



# Shoreline Adaptation Plan: Pahurehure Inlet

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# Shoreline Adaptation Plan: Pahurehure Inlet

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## **Front Cover**

Aerial view of the Pahurehure Inlet, 1964, Photographer: Rowntree, John Burgess, 1906-1986, sourced from the J.B. Rowntree Collection Acknowledgement to Auckland Libraries Heritage Collections 1528-64042

## **Acknowledgements**

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### **Mātauranga Protection Statement (Disclaimer)**

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

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

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

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## **Whakataukī**

Local iwi have gifted the following whakataukī (proverb) as a guide and ultimate objective for this shoreline adaptation plan:

**"Tē tōia, tē haumatia"**

Nothing can be achieved without a plan, a workforce and a way of doing things.

## Summary statement

The Pahurehure Inlet Shoreline Adaptation Plan (SAP) extends along approximately 113 km of shoreline within the semi-enclosed tidal inlet between Karaka Point in the south and Te Pua Point in the north, including the shoreline of Kōpuahingahinga and Pararēkau Islands, and extends along the eastern shoreline of Puhinui Creek from Weymouth to the upper inlet in Clendon. It has a diverse shoreline environment and several estuaries, including Hays Stream, Hingaia Stream, Ngakoroa Stream, Whangapouri Creek and Whangamaire Stream catchments.

The development of these SAP strategies is a starting point for dynamic adaptation planning for the Auckland region and also acknowledges Te tiro ā Māori ki tōna ake ao, a Māori worldview. This reflects the consideration of intergenerational time horizons as a fundamental part of addressing the impacts of climate change and sea-level rise. It also acknowledges the need to consider the tangible and intangible, the inter-relationship of all living and non-living things and the vital connection between people and te taiao (the natural environment) in which they live. Further detail is provided in section 3.0 and at Attachment A1. The adaptive strategies (Section 5.0) which guide how Auckland Council-owned coastal land and assets will be sustainably managed have been informed by:

- Local iwi, acknowledging the cultural values and associations of iwi which centred on supporting local iwi objectives and aspirations set out in Section 3.0
- The objectives of the local community, identified through community engagement and analysis of social context, set out in sections 2.0 and 4.0
- Technical inputs including hazard risk, coastal hazard and climate change projections, ecological and policy framing (as set out in Section 2.0)
- Advice from infrastructure and assets owners/managers (Auckland Council asset owners, Auckland Transport and Watercare Services).

Much of the coastline within the SAP area can be managed through *limited* and *no active intervention* providing for the continued management of existing assets. Specific areas, including Karaka Harbourside reserve and walkway and the Conifer Grove foreshore, are identified where *hold the line* is required to maintain existing infrastructure and highly valued coastal connections and land. *Managed retreat* is identified to signal the need for proactive management of land uses and assets where increasing risk from coastal hazards will impact the long-term feasibility of maintaining uses within an existing area. Long-term planning in support of managed retreat is identified for Waikirihinau/Bottle Top Bay (Unit 2) where coastal inundation has the greatest impact on low-lying boat launching and parking facilities; Youngs Point (Unit 3) where both inundation and erosion risks present challenges to accommodate all the current park uses within a constrained area; and at Otuwairoa Creek (Slippery Creek/Hingaia Stream, Unit 2) and on the western side of the Weymouth Peninsular (Unit 6).

Strategies for each section of the coast are presented in Section 5.0 and summarised in Table 6-1 and in the figures included in Attachment B1.

Implementation of this SAP is a live and developing process which will require continued collaboration across multiple Auckland Council departments and Auckland Council-controlled organisations and entities. This will be undertaken alongside ongoing engagement with iwi to ensure that iwi have a partnership/co-management role in the project design, development, and

implementation phases. Regional matters identified through the development of this SAP, including the management of risk to cultural values and sites; and the maintenance of significant public accessways and infrastructure; will require further detailed consideration and planning. Adaptation planning will more generally need to respond to national and regional legislative and policy changes and transition to the use of signals, triggers, and thresholds in place of static timeframes (refer to Section 1.4).



## Purpose of this document and navigation

### Purpose

This Shoreline Adaptation Plan (SAP) for Pahurehure Inlet has been developed to provide a strategic management approach for Auckland Council-owned land and assets located within coastal areas. It is a non-statutory plan developed in collaboration and consultation with local iwi, communities and asset owners.

As part of Auckland's first series of SAPs, it is intended to set out long-term adaptation strategies over the next 100 years. As such, it will remain a living document, subject to review and updated over time to ensure it remains dynamic, relevant and fit-for-purpose.

### Audience

This SAP is intended to be accessible to, and utilised by, a diverse range of users including asset owners and managers, planners and policy makers, local iwi and communities. While this document contains technical detail, a suite of supporting reports are available to provide further guidance to the reader.

### Navigating this document

This document has five (5) key sections as follows:

<b>Section 1</b>	<ul style="list-style-type: none"> <li>Provides an overview of the Shoreline Adaptation Programme, the development process for area plans (of which this is one) and the general principles which inform the development of this SAP area plan. This section is supported by other programme documentation.</li> </ul>
<b>Section 2</b>	<ul style="list-style-type: none"> <li>Provides a select summary of the social, physical, and ecological context applicable to the development of shoreline adaptation strategies for Auckland Council-owned land and assets within the Pahurehure Inlet SAP area. This is expanded upon in additional programme documentation.</li> </ul>
<b>Section 3</b>	<ul style="list-style-type: none"> <li>Identifies the outcomes of engagement with local iwi, including cultural outcomes, aspirations, and principles applicable to the development and implementation of this SAP report.</li> </ul>
<b>Section 4</b>	<ul style="list-style-type: none"> <li>Summarises community engagement undertaken and identifies the community objectives selected for this SAP area. This summary is supported by additional engagement reporting.</li> </ul>
<b>Section 5</b>	<ul style="list-style-type: none"> <li>Provides commentary of the development of adaptive strategies for the SAP area and includes general guidance for the implementation of strategies identified in the Pahurehure Inlet SAP report.</li> <li>Includes the adaptation strategies as identified for each of the six (6) units and stretches.</li> </ul>

## Associated and supporting documents

The following reports should be read in support of this Shoreline Adaptation Plan:

- Tonkin & Taylor (2024) Pahurehure Inlet Shoreline Adaptation Plan: Risk Assessment technical report
- Shoreline Adaptation Plans: Community Engagement Analysis SAP Area J Pahurehure Inlet
- Auckland Council, (2023) SAP Area J Pahurehure Inlet supporting report – coastal hazardscape
- Auckland Council (2023). Shoreline Adaptation Plans. SAP area J Pahurehure Inlet supporting report - policy, social and cultural. Prepared by Barker & Associates for Auckland Council
- Auckland Council (2023). Shoreline Adaptation Plans: SAP Area J Pahurehure Inlet supporting report - ecology
- Cultural statements/value assessments as provided by iwi:
  - Ngaati Te Ata Waiohua.

## Glossary

<p><b>Adaptation Strategy:</b> <b>Hold the line</b></p>	<ul style="list-style-type: none"> <li>• The <b>coastal edge is fixed</b> at a certain location.</li> <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 <b>in most cases engineered hard structures would be required.</b></li> <li>• An identified use or service is maintained within its existing location, e.g. a road is maintained in a fixed location or park 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>
<p><b>Adaptation Strategy:</b> <b>Limited intervention</b></p>	<ul style="list-style-type: none"> <li>• Generally focussed on <b>maintaining and making safe.</b></li> <li>• Works may be undertaken to repair existing protection structures for the purpose of extending the asset's life.</li> <li>• Works may support localised realignment of individual asset classes.</li> <li>• Does not support a fixed coastline.</li> </ul>
<p><b>Adaptation Strategy:</b> <b>Managed Retreat</b></p>	<ul style="list-style-type: none"> <li>• Assets and land uses are <b>relocated</b> or realigned from hazard-prone areas to reduce risk to assets and maintain identified values (ecological, cultural, recreational etc).</li> <li>• Relocation is planned and undertaken proactively over time.</li> <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>
<p><b>Adaptation Strategy:</b> <b>No active intervention</b></p>	<ul style="list-style-type: none"> <li>• <b>Natural processes are allowed to continue.</b></li> <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 exposed/vulnerable to coastal hazard and catchment flooding risk.</li> </ul>
<p><b>Annual Exceedance Probability (AEP)</b></p>	<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>
<p><b>AVD-46</b></p>	<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>
<p><b>Biodiversity focus area (BFA)</b></p>	<ul style="list-style-type: none"> <li>• An area of ecological significance prioritised by Auckland Council for conservation actions.</li> </ul>
<p><b>Coastal Marine Area</b></p>	<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>
<p><b>Embayment</b></p>	<ul style="list-style-type: none"> <li>• An indentation of the shoreline resembling a bay.</li> </ul>

<b>Fetch</b>	<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>
<b>Highest Astronomic Tide (HAT)</b>	<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>
<b>Mean High Water Springs (MHWS)</b>	<ul style="list-style-type: none"> <li>The average of high levels of spring tide.</li> </ul>
<b>Ngā iwi Mana Whenua o Tāmaki Makaurau</b>	<ul style="list-style-type: none"> <li>'Ngā iwi Mana Whenua o Tāmaki Makaurau' refers to the nineteen iwi of the greater Auckland region and recognises that each iwi is wholly autonomous, individual and unique.</li> </ul>
<b>SAP unit</b>	<ul style="list-style-type: none"> <li>The SAP is divided into smaller SAP units to enable a more detailed and comparative view of how risk is attributed across the subject area.</li> </ul>
<b>SAP stretch</b>	<ul style="list-style-type: none"> <li>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.</li> <li>A stretch is the smallest scale at which the SAP plans apply adaptation strategies.</li> </ul>
<b>Significant Ecological Areas</b>	<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>
<b>Significant Ecological Areas Overlay (SEA)</b>	<ul style="list-style-type: none"> <li>Significant ecological areas have been identified in the Auckland Unitary Plan for terrestrial areas, and parts of the coastal marine area.</li> </ul>



## Kupu Māori – Māori glossary

Local iwi advised that their tribal dialect utilises double vowels in place of macrons. In keeping with Auckland Council’s Te Reo policy, we have generally maintained the use of macrons for consistency with Council documents and publications. Where iwi names and placenames are provided by iwi, these utilise double vowels.

Te reo Māori terms	Translation
<b>Kaitiaki</b>	<ul style="list-style-type: none"> <li>Guardians, protectors.</li> </ul>
<b>Kaitiakitanga</b>	<ul style="list-style-type: none"> <li>Kaitiakitanga is the ethics and practice of protection and conservation of the natural environment and the resources within it, on which people depend. It is considered an obligation of mana whenua to care for their lands and waters to which they whakapapa (have a genealogical relationship).</li> </ul>
<b>Manaakitanga</b>	<ul style="list-style-type: none"> <li>Manaakitanga is a powerful way of expressing how Māori communities care about each other’s wellbeing, nurture relationships, and engage with one another. Manaakitanga also extends to the whenua that needs care in order to ensure sustainability for future generations.</li> <li>The value of Manaakitanga is often expressed through the responsibility to provide hospitality and protection. Manaakitanga derives from two words - ‘mana’ and ‘aki’. Mana is a condition that holds everything in the highest regard. Aki means to uphold or support.</li> <li>Extending Manaakitanga requires respect, humility, kindness and honesty.</li> </ul>
<b>Mātauranga</b>	<ul style="list-style-type: none"> <li>Mātauranga Māori literally translated means 'Māori knowledge'. It's a modern term that broadly includes traditions, values, concepts, philosophies, world views and understandings derived from uniquely Māori cultural points of view.</li> <li>Mātauranga Māori will articulate and include both physical and non-physical values (such as mahinga kai species, swimmability, sense of place, identity and relationships, and wai tapu) and the positive and negative influencers of these values.</li> </ul>
<b>Taonga</b>	<ul style="list-style-type: none"> <li>Treasures.</li> </ul>
<b>Tōnuitanga</b>	<ul style="list-style-type: none"> <li>Tōnuitanga refers to the process of restoring and revitalizing the environment. As kaitiaki, mana whenua have a duty of care, to seek balance and harmony within our surroundings.</li> </ul>
<b>Wāhi tapu</b>	<ul style="list-style-type: none"> <li>Sacred areas.</li> </ul>
<b>Whakapapa</b>	<ul style="list-style-type: none"> <li>Whakapapa is genealogy, a line of descent from ancestors down to the present day. Whakapapa links people to all other living things, and to the earth and the sky, and it traces the universe back to its origins.</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 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.

### 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) and 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.

The plans provide a 'first generation' 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 respond to the concept of 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 to Auckland Council-owned land and assets, the programme acknowledges the need for holistic 'systems' thinking both in relation to coastal management and adaptation.

### 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

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<sup>1</sup> Ministry for the Environment (2017). Coastal Hazards and Climate Change – Guidance for Local Government

- They are developed with limited consideration of third-party land, assets, interests and values. This limits a ‘whole of system’ consideration across all values (social, cultural, ecological and economic)
- There are limitations to the multi-criteria, decision-making process which supports the selection of adaptive strategies. This 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 under 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).

## 1.3 Review

The SAP area reports are currently anticipated to be reviewed on a ten-yearly cycle. This will enable updated information to become available and be appropriately considered. Review may also be requested by iwi or required because of a specific trigger or signal being met which requires an accelerated need for change.

The review will incorporate any new information available for each SAP area, including coastal hazards, climate change and coastal asset data, signals, and triggers (including cultural and environmental), along with any changes to cultural values and associations (including cultural outcomes and objectives). The future review cycle will also enable any implications of legislative reforms to be addressed and appropriately reflected in the future scope and implementation of the SAPs.

## 1.4 Dynamic approach: signals, triggers and thresholds

Once an adaptation strategy has been identified for a given area, it may be implementable subject to various timeframes, leading to different pathway options. The need to switch from one management strategy to another is usually tied to a ‘signal’, an indicator that highlights the upcoming need for change, or a ‘trigger’, an identified threshold that requires an immediate change. The identification of appropriate signals/triggers requires a robust framework which may involve multiple scales and actors. This may include the need for monitoring and feedback associated with physical systems, indications of risk tolerance or other cultural or community-based indicators. Implementation at the asset level will also require development of specific ‘signals’, indicators that highlight the upcoming need for change, and ‘triggers’, identified thresholds that indicate an immediate change. The development of these signals, triggers, and thresholds will be progressed as a component of implementation planning.

## 2.0 Pahurehure Inlet SAP area context

The Pahurehure Inlet SAP is located some 20 km – 30 km south of central Auckland and covers an area of approximately 6,500 ha. It has some 113 km of shoreline within the semi-enclosed tidal inlet between Karaka Point in the south and Te Pua Point in the north, including the shoreline of Pararēkau Island, and extends along the eastern shoreline of Puhinui Creek from Weymouth to the upper inlet in Clendon (Figure 2-1). It has a diverse shoreline environment and several estuaries, including for Hays Stream, Hingaita Stream, Ngakoroa Stream, Whangapouri Creek and Whangamaire Stream.

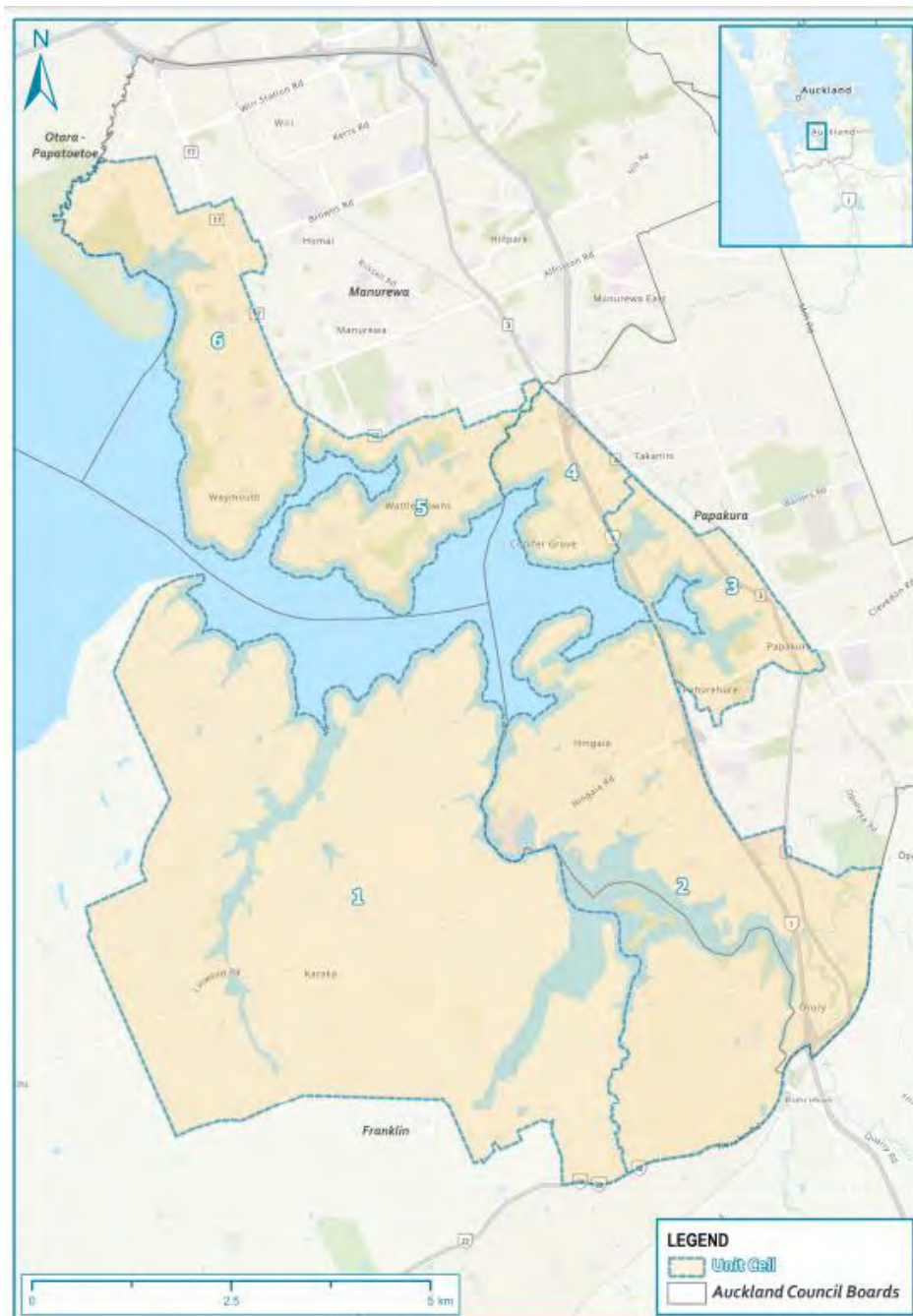


Figure 2-1: Pahurehure Inlet SAP area



There is a mix of land uses; residential land use is the most prevalent adjacent to coastal areas with some small areas of industrial and commercial uses. The southern area of the unit is predominantly rural. Much of the coastal edge is held as esplanade reserve. Several larger reserves are in proximity to the coast and include play and sport facilities.

The Pahurehure SAP includes areas within the Manurewa, Papakura and Franklin Local Boards. Communities along the coastline include Karaka, Drury, Hingaia, Pahurehure, Papakura, Takanini, Wattle Downs, Weymouth, Homai and Wiri.

The SAP is divided into smaller SAP units to enable a more detailed and comparative view of how risk is attributed across the subject area. This is to reflect the potential need for different shoreline adaptation responses while still recognising that more detailed assessments can be made in priority areas in the future.

The identification of the extents and boundaries of these units utilises a range of criteria, including coastal morphology as the primary criteria, then following with other considerations, including topography, census boundaries, location of assets and other social and cultural factors. Technical expertise and knowledge of the coastal areas, including potential future risk, were also utilised during this process. The Pahurehure SAP includes a total of 6 units, as shown in Figure 2-1. The more developed north and eastern areas of this SAP have relatively smaller units which reflect the communities of interest.

## 2.1 Auckland Council-owned infrastructure, assets and land

Auckland's SAPs are directed at Auckland Council-owned coastal land and assets, including but not limited to reserves, coastal defence structures, public facilities, roads and water infrastructure. This includes infrastructure located within these coastal areas where it is located on, in, or under Auckland Council land or private land.

While the SAPs also consider third party infrastructure near the coast and identified areas of cultural and ecological value, these plans are not specifically directed at these assets and values. However, the strategies (and associated guidance) may acknowledge these linkages at a unit or stretch-specific level. These plans included input from stakeholder partners such as Auckland Transport, Watercare and Eke Panuku. Auckland Council-owned land is identified based on Council's GIS layers but in a few cases, there are different management, interest, and ownership arrangements.

Figure 2-2 shows the general location of Auckland Council land and assets. Within the SAP area there are around 364 ha of parkland, which includes 6.8 ha of assets such as carparks, paths, playgrounds and buildings. There is an extensive network of coastal paths in this SAP as well as ~183 km of transport corridors and 834 kms of water pipes.

Coastal management practices for the Pahurehure SAP area respond to a range of physical environments. This includes areas of human modification of the shoreline via reclamation and 'coastal protection' (in the form of seawalls and revetments) present along Weymouth shoreline from Keith Park to Hazards Road, parts of Wattle Downs, Conifer Grove and Karaka Harbourside. In

contrast, there are few coastal structures along the southern shoreline including Drury Creek that is largely rural.

There are several bays, inlets and small reserve areas for recreation that enhance access to the coast such as at Keith Park and Hazards Road in Weymouth, Youngs Point in Pahurehure Inlet No. 2 and at Bottle Top Bay. There are also many Auckland Council coastal assets that facilitate access including beach steps, ramps and boat launching facilities.

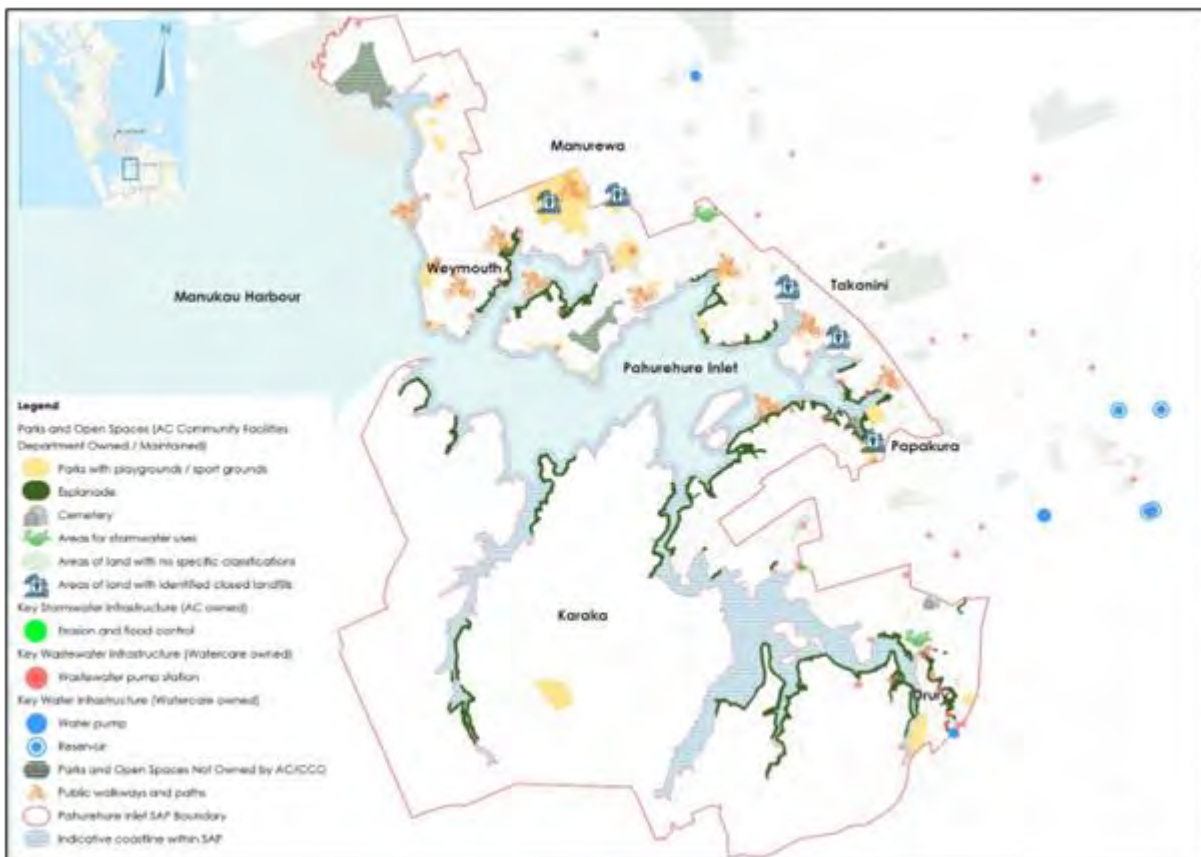


Figure 2-2: Auckland Council and CCOs assets within the Pahurehure Inlet SAP area

## 2.2 Coastal and catchment context

Manukau Harbour is the second largest harbour on the west coast of the North Island (Kaipara being the largest) and has an area of about 368 km<sup>2</sup> with over 450 km of shoreline. The harbour entrance is narrow, bringing water from the Tasman Sea, with approximately half the water draining out of the harbour on each tidal cycle. The volume of water between high and low tides is around 918 million m<sup>3</sup>. Expansive inter-tidal banks lie seaward of the entire Pahurehure Inlet shoreline, limiting the wave energy expended on the shoreline.

There is an arterial network of channels that transport tide flow through the harbour. The Pahurehure Inlet is a typical tidal estuary in the southeast of the Manukau Harbour and includes the coastline along the narrow main Papakura Channel (Figure 2.1). It has an approximate surface area of 13 km<sup>2</sup>, including the smaller tidal creeks, large areas of which are exposed at low tide.

The Pahurehure Inlet is underlain by poorly consolidated sediments of the Tauranga Group. The predominance of poorly consolidated, silty, sediments within the Tauranga Group means that the areas formed from these materials have low resistance to erosion.

The Whangamaire Creek and Drury Creek, and branching tributaries, discharge into the Pahurehure inlet along the southern shoreline that has largely rural catchments. Papakura Stream and Waimahia Creek discharge into the inlet along the northern shoreline with large catchments extending east. In 1963, two upper inlet tidal areas were separated from the main inlet when Auckland's Southern Motorway was constructed, creating Pahurehure Inlet No.1 and Pahurehure Inlet No.2.

Large tracts of mangrove forest buffer the shoreline, particularly within Drury Creek, Waimahia Creek, and Pahurehure Inlets No. 1 and No.2. (refer to Unit map 3 Papakura for the location of inlets 1 and 2). Mangroves also commonly fill the more minor indentations along the shoreline.

## 2.2.1 Coastal processes and climate change

The coastal processes and hazardscape supporting report provides a detailed discussion of the Pahurehure Inlet shoreline and the natural processes to which it is subject<sup>2</sup>. Some key nuances associated with the coastal processes and general hazardscape for this SAP area are outlined below.

The inlet is a relatively low wave-energy environment, sheltered from the prevailing southwest to west sector by the narrow inlet entrance, and with short wave fetches within tidal basin and narrow creeks. In addition to surrounding landform, the tidal cycle and shallow nature of the inner harbour also limits the amount of wave energy impacting upon the shoreline.

The shoreline with the highest wave exposure in the SAP area is along the western margin of Weymouth Peninsula; it is exposed to the open harbour and has the greatest fetch for wave generation of between 10 km and 18 km towards the west and southwest. Within the inner Pahurehure Inlet, the shoreline in the lee of Pararēkau Island, and within Waimahia and Drury Creeks it is more sheltered than the main Pahurehure Inlet tidal basin.

The land in the Pahurehure Inlet SAP area is in many areas of sufficient elevation to assist in the mitigation of sea-level rise impacts. However, there are some low-lying areas that will be exposed to the impacts of ongoing sea-level rise if unprotected, including Park Estate, Bottle Top Bay, Brylee Reserve, Longford Park and Wattle Downs.

## 2.2.2 Coastal inundation

Coastal inundation hazards are widespread along the Pahurehure Inlet shoreline, however, due to the elevation of the land they are mostly limited to peripheral low-lying areas along the margin. Those low-lying areas, e.g. the upper Waimahia Creek and Conifer Grove stormwater ponds, and adjacent to Pahurehure Inlet No. 1 and No.2, will be affected by coastal inundation, which is likely to be exacerbated in extent and frequency if the sea level rises. There are discrete low-lying areas, some of which include assets such as at Te Pua Keith Park in Weymouth and sections of coastal walkway, that are already exposed to storm surge that will be exacerbated with sea-level rise. Other parts of low-

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<sup>2</sup> SAP Area J Pahurehure Inlet Supporting Report – Coastal Hazardscape, Auckland Council, April 2023

lying peripheral coastal land adjacent to the upper reaches of Drury Creek are likely to become exposed as sea-level rises (refer to Figure 2-3 below).

