



Queen Elizabeth Park

DRAFT Coastal Erosion Plan

Prepared by **PAOS**[®]

for Greater Wellington Regional Council

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Figure 1 - Aerial view of the erosion zone covered by this plan showing designations



Queen Elizabeth Park is owned by the crown and managed by Greater Wellington Regional Council (GWRC). The park is classified as a Recreation Reserve under the Reserves Act, and is a Key Native Ecosystem with three ecosystem types - large dune system, wetlands and coastal remnant.

Ngāti Toa Rangatira and Ngāti Haumia have strong associations with the park. The park is included in the reserve established for Ngāti Toa Rangatira in 1847.⁶ The area covered by this plan includes urupa, kainga, koiwi and taonga such as middens and ovens are often found within the shifting dunes.

This plan focuses on the coastal edge from the park's southern entrance at Wellington Road in Paekakariki to approximately 900 metres to the north (see the location aerial map on this page). It includes dunelands, Paekakariki surf club, Budge House, Wainui Pā, Wainui Stream, and a network of green open spaces, picnic areas, roads, carparks, trails and beach access, but not the holiday park or urupa.

This area is rich in history and reflects natural geological and ecological processes, human occupation and changing land use. The value community places on this area is reflected in Kapiti Coast District Council's (KCDC) District Plan. The District Plan identifies the dunelands as an ecological site with Outstanding Natural Landscapes and Features. Budge House is designated historic heritage and Wainui Pā lies within a wāhi tapu site.

KEY

- WTS 0578 - Wāhi Tapu (Kapiti Coast District Council District Plan)
- Ngāti Toa Rangatira-owned lands

⁶ Ngāti Toa Rangatira Deed of Settlement Documents Schedule, 2.1 Statements of Association, p. 28.

