

DRAFT

ASSET MANAGEMENT PLAN

Coastal

PART B

August 2011

The Kāpiti Coast District community wants to see that:

- There are healthy natural systems which people can enjoy
- Local character is maintained within a cohesive District
- The community makes wise use of local resources and people have the ability to act in a sustainable way
- The District is a place that works for young people
- The District has a strong, healthy, safe and involved community

This asset management plan demonstrates how coastal assets that the Council owns contribute to the achievement of those outcomes.



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EXECUTIVE SUMMARY

Our strategic goal

To protect public assets where feasible and enhance the ecological and amenity values of the coast.

What we do

Coastal activities make a key contribution to the Kāpiti Coast District's identity and the Coast is an important feature of our community.

The Council has confirmed it will only carry out capital works on the coast to protect Council owned assets.

Assets are managed by the Coastal asset team with Kāpiti Coast District Council's operations team carrying out maintenance works. Most capital works are carried out by external companies selected via a competitive process.

Why we do it

- ▶ Community expectation
- ▶ Source of pleasure and pride
- ▶ Health and wellbeing (provision of exercise space, water quality monitoring)
- ▶ Urban biodiversity
- ▶ Hazard management
- ▶ Legislative requirement
- ▶ Protection of Council assets

Key issues

For the period covered by this AMP, the following key issues relating to this activity have been identified:

- ▶ **Raumati Community Seawall.** In the late 1970s, the Council coordinated the construction of the seawall at Raumati which was funded by the property owners with the aid of a subsidy from the National Water and Soil Conservation Authority. A condition of the subsidy was that the Council maintained the seawall. Since then, the Council has maintained the seawall as well as undertaking significant capital works in the form of rock toe protection funded initially by the

Executive summary

property owners but latterly by the Council. The northern section of wall that does not have rock toe protection is in imminent danger of falling down although it is not yet at the end of its design life. The Council has made an in principle decision *not* to protect private property along the coast.

- ▶ Coastal Hazard Lines. Building setback lines are being reviewed as part of the District Plan Review based on an extensive assessment of coastal erosion hazard over the least four years.
- ▶ Encroachment. The Council's reserves have been encroached upon by adjacent landowners in a number of places along the Coast.

A number of wider issues are identified in Part A of this Plan (Chapter 3) which have implications for Stormwater and Coastal management;

- ▶ Growth management;
- ▶ Setting expectations;
- ▶ Improving community resilience;
- ▶ Climate change:
 - sea level rise;
 - managed retreat;
 - increased flood risk.

What the community expects

In conjunction with the Coastal Management strategy, released in 2006, this asset management plan provides the framework through which the Council intends to meet customer levels of service and deliver strategic coastal protection outcomes.

The goals identified in this coastal protection asset management plan can be summarised as follows:

- ▶ to manage the coastal protection systems prudently;
- ▶ to manage erosion hazard risk;
- ▶ to ensure that works on the coastal protection asset are effective and efficient and consider the environment;
- ▶ to provide a system with a level of reliability that meets the customer and regulatory needs;
- ▶ to continue to minimise risks to coastal ecosystems;
- ▶ to ensure the impacts of coastal development are fully considered and managed.

Executive summary

Key assumptions and uncertainties

The main assumption is that the Council will plan and design for climate change and sea level rise projections as per the Ministry for Environment guidelines. The greatest uncertainty (and therefore risk) for Coastal activities is the scale and frequency of sustained severe weather events causing significant erosion and failure of existing protection structures.

How we fund it

Coastal asset management is currently funded through the activity fixed charge per property. Operating costs are funded through Rates contributions and capital costs are funded from development contributions and loans. Depreciation is funded through activity fixed charges.

How much it costs

	06/07 Actual	07/08 Actual	08/09 Actual	09/10 Actual	10/11 Actual	Bud 11/12
Operating	212	166	152	159	227	213
Capital	540	341	515	364	1,174	1,730
Direct Overheads	45	45	45	70	0	95
Total	797	552	712	593	1,401	2,038

	Bud 12/13	Bud 13/14	Bud 14/15	Bud 15/16	Bud 16/17	Bud 17/18	Bud 18/19	Bud 19/20	Bud 20/21	Bud 21/22
Operating	247	247	247	277	277	277	307	307	307	337
Capital	695	1,650	1,650	1,195	730	590	690	640	640	640
Direct Overheads	96	96	96	96	124	124	124	124	124	124
Total	1,037	1,993	1,993	1,568	1,131	991	1,121	1,071	1,071	1,101

	Bud 22/23	Bud 23/24	Bud 24/25	Bud 25/26	Bud 26/27	Bud 27/28	Bud 28/29	Bud 29/30	Bud 30/31	Bud 31/32
Operating	337	337	367	367	367	397	397	397	427	427
Capital	177	227	142	142	62	12	12	12	12	12
Direct Overheads	124	124	124	124	124	124	124	124	124	124
Total	638	688	633	633	553	533	533	533	563	563

1.0 INTRODUCTION

1.1 Goals and asset types

Our goal is to protect public assets where feasible and enhance the ecological and amenity values of the coast.

Asset types covered by this asset management plan (AMP) are:

- ▶ seawalls;
- ▶ rock revetments;
- ▶ dune renourishment associated with Council owned infrastructure;
- ▶ coastal planting;
- ▶ beach access ways (managed by Leisure and Open Spaces);
- ▶ signage (managed by Leisure and Open Spaces).

The following activities are also associated with the management of this asset group:

- ▶ education (managed by Strategy and Partnerships);
- ▶ compliance and enforcement (managed by Regulatory Management);
- ▶ monitoring (managed by Infrastructure Services Laboratory).

Assets dealt with in this plan are defined as physical components of a facility which have value, enable services to be provided and have an economic life greater than 12 months. The assets and activity area covered by this management plan are as follows:

- ▶ 4.8km of wooden seawall protecting both public and private property
- ▶ 2.7km of riprap as additional protection for the seawall and properties
- ▶ 27 kms of dune systems north of Marine Parade

The following assets are not included in this plan:

- ▶ stormwater outlets onto beaches (included in the Stormwater Asset Management Plan);
- ▶ boat ramps/launching access (included in the Parks & Open Spaces Asset Management Plan);
- ▶ formed access ways and signs at beaches for the public (included in Parks & Open Spaces Asset Management Plan).

1.0 Introduction

1.2 Activity description and rationale

The Kāpiti Coast District Council manages those coastal assets that protect other Council assets. Although the Council currently maintains existing community owned seawalls, the decision as to how to respond when these community owned seawalls fail and are due for replacement is a debate yet to be had.

The Council has confirmed it will only carry out capital works on the coast to protect Council owned assets.

In making that decision, the Council also agreed, in the face of increasing risks and rising community costs, to begin a process of community discussion about managed retreat – an orderly approach to withdrawing from coastal and flood hazard areas over time. This approach will unfold over many decades.

The Council has not reached any conclusion as to what is the appropriate approach but considers the discussion and debate should be extensive and prolonged, giving the community ample time to build up knowledge and consider options.

Given the low-lying nature of the Kāpiti Coast, it considers leadership is needed to bring this issue to the fore for community discussion. In doing so, it recognises that it could be years before a clear community view is formed. It also recognises that managed retreat does not just affect immediate issues of coastal and storm water assets but has the potential to affect virtually every aspect of community life.

Dune restoration is undertaken through Capital works projects to implement soft engineering approaches where appropriate or to introduce a combination of soft and hard engineering solutions.

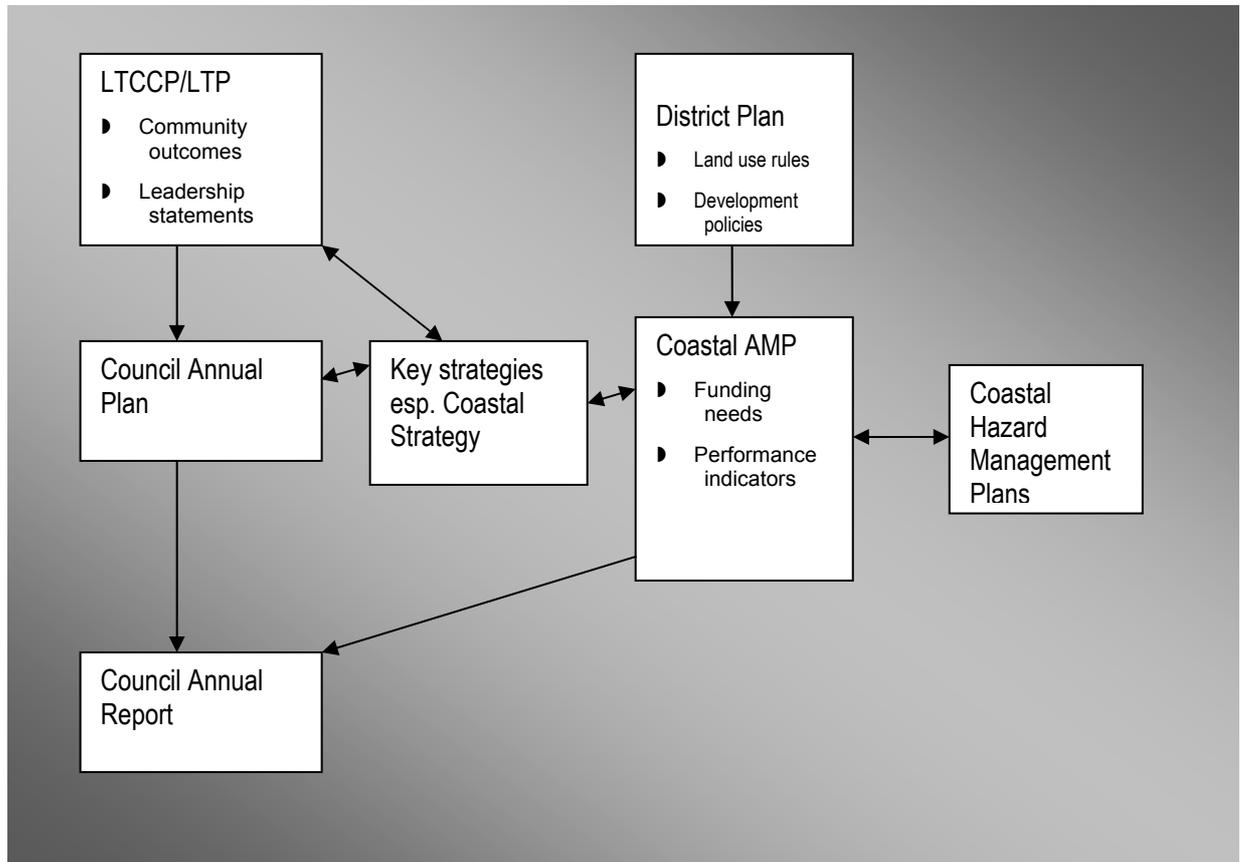
Other Council activities (Parks and Open Spaces) also undertake dune restoration projects throughout the district. These include full dune restoration and planting of smaller areas through community groups.

1.3 Linkages

Asset Management Plans constitute core planning documents for Kāpiti Coast District Council. They are the key link between the Council's Long Term Plan and the delivery of most services to the community. Consequently they are a key vehicle for achieving the Community Outcomes and Leadership Statement aspirations of the LTP. The Coastal AMP demonstrates how the service delivered supports the achievement of the Community Outcomes and provides draft financial forecasts

1.0 Introduction

and activity information which feeds into the LTP. These relationships are explained in detail in Part A and are summarised in the diagram below.



1.4 Key issues

1.4.1 Implications for activity management of wider issues

Part A, Chapter 3, of these AMPs discusses the issues the Council has identified as key for the District over the life of the Plans. Several have particular relevance for Coastal assets.

Improving community resilience

- Coastal assets can contribute to building community resilience through supporting closer community ties through a wide range of shared activities on the beach;
- Coastal assets can delay and reduce the effects of natural events to give the community time to develop options for a response to climate change effects.

Climate change

Adaptation

- Sea level rise will degrade the level of service the existing assets can offer. The option of continually raising revetments and walls means that the beach will completely disappear even at low tide.

1.0 Introduction

- ▶ Managed retreat is an area that the community and the Council need to consider. The long term concept of abandoning property will be a difficult decision for the community.
- ▶ The increasing effects of climate change on Kāpiti's coastline have major implications for the Coastal and Stormwater team's activities and assets. Dune nourishment and maintenance will become increasingly critical in slowing coastal erosion and mitigating storm impacts.
- ▶ The Stormwater and Coastal Assets team will work closely with the Parks and Open Spaces team to plan for these eventualities.
- ▶ Climate change impacts on biodiversity may mean that more effort will be needed in weed and pest animal control.

Growth management

- ▶ Residential intensification and development will have implications for Coastal development. Depending on where new growth occurs, it may have planning implications for appropriate areas for development. This is currently being considered through the District Plan Review.

