

Harbours and Marine Structures

Activity Management Plan

Long Term Plan 2015–2025

16 December 2014

Quality Assurance Statement

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Table of Contents

Table of Contents.....	i
List of Tables	ii
List of Figures	iii
List of Figures	iii
1 Key Issues for the Harbours and Marine Structures Activity.....	1
1.1 Community Outcomes	1
1.2 Effects of Growth, Demand and Sustainability.....	1
Population Growth and Demand	1
Sustainability.....	1
1.3 Key Challenges and Opportunities for Harbours and Marine Structures.....	2
2 Proposed Changes to Activity	4
3 Activity Description.....	5
3.1 Focusing On What We Want To Achieve.....	5
3.2 How We Will Know We Are Achieving the Outcomes	5
3.3 What Services We Provide	5
3.4 Our Key Customers	6
3.5 Key Legislation and Council Strategies.....	7
4 Levels of Service and Performance Measures	8
5 Review of Cost Effectiveness - Regulatory Functions and Service Delivery	10
6 Long Term Infrastructure Strategy	12
6.1 Issues, Principles and Implications.....	12
7 Review of Cost-Effectiveness - Infrastructure Delivery	13
8 Significant Effects	14
8.1 Assumptions	14
9 Risk Management.....	16
10 Improvement Plan	18
11 Operations, Maintenance and Renewals Strategy	19
11.1 Operations and Maintenance	19
11.2 Renewals	19
12 Key Projects	21
13 Summary of Cost for Activity	22
14 Appendix	27

List of Tables

Table 1-1 Key Issues	2
Table 2-1 Proposed Changes to Activity	4
Table 3-1 Marine Structure Asset Groups	5
Table 3-2 Who Benefits.....	6
Table 3-3 Who Pays	7
Table 4-1 Levels of Service.....	8
Table 8-1 Significant Negative Effects.....	14
Table 8-2 Significant Positive Effects	14
Table 8-3 Major Assumptions.....	14
Table 9-1 Significant Risks and Control Measures	16
Table 10-1 Key improvements for Harbours and Marine Structures	18
Table 12-1 Key Projects.....	21
Table 14-1 List of all Marine Structures and Most Recent Condition Rating (1 = very good, 5 = very poor)	27

List of Figures

Figure 13-1	22
Figure 13-2 Harbours and Marine Structures Costs (Inflated)	23
Figure 3 Asset Component Costs for Operations and Maintenance	24
Figure 4 Asset Component Costs for Renewals.....	25
Figure 5 Asset Component Costs for New Marine Structures.....	26
Figure 6 Summary of Marine Structures Condition Scores.....	30

1 Key Issues for the Harbours and Marine Structures Activity

The Council provides marine structures to facilitate access to the marine environment for residents, visitors and commercial operators for recreation, sport, tourism, commercial activities, and transport. Marine structures include wharves and jetties, slipways and ramps, seawalls, recreational rafts, boat moorings, and wharf buildings.

1.1 Community Outcomes

Everything that the Council does in its day-to-day work is focused on achieving community outcomes. All activities outlined in this plan aim to deliver the results required to achieve these outcomes, contribute to Council strategies and meet legislative requirements. Likewise, all Council capital and operating expenditure is directed towards a level of service that moves the community closer to these outcomes now or at some future point.

The effective management of Harbours and Marine Structures for Christchurch means achieving the community outcomes that:

- The public has access to places of scenic, natural, heritage, culture and educational interest
- Christchurch's infrastructure supports sustainable economic activity
- There is a range of travel options that meet the needs of the community
- The city's heritage and taonga are conserved for future generations
- City assets, financial resources and infrastructure are well-managed, now and in the future
- Statutory obligations are met by the Council.

Section 4 shows how these outcomes flow down into and influence the Council's activities and levels of service in relation to Harbours and Marine Structures.

1.2 Effects of Growth, Demand and Sustainability

Population Growth and Demand:

Christchurch city's population is expected to grow by around 23,000 people between 2015 and 2025, and by 60,000 people between 2015 and 2056. Half of this growth is expected to occur in the next 20 years. 80% of this growth will happen in the next 30 years. Much of the growth will occur in the north west and south west of the city.

Almost all of the growth will occur in the ages 50 years and over. A quarter of the population will be over 65 years from 2041 (currently 15%). The population over 80 is expected to double by 2036.

The impact of the growing and ageing population on demand for marine structures is uncertain. We expect that there will be continued demand for increased quantity and quality of cruise ship facilities, improved quality of wharves and slipways for ease of use, and continued popularity of wharves and jetties for walking. Boat ownership is highly influenced by economics.

Sustainability:

The Local Government Act 2002 requires local authorities to take a sustainable development approach while conducting its business. Sustainable development is the fundamental philosophy that is embraced in the Council's Vision, Mission and Objectives, and that shapes the community outcomes. The levels of service and the performance measures that flow from these inherently incorporate the achievement of sustainable outcomes.

The following goals of the Council's Sustainability Policy are relevant to Harbour and Marine Structures;

- Efficiency, doing more with less,
- Social, all people now and in the future are able to meet their needs,
- Quality of life (important for social sustainability), specifically referencing rest and recreation.

Some key considerations for marine structures are materials used, protecting and enhancing biodiversity, and ongoing operation requirements, e.g. maintenance, resilience to climate change.

Marine structures are vulnerable to the effect of climate change, particularly sea level rise and storm events. The National Coastal Policy Statement requires that hazard risks over at least 100 years are to be assessed. The Council heeds Government advice which, currently, is to plan for sea level rise of 50cm and consider a

rise of at least 80cm by 2100. This advice is anticipated to be updated in the near future as new international research points to a mid level projection of approximately 1.1m by 2100.

