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INTRODUCTION

Background

The Mosman local government area is located in Sydney's northern suburbs, around 6 kilometres from central Sydney. The Council area is predominately residential with commercial areas along Military Road. The Council area includes significant areas of Sydney Harbour foreshore. Early settlement in Mosman dates from the 1800s, but the development of the area was slow until the 1880s when road access was improved. Significant growth in Mosman occurred in the interwar period as well as the 1950s and 1960s when many residential flat buildings were constructed. Since this period, growth has slowed as development opportunities have become fewer.

Assets not included in this Plan are those within State and Federal government lands including HMAS Penguin, National Parks, Sydney Harbour Federation Trust and Taronga Zoo.

The purpose of this Asset Management Plan (AMP) is to have a guide to managing marine structures safely, efficiently and effectively for the people of Mosman. This AMP outlines the broad approach that will be adopted to manage the condition of and use of marine assets over the next 10 years, including the capital works program.

COVID-19

The assets values, data and modelling that informed the Asset Management Plans was done prior to the full ramifications of the COVID-19 pandemic being known. Due to the variability in market conditions during this time, it is recommended that the Marine AMP be reviewed and updated in 18 months' time to account for any changes. This has also been included in the Policy as a key performance measure.

Goals and Objectives of Asset Management

Council's goal in managing infrastructure assets is to provide equitable and appropriate services and facilities for the community and ensure they are managed efficiently and effectively and are of a quality consistent with requirements of the Mosman community.

The key elements of infrastructure asset management are:

- Consider a life cycle approach
- Develop cost-effective management strategies for the long term
- Provide a defined level of service and monitoring performance
- Understanding and meeting the demands of growth through demand management and infrastructure investment
- Sustainable use of physical resources
- Continuous improvement in asset management practices

This asset management plan sets out goals and objectives over a 10 year period:

- Aim to have Council's unrestricted current ratio at 2:1
- Seek to meet benchmarks, e.g. sustainability financial indicator of greater than 1.0, backlog ratio less than 2.0% and maintenance ratio greater than 100%
- To have business systems which will meet the increasing demands for management information and that add value to the Council and community by providing integrated, accurate, timely, cost-effective and responsive service
- To have risk management strategies in place to ensure Mosman is a safe place to live, work and play

Asset Management Plan Framework

In accordance with the NSW government's Integrated Planning and Reporting framework, Mosman Council's Community Strategic Plan (2018-2028), named MOSPLAN, presents a broad outline of Mosman Council's aspirations for serving its residents, based on community engagement.

MOSPLAN's Resourcing Strategy ensures there are adequate financial, human resources and assets to deliver the Council's services over 10 years. The Asset Management Framework (see Figure 1) outlines the asset component of the Resourcing Strategy.

The Asset Management Framework is guided by the Asset Management Policy and Asset Management Strategy.

The key points from the Asset Management Policy are:

- Assets are to be managed (from creation, through operation to disposal) in accordance with the Council's objectives and priorities for service delivery
- Each infrastructure asset class (buildings, roads, stormwater drainage, parks and open space, marine structures) has an asset management plan
- Outlines human resource needs and staff roles and responsibilities
- The asset management strategy is to be implemented to apply asset management best practice
- Council will promote continuous improvement in asset management

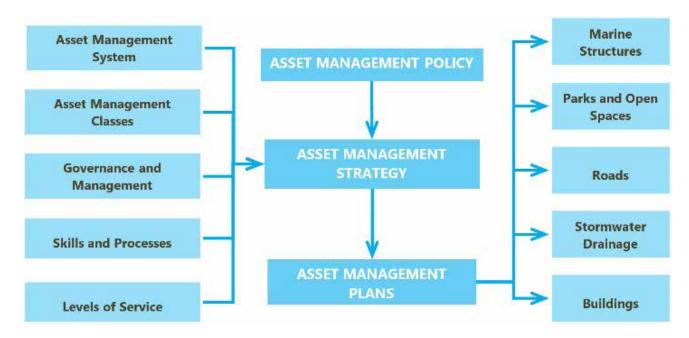


Figure 1 - Asset Management Framework

The Asset Management Strategy is a guide to the content of the asset management plans, relevant legislation, risk management and asset information systems within Council and a broad overview of each plans financial forecasts. This Asset Management Plan is in accordance with the Asset Management Strategy.

The Asset Management Plans guides yearly capital works and maintenance budgets and provides important input into Council's Long Term Financial Plan.

Summary of Marine Assets

The asset subjects of this asset management plan are as follows in Table 1 (as at June 30, 2019).

Asset Group	Description	Current Replacement Cost (CRC) '000s (\$)
Jetties/Pools	Balmoral Baths & Jetty, Clifton Gardens Baths & Jetty and Inkerman Street Jetty. Total deck area is 1712 m²	\$5,112,115
Seawalls	24 seawalls and 1 natural rock seawall. Total seawall length is 3380m	\$8,308,918
	Total	\$13,421,033

Table 1 - Summary of Marine Assets (as at June 30, 2019)



LEVELS OF SERVICE

Description

Levels of service provide the basis for life cycle management strategies and works programs. They intend to align measurable attributes to the corporate objectives of the organisation.

They must be readily measurable, and easily understood by members of the community. There is ongoing development of levels of service to address the reasonable needs and expectations of the community.

Marine assets in this AMP are measured in terms of quantity, quality, accessibility, availability, social benefits, sustainability, and risk. They also take into account the relevant legislative framework and standards.

The objectives of the levels of service in this Marine AMP are intended to:

- Inform the community of the proposed type and level of service to be offered
- Assist with the identification of the costs and benefits of the services being offered
- Enable the community to assess suitability, affordability and equity of the services offered
- Provide a measure of the effectiveness of the asset management plan
- Provide focus for the development of the asset management strategies
- Provide guidance for current and future services to be offered, the manner of the service delivery and definition of the specific levels of service which the organisation wishes to achieve

The levels of service outlined in this section are based on:

- Information gathered and interpreted from customers on the importance of and satisfaction with services and in some cases expected quality and cost of services
- Information obtained from expert advice on asset condition and performance capacity
- Strategic and corporate goals
- Legislative requirements
- Regulations, environmental standards and industry and Australian Standards that specify minimum design parameters for infrastructure delivery
- Availability of resources and the financial environment

Feedback from the Community

Council regularly conducts community surveys to determine the importance and satisfaction levels with infrastructure and services. The latest Mosman Community Survey was conducted in June 2018.

Satisfaction with infrastructure and recreational assets is generally high which reflects the investment and the low number of assets in an unsatisfactory condition.

Another measure has been to track the number of complaints. Complaints about the marine assets are low, less than five a year over the past four years.

See the Levels of Service Matrix (Table 3) for the full comparison between our performance targets and current performance.

Legislative Requirements

Council has to meet many requirements including National and State legislation and regulations. These are listed in Council's Asset Management Strategy document.

Asset Rating Systems Condition Ratings

The condition rating scale used for marine assets is the 1-5 rating approach defined by the IPWEA and is detailed below in Table 2.

Assets in condition 1 to 3 are considered to be in a "satisfactory" condition while those in condition 4 and 5 are considered to be in an "unsatisfactory" condition. The condition ratings descriptions were determined by the community through the Mosman Asset Management Reference Group in 2011/12. The descriptions determined by the group have been reviewed regularly and remain consistent to how the condition rating would be described today. The service levels determine what condition the asset should be in before it is renewed.

Condition	Rating	Description of Asset Condition			
"Satisfactory" Condition					
1	Excellent	Sound physical condition. Asset likely to perform without major work.			
2	Good	Acceptable physical condition. Minimal short-term failure risk but potential for deterioration in long-term (10 years plus). Only minor work required (if any).			
3	Average	Significant deterioration evident but failure unlikely within next 2 years. Further deterioration and replacement likely within next 5-10 years. Maintenance work may be required but asset is still serviceable: minor components or isolated sections of the asset need replacement. Asset still functions safely at an adequate level of service.			
"Unsatisfactory" Co	ndition				
4	Poor	Failure likely in short-term and substantial work or replacement of most or all of asset within 2 years. Asset barely serviceable but no immediate risk to health or safety.			
5	Very Poor/ Failed	Failed or failure imminent. Major work or replacement required urgently. Immediate need to replace most or all of asset. Health and safety hazards exist which present a possible risk to public safety, or asset cannot be serviced/operated without risk to users.			

Table 2 - Condition Rating Scale



Intervention Program

Council adheres to a Condition 4 'Intervention' program where assets that decline into a Condition 4 (unsatisfactory) rating are scheduled to be renewed within the next two financial years.

The renewal intervention level was selected to optimise the desired level of service, mitigate risk and optimise maintenance and renewal expenditure. The aim is to minimise assets in an 'unsatisfactory' condition.

