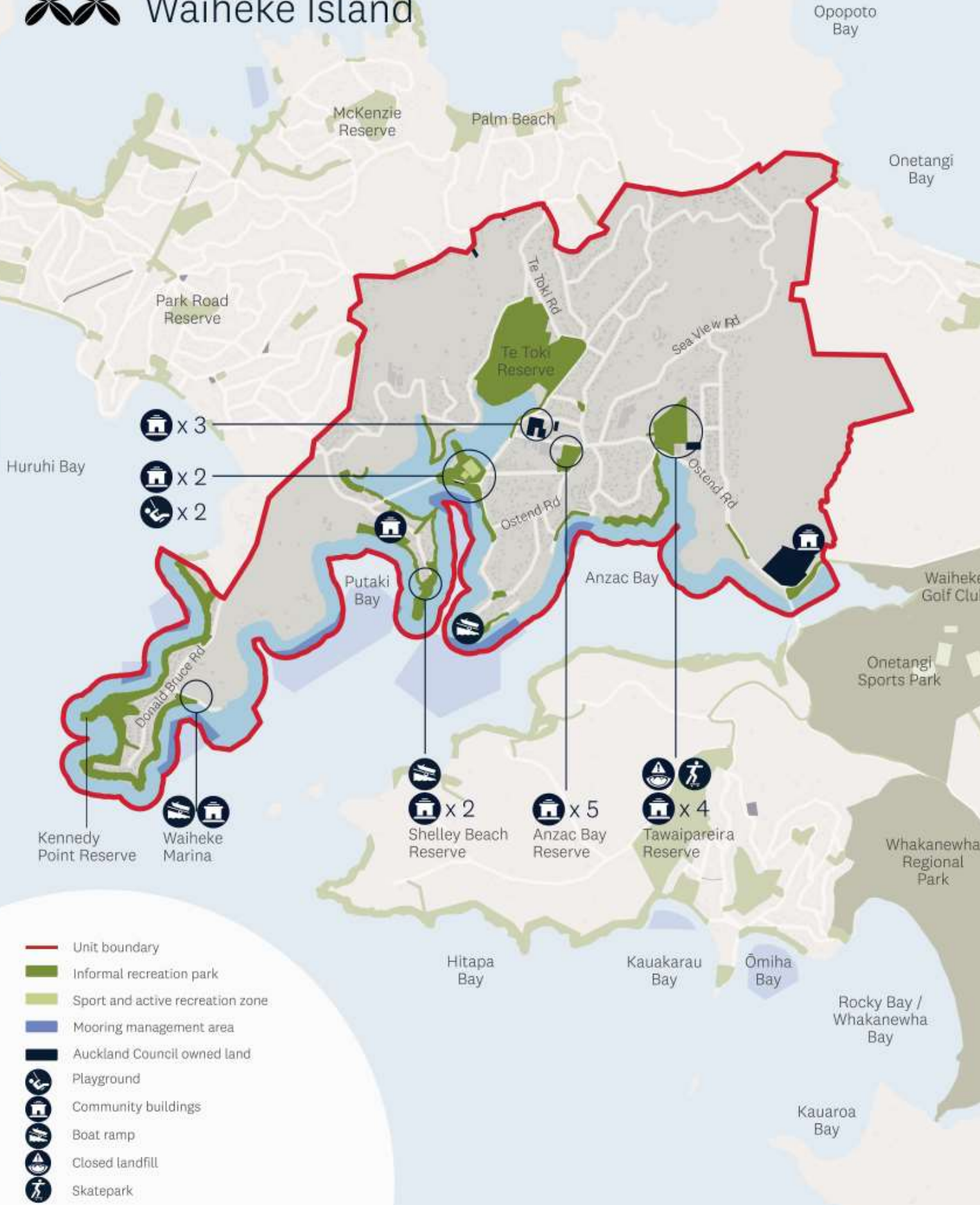
Stretch	Short term	Medium term	Long term	Explanatory notes
6.1: Whakanewha south Commencing at the southern point of Whakanewha bay and culminating at the start of the regional park area.	NAI	NAI	NAI	No active intervention is reflective of the limited council land and assets located in this stretch.
6.2: Poukaraka flats (Whakanewha Regional park) Commencing at the parks boundary in the south west and culminating at the central headland (Pā site) including the Poukaraka Flats area.	LI	LI	MR	Limited intervention in the short and medium term relates to the management of facilities and activities location and design in relation to coastal hazards and catchment flooding. Nature based solutions and ecological enhancement could be considered in relation to managing risk to existing land uses and facilities. Management of inundation risk to may be required for Gordons road in the mid to long term
6.3: Whakanewha (Whakanewha Regional park) Commencing in the south at the central headland (Pā site) and culminating in the north at the boundary of the Upland road where it connects to the road.	NAI	LI	LI	Limited intervention in the mid to long term is reflective of the need to manage increasing inundation risks to the features of the park (ecological and cultural) and maintaining a safe and functional walkway network.
<b>6.4: Whakanewha to Ōmiha Rocky Bay</b> Commencing adjacent to the corner of Upland road to the eastern side of Ōmiha bay.	NAI	NAI	NAI	No active intervention is reflective of the limited council land and assets located in this stretch. This does not preclude the management of risk to landward roading connections if required.
6.5: <b>Ōmiha Bay</b> Commencing in the east adjacent to the accessway from Ōmiha road and culminating in the west at the end of Pohutukawa Avenue	LI	LI	LI	Limited intervention refers to the management of risk to council land and assets within this stretch, which includes Ōmiha Bay's dinghy launching area, bus turning circle and public facilities and landward roading connections. Coastal erosion, instability and inundation may require further consideration and design of assets in this stretch in the lid to long term.
6.6: Pohutukawa reserve headland Includes the headland from the road end, culminating in the west at McMillan road.	NAI	NAI	NAI	No active intervention is reflective of the limited council land and assets located in this stretch. This does not preclude the management of risk to walkway connections maintained by council located within this stretch.