Figure 2 - Diagram showing sediment movement



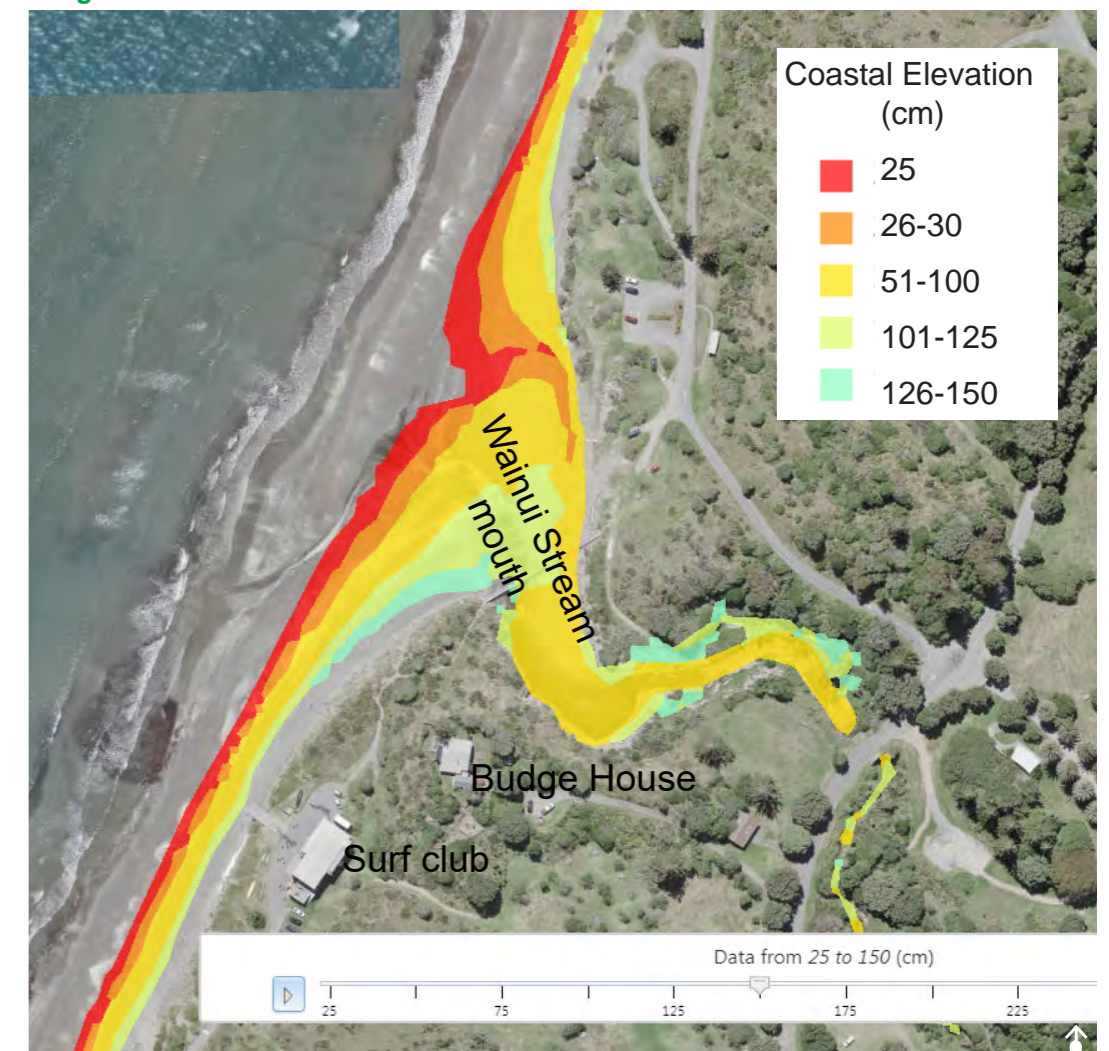
The issue

The coastal edge of the park is a dynamic landscape, vulnerable to erosion and the effects of climate change. These effects include sea level rise, more rainfall, more extreme rainfall events and increasing frequency and intensity of storm events.⁶ The low elevations of the coastal edge at Wainui Stream mouth shown in Figure 3 are particularly vulnerable to these effects.⁷ Probability analysis shows that hazardous events on the Kapiti Coast are likely to involve large waves coinciding with high storm tides.⁸ A 2001 study of the coastal edge of Queen Elizabeth Park estimated that within 50 years up to 40 metres of foredunes would be lost, a single large storm event could result in 40 metres of erosion, and ongoing erosion is likely to occur along the toe of foredunes.⁹

Effects within this 40 metre erosion zone are exacerbated by a lack of sediment to replenish sand eroded after storm events. Figure 2 shows the processes along this part of the Kapiti Coast that lead to a sediment deficit and reduced sand supply.

Two cyclones earlier last year show how vulnerable the park's coastal edge is to storms and erosion. The pedestrian bridge across the mouth of Wainui Stream was washed away and the toe of the foredunes eroded. Tracks along the beach edge and the coastal ring road were eroded and beach access is difficult (see pages 8 - 10 for images of effects).

Figure 3 - Coastal elevations



⁶ NIWA Taihoro Nukurangi, *Climate change and variability - Wellington Region*, June 2017.

⁷ This map is indicative of normal sea levels and does not indicate the extent of damage to landform that may occur from extreme events.

⁸ NIWA Taihoro Nukurangi, *Joint-probability of storm tide and waves on the open coast of Wellington*, July 2011.

⁹ *Queen Elizabeth Park Coastal Dunes Management Discussion Document*, Boffa Miskell June 2001.

Figure 4 - Aerial view showing existing trails, facilities and infrastructure

Sediment Movement



Response

The aerial view on this page shows visitor facilities that lie within the 40 metre erosion zone and are most at risk from storm damage, flooding and extreme winds. In order to protect them, reduce vulnerability to increasing impacts of climate change and develop resilience, a key objective of GWRC's Climate Change Strategy is adaption planning and actions.⁶ This draft coastal erosion plan is an example of adaption planning. It is a practical response to existing and potential risks from the impacts of coastal erosion and climate change.