Condition 4 assets will be added to the capital works program to be replaced within 2 years unless their failure does not pose a risk. Alternate funding or shifting lower priority works to later years are two ways to ensure condition 4 assets are replaced.

Condition 5 assets are to be replaced as soon as practically possible, especially if the asset poses a high risk.

Levels of Service (Social, Environmental, Economic)

The services levels for marine assets were developed internally in conjunction with community and other bases and were broadly classified into customer values encompassing social, environmental and economic values.

For each customer value, an associated level of service is proposed. The performance of measured attributes per level of service criteria is then compared to a ranking. This ranking outlines the minimum levels of service required. To assess Council's current level of service, a number of datasets and other data sources are used. Table 3 provides the levels of service developed for marine assets.

These levels of service will be monitored and refined over the life of the AMP, to achieve performance measures that are accurate and can be understood by the community.

Maintenance of facilities to appropriate standards fit for their contemporary purpose through an appropriate mix of scheduled and responsive maintenance

Customer Values	Level of Service	Measured Attribute	Measurement Criterion	Ranking	Current Performance
Social Values retained	d				
Accessibility	Recreational use facilitated	Structure is adequate	Structural condition not to exceed minimum value	Not greater than condition rank 4	A non-structural seawall has been identified as Condition 5 (as of June 30, 2019) and is blending into the natural formation
Quality	Suitability for use	Outstanding or Deferred Maintenance	Value of Outstanding or Deferred Maintenance	Not to exceed \$100,000	2018-19: \$17,836 2017-18: \$16,914 2016-17: \$25,541 2015-16: \$27,482
Availability, Community Health and Wellbeing	Accessibility/ Reliability	Availability for use Sufficient for demand	Period (in days) when not available for use	Days of complete closure < 5 per annum	No complete closures
Quantity Abundant leisure and recreational opportunities	Recreational use facilitated	Recreational access facilitated	Safe water egress provided	Ladders, handrails, steps or ramp provided	New handrails installed at Balmoral Baths in 2018-19, new ramp to be installed at Clifton Gardens
Risk Safe infrastructure	Safe & Healthy in use	Hazard free surfaces	Hazard free surfaces	All decking secure & sound.	90% of bolts and other fasteners are fully secure and sound
		Secure to use	Shark Nets are effective	No more than 20 holes identified per year	Approximately 5 holes identified annually, repaired immediately during contractor inspection and within 1 month when 2 or more complaints have been received from the general public
		Risk assessment	Management of risk treatments	Undertake risk planning & treatments within designated time frame as described in risk management plan	Risk treatments undertaken as required

	-							
Customer Values	Level of Service	Measured Attribute	Measurement Criterion	Ranking	Current Performance			
Environmental Values retained								
Quality	Foreshore land protected from erosion	Shoreline protected from erosion	Land retained with no erosion - condition value	Nil at condition 5	100% greater than Condition 5 (as of June 30, 2019)			
Risk to habitat	Sustainability of habitat	Habitat diversity and longevity	Period between disturbance of habitat	Occurance of large scale works per year < 4 times	Maintenance on sharknet occur twice a year at minimum			
Economic Values ret	ained		^		<u></u>			
Sufficiency	Quantity	Sufficient for demand	Visitation	Visitation	Balmoral Beach has approximately 7,000 visitors per day during the summer			
Quality	Quality	Customer complaints	Number of complaints	Complaints per annum	2018-19: 2 2017-18: 3 2016-17: 6 2015-16: 0			
Sustainability	Sustainability of assets	Asset Value retained	Asset renewal / Asset consumption	Equation Solution > 1	2018-19: 2.21 2017-18: 3.73 2016-17: 1.00 2015-16: 0.49			

Table 3 - Levels of Service Matrix

FUTURE DEMAND

Demographics and Growth

The community of Mosman generates the demand for the services provided by the marine assets considered in this plan.

The estimated population of Mosman as of 30 June 2018 was 30,877 people (http://profile.id.com.au/mosman). There is expected to be minimal population growth over the next few years with a growth rate on average of 82 people per year until 2036. This small population increase is not considered significant for the performance of the marine assets. Mosman's foreshore attracts external tourism but local access constraints are expected to limit the growth in demand.

There is limited potential for new marine assets. New assets are likely to be in the form of providing equitable access to the existing marine structures. For example, adding handrails to Balmoral Bath or an accessibility ramp to Clifton Gardens.

Heritage and planning restrictions are also a factor in upgrading assets particularly as most assets are on Transport for NSW land below the mean high tide water mark.

Changes in Technology

Marine borer attack on timber members in marine environments reduces their section size and structural capacity. More resistant alternatives have been developed including HDPE sleeved timber and steel piles. Concrete encasing of timber piles was a common practice previously which also protected the timber piles from borer attacks, as well as prolonging the life of the asset. However, HDPE has the advantage of being inert and not affected by severe weather conditions as most other materials would. Steel piles have superior tensile properties and are more suitable in areas where they are subject to lateral loads, such as Fender Piles and Turning Board guides piles.

Impact of Climate Change & Other Environmental Factors

The marine structures are located at the interface of the urban terrestrial and harbour aquatic habitats. Environmental constraints arise due to the sensitivity of habitats at the interface. This is managed by engaging expert marine engineers and biologists to assist in developing the specifications for infrastructure around this.

Sea level rise due to climate change is unlikely to affect these structures in the life of this plan, however, future planning is underway. The broader Sydney Harbour Coastal Management Program will precede our own development of the coastal management program.



CURRENT STATE OF ASSETS

Balmoral Baths and Jetty Asset Description

Balmoral Baths and Jetty (see Figure 2) consists of a 'U' shaped structure enclosing a swimming area, and a berthing jetty at the north-east end. It contains 179 turpentine piles, 4 steel piles, approximately 970m² of timber decking, a 227m shark net enclosing the swimming area, timber girders, headstocks, signage and handrails.

The jetty structure is 3.4m wide and 380m in length, with widened sections to accommodate "turning boards". The berthing section of the jetty is 10m wide by 28m in length

Balmoral baths are accessible to the public and are primarily used for recreational activities such as swimming, fishing, sightseeing and access to vessels.



Figure 2 - Balmoral Baths and Jetty

Asset Condition

Table 4 below contains the conditions of the main structure elements. For detailed condition information, refer to the condition report in Appendix B.

Main Structure Elements	Condition Grade	Comment
Timber handrails	3	Several sections replaced as part of the Balmoral Jetty Upgrade in 2019/2020
Stainless steel handrails	1	Newly installed assets in excellent condition
Timber decking	3	Loose coach screws are a hazard in certain locations
Timber headstocks	3	
Timber girders	3	Some weathering and corrosion to bolted connections
Timber piles	1-4 (average rating is 1)	
Steel piles	1	Newly installed assets in excellent condition
Steel turning boards	5	Asset failed in May 2020 storms and requires immediate repair
Attached signage	3	Some signage may require updating
Shark netting	3	Inspected and maintained every year

Table 4 - Condition of Balmoral Baths and Jetty (as at June 30, 2019)

Clifton Gardens Baths and Jetty Asset Description

Clifton Gardens Baths and Jetty (see Figure 3) consists of an access jetty, pier head, swimming enclosure and shark-proof net. The structure contains 124 turpentine piles, 5 steel piles, 725m² of concrete deck, 209m of shark net enclosing the swimming area, timber girders, headstocks, signage and handrails.

The jetty structure is 3.3m wide and 190m in length including the pier head. The berthing section of the jetty is 6.6m wide.

Clifton Gardens Baths and Jetty is accessible to the public and is primarily used for recreational activities such as swimming, fishing, sightseeing and access to vessels.



Figure 3 - Clifton Gardens Baths and Jetty

Asset Condition

Table 5 below contains the conditions of the main structure elements.

Main Structure Elements	Condition Grade	Comment
Timber handrails	3	Some sections require painting
Concrete decking	3	Some minor loss of concrete
Timber headstocks	3	Minor corroded bolted connections
Timber girders	3	Some weathering and corrosion to bolted connections
Timber piles	1-4 (average rating is 2)	Some piles to be monitored closely
Steel piles	1	
Attached signage	3	Some signage may require updating or renewal
Shark netting	3	Inspected and maintained annually

Table 5 - Condition of Clifton Gardens Baths and Jetty (as at June 30, 2019)

Inkerman Street Jetty Asset Description

Inkerman Street Jetty (see Figure 4) consists of a narrow straight walkway deck, with a water access stairs offset at the jetty head. The structure contains 4 FRC pipe sleeved timber piles and 2 timber piles, 21m² of timber decking, timber girders, stairs, a concrete 13m long causeway, signage and steel tube handrails.

The jetty structure is 1m wide and 21m in length including the end head section.

Inkerman Street Jetty is accessible to the public and is primarily used for recreational activities such as launching small craft, access to vessels, fishing, and sightseeing.

Asset Condition

Table 6 below contains the conditions of the main structure elements.