<p>6.7: Kuakarau Bay (Mary Wilson Reserve)</p> <p>Commencing in the east where McMillan Road meets the coast and culminating at the western side of the embayment (includes the Mary Wilson reserve)</p>	LI	MR	MR	<p>Limited intervention in the short term confirms the current use and management of risks through existing structures and interventions. In the mid to long term increasing inundation risk may require proactive consideration (managed retreat is identified) of how risks to park uses, access connections and roads may be managed utilising design, location and accommodation of coastal impacts within low lying areas.</p>
<p>6.8: Te Akau o Hine (Wairua and Te Whau reserves/walkways)</p> <p>Commencing in the east at the Wairua South reserve and including the coastal areas west to the access connection north to Te Whau Drive.</p>	LI	LI	LI	<p>This stretch is predominantly exposed to future coastal instability and erosion, limited intervention support the management of risk to the walkway through design and realignment within reserve areas where necessary.</p>
<p>6.9: Te Whau &amp; Southern <b>Pūtiki</b> Bay</p> <p>Commencing on the southern side of the Te Whau peninsula and including the coastline north east to the O'Brien road causeway.</p>	NAI	NAI	NAI	<p>This stretch includes areas of esplanade reserve land and minimal assets along the coast. Wharetana bay (Te Whau Esplanade Reserve) and Okoka (dead dog) Bay are located within this coastal stretch. No active intervention does not preclude the continued maintenance of access to the coast; the management of risk to walking connections and to further aspirations for access and assets. Location and design of assets and should be responsive to inundation risks in low-lying areas and coastal instability &amp; erosion.</p> <p><b>NOTE: localised 'hold the line' in relation to the maintenance of the O'Brien roading connection within this stretch is identified.</b></p>
<p>6.10: Rangihoua</p> <p>Commencing on the eastern side of the Obrein road connection and including the Rangihoua creek &amp; wetland and culminating at the boundary of the unit where the stream meets the coast at Onetangi Road east of the Quarry access.</p>	LI	LI	LI	<p>Limited intervention reflects the management of risk to road connections (O'Brien and Onetangi Road), parks areas and uses (cemetery) and the wider Rangihoua wetland and park (in accordance with the relevant management plans), ensuring the location of assets and uses are designed and located appropriately. Coastal inundation and catchment flooding risk will increase in low lying areas and design response may be required for roading connections.</p>



