

EASTERN BAYS SHARED PATH

RESOURCE CONSENT APPLICATIONS AND ASSESSMENT OF EFFECTS ON THE ENVIRONMENT

PREPARED FOR: HUTT CITY COUNCIL

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QUALITY STATEMENT

PROJECT MANAGER

Jon England

PREPARED BY

Caroline van Halderen

CHECKED BY

April Peckham and Jamie Povall

REVIEWED BY

Karen Bell

APPROVED FOR ISSUE BY

Jon England

PROJECT TECHNICAL LEAD

Jamie Povall



16/04/2019



16/04/2019



16/04/2019



16/04/2019

WELLINGTON

Level 13, 80 The Terrace, Wellington 6011
 PO Box 13-052, Armagh, Christchurch 8141
 TEL +64 4 381 6700

REVISION SCHEDULE

Rev No.	Date	Description	Signature or Typed Name (documentation on file)			
			Prepared by	Checked by	Reviewed by	Approved by
	April 2019	Final	Caroline van Halderen	April Peckham/Jamie Povall	Karen Bell	Jon England

PART 1: APPLICATION FORMS

Application Forms:

- Greater Wellington Regional Council
 - Form 1- Resource Consent Application
 - Form 4a - General Discharges to Water
 - Form 7a – Coastal Permit Application

- Hutt City Council – Resource Consent Application

PART 2: ASSESSMENT OF ENVIRONMENTAL EFFECTS

Executive Summary

Introduction

The Hutt City Council (HCC) proposes to construct a 4.4 km Shared Path (cycleway/walkway) along Marine Drive in two sections: between Point Howard and the northern end of Days Bay, and the southern end of Days Bay (Windy Point) to Eastbourne (Muritai Road / Marine Parade intersection). Approximately five thousand people live along the Eastern Bays, with Marine Drive providing the only road and infrastructure service connection.

A survey¹ has shown that residents list the completion of the Eastern Bays Shared Path, and concern about climate change as the two most important issues facing the Eastbourne community. The Eastern Bays Shared Path Project ("the Project") presents an opportunity to integrate an efficient response to both of these issues.

Project Key Drivers

The Project aim is to develop a safe and integrated walking and cycling facility along Marine Drive to connect communities along Hutt City's Eastern Bays, and to provide links to other parts of the network for recreation and tourism purposes (the Remutaka Cycle Trail in particular, as well as the Great Harbour Way (Te Aranui o Pōneke). Currently, pedestrians and cyclists connectivity and use along the Eastern Bays is low. This is due to a lack of dedicated cycling and walking facilities and the tightly constrained nature of Marine Drive. For the most part, cyclists and pedestrians must use the road shoulder, which is very narrow and even non-existent in sections.

Furthermore, the Project provides a basis for future opportunities for protecting the resilience of the road and underground services by upgrading the supporting seawalls. Marine Drive provides the only road access to the Eastern Bay suburbs and is therefore a key transport route for the region. Key infrastructure services, including the main outfall sewer pipeline (MOP), are located within the road corridor. The MOP is an 18km long pipeline that conveys secondary treated wastewater from the Seaview Wastewater Treatment Plant (which services 146,000 residents and a large number of local industries) to the outfall at Bluff Point, near Pencarrow Head. The MOP and other services are regionally significant infrastructure, and along with the road access are important lifeline utilities for the wider community.

The road is currently vulnerable to closure, and/or reduced operation, in part due to wave overtopping due to the current state of the coastal edge. The existing seawall in places has a residual life of less than 5 years, and as it has been built in an *ad hoc* nature over time, is vulnerable to failure and does not provide effective storm mitigation. Over time sea levels will rise, aggravating the situation. MfE (2017) projections forecast a 16cm sea level rise by between 2030 and 2040 (depending on global emissions trajectories). Further sea level rise will increase the frequency of all coastal inundation along the Eastern Bays, with sea level rise of 0.5m forecast to be reached sometime between ~2070 and ~2110 and sea level rise of 1.0m sometime after ~2115.

The Project recognises the series of ongoing processes of managing coastal values in the face of climate change, and sea level rise and the related pressures faced by Greater Wellington Regional Council and HCC. However, the Project is not a solution to the effects of sea level rise, and instead provides the first step in potentially incremental upgrades that would assist in providing protection to the road (and underground services) from the effects of sea level rise along this section of the coast. As an adaptation model, the seawalls do not preclude future options and have been designed to enable additional protection to be added in the future if considered by the Eastern Bays community to be appropriate.

¹ Eastbourne Community Survey (2014). <http://portal.huttcity.govt.nz/Record/ReadOnly?Uri=368877>

Figure ES-1 shows the Shared Path indicated "B", as part of an integrated walking and cycling facility in Lower Hutt.

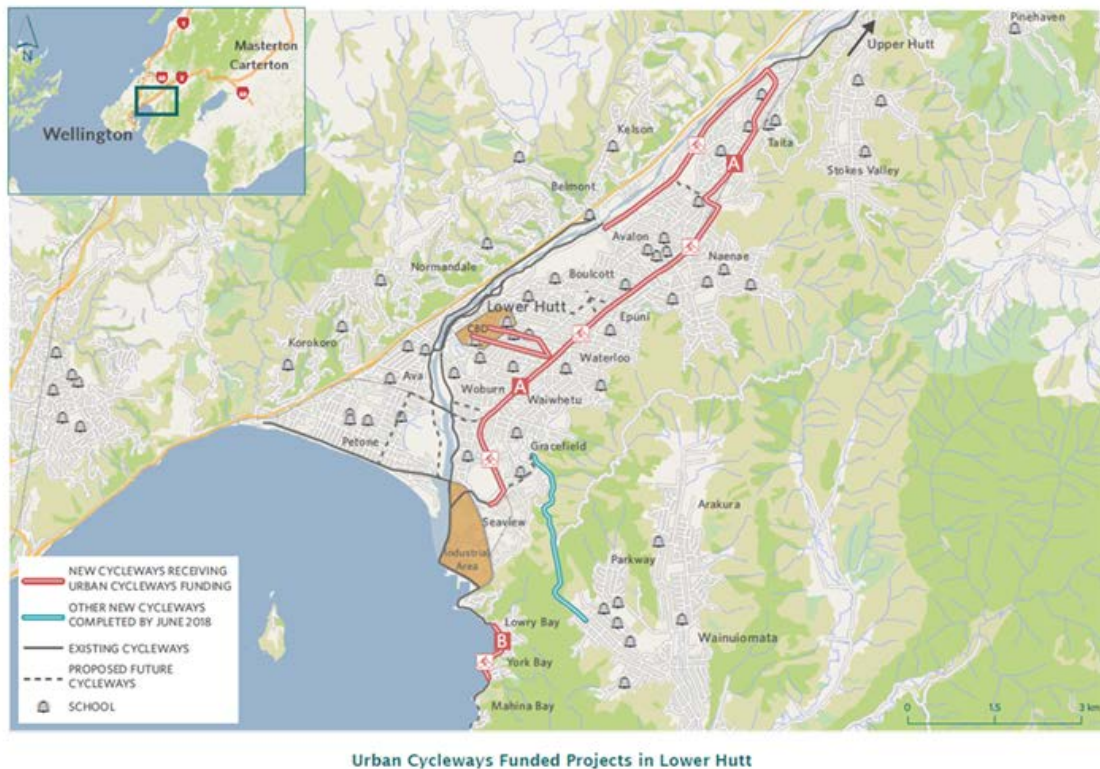


Figure ES-1. Urban Cycleway Projects in Lower Hutt

Summary of Project Benefits

Connectivity

The Project will provide a safe and connected walking and cycling route along Marine Drive, providing enhanced connections:

- Within the individual bays (for recreation and access);
- Between different bays (to shops, schools, recreation, etc.);
- To and from Lower Hutt and beyond (to work, school or for recreation etc. – see the figure above); and
- To other regional cycle routes, including the Great Harbour Way/Te Aranui o Pōneke walking/cycling route (Leg 3 Burdan's Gate to Seaview) and the proposed extension of the Remutaka Cycle Trail (one of the New Zealand Great Rides) from the mouth of the Orongorongo River to Burdan's Gate.

This enhanced connectivity will result in significant social, economic and recreational benefits, including:

- Improved safety for pedestrians, cyclists and other road users;
- Recreation and tourism opportunities; and
- Positive benefits to health and wellbeing.

Resilience

In addition to increased connectivity, the Project will provide the first step in enabling the Marine Drive road corridor to respond to the challenges of sea level rise.

The proposal includes replacement seawalls to provide improved protection from storm events for Marine Drive and other infrastructure contained within the Marine Drive road corridor. The replacement seawalls will reduce overtopping and debris on the road and develop a consistent seawall design that can be added to in the future. The Shared Path will sit on top of the new seawall. The new seawall and associated features will provide enhanced environmental outcomes compared to the existing seawalls.

Funding

The Project features highly in the National Land Transport Programme (NLTP) 2018-21 priority list for projects in the Wellington Region. The Urban Cycleway Projects included in the NLTP will provide an integrated walking and cycle network across Lower Hutt, as shown on the figure above.

The Project will be largely funded by HCC, which has allocated \$14.3 million in its Long Term Plan 2018-2028 for the Project, staged over the next five years. The Project will also receive funding from the government's Urban Cycleways Fund, which provides increased investment to accelerate the delivery of cycling networks in main urban centres.

Role of Hutt City Council

HCC has a role in delivering land transport outcomes. Active modes of transport, including cycling, have a key role in ensuring sustainable growth and improving the liveability of the city. HCC is focused on providing its communities and visitors to the city with more and safer transport choices for their journeys, and enhanced wellbeing and recreational opportunities.

HCC also has a leadership role with respect to climate change and its effects on regional and local communities, as well as on infrastructure. It also needs to ensure the sustainable management of the natural and physical resources in order to meet the reasonably foreseeable needs of future generations. In addition, HCC must contribute to building community resilience in terms of managing the effects of natural hazards and its coastal margins. To this end, HCC will be developing a Climate Change and Resilience Strategy with its community. The Project will not preclude any outcomes of the strategy and will "buy" time for it to be developed, agreed and implemented.

Alternatives

Throughout the development of the Project, alternatives and options associated with the design were investigated and recorded. The geography and terrain in the Eastern Bays area and the lack of any other alternative transport routes, means that the focus has been on alignments based on Marine Drive.

The Project has been developed on the seaward side of Marine Drive, following a detailed alternatives assessment. Due to the physical constraints on the landward side of Marine Drive, the widening of the road on the seaward side to accommodate the Shared Path is the preferred option. In summary, the key reasons for favouring a "coastal edge" option are:

- To avoid the steep hill slopes along large sections of the landward side of the road. Widening on the landward side would require major earthworks and cuts on the headlands, which would result in significant effects to the environment.
- To avoid adverse effects to properties and dwellings. Much of the landward side of Marine Drive is lined with residences and road widening inland would bring the road closer to houses, resulting in increasing adverse amenity effects. It would also require considerable property purchases.
- To reduce car and cycle/pedestrian conflicts. A shared path on the landward side of Marine Drive will both reduce visibility during egress from and entry to properties, and connectivity to the coast. This will result in cyclists and pedestrians having to pass across all the street and property exits onto Marine Drive. In addition, the Shared Path will need to cross from inland to coastal options at various stages resulting in an increase in traffic and cycle/pedestrian conflicts.

- To enhance the connection to the coast and thereby increase recreational benefits. Many beach areas have very poor existing access, especially at high tide. A coastal option enables public access to be enhanced.
- It also aligns with the Great Harbour Way/Te Aranui O Pōneke which, apart from the section past the port, is intended to follow the coast.
- Ability to integrate with coastal hazard protection and respond to the effects of climate change. A seaward location enables the efficient use of natural and physical resources by providing the Shared Path on an enhanced, consistent and fit-for-purpose seawall option. This will lead to reducing road closures and increasing the resilience of Marine Drive and the associated underground services.
- Ability to enhance environmental outcomes through providing a modern seawall and design features that respond to environmental effects on issues such as fish passage and penguin passage, natural character, etc.
- Ensuring that the option is affordable to the community, and providing medium to long-term benefits.

As part of the assessment of alternatives, a number of design options for the Shared Path were investigated. The options development process undertaken during the Indicative Business Case (IBC) identified two principal considerations that influenced the Project along the Eastern Bays foreshore. The first was the path width that could safely accommodate pedestrians and cyclists along the route with the least amount of widening onto the coastal marine area (CMA). The second consideration was the types of seawall that could be used to gain path width where there is currently insufficient width.

A multi-criteria analysis (MCA) process was used to assess options, where options were scored against a number of factors, including safety, resilience, upgrade potential, consentability and beach impact. Two options for widening the road (2.5m and 3.5m path widths) were favoured throughout this process. Feedback through community consultation and alignment to the investment objectives also reinforced the two preferred options.

Both these path width options were considered throughout the Detailed Business Case (DBC) process. Constructing a path of consistent width along the corridor was generally preferred. However, it was recognised that it was appropriate to narrow the path at environmentally sensitive locations, and to retain the fuller width where there are expected to be higher number of pedestrians. This flexibility in design also enables the Shared Path to respond to the constraints unique to the various bay environments, and to avoid or mitigate effects on the environment.

Summary of environmental effects

An assessment of any actual or potential effects that the activity may have on the environment, and the ways in which any adverse effects may be mitigated has been prepared in accordance with the Fourth Schedule of the Resource Management Act (RMA). The assessment is presented in appropriate detail as corresponds with the scale and significance of the actual or potential effects that the activity may have on the environment.

The preliminary design for the Project, as reflected in this application and supporting drawings and assessments by specialists, has sought to avoid or mitigate adverse effects through the alternatives assessment, development of Project design features and the proposed construction methods. The design has gone through a series of iterations that were considered against the parameters of the natural environment (such as coastal processes, ecologically sensitive areas – intertidal and subtidal areas), to achieve an optimum design. Where it has not been practicable to avoid adverse effects, the measures set out in Table ES-1 are proposed to remedy or mitigate these adverse effects.

There is a wide range of components of the environment that could potentially be impacted in either the short term or long term (permanently) by the different elements of the Project. These components range from nearby coastal areas, to seabed life or sea life in the water column, to people living nearby, or who use the sea area for recreation, and on those who have particular cultural affinity and association with the area.

The actual and potential effects of the Project are summarised below.

Table ES-1. Summary of Environmental Effects

Effect	Mitigation	Extent of effect following mitigation
Intertidal Ecology and Fish Passage	Fish passage - spat ropes or ramps at stormwater outlets. Textured vertical curved seawalls provide improved habitat resulting in an increased diversity of taxa colonising these new walls.	Intertidal ecology - less than minor . Fish passage - negligible . The overall effects of the Project taking into account the mitigation measures proposed are less than minor , and in some locations it will be enhanced .
Vegetation	Beach nourishment to be done over winter months; using coarse gravels; careful placement of material; demarcating area of protection. Translocation of plants and gravels.	The overall effects of the Project on vegetation taking into account proposed mitigation measures are less than minor for seagrass and less than minor for the remaining vegetation types and gravels.
Avifauna	Disturbance of habitat during shared path and seawall construction to be minimised; Warning signage against disturbance by dogs; Penguin Management Plan as outlined in Appendix C.	The overall effects of the Project on avifauna taking into account the mitigation measures proposed are less than minor for Little penguins and coastal birds. There are opportunities to enhance penguin habitat by establishing local population recovery site at Claphams Rock within the Project area.
Natural character, Landscape and Visual	Landscape and Urban Design Plan and Bay Specific Landscape and Urban Design Plans as outlined in Conditions, Appendix R.	Through adopting the proposed mitigation measures, the landscape and visual effects have the potential to be less than minor .
Amenity Values and recreation	Beach nourishment at Point Howard, Lowry Bay and York Bay.	Overall the effects of the Shared Path on amenity effects and recreation of the bays range from none to less than minor .
Coastal Processes	Typical design features as shown in the Design Features Report contained in Appendix J, will mitigate effects of coastal processes.	Overall the construction and operation of the Shared Pathway Project will have a less than minor effect on coastal physical processes, provided that the detailed design is based on the principles outlined in Appendix J.
Climate change and natural hazards	First step in incremental upgrades or alternative adaptation options; dynamic adaptive planning principles (DAPP) of "buying some time" with this initial adaptation option ("pathway")	Over time the effects of climate change and sea level rise will be significant on the area, but the Project offers the opportunity to adapt to the future.
Culture and Heritage	An accidental discovery protocol (ADP) and will be a condition of this application.	The overall effects of the Shared Path on Culture and Heritage will be less than minor . The Project offers opportunities through "story boards" and signage to enhance cultural and heritage values and share them with the wider community.
Construction	These measures will be included in the Construction and Environmental Management Plan (CEMP). The CEMP will be a condition of the application	The temporary nature of the works and the mitigation measures will be sufficient to ensure that any potential construction

	(refer to suggested conditions in Appendix R).	effects associated with the proposal will be less than minor .
Cumulative	Sediment management set out in the construction methodology (Appendix J) loss of vegetation mitigated by translocation of plants and the additional planting on other areas (such as the beach nourishment bays of Point Howard, Lowry Bay and York Bay; and Claphams Road).	The cumulative effects of the Shared Path Project are negligible .

Consents Required

The RMA outlines a number of relevant considerations for the determination of applications for resource consent. The Project involves several components. These components trigger the need for resource consents from GWRC and HCC, as works will be undertaken in the coastal marine area and within the road corridor.

Table ES-2. Summary of Required Consents under Regional Coastal Plan for Wellington Region (2000)

Application No.	Nature of Resource Consent – Regional Coastal Plan
	Reclamation and Drainage of Foreshore and Seabed
1	Coastal permit for the reclamation of the foreshore and seabed
	Structures
2	Coastal permit for the removal and demolition of seawalls
3	Coastal permit for the occupation of the seawalls in the CMA
4	Coastal permit for structures parallel to mean high water springs in an area outside of Area of Significant Conservation Value
5	Coastal permit for activities involving the use and development of structures outside an Area of Significant Conservation Value which cannot meet Permitted or Controlled Activity Standards
	Destruction, damage or disturbance of foreshore and seabeds
6	Coastal permit for the construction of new seawalls, revetment, boat ramps and steps
	Deposition of substances on foreshore and seabed
7	Coastal permit for the deposition of sand, shingle, shell or other natural material directly onto the foreshore for the purpose of combating beach or shoreline erosion and improving the amenity of value of the foreshore
	Discharges to Land and Water
8	Coastal permit for the discharges to the CMA

Table ES-3. Summary of Required consents under City of Lower Hutt District Plan

Application No.	Nature of Resource Consent - HCC
	Network Utilities
1	Land use consent for the construction, alteration and diversion of Marine Drive.

	Significant Natural, Cultural and Archaeological Resources	
2	Land use consent for the construction works within the Significant Natural Resource site identified as SNR 44.	
	Earthworks	
3	Land use consent for earthworks within the Special Recreation and Passive Recreation zoning.	

Assessment of Planning Provisions

The statutory assessment that has been undertaken and reported in this section, has concluded that the Project is consistent with the relevant objectives and policies of the applicable national, regional and district level statutory provisions.

The Project will promote the sustainable management of natural and physical resources and is consistent with the purpose and principles of the RMA. Notwithstanding the above, the Project will result in some adverse effects, particularly in relation to intertidal ecology, landscape and visual amenity, and amenity and recreation values. On the other hand, the Project will result in significant positive effects, particularly in relation to traffic safety and resilience, but also in terms of social and economic wellbeing.

Throughout the consideration of options, and the subsequent design process, the approach has been to avoid potential adverse effects, or where avoidance is not possible, to remedy or mitigate actual or potential adverse effects associated both with the construction stage and the operation of the Project. To this end design features have been adopted and will be further developed during the detailed design stage. Furthermore, management plans (such as a construction and environmental management plan (CEMP) directed toward 'managing' the various construction stages will be developed. A suite of recommended consent conditions which set the framework and key environmental parameters in which the management plans operate is also proposed.

The overall conclusion is that in relation to 'adverse effects on the environment' the Project has effectively avoided, remedied and mitigated adverse effects. Where there remain residual adverse effects post-mitigation, for example in relation to intertidal ecological effects, those effects are minor or less and therefore acceptable.

As a result, it is the conclusion of the statutory assessment that the purpose of the RMA will be achieved by granting the resource consents sought for the Project.

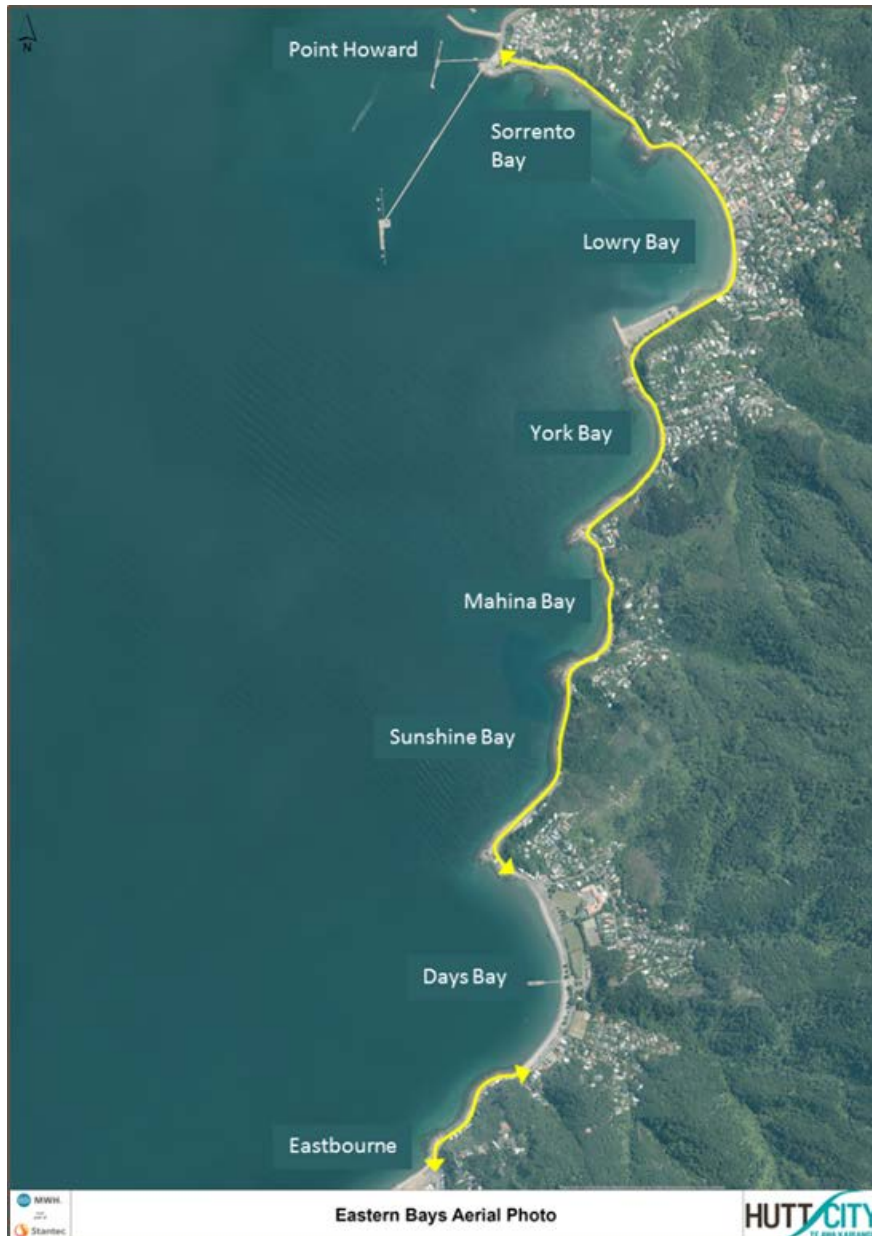


Figure ES-2. Project Area

Abbreviations

ADP	Accidental Discovery Protocol
ARI	Annual Recurrence Interval (Return period)
BSLUDP	Bay Specific Landscape and Urban Design Plan
CIA	Cultural Impact Assessment
CMA	Coastal Marine Area
CSW	Curved concrete sea wall ie a single, double or triple curve concrete wall
DAPP	Dynamic Adaptive Pathways Planning
DAST	Doctors for Active Safe Travel
DBC	Detailed Business Case
EAP	Annual Exceedance Probability
GHW	Great Harbour Way
GWRC	Greater Wellington Regional Council
HAIL	Hazardous Activities and Industries List
HCC	Hutt City Council
HCDP	Hutt City District Plan
HNZPTA	Heritage New Zealand Pouhere Taonga Act 2014
IBC	Indicative Business Case
LoS	Level of Service
LUDP	Landscape and Urban Design Plan
MCA	Multi-Criteria Analysis
MHWS	Mean High Water Springs
MSL	Mean Sea Level
NESCS	National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health
NZCPS	New Zealand Coastal Policy Statement
PNRP	Proposed Wellington Region Natural Resources Plan (2015)
RCP	Regional Coastal Plan for the Wellington Region (2000)
RMA	Resource Management Act 1991
RPS	Regional Policy Statement for the Wellington Region
SLR	Sea Level Rise
SLUR	Selected Land Use Register

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1. Introduction

1.1 Purpose

The Hutt City Council (HCC) proposes to construct a 4.4 km² shared cycleway/walkway along Marine Drive in two sections: between Point Howard and the northern end of Days Bay, and the southern end of Days Bay (Windy Point) to Eastbourne (Muritai Road / Marine Parade intersection) (the "**Shared Path**"³). Approximately five thousand people live along the Eastern Bays, with Marine Drive providing the only road and infrastructure⁴ service connections.

Residents have identified that the completion of the Eastern Bays Shared Path, and concern about climate change, are the two most important issues facing the Eastbourne Community.⁵ The Eastern Bays Shared Path Project ("the **Project**") presents an opportunity to integrate an efficient response to both of these issues.

HCC is seeking a number of resource consents from Greater Wellington Regional Council (GWRC) and HCC to provide for the Shared Path and replacement seawalls. Details are provided in this report.

1.2 Structure of Report

The document required for the resource consent applications is contained in three parts:

- Part 1: Application Forms
- Part 2: Assessment of Environmental Effects (AEE), and
- Part 3: Appendices containing Technical Reports, Supporting Documents, Plan Sets and Visualisations.

This assessment of environmental effects (AEE) and supporting technical reports have been prepared in support of the applications for resource consents under Section 88 and Schedule 4 of the Resource Management Act 1991 (RMA), for the construction and operation of the Project.

It provides the following:

- Background and description of the Project
- A description of the proposed activities
- A construction methodology
- Statutory framework of the applications
- Reasons for the application and alternatives considered
- A description of the existing environment in which the Project is located

² The distance of 4.4km is based on the project length following the lineal shoreline.

³ A "shared path" means an area of road, separated from a roadway, that may be used by some or all of the following persons at the same time: pedestrians, cyclists, riders of mobility devices and riders of wheeled recreational devices. [Traffic Control Devices Rule, Part 2: Definitions \(external link\)](#)

⁴ Infrastructure: As defined in section 2 of the RMA, notwithstanding the reference in section 2 to section 30. Section 2 of the RMA states that infrastructure means—.....(e) a water supply distribution system, including a system for irrigation: (f) a drainage or sewerage system: (g) structures for transport on land by cycleways, rail, roads, walkways, or any other means:....

⁵ Eastbourne Community Survey (2014). <http://iportal.huttcity.govt.nz/Record/ReadOnly?Uri=368877>

Respondents were asked to rank their three top issues and also to identify the single most important issue for them. The completion of the Eastern Bays shared walk/cycle way was clearly the most important issue (number one for 33% of respondents) with concern about climate change and extreme weather events next (16% of respondents). Safety in the community, clean seas for swimming and quality public transport were also highly ranked. A number of other local issues were also identified. Since 2014, climate change has become a major issue nationally and globally so would expect this concern to have risen in the community.

- An assessment of any actual or potential effects on the environment that may result through the construction and operation of the Project, including proposed measures to mitigate adverse effects
- An assessment of statutory matters to be considered in respect of the Project
- A description of the consultation and engagement undertaken through the development of the Project and the identification of persons and organisations affected by the Project
- Proposed resource consent conditions.

This AEE incorporates information provided by the technical specialists (listed in section 10.9) and refers to details in their respective technical reports in Part 3 of this AEE as a series of appendices.

The requirements of Schedule 4 of the RMA are provided in **Table 1-1**, which lists the sections of this report within which the information is provided.

Table 1-1. RMA Schedule 4 Requirements

Clause	Content	Reference in this Report
1(a)	Description of the activity	Section 2
1(b)	Description of the site at which the activity will occur	Sections 5 & 10
1(c)	Full name of applicant and ownership status	Form 9
1(d)	Description of any other activities which are part of the proposal	Section 2
1(e)	Description of any other resource consents	Sections 8, 8.4 and 8.5
1(f)	An assessment against RMA Part 2 matters	Section 24.9
1(g)	An assessment against any other statutory documents	Section 24
3(a),(b)	Permitted components	Section 8.6
6(1)(a)	Alternatives considered	Section 9
6(1)(b)	Assessment of effects	Sections 11 – 23
6(1)(d)	Information relating specifically to discharges	Sections 20 and 21
6(1)(e),(g)	Mitigation measures, including monitoring	Sections 12 – 22
6(1)(f)	Consultation undertaken and matters raised	Section 25
6(1)(h)	Protection of customary rights	Section 25.2
6(2)	Additional information required	Section 24

1.3 Project Area

The Project focuses on Marine Drive, Eastbourne between Point Howard and the northern end of Days Bay, and the southern end of Days Bay (Windy Point) to Eastbourne (Muritai Road/Marine Parade Intersection). These bays are known collectively as the Eastern Bays and include Sorrento Bay, Lowry/Whiorau Bay, York Bay, Mahina Bay, Sunshine Bay, Days Bay, Rona Bay, Eastbourne village and Robinson Bay.

Days Bay is not included as part of the scope of the Project as it currently provides a lower speed limit, some safe facilities for pedestrians and increased widths for on-road cyclists. In Days Bay the Shared Path crosses Marine Drive at the northern section of the bay and follows the road to Windy Point.

The Project area is shown on the map in **Figure 1-1**.

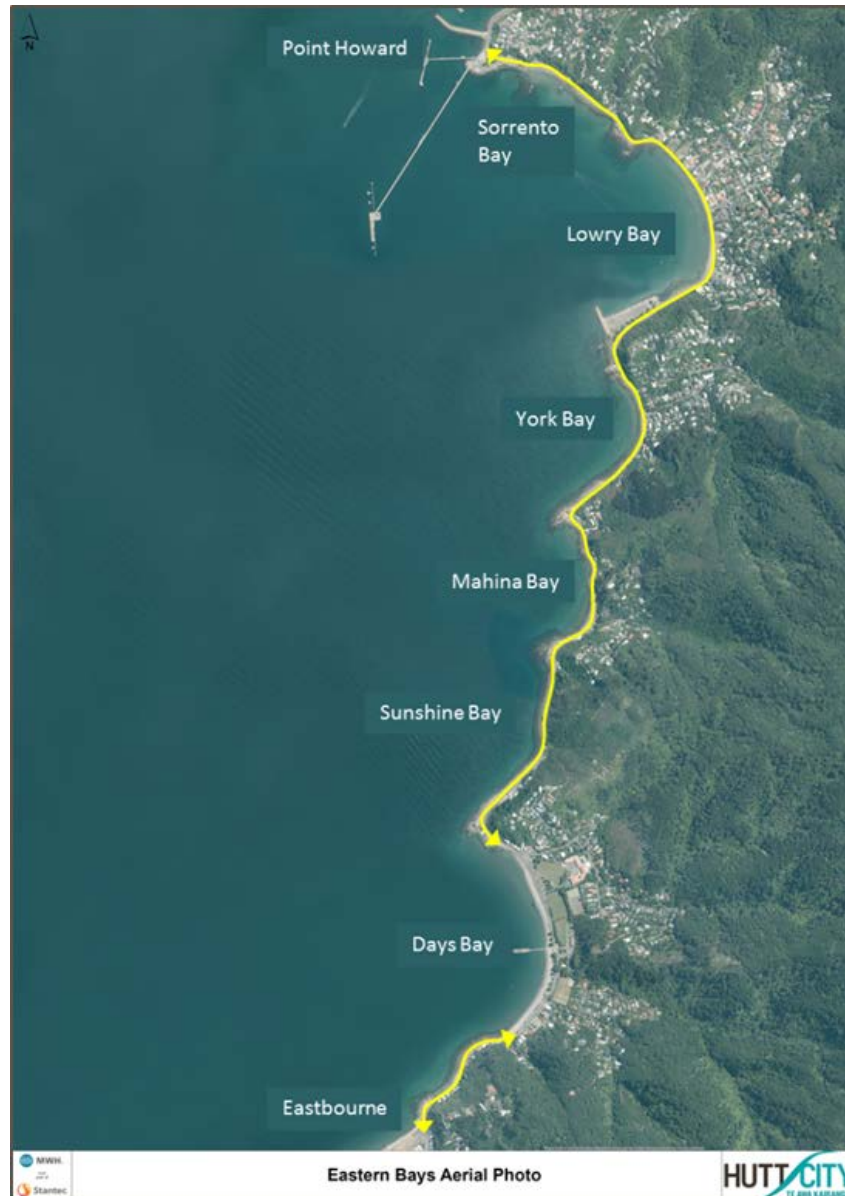


Figure 1-1. Map of Project Area

1.4 Context

The Shared Path forms a key part of the Te Aranui o Pōneke (the Great Harbour Way) around Te Whanganui-a-tara, the Wellington Harbour.⁶ The proposed route links Fitzroy Bay in the east to Sinclair Head in the west and links to the Remutaka Cycle Trail (one of the New Zealand Great Rides).⁷

The Project has featured in past strategies and is a key project in providing a safe and integrated network for commuting and recreational purposes under the current strategy 'Walk and Cycle the Hutt 2014 – 2019'. Previous reports and concept designs had been developed for sections of the Eastern Bays. These designs were dependant on the replacement of nearly the entire length of seawalls with a modern fit-for-purpose structure proposed on the basis of ensuring resilience. In addition to providing more space to accommodate a Shared Path, a key outcome of the previous designs was to reflect wave energy and reduce incidents of overtopping during storm events.

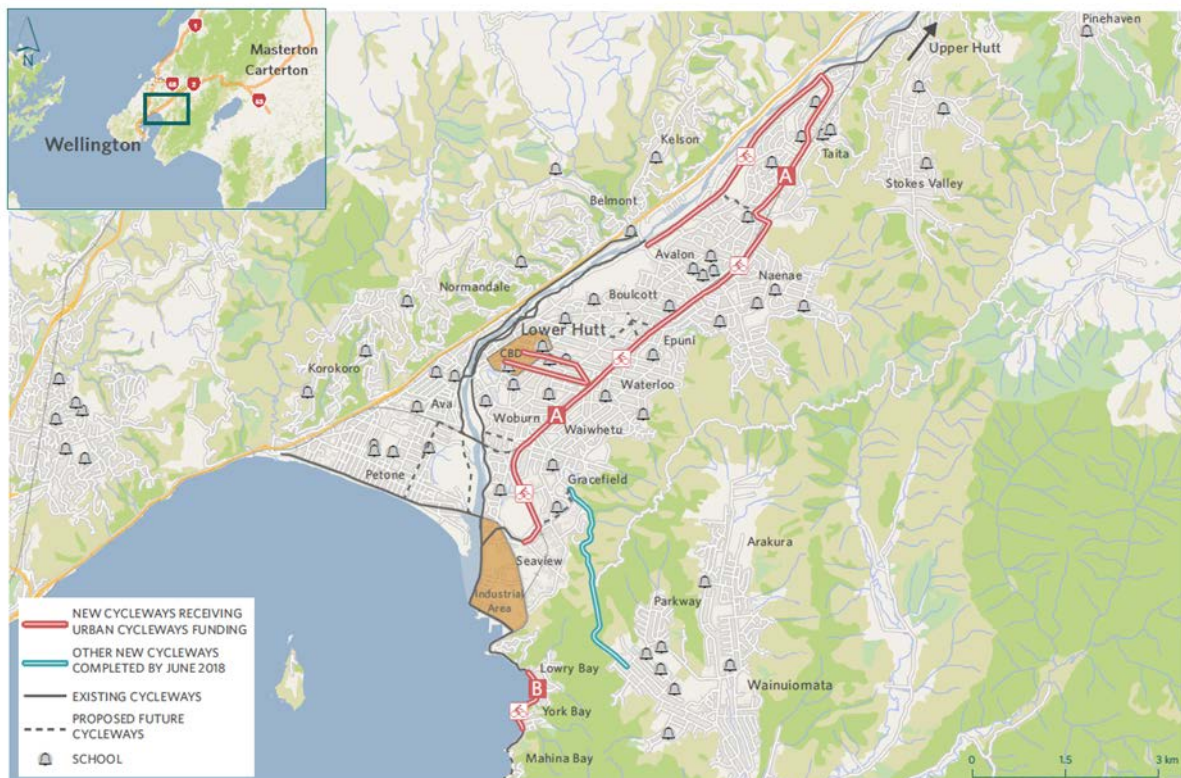
⁶<http://www.greatharbourway.org.nz/>

⁷<https://www.wellingtonnz.com/discover/sights-activities/remutaka-cycle-trail/>

Seawall structural assessments have indicated that complete replacements of the seawalls are not economically justified, as many sections still have over 20 years' residual life. Some sections, however, are considered to have less than 5 years' life and these will be prioritised for replacement and reinstated with a modern fit-for-purpose structure. The remaining seawalls will be replaced under this consent during later phases of the Project.

The Project features highly in the National Land Transport Programme 2018-21 (NLTP) priority list for projects in the Wellington Region. The Urban Cycleway Projects included in the NLTP will provide an integrated walking and cycle network across Lower Hutt.

The plan in **Figure 1-2** shows the Shared Path indicated "B", as part of an integrated walking and cycling facility in Lower Hutt.



Urban Cycleways Funded Projects in Lower Hutt

Source: NZ Transport Agency

Figure 1-2. Urban Cycleway Projects in Lower Hutt

The Project will be largely funded by HCC which has allocated \$14.3 million in its Long Term Plan 2018-2028 for the Project, staged over the next five years. The Project will also receive funding from the government's Urban Cycleways Fund (UCF), which provides increased investment to accelerate the delivery of cycling networks in main urban centres. To qualify for the UCF funding, the Shared Path has been investigated by using a Business Case Approach (BCA) and both an Indicative Business Case (IBC) and Detailed Business Case (DBC) have been prepared.

1.5 Project Key Drivers

The purpose of the Project is to develop a safe and integrated walking and cycling facility along Marine Drive to connect communities along Hutt City's Eastern Bays, and to provide links to other parts of the network for recreation and tourism purposes. Currently, pedestrian and cyclist connectedness and use along the Eastern Bays is low, due to few dedicated facilities and the tightly constrained nature of the road along Marine Drive. For the most part, cyclists and pedestrians must use the road shoulder, which is very narrow or non-existent in sections. HCC as

the Road Controlling Authority⁸ has a role in delivering land transport outcomes including shared paths.

HCC also has a leadership role with respect to climate change and its effects on regional and local communities and infrastructure. It has a statutory role to ensure the sustainable management of the natural and physical resources of region and districts to meet the reasonably foreseeable needs of future generations,⁹ while contributing to building community resilience in terms of managing the effects of natural hazards in its coastal margins.¹⁰

In response to climate change, the Project improves, and provides a basis for future opportunities for protecting the resilience of the road and underground services by upgrading the supporting seawalls. Marine Drive provides the only road access to the Eastern Bay suburbs and is therefore a key transport route for the region.¹¹ Key infrastructure services including the main outfall sewer pipeline (MOP) are located within the road corridor.¹² The MOP is an 18km long pipeline that conveys secondary treated wastewater from the Seaview Wastewater Treatment Plant (which services 146,000 residents and a large number of local industries) to the outfall at Bluff Point, near Pencarrow Head.¹³ The MOP is regionally significant infrastructure, and along with the road access and other services, are important lifeline utilities for the wider community.

The road is currently vulnerable to closure, and/or reduced operation, in part due to wave overtopping because of the current state of coastal edge. The existing seawall in places has a residual life of less than 5 years and, as it has been built on an ad hoc nature over time, is vulnerable to failure and does not provide consistent, nor effective, storm mitigation. Over time sea levels will rise, aggravating the situation. MfE (2017) projections¹⁴ forecast a 16 cm sea level rise by between 2030 and 2040 (depending on global emissions trajectories). Further sea level rise will increase the frequency of all coastal inundation with sea level rise of 0.5 m forecast to be reached sometime between ~2070 and ~2110 and sea level rise of 1.0 m sometime after ~2115. This is compounded by a 2mm//yr decrease in land height.

The Project therefore recognises the ongoing processes of managing coastal values in the face of climate change and sea level rise and related pressures faced by Greater Wellington Regional Council and HCC.¹⁵ However, the Project is not a solution to all the effects of sea level rise. The Project is a first step in a potential series of incremental upgrades that would assist in providing protection to the road (and underground services) and is an adaptation option in addressing the effects of sea level rise along this section of the coast. It does not preclude future options and has been designed to enable additional protection to be added onto the top of it in the future if that is considered appropriate.

⁸ As a Road Controlling Authority under the Land Transport Act 1998

⁹ Under s 5(1) and (2) of the Resource Management Act 1991 ('RMA')

¹⁰ Under the Local Government Act 2002 ('LGA')

¹¹ Marine Drive is classified as a "Primary Collector" under the One Network Road Classification (ONRC) with traffic volumes up to 8,000 vehicles per day.

¹² It is currently believed the MOP is in good working order, and under existing conditions will remain so for the foreseeable future. There is allowance in long term budgets for replacement or renewal of the pipeline insitu. (Seaview Wastewater Treatment Plant, Main Outfall Pipeline, Condition Report dated August 2016, MWH).

¹³ Any damage to the MOP will result in emergency overflows into the Hutt River via the Waiwhetu Stream.

¹⁴ Ministry for the Environment Coastal Hazards and Climate Change Guidelines, 2017.

<http://www.mfe.govt.nz/publications/climate-change/coastal-hazards-and-climate-change-guidance-local-government>

¹⁵ HCC will be developing a Climate Change and Resilience Strategy. HCC Annual Plan (2018/19) has budgeted for a community engagement process to address coastal adaptation.

<http://portal.huttcity.govt.nz/Record/ReadOnly?Tab=3&Uri=4965919>

2. Description of Activities

2.1 Project Overview

As mentioned in the introduction, HCC proposes to construct a Shared Path along the coastal edge of Marine Drive. While much of the Shared Path can be accommodated within the existing road reserve, sections of the road will require the widening of the existing road shoulder/sealed edge into the coastal marine area (CMA). In places the construction of the Shared Path will replace seawalls with more resilient structures.

The proposed design has been developed bay by bay on a site-specific basis, through an iterative design process, responding to a range of issues including, but not limited to, the structural condition of the existing walls, the width of the existing road reserve, coastal processes, ecology, presence of penguins and community feedback.

The works include:

- The construction of a continuous Shared Path within the Project area along Marine Drive.
- The replacement of parts of existing seawalls and the construction of new curved seawalls with either a single, double or triple curves face. Seawalls will include beach access points and ramps in places.
- The placement of rock revetment¹⁶ to protect the Shared Path on the foreshore at certain vulnerable headlands.
- The placement of beach nourishment at three beaches – Point Howard, Lowry Bay and York Bay.

The proposed works are shown in the Preliminary Design Plans (refer to **Appendix N**).

2.2 Extent of Works

The Preliminary Design Plans form the basis of the calculations of the extent of the structures that comprise the Shared Path and seawalls¹⁷.

Along the Project length of 4.4km, approximately 3.14km will require works along the foreshore, while 1.3km will be unchanged with works proposed within the road corridor. The following table shows the breakdown of the Project bay by bay. A detailed description of what is proposed for each bay is set out in section 5.