Figure 4 - Inkerman Street Jetty

Main Structure Elements	Condition Grade	Comment
Steel handrails	3	
Timber decking	3	
Timber girders	3	
Piles	3	Concrete encased piles. Appears to be structurally sound but may require intrusive testing in the future
Attached signage	3	Signage requires review and update

Table 6 - Condition of Inkerman Street Jetty (as at June 30, 2019)

Seawalls

There are a total of 24 seawalls and one natural rock seawall in Mosman. The majority of the 24 seawalls comprise of sandstone or concrete seawalls, however, there is one that has been designated as a rip rap seawall. The one natural rock seawall is the Clem Morath Pool located at the north end of Balmoral Beach. Examples of seawalls are displayed in Figures 5, 6 and 7.

Table 7 below describes the sea walls and their general condition.



Figure 6 - Concrete Seawall - The Spit - RW79

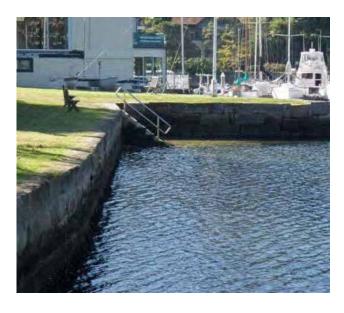


Figure 5 - Sandstone Seawall - Harnett Park - RW38



Figure 7 - Rip Rap Seawall - Bay Street - RW55

ID	Location / Name	Overall condition grade	Total Wall length (m)	Concrete Seawall H>1m (m)	Concrete Seawall H<1m (m)
RW41	Middle Harbour	5	15		
RW54	Pearl Bay	3	91.5		
RW79	The Spit	3	789.1	771.5	
RW85	Ellery Park	3	109.7	48.8	
RW83	The Spit	2	140		
RW80	The Spit	3	28.3		
RW81	The Spit	3	24.9		
RW82	The Spit (East Side)	3	42.8		
RW90	237 Spit Road	1	9	9	
RW7	Balmoral Park	3	71.8		
RW4	Hunter Park/Leahy Park	2	33.6		
RW5	Hunters Park	3	58		3.9
RW6	Balmoral/Hunters Park	3	625.8	625.8	
RW3	Balmoral Park	3	77	77	
RW2	Balmoral Park	3	22.4		
RW1	Balmoral Park	3	77.6		77.6
RW28	Clifton Gardens Reserve	3	221.3		
W639	Musgrave Street	1	32.4		
W640	Musgrave Street	3	91.8	22.8	
W612	Mosman Street	3	12.8		
RW42	Mosman Bay	3	372.1		
RW38	Harnett Park	3	85.1		
RW76	Sirius Cove Reserve	3	184.6		
RW55	Bay Street	3	119		
EB1	Clem Morath Pool	1	44.6	44.6	

Table 7 - Sea Wall Inventory and Overall Condition Grade (as at June 30, 2019)

Sandstone Seawalls H>1m (m)	Sandstone Seawalls H<1m (m)	Rip Rap Seawalls H>1m (m)	Concrete / Sandstone steps #	Stainless Steel Handrail #	Stainless Steel stair #	Handrails (m)	Signs#	Boat Stands #
15								
91.5			1					
17.6			4		1	5		Platform
60.9				1	1	20		
140			2	3				
	28.3							
24.9								
42.8								2
								Ramp
	71.8							
	33.6		1					Ramp
	54.1		2					
			12	2				
			4	4				
22.4			1					
22	199.3		2			12	2	
32.4								
69						30		
12.8								
372.1								
85.1			1	1				2
184.6			2					Ramp
		119	2					2

Asset Componentisation and Current Replacement Cost

Marine assets are componentised first by the name of the jetty, pool or seawall, then by the component of that jetty, pool or seawall, followed by a sub-component, which in the majority of cases describes the material of the asset.

Table 8 shows a breakdown of how marine assets are componentised, as well as the quantity and current replacement cost per component/sub-component.

Asset Number & Name	Asset Component	Asset Sub Component	Unit of measurement	Quantity	Current Replacement Cost
BB1 - Balmoral	Deck	Timber	m²	967	\$434,979
Baths	Turpentine Piles		#	133	\$1,064,000
	Turpentine Piles	Concrete	#	10	\$85,000
	Turpentine Piles	HDPE Encased	#	29	\$261,000
	Turpentine Piles	HDPE Wrap	#	5	\$42,500
	Turpentine Piles	Steel Encased	#	2	\$17,000
	Steel Piles		#	4	\$56,800
	Girders		m	883	\$353,200
	Headstocks		m	522	\$208,800
	Handrails	Timber	m	360	\$90,000
	Handrails	Stainless Steel	#	3	7200
	Sharknet		m	227	\$31,780
	Attached Signage		#	3	\$975
	Steel Turning Board		#	2	\$120,000

Table 8 - Summary of asset quantities and current replacement cost (as at June 30, 2019)

Asset Number & Name	Asset Component	Asset Sub Component	Unit of measurement	Quantity	Current Replacement Cost
CG1/CG2 - Clifton Gardens	Deck	Concrete	m²	725	\$579,648
Jetty/Baths	Turpentine Piles		#	94	\$752,000
Jetty/ Batris	Turpentine Piles	Concrete	#	2	\$17,000
	Turpentine Piles	HDPE Encased	#	18	\$162,000
	Turpentine Piles	HDPE Wrap	#	6	\$51,000
	Turpentine Piles	Steel Encased	#	4	\$34,000
	Steel Piles		#	5	\$71,000
	Girders		m	585	\$234,000
	Headstocks		m	360	\$144,000
	Handrails	Timber	m	317	\$79,250
	Sharknet		m	209	\$29,260
	Attached Signage		#	5	\$1,625
IS1 - Inkerman	Deck	Timber	m²	21	\$9,405
Street Jetty	Turpentine Piles		#	6	\$51,000
	Girders		m	43	\$17,200
	Handrails	Steel	m	22	\$6,710
	Attached Signage		#	1	\$325
RW41 - Middle Harbour	Sandstone Seawalls		m	15	\$36,000
RW54 - Pearl Bay	Seawall	Sandstone	m	91.5	\$219,600
	Steps	Concrete/S/Sandstone	#	1	\$4,500
RW79 - The Spit	Seawall	Concrete	m	772	\$1,720,445
	Seawall	Sandstone	m	18	\$42,240
	Steps	Concrete/S/Sandstone		4	\$18,000
	Steps	Stainless Steel	#	1	\$10,100
	Handrails	Timber	m	5	\$1,250
	Platform	Timber	#	1	\$34,500

Table 8 - Summary of asset quantities and current replacement cost (as at June 30, 2019)

Asset Number & Name	Asset Component	Asset Sub Component	Unit of measurement	Quantity	Current Replacement Cost
RW85 - Ellery	Seawall	Concrete	m	49	\$108,824
Park	Seawall	Sandstone	m	61	\$146,160
	Handrails	Stainless Steel	#	1	\$2,400
	Steps	Stainless Steel	#	1	\$10,100
	Handrails	Timber	m	20	\$5,000
RW83 - The Spit	Seawall	Sandstone	m	140	\$336,000
	Steps	Concrete/S/Sandstone	#	2	\$9,000
	Handrail	Stainless Steel	#	3	\$7,200
RW80 - The Spit	Seawall	Sandstone	m	28	\$67,920
RW81 - The Spit	Seawall	Sandstone	m	25	\$59,760
RW82 - The Spit	Seawall	Sandstone	m	43	\$102,720
(East Side)	Boat Stands		#	2	\$33,400
RW90 - The Spit	Seawall	Concrete	m	9	\$20,070
(237 Spit Road)	Ramp	Timber	m²	55	\$198,000
RW7 - Balmoral Park	Seawall	Sandstone	m	72	\$172,320
RW4 - Hunter	Seawall	Sandstone	m	34	\$80,640
Park / Leahy Park	Steps	Concrete/Sandstone	#	1	\$4,500
	Ramp	Asphalt	m²	9	\$5,400
RW5 - Hunters	Seawall	Concrete	m	3.9	\$8,697
Park	Seawall	Sandstone	m	54.1	\$129,840
	Steps	Concrete/Sandstone	#	2	\$9,000
RW6 - Balmoral	Seawall	Seawall	m	625.8	\$1,395,534
Park / Hunters Park	Steps	Concrete/S/Sandstone	#	12	\$54,000
	Handrails	Stainless Steel	#	2	\$4,800
RW3 - Balmoral	Seawall	Concrete	m	77	\$171,710
Park	Steps	Concrete/S/Sandstone	#	4	\$18,000
	Handrails	Stainless Steel	#	4	\$9,600

Table 8 - Summary of asset quantities and current replacement cost (as at June 30, 2019)