1.3 Key Challenges and Opportunities for Harbours and Marine Structures

In working towards the community outcomes and influenced by population growth and demand, the Council faces the challenge of making decisions that prioritise resources to deliver the best mix of services at the right level and in a sustainable way. The key challenges and opportunities that have been prioritised by the Council are below in Table 1-1.

Table 1-1 Key Issues

Key Issue	Discussion
Old stock, many structures in poor condition and deteriorating, some are closed. More funding is required to bring them back up to standard	<p>The Council inherited the majority of its marine structures through amalgamation with the Banks Peninsula District Council (BPDC) in 2006. Many of our marine structures were built in the late 1800s and early 1900s for transporting products and passengers between Banks Peninsula and Lyttelton. Some are poorly designed for today's main uses of recreation and tourism. Their poor condition reflects many years of limited maintenance and renewal. Six structures are closed or partially closed. Unplanned reactive maintenance and repairs are sometimes required.</p> <p>Local communities are often passionate about their local facilities and there is community demand to reopen structures, which will require significant funding. The closed structures are:</p> <ul style="list-style-type: none"> • Governors Bay wharf - estimated at \$3m to repair, with ongoing high maintenance costs. Renewal on a like for like basis is estimated at \$7.8m. • Robinson Bay jetty • Church Bay jetty - some community interest to be involved in repair • Duvauchelles wharf –partially closed, at T head • Port Levy - due for repairs June/ July 2015 • South New Brighton jetty - subject to insurance funding <p>Since amalgamation in 2006, we have put considerable effort into identifying and confirming assets, assessing their condition and valuation, preparing and updating an asset management plan, and establishing regular programmes of maintenance, renewal, and condition assessment. There was limited opportunity prior to the earthquakes for renewal of marine structures. A review of marine structures is required with a view to rationalisation of the assets within the current financial situation.</p>
Ongoing maintenance and renewal costs and diminishing operational and capital budgets	<p>There are significant ongoing maintenance and renewal requirements to keep our marine structures safe and operational. Due to their deteriorating condition and historic lack of expenditure, unplanned maintenance and component renewal is often required. Funding challenges are exacerbated by reducing budgets.</p> <p>Marine structures are particularly vulnerable to storm events. Funding requirements to respond to damage would have an economic impact. This is an important consideration particularly for critical facilities such as the Akaroa and Diamond Harbour wharves.</p>
Feasibility of continuing the Lyttelton Marina	<p>The Lyttelton Marina is currently open but is in very poor condition with numerous issues to be resolved. A Council decision is needed to retain the marina or close it. Its future use will be discussed in the current Naval Point plan.</p>
Naval Point facilities and safe harbour access	<p>There is community demand for improved small boat access to Lyttelton Harbour. This includes breakwaters, softening the sea edge with an artificial beach and improving the landscaping. This is not catered for in the LPC plan.</p>
Expansion and management of Akaroa cruise ship facilities	<p>Following the earthquakes and loss of facilities at the Lyttelton Port, cruise ships relocated to Akaroa. They have indicated that they will continue to use Akaroa in the long term. They are seeking an expansion of the Akaroa wharf pontoons to accommodate more than one tender boat at a time. A financial contribution from the Council will be expected.</p> <p>Currently ECan are contracted to manage the berthing of vessels on Akaroa wharf for the period of the cruise ship season on behalf of CCC.</p>

Key Issue	Discussion
New Brighton Pier repair and management	EQ damaged – funding/insurance yet to be finalised. Managing conflicting uses of the pier, such as fishing and sightseeing, continues to be a challenge.

2 Proposed Changes to Activity

Table 2-1 summarises the proposed changes for the management of the Harbours and Marine Structures activity since the Three Year Plan 2013-16 Activity Management Plan.

Table 2-1 Proposed Changes to Activity

Key Change	Reason	Level of Significance? What investigations are needed?	Options for Consultation and Engagement
<p>Review and rationalise, with community input, future provision of marine structures to ensure they are safely managed within budget. Options to be investigated include reduced levels of provision, alternative management and funding.</p>	<p>Budget cap - There are insufficient resources available to repair and renew all existing structures to good condition. Rationalisation and prioritisation is required.</p> <p>Community needs and expectations - Community requirements for marine structures have changed since existing structures were built. Current and future demand to be considered.</p> <p>Poor asset condition - Existing structures are mostly old, in various stages of deterioration, and in need of renewal. It is timely to consider renewal options.</p>	<p>We have begun to get a better understanding of marine structures by establishing relationships and liaising with specific groups and completing a survey of use. Further community consultation and planning is required to inform recommendations to Council on future provision of marine structures across the whole City.</p>	<p>Community consultation, LTP</p>

3 Activity Description

3.1 Focusing On What We Want To Achieve

Council undertakes activities in order to deliver on the community outcomes for Christchurch. The outcomes that relate most directly to the management of the city's Harbours and Marine Structures are that:

- The public has access to places of scenic, natural, heritage, culture and educational interest
- Christchurch's infrastructure supports sustainable economic activity
- There is a range of travel options that meet the needs of the community
- The city's heritage and taonga are conserved for future generations
- City assets, financial resources and infrastructure are well-managed, now and in the future
- Statutory obligations are met by the Council

3.2 How We Will Know We Are Achieving the Outcomes

We will know we are achieving the above outcomes when we see the following results:

- There is a sustainable network of publicly available marine structures that facilitate recreational access to the marine environment for residents and visitors.
- Marine structures are safe, operational and suitable for appropriate tourism and commercial marine activities.
- Marine structures of heritage value are conserved.

The activities that follow in section 4 and the levels of service within them are all linked to the above results to ensure the Council stays focused on moving towards the community outcomes. This link aims to confirm why we are doing the activities – that they will realistically move us closer to our goals – and that service delivery remains relevant to strategic direction.

3.3 What Services We Provide

This activity includes the following services:

Provide, manage and maintain marine structures as recreational and commercial facilities for city residents and visitors throughout Christchurch and Banks Peninsula coast.