The construction of the Shared Path will require the road to be widened into the CMA, in places, through reclamation. The definition of "reclamation" varies according to the planning document¹⁸ - this is assessed in the Statutory Assessment (**Appendix S**).

¹⁶ A revetment structure is a protective placement of rock rip rap on an embankment of earth designed to maintain the slope or to protect it from erosion. For the purposes of this application the term 'revetment' is used instead of 'rock rip rap'. Refer to section 3.1.1. in **Appendix J**.

¹⁷ Calculations from the derived GIS shapefiles are intended to provide a best estimate prior to the detailed designs. The calculations for encroachment of the proposed seawalls are based on the point of greatest encroachment at any particular location and is likely a slight overestimation of encroachment as this will be the maximum limit of encroachment, i.e. for revetment types, the calculation is based on the outward edge of the toe, which may be buried and for the curved seawalls, the calculation is based on the outward edge of the bottom curve. There may be some slight discrepancies if the chainages are used to calculate lengths (as indicated elsewhere in this report). Chainages give a high level estimate.

¹⁸ Regional Coastal Plan (RCP) definition: "Reclamation and Reclaiming mean the permanent infilling of the foreshore or seabed with sand, rock, quarry material, concrete, or other similar material, where such infilling results in a surface (usable for any purpose) which is greater than 2 metres in width above the level of MHWS, and includes any embankment, but does not include any structure above water where that structure is supported by piles, or any infilling where the purpose of that infilling is to provide beach nourishment."

PNRP definition: "Reclamation in the coastal marine area means the creation of dry land and does not include coastal or river mouth protection structures such as seawalls or revetments, boat ramps, and any structure above water where that structure is supported by piles, or any infilling where the purpose of that infilling is to provide beach nourishment."

Table 2-1. Detailed Breakdown Bay by Bay

Bay	Chainage / Station	Drawing No (Preliminary Design Plans in Appendix N)	Length of structures (km)	Reclamation (m2)*	Gain (m2)*	Revetment (m2)	Beach Nourishment (m2)
Point Howard/Sorrento Bay	530 - 1150	C220, C221, C222	0.44	0.3	30	354	1,600
Lowry/Whiorau Bay	1150 - 2120	C223, C224, C225, C226	0.82	147.5	30	0	3,200
York Bay	2120 - 2900	C227, C228, C229, C230, C231	0.36	7.4	70	261	1,200
Mahina Bay	2900 - 3450	C232, C233, C234, C235,	0.54	42.2	101	431 + 176	0
Sunshine Bay	3450 - 4110	C236, C237, C238, C239	0.56	9.9	89	624	0
Windy Point Bay	4990 - 5500	C240, C241, C242	0.42	42.5	30	0	0
TOTAL			3.14	249.8	350	1,846	6,000

* Reclamation calculated as defined in Coastal Plan ** De-reclamation (Gain in foreshore)

Design features have been identified to provide guidance for the detailed design of the Shared Path. A series of typical designs have been prepared that contribute to the mitigation of adverse effects that may result from the Project. Further inputs will be required from the technical specialists as the detailed design phase progresses. Design features include details such as beach access, transition zones between seawalls and revetment, kerb separators, stormwater, penguin nesting, fish passage, bus shelters and landscaping. Details are set out in **Appendix J**.

The following sections (section 3 to 7) describe the Project in detail. These relate to the actual and potential environmental effects of the proposed structures, reclamation, beach nourishment, construction and other design features.

3. Proposed Structures

3.1 Shared Path

The proposed works include the construction of a Shared Path along a 4.4km stretch of shoreline between Point Howard and the northern end of Eastbourne (excluding Days Bay beach area). Most of Marine Drive is currently supported by a seawall, with the exception of the prominent rocky headlands at Point Howard, and between Sunshine Bay and Days Bay. The seawall has been rebuilt in parts over the past years.

The proposed Shared Path varies in width depending on the physical constraints of the bay environments, from 2.5m to 3.5m. The width is measured from the white line on the road verge to the top of the seawall, as shown on the typical cross section in the visualisation of Sunshine Bay in **Figure 3-1**. The visualisation shows the existing situation and the proposed widening to create a 2.5m wide Shared Path along this section of beach.

The future path user experiences a width variance with a predominant width of 3.5m narrowing to a 2.5m width corresponding with sections along certain beaches and transition areas. There are pinch points where beaches may be narrower at existing trees and at the heritage building (Skerrets Boatshed). Through the Whiorau Reserve the path will be 3m wide. A typical 3.5m wide Shared Path is shown in **Figure 3-2**. The Shared Path has been sensitively designed to fit in within the environment (bay by bay) and is not a "one size fits all".



Figure 3-1. Visualisation of Shared Path with 2.5m Wide Path

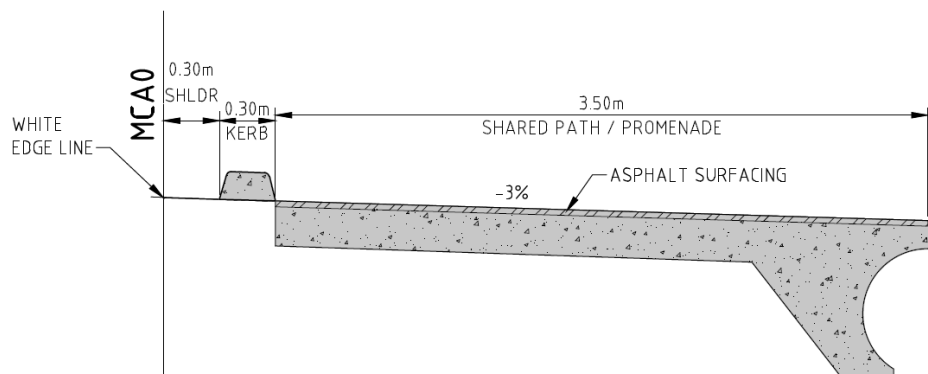


Figure 3-2. Typical Shared Path Cross Section of 3.5m Wide Path

3.2 Seawalls

A length of 3.1km (71%) of the total 4.4km Shared Path will require rebuilding of the seawalls. Seawalls already exist along 90% of the Project area; however, most do not allow sufficient space for the Shared Path alongside the road's carriageway. A total length of 1.3km (29% of the Project length) including the newly built curved seawall at York Bay, and existing revetment in southern Sunshine Bay is not changing from its current state. The 300m of relatively new curved wall in York Bay already provides for a Shared Path that is consistent with the current designs and is in good condition, as shown in **Figure 3-3**. The York Bay seawall and Shared Path is an example of what the future replacements will look like. The new York Bay seawall has been effective in reducing wave overtopping along this section of coastline.



Single curved seawall (York Bay)



Double curved seawall (York Bay)

Source: Extract from the AEE for Intertidal Ecology Report in Appendix A

Figure 3-3. York Bay Existing Seawalls

The locations of the proposed seawall types are mapped in **Figure 3-4**. Of the proposed structures, three types of seawalls will occur within the intertidal zone – double curve seawall, triple curve seawall and revetment, whilst the single curved seawall is only used above the MHWS. No works are proposed within the subtidal zone.



Source: Extract from the AEE for Intertidal Ecology Report (Fig 34) in Appendix A

Figure 3-4. Proposed Seawall Types

The seawall types proposed are curved concrete seawalls (single, double and triple) illustrated in **Figure 3-5**, **Figure 3-6** and **Figure 3-7**. The curved concrete wall has a flat top that forms the base of the Shared Path, and depending on the height, either a single, a double or triple curved face that acts as a giant step, with a 900mm tread (600mm nose to nose) and an 800mm riser.

Vertical curved seawalls have been chosen across the majority of the Project length because they deflect wave overtopping most effectively and create a reduced footprint on the foreshore compared to other non-vertical seawalls.

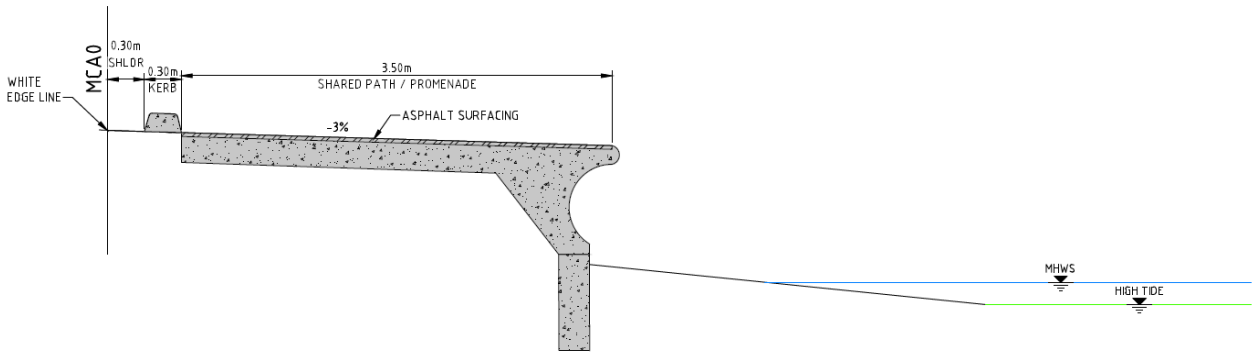


Figure 3-5. Typical Single Curved Concrete Seawall

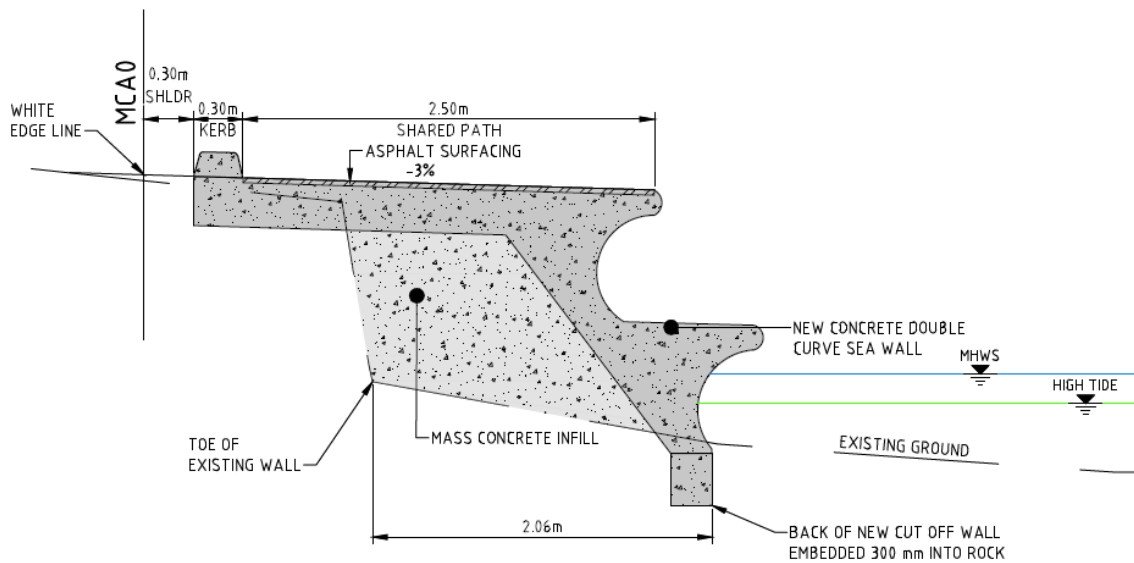


Figure 3-6. Typical Double Curved Concrete Wall

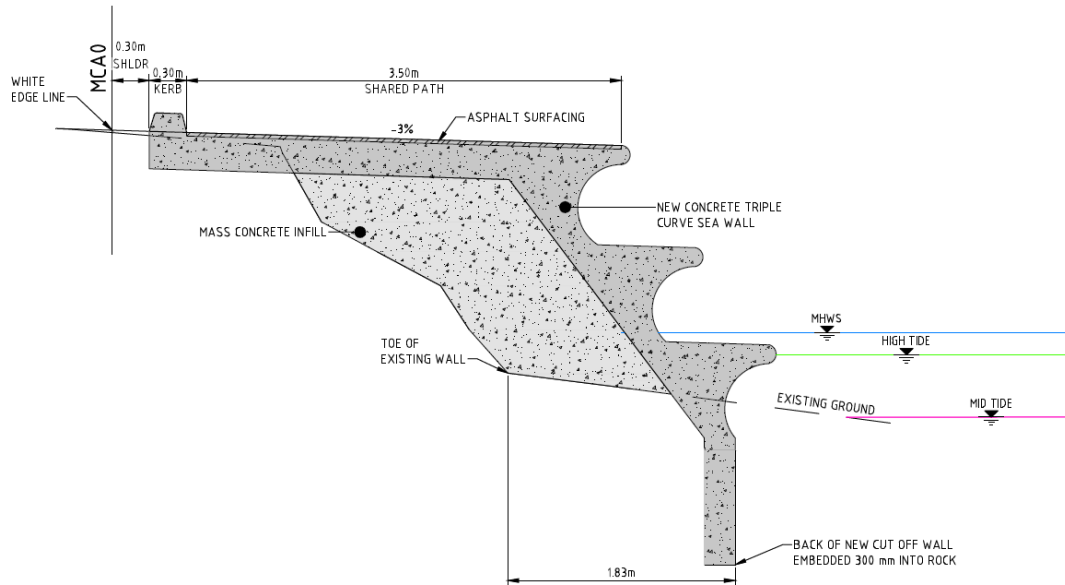


Figure 3-7. Typical Triple Curved Concrete Wall

A double curved wall is the most widespread type of curved concrete seawall proposed for the Project, although variants include single and triple curved. Textures will be incorporated into the concrete surface of the seawalls to provide opportunities to establish biota habitat.

Details of the wall types are set out in **Appendix J**.

3.3 Revetment Structure

Revetment structures have been proposed in locations where stronger protection of the road and shoreline is required due to the existing coastal processes affecting these areas. This replaces in most parts existing revetment. These locations are at Point Howard, York Bay, Mahina Bay (new) and Sunshine Bay. It avoids foreshore and shoreline areas with high biodiversity values, such as northern Lowry Bay.

The revetment structure consists of a top double layer of large rocks, average diameter 500mm overlaid onto smaller rocks. The structure slopes down towards the water at a gradient of 1V:2H or 27°. The interface between the revetment and the Shared Path varies according to the structural requirements of the wall and the beach location and may include:

- A concrete cantilever wall supporting the Shared Path. The top of the wall is 300mm above the Shared Path. The revetment is at grade with the top of the wall and is level for 1.5m before it slopes down to the water.
- Top of revetment is 500mm above the Shared Path and is level for 1.5m before it slopes down to the water.
- Top of revetment at grade with Shared Path.

Where a revetment structure is proposed the carriageway and path facility will be supported by a reinforced concrete cantilever wall, refer to **Figure 3-8**.

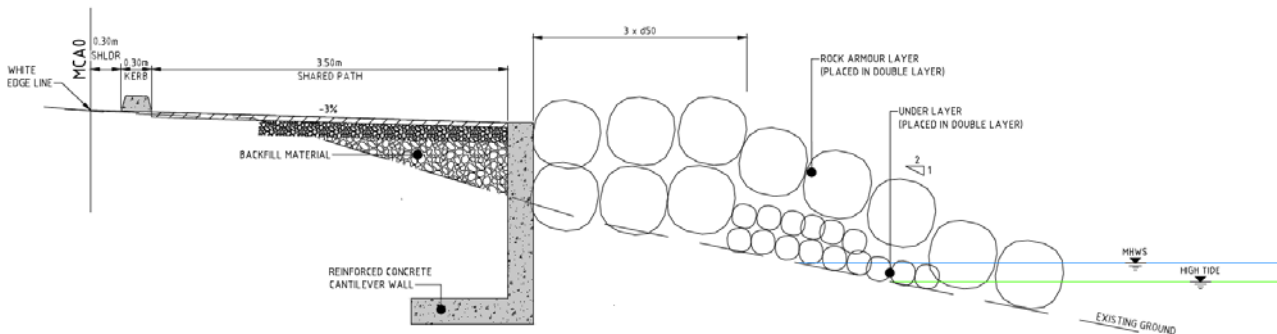


Figure 3-8. Typical Revetment with Reinforced Concrete Cantilever Wall

3.4 Beach Access

An important aspect of the Shared Path is that public access to the beach is maintained and, at certain places, enhanced. Beach access has been designed to accommodate beach users on foot as well as boat and kayak users. The connectivity between the Shared Path and the beach will be achieved through the careful placement and design of ramps and steps. The design provides a minimum of two accesses per beach, and at some beaches there will be three accesses (i.e., Lowry Bay).

Initial generic beach access options include:

- Standard steps
- Mini steps
- Boat ramps

Details of the design of these generic options are outlined in section 3.2 of **Appendix J**.

The locations of the accesses are shown in Figure 3-4 above.

Parallel access stairs/ramps are proposed, as opposed to perpendicular steps, to reduce the occupation of the beach and reduce interference with coastal processes. A number of variations are proposed depending on the type of seawall. Mini steps are proposed at intervals between the standard steps to achieve additional access to the beach without encroaching unnecessarily onto the coastal marine area. These steps will also be suitable for penguins to use to access the beach in the vicinity of nesting sites.

No new boat or kayak access is proposed, instead where existing boat ramps are provided, the design will retain these and improve on the design. Maximum boat ramp grades have been set at 1V:4H (instead of 1V:8H). Boat ramps are to be provided only in locations where the wall height is very low to minimise beach occupation (as a 1m high boat ramp would project 4m into the beach, further if the fall of the beach is taken into account). Boat ramps will be provided parallel to the seawall, rather than perpendicular to reduce further occupation of the beach. A corrugated texture will be added to the concrete surface to shed sea water and reduce slipperiness.

Overall, a total of 17 beach access points are proposed, of which 3 are ramps which will be rebuilt in their existing location (Point Howard, York Bay and Mahina Bay). The boat ramps at Whiorau Reserve and Windy Point will remain as is and no works are proposed.

3.5 Transition Zones

Transition zones between a double curve seawall and a revetment structure will be the most common wall transition. Variations will incorporate steps into the revetment, especially where this will result in minimising the construction of a beach access in the immediate vicinity of the transition zone to reduce the number of public accesses encroaching onto the foreshore.

Details of a typical design of this transition zones is outlined in section 3.3 of **Appendix J**.

3.6 Summary Breakdown of Proposed Structures

A breakdown of the total lineal length of the proposed structures is set out in **Table 3-1**.

Table 3-1. Total Lineal Length of Proposed Structures

Structures	Details	Total Length (km)	% of Project Length
Curved seawalls		2.65	59.6
	Single curve	0.19	
	Double curve	2.13	
	Triple curve	0.23	
	Double/triple (tbc)	0.13	
Revetment*		0.43	9.8
Access Points (steps and ramps)		0.064	1.4
No change		1.3	29.2
	Existing seawall	1.00	
	No seawall	0.29	
TOTAL PROJECT LENGTH		4.44	100

*Includes transition zone between a revetment and other seawall treatments.

4. Beach Nourishment

4.1 Objectives

Beach nourishment is proposed to be used as a strategy to mitigate loss of beach area available for beach amenity by nourishing the beaches with imported beach-compatible fill, with a secondary benefit of improved coastal protection. Beach nourishment will not only mitigate the loss of beach amenity but will also has the potential to enhance the recreational amenity value of the beaches.

Beach nourishment is proposed at Point Howard, Lowry Bay and York Bay.

The key objectives for the nourishment are to:

- Augment the existing beach areas to provide the same area of beach that is expected to be occupied by the seawall works where they extend beyond the existing seawall toe.
- As far as possible to be within the existing beach footprint and not to increase the beach areas beyond the existing areas (except for temporarily during construction or to offset increased sediment loss rates after construction) so to avoid unnecessary adverse effects on intertidal and subtidal ecology and avifauna.

It is noted that nourishment may also be used in the future to enhance "resilience" of Marine Drive and implemented as an adaptive managed option throughout the medium to long-term (the purpose is to maintain existing beach area/amenity and not to create new beach area/amenity).

4.2 Sand Sources

Design guidance for imported beach nourishment recommends use of a similar to slightly coarser sediment than the native sediment as this will provide a similar slope, look and feel to the existing beach. Colour of sediment is another consideration for visual consistency. Ensuring low fines is also important to reduce risks of increased turbidity with fines washing out into the CMA. Sourcing sand from marine areas subject to reasonable wave and tidal flows assists in ensuring lower levels of fines in the borrow material.

The Hutt River is likely to be the source of material for the beach nourishment. GWRC actively manage the aggradation in the lower Hutt River by dredging, with processed sand sold for construction. This means that there are already consents in place for the activity of extraction. This sediment would need to be processed to derive an appropriate grading for the different beach areas, by removing the finer fractions and retaining the sand and gravel. The colour of the sand and gravel is darker than the existing native beach sediments along the priority beaches given that the Hutt River sand tends to be greyer. This will be addressed in the LUDP. There is currently a processing area adjacent to the river entrance and a relatively short haulage distance to the priority beaches.¹⁹

4.3 Beach Nourishment Design

The beach nourishment is proposed only along those parts of the shoreline where there are existing high tide beaches at York Bay, Lowry Bay and Point Howard. The beach nourishment design includes the selection of the sediment properties, an evaluation of beach volume requirements and the plan form extent of the proposed work. Details outlining the investigation and analysis of beach nourishment is set out in **Appendix F**.

Table 4-1 shows the effective beach length and the minimum proposed nourished length. This nourishment length is less than the effective beach length to provide a shorter area where the

¹⁹ Initial discussions have been held with GWRC on using Hutt River gravels. This is considered to be a suitable arrangement for all parties. Pers com: Sharon Westlake

beach sediment can be placed, with the expectation that coastal processes will assist in redistributing the sediments within the embayment. Therefore, it is expected that the placed sediment will move and adjust from the post construction placement.

Table 4-1. Beach Length and Minimum Proposed Nourished Length

Bay	Effective Beach Length (m)	Linear Length Nourished (m)	Volume Imported* (incl. 1.3 x overfill) m ³	Placed Volume with Linear Placement After Consolidation	Expected Average Volume (m ³ /lin.m)
Point Howard	120	80	1,600	15.4	10.3
Lowry Bay	450	160	3,200	15.4	5.5
York Bay	150	80	1,200	11.5	6.2
TOTAL	720	320	6,000	-	-

* Volumes rounded up to nearest 100 m³ from calculations by Allis M.

The volume was derived from the area of the foreshore occupied by the Shared Path over the effective length of the beach and the depth of the beach system. It was assumed that the proposed beach would have a similar slope to the in-situ beach area. It is estimated that approximately 6,000 m³ of material will need to be imported, but will rapidly consolidate to around 4,600 m³ when placed.

Over time it is anticipated that the proposed beach area post nourishment will be the same as the present-day effective beach length. The imported material will be re-distributed along each bay and will respond to the incident wave energy and direction in a similar way to the existing beach sediment.

Additional control structures (such as groynes) are not proposed for these priority beaches. The priority beach areas appear to be largely headland controlled or within embayed areas so limited loss of the nourishment sediment from the embayed areas is expected, although there may be significant movement of the nourished sediment within the embayment following similar sediment transport processes as currently occur.

No on-going re-nourishment is proposed as part of the Project. The nourishment volumes indicated in Table 4-1 provide a direct mitigation for the occupation of the Shared Path structure, but there is no enhancement, or betterment, of the existing beach area and no provision for the ongoing effect of sea level rise. This approach provides a balance with other values and concerns such as the potential risk to sea grass adjacent to the beach at Lowry Bay and the risk of increased stormwater blocking at the various outlets that discharge through the beach that may have potential effects on low flow flooding and migration of native fish species.

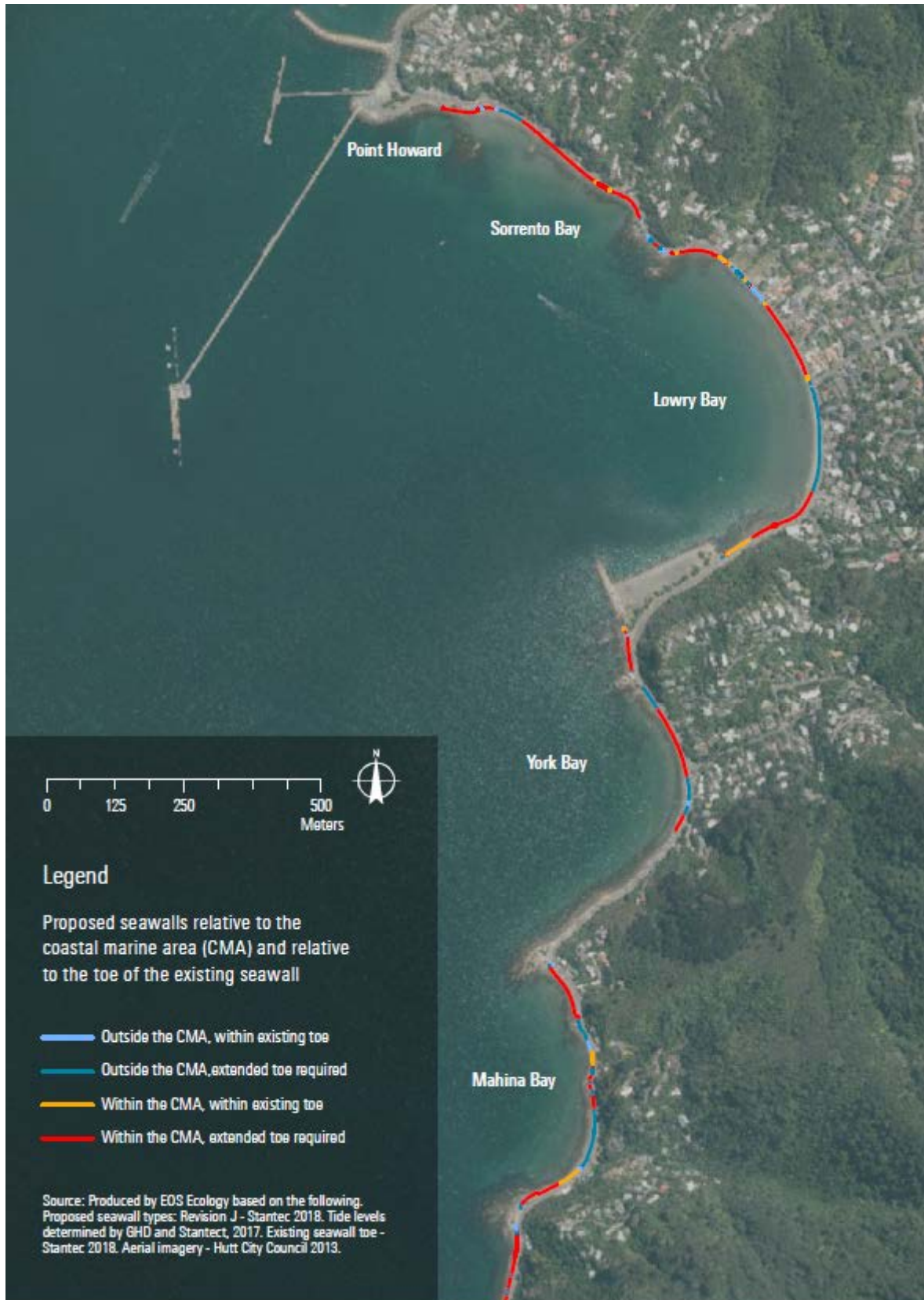
The construction methodology is described under Section 6.

5. Description Bay by Bay

The proposed Shared Path occurs adjacent to and within the CMA and depending on the width of the existing road corridor, it will be necessary to build into the foreshore, as shown in **Figure 5-1** and **Figure 5-2**. Where possible the Shared Path will be built within the existing footprint of the current seawall, however there are sections of the Shared Path (61% of the Project length) that will need to be constructed outside the footprint of the current seawall into the foreshore. The sections outside of the existing footprint are indicated in red in the figures. Most of the construction will be undertaken within the CMA outside the footprint of the existing seawall.

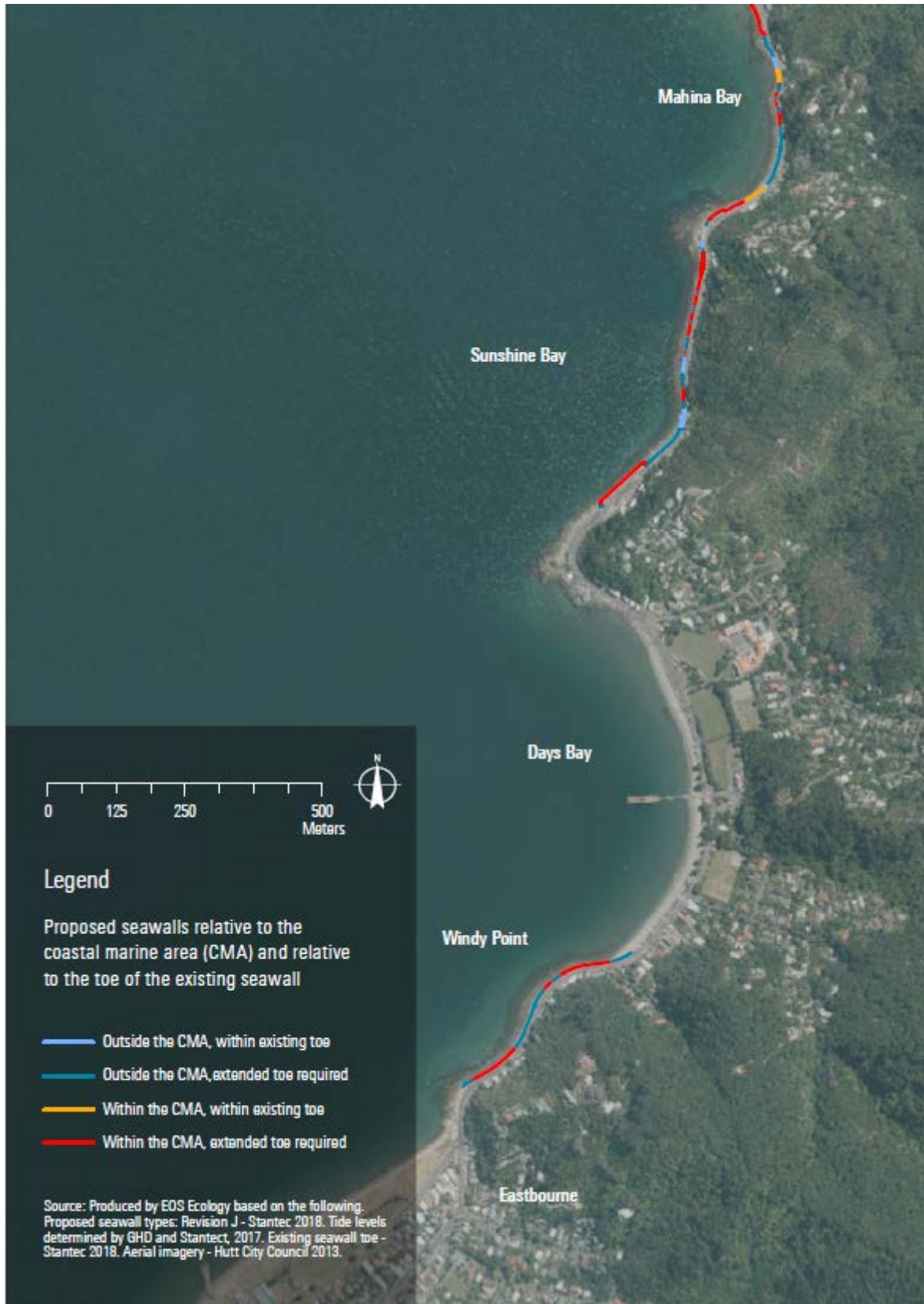
The Preliminary Design Plans (Rev J) showing the design proposals spatially with references to stations/chainages (and Drawing Numbers) are shown in **Appendix N**.

The Shared Path through each bay is described in further detail below. Visualisations of the bays illustrating the design features are shown in **Appendix O** of this application.



Source: Extract from the AEE for Intertidal Ecology Report (Fig 37) in Appendix A

Figure 5-1. Proposed Shared Path Relative to CMA (Northern Section)



Source: Extract from the AEE for Intertidal Ecology Report (Fig 37) in Appendix A

Figure 5-2. Proposed Shared Path Relative to CMA (Southern Section)

5.1 Point Howard/Sorrento Bay

The proposed Shared Path Project starts at Point Howard in the vicinity of the Point Howard Wharf where it ties in with the existing Shared Path that extends north towards Seaview. **Table 5-1** shows the station by station description of the proposed Shared Path Project at Point Howard and Sorrento Bay.

Table 5-1. Project Description of Point Howard and Sorrento Bay

Chainage/ Station (Approx.)		Approx. Length (m)	Design Feature	Description of Proposal	Drawing No
Start	End				
530	590	60	Shared Path	Path width of 2.5m to be constructed within the existing road corridor	C220
590	600	10	Shared Path	Path width of 2.5m to be constructed within Centreport owned land (zoned General Business)	C220
600	710	110	Shared Path	Path width of 2.5m constructed within the existing road corridor	C220
625	655	30	Shared Path/ Parking	Parking to be formalised into diagonal parking (approx 7 bays); path width of 2.5m within existing road corridor	C220
645	705	60	Shared Path/ Revetment	Rock to be placed along rocky area to protect path, partly replaces old; approx. area of 354m ² ; path width of 2.5m	C220
710			Access	Parallel beach access via an existing ramp – rebuild and formalise existing	C220
710	1020	310	Shared Path/ Seawall	Path width of 3.5m proposed at beach (including extending up to 2.5m into beach area); double curved seawall; refer to cross section A on drawing; reclamation of a sliver of land measuring about 0.3m ²	C221
720	815	80	Beach Nourishment	Volume of imported material of approx. 1,600m ³	C221
820			Access	New steps parallel to beach area	C221
1016			Culvert/pipe	Ramp or mussel spat rope to be placed to enable fish passage; extended outlet to be flush with seawall	C222
1020			Access	New steps parallel to beach area	C222
1020	1075	55	Shared Path/ Seawall	Path width of 2.5m proposed at beach (including extending 1m into beach area); double curved seawall; refer to cross section B on drawing	C222
1070			Access	New mini steps (narrow) parallel to beach area	C223
1075	1115	40	Shared Path	Path width of 2.5m to be constructed within existing road corridor	C223
1115	1150	35	Shared Path/ Seawall	Path width of 2.5m proposed (including extending approx. 1m into rocky area) with narrowing at the boat shed; double curved seawall	C223

5.2 Lowry/Whiorau Bay

Low-lying Marine Drive at Lowry/Whiorau Bay is vulnerable during high water levels combined with waves and onshore winds. Storms regularly cause localised flooding on the road, with hazardous wave overtopping making Marine Drive unsafe for vehicles and pedestrians. This situation will be aggravated over time due to sea level rise. Double and triple curves seawall

along this section will provide some protection. Further bay protection will need to be investigated under the HCC coastal erosion strategy (outside the scope of the Project)²⁰.

From the consultation feedback, access to the water is particularly valued by the residents along this section of coastline. The formal beach access locations will be steps at each of the boat houses and in between. In addition to the three accesses there will also be steps at the bus shelter. A detailed breakdown of what is proposed within Lowry/Whiorau Bay is outlined in Table 5-2.

Table 5-2. Project Description of Lowry/Whiorau Bay

Chainage/ Station (approx.)		Approx. Length (m)	Design Feature	Description of Proposal	Drawing No
Start	End				
1160			Access	New mini steps (narrow) parallel to rocky area	C223
1160	1330	170	Shared Path/ Seawall	Path width of 3.5m; double/triple curved seawall depending on height (to be determined during detailed design); refer to cross section C on drawing	C223 C224
1240			Access	New steps proposed	C224
1245			Culvert/pipe	Ramp or mussel spat rope to be placed to enable fish passage; extended outlet to be flush with seawall. Penguin passage currently in use. Passage to be retained	C224
1250	1270	20	Shared Path/ Transition	Path width of 3.5m tapering to 2.5m	C224
1270	1370	100	Shared Path/ Seawall	Path width of 2.5m tapering to Skerrett Boat shed; double curved seawall; no change to boat shed	C224
1300			Culvert/pipe	Penguin passage	C224
1390			Access	New mini steps (narrow) parallel to beach area	C224
1370	1420	50	Shared Path/ Seawall	Width of 3.5m proposed (including extending approx. 1.5m into beach area in parts); triple curve seawall	C224
1420	1550	130	Shared Path/ Seawall	Width of 3.5m proposed at beach (including extending up to 2.8m into beach area in parts); tapering towards the existing bus shelter; double curved seawall	C225
1550			Bus shelter Access	Bus shelter to be retained; waiting platform and steps to beach to be incorporated into the structure and upgraded	C225
1550	1750	200	Shared Path/ Seawall	Width of 3.5m proposed at beach area (including extending 1m – 3.1m into beach area in parts); single curved seawall; refer to cross section E on drawing; reclamation of approx 147.5m ²	C225
1590			Culvert/pipe	Penguin passage	C225
1600	1760	160	Beach Nourishment	Volume of imported material of 3,200m ³	C226
1750	1960	210	Shared Path/ Seawall	Path width of 3.5m proposed at beach area (including extending up to 2.9m into beach area in parts); double curved seawall	C226 C227

²⁰ HCC Sustainability and Resilience Manager Jörn Scherzer is tasked with the development of a Lower Hutt Climate and Resilience Plan (CRP) to identify relevant objectives and prioritised community-focused actions. This will include work for a coastal adaptation strategy (ie how to respond to sea level rise). Pers comm.

1960	2180	120	Shared Path	3m wide path proposed through Whiorau Reserve with increase to 3.5m to join path in Marine Drive; no changes to seawalls and access ramps	C228
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5.3 York Bay

The Shared Path at York Bay is 3.5m wide and the reallocation of the carriageway south of Taungata Road has been undertaken to retain as much of the Shared Path within the existing road corridor.

The 300m of the rebuild York Bay already provides for a Shared Path and is consistent with the proposed seawall. The new York Bay seawall has been effective in reducing wave overtopping along this section of coastline. A planted Pohutukawa tree (locally known as the Atkinson Tree) will need to be removed to accommodate the path.²¹

The bus shelter will be shifted to another location, to allow for the Shared Path, approximately 40m to the north where it will be located outside of the CMA. The removal of the bus shelter will result in the Shared Path being located within the footprint of the existing seawall and there will be a minor gain in foreshore in this area.

There will be a combination of double and triple curved seawall to accommodate the height along the beach. The relocated bus shelter will be integrated with new steps providing access to the beach. A detailed breakdown of what is proposed within York Bay is outlined in **Table 5-3**.

Table 5-3. Project Description of York Bay

Chainage/ Station (approx.)		Length (m)	Design Feature	Description of Proposal	Drawing No
Start	End				
2160	2240	80	Revetment/ Shared Path	Repair and replace existing failed revetment within the same footprint of that in reserve; new revetment proposed as extension to existing; approx. area of 261m ² ; path width of 3.5m path proposed	C229
2240	2275	35	Shared Path	Located within the road corridor; no works required	C229
2275	2330	55	Shared Path/Seawall	Path width of 3.5m proposed extending up to 3.0m from existing footprint; double curved seawall	C230
2330	2420	90	Shared Path/ Seawall	Width of 3.5m path proposed mainly within the existing footprint of the existing seawall along beach; triple curved seawall; refer to cross section H on drawing	C230
2375			Culvert/pipe	Penguin passage currently in use. Passage to be retained.	C230
2420			Access; Bus shelter	Relocated bus shelter to be integrated with mini steps (narrow) to the beach	C230
2420	2570	150	Shared Path/ Seawall	Path width of 3.5m proposed along beach to be constructed within the footprint of existing seawall; double curved seawall; minor reclamation of 7.4m ²	C230 C231
2450			Culvert/pipe	Penguin passage	C230
2460			Bus shelter	To be relocated to ch 2420;	C230
2460	2560	100	Shared Path	Reallocation of road to accommodate the Shared Path	C231
2465	2540	80	Beach Nourishment	Volume of imported material of 1,200m ³	C230 C231

²¹ This tree is not legally protected but its presence draws mixed emotions from the public (refer to **Appendix I**). The option of relocating was investigated, however an arborist's report has concluded that the tree is in poor health and is unlikely to survive relocation to another location (David Spencer, Arborlab Consultancy Services, March 2018).

2500			Tree	Removal of Atkinson Tree	C231
2510			Access	New ramp proposed parallel to seawall to replace existing	C231
2570	2860	190	Shared Path	Ties into existing Shared Path; existing York Bay seawall; no works required	C231 C232

5.4 Mahina Bay

A combination of 2.5m and 3.5m width paths are proposed in Mahina Bay. There will be three accesses to the beach, comprising a ramp and steps at each end of the bay. A section of Shared Path of approximately 45m traverses private land where one of the sets of steps are proposed. Parking which is used by the public will also be retained on the private property (as agreed to by the landowner). A detailed breakdown of what is proposed within Mahina Bay is outlined in **Table 5-4**.

Table 5-4. Project Description of Mahina Bay

Chainage/ Station (approx.)		Length (m)	Design Feature	Description of Proposal	Drawing No
Start	End				
2900			Bus shelter	Bus shelter to remain; Shared Path to be within road corridor	C233
2910	3020	110	Shared Path/ Revetment	Replace existing revetment and extend into foreshore by approx. 4.7m; area approx. 431m ² .	C233
3020	3050	30	Shared Path/ Seawall	Taper path from 3.5m to 2.5m wide; path will pass between two trees; trees and path interface to be determined during the detailed design; trees to be retained where possible but due to narrow gap (and trying to avoid extending the path further into the foreshore) some pruning may be required; removal of a tree (at 3040) may be necessary but will be avoided if possible; double curved seawall	C233
3050	3340	290	Shared Path/ Seawall	Width of 2.5m proposed with sections of the seawall to be constructed within the footprint of the existing seawall; other sections to be extended up to 2m into the foreshore; the private property between ch 3120 and 3165 where the path will extend approx 5m beyond the exiting footprint in parts; refer to cross section I on drawing; double curved seawall; reclamation of 42.2m ² ; small gain in the foreshore.	C234
3095			Culvert/pipe	Penguin passage	C234
3130			Access	New mini steps to the rocky foreshore	C234
3130	3155	25	Parking	Retain parking within privately owned land; tree to be retained	C234
3230			Access	New ramp proposed in same location as existing but to be parallel to beach located above MHWS (old concrete ramp to be removed)	C235
3280			Bus shelter Culvert/pipe	To be relocated to southern end of the beach (ch3330) Penguin passage	C235
3310			Access	New mini steps (narrow) proposed parallel to beach to be built within footprint of existing seawall	C235
3330			Bus shelter	New position of bus shelter at the end of the beach (relocated from ch 3280) to be incorporated into seawall structure and rebuilt within footprint of existing seawall	C235

3340	3400	60	Shared Path/ Seawall	Width of 3.5m proposed (including extending up to 0.7m into the foreshore in parts); double curved wall	C235
3400	3440	40	Shared Path/ Revetment	Width of 3.5m proposed (including extending up to 1.7m into the foreshore in parts); rock to be placed along rocky area to protect Shared Path; approx area of 176m ² .	C236

5.5 Sunshine Bay

Most of the Shared Path through Sunshine Bay will be supported by a double curved seawall. There will be three accesses (steps) down to the foreshore. The existing revetment will be widened to provide additional protection for the Shared Path. The Shared Path links up with Days Bay where it joins a safer section of road at a crossing point, where there is a lower speed limit, safe facilities for pedestrians and increased widths for on-road cyclists. A detailed breakdown of what is proposed within Sunshine Bay is outlined in **Table 5-5**.