Asset Number & Name	Asset Component	Asset Sub Component	Unit of measurement	Quantity	Current Replacement Cost
RW2 - Balmoral Park	Seawall	Sandstone	m	22.4	\$53,760
Park	Steps	Concrete/Sandstone	#	1	\$4,500
RW1 - Balmoral Park	Seawall	Concrete	m	77.6	\$173,048
RW28 - Clifton	Seawall > 1m height	Sandstone	m	22	\$52,800
Gardens Reserve	Seawall < 1m height	Sandstone	m	199.3	\$478,320
	Steps	Concrete/Sandstone	#	2	\$9,000
	Handrails	Timber	m	12	\$3,000
	Signs		#	2	\$700
RW639 - Musgrave Street	Seawall	Sandstone	m	32.4	\$77,760
RW640 -	Seawall	Concrete	m	22.8	\$50,844
Musgrave Street	Seawall	Sandstone	m	69	\$165,600
	Handrails	Timber	m	30	\$7,500
RW612 - Mosman Street	Seawall	Sandstone	m	12.8	\$30,720
RW42 - Mosman Bay	Seawall	Sandstone	m	372.1	\$893,040
RW38 - Harnett Park	Seawall	Sandstone	m	85.1	\$204,240
Park	Steps	Concrete/S/Sandstone	#	1	\$4,500
	Handrails	Stainless Steel	#	1	\$2,400
	Boat Stands		#	2	\$33,400
RW76 - Sirius Cove Reserve	Ramp	Concrete	m²	33.95	\$2,716
Cove Reserve	Seawall	Sandstone	m	184.6	\$443,040
	Steps	Concrete/S/Sandstone	#	2	\$9,000
RW55 - Bay	Seawall	Rip Rap	m	119	\$309,400
Street Seawall	Steps	Concrete/S/Sandstone	#	2	\$9,000
	Boat Stands		#	2	\$33,400
EB1 - Clem Morath Pool	Seawall	Concrete	m	44.6	\$99,458

Table 8 - Summary of asset quantities and current replacement cost (as at June 30, 2019)

Condition & Age Profile Condition Profile

The condition profile of marine assets is displayed in Figure 8. The majority of marine assets are rated condition 3.

This demonstrates that many marine assets may be reaching condition 4 in the near future and therefore they will need to be monitored closely. The steel turning boards at Balmoral Baths & Jetty contributes to the majority of the asset value at condition 5. Funding to pay for these renewals is discussed in the Lifecycle Management Plan and Funding Strategy sections.

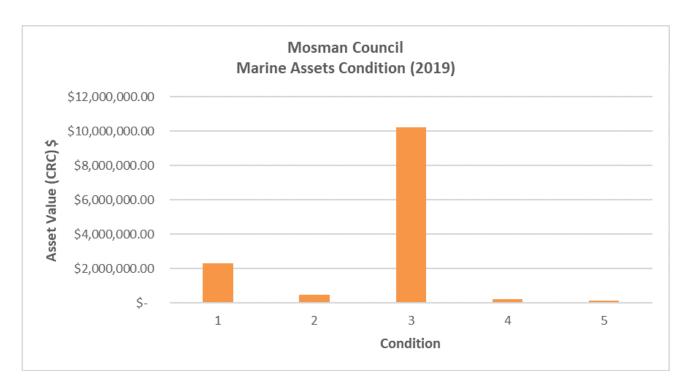


Figure 8 - Condition profile of marine assets

Marine Assets Condition by Replacement Value

The condition survey (by replacement value) as assessed in 2018-2019 is detailed in Table 9 and references the Condition profile in Figure 8.

Currently, just under 3% of marine assets (by asset replacement value) are in an "unsatisfactory condition". Assets in condition 4 have generally been listed for renewal in 2019/2020 or later.

A detailed condition summary for all marine assets is held within the Council's asset management system (AMS).

	Jetties/Pools	Seawalls
Condition 1	31.90%	8.28%
Condition 2	9.32%	O.19%
Condition 3	54.37%	90.85%
Condition 4	2.05%	O.24%
Condition 5	2.35%	0.43%

Table 9 - Marine Assets Condition by replacement value (as at June 30, 2019)



Age Profile

The age profile of marine assets is displayed in Figure 9.

Many marine assets have recorded built dates in the 1960s to 1980s period. Many of these dates were estimated based on the remaining life of the asset and the condition records held by the Council.

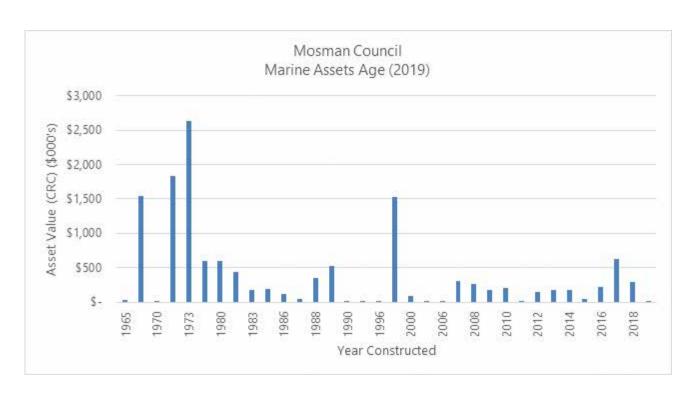


Figure 9 - Age profile of marine assets

Asset Performance

Remaining useful life predictions are based on an engineering assessment of the asset condition and remaining functional capacity with maintenance. For example, the potential life of sandstone block walls can be assured by periodic regrouting between blocks and replacement of severely weathered blocks. Neglect of routine maintenance may reduce the expected life of a structure. Timber piles reach their end of life when half the section dimension is lost.

Asset Valuation Valuation Process

All marine assets were revalued during the 2017/18 financial year. This revaluation was undertaken by an external valuer. The valuer confirmed the inventory, extent and condition of the marine assets and updated the data where required. Current Replacement Costs (CRC) for Mosman marine assets were revalued in accordance with Australian accounting practices and standards. CRC is a product of the asset quantity and the current unit cost rates. Unit rates were determined using a combination of the industry construction cost guides, contract rates, the valuer's database and market rates from other sources. Market rates were established from reference guides rates and industry knowledge where contract rates were not available. CRC and the unit rate of assets include overheads such as supervision, design and site establishment fee components.

The asset useful lives were calculated based on, site observations, historic information and industry knowledge on the performance of assets. In the marine valuation, useful lives are linked to the assessed condition and remaining operational life. The remaining life of the asset was calculated using predictions as set out the Asset Performance section.

The residual value for marine structures has been assessed as nil value and it is now generally acknowledged that the inclusion of residual values is not in accordance with the fair value accounting codes.

Valuation Outputs

Two of the reports provide by valuer was a methodology report and a valuation report. The methodology report indicates how the valuation was undertaken, including any assumptions made and justification for why an asset has a particular useful life, unit rate or any other change (such as quantity or material changes). The valuation report lists the final results of the valuation.

The key inputs such as unit rate, useful life, remaining useful life, quantity and condition were applied to determine the current replacement value, the depreciated replacement value and the annual depreciation for these assets. These were available via a spreadsheet format, which was uploaded to the Council's asset management system.

The outputs from this process include:

- Updated inventory of asset components and type (only in cases where their observations differ from our existing asset inventory)
- Current Replacement Cost (CRC) of a Modern
 Engineering Equivalent Replacement Asset (MEERA)
- Depreciated Replacement Cost (DRC/WDV)
- Annual Depreciation (D)

Useful Lives

Useful lives were revised in the 2017/18 marine assets revaluation. The current useful lives are displayed in Table 10.

Asset	Useful Life (years)
Attached Signage	12
Boat Stands	55
Jetty Deck - Concrete	65
Jetty Deck - Timber	46
Timber Girders	65
Handrails - Stainless Steel	58
Handrails - Steel	60
Handrails - Timber	45
Timber Headstocks	65
Timber Platform (periodically immersed)	60
Ramp - Concrete	60
Ramp - Timber	40
Ramp - Asphalt	50
Concrete Seawalls > 1m height	59
Concrete Seawalls < 1m height	59
Rip Rap Seawalls > 1m height	67
Sandstone Seawalls > 1m height	58
Sandstone Seawalls < 1m height	58
Sharknet	13
Signs	16
Steel Piles	70
Steel Turning Board	19
Steps - Concrete/Stone/Sandstone	61
Steps - Stainless Steel	58
Turpentine Piles	40
Concrete Encased Turpentine Piles	45
Reinforced HDPE Turpentine Piles	77
HDPE Sleeved Turpentine Piles	48
Steel Sleeved Turpentine Piles	46

Table 10 - Useful Life (as at June 30, 2019)

Marine Assets Valuation

The value of marine assets as at June 30, 2019, is summarised below in Tables 11, 12 & 13. Assets are valued at Brownfield rates.

