Shoreline Adaptation Plan:

Whangaparāoa Pilot

2022

NGĀI TAI KI TĀMAKI
Tapuwae o Nuku · Tapuwae Ariki · Tapuwae o Tai

NGĀTI MANUHIRI
SETTLEMENT TRUST

aucklandcouncil.govt.nz

Shoreline Adaptation Plan: Whangaparāoa Pilot

January 2022

Auckland Council

ISBN 978-1-99-110118-1 (Print)

ISBN 978-1-99-110119-8 (PDF)

Externally reviewed and recommended for publication by:

Name: Richard Reinen-Hamill

Position: Technical Director, Tonkin and Taylor

Internally reviewed and recommended for publication by:

Name: Paul Klinac

Position: General Manager Resilient Land and Coasts

Approved for publication by:

Name: Barry Potter

Position: Director Infrastructure and Environmental Services

Recommended citation:

Howe, T., N. Carpenter, R. Reinen-Hamell, M. McNeill, M. Rivers (2022). Shoreline adaptation plan: Whangaparāoa pilot 2022

Front cover

Picture of 2018 erosion event at Stanmore Bay, Whangaparāoa.

Acknowledgements

This document was written in the spirit of partnership with Ngāti Manuhiri, Ngāi Tai ki Tāmaki, and the I&ES Operational Kaitiaki Forum. It was prepared with technical input from Tonkin + Taylor and advice from Healthy Waters, Parks Sports and Recreation, Community Facilities, Democracy and Engagement, Plans and Places, and Auckland Transport and Watercare.

1.0 Table of Contents

Figures

Whakataukī

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

Toitū te marae a Tāne-Mahuta, Toitū te marae a Tangaroa, Toitū te tangata

If the land is well and the sea is well, the people will thrive.

1.0 Te Ao Māori

The Māori worldview (te ao Māori) acknowledges the interrelationship of all living and non-living things and speaks to the vital connection between human beings and the natural environment in which they live. Within te ao Māori, all things - people, birds, fish, trees, oceans, weather patterns - are members of an interconnected, cosmic family which stretches back into the past and far into the future. The waiora (wellbeing) of humans is interlinked with the ecosystems that support them. Understanding this interconnectedness is a fundamental part of addressing climate change and its impacts.

As an adaptation workstream within Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan, Shoreline Adaptation Plans (SAPs) respect te ao Māori by giving effect to the Kia Ora Tāmaki Makaurau and Te Ora ō Tāmaki Makaurau frameworks.

1.1 Te Ora ō Tāmaki Makaurau wellbeing framework

Te Ora ō 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 Kia Ora Tāmaki Makaurau and supports Te Tātai. The Te Ora framework incorporates kaupapa Māori and mātauraunga-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), Tangata (people).

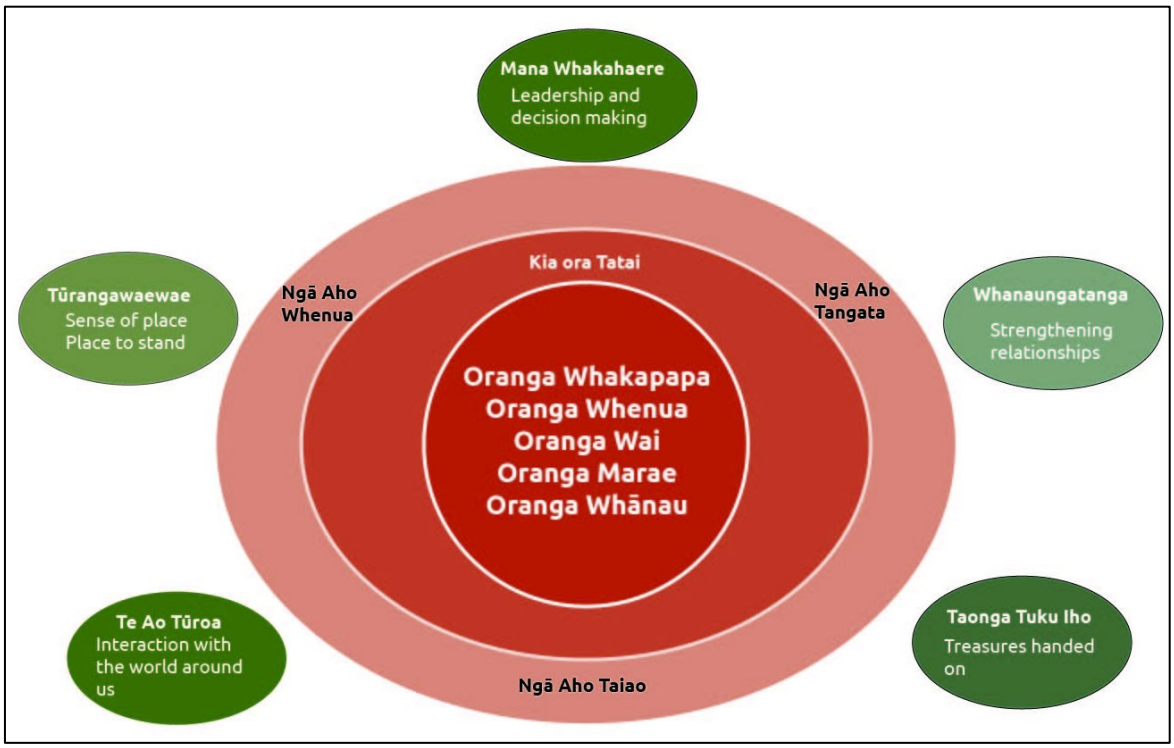


Figure 1-Graphic of Te Ora ō Tāmaki Makaurau Wellbeing Framework

When considered together, these dimensions 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
- Whangauangatanga
- Rangatiratanga
- Mātauranga
- Oritetanga
- Tōnuitanga.

1.2 Treaty relationships and governance

The hapū and iwi of Tāmaki Makaurau, known as mana whenua, hold important values as kaitiaki (guardians or 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 o Waitangi outcomes. Treaty principles provide guidance for decision-making, partnership, and collaboration between mana whenua and government. This can include co-governance and co-management approaches, including for natural resources where holistic, integrated and sustainable outcomes are sought.

To date the Crown has provided Treaty settlement redress to a number of mana whenua groups that relate to the Whangaparāoa Peninsula and its adjacent sea-ways. The Hauraki Gulf Forum, a statutory body under the Hauraki Gulf Marine Park Act 2000, promotes and facilitates integrated management and the protection and enhancement of the Hauraki Gulf, and has adopted a co-governance leadership model.

1.3 Operational guiding principles for Shoreline Adaptation Plans

In the spirit of partnership, the Auckland Council Infrastructure and Environmental Services Mana Whenua Kaitiaki Forum developed the following guiding principles for all Shoreline Adaptation Plans:

- 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 the Te Ora framework and help guide the Shoreline Adaptation Plans work programme and its implementation.

2.0 Regional context

2.1 Introduction

Auckland is a coastal city, bounded to the east and west by the South Pacific Ocean and the Tasman Sea. The region has roughly 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 are concentrated in coastal areas and are 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. Responding to these impacts, in 2020, Auckland Council declared a climate emergency and published Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan[1],. To implement the Climate Plan and support a resilient future for Auckland's coast, Auckland Council needs to build integrated coastal management and climate adaptation into its long-term strategic planning processes.

2.2 What are shoreline adaptation plans?

Shoreline adaptation plans (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 Auckland Council-owned facilities) over the next 100 years. These plans consider the potential impacts of coastal erosion, coastal inundation, rainfall flooding, and climate-change impacts (including sea level rise) and seek to provide an adaptive planning approach that is focused on the needs and values of local iwi and local communities. Acknowledging the environmental and landscape value of the shoreline, SAPs also work to promote the preservation, enhancement, and ecological restoration of the coastal environment for future generations. Recognising the high number of non-Auckland Council assets in shoreline areas, these plans are developed with input from stakeholder partners such as Auckland Transport, Watercare, Waka Kotahi, and other infrastructure and utility providers.

The need for SAPs was set out in the Coastal Management Framework[2] ('the Framework') adopted by Auckland Council in 2017[3]. The Framework established Auckland Council's hierarchy for best practice coastal management, with SAPs directed by the overarching regional philosophy for coastal management. To support the holistic development of these plans, the Auckland region has been broken into 16 coastal cells of varying size. The Framework recognised SAPs as non-statutory documents that will inform comprehensive, long-term planning. Each coastal cell identified within the Framework will have its own SAP informed by local iwi, infrastructure providers, and local community engagement. The SAPs will be implemented through integration of all recommended adaptive strategies into relevant Auckland Council Asset Management Plans. Once all 16 SAPs have been completed, they will also inform regional prioritisation and funding of future asset management.

---

1 Auckland Council (2020). Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan.

2 Carpenter, N., Sinclair, S., Klinac, P., Walker, J (2017) Coastal management framework for the Auckland region.

3 Within the Coastal Management Framework, Shoreline Adaptation Plans were previously referred to as Coastal Compartment Management Plans.

The SAPs give effect to the New Zealand Coastal Policy Statement, which directs councils to identify areas that may be affected by coastal hazards over a timeframe of at least 100 years. Their approach aligns with guidance from the Ministry for the Environment[4], in particular through the establishment of mana whenua and community values and objectives and the development of a coastal hazards vulnerability and risk assessment. It will culminate in the development of Dynamic Adaptive Policy Pathways, providing a 'roadmap' for changing coastal management strategies over time.

At this stage, Auckland's SAPs are focused on Auckland Council-owned coastal land and assets, as described within the overarching Shoreline Adaptation Plan Regional Context Report[5]. This includes:

- Parks and community facility assets including coastal defences (e.g., seawalls), public amenity assets (e.g., boat ramps) and coastal access (e.g., walkways)
- Stormwater assets such as stormwater pipes and culverts
- Environmental assets that provide a valuable habitat and buffer from coastal hazards (e.g., beaches and mangroves) or natural unique features (e.g., outstanding natural features)

In addition to the above council owned assets and land, the plans consider cultural heritage sites and places including physical features (e.g., historic buildings, structures and archaeological sites) as well as intangible values that reinforce a sense of history and identity, are central to wellbeing, and help define what is unique and distinctive about Auckland.

Overall, the Shoreline Adaptation Plans enable a best practice method for developing the Dynamic Adaptive Policy Pathways recommended by the Ministry for the Environment, while also recognising the reforms to the Resource Management Act currently underway. It is anticipated that an iterative approach to the SAPs will be adopted, aligning with international approaches to coastal management such as the UK's Shoreline Management Plans.

2.3 Whangaparāoa pilot

The Whangaparāoa Pilot Report is the first SAP to be developed for the Auckland region. The Whangaparāoa Peninsula was chosen as it has a variety of different coastal environments, a mix of Auckland Council-owned land and assets, and strong, established communities. The peninsula has also had historical issues with coastal hazards, with both north and south Whangaparāoa identified as 'coastal hotspots[6]' in the Coastal Management Framework.

[4] Ministry for the Environment (2017). Coastal Hazards and Climate Change – Guidance for Local Government.

[5] Auckland Council (2021) Shoreline Adaptation Plans: Regional Context

[6] Sections of coast identified as experiencing recurrent coastal management issues including erosion, inundation and renewal of coastal structures.

3.0 Whangaparāoa context

Whangaparāoa Peninsula is located approximately 25 km north of central Auckland and is defined by the Ōrewa Estuary to the north and the Weiti River to the south (Figure 3-1). The peninsula extends east some 11 km into the Hauraki Gulf and has a diverse shoreline, including a mix of sandy beaches (e.g. Stanmore Bay Beach and Te Haruhi Bay), high steep cliffs (e.g. Tarihunga Point), and modified coast (e.g. Gulf Harbour Marina).

Figure 3-1: Aerial image of Whangaparāoa Peninsula

The proximity of Whangaparāoa to central Auckland makes the peninsula a popular place to both live and visit. Communities on the peninsula include Red Beach, Stanmore Bay, Manly, Tindalls Beach, Army Bay, Gulf Harbour, Matakatia, and Arkles Bay. The eastern tip of Whangaparāoa is home to Shakespear Regional Park which includes several beaches, cliff-top walkways and public amenities. Popular parks along the peninsula are enhanced by their coastal location including Manly Park and Stanmore Bay Park.

3.1 Historic and cultural context

Whangaparāoa is translated as the 'Bay of Sperm Whales' and has been a site of Māori occupation for several centuries[7]. Part of a series of settlements spanning from Mahurangi in the north to the Waitemata in the south, the Whangaparāoa peninsula played an important role in the migrations, conquests and trading networks of a number of Maori groups[8]. The seaway immediately north of Whangaparāoa was a known resting place for migrating whales and their calves[9]. The distribution of archaeological sites confirms that Maori occupation was concentrated along Whangaparāoa's southern coast, centred on Te Haruhi, the eastern-most bay on the peninsula. The mouth of the Weiti River was also of strategic importance for giving water access to inland areas and as the starting point for a significant overland walkway[10]. The area near the river's mouth was cultivated, producing a variety of food and protected by several pā.

3.2 Mātauranga ā-iwi from Ngāti Manuhiri and Ngāi Tai ki Tāmaki

Below are the Mātauranga ā-iwi/Values that Ngāti Manuhiri and Ngāi Tai ki Tāmaki have given to underpin coastal management on the Whangaparāoa Peninsula:

- Tino Rangatiratanga – Self-Determination
- Rangatiratanga - Leadership
- Toitutanga - Sustainability
- Whakahautanga - Restoration
- Tiakitanga - Stewardship
- Manaakitanga – Support.

These values are categorised into three major themes which reflect the Kia Ora Te Tātai outcome: *Whakapapa - Ancestry, Taiao-Environment*, and *Tangata Hononga - Connecting People*. For each theme, Ngāti Manuhiri and Ngāi Tai ki Tāmaki have provided objectives on how the Shoreline Adaptation Plan will give effect to these values in Whangaparāoa.

[7] Ngāti Manuhiri Claims Settlement Act, 2012. Ngāti Manuhiri and the Crown: Deed of Settlement Schedule Documents (https://www.govt.nz/assets/Documents/OTS/Ngati-Manuhiri/Ngati-Manuhiri-Deed-of-Settlement-Schedule-Documents-21-May-2011.pdf)

[8] Cambell, M., Harris, J., McAlister, A. 2013. Auckland Council North and North West Rural Urban Boundary options: cultural heritage overview. Report to Auckland Council. CFG Heritage.

[9] Ngāti Manuhiri Settlement Trust, 2021. Cultural Impact Assessment. 53 Schnapper Rock, Schnapper Rock Private Plan Change. NM-CIA-2021_53 Schnapper Rock Private Plan Change.