We currently provide and manage the following marine structures. A full list of structures is provided in the Appendix.1

Table 3-1 Marine Structure Asset Groups

Asset Group	Quantity	Number closed or partially closed
Wharves and Jetties	30	6
Slipways and Ramps	32	
Seawalls ¹	3	
Recreational Rafts	3	
Moorings	2	
Buildings	7	
TOTAL	77	6

¹ Note most seawalls are included in other Council activities, e.g. Parks, Transport

Asset Strategy

The Council inherited the majority of its marine structures through amalgamation with the Banks Peninsula District Council (BPDC) in 2006. Since this time considerable effort has gone into identifying and confirming assets, assessing their condition and valuation, preparing and updating an asset management plan, and establishing regular programmes of maintenance, renewal, and condition assessment.

We aim to maintain existing open structures as safe and operational within the available resources. Where this is not possible, structures will be closed. Six wharves are closed or partially closed as a result of earthquake damage or poor condition. Repairs have been prioritised to optimise use of available resources. Major repairs, e.g. Governors Bay wharf, will be considered for additional funding through the LTP process and Council decision-making.

The age, condition, design, and usage rate of structures calls for a review of the assets to ascertain appropriate levels of future provision.

Increased capacity of the Akaroa wharf is important to accommodate increased use by cruise ships. There is also demand for improved small boat facilities at Lyttelton. Improving the quality of existing infrastructure is also very important.

3.4 Our Key Customers

3.4.1 Who Benefits?

- Recreational users
- Business and commercial operators, e.g. cruise ships, Lyttelton Harbour ferry, fishing vessels, tourist operators, event organisers
- Emergency services, e.g. coastguard, search and rescue
- Local community

Table 3-2 Who Benefits

Who benefits?		Key:
Individual		Full
Identifiable part of the community		Majority
Whole community		Some

Explanatory Comments:

A user survey was conducted in 2013/14. The majority of respondents were from Christchurch and Banks Peninsula but several sites indicated relatively high use from visitors from other parts of Canterbury and internationally, notably Drummonds jetty in Akaroa for international visitors and the Duvauchelle slipway for other Canterbury residents. Boating, sight-seeing, walking, jumping and swimming were common activities.

3.4.2 Who Pays?

Table 3-3 Who Pays

Funding - Fees / User Charges	Other revenue Grants & Subsidies	General rate	Targeted rate
46%	0%	54%	0%
Some		Majority	

Note, Funding Split % is derived from the 'Summary of Cost for Activity' (section 13).

Key:		Typically
Full	All or almost all the cost is funded from that source. If the comment is made in the general or targeted rate columns it does not preclude making minor charges for the service but indicates that the charges are a negligible part of the fund.	95%+
Majority	The majority of the activity is funded from this source.	50%+
Some	Some revenue is derived from this source.	<50%

Does this Activity generate surplus funds that can be applied to other areas? **No**

Explanatory Comments:

Fees are charged for moorings and the use of wharves by Cruise ships and other commercial users such as fishing vessels. Pedestrian access is free but there is a charge for some slipway use.

3.5 Key Legislation and Council Strategies

Resource Management Act 1991, Health and Safety in Employment Act 1992, Building Act 2004, Canterbury Regional Coastal Environment Plan 2011, NZ Coastal Policy Statement 2010, Marine and River Facilities Bylaw 2008, Local Government Act 2002, Marine and Coastal Area (Takutai Moana) Act 2011.

4 Levels of Service and Performance Measures

Table 4-1 Levels of Service

Performance Standards Levels of Service (we provide)	Results (Activities will contribute to these results, strategies and legislation)	Method of Measurement (We will know we are meeting the level of service if.....)	Current Performance	Benchmarks	Future Performance (targets)			Future Performance (targets) by Year 10 2024/25	
					Year 1	Year 2	Year 3		
					2015/16	2016/17	2017/18		
Provide, manage and maintain marine structures and facilities									
10.8.1	Provide a sustainable planned network of marine structures	There is a sustainable planned network of publicly available marine structures that facilitate recreational and commercial access to the marine environment for residents and visitors.	<i>Future provision of marine structures to match available council and community resources</i>	<i>Existing harbour and marine structures remain open for commercial and recreational use (unless assessment deems the structure unsafe)</i>	n/a	Existing harbour and marine structures remain open for commercial and recreational use (unless assessment deems the structure unsafe)	Existing harbour and marine structures remain open for commercial and recreational use (unless assessment deems the structure unsafe)	10.8.1.1 Existing harbour and marine structures remain open for commercial and recreational use (unless assessment deems the structure unsafe)	Marine structures are renewed or closed in accordance with approved plan
			<i>The review will inform the LOS for the next LTP</i>					10.8.1.2 Plan for partnering with community for marine structures , completed by June 2018	

Performance Standards Levels of Service (we provide)		Results (Activities will contribute to these results, strategies and legislation)	Method of Measurement (We will know we are meeting the level of service if.....)	Current Performance	Benchmarks	Future Performance (targets)			Future Performance (targets) by Year 10 2024/25
						Year 1	Year 2	Year 3	
						2015/16	2016/17	2017/18	
10.8.2	Proportion of customers satisfied with the state of marine structures provided by Council	Appropriate maintenance standards and levels of service provided. Achieve the best fit between the Council's allocation of resources and customer expectations.	<i>This is surveyed through Point of Contact survey.</i>	2013/14: 58% 2012/13: 53% 2011/12: not surveyed 2010/11: not surveyed 2009/10: 62%		Target 55%	Target 55%	Target 55%	Target 65%
10.8.3	Structures and facilities maintained to applicable safety and operational legislation	Maintenance and compliance plans ensure the open structures meet safety and operational legislation and will inform the asset management plan.	<i>Condition assessments and regular maintenance inspections</i>	<i>Maintenance plan and compliance plan implemented</i>	<i>RMA, H&S in Employment Act, Building Act, Ecan regional plans, Marine Facilities Control Bylaw 2002 (or replacement)</i>	Review and implement Maintenance Plan annually			
10.8.5	Support Cruise Ship economic activity	Agreed cruise ship requirements are met	<i>Provision of additional toilet and rubbish collection facilities; increased maintenance; traffic and independent operator management.</i>	2013/14: Akaroa Cruise ship visit protocols are met (Council requirements only) 2012/13: new LOS		Council requirements met for Akaroa Cruise Ship management	Council requirements met for Akaroa Cruise Ship management	Council requirements met for Akaroa Cruise Ship management	Council requirements met for Akaroa Cruise Ship management