Plan Objectives

Key objectives of this plan are to:

- Withdraw existing visitor facilities and infrastructure that lie within the 40 metre erosion zone and restore foredunes
- Relocate visitor facilities and infrastructure outside of the erosion zone
- Carry out foredune restoration
- Provide opportunities for people to access, enjoy and recreate in this part of the park
- Highlight and interpret park heritage and the natural environment.

The following pages illustrate how these objectives may be achieved. They identify and comment on the current situation and propose changes aimed at protecting the park and visitor enjoyment of it.

KEY

	40 metre erosion zone	1 Wellington Road entrance
	carparks	2 surf club
	toilets	3 Wainui Stream mouth
	buildings	4 footbridge washed away early 2018
	park furniture	5 vehicle/pedestrian bridge across Wainui Stream
	locked gates	6 Wainui Pā site
	structures	
	vehicle access	
	tracks	
	east-west track connctions	

⁶GWRC, Climate Change Strategy - A strategy to guide the Wellington Regional Council's climate resilience activities, October 2015.

Figure 3 - Aerial view showing the site



Current situation

Comments

- Erosion along the beach edge (see pages 8-10)
 ➤➤➤ Beach access is difficult and in some places the beach is inaccessible from the park.
- - - 40 metre Erosion zone
 ➤➤➤ Road, carparks, toilets and park furniture within the erosion zone are vulnerable to storm events and are proposed to be relocated.
- Three trails run North/South parallel to the coast - Te Ara o Whareroa, the Inland Track, and the Coastal Track/Te Araroa
 ➤➤➤ The Coastal Track is within the erosion zone and proposed to be closed
- - - Trails through dunes link coastal and inland trails
 ➤➤➤ Once the coastal track is closed the linking tracks are no longer necessary.
- 1 Surf club access from The Parade
 ➤➤➤ The surf club lies within the erosion zone. A 2018 Erosion Hazard Assessment recommended retreat to a site east of the foredune.
- 2 Budge House (park ranger's house) on foredune with private driveway and storage shed
 ➤➤➤ Budge House is partly within the erosion zone and may have to be relocated in future.
- 3 Slightly elevated area at Wellington Road entrance with information
 ➤➤➤ This area has good surveillance of the park entrance and is a suitable location for a new park ranger's house.
- 4 Grassed open spaces of different sizes with picnic tables, toilets, shade, and open space for flexibility and choice for large and small groups.
 ➤➤➤ Flexible open spaces are important as they cater for a wide variety of visitor and community needs and can be developed for specific purposes as required.
- 5 Pedestrian bridge over Wainui Stream mouth destroyed during 2018 cyclones
 ➤➤➤ Pedestrian bridge was within the erosion zone and replacement is not recommended.
- 6 Track above the stream bank (see page 9)
 ➤➤➤ This track is within the erosion zone and ongoing maintenance is not recommended.
- 7 One way ring road through the foredune and along the coastal edge
 ➤➤➤ The coastal section of this ring road lies within the erosion zone and is proposed to be replaced by a low impact track.
- 8 Parking with beach access, picnic tables and toilets
 ➤➤➤ Facilities and infrastructure lie within the erosion zone and are proposed to be relocated behind the restored and naturalised foredune.
- 9 Pa site with views and lookout structure reached by the one-way ring road
 ➤➤➤ This plan proposes removing vehicle access and improving accessibility in partnership with iwi.
- 10 Locked gate controls vehicle access to a parking/turning area
 ➤➤➤ The asphalt turning/parking area lies within the foredune and is proposed to be removed and the area planted using indigenous sand binding species.
- 11 The dune landscape
 ➤➤➤ The duneland and sheltered picnic areas lack interpretation or information.
- 12 The sharp spines of Phoenix palms are a hazard and known to injure people and animals
 ➤➤➤ The proposal is to replace Phoenix palms with Nikau palms