1.4.2 Specific issues for coastal asset management

Raumati Community Seawall

The Council undertakes coastal protection for legislative and other reasons. As owner of some roading assets vulnerable to erosion, the Council undertakes coastal protection works including beach renourishment to prevent damage to assets. On other vulnerable sections of the coast, private properties front onto the beach. Only some of these properties are protected by Council maintained seawalls while the rest are either unprotected or partially protected by shorter private seawalls.

In the late 1970s, the Council coordinated the construction of the seawall at Raumati which was funded by the property owners with the aid of a subsidy from the National Water and Soil Conservation Authority. A condition of the subsidy was that the Council maintained the seawall. Since then, the Council has maintained the seawall as well as undertaking significant capital works in the form of rock toe protection funded initially by the property owners but latterly by the Council. The northern section of wall that does not have rock toe protection is in imminent danger of falling down although it is not yet at the end of its design life. A budget of \$1 M is planned to be spent over two years in 2013 / 14 to hold the existing wall up with rock in order to ensure the wall lasts for its full expected life. It is likely this work will require resource consent from the regional council. It should be noted that sections of the Raumati wall have been upgraded to a higher standard to protect public assets most noticeably along the Esplanade in Raumati South.

It should be further noted that the existing Raumati sea wall is located within a parcel of land referred to as either Old Coach Road or Old Coach Route. The ownership of this land is unclear as its legal status was never ratified when the highway was shifted inland. This ownership issue creates a problem when owners behind the community wall wish to construct or upgrade private secondary walls.

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Given the prospect of climate change effects, the Council will have to plan in the longer term for the eventual failure of all of its current revetments and therefore consider the relocation of the coastal roads.

Coastal Hazard Lines

Over the last four years the Kāpiti Coast District Council has reviewed the extent of coastal erosion hazard within the District. This hazard assessment will form the substantive basis for the review of the coastal building setback lines to be completed through the District Plan Review.

The Council is using the National Coastal Policy Statement, (Gazetted November 2010), as input into its completion of Coastal Hazard and Edge Effects Assessment for incorporation into the District Plan review.

Encroachment

There are instances along the coast where the Council's reserves have been encroached upon by adjacent landowners which may impede the Council's management of the reserve. The Coastal team will work closely with the Leisure and Open Space team to resolve these issues as and when the need arises.

1.5 Significant negative effects

Potential negative effects of the Council's ownership and management of activities are:

- End effects from Coastal protection assets
- Erosion of dune systems effecting private property

1.6 The level of this plan

The appropriate level of sophistication of planning for asset groups is determined based on consideration of certain factors which impinge on their management as follows:

Criteria	Assessment	
District population size	Intermediate	A comparison of factors including urban area, town populations and total population showed that Coastal asset management practice in Kāpiti Coast should be at the Intermediate level.
District wide risks	Intermediate	Analysis of District-wide risks relevant to all asset groups confirmed that asset management practice should be at Intermediate level.
Average annual costs	Intermediate	The budget allocation to Coastal is an important activity for the Council and presents higher risks if asset management practice is not at an appropriate level

1.0 Introduction

Legislative requirements	Intermediate	Kāpiti Coast District Council has to meet minimum legislative requirements or exceed them when appropriate and cost effective. The asset management response to these requirements is compliance based mainly on the regional plan, Climate change is a major driver.
Size, condition and complexity of assets in group	Basic	Coastal assets are in poor condition.
Risks associated with failures	Basic	Storm damage assessment has risk management built in so potential risks are documented.
Organisational skills and resources	Intermediate	Succession planning issues are recognised and mitigated to the extent possible given a small pool of potential recruits to specialist positions. Planning systems are being implemented across the asset group and being incorporated into the asset management process.
Customer expectations	Intermediate	Coastal management is an important issue for the Council with a large capital works programme funded and a good commitment to managing and resolving issues. There is a high level of community engagement
Sustainability considerations	Intermediate	Sustainability is a core value of the Council with an organisational culture of sustainability embedded into Council planning, practice and operations. Potential impacts of climate change and sea level rise require a long term management approach.

These considerations, coupled with the acknowledgement that sea level rise and increased storm intensity are likely to eliminate most of the Council's existing coastal assets over the next 30 to 100 years, suggest that the asset management practice of coastal asset management at Kāpiti Coast District Council should be at the Intermediate level. For reasons discussed in Part A, Chapter 10, this AMP has been prepared at the Basic level. Asset management practices will improve over the next three years to allow the preparation of an AMP at Intermediate level at the next AMP review.

2.0 Legal and policy framework

2.0 LEGAL AND POLICY FRAMEWORK

2.1 Legislative requirements

The preparation and implementation of this AM Plan and its long term financial forecasts helps Kāpiti Coast District Council comply with legislative requirements. Key legislation applying to leisure infrastructure is summarised below:

Local Government Act 2002

Consultation

Coastal Strategy

Asset Management Plans

Resource Management Act 1991 – The Act requires councils to manage 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 well-being and for their health and safety while:

- ▶ Sustaining the potential of natural and physical resources to meet the reasonable foreseeable needs of future generation.
- ▶ Avoiding, remedying or mitigating any adverse effects of activities on the environment.
- ▶ Safeguarding the life-supporting capacity of air, water, soil and ecosystems.
- ▶ In managing the use, development, and protection of natural and physical resources, recognise and provide the following matters of national importance:
 - ▶ the preservation of the natural character of the coastline environment (including the coastal marine areas), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use and development;
 - ▶ the protection of outstanding natural features and landscapes from inappropriate subdivision, use and development;
 - ▶ the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna;
 - ▶ The maintenance and enhancement of public access to and along coastal marine area, lakes and rivers;
 - ▶ The relationship of Māori and their culture and traditions with their ancestral lands, water sites, wāhi tapu and other taonga.
- ▶ Comply with the District Plan.

2.0 Legal and policy framework

- ▶ Administer reserve contributions, comply with procedures for appeals against contributions levied, and justify the degree of contribution extracted.
- ▶ Take into account the Treaty of Waitangi in exercising functions and powers under the Act relating to the use, development, and protection of natural and physical resources.

Other relevant Acts and standards are:

- ▶ National Coastal Policy Statement
- ▶ Regional Coastal Policy Statement
- ▶ Greater Wellington Coastal Regional Plan
- ▶ Building Act 2004
- ▶ Health and Safety in Employment Act 1992
- ▶ Fencing Act 1987
- ▶ Bylaws
- ▶ Local Government Official Information and Meetings Act
- ▶ Common Law
- ▶ Public Works Act

2.2 Relevant standards

Maintenance and operational standards for the delivery of Coastal asset management services are specified in maintenance contracts and service level agreements (SLAs). In addition, there are a number of other documents that guide the maintenance, management and provision of services and assets. These are set out in the following table:

Standard/Specification.	Content/Purpose.
NZS 3910:2003 – Conditions of Contract for building and Civil engineering construction	Provides standard form of general conditions of contract written in plain English for incorporation into construction contract documents.
NZS 3915:2005 Conditions of Contract for building and civil engineering construction (where no person is appointed to act as engineer to the contract)	Provides standard form of general conditions of contract written in plain English for incorporation into construction contract documents in situations where the client (principal) administers the contract directly.

2.0 Legal and policy framework

AS/SNZ 4360:2000 Risk Management for Local Government	Guidelines for assessing risks and developing risk management strategies.
SNZ HB 9213:2003 Guide to Local Government Service Delivery Options	This Guide is to assist local authorities in the process of selecting, reviewing and implementing appropriate methods of delivering services.

2.3 Relevant Policy

Council's "Positive Ageing on the Kapiti Coast Strategy" sets out the requirement to provide public places and living environments that promotes safety and security. Given the significance of the coastal environment to the community having reasonable access is important.

3.0 Levels of service

3.0 LEVELS OF SERVICE

3.1 User research and expectations

Two sources of feedback on the Council's Stormwater and Coastal activities contributed to our understanding of what residents and ratepayers expect and how satisfied they are with levels of service received:

- ▶ Coastal Management Strategy consultation;
- ▶ LTCCP consultations over the last decade.

The Coastal Management Strategy has a leadership focus on developing a long-term plan for the coast which deals not only with hazard management, but also with access, recreation, natural environment, built environment and protecting local community values in a comprehensive and co-ordinated way. The Strategy includes a focus on good communication and community participation in design processes.

The Strategy reflects a direct response to the following detailed community outcomes:

- ▶ “The coast in its entirety is recognised:
 - as a complex system that is affected by actions along its length
 - as being central to the local culture and lifestyle
 - as a place that is valued for its natural and wild feel
 - as being the marine edge, the front dunes and dune wetlands,
- ▶ and that this is supported by:
 - retaining the wild natural character and the health of the coastal ecosystems as a first priority in any decision
 - retaining dune lands and wetlands in subdivision design and development
 - achieving improved design of coastal walls with a focus on ‘natural design’
 - avoiding any further new greenfields subdivision on the front dunes and associated wetlands.”

Repeat consultation on the Coastal Management Strategy has been undertaken several times since its release. This consultation allows a report back and update to the community and also incorporation of any changes in focus of the communities.

Consultation on the 2012 – 2022 Long Term Plan will guide the Council in balancing the level of service provision against the community's willingness and ability to pay. Should the community not be willing or able to pay for the levels of service it wants, a communication exercise to adjust expectations to a more realistic level will be needed.

3.0 Levels of service

3.2 Users and stakeholders

In order to determine expectations of our services, the following groups within the general population have been identified as having a particular interest in Stormwater and Coastal activities.

Users

Group	Expectation/need
Members of the public	<ul style="list-style-type: none"> ▶ Safety ▶ Amenity
Ecological groups	<ul style="list-style-type: none"> ▶ Sufficiently widespread distribution of ecological reserves to support and enhance local biodiversity ▶ Blue and green corridors to facilitate safe movement of flora and fauna and preserve the connections between them ▶ Pleasant leisure time space

Stakeholders

Group	Expectation/need
Ratepayers and residents	<ul style="list-style-type: none"> ▶ Sense of identity and pride in the District and their particular area within it ▶ Value for money ▶ Contribution to achievement of agreed Community Outcomes
Greater Wellington Regional Council	<ul style="list-style-type: none"> ▶ Contribution to regional initiatives such as support for biodiversity, pest control, flood protection, Key Natural Environments
Dune care groups	<ul style="list-style-type: none"> ▶ Support and Technical advice ▶ Resource Consent advocacy
Iwi	<ul style="list-style-type: none"> ▶ Consultation and contribution
Department of Conservation	<ul style="list-style-type: none"> ▶ Contribution to national initiatives such as support for biodiversity, pest control

3.3 Customer values

Analysis of the information we have on the expectations of the users of Stormwater and Coastal services suggest the following are the key aspects they value:

<ul style="list-style-type: none"> ▶ Accessibility - the coast is accessible to all and accommodates a number of uses 	<ul style="list-style-type: none"> ▶ Amenity - the coast makes an aesthetic and recreational contribution to residents' lives
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3.0 Levels of service

► Safety – Risks from hazards are well managed	► Whole of Community - non-users also benefit including from the coasts contribution to the economy of the district
► Quality - the wild natural character and the health of the coastal ecosystem is retained	► Kaitiakitanga/Community stewardship - decisions about the coast are made by the community with the needs of present and future generations in mind

3.4 Council's strategic goals

The levels of service developed need to take into account the strategic goals of the Council as determined and reconfirmed through LTCCP consultations over the past decade.

Community Outcomes

The activity supports the following Community Outcomes through this AMP:

1. There are healthy natural systems which people can enjoy
2. Local character is maintained within a cohesive District
3. The community makes wise use of local resources and people have the ability to act in a sustainable way
4. The District is a place that works for young people
5. The District has a strong, healthy, safe and involved community

Leadership Statement

The Council's Leadership Statement, published in the 2009 – 2019 LTCCP, addresses 16 issues on which the Council considers it needs to adopt a leadership role in the community. Particularly relevant for this activity when considering levels of service are:

3.0 Levels of service

Leadership Statement	Relevance
Managed retreat	Given the eventual impacts of climate change, the Council will only be able to maintain erosion protection for a limited period of time. There are likely to be certain areas that will succumb to a retreating shoreline.
The importance of place	The Coastal environment is an integral part of the District's identity and of almost every one in our community's life.

3.5 Levels of service

Combining the expectations and requirements of legislation, industry standards, users, stakeholders, and the Council, the following Levels of Service have been developed.

3.0 Levels of service

Community Outcome (LTP)	Activity Rationale and Strategic Objective (AMP)	Customer Value (AMP)	Customer Levels of Service (LoS) in AMP			Performance Measure Procedure	Technical Levels of Service in operational plans, contracts, SLAs
			LoS	Current measure	Proposed measure		LoS
			Primary LoS				
1. 4. 5. 7.	To protect public assets where feasible and enhance the ecological and amenity values of the coast	Accessibility - the coast is accessible to all and accommodates a number of uses	<ol style="list-style-type: none"> Suitable access to the beach is provided for people with a wide range of physical abilities Access points to the beach are maintained in usable condition 	<ul style="list-style-type: none"> All beaches are patrolled according to the conditions (tides, season and beach useage) of the beach control contract The coast and seawalls are inspected 11 times per year and repairs effected where necessary 	<ul style="list-style-type: none"> There is at least one access per settlement which allows the mobility impaired to get on to the beach 85% of residents agree that access to the beach meets their needs 	<ul style="list-style-type: none"> Feedback from Disability Reference Group Management Records (Service Request System) Customer Surveys. 	