5 Review of Cost Effectiveness - Regulatory Functions and Service Delivery

The Local Government Act requires local authorities to review the cost effectiveness of current arrangements for delivering its services and regulatory functions

A review need not be undertaken if

- Delivery is governed by legislation, contract or other binding agreement that cannot be reasonably altered in the next two years.
- The benefits to be gained do not justify the cost of the review.

A review must be undertaken

- In conjunction with the consideration of any significant change to service levels
- Within two years before the expiry of any legislation, contract or other binding agreement affecting the service
- Not later than 6 years after any previous review.

A review must consider each of options 1 to 9 in the table below. Option 10 is discretionary.

Governance	Funding	Delivery	Option
CCC	CCC	CCC	1
CCC	CCC	CCO (CCC sole shareholder)	2
		CCO (CCC one of several shareholders)	3
		Other local authority	4
		Other person or agency	5
Joint Committee / Shared Governance	Joint Committee / Shared Governance	CCO (CCC sole shareholder)	6
		CCO (CCC one of several shareholders)	7
		Other local authority	8
		Other person or agency	9
Other arrangement	Other arrangement	CCC or other arrangement	10

This section considers reviews for regulatory functions and service delivery. Reviews for infrastructure delivery are considered in Section 7.

Service: Manage and maintain marine structures

Current Arrangements			
Governance	Funding	Delivery	Estimated Cost
CCC	CCC	CCC and contractor	\$

Arrangements that cannot reasonably be changed in next two years			
Governed by Legislation	Contract or binding agreement	Not cost effective to review	Option
	Current contract with City Care expires 30 June 2015. New contract to be competitively tendered.	Yes	No review necessary at this time

6 Long Term Infrastructure Strategy

6.1 Issues, Principles and Implications

Changes to the Local Government Act now require local authorities to consider their strategy and planning for infrastructure and assets over a 30-year timeframe:

- To provide early warning of investment gaps or risky levels of infrastructure-related expenditure.
- To provide a high level overview of the issues, options and implications, particularly relating to expenditure.
- Must take into account renewal, growth, levels of service changes, health, and resilience to hazards.
- Must cover the 5 mandatory activities, with additional infrastructure as appropriate.
- Has strong links to the Financial Strategy.

Marine Structures are not one of the five mandatory activities that are included in the Council's Infrastructure Strategy. They will be added to the Strategy during its next review.

The long term strategy for marine structures, beyond the ten year timeframe of this plan, is to rationalise the number of marine structures that the Council provides to an affordable level. Rationalisation will depend on the outcome of the planned review and ongoing funding levels. An optimal balance will be sought between levels of provision, maintenance, and renewal of marine structures to best meet community needs within budget constraints.

A regular planned cycle of maintenance and renewal will be implemented to reduce reactive work, establish a steady programme of maintenance and renewal, and ensure assets are in good condition. Alternative ownership, maintenance, and funding options will be investigated, e.g. community owned and managed. Some structures are likely to be closed and not renewed. Others will be renewed in a form different to their current design.

7 Review of Cost-Effectiveness - Infrastructure Delivery

The Local Government Act requires local authorities to review the cost effectiveness of current arrangements for delivering infrastructure. The same criteria and options as defined in section 5 above apply (*Review of cost effectiveness - regulatory functions and service delivery*).

Provide marine structures and facilities

Current Arrangements			
Governance	Funding	Delivery	Estimated Cost
CCC	CCC	Various contractors	\$

Arrangements that cannot reasonably be changed in next two years			
Governed by Legislation	Contract or binding agreement	Not cost effective to review	Option
		All construction work is tendered. Any arrangement that does not involve competitive tendering is likely to be more expensive.	No review necessary

8 Significant Effects

The significant negative and significant positive effects are listed below in Tables 8-1 and 8-2 respectively.

Table 8-1 Significant Negative Effects

Effect	Council's Mitigation Measure
Potential for some structures to be closed and removed to meet budget requirements	A review of marine structures is to be undertaken with the community. Communication will be essential to ensure everyone understands the rationale for future levels of provision.

Table 8-2 Significant Positive Effects

Effect	Description
Economic development.	Provision of Marine structures allows for the continued operation of tourist and other commercial activities.
Access to the marine environment.	Marine structures continue to provide opportunities for residents and visitors to participate in marine based recreation and sport.

8.1 Assumptions

Council has made a number of assumptions in preparing the Activity Management Plan. Table 8-3 lists the most significant assumptions and uncertainties that underline the approach taken for this activity.

Table 8-3 Major Assumptions

Assumption Type	Assumption	Discussion
Financial assumptions.	That all expenditure has been stated in 1 July 2011 dollar values and no allowance has been made for inflation.	The LTP will incorporate inflation factors. This could have a significant impact on the affordability of the plans if inflation is higher than allowed for, but the Council is using the best information practically available.
Asset data knowledge.	That the Council has adequate knowledge of the assets and their condition so that the planned renewal works will allow Council to meet the proposed levels of service.	There are several areas where the Council needs to improve its knowledge and assessments but there is a low risk that the improved knowledge will cause a significant change to the level of expenditure required.
Growth forecasts.	That the district will grow as forecast in the Growth Demand and Supply Model	If the growth is very different it will have a moderate impact. If higher, the Council may need to advance capital projects. If it is lower, the Council may have to defer planned works.