[10] Bickler, S., Cloud, R., Philips, K., Plowman, M., Farley, G., Dodd, A., Baquie, B. 2008. Site R10/80 Whangaparaoa Peninsula: Final Excavation Report. Prepared for Gulf Harbour Corporation Ltd, 2008.

3.2.1 Whakapapa (Ancestry)

Wāhi tapu are protected, celebrated, and enhanced through an integrated approach, by natural means first and foremost and in partnership with mana whenua. The celebration of mana whenua values includes the acknowledgement, respect and recognition of cultural and spiritual values of mana 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.

3.2.1.1 Objectives

- Mana whenua will not prioritise any wāhi tapu and confirm they all require protection and that all are crucial to mana whenua identity
- Mana whenua should always be contacted/consulted where works will be conducted near or at wāhi tapu. An open toolbox must be provided to mana whenua proactively/in advance of any methodology being developed or risks being presented to these sites.

Some examples of valuing Whakapapa include:

- Wāhi Tapu are protected by natural means such as dunes and natives planting
- Respect for significant cultural landscapes and Wāhi Tapu
- Respect for rahui that are established in specific areas
- Continual engagement with mana whenua will support the celebration
- Protecting Marae pā and urupa sites.

3.2.2 Taiao (Environment)

The environment is protected, enhanced and celebrated through an integrated approach, by natural means first and foremost and in partnership with mana 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 in terms of Kaitiakitanga. Restoration and enhancement of the mauri.

3.2.2.1 Objectives

- Proactively protecting and restoring nature's first line of defences for the coastline (prioritising nature's ability to absorb the effects of climate change)
- Historical planting - 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
- Pro-actively protect and enhance coastal dunes
- Pro-actively protect and enhance wetlands
- Pro-actively protect and enhance habitats and biodiversity.

Some examples of valuing Taiao include:

- Restoration planting of native plants along the coastline
- Removal of pest/exotic vegetation. Manual removal is preferred
- Prevention of damage to habitats from sedimentation issues (too much mud or silt deposition)
- Daylighting of streams with riparian planting.

3.2.3 Tangata Hononga (Connecting people)

Through involving the community, the people are connected and invested in their environment and therefore uplifted. The shoreline adaptation plan 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.

3.2.3.1 Objectives

Marine life and whenua cannot be separated. The SAP must be considered and implemented holistically with an integrated approach as the moana and the whenua cannot be separated.

- Recognising and providing for Kaitiaki opportunities for mana whenua in future
- Make room for water, enable natural processes where possible
- Naturalising where possible (e.g. daylighting of streams).

Some examples of valuing Tangata Hononga include:

- Mana whenua-led planting days with the community
- Educating the community about mana whenua cultural values, Mātauranga Māori and climate change.

4.0 Coastal processes, hazards, and exposure

4.1 Coastal processes on the peninsula

The 11 km extent of Whangaparāoa Peninsula into the Hauraki Gulf varies in width from 800 m to 2.4 km. Most of the coastline is comprised of steep coastal cliffs, interspersed with long sandy beaches between headlands on the north coast (Stanmore Bay, Manly Beach, Army Bay) and more discrete embayed beaches on the southern coast (Arkles Bay, Little Manly, Matakatia).

The peninsula is largely sheltered by mainland Auckland, the Coromandel Peninsula and Great Barrier Island meaning the majority of Whangaparāoa's wave exposure is from smaller locally generated wind-waves. Whangaparāoa's northern and eastern coast is exposed to larger swells from the north to east angles where there are narrow swell windows between the Coromandel Peninsula and the Hauraki Islands. In these instances, large, long period swells can build up from low pressure systems tracking across the Pacific Ocean.

The geology of Whangaparāoa Peninsula is largely formed from the East Coast Bays Formation of the Waitemata Group (Figure 4-1:A). This is primarily comprised of weak sandstones and mudstones which have been folded and faulted from periods of previous tectonic activity. Occasionally, this formation includes volcanic material that locally increases the material strength. The more resistant sandstones can form steep slopes 20-50 m high which can become unstable, resulting in minor rock falls or larger episodic cliff failures.

The low-lying areas of the peninsula are comprised of dune and beach deposits from the Karioitahi Group including Red Beach, Stanmore Bay (Figure 4-1:B), Big Manly Beach and Tindalls Beach, and areas of swamp deposits from the Tauranga Group including Tindalls Bay, Okoromai Bay and Army Bay.

The peninsula's wave exposure and geology (amongst other factors) has influenced the geomorphology of the coast and the natural features present. For example, the north coast has generally larger wave-cut shore platforms and sandier embayment beaches because of its greater exposure to wave energy and erosion processes. Sediment transport processes vary depending on each site's orientation, exposure, and sediment supply with overall trends for finer sediments and larger intertidal environments on the southwestern end of the peninsula.

Various intertidal habitats, wetlands and dunes exist along Whangaparāoa's coastline, as well as artificial structures including various sea walls, rock revetments and boat ramps. Sections such as Gulf Harbour have been modified through reclamation, dredging and construction of large rock breakwaters. Artificial structures can change coastal processes by reducing sediment supply from erosion and restricting sediment transport.

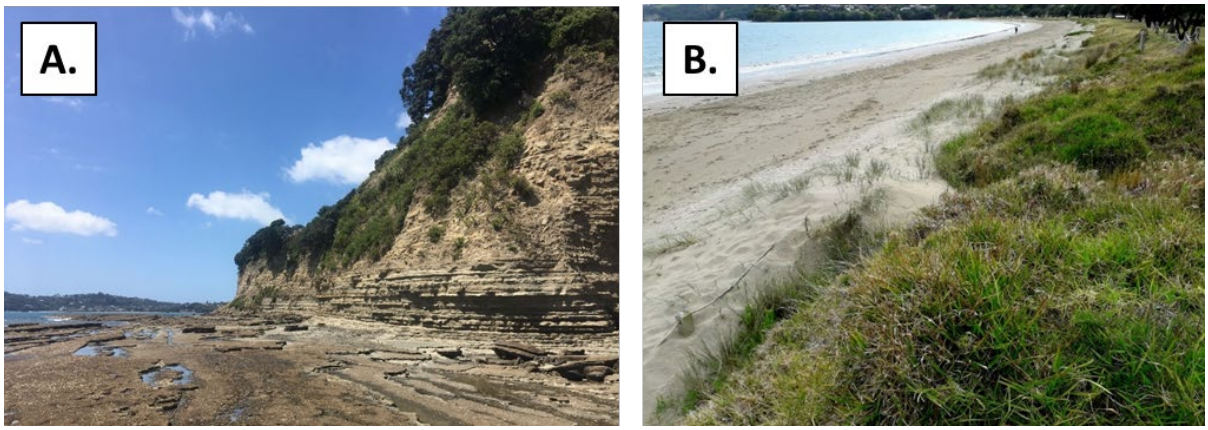


Figure 4-1: A) Steep and horizontally bedded East Coast Bays Formation cliff and wave cut platform, Stanmore Bay. B) Beach at Manly showing narrow planted dune fronting a grassed low level alluvial deposit (Source: Auckland Council)

4.2 Coastal hazards

Natural processes, such as coastal inundation and erosion, become hazards when they have the potential to negatively impact things of value. For shoreline areas with assets and infrastructure or cultural heritage sites near the coastal edge (including recreational and environmental areas), impacts of coastal hazards can be significant. Hazard mapping is therefore a key component of long-term, sustainable management of shoreline areas. For information on the hazard maps used, see the full Whangaparāoa exposure assessment in Appendix A[11].

The entire length of Whangaparāoa's coastline is susceptible to coastal instability and erosion to some degree (dependent on geology) (Figure 4-2A). Northern beach areas such as Red Beach, Big Manly, Stanmore Bay and Army Bay are particularly exposed and susceptible to periodic erosion from coastal storm events. This can result in lowering of upper beach levels and erosion of adjacent coastal land or structures, such as experienced during the January 2018 storms.

With its varying topography, exposure from coastal inundation and rain flooding varies across the peninsula. However, flat, low-lying areas such as Stanmore, Big Manly, Matakatia, and Arkles are at significant risk of coastal flooding (Figure 4-2B), with increasing pressure over time with sea-level rise. These areas are also exposed to rainfall flooding impacts as the catchments across the peninsula drain towards the coast (Figure 4-2C).

[11] Tonkin and Taylor (2021). Shoreline adaptation plan – Whangaparāoa Pilot, Exposure Assessment. 1008052.100.WP.VA.v3

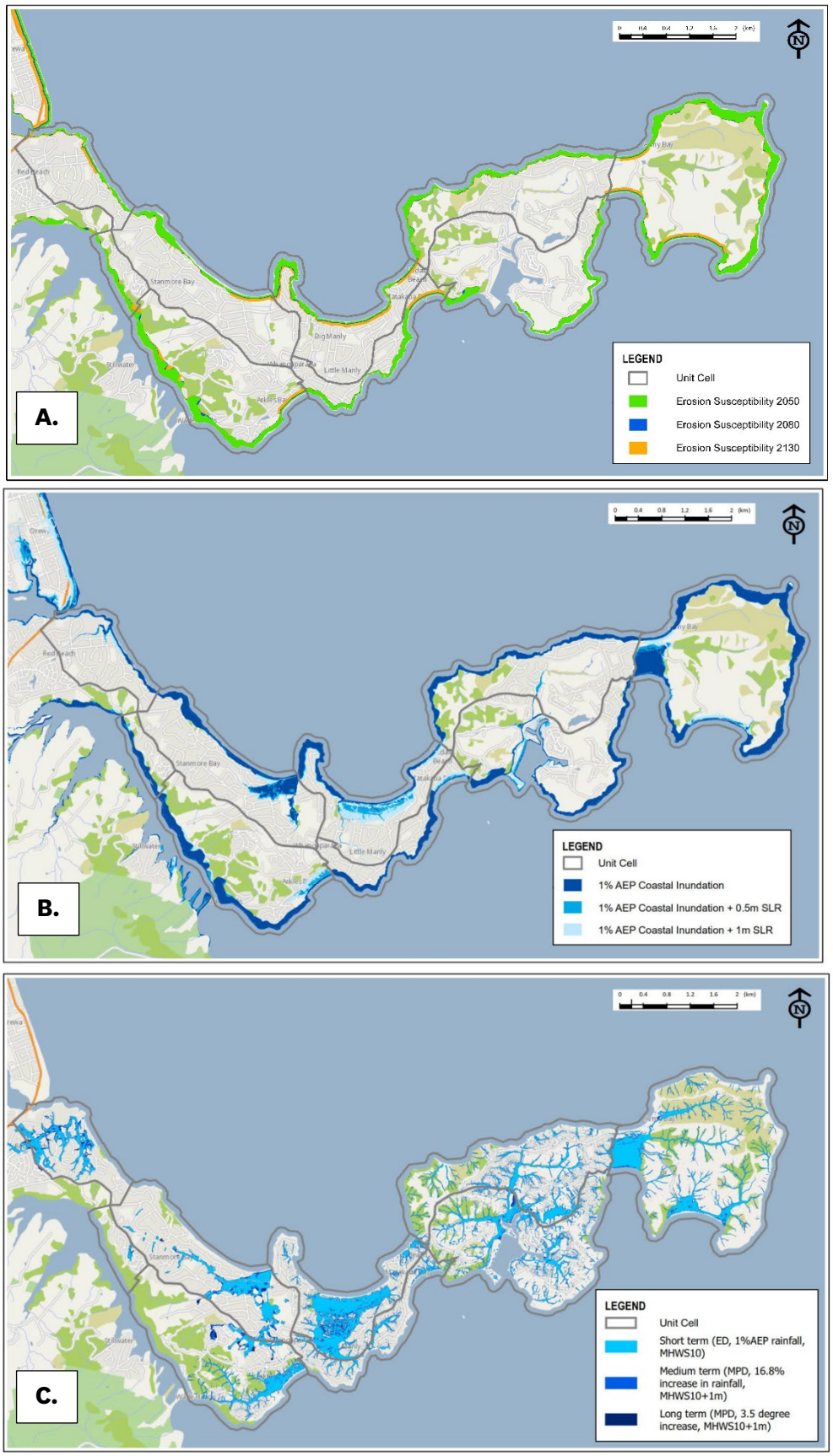


Figure 4-2: Maps showing extent of A) areas susceptible to coastal instability and erosion, B) coastal inundation, and C) rainfall flooding. AEP stands for annual exceedance probability and is the probability that a certain size flood event might occur in a single year. A 1% AEP flood is often referred to as 1-in-100-year event. SLR stands for sea level rise.

4.3 Exposure assessment

To identify the potential impact of coastal hazards on Auckland Council-owned land and assets and to understand the escalating risk due to climate change, an exposure assessment[12] was undertaken. Exposure indicates what elements of interest are located within hazard zones and may subsequently be adversely affected by hazard events. For Whangaparāoa, elements of interest included parks and reserve land, Auckland Council-owned infrastructure, ecological and environmental areas, and cultural heritage sites. Their exposure was assessed using the wellbeing lens of social, environmental, cultural, and economic indicators, as detailed in the Exposure Assessment Technical Report. To understand the varying impacts across Whangaparāoa, the peninsula was broken into 9 separate units as shown in Figure 4-3.