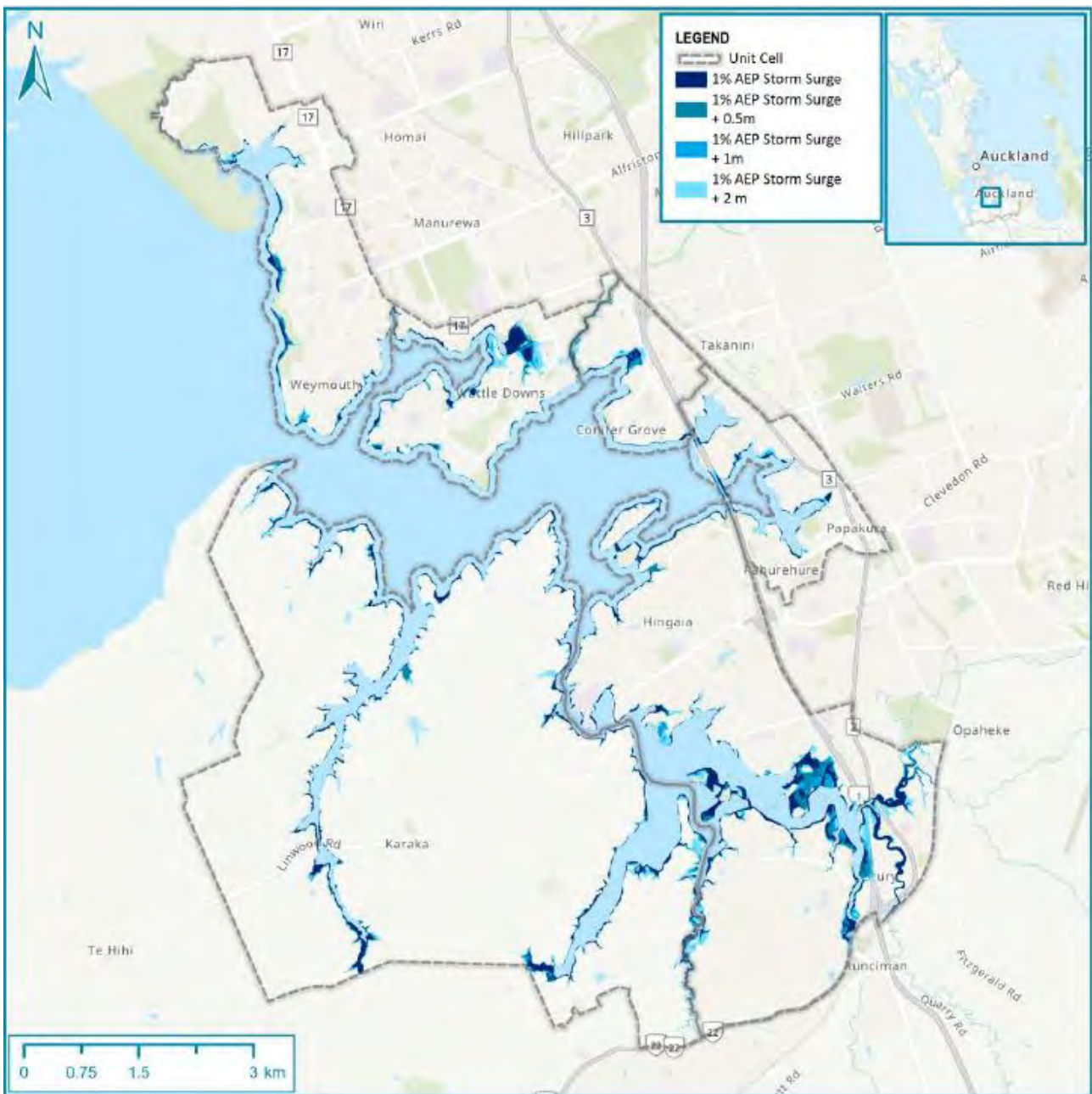


Figure 2-3 Coastal inundation for 1% AEP storm surge for present day and with 0.5 m, 1 m and 2 m sea-level rise. Source: Pahurehure Inlet Shoreline Adaption Plan: Risk Assessment Technical Report, January 2024, Tonkin & Taylor.



### 2.2.3 Coastal erosion

The change at the shoreline brought by coastal instability and erosion can be slow and incipient, resulting in a gradual landwards retreat through the processes of weathering, marine and bio-erosion processes, or more evident, occurring as episodic failures, due to changes in mass balance, e.g. loading or when a cliff yields along a geological feature such as a fault.

The cliffs and coastal slopes along the Pahurehure Inlet shoreline are predominantly composed of soil materials (Tauranga Group - alluvial sediments), that are generally weak with low material strength and are susceptible to coastal instability and erosion. They can be reasonably soft, capable of slumping and are prone to erosion. Due to the complexity of the combination of the forces acting upon the land, various parts of the shoreline erode at different rates (differential erosion). The main natural physical causes of coastal erosion include:

- Marine erosion: mechanical erosion and hydraulic action
- Bio-erosion
- Weathering: mechanical and chemical
- Sub-aerial processes: mass movement, rain-runoff, wind.

It can be expected that coastal instability and erosion along this shoreline, as elsewhere, will be greater in areas of higher exposure to the forces of erosion, e.g. along parts of the shoreline with the greatest wave exposure, and where the cliff/slope is over-steepened and has little vegetative cover (exposed soil is more readily eroded by weathering and sub-aerial processes). Climate change and associated sea-level rise is likely to exacerbate the natural processes resulting in slope instability and erosion, e.g. by changing (elevating) the zone of exposure. The widening of the predicted area susceptible to coastal instability and erosion (ASCIE) lines over time indicate that the forces of shear stress are likely to predominate over the shear strength of the in-situ ground material into the future, and point to the exacerbating factor of sea-level rise.

The areas along the Pahurehure Inlet shoreline that are susceptible to coastal instability and erosion for a range of climate change (sea-level rise) scenarios and periods are published on Auckland Council's GeoMaps (Natural Hazards Theme). The mapping in figure 2-4 below is based on Auckland Council's technical report *Predicting Auckland's Exposure to Coastal Instability and Erosion*<sup>3</sup>.

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<sup>3</sup> Roberts, R., N Carpenter and P Klinac (2020). *Predicting Auckland's exposure to coastal instability and erosion*, Auckland Council, technical report, TR2020/021

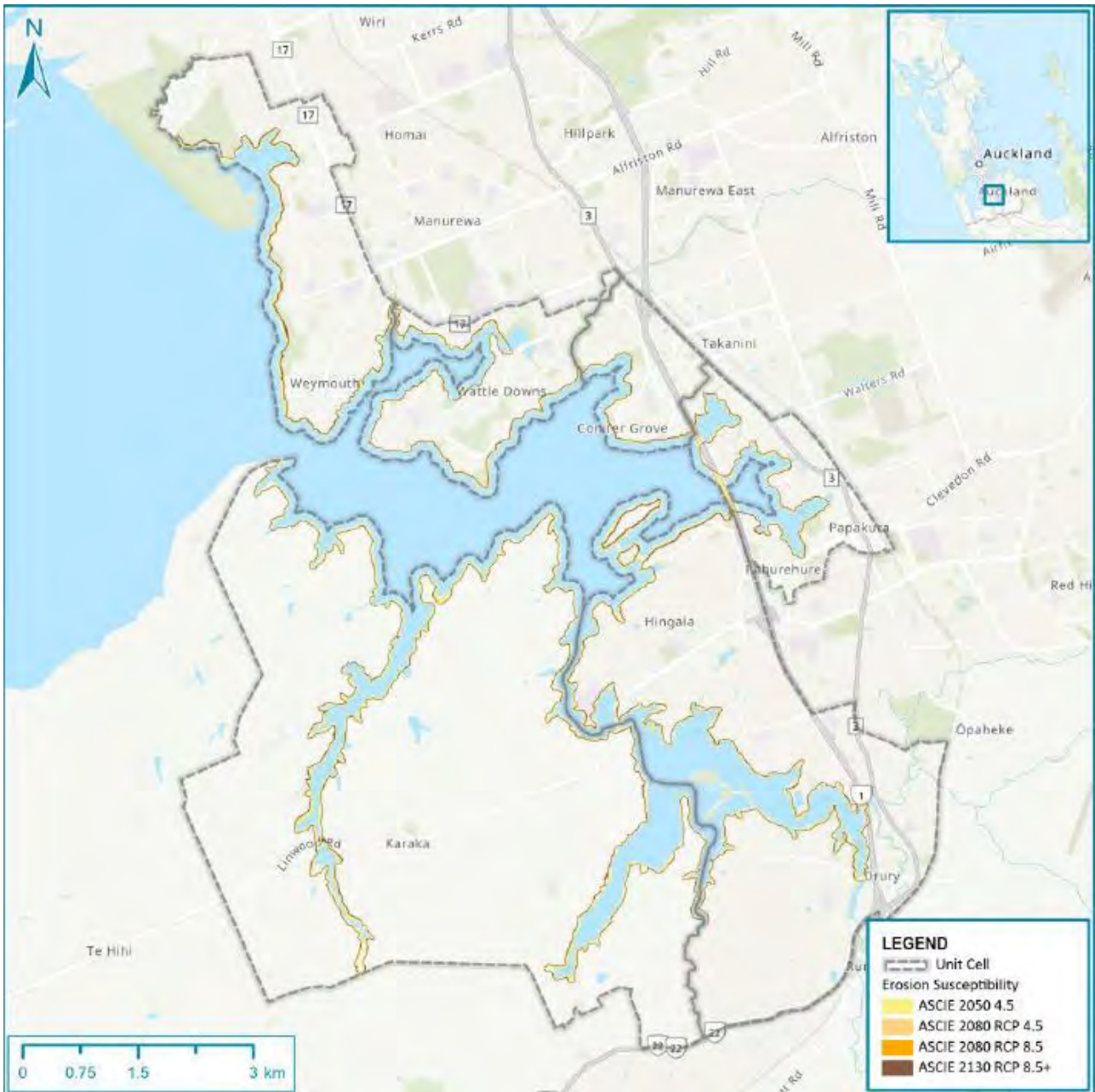


Figure 2-4: Coastal erosion susceptibility for 2050, 2080 and 2130 considering RCP4.5 and RCP8.5 emission scenarios. Source: Pahurehure Inlet Shoreline Adaptation Plan: Risk Assessment Technical Report, January 2024, Tonkin & Taylor.

## 2.3 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 (1:100 year event), because an event of such intensity is likely to result in more severe consequences than flooding events that are more common but also of lesser intensity.

Areas most vulnerable to flooding are low-lying floodplains in urban areas because urban catchments are generally small and the impervious areas (roads, buildings, and paved areas), provide less opportunity for rainfall to be absorbed into the ground. Auckland Council’s web-based portal GeoMaps (Natural hazard theme) models the spatial extent of potential flooding. Information specific to each mapped flood plain is accessible via GeoMaps – using the Identify tool, and the flood model report – and/or from Auckland Council’s Healthy Waters Catchment Planning Team.

For the Pahurehure inlet SAP area, flooding at the base of catchments in proximity to coastal areas is of relevance to the development of adaptation strategies. Areas identified as low lying in relation to coastal inundation (see section 2.2.2 above) are generally also susceptible to catchment flooding. The function of stormwater management and treatment devices in the catchments located within the Pahurehure inlet area is of relevance and these devices and the management of catchments is identified further at a unit and stretch scale in section 5.0.

## 2.4 Risk assessment

A risk assessment was undertaken by Tonkin & Taylor to support this SAP report<sup>4</sup>. This aims to measure how risk to Auckland Council-owned land and assets (and selected regionally available representations of ecological and cultural values, where located on Auckland Council-owned land), from coastal hazards, is changing over time due to climate change. The risk assessment process involves assessment of the exposure of Auckland Council-owned land and assets in coastal areas to two natural hazards, coastal inundation and coastal erosion susceptibility, including the impacts of climate change. Exposure and risk have been assessed for Auckland Council-owned land and assets and aggregated into six groupings at a ‘unit scale’. This was then grouped by assets to enable a view of risk to each grouping and the ability to consider the change in risk over time. The Tonkin & Taylor (2024) *Pahurehure Inlet Shoreline Adaptation Plan: Risk assessment technical report* includes a detailed discussion of the methodology applied and the assets identified in each unit.

The risk tables, at a unit scale, included in section 5.0 represent key groups of assets which are supported by regionally consistent data sets, e.g. Auckland Council-owned land, buildings, road extents. Where unique landholdings and assets are located within a unit area, and may not be replicated across the region, these are not reflected in the risk scores included in the tables. Additional assets are therefore identified separately, and their exposure to natural hazard risks discussed, where relevant. An example in the Pahurehure SAP would be the location of specific boat-launching facilities, wastewater pump stations or closed landfills. These assets and features, which are not included in the representation of risk, are identified at a unit and stretch-specific scale in section 5.0.

Table 2-1: Risk Assessment Asset groupings and description

Grouping	Description
<b>Council-owned land</b>	<ul style="list-style-type: none"> <li>Park and reserve land area.</li> </ul>
<b>Council community facilities</b>	<ul style="list-style-type: none"> <li>Carparks, accessways, paths and tracks, ramps, seawalls, wharves and jetties, community buildings and park amenities.</li> </ul>

<sup>4</sup> Pahurehure Inlet Shoreline Adaption Plan: Risk Assessment Technical Report, January 2024, Tonkin & Taylor.

Grouping	Description
<b>Transport infrastructure</b>	<ul style="list-style-type: none"> <li>Roads, bridges, ferry terminals and train stations.</li> </ul>
<b>Water assets and infrastructure</b>	<ul style="list-style-type: none"> <li>Publicly owned three waters infrastructure.</li> </ul>
<b>Environmental</b>	<ul style="list-style-type: none"> <li>Areas of ecological significance (SEA) based on the Auckland Unitary Plan.</li> </ul>
<b>Culture and heritage</b>	<ul style="list-style-type: none"> <li>Cultural heritage points, Mana Whenua areas of significance and sites of historical heritage significance.</li> </ul>

## 2.5 Social context

New Zealanders have a long-standing and traditional regard for access to the coast. The development of the Pahurehure Inlet and Manukau Harbour coast is evidence of the area's significant history and evolution. The policy, social and cultural context for this SAP was researched in a supporting report<sup>5</sup> and is summarised below.

The SAP area covers a large, well-established urban area, residential development and associated activities which are predominantly concentrated along the shorelines of Pahurehure Inlet No.2, Conifer Grove, Wattle Downs and Weymouth. The area also includes multiple rest homes, retirement villages and aged-care facilities. The many non-residential uses include commercial and industrial land uses around Pahurehure Inlet No. 1, Drury and Clendon. The southern areas of the SAP have more rural characteristics.

Coastal access is predominantly concentrated in areas close to residential areas. The coastal network of paths and tracks are used for walking and cycling, and the coastal parks provide for picnicking and social connection. According to community engagement as part of this SAP development, there appears to be lower participation in water-based activities, swimming, boating, and fishing and this may well be due to the tidal nature of this SAP area. Key boat-launching facilities are located at Bottle Top Bay and Weymouth.

### 2.5.1 Communities and demographics

Climate change and managing the coastal environment is a social as well as an environmental issue, with significant implications for those who are most vulnerable. The demographic data below in section 5.0 provides a general overview of the existing profile and trends of the SAP area, highlighting the unique local context.

Population growth is expected to continue to occur within this SAP area. This area also shows a large percentage of population is under 14 years old and/or are 65 years and over. Population densities are generally concentrated along the northern portion of the coastline of the SAP area, as well as around existing centres, such as Manurewa, Takanini and Papakura. The SAP area also shows a lower percentage of house ownership and has over 5,000 State housing across three local board areas.

<sup>5</sup> Auckland Council (2023). *Shoreline Adaptation Plans. SAP area J Pahurehure Inlet supporting report - policy, social and cultural*. Prepared by Barker & Associates for Auckland Council.



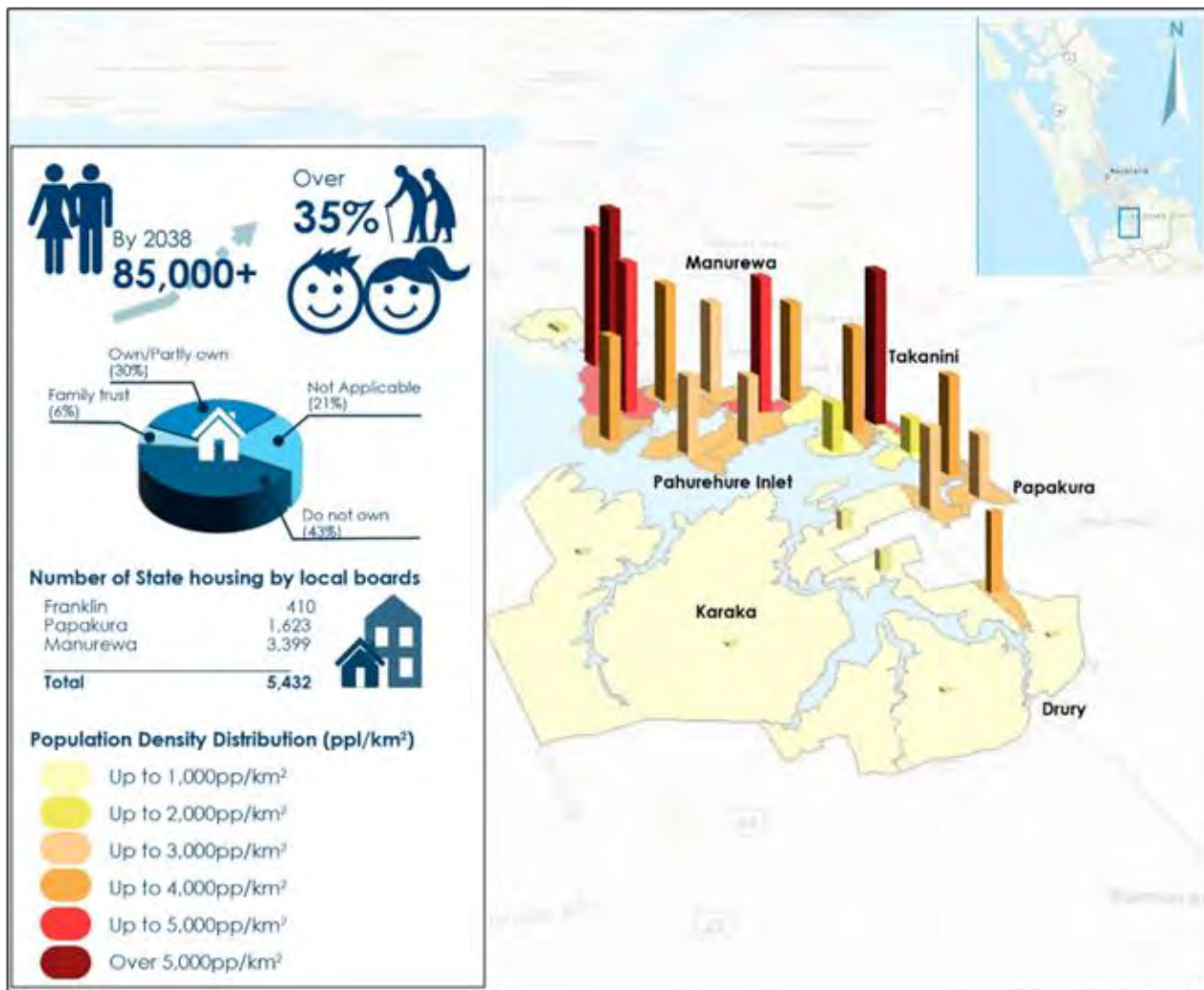


Figure 2-5 : Demographic profile of Pahurehure Inlet SAP

Greater intensification of residential areas across most of the existing urban area is anticipated with PC78, as well as intensification of large areas, currently rural, that are zoned for future urban uses, both within the SAP area and close to it.

Based on the demographic profile of the Pahurehure SAP area, the following themes are relevant considerations during the SAP process:

- Population growth and age structure could potentially transition resulting in likely changes in the use and functions of the coastal environment and relevant Auckland Council and CCO assets. For example, there will be more demand on recreational and leisure assets to accommodate needs for both younger and more senior residents. Population growth could also result in more people seeking access to the coastal environment.
- Any changes to existing assets and public services could potentially have a greater impact on more vulnerable people, such as those with disabilities as well as lower income households, e.g. changes to a bus route or closure of an existing playground.

## 2.5.2 Community groups, clubs and organisations

As an area with rich historic background and well-established local communities, there are a number of community groups and organisations that have been actively utilising Auckland Council-owned assets and land within the Pahurehure Inlet SAP area, as well as along the coastlines. It is important to acknowledge the social and community values held by these groups and organisations, while also recognising any changes to these assets will likely affect their current uses and interests. The *SAP area J Pahurehure Inlet supporting report - policy, social and cultural*, identifies the approximate location of the community groups and clubs within the area, and details further information on each group in relation to the coastal environment within the SAP area.

Engagement with specific resident groups and the Manukau Harbour Forum has been undertaken and is detailed in section 4.0 of this report, including holding events at key venues (e.g. Weymouth yacht club), collaboration in engagement with specific groups (Beautification Trust) and site visits to ensure an understanding of the facilities and interest of specific groups.

## 2.6 Regulatory and policy context

Understanding the regulatory and policy context applicable to the Pahurehure area helps us understand the previously expressed issues by the communities, as well as their values, objectives and aspirations. Identification of relevant plans has been undertaken within the supporting report. The following are key plans and documents of relevance to the Pahurehure SAP development and will require further consideration throughout implementation.

### 2.6.1 Local Board-led planning

#### Local Board Plans

There are three 2023 Local Board Plans that are relevant to this SAP area: Franklin, Papakura, and Manurewa:

- A theme present throughout all the Local Board Plans is the need to protect the environment and build resilience in communities, particularly in areas that are vulnerable to the effects of climate change. In addition, the Papakura Plan discusses the management of coastal areas with respect to the occurrence of natural hazards.
- All these plans include a section on climate action and cover the challenges and opportunities of dealing with climate change under their sections on the environment.
- The plans include a level of service statement 'we work with Aucklanders to manage the natural environment and enable low carbon lifestyles to build resilience to the effects of climate change'.

#### Greenways and local paths plans

These plans highlight the priority connections that local boards will focus on to deliver a safe and enjoyable walking and cycling network while also providing opportunities for ecological restoration:

- Papakura Greenways / Local Paths Plan 2016 includes long-term aspirational greenways around the coastal edge noting that there are relatively long sections of coastline with good portions in public ownership. Priority routes are noted around Pahurehure Inlets No. 1 and No. 2, and Conifer Grove. The NZTA *Southern Corridor Improvements Project* provides a significant walking and cycleway alongside the Southern Motorway, and Te Mara o Hine footbridge across the Southern Motorway, connecting Papakura, Karaka and Conifer Grove.
- Nga Ara o Manurewa | Manurewa Local Paths Plan 2019 identifies that the coastline also provides magnificent opportunities for recreational activities, with reserves along much of the waterfront and existing near continuous pathways. Local path development would include planting of appropriate vegetation to enhance amenity and help stabilise the harbour edge and assist efforts to improve water quality.
- The Franklin Local Board does not have a greenways or local paths plan relevant to this SAP area. However, at Auranga and Drury, a network of paths is partially constructed as part of residential developments.

## 2.6.2 Local and regional parks planning

### Local Parks Management Plans (LPMP)

These are omnibus management plans.

The Franklin and Papakura Local Parks Management Plans are currently under development and close Auckland Council collaboration is occurring to ensure that SAPs and LPMPs are aligned. At this stage, a LPMP for Manurewa Local Board has not yet been scheduled.

## 2.7 Ecological context

The Pahurehure Inlet SAP has unique habitats and ecosystems ranging from intertidal sand and mudflats, beaches, wetlands, mangroves and grasslands. A separate supporting report on the ecology of this SAP has been prepared by Tonkin & Taylor<sup>6</sup> and has been summarised in this section.

Within Pahurehure Inlet, the many intertidal flats, coastal vegetation and roosting areas provide important habitats for shore birds. The Pahurehure Inlet area has been subject to pressures from development, invasive species and pollution, all of which have had an effect on sediment and water quality, and the health of the ecosystems and species that live there.

Manukau Harbour has the longest State of the Environment Marine Monitoring Programme in Auckland, and this has been underway for several decades. This long-term data is valuable in being able to detect trends and changes over time and understand the way the harbour is being used and has been impacted over time. There are a number of community groups working on pest control, monitoring of the environment, behaviour change and restoration within the area. Areas of habitats and ecosystems that have already been identified as valuable within the Pahurehure SAP provide a starting point for conversation, protection or enhancement.

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<sup>6</sup> *Shoreline Adaptation Plans: Ecological Supporting Report SAP Area P Manukau Harbour East*, Tonkin & Taylor Ltd, January 2024

### 2.7.1 Identified ecological areas and values

The Pahurehure SAP area includes eight Significant Ecological Areas – Marine (SEA-M) affording protection to a variety of intertidal habitats, including soft sediments, rocky reefs, shellbanks and saline vegetation (including eelgrass and mangroves). Many of these habitats are protected as they are utilised by both native and international migratory wading and coastal birds, for roosting, nesting (endemic species only) and foraging.



Figure 2-6: Marine and Terrestrial Significant Ecological Areas and Biodiversity Focus Area

The SAP area also includes 19 Terrestrial Significant Ecological Areas (SEA – T). The primary drivers for these terrestrial SEAs are representativeness, threat status and rarity, diversity and stepping stones, migration pathways and buffers.



The Puhinui Biodiversity Focus Area is present along the coastline of the Puhinui Creek, straddling both the Pahurehure and Manukau East SAPs and includes part of the Burundi Avenue Foreshore Reserve. Key ecosystems include large, intertidal, gently-graded sand flats, saltmarsh, mangroves and shellbanks. The focus area is utilised by a variety of international migratory shorebirds and NZ endemic shorebirds, as well as native wetland bird species. Species known to be present that are of note include the *At Risk – Declining*, mioweka (banded rail) and mātātā (fernbird).

The SAP sits within a wider West Coast North Island Marine Mammal Sanctuary which was created by DOC in 2008 to help protect the Critically Endangered Māui dolphin.

## 2.7.2 Marine environment and habitats

The identification of the Marine Protected Area (MPA) policy, is based on analysis of the extent of coastal habitats, and seeks to protect marine biodiversity across a representative selection of marine habitats and ecosystems. The MPA coastal classification mapping scheme habitat classification indicates that the Pahurehure Inlet SAP is primarily comprised of intertidal mudflats, estuarine sand, wetlands, saltmarsh and mangroves. The Pahurehure Inlet SAP area contains a variety of coastal habitats and associated species.

- Seagrass and saltmarsh are highly productive systems that provide vital ecosystem services such as buffering coastal erosion, providing habitats, sediment/contaminant retention and carbon sequestration. Areas of seagrass and saltmarsh habitats are found in the upper reaches of Drury Creek and Whangapouri Creek and on the northeastern side of Pararēkau Island. Pockets of freshwater and saline wetlands are found within the Pahurehure Inlet, and more extensively in the coastal areas around Puhinui Creek, interlinked with mangrove stands.
- Mangroves provide a natural defence against coastal hazards, play an important role in sequestering carbon and support a diversity of animal life. Equally, mangroves are considered a nuisance, due to their visual amenity, and recreational and cultural impacts. Increased sedimentation may result in the domination of mangroves, reducing the diversity of ecosystem variants and leading to a loss in biodiversity. They can also encroach on valuable high-tide roosts and intertidal foraging areas, both important habitats for coastal birds. Mangroves are a common ecosystem type in the Manukau Harbour and much of the Pahurehure Inlet is lined with mangrove forest and scrub (SA1.2). The inlet has been subject to both consented and illegal clearance of mangroves. It is estimated there are 3,041,472 m<sup>2</sup> or 4.9 % coverage of mangroves within the Pahurehure Inlet SAP area.

## 3.0 Cultural context

The wellbeing of tāngata whenua and the ecosystems that support them is interlinked with the concept of ‘mai te rangi ki te whenua, mai te whenua ki te rangi’, as it provides for the intrinsic connection of tangata whenua to te taiao.

As an adaptation workstream within *Te Tāruke-ā-Tāwhiri: Auckland’s Climate Plan*, the SAPs seek to respect and acknowledge te ao Māori by giving effect to Te Tiriti o Waitangi the Kia Ora Tāmaki Makaurau and Te Ora ō Tāmaki Makaurau frameworks and recognising and providing for te ao Māori concepts.