Assumption Type	Assumption	Discussion
Emergency funding.	That the level of funding in these budgets and held in the Council's disaster fund reserves will be adequate to cover reinstatement following emergency events.	Funding levels are based on historic requirements. The risk of requiring additional funding is moderate and may have a moderate effect on planned works due to reprioritisation of funds.
Timing of capital projects.	That capital projects will be undertaken when planned.	The risk of the timing of projects changing is high due to factors like resource consents, funding, weather conditions, contractor availability. The Council tries to mitigate these issues by undertaking the consultation, investigation and design phases sufficiently in advance of the construction phase. If delays are to occur, it could have significant effects on the level of service.
Accuracy of capital project cost estimates	That the capital project cost estimates are sufficiently accurate enough to determine the required funding level.	The risk of large under estimation is low; however the importance is moderate as the Council may not be able to afford the true cost of the projects. The Council tries to reduce the risk by including a standard contingency based on the projects lifecycle.
Changes in legislation and policy, and financial assistance.	That there will be no major changes in legislation or policy.	The risk of major change is high due to the changing nature of the government and politics. If major changes occur it is likely to have an impact on the required expenditure. The Council has not mitigated the effect of this.

9 Risk Management

A risk management workshop was held in mid 2013 to identify and quantify the risks associated with Marine Structures. All risks identified have been described and their potential impacts and current controls assessed and compiled into a risk register. The highest risks from the Marine Structures risk register are reproduced below:

Table 9-1 Significant Risks and Control Measures

Risk Description	Current Control	Proposed Control	Target Risk Level
IF CCC funding sources for some activities reduce THEN LoS falls or short-term strategies are adopted that lead to increased cost in the future.	Investigate alternative contract or management arrangements to give flexibility to respond; decrease LoS.	Investigate alternative contract or management arrangements to give flexibility to respond; decrease LoS.	HIGH
IF there is a short supply of labour, plant and materials due to demands from elsewhere and supply problems for non-renewable resources THEN programmes of maintenance and renewal run behind time leading to increased asset damage, loss of LoS and increased cost.	Close communications with contractors who do our work; sound forward planning; seeking expressions of interest	Close communications with contractors who do our work; sound forward planning; seeking expressions of interest	HIGH
IF there is a significant and short term change in demand, ie. Cruise ships RESULTING IN assets not having the capacity to handle the additional demand; regular users being displaced, user satisfaction reduced.	Maintain good communications with tourism industry; plan ahead, inform regular users of event	Maintain good communications with tourism industry; plan ahead, inform regular users of event	HIGH
IF structural damage including failure due to deterioration over time and erosion THEN loss/reduction of asset capacity, reduction in LoS and/or personal injury.	Robust Asset Management and LTP budgets in line with AMP recommendations. Good design. A planned maintenance schedule	Robust Asset Management and LTP budgets in line with AMP recommendations. Good design. A planned maintenance schedule	HIGH
IF Canterbury experiences a large storm event THEN assets may be damaged and loss of level of service	Ensure assets are in good condition; ensure new assets are designed and built robustly to account for this event	Ensure assets are in good condition; ensure new assets are designed and built robustly to account for this event	HIGH
IF CCC has difficulty recruiting staff (eg. Engineers) with the requisite training and experience THEN poor asset management decision making is possible and design and construction standards may reduce	Employ skilled consultants if necessary	Employ skilled consultants if necessary	HIGH
IF Asset deterioration is caused by poor material quality and/or poor construction quality THEN rapid deterioration of asset condition may result leading to loss of level of service.	Robust planning, contract documentation and supervision. Good tender process	Robust planning, contract documentation and supervision. Good tender process	HIGH

Risk Description	Current Control	Proposed Control	Target Risk Level
IF asset suffers impact damage by vessel or vehicle THEN assets may be damaged and loss of level of service results	Install fender piles and bollards; ensure lateral bracing is adequate; carry out regular inspections to the assets; encourage users to report damage to the Council	Install fender piles and bollards; ensure lateral bracing is adequate; carry out regular inspections to the assets; encourage users to report damage to the Council	HIGH

10 Improvement Plan

Key areas for improvement in this activity are summarised in Table 10-1. The improvement plan for marine structures is under review in the Asset Management Plan.

Table 10-1 Key improvements for Harbours and Marine Structures

Item	Description
Community needs research	Research the need for and use of marine structures for recreation, commercial, and other community use to inform future provision and management.
Future provision plan	Prepare a plan, with community input, for the future provision and/ or disposal of marine structures, and their ongoing management.
Lifecycle management	<p>Improve understanding of capacity and performance of assets.</p> <p>Improve condition of marine structures and implement regular planned maintenance and renewal cycles.</p> <p>Develop improved operational and capital expenditure forecasts.</p> <p>Improve asset management information.</p>
Risk management	Review and update risk register and risk management processes

11 Operations, Maintenance and Renewals Strategy

11.1 Operations and Maintenance

Until 2010, marine structures maintenance was mostly reactive. Following the 2009 condition assessment, we prepared a ten year maintenance plan. The maintenance plan has consistently been under-funded resulting in many maintenance tasks being deferred. The amount of deferred work has continued to grow, totalling approximately \$1 million in 2013/14 (mainly on closed assets).

Due to the deteriorating condition of the marine structures, unplanned maintenance is often required and they are also vulnerable to storm events. Unexpected component failures and storm damage can be significant and lead to a review of the maintenance plan. In some cases, a structure may need to be closed to ensure public safety.