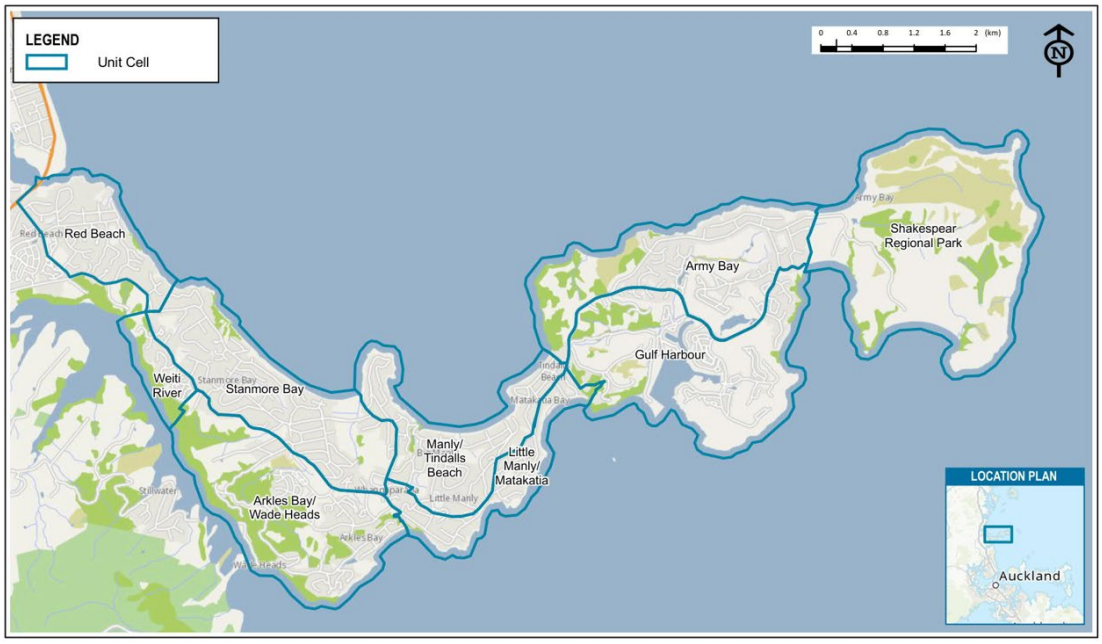


Figure 4-3: Outline of the Whangaparāoa Peninsula showing delineation of the 9-unit areas

The results of the exposure assessment (Appendix A) indicates that Auckland Council-owned land and assets, including cultural heritage sites, across the Whangaparāoa Peninsula will generally have low exposure to coastal hazards in the next 20 years (i.e. the short term). However, due to the impacts of climate change (including sea-level rise and increased rainfall intensity), hazard extents will increase, increasing exposure in the medium and long term. The largest long-term impact on infrastructure is related to potential erosion and therefore permanent loss of coastal land. Short term, intermittent flooding events from both coastal inundation and rainfall flooding can impact cultural heritage sites including pa sites, middens, and historic buildings. Such events are expected to increase in size and frequency due to climate change. Flooding may also cause significant damage to parks, reserves, and ecological areas. Shakespear Regional Park has high exposure in all time periods due to the extent of its coastal areas and the quantity of cultural heritage sites located within it. Figure 4.4 shows how exposure for each unit cell changes across the short, medium and long term in relation to coastal hazards.

[12] Tonkin and Taylor (2021). Shoreline adaptation plan – Whangaparāoa Pilot, Exposure Assessment. 1008052.100.WP.VA.v3

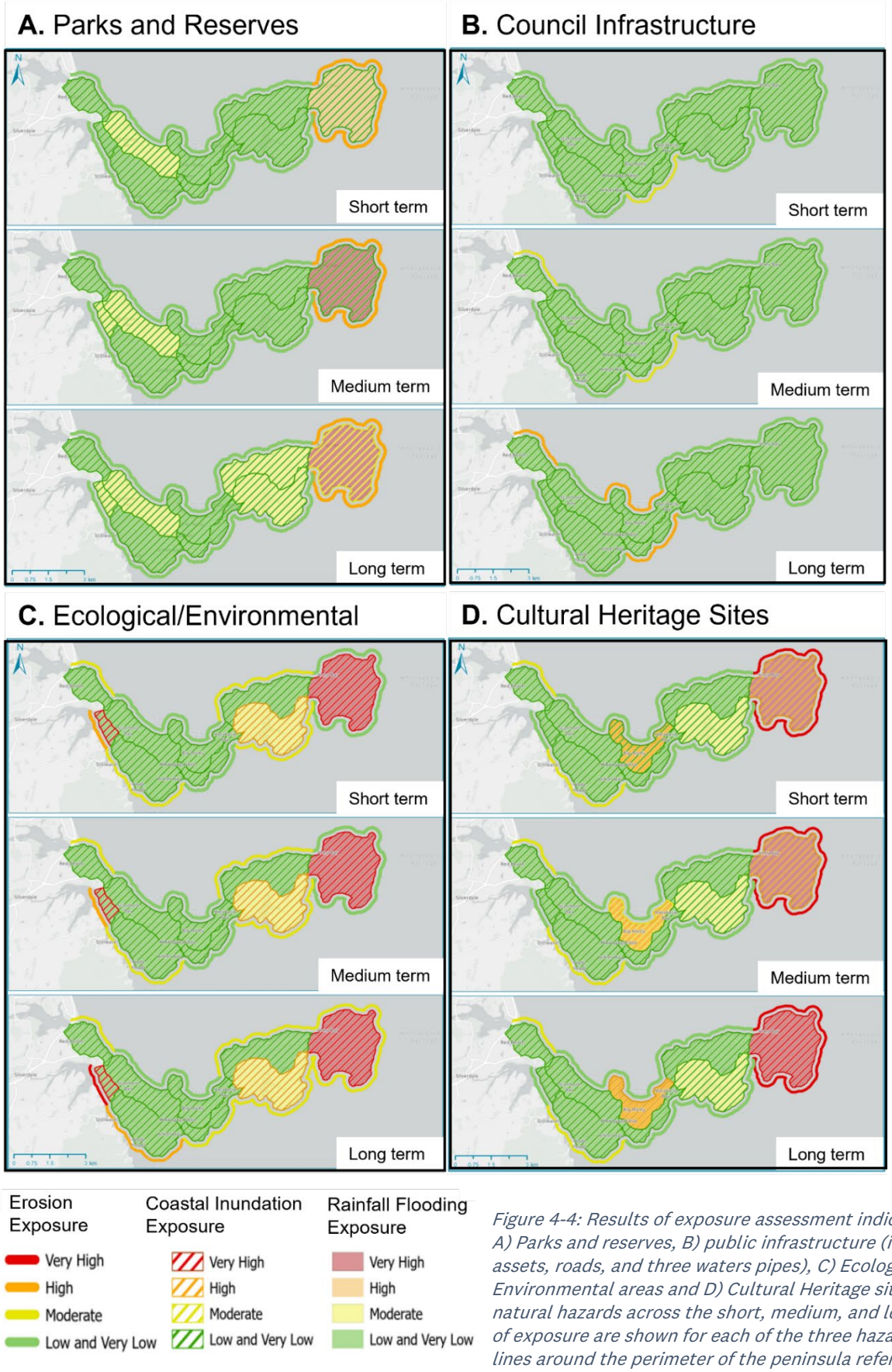


Figure 4-4: Results of exposure assessment indicating exposure of A) Parks and reserves, B) public infrastructure (including coastal assets, roads, and three waters pipes), C) Ecological and Environmental areas and D) Cultural Heritage sites for the three natural hazards across the short, medium, and long term. Levels of exposure are shown for each of the three hazards. Coloured lines around the perimeter of the peninsula refer to coastal erosion exposure. Hatching across the unit cells refers to coastal inundation exposure. Shading within the unit cells refer to rainfall flooding exposure. Exposure is ranked from Low to Very High using traffic light colours as shown.

5.0 Community engagement

Community engagement for the Whangaparāoa pilot included a range of public outreach events, plus the establishment of a more focussed Community Reference Group. General events included three public presentations, which were also live-streamed and recorded, to introduce the SAP process and key concepts of climate change, coastal hazards, and adaptation planning. These were supported by two workshops with the Community Reference Group and two open days at the Whangaparāoa library, at the beginning and end of the community engagement period.

Parallel to the in-person engagement, digital engagement was undertaken using Social Pinpoint, an online engagement platform that allows users to drop pins, write comments, and complete surveys on an interactive map. More than 500 unique users participated in the digital engagement. The information helped identify key community values across the peninsula and highlighted 'areas of interest' as summarised in Figure 5-1.

Comments and surveys collected as part of the digital engagement were sorted and grouped into four major categories:

- Active recreation - how people utilise the coastal areas and provided amenities
- Passive recreation - how people connect to and enjoy the coast and reserve areas
- Environmental – concerns related to the care and protection of the natural environment
- Community – the importance of the coast to community connections.

Comments related to topics outside the scope of SAPs, including transport and management issues, were forwarded to the relevant departments.

The Community Reference Group was established to enable more focussed discussion of SAP objectives, values and appropriate adaptation options for Whangaparāoa. It included ten community members between 25 and 70 years of age from a variety of backgrounds, supported by two members of the Hibiscus and Bays Local Board.

Two workshops and two group calls were facilitated with the group. During these events the group helped to:

- Assess and confirm the community values collected via the digital engagement
- Develop and state community objectives for coastal management
- Provide insight into the importance of the three areas of interest (Stanmore Bay, Big Manly, and Shakespear Park) to the local community.

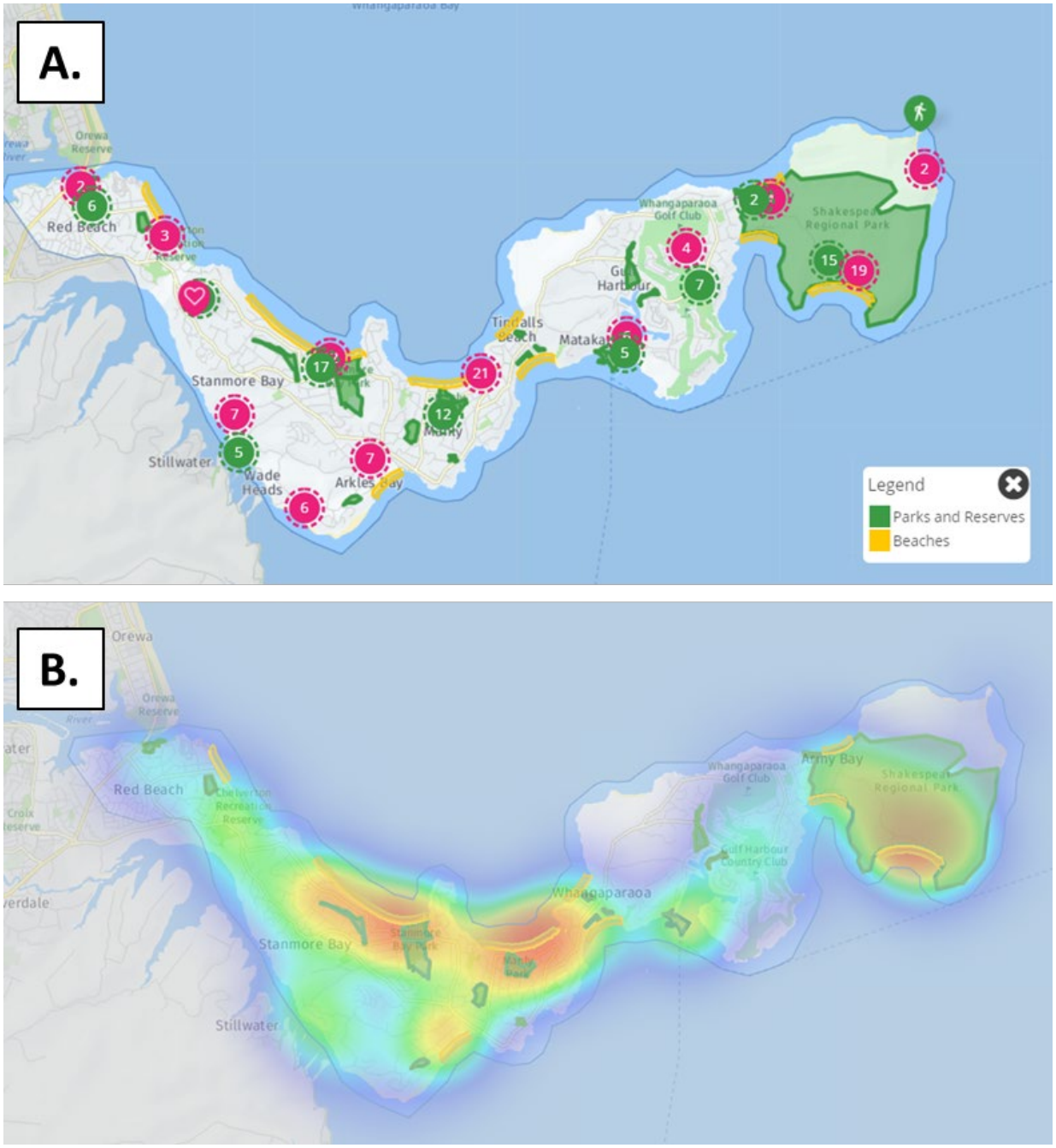


Figure 5-1: Social Pinpoint maps generated from the digital engagement. Map A displays the location of specific comments, with green circles representing the "I go here because" pins and pink circles representing "I value this because" pins. The green and yellow polygons indicate survey locations, which were used to gather further information in targeted areas. Map B is a heatmap highlighting the areas most commented on during the digital engagement, which indicates that Stanmore Bay, Big Manly, and Shakespear Regional Park are areas of high interest to the local community.

5.1.1 Community objectives

With the help of the Community Reference Group, the information collected via Social Pinpoint was pulled together into the following high-level objectives that capture the values of the local community:

- Preserve and enhance the natural environment and ecosystems that support biodiversity
- Use natural and nature-based solutions to increase the resilience of coastal systems where practicable
- Provide diverse recreation options within the Whangaparāoa park and open space network
- Provide safe access to the Coastal Marine Area for a range of water-based activities on the northern and southern side of the peninsula (e.g, swimming, sailing/boating, kiteboarding and surfing)
- Have accessible places within reserves where people can enjoy the coastal environment in its natural setting
- Shoreline management options provide added benefits to amenity and coastal access
- Auckland Council to identify opportunities to work with community volunteers to assist with the naturalisation of the coastline.

6.0 Adaptation strategies

Shoreline adaptation strategies need to be targeted and specific, with the chosen strategy and pathway taking into account the unique character and values of the coastal areas in question. The development of adaptation strategies requires consideration of escalating risk, the values of mana whenua, feedback of infrastructure providers, and the objectives of the local community. Giving effect to mana whenua values in the development and implementation of adaptation strategies is essential.

Four major adaptation strategies to set long term management approaches are considered which are outlined below:

- No Active Intervention (NAI) – Under this approach, natural processes are allowed to continue. This includes no investment in the provision or maintenance of any defences. This strategy is automatically selected for areas of the coastline that are not owned by Auckland Council.
- Limited Intervention (LI) – Under this approach, limited works are undertaken to extend the existing asset life or to ensure assets remain safe, including localised retreat of individual assets. This approach acknowledges that the coastline's position will not be fixed into the future and may include small-scale nature-based measures (like dune planting) to support the coastline's resilience.
- Hold the Line (HTL) – Under this approach, the coastal edge is fixed at a certain location, using nature-based options (like beach nourishment) or hard structures (like sea walls). Nature-based options are the preferred method where possible.
- Managed Retreat (MR) – Under this approach, assets and activities are moved away from hazard-prone areas in a controlled way over time. Managed retreat allows greater space for natural buffers and reduces asset exposure to natural hazards.