Engagement and collaboration with ngā hapū me ngā iwi o Tāmaki Makaurau has sought to establish partnership with iwi through the creation and implementation of the SAP area plans under the SAP programme. This approach was developed at the programme’s inception in 2021 and will continue beyond the completion of SAP area plans. The relevant programme principles which underpin this approach are included in Attachment A1. These principles are intended to reflect those of the Te Ora ō Tāmaki Makaurau Wellbeing Framework under which there are three dimensions of wellbeing that form a holistic approach:

- **Taiao** (environment)
- **Whenua** (land, earth)
- **Tāngata** (people).

When considered together, dimensions within the Te Ora framework can frame our adaptation to climate change by taking a ‘whole living systems’ approach. These dimensions are discussed in greater detail in Attachment A1.

### 3.1 Ngā hapū me ngā iwi o Tāmaki Makaurau involvement in the development of the SAP

The hapū and iwi of Tāmaki Makaurau, hold important values as kaitiaki (guardians, protectors, stewards). These include their intrinsic ancestral connections to lands, water, wāhi tapu (sacred areas) and other taonga (treasures). Engagement with local iwi is vital in shaping the SAPs.

The coastline, catchment and harbour hold great spiritual and culture value to Ngā hapū me ngā iwi o Tāmaki Makaurau.

To date, the engagement process within the SAP programme has been facilitated via:

- Regional discussions with the Infrastructure and Environmental Services (I&ES) Mana Whenua Forum
- Local iwi engagement on each area-based plan
- Initial governance discussions with Te Pou Taiao and the Houkura (IMBS).

In the spirit of partnership, the Auckland Council Infrastructure and Environmental Services Mana Whenua Kaitiaki Forum developed the following guidance principles for all SAPs:

- Responsive to iwi management plans

- Accept reversal of infrastructure to rectify hazard issues
- Naturalise, let nature take its course
- Look at emissions as well (if any)
- Whenua concepts are written up and understood by all in plans
- Protect koiora (biodiversity) and traditional mahinga kai (fish stocks, kaimoana)
- Protect heritage where possible
- Reconnect to ancestral shorelines (this aligns to Tuurangawaewae described in Kia ora Te Tatai of whakapapa interconnections and interdependencies).

These principles align with both the Kia Ora Tāmaki Makaurau and Te Ora ō Tāmaki Makaurau frameworks and help guide the SAP work programme and its implementation.

## 3.2 Local iwi engagement

For each SAP area, iwi are formally approached via a letter to engage. Updates on the programme are also provided through the I&ES Mana Whenua Forum, with an overview on the upcoming SAP areas and the extension of an invitation to engage if other parties wished to be involved in the development the plans.

Several iwi expressed an interest in the Pahurehure Area SAP. While the use of statutory acknowledgement and treaty settlement documents provide a foundation for understanding documented and statutory interest, it is noted that Treaty Settlement processes are ongoing, and it is important to recognise that there are unresolved claims and disputes between the Crown and iwi and hapū. This can result in iwi who have strong affiliation or whakapapa to an area not holding a Statutory Acknowledgement.

The Pahurehure SAP area is of significance and interest to Ngā hapū me ngā iwi o Tāmaki Makaurau. Those who whakapapa to the area and / or expressed an interest in the Pahurehure Inlet SAP Kaupapa included:

- Ngaati Tamaoho
- Ngaati Te Ata Waiohua
- Te Aakitai Waiohua
- Waikato Tainui
- Ngaati Whaananga.

Through this process, Auckland Council has been working with the respective representatives of the group to provide cultural statements and cultural commentary to help guide the adaptation approaches set out within this SAP.

The development of this SAP and selection of coastal management strategies has been guided by Ngaati Te Ata Waiohua, Ngaati Tamaoho via a series of online and in-person hui, workshops and on-site hikoi.

Over the course of the SAP programme, the SAP team had the opportunity to work with kaitiaki representatives from Te Aakitai Waiohua. Through the development of the Kahawairahi ki Whakatiwai

(Beachlands and East), Āwhitu and Manukau South SAP area plan development, hui were held and korero shared. Over the 2023 calendar year, the SAP team deepened its understanding of the cultural landscape through further hui and hikoī for the Pahurehure area. Kōrero and hui are ongoing. The SAP team will continue to work with and support Te Aakitai Waiohua and other iwi who express an interest, to prepare a cultural statement in response to the SAP programme. These will be considered in revisions of the SAPs and in implementation.

Auckland Council acknowledges that iwi and hapū involvement is critical to the success of the SAP programme. Engagement with the above iwi, and ngā hapū me ngā iwi o Tāmaki Makaurau who express an interest will continue throughout the development and implementation of the SAP Programme. The SAP report remains a living document and may be updated to reflect cultural context shared by iwi when they wish to do so.

### 3.3 Local cultural context

The lands and waters that now comprise Tāmaki Makaurau Auckland have been occupied and accessed for over 1,000 years by tāngata whenua as the first inhabitants of Tāmaki Makaurau and form the ecological and cultural fabric of the region. Te Ao Māori calls for the protection and preservation of whole living systems, and for maintenance, sustainability and regeneration of the whakapapa relationships that enable the wellbeing of these systems. Our coastal environment plays an important part of this system.

Each iwi has specific and wider cultural values, interests and associations with the coastal environment and the adjoining whenua that has been captured within this SAP and in the individual, iwi-authored 'Cultural Statements' which outline each iwi's guiding principles and cultural values. It is critical to note that each iwi is the kaitiaki (guardian) of their respective mātauranga associated with these areas and thus each 'Cultural Statement Report' is safeguarded and subject to a disclaimer to protect an iwi's intellectual property. The same applies for all cultural kōrero, values and mātauranga embedded within this report.

In recognition of the partnership approach of the coastal environments and adjoining whenua, following publication of this report, each iwi has communicated that they will direct how their respective mātauranga should be shared through the 'site focused' concept/detailed design and development processes. This will take place through implementation of the SAPs.

It is important to note that the coastal units and stretches have been developed to capture Auckland Council asset units and do not reflect the historical cultural boundaries which often extend over multiple units or coastal stretches. Therefore, while all attempts have been made to align with the identified coastal units, the cultural commentary provided throughout this SAP often extends across multiple areas. Where possible, the names of these stretches and units have also been updated to reflect the traditional names.

The cultural history and context of the area, particularly how we embed mātauranga Māori and Te Ao Māori principles, is relevant to the Pahurehure Inlet SAP development.



### 3.3.1 The Manukau Harbour Claim (Wai 08)

In 1985, the Waitangi Tribunal (the Tribunal) reported on a claim on behalf of the people of the Manukau Harbour. It concerned pollution of seafood resources and loss of surrounding land from confiscations after the New Zealand wars, and for public works.

This claim is integral in understanding the impact on the wellbeing those iwi and hapu who live on and around the Manukau and have done so for centuries.<sup>7</sup>

Following are a number of findings by the Tribunal on the Manukau Harbour:

- There is insufficient research to assess the impacts of development on the Manukau Harbour and its environs
- The waters of the Manukau once supported abundant marine resources, and these are now seriously depleted and adversely affected
- Loss of fish stocks is unquantifiable, but overfishing has depleted stocks and the marine habitat has been seriously affected by reclamations, sedimentation, and discharges
- The Māori people have been substantially affected by the loss of their traditional access to the sea, the destruction of traditional fishing grounds, and by failure to define and protect areas of special significance to them.

The report has a number of recommendations that address the findings of the Tribunal; however, the claim remains unsettled. As such, the Manukau Report identifies the loss to the people of the Manukau Harbour.

## 3.4 Mātauranga ā iwi, cultural aspirations and outcomes

Sites and places of significance to iwi have both tangible and intangible cultural values in association with historic events, occupation and cultural activities. The specific location of those that are known may be protected by iwi and not shared. In addition, some of these sites, due to their proximity to the coast, may sit within private ownership which has resulted in iwi being excluded from these areas, with iwi unable to protect them and exercise the appropriate tikanga. Where Auckland Council has an interest and/ or assets within these areas, it is important for direct engagement to be undertaken with iwi so that cultural impacts can be identified and avoided.

In addition, iwi may share additional mātauranga, through the implementation process, for each coastal stretch. Each iwi has chosen to share some high-level mātauranga ā iwi values that are fundamental to ensuring that coastal management is respectful of the cultural associations of iwi and supports the cultural values that they have within their rohe.

Auckland Council acknowledges that all cultural information within this document is the intellectual property of iwi who have contributed to the development and co-authoring of the Pahurehure Shoreline Adaptation Plan. To ensure the protection of Mātauranga Māori, cultural information must

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<sup>7</sup> The Manukau Report (1985). Report of the Waitangi Tribunal on the Manukau claim (Wai 8). 2nd ed. Wellington, N.Z.: The Tribunal

not be recirculated to other workstreams without direct consultation with and approval by iwi, to whom this information belongs.

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

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

### 3.4.1 Ngaati Tamaoho

Ngaati Tamaoho identified an interest in the Manukau Harbour coastal areas. As such, they have been involved throughout the Pahurehure inlet SAP development, providing feedback on the selection of coastal adaptation strategies of relevance to the Manukau Harbour SAPs (Āwhitu, Manukau South, Pahurehure, Manukau East) inputting cultural content into the body of the documents and identifying resources which can be further developed to guide implementation of the SAP plans.

Mātauranga shared by Ngaati Tamaoho includes:

Tino Rangatiratanga	Self-determination
Ritenga	Right to determine its own practices
Oritetanga	To be treated equitably
Mana Whakahaere	Right to exercise their own tikanga
Maru Taha Tika	Activity protect rights and interests
Hono Marino	Not unreasonably deny public use of CMA, foreshore or seabed
Kaitiakitanga	Guardianship and stewardship of te tiao
Manaakitanga	Support iwi and hapu aspirations for the foreshore and seabed

As identified in Section 3.2 (local engagement), korero has been shared and Ngaati Tamaoho are considering the preparation of a cultural statement; upon the completion of this and through continuing to work collaboratively toward implementation of the SAPs, the SAP team will work with Ngaati Tamaoho and where appropriate, revise further iteration of this SAP report. Engagement and input into the development of the plan and review of the strategies has also occurred through a series of hui.

Furthermore, it is important to acknowledge the Ngaati Tamaoho vision for a renewed Pahurehure Inlet, one which focuses on implementing management approaches to enable the inlet to once again help clean the waters of the Manukau Harbour beyond, with the Manukau Harbour a life source for the iwi. Where possible, it is vital that this vision is recognised and supported by this kaupapa.

### 3.4.2 Ngaati Te Ata Waiohua

#### Mātauranga shared by Ngaati Te Ata Waiohua

##### PEPEHA

Ko Matukutuureia te maunga,  
 Matukutuureia is the ancestral mountain,  
 Ko Puhinui te awa,  
 Puhinui is the river,  
 Ko Te Maanukanuka o Hoturoa te moana,  
 Maanuka is the harbour,  
 Ko Kaiwhare te taniwha,  
 Kaiwhare is the spiritual guardian,  
 Ko Te Ata-i-Rehia te tupuna  
 Te Ata-i-Rehia is the eponymous ancestor.

The table below sets out a series of guiding principles provided and advocated for by Ngaati Te Ata Waiohua. Future coastal management strategies across the Pahurehure Inlet SAP area (set out in the glossary) aim to acknowledge and support these principles through implementation, recognising the principles below as the starting point for more meaningful consultation with local iwi groups within the area.

<b>Mana Whakahaere</b>	<ul style="list-style-type: none"> <li>Recognising whanau, hapu, and iwi rights to exercise their own tikanga concerning the CMA, foreshore and seabed.</li> </ul>
<b>Iwi Rangatiratanga</b>	<ul style="list-style-type: none"> <li>Recognising iwi rights to self-determination including their right of self-governance and self-regulation of their CMA, foreshore and seabed.</li> </ul>
<b>Maru Taha Tika</b>	<ul style="list-style-type: none"> <li>Actively protecting whanau, hapu and iwi rights as well as interests concerning the CMA, foreshore and seabed.</li> </ul>
<b>Paneketanga</b>	<ul style="list-style-type: none"> <li>Recognising the whanau, hapu and iwi rights to development over its foreshore and seabed within their own cultural preferences.</li> </ul>
<b>Manākitanga</b>	<ul style="list-style-type: none"> <li>Recognising the role that government and Auckland Council must play in supporting whanau, hapu and iwi rights, needs and aspirations concerning CMA, foreshore and seabed.</li> </ul>
<b>Hono Marino</b>	<ul style="list-style-type: none"> <li>Acknowledging that Ngāti Te Ata Waiohua would not unreasonably or without good cause deny others the use and sharing of certain CMA, foreshore and seabed resources consistent with the tikanga of the iwi.</li> </ul>
<b>Turukitanga</b>	<ul style="list-style-type: none"> <li>Ngāti Te Waiohua consider the principles of access, certainty and protection can be met through recognition of the above principles as the starting point for more meaningful consultation.</li> </ul>
<b>Kaitiakitanga</b>	<ul style="list-style-type: none"> <li>Or guardianship is inextricably linked to tino rangatiratanga and is a diverse set of tikanga or practices which result in sustainable management of a resource. Kaitiakitanga involves a broad set of practices based on a world and environmental view and is about healing and restoring the land and water. The root word is tiaki, to guard or protect, which includes a holistic environmental management approach which provides for the following:</li> </ul>

- Restore mana of the Iwi (e.g. protect sensitive cultural and natural features of the environment)
- Restoration of damaged ecological systems
- Restoration of ecological harmony
- Ensuring that resources and their usefulness increases, i.e. plan for the provision for and the restoration of traditional resource areas for future generations (e.g. kaimoana, fish, tuna)
- Reducing risk to present and future generations (i.e. plan long term management and use of taonga)
- Providing for the needs of present and future generations.
- Advocate for no illegal seawalls and coastal structures, reclamations that impede our ability to exercise our kaitiakitanga and access to our traditional fishing grounds.

#### 3.4.2.1 Ngaati Te Ata Waiohua aspirations and outcomes

Further to the broader cultural objectives identified above, Ngaati Te Ata Waiohua have sought a set of aspirations and outcomes, as outlined in Ngaati Te Ata Waiohua Manukau Harbour Report 2023, as follows:

- Embrace and empower kaitiakitanga and rehabilitate and heal the natural systems that support us all. Ngaati Te Ata Waiohua has never relinquished its rangatiratanga or its kaitiakitanga over natural and physical resources including its coastal environment and coastal resources.
- Restore Ngaati Te Ata Waiohua capacity to manage our natural and physical resources according to our own preferences. The natural environment is a taonga. It is the source of our nourishment, our kai and our spiritual and physical welfare. We whakapapa to it and we are not separate from it. Inability to exercise our rightful kaitiakitanga affects our welfare and despoils our environment.
- Implement programmes such as riparian planting and protect sensitive receiving environments and protect and enhance water quality. Ngaati Te Ata Waiohua emphasise the importance of healthy uncontaminated water throughout the rohe. Waiora is the water of life, the purest form of freshwater that gives and sustains life and can rejuvenate damaged mauri. Mauri is the life force that regenerates and binds the physical and spiritual elements of resources together.
- Give special attention to the Manukau Harbour to rehabilitate it and secure its future.
- That no further species extinctions occur including the Maui dolphin and that biodiversity is managed to sustain our communities consistent with our kaitiakitanga practices. Biodiversity is integral to Ngaati Te Ata Waiohua. We are not separated from it; rather it is part of us and our conception of health and wellbeing. Biodiversity continues to be under threat despite successive plans to ‘turn the tide’. Its value cannot be over-estimated, and it is interwoven with many of our traditional values and practices. As Kaitiaki, we take an

ecosystem view and we have a responsibility to manage and protect healthy ecosystems and the biodiversity that they support.

- No ashes of the deceased to enter into sacred waterways as this is a cultural insult and in conflict with the traditional harvest of kai moana.
- That Ngaati Te Ata Waiohua be supported to conduct its own monitoring of the effectiveness of environmental regulation in the protection of its cultural resources, biodiversity wāhi tapu and other taonga within its rohe.

Additionally, Ngaati Te Ata Waiohua has further articulated the need to suitably manage any effects in the hierarchy of avoid, remedy, minimise, mitigate or balance. This is a hierarchy where the first and preferred option to manage an effect is to avoid it, should this not be possible the next option is to remedy the effect, and so on through to suitably balancing the effect, which might include offset mitigation. Importantly only mana whenua can determine the effects and the degree of those effects on themselves and their cultural values.

### 3.4.3 Waikato Tainui

The Waikato-Tainui Remaining Claims are made up of two parts. The first is a number of unsettled interests that were included in their original Wai 30 claim (alongside historical issues concerning raupatu and the Waikato River which have now been settled). These interests include the West Coast Harbours (Kaawhia, Aotea, Whaingaroa and Manukau) and a number of specific land blocks (Maoro/Waiuku and East Wairoa). These are referred to as the Wai 30 Outstanding Claims.

The second part are the Waikato-Tainui remaining claims which include a number of Waitangi Tribunal claims filed by claimants with affiliations to Waikato or their claim area is within the Waikato-Tainui Area of Interest. The negotiation team is committed to their whaanau settlement aspirations, and to seek redress in a way that is consistent with the principles set out in 1987: it must be good for the people, for the whenua, for the moana, and for the taiao – for now and for generations to come.

Raupatu whenua and raupatu moana at the hands of Crown militia saw a livelihood of traditional practices taken away – a way of life that was centralised around the moana. A unique factor of this settlement draws on the social and cultural impacts of raupatu on their people.

Other special factors include the undermining of te mauri o te moana, the nature of land loss post-raupatu (across Waikato as a whole), the impacts of climate change and environmental issues generally.

Waikato Tainui directed the SAP team to the Waikato Tainui Environmental Plan to inform the understanding of the values, principles and objectives Tainui has in relation to coastal areas of their rohe<sup>8</sup>:

- Chapter 10 of the Environmental Plan sets out the Tribal Strategic Plan - Whakatupuranga Waikato -Tainui 2050

<sup>8</sup> <https://www.waikatoregion.govt.nz/assets/WRC/Council/Policy-and-Plans/HR/S32/Part-A/Waikato-Tainui-environmental-plan-Tai-Tumu-Tai-Pari-Tai-Ao.-Hamilton-New-Zealand-Waikato-Tainui-Te-Kauhangani.pdf>

- Chapter 14 identifies customary activities - Ngaa Mahi Tuku Iho a Waikato -Tainui.

Both of these chapters have been identified by Waikato Tainui as being of relevance to the development of the SAP Plan for the Manukau Harbour. However, other chapters within the plan can be relevant depending on future activity(s) required for shorelines to become resilient.

The Environmental Plan identifies the mana whakahaere of Waikato-Tainui has for associated requirements to responsibly use, protect, and enhance customary resources, and to ensure their on-going health and wellbeing. Waikato-Tainui customary activities and resource use include but are not limited to the activities below.

Waikato -Tainui's customary activities (outlined in Chapter 14) include:

<b>Koroneihana</b>	<ul style="list-style-type: none"> <li>• The annual celebration of the coronation day of the Head of the Whare Kaahui Ariki.</li> </ul>
<b>Waka or kohikohia</b>	
<b>Tangihanga and hari tuupaapaku</b>	<ul style="list-style-type: none"> <li>• The transportation of human remains and the accompanying funeral ceremonies.</li> </ul>
<b>Tangohia ngaa momo takawai</b>	<ul style="list-style-type: none"> <li>• The collection of resources, such as river stones, shingle, and sand from the Waikato-Tainui rohe for the purposes of customary practices including:               <ul style="list-style-type: none"> <li>○ The building of a tuahu (altars)</li> <li>○ Carvings</li> <li>○ The preparation of hangi.</li> </ul> </li> </ul>
<b>Raahui</b>	<ul style="list-style-type: none"> <li>• The imposition of restrictions, from time to time, on all or part of an activity, or the use of a resource, or rohe.</li> </ul>
<b>Hauanga kai</b>	<ul style="list-style-type: none"> <li>• The customary and contemporary gathering and use of naturally occurring and cultivated foods.</li> </ul>

Core objectives in this chapter speak to enabling Waikato -Tainui to access and undertake, protect, and enhance customary activities.

Whakatupuranga Waikato-Tainui 2050 (outlined in Chapter 10) is the blueprint for cultural, social and economic advancement for the Waikato-Tainui people. It is a long-term development approach to building the capacity of Waikato-Tainui marae, hapuu, and iwi. Whakatupuranga 2050 will be Waikato-Tainui's legacy for future generations. Within Whakatupuranga Waikato-Tainui 2050, there are three critical elements fundamental to equipping future generations with the capacity to shape their own future:

- A pride and commitment to uphold their tribal identity and integrity
- A diligence to succeed in education and beyond
- A self-determination for socio-economic independence.

Waikato -Tainui's strategic direction charts a course of significant developments to protect tribal identity and integrity. The development of a core strategy designed to provide maximum support for Waikato -Tainui's kaumaatua, the caretakers of maatauranga, and experts of Waikato -Tainui's reo and tikanga, is a key priority. Waikato -Tainui's whenua, rivers, lakes, harbours and other waterways



are living embodiments of Waikato -Tainui's tribal identity. The necessity to forge a partnership with the Crown is vital to the preservation and protection of 'te taiao', our environment:

- To preserve our tribal heritage, reo and tikanga
- To grow our tribal estate and manage our natural resources.

With the above in mind, Waikato -Tainui are primarily interested in ensuring that the affiliate marae are engaged and aware of the SAP programme and the opportunities to start korero about innovation, co-benefits and use of mātauranga (by iwi for iwi) in responding to environmental/climate change challenges, acknowledging these things are often interconnected and closely related to social/cultural and economic interest and outcomes. Engagement with affiliate marae may be facilitated through local iwi connections; in particular, Ngāti Te Ata Waiohua, Ngāti Tamaoho, Te Ākitai Waiohua, Ngai Tai Ki Tamaki, and the marae at Whaataapaka, Umupuia, Tahunakaitoto, Puukaki, Kakaurau and Te Puea.

Waikato Tainui have identified the following ongoing outcomes of the SAP programme and its implementation:

- Remaining engaged with the development of SAP area plans which include areas of interest as well as areas where Te Whakakitenga Marae have interest, including historical and significant areas that have connections to their shoreline landscapes
- Ensuring data and knowledge is shared appropriately with agreements and protection of mātauranga clearly specified/documentated
- Supporting opportunities for innovation, utilise mātauranga, and being directly engaged in discussion around implementation of the SAP programme.

### 3.4.4 Ngaati Whanaunga

Over the course of the SAP programme, the SAP team had the opportunity to work with kaitiaki representatives from Ngaati Whanaunga through the development of the Kahawarahi ki Whakatiwai (Beachlands and East- Gavin Anderson) Wai Manawa Little Shoal Bay 'mini' SAP, including the process at which hui were held and koorero shared. Over the 2024 calendar year, the SAP team deepened its understanding of the cultural landscape through further hui and koorero with Ngaati Whanaunga at a local and regional scale, with hui remaining ongoing to support Ngaati Whanaunga to input into plans of interest.

**Matauranga shared by Ngaati Whanaunga:**

Kaupapa Matua guiding principles:

*“Ki te whakarite te taha tinana, te taha hinengaro, te taha wairua, te taha whaanau ki te aoturoa, kia tino whai mana te mauri”*

*To ensure that there is a holistic balance between and in tune with the natural world and that the mauri of Te Taiao is enhanced via the implementation of all Shoreline Adaptation Plans*

### Whakataukii by “Auntie Betty Williams”:

*“Kaitiaki Principles are practised by all”*

Ngaati Whanaunga enhances the mauri elements of the Te Taiao and seeks to protect our whenua tuupuna, moana waahi tapuu and other taonga, from the effects of development and the many activities that take place within the rohe.

The core objectives of Ngaati Whanaunga Environmental Plan seek to ensure the long-term wellbeing of land, freshwater, coastal and marine areas, biodiversity, air, culture, and heritage such as historic structures, archaeological sites, places of significance that may include nature features such as trees, springs, rivers, or awa<sup>9</sup>.

Coastal and marine areas are important to Ngaati Whanaunga because they:

- Provide valuable habitat, nurseries and feeding grounds for native species. Ngaati Whanaunga advocate for the protection and enhancement of the mauri of indigenous flora and fauna
- Provide mahinga kai, weaving and carving materials
- Regulate rainwater, drinking water, and climate
- Recreational/ community values and amenities when they align with Te Taiao (kia tino whai mana te mauri)
- Economic values, e.g. tourism/ ecology/ aquamarine areas/ commercial development of fisheries, shorebird adaptation centre (supporting the migration of taonga species).

### Ngaati Whanaunga aspirations and outcomes for the takutai and whenua:

Ngaati Whanaunga seek to achieve the following goals in the takutai moana space:

- To enhance coastal and marine habitats: regeneration of wetlands, use of mangroves as nature-based solutions and recognize their role in ecosystem services
- Sustainable resource use
- To recognise connections – mountains to the sea.

Documents that support Ngaati Whanaunga outcomes and aspirations include but are not limited to, the *Estuarine Tool Kit* developed by NIWA in consultation with Ngaati Whanaunga and the *Shellfish*

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<sup>9</sup> Ngaati Whanaunga advocates for ongoing recognition, acknowledgement and reference to the Ngaati Whanaunga Environmental Plan. Kaitaitanga is the responsibility of all.

<sup>12</sup> Ngaati Whanaunga Environmental Management Plan 2019. Prepared by the Environmental Services Department. <https://www.waikatoregion.govt.nz/assets/WRC/NgaatiWhanaungaEnvironmentalManagementPlan9September2019.pdf>



*monitoring toolkits* supplied by the Hauraki Gulf Forum/ translated in the dialect of Ngaati Whanaunga for use at schools<sup>10,11</sup>.

Further to the principles above, Ngaati Whanaunga seek to be included in any decision-making as part of the SAP kaupapa through:

- Encouraging applicants to consult with Ngaati Whanaunga prior to submitting any application for a Plan Change or resource consent application.
- Ensuring plan rules and policies make provision for Ngaati Whanaunga involvement.
- Recognising and supporting kaitiaki initiatives, e.g. raahui, whakatapuu (cultural tools) as well as monitoring, enforcement and enhancement programmes.
- Ensuring staff have read and understood the Ngaati Whanaunga Environmental Management Plan<sup>12</sup>.
- Working with Ngaati Whanaunga to develop appropriate risk and mitigation measures for protecting and enhancing Te Taiao and all cultural sites of significance within and beyond the confines of the SAP kaupapa. Like all SAPs, the Pahurehure SAP is considered a living document, noting that the SAP team is committed to ensuring that the values, aspirations and outcomes sought by Ngaati Whanaunga are represented in this plan and through its implementation. The SAP team will continue to work with and support Ngaati Whanaunga to prepare a cultural statement in response to the SAP programme and include linkages to this in further revisions of the Pahurehure SAP report.

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<sup>10</sup> Estuarine tool kit developed by NIWA in consultation with Ngaati Whanaunga. This can be supplied via the Ngaati Whanaunga office @ 24 Wharf Road Coromandel. Ph 07 866 1011.

<sup>11</sup> Shellfish monitoring toolkit supplied by the Hauraki Gulf Forum/ translated in the dialect of Ngaati Whanaunga for use at schools – Yr 1- Yr 13. This can be supplied via Ngaati Whanaunga website [www.ngaatiwhanaunga.maori.nz](http://www.ngaatiwhanaunga.maori.nz) or office @ 24 Wharf Road Coromandel. Ph 07 866 1011.

## 4.0 Community engagement and outcomes

The purpose of community engagement throughout the SAP development process is to identify how communities use and value their coastal areas including contemporary interests, issues and aspirations regarding their interaction, and use of coastal areas. This assists with the development of broad community objectives which reflect shared contemporary outcomes or aspirations sought by each community for their coastal areas. These objectives, alongside specialist advice, asset owners guidance, iwi feedback environmental and policy considerations, can then be utilised to inform the selection of adaptation strategies.

In addition, this community engagement provides opportunity to:

- Identify risk perceptions and experience held by communities in relation to coastal change and coastal hazards and provides an opportunity to share information on hazards, risk and climate change and the potential impacts these may have over time. This can assist in refining signals triggers and thresholds (see section 1.4) through implementation.
- Facilitate community discourse on adaptive planning, the role of different values and the consideration of options to manage risk such as *holding the line* and *managed retreat* from areas of coastal risk.
- Provide unit or area-specific feedback on the use of coastal assets and land to inform adaptation strategy selection and the inclusion of advice notes which will assist in informing asset owners of key considerations for management planning and development of future assets.

It is important to note that the SAP programme does not include consultation with the community on the selection of adaptive strategies.