The ten year maintenance plan is updated annually and reviewed monthly. A staff working party including planners, engineers, and operations staff meet at least monthly to prioritise the work to be completed and optimise use of the available funds. Criteria applied to the decision-making include health and safety needs, meeting LoS, cost, asset criticality, structural criticality of the damaged or failed component, impact on cruise ship passengers and the community, and public reputation.

The preferred maintenance strategy is to work our way out of the current situation over the next five years, allowing enough time to address the backlog of work. This will require increased levels of maintenance funding over the next five years before settling back to a steady level after 2020.

11.2 Renewals

Assets are forecast and considered for renewal as they near the end of their effective working life, where their condition score is 4 (poor) or 5 (very poor), where the cost of maintenance becomes uneconomical, and/or when the risk of failure of critical assets is high. In the absence of condition information, the theoretical life expectancies and replacement costs of asset components are used for financial projections. It is important to understand where critical component renewal has occurred for each structure, as renewal of piles and beams, for example, will extend the life of the assets beyond its theoretical life.

Many of the marine structures were built in the late 1800's and early 1900's for transporting products and passengers from various parts of Banks Peninsula/ Horomaka to Lyttelton/ Ōhinehou and return. The development of the roading network and improvement in road based technology now means that the transportation of goods and people is primarily carried out over the roading network. Today, the primary purpose of most of the marine structures is recreation and tourism but some are not well designed for this purpose (e.g. tidal restraints to boat launching, size and form of structure). A small number of marine structures are used by commercial fishers.

It is very likely that when each marine structure reaches the end of its life and is programmed for replacement an alternative standard for the replacement structure will be recommended. As the marine structures are all unique, individual designs will be required to meet the needs of the local community and key users now and into the future.

The preferred renewals strategy is to rationalise the network of marine structures. This means not renewing some assets, deferring the renewal of others and leaving unsafe assets closed for a long period of time or handing the maintenance responsibility to another party (club or residents association) until renewal can be afforded. The overall cost of this strategy is estimated at \$52 million over 30 years, but it results in 17 assets

not being renewed at the end of their lives. A full review, with community input, of all our marine structures, is required to better inform this strategy.

12 Key Projects

Table 12-1 details the key capital and renewal work programmed for years 2015 to 2025.

Table 12-1 Key Projects

Project Name	Description	Year 1 (\$)	Year 2(\$)	Year 3 (\$)	Years 4-10 (\$)	Project Driver
	For details of the capital works relating to this activity refer to the draft Capital Programme, draft Long Term Plan, volume 1					

13 Summary of Cost for Activity

Figure 13-1

TRANSPORT - HARBOUR & MARINE STRUCTURES	<u>Funding Caps in 2015/16 Dollars</u>				<i>Funding splits exclude EQ Costs from all calculations</i>					
	2014/15 Annual Plan	2015/16	2016/17	2017/18	Funding - User Charges	Other revenue	General rate	Targeted rate	Period of Benefit (years)	Comments
	000's									
Operational Budget										
Marine Structures and Facilities	542	543	528	518						
Activity Costs before Overheads	542	543	528	518						
Earthquake Response Costs	-	-	-	-						
Corporate Overhead	38	37	36	34						
Depreciation	170	179	179	179						
Interest	32	46	59	69						
Total Activity Cost	782	806	802	800	46%	0%	54%			
					Some		Majority			
Funded By:										
Fees and Charges	823	370	370	370						
Grants and Subsidies	-	-	-	-						
Earthquake Recoveries	-	-	-	-						
Total Operational Revenue	823	370	370	370						
Net Cost of Service	(41)	435	431	429						
Funded by:										
Rates	(41)	435	431	429						
Earthquake Borrowing	-	-	-	-						
	(41)	435	431	429						
Capital Expenditure										
Earthquake Rebuild										
Renewals and Replacements										
Improved Levels of Service										
Additional Demand										

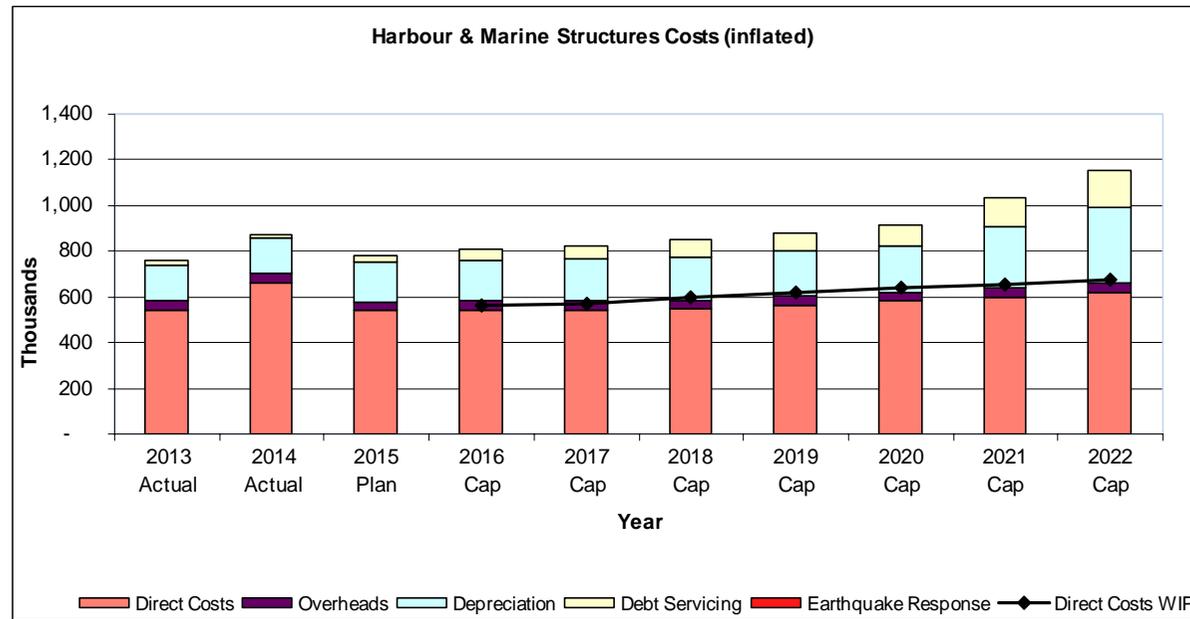


Figure 13-2 Harbours and Marine Structures Costs (Inflated)

The following figures have been generated for the **asset component only** for renewals, operations and maintenance. These are the amounts of funding required for the preferred operational and renewals strategies. The do not include overheads, uncontrolled costs, or revenue.