6.1 Values

Adaptation strategies were developed in alignment with the values set by Ngāti Manuhiri and Ngāi Tai ki Tāmaki (Section 3.2). To align with these values, we recommend that all future shoreline projects on the Whangaparāoa Peninsula:

- Value Whakapapa (Ancestry) by acknowledging and supporting the cultural and spiritual values of mana whenua and giving effect to the views of mana whenua regarding culturally significant sites or areas in any coastal management or engineering options.
- Value Taiao (Environment) by prioritising naturalisation of the shoreline and working to enhance and protect the natural environment. This includes restoration of the natural environment in areas where managed realignment has been recommended and considering nature-based options in areas of hold the line.
- Value Tangata Hononga (Connecting People) by recognising and supporting the interdependence of people and their environment, providing mana whenua with kaitiaki opportunities, and working with the local community on volunteering opportunities.

6.2 Guidance for Auckland Council asset owners

The adaptation strategies developed in the SAP are designed to be integrated across relevant Auckland Council Plans. In support, guidance to council staff includes:

- All projects must take locations of culturally significant sites into account and give effect to the views of mana whenua where works will be conducted near or at wāhi tapu.
- Building new assets in the areas susceptible to coastal erosion and instability is not recommended unless required to meet statutory obligations. Where an asset has a functional need to be within the hazard zone (such as a boat ramp or beach access), it should take the dynamic nature of the coastal environment into account and mitigate through resilient design.
- Renewal of existing assets within the area susceptible to coastal erosion and instability should also consider the increasing risk, through selection of an appropriate location and resilient design.
- Building new assets in the areas at risk of the present-day coastal inundation or rainfall flooding at 1% annual exceedance probability or higher is not recommended. Avoidance of risk is a priority where practical. Where an asset has a requirement to be located within the hazard zone, it must be designed to take the long-term risk into account, including the potential impact of sea level rise over the asset life span as identified through the Ministry for the Environments Coastal Hazards and Climate Change sea-level rise thresholds (2017).
- A strategic network assessment of coastal access points across the peninsula should be undertaken prior to renewal of coastal stairways and beach access paths. This will ensure continued equitable access around the peninsula, while appropriately managing structural risk.
- 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.

6.3 High-level adaptation strategies

For Whangaparāoa, the coastline was broken down into 35 ‘coastal stretches’ (Figure 6-1), selected based on coastal processes, public land boundaries, and infrastructure considerations. 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 and onwards) term, with an indication of how these choices reflect the escalating risk, considerations of infrastructure providers, and the values and objectives of mana whenua and the local community. Coastal stretches are grouped into the related unit areas (see Figure 4-3) for clarity.

Figure 6-1: Satellite image of Whangaparāoa Peninsula. Numbering refers to the breakdown of coastal stretches within the SAP.

6.3.1 Red Beach

The Red Beach unit area contains Coastal Stretches 1 through 4. There are 14 identified cultural heritage sites in this shoreline area.

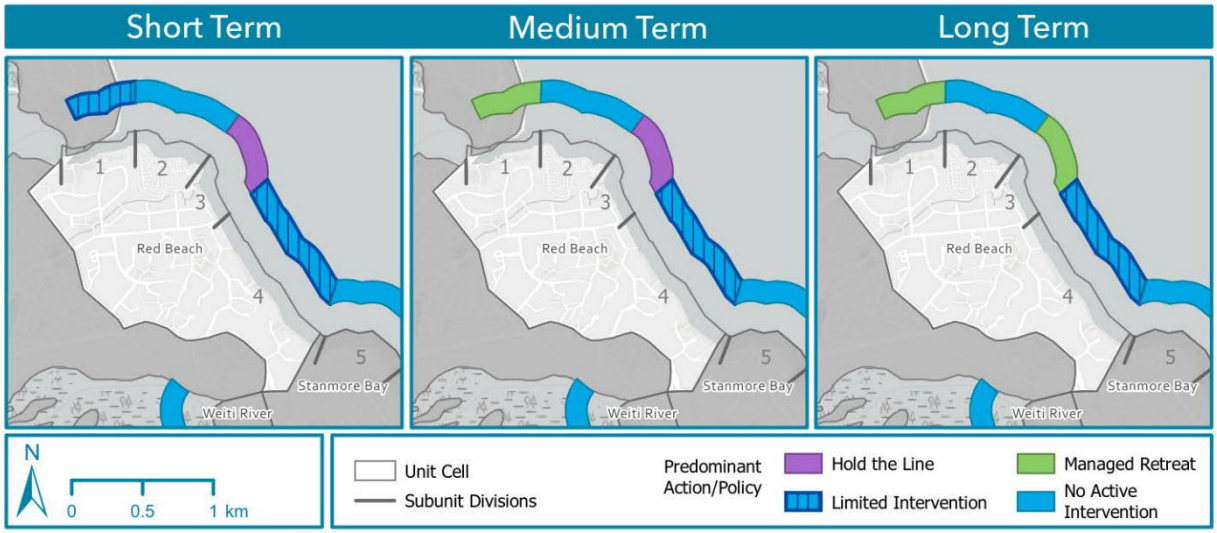


*Figure 6-2: Adaptation strategies for coastal stretches within Red Beach unit area. Abbreviations: NAI (no active intervention, LI (limited intervention), HTL (hold the line), HTL-MS (hold the line, maintain structure), HTL * (hold the line, private), MR (managed realignment).*

Coastal stretch	Short-term	Medium-term	Long-term
1	LI/HTL*	MR	MR
2	NAI	NAI	NAI
3	HTL-MS	HTL-MS	MR
4	LI	LI	LI

6.3.1.1 Coastal Stretch 1: Amorino Park

Coastal Stretch 1 is located on the southern side of the mouth of the Orewa estuary, between the Hibiscus Coast Highway and the river outlet, including all of Amorino Park.

In the short term, the estuarine edge of the park is exposed to flooding from coastal inundation at the 20% annual exceedance probability (1-in-5-year event) and rainfall at the 1% annual exceedance probability (1-in-100-year events). However, the park is relatively sheltered from severe storm waves and experiences limited erosion. To support Taiao, limited interventions will be undertaken to enhance the natural environment.

At the end of its asset life (expected in the medium term), we recommend the footpath at the western end of the park be realigned due to erosion and inundation risk. This managed realignment will provide space to naturalise the estuarine edge, aligning with mana whenua values that Taiao be preserved for future generations. In the short term, Pohutukawa will need to be planted in the southern part of the park to accommodate the eventual loss of trees near the estuarine edge. This contributes to Tangata Hononga as reserve land with large trees was identified as an important community value and connection point within the digital engagement.

The esplanade reserve at the eastern end of Amorino Park is within the area susceptible to coastal erosion and instability in the short term. However, this part of the coast is currently protected by a privately owned seawall with an active consent until 2052. At the end of that consent, discussions with property owners will determine the future approach.

6.3.1.2 Coastal Stretch 2: Cliff edge between Amorino Park and Red Beach Waterfront Reserve

This stretch of the coast is not owned or managed by Auckland Council. An adaptive strategy of no active intervention by Auckland Council has therefore been selected.

6.3.1.3 Coastal Stretch 3: Northern end of Red Beach

This coastal stretch covers the northern part of Red Beach from the Red Beach Waterfront Reserve down to Bay Street. Much of this coastal stretch is defended by a revetment that was reconstructed in 2016 and has an expected life of 25 years with periodic maintenance as required. The revetment provides protection from erosion and supports the clubhouse of the Red Beach Surf Life Saving Club, while boat ramps provide recreational water access (Figure 6-3). Sailing and boating and kite surfing activities were highlighted in both the digital and in-person engagements as key values of the local community. Surf clubs were noted as particularly important as they are hubs of community activities.

The reserve area is high enough that it is unlikely to experience flooding issues in the short and medium term. However, in the longer term, the area will be exposed to increasing flooding from coastal inundation due to sea level rise during significant storm events. At the consent renewal stage, we recommend the surf club be relocated landward and raised to mitigate the flood risk.

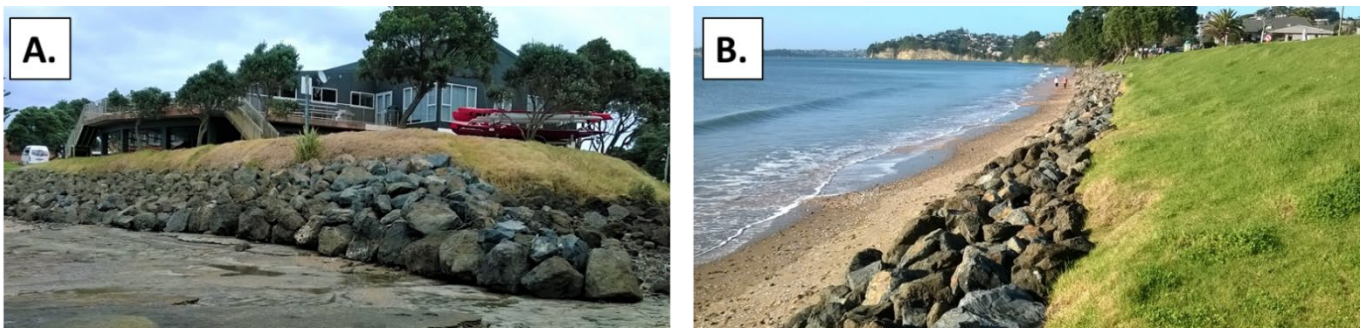


Figure 6-3: Photographs of coastal stretch 3 showing A) Red Beach Surf Club and B) supporting revetment (facing south)

6.3.1.4 Coastal Stretch 4: Red Beach South of Bay Street

This stretch of coast covers Red Beach south of Bay Street and includes Marellen Drive Beach Reserve, Glenelg Reserve, and the connecting esplanade reserve. Community feedback in this area focused on the importance of recreational water access. It is recommended that assets currently providing access in this area be maintained and renewed as required.

This area is identified for ongoing limited intervention, with the intent to support Taiao through naturalisation. The rock revetment at Marellen Drive Beach Reserve should be retained in the short term, with the understanding that this will likely require managed realignment in the medium term.

6.3.2 Stanmore Bay

The Stanmore Bay unit area contains Coastal Stretches 5 through 9. There are seven identified cultural heritage sites in this shoreline area. Stretch 9 was highlighted as an area of particular interest by the local community and the implications of the adaptive strategies at that location are discussed in more detail.

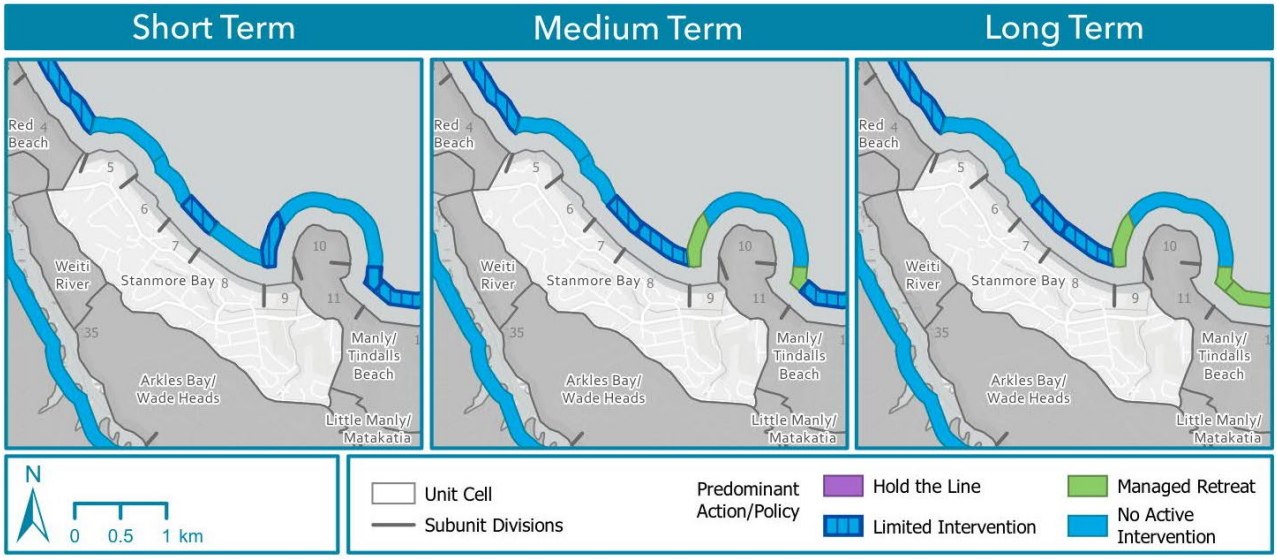


*Figure 6-4: Adaptation strategies for coastal stretches within Stanmore Bay unit area. Abbreviations: NAI (no active intervention, LI (limited intervention), HTL (hold the line), HTL-MS (hold the line, maintain structure), HTL * (hold the line, private), MR (managed realignment)*

Coastal stretch	Short-term	Medium-term	Long-term
5	NAI	NAI	NAI
6	NAI	NAI	NAI
7	LI	LI	LI
8	NAI	LI	LI
9	LI	MR	MR

6.3.2.1 Coastal Stretch 5: Duncansby Lookout and Esplanade Reserve

Coastal Stretch 5 is characterised by vegetated cliffs, with a small pocket beach at the eastern end of the stretch. An adaptive strategy of no active intervention was selected across all timeframes for this area. This strategy acknowledges natural processes and aligns with mana whenua objectives to value Taiao.

While the digital engagement did not capture any values related to this part of the coastline or the Duncansby lookout, coastal access is a key community objective, and assets that provide coastal access in this area should be renewed. When renewal is being undertaken, the exposure of the asset to coastal hazards needs to be assessed to ensure future sustainability and resilience. Asset locations will need to be re-assessed at the time of renewal to evaluate the extent of erosion and the potential landslide risk.

6.3.2.2 Coastal Stretch 6: North-west Stanmore Bay

This stretch of the coast covers the north-west part of Stanmore Bay to Cooper Lea Reserve. There are no identified Auckland Council-owned assets in this area and an adaption strategy of no active intervention has been selected across all timeframes. This strategy acknowledges natural processes and aligns with mana whenua objectives to value Taiao.

6.3.2.3 Coastal Stretch 7: Cooper Lea Reserve and Stanmore Bay West Beach Reserve

The community highlighted this stretch of Stanmore Bay for its walking amenity. The area requires ongoing management to support continued recreational water access via the beach access ramp at Cooper Lea Reserve.