Table 5-5. Project Description of Sunshine Bay

Chainage/ Station (approx.)		Length (m)	Design Feature	Description of Proposal	Drawing No
Start	End				
3440	3470	30	No change	Shared Path to be within road corridor	C236
3470	3680	210	Shared Path/ Seawall	Path width of 3.5m proposed (including extending up to 2.7m into the foreshore in parts); double curved wall	C236 C237
3505			Culvert/pipe	Penguin passage. Nesting site.	C237
3525			Access	New mini steps (narrow)	C237
3680	3910	230	Shared Path/ Seawall	Taper from 3.5m to 2.5m width along beach (including extending up to 1.5m onto beach in parts); double curved wall; trees to remain; reclamation of 9.9m ²	C238
3784			Culvert/pipe	Ramp or mussel spat rope to be placed to enable fish passage; extended outlet to be flush with seawall	C238
3820			Access	New steps parallel to seawall outside of CMA	C238
3910			Access	New steps parallel to seawall outside of CMA	C239
3910	4020	110	Revetment; Shared Path	Extend existing revetment into foreshore by approx. 6m to create path width and protect path; approx. area 624m ² ; refer to cross section K on drawing; Sunshine Bay Garage at 517 Marine Drive	C239

5.6 Windy Point

From Days Bay the Shared Path crosses Marine Drive to the seaward side and heads towards Windy Point. It will be 3.5m wide and the height difference between the beach and the road level along this section will result in a double curve being constructed. There will be two accesses to the beach, being a new set of steps and the existing ramp is to be upgraded at the southern end of the point. The parking will be formalised along this section of road and approximately 10 public parking bays are proposed. A detailed breakdown of what is proposed at Windy Point is outlined in **Table 5-6**.

Table 5-6. Project Description of Windy Point

Chainage/ Station (approx.)		Length (m)	Design Feature	Description of Proposal	Drawing No
Start	End				

4980	5040	60	Shared Path	Transition from 2.5m Days Bay to 3.5m from beach to rocky area;	C240
5020			Culvert/pipe	Penguin nesting site - retained	C240
5040	5290	250	Shared Path/ Seawall	Path width of 3.5m proposed (including extending up to 2.7m into the foreshore in parts); double curved seawall; refer to cross sections L on drawing; reclamation of 42,5m ²	C240 C241
5200			Access	New mini steps (narrow) proposed to rocky area outside CMA	C241
5290	5360	70	Shared Path/ Seawall	Path width of 3.5m proposed (including extending up to 3m into rocky foreshore in parts); double and triple curved seawall; refer to cross section M on drawing	C241
5360	5410	50	Shared Path/ Seawall	Path width of 3.5m proposed (including extending up to 2.1m into the foreshore in parts); double curved seawall; minor gain in parts – new seawall to be well within existing footprint	C241
5410	5500	90	Shared Path/ Parking	Shared Path to be within road corridor; formalise parallel parking (approx. 10 bays);	C241

6. Construction

The Project's construction methodology described within this section is indicative and provides measures to avoid, remedy, or mitigate any adverse effects of activities on the environment. The design and the methods enable the identification of an "envelope" of actual and potential effects used as a basis of the environmental assessments. These assessments are outlined in the technical reports included as supporting information in this application (refer to Appendices A - L). Final construction methodology will however be developed by the Contractor once the consent conditions are confirmed and further detailed design has been undertaken.

This section provides a summary of the indicative construction methodology across the Project, and provides information in regard to the nature, scale and duration of construction activities throughout the Project, including:

- Construction programme.
- Construction methodology.
- Construction management.

Further details are included in section 4 of **Appendix J**.

6.1 Construction Programme

Construction will likely be undertaken over a six-year period (subject to funding) and staged, completing each bay in totality to provide consistency between the bays. From an ecological perspective, a staged approach also gives newly constructed areas a chance to receive species recruitment from the adjacent bays.

Currently (and subject to change) it is proposed to complete Windy Point first, followed by Point Howard/Sorrento, and then Lowry/Whiorau Bay, over three separate financial years. This will be followed by the other bays. The construction of the first stage of the Project is intended to commence in 2019. The staged implementation is subject to change following further discussions with HCC and confirmation of funding availability.

Each section is likely to take about 3-6 months to complete (depending on bay length and complexity) depending on the extent of the particular works per bay.

A more detailed construction programme for the Project will be developed during the detailed design stage. This programme will be incorporated into the Construction and Environmental Management Plan (CEMP) to be prepared as a condition of this consent.

6.2 Construction Methodology

The following tasks will be typically carried out:

6.2.1 Removal and Demolition

- Breaking out the existing seawall as necessary to allow for construction of the new wall. Demolition and removal of the existing wall would be undertaken using an excavator and/or excavator mounted breaker.
- Wherever there is adequate space to allow a safe working environment and also maintain a reasonable and safe traffic flow, machinery would work from the road edge rather than from the beach/foreshore, meaning that there will be less area outside of the direct excavation zone that is subject to damage.
- Demolition is to be contained within a silt-fence or behind the new seawall.
- Demolition waste (concrete, non-native bulk fill, reinforcing) would be taken to an appropriate landfill site.
- The use of the excavator on the beach would be minimised to situations set out in the CEMP to limit potential damage to the beach area. The excavator would not be stored overnight nor maintained or refuelled on the beach.
- Machinery working in the foreshore/harbour floor where there is no ability to work from the road would track across weight-bearing mats to reduce compaction of softer/looser substrate and help to protect the intertidal surface structure within the beach areas.

6.2.2 Construction of Structures

6.2.2.1 Seawalls

There are sections of the seawall where excavation within the coastal marine area (CMA) will be necessary where the toe of a seawall is to be embedded into the substrate. This will occur for the construction of the single, double and triple curve walls and the cantilever retaining walls supporting the road to the rear of the revetment sections. Excavation within the CMA will also be necessary to accommodate the foundations for the boat ramps and access steps and to toe-in the base of the revetment treatments.

In situ concrete construction has been adopted for this Project as it is considered to provide a superior engineering solution from a constructability perspective than precast construction, in particular when considering the length of the Project and the potentially difficult horizontal and vertical construction challenges. This method of construction has also been proven to work well for the previously constructed York Bay section of wall.

The construction zone will be clearly demarcated to include a minimum working distance beyond the toe of the new seawall to allow for excavation of the bed to construct and bury the seawall edge. Demarcating the allowable area for access on the beach floor/intertidal area will also help to minimise the occupation on adjacent areas.

- Excavations will need to be dewatered to enable foundations for the seawall and revetment to be constructed. Methods used to dewater are outlined in section 6.2.5.
- Foundations will be poured concrete.
- A methodology for ensuring that wet cementitious products are not discharged to the environment is outlined in more detail in section 4.5.4 of Appendix J.
- Following completion of the foundations, the lower level of the seawall will be poured on site in sections using shaped formers for the curved wall or vertical formers for the cantilever wall. Both wall types, due to their height, will be formed in 'lifts' using shaped formers to aid construction and minimise time in the intertidal zone.

- Shoring will be required at some locations to enable construction to take place in a timely and environmentally acceptable manner, by forming a protective barrier between the construction site and tidal area.
- Following the pouring of the upper section of wall the surface is prepared and sealed with asphalt, concrete edging and concrete kerb separator blocks installed. Finally, other structures, such as lighting, signage and bus shelters will be installed.

6.2.2.2 Revetment

The placement of revetment on the foreshore is undertaken by initially preparing the site, where necessary, by excavating a trench to build a reinforced cantilevered wall. This will be done by pouring concrete in situ in much the same way as the foundations of the seawall. Where the existing seawall is still in good condition, a cantilevered wall may not be necessary. Backfill is placed behind the cantilevered wall on the road side which will form the base of the Shared Path.

Backfill material may then be placed at the base of the new seawall (replacement of the material removed during the construction of wall footings), and then covered with a geotextile membrane to prevent fines escaping.

Rock is then placed against the supporting cantilevered wall. Where possible, the rock is placed by using excavators working from the road level. Rock used for revetment should be hard, durable, angular in shape, resistant to weathering and water action, free from overburden, spoil, silt and clay or organic material and meet the specified gradation. Specifications for rock used as revetment typically include rock density or specific weight, rock shape, and rock hardness and durability. Control of the size and gradation of rock riprap placed on a bank is one of the most important aspects of riprap construction. Visual inspection of individual loads of rock delivered to the site for size, hardness, shape and weight is an important part of quality control.

As shown in Figure 3-8 the revetment structure is likely to consist of a top double layer of large rocks, average diameter 500mm overlaid onto smaller rocks. The structure typically slopes down towards the water at a gradient of 1V:2H or 27°.

6.2.3 Construction Area

The construction area will occupy up to a 5m wide construction zone where the seawall is proposed and a 3m wide zone where the revetment structure will be constructed. This will provide adequate space for construction activities and where necessary for machinery to manoeuvre but, as set out in 6.2.1, excavators on the beach will be minimised to situations set out in the CEMP. The construction area will avoid the five locations where the construction zone may extend into the subtidal zone (refer to Figure 38, **Appendix A**) and the area where seagrass has been identified (refer to **Appendix C**).

6.2.4 Beach Nourishment

The Beach Nourishment Design and Effects Assessment undertaken by Tonkin + Taylor, attached in **Appendix F**, provides a detailed assessment specific to the beach nourishment process based on the assessment of the likely construction processes.

The Beach Nourishment process is summarised as follows:

6.2.4.1 Preparation of existing beach

The existing beach sediment that is present both within the proposed footprint and immediately seaward of the construction area will be moved down the beach face prior to the construction of the Shared Path structure rather than removing and stockpiling. This is to enable foundations to be formed and to retain the material on the foreshore to provide a buffer against coastal processes. It is the same method proposed to provide a bench for the beach nourishment.

Forming the bench is likely to initially be done by a hydraulic excavator operating along the crest of the existing wall, although once the bench is formed, it could be carried out with machinery working along the upper part of the beach adjacent to the existing seawall during

low tide periods (i.e. two hours either side of low water). During the construction of the Shared Path, the construction zone will be limited to the immediate area of the works planned for that period, plus a transition zone of 20 m either side of the work area.

The existing sediment will be pushed immediately seaward of the proposed wall, but it is expected to be largely above the existing beach footprint, creating an over-steepened upper intertidal beach face within the existing footprint of the beach (typically with a seaward slope of 1(V):5 to 1(V):4(H) depending on the reach of the excavator). Over the construction process this sediment will be naturally transferred down and along the beach face depending on the incident wave conditions, with the net result being a slight increase in levels along the beach area. It is noted that this activity may need to be done several times during the construction of the path and immediately prior to importing beach sediment, as wave action is likely to move the material back up the beach face.

For the placement of imported beach sediments it is assumed that the sediment will be transported to site by truck or be brought to site by barge.

6.2.4.2 Truck placement

For truck placement, sediment could either be unloaded from the truck to a discrete location and transferring along the beach seaward of the Shared Path, or end tipped along the extent of the proposed beach.

It is anticipated that a single deposition location (to be determined in the beach nourishment plan during detailed design) will be preferable within each bay and the nourishment material would be placed on the foreshore on the formed high tide bench (refer to section 4). The sediment would then be transferred along the bench during low tides to form a beach berm, or crest around 0.6 m above MHWs and a seaward slope of around 1(V):4(H).

An alternative to a single deposition location would be to progressively end tip to the formed high tide bench along the extent of placement, with the profile shaped with hydraulic excavators to achieve the post construction profile. In both cases there will be the requirement to form the high tide bench and the resulting beach, as constructed, would be the same.

Where it is proposed to place sediment at one location, the supply of sediment would be balanced with the rate of sediment able to be moved along the bench by hydraulic excavators working along the bench, to avoid placing too large a volume on the upper beach bench. The initial placement area will be selected to avoid stormwater outlets (no closer than 10 m) as well as being as distant as possible from areas of sea grass.

6.2.4.3 Barge placement

Barge placement is an alternative to trucking and would bring in the sediment by sea. This is likely to need relatively shallow draft barges coming into the bay and landing on the beach at high tide, with unloading of the barge by hydraulic excavator. The remainder of the process of distributing sediment along the beach area would be similar to the approach discussed in the section above.

6.2.4.4 Anticipated movement of placed sediment

With the linear placement of sediment on a formed bench, it is expected that initially cross-shore transport would be the main transport process, with sediment moving down the beach face during periods where wave action is sufficient to generate waves during the upper stages of the tide (typically during mid tide and higher tide levels). This would result in the landward retreat of the beach crest and a seaward movement of the beach toe. This process is expected to result in a beach face slope similar to the existing beach profile slope and sorting will occur with sands and gravels moving to their preferred location on the beach profile.

There will also be alongshore transport that will act to distribute the placed sediment wider within the embayment. The speed of this process will depend on the persistency of waves that are generated that break at an angle to the shoreline creating alongshore velocity vectors. It is likely that this will result in movement both to the south and north of the placed sediment; a retreat of the placed sediment profile, with gains in the adjacent beach profile. In all instances,

sediment transport will only be at the rate that the natural processes of waves, tide and wind allow. Due to the shape of the bays there is not anticipated to be any alongshore loss from the bay where the sediment is placed.

6.2.5 Dewatering and Sediment Control Measures

Dewatering of excavations is needed to remove ground water from the work area so as to construct the foundations for the seawalls and revetments. Given the close proximity to the coastal environment, the excavations will be heavily influenced by tidal flows. Where possible, the amount of water entering the excavation will be minimised by diverting surface water from the road away from the trench by using sand bags, and directing the water to the stormwater network.

The discharge from the trenches may contain suspended sediment as a result of the erosion of the excavation material below the water table in the trench. Sediment is usually generated from the existing backfill material in the trench from when the seawall was originally laid.

Dewatering is typically carried out by installing a pump system in the trench. At the start of the works, there is some uncertainty with the quantity of water that may need to be removed, as well as the rate that it may need to be pumped.

Dewatered water is generally pumped to a settlement tank where it is retained for the length of time required for sediment to settle. This varies depending on factors such as dewatering rates and what type and how much sediment is present in the dewatered water. All water from excavations is treated for sediment before being discharged. After treatment the dewatered water is discharged directly into the sea alongside the work sites.

Where the works are adjacent to a contaminated site, such as the Sunshine Beach Garage then ground water will be sampled and depending on the results of testing, specialist methods to treat the discharges, such as flocculation, a sand filter, or hydrocarbon interceptor may be required. It is likely that the potentially contaminated discharge will be directed to trade waste. Investigations around soil and water contamination will be undertaken during the detailed design stage at which time the construction methodologies will be confirmed.

Methods for treating dewatered water are outlined in greater detail in section 20.3 of this report and Section 4 of **Appendix J**.

6.3 Construction Management

A CEMP will be prepared for the various stages of the Project. It will include the environmental management and monitoring procedures to be implemented during the Project's construction phases. The CEMP outlines details of the 'how, who, what, where and when' in respect of the environmental management and mitigation measures to be implemented. The CEMP is a condition of the consent and will be updated and modified as appropriate once a contractor is appointed.

The CEMP will include a number of management plans, such as a penguin management plan, landscape and urban design plan and traffic management plans as required by the conditions.

7. Other Design Features

7.1 Stormwater

The proposed Shared Path will be contoured so rainfall flows away from the road into the sea replicating the existing situation. There are infrequent sections with existing kerb and channel in place. The existing kerb and channel will be left as is with the new path constructed behind.

There are a large number of culverts under the existing carriageway which will need to be extended by some degree to accommodate the increased width of the new path. The required extensions will simply comprise lengthening the culvert using standard couplers connecting onto new plastic pipes that will be tied into the wall to be flush with seawall.

The treatment of culverts and stormwater outfalls in seawalls will be addressed in the detailed design stage to incorporate the required features and ensure, as appropriate, ongoing access for penguins and fish as outlined in sections 7.2 and 7.3.

The construction of the Shared Path will have minimal impact on storm water flows. Overland storm water will continue to flow across the corridor and drain into the sea. The additional width will feature the same cross fall as the road corridor, and separators between the Shared Path and carriageway will feature breaks between them, to allow for drainage.

Underground stormwater pipes will require extensions where seawall treatments are proposed to create additional corridor width. The locations of the storm water pipes have been identified as part of the topographical survey and assessed as part of Fish Passage, **Appendix B**. During detailed design cross sections will be developed to accommodate the pipe extension within the seawall treatment and where necessary fish passage will be provided.

7.2 Penguin Passage

The approach taken to manage penguin passage is to maintain existing access via stormwater drains and access steps and ramps, and to monitor and reduce the risks for penguins seeking access directly across Marine Drive.

Nine stormwater pipes under Marine Drive in the Project area were identified as being currently accessible, or used as breeding habitat, by penguins, or as possibly accessible.

Design of stormwater culverts will allow for penguin passage to ensure that overhanging stormwater pipe discharges are avoided for penguins (and indigenous fish) by:

- configuration of pipe outlets in relation to the shape of the curves and tread(s) of curved seawalls or using blocking below the outlet.
- design of specific structures such as a sloping concreted/rock platform at the discharge point in revetment.

7.3 Fish Passage

There are 14 existing outfalls where fish passage is required. Of these, 12 are in the proposed curved seawall treatment and two are within the proposed revetment structures. Three of the outlets where the curved treatment is proposed are seaward of the toe of the proposed seawall hence will not require any extension. A further three outlets are currently elevated above the existing beach level, with two of these being above MWS. A detailed assessment (including data on fish species) has been undertaken by EOS (refer to **Appendix B**).

The fish species present or likely to be present in the affected streams have exceptional climbing abilities to negotiate instream barriers, however they cannot get beyond perched outlets with an overhang. Solutions to allow for fish passage will be site-specific as it will depend on the relative level of the outlet and seawall design at each location, and may include constructing a short concrete ramp or use of mussel spat rope. A freshwater ecologist with fish passage

experience will be involved in the detailed design of these outlets. **Table 7-1** identifies the stormwater outlets for which some form of fish passage will be provided/ maintained.

Table 7-1. Stormwater Outlets and Fish Passage

Stream	Approx Chainage/ Station	Proposed Seawall type	Proposal
Howard Road Stream	1016	double curve concrete	Ramp or mussel spat rope
Wilmore Way Stream	1245	revetment	Ramp or mussel spat rope requirement
Lowry/Whiorau Bay North Stream/ Overmars' Site 01	1300	revetment/transition from revetment to double curve	None
Whiorau Grove Stream (two outlets)	1540 1550	Chainage 1540, double curve concrete Chainage 1550*, single curve concrete	None
30 Cheviot Road Stream* and Outlet 44 in GHD (2018)	1552	single curve concrete	None
Lowry/Whiorau Bay South Stream/ Overmars' Site 02 also Outlet 45 in GHD (2018)	1590	single curve concrete	None
Gill Road Stream	1784	double curve concrete	None
York Bay North Stream/ Overmars' Site 03	2375	double curve concrete	None
York Bay South Stream/ Overmars' Site 04	2450	double curve concrete	None
421 Marine Drive Stream	3095	double curve concrete	None
Mahina Bay Stream/ Overmars' Site 05	3280	double curve concrete	None
Sunshine Bay Stream	3784	double curve concrete	Ramp or mussel spat rope requirement
Waerenga Road Stream*	5011	double curve concrete	None

*Outlets that appear to be seaward of the toe of the proposed seawall, hence will not require pipe extensions.

7.4 Kerb Separators

Concrete kerb separators will be used to separate the Shared Path from the road to increase the safety of cyclists and pedestrians (similar to that used in the existing new section of York Bay). The kerbs will require reflectors on the traffic side for improved night time visibility. The benefits of concrete are:

- Concrete separators have the adaptability to incorporate textures and colour and can be easily mass produced once the concrete forms have been manufactured.
- Concrete is preferable to timber due to structural integrity and cost.
- Durability in a marine environment.

A 300mm concrete edge flush will be provided to tie in with the path edging at York Bay.

The separators between the Shared Path and traffic lane will feature regular gaps, providing space for pedestrians and cyclists to cross to the landward side. At the northern extent of the works, an existing Shared Path currently terminates at the Seaview Terminal at Point Howard on the seaward side. The new Shared Path will be integrated into the existing path, and pedestrians and cyclists will not need to cross the carriageway. An existing zebra crossing at

Point Howard provides the only formal crossing point within the scope of works. No additional crossing points are proposed for the Project.

At the southern extent of the path, a transition point will be provided for southbound cyclists to cross the carriageway and continue their journey, on the traffic lane and shoulder through Days Bay. Pedestrians have access to a board walk along the shoreline at Days Bay.

7.5 Planting

The Shared Path at York Bay will be widened to 3.5m and this has resulted in the need to remove a planted Pohutukawa tree (locally known as the Atkinson Tree). An arborist's report has concluded that the tree is in poor health and is unlikely to survive relocation to another location.

The approach to landscaping is to allow for provision for self-sown vegetation to occur. That is, there is no provision for formal planting within the design scope.

There will be some planting to mitigate the loss of vegetation resulting from the construction of the Shared Path. This is discussed in detail in **Appendix C**. Other non-planting landscape features are to be addressed as part of a Landscape and Urban Design Plan at the detailed design stage (as a condition of this application, in **Appendix R**). There are opportunities to include the community and iwi in preparing these details to incorporate features of local value and interest.

7.6 Street Lighting

An assessment of existing street lighting will be undertaken during the detailed design stage to establish if additional lighting will be required. There are a number of existing street lighting columns that will need to be relocated as part of the Project.

The provision of street lighting will be addressed in the Landscape and Urban Design Plan (a suggested condition of this application).

7.7 Signage and Markers

'Story boards' or educational signage to include interesting features will be developed during the detailed design stage. Examples of such features include places of cultural interest and information about the 'ecological enhancement textures' of the seawall to be added to the curved surface. Community and iwi will be consulted on these designs and path signage and markings will be kept minimal and low impact.

This will be addressed in the Landscape and Urban Design Plan, a suggested condition of this application.

Other signage associated with traffic warnings and messaging around dogs (to avoid predation of birds) will also be addressed during the detailed design stage.

7.8 Path comfort facilities

The selection of seating will include community involvement and will be consistent with that proposed for the Great Harbour Way. Some consistency is also required with what has been proposed with seating in the HCC area. This will be addressed in the Landscape and Urban Design Plan, a suggested condition of this application.

No further path comfort facilities, such as public toilets or water fountains are proposed.

7.9 Traffic Services

7.9.1 Parking

Existing parking will be retained where possible. However, some parking will be lost through the construction of the Shared Path due to limited space availability. There are existing formal parking areas at Point Howard – Seaview Terminal side and Point Howard (landward side at the

ablution building), Whiorau Reserve (Lowry/Whiorau Bay) and Days Bay. This parking will remain and is unaffected by the Shared Path.

There are a number of areas along Marine Drive where there is additional shoulder width used for informal parking, most notably at Point Howard and Windy Point. In some locations, this shoulder width will be reallocated to provide for the Shared Path, reducing the extent of beach reclamation and minimising changes to the shoreline. While there may be limited seaward informal parking areas lost, improvements to the remaining parking areas are proposed. Parking areas will be formalised at Point Howard and Windy Point (both currently perpendicular parking) and spaces will be reoriented to diagonal and parallel parking respectively, providing safety benefits for road users, and maximising the parking space numbers in the available space.

Details are shown in Section 3.13 of **Appendix J**, Design Features Report. Parking will be addressed in further detail during the detailed design stage (a condition of the consent).

7.9.2 Bus Shelters

Minor modifications or relocations to some bus stop locations are proposed. If there is currently a shelter at a bus stop this will be retained (but some will be relocated).

Potential conflict between Shared Path users and other road users such as at bus stops will be managed. Treatment types vary at each bus stop, and at most locations the Shared Path will be diverted behind the bus shelters; however, this is not possible at all locations. Linemarking and signage will be used to highlight areas of potential conflict to enhance safety and minimise risk. The proposed Shared Path along the foreshore will substantially improve pedestrian safety and access to and from the bus stops along the route for visitors and local residents.

The northbound bus stops at Mahina Bay and York Bay will require relocation. It is proposed to move the bus stop at Mahina Bay fifty metres south, to avoid further encroaching onto the useable beach space. The design of the new bus shelters will include ensuring sufficient width is available when designing the new sea walls and providing a foundation for the new structure.

The position of the bus shelter at Lowry/Whiorau Bay will be retained. The rear 'deck' area, between the Shared Path and the beach (to the side of the shelter) will be retained and reconstructed. There will be an area that can be used by the local residents in and around the bus stop area that is separate from the marked traffic lane, noting that the path will be clearly marked through the bus stop area to remind path users of the bus stop movements. Steps will be constructed to the beach at this point.

The new location of the bus shelters will be confirmed with GWRC, the authority that manages public transport in the region. The provision of bus shelters (and design) will be addressed in the Landscape and Urban Design Plan (a suggested condition of the application). The bus shelter structure is an integral part of the local identity and will be designed in consultation with the community to ensure that there is some variation to respond to local conditions (such as the prevailing winds and rain). The new bus shelter design will be undertaken separately to the new seawall works, but the required platform footprint for a new bus shelter will be incorporated into the new seawall design (with the bus shelter itself being provided via a separate process).²²

²² Placement of bus shelters is a permitted activity under Rule 13.3.1.37

8. Statutory Framework

The proposal to construct a Shared Path will require the existing road to be widened into the CMA in parts and for the existing seawalls to be rebuilt along certain sections which will involve discharges to and disturbance of the coastal area. Erosion protection and beach nourishment will also be introduced at key locations to augment the overall design. These activities all require resource consents under the Resource Management Act (RMA), in terms of the rules of the Wellington Region Coastal Plan (WRCP), the Proposed Natural Resources Plan (PNRP) for the Wellington Region and the City of Lower Hutt District Plan (HDP). This section describes the statutory context and the consents needed.

An analysis of the statutory planning documents is set out in Section 24. A full assessment is contained in **Appendix S**.

8.1 The Resource Management Act 1991

The purpose of the RMA is to promote the sustainable management of the natural and physical resources of New Zealand. Part 2, Section 5 has the overriding purpose of promoting sustainable management. It provides a benchmark against which all decisions are measured and is a fundamental consideration for a consent authority. Other Part 2 sections relevant to this application are Sections 6 (Matters of National Importance), 7 (Other Matters) and 8 (Treaty of Waitangi).

The RMA defines the coastal marine area (CMA) as:

...the foreshore, seabed, and coastal water, and the air space above the water –

- (a) *of which the seaward boundary is the outer limits of the territorial sea:*
- (b) *of which the landward boundary is the line of mean high water springs...*

Parts of the Project including parts of the Shared Path once constructed will be located within the CMA. Sections 12, 14 and 15 of the Act control activities within the coastal marine area.

The Greater Wellington Regional Council has responsibilities within the CMA as set out in the RMA, including control of the use of land comprising the seabed and associated natural and physical resources including the water column and the airspace above the seabed. The Hutt City Council has responsibilities with respect to the use and development of the land which includes Marine Drive, reserves and the activities that will be on land in the future.

The RMA outlines the matters that decision makers must consider, when resource consents are needed. These are set out in section 104. In specific circumstances in relation to the Project, sections 105 and 107 include additional matters to be considered.

Section 24.2 of the AEE outlines the other relevant consent matter being applied for under the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NESCS).

8.2 Wellington Regional Plans

Resource consents for some of the proposed activities are required under Sections 12, 14 and 15 of the RMA for reclamation, structures, disturbance to the foreshore, deposition of sand and other natural materials and occupancy of the CMA and discharge of sediments.

In the preparation of this application the rules of both the current operative Regional Coastal Plan and the relevant rules of Proposed Natural Resources Plan have been considered.

8.2.1 Regional Coastal Plan for the Wellington Region

The review of the Regional Coastal Plan for the Wellington Region (2000) (RCP) has identified that aspects of the Project are subject to the rules set out in **Table 8-1**.

Table 8-1. Regional Coastal Plan Rules Relevant to the Proposal

RMA Section	Rule	Activity	Assessment
5. Reclamation and Draining of Foreshore and Seabed			
12	4	Discretionary	<p>Other activities reclaiming or draining foreshore or seabed outside Areas of Significant Conservation Value</p> <p>Sections of the Shared Path will extend into the CMA outside the toe of the existing seawall which is greater than 2 metres in width above the level of MHWS. The reclamation is not specifically provided for in Rule 1, 2, 3 or 5 or cannot meet the requirements of those rules.</p>
6. Structures			
12	14	Controlled	<p>Removal or demolition of structures</p> <p>The proposal will comply with the general standards and terms.</p>
12	16	Controlled	<p>Occupation by structures of land of the Crown or any related part of the coastal marine area</p> <p>The occupation of the seawalls in the CMA is a controlled activity under Rule 16, as Rule 11 does not enable occupation of the structures in the CMA as a permitted activity.</p>
12	18	Discretionary	<p>Structures more or less parallel to mean high water springs</p> <p>As the proposed structures are solid, will extend more than 1000 metres in length and are proposed for an area outside of an Area of Significant Conservation Value, Rule 18 applies.</p>
12	25	Discretionary	<p>All remaining activities involving the use and development of structures outside any Area of Significant Conservation value</p> <p>As the proposed works cannot meet all the requirements under Rules 6, 7, 8 and 13 the Project must be assessed under Rule 25 as a discretionary activity.</p>
7. Destruction, damage or disturbance of foreshore or seabed			
12	40	Discretionary	<p>Construction of new seawall, revetment, boat ramps and steps</p> <p>The construction of the rock revetment and foundations for the proposed seawalls will involve the disturbance of the foreshore and seabed must be assessed as a discretionary activity under Rule 40, as they not provided for in Rules 28-39 or Rule 43.</p>
8. Deposition of Substances on Foreshore or Seabed			
12	45	Controlled	<p>Beach nourishment</p> <p>The deposition of sand, shingle, shell, or other natural material directly onto the foreshore for the purpose of combating beach or shoreline erosion and improving the amenity of value of the foreshore is a Controlled Activity as the proposal will comply with the standards and terms.</p>
10. Discharges to Land and Water			
15	61	Discretionary	<p>Other activities involving discharges to land and water outside Areas of Significant Conservation Value</p> <p>Discharges to the CMA require consent under Rule 61. The construction methodology sets out details on measures that will be implemented to manage</p>

			potential effects of discharge by dewatering during the construction phase.
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8.2.2 Proposed Natural Resources Plan

The Proposed Natural Resources Plan (PNRP) was publicly notified by the Council on 31 July 2015. It combines coastal and regional plan provisions, as well as incorporating regulatory and non-regulatory methods. Submissions on the Proposed Natural Resources Plan for the greater Wellington region opened on 31 July 2015 and closed on 25 September 2015.

All rules, definitions, schedules and maps applicable to those rules in the PNRP have immediate legal effect under section 86B(3) of the Act from notification. As the application is lodged after 31 July 2015, the PNRP is relevant to determining the resource consents required, activity status, the notification decisions and the substantive assessment of the proposal under section 104 of the Act.

Hearings for most of the submissions finished on 12 June 2018 and the Panel has not notified its decisions on submissions to date. An extension to the time limit has been granted to 31 July 2019 for the release of decisions.

The review of the Project in relation to the Proposed Natural Resources Plan for the Wellington Region (version 31.07.2015) has identified that aspects of the Project are subject to the rules set out in **Table 8-2**.

Table 8-2. Proposed Natural Resources Plan Rules Relevant to the Proposal

RMA Section	Rule	Activity	Assessment
5.2 DISCHARGES TO WATER			
All other discharges			
15	68	Discretionary	All other discharges Rule 42 permits discharges of contaminants to land, where the discharge enters a surface water body or coastal water. However, dewatering at certain locations may be from 'contaminated land' and cannot comply with Rule 42(c) and therefore Rule 68 applies.
5.7 COASTAL MANAGEMENT			
12	153	Restricted Discretionary	Removal or demolition of a structure or part of a structure As Rules 149, 150 and 152 cannot be met, a Restricted Discretionary Activity must be applied for, with regards to structures.
New and replacement structures (including temporary structures)			
12	161	Discretionary	New structures, additions or alterations to structures outside sites of significance As sections of revetments will avoid sites identified in Schedule F5 (coastal habitats), resource consent for a discretionary activity must be applied for under Rule 161.
12	164	Restricted Discretionary	Replacement of Structures The replacement of structures and the associated use of structures in the CMA must be assessed as a restricted discretionary activity under Rule 164.
Seawalls			
12	165	Controlled	Additions or alterations to existing seawalls The replacement seawalls will be constructed outside the footprint of the existing seawall in many cases.

RMA Section	Rule	Activity	Assessment
			<p>While Rule 165 can be complied with in some locations, subsection (g) and may not be able to be met in many locations as the seawall will be extended into the foreshore.</p> <p>Subsection (h) cannot be met as the foreshore or seabed will be disturbed to a depth greater than 0.5m.</p>
12	166	Discretionary	<p>Seawalls outside sites of significance As seawalls will avoid sites identified in Schedule F5 (coastal habitats), the activity is a discretionary activity under Rule 166.</p>
Occupation			
12	184	Discretionary	<p>Occupation of space The occupation of space in the common marine and coastal marine area must be assessed as a discretionary activity under Rule 184 as it is not provided for as a controlled, restricted discretionary, non-complying or prohibited activity.</p>
General disturbance activities			
12	195	Non-complying	<p>Disturbance or damage inside sites of significance As part of the Project, disturbance or damage of the foreshore or seabed will be located inside a site or habitat identified in Schedule F4 (coastal sites) and Schedule F5 (coastal habitats). As such, a non-complying activity must be applied for under Rule 195.</p>
Motor vehicles on the foreshore			
12	198	Non-complying	<p>Motor vehicles inside sites of significance The disturbance of the foreshore or seabed from motor vehicles inside a site or habitat identified in Schedule F2c (birds-coastal), Schedule F4 (coastal sites), Schedule F5 (coastal habitats) in the coastal marine area, that is not permitted by Rule R196 or Rule R197 or prohibited under Rule R199, is a non-complying activity.</p>
Deposition			
12	208	Discretionary	<p>Deposition for beach nourishment outside sites of significance Deposition will occur outside sites of significance as identified in Schedule F5 (coastal habitat), as such consent for a discretionary activity will be required.</p>
Reclamation and drainage			
12	214	Discretionary	<p>Reclamation and drainage Reclamation and drainage for regionally significant infrastructure in the coastal marine area must be assessed as a discretionary activity under Rule 214 given that the activity occurs outside sites of significance as identified in Schedule F5 (coastal habitat).</p>

Bundling all the above activity statuses, the activity status of the Project for regional consents is non-complying.

8.3 City of Lower Hutt District Plan

Under the City of Lower Hutt District Plan (27.3.2018), 'Network Utility' means any activity undertaken by a network utility operator, relating to construction, and operation of roads.²³ Where the Shared Path is constructed in the district (i.e. not in the CMA) within the existing road or in the road reserve, it would be a discretionary activity under Rule 13.3.1.38 as it would be considered an alteration to the road. Where the Shared Path is constructed elsewhere (i.e. Recreational Area) the status would depend on the activity area rules.

There is a Category 2 identified heritage building (C6- Skerrett Boatshed at Lowry/Whiorau Bay) but this building will be unaffected by the proposal.

An application for an Innominate Activity needs to be made as discretionary activity for the Land Use Consent pursuant to Section 89(2) for the construction, operation and maintenance and ancillary activities of the Shared Path not on "land". This relates to the parts of the Shared Path located above new seawalls, on land which will be reclaimed as part of the proposal, such as steps, ramps and bus shelters.

All construction, demolition, and maintenance work will comply with noise requirements under NZS 6803P, however should night works be required, a resource consent will be sought at a later date once the detailed design and phasing of works has been undertaken.

Table 8-3. Lower Hutt District Plan Rules

Rule	Status	Assessment
13 Network Utilities		
13.3.1.38	Discretionary	The construction, alteration or diversion of roads The Shared Path is constructed within the existing road or in the road reserve, and is considered an alteration to the road. The Shared Path in parts traverses land within the Special Recreation, Passive Recreation, General Business, Hill Residential.
14E Significant Natural, Cultural and Archaeological Resources		
14E 2.2 (b)	Restricted Discretionary	Resource consent is required for a Restricted Discretionary Activity for the proposed construction works of the Shared Path within the Significant Natural Resource site identified as SNR 44, at Point Howard. SNR 44 at Howard Point identifies a specific plant. (<i>Melicytus obovatus</i> ssp 'coast').
14I Earthworks		
14I 2.2 (b)	Restricted Discretionary	The Shared Path in parts traverses land within Special Recreation and Passive Recreation zoning.

8.4 Other Approvals

The Project area is a highly modified environment and no sites of cultural or archaeological importance have been identified. It is possible that there may be archaeological sites given the historic occupation of the area.

No authorisation under the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA) from Heritage New Zealand is currently required. However, before works are undertaken, to avoid any delays, should unidentified subsurface features be exposed, an authority will be applied for under Section 44(a) of the HNZPTA to cover all works undertaken for the Project.

²³ As defined in section 166 of the RMA

8.5 Resource Consents Required

The RMA outlines a number of relevant considerations for the determination of applications for resource consent. The Project involves several components. These components trigger the need for resource consents from GWRC and HCC. This is because works will be undertaken above and below MHWS.

The assessment of the Project in relation to these matters is provided in sections 11-24 of this AEE.

This AEE includes a comprehensive and integrated assessment of environmental effects, which addresses all aspects relevant to the consideration and determination of the resource consent applications. These matters are being lodged with GWRC and HCC concurrently with a request to process them as a joint application.

To ensure that the issues are dealt with in an integrated manner, a joint hearing²⁴ is being sought to consider the resource consent applications and consider all the environmental effects arising from the proposal.

The Shared Path, seawalls, steps, ramps and bus shelters which are located within the CMA on land to be reclaimed under this resource consent application, are to be dealt with under s 89(2) of the RMA²⁵ to ensure that the new "alteration" to the road is heard as if the application related to an activity within the HCC district.

While this is a joint application covering the full length of the Shared Path where the environmental effects are assessed for the whole project, the resource consents associated with the reclamation of land are specific to certain locations.

The regional consents being applied for are shown in **Table 8-4** and **Table 8-5**. The required district plan consents are shown in **Table 8-6**.

Table 8-4. Summary of Required Consents under Regional Coastal Plan for Wellington Region (2000)

Application No.	Nature of Resource Consent - RCP
	Reclamation and Drainage of Foreshore and Seabed
1	Coastal permit for the reclamation of the foreshore and seabed
	Structures
2	Coastal permit for the removal and demolition of seawalls
3	Coastal permit for the occupation of the seawalls in the CMA
4	Coastal permit for structures parallel to mean high water springs in an area outside of Area of Significant Conservation Value
5	Coastal permit for activities involving the use and development of structures outside an Area of Significant Conservation Value which cannot meet Permitted or Controlled Activity Standards
	Destruction, damage or disturbance of foreshore and seabeds
6	Coastal permit for the construction of new seawalls, revetment, boat ramps and steps
	Deposition of substances on foreshore and seabed
7	Coastal permit for the deposition of sand, shingle, shell or other natural material directly onto the foreshore for the purpose of combating beach or shoreline erosion and improving the amenity of value of the foreshore
	Discharges to Land and Water

²⁴ Under s102(1) RMA Joint hearings by 2 or more consent authorities may be held.

²⁵ Under s 89 RMA Applications to territorial authorities for resource consents where land is in a coastal marine area.

8	Coastal permit for the discharges to the CMA
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Table 8-5. Summary of Required Consents under Proposed Natural Resources Plan

Application No.	Nature of Resource Consent - PNRP
	Discharges to water
1	Coastal permit for the discharge of stormwater from the Project into water or onto or into land where it may enter water.
2	Coastal permit for the discharge of contaminants to land, where the discharge enters a surface water body or coastal water.
	Land use
3	Land use consent for earthworks and vegetation clearance
	Coastal Management
4	Coastal permit for the removal or demotion of a structure or part of a structure in the CMA
5	Coastal permit for new structures, additions or alterations to structures inside sites of significance
6	Coastal permit for the replacement of structures and the associated use of structures in the CMA
7	Coastal permit for additions and alterations to existing seawalls outside the footprint of the existing seawall.
8	Coastal permit for the construction of seawalls inside sites of significance
9	Coastal permit for the occupation of space in the CMA.
10	Coastal permit for the disturbance and damage of the foreshore or seabed inside sites of significance
11	Coastal permit for the disturbance or damage of the foreshore and seabed within sites of significance.
12	Coastal permit for the deposition for beach nourishment within sites of significance
13	Coastal permit for the reclamation and drainage in the coastal marine area

Table 8-6. Summary of Required consents under City of Lower Hutt District Plan

Application No.	Nature of Resource Consent - HCC
	Network Utilities
1	Land use consent for the construction, alteration and diversion of Marine Drive.
	Significant Natural, Cultural and Archaeological Resources
2	Land use consent for the construction works within the Significant Natural Resource site identified as SNR 44.
	Earthworks
3	Land use consent for earthworks within the Special Recreation and Passive Recreation zoning.

8.6 Permitted Activities

8.6.1 Permitted Activities under the Wellington Regional Coastal Plan

Rule	Status	Assessment
10. Discharges to Land and Water		
53	Permitted	Stormwater Discharge of stormwater from Marine Drive will not change as a result of the proposed Project and therefore continues to be a permitted activity.

8.6.2 Permitted Activities Proposed Natural Resources Plan

Rule	Status	Assessment
5.2 Discharges to Water		
48	Permitted	Discharge of stormwater from the road is considered a permitted activity under Rule R48 of the PNRP. This rule relates to stormwater from an individual property. As roads are contiguous and under one owner, the entire road network within a district would be considered one property ²⁶ .

8.6.3 Permitted Activities under the City of Lower Hutt District Plan

Rule	Status	Assessment
7A General Recreation Activity Area		
7A 2.1(a)	Permitted	The installation of a cycle path is a permitted activity under Rule 7A 2.1(a) as it provides a recreational facility. The activity will comply with the permitted activity conditions relating to setbacks, height, building coverage and size of structures, and lighting. Details of the design will be undertaken during the detailed design stage.
13 Network Utilities		
13.3.1.2	Permitted	The operation and maintenance of the Shared Path is deemed a permitted activity, as all erosion and sediment control measures will be installed and maintained in accordance with the 'Erosion and Sediment Control Guidelines for the Wellington Region – September 2002' – reprinted 2006, and all construction, demolition, and maintenance work will comply with NZS 6803P 'Measurement and Assessment of Noise from Construction, Maintenance and Demolition Work'.
13.3.1.37	Permitted	The Shared Path is considered a roading and transport structure. The associated construction of bus stops and shelters, road furniture, artworks and sculptures and traffic control signals are deemed a permitted activity. All earthworks for the construction of the shared pathway will all be undertaken within 2.0 metres of the outer edge of the network utility structure, and erosion and sediment control measures will be installed and maintained in accordance with

²⁶ The stormwater network is managed by Wellington Water Limited. In their submission on the PNRP (Submission #135) they sought to clarify how the rules relate to stormwater runoff from the local authority road network from the local authority stormwater network. <http://www.gw.govt.nz/assets/Plans--Publications/Regional-Plan-Review/Proposed-Plan/Proposed-Natural-Resources-Plan-for-the-Wellington-Region-July-2015.pdf>

Rule	Status	Assessment
		the 'Erosion and Sediment Control Guidelines for the Wellington Region - September 2002' - reprinted 2006.
14 General Rules		
14A Transport		
14A 5.1	Permitted	The proposal complies with the standards listed in Appendix Transport 1 and 2, and therefore is deemed a permitted activity.
14C Noise		
14C 2.1	Permitted	As all construction, demolition, and maintenance work will comply with NZS 6803P, it is deemed a permitted activity.
14F Heritage		
14F2.1	Permitted	As the identified Heritage Building, being that of the Skerret Boat Shed, will not be altered, repaired or modified through the construction of the shared pathway, this rule is not applicable.

8.7 Lapsing and Duration of Consent

8.7.1 Lapsing

Pursuant to Section 125 of the RMA, a 10-year lapse period is sought for the resource consents. While the intention is to build the Shared Path over a 6-year period, the extended lapse period provides the flexibility necessary to ensure that the construction of the Project can efficiently align with construction stages based on priorities associated with seawall structural integrity. It also allows for future funding arrangements and associated uncertainties.