3.0 Levels of service

Community Outcome (LTP)	Activity Rationale and Strategic Objective (AMP)	Customer Value (AMP)	Customer Levels of Service (LoS) in AMP			Performance Measure Procedure	Technical Levels of Service in operational plans, contracts, SLAs
			LoS	Current measure	Proposed measure		
1. 2. 4. 7.		Quality – the wild natural character and the health of the coastal ecosystem is retained	3. Damaged ecosystems are restored to a more natural state	<ul style="list-style-type: none"> Possible causes of pollution of beaches and recreational waterways are investigated in conjunction with other agencies and where possible remedial works are initiated. 	<ul style="list-style-type: none"> Survey and monitoring show improvement in ecosystem health over time Where built structures are necessary, impact on the natural environment is minimal 	<ul style="list-style-type: none"> Customer Surveys Water quality test results Biodiversity audits 	LoS

3.0 Levels of service

Community Outcome (LTP)	Activity Rationale and Strategic Objective (AMP)	Customer Value (AMP)	Customer Levels of Service (LoS) in AMP			Performance Measure Procedure	Technical Levels of Service in operational plans, contracts, SLAs
			LoS	Current measure	Proposed measure		
1. 4. 7.		Safety – risks from hazards are well managed	4. People are made aware of serious hazards on beaches	<ul style="list-style-type: none"> All dunes eroded to an unstable “cliff-like” condition are signposted as hazardous within 48 hours of inspection All beaches and rivers that re identified as hazardous to public health during testing (from November 1 to March 31 and monthly for the remainder of the year) are publicised and signposted 	<ul style="list-style-type: none"> Hazards are clearly signposted within 24 hours of notification to the Council No serious harm accidents caused by condition of coastal assets per year 	<ul style="list-style-type: none"> Management Records (Service Request System) Asset management records 	<ul style="list-style-type: none">

3.0 Levels of service

Community Outcome (LTP)	Activity Rationale and Strategic Objective (AMP)	Customer Value (AMP)	Customer Levels of Service (LoS) in AMP			Performance Measure Procedure	Technical Levels of Service in operational plans, contracts, SLAs
			LoS	Current measure	Proposed measure		
1. 2. 4. 5. 7.		Amenity value– the coastal area makes an aesthetic and recreational contribution to residents lives	5. The coastal/beach area is available for a wide range of activities	<ul style="list-style-type: none"> All beaches are patrolled according to the conditions (tides, season and beach usage) of the beach control contract 	<ul style="list-style-type: none"> 85% or residents agree that multiple uses don't spoil enjoyment of the beach 	<ul style="list-style-type: none"> Customer Surveys 	<ul style="list-style-type: none">
1. 2. 4. 7.		Kaitaikitanga/Community stewardship – decisions about the coast are made by the community with the needs of present and future generations in mind	6. Iwi and other communities of interest are involved at early stages of development of policy and design and consulted on funding levels in LTP	<ul style="list-style-type: none"> Annual survey 	<ul style="list-style-type: none"> Iwi and local groups agree they are happy with their level of involvement 	<ul style="list-style-type: none"> Te Whakaminenga o Kāpiti feedback Feedback from care groups 	<ul style="list-style-type: none">

3.0 Levels of service

Community Outcome (LTP)	Activity Rationale and Strategic Objective (AMP)	Customer Value (AMP)	Customer Levels of Service (LoS) in AMP			Performance Measure Procedure	Technical Levels of Service in operational plans, contracts, SLAs
			LoS	Current measure	Proposed measure		LoS
			<ul style="list-style-type: none"> • Secondary LoS 				
1. 2. 4. 5. 7.		Accessibility - the coast is accessible to all and accommodates a number of uses	7. People can identify where access points to the beach are	<ul style="list-style-type: none"> • All beach signage is inspected and reviewed monthly to determine appropriateness and where necessary the process to get them repaired is initiated within five working days 	<ul style="list-style-type: none"> • 85% of users agree that beach access signs are visible and easily recognised 	<ul style="list-style-type: none"> • Customer Surveys 	<ul style="list-style-type: none"> •

3.0 Levels of service

Community Outcome (LTP)	Activity Rationale and Strategic Objective (AMP)	Customer Value (AMP)	Customer Levels of Service (LoS) in AMP			Performance Measure Procedure	Technical Levels of Service in operational plans, contracts, SLAs
			LoS	Current measure	Proposed measure		
1. 2. 4. 7.		Quality – the wild natural character and the health of the coastal ecosystem is retained	8. The existing natural environment is preserved and maintained	<ul style="list-style-type: none"> All Council coastal protection works include an assessment of dune planting/ restoration works 	<ul style="list-style-type: none"> 85% of users agree that they experience the coast and beaches as a natural environment 	<ul style="list-style-type: none"> Customer Surveys 	<ul style="list-style-type: none">
1. 2. 7.		Whole of community Benefits – non-users also benefit including from the coasts contribution to the economy of the district	9. The beach provides a source of pleasure and community pride	<ul style="list-style-type: none"> New Measure 	<ul style="list-style-type: none"> 85% of residents agree or strongly agree that the coastal environment are a source of pleasure and community pride 	<ul style="list-style-type: none"> Customer Surveys 	<ul style="list-style-type: none">

3.0 Levels of service

Community Outcome (LTP)	Activity Rationale and Strategic Objective (AMP)	Customer Value (AMP)	Customer Levels of Service (LoS) in AMP			Performance Measure Procedure	Technical Levels of Service in operational plans, contracts, SLAs
			LoS	Current measure	Proposed measure		
1.		Safety – risks from hazards are well managed	10. Where appropriate Council-owned assets are protected from damage by the sea	<ul style="list-style-type: none"> The coast and seawalls are inspected 11 times per year and repairs effected where necessary 	<ul style="list-style-type: none"> Where protection is considered necessary, public assets protected by seawalls suffer only minor damage from sea storms 	<ul style="list-style-type: none"> Management Records (Service Request System) 	<ul style="list-style-type: none">

3.0 Levels of service

3.6 Gaps in information or LoS achievement

Information gaps

Presently the Council is in the process of updating its data to derive build lines for building and resource consents. The Council is in the process of a District Plan Review which will incorporate new information on 50 and 100 year coastal Hazard Lines. As part of this process more appropriate building line restrictions will be derived along with new planning policies and rules. To ensure these new requirements are fair and reasonable, Ministry for the Environment mid range projections for sea level rise have been used.

LoS achievement

Climate change, sea level rise and general adverse weather are a risk that the Council has no control over. Coastal assets are constantly put under pressure from these factors. The cost of maintaining and managing these assets long term may well be a cost that this community can no longer afford and will likely have to retreat from without any form of coastal protection. Even if the community were to find the means to pay for such protection, it may well prove impossible to design it.

4.0 Future demand

4.0 FUTURE DEMAND

4.1 Demand management strategies

Regardless of risk to coastal property due to climate change and sea level rise, the coast is still a highly desired area to live and demand for access and protective measures continues to be high. Increasing demand to live in Coastal areas means there will be greater demand for Coastal protection structures to be built.

Given the impacts of climate change it is envisaged that future urban development will be kept away from coastal areas. Existing developed areas adjacent to the coast will come under pressure from the natural environment and in some cases the community may need to withdraw.

Planning for climate change is vital for the resilience of the community. Managing future demand will be occur through policies and rules in the District Plan that set down a sustainable approach for development.

5.0 Risk management

5.0 RISK MANAGEMENT

5.1 Risk summaries

Risks associated with the various asset classes in the activity have been identified and assessed as follows.

Coastal asset risk types

Risk type	Management practice
Injury or fatality resulting from type of work activity carried out coupled with the nature of the environment and nature of equipment and materials used	<ul style="list-style-type: none">▶ Staff training▶ Compliance with industry safety standards and procedures▶ Risk identification and mitigation/isolation/elimination procedure in place
Information gaps resulting from poor data capture systems leading to failure to identify risks, unnecessary/unexpected costs, accidents	<ul style="list-style-type: none">▶ Informal checking systems▶ Partial data capture (Bizeasset)
Environmental disaster or major event (storm, ecological disaster, earthquake/tsunami, major fire)	<ul style="list-style-type: none">▶ Civil Defence Emergency Management Plans
Multiple management agency responsibilities internally and externally – lack of clarity in demarcation lines increases risk of issues not being addressed as each assumes the other has it under control.	<ul style="list-style-type: none">▶ Maintain good communication lines
Unrestricted and unsupervised access to assets and land under management – control over encroachment is minimal	<ul style="list-style-type: none">▶ Signage▶ Education▶ Fencing

5.0 Risk management

5.2 High consequence risks

Table : High consequence risks

Risk Descriptor	Risk Type	Net Risk	Action	Responsibility	Monitoring / Reporting	Timeframes
Climate Change	Environmental Safety Public Health	20	District Plan Requirements Design Factor (MFE Guidelines) Coastal Hazard Management Coastal Strategy	Asset Manager / District Planners	Coastal Strategy Reviews	Ongoing
Asset Condition	Safety Public Health Reputation/ Image Financial	20	Monthly Inspections Regular Maintenance	Asset manager	Operational Reports Service requests	Ongoing
Multiple Management Responsibilities	Agency	15	Resource Consents Inter agency Liaison	Asset Manager / Open Space	Long term Plan	Ongoing
Water Quality	Safety Public Health	20	Signage Education Monitoring	Asset Manager / Regional Council	Water Quality Testing	Ongoing
Maintenance requirements (sea walls)	Reputation/ Image Financial	20	Monthly Inspections Resource Consents	Asset manager	Operational Reports / Resource Consents	Ongoing
Old Coach Route	Reputation/ Image Financial	20	Legal Requirements Compliance enforcing building requirements	Council	Inspections	Ongoing

5.0 Risk management

Risk Descriptor	Risk Type	Net Risk	Action	Responsibility	Monitoring / Reporting	Timeframes
Encroachment	Reputation/ Image Financial	15	<ul style="list-style-type: none"> • Compliance • Consents • Public Education 	Asset Manager / Open Space	Service requests	Ongoing
Hazard Management	Safety Public Health Reputation/ Image Financial	16	<ul style="list-style-type: none"> • District Plan review • Monitoring • Hazard Management Report 	Asset Manager / District Planners	Coastal Strategy / Long Term Plan	Ongoing

6.0 Lifecycle Management

6.0 LIFE CYCLE MANAGEMENT

6.1 Life cycle management

This section provides information on the existing assets, the planned maintenance and the renewal and upgrade programmes which will be set in place. The aim of these programmes is to provide service to the levels desired by the community.

6.2 Physical Parameters

This section provides an overview of the Council's coastal protection assets. The majority of Coastal protection assets consist of rock revetments and timber seawalls, with or without the additional protection of a rock toe. The balance is made up of beach renourishment.

This plan covers all coastal protection assets owned and / or maintained by the Kāpiti Coast District Council. Assets dealt with in this plan are defined as physical components which have value, and have economic life greater than 12 months. The assets covered by this management plan therefore are as follows:

- ▶ Seawalls owned by the Council (as well as some community owned walls for which the Council has historically taken some responsibility) for protection of other infrastructure assets such as roads and stormwater systems. Seawalls which protect landward property both public and private, may be covered but this is not automatic. The term "seawalls" includes:
 - rock revetments;
 - primary seawalls (those on the seaward side of a two wall system);
 - secondary seawalls (those on the landward side of a two wall system);
 - line of rock toe protection in front of the primary wall.
- ▶ Areas of beach renourishment undertaken directly by the Council;
- ▶ Areas of dune restoration undertaken directly by the Council;
- ▶ Part assets belonging to these structures.

The assets are described in this Asset Management Plan using the method of recognising assets used in the Council's asset management system.

Asset Condition / Performance

Asset condition is assessed on the basis of routine maintenance inspection (monthly) and inspections carried out after storms. A broad assessment of general condition and likely life expectancy of current assets is summarised below.

None of the existing seawalls is high enough to offer protection in extreme events, ie a 1 in 100 year event. The majority will offer protection from up to a 1 in 20 year event.

6.0 Lifecycle Management

Paraparaumu

The length of wall is almost completely buried as a result of accretion in recent years.

North Raumati Beach Nourishment / Marine Parade Revetment

After repeated renourishment attempts rock was placed at the toe of the slope in two stages in 2006 and 2007. The rock has protected the planting, however a report from Dr Roger Shand has identified that there is a negative effect at the end of the wall as a result (known as an “end effect”). The Council has undertaken to manage this effect by establishing a stable slope and replace sand when trigger points are reached.