Beach erosion

Erosion at toe of foredune below Budge House and surf club



Erosion at beach edge in front of surf club



Footbridge across Wainui Stream washed away



Footbridge during storm early 2018



Storm damage along Wainui Stream



Stream bank erosion and debris at mouth of Wainui Stream after a storm



Debris in stream after storm surge - viewed from bridge



Debris from footbridge scattered around Wainui Stream mouth



Clearing debris from the stream after storm 2018



Erosion north of Wainui Stream reducing beach access



Erosion along the Coastal Track and difficult beach access



Coastal ring road eroding after storm surges



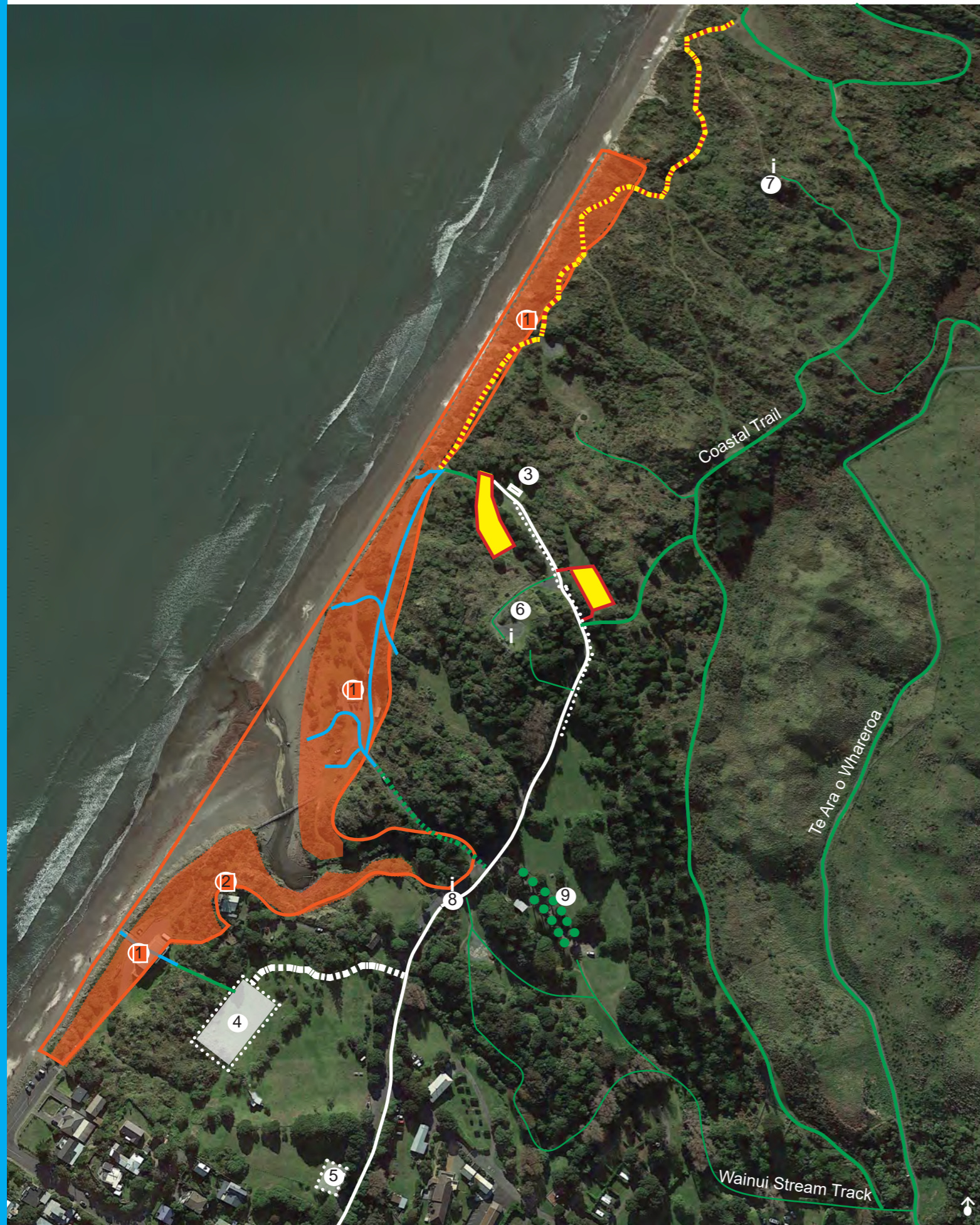
Beach access from the coastal ring road eroded