### 4.1 Engagement summary

Engagement with local iwi as programme partners, is led through a separate workstream. Feedback and collaborative development of the plans will be detailed in the final SAP area reports. In-person events were spread across the three respective SAP areas where community engagement was occurring in parallel. The following venues were located within the Pahurehure Inlet area:

- Sir Edmund Hillary Library, Papakura
- Weymouth Yacht Club, Weymouth.

Associated events held in neighbouring SAP areas included:

- Wesley Market, Mt Roskill
- Ecomatters Environmental Trust, New Lynn
- Titirangi Beach Hall, Titirangi
- Mangere Boating Club, Kiwi Esplanade
- Aotea (Onehunga) Sea Scouts, Onehunga waterfront
- Mangere Markets, Mangere.

Public events provided an opportunity to inform participants of the SAP programme, sharing prior examples with experts who were available to respond to questions. The key call to action was to identify ‘what matters most’ about the public coastal areas and their associated facilities (through sharing this with the team or identifying this on sticky notes on the large format maps) or to use the ‘AK have your say’ survey or social pinpoint to share their thoughts. All feedback has been analysed alongside that received from Local Boards and key stakeholders. This included:

- 57 comments left on the interactive digital Social Pinpoint map
- 68 surveys relevant to the Pahurehure Inlet area via Social Pinpoint and AK Have Your Say
- Meetings and discussions with key residents and ratepayer groups. Site-specific information and recommendations were also shared by groups with interests in the Wattle Downs and Weymouth areas.

## 4.2 Analysis and key themes

Feedback was collated and sorted into several major categories alongside consideration of location and activity. The key categories included:

- **Social uses and activities:** Examples were generally grouped under the following uses; water-based sports, active recreation, passive recreation and community uses
- **Asset management and maintenance** including key feedback on the maintenance and management of roads, parks, community facilities, coastal defence structures, coastal recreation structures, three waters infrastructure and closed landfills / contamination
- **Community concerns, experiences and coastal hazards** including climate change, natural hazards, and impacts on risk through land use changes
- **Environmental** including consideration of conservation, water quality and native species and biodiversity
- **Cultural** including association with sites or landscape, connections to the coast (sense of place), and accessing/gathering shellfish or fishing.

A summary of each category is captured below.

### 4.2.1 Social, uses and activities:

Many respondents to the online surveys identified as local residents. Access to and the use of coastal areas were identified as having important value for the Pahurehure SAP area and the need to maintain safe access, a priority. Activities such as active recreation (walking, dog walking, running and cycling) or access to the harbour were frequently identified. Feedback was also received on more passive recreational uses, such as simply sitting and picnicking. Weymouth Beach, Youngs Beach, St Annes Foreshore, and Bottle Top Bay emerged as favourites.

The natural character of the shoreline was identified as important and analysis indicated a shared commitment among respondents to ensure continued access to the shoreline while prioritising the conservation of its natural features, including both flora and fauna.

## 4.2.2 Assets maintenance and management

Feedback on specific assets and their maintenance highlighted the Conifer Grove walkway, Karaka harbourside walkways, Wattle Downs beaches and the Weymouth beach/wharf as key areas for access to and along the shorelines of the Pahurehure SAP area. Respondents reported specific instances of damage to walkways, properties, and coastal defences (seawalls), with some noting urgent repairs and remediation requirements to mitigate further damage and maintain their use.

Concerns over the design and function of assets in storm events were used to further exemplify the impacts of severe weather events on coastal infrastructure and the resulting impacts on the environment.

## 4.2.3 Community concerns, experiences, and coastal hazards

Feedback highlighted community concerns related to damage to coastal areas due to severe weather events. Instances of erosion, particularly during storms, were observed in different locations both within and beyond the SAP coastal areas. Storm events, including heavy rainfall, high tides, and strong winds, consistently emerged as contributors to coastal degradation, highlighting the vulnerability of these areas to extreme weather conditions (as noted above in relation to assets and below in relation to environmental outcomes). Multiple examples of impacts were provided, related to the storms of early 2023.

Coastal erosion was the top-ranked concern. A need for urgency with respect to repair and remediation was a shared theme with respondents considering urgency is required to prevent further damage and achieve continued safe access to coastal areas.

## 4.2.4 Cultural

Recognition of the rich cultural landscape was demonstrated through in-person events and stakeholder and community discussion. A desire to better understand and align with local iwi aspirations, for the Pahurehure area (and wider Manukau Harbour) was also identified.

## 4.2.5 Environment

The preservation of coastal habitats and biodiversity for their intrinsic value in support of the community's use and enjoyment of coastal areas was an overarching theme. Feedback across all platforms and specifically within the social pinpoint platform, highlighted the community's interest in ecological resources and outcomes for the Pahurehure inlet area. Topics such as mangroves, bird nesting sites and fish spawning were frequently identified providing local knowledge and insights and a range of views on the value of mangroves. Coastal change, concerns around the effects of climate change and the observed impacts of recent storm events on the native species (such as the Dotterel [Tūturiwhatu]) and their habitats were identified as issues.

## 4.3 Community objectives for Pahurehure Inlet

The information gathered via Social Pinpoint, Engagement HQ, online and in-person community engagement events was collated and reviewed, in collaboration with the Parks and Community Facilitates Department at Auckland Council, and used to develop the following high-level objectives:

Table 4-1: Community objectives for Pahurehure Inlet

<b>Coastal connections, use and access</b>	<ol style="list-style-type: none"> <li>1. Community connections to coastal areas are maintained and strengthened in a manner which responds to the natural character, features and ecological outcomes for different areas of the coast, providing access and connection for diverse users.</li> <li>2. Coastal infrastructure is designed for all coastal users and located appropriately to support safe and maintained access to and along the coast, both for land and water-based activities.</li> <li>3. Priority areas for access and recreation include, but are not limited, to Conifer Grove walkway, Karaka harbourside walkways, Wattle Downs beaches and the Weymouth beach/wharf.</li> </ol>
<b>Environmental</b>	<ol style="list-style-type: none"> <li>4. Catchment and coastal habitats and biodiversity are valued, supported and restored, utilising local knowledge and supporting local communities' stewardship of their local coastal areas.</li> </ol>
<b>Cultural</b>	<ol style="list-style-type: none"> <li>5. Coastal management aims to enhance understanding and recognition of the rich cultural landscape across the Pahurehure Inlet and wider Manukau Harbour, and in doing so, aligns with the aspirations of local iwi.</li> </ol>
<b>Responding to risk</b>	<ol style="list-style-type: none"> <li>6. Coastal erosion and other natural hazard and climatic impacts on coastal areas are identified and planned for, enabling proactive, management of risks and impacts to support the resilience of community facilities, assets and valued species and ecosystems in hazard zones.</li> </ol>

The final step to close the loop in community engagement, was posting a summary of the engagement results and the community objectives online and distributing this via email. This was completed in early 2024 thus ensuring that the community was informed of the consultation results. A more detailed overview of community engagement for the SAP can be found in the supporting Consultation Summary Report for Pahurehure Inlet.



## 5.0 Adaptation strategies for Pahurehure Inlet SAP

The six units within the Pahurehure SAP area (Figure 2-1) have been further broken down into 31 ‘coastal stretches’ (Figure 5-1), selected based on coastal processes, Auckland Council-owned land and asset location, public land boundaries, and infrastructure considerations. Coastal stretches are grouped into broader coastal unit areas as discussed in the risk assessment section above (Section 2.0).



Figure 5-1: Pahurehure Inlet SAP coastal stretches

As stated previously, coastal units and stretches are aligned to capture Auckland Council assets and do not reflect the historical cultural boundaries which often extend over multiple units or coastal stretches.

The following section provides detail on the high-level strategies developed for each coastal stretch over the short (0-20 years), medium (20-60 years), and long (60+ years) term, 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 stretches apply only to the area of Auckland Council-owned land and assets along the coastal margin. Each high-level strategy provides flexibility for how it is applied to different assets. The value of the strategic approach to asset management is to ensure general continuity across asset management acknowledging that the hazard risks and impacts of management of one asset class may impact on or have implications for others. More so where protection is to be maintained (*hold the line*), or where planned retreat (*managed retreat*) is signalled.

## 5.1 Guidance for Auckland Council asset owners

Adaptation strategies developed in the SAP are designed to be integrated across relevant Auckland Council plans. The guidance below is specifically tailored towards asset management operational decision-making and planning:

- Best-practice guidance should be identified and applied. It should include but not be limited to relevant technical regional publications and guidance documents and national guidance. Of particular importance, for areas with a high number of identified and unidentified cultural and historic heritage sites, are the accidental discovery protocols in the Heritage New Zealand Pouhere Taonga Act 2014 and as set out in the Auckland Unitary Plan.
- The location of new assets in areas susceptible to coastal erosion and instability (over all timeframes) is not recommended.
- Where an asset has a functional need to be within the hazard zone (such as a boat ramp or beach access), the dynamic nature of the coastal environment must be considered and resilient design prioritised.
- The location of new assets in areas at risk of the present-day coastal inundation or rainfall flooding at 1% AEP is not recommended. Avoidance of risk is a priority where practical. Where an asset has a functional requirement to be located within the hazard zone, both increasing and residual risk must be considered.
- Where renewal of existing assets within hazard areas is contemplated, both increasing and residual risk should be considered as well as options which identify appropriate location and resilient design.
- To support natural drainage and not increase the risk of rainfall flooding, all projects in the shoreline area must consider the location of overland flow paths and ensure that future works do not block these paths.
- Consider the operational function of assets in natural hazards events and consider the opportunity provide design responses which increase asset resilience.

## 5.2 Māori outcomes

Future coastal projects in the Pahurehure Inlet SAP area need to consider the Kia Ora Tāmaki Makaurau Māori Outcomes Performance Framework, the Te Ora Tāmaki Makaurau Wellbeing Framework, and the values highlighted in Section 3.0 and at Attachment A1. Where appropriate, specific cultural values and outcomes for each coastal stretch are anticipated to be further shared and developed through ongoing involvement of iwi in respective work programmes.

## 5.3 Navigating Section 5.0 by unit and stretch

Section 5.0 includes the adaptation strategies for Pahurehure Inlet. This section is structured by unit, with stretches included under each unit. Units are numbered 1- 6 and stretches 1-31, starting in the south/west moving anticlockwise around the inlet. Table 5-1 below provides a quick reference index to identify the location of stretches within the units.

Naming of units and stretches is provided in both Te reo | English. The te reo names are reflective of the Māori cultural landscape; they are named as per the mana of the chief who held the land at the time. In some cases, this means that both a unit and stretch have a multiple or dual naming, or where the name is replicated at both a unit and stretch level.

Unit specific information is included for each unit as follows:

- **The environmental context:** Identifying the coastal setting, hazardscape and key ecological features within the unit
- **The social, policy and cultural context:** Identifying any specific cultural values, features or sites (to a level of detail chosen to be shared by iwi), social and community values including those identified through Sections 2.0 and 3.0
- **Identification of Auckland Council-owned land and assets** within the unit and corresponding risk ratings for those assets/land: As identified in the risk assessment and summary of Auckland Council-owned land and assets. Risk is identified in the tables included in these sections using blue colours, indicating risks changing from very low (light blue) to very high (dark blue).

Stretch-specific information is provided as follows:

- Description of the stretch
- Tabulated identification of the hazardscape, Auckland Council-owned land and assets and current management approaches
- Adaptation strategy
- Guidance for implementation.



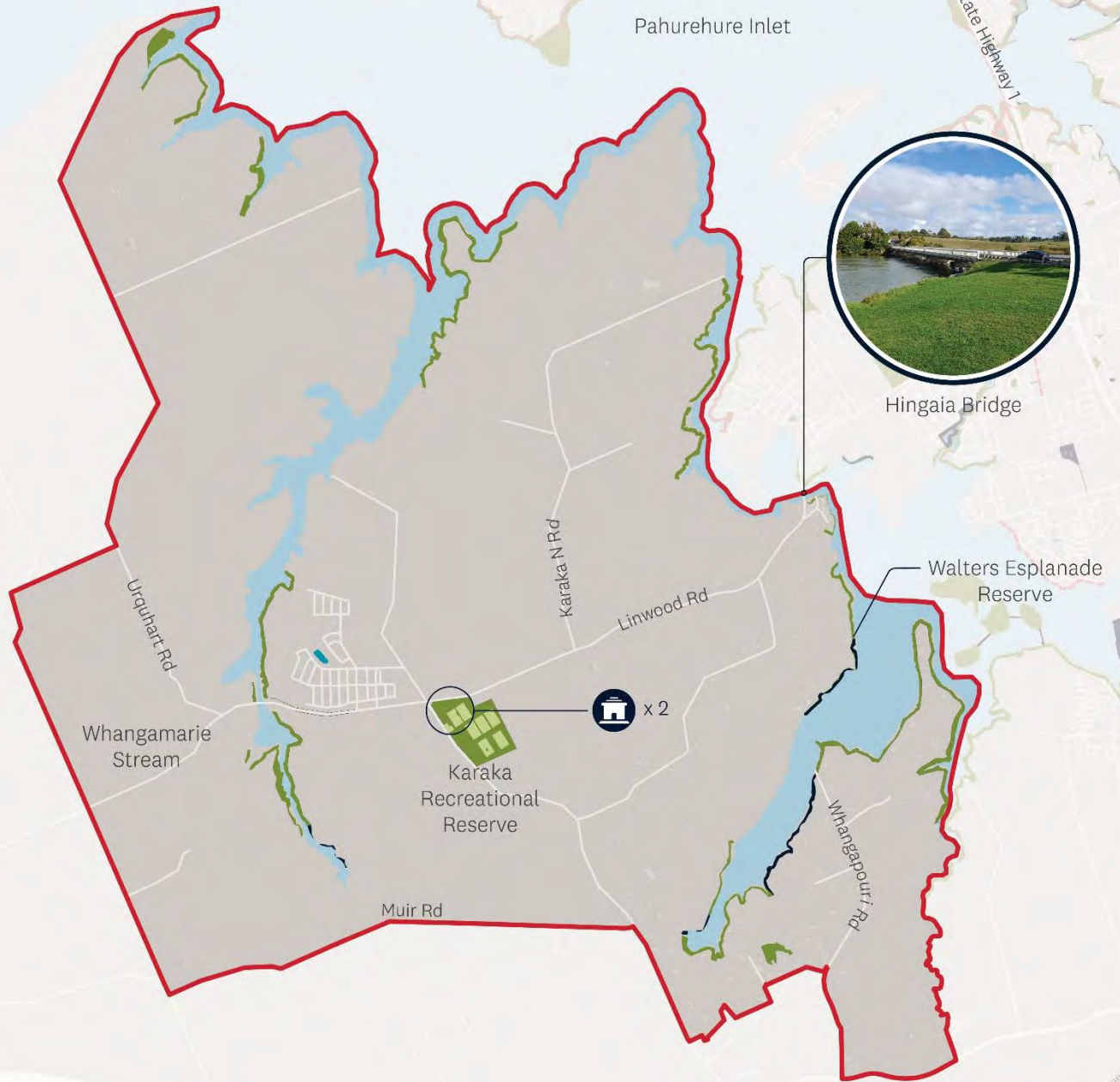
Table 5-1: Summary of the Units and Stretches for Pahurehure Inlet SAP

Unit		Stretches
Unit 1	Karaka	Stretch 1 Whangamaire Stream embayment Stretch 2 Drury Creek western shoreline
Unit 2	Drury Creek and Hingaia	Stretch 3: Oira Creek and Te Pou a Rangiwhiwhi Stretch 4: Auranga Stretch 5: Ōpaheke Stretch 6: Slippery Creek/ Otūwairoa Stream & Hingaia Stream Stretch 7: Hingaia South (Park Estate) Stretch 8: Drury Creek eastern shoreline Stretch 9: Waikirihinau   Bottle Top Bay Stretch 10: Hingaia North Stretch 11: Karaka Harbourside Stretch 12: Pararēkau & Kōpuahingahinga Islands
Unit 3	Papakura	Stretch 13: Pahurehure Inlet No. 2 southern shoreline Stretch 14: Youngs Point Stretch 15: Longford Park Stretch 16: Pahurehure Inlet No. 1
Unit 4	Conifer Grove	Stretch 17: Conifer Grove south Stretch 18: Conifer Grove west/Takaanini Point Stretch 19: Conifer Grove north Stretch 20: Brylee Reserve to Waiata Shores
Unit 5	Wattle Downs	Stretch 21: Eastern Wattle Downs Stretch 22: Kauri Point Reserve Stretch 23: St Annes Stretch 24: Kuurae Stretch 25: Waimahia Inlet east
Unit 6	Weymouth	Stretch 26: Waimahia Inlet west Stretch 27: Greens Reserve to Weymouth Wharf Stretch 28: Te-rangi-o-te-pua-karaka (Beihlers Road to Lawsons Way) Stretch 29: Te Pua   Keith Park Stretch 30: Weymouth Peninsula (Pitt Ave) Stretch 31: Puhinui Creek



# Karaka

## Pahurehure Inlet: Unit 1



- Unit boundary
- Informal recreation park
- Sport & active recreation area
- Stormwater pond
- Community buildings (includes leased)
- Auckland Council owned land

0 1km 2km

## Unit 1: Karaka

This unit covers the indented southern shoreline of Pahurehure Inlet, including Whangamaire Stream, the western shoreline of Drury Creek, Whangapouri Creek and the western shoreline of Oira Creek.

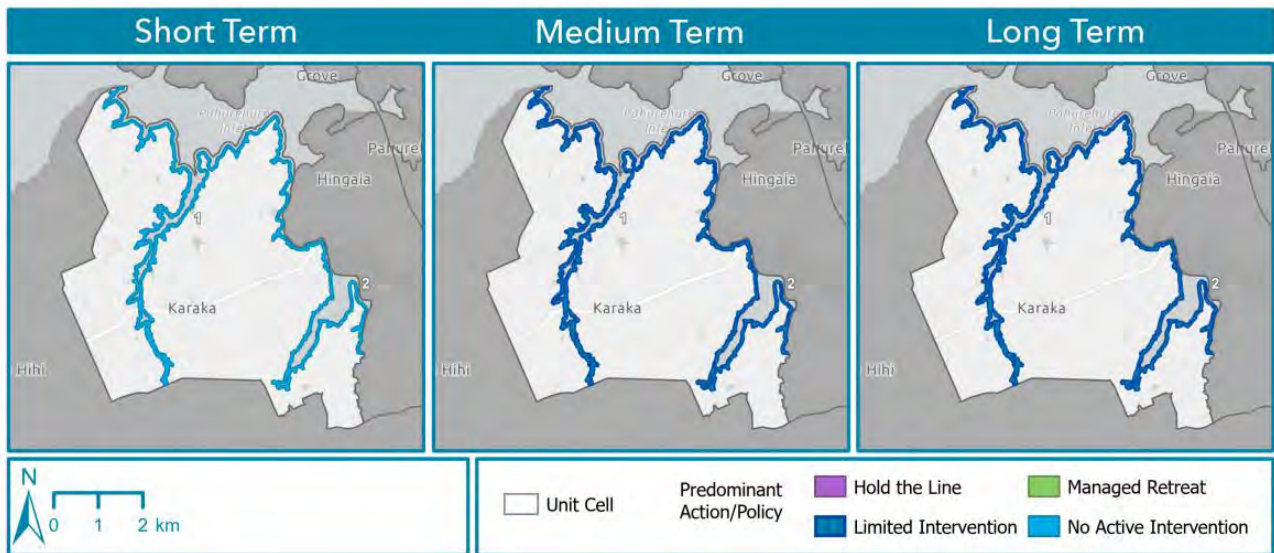


Figure 5-2: Adaptation strategies for Unit 1 Karaka

### Adaptation summary stretches 1 to 2

Stretch	Short term	Medium term	Long term
1: Whangamaire Stream embayment	NAI	LI	LI
2: Drury Creek western shoreline	NAI	LI	LI

### Council-owned infrastructure, land, and assets

This unit is within the Franklin Local Board area and comprises largely rural land and lifestyle blocks with isolated sections of unmanaged coastal esplanade reserve. The main arterial road connecting the wider Waiua Pā area with the Papakura interchange crosses Drury Creek at the Hingaia Bridge.

Table 5-2: Unit 1 risk rating score summary for Council-owned land &amp; assets (short, medium, long term)

Council-owned land			Council Community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (52.4ha) Buildings, wharves (14 No.)			Park amenity structures, carparks, accessways, buildings (0.4 ha)			AT roads (28.9 km) Bridges (1,559.5 m <sup>2</sup> )			Water pipes (0 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion susceptibility											
High	High	High	None	None	None	High	High	High	None	None	None
Coastal inundation											
Moderate	Moderate	High	None	None	None	High	Very high	Very high	None	None	None
Key											
None		Low		Moderate		High		Very High			

### Environmental context: Coastal setting, hazardscape and ecological setting

The entrance to Pahurehure Inlet is constricted between Karaka Point in the south and Te Pua Point in the north. Inside the inlet, the narrow main channel flows closer to two, wide intertidal embayments on the southern shoreline, before widening to the central basin beyond. The southern shoreline of Pahurehure Inlet is a low wave-energy environment and has a low cliff coastline (1-5 m high) that is sparsely vegetated, with the slope along the coastal margin typically grass or a thin fringe of coastal scrub. Saltmarsh and mangrove vegetation increase in the upper reaches of inlets, with established stands of mature mangroves in more sheltered parts of embayments. There is a sandy/shell beach on the landward side of Karaka Point and at Shark Island that has mangrove encroachment into potentially valuable bird roosting habitat.

The weak cliff geology is susceptible to coastal instability as a result of toe erosion and collapse of oversteep slopes. While this could impact the existing undeveloped esplanade reserve areas, there are no Auckland Council assets in the area and overall, the risk is low. The coastal inundation risk is low and is confined to the lower slope along the coastal fringe.

### Cultural context

The Karaka area was invaluable for its access to Te Manukanuka and particularly, the Hikihiki and Poutawa shellfish banks. Further inland, the Te Hihi awa stretch was an important resource base and travel route.

The east of the area is dominated by several large awa flowing into the Pahurehure inlet. Of particular importance are the Whangapouri and Whangamaire awa. These waterways were wide and easily navigable, making them important inland trade and travel routes.

The coastal location of Pahurehure was strategically important and provided easy access to kaimoana including pipi (cockles), pupu (periwinkles), tio (mud oysters), tipa (scallops), tuna (eel), kanae (mullet), tamure (snapper), patiki (flounder), whai (stingray), kahawai and parore (black snapper).



Hingaia is a Waiohua chieftainess, after whom the Hingaia Islands, Hingaia Stream, and Hingaia area are named. She is known to have lived within the Karaka, Hingaia, Drury, and Ramarama areas. Hingaia is the sister of Whatuturoto, who was the great-grandfather of our eponymous Ngaati Te Ata Waiohua ancestor, Te Ata-i-Rehia.

Iwi are currently working across agencies and with developers to focus on improvements in stormwater management and the development and application of cultural health indicators for waterways within this unit.

### **Social and policy context**

Karaka is a small rural area with a diverse indented estuarine coastline in the south of Auckland. It has a predominantly rural character, with an area of recent residential development adjacent to the upper Whangamaire Stream.

The objectives below work to support the implementation of adaptation strategies in alignment with community values related to this section of the coast:

- Coastal management aims to enhance understanding and recognition of the rich cultural landscape across the Pahurehure Inlet and wider Manukau Harbour, and in doing so, aligns with the aspirations of local iwi.
- Coastal erosion and other natural hazard and climatic impacts on coastal areas are identified and planned for, enabling proactive management of risks and impacts to support the resilience of community facilities, assets, valued species and ecosystems located in hazard zones.

## Stretch 1: Whangamaire Stream embayment

### Stretch description

This stretch is the southern shoreline from the inlet entrance to Cape Horn, including Whangamaire Stream embayment and a narrow tidal creek.

Council-owned infrastructure, land, and assets	Current management approach / risks
<ul style="list-style-type: none"> <li>Isolated unmanaged esplanade reserve with no Auckland Council assets.</li> <li>Future reserve land is anticipated to be vested, including the eastern upper reaches of the Whangamaire Stream.</li> <li>Linwood Road (crosses catchment).</li> </ul>	<ul style="list-style-type: none"> <li>Promote coastal revegetation, supporting local iwi aspirations for Pahurehure Inlet, i.e. through co-led projects with Healthy Waters and the University of Auckland.</li> <li>Ensure adequate width of esplanade reserve is vested with new subdivision development.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
1: Whangamaire stream embayment	NAI	LI	LI

### Guidance notes for Implementation

- No active intervention** identified in the short term reflective of the hazard risk profile to Auckland Council-owned land and assets (including roads) changing to **limited intervention** in the mid to long term to reflect investment in the maintenance of the highly valued roading connections (Linwood Road). Localised **hold the line** measures may be required to protect the functionality of roading connections in the long term.
- Advocacy:** Promote fencing to exclude stock access and grazing along the coastal margin.
- Advocacy:** Promote restoration planting along the coastal fringe, allowing low-lying areas to recolonise as salt marsh, including supporting iwi aspirations for restoration planting of Whangamaire Stream with the Karaka North Village development.
- Planning:** Site-specific coastal hazard assessments are essential for any development adjoining the coastal margin. Ensure sufficient width of esplanade reserve is acquired along the coastal margin of any subdivision development to provide a natural buffer against coastal hazards. Ensure no new assets are located in at-risk areas.



## Stretch 2: Drury Creek western shoreline

### Stretch description

This stretch extends along the western shoreline of Drury Creek from Cape Horn, encompassing Whangapouri Creek and extending south to the Unit 1 boundary at the head of Oira Creek.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Hingaia Bridge is the main arterial road connecting the wider Waiua Pā area with the Papakura interchange and crosses Drury Creek at the Hingaia Bridge, with piped utilities services.</li> <li>Narrow inaccessible and unmanaged reserve fringing Roseneath Road to east of Hingaia Bridge</li> <li>Whangapouri Road Esplanade Reserve (unmanaged).</li> </ul>	<ul style="list-style-type: none"> <li>Management of isolated slips along the inaccessible coastal margin adjacent to Roseneath Road by replanting the crest of the slope to slow overland flow and to provide root reinforcement.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
2: Drury Creek western shoreline	NAI	LI	LI

### Guidance notes for Implementation

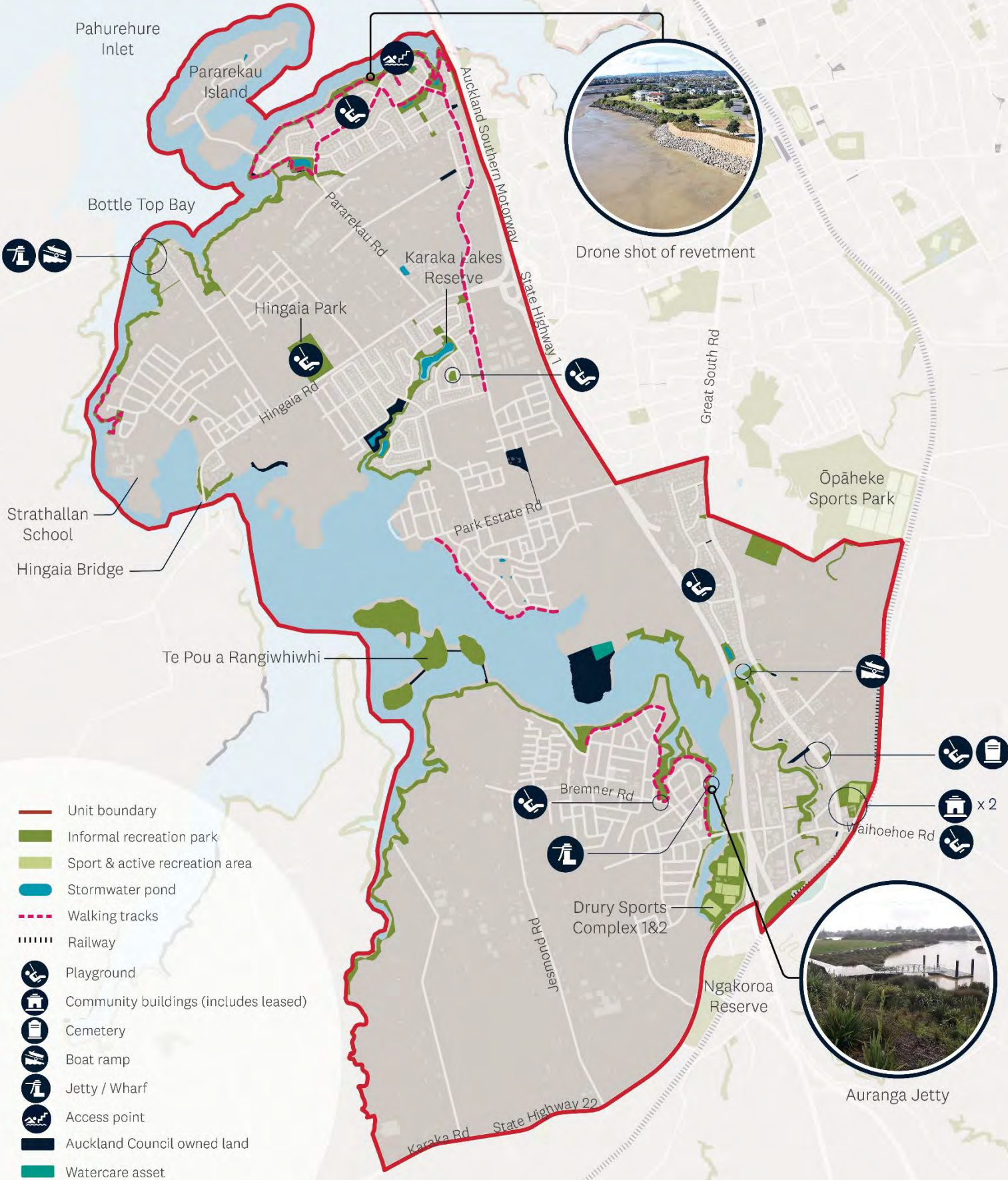
- No Active Intervention* is recommended because the shoreline is largely in a natural state and there are no assets in close proximity with the exception of Hingaia Bridge.
- Limited intervention* provides for the maintenance of the highly valued roading connections). *Limited intervention* in the mid to long term, is identified to reflect investment in the maintenance of the highly valued roading connections (Hingaia Bridge). Localised *hold the line* measures may be required to protect the functionality of roading connections in the long term.
- Advocacy*: Promote fencing to exclude stock, and restoration planting along the coastal fringe to slow overland flow and provide root reinforcement to exposed soils.
- Planning*: Site-specific coastal hazard assessments are essential for any development adjoining the coastal margin. Ensure sufficient width of esplanade reserve is acquired along the coastal margin of any subdivision development to provide a natural buffer against coastal hazards. Ensure no new assets are located in at-risk areas.