8.7.2 Duration

Pursuant to Section 123 of the RMA a 35-year consent duration is sought for the coastal permits to reflect the significant regional and district value of the consents into the future. The land use consents and coastal permit for reclamation are sought for an unlimited duration.

9. Alternatives Assessment

9.1 Preferred Alignment

Throughout the development of the Project, alternatives and options associated with the design were investigated and recorded.²⁷ The outcomes of these investigations are outlined in detail in the Alternatives Assessment, **Appendix G**.

Given the geography and terrain in the Eastern Bays area and the lack of any other alternative transport routes, the focus has been on alignments based on Marine Drive. The Project has been developed on the seaward side of Marine Drive. In summary, the key reasons for favouring a "coastal edge" option are:

- To avoid the steep hill slopes along large sections of the landward side of the road. Widening on the landward side would require major earthworks and cuts on the headlands, which would result in significant effects to the environment.
- To avoid adverse effects to properties and dwellings. Much of the landward side of Marine Drive is lined with residences and road widening inland would bring the road closer to houses, increasing adverse amenity effects. It would also require considerable property purchase.
- To reduce car and cycle/pedestrian conflicts. A Shared Path on the landward side of Marine Drive will both reduce visibility during egress and access of properties and connectivity to the coast while directing people to pass across all the street and property exits onto Marine Drive. Potentially, the Shared Path could cross Marine Drive from inland to coastal options, but this would also increase traffic and cycle/pedestrian conflicts.
- To enhance the connection to the coast and recreational benefits. Many areas have very poor existing access, especially at high tide. A coastal option enables public access to be enhanced. It also fits with the Great Harbour Way/Te Aranui O Pōneke which, apart from the section past the port, is designed to follow the coast.
- Ability to integrate with coastal hazard protection and climate change. A coastal location enables the efficient use of natural and physical resources by providing the shared path on an enhanced, consistent and fit-for-purpose seawall option, thereby reducing road closures and increasing the resilience of Marine Drive and the underground services.
- Ability to enhance environmental outcomes through providing a modern seawall and treatment options that respond to environmental effects such as fish passage, natural character, etc.
- Ensuring that the option is affordable and provides medium to long-term benefits.

Therefore, due to the physical constraints on the landward side of Marine Drive, the widening of the road on the seaward side to accommodate the Shared Path is the preferred option.

²⁷The New Zealand Coastal Policy Statement (2010) requires in certain circumstances that alternatives and options be considered (Policy 10).

9.2 Overview of Alternative Methods

Alternatives investigated for the Project are summarised in Table 9.1 below.

Table 9-1. Summary of Alternative Methods

Option	Applicable to Seawalls	Applicable to Shared Path	Address in Options Assessment (MCA)	
1	Do minimum	Ongoing limited maintenance of seawall	No shared path proposed	Rejected after assessment
2	Shared Path location along Marine Drive			
2a	Landward side Shared Path	Excluding seawall upgrades	Shared path proposed	Rejected after assessment
2b	Partial landward/partial seaward side shared path	Including limited seawall upgrades	Shared path proposed	Rejected after assessment
2c	Carriageway allocation for Shared Path,	Including limited seawall upgrades	Shared path proposed	Made some design changes to the carriageway at York Bay
2d	Seaward side Shared Path	Including seawall upgrades	Shared path proposed	✓
3	Inland shared path route	Excluding seawall upgrades	Only a shared path, or could be combined with "Do minimum" or "staged seawall upgrades"	Rejected after assessment
4	Design Options			
4a	Path widths	Including seawall upgrades	Shared path proposed	✓
4b	Treatment options (wall types)	Including seawall upgrades	Shared path proposed	✓
4c	Site specific alternatives	Including seawall upgrades	Shared path proposed	Considered during preliminary design stage
4d	Design features	Including seawall upgrades	Shared path proposed	Considered during preliminary design stage
5	Construction methodologies (alternative methods)	Including seawall upgrades	Shared path proposed	Considered during preliminary design stage

Options 1, 2a, 2b and 3 were rejected at the early stages of the Project after the investigations and assessments found that these options did not meet the objectives of the Project. These findings are set out in **Appendix G**.

As part of the assessment of alternatives, a number of design options (Options 4 and 5) for the Shared Path were investigated. The options development process undertaken during the Indicative Business Case (IBC) identified two factors that principally dictated the form of the Project along the Eastern Bays foreshore. The first factor was the path width that safely accommodates pedestrians and cyclists along the route with the least amount of widening onto the coastal marine area (CMA). The second factor was the types of seawalls and methods that could be used to gain path width where there is currently insufficient width.

A multi-criteria analysis (MCA) process was used to assess options, where options were scored against a number of factors including safety, resilience, upgrade potential, consentability and beach impact. Two options for widening the road (2.5m and 3.5m path widths) were favoured through this process. Feedback through community consultation and alignment to the investment objectives also reinforced the two preferred options.

Through the Detailed Business Case (DBC), both options were considered. Constructing a path of consistent width along the corridor was generally preferred. However, it was recognised that it was appropriate to narrow the path at environmentally sensitive locations, and to retain the fuller width where there are expected to be higher number of pedestrians. This flexibility in design also enabled the Shared Path to respond to the constraints unique to the various bay environments and avoid or mitigate environmental effects on the environment.

10. Description of Existing Environment

10.1 Introduction

This section provides a general description of the environment within which the Project is located. To understand the actual and potential effects of the Project, a series of specialist studies were commissioned from suitably qualified technical specialists. These studies assist with a more in-depth understanding of the implications of the Project on different attributes and qualities of the existing environment and are contained in a series of technical reports (refer to **Appendices A – L**) which are contained in Part 3 of this report. The specific technical reports are listed in Section 10.9 of this report.

A series of plans (**Appendix M**) show key features such as important structures, beaches, MHWS, seawalls including the condition of the walls, and shoulder width of Marine Drive. These plans provide a contextual overview of the Project area, the details of which are supplied in the technical reports.

Sections 12-19 provide a summary description of the parts of the environment affected by the various components of the Project, as well as a summary description and assessment of the effects of the Project, and mitigation measures.

10.2 Geographic Context

The Eastern Bays are located on the eastern edge of Te Whanganui a Tara Wellington Harbour, with the Eastbourne hills as a backdrop and with views out over the harbour. The bay settlements are characterised by the steepness of the hill slopes, the beech forest cover and their location between the industrial area of Seaview on largely reclaimed land to the north. To the south are the more exposed coastal escarpment and beaches, from Burdan's Gate to headlands at Pencarrow Head, Baring Head and Turakirae Head.

The Project area is located between the industrial area of Seaview and the Eastbourne village. Each bay has a distinctive character which is the cumulative product of the settlement pattern and the bay landform, including the curvature of the bay, the steepness of the hills and their proximity to the coastline, the orientation of the bay and its exposure to the prevailing winds and the coastal edge. The residents of each bay have indicated through consultation that they especially value their beaches and access to the water.

South of the Project site and beyond Windy Point, the build-up of the foreshore has created a wide band of flat land extending from Rona Bay through to Robinson Bay, now densely developed and known collectively as Eastbourne village, with a population of 5030²⁸.

Eastbourne has a small localised commercial node in the village and a row of cafes and restaurants at Days Bay. There are three local primary schools - Muritai School, San Antonio School and Wellesley College.

Prior to its amalgamation into Lower Hutt, the Borough of Eastbourne was a separate town, with its own council and civic administration. The Eastbourne Community Board is a remnant of the town council and remains vocal on local issues (including the Project).

A detailed description with photographs of each bay is outlined in the Landscape and Visual Assessment (refer to Section 3.4 in **Appendix D**) and the Recreation Assessment (**Appendix K**).

10.3 Road Corridor

10.3.1 Marine Drive

Marine Drive provides the only road access to the Eastern Bay suburbs from Wellington and the Hutt Valley and is therefore a key transport route for the region. It is located between the harbour and the hills and has a distinctive pattern of settlement and land use. From Point

²⁸ Unofficial 2018 census data. Last census (2013) population for Eastbourne is 4665.

Howard to Days Bay, and from Windy Point to Muritai Road, Marine Drive runs along the edge of a residential environment of low density and intermittent built development. The coastal edge is seen from the road but given the narrow carriageway, there are limited opportunities to stop to enjoy the water. The beach and foreshore are mainly experienced by local residents, or pedestrians and cyclists in areas where a Shared Path exists.

As mentioned, there are estimated to be about 5030 people living in Eastbourne. The presence of shops, restaurants and a swimming pool make Eastbourne a destination that generates trips from outside the Eastern Bays as well as between bays. There are residential areas in all of bays between Seaview and Eastbourne located on the slopes beside and above Marine Drive.

North of the Project site is the Seaview industrial area, where Seaview Road meets the coastline and Seaview marina, with the road enclosed between a barrier that protects pipes linked to the Seaview tanker terminal, and the large embankments at the Port Howard headland.

Marine Drive is a Primary Collector Road with one lane in each direction that carries up to 8,000 vehicles per day.²⁹ The two-lane carriageway generally has ~3.5m lane widths, but the lane width can fluctuate to ~4.5m wide and also narrows down to around 3.0m in places. There is limited safe provision for pedestrians along Marine Drive and, where additional width is provided, the space is often used as informal parking, which is highly valued. Details of the existing shoulder width are shown in **Appendix M** using a colour coding system to represent the different widths along the entire length of the Project.

The speed limit on the route varies between 50km/h to 70km/h, with Point Howard, Sorrento Bay, Lowry/Whiorau Bay, Days Bay and Windy Point all 50km/h; and York Bay, Mahina Bay and Sunshine Bay are 70km/h.

Marine Drive is serviced by bus routes 81, 83 and 85 buses, linking Eastbourne to Wellington CDB via Petone (route 85 also services Lower Hutt). Each weekday there are 95 bus movements on the corridor, with buses operating between 6.00am and 11.00pm. There is a regular trans-harbour ferry service (approximately 20 minutes one way) between the Days Bay wharf north of Eastbourne and Queen's Wharf close to down-town Wellington.

Currently there is formal parking at Point Howard (on the landward side of Marine Drive), however, the bulk of the parking on the seaward side of Marine Drive is informal parking. The Project will make provision for formal parking on the seaward side at the northern end of the Project (Point Howard) and at the southern end (Windy Point) where spaces will be reoriented to diagonal and parallel parking respectively, providing safety benefits for road users, and maximising the parking space numbers in the available space. The Shared Path will result in a limited loss of parking.

What is now Marine Drive, originated as a track along the edge of the harbour and has a long history of use initially by Māori and later by early European settlers. The 1855 earthquake raised the eastern shoreline by 1.2-1.5 metres thereby providing the opportunity to improve access along the coast. Over the years, the road's surface has been raised and the road has been widened (seawards) to accommodate increasing levels of traffic as the population in the Eastern Bays grew.

10.3.2 Services and Utilities

Multiple services and utilities are located within or adjacent to the Marine Drive road corridor, including:

- Water, waste water and stormwater services (Hutt City Council)
- Telecommunications (Spark and Vodafone)
- Gas (provider)
- Electricity (provider)

²⁹ Cyclist numbers were captured over 21 day 24 hour per day survey in Sept 2017. They average (two-way) 63 cyclists per day. The maximum was 120 cyclists in a single day and the minimum was 15. Refer to **Appendix L**.

A key infrastructure service is the main outfall sewer pipeline (MOP) located within the road corridor. The MOP is an 18km long pipeline that conveys secondary treated wastewater from the Seaview Wastewater Treatment Plant (which services 146,000 residents and a large number of local industries) to the outfall at Bluff Point, near Pencarrow Head. Any damage to the MOP will result in emergency overflows into the Hutt River via the Waiwhetu Stream. The MOP is in good working order and, under existing conditions, will remain so for the foreseeable future. There is allowance in long term budgets for replacement or renewal of the pipeline in situ.³⁰ The MOP is regionally significant infrastructure and, along with the road access and other services, are important lifeline utilities for the wider community and need to be protected from coastal erosion.

Street lighting columns and power poles are located along the corridor. Mahina Bay and Sunshine Bay feature power or lighting poles located on the seaward side of the road.

10.3.3 Road Closure and Damage to Seawalls

The road is vulnerable to overtopping by waves and during storm surges, and at times has to be closed. Between 2012 and 2016, there have been an average of 81 hours per annum of emergency debris clearance required along Marine Drive. Since June 2010, there have been six storm incidents recorded that have required seawall maintenance. Works have included improvements to the seawall and repairing damage to the road shoulder and edging.

The effects of climate change are likely to worsen the impacts of storm events on the existing infrastructure in the medium to long term. Overall, larger more frequent storm events, coupled with the current state of the seawalls are likely to result in a significant increase in the number of times the route is affected or closed.³¹

Further details on the occurrence of wave overtopping and effects of climate change are outlined in Section 5 in **Appendix F**.

10.4 Seawalls

The coastal edge of the Eastern Bays area from Point Howard to Windy Point is a modified urban environment. Marine Drive is currently protected from waves by a seawall in some form along approximately 90% of the project length. The other 10% contains an interface with no seawall (i.e. the harbour floor transitions through a beach area to the road surface, or consists of a vegetated or unvegetated bank).

The seawalls that currently exist comprise of concrete or rock revetment. The concrete seawall makes up most of its length and is in varying states of condition. The residual life of the existing seawalls varies between >5 years to >80 years and replacing sections that have limited remaining life is more cost-effective than replacing sections that do not currently require it. Sections that are considered to have less than 5 years' life will be prioritised for replacement and reinstated with a modern fit-for-purpose structure.

Details of the existing seawalls are shown in **Appendix M**. The conditions of the seawalls vary over the length of the road and the structural integrity is indicated by the remaining life of the seawall. Some sections of seawall have recently been built without providing additional space width for walking and cycling. These sections need to be rebuilt to accommodate the Shared Path.

³⁰ Seaview Wastewater Treatment Plant, Main Outfall Pipeline, Condition Report dated August 2016, MWH.

³¹ HCC Eastern Bays Road Resilience Funding Application (Walbran, 2015) noted that the June 2013 storm event cost HCC \$280,000 and that these events could expect to occur every three years with sea level rises. Details of the economic costs and benefits of the Shared Path are outlined in **Appendix L**.

10.5 Contaminated Land

The Sunshine Bay Garage is located at 519 Marine Drive and is a potentially contaminated site. It is located on the landward side of Marine Drive and across the road from where the proposed Shared Path will be constructed.

It is listed on GWRC Selected Land Use Register (SLUR)(SN/03/188/02) as a site known (or suspected) to have been involved (historically or currently) in the use, storage or disposed of hazardous substances and as a consequence may contain residues of these substances. Service stations are also listed in the Hazardous Activities and Industries List (HAIL).

A detailed site investigation will be undertaken during the detailed design stage to confirm whether soil in the vicinity of the works associated with the Project near this site is contaminated and what remedial measures may be required during the construction of the Shared Path. If required, a resource consent application will be sought under the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NESCS).

10.6 Historical and Cultural Setting

Due to their orientation and location at the entry to the harbour, the bays along Marine Drive have a long history of use, initially by Māori who occupied kāinga in the sheltered bays and more substantial pā on the headlands, and later by early European settlers who drove stock along the coast between the Hutt Valley and the Wairarapa.

Access improved after the 1855 earthquake, which raised the eastern shoreline by 1.2-1.5 metres. The track was upgraded and the bays became a destination for Wellingtonians for both day time excursions and holidays. Ferry service for day excursions to Lowry/Whiorau Bay started in the 1880s and then extended to commuter services to Days Bay and then Rona Bay, which in turn increased the demand for residential development.

10.6.1 Tangata Whenua

The Cultural Impact Assessment (**Appendix H**) sets out the Māori cultural history and connection with the Hutt Valley and Wellington and how this area fitted in the overall tribal situation around Te Whanganui a Tara (Wellington Harbour).

From the historical Māori perspective, these shorelines used to provide mahinga kai or a place to gather shellfish. At the time of the arrival of European settlers into the Hutt Valley, the forest grew right down to the harbour's edge in many places, providing a habitat for various bird species used by Māori for food and clothing.

Te Whanganui a Tara/Wellington Harbour has always been of central importance to Māori from the arrival of Kupe many centuries ago. The central importance of the waters of the harbour remained as the way to get to places both around the harbour and into Te Awa Kairangi/Hutt River and the streams that flow into the estuary at the river mouth, mainly for fishing.

Māori sites of significance are:

- Whio-rau Lowry Bay, which means the place of many blue duck, and was apparently a favourable place for securing this species.
- Ngau-matau 'Northern headland of Lowry Bay', now called Point Howard. The name means 'bite the fish hook'.
- Orua- motoro Pa was located at Days Bay and was said to have been built by Te Hiha of Ngati Kahungunu (Ngati Ira).

Although there are likely to be shell midden sites along this proposed development along with other possible cultural objects particularly where there were old Pa sites, the Pa sites themselves were well clear of the shoreline. Māori occupation in this area was probably most intense with Ngati Ira who migrated to this side of the harbour in the 18th and 19th centuries. They were eventually displaced by the Te Atiawa/Taranaki people who populated Pa and kainga all around the harbour.

There are two statutory acknowledgments over Wellington harbour in relation to settlements, with Taranaki Whānui ki Te Upoko o Te Ika ³² and Ngāti Toa Rangatira, requiring consultation and acknowledgment of the tradition connection with the harbour. Further details relative to consultation are set out in section 25 and **Appendix I**.

10.6.2 European History

William 'Okiwi' Brown was the first European settler to settle in the Eastern Bays, and he provided travellers with overnight grazing and accommodation as they travelled the rough coast track from the Hutt Valley to the Wairarapa.³³

In the mid-1890s, shipping entrepreneur John Williams bought Days Bay for £1,000 and set about turning it into a resort. He built a wharf and introduced a ferry service to Wellington running from Days Bay and later to Eastbourne (Rona Bay). He also built an English resort styled pavilion to seat 800, a hotel and an amusement park. There were also cricket and hockey grounds and tennis courts, all open to the general public (which are still in use today).

Being a ferry ride or horse and cart trip from Wellington, Eastbourne and its Bays became the holiday retreat for Wellingtonians. Small baches and substantial summer houses were built, mostly owned by well off Wellington families, with some families renting to later build their own. Eastbourne was also settled by Italian immigrants and became a thriving fishing community.

The Skerrett Boatshed (1906) at Lowry/Whiorau Bay is a listed historic building. The Skerrett Boat Shed is considered to be the oldest boat shed on the Wellington Harbour still in its original condition, and has been a prominent landmark in Lowry/Whiorau Bay since around 1906. The boat shed was built for Sir Charles Skerrett (1863-1929) and Robert Turnbull. Skerrett was a partner in the law firm Chapman Tripp and Chief Justice of New Zealand (1926), and lived in Lowry/Whiorau Bay from 1906 until his death. Turnbull (brother of bibliophile, Alexander Turnbull) also owned land in Lowry/Whiorau Bay. The construction of the boat shed proved controversial, as it was built without the consent of the Wellington Harbour Board. Both Skerrett and Turnbull refused to remove the building, despite a number of requests from the board. Following Skerrett's death the boat shed became the property of a Mr Powles, and later the G. H. Scott Trust. It is now owned by the Hutt City Council.³⁴

10.7 Natural Environment

The natural environment is described in detail under the various technical reports (refer to **Appendices A – L**) and the information is summarised under the context within the various effects identified in sections 11-23 below.

Vegetation habitats in the Project area are intertidal and subtidal, beach gravels and sands, rocky islets, rocky headlands and promontories, landscape plantings and open space habitats. Three seagrass occurrences of varied densities are found in the subtidal zone at south Lowry Bay.

Red-billed gull, black-backed gull and variable oystercatcher are the primary users of the intertidal zone on beaches, while rocky intertidal habitats are also the domain of oystercatchers and reef heron. Shallow offshore waters with rocky subtidal reefs are feeding habitat for the red-billed gull, southern black-backed gull, and little shag, little black shag and black shag. Fluttering shearwater, giant petrel, Australasian gannet, spotted shag, Caspian tern and white-fronted tern are found in deeper offshore waters.

Little penguin (*Eudyptula minor*) are found in the Project area.³⁵ There is an estimated 42 breeding sites, with six breeding sites inland of Marine Drive. The predominant habitat of existing little penguin breeding sites is artificial rock, many of which are less than one metre above sea

³² The Port Nicholson Block Settlement Trust was established in August 2008 to receive and manage the Treaty settlement package for Taranaki Whānui ki Te Upoko o Te Ika.

³³ https://en.wikipedia.org/wiki/Eastbourne,_New_Zealand

³⁴ <http://www.heritage.org.nz/the-list/details/3580>

³⁵ Ecological surveys conducted in 2016 and 2017 in the Eastern Bays.

level and are at current risk of inundation by storms. With storms predicted to increase there is increasing inundation risk and threats to penguins in general.

The most likely freshwater fish species to be found in the Eastern Bays streams is banded kokopu (*Galaxias fasciatus*) which have the ability to live in very small streams and navigate long sections of piped streams to find habitat. Throughout the Project area, numerous stormwater and piped stream outlets discharge into the intertidal zone, with some having natural open stream channels upstream that are known to have native fish present. There is also the possibility that other species, such as eels (*Anguilla* spp.) and koaro (*Galaxias brevipinnis*) could be present in some of the larger stream.

10.8 Human Environment

10.8.1 Amenity Value and Recreation

The current footpath on the seaward side of Marine Drive varies from non-existent or unwalkable to 2.5m wide, with areas eroding in most bays. This means that for pedestrians and cyclists there are numerous changes to accommodate. Due to the width of most of the existing footpath and the lack of protection, people using the path are exposed to cars on the inland side and the sea on the coastal side of the existing path. Path users also need to skirt round ramps, steps to the beach and other structures located in the path. Faster cyclists are understood to use the road.

There is no consistent style or treatment along the current path and the range of materials used in the existing seawalls has a visual impact for those travelling the road. In general, residents look over the road at the panoramic views as the structures are below the road.

Existing seawalls are most visible in views from the beach, however beach goers usually have their back to the seawalls and road. The size of the beaches varies and, with ongoing effects of sea level rise, the period when 'dry' beach and rocks are available between tides will vary.

As outlined **Appendix K**, there are a number of boating clubs and boat launching ramps along the route and places for windsurfers and kayaks to launch (including rental options). The report also outlines the use of the route for cycling and running. The Eastbourne Community Survey suggested that fifty-four percent of respondents stated that the current state of the path 'deterred' them from using it, and a similar number – 59% – described the path as unsafe or very unsafe.

The Shared Path will run through the Lowry Bay/Whiorau Reserve and will be 3m wide along this section. The reserve is located on reclaimed area of local purpose reserve (Reserves Act 1977) administered by HCC. The reserve was recently redeveloped for boat launching, car and trailer parking and casual recreation use.

10.8.2 Property Ownership

The Shared Path will be located mainly within the existing road corridor, or by gaining additional width through the construction of seawalls. The Shared Path will also traverse land that is not road (both private and public land) in certain sections. These sections of land are shown in **Table 10-1**.

Table 10-1. Property Ownership

Landowner	Legal Description	Location	Station/Chainage	Comments
CentrePort Limited	Sec 1 SO Plan 31984 Ref: WN37D/408	Point Howard	570	Seaview Port at Point Howard. Shared Path traverses CentrePort land at existing carpark but no replacement of seawalls will be undertaken along this section;

Landowner	Legal Description	Location	Station/ Chainage	Comments
				Written approval is currently being sought; Certificate of Title attached in Appendix P
Hutt City Council	Sec 1 SO Plan 32758	Lowry/Whiorau Bay Lat: 41.26033° S Lon: 174.91038° E	1960 - 2190	Whiorau Reserve at southern end of Lowry/Whiorau Bay. Shared Path traverses reserve but no replacement of seawalls will be undertaken along this section. Minor earthworks including removal of surface soil.
Hutt City Council	LOT 1 DP 8096	Mahina Bay Lat: 41.26717° S; Lon: 174.90710° E	2870 - 2910	Shared Path potentially goes through edge of reserve and stops at curve
Hutt City Council	LOTS 5 6 7 DP 1694 0001	Sunshine Bay Lat: 41.27658° S; Lon: 174.90366° E	4000	Shared Path likely to encroach slightly over a corner of reserve from the road reserve
Hutt City Council	PT LOT 3 DP 14002 & PT LOT 2 DP 18500	Windy Point Lat: 41.28421° S; Lon: 174.90309° E	5120-5320	Shared Path will traverse sections of the reserve: southern section (opp 715) will require construction of curve seawall (including excavating footings/trenching)
Hutt City Council			1370	Skerrett's Boat shed at Lowry/Whiorau Bay will not be altered or relocated. It will form a pinch point along the Shared Path, however there are good sight lines in both directions minimising the conflict risk.
James Robert Thomas and Janete Thomas	Lot 4 DP 10005 Ref: WN9C/915	Mahina Bay Lat: 41.26908° S; Lon: 174.90799° E	3120 - 3220	HCC is currently in discussions with the landowner who is supportive of the Project; Written approval is currently being sought; Certificate of Title attached in Appendix P

Details of the locations, zoning and plans indicating the Shared Path route overlaid on the land parcels listed in Table 10-1 are shown in the Statutory Assessment, in **Appendix S**.

10.9 Technical Reports

Table 10-2 sets out the reports which form part of the supporting documentation for the resource consent applications. All the reports are provided as appendices in Part 3 of the application documentation.

Table 10-2. Technical Reports

Appendix No. in Part 3	Technical Report/ Supporting Material	Main Author/Date
Appendix A	A1 - Assessment of Environmental Effects for Intertidal Ecology A2 – Beach Nourishment Effects	Shelley McMurtrie, Kirsty Brennan EOS Ecology, March 2019 and April 2019
Appendix B	Freshwater Fish Passage Requirements	Alex James EOS Ecology, March 2019
Appendix C	C1- Avifauna and Vegetation Assessment C2 – Seagrass Survey	Fred Overmars Sustainability Solutions, April 2019 and March 2019

Appendix No. in Part 3	Technical Report/ Supporting Material	Main Author/Date
Appendix D	Landscape and Visual Assessment	Julia Williams Williams Drakeford Landscape Architects, 7 February 2019
Appendix E	Coastal Processes	Dr Michael Allis NIWA, March 2019
Appendix F	Beach Nourishment	Richard Reinen-Hamil Tonkin Taylor, March 2019
Appendix G	Alternatives Assessment	Caroline van Halderen Stantec, March 2018
Appendix H	Cultural Impact Assessment	Morrie Love Raukawa Consultants April 2018
Appendix I	Consultation Summary Report	Caroline van Halderen Stantec, September 2017 and April 2019
Appendix J	Design Features and Construction Methodology	Jamie Povall Stantec, January 2019
Appendix K	Recreational Assessment	Rob Greenaway Rob Greenaway and Associates, January 2019
Appendix L	Transport Assessment	Dhimantha Ranatunga Stantec, February 2019

In addition to the technical reports listed in **Table 10-2**, there has been a collection of data over the years, and a number of preliminary investigations have also been carried out (such as geotechnical investigations). These investigations are not provided as part of the documentation, but may be referred to as needed and are available on request.

11. Assessment of Environmental Effects

11.1 Approach to the Assessment of Effects

An assessment of any actual or potential effects that the activity may have on the environment, and the ways in which any adverse effects may be mitigated has been prepared in accordance with the Fourth Schedule of the RMA. The assessment is presented in such detail as corresponds with the scale and significance of the actual or potential effects that the activity may have on the environment. The assessment of effects on the environment from the Project is provided in the following sections of this report.

The preliminary design for the Project, as reflected in this AEE and supporting drawings and assessment, has sought to avoid or mitigate adverse effects through the alternatives assessment, development of Project design features and the proposed construction methodology. The design has gone through a series of iterations against the parameters of the natural environment (such as coastal processes) to achieve an optimum design. Where it has not been practicable to avoid adverse effects, the mitigation measures set out in this section are proposed to remedy or mitigate adverse effects.

There are a wide range of components of the receiving environment which could potentially be impacted in either the short term or long term (permanently) by the different elements of the Project. These components range from nearby coastal areas, to sea life on the bed of the sea or in the water column, to people living nearby, or who use the sea area for recreation, and on those who have particular cultural affinity and association with the area.

11.2 Overview of Effects

The actual and potential effects of the Project, both positive and adverse, are summarised below. Additional detail is provided in the technical reports prepared by the specialists in Part 3 of this Report (Appendices A – L). Potential effects on the environment have been investigated by the technical specialists and then evaluated in this AEE under the following headings (sections 12 –22):

- Effects on Intertidal Ecology and Fish Passage
- Effects on Vegetation
- Effects on Avifauna
- Effects on Natural Character, Landscape and Visual Values
- Effects on Amenity Value and Recreation
- Effects on Coastal Processes
- Effects on Climate Change and Natural Hazards
- Effects on Culture and Heritage
- Construction Effects
- Cumulative Effects.

The positive effects include the following (section 23):

- Transport Benefits, and
- Recreation Benefits, including health and wellbeing, and tourism.

Under the adverse effects, each section explains and describes:

- The context, which outlines the nature of the existing environment in further detail, the aspects of the Project which may impact on the environment, and how they may be affected
- The type and extent of the actual or potential effect(s)
- The proposed mitigation which has been built into the Project already to avoid effects, or is proposed to be the subject of a condition on any consent granted.

Design refinements will be undertaken within the detailed design stage, but these changes will not increase any adverse environmental effects.

11.3 Continuum of Effects

The description of the extent of effect is based on a five-level scale:

- Negligible
- Less than minor
- Minor
- Moderate
- Significant

The technical reports may use a different effects scale, but there is an explanation in some reports of how the level of effect correlates to that bulleted above (ie. calibration of scale). There is some flexibility in the use of this scale. For example, a moderate or significant effect may be evaluated as minor or less than minor if it is anticipated to occur only for limited period(s).

The assessment of effects in this report refers to the scale of effects listed above.

Section 22 summarises the effects on the environment from the Project.

12. Effects on Intertidal Ecology and Fish Passage

12.1 Context

The intertidal zone (also known as the littoral zone) is the area between the high and low tide. The intertidal habitat of the Eastern Bays area comprises of moderately to very sheltered rocky reef, with a mix of substrate dominated by either bedrock, pebbles and boulders, or sand. Broad-scale habitat mapping and surveys of benthic invertebrates and macroalgae were undertaken in May 2016 and June 2017 to describe the nearshore intertidal environment. The habitat types are described in detail in the Assessment of Effects for Intertidal Ecology contained in **Appendix A**.

A number of shellfish of potential value as mahinga kai were recorded during epifauna surveys, including blue mussel, black mussel, greenshell mussel, pipi and tuangi cockle. Clusters of mussels (mostly blue mussel, with some black mussel) were found between the mid-low tide zone along the Project area where bedrock outcrops were present and attached to some rough seawall surfaces. Both pipi and tuangi cockle found in these areas were small and sparsely distributed.

Through the Project area, numerous stormwater and piped stream outlets discharge into the intertidal zone. Several of these have relatively high quality open stream channels upstream that are known to have freshwater fish present. Stormwater culverts will be extended with the widening of the path and will be tied into the seawall to be flush with the wall. Works will avoid the subtidal zones.

12.2 Actual and Potential Effects

A detailed assessment was prepared by EOS Ecology. The assessment found that approximately 87% of the Project length already has a seawall in what is a highly modified environment. After completion of the proposed works, 93% of the Project length will contain a seawall.

Much of the shoreline within the Project area contains seawalls that currently do not support a high diversity or density of biota as assessed in the ecological assessment. The proposed seawalls as part of the Project offer opportunities to include a number of features within their design to enhance intertidal ecology values and is therefore a benefit.

Of the proposed seawall types, three will occur within the intertidal zone - triple curved seawall, double curved seawall and revetment. Single curved seawall is only used above the MHWS. The use of a vertical curved seawall reduces the amount of space required thereby reducing the encroachment onto the beach and subsequent loss of habitat.

The permanent effects to the intertidal ecology within the Project area relate to changes in habitat type of the seawall, encroachment into the existing intertidal area and the resultant loss of habitat. Short term effects are associated with the construction of the seawalls and relate to sedimentation, the effects of which are outlined in section 20.

12.2.1 Altered Habitat

The long-term environmental effects of the replacement of the existing seawalls on the intertidal benthic community is considered to be less than minor based on the following:

- There are no unique or rare species of invertebrates found in the surveys and the fauna is similar to that of the wider area.
- Seawalls currently exist along the majority of the shoreline and consist primarily of angled concrete seawalls that support low species diversity or richness.
- The majority of the proposed seawalls are curved seawalls which will be textured to encourage the recolonization of intertidal habitats. These will replace the mostly old angled concrete seawalls.
- Sloping revetment options provide a greater potential area available for intertidal biota compared to steeper/vertical seawalls as they allow more space between tidal zones,

thereby decreasing competition and predation pressures between and within species, and better mimicking a more gradual natural shoreline.

- The Project works will be staged bay-by-bay over a number of years meaning that relatively small areas will be disturbed at once, facilitating recolonization of fauna from adjacent undisturbed areas.

12.2.2 Seawall Encroachment

Given the already highly modified environment along the Eastern Bays area, a change from one seawall type to another where it extends outside the existing toe of the wall is likely to have minimal effect. Matters to consider in relation to the change in the footprint of the proposed seawall, with a resultant loss of intertidal habitat include:

- The areas of greatest encroachment occur where the revetment type treatments are proposed. As mentioned above, revetment options provide a greater potential area available for intertidal biota.
- The intertidal invertebrate community of the harbour floor habitat within areas where the seawalls are proposed to change is not dissimilar to that found in areas that will remain the same, thereby allowing habitats to recolonise from neighbouring habitats.
- The intertidal taxa found within the Project area is representative of the wider Wellington Harbour area and therefore the ability to successfully recolonise from neighbouring habitats is good.
- No encroachment of the seawall or revetment will occur in the subtidal zone.

12.2.3 Fish Passage

Generally there will be no significant alteration to pipe outlets other than an extension to the existing pipe end. The seawall design and the level of the outlet relative to the existing beach level have the potential to have adverse effects on fish passage, as does beach nourishment where sediments are added near existing stormwater outlet pipes.

Fish species (banded kokopu) present in the affected streams have extreme abilities to traverse instream barriers including sections of piped stream. With stream pipes, water velocity is one of the major potential fish barriers. The outlets of the Project are all relatively low gradient with generally small flows meaning that, with the exception of large high flow events, outlet pipes are unlikely to create velocity barriers for banded kokopu. Furthermore, many of the pipes are inundated during high tidal flows. Therefore, the pipe extensions proposed will have negligible effects on fish passage.

12.3 Mitigation Measures

Through an iterative design process and by incorporating design features into the seawall design, effects of the Shared Path on intertidal ecology has been appropriately mitigated and in some locations, enhanced. The proposed vertical curved seawalls will provide an improved habitat compared to the existing smooth angled seawalls and thus may result in an increased diversity of taxa colonising these new walls.

The proposed addition of the textured surface to the curved seawalls will provide microhabitats allowing for an increased surface area. Furthermore, the proposed addition of shallow depressions in the flat step of the curved seawall will also help to provide for habitat for biota.

Sloping revetment options provide a greater potential area available for intertidal biota compared to steeper/vertical seawalls as they allow more space between tidal zones and better mimicking a more gradual natural shoreline.

Encroachment onto the CMA and resulting loss of habitat is minimised through orientating beach access steps and ramps parallel to the seawall, the use of a single instead of double curved seawalls in some beach locations, and the use of mini steps at intervals between larger steps.

Fish passage will be maintained by introducing spat ropes or ramps at stormwater outlets where necessary.

The overall effects of the Project taking into account the mitigation measures are **less than minor**, and in some locations it will be **enhanced**.

13. Effects on Vegetation

13.1 Context

Information on the existing vascular vegetation and flora found in the Project area is outlined in the Assessment of Effects on Coastal Vegetation and Avifauna contained in **Appendix C**.

Vegetation habitats in the Project area are seagrass in the intertidal and subtidal, beach gravels and sands, rocky islets, rocky headlands and promontories, landscape plantings and open space habitats.

Seagrass is a listed habitat with significant indigenous biodiversity values in the coastal marine area in Schedule F5 of the PNRP. A baseline survey was conducted in December 2018 to confirm the presence or absence of seagrass at three locations (Point Howard, Lowry Bay and York Bay) where beach nourishment is being proposed, and to gain initial information on its site status and environmental parameters. The status of other past seagrass records around Wellington Harbour was also investigated, including surveying the Hutt River Estuary. The findings of the survey are set out in a report contained in **Appendix C**.

Three seagrass (*rimurēhia*, *Zostera muelleri* subsp. *novazelandica*) occurrences of varied densities were found in the intertidal and subtidal zones at south Lowry Bay (total area 1940 m²). A small number of flowering shoots of seagrass were found, an indicator of good seagrass health. Seagrass was not found at Point Howard or York Bay. The seagrass occurrence at Lowry Bay is small relative to its regional and national extent but is the only known occurrence remaining in Wellington Harbour.

A sparse vegetation cover (<20%) occurs on narrow stretches of beach gravels and sands above MHWS in Whiorau/Lowry, York and Sunshine Bays and at Windy Point. Two native sand binders, pīngao (*Ficinia spiralis*) and spinifex (*Spinifex sericeus*), were found at Whiorau/Lowry Bay. Introduced herbaceous species were the most frequent and had the greatest cover. Erosion over the past 2–3 years has caused significant loss of beach gravel and sand vegetation cover.

The vascular flora of the Project area are largely introduced species (44 species identified) and 30 indigenous species. One Nationally Critical (*Atriplex cinerea*), eight At Risk indigenous plant species occur within or near the Shared Path footprint. Two of these species are plantings (*Atriplex cinerea*, pīngao). Five are in HCC landscape plantings at Point Howard and Windy Point. The seagrass in Lowry Bay is the only one not derived in some way from human agency.

The small gravel beaches or narrow gravel lenses present in all five bays are classified as an endangered, historically uncommon ecosystem (shingle beaches). These beaches are comprised primarily of a mixture of sand, water-smoothed gravel (>50%) and cobbles. They are small in extent and highly modified. Although gravel beaches are an endangered naturally uncommon ecosystem, the ecological value of the gravel beaches ecosystem that would be lost to the Project is assessed as moderate because of its highly modified status.

13.2 Actual and Potential Effects

Sites within the Project area and zone of influence have moderate to high ecological values associated with the presence of seagrass and the eight other Threatened and At Risk plant species. The gravel beaches have a moderate rarity/distinctiveness ecological value.

Seagrass beds will be avoided by the physical location of the Shared Path and beach nourishment. There are however potential effects associated with construction of the Shared Path (seawall replacement) and the placement of material for beach nourishment with the release of fine sediments which could result in water turbidity, and partial burial of the seagrass. There is an ambient, or existing background, level of suspended sediment that exists within the bays due to the finer sediment within the subtidal area and the wind generated waves that can occur.

The proposed Shared Path alignment will affect six At Risk species in the HCC landscape plantings. A single pīngao plant is located within the 3.5 m wide seawall/shared path footprint at Whiorau/Lowry Bay and its habitat will be lost. Some *Atriplex cinerea* plantings may be vulnerable to crushing by Project vehicles and machinery.

Gravel beaches will be largely lost at construction time under the Shared Path and seawalls footprint, while any habitat beyond that may be disturbed by works or machinery in the construction zone. The level of effect on gravel beach ecosystem is low.

13.3 Mitigation Measures

13.3.1 Seagrass

Measures to mitigate the effects of beach nourishment are set out in the Beach Nourishment Design Report (**Appendix F**). Relating to the potential turbidity and burial of seagrass during construction, proposed mitigation measures include:

- Carrying out the beach nourishment over the winter months where sea grass beds are not growing significantly.
- Selecting sand/gravel gradings that match or are coarser than the in situ sediment which encourages onshore movement of sediment, rather than offshore; and restricts the proportion of finer material.
- Forming the high tide construction bench with a slightly over-steepened profile so that the existing beach sediment are more exposed to typical wind and wave action.
- Only depositing as much sediment on the bench as can be transferred along the placement area in the day of placement.
- Forming and shaping a steeper profile within the existing beach footprint.
- Only transferring and shaping the beach profile during lower tide levels.
- Placing imported beach sediment along the entire designated placement area rather than in one discrete location.

Further to the measures above, the following will also be undertaken:

- Demarcating the area of seagrass and isolating it from the construction zone.

These mitigation measures will be included in the CEMP which is a condition of consent.

13.3.2 Vegetation and gravels

Options to mitigate potential effects on vegetation are to translocate the existing plants and their gravel to suitable locations. These locations may be adjoining grassed areas or nearby reserves such as Whiorau Reserve, Claphams Rock, and beaches at Point Howard, Lowry Bay and York Bay in conjunction with the beach nourishment programme. There is also the possibility of holding them at Percy Scenic Reserve till they can be reinstated.³⁶

It is proposed to translocate the single pīngao plant immediately seaward of the footprint, again in conjunction with the beach nourishment programme.

This will be achieved through the following provisions to be included in the CEMP:

- Avoid where possible the use of machinery and any other disturbance in existing vegetation on gravel beaches in the construction zone through the creation of a low barrier for vehicles.
- For works in vegetated gravel beaches, apply vegetation direct transfer rehabilitation principles as practicable: remove vegetation and the top substrate separately from the underlying gravels and apply to prepared rehabilitation sites as set out above, and bury woody material (to minimise carbon release).
- Thoroughly clean off earth materials on machinery that would be working on the backshore where vegetation is present.

³⁶ Per comm with Janet Lawson (HCC Reserves Asset Manager).

- Where revetment is constructed without a cantilever wall, retain existing isolated shrub vegetation patches between the Shared Path margin and the revetment (to be included in the detailed design phase).

The overall effects of the Project on vegetation taking into account the mitigation measures outlined above are **less than minor** for seagrass and **less than minor** for the remaining vegetation types and gravels.

14. Effects on Avifauna

14.1 Context

14.1.1 Coastal birds

The principal bird species using intertidal and harbour habitats within the area are fluttering shearwater, southern black-backed gull, red-billed gull, little black shag, little shag, variable oystercatcher, white-fronted tern and little penguins. There are small numbers of Australasian gannet, black shag, spotted shag and reef heron, while pied shag, Caspian tern and NZ kingfisher are in very low numbers or irregularly present. Habitat use is greatest during autumn and winter for fluttering shearwater, Australasian gannet, little shag, little black shag, spotted shag, red-billed gull and white-fronted tern (mainly autumn). Species resident through the year include black shag, reef heron, variable oystercatcher, southern black-backed gull and Caspian tern.

Highest numbers of birds observed during field surveys were at Point Howard-Sorrento Bays. No coastal birds were seen during the field surveys on Marine Drive and existing concrete seawalls, probably because of habitat unsuitability and proximity to the road where there is disturbance from vehicle, cyclist and pedestrian use.

Red-billed gull, black-backed gull and variable oystercatcher are the primary users of the intertidal zone on beaches, while rocky intertidal habitats are also the domain of oystercatchers and reef heron. Shallow offshore waters with rocky subtidal reefs are feeding habitat for the red-billed gull, southern black-backed gull, and little shag, little black shag and black shag. Fluttering shearwater, giant petrel, Australasian gannet, spotted shag, Caspian tern and white-fronted tern are found in deeper offshore waters.

14.1.2 Little penguins

The penguins found in this area are the Little penguins (*Eudyptula minor*). Current penguin population is of the order of 50–60 pairs in the Project area (approximately 13% of the estimated 420 pairs in Wellington Harbour). Nesting sites have been located on the seaward and landward side of the road corridor, 42 of which are found in the Project area. Those parts of the Project area used by penguins for access, nesting and moulting are of high ecological value.