Figure 6-5: Beach access ramp at Cooper Lea Reserve

A series of informal, legacy rock walls located around coastal Pohutukawa trees are also present. Limited intervention was selected as the strategy for this stretch across all timeframes, with no ongoing maintenance of the informal rock walls. In alignment with valuing Taiao, planting is recommended to provide a natural buffer against future coastal pressures and enhance the natural environment. Respecting Tangata Hononga, it is recommended that where there is space to do so, new planting of Pohutukawa landward be undertaken to ensure that trees are available for future generations.

6.3.2.4 Coastal Stretch 8: Stanmore Bay East Reserve

This stretch includes the coastal accessway at Langton Road and an associated carpark and toilet facilities. Given the proximity of the Langton Road boat ramp to the Stanmore Bay Park Boat Club, we recommend this stretch of coast be naturalised via reshaping and planting. However, pedestrian access should be maintained. An adaptive strategy of no active intervention has been selected in the short term. In the medium and long term, limited intervention has been selected to support naturalisation and the preservation of Taiao.

6.3.2.5 Coastal Stretch 9: Stanmore Bay Park

Stanmore Bay Park was identified by the community as an area of high amenity and interest. Due to its low-lying topography, the park is highly exposed to flooding from both coastal and catchment processes.

In the short term, an adaptive strategy of limited intervention has been selected. In the medium and long term, however, Auckland Council-owned structures and recreational areas (e.g., lower sports field) will need to be realigned due to the increasing risk of coastal inundation, rainfall flooding and erosion. It is recommended that after Auckland Council-owned structures are relocated, the area be naturalised via reshaping and planting so that Taiao is restored. The walled stormwater channel at the eastern end of the park will need to be reshaped when the wider area is naturalised.

Recreational water access at this location may need to be relocated or reconfigured in the long-term (60+ years) due to increasing hazard risk. Management options for the Stanmore Bay Cemetery at the end of the Stanmore Bay Road need to be considered in the next 20 to 30 years.

Figure 6-6: Stanmore Bay Park, photograph facing east (November 2020)

As Stanmore Bay Park was highlighted as an area of interest in the digital engagement, the adaptive strategies for this area were worked through in detail with the community reference group. The outcome of that discussion is summarised in Figure 6-7.

Figure 6-7: Detailed values analysis for Stanmore Bay Park based on feedback and discussion with the Community Reference Group

Short Term

Key adaptation strategy: Limited Intervention

- Maintain existing park assets and facilities to current levels of service.
- Maintain, and where possible enhance and extend, dune planting, and planting areas along stream banks utilising coast care/community/ interest groups.
- Plant new trees to provide succession planting behind the beach front and investigate additional off stream storage/wetland potential along streams to improve water quality and reduce peak flows.
- Monitor shoreline trends and impacts of major storm events to better understand beach movement trends.
- Monitor Park and reserve usage and trends to better understand usage and demands.
- Identify Level of Service triggers for both progressive and substantial changes in adaptation strategy for sports fields, playgrounds, walkways, accessways, passive recreation areas, parking and buildings (including leased).
- Develop management plan for redevelopment of park facilities and access including consideration of both end of asset life and climate change scenarios for staging of actions.
- Engage in other sports field asset owners (e.g., Ministry of Education) for shared use agreements.

Medium Term

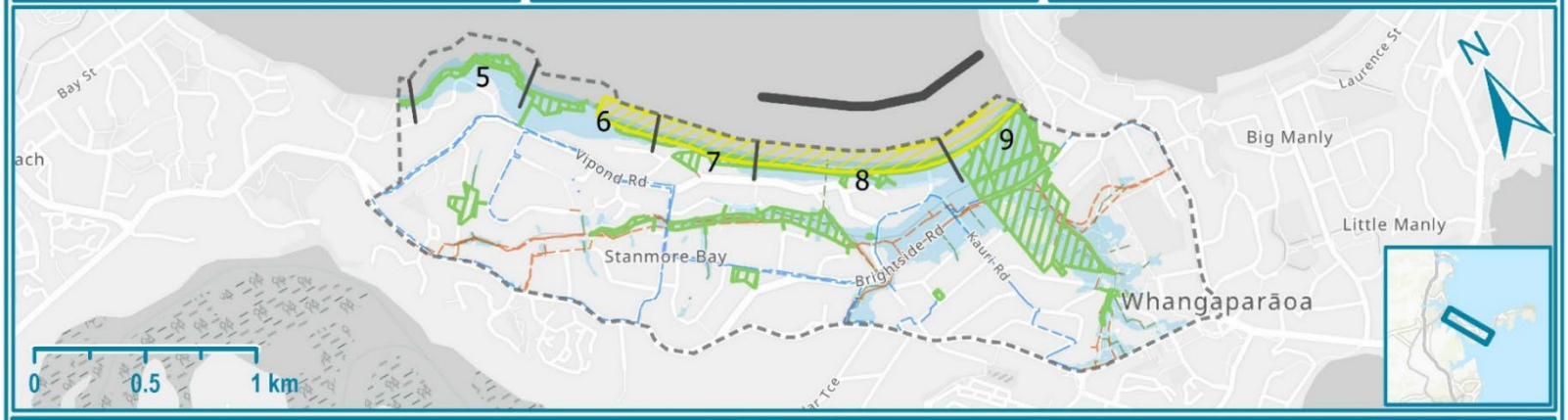
Key adaptation strategy: Managed Retreat

- Increase planting and off stream storage/wetland potential along streams to improve water quality and reduce peak flows.
- Provide space for landward retreat of the beach on council owned land. Landscaping and shade tree establishment landward of projected shoreline position.
- Improve walkway/cycleway and public transport connections to beach and reserves.
- Enact actions from the management plan for areas where Level of Service triggers are reached.
- Monitor shoreline trends and impacts of major storm events as well as park usage and trends.
- Review management plan for adjustments/changes in actions including repurposing lower sports field for passive recreation and upgrading less impacted sports fields for increased and multi-purpose use.

Long Term

Key adaptation strategy: Managed Retreat

- Continue actions from medium term with reviews and adjustments as required.
- Enact actions from the management plan for areas where Level of Service triggers are reached.
- Monitor shoreline trends and impacts of major events as well as park usage and trends.



Stanmore Bay A4 Scale: 1:24,000

Shoreline Adaptation Plan Subunit Divisions
Area of Interest
Water Supply (>150mm)
Wastewater (>150mm)
Stormwater (>500mm)
Unit Cell
Beach
Reserve
Hazard Extent
Predominant Action/Policy
Hold the Line
Limited Intervention
Managed Retreat
No Active Intervention

6.3.3 Big Manly

The Big Manly unit area contains Coastal Stretches 10 to 15. There are 16 identified cultural heritage sites in this shoreline area. Stretch 12 was highlighted as an area of interest by the local community and the implications of the adaptive strategies at that location are discussed in more detail.

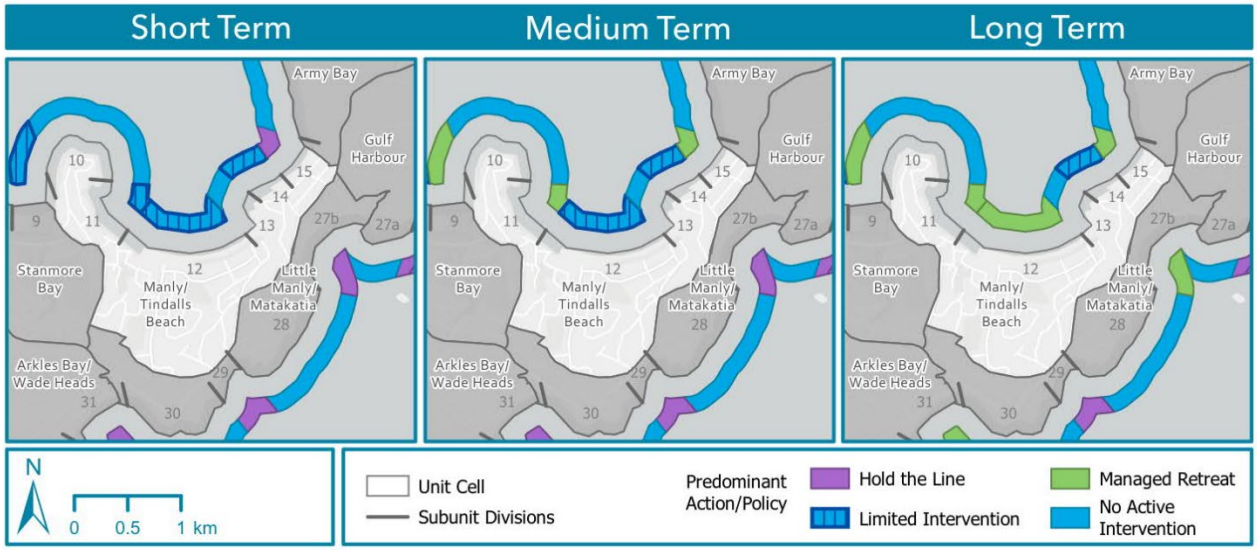


Figure 6-8: Adaptation strategies for coastal stretches within Big Manly unit area. Abbreviations: NAI (no active intervention, LI (limited intervention), HTL (hold the line), HTL-MS (hold the line, maintain structure), HTL (hold the line, private), MR (managed realignment).*

Coastal stretch	Short-term	Medium-term	Long-term
10	NAI	NAI	NAI
11	LI	MR	MR
12	LI	LI	MR
13	NAI	NAI	NAI
14	LI	LI	LI
15	HTL*	MR	MR

6.3.3.1 Coastal Stretch 10: Ardern Lookout Reserve

This stretch of coast is characterised by vegetated cliff, and an adaptive strategy of no active intervention has been selected across all timeframes. this strategy acknowledges natural processes and aligns with mana whenua objectives to value Taiao.

6.3.3.2 Coastal Stretch 11: Swann Beach Reserve

This coastal stretch is characterised by vegetated cliff. In the short term, an adaptation strategy of limited intervention was selected to support on-going management of the boat ramp and carpark at Swann Beach Reserve, which services a Mooring Zone identified in the Auckland Unitary Plan. In the medium and long term, however, these amenities will need to be moved to accommodate for natural erosion of the coastline while maintaining access. This strategy acknowledges natural processes and aligns with mana whenua objectives to value Taiao.

6.3.3.3 Coastal Stretch 12: Big Manly Beach

Big Manly Beach was identified by the community as an area of high amenity and interest. The area is characterised by a wide sandy beach, fronted by a narrow width of dunes and planted berm with a one-way street behind. The community highlighted issues with parking and windblown sand in this area, and operational management responses to respond to these issues were being consulted on at the time of writing this report.

Figure 6-9: A) Big Manly Beach (facing east) and B) Manly Sailing Club

The beach area is dynamic and suffers periodic erosion, followed by recovery of beach levels over calmer periods. Erosion is likely to retreat the shoreline with climate change and the area will be highly exposed to severe coastal inundation and rainfall flooding in the long term.

In the short and medium term, an adaptive strategy of limited intervention has been selected. It is recommended that the area is naturalised via planting and reshaping to support the restoration of Taiao and the development of a natural buffer. The sailing club is of high interest to the community, and in the short and medium term, it is recommended that recreational water access is maintained. Management of the stormwater outfall to minimise scour of the beach and boat ramp has also been noted, in the longer term this will include stormwater management of the wider catchment. As sea level increases the area's exposure to coastal inundation and rainfall flooding increases above the 1% annual exceedance probability, assets may need to be relocated out of the hazard zone through a strategy of managed realignment, while appropriately providing access to the coastal marine area.

As Big Manly Beach was highlighted as an area of interest in the digital engagement, the adaptive strategies for this area were worked through in detail with the community reference group. The outcome of that discussion is summarised in Figure 6-10.

.

Short Term

Key adaptation strategy: Limited Intervention

- Maintain existing park assets and facilities to current levels of service.
- Maintain, and where possible enhance and extend, dune planting, and planting areas along stream banks utilising coast care/community/ interest groups.
- Plant new trees to provide succession planting behind the beach front and investigate additional off stream storage/wetland potential along streams to improve water quality and reduce peak flows.
- Monitor shoreline trends and impacts of major storm events to better understand beach movement trends.
- Monitor Park and Reserve usage and trends to better understand usage and demands.
- Identify Level of Service triggers for both progressive and substantial changes in adaptation strategy for sports fields, playgrounds, walkways, accessways, passive recreation areas, parking and buildings (including leased).
- Investigate flood management strategies for both catchment and coastal flooding
- Review of walkway and cycle way access, parking and public transport access to increase beach drop-off points. This should include consideration of providing increased space for beach and dune roll back and alternative parking away from foreshore.

Medium Term

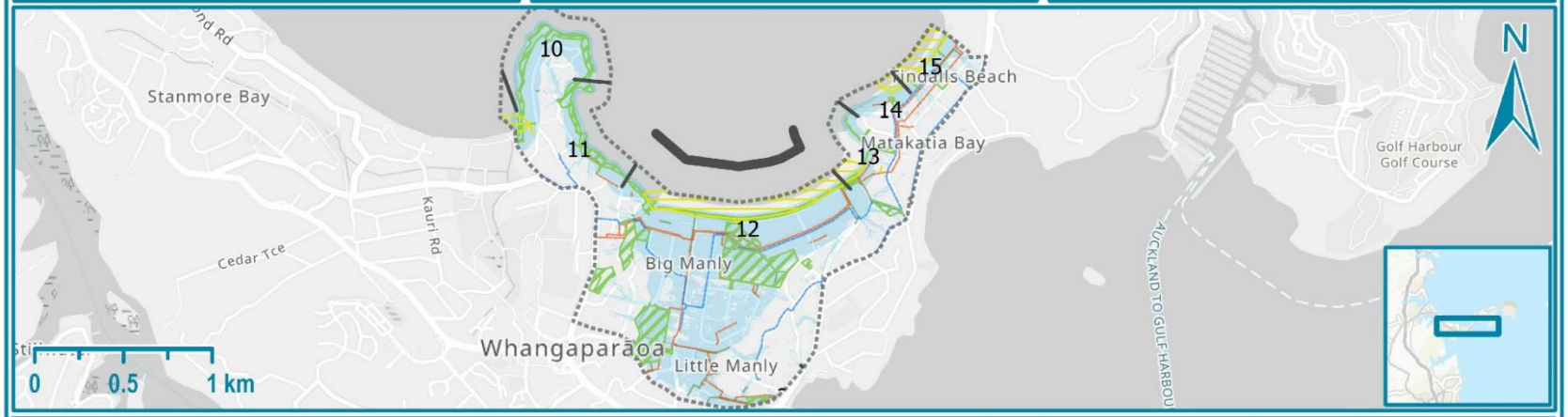
Key adaptation strategy: Limited Intervention

- Continue actions from short term with reviews and adjustments as required.
- Develop management plan for redevelopment of park facilities within Manly Park, including the Yacht Club and parking, including consideration of both end of asset life and climate change scenarios for staging of actions.
- Enact preferred flood management strategy with reviews on performance and adjustment as required.