# Hingaia/Ōpāheke/Drury



## Pahurehure Inlet: Unit 2



Drone shot of revetment



Auranga Jetty



## Unit 2: Ōpaheke, Drury Creek and Hingaia

This unit extends approximately 20 km from the eastern shoreline of Oira Creek and upper reaches of Drury Creek at Ōpaheke including smaller tidal inlets (Ngakoroa Stream, Hingaia Stream and Slippery Creek/Otuwairoa Creek) around the Hingaia Peninsula towards the entrance to Pahurehure Inlet No. 2, and includes Pararēkau and Kōpuahingahinga Islands.

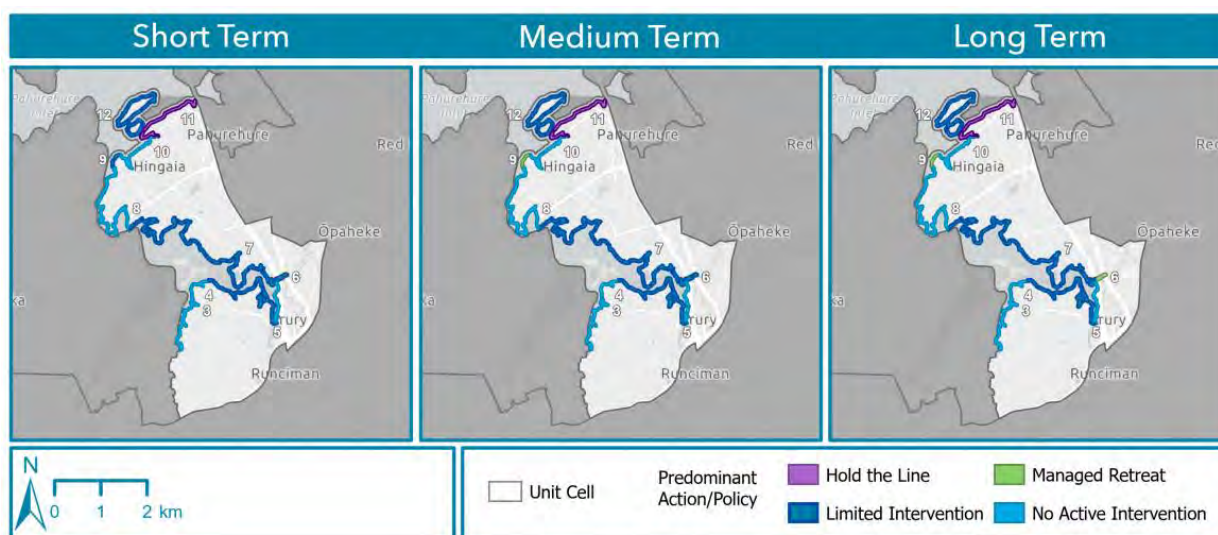


Figure 5-3: Adaptation strategies for Unit 2 Ōpaheke, Drury Creek and Hingaia

### Adaptation summary stretches 3 to 12

Stretch	Short term	Medium term	Long term
3: Oira Creek & Te Pou a Rangiwihwi	NAI	NAI	NAI
4: Auranga	LI	LI	LI
5: Ōpaheke	NAI	NAI	NAI
6: Slippery Creek / Otuwairoa Creek / Hingaia Stream	LI	LI	MR
7: Hingaia South (Park Estate)	LI	LI	LI
8: Drury Creek Eastern Shoreline	NAI	NAI	NAI
9: Waikirihinau   Bottle Top Bay	LI	MR	MR
10. Hingaia North	NAI	NAI	NAI
11: Karaka Harbourside	HTL	HTL	HTL
12: Pararēkau & Kōpuahingahinga Islands	LI	LI	LI

### Council-owned infrastructure, land, and assets

The western shoreline covering the Auranga area is within the Franklin Local Board area, and the area from the eastern side Ngakoroa Stream is within the Papakura Local Board area. The southern part of the unit is a mix of rural open space and future urban zoned land with extensive residential development currently underway at Auranga in the upper reaches of Drury Creek, and the Hingaia growth area on the southern shore of Hingaia Peninsula.

Coastal esplanade reserve extends around most of the northern shoreline of this unit along Karaka Harbourside residential development, with a large rock revetment armouring the toe of the cliff. There is a small settlement of established residential properties at Bottle Top Bay, which is also an important coastal access point with an all-tide boat launching ramp with limited trailer parking, and a highly used fishing platform jetty. Some area-specific assets and unique (highly valued) land uses (e.g. bespoke boat-launching infrastructure at Bottle Top Bay) are not reflected in the risk assessment results in Table 5-3 below, and have been identified through site-specific reviews as being at risk from coastal hazards. This is reflected in the selection of adaptation strategies.

The main arterial road connecting the wider Waiau Pā area with the Papakura interchange crosses Drury Creek at the Hingaia Bridge. West of the bridge, there is a small undeveloped reserve area with gravel carparking and a cliff cutting that can provide access to the foreshore. There is a toilet block on Hingaia Reserve to the east of the bridge, with unmanaged reserve extending east.

There are further sections of disconnected and undeveloped reserve along the Drury Creek shoreline, as well as recently vested reserve acquired from subdivision and development of Auranga and Hingaia growth areas. A coastal walkway and a jetty were installed by the developer adjacent to Auranga and have been vested to Auckland Council. The large Drury sports complex is located on the eastern shoreline of Ngakoroa Stream.

Table 5-3: Unit 2 risk rating score summary for Council-owned land & assets (short, medium, long term)

Council-owned land			Council Community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (10.0 ha) Buildings, wharves (18 No.)			Park amenity structures, carparks, accessways, buildings (1.1 ha)			AT roads (44.5 km) Bridges (1,475.1 m <sup>2</sup> )			Water pipes (162 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion susceptibility											
High	High	High	High	High	High	High	High	High	Low	Low	Moderate
Coastal inundation											
High	High	High	High	High	High	High	High	High	Low	Low	Low
Key											
None		Low		Moderate		High		Very High			

### Environmental context: Coastal setting, hazardscape and ecological setting

Drury Creek branches from the central basin area forming the southernmost arm that narrows and meanders south between the Bottle Top Bay embayment and Hingaia Bridge before widening to a small estuarine embayment. The channel then splits into three tributaries (Whangapouri Creek, Oira Creek and Drury Creek) that extend inland to the south. Te Pou a Rangiwhiwhi / Drury Creek islands are located at the confluence of Oira Creek and Drury Creek. The smaller Drury Creek arm extends east and the Ngakoroa Stream, Hingaia Stream and Slippery Creek/ Otuwairoa converge into this narrow tidal arm.

The eastern Karaka Harbourside shoreline and the northern shoreline of Pararēkau Island are exposed to the most wave energy within this unit, however this is still relatively low due to the limited fetch and shallow water depth of the main Pahurehure Inlet tidal basin. Bottle Top Bay and Drury Creek shorelines are more sheltered and characterised by a narrow meandering tidal channel

through muddy intertidal flats backed by low (3-5 m) steep cliffs of very soft Tauranga Group sediments.

The coastal margin is fringed with saltmarsh and larger stands of mangroves in more sheltered embayments, and low-lying wetlands in the upper reaches and along the eastern shoreline. Higher nearshore currents occur on the outside of bends of meandering tidal channel typically characterised by narrow intertidal zones that slope steeply into deep adjacent channels, and with wider intertidal areas and associated increased vegetation in the depositional zone on the inside of meander bends.

### **Cultural context**

The areas in and around Ōpaheke – Drury, Pukekohe and Pukewhau - Bombay have always been regarded by mana whenua as having a strategic position to Tāmaki Makaurau. Numerous iwi and hapū were mobile throughout the area, whether visiting, passing through or conquering. As a result, a number of complex inter-tribal relationships developed around the inlets of the Te Mānukanuka o Hoturoa / Manukau Harbour and its tributaries.

Seasonal fishing settlements based on the small Drury Creek islands in the Pahurehure inlet, which includes the main motu (island) of Paraurekau (Pararēkau Island), Kōpuahingahinga Island and the eastern islet of Orewa. The fishing resources in this specific region were so significant that when the islands were purchased by the Crown in 1853, a witnessed note was added to the deed of sale to specifically acknowledge and preserve iwi customary fishing rights.

‘Ngaa Motu o Pahurehure’ (‘The Islands of Pahurehure’), which are more commonly known as ‘Hingaia Islands’. These motu consist of three small islands, all located at the mouth of Awa Paheke (Drury Creek) in Waikirihinau (Bottle Top Bay). These motu are known as Parareekau, Kōpuahingahinga, and Oorewa and were important waahi nohoanga of our Waiohūa ancestors, in particular the Ngaati Te Ata Waiohūa hapuu, Ngaati Paretaua (‘The Issues of Paretaua’), who set up their seasonal encampments for collecting fish, shellfish, snaring birds, and gathering bird eggs.

Puketakauere (Shark Island) is situated further west of Hingaia Islands. This island was an important Waiohūa mako (shark) gathering station and provided close access to the wider arterial of the Manukau Harbour. Also, slightly east of Puketakauere, were several Waiohūa papakainga that were established on the promontory headlands of Te Pahurehure (near Hingaia and Karaka).

Iwi are currently working across agencies and with developers to focus on improvements in stormwater management and the development and application of cultural health indicators for waterways within this unit. Additionally, iwi are working with developers on terrestrial/planting enhancement projects and cultural restoration of degraded areas.

### **Social and policy context**

This unit is largely rural with limited public access to and along this shoreline due to private land ownership. However the character of land use in this unit is changing, while there is currently limited residential development within the south of this unit, much of this area is anticipated to experience significant change and development (such as Drury). The boat ramp at Bottle Top Bay is the only all-tide boat launching access in the southern Manukau Harbour (frequently used by the Coastguard), with the nearest alternative launching at Waiau Pā some 20 km to the south.

The selection of adaptation strategies related to this section of the coast aims to align with those community values that have been identified through consultation and on-line feedback.

## Stretch 3: Oira Creek and Te Pou a Rangiwhiwhi | Drury Creek Islands

### Stretch description

This stretch extends from the unit boundary at the head of Oira Creek along the eastern shoreline of Oira Creek until the Auranga development area. This stretch has continuous existing undeveloped esplanade reserve and includes Te Pou a Rangiwhiwhi / Drury Creek islands that are of significance to mana whenua.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Bremner Esplanade reserve extends around the coastal margin.</li> <li>No Auckland Council assets.</li> </ul>	<ul style="list-style-type: none"> <li>A restoration programme for Te Pou a Rangiwhiwhi is in place in partnership with the developer, iwi and the Department of Conservation.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
3: Oira Creek	NAI	NAI	NAI

### Guidance notes for Implementation

- Advocacy:** Promote fencing to exclude stock and undertake restoration planting along the coastal fringe.
- Advocacy:** Long-term restoration of indigenous biodiversity and protection of recorded archaeological sites of Te Pou a Rangiwhiwhi / Drury Creek Islands is being undertaken by the developer in partnership with local iwi. Ongoing engagement with local iwi is required to ensure recognition of local iwi aspirations and plans for this stretch.
- Planning:** Site-specific coastal hazard assessments are essential for any development adjoining the coastal margin. Ensure full width of esplanade reserve is acquired along the coastal margin of any subdivision development, and no new assets are located in at-risk areas.



## Stretch 4: Auranga

### Stretch description

This stretch extends along the southern meandering shoreline of Drury Creek from the entrance to Oira Creek to the upper Ngakaroa Stream. The area encompasses the staged Auranga residential development that includes the coastal esplanade reserve with newly developed park amenities that have recently been vested to Auckland Council.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Recently vested coastal esplanade reserve (with further vesting anticipated) including new coastal assets (jetty, coastal walkway, exercise area and dog park).</li> <li>Watercare Services infrastructure including significant transmission wastewater assets and two pump stations that will provide for growth in the Hingaia, Auranga and Drury areas.</li> </ul>	<ul style="list-style-type: none"> <li>Extensive coastal revegetation along the margin of newly vested esplanade reserve.</li> <li>Localised realignment of sections of coastal pathway moved landward from the crest of eroding banks.</li> <li>Bremner Road Stage 6A pump station is outside the long-term ASCIE and the eastern corner may be exposed to coastal inundation flooding in the medium term with 1 m sea-level rise.</li> <li>Bremner Road Stage 2A pump station adjacent to Ngakoroa Stream is outside the long-term ASCIE, and above the short and medium-term predicted coastal inundation flooding extent. May be impacted in the long term with a 2 m sea-level rise.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
4: Auranga	LI	LI	LI

### Guidance notes for Implementation

- Limited intervention** may include additional planting and weed control to maintain vegetative cover around the coastal margins, with monitoring of surface runoff impact on shoreline position in vicinity of the coastal walkway. Potential localised realignment of the pathway may be required, or **limited intervention** to protect the slope on outer stream meander bends.
- Planning:** Ensure adequate width of esplanade reserve is vested with new subdivision development, and no new assets are located in at-risk areas.
- Wastewater infrastructure:** As this area develops, water and wastewater assets may be constructed to service communities. Stretch 4 contains significant transmission wastewater assets that will provide for growth in the Hingaia, Auranga and Drury areas including two pump stations. Localised **hold the line** measures may be required to protect the functionality of some of these assets in the long term.

## Stretch 5: Ōpahake

### Stretch description

This stretch extends along the eastern shoreline of Ngakaroa Stream until the Southern Motorway bridge crossing. The area south of Bremner Road is the Auckland Council-owned Drury sports complex. The area between Bremner Road and extending north to the mouth of Hingaia Stream, owned by Waka Kotahi and DoC, is a site and place of significance to mana whenua.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Drury sports complex.</li> </ul>	<ul style="list-style-type: none"> <li>Natural shoreline fringed with saltmarsh.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
5: Ōpaheke	NAI	NAI	NAI

### Guidance notes for Implementation

- Advocacy:** Promote fencing to exclude stock and undertake restoration planting along the coastal fringe. Long-term restoration of indigenous biodiversity and protection of recorded archaeological sites of Ōpaheke is a high priority for local iwi. Ongoing engagement with local iwi to understand aspirations and intentions for this stretch is required.
- In the long term, the impact of coastal inundation on the southern area of the Drury sports complex, specifically Football Field 1, will require ongoing monitoring and specific consideration of options to manage the flooding risk to balance the future demand for recreational sports fields and open space with potential landward shift of the saltmarsh habitat.
- Nature-based solutions:** Saltmarsh restoration and enhancement would support a natural coastal edge providing increased resilience from sea-level rise.

## Stretch 6: Hingaia Stream and Slippery Creek / Otuwairoa Stream

### Stretch description

This stretch covers the tidal creeks to the east of the Southern Motorway Bridge including Slippery Creek/Otuwairoa Creek and also Hingaia Stream that extends south through Drury village.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Slippery Creek reserve boat ramp, gabion basket retaining walls, park amenities, wastewater pumping stations (Slippery Creek and Great South Road).</li> <li>Hingaia Stream esplanade reserve (unmanaged) with an unsealed pedestrian accessway along the western shoreline.</li> <li>Future Drury village growth area.</li> </ul>	<ul style="list-style-type: none"> <li>Stacked gabion basket retaining along the stream bank south of the Slippery Creek/Otuwairoa Creek and Hingaia Stream confluence.</li> <li>Unsealed pedestrian accessway is elevated and located along the existing landward boundary of reserve.</li> <li>Wastewater pumping stations will be exposed to coastal inundation flooding in medium to long term.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
6: Hingaia Stream and Slippery Creek / Otuwairoa Creek	LI	LI	MR

### Guidance notes for Implementation

- Advocacy:** Promote restoration planting along the coastal fringe. Saltmarsh restoration and enhancement, allowing natural saline vegetation to colonise and migrate landwards, would support a natural coastal edge and provide increased resilience from sea-level rise. Long-term restoration of indigenous biodiversity and protection of recorded archaeological sites of Ōpaheke is a high priority for local iwi. Ongoing engagement with local iwi to understand aspirations and intentions for this stretch is required.
- Limited intervention** may include additional planting and weed control to maintain vegetative cover around coastal margins, with monitoring of surface runoff impact on shoreline position in vicinity of coastal walkway. **Managed retreat** is identified to reflect that potential localised realignment of the pathway may be required, or **limited intervention** to protect the slope at outside meander bends.
- Wastewater infrastructure:** Stretch 6 contains two wastewater pumping stations (Slippery Creek Reserve and Great South Road). Localised **hold the line** measures may be required to protect the functionality of some of these assets in the long term.

## Stretch 7: Hingaia South

### Stretch description

This stretch covers approximately 8 km along the southern side of the Hingaia Peninsula from the Southern Motorway to Hingaia Bridge.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Future coastal esplanade reserves and walkway to be vested with current developments of Special Housing Areas along Park Estate, including Headland Park at 158 Park Estate Road.</li> <li>Associated stormwater ponds and wastewater infrastructure.</li> <li>Auckland Transport Hingaia Bridge - main arterial road connecting the wider Waiua Pā area with the Papakura interchange crosses Drury Creek at the Hingaia Bridge.</li> <li>Hingaia Reserve large trees and informal parking and earth-bank cutting provide access to Drury Creek to west of Hingaia Bridge, popular fishing location.</li> <li>Car parking and toilet amenities on Hingaia Reserve, remaining reserve unmanaged and inaccessible.</li> </ul>	<ul style="list-style-type: none"> <li>Advocacy for adequate setback of new coastal walkway assets to avoid hazard risk.</li> <li>Coastal inundation flooding risk to future park land, suitable for passive recreation and generally relocatable assets.</li> <li>Design of other park amenities (e.g. playgrounds, parking areas) must consider ongoing maintenance requirements due to occasional coastal flooding inundation.</li> <li>Remnants of old concrete bridge along coastal edge east of Hingaia Bridge.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
7: Hingaia South	LI	LI	LI

### Guidance notes for Implementation

- Limited intervention** may include additional planting and weed control to maintain vegetative cover around coastal margins, with monitoring of surface runoff impact on the shoreline position in vicinity of new coastal walkways.
- Advocacy:** Retention of mature Pohutukawa and additional coastal revegetation. Saltmarsh restoration and enhancement, allowing natural saline vegetation to colonise and migrate landwards, to support a natural coastal edge and provide increased resilience from sea-level rise.
- Planning:** Ensure adequate width of esplanade reserve is vested with new subdivision development, and no new assets are located in at-risk areas. New pathway assets should be located landward of coastal erosion hazard areas, in particular around the outside meander bends of the tidal channel. Coastal inundation flooding risk to future park land makes it generally suitable for passive recreation and relocatable assets. Design of other park amenities (e.g. playgrounds, parking areas) must avoid hazards as far as practicable and consider ongoing maintenance requirements due to occasional coastal flooding inundation.
- Parks acquisition:** To provide long-term connections along the coastal margin between new development (future vested esplanade) and existing parts of Hingaia Reserve that are currently unmanaged and inaccessible with steep topography.

## Stretch 8: Drury Creek eastern shoreline

### Stretch description

This stretch commences north of Hingaia Reserve to the west of Hingaia Bridge and extends towards Waikirihinau | Bottle Top Bay.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Near continuous esplanade reserve along the northern half of this stretch, with approximately 700 m stretch of concrete walkway north of Strathallan school.</li> </ul>	<ul style="list-style-type: none"> <li>Future subdivision and vesting of connecting reserve will enable pedestrian access between Bottle Top Bay and Strathallan (periphery of school grounds currently inaccessible). This land connection will be increasingly important.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
8: Drury Creek eastern shoreline	NAI	NAI	NAI

### Guidance notes for Implementation

- Planning:** Ensure adequate width of esplanade reserve is vested with any new subdivision developments to provide for future esplanade reserve connectivity to and around the coastal margin and location of any formed walkways in a landward alignment to avoid coastal hazard risk.
- Advocacy:** Promote restoration planting along the coastal fringe. Saltmarsh restoration and enhancement would support a natural coastal edge providing increased resilience from sea-level rise. Support local iwi aspirations for long-term restoration of indigenous biodiversity and cultural restoration occurring in this area.

## Stretch 9: Waikirihinau | Bottle Top Bay

### Stretch description

This stretch covers the west and north facing shoreline of the headland south of the small embayment at Waikirihinau | Bottle Top Bay.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>All-tide boat ramp, limited trailer parking, fishing jetty platform, sealed access way, narrow grass reserve, toilet block.</li> </ul>	<ul style="list-style-type: none"> <li>Some reclamation and parts of this shoreline around the fishing platform and to the south is currently armoured.</li> <li>Erosion risk to vehicle accessway located close to the top of the bank.</li> <li>The periphery of the trailer park is currently inundated during king tides, and in a 1% AEP storm event, the area will be fully inundated. This will be exacerbated in the longer term with sea-level rise.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
9: Waikirihinau   Bottle Top Bay	LI	MR	MR

### Guidance notes for Implementation

- Limited Intervention** recognises the importance of maintaining the function of the wider reserve and existing amenities, including its importance as a recreational access point for all-tide boat launching and land-based fishing from the jetty platform. The esplanade reserve's value as a connected coastal walkway is also recognised. Retaining safe public access to the ramp and fishing platform is a high priority as is increased coastal vegetation planting and overland flow improvements.
- Managed realignment:** Reconfigure some assets to fully utilise available reserve space while retaining existing services. Due to ongoing erosion processes, the sealed reserve accessway could be narrowed or realigned to a more landward position within the reserve over the mid to long-term. Additional cliff edge planting to reduce weathering of exposed soils and to direct parking away from the cliff crest. Other reserve services, e.g. the toilet block should also be located to a more landward position over a similar timeframe.
- Managed retreat:** Coastal inundation has the greatest impact on the low-lying boat ramp access and trailer turning area (also used as an informal foreshore parking area). Use of this area is constrained during king tides and will be further impacted by sea-level rise. **Managed retreat** is recommended in the medium term with alternative trailer parking (including potential land acquisitions) option investigation in the short term, noting that the existing area has low capacity and increased usage is likely with residential growth in the wider Hingaia area. This will require detailed feasibility study in collaboration with local iwi and Auckland Transport, and wider community consultation and planning.
- Planning:** Ensure adequate width of esplanade reserve is vested with any new subdivision developments to provide for future esplanade reserve connectivity to and around the coastal margin, and location of any formed walkways in a landward alignment to avoid coastal hazard risk.



## Stretch 10: Hingaia North

### Stretch description

This stretch covers the shoreline of the small north-facing embayment at Waikirihinau | Bottle Top Bay.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Hingaia Esplanade – unmanaged and inaccessible esplanade reserve.</li> <li>Stormwater detention pond and dam.</li> </ul>	<ul style="list-style-type: none"> <li>No active intervention.</li> <li>There is evidence of some unconsented mangrove removal and private structures adjacent to reserve land.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
10: Hingaia north	NAI	NAI	NAI

### Guidance notes for Implementation

- Advocacy:** Promote restoration planting along the coastal fringe. Saltmarsh restoration and enhancement would support a natural coastal edge providing increased resilience from sea-level rise. Support long-term restoration of indigenous biodiversity and protection of the significant cultural values of this area to local iwi.
- Planning:** Ensure adequate width of esplanade reserve is vested with any new subdivision developments, including top-up to full width to provide for future esplanade reserve connectivity to and around the coastal margin, and location of any formed walkways in a landward alignment to avoid coastal hazard risks.

## Stretch 11: Karaka Harbourside

### Stretch description

This stretch extends along the north-facing shoreline, from the lee of Pararēkau Island towards the Southern Motorway in the east.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Continuous esplanade reserve connected to Pahurehure inlet walkway.</li> <li>Armoured concrete path coastal walkway, pedestrian access ramp to foreshore.</li> <li>Stormwater detention ponds.</li> </ul>	<ul style="list-style-type: none"> <li>Rock revetment toe armouring of the most exposed section of coastal cliff from the Southern Motorway in the east, to the lee of Pararēkau Island in the west.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
11: Karaka Harbourside	HTL	HTL	HTL

### Guidance notes for Implementation

- Hold the line** acknowledges that the toe of the slope is fixed by an engineered rock revetment, however over time, weathering and relaxation of the upper slope and along unbattered sections is likely to occur. Ongoing maintenance will be required to manage drainage and provide for management of coastal vegetation. This does not negate that targeted realignment may be required in the long term, where sections of low-lying concrete footpath may be occasionally impacted by coastal inundation flooding.
- Advocacy** for additional restoration plantings, and management of weed species along the coastal margin.

## Stretch 12: Pararēkau & Kōpuahingahinga Islands

### Stretch description

This stretch covers Pararēkau and Kōpuahingahinga Islands including causeway connections to Karaka Harbourside.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>(Pararēkau) Future esplanade reserve, boardwalk connection parallel to causeways.</li> </ul>	<ul style="list-style-type: none"> <li>Esplanade reserve width is 20-51 m wide. The additional width of esplanade reserve vested to Auckland Council as part of the subdivision was provided to avoid coastal erosion hazard risk.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
12: Pararēkau & Kōpuahingahinga Islands	LI	LI	LI

### Guidance notes for Implementation

- Advocacy** for additional restoration plantings, and management of weed species along the coastal margin. Note that there is third party ownership of Kōpuahingahinga island.
- Planning:** Ensure adequate width of esplanade reserve is vested with new subdivision development to avoid coastal erosion risk; this could require additional reserve to the 20 m minimum. No new Auckland Council assets are located in at-risk areas.





# Papakura

## Pahurehure Inlet: Unit 3



Southern motorway

Bruce Pulman Park

McLennan Park

Youngs Park

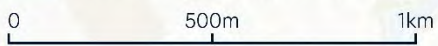
Prince Edward Park

Ray Small Park

Pahurehure Esplanade Path



- Unit boundary
- Informal recreation park
- Sport & active recreation area
- Stormwater pond
- Walking tracks
- Railway
- Playground
- Community buildings (includes leased)
- Shared use path
- Boat ramp
- Jetty / Wharf
- Closed landfill
- Skateboarding
- Auckland Council owned land





## Unit 3: Papakura

This unit includes Pahurehure Inlets No.1 and No.2 on the eastern side of the Southern Motorway, and the small promontory to the west of the motorway.