Penguins have evolved a highly distinctive set of life characteristics. They are flightless, air-breathing birds, highly adapted for swimming and diving for food in the sea and spending most of their lives there, but as birds, they are tied to terrestrial environments for breeding and for an annual moult to shed old feathers and replace them with new ones.

Surveys were conducted in 2016 and 2017 in the area to determine the extent of penguin habitation. The survey habitat results indicate the predominant existing breeding sites are in artificial rock habitats. Approximately 90% of breeding sites in the survey and Project areas are below two metres above sea level, leaving them at risk of inundation with a one metre sea level rise over the next 100 years. Nine stormwater pipes under Marine Drive in the Project area were identified as being currently accessible or used as breeding habitat by penguins.

Adult mortality is a paramount penguin population parameter as the species relies on a high level of adult survival. Twenty penguin mortalities in the Eastern Bays are known for the period mid-2015 to mid-2018. Known causes are road death and predation by dogs.

Further details are in the Avifauna and Vegetation Assessment, **Appendix C**.

14.2 Actual and Potential Effects

14.2.1 Coastal birds

The Project has the potential to affect birds within the vicinity due to the direct disturbance of habitat during construction, and/or alteration of habitat resulting partly from the loss of area used to accommodate the Shared Path.

The operational phase effect of the Project on coastal avifauna is encroachment and the consequential loss of avifauna habitat. The effect of the proposed beach nourishment will be to retain the existing extent of backshore habitat at Point Howard and in Lowry and York Bays (reducing with sea level rise), and to shift almost the full extent of encroachment in those three bays into the intertidal zone.

Potential effects of encroachment will be most significant for one Threatened and two At Risk species: reef heron, variable oystercatcher, and red-billed gull. While it is undesirable to lose any habitat area in one of the very few known reef heron locations on the Wellington Harbour shoreline, any effect of encroachment in this locality is unlikely to be distinguishable from other causes contributing to this decline. Considering oystercatcher and red-billed gull, again, while it is undesirable to lose habitat area for these two At Risk species, and there will be an effect on the Project area population, the effect on a population basis is low.

In creating a safe facility for human walking and cycling between Marine Drive and the coastline, the shared path will increase the number of people, and potentially dogs, recreating in the coastal zone, which will potentially increase the existing levels of disturbance of coastal avifauna. The coastal avifauna species present will be at some risk from increased disturbance. Proposed mitigation for this effect is signage on the high avifauna values within the Project area to draw attention to the applicability of the Hutt City Council Dog Control Policy 2015 and educate the public on the need for responsible dog management.

Overall, the post-mitigation effects on Threatened and At Risk indigenous avifauna and their habitats have been assessed as **less than minor** (black shag, pied shag, little black shag, reef heron, variable oystercatcher, red-billed gull). There will be no effects on fluttering shearwater, giant petrel, Caspian tern or white-fronted tern

Temporary effects on coastal birds will be during construction with increased noise and general disturbance due to construction activity. Potential effects on coastal avifauna and habitats during the construction phase (sedimentation, food and waste, noise and disturbance, artificial lighting) are localised in space and time and effective mitigation measures are proposed through provisions in the CEMP.

14.2.2 Little penguins

Disturbance and noise are the main potential effects of the Project on Little penguins. These potential effects will be greatest during breeding and moulting (July – February).

There are no known breeding sites within the proposed Shared Path or seawalls footprints, but there are two sites within revetment upgrade areas and 24 breeding sites within 10m of Project area (with the remaining sites outside of the project area). Therefore, the potential direct impact of the Project footprint is small (two sites directly lost) but further losses are possible given the alteration of surrounding habitat results in abandonment of nests. There is a risk for penguins to be injured if birds are in nests when revetment is removed in preparation for reconstruction. These risks will be avoided through provisions in the CEMP restricting and carefully managing works near penguin nests.

Little penguin natural recolonisation of the revetment and revetment upgrade sites is likely, and purpose-designed revetment nesting sites are proposed. Overall the likely outcome for little penguin breeding and moulting habitat from the Project footprint will include the loss of one or two current sites, but other sites may be progressively lost in future with sea level rise, and new nesting sites will be provided.

Potential noise and disturbance effects on penguins will be greater during breeding and moulting but may also occur during the wintering and pre-breeding stage when penguins continue to return to land in varying numbers. However, penguins sitting on nests in burrows are still exposed to noise from construction activities during daytime hours.

The potential effects are outlined in further detail in **Appendix C**.

Overall, potential construction impacts include removal or displacement of a nest, moulting or other occupational sites, disturbance and destruction of adults, chicks, and eggs, and penguin injury or mortality through interaction with machinery. The magnitude of potential effect is assessed as high.

Dog predation is a common problem for all bird species, but especially for penguins. This is managed through responsible dog control under HCC by-laws. Those controls protect these species and warnings and signage will be used in the Project to assign strong messaging at the appropriate stage of the Project. Signage will be included as a matter in the Landscape and Urban Design Plan, a condition of this consent.

Due to the proposed mitigation measures, the post-mitigation construction and operational effects on little penguins have been assessed as **less than minor**.

14.3 Mitigation Measures

So as to mitigate the effects of the Shared Path construction on avifauna, the following provisions will be included in the CEMP:

- Contain all food and other biodegradable and ingestible materials in secure containers (rodent-proof for food), and regularly remove from the construction site.
- Undertake works during summer to autumn (in the absence of penguins).
- Minimise effects of construction disturbance and noise on coastal avifauna, including monitoring.
- Use signage to inform the public of the breeding habitats of birds and minimise human disturbance including disturbance by dogs.

A penguin management plan (PMP) will be prepared that forms part of the CEMP. It will cover the following:

- Measures to manage construction phase effects on penguins in the revetment upgrade areas, to include programming, timing monitoring and collaboration between penguin team and contractors;
- Measures to avoid and mitigate potential effects of construction on penguin nesting and moulting sites;
- Details of construction activities in the following four groups in order of descending magnitude of potential effect on penguin nesting and moulting sites:
 - revetment upgrade works;
 - revetment and curved seawalls;
 - stormwater pipes; and
 - terrestrial habitat works.
- Annual review of provisions for avoiding and mitigating adverse construction phase effects on penguins over the six-year period of the Shared Path Project;
- Staff and contractor training;
- Liaison with DoC and Eastern Bays Penguin Group;
- Public education measures;
- Identify and assess the feasibility of enhancement of revetment and revetment upgrade structures to provide penguin breeding habitat that has some resilience to sea survey level rise, such as Clapham Rock.

During the detailed design stage the Shared Path and revetment structures will maintain penguin access at the Point Howard site and reduce the potential for ongoing disturbance to breeding; and to ensure that overhanging stormwater pipe discharges are avoided for penguins (and indigenous fish).

Details are outlined in the suggested conditions of consent (refer to **Appendix R**).

The overall effects of the Project on avifauna taking into account the mitigation measures outlined above are **less than minor** for coastal birds and **less than minor** for Little penguins. There are opportunities to **enhance** penguin habitat by establishing a local population recovery site at Claphams Rock (York Bay-Mahina Bay headland) within the Project area.

15. Effects on Natural Character, Landscape and Visual Values

15.1 Context

Marine Drive has a distinctive pattern of settlement and land use. The road is contained between the harbour and the hills. At a local scale, each bay has a unique identity, the cumulative product of the settlement pattern and the bay landform including the curvature of the bay, the steepness of the hills and their proximity to the coastline, the orientation of the bay and its exposure to the prevailing winds and the coastal edge.

A site description of each bay is outlined in the Landscape and Visual Effects in **Appendix D** and is summarised below:

Point Howard to Sorrento Bay

- Settled but hillslopes and road edge are well vegetated and have high natural values.
- Steep hill slopes extend to the coastal edge.
- Inland edge of road varies in width and composition creating an informal edge.
- Modified and structured coastal edge, seawalls visible in places.
- Rock outcrops at the road edge and off shore.

Lowry/Whiorau Bay

- Bay enclosed by vegetated hills.
- Residential development on floor of the bay and extends onto lower hill slopes.
- Dense development along Marine Drive creates an almost urban streetscape along inland edge of road.
- Modified coastal edge, visible seawall structures and beach landscape complete with boardwalk, decking and boat sheds.

York Bay

- Established residential development set into a matrix of vegetation.
- Steep hillslopes at the headlands, easing to gentle slopes in the middle of the bay.
- Informal edge to inland side of the road, with vegetation screening views of built development.
- Modified coastal edge, wide range of visible seawall structures.

Mahina Bay

- Slightly convoluted bay form along coastline.
- Intermittent clusters of houses along the inland side of the road, interspersed with vegetation.
- Houses back dropped by steep, vegetated landform.
- Modified coastal edge, limited range of seawall structures.
- Rock outcrops at the road edge and off shore.

Sunshine Bay

- A wild, exposed landscape.
- A more random settlement pattern than other bays and appears less developed.
- Road contained between coastal escarpment and coastline
- A visibly eroding road edge.
- Long stretches of rock outcrop along coastline.

Windy Point

- Connects Days Bay to Eastbourne village.
- Multi-storey residential development forms a built edge to road.
- Urban character reinforced by kerb and footpath on inland side of road.
- Steep drop between road and foreshore at southern end of bay.
- Stretches of rock outcrop along coastline.

15.2 Actual and Potential Effects

The landscape and visual effects are assessed in detail in **Appendix D**. The following effects have been assessed:

- Effects on Natural Character
- Effects on Visual Amenity
- Construction Effects (pertaining to visual and landscape).

These effects are summarised below.

15.2.1 Effects on Natural Character

The overall coherence of the landscape derives from the wider setting including the enclosing, vegetated hillslopes, the sequence of bay and headland, the rocky outcrops and the harbour waters and the natural processes of the beach environment including the changing sea, light and weather conditions.

The existing ad hoc seawall structures are familiar but unattractive. The visual impact of a consistent coastal edge, even a high impact 'unnatural' edge such as that formed by the curved concrete wall, will reduce over time, becoming less eye-catching as both path and seawalls weather into established/familiar features.

Overall adverse effects of the Project on natural character of the proposal are considered to be less than minor for the wider Eastern Bays coastal landscape. At a local 'bay' scale, the effects of the proposed Shared Path and seawall on overall experiential natural character attributes will depend largely on the ability of the design to respond to the local landform and land use patterns. With an appropriate Landscape and Urban Design Plan in place, effects on natural character will be less than minor.

15.2.2 Effects on Visual Amenity

While it is an important component of the Eastern Bays landscape, the narrow fringe of land between the road and the water has a low visual prominence. The existing collection of road shoulder, paths and structures along Marine Drive will be replaced by the Shared Path, concrete curved wall and revetments. The Shared Path will provide a different user experience by changing the scale of the road corridor and creating a more consistent and formal coastal edge, but overall the adverse effects on visual amenity are considered to be less than minor.

At a local scale, and on a bay by bay basis, the detailed design will be undertaken in consultation with each bay community through the Landscape and Urban Design Plan (LUDP) with potential for additional mitigation or even beneficial visual amenity effects.

15.2.3 Construction Effects

Construction will change the existing Eastern Bays' streetscape and coastal edge through the demolition of existing seawall structures and excavation within the coastal marine area. Machinery largely will be based on and will operate from the road verge.

Works will be staged on a bay by bay basis with the up to 20m lengths of seawall under replacement at any one time. During construction of each 20m section of seawall, views towards the coastal edge from the street will be screened by machinery, although residents in elevated locations will retain their distant views to the hills across the harbour. Views from the foreshore and water towards the road edge will also be obscured by machinery and construction works.

The visual impact of construction will be localised and temporary, with each bay expected to take 3-6 months to complete. Adverse effects are short term and considered to be negligible.

15.3 Mitigation Measures

Design features have been incorporated into the seawall design to create consistency in the design of the seawalls. This includes the following design features:

- Continuous curved walls.
- A concrete trim along the seaward edge.
- Material for beach nourishment is to be sourced locally to match existing beach material colour, grain size (sand) and texture (gravel).
- Allowing natural rock outcrops to maintain their integrity when they meet the road edge.
- Avoiding the use of plant beds along on the coastal edge, particularly beds with kerbs or stone edges. This is an exposed, marine environment and amenity horticulture degrades the existing natural character.

A suggested condition is that a Landscape and Urban Design Plan (LUDP) be developed in consultation with the ecologists, Hutt City Council, the Eastbourne Community Board, local resident organisations and the Eastern Bays community. Within each bay and at a local scale, final effects on natural character and visual amenity will be determined by finer grained detailed design through Bay Specific Landscape and Urban Design Plans (BSLUDP).

The BSLUDP will include details such as:

- Seawall structures and revetments, in terms of their scale and materials and fit in the landscape, including transition zones between seawall types.
- Beach access including all steps and ramps and associated handrails (if required) and their surface treatment.
- Treatment of stormwater structures at the coastal interface (stormwater pipes will tie into the seawall and will be flush with the wall).
- Penguin related structures including penguin passage elements, ramps and nests.
- Planting treatment (translocated plants).
- Treatment of existing trees.
- Treatment of existing landscape features.
- Beach nourishment.
- Signage and storyboards.

Suggested conditions are listed in **Appendix R**.

Mitigation measures associated with construction are included in the overall construction measures in section 20.

Overall the landscape and visual effects of the Shared Path can be mitigated through the application of design features as outlined above and through further input with the LUDP and BSLUDP. By following these mitigation measures the landscape and visual effects will be **less than minor**.

16. Effects on Amenity Values and Recreation

16.1 Context

The Project area is mostly of local recreation value given that the area is predominantly used by local residents for swimming, small boat launching, walking and dog walking. Some shellfishing occurs with a little set-netting by locals offshore, and some floundering in Lowry Bay. Swimming rafts are moored offshore in summer in Lowry Bay, Days Bay and Mahina Bay, and are mostly used by locals. All rocky areas provide snorkelling and fishing opportunities.

While a lack of visitor parking and poor coastal access inhibits use of the bays by visitors, Point Howard Beach has relatively good parking and a safe, sandy beach, and a toilet and changing shed nearby. This has regional value and is used mostly by residents of the Hutt Valley and Wainuiomata. It appears that residents from further afield are more likely to keep driving to Days Bay or Eastbourne.

The Ferry Road headland at the southern end of Sunshine Bay is a regionally popular coastal fishing site, along with the seawall at the western corner of Whiorau Reserve. Some shellfish harvesting along the rocky parts of the study area and, especially, in the sands below low-tide in Lowry Bay

A recreation assessment has been undertaken by Rob Greenaway and Associates and is attached as **Appendix K**. The findings are outlined below. The recreational benefits are identified in section 23.

16.2 Actual and Potential Effects

The amenity value and recreation effects of the Shared Path have been assessed for each beach. This is summarised in **Table 16-1** below.

Table 16-1. Actual and Potential Effect of Amenity Values and Recreation

Bay	Activity	Effect and Scale	Mitigation	Mitigation Effect
Point Howard	Shared Path constructed over road reserve, normalising roadside marking areas, tidying revetment foreshore.	Area currently used for carparking, with some use of rocky foreshore for fishing and shellfishing. No loss of amenity.	None required	Nil
Point Howard Beach	Double curve sea wall and 3.5m path. Beach access provided at either end of beach (steps and ramp).	Loss of beach width in regionally important recreational beach which normally features a high-tide beach. More than minor effect.	Beach nourishment recommended	Less than minor
Sorrento Bay	Double curve seawall and 3.5m path, with 2.5m (to minimise beach loss) width at beach area and access steps at either end beach area.	Minor loss of beach area in area used for local swimming, with some fishing and shellfishing from rocky areas. No high tide beach. Less than minor effect.	2.5m wide path proposed in beach area to minimise beach loss. No mitigations required.	Less than minor
Lowry Bay	Single, double and triple curved sea wall, four sets of steps, 2.5 for short section north of boat shed to avoid adverse ecological effects on subtidal	Loss of beach width in locally important recreation beach with some regional use and normally a high-tide beach. More than minor effect south of bus stop	Beach nourishment recommended south of bus stop.	Less than minor

Bay	Activity	Effect and Scale	Mitigation	Mitigation Effect
	areas, and 3.5m path width otherwise.	where the majority of beach recreation occurs. No effect on shellfishing or fishing.		
Whiorau Reserve	Shared Path constructed through reserve. Extension of riprap south of reserve to near headland and pump-station. No new construction at headland.	Path location avoids conflict with boat launching activities. No disruption of fishing at headland.	None required	Nil
York Bay	Double and triple curved seawall and 3.5m path with access steps and boat ramp.	Beach width loss in beach area which normally has a section of high tide beach. Relatively heavy local use for swimming and boat launching. More than minor effect.	Beach nourishment recommended	Less than Minor
Mahina Bay	Double curve seawall and 2.5m (to reduce adverse ecological effects and beach loss) and 3.5m path, with boat ramp and steps at either end of beach area.	Minor loss of beach area in area used for local swimming, with some fishing and shellfishing from rocky areas. Little high tide beach. Less than minor effect.	2.5m wide path proposed in beach area to minimise beach loss. No mitigations required.	Less than minor
Sunshine Bay	Double curve seawall and 2.5m (to reduce adverse ecological effects and beach loss) and 3.5m path, with boat ramp and steps at either end of beach area and three sets of steps in rocky coastal sections. Extension of revetment in the south.	Minor loss of beach area in area used for local swimming, with some fishing and shellfishing from rocky areas, and popular fishing site at southern headland. Little high tide beach. Less than minor effect.	2.5m wide path proposed in beach area to minimise beach loss. No mitigations required.	Less than minor
Windy Point	Double and triple curve seawall and 3.5m path. One set of sets.	Minor loss of shoreline width in little used section – some local swimming, shellfishing and fishing.	None required	Less than minor

16.3 Mitigation Measures

The effects of the Shared Path on recreation and loss of amenity value are mitigated by placing beach nourishment at Point Howard, Lowry Bay and York Bay. By addressing adverse effects on these beaches with 'dry' high tide areas used for sitting and other 'dry' beach activities, the proposal will maintain coastal amenity and ensure effects are no more than minor. Losses in the width of beach – where nourishment is not proposed – and at rocky areas, are minimised by relying on a narrowed path where appropriate, and may be addressed through future coastal resilience planning if they are regarded as priorities. The proposal responds to climate change, as much as it can, as a combined resilience and a transport Project.

Overall the effects of the Shared Path on amenity effects and recreation of the bays range from **none** to **less than minor**.

17. Effects on Coastal Processes

17.1 Context

The existing environment along the Eastern Bays coastline of Wellington Harbour is characterised by a series of rocky headlands separating sand- and gravel-filled embayments. Marine Drive is constructed on a seismically uplifted wave-cut platform and the former backshore area of each beach. The route has been widened several times through small seaward enlargements, with the coastal fringe supported by engineered concrete and rock defences, several of which are in poor condition or provide inadequate protection from overtopping during large waves.

Sediment on the beaches has arrived from local and distant sources over the Holocene period (12,000 years ago to present), interspersed with sediment pulses from past major earthquakes. However, present-day rates of sediment accumulation or erosion from Eastern Bays beaches are low and not anticipated to increase in the near future. The tidal range and tidal currents are small within the deep Harbour and most sediment in the coastal zone is transported through wave action, aided at times by wind-generated currents. Waves are relatively small (compared to the open ocean) due to the short inner-harbour distance for waves to develop and oceanic swell waves from Cook Strait are dissipated through the narrow harbour entrance.

As mentioned previously, the low-lying Marine Drive and urban areas within the Eastern Bays are vulnerable during high water levels combined with waves and onshore winds. Storms regularly cause localised flooding in roads and property near the coast, with hazardous wave overtopping making Marine Drive unsafe at times for vehicles and pedestrians in several exposed locations (notably Lowry Bay).

In response to storms conditions, the beaches of the Project area show common morphological responses with short-term fluctuations of beach width and sediment distribution inside each bay (i.e. periods of erosion and accretion) on daily to seasonal timescales. There is no clear long-term trend of erosion or accretion in the embayments of the Project area, demonstrating that the sediment volume within each bay remains nearly stable in the long term and the embayments effectively function as isolated sediment compartments. However, some input of gravel and sand from southern shores is anticipated to the southern-most beach of the Project (Days Bay and south), but the future volumes are not expected to be substantial due to dwindling supply of sediment from south of Pencarrow Head and reduced wave energy within the harbour.

The proximity of the Project to active faults, expanse of soft seabed sediments and geological history of large seismic events suggests that the fill/reclamation structures will require careful design in order to maintain serviceability access following a seismic event.

Detail on the coastal environment is outlined in **Appendix F**.

17.2 Actual and Potential Effects

The overall assessment of operational and construction effects includes both the effects of the Project on the environment (such as beach erosion) and effects of the environment on the Project (such as extreme waves or climate change). Assessment is recorded at an overall level supplemented on a bay-by-bay basis as necessary and is set out in detail in the Coastal Processes Report (**Appendix F**).

Effects of the Project on coastal physical processes during the operation of the Project is outlined as follows (the construction effects are set out under section 20). These assessments are based on the Project following best practice construction techniques and detailed design, and with mitigation steps during design expected to further reduce the effect on coastal physical processes.

17.2.1 Encroachment into Coastal Marine Area (CMA) and coastal zone

The loss of CMA and coastal zone area (the area available for coastal physical processes to occur within) is the unavoidable outcome of providing the Shared Path (on the basis that Marine Drive remains intact for this Project), but the effects of the relatively small loss of area are negligible to no more than minor relative to the local scale of the total area of the Eastern Bays coastal zone. Note that this does not include assessment of loss of the area of beach available as a public amenity, which is addressed in section 16 above and in the technical report (**Appendix K** of the Project AEE).

17.2.2 Beach Nourishment

The proposed beach nourishment to mitigate for the loss of beach amenity has no adverse effect on coastal processes such as erosion, wave reflections, wave overtopping or longshore drift over the lifetime of the Project. In addition to maintaining beach amenity, the nourishment provides several minor benefits related to increasing the sediment volume, coarseness and longevity of beach sands which will benefit the Shared Path and Marine Drive as sea levels rise.

17.2.3 Change to nearshore hydrodynamics and sediment movement

Overall, the Project will have a minor effect on the changes to nearshore hydrodynamics (such as wave height, wave driven currents, wave reflections) and the coupled effect on nearshore sediment processes (sediment transport in the "coastal zone" leading to erosion or accumulation of sediment). However, some key features such as transition between wall types, transition to natural rock foreshore and proposed beach accesses could have a potentially moderate effect on nearshore hydrodynamics leading to accumulation of sediment or potential for erosion of sediment. This effect is somewhat unavoidable because of the need to maintain community access to the beach but has been mitigated to less than minor through ensuring "smooth" tapering of transitions between seawall/foreshore types and accesses over a 20-30 m length of shoreline.

17.2.4 Interruption to longshore sediment transport

Overall, the Project will have a minor effect on local longshore sediment transport rates. However, for some features (beach accesses and wall transitions) there is a potentially localised effect on longshore sediment transport within the confines of the relevant bay. This effect has been mitigated to less than minor by careful selection of access position within each bay, access orientation and type of beach access to prevent obstruction of longshore sediment movement where possible. Small local accumulations of sand or driftwood debris will still occur due to the natural wind/wave-driven surface currents. This accumulation of sand/debris is a short-term effect, depending on the wind conditions at the time, and is negligible in relation to bay-wide longshore sediment transport.

17.2.5 Edge effects at seawall transitions and tie-ins

These transitions have the potential to be problematic regarding coastal processes, particularly if poorly designed with abrupt transitions which cause edge effects (waves wrapping around and focussing waves on nearby structures) with associated changes to sediment transport patterns typically resulting in seabed and beach erosion. This is a potentially moderate effect on local sediment transport leading to erosion or (i.e. scour "holes"). This has been mitigated within the Preliminary Design Plans by including a gentle tapering of seawall types across the transitions, with the length of taper dependent on the level of wave exposure. Areas with small wave exposure, such as on the lee-side of rocky headlands, are transitioned over 0 m to 5 m in length. At the most wave exposed locations, where transitioning between rock revetment and double curve walls areas (e.g., northern Lowry Bay), the transitional taper has been lengthened to 20–40 m. These design modifications will ensure the potential effect is mitigated to a less than minor effect.

17.2.6 Effect on adjacent seawalls

The Project will have a less than minor detrimental effect on the structural integrity of adjacent older seawalls if appropriate construction phasing is undertaken, whereby sections of the seawall are built at any one time. Ongoing periodic review of seawall condition should continue.

17.2.7 Fine sediment generation

The reworking of fine-grained sediments (e.g., silts) from beach sediments by the change to nearshore hydrodynamics will have a negligible effect on offshore sedimentation rates or suspended sediment concentrations within each bay and the wider Wellington Harbour and will be negligible relative to ambient turbidity that can be experienced during moderate-strong wave conditions or during Hutt River floods.

17.2.8 Wave reflections

The change to wave reflection behaviour, caused by the replacement of existing rock revetments with new double-curved seawalls within the Eastern Bays, will likely have a negligible effect on other seawall sections and beaches.

17.2.9 Wave overtopping

The proposed seawall replacements are all expected to reduce the overtopping hazard during minor to moderate storm events along all sections of Eastern Bays covered by the Project (i.e., a minor positive effect). This is through structures that provide more effective deflection, dissipation and reflection of incident waves than the existing seawalls. However, there will be no change to overtopping hazard during large storms as there will be no change in crest elevation of the seawalls, albeit slightly lower to allow drainage from the seaward extension of the shared path. Wind-driven spray will continue to cause some nuisance flooding during all storms, and temporary closure of the shared path and reduction in speed on Marine Drive will still be required during large storms. Several sections of coastline (e.g., the northern 200 m of Lowry Bay) are more susceptible to wave overtopping and road closures. The present design is more robust in this location and will more effectively reduce the overtopping. However, for larger storm events there is unlikely to be any change to the overtopping hazard as the unaltered crest height governs the overtopping discharge rates.

17.3 Mitigation Measures

Specific treatment is proposed during detailed design at transition zones between wall types or beach access to ensure the existing minor effects are maintained. Appropriate beach access design mitigation includes site-specific design which will be required at each beach access location. Typical design features as shown in the Design Features Report contained in **Appendix J**, will mitigate effects of coastal processes.

Careful phasing of seawall construction is programmed into the construction schedule. This is to ensure any existing seawalls in poor condition which are adjacent to the new seawalls are not left exposed. i.e. replacing larger sections of seawalls during each construction phase. This reduces the risk of unanticipated seawall failure arising from a change to wave action on the poorest condition walls.

Detailed design at each section will consider design improvements to mitigate overtopping where possible. The rebuilding (and upgrading) of existing seawalls and the construction of new seawalls for the accommodation of the Shared Path is a step in this incremental upgrade with the acknowledgement that it will not be the final solution to addressing the problem of sea level rise.

The construction of the proposed seawalls does not preclude future adaptation options by 'locking in' HCC to one particular option. The new road and pathway platform could be seen to provide a greater benefit to future adaptation options, compared to the existing situation, because the platform is wider, and founded on more competent rock.

A suite of consent conditions has been suggested to document physical changes to the existing environment, pre- and post-construction. It is recommended that HCC undertake monitoring of beach volume via 6 monthly beach profiles (or equivalent elevation surveying techniques) over a period of 2 years after construction ends with the proviso that it may continue longer if considered necessary by a qualified scientist (i.e adaptive monitoring). This is to ensure the actual effect on beach sediment processes is in line with the expectations for generally minor redistribution of beach material.

Overall the operation of the Shared Pathway Project will have **a less than minor** effect on coastal physical processes, provided that the detailed design is based on the principles outlined in **Appendix J**. The Shared Pathway is not a long-term solution to the increasing level of coastal hazard exposure due to climate change. However, the Project includes design elements which will 'buy some time' for HCC to develop an iterative long-term management approach to for the Eastern Bays to adapt to climate change.

18. Effects of Climate Change and Natural Hazards

18.1 Context

New climate change projections for New Zealand were published in June 2016 and form the basis of guidance for local government on preparing for climate change. This guidance assists decision makers to manage and adapt to the increased coastal hazard risk posed by climate change and sea level rise.

In New Zealand the 1% AEP sea-level elevation is often adopted as a design "extreme sea-level" for coastal hazard planning, being a high sea level that is exceeded infrequently when high tides and storm surges combine (i.e., a storm tide). A recent extreme event is the 21 June 2013 storm where sea levels reached 1.29 m at Queens Wharf. This storm caused disruption to Marine Drive with wave overtopping requiring multiple road closures and costly clean-ups.

Stephens (2015) shows that with only 16 cm of sea level rise the frequency of the present day 100-year ARI (or 1% AEP) event in Wellington will have increased to once per year on average (Stephens 2015, PCE 2015). Following MfE (2017) projections (Figure 3-1), this 16cm sea level rise is expected to occur sometime between 2030 and 2040 (depending on global emissions trajectories).

As sea level rises beyond 16cm within the next few decades the existing Marine Drive coastal route will be subject to more frequent high-water and wave overtopping events like the 21 June 2013 event, leading to more regular road closures and community disruption. For example, sea level rise of 1m will create hundreds of occurrences per year of the present-day 1% AEP extreme sea level, with all high tides in Wellington exceeding this level (Stephens 2015).

Figure 18-1 shows an example of the existing seawalls at Point Howard beach along with the proposed designs after periods of sea level rise. Also superimposed is the water level reached on 21 June 2013.

Details of these projections and sea level rise values used for this assessment are detailed in the Coastal Processes Report, **Appendix E**.

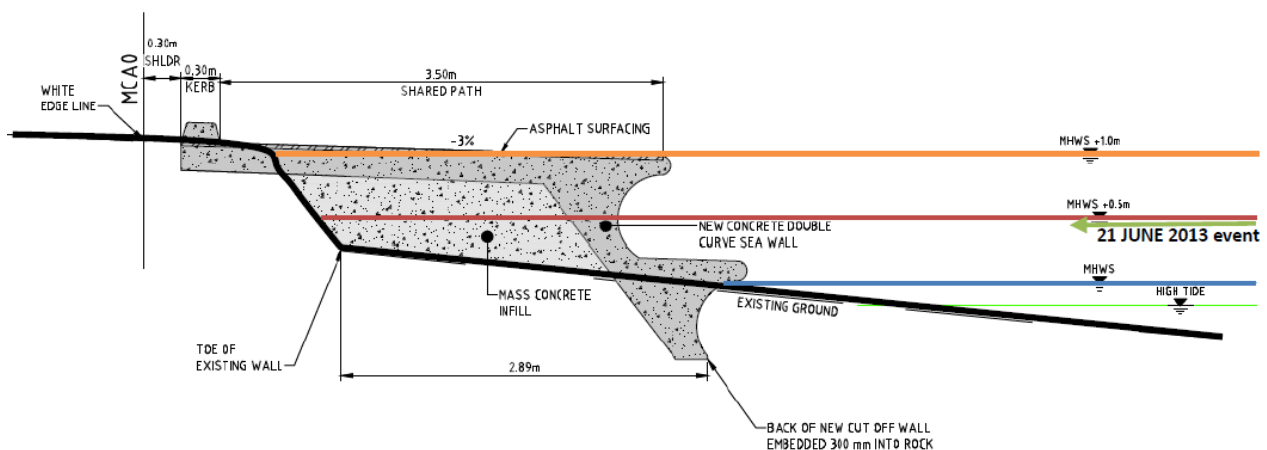


Figure 18-1. Point Howard Beach showing periods of sea level rise

18.2 Actual and Potential Effects

The predicted effect of sea level rise means that any improvement to the level of service (with respect to waves overtopping hazard) along Marine Drive will be short-term, as the rising sea level will reduce the level of protection provided and increase the number of road closures. Essentially, the improvements to the seawalls and the seaward extension for the Shared Pathway only "buy some time" in terms of impacts on Marine Drive. In the time gained, HCC need to

consider long-term options for managing the road access to Eastbourne, specifically allowing for adaptation to ongoing sea level rise, which will continue for several centuries.

Climate change, particularly sea level rise, will have an increasing impact on the wider Eastern Bays region. The primary effect is the increased frequency of wave overtopping events, and eventually more direct coastal-flooding events, on the back of rising sea level. Other effects will be the loss of beach (resulting in loss of amenity value) and loss of intertidal and subtidal habitats (resulting in effects on seabirds and Little penguins). The effects on intertidal ecology and avifauna are discussed in sections 12 and 14.

Besides sea level rise, climate change will affect coastal and estuarine environments by changes in weather related coastal hazard drivers, such as storm surges, waves, winds, and the frequency and intensity of storms. Any changes in impacts from these drivers will have implications for coastal erosion, coastal storm flooding and groundwater and drainage levels.

Climate change will increase coastal hazards within the wider Eastern Bays area. Beyond the direct effects of sea level rise (detailed in Section 5.9 of **Appendix F**), climate change will alter the coastal hazard drivers of storm surge, with a lesser effect on waves conditions and wind speeds. These changes contribute to the elevated risk of erosion and flooding for Marine Drive and Shared Path users into the future.

18.3 Mitigation Measures

The rebuilding (and upgrading) of existing seawalls and the construction of new seawalls for the accommodation of the Shared Path is a first step in incremental upgrades or alternative adaptation options expected to be undertaken by HCC, with the acknowledgement that it will not be the final solution to addressing the problem of sea level rise exacerbating coastal hazards along Marine Drive.

The Project includes design elements which meet the dynamic adaptive planning principles (DAPP) of "buying some time" with this initial adaptation option ("pathway") with the ability for some incremental upgrades, while monitoring sea level rise and extreme event impacts and their changing frequency. HCC needs to consider a long-term suite of planning pathways to adapt to ongoing sea level rise effects of climate change along Marine Drive and adjacent development.

19. Effects on Culture and Heritage

19.1 Context

The Eastern Bays were the sites of Māori occupation from the earliest times following the arrival in the Harbour of the Polynesian explorer Kupe and the subsequent later settlement by the Whatonga people particularly Taraika (Whatonga's son) whose name recognised in Te Whanganui a Tara along with his half-brother Tautoki. Māori Pa and Kainga were close around the coastline at regular intervals in a pattern not unlike present settlements. These Māori settlements used the abundant local resources such as kaimoana – shellfish and fin fish along with seaweeds. Birds were also abundant as is recognised by the name Whiorau (many blue duck).

Physically, little remains of these Māori settlements in the coastal margins particularly given the degree of tectonic uplift that has occurred around this coastline. For these works Māori archaeology is unlikely to be revealed, however having an accidental discovery protocol in place for the whole scheme is supported by iwi.

The harbour as a whole is highly significant to tangata whenua, and is covered by statutory acknowledgments in the Treaty claim settlements of both Te Atiawa/Taranaki whanui and Ngati Toarangatira. The harbour is still a fishery of significance to the tangata whenua and care should be taken around its margins.

19.2 Actual and Potential Effects

The proposed Eastern Bays Seawall should have only minor cultural impacts largely related to the rocky coastline of the area, however the provision of a safe Shared Pathway for pedestrians and cyclists would be a welcome addition to the area for all.³⁷

The proposed seawall, although often replacing or covering existing seaside protection which had previously been constructed, may expose cultural materials during excavation. These materials may include shell middens, burned stone and perhaps even objects which have arisen in this coastline from time to time. However, it is not possible to accurately identify such areas and it is not thought that an archaeological authority is required for this Project at this stage.

The Cultural Impact Assessment (attached in **Appendix H**) outlines the cultural effects of the Shared Path in further detail.

The listed historic Skerrett Boatshed (1906) at Lowry/Whiorau Bay is located along the Shared Path. This will be retained and is unaffected by the Project.

19.3 Mitigation Measures

There is some chance that remnants such as shell middens may be uncovered. This will be covered by the inclusion of an accidental discovery protocol (ADP) and will be a condition of this application.

So as to avoid any delays, should unidentified subsurface features be exposed by the proposed works, consideration will be given to applying for an authority under Section 44(a) of the HNZPTA to cover all works undertaken for the Project, as a precaution once the detailed design has been completed. The conditions of the authority are likely to include archaeological monitoring of preliminary earthworks, and procedures for recording any archaeological evidence before it is modified or destroyed. This approach would have the advantage of allowing any archaeology uncovered during construction to be managed early in the process and to engage with iwi about details of the ADP prior to works commencing.

³⁷ Concluding comments in Cultural Impact Report (Appendix H).

The overall effects of the Shared Path on Culture and Heritage will be **less than minor**. The Project offers opportunities through "story boards" and signage to **enhance** cultural and heritage values and share them with the wider community.

20. Construction Effects

20.1 Context

The Project construction methodology is described in detail in the Design Features Report and Construction Methodology (Appendix J) and provides measures to avoid, remedy, or mitigate any adverse effects of activities on the environment. Final construction methodology will be developed by the Contractor once consent conditions are confirmed and further design has been undertaken.

20.2 Actual and Potential Effects

20.2.1 Temporary occupation of the CMA

Building into the CMA is necessary for the construction of the Shared Path. A temporary construction zone from the bottom of the seawall will be required to enable construction, which may include the use of machinery in the foreshore area to assist in the excavation of materials prior to installation of the new seawalls. Construction of the seawalls requires a minimum working distance of three meters for revetment, and five meters for curved walls beyond the toe of the new seawall, to allow for the excavation and burying of the toe of the new seawalls.

The temporary footprint of the Project construction (excluding the area subject to beach nourishment) is approximately 1.52 ha (based on the Preliminary Design Plans) and occupies areas outside the CMA and within the CMA (details are outlined in Section 6.1, **Appendix E**). When combined with the area of permanent occupation, the total area of occupation into the coastal zone is 2.1ha which is a small percentage (2.4%) of the 88ha Eastern Bays coastal zone.

The 1.52 ha required for occupation during the construction of the Shared Path will not occur over a simultaneous period and will therefore not be continuous over the life of the project. Approximately 20m of seawall will be under construction for approximately 2 weeks at any one time, with construction anticipated for 3-6 months per year and spread over 6 years. The subtidal areas and areas where seagrass is located will be avoided during construction.

During the construction phase, the temporary occupation of the CMA will affect public access but this is localised and small relative to the local scale of each embayment and the Eastern Bays coastal zone. The direct effect of occupation of these relatively small areas would be negligible.

The construction of the section of Shared Path in the vicinity of Point Howard will have an effect on CentrePort activities at the Port Howard Wharf (Seaview) where upgrade works are planned. The main access to the wharf construction site will be off Marine Drive and there is a potential conflict in timing and physical occupation of Point Howard for the two projects. Discussions have been held with CentrePort about the proposed works and as both projects progress, further discussions will be held (refer to section 25).

20.2.2 Sedimentation

20.2.2.1 Ecological Effects of Sedimentation

During construction activities, sediment generation may occur from multiple sources of unconsolidated sediments (refer to **Appendix A**). Earthmoving necessary to construct seawall footing is expected to mix and suspend any fine sediment present in the beach gravel, with terrestrial runoff and/or seawater. Imported material used from road construction and widening is also anticipated to contain fine sediment.

Although sedimentation is a natural process along the Eastern Bays, excavation of material below the current natural beach surface and introduction of foreign building materials could

contain fine sediment and result in fine sediment being disturbed and released into coastal waters. Anticipated sedimentation issues associated with construction activities include:

- Temporary disturbance of existing beach sediment and beach profile by machinery working from the beachfront and excavating unconsolidated beach deposits.
- The introduction of terrigenous (i.e., land-derived) sediment to the near shore environments from the addition of material during earthmoving and construction activities.
- Potential for unanticipated fine sediment deposits below seawall footing.
- Dewatering has the potential to affect water quality as a result of the increase in sediment run off and the increase in contaminants entering the receiving environment.

20.2.2.2 Coastal Physical Processes and Effects on Sedimentation

There will be a change to nearshore hydrodynamics and sediment movement (minor long-term effect) on nearshore hydrodynamics and sediment movement by temporary construction phasing structures. Fine sediment generation (short-term reworking of fine-grained sediments, such as silts) from beach sediments by the alteration to nearshore hydrodynamics from construction phasing will have a negligible effect on sedimentation rates or suspended sediment concentrations within each bay and the wider Eastern Bays region.

Considering bulk sediment management, the potential effect on bay-wide sediment volumes by the removal of sediment from foundation excavation in the coastal zone is minor to moderate (depending on bay size, excavated volume and construction methodology). Mitigation of this effect to minor will occur through separating native from non-native material, stockpiling native material nearby, and crushing rock removed from reef or headland platforms, redepositing on the beach or adjacent rock platforms after construction of each wall section.

20.2.3 Contaminants

The greatest risk of construction is the release of cementitious products during any in situ casting of the concrete seawalls. Concrete or cementitious (mortar, grout, plaster, stucco, cement, slurry) washout wastewater is caustic and considered to be corrosive and can have detrimental effects on aquatic biota. The release of untreated cement-contaminated water into the intertidal zone of the construction sites could locally alter pH and cause detrimental effects on the local ecosystem, particularly if it is concentrated in intertidal areas (i.e. tide pools, etc) during low tide. The use of applying concrete and cementitious mixtures in situ around aquatic environments requires a dry working space and the ex-situ treatment of water contaminated with any concrete product/slurry to lower pH to a suitable pH for the receiving environment prior to discharge or disposal off site.

If dewatering is carried out on or near a site which has an historic legacy of contamination then these hydraulic gradients may cause the existing contamination to move and migrate toward the dewatering system. As mentioned previously, the Sunshine Bay Garage is a potentially contaminated site and the detailed site investigation will determine the state of contamination. If the contaminated area is very close to the dewatering system then contaminated water may emerge in the pumped water requiring specific management (to be outlined in the Erosion and Sediment Control Plan, as part of the CEMP).

There is the risk that other contaminants associated with the machinery to be used in the intertidal area (i.e., petroleum-based products). However, the use of the excavator on the beach would be minimised and in accordance with the CEMP, and all machinery would be stored and refuelled away from the beach.

20.2.4 Phasing of Construction

The effects of the phasing of the construction is assessed by considering the construction period for each section (3 – 6 months) and the multi-year construction period (over 6 years).

20.2.4.1 Construction period within each bay

The period of construction within each bay will cause unavoidable localised alterations to beach hydrodynamic and sedimentary processes in the immediately vicinity of the construction works which will persist for the 3–6 month construction period. However, the effect is confined to areas immediately adjacent to the construction works, and the beach will quickly recover after construction has ended. There are also potential adverse effects on the structural integrity of adjacent seawalls by wave reflection/focussing from rigid temporary construction staging (e.g., sheet piling, formwork). On completion of construction within each bay, beach processes will quickly readjust to the new beach state (months to seasons), with no long-term effect from the short-term construction activities.

20.2.4.2 Multi-year construction phasing

The proposed multi-year phasing of the Project means that some of the wall replacements necessary to reduce the overtopping hazard may not be undertaken for several years. Sea level rise in the intervening period will be very small (<15-20 mm) and have a negligible effect on the overtopping hazard during this time (notwithstanding the random probability of extreme weather events).

20.2.5 Habitat Disturbance

The construction activity itself may locally impact on the environment through the disturbance of the intertidal habitat through compaction of material and crushing of biota. It is likely that any localised effect on the benthic community will be short-lived, with an abundant colonist source from the adjacent areas and lower tidal area available to re-colonise the part of the foreshore within the construction footprint following construction.

20.2.6 Traffic Effects

Disruption during the construction of the Shared Path will be inevitable, as temporary traffic management and lane closures will be necessary to construct the seawalls and Shared Path.

During construction, there will be an increase in traffic movements to and from the construction sites. Given that Marine Drive has a relatively narrow carriageway and there is limited access to the seawalls, it will be necessary to close one lane of traffic at certain times during the construction. This will be managed by a stop-go system and where possible works will be undertaken at off peak times. Providing access for construction vehicles, and minimising the impact for all road users and the community will be imperative.

The timing of works will also need to take into account the tides, as most works in the foreshore will need to be done at low tide the combination of low tide and off peak traffic will provide the window for construction works to be carried out.