Long Term

Key adaptation strategy: Managed Retreat

- Enact actions from the management plan for areas where Level of Service triggers are reached.
- Monitor shoreline trends and impacts of major events as well as park usage and trends.
- Review management plan for adjustments/changes in actions.
- Improve walkway/cycleway and public transport connections to beach and reserves.



Manly A4 Scale: 1:30,000

Shoreline Adaptation Plan Subunit Divisions
Area of Interest
Water Supply (>150mm)
Wastewater (>150mm)
Stormwater (>500mm)
Unit Cell
Beach
Reserve
Hazard Extent
Predominant Action/Policy
Hold the Line
Limited Intervention
Managed Retreat
No Active Intervention

Figure 6-10: Detailed values analysis for Big Manly based on feedback and discussion with the Community Reference Group

6.3.3.4 Coastal Stretch 13: Eastern end of Big Manly

This stretch of coast contains the area between Brown Street and Tindalls Bay. The area is characterised by low vegetated cliffs. An adaptation strategy of no active intervention has been selected across all timeframes. This strategy acknowledges natural processes and aligns with mana whenua objectives to value Taiao.

6.3.3.5 Coastal Stretch 14: Western Tindalls Beach

The western edge of Tindalls consists of a relatively sheltered beach, fronted by a strip of esplanade reserve. This area is valued by the local community for walking, picnicking, and contemplation. To support Tangata Hononga and Taiao, we recommend naturalisation of this stretch of coast via planting and reshaping. A strategy of limited intervention has been chosen across all timeframes. Accessways should be maintained.

6.3.3.6 Coastal Stretch 15: Tindalls Beach

This coastal stretch runs from the stairway opposite 70 Tindalls Bay Road to the cliff edge just east of De Luen Avenue. The beach is fronted by a narrow strip of esplanade reserve fronted by an informal revetment. The narrow reserve is backed by private properties and the structure includes multiple coastal accessways (both public and private), down to the foreshore.

Considering the informal nature of the existing structure, there will be increasing pressure from coastal processes and sea level rise in the medium to long term. Recognising the limited width of reserve and respecting Taiao, it is recommended any future structures are realigned as far landward as possible to accommodate coastal processes and maximise the fronting beach area.

Figure 6-11: Tindalls Beach (photograph facing east)

6.3.4 Army Bay

The Army Bay unit area contains Coastal Stretches 16 to 18. There are seven identified cultural heritage sites in this shoreline area.

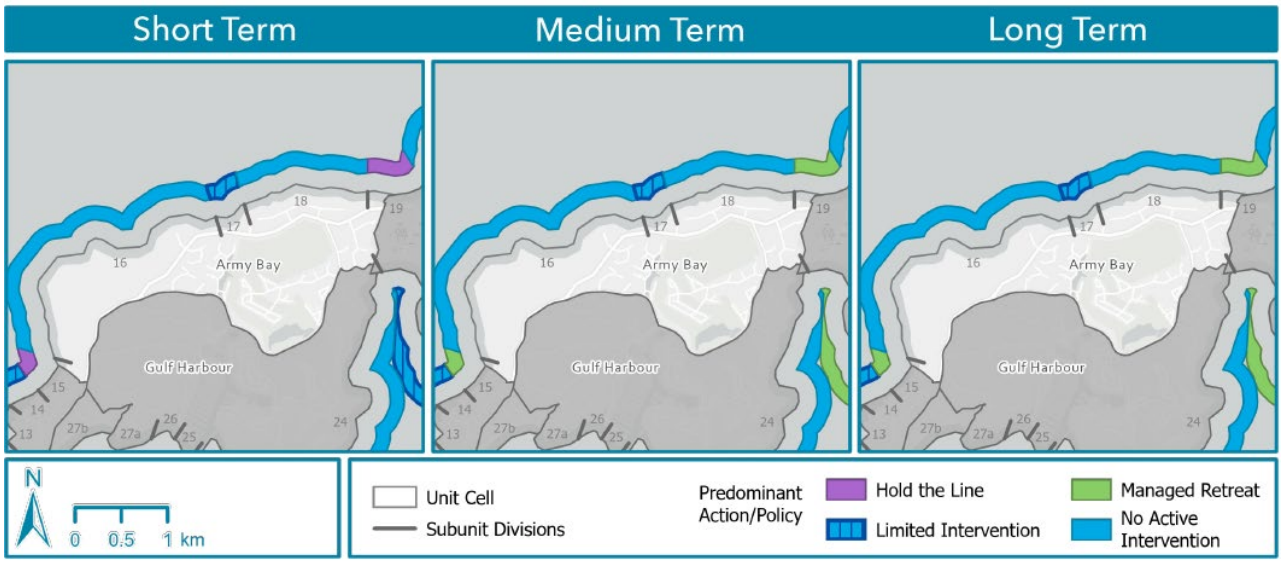


*Figure 6-12: Adaptation strategies for coastal stretches within Army Bay unit area. Abbreviations: NAI (no active intervention, LI (limited intervention), HTL (hold the line), HTL-MS (hold the line, maintain structure), HTL * (hold the line, private), MR (managed realignment).*

Coastal stretch	Short-term	Medium-term	Long-term
16	NAI	NAI	NAI
17	LI	LI	LI
18	NAI	NAI	NAI

6.3.4.1 Coastal Stretch 16: Cliff east of Tindalls Bay

This coastal stretch covers the cliff area between Tindalls Bay and Fisherman's Rock Reserve. There are no identified assets in this area and an adaption strategy of no active intervention has been selected across all timeframes. No new assets are to be added in this area due to its susceptibility to coastal instability and erosion. This strategy acknowledges natural processes and aligns with mana whenua objectives to value Taiao.

6.3.4.2 Coastal Stretch 17: Fisherman's Rock Reserve

Fisherman's Rock Reserve centres around a large concrete promontory, which once provided access to a campground above (Figure 6-13). The campground was disestablished many years ago, and the promontory is a relic feature that provides little to no access and amenity benefits. As a result, the asset is expensive to maintain in comparison to the benefits it provides. To support Taiao and naturalisation, it is recommended that asset removal be undertaken in the short term. The main

accessway for this reserve contains a separate boat ramp, which can service recreational water access needs in this area. A strategy of limited intervention has been selected across all timeframes.

Figure 6-13: Relic promontory at Fisherman's Rock Reserve

6.3.4.3 Coastal Stretch 18: Pacific Parade Coastal Reserve

Pacific Parade Coastal Reserve covers the cliff area between Fisherman's Rock and Army Bay. A strategy of no active intervention has been selected across all timeframes. This strategy acknowledges natural processes and aligns with mana whenua objectives to value Taiao. The future renewal of coastal stairways and access points in this area should include provision for a full coastal hazard assessment and any required risk mitigation.

6.3.5 Shakespear Park

The Shakespear Park unit area contains Coastal Stretches 19 to 23. There are 139 cultural heritage sites in this shoreline area. Stretch 22 was highlighted as an area of interest by the local community and the implications of the adaptive strategies at that location are discussed in more detail.

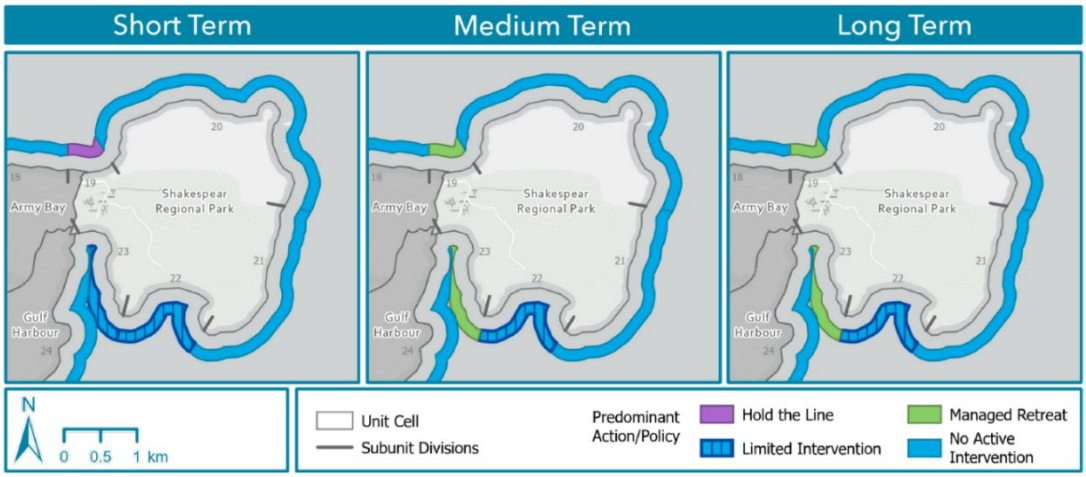


Figure 6-14: Adaptation strategies for coastal stretches within Shakespear Park unit area. Abbreviations: NAI (no active intervention, LI (limited intervention), HTL (hold the line), HTL-MS (hold the line, maintain structure), HTL (hold the line, private), MR (managed realignment).*

Coastal stretch	Short-term	Medium-term	Long-term
19	HTL-MS	MR	MR
20	NAI	NAI	NAI
21	NAI	NAI	NAI
22	LI	LI	LI
23	LI	MR	MR

6.3.5.1 Coastal Stretch 19: Army Bay Beach

Located at the entrance of Shakespear Regional Park, Army Bay Beach is a popular location for locals, Aucklanders and tourists alike. Community feedback indicated this area was highly valued as a walking, picnicking, and paragliding location.

Figure 6-15: Army Beach, photograph facing south

The carpark in this area is currently supported by a timber retaining wall and access to the beach provided by a concrete ramp and stairs. It is recommended that the retaining wall be maintained in the short term. At the end of the asset's life, it is recommended that the carpark be retreated landward out of the area susceptible to coastal erosion, utilising existing reserve land and that the area be further naturalised via planting and reshaping, while access to the beach is retained as appropriate. Acknowledging Whakapapa, the location of cultural heritage sites needs to be taken into account when considering possible areas of relocation. Management options for the heritage sites within the hazard zones will need to be developed in the short term.

This part of the coast currently protects the northern side of Whangaparāoa Road, which is a critical transport route for infrastructure purposes and is the only access route to the regional park, the wastewater treatment plant, and the NZ Defence Force land. Naturalisation of this area will need to include provision to protect the road (via options such as a backstop seawall landward of the beach and reserve space) and allow continued public access to the area.

6.3.5.2 Coastal Stretch 20: Defence Force Land

This stretch of coast covers the area between Army Bay Beach and the boundary of Shakespear Regional Park just south of Whangaparāoa Head. This land is not owned by Auckland Council and an adaptive strategy of no active intervention has therefore been selected across all timeframes.

6.3.5.3 Coastal Stretch 21: Eastern Shakespear Regional Park

This coastal area lies along the eastern edge of Shakespear Regional Park and is dominated by high, partially vegetated cliffs. These cliffs are the home to multiple bird species. As the cliffs erode, the paths at the top of cliffs will require landward relocation. As this area is a natural regional park environment, an adaptive strategy of no active intervention has been selected across all timeframes. This strategy acknowledges natural processes and aligns with Auckland Council's Regional Park Management Strategy and mana whenua objectives to value Taiao.

6.3.5.4 Coastal Stretch 22: Te Haruhi Bay

Te Haruhi Bay was identified in both the digital and in-person engagements as a key area of value to the Whangaparāoa community. Feedback on this area particularly focused on its natural beauty, its biodiversity, its high heritage importance, and its value as a place of contemplation and quiet. Traditionally, there has been limited management and development of the coastal environment of Te Haruhi Bay in order to retain its natural character. It is recommended that this strategy, which honours Taiao, is continued, and an adaptive strategy of limited intervention has been selected across all time frames. When it comes up for renewal, the toilet block located in the centre of the bay should be relocated landward out of the area susceptible to coastal erosion.

Buildings along this coastal stretch are currently exposed to rainfall flooding at the 1% annual exceedance probability, and we recommend that flooding be monitored in this area. Coastal inundation risk is minimal until 1 m sea level rise has been reached. Long-term consideration of how to protect or retreat the impacted structures, some of which have historical value, will need to be undertaken in the medium term. Acknowledging Whakapapa in the short term, a management plan for the cultural heritage sites in this location will need to be developed in partnership with mana whenua, including provisions on how such sites can be monitored.

Figure 6-16: Te Haruhi Bay, photographed from clifftop facing east

Due to the location's high importance to the local community, the adaptive strategies for this area were worked through in detail with the community reference group. The outcome of that discussion is summarised in Figure 6-17.

Short Term

Key adaptation strategy: Limited intervention

- Maintain existing park assets and facilities current levels of service
- Actions generally in compliance with the existing reserve management plan.
- Relocate toilet block, facilities at campground and access to be landward of erosion susceptibility extent to allow beach and dunes to adjust to natural processes.
- Develop and implement actions/plans to enhance and restore natural systems such as wetlands particularly within Okoromai Bay.
- Explore allocating an area for community planting.

Medium Term

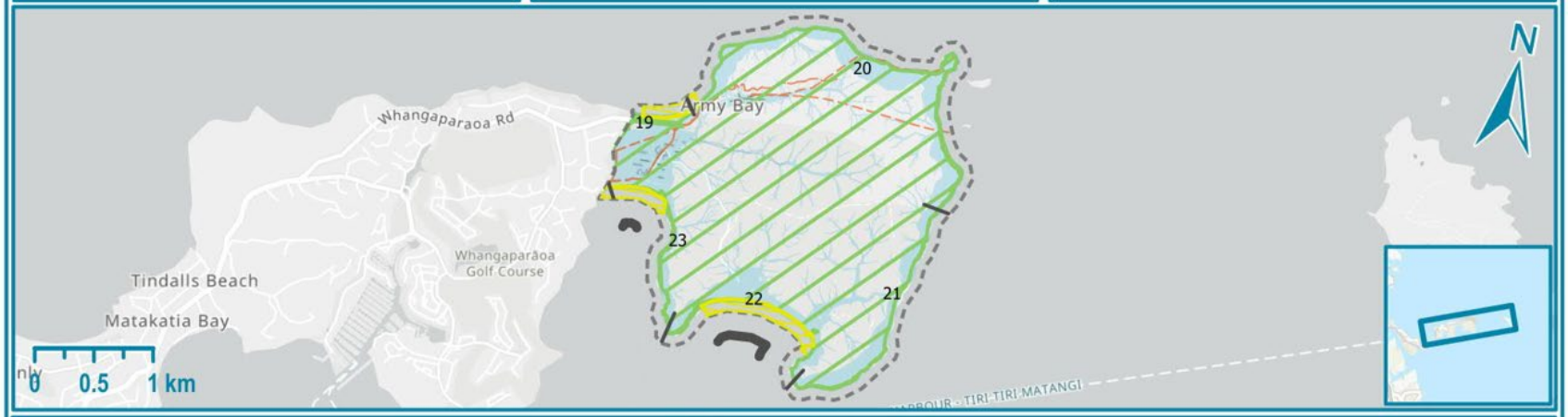
Key adaptation strategy: Limited intervention

- Monitor and review.