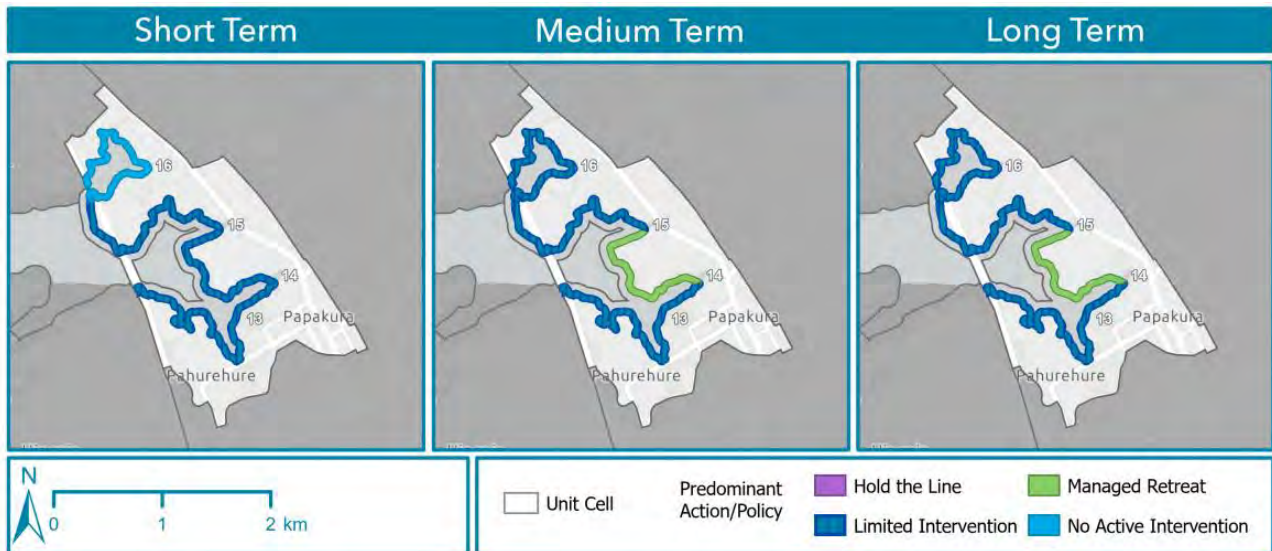


Figure 5-4: Adaptation Strategies for Unit 3 Papakura

### Adaptation summary stretches 13 to 16

Stretch	Short term	Medium term	Long term
13: Pahurehure Inlet no.2 southern shoreline	LI	LI	LI
14: Youngs Point	LI	MR	MR
15: Longford Park	LI	LI	LI
16: Pahurehure Inlet No. 1	NAI	LI	LI

### Council-owned infrastructure, land, and assets

Pahurehure Inlet No. 2 is the larger southern enclosed tidal basin, with residential development and a near contiguous esplanade reserve developed with a coastal walkway including a timber boardwalk section. Recreational boating access within Inlet No. 2 is available via cliff cutting and a concrete boat ramp at Youngs Point, and there are several small low kayak landings around the shoreline.

Other larger Auckland Council infrastructure within this unit includes stormwater detention ponds at Longford Park Reserve and Wellington Park, and a closed landfill (Ray Small Park and Elliot Street) in the upper reaches of the southernmost tidal arm. Te Mara o Hine footbridge across the Southern Motorway provides pedestrian connection between Pahurehure and Karaka Harbourside. There is an elevated concrete coastal walkway connection between Karaka Harbourside and Conifer Grove that runs parallel to the western side of the Southern Motorway, with a connecting footpath on the small headland area that separates Pahurehure Inlets No 1 and No 2.

Pahurehure Inlet No. 1 is densely vegetated with mangroves and is bordered by a mix of residential development and industrial land use adjoining the upper inlet. An esplanade reserve borders

approximately half of the inlet's shoreline however, it is largely undeveloped and is disconnected by industrial sites. Waimana Reserve is a reclamation with a historic closed landfill that infilled the upper reaches of the northern arm of Pahurehure Inlet No. 1.

Table 5-4: Unit 3 risk-rating score summary for Council-owned land & assets (short, medium, long term)

Council-owned land			Council Community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (43.9ha) Buildings, wharves (44 No.)			Park amenity structures, carparks, accessways, buildings (3.0 ha)			AT roads (24.7 km) Bridges (136.1 m <sup>2</sup> )			Water pipes (126.2 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion susceptibility											
Moderate	Moderate	Moderate	Moderate	Moderate	High	Low	Low	Moderate	Moderate	Moderate	High
Coastal inundation											
Moderate	Moderate	Moderate	High	High	High	Low	Low	Moderate	Low	Low	Low
Key											
None		Low		Moderate		High		Very High			

### Environmental context: Coastal setting, hazardscape and ecological setting

Construction of the Southern Motorway causeway separated Pahurehure Inlets No. 1 and No. 2 from the central inlet basin, and subsequently altered natural coastal processes with reduced tidal flows and reduced wind waves resulting in accelerated sedimentation and mangrove expansion.

Landform surrounding the shoreline of this unit is generally low lying (2-6 m), predominantly comprised of weakly consolidated Tauranga Group alluvial sediments. The Takanini Pumicite is exposed on the headland between Inlets No.1 and No.2.

Pahurehure Inlet No 1 (northern Inlet) is infilled with mangroves with a narrow constricted tidal channel. Coastal processes are limited to wetting and drying of the coastal margin over the tidal cycle. Coastal Inundation is predicted to be largely limited to the periphery of the coastline because of the steepness and height of the low cliff coastline. In the longer term, the extent of inundation during 1% AEP storm events with a 1 m sea-level rise, will have localised impact along the northern shoreline including parts of Waimana Reserve and adjacent low-lying areas.

Pahurehure Inlet No. 2 is a sheltered, shallow tidal estuarine basin with extensive mudflats exposed at low tide with incised drainage channels. Extensive mangrove clearance has occurred throughout the inlet from the late 1990s, with a small area of mangrove habitat retained in the northeastern part of the inlet, and in places, only a narrow fringe of saltmarsh along the toe of the cliff. Longford Park is generally at lower elevation than the eastern and southern shoreline that is characterised by low cliffs up to 5 m high, fringed with mix of native vegetation and woody weed species including some larger pine trees.

Coastal erosion and instability will potentially impact connectivity of the coastal pathway along the narrow esplanade between Youngs Point and Prince Edward Park. Similarly, the coastal walkway between Rushgreen Avenue and Westholm Way is predicted to be impacted in the medium term, however the walkway may be able to be realigned over that timeframe.



Coastal Inundation around Inlet No.2 is predicted to be largely limited to the periphery of the coastline as a result of the steepness and height of the cliff coastline, with some localised overtopping and inundation predicted in the longer term for a section of Gills Avenue and the low-lying walkway between Rushgreen Avenue and Westholm Way. The stormwater treatment pond in Longford Park Reserve and a section of pathway in the reserve along Inlet Road, along with the boardwalk between Prince Edward Park and Elliot Street, is predicted to be inundated in a 1% AEP coastal inundation event, depending on the timing of high spring tides.

### **Cultural context**

Papakura lay at an extremely important strategic point within the wider Tāmaki Makaurau, Te Mānuka, and Te Pūaha o Waikato regions. Its geography puts it at the centre of regional trade and travel, being the gateway between these regions.

The streams surrounding Papakura were an important resource, both as travel routes and for the food, rongoā, and the building resources they provided. The streams were home to freshwater whitebait species including the banded kōkopu, the kōara and īnanga. The tidal zones were an important habitat for tuna, mullet and kahawai. Freshwater habitats were also important for puha, as well as kōura (freshwater crayfish) and kākahi (freshwater mussels).

Iwi are currently working across agencies and with developers to focus on improvements in stormwater management and the development and application of cultural health indicators for waterways within this unit. A particular focus here is on the restoration of Pahurehure Inlet No.1 and No.2 and the need to manage the stormwater at the coastal interface as it is not being managed at the source within the land catchments. Additionally, within this unit, iwi are working with developers on terrestrial / planting enhancement projects and cultural restoration of degraded areas particularly historical contamination areas including Ray Small Park.

### **Social and policy context**

This unit contains well-established urban areas at Papakura and Takaanini. The development and establishment of the Papakura area was documented back to pre-1800s. The area around Papakura village was first developed in the late 1840s by early settler families, Cole, Willis and McLennan, with subdivisions first occurring in the 1850s<sup>13</sup>. In 1862, construction of Great South Road, from Auckland to the Waikato, commenced and in 1875, Papakura railway station opened, linking the town to Auckland and Hamilton<sup>14</sup>. The construction of the Southern Motorway causeway in 1964 significantly modified the upper inlet.

Auckland Council esplanade reserves around Pahurehure Inlet provide a well-used coastal walkway, including section of boardwalk, and pedestrian connections to Karaka Harbourside and Conifer Grove via Te Mara o Hine footbridge and the NZTA Southern Corridor pathway. The coastal reserve at Youngs Point is valued for the boat ramp and connection to the harbour, with a sea scouts' building on the reserve.

Since the late 1990s there has been high community interest in recreational access, water quality and encroachment of mangroves within Pahurehure Inlet No. 2. Legacy councils (ARC and PDC) produced a Coastal Compartment Management Plan for the Pahurehure Inlet 'Pahurehure Inlet Management

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<sup>13</sup> Historic Heritage Evaluation Papakura-Karaka War Memorial

<sup>14</sup> Historic Heritage Evaluation Papakura-Karaka War Memorial

Plan, 2006' that provided a framework to address community aspirations for mangrove management balanced with coastal restoration plantings around the inlet and improved recreational access. Auckland Council holds a comprehensive coastal consent that enables removal of mangroves from the majority of Pahurehure Inlet No.2, with large mangrove retention area in the northeastern embayment.

The selection of adaptation strategies is considered to align with community values related to this section of the coast both identified in community objectives and through place-based feedback.

## Stretch 13: Pahurehure Inlet No. 2 southern shoreline

### Stretch description

This stretch covers the southern shoreline of Pahurehure Inlet No. 2 from the Southern Motorway to Gills Avenue in the east.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Contiguous esplanade reserve around the coastal margin, with a narrow inaccessible section adjacent to Freelance Terrace.</li> <li>Narrow concrete path coastal walkway from Rushgreen Avenue to Westholm Way, with low timber kayak landing.</li> <li>Elliot Street, one of main roads into Papakura. Closed landfill reclamation Elliot Street and Ray Small Park.</li> <li>Timber boardwalk connection from Ray Small Park to elevated Prince Edward Park Coastal walkway.</li> </ul>	<ul style="list-style-type: none"> <li>Coastal erosion and instability risk to connectivity of the existing coastal pathway routes along the narrow esplanade between Youngs Point and Prince Edward Park, and Rushgreen Avenue and Westholm Way.</li> <li>Localised overtopping and inundation risk in medium to long term to sections of Gills Avenue and low-lying walkway between Rushgreen Avenue and Westholm Way.</li> <li>Auckland Council manages its closed landfill portfolio and the potential risks presented by natural hazards and climate change via the provisions of the Closed Landfill Asset Management Plan. This plan is renewed every 5 years and will reflect any changing management intentions at the site.</li> <li>Auckland Council holds a comprehensive coastal consent enabling removal of mangroves from the majority of Pahurehure Inlet No.2, with a large mangrove retention area in the northeastern embayment.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
13: Pahurehure inlet No. 2 southern shoreline	LI	LI	LI

### Guidance notes for Implementation

- Limited intervention:** Implementation of the current mangrove removal consent. Review of the ongoing viability and appropriateness of mangrove management practices will be required in the future, recognising ecosystem services of mangroves in terms of habitat diversity, natural defence against coastal hazards and role in sequestering carbon.
- Limited Intervention** may be required where sections of low-lying concrete footpath and boardwalk may occasionally be impacted by coastal inundation flooding with increasing frequency in the long term. Options to be considered with future renewals include re-evaluation of levels of service and possible local realignment to avoid hazard areas.
- Site-specific management of closed landfills along the coastal margin will require localised **hold the line**. The location of this closed fill and associated contamination is a matter of particular interest to iwi and will require ongoing collaboration through appropriate asset management and planning processes. This is set out in the relevant provisions of the Closed Landfill Asset Management Plan

## Stretch 14: Youngs Point

### Stretch description

This stretch includes the small headland between the embayments on the eastern shoreline of Pahurehure Inlet No. 2.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Elevated pathway connection along esplanade reserve from Gills Avenue to Youngs Point.</li> <li>Gill Avenue (Auckland Transport).</li> <li>Boat ramp at Youngs Point, elevated reserve with park amenities. Sea scouts' buildings (community lease) located on reserve.</li> <li>Disconnected undeveloped reserve around the northern part of this stretch.</li> <li>Stormwater detention ponds at Coles Crescent and Wellington Street.</li> </ul>	<ul style="list-style-type: none"> <li>Mudcrete has been used to armour the western side of the Youngs Point boat ramp.</li> <li>Auckland Council holds a comprehensive coastal consent that enables removal of mangroves from the majority of Pahurehure Inlet No.2, which has a large mangrove retention area in the northeastern embayment.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
14: Youngs Point	LI	MR	MR

### Guidance notes for Implementation

- Limited intervention** may include additional planting and weed control to maintain vegetative cover around the coastal margins, with ongoing monitoring of surface runoff impact on the shoreline position in vicinity of the coastal walkway. Potential localised realignment of the pathway may be required to maintain safe public access along the coastal walkway.
- Limited intervention** acknowledges implementation of the current mangrove removal consent. Review of ongoing sustainability and reassessment of mangrove management will be appropriate in the future, recognising ecosystem services of mangroves in terms of habitat diversity, natural defence against coastal hazards and role in sequestering carbon.
- Managed retreat** signals that planning is required for localised reconfiguration of existing buildings in close proximity of the cliff edge in order to avoid the coastal erosion and instability risk. The realignment of uses may impact the accommodation of all current land uses within the park and as such, this may require relocation beyond the immediate area. This will require wider stakeholder consultation and planning.

## Stretch 15: Longford Park

### Stretch description

This stretch extends around the northern shoreline of Pahurehure Inlet No. 2 from Wellington Park stormwater ponds to the entrance to Pahurehure Inlet No. 1 at the motorway causeway, and includes Longford Park and the area west of the Southern Motorway.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Northern section of Longford Park esplanade developed with low-lying concrete coastal path with low timber kayak landing.</li> <li>Longford Park stormwater detention pond and outfall.</li> <li>Watercare Services southern interceptor buried pipe tunnelled across Wellington Street stormwater pond dam and buried landward of the mangrove retention area.</li> <li>Southern section of Longford Park esplanade open grass reserve unformed walkway with low timber kayak landing.</li> <li>Southern Path west of Southern Motorway, with walkway and seating connected via pedestrian bridge adjacent to the motorway.</li> </ul>	<ul style="list-style-type: none"> <li>Auckland Council holds a comprehensive coastal consent that enables removal of mangroves from the majority of Pahurehure Inlet No.2, which has a large mangrove retention area in the northeastern embayment.</li> <li>Mangrove retention area in the north-eastern embayment provides a buffer to the esplanade reserve, coastal walkway and buried Southern Interceptor wastewater transmission pipeline.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
15: Longford Park	LI	LI	LI

### Guidance notes for Implementation

- Limited intervention** may include additional planting and weed control to maintain vegetative cover around the coastal margins, with monitoring of surface runoff impact on the shoreline position in vicinity of the coastal walkway. Potential localised realignment of the pathway may be required to maintain safe public access along the coastal walkway.
- Limited intervention** acknowledges implementation of the current mangrove removal consent and retention of the mangrove habitat in the northeastern inlet. Review of ongoing mangrove management will be appropriate in the future, recognising ecosystem services of mangroves in terms of habitat diversity, natural defence against coastal hazards and role in sequestering carbon.
- Wastewater infrastructure:** A significant transmission wastewater pipe that services Papakura is located within this stretch. Localised maintenance measures may be required to protect the functionality of some of these assets in the long term.

## Stretch 16: Pahurehure Inlet No. 1

### Stretch description

This stretch covers the entire Pahurehure Inlet No. 1 shoreline to the east of the Southern Motorway.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Roundtree Esplanade reserve and playground.</li> <li>Waimana Reserve (closed landfill).</li> <li>Watercare Services southern interceptor is a bridged wastewater transmission pipeline that traverses the intertidal area around the north-eastern shoreline.</li> </ul>	<ul style="list-style-type: none"> <li>No active intervention.</li> <li>Auckland Council manages its closed landfill portfolio and the potential risks presented by natural hazards and climate change via the provisions of the Closed Landfill Asset Management Plan. This plan is renewed every 5 years and will reflect any changing management intentions at the site.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
16: Pahurehure Inlet No. 1	NAI	LI	LI

### Guidance notes for Implementation

- *No active intervention* in relation to coastal defences is promoted in relation to retention of natural mangrove habitat and saltmarsh fringe vegetation, recognising ecosystem services of mangroves in terms of habitat diversity, natural defence against coastal hazards and role in sequestering carbon.
- *No active intervention* does not prevent ongoing inspection and any required repairs by Watercare Services to maintain the southern interceptor bridged pipe asset that is located in a sheltered mangrove-filled inlet.
- *Limited intervention* is identified to reflect the anticipated management of the closed landfill facility and the interrelated management of community facilities within the park area at Waimana Reserve in the medium to long term.
- *Advocacy* for additional ecological enhancement opportunities around the inlet and support for catchment initiatives towards better stormwater outcomes for the inlet.





# Conifer Grove











## Pahurehure Inlet: Unit 4



Conifer Grove Boardwalk



Conifer Grove rock revetment/pathway

-  Unit boundary
-  Informal recreation park
-  Sport & active recreation area
-  Stormwater pond
-  Walking tracks
-  Playground
-  Jetty / Wharf
-  Access point
-  Shared Path
-  Auckland Council owned land

0 500m 1km



## Unit 4: Conifer grove / Takaanini Point

This unit extends approximately 3 km along the southwest-facing shoreline of the inner Pahurehure Inlet from Papakura Stream at Waiata Shores towards the Southern Motorway causeway at the entrance to Pahurehure Inlet No. 1, and includes Conifer Grove/Takaanini Point.

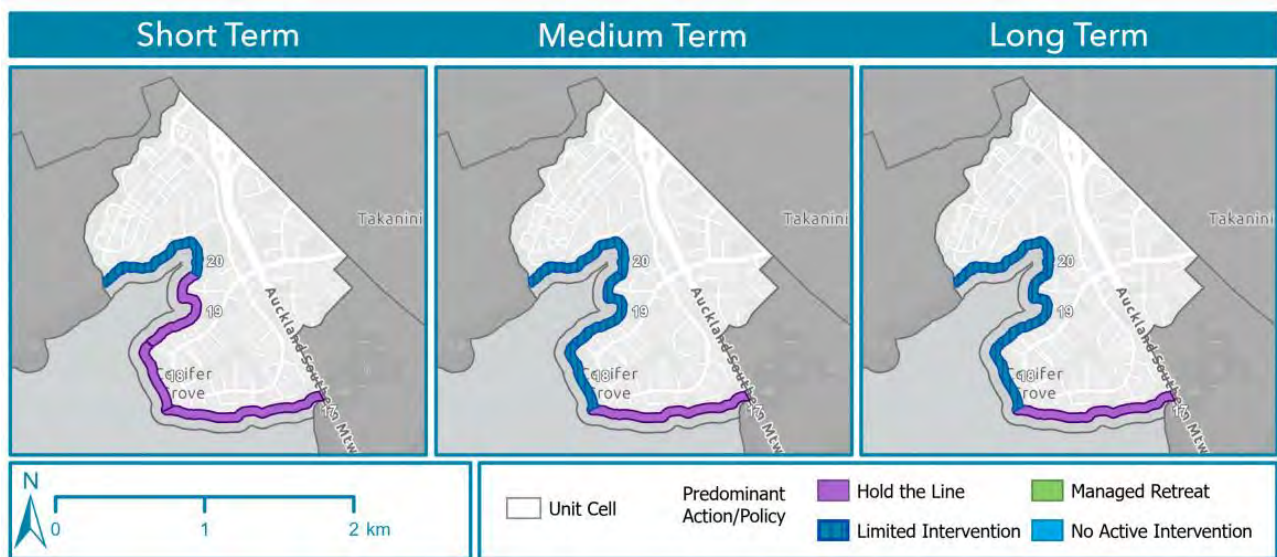


Figure 5-5: Adaptation Strategies for Unit 4 Conifer Grove Takaanini Point

### Adaptation summary stretches 17 to 20

Stretch	Short term	Medium term	Long term
17: Conifer Grove south	HTL	HTL	HTL
18: Conifer Grove west / Takaanini Point	HTL	LI	LI
19: Conifer Grove north	HTL	LI	LI
20: Brylee Reserve to Waiata Shores	LI	LI	LI

### Council-owned infrastructure, land, and assets

Conifer Grove is within the Papakura Local Board area. Adjacent land use is residential and there is a nearly contiguous (6-20 m wide) esplanade reserve network along this coastal margin. In the early 1980s, some sections of the low cliffs were battered, and parts of the reserve were reclaimed during development of the Conifer Grove residential subdivision. Seawalls protect these small areas of reclamation along the western and southern-facing shoreline of Conifer Grove headland. The low coastal cliff (2-8 m high) extending around the Conifer Grove shoreline is generally comprised of a well-vegetated sloping bank, fronted by a rock revetment seawall. A coastal walkway path including boardwalk section follows the coastline, with various small steps and pedestrian dinghy ramps providing public access points to the foreshore. There is a large stormwater pond and wetlands in Brylee Reserve.

Table 5-5: Unit 4 risk rating score summary for Council-owned land &amp; assets (short, medium, long term)

Council-owned land			Council Community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (32.8ha) Buildings, wharves (11 No.)			Park amenity structures, carparks, accessways, buildings (0.3 ha)			AT roads (16.6 km) Bridges (49.9 m <sup>2</sup> )			Water pipes (94.0 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion susceptibility											
Moderate	Moderate	Moderate	Low	Low	Low	Low	Low	Low	Low	Low	Moderate
Coastal inundation											
Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	High	Low	Low	Low
Key											
None		Low		Moderate		High		Very High			

### Environmental context: Coastal setting, hazardscape and ecological setting

Conifer Grove is a small headland on the northern side of the central Pahurehure Inlet basin area. Papakura Stream flows into the embayment on the northern side of the headland. The inner Pahurehure Inlet is a low wave-energy environment with short wave fetches due to the surrounding landform. At high tide, the western and southern shoreline of Conifer Grove is exposed to the largest fetch of open water towards the southwest past Kauri Point and higher relative wave energy from the southwest.

The foreshore is typically muddy, though in places, the shore platform of underlying bedrock is visible at low tide with broad intertidal flats leading out to Papakura Channel. The northern shoreline is fringed with saltmarsh and woody vegetation along the reserve edge. Two bird roost sites (in the form of raised sandstone platforms), intertidal mudflats and a narrow band of coastal saltmarsh vegetation are present adjacent to the location of the retired Manukau Golf Course in Wattle Downs, which is now been developed into residential housing at Waiata Shores. There are some large tracts of mangroves along the most sheltered parts of this shoreline, however mangrove removal has occurred around the Conifer Grove boardwalk and the outfall from Brylee Drive stormwater ponds.

Coastal inundation is predicted to be largely limited to the periphery of the coastline, because of the steepness and height of the low cliff coastline, however there will be some impact on the coastal walkway. The coastal inundation maps for a 1 % AEP event plus 1 m sea-level rise indicate additional areas are susceptible to coastal inundation in the longer term, notably along Keywella Drive and the majority of Brylee Drive Reserve with coastal flooding extending to the playground and tennis court.

### Cultural context

While specific cultural values and outcomes for this unit stretch will be shared and developed through ongoing involvement with iwi in respective work programmes, guiding objectives and outcomes which have informed the development of adaptation strategies have been identified in Section 3.0.

Iwi are currently working across agencies and with developers to focus on improvements in stormwater management and the development and application of cultural health indicators for waterways within this unit. Additionally, within this unit, iwi are working with developers on terrestrial/planting enhancement projects and cultural restoration of degraded areas.

### **Social and policy context**

Conifer Grove is a residential suburb developed in the late 1970s, and has a well-connected network of coastal esplanade and local parks. The coastal walkway around the Conifer Grove Peninsula is highly used by the wider community, with the recently constructed Southern Corridor pathway and Te Mara o Hine footbridge providing pedestrian connections across the inlet to Papakura and Karaka. Waiata Shores is a recently completed residential development in the northern part of this unit, on the site of the former Manukau Golf course.

The selection of adaptation strategies is considered to align with community values related to this section of the coast, both identified in community objectives and through place-based feedback.

## Stretch 17: Conifer Grove south

### Stretch description

This stretch covers approximately 850 m of south-facing shoreline between the Southern Motorway and private properties at Gigi Place. The narrow reserve is armoured with rock revetment and backed by residential development.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Coastal walkway connection along reclaimed narrow reserve armoured with rock revetment.</li> <li>Two sets of timber steps and a small dinghy ramp slider provide access to the foreshore.</li> </ul>	<ul style="list-style-type: none"> <li>Existing rock armoured reclamation.</li> <li>Parts of the revetment and some sections of low-lying path overtopped during present day 1% AEP, with majority of the low concrete pathway impacted by coastal inundation flooding from the short-term.</li> <li>The full width of Conifer Grove Esplanade Reserve may be impacted in the medium term.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
17: Conifer Grove south	HTL	HTL	HTL

### Guidance notes for Implementation

- Hold the line* acknowledges that the reclaimed reserve is armoured with existing engineered rock revetment and the maintenance of the fixed coastal edge protects the coastal walkway network. However, the armouring does not prevent coastal inundation flooding from impacting the walkway in the short term, and in the medium to long term, alternative inland routes will need to be promoted during periods when the walkway is inundated at high tide.

## Stretch 18: Conifer Grove west / Takaanini Point

### Stretch description

This stretch extends along the western shoreline of Conifer Grove, between the rock headland in the south to the northern end of Walter Stevens Reserve.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Walter Stevens Reserve coastal path connection to north, parking area and playground set back from low cliff.</li> <li>Coastal walkway and concrete pedestrian ramp access to foreshore.</li> <li>Southern section of walkway located on reclaimed narrow reserve armoured with revetment with two timber steps providing access to the foreshore.</li> </ul>	<ul style="list-style-type: none"> <li>The narrow reclaimed reserve along the western shoreline is armoured with an engineered rock revetment.</li> <li>Short length of low, loose stone reef and rushes around the toe of the low cliff to the north of the pedestrian access ramp, and unengineered rock armouring further north.</li> <li>Parts of the revetment and some sections of low-lying path overtopped during present day 1% AEP, with majority of the southern low concrete pathway impacted by coastal inundation flooding from the short term.</li> <li>Elevated parts of Walter Stevens Reserve and the upper slope of Conifer Grove Esplanade Reserve around the northern shoreline will not be impacted by coastal inundation.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
18: Conifer Grove west / Takaanini Point	HTL	LI	LI

### Guidance notes for Implementation

- Hold the line** acknowledges that the southern shoreline in this stretch is reclaimed reserve, armoured with existing engineered rock revetment. The fixed coastal edge protects the coastal walkway network from erosion; however ongoing maintenance is required to reinstate any rock dislodged during wave overtopping. To mitigate coastal erosion risk, this structure may be maintained over all timeframes under the **limited intervention** strategy.
- In the mid to long term, **limited intervention** as armouring does not prevent coastal inundation flooding impacting the walkway and **localised realignment** may be required where sections of low-lying concrete footpath may occasionally be impacted by coastal inundation flooding with increasing frequency in the long term. Options to be considered with future renewals include re-evaluation of level of service and possible local realignment of the walkway route to avoid hazard areas. In the medium to long term, alternative inland routes can be promoted during periods when the walkway is inundated at high tide.
- Limited intervention** may include additional planting and weed control to maintain vegetative cover around coastal margins, with monitoring of surface runoff impact on the shoreline in vicinity of the coastal walkway. Ongoing monitoring and management of large exotic trees along the coastal margin may be required where wind leverage contributes to slope instability of weak geology.



## Stretch 19: Conifer Grove north

### Stretch description

This stretch is the northern shoreline of Conifer Grove Peninsula facing the small embayment.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Coastal walkway (gravel and concrete path); unengineered rock armouring.</li> <li>Timber boardwalk and landing/viewing platform.</li> <li>Coastal stormwater outfall.</li> </ul>	<ul style="list-style-type: none"> <li>The northern shoreline has sections of informal rock armouring.</li> <li>Mangroves have been removed from the western side of the timber boardwalk under resource consent held by Auckland Council. Mangrove habitat has been retained on the eastern side of the boardwalk infilling the enclosed embayment created by the boardwalk.</li> <li>Parts of the low-lying path overtopped during present day 1% AEP, with majority of the existing pathway on Conifer Grove esplanade impacted by coastal inundation flooding from the short term.</li> <li>Upper slope and landward half of Conifer Grove esplanade elevated above predicted medium term inundation flooding.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
19 Conifer Grove north	HTL	LI	LI

### Guidance notes for Implementation

- Hold the line* is identified in the short term along the existing armoured reclamation and current alignment of the low gravel walkway to maintain safe access.
- Limited intervention* is recommended in the medium to long term to enable planning for localised realignment of the low pathway to an elevated route in the landward position on reserve to avoid hazard risks. *Limited intervention* may include additional planting and weed control to maintain vegetative cover around coastal margins, with monitoring of surface runoff impact on shoreline position in the vicinity of the coastal walkway.