Raumati ‘Main’ Seawall (from Wharemauku Stream south to Queen Elizabeth Park)

The bulk of the seawall/combined with riprap over the Raumati section of coast is in good condition with an anticipated life expectancy of up to 30 years, assuming normal wear and tear and regular maintenance regime.

Where the seawall is not protected by riprap (i.e. 1050 metres approximately), it generally appears to be in good condition. However, for a combined length of approximately 120 metres of this (chiefly but not exclusively across the Council carpark at Matatua Road), the condition is such that a life expectancy (given the normal recent weather patterns/erosion experienced) of between 5 and 10 years may be anticipated. Given the likely pressure to offer protection beyond this time frame, a two year budget has been provided in 2019 for the placement of rock in front of the unprotected section. This investment is designed only to align the life of this part of the wall with that of the parts in better condition. The height of this wall is expected to provide protection only in storm events of less severity than a 1 in 20 year event. A storm more severe than a 1 in 20 year event would be likely to damage the wall.

Raumati Localised Seawalls (from Wharemauku Stream north)

These walls vary in condition from excellent with an anticipated 20 year future life assuming normal seasonal beach behaviour and storm events less severe than a 1 in 20 year event, to poor - probably less than 5 years for the southern half of Willow Grove seawall.

Paekākāriki

The majority of the seawall combined with riprap in Paekākāriki has recently been upgraded to a 100 year storm event level of service with an anticipated life expectancy of up to 30 years, assuming normal wear and tear and continuing regular maintenance. Erosion immediately north of the end of the seawall destroyed a section of the carpark in 2006 so a rock revetment was constructed in that location.

The remaining section of wall has been strengthened against undermining by use of concrete, cast in-situ base panels at its toe. The beach level at the toe of this latter part of the system varies from high in places to well down the one metre deep panel in others. Continued erosion is likely to threaten the road.

6.0 Lifecycle Management

An investigation to identify an appropriate solution is underway. Depending on the option chosen, construction is programmed from 2012 for a period of seven years. It is likely any option will have to be approved under a fully notified resource consent process.

Condition Monitoring Methods

There are two principal opportunities to make and store condition assessment on assets: daily sighting of assets by crews as part of ongoing reactive maintenance, and scheduled monthly inspection by Council staff.

Condition monitoring through routine inspection has been in practice for several years. Lack of full functionality in the asset management system for coastal assets, eg ability to modify attribute date, means data from inspection results are not formally captured in any system.

The improvement plan includes an action to upgrade the asset management system to provide functionality for coastal asset information. The improvement plan also notes a system similar to that used for other asset groups, eg stormwater, could be introduced for coastal assets. The Asset Data Form enables the serviceman to record data on site while an asset is exposed. For example a visual assessment, including correction of inaccurate attribute data, can be made while the asset is being repaired. The form was initially created in 1998 with a simplified 3 grade condition check (poor, good, excellent). This is to be modified with the 5 step grade recommended by the International Infrastructure Manual, Section 3.4.5 Condition Grading Examples. On an ongoing basis service requests forms filed since the last point of capture are checked and any useable data including condition is recorded.

Regular visual inspection is considered adequate to monitor asset condition at this stage.

6.2 Routine Maintenance Plan

Routine maintenance includes the following:

- ▶ regular and ongoing annual expenditure necessary to keep the assets at their required service potential;
- ▶ day-to-day and/or general upkeep works designed to keep the assets operating at required levels of service;
- ▶ works which provide for the normal care and attention of the assets including repairs and minor replacements;
- ▶ unplanned (corrective) maintenance, i.e. isolated failures requiring immediate repair to make the asset operational again.

6.0 Lifecycle Management

Maintenance Plan

The maintenance plan covers the regular day-to-day work required to keep the coastal protection assets operational.

Maintenance Decision Making

Maintenance needs are assessed on the basis of routine maintenance inspections (monthly) and inspections carried out after storms.

Maintenance Needs, Costs and Timing

Maintenance is an ongoing cost and an annual provision has been made. Maintenance requirements are typically greatest following a storm event as a result of damage to the seawall structures and loss of sand from nourishment sites.

The improvement plan identifies a continual programme of asset condition assessments to be established to provide maintenance requirement information as well as to improve the accuracy of the information held about the coastal protection system. Such a programme would also enable renewals to be more accurately programmed.

Deferred Maintenance

There are no specific items of deferred maintenance at present. Short term deferrals sometimes occur following storms as a result of the concentration of maintenance needs over a short time. In such cases contractors are usually employed to assist Council staff in completing works required. As the assets in the district age and strategic decisions are made about the extent of Council funded coastal protection structures, regular condition assessments will assist in the planning/scheduling and deferment of maintenance.

Funding Strategy

Maintenance costs for coastal protection assets are met from rates levied on the urban areas within the District.

Operating and Maintenance Manuals

Other than original design standards, there are no manuals for seawalls as these are fixed structures. Although the principles for beach nourishment and dune restoration projects are reasonably well established their successful management is highly dependent on local conditions, both generally and resulting from individual weather events. As such, there are no operations manuals for these protection options.

6.0 Lifecycle Management

Recording Maintenance Data

Maintenance data arising from routine maintenance is recorded using the NCS based Service Request System.

Standards and Specifications

Standards and Specification to be used are:

- ▶ recommendations from coastal consultants;
- ▶ design standards to meet Kāpiti Coast District Council service levels.

6.3 Renewal/Replacement Plan

Renewal Plan

The renewal plan covers the restoration of existing assets to original capacity. This is achieved through rehabilitation or replacement. The only budgeted “hard” type structure renewal at this stage is the upgrade of the Paekākāriki timber seawall to bring its level of protection up to a 100 year standard and the placement of rock in front of the last section of the unprotected Raumati timber seawall to bring its expected life into line with the protected portions of the wall.

Renewal Standards

The following standards apply to the renewal of seawall infrastructure:

- ▶ NZ Coastal Policy Statement;
- ▶ Regional Coastal Plan;
- ▶ Resource Management Act.

Replacement Needs, Costs and Timing

Seawalls

Over the initial period of this plan substantial work is required at Paekākāriki and Raumati. The budget does not specify ‘renewal of the seawall’ but describes the costs as ‘coastal protection’. This is to reflect the change in emphasis, driven by community desires and which is captured in the Coastal Management Strategy, toward non-structural protection options.

Beach nourishment

The non-structural nature of beach nourishment means continuous renewal/maintenance is required. These costs are included in the budget and increase over time to reflect the fact that the nourishment site may be extended along the coast.

Deferred Renewals

At this stage no deferred renewals are planned. The implementation of condition monitoring will enable informed decisions on renewal deferment in the future.

6.0 Lifecycle Management

Funding Strategy

Some minor renewal and capital works (typically works <\$20,000) are directly rates funded each year. For larger works funding is sourced from loans. In these circumstances debt is used as a tool to provide intergenerational equity. Where existing assets are to be upgraded, funding of this is separated into renewal expenditure (equivalent to the replacement cost) and new asset expenditure (upgrade cost, over and above replacement cost). The Council has apportioned these costs as shown;

- ▶ Replacement Cost 30%
- ▶ Capital Cost 70%

6.4 Creation/Acquisition/Augmentation

The capital works programme for the next 20 years only includes works to address the unprotected section of the timber seawalls at The Parade at Paekākāriki and northern end of the community wall in Raumati. The reasons for the work on the Raumati wall are discussed in 6.3 Renewal Plan above: it does not constitute renewal in the accepted definition of the term. Apart from dune restoration and nourishment no other new works are anticipated at this stage. This will be reviewed if the erosion hazard assessment identifies areas at high risk of “unacceptable” erosion bearing in mind the Council’s in-principle decision to protect only Council owned assets, Under the direction of the coastal management strategy it is possible options other than active protection measures will also be considered. The erosion hazard assessment is expected to be the key tool in determining priorities for any future expenditure. Prioritisation criteria may need to be developed to determine which sites take priority if there are a large number of at risk sites identified, although this is considered unlikely.

Selection Criteria

A weighted, multi-criteria analysis tool and selection process was developed in 2005 to select appropriate protection options for the erosion site in Paekākāriki. The process successfully brought together community and technical views to enable a preferred option to be identified. The improvement plan includes an action to review this process and develop a robust methodology for selecting options for future capital works.

Factors considered were:

- ▶ meets agreed levels of service;
- ▶ environmental;
- ▶ legislation/policy documents;
- ▶ social/cultural;
- ▶ amenity;
- ▶ delivery timeframe;
- ▶ cost.

6.0 Lifecycle Management

Standards and Specifications

Relevant standards and specifications will depend on the protection options to be implemented.

Forecast Acquisition Needs, Costs and Timing

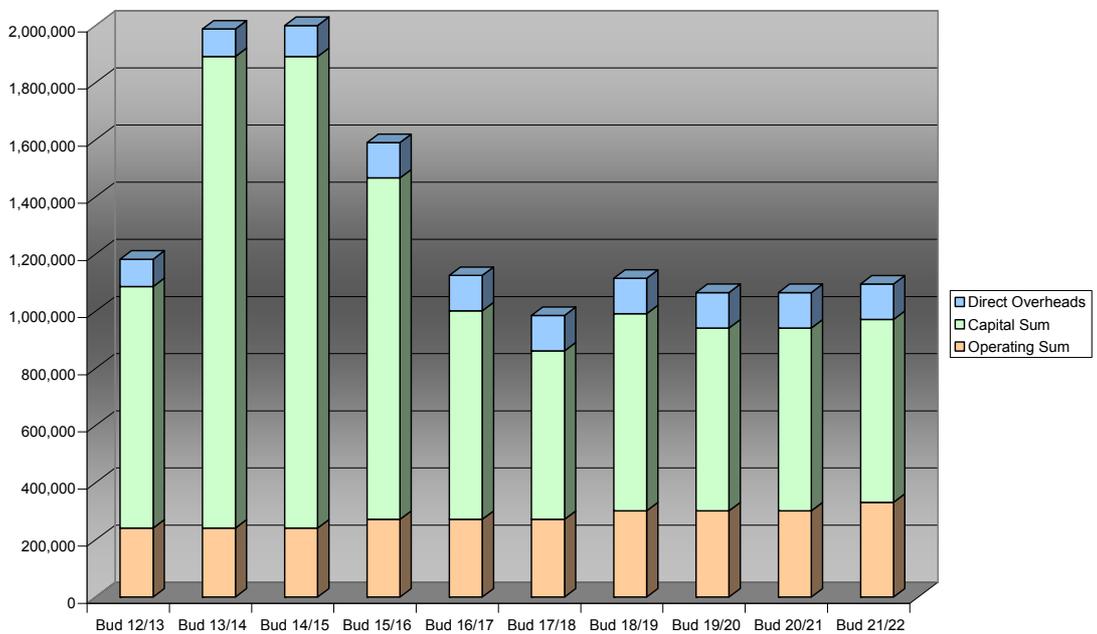
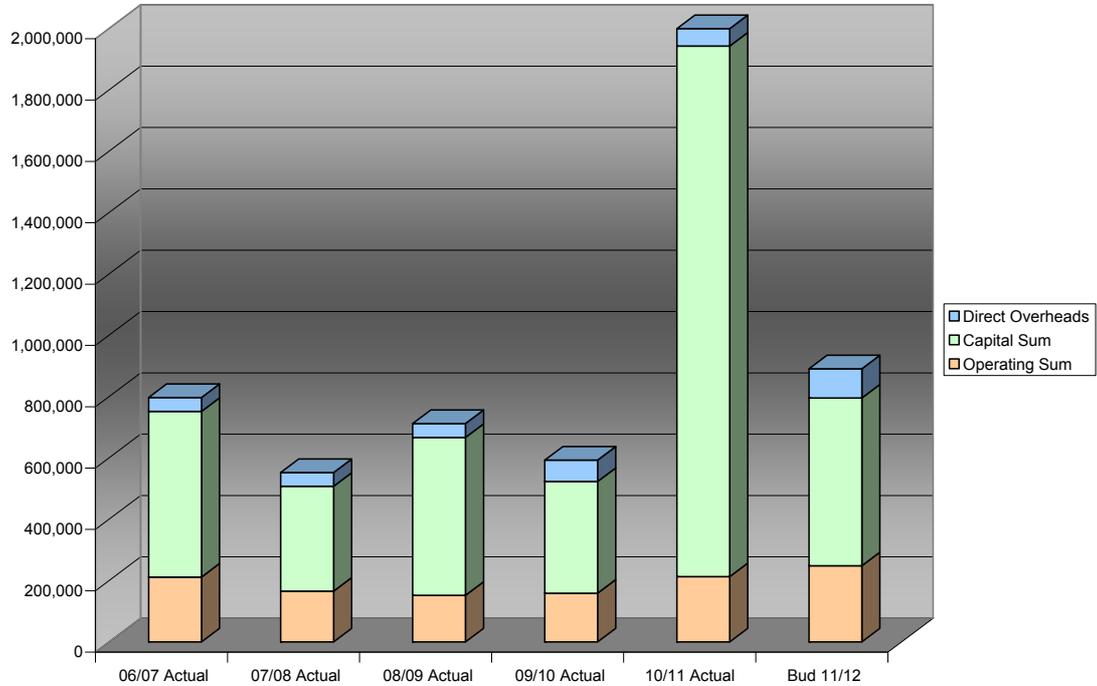
On some vulnerable areas of the coast, private properties front on to the beach. Only some are protected by the Council's maintenance of the community's seawalls while the rest are either unprotected or partially protected by shorter private seawalls. At each point, decisions will be made to address these issues as appropriate.