Long Term

Key adaptation strategy: Limited intervention

- Monitor and review.



Shakespear Regional Park A4 Scale: 1:45,000

Shoreline Adaptation Subunit Divisions
Area of Interest
Water Supply (>150mm)
Wastewater (>150mm)
Stormwater (>500mm)
Unit Cell
Beach
Reserve
Hazard Extent
Predominant Action/Policy
Hold the Line
Limited Intervention
Managed Retreat
No Active Intervention

Figure 6-17: Detailed values analysis for Shakespear Regional Park based on feedback and discussion with the Community Reference Group

6.3.5.5 Coastal Stretch 23: Okoromai Bay

This coastal stretch covers the eastern side of Shakespear Regional Park, including Okoromai Bay. It stops at the beach access point at the end Shakespear Road. Okoromai Bay is known across the peninsula for its biodiversity, environmental, and heritage values. The area is highly exposed to coastal inundation and depending on the rate of sea level rise, will likely become increasingly intertidal in the medium to long term. It is recommended that limited intervention be undertaken in the short term to support the natural environment, but that all assets including the access road and carpark be retreated out of this area in the medium to long term due to their increased exposure to flood events. This strategy acknowledges natural process and aligns with mana whenua objectives to value Taiao. Provision for walking amenity should be considered as part of the naturalisation.

6.3.6 Gulf Harbour

The Gulf Harbour unit area contains Coastal Stretches 24 to 27a. There are 17 identified cultural heritage sites in this shoreline area.

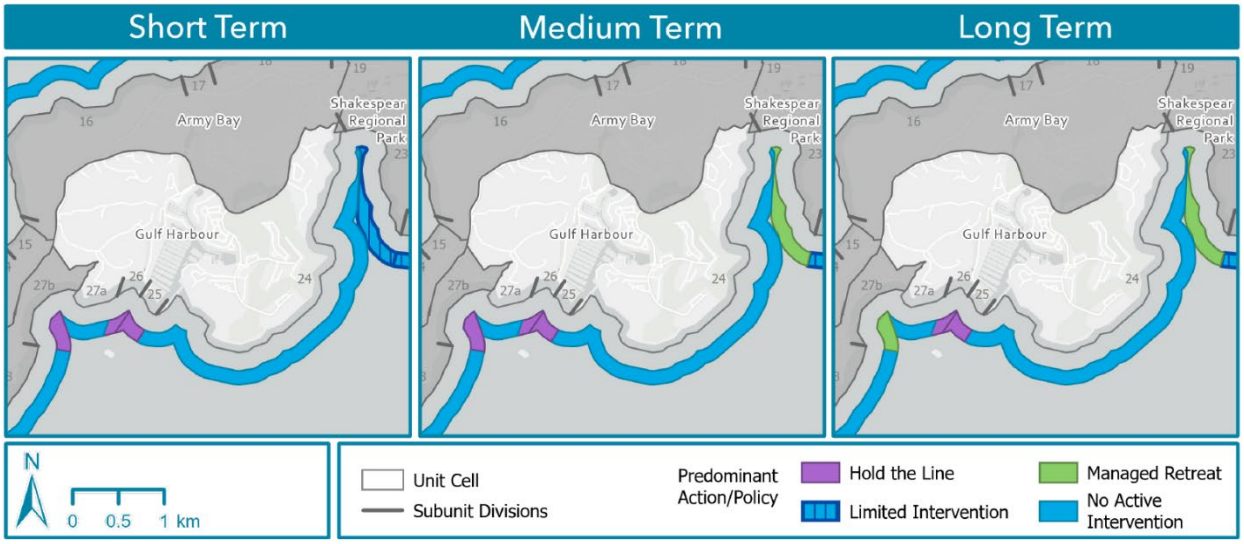


*Figure 6-18: Adaptation strategies for coastal stretches within Gulf Harbour unit area. Abbreviations: NAI (no active intervention, LI (limited intervention), HTL (hold the line), HTL-MS (hold the line, maintain structure), HTL * (hold the line, private), MR (managed realignment).*

Coastal stretch	Short-term	Medium-term	Long-term
24	NAI	NAI	NAI
25	HTL-MS	HTL-MS	HTL-MS
26	HTL-MS	HTL-MS	HTL-MS
27a	NAI	NAI	NAI

6.3.6.1 Coastal Stretch 24: Cliff area between Okoromai Bay and Gulf Harbour

This stretch of the coast covers the cliff area between the western edge of Okoromai Bay and the eastern side of Gulf Harbour Marina. There are three major reserves in this stretch: Okoromai Clansman Reserve, Golf Course Reserve, and Pinecrest Drive Reserve. Outside of coastal stairway in Pinecrest Drive Reserve, there are no major assets in this coastal stretch and an adaptive strategy of no active intervention has been selected across all timeframes. This strategy acknowledges natural processes and aligns with mana whenua objectives to value Taiao. Clifftop walkways in this area are susceptible to coastal erosion and instability and will require monitoring to ensure safe access.

6.3.6.2 Coastal Stretch 25: Hammerhead, Gulf Harbour Marina

Gulf Harbour Marina is fronted by a strip of reclaimed land known as 'the Hammerhead', which is protected from erosion by a revetment. Although the marina breakwater is also a protective structure, it is not owned or maintained by Auckland Council. The Gulf Harbour Ferry Terminal is located on the marina (landward) side of the Hammerhead. This ferry was identified as critical to the local community for transport purposes and a strategy of hold the line is recommended across all timeframes. Although the land is leased from Auckland Council, the marina itself is a privately owned operation. Decisions on adaptation strategies related to the marina and its infrastructure are the responsibility of the lessee.

6.3.6.3 Coastal Stretch 26: Hammerhead Beach Reserve

This coastal stretch covers the beach and reserve area that sits at the end of Laurie Southwick Parade. This reserve was identified by the local community as highly valued for its green space. It is currently protected from erosion by a revetment and is situated in the lee of the breakwater that protects the Gulf Harbour boat ramp. Recognising these values, a strategy of hold the line has been selected across all times. However, in alignment with valuing Taiao, nature-based solutions should be considered and given priority in any future management options. In the longer term with 1 m sea level rise, the coastal inundation risk to this area may require a reconfiguration of the reserve and assets which it supports.

6.3.6.4 Coastal Stretch 27a: Cliff area between Hammerhead and Matakatia

The cliff area between Hammerhead Beach and Matakatia Beach is not owned by Auckland Council, and an adaptation strategy of no active intervention by Auckland Council has been selected across all timeframes.

6.3.7 Little Manly

The Little Manly unit area contains Coastal Stretches 27b to 30. There are five cultural heritage sites in this shoreline area.

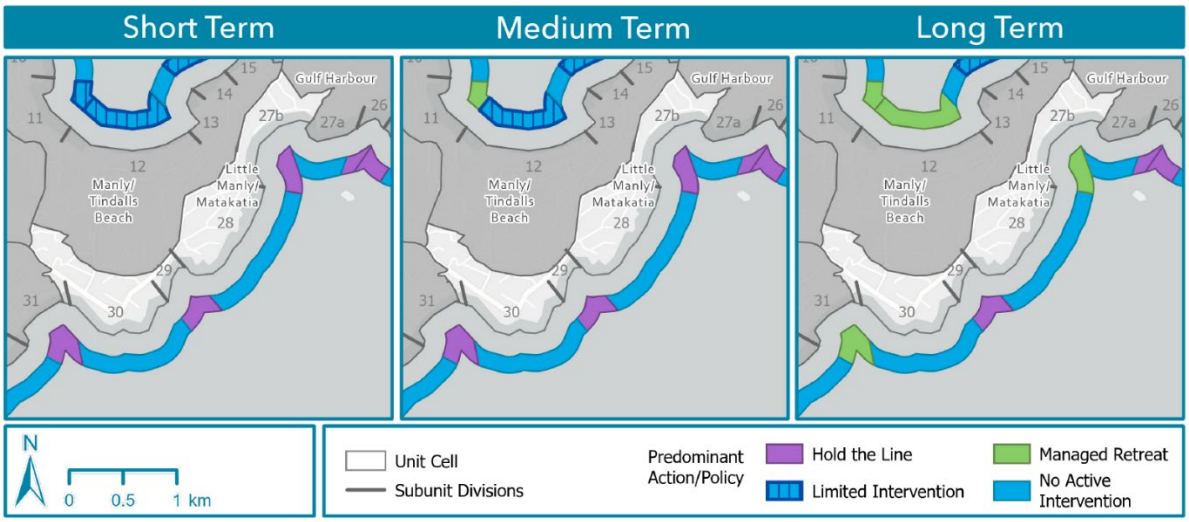


Figure 6-19: Adaptation strategies for coastal stretches within Little Manly unit area. Abbreviations: NAI (no active intervention, LI (limited intervention), HTL (hold the line), HTL-MS (hold the line, maintain structure), HTL (hold the line, private), MR (managed realignment).*

Coastal stretch	Short-term	Medium-term	Long-term
27b	HTL	HTL	MR
28	NAI	NAI	NAI
29	HTL	HTL	HTL
30	NAI	NAI	NAI

6.3.7.1 Coastal Stretch 27b: Matakatia Beach

This stretch of the coast covers Matakatia Beach. Matakatia is a south-facing beach fronted by a strip of esplanade reserve, which is supported by large boulders that reduce the rate of erosion but do not provide full protection. The open space in this bay was identified as a place of value in the digital engagement. An adaptation strategy of hold the line has been selected in the short and medium term. In alignment with valuing Taiao, nature-based options are preferred. However, in the longer term, Auckland Council-owned assets in this area will require a change in strategy to managed realignment in response to the increasing risk of coastal inundation with future sea-level rise.

6.3.7.2 Coastal Stretch 28: Cliff Area between Matakatia Beach and Little Manly Beach

No major Auckland Council-owned assets were identified in the cliff area between Matakatia Beach and the eastern end of Little Manly Beach. An adaptation strategy of no active intervention has

therefore been selected for this part of the coast across all timeframes. This strategy acknowledges natural processes and aligns with mana whenua objectives to value Taiao.

6.3.7.3 Coastal Stretch 29: Little Manly Beach

Little Manly Beach is a small south-facing beach that typically has little to no dry high tide beach space. Behind the beach sits a sea wall, which protects a narrow strip of reserve and Whangaparāoa Road from erosion. In the short term, more formalised protection is required. Coastal erosion processes are extensively evident in this area, with undercutting of banks and the formation of sea caves. Due to the topography, the upper reserve area and road are unlikely to experience coastal flooding. However, with continued sea level rise, this area will experience 'coastal squeeze' and the eventual loss of its intertidal area. As Whangaparāoa Road is a critical transport route across the peninsula, with no viable alternatives for future relocation, a strategy of hold the line has been selected across all timeframes. A preferred management solution will be identified from a range of possible options (including hard engineering, nature based and hybrid solutions) when the renewal of existing assets is triggered.

Figure 6-20: Little Manly beach facing east, towards coastal stairway

6.3.7.4 Coastal Stretch 30: Cliff area between Little Manly and Arkles Bay

No major assets were identified in the cliff area between Little Manly and the eastern end Arkles Bay Beach, and an adaptation strategy of no active intervention has been selected for this part of the coast across all timeframes. This strategy acknowledges natural processes and aligns with mana whenua objectives to value Taiao.

6.3.8 Arkles Bay/Wade Heads

The Arkles Bay/Wade unit area contains Coastal Stretches 31 to 34 and covers the cliff area leading to and the entrance of the Weiti River. There are 15 cultural heritage sites in this shoreline area.

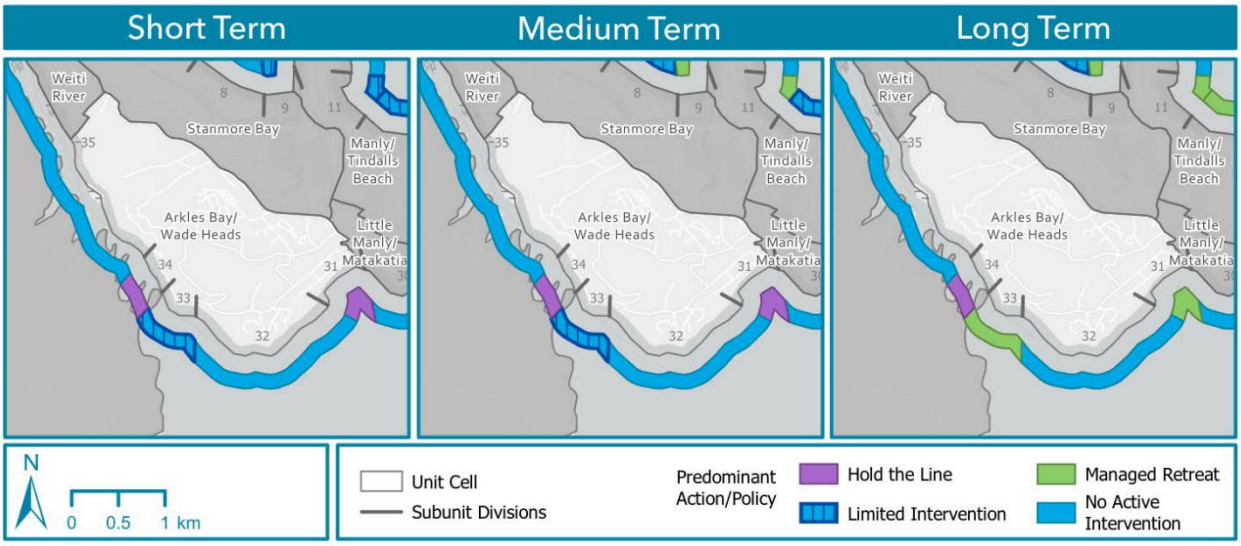


*Figure 6-21: Adaptation strategies for coastal stretches within Wade Heads unit area. Abbreviations: NAI (no active intervention, LI (limited intervention), HTL (hold the line), HTL-MS (hold the line, maintain structure), HTL * (hold the line, private), MR (managed realignment).*

Coastal stretch	Short-term	Medium-term	Long-term
31	HTL	HTL	MR
32	NAI	NAI	NAI
33	LI	LI	MR
34	HTL-MS	HTL-MS	HTL

6.3.8.1 Coastal Stretch 31: Arkles Bay Beach

Arkles Bay Beach is a low-lying beach area, fronted by a narrow reserve protected in places by a rock revetment. The area has a single boat ramp towards its western end. This area was highlighted throughout the community engagement for its swimming and walking amenity. While a strategy of hold the line has been selected in this area in the short and medium term, it is recommended that nature-based options be utilised to support Taiao and maintain the area's natural character as a beach environment. Due to its low-lying topography, Arkles Bay will be exposed to coastal inundation events of increasing magnitude with future sea level rise. As a result, an adaptive strategy of managed realignment in the long term is recommended.