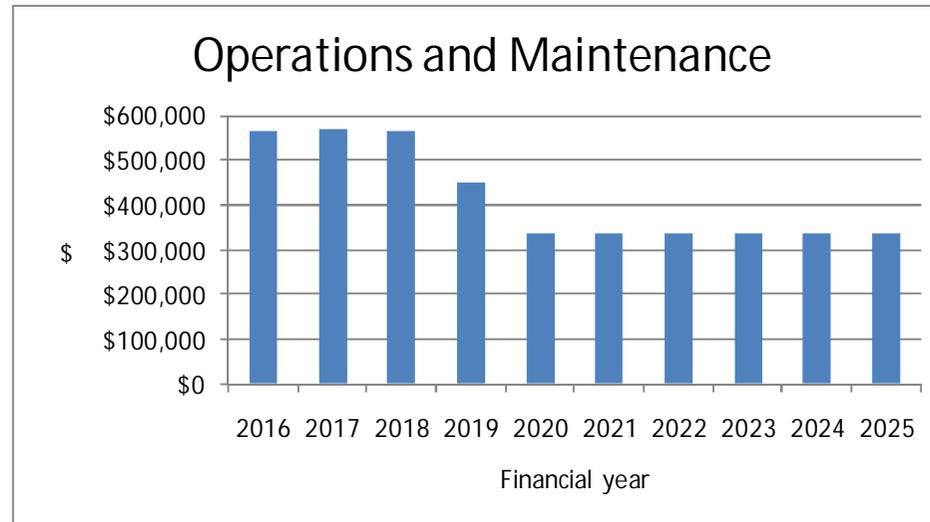


Figure 3 Asset Component Costs for Operations and Maintenance

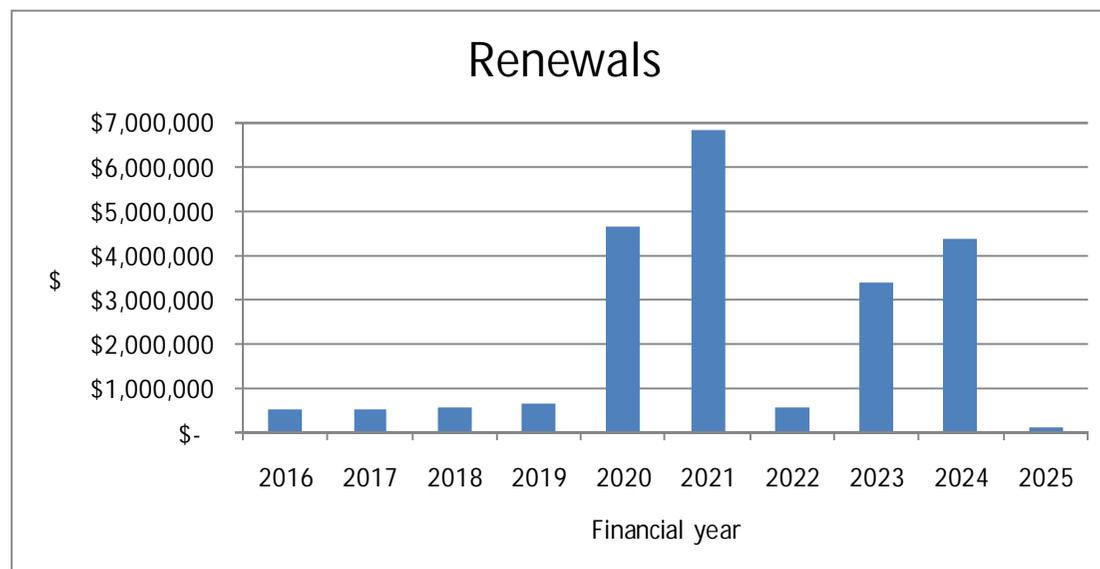


Figure 4 Asset Component Costs for Renewals

The renewal spikes in years 2020/2021 are for renewal of Akaroa wharf (total est. \$10.5m). The spikes in years 2023/2024 are for renewal of Governors Bay wharf (total est. \$7.5m). Governors Bay has been proposed as a potential saving in the LTP.

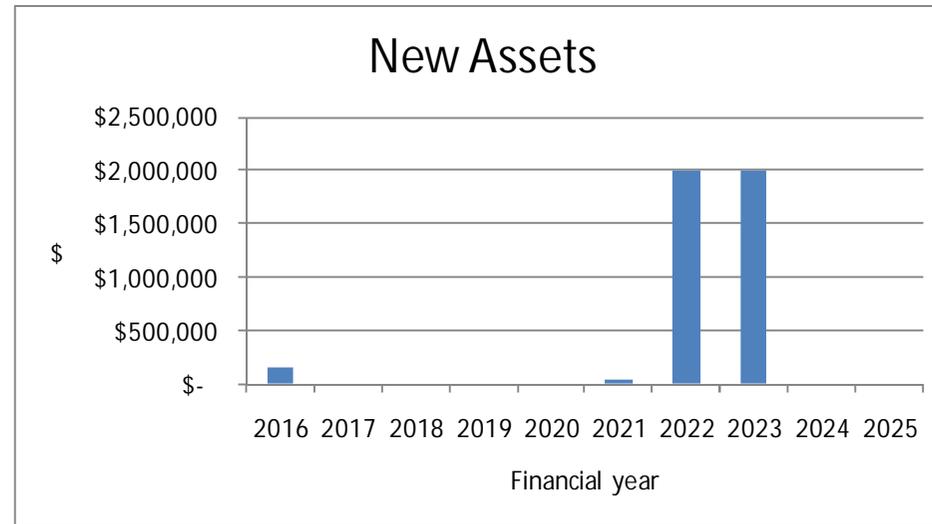


Figure 5 Asset Component Costs for New Marine Structures

Proposed new assets include new pontoons at Akaroa wharf and a breakwater and other facilities at Naval Point.