20.2.7 Noise, Vibration and Dust Effects

Further potential construction effects associated with the proposal can include increased noise, vibration and dust. These effects will be typical of any construction activity and will be experienced mainly during day times. No vibration effects are anticipated to be caused from the works. Effects of noise on penguins is assessed under section 14.2.2.

It is unlikely that much (if any) dust will be generated by the activities, given the nature and the sand/gravel environment, as well as groundwater/seawater.

20.3 Mitigation Measures

The effects as a result of the construction of the Shared Path are covered by the mitigation measures specified under the various headings below. These measures will be included in the CEMP. The CEMP will be a condition of the application (refer to suggested conditions in **Appendix R**).

20.3.1 Temporary Occupation

The area of occupation during construction will be temporary and over a short period of time, and disturbance would be kept to the minimum to undertake the construction, as specified in the CEMP. Where there is adequate space, machinery would work from the road verge rather than from the beach/foreshore, meaning that there will be less area outside of the direct excavation zone that is subject to construction plant.

Relating to the area in the vicinity of Point Howard where CentrePort will be undertaking upgrade works to the wharf, a condition will be included in this application that the CEMP must include the requirement to enter into an agreement with CentrePort. This will be done prior to any construction works are undertaken within the road reserve and land owned by Centreport, and that access arrangements are maintained in accordance with CentrePort's proposed upgrade works. During the construction phase, all services in the area must also be protected. Suggested conditions are set out in **Appendix R**.

20.3.2 Sediment Control Measures

In the event that sediment, derived from the erosion of rocks on land, should become suspended in the near shore water column during construction of the seawalls, effects will likely be short lived. It is not anticipated that the potential volumes of sediment generated during this Project would be sufficient to cause any modification to local habitat. After construction activities have ceased and the area has been stabilised by paving and planting, sediment load will be similar to preconstruction amounts.

Mitigation of effects resulting from bulk sediment will be achieved through separating native from non-native material, stockpiling native material nearby, disposing non-native material, and redepositing on the beach after construction of each wall section (as set out in the construction methodology, see Section 4 in **Appendix J**).

Measures to reduce sediment from entering the coastal waters are described in the construction methodology (**Appendix J**). These measures include:

- Some form of bund that will effectively contain and isolate the construction area from the incoming tide until construction is completed. These may include sand filled geotextile containers or tubes (sand to be locally sourced) that can be easily removed following completion of the works.
- Sediment laden water would be pumped to a settlement tank or a large container (such as a shipping container) where it is retained for the length of time required for sediment to settle.
- Water is removed from the top of the settling area, where water is cleaner. A float is used to keep the intake off the bottom.
- A filter is used on the pump inlet to help minimise sediment in the discharge.
- Sludge and sediment from the bottom of the tank may be removed by a vacuum excavation systems truck (sucker truck) or excavator and disposed of off-site.
- All water from the excavations is to be treated for sediment and cementitious products before being discharged (see section 6.10.2).
- Separating native from non-native material, stockpiling native material nearby, and crushing rock removed from reef or headland platforms, redepositing on the beach or adjacent rock platforms after construction of each wall section.

Sediment will be managed under the *Erosion and Sediment Control Guidelines for the Wellington Region*.

20.3.3 Contamination and Dewatering

A methodology for ensuring that wet cementitious products are not discharged to the environment will include pouring of concrete in-situ to be done in the dry. If it is not possible to undertake the works in dry conditions, then contain the potentially contaminated water and pump to the wastewater network. Or contain the potentially contaminated water and pump to a treatment structure where the water can be treated to get pH to a level suitable for the local receiving environment. Determining the suitable level may require sampling pH in the bay during times when it would be expected that discharges would occur.

If discharging suitably treated water to the environment is undertaken (either directly or indirectly via the stormwater network) then this is to be done at high tide when there is the greatest level of dilution. The pH of any water on site is to be monitored to ensure compliance with this requirement. Details on sediment control are included in Section 4.2.4 of the Construction Methodology Report contained in **Appendix J**.

Some of these procedures include:

- Where planned works are proposed, groundwater sampling from the area of the excavation will be undertaken to identify concentrations of contaminants present in the groundwater. This will help to determine whether any further filtration or other treatment of the discharge is required. Further treatment will be undertaken if required.
- Retaining sediment-laden water on site for as long as possible, to maximise the amount of settling. Settlement tanks will be used where large quantities of water require dewatering.
- Settled sediment that may be contaminated, will be disposed of in an appropriate landfill.
- Given that excavations are less than five metres in depth and therefore in shallow groundwater, the pumping mechanisms during dewatering ensure that only water that collects in the trench is extracted. Saline intrusion into the aquifer is therefore unlikely to occur in the areas in which works would take place under this Project.

The mitigation measures identified above will ensure that the effects of dewatering on water quality are **less than minor**.

20.3.4 Staging and Programming of Works

The effects as a result of the phasing of the Project can be mitigated by careful phasing of seawall construction and to ensure that it is programmed into the construction schedule which will form part of the CEMP. The CEMP will be a condition of the application (refer to suggested conditions in **Appendix R**).

To ensure the condition of the seawalls is maintained, continuation of the periodic condition assessments, and permission for emergency maintenance will be required.

Details of the measures to be taken on a bay by bay basis will be included in the CEMP (a condition of the consent). The intention is for the works to be done in stages with contracts being let for one bay at a time on an annual basis.

20.3.5 Traffic Management

Disruption to traffic will only be over a short distance and for a short period of time spread over a number of years. A Temporary Traffic Management plan (TTMP) will be prepared to manage and mitigate potential effects. It will be developed identifying how temporary access for all modes will be provided, which will require approval from Hutt City Council. A widespread media campaign will also be developed to ensure the changes and anticipated delays during construction are communicated with the community. Under the TTMP residents will be informed of the programme of works and when there are likely to be traffic disruptions.

Works are intended to be undertaken during daytime, however there may be extraordinary situations where work may be done at night with resulting effects of noise on nearby residents and effects of lighting on birds. Should work be undertaken at night, this will be limited to areas where there are no immediate residences, and will not be done between 10pm and 7am. The timing of works will be included in the CEMP (a condition of the consent).

20.3.6 Noise and Dust Management

Noise will comply with NZS 6803P 'Measurement and Assessment of Noise from Construction, Maintenance and Demolition Work' as set out in the Hutt City District Plan. Dust will be suppressed by spraying water on the work site, should it be necessary.

20.4 Overall Construction Mitigation Measures

The temporary nature of the works and the mitigation measures will be sufficient to ensure that any potential construction effects associated with the proposal will be **less than minor**. The mitigation measures will be included as a condition and included in the CEMP (see Appendix R, Suggested Conditions).

21. Cumulative Effects

21.1 Context

Several other large projects are currently proposed in the Wellington Region which have potentially overlapping and cumulative effects on local and regional coastal physical processes of Wellington Harbour. These projects include the potential CentrePort dredging of the Wellington Harbour, Cross Harbour pipeline, Ngauranga to Petone Shared Path and resilience project and the Wellington Airport runway extension.

These projects have potential effects, such as suspended sediment discharges and changes to wave patterns, on coastal physical processes in Wellington Harbour. While they also have potentially overlapping construction timeframes, the cumulative contribution to regional effects on coastal processes is negligible due to the slow construction timeframe and minor effects of the Eastern Bays Shared Path.

Cumulative effects include those which may exacerbate effects of already consented activities in the same environment which may not have been undertaken, or which increase the scale, intensity or rate of existing environmental changes.

Relevant consent applications include the Wellington Water Limited resource consent application to the GWRC for the intermittent discharge of treated wastewater from the Seaview Wastewater Treatment Plant to the Hutt River. This proposal is for a reduction in the frequency of unplanned wet-weather discharges of untreated waste water from Seaview and the relocation of the discharge pipe from the Waiwhetu Stream to the Hutt River estuary. The effect is minor and adverse for recreation, but little different to the status quo, albeit an improvement for Waiwhetu Stream. There is no change of relevance to the Project.

Other relevant proposals are improvements to the regional cycle network, such as the Wellington to Hutt Valley Walking and Cycling Link (W2HV) and other developments proposed by the HCC (see sections 3.4.2, 3.6 and 3.7) of **Appendix K**. These reinforce the value of the Shared Path and will enhance its connectivity and level of use.

In terms of existing environmental changes, the beaches along the Eastern Bays have been altered significantly over time by roading and the periodic construction of seawalls. The cumulative effects of the Share Path are considered to be mainly that of sediment, loss of habitat and beach amenity.

21.2 Actual and Potential Effects

21.2.1 Sediment

As the construction works will use best practice sediment and erosion management, the cumulative volume of sediment discharged to the harbour receiving waters (via fill deposition, dewatering discharges or reworking of existing sediments) is anticipated to be negligible relative to other background sources (such as Hutt River floods or natural wave-reworking of seabed sediments during storms). Similarly, the additional contribution of sediment from this Project is negligible compared to the high background sedimentation rates.

21.2.2 Loss of Habitat

In the regional-scale context of Wellington Harbour, which covers an approximate surface area of 8500 ha, the total area of foreshore lost when the whole Shared Path is complete is about 0.58 ha. This disturbance is a very small proportion (< 0.01%) and will have a negligible effect on the regional coastal zone, tidal prism, tidal flows and tidal range.

Cumulative effects will very likely also occur in conjunction with sea level rise. In the short-term, sea level rise will exacerbate the loss of backshore avifauna habitat and then also the extent of intertidal habitat. Within 1-2 decades, these habitats will probably be lost from the Project area. The Project is a contributor to this loss of shoreline habitat in terms of bringing it forward in time,

but that is mitigated by beach nourishment, although that too will ultimately be lost. The loss will occur with or without the Project.

21.2.3 Beach Amenity

For beach amenity, the status quo is used as the baseline for assessing effects. This baseline includes the ongoing effects of sea level rise and inevitable compromises to beach recreation if Marine Drive remains in place. That is, the size of the beaches, and the period when 'dry' beach and rocks are available between tides, will reduce over time if the road does not retreat or beach nourishment does not occur. The latter will also have a finite period of relevance as beach material will eventually accumulate on the road.

21.2.4 Coastal Processes

There are no cumulative effects from the Project in the environs of Wellington Harbour or south Wellington coast, which will have an effect on coastal physical processes of Eastern Bays that is more than minor.

21.3 Mitigation Measures

Mitigation measures to avoid and remedy the effects of sediment are set out in the construction methodology (**Appendix J**). The loss of vegetation will be mitigated by the translocation of plants and the additional planting on other areas (such as the beach nourishment bays of Point Howard, Lowry Bay and York Bay; and Claphams Road).

The management of effects on beaches where areas of 'dry' high tide beach normally exist and are used for sitting and sunbathing at Point Howard, the southern end of Lowry Bay and York Bay will be done through beach nourishment. As discussed above, the Hutt City Council's long-term work in the area of resilience planning will address ongoing changes in recreation amenity along the Eastern Bays in accordance with the Ministry for the Environment's 2017 Coastal hazards and climate change: Guidance for local government. This may involve a variety of measures which are beyond the scope of this assessment.

The cumulative effects of the Shared Path Project are **negligible**.

22. Summary of Environmental Effects

Table 22-1. Summary of Environmental Effects

Effect	Mitigation	Extent of effect following mitigation
Intertidal Ecology and Fish Passage	Fish passage - spat ropes or ramps at stormwater outlets. Textured vertical curved seawalls provide improved habitat resulting in an increased diversity of taxa colonising these new walls.	Intertidal ecology - less than minor . Fish passage - negligible . The overall effects of the Project taking into account the mitigation measures proposed are less than minor , and in some locations it will be enhanced .
Vegetation	Beach nourishment to be done over winter months; using coarse gravels; careful placement of material; demarcating area of protection. Translocation of plants and gravels.	The overall effects of the Project on vegetation taking into account proposed mitigation measures are less than minor for seagrass and less than minor for the remaining vegetation types and gravels.
Avifauna	Penguin Management Plan; Disturbance of habitat during shared path and seawall construction to be minimised; Warning signage against disturbance by dogs.	The overall effects of the Project on avifauna taking into account the mitigation measures proposed are less than minor for Little penguins and coastal birds. There are opportunities to enhance penguin habitat by establishing local population recovery site at Claphams Rock within the Project area.
Natural character, Landscape and Visual	Landscape and Urban Design Plan and Bay Specific Landscape and Urban Design Plans as outlined in Conditions, Appendix R.	Through adopting the proposed mitigation measures, the landscape and visual effects have the potential to be less than minor .
Amenity Values and recreation	Beach nourishment at Point Howard, Lowry Bay and York Bay.	Overall the effects of the Shared Path on amenity effects and recreation of the bays range from none to less than minor .
Coastal Processes	Typical design features as shown in the Design Features Report contained in Appendix J, will mitigate effects of coastal processes.	Overall the construction and operation of the Shared Pathway Project will have a less than minor effect on coastal physical processes, provided that the detailed design is based on the principles outlined in Appendix J.
Climate change and natural hazards	First step in incremental upgrades or alternative adaptation options; dynamic adaptive planning principle (DAPP) of "buying some time" with this initial adaptation option ("pathway")	Over time the effects of climate change and sea level rise will be significant on the area, but the Project offers the opportunity to adapt to the future.
Culture and Heritage	An accidental discovery protocol (ADP) and will be a condition of this application.	The overall effects of the Shared Path on Culture and Heritage will be less than minor . The Project offers opportunities through "story boards" and signage to enhance cultural and heritage values and share them with the wider community.
Construction	These measures will be included in the CEMP. The CEMP will be a condition	The temporary nature of the works and the mitigation measures will be sufficient to

	of the application (refer to suggested conditions in Appendix R).	ensure that any potential construction effects associated with the proposal will be less than minor .
Cumulative	Sediment management set out in the construction methodology (Appendix J); loss of vegetation mitigated by translocation of plants and the additional planting on other areas (such as the beach nourishment bay of Point Howard, Lowry Bay and York Bay; and Claphams Road).	The cumulative effects of the Shared Path Project are negligible .

23. Benefits of the Shared Path

This section outlines:

- The key outcomes expected from the Project from a transportation perspective.
- A summary of the transport economic benefits, including existing and future demand estimates.
- Safety benefits
- Resilience benefits
- Health benefits
- Recreation benefits.
- Social benefits.

Further details are outlined in **Appendix L** (Transportation Assessment).

Appendix K (Recreation Assessment) considers the community and personal wellbeing, tourism and recreational benefits of the proposed Shared Path.

23.1 Key Outcomes from a transportation perspective

The key transportation outcomes of the Project are to improve pedestrian and cyclist safety and to increase the number of these users on the corridor. Stakeholders identified the additional benefit of reducing the incidences of road closures and improve the resilience of the corridor. Opportunities to enhance tourism as an outcome of the Project was also recognised.

The outcomes of the Project are expected to be achieved as there is strong community support; a 2014 community survey identified completion of the Shared Path as the most important issue for Eastbourne residents.

Table 23-1. Recommended Option Performance Against Investment Objectives

Benefit	Investment Objective	
	Measure	Expected Outcome
To improve safety for pedestrians and cyclists	By increasing the perception of safety, as measured by the community survey	Achievement of continuous separated shared path facility for extent is expected to at least achieve target in safety perceptions (of respondents stating the facility is safe or very safe)
To increase the numbers of pedestrians and cyclists	Increasing numbers of pedestrians and cyclists, as measured by daily counts	Economic evaluation in the DBC has estimated an additional 200 new users.
To increase the availability of the route	By reducing the total number of hours the road is swept (response / emergency sweeping only)	Currently only 14% (700m) of the seawall is re-directive. With proposed solution, around 3km will be re-directive or revetment, both of which will reduce incidence of material being deposited on the road, and the extent / duration of sweeping

Source: Eastern Bays DBC

23.2 Economic Evaluation

An economic evaluation was undertaken as part of the DBC phase of the Project, in accordance with NZTA's Economic Evaluation Manual (EEM) guidelines.

The economic analysis for the Project included the following benefits;

- Accessibility and connectivity;
- Choice of transport modes and travel time;
- Safety benefits for a cycling facility;
- Resilience;
- Health and environmental benefits for a cycling and walking facility; and
- Recreation and social benefits.

The key inputs involved in quantifying the health, safety and travel time benefits primarily revolve around the existing and future estimates of walking and cycling, coupled with length of the facility. **Table 23-2** and **Figure 23-1** provide a summary of cost benefit analysis of the Project, highlighting that it has a positive benefit cost ratio, with the majority of the benefits relating to the health and environmental benefits of the facility.

Table 23-2. Economic Assessment

	Facility Health Benefits (Walking and Cycling)	Travel Time Benefits	Safety Benefits	NPV Total Benefits	NPV Costs	BCR	FYRR
Option 3.5m (2.5m beaches) – Updated cyclist counts and revised expected cyclists	\$10.7M	\$2.7M	\$0.6M	\$14.1M	\$10.7M	1.3	5%

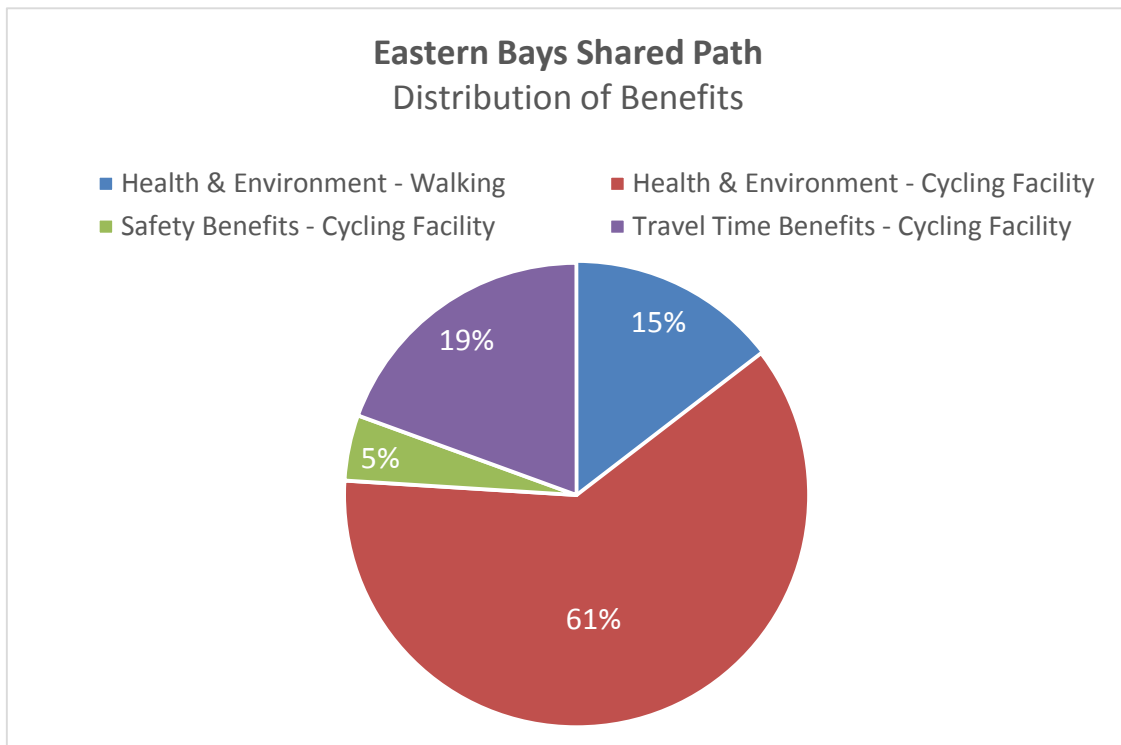


Figure 23-1. Eastern Bays Shared Path: Distribution of Benefits

The estimated cost of the Project is \$14.3M³⁸ with a Benefit Cost Ratio (BCR) of 1.3 and a First Year Rate of Return (FYRR) of 5%³⁹.

23.3 Accessibility and Connectivity Benefits

A key driver for the Project is to develop a safe and connected walking and cycling facility that will reduce reliance on private vehicles, as well as reducing the social exclusion felt by some of the communities along Hutt City's Eastern Bays, and to provide links to other parts of the wider cycling/walking network for commuting and recreational purposes. The Shared Path will link to the wider transport network, providing connections to other nearby urban areas which serve as desired destinations for the commuter and recreational user. This is discussed earlier in this assessment.

The economic evaluation estimates that there will be approximately \$2.7M of cycling travel time benefits introduced from the scheme over the 40 year analysis period. The travel time savings

³⁸ Estimated cost as at the DBC phase (2017)

³⁹ These figures take no account of the potential increased usage that the take up of e-scooters, such as Lime, may have.

relate to the increased attractiveness of the Shared Path coupled with the improved level of service, enabling an average cycling speed increase compared to the existing situation.

23.4 Transport Mode Shift

A fundamental aim of the Shared Path is to increase the number of active users present along Marine Drive. The new path will provide a substantial improvement on the current facility (which has an inconsistent width and is of variable quality and suitability for both pedestrians and cyclists) and will provide a valued community asset.

The advent of e-scooters within the Hutt City and Wellington City areas also presents a further opportunity for increased usage. While not included in the project user forecasts (given the recent implementation and no yet agreed method of forecasting), the recent implementation of Lime e-scooters within Hutt City is anticipated to promote further use of the path given the scenic and uninterrupted nature of the path. E-bike popularity may also further increase path user numbers.

As outlined in the Transport Assessment (section 4.3.1), as a result of the proposed Shared Path, pedestrian and cycle trips are expected to increase along Marine Drive. Whilst some of these trips will represent existing trips, a large proportion are expected to be new trips upon the network, with some of these trips likely to result from a mode shift (i.e. people who once completed their journey by private vehicle, will now be completing their trip by either walking or cycling). This mode shift will be predominantly felt with the commuter traffic cohort, traditionally present on the road network during the busiest times of the day (morning and afternoon).

In addition to complete mode shift (i.e. people who previously drove that now walk/cycle) the path will also encourage a multi-modal shift. For example, if a resident of the Eastern Bays area wishes to access Wellington for work, they may not want to walk/cycle to whole way due to the significant distance required to travel to complete this journey. That being said, it is valid to assume that people may walk / cycle from the Eastern Bays area, to a point where public transport provisions are more regular and or provide access to a larger catchment area, to complete the rest of their journey by rail, bus or ferry.

It is also reasonable to assume that tourists, particularly those visiting areas such as Days Bay, may prefer to walk or cycle along the Marine Drive rather than to drive, again either via a total mode shift or a multi-mode shift. The presence of a Shared Path would encourage this type activity along Marine Drive which provide spectacular views of Wellington Harbour along its length. Therefore, walking and cycling is considered a more desirable mode of transport to fully appreciate this area of New Zealand, something that cannot be appreciated as easily from a faster moving vehicle.

Providing a mode shift away from the private vehicle, towards the more active and sustainable travel options of walking and cycling will have a direct impact on reducing the levels of CO² emissions produced by the use of the high carbon emitting private vehicle. Reducing the number of vehicles that are present along Marine Drive will further encourage walking and cycling as the perception of safety increases.

With the reduction in the use of the private vehicle, comes a reduction in the overall congestion on the local road network. Whilst Marine Drive is seen to operate well within capacity, Hutt City and Wellington are synonymous with issues of congestion, particularly during the AM and PM network peaks. Removing even a small proportion of private vehicle trips by way of encouraging a mode shift will therefore have a positive knock-on effect of reducing congestion by reducing the overall demand felt on the local road network.

The environment also plays an important role in shaping habitual behaviour patterns such as walking behaviour. The aesthetics of the local environment, the convenience of facilities for walking (footpaths, tracks), accessibility of places to walk to (shops, beach), level of traffic on roads, and composites of environmental attributes have all been found to be associated with

walking for particular purposes resulting in increased physical wellbeing.⁴⁰ The provision of the shared footpath will further encourage people to make walking and cycling part of their weekly routine. The separated nature of the facility is also expected to significantly encourage walking and cycling to school.

23.5 Safety Benefits

When infrastructure is designed and implemented, one of the fundamental goals underpinning design is safety. In terms of road safety, the key to providing a safe environment is to reduce the chance of death and serious injury from occurring as a result of the overall design and interaction of users. In the case of Marine Drive, whilst there is not a strong correlation between vehicle and vulnerable road user (VRU) crashes,⁴¹ whenever vehicles and VRUs are forced to share road space, especially in a constrained environment, it is only a matter of time before a death or serious injury crash occurs. Vulnerable road users are much more susceptible to sustaining injuries categorised as serious or higher due to the lack of protection when compared to travelling in a vehicle.

The most effective way to reduce the chance of crashes between vehicles and VRUs occurring is to separate the two user groups, which the Shared Path scheme achieves successfully. Whilst the potential for a crash involving a vehicle and a VRU is not removed entirely,⁴² the probability of this scenario occurring is significantly reduced under the proposed scheme.

Based on the estimated existing and future users, the economic evaluation estimates that there will be approximately \$0.6M of cycling safety benefits introduced from the scheme over the analysis period.

A key intangible benefit of a separated Shared Path is the reduction in perceived risk. The proposed Shared Path removes pedestrians and cyclists from the live carriageway to an area in which they feel much safer. Whilst it is still possible for crashes to occur between pedestrians and cyclists, due to the shared use nature⁴³ of the path, the rate of incidence is not considered to be significant due in part to the proposed path width of up to 3.5m. Research has also shown there is a safety in numbers⁴⁴ effect with cycling facilities; where the numbers of cyclists increases, the crash rate decreases. Due to the speed differential between pedestrians and cyclists also being much lower, if a crash does occur, the severity of the crash will be significantly lower than if a vehicle was involved.

23.6 Resilience Benefits

With the introduction of the Shared Path comes the opportunity to construct and upgrade / repair some of the existing seawalls. This process has the additional benefit of improving the resilience of Marine Drive, which is currently subject to erosion from the sea in some areas and reducing the incidences of road closures during storm events⁴⁵ through the deflection of wave energy. Equally, the Project improves, and provides a basis for future opportunities for protecting the resilience of underground services by upgrading the supporting seawalls. Key infrastructure services, including the main outfall sewer pipeline (MOP), are located within the road corridor.

⁴⁰ Regional Public Health, 2010. Healthy Open Spaces: A summary of the impact of open spaces on health and wellbeing. Regional Public Health Information Paper, March 2010, Lower Hutt.
<http://www.rph.org.nz/content/f4c7f1f1-0945-42c0-8498-6890f099b5b6.cmr>

⁴¹ Due to the low levels of pedestrians and cyclists currently using Marine Drive and the perceived safety risk

⁴² Under the unlikely circumstances, a vehicle could still leave the carriageway and enter the shared path and vice versa for a pedestrian / cyclist. Further, it is expected that a proportion of the commuter 'strong and fearless' cyclists will continue to cycle on-road.

⁴³ The path is shared use in nature, this will reduce the overall speed that cyclists choose to travel at as they will be aware of potential conflict with other users

⁴⁴ Predicting Accident Rates for Cyclists and Pedestrians, NZTA Research Report 289

⁴⁵ HCC Eastern Bays Road Resilience Funding Application (Walbran, 2015) noted that the June 2013 storm event cost HCC \$280,000 and that these events could expect to occur every three years with sea level rises. This economic evaluation for Eastern Bays adopted the same storm cost; however, is much more conservative by estimating the frequency at every ten years. The recommended option, with the improved seawalls, were assumed to result in a significant reduction in the storm costs compared to the do-minimum.

As mentioned previously, the MOP is an 18km long pipeline that conveys secondary treated wastewater from the Seaview Wastewater Treatment Plant, servicing 146,000 residents and a large number of local industries to the outfall at Bluff Point, near Pencarrow Head. The MOP is regionally significant infrastructure, and along with the road access and other services are important lifeline utilities for the wider community.

Opportunities exist to address limited resilience by improving erosion protection along some of the most vulnerable Eastern Bays that experience wave overtopping and improving the level of service of Marine Drive in the vicinity. The rebuilding (and upgrading) of existing seawalls and the construction of new seawalls for the accommodation of the Shared Path is a first step in incremental upgrades or alternative adaptation options, with the acknowledgement that it is only a first step and will not be the final solution to addressing the problem of sea level rise exacerbating coastal hazards along Marine Drive.

The Project includes design elements such as curved seawalls, which meet the dynamic adaptive pathways planning principles of "buying some time" with this initial adaptation option ("pathway") with the ability for some incremental upgrades, while monitoring SLR and extreme event impacts and their changing frequency. HCC needs to consider a long-term suite of planning pathways (DAPP)⁴⁶ to adapt to ongoing sea level rise effects of climate change along Marine Drive and adjacent development.

23.7 Health and Environmental Benefits

Providing infrastructure along Eastern Bays to promote the use of active transport modes is a recognised way of improving the overall health and wellbeing of individuals who choose to take advantage of the facility. There is strong evidence that shows that with an increase in exercise on a weekly basis there is a corresponding increase in overall health of the individual, both from a physical and a mental perspective.

Therefore, the Eastern Bays Shared Path Project provides a great opportunity for the residents within the Eastern Bays area, and further afield, to increase their cardiovascular outputs, through the use of the Shared Path, reaping the health benefits resulting from the increase in exercise.

The economic evaluation indicated that the vast majority of benefits, approximately \$10.7 Million or 75% of the net benefits, are attributed to the health and environmental benefits resulting from the increased number of cyclists and pedestrians expected to use the facility.

A recent submission to the HCC Long Term Plan 2018-2018 by the Doctors for Active Safe Travel (DAST) provided a summary of the key health benefits of active transport.⁴⁷ The section below provides a summary of their key findings.

In high and middle-income countries, physical inactivity has become the fourth leading risk factor for premature mortality due to the increases in disease and ill-health associated with inactivity.⁴⁸ Declining rates of functional active travel have contributed to this population level decrease in physical activity, and evidence suggests that rising levels of obesity are more pronounced in settings with greater declines in active travel.

A recent 5-year prospective study of over 250,000 people (median age 52), published in the British Medical Journal,⁴⁹ found that cycling reduced:

- The risk of all-cause mortality by 41%
- The risk of any cancer by 45%

⁴⁶ The term DAPP is explained in the Ministry for the Environment, Coastal hazards and climate change: Guidance for local government as dynamic adaptive pathways planning. It is described as a tool that is particularly useful for making decisions at the coast, which is a dynamic environment with ever-changing risk profiles, and where there is uncertainty around the rates and magnitude of changes, especially over the long term.

<http://www.mfe.govt.nz/sites/default/files/media/Climate%20Change/coastal-hazards-guide-final.pdf>

⁴⁷ Doctors for Active, Safe Transport, 2018, Submission to the Lower Hutt City Council on the Long Term Plan 2018-2028

⁴⁸ World Health Organization, 2010, Global recommendations on physical activity for health.

⁴⁹ British Medical Journal, 2017, Association between active commuting and incident cardiovascular disease, cancer, and mortality: prospective cohort study

- The risk of cardiovascular disease by 46%

With the introduction of the Shared Path, comes the opportunity to allow people to travel to work and / or social events by walking or cycling. Rather than becoming an additional task that is required through the day, this becomes part of their daily schedule. For example, providing someone with the option to travel to work via the Shared Path may take them an hour a day (30 minutes in each direction). Over a week, this would amount to an additional five hours of exercise they wouldn't otherwise achieve, resulting in the all the associated health benefits of exercise, without a significant impact to their daily schedule.

The provision of the Shared Path also provides a free, easily accessible social activity for all users, both residents and leisure users. With great views across Wellington Harbour and good amenities provided at Days Bay, it is not unreasonable to assume that people would use the path for recreational purposes. These users would therefore also benefit from increased cardiovascular output and the health benefits associated with this, that they would otherwise miss out on if they were to complete the same journey using a private vehicle.

The health and social benefits of physical activity are therefore well-established. There is ample literature supporting the relationship between physical activity and wellness. This is outlined in further detail in **Appendix K**.

23.8 Recreation Benefits

As discussed previously, the Eastern Bays Shared Path has been an expectation of regional recreation and tourism planning for more than a decade. The Great Harbour Way and the Remutaka Cycle Trail require the Shared Path to be of adequate standard to suit walkers and cyclists. Most of these will be New Zealanders, based on the data reviewed in the Recreation Assessment, but perhaps as many as 15% could be international visitors. Tourism New Zealand has identified that New Zealand has an international point of difference in cycling and mountain biking, and walking and hiking, and that these will form part of the nation's 'unique selling proposition'.

Activity friendly environments such as the Shared Path are fundamental to bring communities together to achieve better connection to the water and the ability to 'promenade' along the water edge in an attractive and safe environment.

The economic evaluation considered for the Shared Path has determined an approximate increase of around 200 new users per day.

23.9 Environmental Awareness

This Project has raised the public awareness of the plight of penguins. Through the surveys conducted to obtain baseline information for the assessment of effects (refer to **Appendix C**) it is apparent that most of the penguin deaths are due to traffic and dog predation. The Shared Path Project presents the opportunity to educate the public on the penguins (in Eastbourne and the wider Wellington Harbour) through signage and story boards that will be part of the detailed design stage of the Project.

Further to mitigate against increased dog predation risk, HCC has the opportunity to promote the protection of penguins in the Shared Path locality, including acknowledgement when the path is formally opened that it is shared by penguins, walkers and cyclists, discrete warning signage for dog owners advising of penguins at accessible concentrations.

There are also other opportunities to showcase the cultural, historic and ecological elements of the area through storyboards, and to highlight how the Project responds to these elements through design features (eg. creating textured concrete surfaces to establish biota habitat).

24. Statutory Assessment

24.1 Introduction

The Project has been developed to respond to the direction of the statutory framework and to meet the Section 104D(1)(b) test.

A detailed Statutory Assessment is undertaken in **Appendix S**. This analysis has been prepared specifically in relation to the requirement of the Act to, subject to Part 2, have regard to specific provisions of statutory documents when assessing the Project. These statutory documents have been instrumental in the development of the Project, though noting that the Act does not require an activity to "comply with" specific provisions as though they were akin to rules. This means that where there are directive provisions (such as those policies using "avoid"), specific consideration has been given to the outcomes that are sought to be achieved. Further, the analysis seeks to balance all the relevant planning provisions and consider them as a whole, recognising that there are specific enabling provisions for infrastructure, that need to be considered along with prescriptive provisions seeking environmental protection.

The Fourth Schedule of the RMA (clause 2(1)(g)) requires an assessment of the activity against any relevant provisions of a document referred to in section 104 (1)(b). For the purposes of this application the following are considered relevant and their provisions are assessed below:

- the National Environmental Standard for assessing and Managing Contaminants in Soil to Protect Human Health (NESCS);
- the New Zealand Coastal Policy Statement (NZCPS);
- the Regional Policy Statement for the Wellington Region (RPS);
- the Regional Coastal Plan for the Wellington Region (RCP);
- the Proposed Natural Resources Plan for the Wellington Region (PNRP); and
- the City of Lower Hutt District Plan (HCCDP).

Based on the provisions identified in Appendix S, it is considered that the key policy directions relevant to this application relate to:

- protecting indigenous biological diversity in the coastal environment;
- preserving and restoring the natural character of the coastal environment;
- protecting the natural features and natural landscapes (seascapes) of the coastal environment;
- maintaining or enhancing amenity values, including public access and recreation opportunities;
- recognising the place of local iwi as tangata whenua and protecting their cultural relationships with the coastal environment;
- recognising the benefits that arise from the use and development of regionally significant infrastructure; and
- protecting significant existing infrastructure from coastal hazard risk.

24.2 National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health

The application recognises that potential effects on human health and the environment may occur if contaminated land is disturbed and/or used during the construction of the Project. These potential effects can be avoided through the application of appropriate procedures to manage contaminated soils and materials. Any soils and materials not suitable to remain on site will be excavated, removed off-site and disposed of in accordance with the procedures outlined in the NESCS.

GWRC holds a register of sites where activities involving hazardous substances have or may have taken place. This register, which is formally known as the Selected Land Use Register (SLUR), is held on behalf of the eight Territorial Authorities in the Wellington region. The SLUR records sites that fit the definitions in the Ministry for the Environment's Hazardous Activities and Industries List (HAIL).

Sites that are registered in SLUR are known (or suspected) to have been involved (historically or currently) in the use, storage or disposed of hazardous substances and as a consequence may contain residues of these substances. In some cases these sites will be "contaminated sites" and in others not; to distinguish between sites, SLUR classifies those under six categories.

SLUR records any information that is available relating to the site, such as:

- The history of the activities that have or are believed to have occurred on the site
- The nature and concentration of hazardous substances
- Any remediation or mitigation measures that have taken place
- Any site management plans

There is a SLUR site (SN/03/188/02) in Marine Drive, Sunshine Bay (Sunshine Service Station) located on the landward side of the Shared Path (across from Marine Drive). Once the detailed design is complete, and there is greater clarity on whether the Shared Path is affected by contaminated land, it may be necessary to undertake a detailed assessment and prepare a detailed site investigation. Depending on the outcome of the detailed site investigation, a resource consent may be required and will be sought at that time.

24.3 New Zealand Coastal Policy Statement 2010

The New Zealand Coastal Policy Statement (NZCPS) came into effect on 3 December 2010 and contains objectives and policies relating to New Zealand's coastal environment. As the Project will directly impact the coastal environment, the NZCPS must be considered. There are seven overarching objectives of the NZCPS which set out the high level direction for management of the CMA, and the policies follow this direction. All seven objectives are considered relevant to the Project.

The majority of the Project is located in the coastal environment as defined in Policy 1 of the NZCPS. The NZCPS sets out issues and challenges relevant to New Zealand's coastal environment. Particular regard has been given to the NZCPS objectives and policies in the development of the Project and design. The following outlines how the Project has responded to each of the objectives.

24.3.1 Coastal Environment

Relevant provisions: Objective 1 and Policy 1

All of the Project is located in the coastal environment. Marine Drive, where the Project is to be constructed, is the result of upgrades of the track around the coast following the 1855 earthquake that raised the shoreline. As described in **Appendix D**, this coastal environment has been heavily modified since 1855 as a result of settlement along the coast and the upgrade of the track around the coastal edge as a transport route that has connected residents and the attractions along Marine Drive with the wider region. The existing road and seawalls have been constructed in the coastal environment and reclamation has occurred to support those developments.

While Marine Drive is proposed to be widened into the CMA to accommodate the Shared Path, the specific design and location of the areas of widening been determined following specialist investigations and reports, assessment of alternatives and with public consultation. The proposed foreshore form has been specifically designed to maintain, and where possible, enhance biological and physical coastal processes, recognising they are dynamic, complex and interdependent in nature.

The construction of the Shared Path and associated seawalls will include mitigation measures developed through future detailed design work and the development of the specific construction methodology, which is contained within **Appendix J** and is subject to conditions.

While having minor effects on New Zealand's indigenous coastal flora and fauna there will also be notable benefits through the establishment of new ecological habitat in the textured finish to the concrete seawalls.

All activities undertaken within the coastal environment as part of the Project have been carefully considered and where practicable the design and construction will be integrated and managed. Input from GWRC Council, mana whenua, the community and the DoC has influenced the Project design.

24.3.2 Natural Character

Relevant provisions: Objective 2 and Policies 13, 14 and 15

Objective 2 is underpinned by Policies 13, 14 and 15 which relate to preserving the natural character of the coastal environment and protecting natural features.

The assessment of the natural character of the coastal environment undertaken in **Appendix D** notes that the natural character biotic and abiotic values of the Eastern Bays landscape are assessed as low, however the experiential values are moderate to high. The assessment notes that the overall coherence of the landscape derives from the wider setting including the enclosing, vegetated hillslopes, the sequence of bay and headland, the rocky outcrops and the harbour waters and the natural processes of the beach environment including the changing sea, light and weather conditions.

The assessment identifies opportunities to restore natural character as part of the Project by removing redundant structures and concrete slabs used as part of the existing revetment to protect the coastline. These measures have been incorporated into the Project design. The restoration of the intertidal areas will also be achieved through creating texture on the new concrete seawalls where habitats can be re-established.

The effects on natural character are identified as being caused by proposed changes to the road corridor, beaches and foreshore. At the wider Eastern Bays scale, effects are very low, particularly as the narrow fringe of land between the road and the water has a low visual prominence. At a local bay and beach scale there will be a loss of local landform, both natural and modified. While adverse effects at a local scale may be perceived as more pronounced, they are considered to be low by applying mitigation measures through the detailed design, which will be delivered through the LUDP and BSLUDP.

No outstanding natural features and outstanding natural landscapes have been identified in this coastal environment. Adverse effects of the Project on natural features and natural landscapes in the Eastern Bays coastal environment are projected to occur within a narrow band of existing development along the coastal edge. Effects are proposed to be effectively mitigated through the use of consistent path and seawall detailing to reduce visual impact of new structures and the use of the LUDP and BSLUDP to provide a detailed design that responds to local landscape, history and land use.

24.3.3 Treaty of Waitangi

Relevant provisions: Objective 3 and Policy 2

Objective 3 and Policy 2 require that the principles of the Treaty of Waitangi are taken into account and emphasise the import role of tangata whenua in the management of the coastal environment.

The Project has been developed in consultation with Mana Whenua. The post settlement governance entities that have an interest in and statutory acknowledgements from the Crown in relation to Wellington Harbour are the Port Nicholson Block Settlement Trust and Te Rūnanga o Ngāti Toa. The Wellington Tenths Trust and Te Atiawa ki te Upoko o te Ika a Maui Potiki Trust also have interests in the application.

Mana Whenua have been consulted on an ongoing basis since the initial stages of the Project's development. As a result of consultation, a Cultural Impact Assessment (CIA) was prepared by Mana Whenua to inform the resource consent application and the AEE (**Appendix H**).

The CIA has enabled prioritisation and understanding of issues of significance to Mana Whenua and enabled these to be translated into the Project's design. Additionally, the CIA has enabled measures to be developed to avoid, remedy or mitigate actual and potential adverse effects on cultural values. Both Port Nicholson Block Settlement Trust and Ngāti Toa have indicated the wish to be involved during the detailed design stage where signage and story boards will be developed for the Shared Path. This will be a condition of the consent. A further condition includes protocols for the accidental discovery of artefacts during construction.

It is also noted that a number of parties have submitted applications under the Marine and Coastal Area (Takutai Moana) Act 2011 (MACA) for customary marine title and protected customary rights over this section of the Wellington Harbour.⁵⁰ The MACA provides specific procedures that need to be followed when resource consents are sought. MACA acknowledges the importance of the marine and coastal area to all New Zealanders and provides for the recognition of the customary rights of iwi, hapū and whānau in the common marine and coastal area. Notifications occurred as prescribed by the MACA to seek the views of the groups that have applied for recognition of customary marine title in the area about the Project, but no feedback has been received to date.

24.3.4 Public Open Space and Walking Access

Relevant provisions: Objective 4 and Policies 18, 19 and 20

Objective 4 and Policies 18, 19 and 20 relate to maintaining and enhancing the public open space qualities and recreation opportunities of the coastal environment, as well as maintaining and enhancing public walking access and controlling the use of vehicles.

Marine Drive is a key access road in a modified coastal environment that provides existing public access to and along the CMA. The Project offers a good opportunity to expand its function to include a cycle and walkway, as well as build resilience into the existing infrastructure through the upgrade of the seawalls in a number of locations. As outlined in **Appendix L**, the path is expected to enhance community cohesion, provide greater amenity benefits, widen transport choices and improve access to local facilities, including public open space such as the beaches and Whiorau Reserve located along the road corridor.

The Project will enable the public to walk and cycle along the coast from Point Howard to Windy Point. This is expected to provide significant regional community recreational benefits, enhanced by the connectivity provided by ferry services at Days Bay. As noted in section 1.5, the key outcomes of the Project are to improve pedestrian and cyclist safety and to increase the number of users on the corridor.

As physical access to some beaches along Marine Drive is currently difficult, rebuilding or the introduction of new seawalls offers the opportunity to support public access to the beaches through the provision of new steps and boat ramps. The design of the curved walls with stepped levels also offer opportunities for easier access to rocky headlands. More formalised and easy to use boat ramps allows easier access for swimmers and the launching of paddle boards, kayaks and small boats and avoids the need for vehicles to use the beaches.