7.0 Financial policies

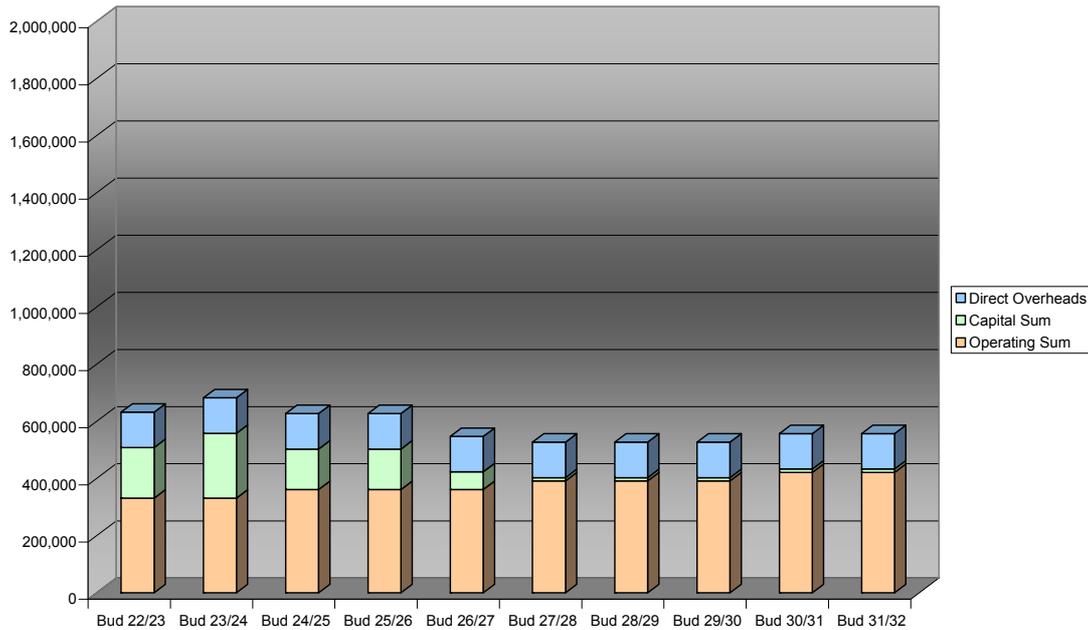
7.0 FINANCIAL POLICIES

7.1 20 year financial forecast

The following graphs summarise both capital and operational expenditure over the next 20 years. The full table of Yearly Budgets is included in Appendix D.



7.0 Financial policies



7.2 Key assumptions

The basis for the financial forecasts is explained in the lifecycle management plan (Chapter 6). The following general assumptions have been made in preparing the 20 year expenditure forecast.

- ▶ the community will expect that the Raumati Seawall will be maintained at its current service level for the immediate future;
- ▶ the upgrade to the protection for The Parade, Paekākāriki will continue and consent from the Regional Council will be obtained;
- ▶ coastal monitoring will continue and the community will be informed of the ongoing implications of climate change ;
- ▶ given the eventual likely impacts of climate change no structural works are budgeted for in the second half of this plan;
- ▶ costs associated with the effects of climate change on different assets will need to be included in the relevant asset management plan.

7.3 Confidence levels

Confidence grades have been assessed as:

- | | |
|-------------------------------|---------------|
| 1. Data Capture | B - Reliable |
| 2. Demand forecasts | C - Uncertain |
| 3. Service gap interpretation | B - Reliable |
| 4. Quantities | B- Reliable |
| 5. Condition grades | C - Uncertain |
| 6. Unit rates | C - Uncertain |

7.0 Financial policies

7. Base lives C - Uncertain
8. Remaining lives C - Uncertain
9. Valuation and depreciation C - Uncertain
10. Financial forecasts
11. short-term 1-3 years C – Uncertain
12. mid-term 4-10 years D – Very Uncertain
13. long-term 10 – 20 years D – Very uncertain

Forecasts will be improved with more sophisticated analysis and improved knowledge of the assets as discussed in Chapter 9 and in Part A, Chapter 9.

7.4 Valuation summary

The base life of wooden retaining walls indicated in Appendix B of the International Infrastructure Management Manual is 25 years. As the majority of the seawalls along the Kāpiti Coast are designed and built in timber, it may be considered that 25 years would constitute an appropriate base life. However the overwhelming majority of the existing seawall is in reasonably good condition, has or will have rip rap protection and the seawall is already around 25 years old (on average). This would suggest a base life of around 40 years as opposed to 25. J.L. Lumsden, a coastal engineer who has previously done significant work in this region, has also suggested in consent documents in the late 1990s that the seawalls may well last another 15-20 years if maintenance is continued. Therefore using a base life of 40 years is considered appropriate for this valuation.

Dune restoration and beach renourishment are essentially processes to recreate natural assets. Although described in the asset management system, they are not currently considered depreciable assets. The improvement plan will contain an action to review how these processes and assets should be treated for data and valuation purposes.

The valuations presented in this section are the result of the valuation of seawalls made in December 2010 by Aecom Ltd.

Table : Summary Seawall Valuation

SEAWALLS	RC	ODC	ODRC	DISP
Paraparaumu	\$6,708,755	\$6,708,755	\$3,034,599	\$142,524
Paekākāriki	\$2,166,186	\$2,166,186	\$646,395	\$51,306
TOTAL - SEAWALLS	\$8,874,941	\$8,874,941	\$3,680,994	\$193,830

Detailed seawall valuation information is contained at Appendix C

7.5 Development contributions

There are no coastal activities funded by development contributions.

8.0 Asset management practices

8.0 ASSET MANAGEMENT PRACTICES

8.1 Asset Management Data

	Current Practice	Desired Practice
Asset Hierarchy	Developed according to desired practice.	<ul style="list-style-type: none"> Consistent and logical asset ID system provides a framework for an asset identification system through hierarchical relationships that in turn determines the extent and level of detail collected for assets at different levels (eg from area and facility to component and sub component)
Location Data	Developed according to desired practice.	<ul style="list-style-type: none"> Assets are located geospatially within a single system that can be accessed through GIS to determine asset location, type and other asset data
Physical attributes	Improvements for data capture have been described within service level agreements that are now in place.	<ul style="list-style-type: none"> Physical attribute fields for all asset types are well defined. Formalised process to ensure that asset data is captured and updated on an ongoing basis, including data capture by Operations Team, and Developers. As built drawings and records of installed assets are retained and accessible via GIS.
Maintenance records	<p>Works order processes are locally managed by supervisors and recorded through the job costing system.</p> <p>Records are not retained at asset level.</p> <p>Customer complaints can be directly linked to job.</p>	<p>Develop and implement a process that:</p> <ul style="list-style-type: none"> Generates works orders for planned maintenance and monitoring programmes Captures materials installed and resources used for planned and unplanned maintenance work and links to asset ID Links customer requests to maintenance records and specific asset identification
Maintenance and operating costs	Costs are recorded through the job costing system but not to the level of detail that records costs against assets within schemes	For all unplanned and planned maintenance tasks, costs of materials, plant, services and labour are captured and linked to asset ID or asset category as deemed applicable in treatment plants, pumping stations, reservoirs and networks
Condition assessment	<ul style="list-style-type: none"> Visual inspection of walls is undertaken by field staff and recorded on job sheets – but only retained in paper form 	<p>Condition assessment programmes for below and above ground assets are developed and implemented, including:</p> <ul style="list-style-type: none"> Field capture of asset condition by staff according to predetermined criteria and rating systems Sampling programmes for pipe condition assessment by materials developed and implemented with results accessible via

8.0 Asset management practices

	Current Practice	Desired Practice
		asset ID and GIS <ul style="list-style-type: none"> Condition assessment programmes using specialist techniques for mechanical and electrical plant is formalised as part of planned maintenance programmes.
Performance Monitoring	<ul style="list-style-type: none"> Reporting functions are limited 	<ul style="list-style-type: none"> A process of asset performance monitoring is developed that establishes capability or limitations of assets to achieve levels of service. Records of asset performance or limitations are accessible via GIS interface and through report generation.
Risk management data	<ul style="list-style-type: none"> Significant knowledge about risks and vulnerability is retained by experienced operators 	<ul style="list-style-type: none"> Critical assets are formally identified using predetermined criteria for criticality scoring Vulnerability of assets to external influences is formally assessed according to predetermined criteria and weightings Operability of assets as it affects capability to deliver levels of service is assessed according to predetermined criteria – such as availability of spares, skills needed to operate, accessibility Risk of assets is formally assessed and reported through GIS as a combination of consequence (criticality) and probability (asset condition, operability and vulnerability)
Asset lives	Only base lives used with no adjustments made for condition	Asset register is populated with actual ages and estimated lives according to best available data. Predicted lives are reviewed as condition assessment data is improved.
Valuation data	Improvements are needed to optimise values from knowledge of condition	Valuations are completed using optimised depreciated replacement cost according to accepted accounting practice and repeated at three yearly intervals
Compliance data	All compliance data requirements and reporting are outlined in service level agreements	Compliance data for drinking water standards , resource consents, health and safety, building compliance, storage of hazardous chemicals is formally reported according to formalised procedures that include actions taken and responsibilities when a on compliance or transgression occurs

8.0 Asset management practices

8.2 Asset Management Processes

	Current Practice	Desired Practice
Risk management	Achieving desired practice.	Processes are in place to regularly review the risk register as well as specific asset risks as a basis for initiating capital expenditure, operational improvements or renewal of assets
Optimised decision making	Multi- criteria analysis is used for deciding preferred options on major projects.	Multi-criteria analysis is formalised as a decision making tool when alternatives are available for asset renewals and capital expenditure
Service level reviews	Service level agreements need to be agreed with operations staff.	All levels of service are measured and reported on a monthly basis Results of monthly reviews are used to determine need to change levels of service at three yearly intervals Service performance is translated into key indicators that are benchmarked with other utilities
Long term financial planning	Opex expenditure is heavily dependent on historic performance. Capex expenditure has principally been driven by existing assets nearing the end of their design life	Long term financial plans for capital expenditure, renewals and OPEX have clear linkages to the processes described to capture asset data, report service level performance and identify areas to address growth and to mitigate risk. The planning utilises techniques to prioritise financial expenditure for capex, renewals and opex
CAPEX evaluation	Project benefits are assessed as are the risks of a "No go" decision. Cost evaluation is based on NPV.	CAPEX programmes are developed based on risk assessment, options assessment, and NPV analysis. Evaluations should always address the implications of "do nothing" or deferral
Contract monitoring and control	Contracts are awarded according to formalised criteria. Major projects (> \$250,000) are reported to Council committee Projects >\$100,000 are reported regularly to Senior Leadership Team.	A formal contract awarding, monitoring and reporting process is developed and reported at different intervals for projects of different values and community significance
AMP asset data/description	Improvements are needed through development of an AMS to allow this to happen. Currently derived from numerous sources.	Asset data summaries are reported directly from asset data system for incorporation into AMP
AMP lifecycle strategies	<ul style="list-style-type: none"> Some improvement needed to formalise asset renewal optimisation 	Strategies are reviewed to address key issues, changes from legislation or policy and priorities for asset renewal, and asset augmentation as well as demand management, o
Service level agreement	Service level agreements need to	A formal review of service level agreements

8.0 Asset management practices

	Current Practice	Desired Practice
reviews	be agreed with operations staff.	is undertaken annually that identifies improvement to performance or changes to be made to the agreements
OPEX analysis and review	Improvements are needed that will be derived from a review of the service level agreement reporting requirements.	Operational expenditure is reviewed annually against budget, service agreement reviews, performance reporting, compliance reporting, maintenance records and customer complaints