ID	Location/Name	Total Deck	Current Replacement Cost (CRC) (S)	Depreciated Replacement Cost (\$)
BB1/BB2	Balmoral Baths	966.62	\$2,773,234	\$1,571,865
CG1/CG2	Clifton Gardens Jetty/Baths	724.56	\$2,154,783	\$981,324
IS1	Inkerman Street Jetty	20.9	\$84,640	\$21,151
	Total	1,712.08	\$5,012,657	\$2,574,340

Table 11 - Valuation of Baths and Jetties (as at June 30, 2019)

ID	Location/Name	Total Deck	Current Replacement Cost (CRC) (S)	Depreciated Replacement Cost (\$)
RW41*	Middle Harbour	15	\$36,000	\$1,966
RW54	Pearl Bay	91.5	\$224,100	\$209,991
RW79	The Spit	789.1	\$1,826,535	\$386,482
RW85	Ellery Park	109.7	\$272,484	\$54,424
RW83	The Spit	140	\$352,200	\$342,597
RW80*	The Spit	28.3	\$67,920	\$13,662
RW81	The Spit	24.9	\$59,760	\$12,021
RW82	The Spit (East Side)	42.8	\$136,120	\$27,798
RW90	237 Spit Road	9	\$218,070	\$209,694
RW7	Balmoral Park	71.8	\$172,320	\$83,189
RW4	Hunter Park / Leahy Park	33.6	\$90,540	\$46,377
RW5	Hunters Park	58	\$147,537	\$31,968

ID	Location/Name	Total Deck	Current Replacement Cost (CRC) (S)	Depreciated Replacement Cost (\$)
RW6	Balmoral Park / Hunters Park	625.8	\$1,454,334	\$954,137
RW3	Balmoral Park	77	\$199,310	\$94,386
RW2	Balmoral Park	22.4	\$58,260	\$12,879
RW1	Balmoral Park	77.6	\$173,048	\$82,124
RW28	Clifton Gardens Reserve	221.3	\$543,820	\$124,962
RW639	Musgrave Street	32.4	\$77,760	\$73,626
RW640	Musgrave Street	91.8	\$223,944	\$82,122
RW612	Mosman Street	12.8	\$30,720	\$6,179
RW42	Mosman Bay	372.1	\$893,040	\$179,634
RW38	Harnett Park	85.1	\$244,540	\$108,958
RW76	Sirius Cove Reserve	184.6	\$454,756	\$94,516
RW55	Bay Street Seawall	119	\$351,800	\$264,867
	Total	3335.6	\$8,308,918	\$3,498,559

^{*} NOTE: These "seawalls" have over time served no structural purpose. RW41 is not retaining land nor protecting any assets from tidal and wave action. RW80 is misaligned with RW81 and is not serving the same purpose as RW81. Either asset is currently not posing a safety risk to the public.

Table 12 - Valuation of Sea Walls (as at June 30, 2019)

ID	Location/Name	Total Deck	Current Replacement Cost (CRC) (S)	Depreciated Replacement Cost (\$)
EB1*	Clem Morath Pool	44.6	\$99,458	\$47,200
	Total	44.6	\$99,458	\$47,200

^{*} NOTE: This asset is a feature asset and it is not in the interests of the Council to maintain it. it does not provide benefit to the public from maintenance.

Table 13 - Valuation of Natural Rock Seawall (Natural rock structure augmented with an artificial seawall) (as at June 30, 2019)



LIFECYCLE MANAGEMENT PLAN

Lifecycle Strategy

The lifecycle management plan describes how the Council plans to manage the marine assets at the agreed levels of service (defined in Levels of Service section) while optimising life cycle costs.

The lifecycle of an asset encompasses:

- Identification of its need (including confirming that there is no non-asset solution)
- Selection of the asset solution (according to a set process)
- Installation/construction
- Operation, maintenance and inspection
- Renewal/upgrade
- Disposal

Service Deficiencies

Council's services are generally provided to meet the desired standard. There are instances where the level of service is not being met and will need future investigation and this is detailed in Table 14.

Damaging storms have been identified by the marine engineer. Further investigation will be given to address the issue in conjunction with the Sydney Harbour Coastal Management Program once it is finalised.

Location	Service Deficiency
General	Damaging storm frequencies appear to be higher in recent years. Works Program does not account for the accelerated deterioration of Council's marine assets due to these events.

Table 14 - Known Service Performance Deficiencies

Operations and Maintenance Plan Operations Overview

Operations activities are activities that consume resources to ensure the infrastructure asset levels of service are met. For example "running costs" and consumables.

Historically, no operations budget has been allocated for marine assets and this will continue the next 10 years. This is due to marine assets not generally requiring oiling and cleaning in a periodical manner like other assets. Marine assets require a more reactive approach and the preventative/routine maintenance that does occur is limited to cleaning the surfaces of turning boards and ladders.

Maintenance Overview & Historical Expenditure

Maintenance is the regular on-going work that is necessary to keep assets operating, including instances where portions of the asset fail and need immediate repair to make the asset operational again. Maintenance includes reactive, planned and cyclic work activities:

- Reactive: Unplanned repair work carried out in response to service requests and management/supervisory directions. Traditionally, assessment and prioritisation of reactive maintenance is undertaken by Council staff using experience and judgement, within some basic maintenance management frameworks
- Planned: Repair work that is identified and managed through a maintenance management system (MMS), asset management system (AMS) or through other tools to assist in identifying when individual assets are due for repairs
- Cyclic: Replacement of higher value components/ sub-components of assets that are undertaken on a regular cycle. Examples include annual shark net patching, replacement of timber decking and bi-annual maintenance of navigation buoy positioning

All non-operations works that fall below the capitalisation threshold of \$5,000 are considered maintenance.

Council has developed a Routine Maintenance and Inspection Manual for marine structures. The manual provides a tool to achieve asset management outcomes that are consistent with MOSPLAN. It outlines in further detail:

- Identification of risk and intervention levels
- Routine maintenance
- Reactive maintenance
- Emergency action plan
- Contact information

Excerpts of this document are available in Appendix B.

Historical maintenance expenditure trends are shown in Table 15.

There is typically far more expenditure used for marine capital works rather than maintenance due to the high costs of marine works. In the Council's financial forecast, the required levels of maintenance have been funded for as projected expenditure. Despite this, due to the high costs of marine works, it is expected that some of these costs to fund required maintenance will be capitalised. Ensuring required maintenance expenditure is met will need to be closely monitored.

Expenditure increases in line with the capital works program (in the Capital Works section), meaning that required maintenance expenditure may be reduced in the medium to long term. This will need to be reassessed as the renewal program gets underway. An increase in capital works funding will have an effect on required maintenance.

Year	Historical Annual Maintenance Expenditure
2015/16	\$27,000
2016/17	\$26,000
2017/18	\$17,000
2018/19	\$18,000
Average Annual	\$22,000

Table 15 - Historical Maintenance Expenditure Trends

Maintenance Methods & Management

The assessment and prioritisation of reactive maintenance are undertaken by Council staff using experience, judgement and industry standards within the framework set out by the Routine Maintenance and Inspection Manual. Integrating this with the asset management system to prioritise maintenance, will also provide many benefits to optimising marine assets.

Maintenance 10 Year Financial Forecast

Projecting the 10 year financial forecast involves comparing the required maintenance to the budgeted maintenance:

- Required maintenance The cost of maintenance and operations required to meet minimum levels of service in Mosman. The value is determined via useful life modelling to be 0.31% of the current replacement cost (CRC) for marine assets
- Planned (budgeted) maintenance The expenditure that Council has budgeted for maintenance and operation works

A comparison between required maintenance and budgeted maintenance over the next 10 years was developed. The results of this comparison are shown in Figure 10. Maintenance expenditure levels are above the required expenditure every year by around \$8000 per year, even when accounting for new/upgraded assets. The current estimate for required maintenance for marine assets is approximately \$40,000-\$45,000 per year. Council has budgeted to spend more than the minimum requirement to deliver a high level of service, improve the quality of the marine assets and reduce the risk consistent with the community expectations.

The budgeted maintenance expenditure levels have been averaged over the ten year period. Predicting budgeted or planned maintenance expenditure over ten years can be inaccurate and therefore simplifying with an average value was preferred. The AMS and the Routine Maintenance and Inspection Manual may be used in the future to assist in calculating yearly maintenance plans.

Of note, there is no increase in budgeted/required expenditure over time due to CPI, as all values are based on 2019/20 dollar values.

For more detail of required and planned expenditure, see Appendix C.

Future revisions of this asset management plan will include a more detailed analysis linking required maintenance expenditures with service levels, to set future expenditure.

Deferred maintenance, i.e. works that are identified for maintenance and unable to be funded are included in the infrastructure risk management plan.