Sea level rise over time is likely to result in the loss of public walking access on parts of the beaches and over the headlands. Marine Drive and the associated access along the road will be how the public will in some locations be able to walk along the coast.

24.3.5 Coastal Hazards

Relevant provisions: Objective 5 and Policies 25, 25, 26 and 27

⁵⁰ These parties are listed in Appendix I-b.

Objective 5 and Policies 24-17 relate to coastal hazards and ensure that coastal hazard risks are identified and that responses in relation to coastal hazard risks take into account the potential effects of climate change.

Marine Drive is inherently vulnerable to coastal hazard risks. The road is prone to closures and/or reduced operation, due in part to wave overtopping because of the current state of coastal edge. The existing seawall has a residual life of less than 5 years in places, is vulnerable to failure and does not provide consistent, nor effective, storm mitigation. Over time sea levels will rise, aggravating the situation and affecting the resilience of the road and underground infrastructure.

Section 18 of this AEE suggests that climate change, particularly sea level rise, will have an increasing impact on the wider Eastern Bays area. The principle effect of climate change along the Eastern Bays and on the Project is that the rising sea levels will increase the frequency of high-water events, leading to an increased frequency of wave overtopping and coastal inundation on the low lying Marine Drive foreshore. Frequent flooding already occurs along sections of Lowry Bay and the road has to be closed during heavy rains and strong tidal surges.

As identified in section 1.5 many sections of the seawalls supporting Marine Drive still have over 20 years' residual life, however, some sections are considered to have less than 5 years' life and these will be prioritised for replacement and reinstated with a modern fit-for-purpose structure on the basis of function and resilience. Design options have been selected to allow for upgrade potential.

The proximity of the Project to active faults, expanse of soft seabed sediments and geological history of large seismic events have required the reclamation structures be designed carefully in order to maintain serviceability access to the road following a seismic event, whilst avoiding, remedying or mitigating any potential effects on the receiving environment.

While the Project is not a long term solution to the effects of climate change and sea level rise, it will "buy some time" for HCC to develop a Dynamic Adaptive Planning Principles (DAPP)⁵¹ plan for the Eastern Bays area to adapt to climate change, and ongoing sea level rise (over several centuries).

24.3.6 Use and Development

Relevant provisions: Objective 6 and Policy 6

Objective 6 and Policy 6 relate to use and development of the coastal environment to enable people and communities to provide for their health and safety and social, economic, and cultural wellbeing.

The Project is expected to enhance community cohesion, provide amenity benefits, widen transport choices and improve access to the coast and to local facilities along the road corridor. The key outcomes of the Project are to improve pedestrian and cyclist safety and through the enhanced facility (through widening and other improvements) increase the number of walkers and cyclists along the corridor. Stakeholders identified the additional benefit of reducing the incidences of road closures and improving the resilience of the corridor. Opportunities to enhance tourism as an outcome of the Project was also recognised.

Policy 6 recognises the importance of the provision of infrastructure⁵² and that the rate at which public infrastructure should be enabled is related to the reasonably foreseeable needs as the population grows. The future use of the path has been a key consideration in the Project design. As a result, the path width has been considered as outlined in **Appendix L**.

⁵¹ The operative coastal guidance provided by the Ministry for the Environment (MfE) is the 2017 edition of Coastal Hazards and Climate Change – A Guidance Manual for Local Government.

⁵² Section 2 of the RMA states that infrastructure means—....(e) a water supply distribution system, including a system for irrigation: (f) a drainage or sewerage system: (g) structures for transport on land by cycleways, rail, roads, walkways, or any other means:....

Policy 6, among other matters, suggests that activities that do not have a functional need to be located in the CMA, generally should not be located there. It also recognises that there are activities with a functional need to be in the CMA. There has been considerable discussion over time about what 'functional need' means. Ports, some aquaculture, wharves, and jetties are accepted by most to have a 'functional need' to be in the CMA. Marine Drive is located beside the CMA. While the Shared Path could in theory be on the other side of Marine Drive, this option has been considered as outlined in **Appendix G**. It was determined that this would not be a form of development that provided for the social, economic, and cultural wellbeing of people and communities. In this context, given the existence of Marine Drive on the coastal edge and the fact that there are operational and efficiency reasons for providing the Shared Path along Marine Drive and in the absence of any other viable option, there is a functional need for the support structures and the Shared Path to be in the CMA.

As outlined in the Transport Assessment (**Appendix L**), the Project will significantly improve traffic safety along Marine Drive, and rebuilding the seawalls will increase the resilience of the road and underground services. The Project will therefore enable people and communities to provide for their social and economic wellbeing. The needs of the community have been considered, determining public infrastructure is required in this location, which in turn aids the recreational and economic growth of the Eastern Bays.

The Project provides for coastal recreation and public access, whilst recognising and responding to the need to locate the necessary structures related to the Shared Path in this location. The Project is in keeping with a highly modified environment which is characterised by an existing seawall along most of Marine Drive. There will be a minimal change in character and visual impact in this area of the CMA would therefore not be unacceptable. Public access will be provided and enhanced along the foreshore by locating the Shared Path on the seaward side of Marine Drive, and by placing boat ramps and access steps at regular intervals in strategic locations at beaches and headlands. The recreational benefits of the Shared Path have been assessed (refer to **Appendix K**) and have shown strong advantages associated with health (physical and mental) and wellbeing, tourism and environment.

The protection of natural character, open space, public access and the amenity values of the coastal environment have been carefully considered through the assessment of alternatives. The extent of the Project in the CMA has been reduced as much as practicable, however given the physical constraints on the landward side of Marine Drive, widening of the Shared Path to meet acceptable standards means that it will need to be into the CMA in places.

The Project achieves these outcomes by enabling the widening of the legal road (infrastructure), without compromising other values of the coastal environment. Integrated decision-making has involved inputs from different public agencies along with Mana Whenua and has resulted in the integrated development of a Project that is a traffic safety solution, and an integrated environmental solution, and delivers significant social and environmental benefits. The need for and the benefits of the Project are set out in section 23 this report.

24.3.7 Reclamation

Relevant provision: Policy 10

Policy 10 provides strong directions in relation to reclamation of the coastal marine area. The policy directs that reclamation must be avoided unless all four specific conditions set out in the policy are met.

Having particular regard to Policy 10(1)(a), a key outcome of the early stages of the alternatives assessment was identifying that limited land is available along Marine Drive that is suitable for road widening to accommodate a Shared Path that offers a safe and effective transport corridor. This is because Marine Drive is a narrow road and the sole access to Eastbourne with little space for widening on the landward side road. Marine Drive being the sole access road to Eastbourne for emergency services and a lifeline utility is of regional significance.

Having particular regard to Policy 10(1)(b), achieving all the identified activities and associated outcomes could not be achieved in a location outside of the CMA.

Having particular regard to Policy 10(1)(c), the part of the Project located within the CMA requiring reclamation has been assessed to be an effective and efficient use of the CMA with the potential to deliver positive environmental outcomes that have been developed in an integrated manner. Through engagement with iwi and the community, a reclamation option was identified to be the preferred option as it enables delivery of wider benefits associated with the Shared Path resulting in a safe transport corridor. The alternatives have been assessed (refer to **Appendix G**) which concludes that widening the road into the CMA is the most practical option.

Having particular regard to Policy (10)(1)(d), the Project responds to the policy direction by enabling significant regional benefits in delivering a Shared Path including modal choices (walking and cycling); improved resilience of the seawalls, road and underground services; and opening it up to greater public recreational use and access. This outcome would not be achieved effectively without using a reclamation solution.

Having particular regard to Policy 10(2), the reclamation has been designed to provide a more resilient road which is prone to wave overtopping; to use of aesthetically pleasing materials; and to achieve a high amenity public access to the coastal edge. It also enables outcomes that remedy or mitigate effects on the coastal environment including positive cultural effects through signage and story boards along the Shared Path.

The use of reclamation in this location also has other positive outcomes which includes a design that accommodates sea level rise through an iterative design process that addresses coastal erosion. Section 18 of the AEE identifies that climate change will have an unavoidable effect on the wider Eastern Bays area. The principal effect of climate change on the Project is that the rising sea level will increase in the frequency of high-water events, leading to an increased frequency of wave overtopping and coastal inundation on parts of the low lying Marine Drive foreshore (ie. Lowry Bay).

As mentioned previously, many sections of the seawalls have a limited life expectancy and these sections will be prioritised for replacement and reinstated with a modern fit-for-purpose structure on the basis of function (level of service) and resilience. Design options have been selected to allow for upgrade potential following DAPP principles of iterative long-term management.

Having particular regard to Policy 10(3), the reclamation will provide for the efficient operation of council infrastructure, including a coastal road, underground services, and walking and cycling facilities.

Having particular regard to Policy 10(4), there will be some gains in land due to de-reclamation. This occurs when the existing seawall is removed and the new seawall is built on the landward side of the old footprint resulting in redundant reclaimed land to be restored to beach and public open space.

The Project achieves Policy 10. An extensive range of options for achieving the Project objectives have been considered, and these are summarised in **Appendix G** of this AEE. In concluding from the assessment of the landward side of the road, land outside the CMA is not available and therefore the reclamation is the only option as there is no practical alternative. Furthermore, the findings in the Transport Assessment conclude that the Project will provide significant regional benefits.

24.3.8 Indigenous Biological Diversity

Relevant provision: Policy 11

Policy 11 provides direction on protecting indigenous biological diversity and in particular, seeks to identify and avoid adverse effects on rare and threatened species.

To address the direction in Policy 11, the AEEs for Intertidal Ecology (**Appendix A**) and Avifauna and Vegetation Assessment (**Appendix C**) were commissioned. The assessments have identified, firstly, whether there is, or is likely to be, rare or threatened species present within the Project

area, and then, methods to avoid or where avoidance is not possible, mitigate adverse effects on indigenous biological diversity.

The Project avoids all subtidal areas and areas of seagrass identified as scheduled areas in the PNRP.⁵³ By working through a number of bay specific options, the Project will be located above the low tide level.

While much of the shoreline in the intertidal zone does not support a high diversity or density of biota, there are vegetation types present in the Project area that have a high ecological value. There have also been sighting of rare birds, and penguins are commonly seen in the area.

The Avifauna and Vegetation Assessment identified the presence of three At Risk – Declining plant species (seagrass, pīngo – planted, and *Veronica speciose* – planted) and possibly a fourth (*Melicytus orarius*), and with the gravel beaches (endangered naturally uncommon ecosystem). Some of these ecosystems and species are located in the Project footprint or margin. To mitigate adverse effects on these indigenous ecosystems and habitats the assessment recommends translocating the patches and their gravel and sand habitat immediately seaward of the Project footprint.

Although the level of potential effect of habitat loss on coastal avifauna is assessed as very high, it will also occur in several decades with increasing sea level rise. It is considered the Shared Path will merely accelerate these effects.

Parts of the Project area have been identified as being used by little penguins for access, nesting and moulting and are of high ecological value as stated in the Vegetation and Avifauna Assessment. Potential construction effects on little penguins include noise, disturbance or destruction of nests, moulting of other occupational sites, and blocking penguins access. These potential adverse effects cannot be avoided, but will be mitigated through the provision of stormwater drains, access steps and ramps, and revetment design for penguin access. Timing of works is also important to avoid breeding season.

Methods to avoid adverse effects on rare and threatened species have included design refinements to avoid and reduce any impact on sensitive areas such as feeding, breeding or nesting areas, and mitigation measures where areas could not be avoided to manage the temporary construction effects on natural habitats. Measures include penguin management plans and sediment controls.

Positive effects of the Project include the enhancement of intertidal habitat by creating a textured concrete surface on the new seawalls. The proposed curved seawalls provide an improved habitat compared to the existing smooth angled concrete seawalls.

Appendix C identifies specific recommendations for protecting avifauna species, including the scheduling of certain activities outside bird breeding season and setting distance limits for construction activities close to nesting birds such as penguins where there are known nesting sites.

There will be some adverse effects on rare and threatened species (within the scope of Policy 11(a)) that cannot be completely avoided (including disruption to some bird species, loss of intertidal foraging habitat due to the reclamation and possible loss of sensitive off shore marine habitats). Although individual birds may be affected, there will be only a negligible impact on total bird populations and on species as a whole. Similarly, given the location and limited nature of the works the majority of off-shore marine habitats in the Wellington Harbour will be unaffected by the construction of the Project.

24.3.9 Water Quality

Relevant provisions: Policies 21, 22 and 23

Policies 21 to 23 relate to water quality.

⁵³ Schedule F5 Coastal habitats.

Policy 22 requires that use and development does not result in a significant increase in sedimentation levels and impacts in the CMA. Sedimentation has been addressed earlier in section 20.2.2 of this report. Although the construction of the seawall will have some sedimentation effects, the situation is temporary, limited in areal extent and the dispersal will be managed through sediment control measures as a condition of the consent. The resulting turbidity is expected to be no more than that occurring during storm conditions when wave action creates natural sediment and sediment movement. Sediment control measures include the use of silt fences, curtains and bunds. Details are outlined in **Appendix J**.

The pouring of cement in situ to construct the seawalls and the groundwater from the area at Sunshine Bay Garage have the potential to discharge contaminants into the CMA. Cement will be poured during low tide in dry conditions to avoid this effect and a fast drying additive can be used to ensure that the cement can harden in time. If it is not possible to undertake the works in dry conditions, then the work site will be shored, and the contaminated water will be contained and pumped to a treatment structure (container) where the water can be treated to get the pH to a level suitable for the local receiving environment. Alternatively, if quantities are limited, untreated water can be pumped into the wastewater network.

The presence of contaminants at Sunshine Bay Garage will be determined and if the groundwater is found to be contaminated, it will be managed (to be outlined in the Erosion and Sediment Control Plan, as part of the CEMP).

24.3.10 Heritage

Relevant provision: Policy 17

Policy 17 sets out mechanisms that should be applied to ensure that historic heritage in the coastal environment is protected.

The Skerrett Boatshed in Lowry Bay is a listed Historic building in the HCC District Plan. The Shared Path will be narrowed to avoid the building.

Marine Drive is part of the history of Eastbourne having been established as a track initially by Māori who occupied kāinga in the sheltered bays, and later used by early European settlers who drove stock along the coast between the Hutt Valley and the Wairarapa. The access road was improved after the 1855 earthquake and widened over the years into what is present today.

24.3.11 Conclusion

In conclusion, the NZCPS provides a comprehensive framework for undertaking coastal management. When assessed directly against specific objectives and policies, the Project achieves the NZCPS provisions. It is noted that the NZCPS outlines specific effects that are to be avoided. In this regard the Project is consistent with the NZCPS as it:

- Avoids significant adverse effects (Policy 5).
- Meets the four exceptions in Policy 10(1).
- Avoids effects of activities on indigenous biological diversity (Policy 11).
- Avoids effects on natural character (Policy 13).
- Avoid effects on natural features (Policy 15).
- Avoids significant adverse effects on ecosystems and habitats after reasonable mixing (Policy 23).
- Does not increase the risk of social, environmental and economic harm from coastal hazards and avoids redevelopment, or change in land use, that would increase the risk of adverse effects from coastal hazards (Policy 25).

The Project is largely within the CMA, and is therefore subject to evaluation against the policies and rules that apply to that area through the relevant plan (being the Regional Coastal Plan for the Wellington Region and the Proposed Natural Resources Plan). While there are both actual and potential effects associated with the Project, the design and construction avoids effects in those areas that the NZCPS directs and the mitigation which is provided through the design

features or is proposed through draft conditions has been able to ensure that effects will all be minor or less than minor.

According to the *King Salmon* decision, the NZCPS is to be given effect by lower level policy and plan documents. The relevant planning documents are assessed below.

As the Project is consistent with the higher level policy, it would be expected to be largely consistent with these other documents, however it should be noted that the PNRP is still the subject of hearings (refer to section 24.6).

24.4 Regional Policy Statement for the Wellington Region 2013

The operative Regional Policy Statement for the Wellington Region (2013) (RPS) identifies that *'the coastal environment is important to the regional community for recreation and general enjoyment'* and aims to support the implementation of the NZCPS particularly with regard to the maintenance and enhancement of public access to and along the coastal marine area. Regionally significant issues for recreation for iwi identified in the RPS include the suitability of coastal water for recreation and shellfish gathering.

Recreation values are identified as being managed via, predominantly, providing for access to and along the coastal marine area. Amenity values, more generally, are considered via policies to manage effects on natural character, coastal water quality and ecosystems, and natural coastal processes. While the RPS identifies rivers and lakes with *'significant amenity and recreational values'*, the same information is not provided for any coastal areas.

These matters are all of particular relevance to this application.

These issues and the associated objectives and policies are summarised in the table below and assessed in **Appendix S**.

Table 24-1. Summary of Key Objectives and Policy Themes of Regional Policy Statement for Wellington

Objective and Policy	Regional Policy Statement Objective and Policy Theme
Objective 3, 4, 5 Policies 35, 36, 37, 38, 50, 54, 64	Natural character of the coastal environment
Objective 6, 16 Policies 5, 40, 47	Coastal water quality and ecosystems Maintaining and restoring ecosystems and habitats with significant biodiversity values
Objective 7, 19, 20 Policies 37, 51, 52	Natural coastal processes
Objective 8 Policy 53	Public Access Ensuring that public access to and along the coastal marine area is enhanced
Objective 10 Policy 39	Infrastructure Recognising the benefits of regionally significant infrastructure
Objectives 17, 22 Policies 54, 57, 58	Regional form, design and function Integrating land use and transportation
Objectives 23, 24, 25, 26, 27, 28 Policies 48, 49	Tangata whenua Recognising and providing for matters significant to tangata whenua

"Regionally Significant Infrastructure" (RSI) is defined in the RPS as including:

....

- *the local authority water supply network and water treatment plants*
- *the local authority wastewater and stormwater networks, systems and wastewater treatment plants*

- the Strategic Transport Network, as defined in the Wellington Regional Land Transport Strategy 2007-2016
-

Marine Drive and the underground services (main outfall pipeline) contained within the road are considered Regionally Significant Infrastructure.

"Strategic Transport Network" as defined in the Wellington Regional Land Transport Strategy 2007-2016 (**Appendix I**) contains a list of roads. Although Marine Drive is not specifically mentioned in the list, the list refers to the roads in the HCC DP (June 2003) – those known as Primary Distributors, Major District Distributors. [Wellington Regional Land Transport Strategy 2010-2040 (same as 2007-2016)]. Marine Drive is classified as a "Primary Collector" in the One Network Road Classification (ONRC).⁵⁴ "Primary Collectors" are locally important roads that provide a primary distributor/collector function, linking significant local economic areas or population areas. Also known as a Minor Arterial Road /Connector/Collector Road Category from NZS 4404:2010.

Based on this information, Marine Drive is considered part of the Strategic Transport Network and is therefore Regionally Significant Infrastructure.

It is noted that Days Bay Stream is identified in the RPS as having significant indigenous ecosystems. However, no works associated with the Shared Path will be undertaken in Days Bay, therefore the ecology of the stream will not be affected by this proposal.

The Project achieves the objectives and policies in the RPS.

24.5 Regional Coastal Plan for the Wellington Region 2000

The objectives and policies of the Regional Coastal Plan for the Wellington Region 2000 (RCP) relating to reclamation raise similar issues to the provisions in the NZCPS. In particular, consideration needs to be given to the need for the reclamation to occur in the CMA.

The reclamations⁵⁵ as part of the Project fall under rule 4 of the RCP and would therefore be a full discretionary activity. Section 5.4 of the RCP sets out in detail the matters which need to be included a resource consent application for reclamations.

These include:

"(1) a description of the activity including the methods and materials to be used;

(2) adequate information to accurately show the area proposed to be reclaimed or drained, including its size and location, and the portion of that area (if any) to be set apart as an esplanade reserve under section 246(3) of the Act;

(3) a description of the foreshore or seabed to be reclaimed or drained, including fauna and flora, sediment type, and suitability as a foundation for any reclamation and/or retaining wall;

(4) a description of the coastal marine area adjacent to the proposed reclamation, including the physical character, ecological values, tangata whenua values, and existing activities;

(5) a statement of the reasons why reclamation or draining is necessary, and the consequences of the application not being granted. This should include a description of the proposed uses of the reclaimed area and an evaluation of alternatives both within and outside of the coastal marine area;

⁵⁴ In Appendix Transport 3 of HCCDP the Transport Network Hierarchy includes this classification of roads which consists of distributor routes for through-traffic and for local access purposes.

⁵⁵ Regional Coastal Plan (RCP) definition: "Reclamation and Reclaiming mean the permanent infilling of the foreshore or seabed with sand, rock, quarry material, concrete, or other similar material, where such infilling results in a surface (usable for any purpose) which is greater than 2 metres in width above the level of MHWS, and includes any embankment, but does not include any structure above water where that structure is supported by piles, or any infilling where the purpose of that infilling is to provide beach nourishment."

(6) if the reclamation is adjacent to land outside of the coastal marine area, a description of land uses in the area, and any appropriate objectives and policies contained in the district plan(s) for the adjacent land area;

(7) a description of the final external appearance of the reclamation;

(8) a statement of the period of time to complete the work associated with the activity;

(9) a statement that the reclamation or draining has been designed using current engineering practices, and appropriate allowance has been made for the effects of sea level rise, waves and currents, and earthquakes;

(10) a statement detailing any consultation with any person or organisation that might be affected by the proposal, including, in particular, tangata whenua;

(11) a statement of all other resource consents or approvals that the applicant may require from any consent or approval authority in respect of the activity to which the application relates, and whether or not the applicant has applied for such consents or approval;

(12) an assessment of any actual or potential effects that the activity may have on the environment, and the ways in which any adverse effects may be mitigated. Such an assessment shall be:

- in such detail as corresponds with the scale and significance of the actual or potential effects that the activity may have on the environment; and
- prepared in accordance with the Fourth Schedule of the Act; and

(13) any other information that is necessary to understand the application."

These matters have been considered in this application.

Provisions relating to structures are contained in section 6 of the RCP. Like those relating to reclamations, these provisions require alternatives to be impracticable or to have a greater adverse effect on the environment. Further the provisions require that coastal hazards, including sea level rise are factored into the design.

The site area is not identified as an Area of Conservation Value in the RCP.

Rules are set out in **Appendix S** (section 4).

The Project is consistent with the policies in the RCP.

24.6 Proposed Wellington Region Natural Resources Plan 2015

The Proposed Natural Resources Plan (PNRP) was notified on 31 July 2015. It consolidates the existing regional plans for Wellington into one regional plan and introduces a new suite of objectives, policies, rules and other methods. Ultimately the PNRP will replace the operative regional plans.

HCC made submissions on the PNRP (submission S84 and S85).⁵⁶ Of relevance to this application are the following points that were raised in HCC's submission:

- The use of the term "avoid" and "inappropriate" in policies.
- Definition of Regionally Significant Infrastructure. The PNRP recognises and provides for regionally significant infrastructure however there is no recognition of the importance of roads that are not part of the Strategic Transport Network (ie. most of HCC roads are not recognised). The continued operation of the road network is critical to the safe and efficient movement of people and goods, and it is important that the maintenance and upgrade of the road asset is appropriately provided for.

⁵⁶ Submissions can be accessed here: <http://www.gw.govt.nz/submissions-received-1-100/>

- The definition, policy and rules around “seawalls” and “reclamation” have been challenged.

Table 24-2. Summary of Key Objective and Policy Themes of Proposed Natural Resources Plan

Objective and Policy	PNRP Objective and Policy Theme
Objectives 1, 17, 31-32, 36 Policies 1, 3, 4, 8, 23-25, 48-50	Natural character of the coastal environment
Objectives 3-5, 23-25, 29, 31, 35, 43-44, 58 Policies 7-8 31-32, 39-42, 136, 143-145	Coastal water quality and ecosystems Maintaining and restoring ecosystems and habitats with significant biodiversity values
Objectives 9, 19, 21 Policies 16, 26-29	Natural coastal processes
Objectives 10, 55, 59 Policies 9, 134-135	Public Access Ensuring that public access to and along the coastal marine area is enhanced
Objectives 12, 13 Policies 12-14, 16, 138-139, 145	Infrastructure Recognising the benefits of regionally significant infrastructure
Objectives 53, 59 Policies 132, 135	Regional form, design and function Integrating land use and transportation
Objectives 11, 14, 25 Policies 10, 17-21, 31, 44-45	Tangata whenua Recognising and providing for matters significant to tangata whenua

Objectives and policies are outlined in **Appendix S** (section 5). The redlined version of the PNRP (19 October 2018) has also been assessed in **Appendix S**.

There are policies in the PNRP specific to seawalls. Policy P139 states that the construction of a new seawall is inappropriate except where the seawall is required to protect:

- existing, or upgrades to, infrastructure, or
- new regionally significant infrastructure, and

in respect of the above:

- there is no reasonable or practicable alternative means
- suitably located, designed and certified by a qualified, professional engineer
- designed to incorporate the use of soft engineering options where appropriate.

‘Reclamations’ defined in the PNRP⁵⁷, unlike that in the RCP does not refer to a spatial limit, and can therefore be considered to be more restrictive as it refers to ‘dry land’.

The Coastal Marine Area component of the Project area between Point Howard and Sunshine Bay lies within the Wellington Harbour (Port Nicholson) foreshore habitat for indigenous birds in the CMA listed in Schedule F2c of the Proposed Natural Resources Plan for the Wellington Region⁵⁸. Works will be in areas where indigenous birds are present and given that vehicles are likely to be present on the foreshore at times, activities will be non-complying. Any application for a non-complying activity will have to meet the Section 104D RMA ‘threshold test’ of either the effects being minor or being not contrary to the relevant objectives and policies.

A further listed habitat (Wellington Harbour inland waters) extends beyond Mean Low Water (MLW). PNRP Schedule F5 (coastal habitats) is a list of habitat types with significant indigenous

⁵⁷ PNRP Definition: Reclamation in the coastal marine area means the creation of dry land and does not include coastal or river mouth protection structures such as seawalls or revetments, boat ramps, and any structure above water where that structure is supported by piles, or any infilling where the purpose of that infilling is to provide beach nourishment.

⁵⁸ Because five threatened or at risk indigenous bird species are known to be resident or regular visitors to this habitat: variable oystercatcher, red-billed gull, black shag, little black shag and pied shag.

biodiversity values. These are habitats such as subtidal rocky reefs and seagrass, found in the vicinity of the works but these will be avoided.

The Project achieves the policies and objectives in the PNRP.

24.7 City of Lower Hutt District Plan provisions

Policy 14A under the Roding Hierarchy of the City of Lower Hutt Council District Plan (2018) provides strong direction that adequate levels of service for access and movement are provided to meet the travel demand of pedestrians, cyclists and motorised traffic during the off-peak period.

Marine Drive is recognised as a network utility under the plan. Policies for Network Utilities (13) (a) is to provide for the:

- i. need for new and the maintenance and upgrading of existing network utilities;
 - ii. technical and operational requirements and constraints of network utilities in assessing their location, design, development, construction and appearance; and
 - iii. benefits that network utilities provide to the economic, social and cultural functioning of the City.
- b) To enable the efficient construction, installation, operation, upgrading and maintenance of network utilities.

The proposed Shared Path has been assessed against the provisions on the HCC District Plan (refer to section 6, **Appendix S**).

Rules in the City of Lower Hutt District Plan associated with the proposal, relate to network utilities, general residential, recreational zoning, historic buildings, trees and contaminated sites.

Of particular relevance is the Skerrett Boatshed (1906) at Lowry/Whiorau Bay which is a listed historic building (Heritage Listing #3580) and identified on Map C6 of the District Plan, requiring protection. The building will be retained and it will not be affected by the proposed works. The 'Atkinson Tree' in York Bay is not listed as a notable tree but has local interest. It has been identified in the landscape assessment to be removed.

HCC currently does not identify outstanding natural landscapes (ONLs) and features (ONFs) or special amenity landscapes (SALs) in its district plan. The Landscape Evaluation Draft Technical Review Assessment undertaken for HCC in 2016 did not identify any ONFLs or SALs within the Project area. A natural character assessment was undertaken in 2016 for Greater Wellington Regional Council and Hutt City Council. No Outstanding or Very High Natural Character areas are identified within the Eastern Bays coastal terrestrial area, which is assessed as having moderate natural character.

The proposed Shared Path is consistent with the relevant objective and policies.

24.8 Other Relevant Matters

Other relevant documents in terms of section 104(1)(c) and section 161(1)(d) include both statutory documents (such as other legislation) and those non-statutory documents that, whilst not having a regulatory function under the RMA, have been through a public process and/or are important policy documents that set national regional direction on key resource or environmental matters.

24.8.1 National Direction

24.8.1.1 Government Policy Statement on Land Transport

The Government Policy on Land Transport 2018 (GPS) helps guide investment in transport by providing longer term strategic view of how projects will be prioritised on the network. While it is still in its infancy, it strongly supports a mode shift to lower emission forms of transport, including walking, cycling, public transport and lower emission vehicles.

The earlier investigation stages of the Project (IDB and DBC) were previously assessed against the 2015 Land Transport GPS. With a new Government sworn into office in October 2017, they set upon creating a new Land Transport GPS to match their priorities and direction.

The following information outlines an assessment of the Project against the four priorities of the 2018 Land Transport GPS. The four priorities are; Safety, Access, Environment and Value for Money. Safety and Access are noted as the key strategic priorities, while Environment and Value for Money are listed as supporting strategic priorities.

A detailed assessment is set out in **Appendix S**.

Safety

The objective is that a land transport system is a safe system, free of death and serious injury. The Project meets this objective by providing a separated Shared Path facility for active modes and vulnerable users, of a consistent width and standard of design.

Access

Objectives include a land transport system that provides increased access to economic and social opportunities; enables transport choice and access; and is resilient. This is achieved through by enabling greater transport choice for Eastern Bay residents by providing a Shared Path where provision is currently extremely limited. Any users who switch mode choice from private vehicle to cycling (or walking) are helping improve access for the remaining vehicular traffic by reducing congestion levels.

The Project creates a safe and attractive foreshore Shared Path for people to use. There are also improvements to foreshore access through new and improved steps included as part of some seawall sections. The facility should attract users to walk and cycle along it, which will help to improve their health and well-being.

The entire premise of the Project is to improve walking and cycling facilities for the Eastern Bays residents and for those users from further afield to use this popular and picturesque coastline. Longer term the Eastern Bay Shared Path will connect into the 'Great Harbour Way', which creates a walking and cycle route around Wellington harbour

While the Shared Path route from Eastbourne to Petone / Lower Hutt would not classify as a route that justifies the highest economic and social costs (due to the small population), by building the improved facility and the necessary seawall improvements, it provides improved resilience against the gradual change of seal level rise (and has been designed with future adaptability provision to raise the seawall level). This in turn provides much improved resilience for the adjoining road corridor, which will benefit from less disruptions due to washouts of the old seawalls currently.

Marine Drive is the only road into and out of Eastbourne and the Eastern Bays south of Point Howard serving 5030 people. Therefore, improved resilience of the transport network is generated by the seawall upgrade for the new Shared Path facility. The road corridor is susceptible to damage caused by wave action from high seas during a storm event.

Environment

The objective is a land transport system that reduces the adverse effects on the climate, local environment and public health. The Project is an upgraded Shared Path that is planned to increase the volume of cyclists commuting for work and leisure in the Wellington region. It is envisaged that the improved Shared Path will encourage transport users to move to the emission-free modes of walking and cycling.

With any new construction project there is the risk of sediment run-off, particularly a concern when working at the coastal waterline. A prerequisite of any construction management plan will be to include an in-depth strategy on how to counteract this during construction, so that construction related environmental effects or minimised and preferably removed.

Value for money

The objective is a land transport system that delivers the right infrastructure and services to the right level at the best cost. The Project has been through the Indicative and Detailed Business Case procedures which considered a number of options for different width Shared Path facilities. All options were assessing the improvement of an existing cycle facility that was inconsistent in width and in some locations, not provided for at all. The Project is forecast to deliver a positive economic return in terms of the investment required.

24.8.1.2 Sea Level Rise Guidance

The operative coastal guidance provided by the Ministry for the Environment (MfE) is the 2017 edition of Coastal Hazards and Climate Change – A Guidance Manual for Local Government.

The 2017 MfE guidance provides different scenarios of sea level rise to test land-use plans and projects against, to ensure sufficient flexibility is provided to avoid locking in investment or path dependency based around trying to choose a 'best estimate'. A spread of sea level rise scenarios for New Zealand are tabulated in Figure 3-1 from MfE (2017), based on projections for different representative concentration pathways (RCPs) by IPCC.

Guidance is provided to undertake sensitivity testing for coastal engineering projects and for defining coastal hazard exposure areas out to 2100. These assessments of climate change effects should be considered within sensitivity testing and detailed design.

This guidance has been taken into account in this Project.

24.8.1.3 Marine and Coastal Area (Takutai Moana) Act 2011

Marine and Coastal Area (Takutai Moana) Act 2011 (MACA) addresses rights conferred by customary marine title. Under s62 (3) before a person may lodge an application that relates to a right conferred by a customary marine title order or agreement, that person must notify the applicant group about the application and seek the views of the group on the application.

The CIA identified a list of applicants under MACA and notifications were sent to the applicant groups on two occasions. No views were received, in response to these notifications. Correspondence associated with the notifications is contained in **Appendix R**.

24.8.2 Wellington Regional Council

24.8.2.1 Wellington Regional Transport Plan

The Regional Land Transport Plan (RLTP), 2015 is a statutory document that must be prepared every six years as required by the Land Transport Management Act (LTMA) 2003 (as amended in 2015). It is prepared by the Regional Transport Committee (RTC), which is a joint committee comprised of two representatives from Greater Wellington Regional Council (GWRC), the mayors of the local councils in the region, and the regional director of the NZ Transport Agency.

The Strategic Transport Network comprises the following parts of the Wellington Region's transport network:

- a) All railway corridors and 'core' bus routes as part of the region's public transport network identified in the Regional Land Transport Plan 2015, and
- b) All strategic roads that are classified as a National High Volume Road, National Road, or Regional Road as part of the region's strategic road network identified in the Regional Land Transport Plan 2015, and
- c) Any other road classified as a high productivity motor vehicle (HPMV) route identified in the Regional Land Transport Plan 2015, and
- d) All sections of the regional cycling network classified as having a combined utility and recreational focus identified in the Regional Land Transport Plan 2015.

The RLTP must contribute to the purpose of the LTMA which seeks 'an effective, efficient, and safe land transport system in the public interest'. It is also required to be consistent with the Government Policy Statement (GPS) on land transport.

The overall national strategic direction for land transport, as described in the GPS 2015 is to drive improved performance from the land transport system by focusing on:

- economic growth and productivity
- road safety
- value for money

The GPS provides specific guidance on how central government plans to invest to achieve this direction.

The construction of a Shared Path between Eastbourne and Lower Hutt, and an associated seawall resilience improvement to accommodate the path and enhance resilience is a project identified in the RLPT (Figure 51) as a priority.

The Project achieves the outcomes of the RLTP.

24.8.2.2 Regional Cycling Plan 2008

The Regional Cycling Plan (2008) responds to these issues and the policy framework for cycling set out in the Wellington RLTS.⁵⁹ It sets out an action plan with a series of high level initiatives aimed at contributing to the outcomes of the RLTS. This plan has been developed collaboratively by the agencies represented on the Regional Transport Committee (RTC) with input from other interest groups and the wider community through consultative processes. The plan is collectively owned by the RTC and all partner agencies are expected to proactively implement the plan.

Actions that are of relevance to the Project include:

- Improve the cycling network
- Improve cycling and public transport integration
- Improve cycling connections between local networks
- Support development of the Great Harbour Way

Considering that the Eastern Bays Shared Path will be a critical part of the Great Harbour Way, the Project achieves the outcomes of the Cycling Plan.

24.8.2.3 Draft Hazard Management Strategy for the Wellington Region 2016

The draft Hazard Management Strategy was prepared in 2016. The purpose of Natural Hazards Management Strategy is to help create a region resilient to the impacts from natural hazards through a focus on the reduction component of the 4 R's (reduction, readiness, response, recovery). It provides a framework and policy that allows the region to develop consistent responses to the difficult natural hazard issues that we are all facing such as sea level rise, coastal erosion, landslides and liquefaction.

The proposed Shared Path Project will rebuild (in parts) the seawalls along Marine Drive with a series of more robust structures. These structures (concrete curved seawalls and revetment) are placed at locations where they offer the most appropriate protection for the purposes of the Project. The Project also offers future adaptation options to incrementally upgrade these structures over time to accommodate sea level rise.

⁵⁹ A number of the RPS policies refer to the Regional Land Transport Strategy (RLTS). The RLTS no longer exists and is superseded by the RLTP.

24.8.3 Hutt City Council

24.8.3.1 Urban Design Guidelines

The Eastern Bays Marine Drive Design Guide⁶⁰, was formed by an Eastern Bays Marine Drive Steering Group which included resident's groups and council officers. The Design Guide forms part of the Hutt City Design Framework and establishes an agreed and explicit direction for future work by HCC in the area. The Design Guides states that *"The Eastern Bays Marine Drive deserves special care in design because of the valued quality of the bays that it links, and its significance as an access route. It offers stunning views to the harbour and city, or open sea beyond, and immense potential for recreation"*.

The Design Guide focuses on the design of the sea edge, specifically the seawall, walkway and associated elements including lighting between Port Road and Browns Point (Windy Point). Its scope includes the design of elements and landscape located on both sides of Marine Drive.

The general design principles outlined in the design guide have been taken into account in early design phases as well as **Appendix J** of the Project. These design principles are:

- Achieve compatibility along the bays by consistency in the location and design of elements, use of materials.
- Consideration of the whole environment into an integrated solution.
- All work must be an improvement on what is existing.
- Change seawall type if necessary at a promontory, rock outcrop or other major feature within the bay, or in locations where a ramp or set of steps provides a logical/neat transition point between wall types.
- Recognise the individual character of each bay by reinforcing and strengthening those valued patterns that establish the unique identity of the bay.
- Locate all elements carefully to avoid visual clutter and maintain a focus on the seashore and natural environment.
- Design the seawall to be multi-functional.

The Project achieves the outcomes of the Eastern Bays Marine Drive Design Guide. The Shared Path takes into account the general design principles outlined in the design guide, including by recognising the individual character of each bay.

24.8.3.2 Walk and Cycle the Hutt 2014-2019

'Walk and Cycle the Hutt' is a core part of Council's work to make HCC a 'great place to live, work and play'. Promoting greater levels of walking and cycling contributes toward the four key areas of focus which are identified as Growth and Development, Environmental Sustainability, Infrastructure, and Leisure and Wellbeing. A transport system that requires people to be active is of great benefit to cities, as well as to the health and wellbeing of the individuals that participate.

Two of the elements that underlies HCC's approach is the requirement to integrate the provision of safe and convenient routes for pedestrians and cyclists into land-use planning and infrastructure in the city, and the creation of a suitable network of linked cycle and pedestrian infrastructure, such as connections that are direct, coherent and with the right facilities. This includes a combination of protected cycleways, reducing traffic speed and volumes, and using traffic-free routes e.g. through parks, Hutt River Trail, and prioritising walkability in areas of the city.

HCC and its partners have taken forward numerous activities to promote active travel in the period since 2006, including the provision to develop new and improved infrastructure, including

⁶⁰ Document reference: RAS-GDL-003
<http://portal.huttcity.govt.nz/Record/ReadOnly?Tab=3&Uri=3685680>

the development of off-road shared pathways, with the Eastern Bays Shared path being one identified project.

The Eastern Bays Shared Path fits with this approach. The Shared Path provides improved infrastructure and connectivity for cyclists and pedestrians along Marine Drive.

24.8.3.3 Environmental Sustainability Strategy for the Hutt Valley 2015-2045

The 'Environmental Sustainability' strategy provides 'a direction for Council to lead the city to ensure the natural environment is protected, enhanced or repaired, thereby ensuring the city is in a sound state for both current and future generations'.

One important component of the Environmental Sustainability Strategy (ESS), is Risk and Resilience. Risks include natural hazards, climate change, resource shortages and economic shocks. Council's strategy to deal with these risks is to continuously adapt, by engaging and collaborating in order to broaden the discussion around resilience, increase understanding and work closely with others to define preferred solutions and planning proactively for greater resilience and identifying risks.

One risk identified, is the rate of sea level rise, which is now around 3 mm per year. The ESS states it can be expected that there will be 'an increase in the frequency of extremes of high tides and their associated risks' including storm surge. The ESS goes on to identify that 'Council will need to ensure that a sufficient level of preparation and funding is in place to assess ongoing risks and to take action as necessary'.

The ESS identifies Council's plans for improved transport networks for multiple uses, such as vehicles, pedestrians and cyclists. Safe walkways and cycleways (for both recreational and commuting purposes) are proposed to exist throughout the Hutt Valley. The ESS also refers to Council's Urban Growth Strategy, in particular opportunities for improving our transport networks that will enhance mobility and improve resilience to natural disasters, which is discussed in section 24.8.3.4 below.

The Project achieves the outcomes of the ESS. The Shared Path addresses both future impacts of sea level rise in the design of the sea walls, as well as improving the transport network over the length of the project for pedestrians and cyclists.

24.8.3.4 Urban Growth Strategy

The Council's Urban Growth Strategy (UGS) outlines a number of opportunities for improving the transport networks that will enhance mobility, improve resilience to natural disasters, and provide a more enjoyable city to live in. The UGS identifies the opportunities as: continued development of our cycling network, Council intends to develop a comprehensive cycling network that links all key population centres, provides access through the city, and is in alignment with the Great Harbour Way concept. In particular, the Strategy identifies the need to address key problem areas such as walking and cycling access to Eastbourne.

To achieve the UGS, a number of focused strategies have been prepared which include:

- The Leisure and Wellbeing Strategy (2012 – 2032) with the overarching vision of providing modern integrated community services that cater to all Lower Hutt residents.
- Walk and Cycle the Hutt (2014 – 2019) is a core part of Council's work to make Hutt City a 'great place to live, work and play'. The aim is to improve cycling and walking experiences in the city, consequently encouraging more people to cycle and walk more often and further, for commuting and recreational purposes. The Council's objective is to improve its overall approach to the design and delivery of transport infrastructure and urban design by planning and creating safe and convenient routes.

The Project achieves the outcomes of the UGS. The Shared Path provides a positive solution to addressing walking and cycling access to Eastbourne, as required under the Strategy, and provides measures for managing foreseeable threats to Marine Drive and regionally significant infrastructure from sea level rise.

24.9 Part 2 Assessment

The application must also be considered in terms of RMA Part 2 matters, which are the overriding considerations for all applications. Part 2 sections relevant to this application are Sections 6, 7 and 8.

24.9.1 Section 6 - Matters of National Importance

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, must recognise and provide for the following matters of national importance:

(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:

(b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:

(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:

(d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:

(e) the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:

(f) the protection of historic heritage from inappropriate subdivision, use, and development:

(g) the protection of protected customary rights:

(h) the management of significant risks from natural hazards.

All matters of national importance are relevant to the proposal.

24.9.2 Section 7 - Other Matters

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, must have particular regard to –

(a) kaitiakitanga:

(aa) the ethic of stewardship:

(b) the efficient use and development of natural and physical resources:

(ba) the efficiency of the end use of energy:

(c) the maintenance and enhancement of amenity values:

(d) intrinsic values of ecosystems:

(f) maintenance and enhancement of the quality of the environment:

(g) any finite characteristics of natural and physical resources:

(h) the protection of the habitat of trout and salmon:

(i) the effects of climate change:

(j) the benefits to be derived from the use and development of renewable energy.

Matters which may be relevant to the proposal are considered to be subsections (a), (b), (c), (d), (f), (g) and (i).