# Unit 7

## Waiheke Island



Community buildings x 3  
Community buildings x 2  
Boat ramp x 2

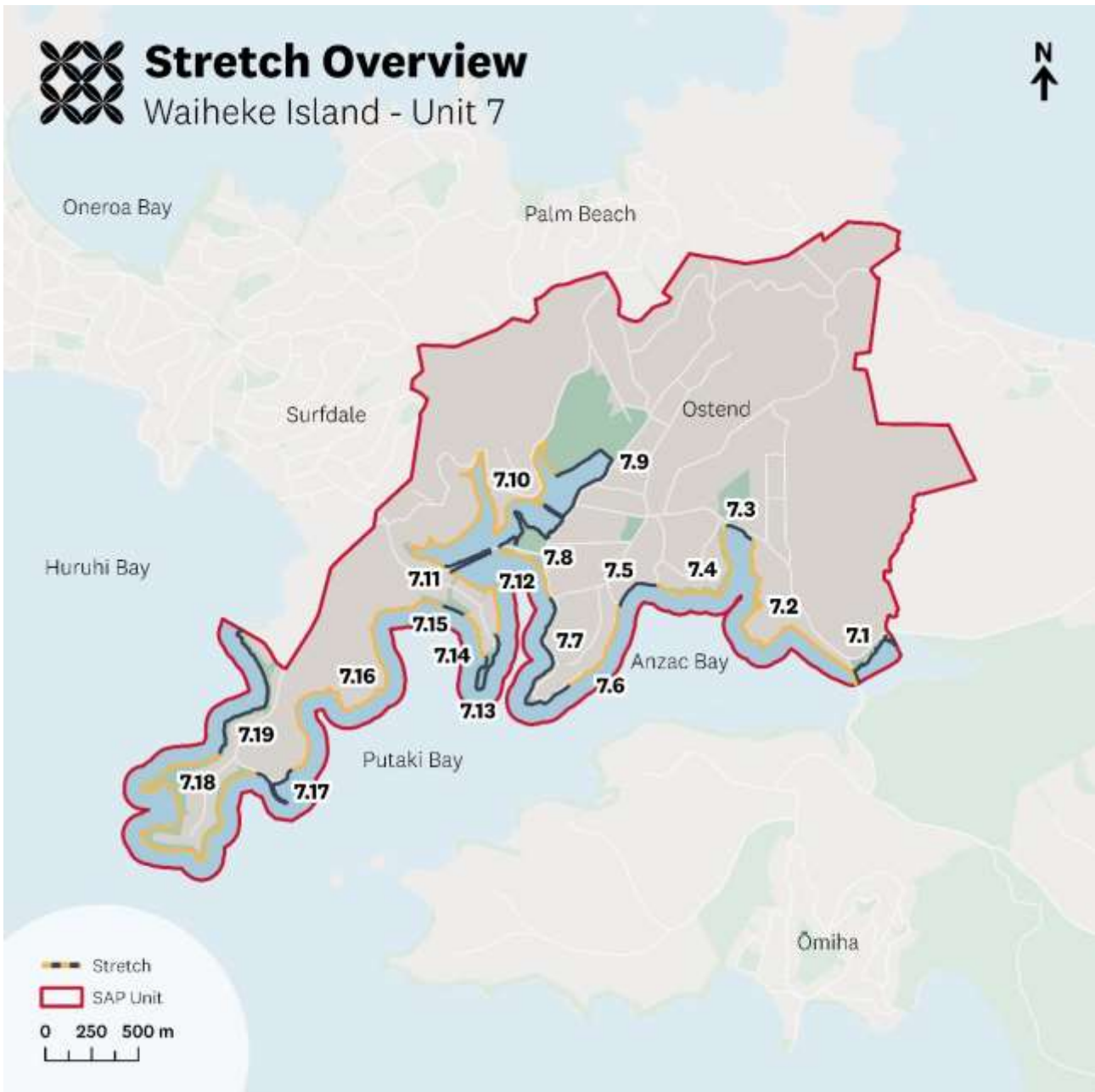
Boat ramp x 2  
Community buildings x 2  
Shelley Beach Reserve

Community buildings x 5  
Anzac Bay Reserve

Boat ramp x 4  
Skatepark  
Tawaipareira Reserve

## Unit 7: Pūtiki Bay (Ostend to Kennedy Point)

Unit 7 includes the south coast of Waiheke between the Onetangi Road O’Brien Road bridle path in the east and Kennedy Point in the west. This includes Tawaipareira Creek, Anzac Bay, the Ostend community, Okahuiti Creek, Putaki Bay, Kennedy Point and Takirau Bay.