Figure 6-22: Arkles Bay Beach, photo taken facing east

6.3.8.2 Coastal Stretch 32: Cliff Area Between Arkles Bay Beach and Weiti River

This coastal stretch covers the cliff area between Arkles Bay and the entrance to the Weiti River. No major assets were identified in this area and a strategy of no active intervention has been selected across all timeframes. This strategy acknowledges natural processes and aligns with mana whenua objectives to value Taiao. It is noted that some sections of this coastal stretch are not owned by Auckland Council.

6.3.8.3 Coastal Stretch 33: Wade River Road Reserve

This coastal area includes the Wade River Road Reserve, which contains a small wharf known by locals for its fishing. It is recommended that the wharf be maintained in the short and medium term and an adaptation strategy of limited intervention has been selected. In the longer term, this area will require managed realignment due to increasing risk of coastal inundation.

6.3.8.4 Coastal Stretch 34: Weiti Boat Club

This area is currently leased from Auckland Council and supports the Weiti Boat Club. In the short and medium term, the revetment protecting this area will continue to guard against erosion but not coastal inundation. At the end of the asset's life an options assessment for this area that considers the increasing risk from inundation will need to be developed. It is recommend that the local community be consulted when future management options for this area are considered

6.3.9 Weiti River

The Wade unit area contains Coastal Stretch 35 and covers the eastern edge of the Weiti River estuary. There is one cultural heritage site in this shoreline area.

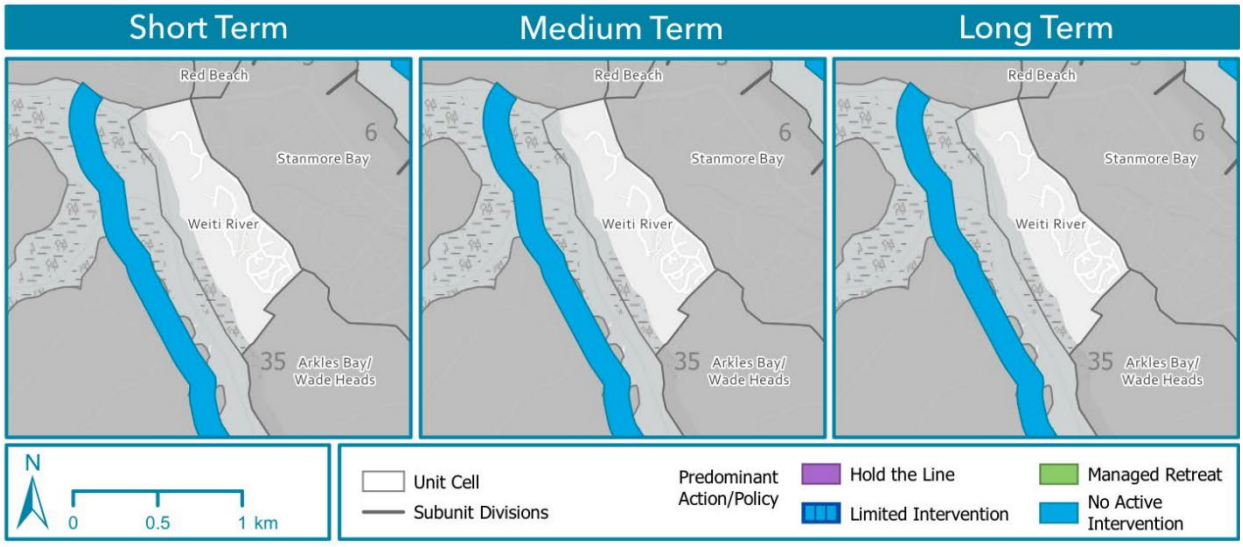


Figure 6-23: Adaptation strategies for coastal stretches within Weiti River unit area. Abbreviations: NAI (no active intervention, LI (limited intervention), HTL (hold the line), HTL-MS (hold the line, maintain structure), HTL (hold the line, private), MR (managed realignment).*

Coastal stretch	Short-term	Medium-term	Long-term
35	NAI	NAI	NAI

6.3.9.1 Coastal Stretch 35: Fairhaven Walk

Fairhaven walk covers the eastern edge of the Weiti River between the boat club and Chenery Road esplanade accessway. This area is highly valued by the local community as a walking destination. However, as no major assets were identified in this coastal stretch and large parts are not owned by Auckland Council, an adaptive strategy of no active intervention has been selected. This strategy acknowledges natural processes and aligns with mana whenua objectives to value Taiao. We note that Penlink will likely cause changes to this coastal area, and we recommend that the local community be engaged on future projects, particularly in relation to the potential development of walking and cycling paths.

6.4 Implementation of the Shoreline Adaptation Plans

The Whangaparāoa SAP has identified high-level, adaptive management strategies across the short (0-20 years), medium (20-60 years), and long (60 years and onwards) term for the 35 coastal stretches defined around the peninsula. To sustainably manage the shoreline, these strategies are now available to be integrated into the relevant: Long Term Plan budgets, infrastructure strategies, Reserve Management Plans, Regional Parks Management Plans, Asset Management Plans that include assets exposed to the long-term impacts of coastal hazards and climate change, as these documents are reviewed. Considering the broad extent of Auckland Council-owned land and assets along the shoreline and the non-statutory nature of SAPs, implementation of the SAP will be a continued, collaborative effort across Auckland Council departments.

Integration of the SAP recommendation across key council documents will cascade through to support associated council decision making (such as landowner and leasehold approvals for structures and buildings on council-owned land) and will in turn direct the future operational maintenance and renewals work programmes. For example, for the future management of Community Facilities' assets that provide a coastal defence or amenity function through Auckland Council's Coastal Assets Renewals Programme.

Using coastal defence structures as an example, the implementation of a 'hold the line' strategy may consider either hard coastal engineering solutions (such as seawalls and revetments) or nature-based options (such as beach nourishment). In contrast, a 'managed realignment' strategy may consider removal or setback of hard structures with enhancement of the coastal environment to provide a natural buffer. Identification of preferred coastal engineering options will be supported by site-specific assessment of coastal processes, option feasibility and costings. The renewal or provision of new coastal defence structures will require regulatory approvals to ensure they meets the regulatory requirements of the Resource Management Act or any successor Acts, including giving effect to the New Zealand Coastal Policy Statement.

Implementation of the strategies at the asset level will also require development of specific 'signals', indicators that highlights the upcoming need for change, and 'triggers', identified thresholds that indicate an immediate change. These signals and triggers will help inform when a change of strategy needs to be undertaken as directed under the Dynamic Adaptive Policy Pathways approach outlined by the Ministry for the Environment. Specific signals and triggers for individual assets may include: end of asset consent, significant asset damage due to a hazard event, increasing flood risk (e.g. flooding multiple times a year) or erosion exposure.

The implementation of the Whangaparaoa SAP will be supported by monitoring of coastal assets and the surrounding coastal environment. Monitoring will include coastal asset condition assessments, beach level surveys and tracking the rate of future coastal hazards and climate change impacts. This information will directly feedback into the development of signals and triggers for the dynamic adaptive pathways.

6.4.1 Māori outcomes

The Kia Ora Tāmaki Makaurau: Māori Outcomes Performance Measurement Framework was approved by the PACE Committee in August 2020 and adopted by the Auckland Council family later that year. Within this framework, Kia Ora Te Tātai is the aspirational outcome that the interconnections of all things, both spiritual and physical, within the Tāmaki Makaurau ecosystem is acknowledged, maintained, and enhanced. Shoreline Adaptation Plans contribute to Kia Ora Te Tātai by considering the long-term impacts of climate change on Auckland's shoreline and developing adaptive plans for sustainable management of public land and assets within coastal areas. The outcome of SAPs can be specifically measured under the Kia Ora Te Taiao and Kia Ora Te Hononga priorities.

Future coastal projects in the Whangaparāoa Peninsula 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 3.2.

7.0 Conclusions

The Whangaparaoa Shoreline Adaptation Plan has set the long-term strategic direction for management of the shoreline of the peninsula. It outlines decisions on how Auckland Council-owned coastal land and assets will be sustainably managed against the impacts of coastal hazards and climate change across the short (0-20 years), medium (20-60 years), and long (60 years and onwards) term. These decisions were informed by the values of mana whenua, which centred on supporting Taiao (Environment), acknowledging Whakapapa (Ancestry), and preserving Tangata Hononga (Community), and the objectives of the local community, which focused strongly on preservation of the shoreline for future generations and the desire for access and amenity in coastal areas.

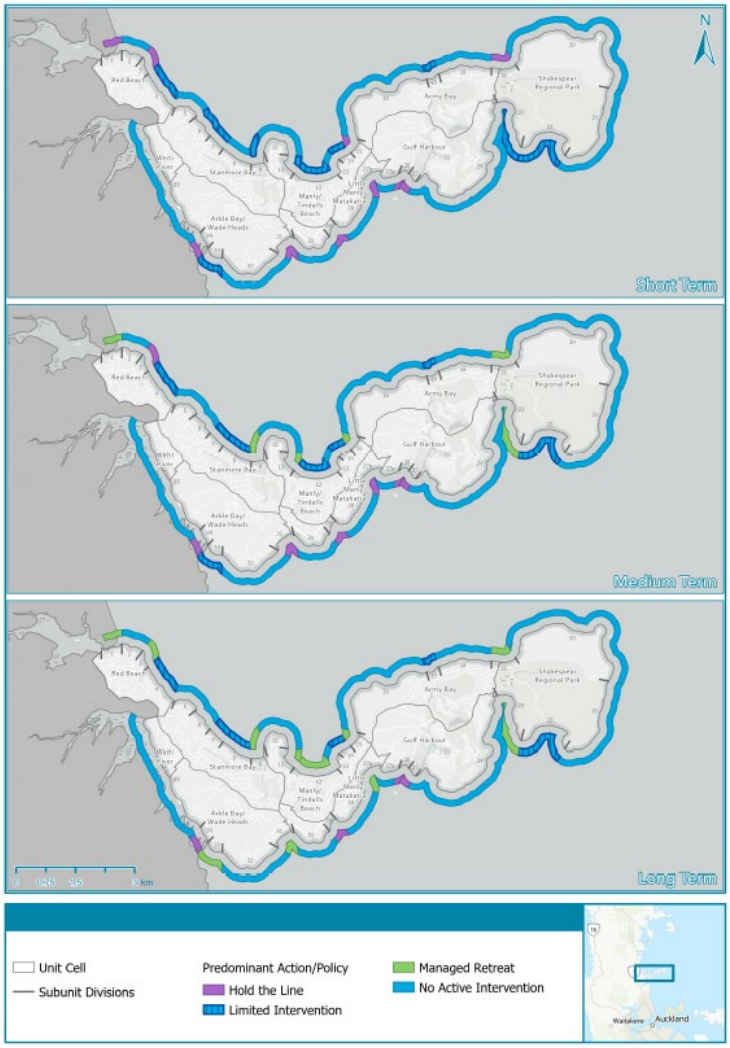


Figure 7-1: Adaptation strategies across all 35 coastal stretches

As shown in Figure 7-1, most of Whangaparaoa's shoreline areas can be managed over the next 100 years with little to no active intervention. For some of the low-lying shoreline areas, the escalating risk of coastal inundation and rainfall flooding will require managed realignment of assets in the medium or long term. The need to set back assets out of the areas susceptible to coastal erosion and instability, where possible, has also been signalled. Coastal stretches identified as 'hold the line' in the medium to long term have a strong link to critical infrastructure or amenity value. Areas of importance either due to their landscape or heritage value have also been considered, and a separate adaptation plan for managing the shoreline response for cultural heritage sites may also be required as part of a wider cultural heritage plan.

To sustainably manage the Whangaparāoa shoreline, the adaptive strategies will be integrated into all relevant Auckland Council Asset Management Plans and decision making. This will require continued collaboration across multiple Auckland Council departments.

7.1 Next steps

The Whangaparāoa Shoreline Adaptation Plan is the first SAP to be developed under the Coastal Management Framework. It has been completed as an initial pilot to trial a best-practice process for development, including approaches for mana whenua and community engagement, coastal hazards assessment and establishment of long-term adaptation strategies.

The Coastal Management Framework divided the shoreline of Auckland into 16 coastal cells. Each cell will have its own SAP which will be supported by a regional coastal hazards risk assessment. The Framework is supported by the Shoreline Adaptation Plan Regional Context Report which further details the SAP work programme and the approach to developing each plan. Completion of the first round of SAPs will enable a regional understanding of changing coastal hazard risk, future funding requirements and subsequent prioritisation of coastal works to be developed.

Recognising Whangaparāoa as the first pilot to be completed, it is anticipated that it will be reviewed and updated upon completion of SAPs across the region. The review will incorporate any future refinement of the SAP development approach and supporting data, ensuring consistency across the region. A future update will also enable any implications of the Resource Management Act reforms to be addressed and appropriately reflected in the scope and implementation of the SAPs.

8.0 References

Carpenter, N., R Roberts and P Klinac (2020). *Auckland's exposure to coastal inundation by storm-tides and waves*. Auckland Council technical report, TR2020/24

Carpenter, N., Sinclair, S., Klinac, P., Walker, J (2017) *Coastal management framework for the Auckland region.*

IPCC, 2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.

Ministry for the Environment (2017). *Coastal Hazards and Climate Change – Guidance for Local Government*

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

Tonkin and Taylor (2021). *Shoreline adaptation plan – Whangaparāoa Pilot, Exposure Assessment*. 1008052.100.WP.VA.v3

To find out more email:
shorelineadaptationplans@aucklandcouncil.govt.nz

Auckland Council
Te Kaunihera o Tāmaki Makaurau