Dune blow out near the Coastal Track



Figure 4 - Aerial view showing proposed relocation and development



Proposal

Strategic retreat from the erosion zone

- ① Removal of structures on the seaward side of the foredune - toilet block, carparks, asphalt ring road, picnic tables, coastal trail and surf club,. The storage shed next to Budge House driveway is also proposed to be removed.

- ② Dune restoration to enable natural coastal processes and dune renewal - removal of hard and fill material, reinstatement of toe of foredunes, planting using native sand binding species such as spinifex, pingao, sand coprosma, sand tussock etc (see page 14 for examples of foredune restoration).

Budge House may need to move in the future if threatened by coastal erosion.

- ⑤ Coastal Track decommissioned. Existing inland track becomes Coastal Trail/ Te Araroa with views to the sea. With decommissioning of the current coastal track there is no longer need for most connecting tracks across the dune system. Their removal will help protect the dune system.

Replacement facilities

- ③ Replacement toilet block location.
- ④ Replacement surf club building with parking, accessed at the driveway entrance to Budge House.
- ⑤ Future site for park ranger accommodation with good surveillance at the park entrance.

Trails and connections

- Beach access via low impact tracks through restored toe of foredunes(see page 14).
- Existing tracks.
- Ring road becomes walking/cycle path.

Viewpoints and interpretation

- ⑥ Removal of vehicle access to Wainui Pā site with access for pedestrians only, removal of asphalt at the summit. Redevelopment of the lookout with interpretation of iwi settlement and use in partnership with iwi.
- ⑦ Existing highpoint and seat developed as lookout with interpretation of natural dune processes and ecology (see page 13).
- ⑧ Wainui Stream interpretation panel at existing bridge.

Vehicle access

- Existing vehicle access (widened in places to become 2-way).
- New vehicle access off Budge House driveway to new surf clubroom and parking.
- ④ New carparking for picnicking and access to Wainui Pā and Coastal Trail (current Inland Track).

Other enhancements

- ⑨ Phoenix palms replaced by Nikau palms.

One-way ring road through foredune to beach proposed to become a pedestrian and cycle path



Coastal carpark and toilets within the erosion zone removed and the coastal edge restored. The ring road becomes a pedestrian and cycle path



An example of foredune restoration near the surf club with low impact path access



Proposed location for replacement parking and toilets in a more protected site behind foredunes below Wainui Pā



Sheltered area below Wainui Pā proposed for parking and picnicking



Access to Wainui Pā to be improved for pedestrians



Wainui Pā site and lookout proposed to be improved



Looking towards the proposed site for parking, toilets, picnicking, and beach access below Wainui Pā



View south from Wainui Pā summit and lookout to site of relocated surf club and foredune restoration to replace current parking area



Location of lookout sites along Coastal Trail



View to northern lookout site proposed to be developed



View from northern lookout



Sites for coastal restoration

From this



To this



Eastbourne Wellington Harbour



Island Bay

Improved beach access

From this



To this



Piha



Island Bay

Proposed relocation of key facilities

New carpark location below Wainui Pā and entry to the Coastal Trail (former Inland Track)



View towards proposed surf club location on park side of foredune



Spines from Phoenix palms along the driveway can injure people and animals and are proposed to be replaced with Nikau palms





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