DRAFT adaptation strategy summary for stretches 7.1 to 7.19

Stretch	Short term	Medium term	Long term	Explanatory notes
7.1: Onetangi Quarry Commencing at the quarry access and culminating at the O'Brien Road intersection, including the coast to the east.	LI	LI	LI	Limited intervention reflects management of risk to council land, uses and assets within this stretch. Including walkways, roading (Onetangi and O'Brien road connections and walking/ bridle tracks) and council facilities.
7.2: East Tawaipareira / Ostend Road south Commencing at the O'Brien and Onetangi road intersection including the coastal area west, culminating adjacent to the Tahī road end and Tawaipareira reserve	NAI	NAI	NAI	No active intervention is reflective of the limited council land and assets located in this stretch. This does not preclude the management of risk to landward roading connections if required.
7.3: Tawaipareira Reserve Commencing adjacent to Tahī Road end and culminating at the western end of the embayment (Calais Terrace road end)	LI	LI	LI	Limited intervention is reflective of the need to manage risk to land and assets including the Ostend road connections, Tawaipareira reserve, including closed landfill and current refuse transfer facilities, and community recreational assets. This includes management of risk from coastal and catchment flooding.
7.4: Calais Terrace/ Anzac Bay reserve Commencing at the eastern end of Calais terrace	NAI	NAI	NAI	No active intervention is reflective of the limited council land and assets located in this stretch. This does not preclude the management of risk to landward roading connections if required. This strategy does not preclude the management of risk to walking connections and ecological outcomes within reserve areas, any new assets should be designed and located to reduce exposure to hazards.

<p>7.5: Anzac Bay</p> <p>Commencing in the east where Natzka road meets the coast and culminating at the south western end of Natzka road landholding.</p>	LI	MR	MR	<p>Limited intervention in the short term confirms the management of risk to existing assets and land uses in response to coastal erosion. Managed retreat is proactively identified in the mid to long term in response to increasing inundation risk and continued coastal instability and erosion a need for further adaptation planning, to consider how to support existing services and respond to the values of the bay, coastal uses and land uses, including vehicle access and reserve use.</p>
<p>7.6: Albert Crescent/ Anzac bay west</p> <p>Commencing at the Natzka road end and culminating in the west at the Wharf Road walkway/reserve</p>	NAI	NAI	NAI	<p>No active intervention is reflective of the limited council land and assets located in this stretch. This does not preclude the management of risk to landward roading connections if required.</p>
<p>7.7: Wharf Road</p> <p>Commencing in the east at the Wharf Road walkway/reserve and including the coast west to the intersection of Wharf road and Ostend road in the north.</p>	HTL	LI	MR	<p>Hold the line in the short term responds to the coastal access point and all tide boat ramp (and supporting road access). In the midterm limited intervention is identified in relation to maintaining assets and activities acknowledging increasing erosional hazard risk and a need to consider the design, function and location of assets and activities within current land holdings. Managed retreat identifies a need for further adaptation planning, to consider how to support existing services and respond to the values of the bay and land uses, including vehicle access, vessel facilities and reserves uses.</p>

<p>7.8: Ostend Domain</p> <p>Commencing at the intersection of Ostend and Wharf road and including the coast north to the causeway bridge/culvert (including the Ostend Domain south of the Causeway/Wharf road)</p>	LI	MR	MR	<p>Limited intervention in the short term confirms management of risk to existing facilities and assets, considering existing coastal hazard risk and utilising design and location to manage this. In the mid to long-term increasing inundation risks for this low lying area prompt the identification of a need for further adaptation planning and managed retreat is identified in the mid to long term. This includes the management of risk to activities and assets within reserve area and roading connections in a manner which response to the values of this coastal area.</p>
<p>7.9: Waiheke Sports Club to Te Toki Reserve</p> <p>Commencing to the north of the causeway bridge and including the upper reaches of the Okahuiti creek inlet. This stretch concludes at the western side of the Te Toki reserve, and includes the Te Toki reserve, foot bridge crossing to Wilma Road, Roding connections of Wharf road, Te Toki road and Wilma road.</p>	LI	MR	MR	<p>Limited intervention in the short term confirms the need to manage risk to assets and land uses, maintain and considering the need for protection and preferring location and design of assets to manage risks and respond to the values of the local area.</p> <p>Managed retreat in the mid to long term refers to the need for further adaptation planning to consider how hazard risk and sea level rise can be response to alongside the local uses and values of this stretch, including roading connections, active recreation uses and associated facilities, cultural sites and landscape and ecological values.</p>
<p>7.10: Te Toki Reserve to the Causeway</p> <p>Commencing to the west of the Te Toki reserve including the coast west to the causeway road connection.</p>	NAI	NAI	NAI	<p>No active intervention is reflective of the limited council land and assets located in this stretch. This does not preclude the management of risk to landward roading connections if required or support for ecological focused initiatives such as the wetland restoration at Okahuiti creek.</p>
<p>7.11: Causeway west</p> <p>This stretch includes the cause way road connection west of the bridge/culvert.</p>	HTL	HTL	HTL	<p>Hold the Line responds to the need to manage risk to the Causeway road vehicle connection. With sea level rise further design consideration will be required to ensure inundation risk to the road is proactively managed. Strategies for this stretch may require revision dependent on adaptive action in adjoining stretches 7.8 and 7.9.</p>