## Stretch 20: Brylee Reserve to Waiata Shores

### Stretch description

This stretch covers the shoreline from the head of the embayment to Papakura Stream in the west.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Brylee Drive stormwater wetland; wide grass reserve, coastal walkway, park amenities including tennis court and playground.</li> <li>The narrow coastal esplanade along the coastal fringe adjacent to Keywella Drive is inaccessible for public access due to contour and established vegetation.</li> <li>Coastal walkway has been developed along Waiata Shores.</li> <li>Watercare Services wastewater transmission pipeline buried along the intertidal area.</li> </ul>	<ul style="list-style-type: none"> <li>No active intervention where there is currently no public access along the northern shoreline. Alternative landward pedestrian access available via inland route connecting Brylee to Keywella Drive and Waituarua Drive to west.</li> <li>Conifer Grove esplanade reserve along the south-facing shoreline adjacent to Keywella Drive is within the medium-term ASCIE.</li> <li>Waiata Shores (former Manukau Golf Course) coastal pathway set 10-35 m landward of coastal edge.</li> <li>Predicted coastal flooding inundation over the short term will impact much of the low-lying land at Brylee Drive Reserve including parts of the walkway and the Brylee Drive stormwater ponds, and along the northern embayment adjacent to Keywella Drive and Conifer Grove Esplanade Reserve.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
20: Brylee Drive reserve to Waiata Shores	LI	LI	LI

### Guidance notes for Implementation

- No active intervention** is appropriate for the northern section that is largely in a natural state with no community facilities assets near the coastal edge; high ecological values have been identified. Alternative walking access is available along inland street connections.
- Limited intervention** is recommended to maintain functionality of stormwater assets in response to coastal inundation and sea-level rise over all time frames.
- Wastewater infrastructure:** Significant transmission wastewater pipe. Localised maintenance measures and protection structures may be required to protect the functionality of some of these assets in the long term.
- Limited intervention** may include additional planting and weed control to maintain vegetative cover around coastal margins. Saltmarsh restoration at Brylee Reserve, and Waiata Shores Esplanade Reserve would be possible to help assist protection from flooding and erosion, while providing a nursery and essential habitat for fish species.





# Wattle Downs

## Pahurehure Inlet: Unit 5



Saint Annes Beach



Coastal walkway



Saint Annes low reef

- Unit boundary
- Informal recreation park
- Sport & active recreation area
- Stormwater pond
- Walking tracks
- Playground
- Access point
- Auckland Council owned land

0 500m 1km





## Unit 5: Wattle Downs

This unit is within the Manurewa Local Board area and extends approximately 9 km along the northern shoreline of Pahurehure Inlet from the Papakura Stream outlet to the west around the Wattle Downs Peninsula, including Takirangaranga Point, Kauri Point and the eastern and northern shoreline of Waimahia Creek.

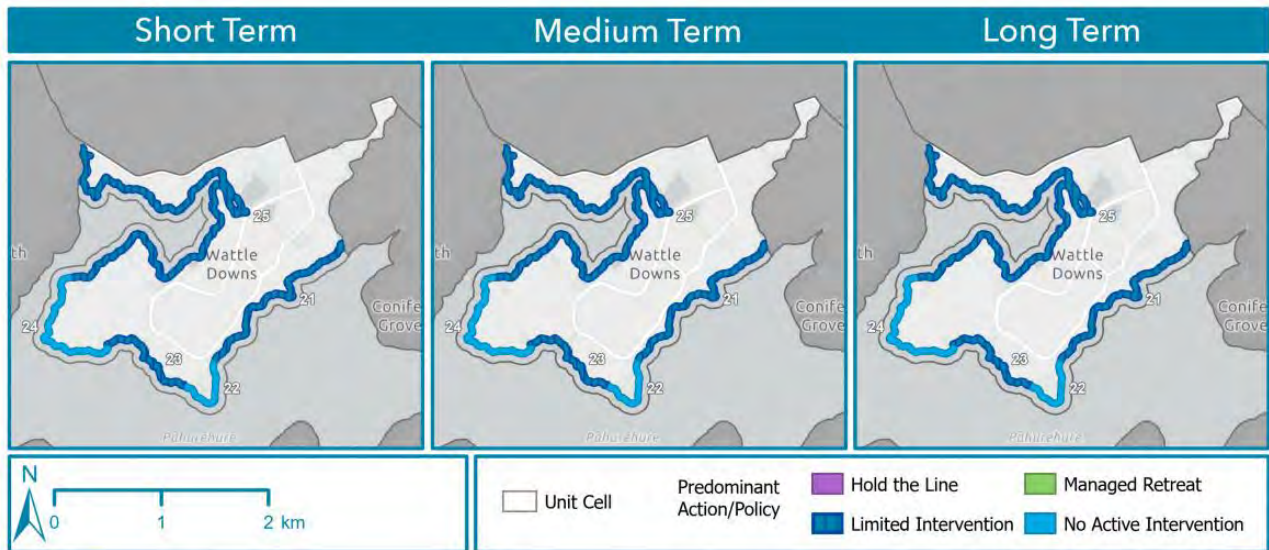


Figure 5-6: Adaptation strategies for Unit 5 Wattle Downs

### Adaptation summary stretches 21 to 25

Stretch	Short term	Medium term	Long term
21: Eastern Wattle Downs	LI	LI	LI
22: Kauri Point Reserve	NAI	NAI	NAI
23: St Annes Reserve	LI	LI	LI
24: Kuurae	NAI	NAI	NAI
25: Waimahia Inlet east	LI	LI	LI

### Council-owned infrastructure, land, and assets

St Annes and Carnoustie Drive Foreshore Reserves, Kauri Point Reserve and the Wattle Downs esplanade reserves provide large areas of public space along the Wattle Downs shoreline. There is an almost continuous esplanade reserve (10 m – 20 m wide) around the coast, with a large headland park at Kauri Point reserve. A coastal walkway has been developed around the coastal margin.

Parts of the coastline at St Annes Foreshore, Carnoustie Drive Foreshore and Glen Ross Reserves have engineered structures including seawalls, and low shore-parallel reefs protecting planted rushes, constructed in response to the coastal erosion and instability hazards. The remnants of a series of failed seawalls are visible along the toe of the coastal cliff at Kauri Point.

Several large stormwater treatment ponds and associated infrastructure are incorporated into Wattle Downs Esplanade Reserve along the Waimahia Creek shoreline and at Wattle Farm Ponds Reserve.

There is a wastewater pumping station near the park amenities at St Annes Crescent, and a smaller pumping station at Aberdeen Crescent. There are large stormwater outfalls discharging to the coast at St Annes and Carnoustie Crescent.

Table 5-6: Unit 5 risk rating score summary for Council-owned land & assets (short, medium, long term)

Council-owned land			Council Community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (61.3ha) Buildings, wharves (3 No.)			Park amenity structures, carparks, accessways, buildings (0.3 ha)			AT roads (25.4 km) Bridges (204.6 m <sup>2</sup> )			Water pipes (170.9 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion susceptibility											
High	High	High	Low	Low	Moderate	Low	Low	Low	Moderate	Moderate	High
Coastal inundation											
High	High	High	High	High	High	Moderate	High	High	Low	Low	Moderate
Key											
None		Low		Moderate		High		Very High			

### Environmental context: Coastal setting, hazardscape and ecological setting

The Wattle Downs Peninsula is located on the northern shoreline of Pahurehure Inlet in the lee of Weymouth Peninsula. Waimahia Creek flows along the northern and north-western shoreline of Wattle Downs. The south-west shoreline faces the main Papakura Channel entrance to Pahurehure Inlet, and the south-eastern facing shoreline of the peninsula faces the wider central basin of the inlet. The inner harbour location is generally a low wind wave-energy environment, due to short fetch and wide shallow intertidal flats.

The coastline is characterised by low vegetated coastal cliffs (5-10 m high) fronted by muddy intertidal flats, with some isolated outcrops of shore platform exposed on the intertidal area adjacent to Kauri Point and at the entrance to Waimahia Creek (Kuurae). At Takirangaranga Point, layers of pumiceous material from the Taupo Volcanic Zone are visible in the small headland. Much of the cliff shoreline is vegetated, although some steeper sections around Kauri Point and further east have exposed faces and signs of active instability including areas where root plates of large trees are exposed.

There are few dry high-tide beaches within this unit, the most notable being the sandy beach adjacent to St Annes Foreshore Reserve and some narrow beach areas in small, embayed parts of shoreline west of Takirangaranga Point. The width of intertidal flats reduces towards Kauri Point as the main channel flows closer to the northern side of the inlet before side arms branch out from the central tidal basin. Strong tidal currents with predominant ebb tidal current form a sand spit aligned southwest from Kauri Point. On the northern side of Kauri Point, the intertidal flats increase in width with distance from the headland.

Much of the north-western shoreline of the Wattle Downs along the Waimahia Creek is a 4-5 m high bank fronted by extensive tracts of mangrove forest. Other smaller stands of mangroves are present in smaller sheltered embayments on the south-east facing shoreline in the lee of Kauri Point and Takirangaranga Point. There are stands of rushes in isolated pockets along the base of the cliffs, and



two high-value coastal bird roosting locations on raised sandstone platforms adjacent to Wattle Downs.

Sections of the existing coastal walkway are susceptible to coastal instability and erosion in the short term, particularly in areas where the existing reserve is narrow and the route of the formed pathway is near the top of the bank. Most recent storm damage (January 2023) along this part of the coastline resulted in localised slips and large trees falling. In the medium term, the existing coastal walkway and some park amenities (seating, picnic tables) are susceptible to coastal instability and erosion hazards, with the exception of the inland sections located on wider reserves at St Annes Foreshore and Kauri Point.

Wave overtopping and inundation is predicted to occur in some localised places during a 1% AEP storm event, depending on the timing of high spring tides, such as of the low-lying Wattle Farm Ponds Reserve in the upper Waimahia Creek and part of the low grass reserve along the backshore at St Annes Foreshore Reserve, that may temporarily impact on the playground area.

In the longer term, for a 1 % AEP event plus 1 m sea-level rise, additional areas susceptible to coastal inundation include the Tington Wetlands Reserve in upper Waimahia Creek and nearby low-lying residential areas. In the larger area of the St Annes Foreshore Reserve, stormwater infrastructure will be impacted by coastal inundation in the long term. Parts of the Wattle Downs coastal walkway would also be impacted in the long term by localised areas of inundation along low-lying sections through St Annes Reserve and Carnoustie Foreshore Reserve.

### **Cultural context**

Traditionally, there were several pā (settlements) on the northern side of Te Pahurehure, which include Takirangaranga, Waimihia, Te Kauri, Te Mako and Te Puua.

Also situated on the northern side of Te Pahurehure were tauranga waka (canoe landing sites); one in particular is situated near Papakura Stream, which was navigable by smaller waka known as ‘waka teetee’.

Iwi are currently working across agencies and with developers to focus on improvements in stormwater management and the development and application of cultural health indicators for waterways within this unit. A particular focus here is the need to manage the stormwater at the coastal interface as it is not being managed at the source within the land catchments. Additionally, within this unit, iwi are working with developers on terrestrial / planting enhancement projects and cultural restoration of degraded areas.

### **Social and policy context**

Residential development of Wattle Downs began in approximately 1970, after developers acquired a farm following rapid urban sprawl of surrounding suburbs. Nowadays, both Wattle Downs and Weymouth are well-established and developed urban areas. There is continuous esplanade reserve around the shoreline with a well-connected network of walkways that are highly valued by the community.

## Stretch 21: Eastern Wattle Downs

### Stretch description

This stretch extends along the southeast facing shoreline from Papakura Stream to the start of Kauri Point Reserve.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Wattle Downs coastal walkway comprising concrete path extends along low cliff coastline, with park amenity furniture.</li> <li>Large stormwater outfalls at Carnoustie Drive.</li> </ul>	<ul style="list-style-type: none"> <li>Two short sections of masonry seawall provide toe support adjacent to Glenross Avenue.</li> <li>Management of isolated slips along the coastal margin by replanting crest of the slope to slow overland flow and to provide root reinforcement, and a soft barrier to public access.</li> <li>Larger masonry seawall extends along Carnoustie Avenue</li> <li>Small sections of low reef and planting in the coastal marine area.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
21: Eastern Wattle Downs	LI	LI	LI

### Guidance notes for Implementation

- Limited intervention** may include additional planting and weed control to maintain vegetative cover around the coastal margins, with monitoring of surface runoff impact on shoreline position in vicinity of the coastal walkway. Potential localised realignment of the pathway may be required, or limited intervention to protect the slope to maintain safe public access along the coastal reserve.
- Limited intervention** may also include additional low reef and plantings in the coastal marine area to enhance the saltmarsh fringe with creation of coastal wetland providing some low-lying coastal protection.
- Advocacy:** Support long-term restoration of indigenous biodiversity and protection of the significant cultural values of this area to local iwi.

## Stretch 22: Kauri Point

### Stretch description

This stretch covers the large headland reserve at Kauri Point.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Large headland reserve.</li> <li>Established trees, no built assets and limited access for users to access foreshore.</li> </ul>	<ul style="list-style-type: none"> <li>No active intervention as there are no assets in close proximity to shoreline.</li> <li>The coastal walkway connection is set well back from the coastal margin.</li> <li>Some failed remnants of previous coastal armouring.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
22: Kauri Point	NAI	NAI	NAI

### Guidance notes for Implementation

- No active intervention** recognises the shoreline is largely in a natural state and there are no assets near the coastal edge.
- Localised minor **limited intervention** may be required in order to provide safe public access points for users wishing to gain access to the foreshore.
- Advocacy:** Support and promote long-term restoration of indigenous biodiversity and protection of the significant cultural values of this area to local iwi.

## Stretch 23: St Annes Reserve

### Stretch description

This stretch covers the contiguous St Anne's Reserve that extends between Kauri Point reserve and private landholding at the eastern end of the southwest facing embayment.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Continuous coastal walkway, concrete path set back from vegetated coastal margin.</li> <li>St Annes Beach reserve wide open space, playground and park amenities.</li> <li>St Annes Crescent small access ramp to foreshore.</li> <li>Watercare Services wastewater pumping station at St Annes Reserve.</li> <li>Stormwater outfalls, and stormwater pond northern end main St Annes Beach.</li> </ul>	<ul style="list-style-type: none"> <li>St Annes Crescent nature-based solution for erosion management, low rock reef and salt marsh planting.</li> <li>Masonry seawall armouring small finger point at the southern end of the main St Annes Beach.</li> <li>Coastal revegetation planting along coastal margin.</li> <li>Removal of mature trees toppled in Cyclone Gabrielle.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
23: St Anne's Reserve	LI	LI	LI

### Guidance notes for Implementation

- Limited intervention** is the recommended strategy for St Annes Beach for local realignment of assets to avoid hazards and reduce ongoing maintenance requirements from increased exposure to coastal inundation flooding in the future. The reserve is highly valued by the local community and there is a wide area of available grass reserve and set-back distance of the existing underground pipe network. This strategy will support taiao (nature) and mitigate potential impacts of coastal squeeze at St Annes Beach by providing a greater backshore and wider high tide beach area.
- Limited intervention** may include additional planting and weed control to maintain vegetative cover around the coastal margins, with monitoring of surface runoff impact on the shoreline position in the vicinity of the coastal walkway. Ongoing monitoring and management of large exotic trees along the coastal margin may be required where wind leverage contributes to slope instability of weak geology.
- Advocacy:** Support and promote long-term restoration of indigenous biodiversity and protection of the significant cultural values of this area to local iwi.
- Wastewater infrastructure:** Localised **hold the line** measures may be required to protect the functionality of some of these assets in the long term.

## Stretch 24: Kuurae

### Stretch description

This stretch is the headland at the eastern entrance to Waimahia Creek inlet. The land is currently privately owned, however the land is identified with an urban residential zoning and may be subject to future development.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Currently privately owned.</li> </ul>	<ul style="list-style-type: none"> <li>No active intervention.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
24: Kuurae	NAI	NAI	NAI

### Guidance notes for Implementation

- **No active intervention** recognises that the shoreline is largely in a natural state and there are currently no assets in close proximity to the coastal edge.
- **Planning:** Site-specific coastal hazard assessments are essential for any development adjoining the coastal margin. Ensure full width of esplanade reserve is acquired along the coastal margin of any subdivision development, and no new assets are located in at-risk areas.
- **Advocacy:** Support and promote long-term restoration of indigenous biodiversity and protection of the significant cultural values of this area to local iwi.



## Stretch 25: Waimahia Inlet east

### Stretch description

This stretch extends around the Waimahia Creek shoreline with near contiguous coastal esplanade reserve along the indented inlet and mangrove filled embayments.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Stormwater detention ponds (Iwinuki Crescent, Aberdeen Crescent, Wattle Farm Road, Fergy Crescent, Wattle Farm Ponds Reserve; Tingtons Reserve).</li> <li>Wattle Downs Coastal walkway (concrete path and small boardwalk sections).</li> <li>Watercare Services wastewater pumping stations (Wattle Farm Ponds Reserve, Wattle Cove, Aberdeen Crescent).</li> </ul>	<ul style="list-style-type: none"> <li>Present-day wave overtopping and inundation is predicted to impact the low-lying Wattle Farm Ponds Reserve, and stormwater ponds at Fergy Crescent and Wattle Farm Road.</li> <li>The majority of the coastal walkway is elevated and not impacted by coastal inundation with the exception of low sections adjacent to stormwater ponds.</li> <li>Wattle Cove wastewater pumping station is within the long-term predicted ASCIE.</li> <li>The wastewater transmission pumping station at Wattle Farm Ponds Reserve is within the predicted long-term coastal inundation flooding area with 2 m sea-level rise, however the Wattle Cove and Aberdeen Crescent pumping stations are elevated and not at risk in that scenario.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
25 Waimahia inlet	LI	LI	LI

### Guidance notes for Implementation

- No active intervention** is the recommended strategy for coastal erosion given the low risk presented in this sheltered mangrove-infilled inlet. The shoreline is largely in a natural state and this strategy promotes retention of the natural mangrove habitat and saltmarsh fringe vegetation, recognising ecosystem services of mangroves in terms of habitat diversity, natural defence against coastal hazards and its role in sequestering carbon.
- Limited intervention** is identified to advocate for the management of stormwater assets to respond to sea-level rise. Localised interventions to maintain functionality of key infrastructure including Watercare Services' assets at Wattle Cove may also be required within this stretch.
- Advocacy** for additional planting and weed control to maintain vegetative cover around coastal margins, with monitoring of surface runoff impact on the shoreline position in the vicinity of the coastal walkway.
- Advocacy:** Support and promote long-term restoration of indigenous biodiversity and protection of the significant cultural values of this area to local iwi.



# Wiri/Weymouth

## Pahurehure Inlet: Unit 6



Te Pua | Keith Park



Te Pua | Keith Park



Weymouth Wharf

- Unit boundary
- Informal recreation park
- Sport & active recreation area
- Stormwater pond
- Walking tracks
- Playground
- Community buildings (includes leased)
- Fitness location
- Marae
- Boat ramp
- Jetty / Wharf
- Access point
- Auckland Council owned land

0 500m 1km

x 2

x 3



## Unit 6: Weymouth

This unit extends west from the small northern arm of Waimahia Creek around the Weymouth Peninsula including Weymouth Point (Te Pua Point) to the upper Puhinui Creek in Clendon. This 8 km long (approximately) shoreline is in the Manurewa Local Board area.

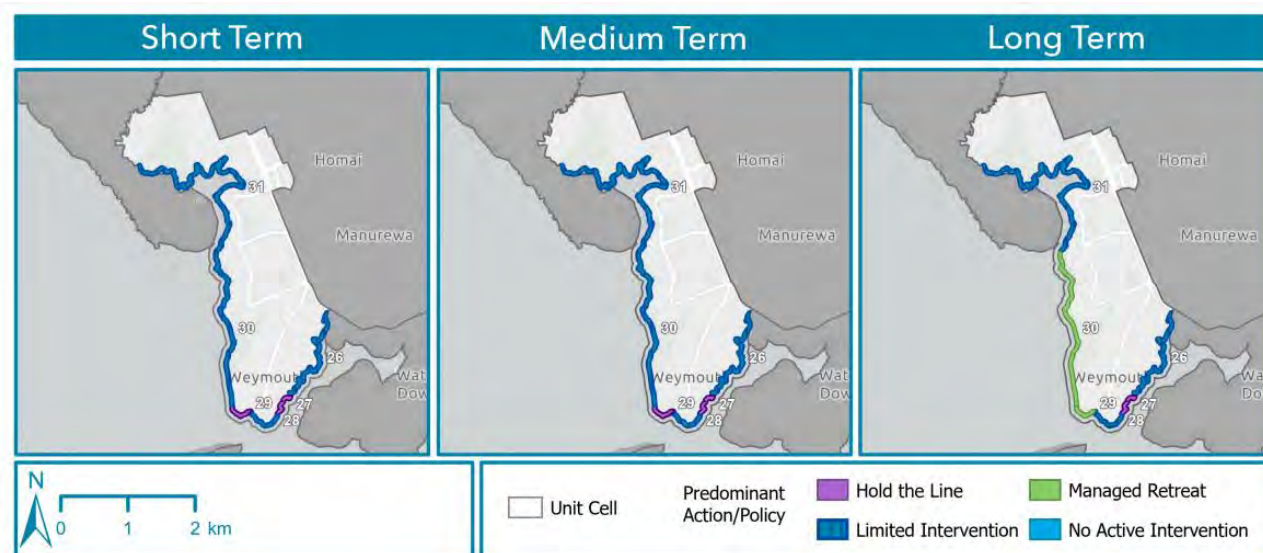


Figure 5-7: Adaptation strategies for Unit 6 Weymouth

### Adaptation summary stretches 26 to 31

Stretch	Short term	Medium term	Long term
26: Waimahia Inlet west	LI	LI	LI
27: Greers Reserve to Weymouth wharf	HTL	HTL	HTL
28: 8: Te-rangi-o-te-pua-karaka (Beihlers Road to Lawsons Way)	LI	LI	LI
29: Te Pua / Keith Park	HTL	HTL	MR
30: Weymouth Peninsula (Pitt Avenue)	LI	LI	MR
31: Puhinui Creek (east)	LI	LI	LI

### Council-owned infrastructure, land, and assets

The extensive esplanade reserve networks along this shoreline are a significant Auckland Council land asset, along with boat launching ramps, walkways and park amenities. In addition, there are several community leases and buildings associated with sports clubs, boating club and sea scouts at Laurie Gibbon Park, Keith Park and Hazards Road reserves. Further landwards, residential development is the predominant land use. Manurewa Marae is located on the eastern shoreline of Puhinui Creek. In the upper reaches of Pūkaki Creek near Matukutureia/McLaughlin Mountain there are areas of DoC reserve land, as well as landholdings of DoC and Ministry for Children facilities, and commercial land use.

Table 5-7: Unit 6 risk rating score summary for Council-owned land &amp; assets (short, medium, long term)

Council-owned land			Council Community facilities			Transport infrastructure			Water infrastructure		
Park and reserve land (71.3 ha) Buildings, wharves (28 No.)			Park amenity structures, carparks, accessways, buildings (1.7 ha)			AT roads (42.8 km) Bridges (57.0 m <sup>2</sup> )			Water pipes (181.4 km)		
Short	Medium	Long	Short	Medium	Long	Short	Medium	Long	Short	Medium	Long
Coastal erosion susceptibility											
Moderate	High	High	High	High	High	Low	Low	Moderate	Moderate	Moderate	High
Coastal inundation											
Moderate	Moderate	Moderate	High	Very High	Very High	Low	Low	Moderate	Low	Low	Low
Key											
None		Low		Moderate		High		Very High			

### Environmental context: Coastal setting, hazardscape and ecological setting

The Weymouth Peninsula forms the northern headland at the entrance to Pahurehure Inlet, with Puhinui Creek inlet defining the western shoreline of the peninsula. The west and south-facing shoreline is exposed to the greatest fetch for wind wave-generation of approximately 18 km across Manukau Harbour to Awhitu Peninsula and receives the highest wave energy conditions within the wider Pahurehure SAP area.

The coastal margin of Weymouth is generally cliffed, with higher elevation slopes (up to 10 m) along the western facing shoreline and lower slopes up to 5 m along the southern and eastern shoreline. Weakly consolidated Tauranga Group alluvial sediments (generally pumiceous mud, sand, silt, and gravels) are exposed in the banks and cliffs along the shoreline, as are some isolated outcrops of the local basement rock the Waitemata Formation (weakly interbedded sandstones and mudstones) that are also exposed on intertidal flats. The coastal edge is generally well vegetated (native and exotic scrubs, trees, and grasses).

The western cliff shoreline of Weymouth Peninsula is fronted by wide intertidal flats facing Puhinui Creek channel and Papakura channel beyond, with large areas of exposed rocky shore platform and thin veneers of fine sand. Along the coastal margin, there are some small narrow sandy beach areas comprised of sand and shell, and some low-lying grass reserve along the coastal edge. The intertidal area becomes increasingly muddier to the north and is fringed with saltmarsh and mangrove vegetation that increase in density towards the upper inlet of Puhinui Creek.

The Puhinui Creek inlet extends north to Clendon and is predominantly sheltered from the relatively higher open harbour wave-energy environment by extensive intertidal banks and the Puhinui Reserve Peninsula. It is a low wave environment, with extensive mangrove forest habitat in the head of the estuary. The mangroves in Puhinui Creek are some of the oldest mangroves in the harbour and have Bachelor's Button meadows on the fringe in places.

Weymouth Point and the east-facing shoreline of Waimahia Creek is a mostly a low wave-energy environment, with the large stands of mangroves in the shallow inlets and embayments and muddy intertidal flats (50-180 m wide) typical of the sheltered estuarine environment. Along the coastal margin there are some small narrow beaches, comprised of sand/shell or gravel.

Over the longer term, the coastal inundation maps for a 1% AEP event plus 1 m sea-level rise indicate an increased area will be impacted, including a greater extent of the Pitt Avenue and Burundi walkways along with the sealed car parking area. At Keith Park, the carparking areas and buildings on the reserve will be impacted along with some nearby residential property. A greater extent of Beihlers Reserve, Hazards Reserve and Greers Reserve will be at risk to inundation over this longer time frame.

### **Cultural context**

While specific cultural values and outcomes for this unit stretch will be shared and developed through ongoing involvement with iwi in respective work programmes, guiding objectives and outcomes which have informed the development of adaptation strategies have been identified in Section 3.0.

Iwi are currently working across agencies and with developers to focus on improvements in stormwater management and the development and application of cultural health indicators for waterways within this unit. Additionally, within Stretch 30, iwi have identified that walkways and assets should be secondary to the cultural assets/features and that there is a need to preserve and elevate these cultural assets' features in importance and ensure their protection (i.e. it is the preference of iwi to safeguard their assets and to not having public accessways along Unit 30 where possible).

### **Social and policy context**

Weymouth is a well-established urban area with residential land use over the majority of the peninsula and some industrial zoned land at Clendon and Wiri in the upper Puhinui Creek. This unit provides important access points to the Manukau Harbour for members of the public, including the boat ramp at Hazards Road (used for launching trailer boats and by waka ama groups), and Weymouth Wharf - a popular fishing spot. Other coastal esplanade reserves at Beihlers Reserve, Keith Park, Pitt Avenue and along the Puhinui Inlet are highly valued public open spaces that provide access to and along the shoreline. These spaces are enjoyed by the wider community for walking access, fishing, picnicking and by water sports spectators. There are several community lease buildings located on the coast within this unit for the Weymouth Sailing Club, Weymouth Sea Scouts and Manukau Rowing Club.



## Stretch 26: Waimahia Inlet west

### Stretch description

This stretch extends approximately 1.7 km along the western shoreline of Waimahia Creek.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Waimahia Park reserve, coastal walkway footpath.</li> <li>Jetty lookout.</li> <li>Stormwater detention pond.</li> </ul>	<ul style="list-style-type: none"> <li>No active intervention.</li> <li>There has been consented mangrove removal in the upper Waimahia Creek to enable access from reserve to the foreshore.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
26 Waimahia Inlet west	LI	LI	LI

### Guidance notes for Implementation

- Limited intervention* may include additional planting and weed control to maintain vegetative cover around the coastal margins, with monitoring of surface runoff impact on shoreline position in the vicinity of the coastal walkway.
- Limited intervention* acknowledges implementation of the current mangrove removal consent and retention of the mangrove habitat in the wider inlet. Review of ongoing sustainability and reassessment of mangrove management will be appropriate in the future, recognising ecosystem services of mangroves in terms of habitat diversity, natural defence against coastal hazards and role in sequestering carbon.
- No active intervention* is the recommended strategy for coastal erosion given the low risk in the sheltered mangrove infilled inlet and the shoreline is largely in a natural state.
- Advocacy*: Support and promote long-term restoration of indigenous biodiversity and protection of the significant cultural values of this area to local iwi.