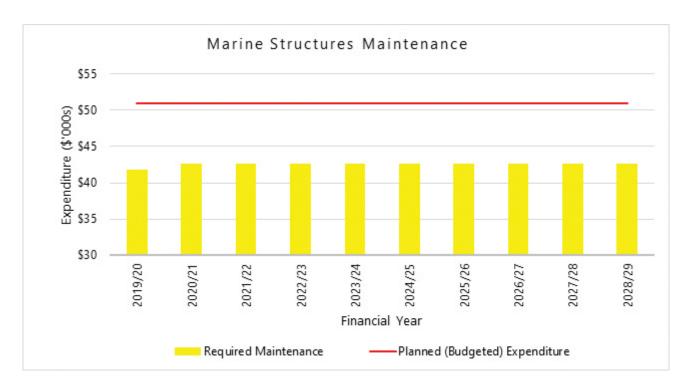


Figure 10 - Planned Maintenance Expenditure

Standards & specifications

Maintenance work is carried out in accordance with the following Standards and Specifications:

- Relevant Australian Standards
- Relevant industry guidelines / best practice
- Relevant Transport for NSW (TfNSW) standards and specifications
- Building Code of Australia
- Natspec/AUS-Spec specifications and guidelines

Condition Inspection Schedule

Council has in place a regular asset inspection program to identify assets in need of remedial work.

Due to the small inventory size of marine assets, all assets above the mean high water mark are inspected annually. Certain marine assets have a high-risk factor, especially the jetties and pools, as they are used by large numbers of the community and tourists. A failure of one of these assets can have serious consequences.

Marine assets are inspected by the marine engineer and external experts are also used occasionally to assess assets, particularly those below the mean high water mark. An example of one of these external condition assessment reports is available in Appendix B.

The condition inspections are used to support the accumulation of more comprehensive and refined asset data and to understand the deterioration profile of the various assets.

The condition ratings of marine assets are updated in the AMS along with any updates from capital works. The AMS has the capability to store condition inspection data that helps to plan where future inspections are required and performing reactive maintenance or capital works.

The inspection programs for each category of an asset are outlined in Table 16. They are recorded as the percentage of assets required to be inspected annually.

Asset Type	Annual % of Assets Inspected
Jetties/Pools	50%
Seawalls	100%

^{*} NOTE: Assets below the mean high water mark are inspected every 2 years

Table 16 - Required Frequency of Annual Condition Inspections

Capital Works Plan Capital Works Overview & Historical Expenditure

Capital works are defined by Mosman Council's Capitalisation Threshold as any works valued at \$5000 and over. It applies to the renewal or upgrade of the existing assets and the installation of new assets. A description of the three types:

- Renewal: Major work that does not increase the asset's design capacity but restores, rehabilitates, replaces or renews an existing asset to its original service potential.
 For example, the replacement of a shark net of the same length and area and which holds the same value
- Upgrade: Work over and above restoring an asset to original service potential often increasing the value of the asset or expanding an already existing asset. For example, replacing a regular turpentine pile with an HDPE encased turpentine pile
- New: The installation of a new asset that is not related to an existing asset. For example, constructing a new seawall in a location where one has not existed before

Capital works are reported to the Asset Coordinator on a capitalisation form to update the asset management system and provide an accurate record of the work throughout the year. The changes in the AMS then contribute to calculating the replacement value, depreciation and Special Schedule 7 of marine assets at the end of each financial year.

Year	Historical Annual Capital Expenditure
2015/16	\$205,000
2016/17	\$330,000
2017/18	\$942,000
2018/19	\$574,000
Average Annual	\$513,000

Table 17 - Historical Capital Expenditure Trends

Historical expenditure for capital works is captured in our budgeting system. The amount spent is not divided into three types of capital works in detail. Table 17 shows the expenditure trends.

Capital expenditure for marine assets can often vary greatly, depending on the projects that occur. The availability of external (grant) funding also impacts on project planning and capital spending each year.

Marine assets can consist of handrails valued as low as \$2,000 and seawalls close to \$2 million. Therefore, pending on the assets to be renewed each year the capital required can vary quite a lot between years. However, for the purpose of planning capital expenditure, budgeted amounts were estimated to be more consistent without a large variation as in Figure 11. More detail is covered in the Asset Renewal 10 Year Financial Forecast section.



Renewal/Replacement Plan

Assets requiring renewals will be funded from the Council's capital works program and grants typically towards the end of their useful life.

The priority for renewing assets is those that are in an 'unsatisfactory' condition, 4 or 5, as per the Condition 4 intervention program. Council's objective is to have no Marine assets fall into condition 4 or 5 but the reality of restrained resources mean that there will be a small percentage of assets fall into condition 4 each year (as per the condition profile, a higher number are expected in earlier years). Works will be carried out on those assets, as soon as possible. Through the life of the plan, budgeted renewal expenditure requirements have been forecast to allow for assets falling into an 'unsatisfactory' condition by projecting condition information, the estimated remaining lives and asset inventory.

As of June 30, 2019, the majority of marine assets are in a 'satisfactory' condition.

Some examples of assets requiring renewal include:

Baths and Jetties

- Replacement of corroded steel connectors (Bolts, screws and splice plates etc.)
- Replacement of piles with a section loss of 50% or greater
- Replace signage when outdated

Seawalls

- Repair of steel turning boards at Balmoral
- Replacement of collapsed sections of seawalls
- Replace signage when outdated
- Replacement of sandstone blocks with greater than 30% loss of section

Renewal Methods and Planning

Determining which assets are to be renewed uses a combination of factors. These include the condition, remaining life, asset renewal intervention strategy and other factors such as how critical an asset may be. Critical assets have higher priority for renewal even though the condition may be relatively better than others.

Assets proposed for renewal are inspected to verify accuracy of condition, the remaining life and to develop a preliminary estimate. Verified proposals are ranked by priority and available funds and then are scheduled into the works program.

Renewal will be undertaken using 'low-cost' renewal methods where practical. The aim of 'low-cost' renewals is to restore the service potential or future economic benefits of the asset by renewing the assets at a cost similar to or less than replacement cost.

Deferred renewal, i.e. those assets identified for renewal and not scheduled for renewal in capital works programs are to be included in the risk assessment process in the risk management plan.

Asset Renewal 10 Year Financial Forecast

The 10-year asset renewal forecast scenario defines asset renewal requirements to sustain assets to meet the required levels of service.

Projecting the 10 year financial forecast involves the comparison of two figures:

- Required renewal expenditure The renewal expenditure required to meet minimum levels of service in Mosman. This value is determined from the annual depreciation of the marine assets. Marine assets are depreciating at around \$250,000 to \$260,000 per year, therefore Council is required to spend at least that amount to offset the declining assets
- Planned (budgeted) renewal expenditure The amount budgeted by Council to spend on the renewal of marine assets each year. A 10-year capital works program (see Capital Works Program section and Appendix D) includes these renewal works and their estimated budget. The projects are prioritised based on the condition rating, remaining useful life, MOSPLAN or criticality. It includes the required renewals (i.e. backlog)

Figure 11 shows the comparison between the required and the budgeted expenditure for marine assets. Expenditure has been calculated in 2019/20 dollar values and therefore is not affected by CPI and other market factors.

Forecasted marine renewal works vary from year to year depending on the need for the renewal of assets and catering for assets that will decline to an unsatisfactory condition. The large amount planned to be spent in 2019/2020 is due to the renewal of the Balmoral Baths decking, sub-structure and some piles. These renewal works require a large amount of budget to continue to meet the recreational needs of Sydney's population. These works are part of the MOSPLAN works program.

Additional funds have also been budgeted to renewals in addition to the capital works program. This is to address potential shortfalls, assets declining to an unsatisfactory condition and emergency works.

Planned expenditure in most years exceeds the minimum required expenditure and therefore Council is expected to maintain marine assets at a satisfactory condition over the next 10 years. Council has budgeted to spend more than the minimum requirement to deliver a high level of service, improve the quality of the marine assets and reduce the risk consistent with the community expectations.

In a couple of years (e.g. 2020/21 and 2028/29), the planned expenditure is lower than required renewal expenditure throughout the year. This underspending is balanced out by spending more than the required renewal in other years.

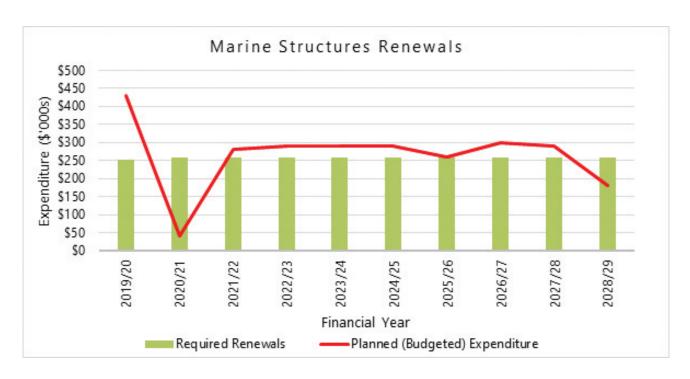


Figure 11 - Forecast 10 Year Renewal Requirements For Asset Sustainability

Expenditure Gap and Backlog Ratio

Council is planning to spend greater than the amount required for renewal (based on the depreciation of the assets) in most years in the 10-year plan and less in two years. Table 18 gives a breakdown of actual and required spending and the renewal funding gap per year.