8.3 Asset management information systems

	Current Practice	Desired Practice
Asset Register	The current asset register has some limitations	Assets held within the asset management system form the basis for creation of an asset register that links assets, asset location, expected lives and valuation
Plans and records	Desired practice is in place	All plans and records are retained electronically and updated as changes occur. Access to plans and records is via ArcGIS
Financial System	Improvements are needed to establish links between the financial management and asset management systems for job costing	Job Costing information is linked to financial management system for reporting but also linked to asset history via AMS to be able to generate enquiries about planned and unplanned maintenance history
Maintenance System	Improvements are needed to establish links between job costing information, maintenance activities and asset data	Planned maintenance and inspection programmes are generated via AMS with history of work done linked directly to assets affected by maintenance
GIS	In place	GIS system is changed to ArcGIS for compatibility with other Wellington region utilities
Customer requests	<ul style="list-style-type: none"> Customer requests cannot be linked to assets. Jobs generated from customer requests can be tracked Improvements needed to ensure Customers get feedback on status of work generated by their requests 	Customer requests are linked directly to assets via AMS Sufficient data for each customer request is held to track job progress and closure Feedback to customer about job status is prompted and trackable
System integration	Significant improvements needed at corporate level to achieve integration of systems across activities	Financial, maintenance, IT, GIS, plans and records, customer service, and asset management systems are compatible across

8.0 Asset management practices

	Current Practice	Desired Practice
		Council services

8.4 Organisational/Commercial Strategies

	Current Practice	Desired Practice
Asset management review and Improvement	Review done as part of LTP process	Improvements identified in asset management plan review are incorporated into forwarded budgets and implemented over time frame stated
Contract Management and Internal Service delivery	Desired practice achieved	All contracts, procurement and service level agreements are scoped awarded, monitored and reported according to Council policies
Corporate Objectives	Practice implemented through service level agreements	Outcomes, objectives and levels of service are aligned Work programme is reviewed annually and LOS performance is tracked monthly
Funding	<ul style="list-style-type: none"> • A review of the development contribution is needed • Current charges are scheme based and are aligned to costs. • Improvements are needed to use criticality and condition data to smooth replacement programmes • Balance is achieved for community affordability through the annual plan review process 	<ul style="list-style-type: none"> • Development contribution policy is fully developed and funding for new development is sourced as per policy • Operations and maintenance expenditure and depreciation can be aligned to ratepayer charges • Projected funding requirements include smoothed replacement programme that accounts for asset lives and criticality • Funding for capital expenditure requirements is planned with confidence that water supply improvements are balanced against other Council needs and are affordable to the community
Training and Skills	<ul style="list-style-type: none"> • Training to lift skills in financial management for asset management and operations staff needed • Competencies in the use of asset management tools , systems and risk management are adequate • Some improvements in 	<p>Adequate training is provided to staff in:</p> <ul style="list-style-type: none"> • Financial and business management • Asset management tools, systems and risk management • Asset management processes -and lifecycle management including multi

8.0 Asset management practices

	Current Practice	Desired Practice
	<p>understanding of asset management processes, decision making and prioritisation is desirable</p> <ul style="list-style-type: none"> • Customer service and communication skills are adequate • There are opportunities to advance the understanding of optimising maintenance planning and optimising operational costs • Legislative compliance skills are adequate • Undertake a review of the resources needed to advance asset management for water supply and wastewater 	<p>criteria analysis and prioritisation of works</p> <ul style="list-style-type: none"> • Customer service • Communication, establishing relationships and team leadership • Maintenance planning, cost analysis and optimisation • Legislative compliance
Legislative compliance	Legislative compliance is proactively managed	Legislative compliance is proactively managed and early warning systems are in place for staff to pre-empt potential compliance failures wherever possible

9.0 Improvement plan

9.0 IMPROVEMENT PLAN

9.1 Improvement plan

AM category	Initiative	Due date	Cost
Policy development	<ul style="list-style-type: none"> Costal Hazard Management. 	2011	\$50K
	<ul style="list-style-type: none"> District Plan Review. 	2012	\$80K
Information systems	<ul style="list-style-type: none"> Assets fully mapped in GIS system 	2012	Internal
Trends data capture and analysis	<ul style="list-style-type: none"> On going monitoring. 	Yearly	\$60K p/a
Coastal plantings	<ul style="list-style-type: none"> Migrate management of this to parks operations (currently managed by both parks and coastal asset management teams). 	2013	Internal
Management of dunes	<ul style="list-style-type: none"> Dune systems are identified and performance monitoring undertaken leading to restorative work 	Starting 2015	\$30K p/a
Managed retreat	<ul style="list-style-type: none"> Medium term planning initiatives to facilitate managed retreat where appropriate 	2013 and beyond	Internal

9.2 Improvement programme monitoring

The AMP is a living document, which is relevant and integral to daily AM activity. To ensure the plan remains useful and relevant the following on-going process of AMP monitoring and review activity will be undertaken:

1. formal adoption of the plan by the Council;
2. review and formal adoption of levels of service;
3. annual revision of AMP to incorporate and document changes to works programmes, outcome of service level reviews and new knowledge resulting from the AM improvement programme;
4. quality assurance audits of AM information to ensure the integrity and cost effectiveness of data collected;
5. annual internal audits will be undertaken to assess the effectiveness with which this plan meets corporate objectives. Periodic internal audits will be undertaken to assess the adequacy of AM processes, systems and data and external audits will be undertaken to measure AM performance against desired practice.

Table 9.2: Improvement process timeline

Activity	Action	Target Date	Cost
AM Plan Review and Development	Adoption of AMP by Council. Annual review of plan context by AM Team Check AMP content for consistency with adopted Council programmes and plans	September 2011	Internal

9.0 Improvement plan

	<p>Compliance with agreed AM improvement programmes</p> <p>Effectiveness and adequacy of AM processes, systems and data</p> <p>Full review of the AMP review of technical content.</p> <p>Adoption of reviewed AMP by Council.</p> <p>External review of AMP information by Audit New Zealand</p>		
Condition Data	Review condition assessment information	2012 then 3 yearly	\$15,000
Levels of Service	<p>Review service performance measures (including public consultation process) and formally adopt levels of service</p> <p>Measure actual level of service delivered and report in Annual Report</p>	2012/2013	\$15,000
Risk	<p>Review of risk framework</p> <p>Annual review of risk register by AM team</p> <p>Review economic analysis of risk mitigation options</p>	2011/2012	Internal

APPENDICES

Appendix A – Maps of Coastal Protection Assets

Appendix B - Risk Register

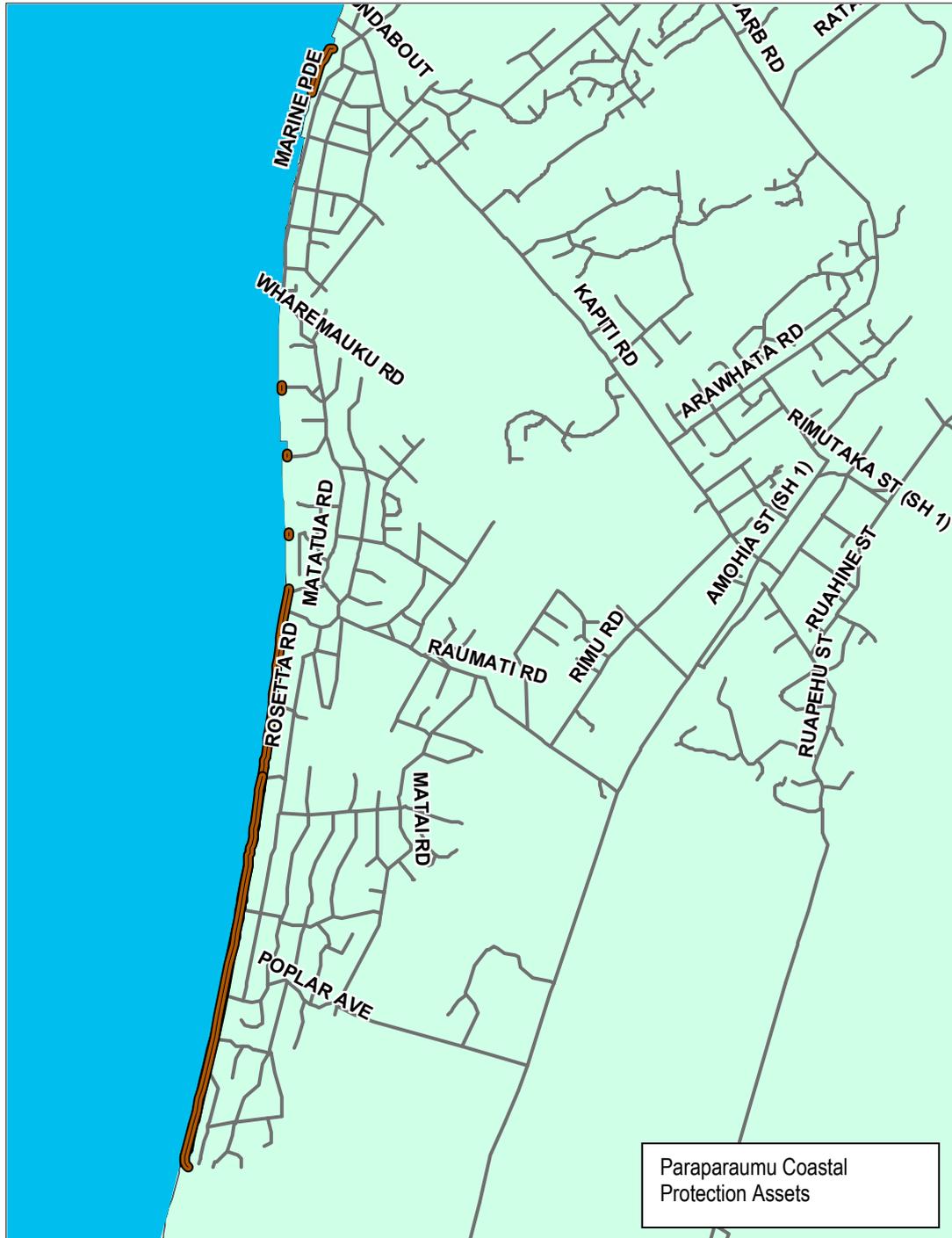
Appendix C – Detailed asset valuations

Appendix D - 20 Year Budget Plan

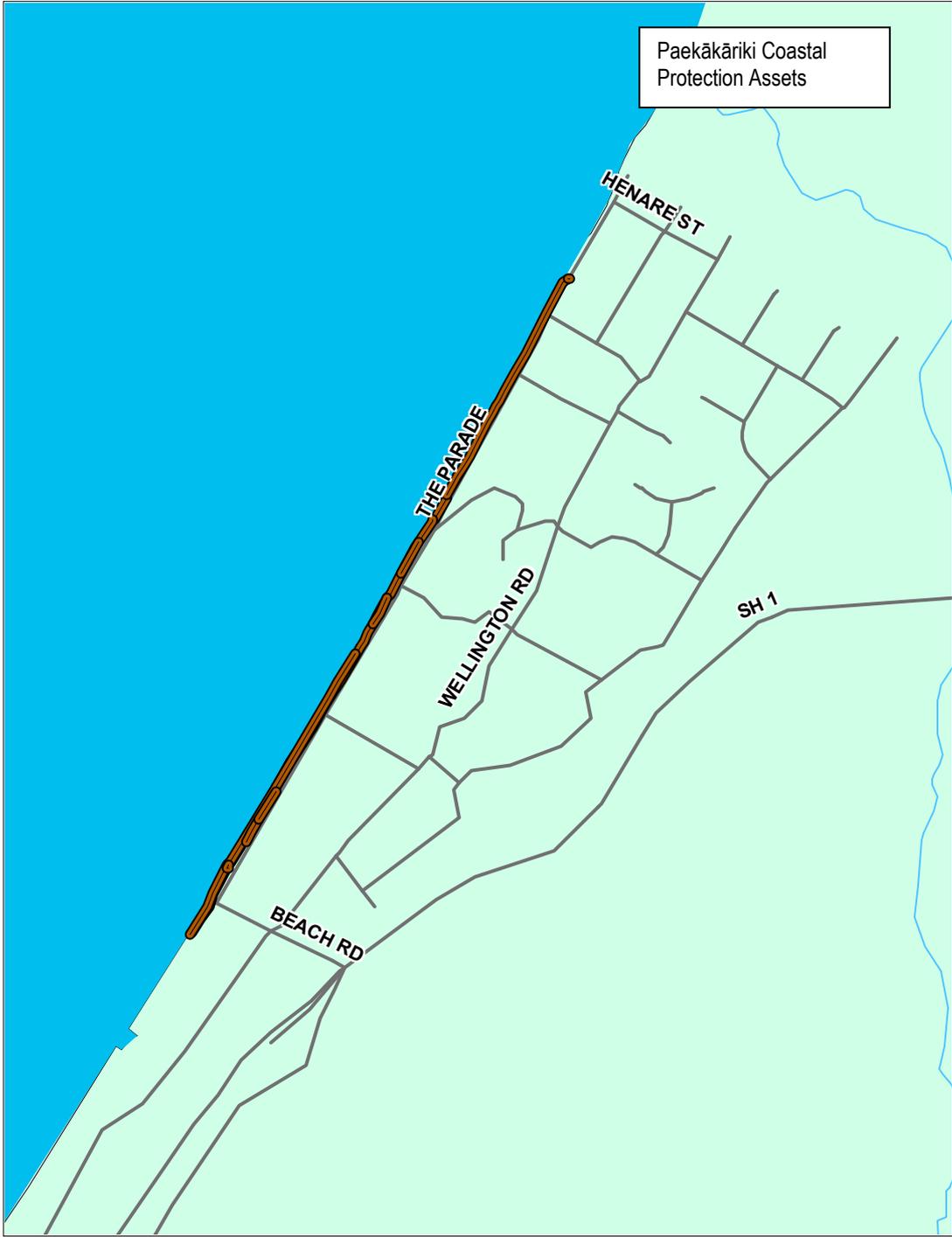
Appendix A – Maps of Coastal Protection Assets

The following maps show the locations of coastal protection assets that have been spatially recorded. The maps show sea (blue), land (green) seawalls (dark brown lines) and roads (grey).