## Stretch 27: Greers Reserve to Weymouth wharf

### Stretch description

This relatively short length (400 m) stretch along the Waimahia Creek shoreline between Greers Road esplanade and Beihlers Road is the focus of recreational boating access at Weymouth, and includes a boat launching ramp, Weymouth wharf, Weymouth Yacht Club and grass reserves with park picnic amenities.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Greers Road ramp and parking area.</li> <li>Weymouth Yacht club ramp, timber jetty/groyne, building (community lease).</li> <li>Hazards Road boat launching ramp and associated trailer parking.</li> <li>Sealed carparks and vehicle access ways.</li> <li>Community lease buildings.</li> <li>Beihlers Road reserve (reclamation)/ Weymouth wharf (Beihlers Road).</li> <li>Watercare Services wastewater infrastructure (main sewer line between Greers Road and Keith Park buried in foreshore), Weymouth transmission pump station.</li> <li>Stormwater assets.</li> </ul>	<ul style="list-style-type: none"> <li>Rip rap rock armour around the Greers Road reserve.</li> <li>Between Greer Road ramp and Hazards Road ramp, the narrow reserve area utilised by Weymouth Yacht Club, including the building, is predicted to be impacted in the short to medium term. Part of low cliff is protected with a timber retaining wall.</li> <li>Beihlers reserve reclamation and the abutment to Weymouth Wharf are armoured with a masonry seawall and are within the regional ASCIE for the short term.</li> <li>The main Hazards Road ramp parking area and the majority of the Greers Road parking area is at low risk because they are landward of the 100-year ASCIE. The Weymouth wastewater transmission pump station, located in the eastern corner of the carpark, is within the predicted long term ASCIE.</li> <li>Overtopping and inundation is predicted to occur in some localised places during a 1% AEP storm event, dependent on the timing of high spring tides, the reclaimed reserve between Beihlers and Hazards Road on Waimahia Creek shoreline.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
27 Greers Road to Weymouth wharf	HTL	HTL	HTL

### Guidance notes for Implementation

- Hold the line* is recommended for this stretch recognising the recreational amenity value and important connection to the Manukau Harbour that is highly valued by the local community. While the structural armouring of the shoreline can hold the coastal edge, the structures are not designed to prevent coastal inundation flooding and localised retreat of infrastructure within the park will be required in the long term.
- Mangrove management:* There is a current mangrove removal consent to enable clearance for public access to the boat launching ramps and for visibility of sailing and waka ama activities. Review of ongoing sustainability and reassessment of mangrove management will be appropriate in the future, recognising ecosystem services of mangroves for habitat diversity, natural defence against coastal hazards and its role in sequestering carbon.

## Stretch 28: Te-rangi-o-te-pua-karaka (Beihlers Rd to Lawsons Way)

### Stretch description

This stretch includes the private land around the point (Te-rangi-o-te-pua-karaka) from Beihlers Road to the eastern boundary of Te Pua | Keith Park, and includes the area of road reserve at Lawsons Way.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Small length of road reserve (Auckland Transport).</li> <li>No esplanade reserve land or community facilities.</li> <li>Watercare Services transmission pipe buried beneath the foreshore.</li> </ul>	<ul style="list-style-type: none"> <li>Informal rubble seawall along road reserve (Auckland Transport) at the end of Lawsons Way.</li> <li>Low risk to Watercare Services buried wastewater infrastructure.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
28 Te-rangi-o-te-pua-karaka	LI	LI	LI

### Guidance notes for Implementation

- Limited Intervention* is recommended to provide for Auckland Transport's remediation of the road reserve edge at the end of Weymouth Road and to maintain the transition between the road reserve and private properties, maintaining legal access to these properties.
- Wastewater infrastructure:** As the Hingaia, Auranga and Drury areas on the southern Pahurehure Inlet develop, water and wastewater assets to service those communities are likely to be constructed across the inlet from Karaka to Weymouth Road in the 2030s. Localised protection measures may be required to protect the functionality of some of these assets in the long term. Adaptation strategies may need to be revised following the development of significant infrastructure projects in this area.

## Stretch 29: Te Pua | Keith Park

### Stretch description

This stretch encompasses Te Pua | Keith Park located at southern end of Weymouth Peninsula.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Te Pua   Keith Park is armoured with masonry and low grouted basalt seawalls incorporating steps and small ramps.</li> <li>Park amenities including carparks, playground, sealed accessway.</li> <li>Counties Manukau Rowing Club and Weymouth Sea Scouts have community leases for buildings located on Keith Park.</li> <li>Watercare Services wastewater pumping station.</li> </ul>	<ul style="list-style-type: none"> <li>There is an existing seawall around the majority of Te Pua   Keith Park.</li> <li>The reserve is within the regional ASCIE for all time frames (short to long term) without the existing coastal armouring structures.</li> <li>The seawall and edge of the reserve is overtopped in present day 1% AEP storm event.</li> <li>Low-lying reserve and part of western carpark is predicted to be impacted by coastal inundation flooding in the short term, along with the wastewater pumping station and community lease buildings.</li> <li>In the medium term, the eastern carpark is predicted to be impacted.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
29 Keith Park	HTL	HTL	MR

### Guidance notes for Implementation

- Hold the line** for Te Pua | Keith Park recognises the high recreational and cultural value of the esplanade reserve that provides an important connection to the Manukau Harbour and is of high value to the local community. While the structural armouring of the shoreline can hold the coastal edge, the structures are not designed to prevent coastal inundation flooding and **localised retreat** of infrastructure within the park will be required in the long term.
- Managed retreat** signals that planning is required for localised reconfiguration of existing buildings in close proximity of the cliff edge in order to avoid the coastal erosion and instability and the coastal flooding inundation risk. This will require wider stakeholder consultation and planning.

## Stretch 30: Weymouth Peninsula (Pitt Avenue)

### Stretch description

This stretch extends along the western shoreline of Weymouth Peninsula between Te Pua | Keith Park and the outer Puhinui Creek mouth. There is a wide esplanade reserve along the majority of this stretch, backed by sports fields; DoC land backed by residential development; and a narrow esplanade reserve at the southern end of this stretch, also backed by residential development.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Public access point connections (paths/stairs) to the coast at McInnes Road, McLeod Road, Gibbons Road and Palmers Road.</li> <li>Laurie Gibbons sports fields.</li> <li>Coastal walkway between Gibbons Road and Burundi Avenue including a carpark at Pitt Avenue reserve.</li> <li>Watercare Services wastewater pumping stations (Weymouth North, Browns Road).</li> <li>Pitt Avenue coastal outfall from concrete-lined channel through reserve to stormwater outfall with concreted gabion basket scour protection.</li> </ul>	<ul style="list-style-type: none"> <li>The lower coastal path along Pitt Avenue Reserve is within the short term ASCIE, a short section of footpath has been realigned landward to avoid undermining. The carpark is predicted to be at risk in the medium term.</li> <li>The coastal margin of Pitt Avenue Reserve is currently inundated during present-day extreme storm events, with the low-grouted armouring regularly overtopped and saltmarsh species naturally establishing. In the medium term with a 1 m sea-level rise, the entire low area of grass reserve and the carpark will be impacted by coastal inundation flooding.</li> <li>The wastewater pumping stations are above the predicted long-term coastal inundation flooding extent.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
30 Weymouth Peninsula	LI	LI	MR

### Guidance notes for Implementation

- The area has a rich cultural context and this stretch is of significant cultural value. Further engagement and collaboration with landowners and local iwi will be required to manage risks to these sites/locations.
- Advocacy:** Promote restoration planting along the coastal fringe and long-term restoration of indigenous biodiversity and cultural values with local iwi. Saltmarsh restoration and enhancement would support a natural coastal edge providing increased resilience from sea-level rise by allowing natural saline vegetation to colonise and migrate landwards.
- Limited intervention** may include additional planting and weed control to maintain vegetative cover around the coastal margin, with monitoring of surface runoff impact on the shoreline position in the vicinity of the coastal walkway. Potential localised realignment of the pathway may be required, recognising the importance of the wider reserve and existing amenities as an



important recreational access point to the Manukau Harbour foreshore, as well as the importance of the esplanade reserve as a connected coastal walkway.

- **Limited intervention** for stormwater management improvements to the existing concrete channel and large outfall structure.
- **Wastewater infrastructure:** Localised **hold the line** interventions to maintain functionality of key infrastructure.
- **Managed retreat** signals that planning is required for localised reconfiguration of park assets including alternative locations to the low carparking area that is predicted to be exposed to coastal inundation flooding in the medium term with sea-level rise. This will require wider stakeholder consultation and planning with local iwi.

## Stretch 31: Puhinui Creek (east)

### Stretch description

This stretch is the inner Puhinui Creek shoreline extending north from the constricted inlet entrance towards the stream mouth in the upper inlet, which demarcates the Pahurehure SAP boundary with the Manukau East SAP.

Council-owned infrastructure, land, and assets	Current management approach/ risks
<ul style="list-style-type: none"> <li>Coastal walkway from Burundi Avenue to Browns Road comprising a concrete pathway and timber boardwalk sections.</li> <li>Unmaintained and inaccessible esplanade reserve fringe upper inlet.</li> </ul>	<ul style="list-style-type: none"> <li>Isolated slips have impacted part of the walkway and resulted in localised closure and re-routing of the walkway to avoid unstable land along the crest.</li> <li>Consented mangrove removal has been undertaken in parts of the Puhinui Creek for access to reserve near Manurewa Marae.</li> </ul>

### Adaptation strategies

Stretch	Short term	Medium term	Long term
31: Puhinui Creek (east)	LI	LI	LI

### Guidance notes for Implementation

- This stretch is of significant cultural value. The area has a rich cultural context and includes the Manurewa Marae. Further engagement and collaboration with landowners and local iwi will be required to manage risks to these sites/locations.
- Advocacy:** Promote restoration planting along the coastal fringe and long-term restoration of indigenous biodiversity and cultural values with local iwi. Saltmarsh restoration and enhancement would support a natural coastal edge providing increased resilience from sea-level rise by allowing natural saline vegetation to colonise and migrate landwards.

## 6.0 Conclusion

The Pahurehure Inlet SAP extends along approximately 113 km of shoreline including rural, urbanising and developed environments and catchments. This includes several estuaries, islands and multiple catchments. Development of the shoreline varies from unmanaged esplanade areas in rural areas to highly modified areas of rock armouring. Access to and along the coast is highly valued and prioritised by the communities and iwi. Opportunity to restore and improve both the natural environment and amenity values is being actively pursued by Ngati Tamaoho and the community alike. The development of this SAP has identified some overarching aspirations to manage erosion, improve environmental outcomes, protect cultural heritage and ensure greater resilience of coastal assets to future natural hazard events. This is reflected both at a stretch scale (throughout section 5.0) and through the advice to asset owners (section 5.1).

Overall, the majority of the coastline within the SAP area can be managed through *limited* and *no active intervention*. Specific areas are identified where *hold the line* is required to maintain existing infrastructure and highly valued coastal connections and land. *Managed retreat* is identified to signal the need for proactive management of land uses and assets where increasing risk from coastal hazards will impact the long-term feasibility of maintaining all uses within a specific area. The key approaches are set out below and all strategies presented in Table 6-1 below and in the figures included in Attachment B1.

- Within rural western areas (Unit 1) there are limited Auckland Council-owned land and assets identified as being at risk. *No active intervention* is identified in the short term moving to *limited intervention* in the mid to long term to respond to the need to ensure key roading connections (such as Linwood and Hingaia Roads) are maintained, designed and aligned to mitigate hazard risks.
- Within the more urban areas, *limited intervention* is the preferred strategy for much of the shoreline, providing for the continued management of existing assets. For many stretches, the location or alignment of assets can be considered when they are renewed to reduce or mitigate risk from coastal hazards (and catchment flooding) and *nature-based options* supported to mitigate coastal hazard impacts.
- Areas identified for *hold the line* include the Karaka harbourside coastal walkway and reserve and areas of the Conifer Grove foreshore. *Hold the line* in these locations reflects the existing modification of the shoreline and the highly valued coastal connections.
- *Managed retreat* and realignment of some activities where coastal space is constrained is required in several locations over the mid to long term. At Waikirihinau | Bottle Top Bay (Unit 2) where coastal inundation has the greatest impact on low-lying boat launching and parking facilities; Youngs Point (Unit 3) where both inundation and erosion risks present challenges to accommodate all the current park uses within a constrained area and at Otuwairoa Creek (Slippery Creek /Hingaia Stream, Unit 2) and on the western side of the Weymouth Peninsular (Unit 6) in relation to the ongoing ability to accommodate all current uses within the existing landholdings in proximity to the coast.

Implementation of this SAP is a live and developing process which will require continued collaboration across multiple Auckland Council departments and Auckland Council-controlled organisations and entities. This will be undertaken alongside ongoing engagement with iwi to ensure

that iwi have a partnership/co-management role in the project design, development, and implementation phases.

The SAP area reports are currently anticipated to be reviewed on a ten-yearly cycle. This will enable updated information to become available and be appropriately considered. Review may also be requested by iwi or required because of a specific trigger or signal being met which requires an accelerated need for change (this is discussed at section 1.3). It is noted that adaptation planning will more generally need to respond to national and regional legislative and policy changes and transition to the use of signals, triggers, and thresholds in place of static timeframes (refer to Section 1.4).

Table 6-1: Summary of adaptation strategies by stretch for Pahurehure SAP area

Unit		Stretches	Adaptation strategies		
			Short term	Medium term	Long term
Unit 1	Karaka	Stretch 1 Whangamaire Stream embayment	NAI	LI	LI
		Stretch 2 Drury Creek western shoreline	NAI	LI	LI
Unit 2	Drury Creek and Hingaia	Stretch 3: Oira Creek and Te Pou a Rangiwihwi	NAI	NAI	NAI
		Stretch 4: Auranga	LI	LI	LI
		Stretch 5: Ōpaheke	NAI	NAI	NAI
		Stretch 6: Slippery Creek/ Otūwairoa Stream & Hingaia Stream	LI	LI	MR
		Stretch 7: Hingaia South (Park Estate)	LI	LI	LI
		Stretch 8: Drury Creek eastern shoreline	NAI	NAI	NAI
		Stretch 9: Waikirihinau   Bottle Top Bay	LI	MR	MR
		Stretch 10: Hingaia North	NAI	NAI	NAI
		Stretch 11: Karaka Harbourside	HTL	HTL	HTL
		Stretch 12: Pararēkau & Kōpuahingahinga Islands	LI	LI	LI
Unit 3	Papakura	Stretch 13: Pahurehure Inlet No. 2 southern shoreline	LI	LI	LI
		Stretch 14: Youngs Point	LI	MR	MR
		Stretch 15: Longford Park	LI	LI	LI
		Stretch 16: Pahurehure Inlet No. 1	NAI	LI	LI
Unit 4	Conifer Grove	Stretch 17: Conifer Grove south	HTL	HTL	HTL
		Stretch 18: Conifer Grove west/Takaanini Point	HTL	LI	LI
		Stretch 19: Conifer Grove north	HTL	LI	LI
		Stretch 20: Brylee Reserve to Waiata Shores	LI	LI	LI

Unit		Stretches	Adaptation strategies		
			Short term	Medium term	Long term
Unit 5	Wattle Downs	Stretch 21: Eastern Wattle Downs	LI	LI	LI
		Stretch 22: Kauri Point Reserve	NAI	NAI	NAI
		Stretch 23: St Annes	LI	LI	LI
		Stretch 24: Kuurae	NAI	NAI	NAI
		Stretch 25: Waimahia Inlet east	LI	LI	LI
Unit 6	Weymouth	Stretch 26: Waimahia Inlet west	LI	LI	LI
		Stretch 27: Greers Reserve to Weymouth Wharf	HTL	HTL	HTL
		Stretch 28: Te-rangi-o-te-pua-karaka (Beihlers Road to Lawsons Way)	LI	LI	LI
		Stretch 29: Te Pua   Keith Park	HTL	HTL	MR
		Stretch 30: Weymouth Peninsula (Pitt Ave)	LI	LI	MR
		Stretch 31: Puhinui Creek	LI	LI	LI



## 7.0 References

- Auckland Council (2023). *Shoreline Adaptation Plans: Literature review*. The use of nature-based solutions and ecological enhancement as a consideration for Shoreline Adaptation in Auckland Tāmaki Makaurau. Prepared by Tonkin + Taylor for Auckland Council.
- Auckland Council (2023). *Shoreline Adaptation Plans: SAP Area J Pahurehure Inlet - Policy, Social & Cultural Supporting Report*. Prepared by Barker & Associates for Auckland Council.
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- Auckland Council (2023). *Shoreline Adaptation Plans. SAP area J Pahurehure Inlet supporting report - policy, social and cultural*. Prepared by Barker & Associates for Auckland Council.
- Auckland Council, (in draft) *Shoreline Adaptation Plans: Community Engagement Analysis SAP Area J Pahurehure Inlet*
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- Roberts, R., N. Carpenter and P Klinac (2020). *Predicting Auckland’s exposure to coastal instability and erosion*, Auckland Council, technical report TR2020/021, December 2020
- Tonkin and Taylor (2024) *Pahurehure Inlet Shoreline Adaptation Plan: Risk Assessment* technical report

## Attachments

[Attachment A1: Te Ao Māori Frameworks for the Shoreline Adaptation Plans](#)

[Attachment B1: Adaptation Strategies by timeframe](#)

### Attachment A1 Te Ao Māori Frameworks for the Shoreline Adaptation Plans

#### Attachment A1.1 Te Ao Maori

Te tiro ā Māori ki tōna ake ao, a Māori world view, acknowledges the tangible and intangible, the inter-relationship of all living and non-living things and speaks to the vital connection between tāngata whenua (Indigenous people) and te taiao (the natural environment) in which they live. Within te ao Māori, people, birds, fish, trees, oceans, rivers and streams, and weather patterns - are all interconnected, and these relationships stretch back into the past, sit within the present and look to the future.

The wellbeing of tāngata whenua (indigenous people) and the ecosystems that support them is interlinked with the concept of '*mai te rangi ki the whenua, mai te whenua ki te rangi*' (from Ranginui to Papatūānuku, from Papatūānuku to Ranginui), which underpins the holistic world view for many iwi / hapū of Tāmaki Makaurau, and how the traditional concept of kaitiakitanga is approached. Understanding inter-relationships and interconnectedness is a fundamental part of addressing the impacts of climate change and sea-level rise.

As an adaptation workstream within Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan, the SAP programme considers te ao Māori by giving effect to the Kia Ora Tāmaki Makaurau and Te Ora ō Tāmaki Makaurau frameworks, underpinned by the principles of te Tiriti o Waitangi, and recognising and providing for te ao Māori concepts. This is explained further at Section 3.0.

#### Attachment A1.2 Principles for Partnership for the development of the SAPs

While not exhaustive, other relevant cultural objectives and outcomes sought for the SAP programme include:

- Ensuring iwi are engaged to speak to and identify:
  - Their cultural values and associations of an area
  - Any impacts to their cultural values and associations
  - Any necessary mitigation and management of any impacts and effects on cultural values and associations.
- Prioritising the protection and recognition of wāhi tapu / sites of cultural significance within or adjoining the coastal area

- Recognising and providing enduring kaitiaki opportunities for tāngata whenua
- Supporting iwi to implement and maintain rāhui
- Proactively protecting and restoring nature's first line of defence for the coastline (prioritising nature's ability to absorb the effects of climate change)
- Respecting the role nature has in te taiao, allowing Tangaroa to take back the whenua, tāna mokopuna te ika, that was taken from him by Māui
- A return to native habitats - mangroves and dunes with native planting all around the coastal area, consistent with what was historically present. A planting regime should be commenced in advance of any potential risks
- Proactively protect and enhance taonga species and habitats
- Proactively protect coastal cliffs (pari) and coastal dunes
- Proactively protect and enhance coastal and inland wetlands, and indigenous habitats and biodiversity
- Prioritise protection of, and contribute to the enhancement of, kaimoana / shellfish habitats with a focus on the regeneration for mahinga mātaihai sites
- Make room for wai (water), enable natural processes where possible and naturalising aquatic environments where possible (e.g. daylighting of streams)
- Enhance existing and provide for new, natural connections and access points to the coastal environment
- Prioritise a 'te taiao (environment) centred' approach, over a 'human-centred' approach when implementing the shoreline adaptation approaches
- Ensuring there is a process to revisit the shoreline adaptation strategies into the future as technology and methodologies change.

How these objectives are realised within each SAP needs to be undertaken alongside local iwi. This must be provided for through further engagement.

### **Attachment A1.3 Ngā hapū me ngā iwi o Tāmaki Makaurau**

The hapū and iwi of Tāmaki Makaurau, hold important values as kaitiaki (guardians, protectors). These include their environmental and spiritual ties to ancestral lands, water, sites, wāhi tapu (sacred areas) and other taonga (treasures), and the wellbeing of the entire iwi.

Auckland Council, as set out in The Auckland Plan 2050, looks to recognise and provide for Te Tiriti outcomes. Treaty principles provide guidance for decision-making, partnership, and collaboration between the 19 iwi of Tāmaki Makaurau and government. This can include co-governance and co-management approaches, including for natural resources where holistic, integrated, and sustainable outcomes are sought.

The cultural values, associations, objectives, and outcomes communicated by each iwi involved in the development of each SAP will help to inform the selection of adaptation strategies within each. Such cultural values and outcomes are anticipated to be developed through ongoing involvement of iwi throughout the development of all 20 SAP area plans and their implementation.

Guiding frameworks, principles for engagement and regional principles for SAP plan development which have informed the development of the SAP programme to date are set out below and build on these regional principles, identifying those of local iwi who have been involved in the development of this plan.

### Attachment A1.4 Te Ora o Tāmaki Makaurau Wellbeing Framework

[Te Ora o Tāmaki Makaurau](#) is the wellbeing framework developed by the Mana Whenua Kaitiaki Forum in response to Te Tāruke-ā-Tāwhiri. It is a regional innovation that is built on generations of knowledge and reflects the world view of the various mana whenua, iwi, rangatahi Māori and Māori communities of Tāmaki Makaurau. Te Ora aligns with Te [Ora Tāmaki Makaurau](#) and supports the concept of Te Tātai. The Te Ora framework incorporates kaupapa Māori and mātauranga-ā-iwi and is underpinned by the principles of te Tiriti o Waitangi, particularly the principles of partnership and active protection.

Within Te Ora, there are three dimensions of wellbeing that form a holistic approach: **Taiao** (environment), **Whenua** (land, earth), **Tāngata** (people). When considered together, dimensions within the Te Ora framework (Taiao - environment, Whenua -land, Tāngata - people) can frame our adaptation to climate change by taking a whole living systems approach. Our response to climate change is also guided by the following values and principles:

- Manaakitanga
- Kaitiakitanga
- Whanaungatanga
- Rangatiratanga
- Mātauranga
- Oritetanga
- Tōnuitanga.

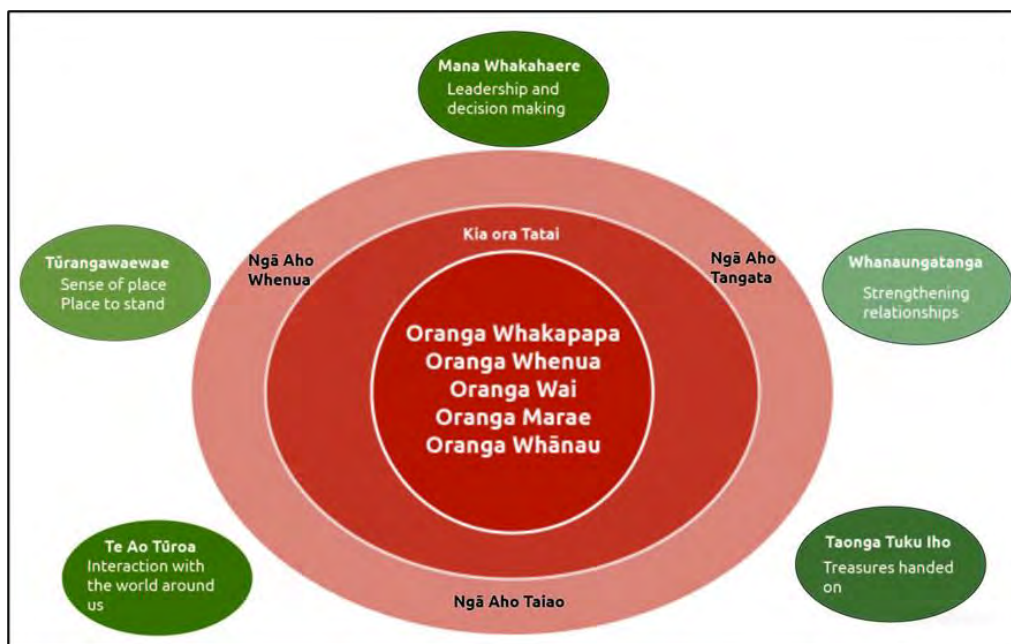


Figure 7-1: Graphic of Te Ora o Tāmaki Makaurau Wellbeing Framework

## **Attachment A1.5      Guiding Cultural Themes**

The values identified by each of the iwi have been categorised into three major themes which reflect the Kia Ora Te Tātai outcome being:

- Taiao - Environment;
- Whakapapa – Ancestry; and
- Tāngata Hononga - Connecting People.

These are further expanded below. Additionally, iwi involved in the development of this SAP have contributed some high-level objectives and outcomes that will assist in giving effect to these values across the Manukau North Tranche.

## **Attachment A1.6      Te Taiao (Environment)**

Tangata Whenua of Manukau and Tamaki are coastal people, and the Manukau is intertwined at the heart of natural and cultural heritage and identity. The natural environment is a taonga, it is an integral source of nourishment through mahinga kai (food gathering) and spiritual and physical welfare. The goal is to ensure that the needs of present and future generations are provided for in a manner that goes beyond sustainability towards an approach that enhances the environment. The environment is protected, enhanced, and celebrated through an integrated approach, by natural means first and foremost and in partnership with tangata whenua. This includes proactive enhancement and/or conservation activities that will aim to naturalise and enhance the natural environment and ultimately contribute towards preserving the coastline. Guardianship and stewardship of the environment is enacted via kaitiakitanga. Restoration and enhancement of the mauri should be prioritised.

## **Attachment A1.7      Whakapapa (Ancestry)**

Wāhi tapu sites present physical links to whakapapa (ancestry) and enduring tikanga (cultural practices) fundamental to cultural identity. Historically, mana whenua have been stripped of much of their whenua, losing many wāhi tapu sites. It is essential that wāhi tapu are protected, celebrated, and enhanced through an integrated approach, by natural means, and in partnership with iwi mana whenua. Some wāhi tapu sites are not public knowledge and their locations are intentionally protected by iwi and hapu. Mana whenua need to be collaborated with as partners to identify and manage wāhi tapu sites. The celebration of mana whenua values includes the acknowledgement, respect, and recognition of cultural and spiritual values of tangata whenua. Wāhi Tapu and Taonga must be respected, treasured, and valued. This may include archaeological sites, cultural landscapes, and artefacts as well as sites of spiritual and historic significance to the trust. For example, wāhi tapu may include pā sites, battlefields, burial grounds, significant historic iwi sites, and waka landings.



## **Attachment A1.8 Tāngata Hononga (Connection People)**

Through involving the community, the people are connected and invested in their environment and therefore uplifted. The SAP recognises that people and the environment are holistically intertwined. Resource management should be implemented in a way that sustains and supports the ability of Manaakitanga, ongoing generosity and hospitality, and enables and supports mana whenua's role as kaitiaki.

## **Attachment A1.9 Infrastructure and Environmental Services Mana Whenua Kaitiaki Forum regional guiding principles for Shoreline Adaptation Plans**

In the spirit of partnership, the Auckland Council I&ES Mana Whenua Kaitiaki Forum developed the following guidance principles for all SAPs:

- Responsive to iwi management plans
- Accept reversal of infrastructure to rectify hazard issues
- Naturalise, let nature take its course
- Look at emissions as well (if any)
- Whenua concepts are written up and understood by all in plans
- Protect koiora (biodiversity) and traditional mahinga kai (fish stocks, kaimoana)
- Protect heritage where possible.

These principles align with both the Kia Ora Tāmaki Makaurau and Te Ora ō Tāmaki Makaurau frameworks and help guide the SAP work programme and its implementation.

## Attachment B1 Adaptation Strategies by timeframe