- s7(a): the kaitiakitanga of tangata whenua has been recognised in seeking a specific cultural impact assessment from Raukura Consultants. Their further involvement will be

during construction and providing information in signage and story boards. This process has recognised the principles of the Treaty of Waitangi (the partnership between iwi and HCC and the retention by Māori of rangatiratanga over their resources and taonga in particular);

- s7(aa): the ethic of stewardship has been recognised through engagement with and participation of the community (and interested groups such as the Eastern Bays Penguin Group) in hui early in and throughout the Project's development process;
- s7(b): the Project will improve the efficient use of the road network and its underlying critical infrastructure and supporting seawalls as a physical resource;
- s7(c) and s7(d): the mitigation measures identified to avoid, or minimise potential adverse effects on amenity values and the intrinsic ecosystems within the Project area by reducing the occupation of the foreshore are outlined in sections 12 – 16. These values include intertidal ecology, fish passage, vegetation, avifauna, landscape and visual, and recreational amenity;
- s7(f): the selection of the seawall types and design width of the Shared Path sought to mitigate the effect of the Project on local amenity values of the individual bays. An interdisciplinary approach was undertaken to address all related aspects of the Project design (e.g. urban design, landscape and visual, coastal processes and ecology (intertidal and avifauna) to develop the best practicable solutions in assessing options and designing appropriate mitigation on adjoining amenity values.
- s7(i): the Project "buys some time" for HCC to work with the community and decide its response to sea level rise. The Project provides a base that could be added to and does not prevent future options.

24.9.3 Section 8 - Treaty of Waitangi

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

Section 8 matters underpin the ongoing relationship the HCC has established and maintains with local iwi. The Project has taken into account the principles of the Treaty of Waitangi through early and on-going consultation, and engagement with tangata whenua, including the request for tangata whenua to prepare a cultural impact assessment of the Project (refer to **Appendix H**).

24.9.4 Section 5 - Purpose

The purpose of the RMA is to promote the sustainable management of natural and physical resources as defined by section 5(2). In promoting sustainable management, there is often the requirement to balance consideration of the competing resource values and the benefits and adverse effects associated with a proposal. The RMA defines sustainable management as:

...managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while –

(a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and,

(b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and

(c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.

Section 5 has the overriding purpose of promoting sustainable management. It provides a benchmark against which all decisions are measured and is a fundamental consideration for a consent authority.

The promotion of sustainable development often requires a balance between competing resource values and the benefits and adverse effects associated with the Project, recognising that development will result in some adverse effects. The development of the Shared Path involves careful consideration of the balance to be achieved between the regional and local

benefits that may accrue from the work and the more localised effects (bay-by-bay) that the works (and associated activities) will have on the environment, including on people, the bay communities and natural values.

The Shared Path will provide for the social, economic and cultural well-being and health and safety of the local community by:

- Using a safe cycle and pedestrian way for both leisure and commuter purposes;
- Creating health and safety benefits through reduced crashes and increased physical activity;
- Building resilience of Marine Drive through improvements to the structural integrity of the seawall; and
- Making the local environments more pleasant through making it easier to walk and cycle along the road with less conflict with traffic.

In balancing these considerations with the matters in section 5(2) (a) through to (c) of the RMA, the following conclusions are derived from the planning assessment contained in preceding sections of this chapter:

- In terms of sustaining the potential of natural and physical resources for future generations, the Project will meet the growing transportation needs of the region and especially improvements to walking and cycling routes proposed in the wider Wellington region.
- the Project will safeguard the life-supporting capacity:
 - o of air, by encouraging cycling and reducing traffic, thereby improving air quality;
 - o of water, while during construction there may be a minor short-term adverse effect on water quality from the discharge of sediment;
 - o of soils, by the management of the construction of the seawalls (to control erosion and soil disturbance);
 - o of ecosystems, by avoiding, remedying and mitigating the adverse effects on ecological values; and
 - o of the community by managing actual and potential effects both during construction and operation, and by having positive effects on cycling network in the region.

The Project appropriately avoids, remedies and mitigates adverse effects on the environment, including through identification of mitigation measures and conditions for the consent application.

Overall, when the benefits of the Project are considered alongside the proposed measures to avoid, remedy and mitigate the associated adverse effects, the Project strongly promotes sustainable management of natural and physical resources and is consistent with the purpose and principles of the RMA. As a result, it is considered that the purpose of the RMA will be achieved by granting the resource consents sought.

24.10 Matters relevant to Resource Consent Decisions

The RMA outlines the matters that decision makers must consider, where resource consents are needed. These are set out in section 104. In specific circumstances, sections 105 and 107 include additional matters to be considered. These three sections are set out below.

24.10.1 Section 104 – consideration of applications

*(1) When considering an application for a resource consent and any submissions received, the consent authority must, subject to Part 2, have regard to–
any actual and potential effects on the environment of allowing the activity; and*

any relevant provisions of—

- (i) a national environmental standard:
- (ii) other regulations:
- (iii) a national policy statement:
- (iv) a New Zealand coastal policy statement:
- (v) a regional policy statement or proposed regional policy statement:
- (vi) a plan or proposed plan; and

any other matter the consent authority considers relevant and reasonably necessary to determine the application

(2) When forming an opinion for the purposes of subsection (1)(a), a consent authority may disregard an adverse effect of the activity on the environment if a national environmental standard or the plan permits an activity with that effect.

24.10.2 Section 105 – matters relevant to certain applications

(1) If an application is for a discharge permit or coastal permit to do something that would contravene section 15 or section 15B, the consent authority must, in addition to the matters in section 104(1), have regard to—

- (a) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and
- (b) the applicant's reasons for the proposed choice; and
- (c) any possible alternative methods of discharge, including discharge into any other receiving environment.

(2) If an application is for a resource consent for a reclamation, the consent authority must, in addition to the matters in section 104(1), consider whether an esplanade reserve or esplanade strip is appropriate and, if so, impose a condition under section 108(2)(g) on the resource consent.

Section 105(2) RMA sets out the matters that a consent authority must have regard to when considering a resource consent application for a reclamation. In respect of any resource consent for reclamation granted by the relevant consent authority, a condition requiring an esplanade reserve or esplanade strip of any specified width to be set aside or created under Part 10. Because reclamation for the Project is relevant to the road and not an esplanade reserve or esplanade strip, this section of the RMA is not applicable to this application.

24.10.3 Section 107 – restriction on grant of certain discharge permits

(1) Except as provided in subsection (2), a consent authority shall not grant a discharge permit or a coastal permit to do something that would otherwise contravene section 15 or section 15A allowing—

- (a) the discharge of a contaminant or water into water; or
- (b) a discharge of a contaminant onto or into land in circumstances which may result in that contaminant (or any other contaminant emanating as a result of natural processes from that contaminant) entering water; or
- (ba) the dumping in the coastal marine area from any ship, aircraft, or offshore installation of any waste or other matter that is a contaminant,—

if, after reasonable mixing, the contaminant or water discharged (either by itself or in combination with the same, similar, or other contaminants or water), is likely to give rise to all or any of the following effects in the receiving waters:

(c) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials:

(d) any conspicuous change in the colour or visual clarity:

(e) any emission of objectionable odour:

(f) the rendering of fresh water unsuitable for consumption by farm animals:

(g) any significant adverse effects on aquatic life.

(2) A consent authority may grant a discharge permit or a coastal permit to do something that would otherwise contravene section 15 or section 15A that may allow any of the effects described in subsection (1) if it is satisfied—

(a) that exceptional circumstances justify the granting of the permit; or

(b) that the discharge is of a temporary nature; or

(c) that the discharge is associated with necessary maintenance work—

and that it is consistent with the purpose of this Act to do so.

(2) In addition to any other conditions imposed under this Act, a discharge permit or coastal permit may include conditions requiring the holder of the permit to undertake such works in such stages throughout the term of the permit as will ensure that upon the expiry of the permit the holder can meet the requirements of subsection (1) and of any relevant regional rules.

Section 107 is relevant because the Project involves the discharge of contaminants into the coastal waters (i.e. it involves the potential discharge of silt-laden water resulting from trenching and beach nourishment into coastal waters) which are likely to increase sediment levels above current levels during construction. The potential effects under section 107(1) that may occur as a result of discharge of contaminants from the Project are:

- a conspicuous change in the colour or visual clarity (section 107(1)(d)) – earthworks and construction works will cause a change in colour or visual clarity of affected coastal water at times. However, the proposed application of the CEMP will be focused on ensuring that the level of change does not cause significant or permanent adverse effects on water quality and on the receiving environment
- any significant adverse effects on aquatic life (section 107(1)(g)) – it is unlikely that there will be any significant adverse effects on shellfish and other organisms in the coastal marine environment.

In this application Section 89(2) of the RMA is also considered to be relevant in relation to the current area of CMA that will be used as Shared Path.

89 Applications to territorial authorities for resource consents where land is in coastal marine area

(1)

(2) Where—

(a) an application is made to a territorial authority for a resource consent for an activity which an applicant intends to undertake within the district of that authority once the proposed location of the activity has been reclaimed; and

(b) on the date the application is made the proposed location of the activity is still within the coastal marine area,—

then the authority may hear and decide the application as if the application related to an activity within its district, and the provisions of this Act shall apply accordingly.

(3) Section 116(2) shall apply to every resource consent that is granted in accordance with subsection (2).

24.11 Overall Summary of Planning Documents and Part 2 Matters

Assessment of resource consents applications under s104, and the role of Part 2, has changed in recent years and has most recently been set by the Court of Appeal in the decision of *RJ Davidson Family Trust v Marlborough District Council* [2018] NZCA 316. In short, the Court of Appeal determined that:

- (a) notwithstanding *King Salmon*, RMA decision makers should usually consider Part 2 when making decisions on resource consents (that is the implication of the words "subject to Part 2" in section 104);⁶¹
- (b) this, in particular, applies if the decision-maker considers that the plan has not been competently prepared, however, where the relevant plan provisions have clearly given effect to Part 2, there may be no need to refer to Part 2 as it "*would not add anything to the evaluative exercise*".⁶² It would be inconsistent with the scheme of the RMA to override those plan provisions through recourse to Part 2. In other words, "*genuine consideration and application of relevant plan considerations may leave little room for Part 2 to influence the outcome*".⁶³

While the NZCPS has significant status (as recognised in the *King Salmon* decision) it is now 9 years old. The RPS is newer (2013) and its relevant provisions are assessed below (and the Project is consistent with them). The operative regional plan is old (2000) and, while notified, decision of the proposed Natural Resources Plan is not expected until late July 2019. Therefore, while there are numerous layers of relevant planning provisions, given their age, the reforms that have occurred to the RMA since there were made operative and potential gaps, this assessment has also considered and applied Part 2 of the Act. This approach also ensures that issues that are recognised, but for which direction is limited, such as sea level rise, can be appropriately considered.

A key finding in *Davidson* relevant to this application is that if the Project breaches a relevant policy in the NZCPS then recourse cannot be had back to Part 2 for the purpose of subverting that policy. Equally, regional plans should not be rendered ineffective by reference back to Part 2. In undertaking this assessment care has been taken to ensure such an outcome does not occur. For the reasons set out below, the Project does not breach the relevant provisions of the NZCPS.

Finally, context is important when applying the relevant planning provisions. The sections above have set out the existing environment and values of the Project area, and its highly modified nature. Equally, they have set out the purpose for the Project in providing a safe connection for cyclists and pedestrians along the Eastern Bays (and the associated social and economic benefits, as well as health and safety that provides) with enhanced resilience (while buying some time to enable the community to decide long-term responses) for Marine Drive and the lifeline infrastructure along and under the road corridor.

The key themes from the relevant planning documents and Part 2 of the RMA are identified and summarised below. Overall, when the benefits of the Project are considered alongside the proposed measures to avoid, remedy and mitigate the associated adverse effects, the Project strongly promotes sustainable management of natural and physical resources and is consistent with the relevant planning provisions and the purpose and principles of the RMA.

24.11.1 Natural Character and Landscapes of the Coastal Environment

There are no areas of outstanding natural character affected by the Project. The specific design and location of the Project was determined following specialist investigations and reports,

⁶¹ *RJ Davidson Family Trust v Marlborough District Council* [2018] NZCA 316, see paragraphs 66-70.

⁶² *Ibid*, at paragraph 75.

⁶³ *Ibid*, at paragraph 82.

assessment of alternatives and with public consultation. Consequently, the selection of the seawall types and design width of the Shared Path sought to mitigate adverse effects of the Project on the local amenity values of the individual bays. The coherent seawall design, replacing the existing ad hoc structures, will enhance amenity and natural character. The Project is consistent with Policy 13 (and 14) of the NZCPS and Policies 35 and 36 of the RPS.

There are no outstanding landscapes/features, affected by the Project. Adverse effects of the Project on natural features and natural landscapes in the Eastern Bays coastal environment will occur within a narrow band of existing development along the coastal edge. Effects are proposed to be effectively mitigated by using consistent path and seawall detailing to reduce visual impact of new structures and the use of the LUDP and BSLUDP to provide a detailed design that responds to local landscape, history and land use, maintaining the intent of the objectives and policies of the relevant planning documents. The Project is consistent with Policy 15 of the NZCPS and Policies 35 and 36 of the RPS.

24.11.2 Reclamation/use and development

Marine Drive is the sole access road to Eastbourne and is of regional significance. Policy 6 of the NZCPS recognises the importance of infrastructure within the coastal environment, and in relation to the CMA requires recognition of a functional need for some activities to be located there (see also Objectives O12 and O53 of the proposed Natural Resources Plan). Policy 10 of the NZCPS, and the relevant lower order policies (such as P145 of the proposed Natural Resources Plan), direct that reclamation of the CMA be avoided unless specific circumstances apply. Policy P145 also requires that the minimum area necessary be reclaimed and that it, where possible, be made available for public use.

The Project has been carefully assessed (from an alternatives perspective) in terms of available options outside of the CMA, that the activity has a functional and operational need to be located within/adjacent to the coast and that there are no practicable alternative methods. The Project will provide significant regional and national benefit in terms of its linkages with other cycleways, provision of safe walking (Policy 19 of the NZCPS) and cycling (and public access to/from the beach), enhancement of existing public use, and short-term protection of Marine Drive (and its associated regionally significant infrastructure) from the effects of climate change, thereby buying time for a planned and integrated community response. Through proposed limited areas of de-reclamation where that is feasible, the Project is consistent with Policy 10(4) of the NZCPS.

Overall, the Project is consistent with the relevant planning provisions in relation to reclamation and use and development of the CMA. The Project is also consistent with the relevant provisions in Part 2. In particular, the Project, and the reclamation involved, promotes sustainable management through effective and efficient use of the CMA of regionally and nationally significant infrastructure while avoiding and mitigating adverse effects to an appropriate level and delivering positive environmental outcomes that have been developed in an integrated manner.

24.11.3 Coastal Hazards / Climate Change

Marine Drive and the Eastern Bay suburbs are inherently vulnerable to coastal hazard risks. Over time sea levels will rise, aggravating the existing situation and affecting the resilience of the road and underground infrastructure (as well as the ongoing survival of the community). The NZCPS has reference to natural hazards, and climate change within Policies 10, and 24-27. The Project has been developed mindful of the effects of sea level rise, and increased storm severity, associated with climate change. While the seawall is a hard protection structure, it replaces existing hard protection structures. The Project provides a base for potential future responses to sea level rise and buys some time for the community to plan and implement its response. Through this approach it protects the regionally important infrastructure while stationing those physical resources to meet the reasonably foreseeable needs of future generations. In this manner, such hard protection structures are the only option as areas of the existing coastal defences have less than 5 years of

operational life and with sea level rise the existing beaches will disappear in 1-2 decades. Finally, in developing the sea-wall the Project has been led by independent experts to ensure that the adverse effects area avoided or mitigated (etc) to the greatest extent possible.

The reclamation structures have been carefully designed to maintain serviceability access to the road following a seismic event and climate change, whilst avoiding, remedying or mitigating any potential effects on the receiving environment, complying with the policy direction of the various planning documents and Part 2 of the RMA.

Overall, the Project is consistent with the relevant objectives and policies in the planning documents, will manage the significant risks from climate change on the Eastern Bay community, will protect the finite characteristics of the regionally significant physical resources while appropriately addressing adverse environmental effects and promoting sustainable management.

24.11.4 Indigenous biodiversity

The Project has been carefully designed and developed with expert assistance to ensure that adverse effects on indigenous biodiversity have been avoided or remedied/mitigated/offset/compensated to low levels, in line with Policy 11 of the NZCPS, and the relevant lower order policies (including Objective O35 and its relevant policies within the proposed natural Resources Plan). Significant effort, and cost, has been applied to achieve an outcome whereby all effects on indigenous biodiversity are assessed as low. There are also a number of positive effects that the Project will provide, for example fish passage and establishment of new ecological habitat, that the Project through enhancing the existing environment. The beach nourishment, while carefully avoiding affecting seagrass beds will ultimately prolong their existence in the face of sea level rise. The effects of sea level rise, irrespective of the Project, will result within 1-2 decades result in the same, and greater (total beach loss), effects on indigenous biodiversity within the Project area.

Methods to avoid adverse effects on rare and threatened species have included design refinements to avoid and reduce any impact on sensitive areas such as feeding, breeding or nesting areas, and mitigation measures where areas could not be avoided to manage the temporary construction effects on natural habitats. Through the design process and the mitigation measures proposed to appropriately protect indigenous biodiversity, the Project is consistent with the relevant objectives and policies of the relevant planning documents and also with the relevant provisions in Part 2 of the RMA.

24.11.5 Tangata Whenua

The Project has been developed in consultation with Mana Whenua and provides for the matters in section 6(e) of the RMA. The CIA from Raukura Consultants has enabled prioritisation and understanding of issues of significance to Mana Whenua, such as access to the foreshore, to be translated into the Project's design and the development of measures to avoid, remedy or mitigate adverse effects. Engagement with Mana Whenua will continue throughout the detailed design stage of the Project and will include the formulation of story boards and signage along the Shared Path.

The design processes and mitigation measures proposed (including archaeological discovery protocols) appropriately provide for the matters in Part 2 of the RMA (particularly section 6(e) and 7(a)) and are consistent with the relevant objectives and policies of the relevant planning documents (including Policy 2 of the NZCPS, and Policies 48 and 49 of the RPS).

24.11.6 Natural Coastal Processes

The proposed foreshore form has been specifically designed to maintain, and where possible, enhance biological and physical coastal processes, recognising they are dynamic, complex and interdependent in nature. The construction and operation of the Project will have negligible to minor effects on coastal physical processes and will include design elements that will "buy some

time" for HCC to work with the community to determine a long term response to sea level rise, in accordance with the direction in the relevant planning documents (including Policies 18, 24 and 25 of the NZCPS) and Part 2 of the RMA.

24.11.7 Public Access

Marine Drive is a key access road in a modified coastal environment that provides existing public access to and along the CMA. The Project enables the expansion of these functions to include a cycle and walkway, as well as build resilience into the existing infrastructure through the upgrade of the seawalls in a number of locations. The path will enhance public access and is expected to enhance community cohesion, provide greater amenity benefits, widen transport choices and improve access to local facilities, including public open space such as the beaches and Whiorau Reserve located along the road corridor, therefore maintain the intent of the relevant objectives and policies of the relevant planning documents (including Policies 18 and 19 of the NZCPS, Policy 53 of the RPS and Objective 010 and Policy P9 of the pNRP) and Part 2 of the RMA.

24.11.8 Social/health and safety/wellbeing

The Project is to develop a safe and integrated walking and cycling facility to connect communities along the Eastern Bays, and to provide links to other parts of the network for recreation and tourism purposes. Currently, pedestrians and cyclists connectedness and use along the Eastern Bays is low, due to few dedicated facilities and the tightly constrained nature of the road along Marine Drive. This enhanced connectivity will unlock significant social, economic and recreational benefits, including improved safety for pedestrians, cyclists and other road users, recreation and tourism opportunities, and positive benefits to health and wellbeing. The Project is consistent with the relevant objectives and policies of the relevant planning documents (including Objective 6 of the NZCPS) as well as Part 2 of the RMA.

25. Consultation

25.1 Community Engagement

25.1.1 Bay by Bay

The Eastbourne Community Survey (2014) revealed that the top two issues for residents are completion of the Eastern bays walk/cycleway (which relies on the construction of the seawall) and climate change (and extreme weather events). Consultation specifically on a planned cycleway has been ongoing since 2016. GHD undertook consultation early in 2016 mainly with iwi and then further public engagement was undertaken by MWH/Stantec at the end of 2016. The proposal was refined during the early part of 2017 and a series of community meetings was held in August 2017 to obtain input from the community on the two path width options (2.5 metres and 3.5 metres).

Feedback on seawall options and treatments for more sensitive areas around beaches was also sought. The consultation process adopted a 'bay-by-bay' approach, with dedicated sessions for individual bays, focussing on the key issues faced by each bay along the corridor.

A detailed description of the community consultation process, results and feedback received is provided in **Appendix I**.

The Project team specifically sought a clear direction on the following design aspects:

- Wall type
- Path width
- Barrier
- Beach access
- Trees
- Bus stops
- Penguins
- Options

A summary of preferred design responses for each bay is provided in **Table 25-1**.

Table 25-1. Preferred Response for Each Eastern Bay Community

Bay	Wall Type	Path Width	Barrier	Beach Access	Trees	Bus Stops	Other
Point Howard / Sorrento Bay	No preference	2.5m at beach 3.5 non-beach area	Bollards	Retain access, but improve ramp gradient	n/a	No change	Path between beach and car parks
Lowry/ Whiorau Bay	Dwarf mass concrete preferred Support revetment	2.5m at beach 3.5 non-beach area		Retain access and place additional accesses to align with adjoining roads	n/a	No change	Build asap
York Bay	Double curve north of bus stop Single curve or dwarf wall	2.5m or less Widening to remain with footprint of existing wall		Dwarf wall may improve beach access	Conflicting views on Atkinson tree. Preference to lose tree rather than	Can be moved	Boat ramp can be moved Urban design important Uncertainty of groyne benefits

Bay	Wall Type	Path Width	Barrier	Beach Access	Trees	Bus Stops	Other
	to the south				encroach beach		
Mahina/ Sunshine Bay	Support for proposed wall (double or single curve)	2.5 m	Can remove crash barrier	Retain access	Retain	Support moving shelter, but for structure to be reused	
Days Bay/ Windy Point	Curved wall preferred	No preference	Prefer no fence or barrier	Retain ramp/slipway for penguin access	n/a	n/a	

Many of the issues raised through the feedback process were taken on board and incorporated into the preliminary design. Similarly, the vast majority of the 'bay by bay' feedback received has been included in the design.

Some of the main design features have been included in the design in response to feedback:

- Accesses have been retained where possible, and new access steps have been proposed at regular intervals to ensure that the community has convenient access to the beaches and rocky foreshore.
- The ramps will have a 1:8 gradient to improve the access to the beach.
- The Shared Path has incorporated varying widths (2.5m and 3.5m) so that there is a narrowing along beaches to reduce the amount of widening into the beach environment, thereby trying to retain as much foreshore as possible.

Details of the consultation undertaken up to October 2017 are documented in a separate report included in **Appendix I** of this application.

25.1.2 Further Follow Up Engagement

Since the initial community engagement mentioned above, further discussions have been held with residents seeking further input into the design. This engagement is outlined in the Stakeholder Engagement and Consultation Report (SECR) contained in **Appendix I**.

Residents in York Bay raised concerns around the widening of the Shared Path into the beach area and questioned whether the road could be reallocated to accommodate the Shared Path within the existing corridor. Discussions were held with local residents to try and find a solution that would be acceptable. This included the reallocation of the carriageway to reduce the widening onto the beach and the relocation of Atkinson Tree. A number of options were proposed and "Option 1A" was included into the application to be taken through the consenting process. Option 1A achieved 0.5 to 1.0 m of landward space, thereby resulting in avoiding 0.5-1.0 m of widening onto the beach.

Further engagement was undertaken with representatives from the Lowry/Whiorau Bay community, in particular around the proposed revetment at the northern end of the bay. There were queries around the placement of revetment and access to the beach.

The worst wave action occurs either side of the northern boat shed (chainage 1150) in Lowry Bay.⁶⁴ The overtopping hazard at these locations is particularly damaging for a number reasons:

- the lower road elevation along this section;

⁶⁴ Comment by Dr Allis in response to a query from a local resident (1/5/2018)

- the shape of the existing seawall (an old-style curve) which is a very poor design and promotes overtopping; and
- the narrow shoulder width (<1m).

Earlier designs showed a 9m wide revetment structure at the northern section of Lowry Bay to reduce the wave topping in that area (Preliminary Design Plan, Rev H). This proposal was shared with the residents fronting onto this section of Lowry Bay with mixed responses. There was limited support for revetment due to the visual effects and the perceived difficulty accessing the water over the rocks (particularly for kayaks). Following further investigations, it was found that the revetment would encroach on the subtidal areas and after concerns raised by GWRC, it was decided to remove the proposed revetment along this section to avoid encroachment on the subtidal areas. The design plans were amended to reflect these changes (Rev J).

It is recognized that it is unlikely with a project of this nature in such a constrained location to achieve a unanimity from the community. There is a clear commitment by the HCC and the Project team to maintain the high levels of engagement and community involvement through the detailed design process to ensure a high-quality outcome that responds appropriately to the community's requirements.

25.1.3 Little Penguin Survey

Two penguin surveys by the Eastern Bays Penguin Group and Kaikoura Ocean Research Institute team using a penguin detection dog certified by the Department of Conservation (DOC) were undertaken in October 2016 and October 2017 in part to provide baseline information for this study. Members of the Project team in conjunction with two members of the Eastbourne Community Board arranged for landowner access consent for the 2017 penguin survey inland of Marine Drive. This also gave members of the community an opportunity to share their experiences and knowledge about penguins in the area. The majority of residents were supportive of the initiative and are keen to see the ongoing protection of penguins in the area.

While this survey was a component of the assessment of the ecological effects, it was assisted by the relationships formed with the community over the past few years. Further details are outlined in the Supplementary Consultation Report (**Appendix I**).

25.2 Tangata Whenua and Other Māori Interests

The iwi authorities that have an interest in this application include the two with statutory acknowledgments, Port Nicholson Block Settlement Trust and Te Runanga o Ngāti Toa, along with the Wellington Tenth Trust as an iwi authority and Te Atiawa ki te Upoko o te Ika a Maui Potiki Trust as a mandated iwi authority for fisheries.

Port Nicholson Block Settlement Trust and the Wellington Tenth Trust recommend that an archaeological site examination is not required for this site with respect to traditional Māori archaeology. The Trusts recommend that an accidental discovery protocol for this development is required and a draft of that protocol is in the Cultural Impact Assessment (**Appendix H**) to cover the eventuality that Māori cultural material or archaeological materials are found in the Project area. The Trusts recommend that they be consulted over a suitable element in the development that gives recognition of the Māori connection with this site (e.g. signage and 'story boards').

An updated Cultural Impact Assessment (CIA, May 2018) was commissioned of Raukura Consultants to reflect the later changes in the preliminary design. No further issues were raised since the first CIA and because both Taranaki Whānui (Port Nicholson Trust Block) and Ngāti Toa had agreed in principle with the contents of the initial CIA. Following the introduction of beach nourishment to the proposal, Raukura Consultants concluded that it was not necessary to update the CIA to reflect the change.

Both Taranaki Whānui and Ngāti Toa have been supportive of the Project. A copy of the draft application will be forwarded to them prior to the application being lodged to give them some

lead time to prepare comments during the consent processing stage, given their limited amount of staff resources.

The Marine and Coastal Area (Takutai Moana) Act 2011 (MACA) deals with Māori customary rights in the coastal marine area. Under s62(2) and 62(3) of MACA, before a person may lodge an application that relates to a right conferred by a customary marine title order or agreement, that person must notify the applicant group about the application and seek the views of the group on the application.

The applicants are listed in the CIA (Appendix H in the AEE) and include the following:

1. CIV-2017-404-538 Rihari Dargaville for NZ Maori Council – Groups A – S
2. CIV-2017-485-512 Cletus Manu Paul – Groups A – U
3. CIV-2017-485-221 Ngati Kahungunu ki Wairarapa Tamaki Nui a Rua Settlement Trust - Group M
4. CIV-2017-485-259 Ngati Hinewaka me ona Karangaranga Trust – Group M
5. CIV-2017-485-261 Muaupoko Tribal Authority – Group N
6. CIV-2017-485-211 Tupoki Takarangi Trust for Parangarahu 2B1 and 2C owners – Group N
7. CIV-2017-485-254 C Henare for Te Patutokotoko – Group N

Direct Engagement Applicant:

8. MAC-01-11-14 Te Atiawa ki te Upoko o te Ika a Maui Pōkiti Trust
9. MAC-01-09-09 Ngati Toa Rangatira

The applicants have been notified and their views have been sought. Further details are set out in **Appendix I**.

25.3 Key Stakeholders

25.3.1 Department of Conservation

The Department of Conservation (DoC) is a key stakeholder for the Project given the important statutory roles of the Minister and Director-General of Conservation in the coastal marine area. DoC has been consulted and indicated the key issues they have are effects on avifauna, the CMA and freshwater fish passage. In terms of the effect on avifauna, they requested that a site map with identified nest sites be overlaid, so as to understand what works are proposed at each of the sites. The locations of the nests are discussed in the Avifauna and Vegetation Assessment (**Appendix C**).

DoC was represented at the site visit held on 25 July 2018 and concern was raised about the potential disturbance to a penguin nest at Point Howard as a result of the location of the shared path between the rock outcrop and the foreshore. These issues are addressed in the assessments, with particular focus in the Vegetation and Avifauna Assessment, AEE for Intertidal Ecology and Freshwater Fish Passage Requirements. Correspondence with DoC is provided in the Stakeholder Engagement and Consultation Report (**Appendix I**).

25.3.2 Greater Wellington Regional Council

GWRC is a key stakeholder for the Project in terms of managing any development within the coastal marine area, and as the consent authority under the RMA 1991, for any works that may occur in the coastal marine area. A number of meetings have been held with officers at GWRC (including their Hazards Advisor) to inform them of the Project and to update them on progress. Site visits with some of the officers were also held in July 2018. A list of meetings and engagement with GWRC is contained in **Appendix I**.

A pre-lodgement meeting was held with officers of GWRC and Hutt City Council (HCC) (29 March 2019) to confirm logistics on the lodgement and notification process.

25.3.3 CentrePort Ltd

CentrePort is a Port Company under the Port Companies Act 1988, under which it has statutory obligations to operate as a successful commercial business. CentrePort owns and manages the Seaview Port at Point Howard.

To ensure public safety and to accommodate national and international ship berthing needs, public access is restricted to the majority of the port areas, including along the coastal marine area and foreshore (predominantly heavily modified by wharves, ship loading facilities and cargo storage facilities).

CentrePort is a stakeholder for the Shared Path given that uninterrupted access to the terminal wharf at Seaview (from Marine Drive at Point Howard) especially during the construction of the Shared Path will be important. An upgrade to the wharf infrastructure is underway and knowing where the underground services are located is critical.

The Shared Path also traverses a small parcel of land at the start of the Shared Path Project belonging to the port at Point Howard. The land is an existing carpark where surface works are proposed. No replacement of seawalls will be undertaken along this section.

Further discussion will be undertaken with CentrePort during the detailed design and construction stages. A suggested condition in the application will ensure that consultation is undertaken and that there will be an agreement with HCC to ensure that access arrangements are maintained in accordance with Centreport's proposed upgrade works. .

Written approval from CentrePoint is currently being sought.

Further details are outlined in the Consultation Report (**Appendix I**).

25.3.4 NZ Transport Agency

The New Zealand Transport Agency (NZTA) is a Crown Entity and owns and manages the State Highway system. Under the Land Transport Management Act, NZTA has the following responsibilities pertaining to the proposed Shared Path:

- Promoting an affordable, integrated, safe, responsive and sustainable land transport system
- Managing the allocation of funding to transport activities.

In August 2014, the previous government announced the \$100 million Urban Cycleways Fund (UCF). This led to the \$333 million Urban Cycleways Programme (UCP) being implemented from late 2014 to June 2018. The programme, managed by the NZ Transport Agency, provides increased investment to accelerate the delivery of cycling networks in main urban centres, and incentivises partners to increase their investment in cycling and walking projects. The Eastern Bays Shared Path is one of the Lower Hutt Urban Cycleway projects partly funded from the UCF.

The Project has been investigated by using a Business Case Approach (BCA) and both an Indicative Business Case (IBC) and Detailed Business Case (DBC) have been prepared. The BCA follows the guidelines set up by NZTA.⁶⁵

HCC has met with NZTA on a number of occasions as part of the funding negotiations and funds have been allocated for the proposed Shared Path, having met the necessary criteria.

From an RMA perspective, NZTA are not an affected party. The Agency has been included as a stakeholder for completeness.

⁶⁵ <https://www.nzta.govt.nz/planning-and-investment/learning-and-resources/business-case-approach-guidance/>

25.3.5 Hutt City Council

Notwithstanding the fact that HCC is the applicant, it is important to recognise that the responsibilities of HCC under the LGA, include:

- Road controlling authority
- Consent authority
- Community well-being and development
- Environmental health and safety (including building control, civil defence, and environmental health matters)
- Infrastructure (roading and transport, sewerage, water/stormwater)
- Recreation and culture
- Resource management including land use planning and development control under the RMA.

HCC own and manages:

- All reserves
- All roads and footpaths
- All structures in the CMA, including ramps and steps
- Various buildings and infrastructure (i.e. pipes, street lights), including those administered by various utility companies.

The Shared Path is mainly located within the road reserve, but it also traverses (or partly traverses) a number of reserves, the main one being the Whiorau/Lowry Bay Reserve. While the Shared Path runs through the reserve largely following an existing internal track, the only works will involve minor widening of the track requiring minor earthworks including removal of surface soil.

HCC Parks and Reserves have been included in discussions on the Shared Path and further details will be confirmed during the detailed design stage. Discussions have also been held with the HCC Sustainability and Resilience Manager, tasked with the development of a Lower Hutt Climate and Resilience Plan (CRP) to identify relevant objectives and prioritised community-focused actions, and to assist in reducing greenhouse gas emissions in line with the proposed New Zealand net Zero by 2050 target. The intention is that resilience and sea level will be included in the climate and resilience plan, a coastal adaptation strategy (ie how to respond to sea level rise), akin to the work done in Hawkes Bay, the team are looking to go to Council in approximately April 2019 with a proposal for how HCC would undertake the work and associated costs. Actual work, including community consultation, would not commence until later 2019.

25.3.6 Private Landowner

The Shared Path runs through a parcel of land in Mahina Bay belonging to James Robert and Janette Thomas (Lot 4 DP 10005 Ref: WN9C/915). This land is located on the seaward side of Marine Drive opposite No. 427 where the Thomas' reside.

There has been correspondence between HCC and the Thomas' and a meeting was held with them on 27 April 2018. They are supportive of the proposal and have indicated that they would like to have the existing parking spaces retained. They also requested that steps be provided to provide access to the beach. This has been accommodated in the design, as shown in **Figure 25-1**. The Certificate of Title is shown in **Appendix P**.

Written approval from the Thomas' is currently being sought.



Figure 25-1. Plan of Proposals on Thomas' Land

25.3.7 Residents Associations and Community Representatives

The resident's associations for the respective bays were actively involved in meetings during the August 2017 consultation and have continued to be involved in an informal manner through one on one meetings, phone calls and emails.

Virginia Horrox and Derek Wilshere (current and past Eastbourne Community Board members respectively) have been valuable links between the Project team and the local communities. They have been part of the technical team tasked with preparing the design of the Shared Path and have provided an in depth local perspective on aspects of the facility.

25.3.8 Interest Groups

Through the technical experts, representatives of the Eastern Bays Penguin Group were consulted as part of their specialist assessments.

Further details are outlined in their various assessments (refer also to details in **Appendix I**).

25.4 Written Approvals

As mentioned above, written approvals are currently being sought and will be forwarded to GWRC and HCC when they are received.

Copies of the written approvals will be included in **Appendix Q** when they are received.

26. Suggested Conditions

The suggested conditions set out below are intended to provide for appropriate management and mitigation of any adverse activities associated with the coastal permits which are being sought by HCC.

Based on the mitigation and monitoring measures summarised in sections 12 - 20 of this AEE, a suite of resource consent conditions has been developed to ensure that the potential adverse effects that might arise from the construction and operation of the Project will be adequately avoided, remedied or mitigated. Three condition sets have been developed – a general set of conditions, a set for resource consents under Greater Wellington Regional Council and a set for resources consents under Hutt City Council (refer to **Appendix R**).

It is recognised that there will be some overlap with the conditions of the two councils, such as the CEMP. Through the decision making process, these overlaps will be worked through to ensure that a workable set of conditions are developed to meet their respective requirements.

Key features of the conditions are:

- A requirement for a detailed engineering design to be submitted;
- A requirement for a Construction Environmental Management Plan (CEMP) to be submitted to address details related to the management of construction related effects associated with the Shared Path;
- A series of topic specific management plans to include:
 - Landscape and Urban Design Plan (LUDP);
 - Bay Specific Urban Design Plans (BSUDPs)
 - Beach Nourishment Plan (BNP);
 - Little Penguin Management Plan (LPMP); and
 - Traffic Management Plan (TMP)
- An Accidental Discovery Protocol.

26.1 Detailed Engineering Design

The detailed engineering plans and specifications shall cover the following matters:

- (a) Shared path;
- (b) Seawalls, including drainage;
- (c) Revetment;
- (d) Access steps, ramps, bus stops; and
- (e) Beach nourishment.

26.2 Construction Environmental Management Plan (CEMP)

The CEMP is the overarching management plan which sets out the management and tools to be implemented by the applicant to manage the effects during construction. Its purpose is to ensure that construction related effects are appropriately managed during all stages of construction. A condition of the resource consent (refer to **Appendix R**) outlines the contents of the CEMP.

The CEMP will be prepared by the Project contractor prior to construction of the Project to meet the requirements of the conditions. The final CEMP will be provided to GWRC and HCC for approval prior to construction, to allow the respective councils to confirm that the CEMP meets the applicable requirements of the resource consents. HCC will require that the contractor undertakes all construction activities on site in accordance with the provisions of the relevant conditions and management plans as part of their contractual arrangement.

The CEMP shall include details of:

- Construction works programming;
- Site Management;
- Staff and contractors' responsibilities;
- Training requirements for employees, contractors, any sub-contractors and visitors;
- Environmental incident and emergency management;
- Environmental complaints management;
- Compliance monitoring;
- Corrective actions, if necessary, in specified circumstances (eg. relating to wildlife management);
- Stakeholder and communication management;
- The final construction methodologies; and
- Measures to control erosion and sediment, and to prevent external contaminants from entering the CMA from land or construction activities during construction works. This includes inspection and maintenance procedures.

26.3 Other Management Plans

Topic specific management plans include:

26.3.1 Landscape and Urban Design Plan (LUDP)

The LUDP shall be prepared with input from an ecologist, engineer, landscape architect and urban designer and in consultation with:

- Wellington Tenth's Trust;
- Port Nicholson Block Settlement Trust;
- Relevant Resident Associations;
- Hutt City Council (Parks and Reserves); and
- Eastbourne Community Board

The LUDP shall include Bay Specific Urban Design Plans (BSUDPs) for each bay within the Project area, which integrate the Project's permanent works into the coastal environment and with the adjacent land.

26.3.2 Bay Specific Urban Design Plans (BSUDPs)

The BSUDPs will specifically address the detailed design of the Project in the specific bay location for the benefit of pedestrians, cyclists and others using the local road network, including:

- Seawall structures such as curved concrete walls, revetments and combination concrete wall and revetment, in terms of their scale and materials and fit in the landscape and including transition zones between seawall types. This includes considering opportunities to incorporate texture and depressions into the seawalls and the reuse of colonised rock material, where practicable;
- Beach access including all steps and ramps and associated handrails where required and including their surface treatment;
- Treatment of stormwater structures at the coastal interface;
- Penguin related structures including penguin passage elements, ramps and nests;

- Planting treatment;
- Treatment of existing trees;
- Treatment of existing landscape features;
- Beach nourishment; and
- Signage and storyboards.

26.3.3 Beach Nourishment Plan (BNP)

The BNP shall include, but not be limited to:

- The name and location of the sediment source;
- Evidence of approvals and consents for taking the material;
- A specification of the borrow material including:
 - Median grain size;
 - Grading envelope;
 - Colours;
 - Extent of placement; and
- A construction methodology from the contractor, including measures to limit potential adverse effects.

26.3.4 Little Penguin Management Plan (LPMP)

The LPMP shall address the following matters:

- Measures to minimise adverse effects on the Little Penguin population during construction;
- A programme for monitoring Little Penguins within or adjacent to the construction area during the construction works;
- Staff and contractor training; and
- Contribute to the detailed design phase of the Project, including enhancement of habitat for the future.

26.3.5 Traffic Management Plan (TMP)

The TMP shall include, but not be limited to, the following:

- Management of traffic along Marine Drive adjoining the construction areas;
- Access and parking for contractors; and
- Specification of any additional measures necessary during periods of activities which involve high levels of construction traffic on nearby properties, such as the CentrePort site at Point Howard (including communication and any necessary physical management steps).

27. Summary and Conclusion

The Eastern Bays Shared Path is a project that provides a much desired cycleway and walkway for the community, while being sensitive to the coastal environment and the beach recreational amenity for the people who live in the area.

The statutory assessment that has been undertaken has concluded that the Project is consistent with the relevant objectives and policies of the applicable national, regional and district level statutory provisions.

The Project will promote the sustainable management of natural and physical resources and is consistent with the purpose and principles of the RMA. Notwithstanding the above, the Project will result in some adverse effects, particularly in relation to intertidal ecology, landscape and visual amenity, and recreation and amenity values. On the other hand, the Project will result in significant positive effects, particularly in relation to traffic safety and resilience, but also in terms of social and economic wellbeing.

Throughout the consideration of alternatives, and the subsequent design process, the approach has been to avoid and, where avoidance is not possible, remedy or mitigate actual or potential adverse effects associated both with the construction stage and the operation of the Project. To this end design features have been adopted and will be further developed during the detailed design stage. Furthermore, management plans (such as a CEMP) directed toward 'managing' the various construction stages will be developed, and a suite of recommended consent conditions which set the framework and key environmental parameters in which the management plans operate is proposed.

The overall conclusion is that in relation to 'adverse effects on the environment' the Project has effectively avoided, remedied and mitigated adverse effects. Where there remain residual adverse effects post-mitigation, for example in relation to intertidal ecological effects, those effects are minor or less and acceptable.

As a result, it is the conclusion of this AEE that the purpose of the RMA will be achieved by granting the resource consents sought for the Project.

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PART 3: APPENDICES

TECHNICAL REPORTS, SUPPORTING DOCUMENTS, PLAN SETS AND VISUALISATIONS

Appendices



Appendix A Assessment of Environmental Effects for Intertidal Ecology

Appendix B Freshwater Fish Passage Requirements

Appendix C Avifauna and Vegetation Assessment

Appendix D Landscape and Visual Assessment

Appendix E Coastal Processes

Appendix F Beach Nourishment

Appendix G Alternatives Assessment

Appendix H Cultural Impact Assessment

Appendix I Consultation Summary Report

Appendix J Design Features and Construction Methodology

Appendix K Recreation Assessment

Appendix L Transport Assessment

Appendix M Base Information Plans

Appendix N Preliminary Design Plans

Appendix O Visualisations

Appendix P Certificates of Title

Appendix Q Written Approvals

Appendix R Proposed Conditions

Appendix S Statutory Assessment

Wellington

Level 11, 155 The Terrace
Wellington 6011
PO Box 13-052, Armagh
Christchurch 8141
Tel +64 4 381 6700

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