14 Appendix

Table 14-1 List of all Marine Structures and Most Recent Condition Rating (1 = very good, 5 = very poor)

Wharves and Jetties	Condition	Ramps and Slipways	Condition	Seawalls ²	Condition	Recreational Rafts	Condition	Moorings	Condition	Buildings	Condition
Akaroa Wharf	3.2	Akaroa Recreation Ground Slipway	3.0	Akaroa Children's Playground Seawall	3.0 (2009) Needs repair	Akaroa Recreational Raft	3.0	Diamond Harbour Pile Moorings (39)	3.0	Dalys Wharf Shelter	-
Akaroa Wharf pontoons		Bruce Slipway	-	Wainui Seawall	3.0	Cass Bay Recreational Raft	-	Akaroa Swing Moorings (2)	-	Diamond Harbour Wharf Dinghy Storage	2.0
Akaroa Recreation Ground Jetty West	2.6	Cass Bay Dinghy Ramp	3.8	Wainui Breakwater	-	Corsair Bay Recreational Raft	-			Diamond Harbour Wharf Shelters (2)	-
Akaroa Recreation Ground Jetty East	1.3	Charteris Bay Slipway	2.0							Cass Bay Dinghy Storage shed	3.0
Charteris Bay Jetty	3.8	Corsair Bay Ramp	-							Port Levy Wharf Shelters (2)	-
Church Bay Jetty	Closed	Daly's Slipway	-								
Corsair Bay Jetty	3.0	Duvauchelle Slipway	3.0								
Daly's Wharf	2.8	Jones Bay Slipway	4.0								
Diamond Harbour Wharf	2.8	Little Akaloa Slipway	2.2								

² Most seawalls are recorded under other activities, e.g. Parks, Transport

Wharves and Jetties	Condition	Ramps and Slipways	Condition	Seawalls ²	Condition	Recreational Rafts	Condition	Moorings	Condition	Buildings	Condition
Drummonds Jetty	3.2	Lyttelton Public Ramp	3.0								
Duvauchelle Jetty	1.3	Moncks Bay Public Ramp	3.0								
Old Duvauchelle Wharf	3.6 (partially closed)	Mount Pleasant Yacht Club Ramp	3.0								
French Farm Boating Club Jetty	1.5	Pigeon Bay Slipway	2.0								
Governors Bay Wharf	Closed	Purau Slipway	3.0								
Little Akaloa Jetty	2.2	Redcliffs Ramp	3.0								
Little Akaloa Wharf	3.8	Sandy Bay Slipway	-								
Lyttelton Marina	To be reassessed	Scott Park Ferrymead - 5 ramps	-								
New Brighton Pier	To be repaired	Sumner Life Boat Public Ramp	-								
Pigeon Bay Wharf	3.0	South New Brighton Park Boat Ramp	EQ damaged, to be rebuilt								
Port Levy Wharf	4.0 under repair	South New Brighton Park small boat ramp (next to jetty)	EQ damaged, to be rebuilt								
Lyttelton Public Ramp Jetty	2.2	Takamatua Slipway	2.0								
Purau Jetty	3.0	Wainui Slipway (New)	2.0								
Gallipoli Wharf	3.3	Wainui Slipway	3.0								

Wharves and Jetties	Condition	Ramps and Slipways	Condition	Seawalls ²	Condition	Recreational Rafts	Condition	Moorings	Condition	Buildings	Condition
		(Old)									
Redcliffs Jetty	2.2	Windsports Park 4 concrete ramps, 1 wooden ramp	-								
Robinsons Bay Wharf	Closed										
South New Brighton Park Jetty	Closed										
Takamatua Jetty	4.0										
Tikao Bay Jetty	1.6										
Wainui Wharf	3.2										
Wainui Finger Jetty (next to Slipway)	-										

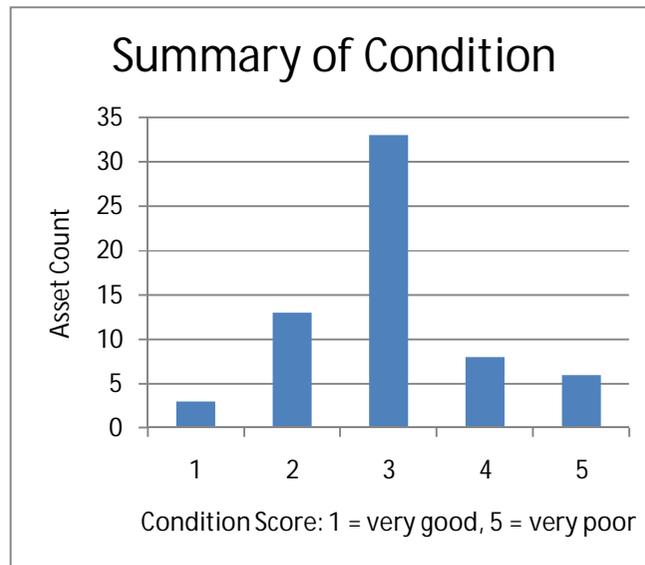


Figure 6 Summary of Marine Structures Condition Scores