Funding gaps occur in 2020/21 and 2028/29. For the other years spending will be higher than the minimum required, therefore achieving better than the minimum levels of service for the LGA.

To test whether marine assets are overall in a satisfactory condition, the backlog is used to indicate this. Backlog is measured for the following parameters:

- Backlog Ratio The measurement of the replacement cost of assets in Condition 4 or 5 (i.e. in unsatisfactory condition) divided by the total depreciated replacement value of all marine assets. It indicates the percentage of the replacement value that needs to be spent to bring the asset back to a satisfactory standard
- Backlog Benchmark A benchmark of 2.0% or lower is set by the Office of Local Government and indicates that assets are performing well and being renewed in a timely manner

Council's 10 year backlog ratio is displayed in Figure 12.

Year	Required Renewals	Planned Renewals	Renewal Funding Gap
2019/20	253	430	0
2020/21	257	40	217
2021/22	257	280	0
2022/23	257	290	0
2023/24	257	290	0
2024/25	257	290	0
2025/26	257	260	0
2026/27	257	300	0
2027/28	257	290	0
2028/29	257	180	77

Table 18 - Projected and Current/Planned Renewals and Expenditure Gap (\$000s)

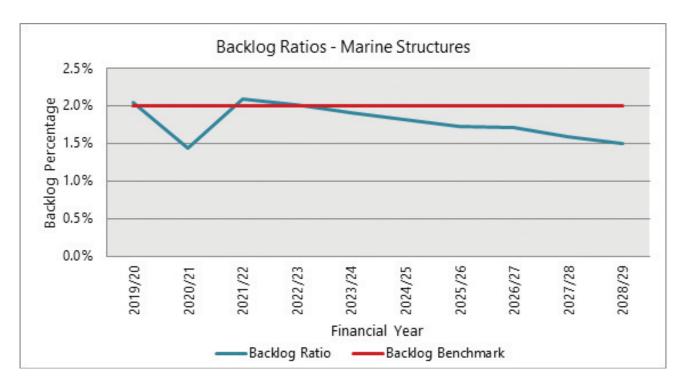


Figure 12 - Forecast 10 Year Backlog Ratio

Initially, the ratio is sitting just above the 2.0% benchmark. As a result of the Balmoral Baths and Jetty works in 2019/20, the backlog ratio decreases significantly, but it increases again the following year due to the renewal funding gap in that year. However, the backlog ratio is reduced to below 2.0% by the end of the ten year program to 1.49%.

The ratio rarely reaches zero as assets are falling from Condition 3 to 4 each year. Assets with low useful lives, such as shark nets, signage and the jetty decking every few years contributes to a growing backlog.

There is also the possibility of increased deterioration of timber piles, which can cause an increase in backlog. Over recent years, the performance of timber piles has been reducing, as the water quality in Sydney Harbour has improved. This is due to marine borer attacks. As a response, new rehabilitation treatments are now being employed, and the material selection process in the repair design stages are sourcing materials that are not susceptible to marine borer attack, such as HDPE.

The capital works program in Appendix D, indicates what works will be undertaken.

Upgrade/New Works Plan

Upgrade works are works that improve an asset beyond its existing capacity and new works create a new asset that did not previously exist.

New assets may be required due to growth, social or environmental needs. Assets may also be acquired at no cost to the Council from private development.

New assets from growth are considered in Future Demand and are expected to be relatively low. An exception occurs in 2019/2020, due to the installation of the Clifton Gardens Beach Access Ramp. The need for this asset is to provide equitable accessibility to the baths rather than to provide additional services for a growing population.

It is also estimated that for project spending some will be proportioned to the upgrade of a percentage of those assets rather than just undertaking a renewal. \$10,000 has been estimated as going towards upgrades in 2021/2022 and 2028/2029 within those projects.

Upgrade of existing assets and new assets are identified from various sources such as strategic plans, Mosman Contributions plan, service deficiencies, councillor or community requests and partnerships with other organisations.

Opportunities for implementation of environmental sustainability initiatives will be included in the New Works program or as renewal works when opportunities arise.

Capital Works Program

A draft capital works program is detailed in Appendix D.

The program has been determined by factors such as remaining useful life, condition and other factors. Backlog items at the start of the 10-year financial period starting from 1 July 2019, have been prioritised for renewal in the 19/20 and 20/21 financial years. The need for increasing the level of service as demand increases have also been considered.

The capital works program consists of projects such as renewal of shark nets, handrails and decking at Balmoral and Clifton Gardens and renewal of various seawalls assets around the LGA.

The program has been created using the best available knowledge and data at the time and should be viewed as a guide only.

As detailed in the Improvement Plan in the Plan Improvement and Monitoring section, capital works planning can be improved by creating a system that combines condition ratings, remaining useful life and other factors to indicate where capital works are needed.

This process can be calculated automatically using the AMS and is already done for marine jetty piles. It can be expanded to other asset types as well.

Capital Works Standards and Specifications

Capital works are carried out in accordance with the following Standards and Specifications:

- Relevant Australian Standards
- Relevant industry guidelines / best practice
- Relevant Transport for NSW (TfNSW) standards and specifications
- Building Code of Australia
- Natspec/AUS-Spec specifications and guidelines

Disposal Plan Overview

Disposal includes any activity associated with the disposal of a decommissioned asset including the sale, demolition or relocation. Disposals often make up part of the capital works process when assets are renewed or upgraded. The disposal can encompass the whole or a part of an asset.

Identified Disposals

Some disposals planned in the near future include the Balmoral jetty upgrade and shark net replacements at Balmoral and Clifton Gardens. Both of these disposals are included in the renewal costs of these assets. Therefore, there is no reduction in the overall marine current replacement cost.

Other assets that are identified for disposal in the future will be further investigated to determine the required levels of service and see what options are available for alternate service delivery if required. Cashflow projections from any future proposed asset disposals will be developed and included in future revisions of this AMP.

Documentation & Costs

Currently, any disposals that occur during a financial year are recorded on a disposal form (related to a capitalisation form where required), which is then reported on at the end of each financial year. The disposal is also recorded in the AMS.

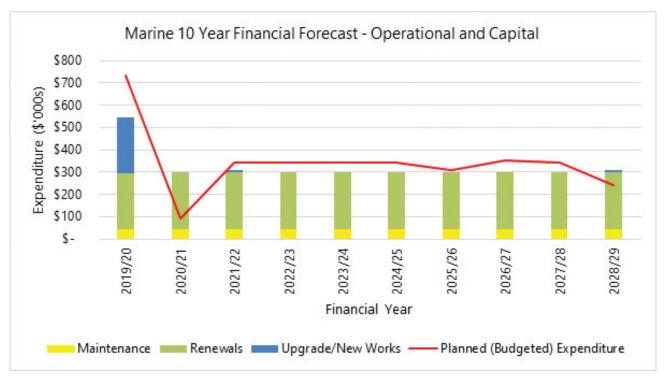
The costs of the disposal are included in capital works costs during the replacement/renewal of the asset. The loss on the disposal of the asset is the value that is lost from an asset that has not yet reached the end of its useful life or is in Condition 5.

FINANCIAL SUMMARY

Financial Statements and Projections

The 10-year financial projections are shown in Figure 13 for planned operating (maintenance) and capital expenditure (renewal and new works i.e. upgrade/new assets).

Operating and capital projections are detailed in the 10 Year Lifecycle Financial Forecasts table in Appendix C.



^{*} Note that all costs are shown in 2019/20 dollar values.

Figure 13 - Planned Operating and Capital Expenditure

Sustainability Modelling

There are two key high-level indicators for financial sustainability that have been considered in the analysis of the services provided by marine assets, these being long term life cycle costs and medium-term costs over the 10 year financial planning period.

A 10-year financial indicator is also used to provide an indicator of financial sustainability. An indicator value of 1.0 indicates that the current funding provided is equal to the required lifecycle funding estimates. An indicator value of less than 1.0 indicates a funding gap.

A summary of long and medium-term sustainability values can be found in Table 19.

Long Term - Life Cycle Cost

Life cycle costs (or whole of life costs) are the average costs that are required to sustain the service levels over the longest asset life. Life cycle costs include required maintenance and asset consumption (annual depreciation). The annual average life cycle cost for the services covered by marine assets is \$312,000 pa (assuming overall average marine asset life of 56 years).