Map 1 Paraparaumu Seawalls



Map 2 Paekākāriki Seawalls



Appendix B - Risk Register

The risk registers provided in the following tables for the current and future activities of Kāpiti District Council have been developed in consultation with key staff.

Table 1: Asset Management Risks – General

Asset Management Risks - General											
Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable.	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)			Net Risk (Considering measures in place)			Management Options
		Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor		
Lack of resources – the ability to attract key staff and or retain skilled staff, and retain staff knowledge	Organisational Financial	3	4	12	<ul style="list-style-type: none"> Dedicated HR staff Recruitment consultancy used Benchmarked salary levels Advertising through IPENZ and NZW&W Career development Draft policy/programmes 	Fair	3	3	9	<ul style="list-style-type: none"> Look at review of recruitment policy (current lack of policies) Family/Lifestyle friendly policies Office accommodation/layout review Monitoring PDP process Review benchmark data with emphasis on specialised roles 	
Extreme Natural Hazards – (landslips/ earthquake/ tsunami/ volcanic, storm event) causing damage to assets and or hindering development.	Environmental Public Health Organisational Financial	5	1	5	<ul style="list-style-type: none"> Earthquake and Flooding Lifelines Response Plan – Network inspection and hazard identification SR feedback Civil Defence (new emergency ops centre) Maintenance (in house capabilities) Structure audits and renewals Subdivision and Development Principles and Requirements (setback lines for tsunami – requires more work) Building code/standards District Planning 	Good	4	1	4	<ul style="list-style-type: none"> Liaise with Regional agencies to identify hazards and ensure emergency response mechanisms are in place in the event of a hazard occurring Business continuity planning Emergency Management Team within the Council – dedicated resources. New EOC. 	
Compliance with Legislation and legal requirements – inability or failure to comply with consents, statute and national standards. Increase in requirements.	Legislative Financial Reputation/ Image	3	3	9	<ul style="list-style-type: none"> Compliance with resource consents, RMA Contract Conditions (OSH) Consents database Internal audits (OSH), (abstraction data) Automated control systems eg scada etc Staff training and development Local government networking Feedback from Regional Council Use of external advice/resources (eg Engineering Consultants) Some auditing of works contracts (e.g. traffic management, safety, OSH) ACC partnership, WorkSafe 	Good	3	1	3	<ul style="list-style-type: none"> Monitoring of expiring consents and identifying new consents to be improved (define responsibilities) Key staff to keep updated on current legislation Regular communications to staff (team meetings etc re changes to leg eg NZDWS) Development of Council procedures Communicating effects of legislative change to Council/ LTCCP process 	

Asset Management Risks - General

Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable.	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)			Net Risk (Considering measures in place)			Management Options
		Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor		
Knowledge management – loss of institutional knowledge, insufficient systems in place to manage data/information, especially regarding asset performance and condition.. IT failure.	Organisational Financial Operational	4	5	20	<ul style="list-style-type: none"> Asset changes/updates –Information currently provided by contractors and internal staff (room for improvement) IT practices (backup, virus, security etc.) Asset management systems (e.g. BizeAsset,GIS, Infoworks) Process to ensure that knowledge is transferred, stored and accessible.. External backup. 	Good	2	2	4	<ul style="list-style-type: none"> Define champions and successors Responsibilities defined Suitable training for staff Protocols for update and ongoing auditing Improve frequency and robustness of Condition surveys undertaken Staff Retention Policy Review appropriateness of data systems Improve processes around managing data quality 	
Asset Management – not up to date, or insufficient quality of process and output.	Operational Legislative Financial Reputation/ Image	4	4	16	<ul style="list-style-type: none"> Asset Management processes and practices (legislative) Council committed funding for next 10 years for AM Planning. Asset Management System (GIS, BizeAsset) External/internal Professional advice Management/staff structure set up to develop AM 	Good	2	2	4	<ul style="list-style-type: none"> Asset Management processes and practices to be formalised/further developed Improvement Plan Continuing Staff Development Ongoing external review Ongoing budget provision IT resources 	
Maintenance and Operations Management – unsatisfactory resulting in unnecessary or excessive costs and/or insufficient output or quality. Poor Contractor performance.	Operational Financial Reputation/ Image	4	5	20	<ul style="list-style-type: none"> Ad hoc Service Level Agreement (response times, annual plan requirements - monthly report) Financial reporting Codes of practice, specification Staff training 	Fair	2	3	6	<ul style="list-style-type: none"> Review specification and code of practice Auditing and Reporting (including performance) Formalised Service Level Agreement Training and development of staff 	
Project Management – projects inadequately scoped, budgeted, managed and documented, and reviewed, inadequate consultation with owners, resource consent issues etc resulting in time & cost, loss of image and other impacts.	Operational Financial Reputation/ Image Safety	4	5	20	<ul style="list-style-type: none"> Annual Plan/LTCCP Process (initial consultation) Use of trained external resource Council Communication Strategy (consultation and communication) Appropriate resources (e.g. software/information systems) 	Poor	4	3	12	<ul style="list-style-type: none"> Ensure adequate (quality) training for key staff Project Management Training for key staff Improvement of specific processes Project management policy Access to external specialists Define accountabilities and mapping organisation wide impacts and priorities 	
Capital Works Contract Management – unsatisfactory resulting in unnecessary or excessive costs and/or insufficient output or quality. Poor Contractor performance.	Operational Financial Reputation/ Image Safety	4	5	20	<ul style="list-style-type: none"> Standard Capital Works Contracts Approved design and specification (under review) Contract procurement process Contracts managed by Professional Services or internally Contract conditions Financial reporting Internal health and safety manual 	Good	3	2	6	<ul style="list-style-type: none"> Contract Procedures Manual (currently have a draft) Service Level Agreements Auditing and Reporting (including performance) Contract review and improvement Application of Health and Safety Manual Staff training and internal review 	

Asset Management Risks - General

Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable.	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)		Net Risk (Considering measures in place)			Management Options
		Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor	
Inadequate Processes for Securing Funding – Both internal and external sources of funding. Risk of not applying for funding on time or not identifying potential areas where funding is required. Unable to appropriately scope or determine requirements due to inadequate data.	Organisational Financial Reputation/ Image	4	4	16	<ul style="list-style-type: none"> Asset management process (business case development Whole life costing) Prioritising projects/ LTCCP process Liaising with other councils Skill of staff/resources submitting external applications and reporting internally to the Council 	Fair	3	2	6	<ul style="list-style-type: none"> Robust supporting data for applications Monitor other funding opportunities as they arise Forecast likely scenarios regarding effects of budget changes Using sustainable practices Increasing efficiency Rationalise spending Budget development processes to be developed, including business cases Corporate processes around financial management and reporting
Inadequate condition/performance assessments – lack of reliable data for renewals/replacements and valuations.	Operational Financial	3	4	12	<ul style="list-style-type: none"> Internal and external feedback (service requests, communication with Operations) Ongoing maintenance and operations reporting Asset Management Systems (Infoworks) 	Poor	3	2	6	<ul style="list-style-type: none"> Develop ongoing condition assessment process Implement proactive maintenance strategy eg hydrants, reservoirs. Staff training Staff continuity Processes to ensure that knowledge is transferred, stored and accessible. Define champions and successors. External backup.
Public Health and Safety – accidents causing injury and or damage to Kāpiti residents/visitors/or property resulting in claims and or negative publicity (e.g. falls and trips over protruding assets).	Public Health Reputation/ Image Financial	4	4	16	<ul style="list-style-type: none"> Fencing Signage Design and location SR feedback (NCS) Compliance with legislation and standards Proactive maintenance 	Good	4	1	4	<ul style="list-style-type: none"> Safety inspections Ongoing review of Council's liability and H & S Policy.
Technology – inability to track technology, engineering developments/techniques, local and national trends and to utilise where relevant. Using untested new technology. Using inappropriate technology (eg treatment methods)	Organisational	2	3	6	<ul style="list-style-type: none"> NZWWA networking Some staff development and training (CPD) Use of external advice/resources 	Good	2	2	4	<ul style="list-style-type: none"> IT Policy/ IT Roadmap Staff development and training Professional memberships Attendance at conferences
External Influences (Cost Escalations) – terrorism, rising costs (e.g. fuel), pandemic, worldwide incidents.	Economic	3	3	9	<ul style="list-style-type: none"> Local government networking, Responding to national directives Business Continuity Planning Monitoring world events and reacting appropriately 	Good	3	2	6	<ul style="list-style-type: none"> Track national and global trends. Monitor key economic developments and liaise with central government. Keep BCP up to date
Inadequate Planning for Growth – resulting in under-capacity infrastructure.	Operational Financial Reputation/ Image	4	4	16	<ul style="list-style-type: none"> Subdivision/ Development control Residential Growth Strategy Watter Matters, demand management Asset Management Planning Network modelling 	Good	4	3	12	<ul style="list-style-type: none"> Growth Strategy and Development Contributions Policy Develop network models and strategise for growth Community Education
Increased Rainfall Intensity and Frequency – causing flooding, unpredictable weather events.	Operations Financial	4	2	8	<ul style="list-style-type: none"> Reviewing rainfall intensity history (figures used in design) 	Fair	3	1	3	<ul style="list-style-type: none"> Monitor trends and impacts

Asset Management Risks - General

Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable.	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)			Net Risk (Considering measures in place)			Management Options
		Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor		
Customer Interaction – lack of performance, lack of response, lack of fault detection, loss of good public image.	Operations Reputation/Image Financial	4	3	12	<ul style="list-style-type: none"> ▶ Adequate Staff training ▶ Staff KPIs ▶ Appropriate systems and internal reporting procedures 	Good	4	1	4	<ul style="list-style-type: none"> ▶ Protocols around customer interaction ▶ Protocols/training around engaging the media ▶ Maintenance of systems and reporting ▶ Monitor customer perception via Customer feedback surveys ▶ Escalation of compliance reporting 	

Asset Management Risks – Coastal

Asset Management Risks – Coastal

Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable.	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)		Net Risk (Considering measures in place)			Management Options
		Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor	
Major Storm Events	Safety	5	1	5	<ul style="list-style-type: none"> ▸ Civil Defence ▸ Warning Systems ▸ Maintenance Checks 	Fair	5	1	5	
Lesser Storm Events causing damage	Safety	3	4	12	<ul style="list-style-type: none"> ▸ Warnings ▸ Maintenance Checks ▸ Standby 	Good	3	4	12	
Climate Change	Environmental Safety Public Health	4	5	20	<ul style="list-style-type: none"> ▸ District Plan Requirements ▸ Design Factor (MFE Guidelines) ▸ Coastal Hazard Management ▸ Coastal Strategy 	Good	4	5	20	▸ District Plan Review
Asset Condition	Safety Public Health Reputation/ Image Financial	4	5	20	<ul style="list-style-type: none"> ▸ Monthly Inspections ▸ Regular Maintenance 	Fair	4	5	20	▸ Asset Management Plan Review
Earthquakes	Safety	5	1	5	▸ Civil Defence	Fair	5	1	5	
Tsunami	Safety	5	1	5	<ul style="list-style-type: none"> ▸ Civil Defence ▸ Warning Systems 	Fair	5	1	5	
Multiple Management Agency Responsibilities	Reputation/ Image	3	5	15	<ul style="list-style-type: none"> ▸ Resource Consents ▸ Inter agency Liaison 	Poor	3	5	15	
Dune Degradation	Environmental Environmental	3	5	15	<ul style="list-style-type: none"> ▸ Education ▸ Fencing ▸ Signage ▸ Planting ▸ Dune Care Groups 	Good	3	4	12	
Water Quality	Safety Public Health	4	5	20	<ul style="list-style-type: none"> ▸ Signage ▸ Education ▸ Monitoring 	Fair	4	5	20	▸ Beach Closures
Maintenance requirements (sea walls)	Reputation/ Image Financial	4	5	20	<ul style="list-style-type: none"> ▸ Monthly Inspections ▸ Resource Consents 	Good	4	5	20	▸ Medium to Long term removal / abandonment of Sea walls