<p>7.12: Shelly Beach Road east Commencing at the south western side of the causeway and including the coast south (including areas of esplanade and accessway reserve) to the Pūtiki recreational reserve.</p>	NAI	NAI	NAI	No active intervention is reflective of the limited Auckland council assets located in this stretch. Management of risks to access to and along the coast in low lying areas should consider design and location to respond to inundation risk, as required.
<p>7.13: <b>Pūtiki</b> Reserve/ point Commencing at Shelley beach road end and including the coast south and west culminating north of the boat access ramp</p>	LI	MR	MR	Limited intervention supports management of risk to current land and facilities through design and location within current land holdings. A transition to Managed Retreat is reflective of anticipated coastal erosion and instability impacts within this stretch and the need to plan for the management of risk to all current activities within existing land holdings within this stretch.
<p>7.14: East Putaki Bay Commencing north of the boat access ramp and including the coast north to the southern end of Shelley beach.</p>	NAI	NAI	NAI	No active intervention is reflective of the limited Auckland council assets located in this stretch.
<p>7.15: Putaki Bay (Shelly beach) Commencing at the southern extent of the beach area and culminating in the north at the end of the reserve landholding.</p>	LI	LI	LI	Limited Intervention reflects the management of coastal hazard risk utilising nature-based approaches and through design and location of assets.
<p>7.16: Donald Bruce Road East/ West <b>Pūtiki</b> Bay Commencing at the western end of the Shelley Beach reserve and including the coastline south west to the Kennedy point wharf area.</p>	NAI	NAI	NAI	No active intervention is reflective of the limited Auckland council assets located in this stretch.
<p>7.17: Kennedy Point Wharf and access Commencing east of the wharf, ramp infrastructure/ assets including the wharf area, breakwater and roading connections west, culminating where Donald Bruce road turns north from the coast (including the area adjacent to the Waiheke marina)</p>	HTL	HTL	HTL	Hold the Line is proposed for Kennedy Point Marina to maintain the car ferry connection and the road connections to it. In the long term this will need raising due to coastal inundation with sea level rise.

<p>7.18: Kennedy Point Reserve</p> <p>Commencing in the east at the Kennedy Point Reserve, including the point area, and culminates to the north adjacent to the Donald Bruce Road intersection with Kennedy Point Road.</p>	NAI	NAI	NAI	<p>No active intervention is identified as the predominant strategy for this stretch noting the generally inaccessible and steep cliff coast of much of the Kennedy point coastline. This stretch also includes the western area of Kennedy Point bay with open reserve areas and dingy storage, and the Takirau bay reserve area with connection to Kennedy Point Road. No active intervention does not preclude the management of risk to these activities and the maintenance of safe access to the coast in these locations.</p>
<p>7.19: Kennedy Point north and Picnic Bay</p> <p>Commencing in the west within the Kennedy point reserve, adjacent to the Donald Bruce Road/Kennedy Point Road intersection culminating at the end of the reserve adjacent to the end of Esslin road end.</p>	LI	LI	LI	<p>Limited intervention is reflective of the management of risk to reserve and road assets/areas. This includes maintenance of protection structures and consideration of the design and location of future assets and interventions.</p>

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