Asset Management Risks – Coastal

Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable.	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)		Net Risk (Considering measures in place)			Management Options
		Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor	
Poor Design (Including lack of Base information)	Reputation/ Image Financial	4	2	8	<ul style="list-style-type: none"> Specialist Consultants Reports Coastal Monitoring MFE Guidelines 	Good	3	2	6	
Old Coach Route	Reputation/ Image Financial	4	5	20	<ul style="list-style-type: none"> Legal Inspections Compliance enforcing building requirements 	Poor	4	5	20	<ul style="list-style-type: none"> Integration into adjacent properties
Private Assets next to Council Assets	Reputation/ Image Financial	3	1	3	<ul style="list-style-type: none"> Monthly Inspections 	Fair	3	1	3	
Ecological Disaster	Safety Public Health	5	1	5			5	1	5	
Vandalism of Dunes	Reputation/ Image Financial	2	4	8	<ul style="list-style-type: none"> Beach patrols Fencing Signage Public Education 	Fair	2	4	8	
Pests (Flora and Fauna)	Reputation/ Image Financial	3	5	15	<ul style="list-style-type: none"> Public Education Weed Spraying Eradication 	Good	3	4	12	
Fire	Safety Public Health	4	2	8	<ul style="list-style-type: none"> Beach Bylaw requirements 	Good	4	1	4	
Unrestricted Access	Environmental	3	5	15	<ul style="list-style-type: none"> Fencing Signage Beach patrol 	Fair	3	4	12	
Encroachment	Reputation/ Image Financial	3	5	15	<ul style="list-style-type: none"> Compliance Consents Public Education 	Poor	3	5	15	Legal Action
Hazard Management	Safety Public Health Reputation/ Image Financial	4	5	20	<ul style="list-style-type: none"> District Plan review Monitoring Hazard Management Report 	Good	4	4	16	Managed Retreat

Appendix C – Detailed asset valuations

Ward	Location	Type	Quantity	Unit	RC	ORC	ODRC	DISP
Pae	Beach Road to 2 Pingau Street	Timber_Wall	910	M	900,900	900,900	135,135	22,523
Pae	Paekākāriki Memorial Hall to 122 The Parade	Timber_Wall	470	M	465,300	465,300	69,795	11,633
Pae	Beach Road to 60 The Parade	Rock_Toe	619	M	320,023	320,023	166,412	6,400
Pae	82 - 90 The Parade	Rock_Toe	69	M	35,673	35,673	18,550	713
Pae	Pingau Street to Campbell Park	Rock_Toe	125	M	64,625	64,625	33,605	1,293
Pae	124 The Parade	Rock_Toe	4	M	2,068	2,068	1,075	41
Pae	5 The Parade	Timber_Wall	9	M	8,910	8,910	1,337	223
Pae	14 - 16 The Parade	Concrete_Wall	49	M	48,510	48,510	30,319	1,213
Pae	16 - 24 The Parade	Timber_Wall	62	M	61,380	61,380	9,207	1,535
Paekākāriki	70 - 78 The Parade	Timber_Wall	56	M	55,440	55,440	8,316	1,386
Paekākāriki	136 to 138 The Parade	Rock_Toe	56	M	28,952	28,952	26,057	579
Paekākāriki	130 to 135 The Parade	Rock_Toe	79	M	40,843	40,843	36,759	817
Paekākāriki	122 to 130 The Parade	Rock_Toe	86	M	44,462	44,462	39,127	889
Paekākāriki	7 The Parade	Stairway	1	No.	3,960	3,960	594	99
Paekākāriki	32 The Parade	Stairway	1	No.	3,960	3,960	594	99
Paekākāriki	48 The Parade	Stairway	1	No.	3,960	3,960	594	99
Paekākāriki	82 The Parade	Stairway	1	No.	3,960	3,960	594	99
Paekākāriki	Paekākāriki Memorial Hall	Stairway	1	No.	3,960	3,960	594	99
Paekākāriki	135 The Parade	Walkway Access	1	No.	2,200	2,200	2,200	
Paekākāriki	138 The Parade	Walkway Access	1	No.	2,200	2,200	2,200	
Paekākāriki	138 The Parade	Walkway Access	1	No.	2,200	2,200	2,200	
Paekākāriki	Ames Red Street Access	Stairway	1	No.	62,700	62,700	61,133	1,568
Paraparaumu	Stream	Timber_Wall	3103	M	3,071,970	3,071,970	460,796	76,799
Paraparaumu	South end of the Esplanade north to Aotea Road	Rock_Toe	2126	M	1,099,142	1,099,142	571,554	21,983
Paraparaumu	53 Rosetta Road	Timber_Wall	19	M	18,810	18,810	2,822	470
Paraparaumu	1 Hydes Road	Timber_Wall	12	M	11,880	11,880	1,782	297
Paraparaumu	87 Rosetta Road	Timber_Wall	18	M	17,820	17,820	2,673	446
Paraparaumu	201a Rosetta Road	Concrete_Wall	24	M	33,600	33,600	5,040	840
Paraparaumu	215 Rosetta Road	Timber_Wall	17	M	16,830	16,830	2,525	421
Paraparaumu	225 Rosetta Road	Timber_Wall	23	M	22,770	22,770	3,416	569
Paraparaumu	1 Takitimu Road	Timber_Wall	14	M	13,860	13,860	2,079	347
Paraparaumu	Arawa Street	Timber_Wall	21	M	20,790	20,790	3,119	520
Paraparaumu	Tainui Street	Timber_Wall	19	M	18,810	18,810	2,822	470
Paraparaumu	Willow Grove	Timber_Wall	7	M	6,930	6,930	1,040	173
Paraparaumu	Kohutuhutu Road	Timber_Wall	21	M	20,790	20,790	3,119	520
Paraparaumu	Tikotu Stream to Maclean Street	Timber_Wall	264	M	261,360	261,360	39,204	6,534
Paraparaumu	73 Marine Parade to 105 Marine Parade	Rock_Toe	583	M	301,411	301,411	277,298	6,028
Paraparaumu	73 Marine Parade to 105 Marine Parade	Rock_Toe	579	M	299,343	299,343	275,396	5,987
Paraparaumu	Jeep Road	Boat_Ramp	1	No.	7,700	7,700	2,438	128
Paraparaumu	Hydes Road	Boat_Ramp	1	No.	7,700	7,700	2,438	128
Paraparaumu	104 The Esplanade	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	56 The Esplanade	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	51 The Esplanade	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	Kainui Road	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	25 The Esplanade	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	19 The Esplanade	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	1 The Esplanade	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	8 The Esplanade	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	13 Rosetta Road	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	21 Rosetta Road	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	53 Rosetta Road	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	181 Rosetta Road	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	Aotea Road	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	Takitimu Road	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	323B Rosetta Road	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	Garden Road	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	Wharemauku Stream West	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	Wharemauku Stream East	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	Arawa Street	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	Tainui Street	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	Willow Grove	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	Kohutuhutu Road	Stairway	1	No.	3,960	3,960	1,584	99
Paraparaumu	Rock reventment- The Esplanade	Earthworks	1	No.	60,000	60,000	60,000	
Paraparaumu	Rock reventment- The Esplanade	Rock_Toe	1	No.	566,720	566,720	544,051	11,334
Paraparaumu	Rock reventment- The Esplanade	Stairway	1	No.	36,190	36,190	34,381	905
Paraparaumu	Rock reventment- The Esplanade	Facemetal	1	No.	173,360	173,360	173,360	
Paraparaumu	Seawalls - Paraparaumu - Jeep Road	Rock_Toe	1	No.	81,527	81,527	79,896	1,631
Paraparaumu	Seawalls - Tainui	Timber_Wall	1	No.	59,400	59,400	57,915	1,485
Paraparaumu	Seawalls - Paraparaumu	Rock_Toe	1	No.	0	0	0	0
Paraparaumu	Seawalls - Raumati	Rock_Toe	1	No.	0	0	0	0
Paraparaumu	Accessways and signage	Stairway	1	No.	93,237	93,237	90,906	2,331
Paraparaumu	Paraparaumu Beach Foreshore	Dune Restoration	1	No.	18,700	18,700	18,700	
Paraparaumu	Paraparaumu Beach Foreshore	Dune Restoration	1	No.	34,349	34,349	34,349	
Paraparaumu	Paraparaumu Beach Foreshore	Dune Restoration	1	No.	246,637	246,637	246,637	

Appendix D - 20 Year Budget Plan.

Description	Type	10/11 Actual	Median last 5 Years	Year																				20 Year Total			
				Bud 11/12	Bud 12/13	Bud 13/14	Bud 14/15	Bud 15/16	Bud 16/17	Bud 17/18	Bud 18/19	Bud 19/20	Bud 20/21	Bud 21/22	Bud 22/23	Bud 23/24	Bud 24/25	Bud 25/26	Bud 26/27	Bud 27/28	Bud 28/29	Bud 29/30	Bud 30/31		Bud 31/32		
COASTAL PROTECTION MAINTENANC	Planned	116,778	93,834	111,076	120,000	120,000	120,000	120,000	120,000	120,000	120,000	150,000	150,000	150,000	165,000	165,000	165,000	195,000	195,000	195,000	210,000	210,000	210,000	240,000	240,000	3,360,000	
COASTAL MONITORING	Project	54,009	54,009	62,820	62,820	62,820	62,820	62,820	62,820	62,820	62,820	62,820	62,820	62,820	62,820	62,820	62,820	62,820	62,820	62,820	62,820	62,820	62,820	62,820	62,820	62,820	1,256,400
BEACH ACCESSWAYS MAINTENANCE	Planned	31,776	26,062	42,927	42,927	42,927	42,927	42,927	42,927	42,927	42,927	42,927	42,927	42,927	42,927	42,927	42,927	42,927	42,927	42,927	42,927	42,927	42,927	42,927	42,927	42,927	858,540
COASTAL PLANTS	Project		23,552					30,000	30,000	30,000	30,000	30,000	30,000	30,000	45,000	45,000	45,000	45,000	45,000	45,000	60,000	60,000	60,000	60,000	60,000	60,000	750,000
EDUCATION/COMMUNICATION	Project	7,487	1,000	15,098	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	200,000
BACK DUNE PLANTING	Planned	2,175	4,302	5,884	6,002	6,019	6,019	6,019	6,019	6,019	6,019	6,019	6,019	6,019	6,019	6,019	6,019	6,019	6,019	6,019	6,019	6,019	6,019	6,019	6,019	6,019	120,363
Operating Sum		212,225	202,759	237,805	241,749	241,766	241,766	271,766	271,766	271,766	301,766	301,766	301,766	331,766	331,766	331,766	361,766	361,766	361,766	391,766	391,766	391,766	421,766	421,766	421,766	6,545,303	
COASTAL SIGNAGE	Renewal	10,157	10,157	5,935	11,555	11,690	11,690	11,690	11,690	11,690	11,690	11,690	11,690	11,690	11,690	11,690	11,690	11,690	11,690	11,690	11,690	11,690	11,690	11,690	11,690	233,665	
COASTAL MONITORING CAPEX	New	61,463	55,394	56,016	65,000	20,000	20,000	65,000							65,000	65,000											300,000
COASTAL MANAGED RETREAT	New			126,649	150,000						50,000	100,000	250,000	250,000	250,000												1,050,000
COASTAL PROTECTION WORK	New	90,037	56,362	100,000																							
COASTAL INVESTIGATIONS	New														50,000	100,000											150,000
BEACH ACCESSWAYS UPGRADE	Upgrade	41,193	36,287	42,240	40,000	40,000	40,000	40,000	40,000	40,000					50,000	50,000	50,000	50,000	50,000								450,000
COASTAL PLANTING	New	27,277	27,277	30,985	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000												280,000
COASTAL RESTORATION	Upgrade			50,000	50,000	50,000	50,000	50,000	50,000																		250,000
DISTRICT PLAN REVIEW	New	88,798															80,000	80,000									160,000
COASTAL PROTECTION PAKAKARIKI	Upgrade	1,411,274	733,435	135,394	500,000	1,500,000	1,500,000	1,000,000	500,000																		5,000,000
COASTAL PROTECTN RESTORATION	Upgrade										50,000	350,000	350,000	350,000													1,100,000
Coastal Protection Raumati	Renewal								100,000	500,000	500,000																1,100,000
Capital Sum		1,730,199	514,927	547,219	844,555	1,649,690	1,649,690	1,194,690	729,690	589,690	689,690	639,690	639,690	639,690	176,690	226,690	141,690	141,690	61,690	11,690	10,073,665						
Direct Overheads		95,000	45,000	95,000	96,000	96,000	124,000	124,000	124,000	124,000	124,000	124,000	124,000	124,000	124,000	124,000	124,000	124,000	124,000	124,000	124,000	124,000	124,000	124,000	124,000	124,000	124,000
Coastal Total		2,037,424	762,686	880,024	1,182,304	1,987,456	2,015,456	1,590,456	1,125,456	985,456	1,115,456	1,065,456	1,065,456	1,095,456	632,456	682,456	627,456	627,456	547,456	527,456	527,456	527,456	527,456	557,456	557,456	16,742,967	