Life cycle costs can be compared to the life cycle expenditure to give an indicator of sustainability in service provision. Life cycle expenditure includes maintenance plus capital renewal expenditure. The annual average life cycle expenditure is \$330,000 pa.

A gap between life cycle costs and life cycle expenditure gives an indication as to whether present consumers are paying their share of the assets they are consuming each year. The purpose of this Marine AMP is to identify levels of service that the community needs and can afford and develop the necessary long term financial plans to provide the service in a sustainable manner.

As per our current life cycle expenditure, enough budget is being distributed to marine assets to cover the life cycle cost. This will be monitored over time to ensure this remains the case.

Medium Term - 10 Year Financial Planning Period

This AMP identifies the estimated maintenance and capital expenditure required to provide an agreed level of service to the community into a 10-year financial plan to provide the service in a sustainable manner.

This may be compared to existing or planned expenditure to identify any gap. A gap is generally due to increasing asset renewal requirements.

Given that long term modelling over the life of an asset can at times produce inaccuracies due to assumptions, it is considered the medium-term sustainability should be more heavily relied on.

Summary

A summary of the long and medium term sustainability of all Marine assets is shown in Table 19.

Long Term (Life Cycle)		Medium Term (10 Year)	
Life Cycle Cost ¹	\$312,000 pa	Required Expenditure ³	\$300,000 pa
Life Cycle Expenditure ² \$330,000 pa		Current (Budgeted) Expenditure ⁴	\$316,000 pa
		Funding Gap	(\$16,000) pa
		10 Year Financial Indicator⁵	1.05

Table 19 - Long and Medium Term Financial Sustainability (as of June 2019)

¹Required maintenance, operations and depreciation ('sustainable' assets case) over the average useful life of all marine assets (averaged per annum).

²Budgeted operations, maintenance and renewal expenditure over the average useful life of all marine assets (averaged per annum).

³ Required maintenance, operations and renewal ('sustainable' assets case) expenditure over the 10 year financial period (averaged per annum).

⁴ Budgeted operations, maintenance and renewal expenditure over the 10 year financial period (averaged per annum).

⁵ Medium term budgeted expenditure per annum divided by medium term required expenditure per annum. A financial indicator of 1.0 indicates that the current funding provided is equal to the required funding estimates. A financial indicator of less than 1.0 indicates a funding shortfall.



Funding Strategy

Projected expenditure detailed in the Lifecycle Financial Forecasts in Appendix C is to be funded from the Council's operating and capital budgets. The funding strategy is detailed in the Council's 10-year long term financial plan.

Capital works and maintenance are funded from general funds, loans and a variety of income sources, including:

- Contributions plans
- Grants/Subsidies
- Rate and other incomes

If funding needs are not met, achieving the financial strategy will require additional funding from a combination of:

- Investigation and implementation of alternative funding sources
- Review and rationalisation of specific service areas identified as potentially being over-serviced
- Re-allocation of income where appropriate to marine asset management
- Additional grant funding from higher levels of Government
- Review of Contributions Plans

Valuation Forecasts

Asset values are forecast to increase as additional assets are added to the asset stock from construction and acquisition by Council and from assets constructed by developers and others and donated to Council. However as identified in this asset management plan, there is forecast at this stage to be minimal new assets created over the next 10 years, apart from the Clifton Gardens Accessible Ramp in 2019/2020.

The depreciated replacement cost (fair value- current replacement cost less accumulated depreciation) will vary over the forecast period depending on the rates of addition of new assets, disposal of old assets and consumption and renewal of existing assets. Forecast of the assets' depreciated replacement cost is based on current projected asset renewal funding levels.

Key Assumptions Made in Financial Forecasts

This section details the key assumptions made in the Asset Management Plan, forecasts of required operating and capital expenditure, asset values, depreciation expense and carrying amount estimates.

Key assumptions made in this Asset Management Plan are:

- Financial forecasts are based on providing defined Levels of Service
- Council will endeavour to fully fund required asset renewal requirements into the future
- Capital renewal programs are designed to maintain the service potential of existing assets
- Maintenance costs are based largely on historical expenditure and assume there will be no significant increase in the cost of providing these services apart from related to new assets
- Financial forecasts are based on 2019/20 dollars with the inherent assumption then that costs will increase in the future in line with consumer price index (CPI). For maintenance, there is an assumption that costs will increase at a rate slightly above CPI i.e. additional 1% pa. (This may not be the case as material costs and/ or salaries and wages, for example, may increase (or decrease) at alternative rates). No sensitivity analysis has been carried out at this stage to identify how this may impact costs in the future

Accuracy of future financial forecasts may be improved in future revisions of this Asset Management Plan by the following actions:

- More detailed review of asset unit rates and useful lives
- Better understanding of when assets are required to be renewed or when assets need to be maintained rather than estimating an average over 10 years
- Better alignment with Council's Community Strategic
 Plan and Long Term Financial Plan
- Improved understanding and availability of information regarding and development of Levels of Service
- Improved understanding of Demand Forecasting and future required new works/upgraded assets
- Refining/developing long term operational programs for works and services (at least 10 years) in addition to the capital works programs
- More advanced strategic analysis of the data and information particularly considering Levels of Service, asset capacity and performance and demand
- Optimisation of asset renewal works and forecasts
- Understanding and analysing the many financial and economic influences which may potentially impact upon the cost of provision of services (sensitivity analysis)

RISK MANAGEMENT PLAN

Council's broad risk management approach is covered in the Strategic Risk Review and the Asset Management Strategy. The standard procedure includes the following:

- Risk identification
- Risk analysis
- Risks evaluation
- Risk treatment
- Monitoring and review
- Communication

The implementation of an effective asset management plan is integral in assisting Council to manage the risks and liabilities of infrastructure assets. The marine asset management plan covers a number of risk management procedures including:

- Routine inspection and maintenance regimes
- Prioritisation of maintenance and capital works to support the delivery of Council services
- Long term asset renewal program and required funding estimates
- Key responsible staff for marine assets
- High quality data on the useful life and condition of assets

There are a small number of incidents reported each year concerning marine assets and the low number of assets mean that regular inspections and maintenance can be carried out. Council has developed a marine assets Routine Maintenance and Inspection Manual, which identifies the key risks, the inspection frequency and intervention levels.

A risk assessment covering the common risks in marine assets is summarised in Table 20.

Description of Risk	Previous Risk Rating	Risk Planning	Risk Treatment	New Risk Rating
General Defects	Medium	Regular inspections	All marine assets above the mean high water mark (MHWM) inspected 100% before the summer period, all assets below the MHWM inspected every 2 years, follow the inspection and maintenance manual	Medium
Seawalls Defects	High	Inspections once a year	Inspection once a year to note toe grout and lean. Every 5 years detailed structural assessment	Medium
Baths Defects	Medium	Yearly	Turning boards and other infrastructure to be inspected and check structural defects and connections	Low
Jetties Defects	High	2 years	Inspections to include assessment of decking, handrails and ladders. Headstock and piles to be done every 2 years	Medium
Rock Pools Defects	Low	Yearly	Check stability of rocks, regrout if needed	Low
Navigation Buoys Defects	Low	Every two years	Stability and connects checked every two years	Low
Environmental Damage Works	Medium	Contract conditions, audits and the appointment of a suitable contractor	The selection of the contractor will also be based on their compliance with environmental requirements. Council also requires the contractor to have a number of insurances in place prior to the works	Low
Construction Phase - May pose risk for public/park users	Medium	Fencing, insurance and WHS site plan	Ensure relevant safety measures are in place and construction site is fenced and secure. Review of construction management plan. Ensure all contractors have correct insurances	Low

Table 20 - Risk and Treatment Plan

ASSET MANAGEMENT PRACTICES

Financial Systems

Council's financial system is Civica Authority and its budgeting system is PowerBudget.

Financial reporting must comply with the requirements of the Local Government Act 2003, relevant Australian Accounting Standards, Local Government Code of Accounting Practice and Financial Reporting and Local Government Accounting Manual.

The value of the Mosman marine assets is reported in the financial records and valuations are carried out when necessary due to changes in the market.

The financial system is managed by the Council's Finance and Information Services Division. The following are responsible for the financial system:

- Chief Financial Officer
- Accountant Finance and Strategy

Asset Management Systems

Council is using the asset management system known as AssetFinda and the geographic information system (GIS) system known as MapInfo.

This asset management system contains information about all marine assets including quantities and financial information. It is the primary source of data for these assets, which is updated regularly. The system contributes to the end of financial year reporting and the marine asset inventory is constantly maturing due to increasing data confidence. This includes more accurate data in relation to construction dates, condition, cost and past performance. These improvements have been brought on by regular inspections of the marine assets and the revaluation in 2017/2018.

GIS is linked to the asset management system. The majority of marine assets have associated GIS features and contains all attributes sourced from AssetFinda.

Accountability for the operation and management of the asset management system and GIS is corporate and requires input from the technical, operational and financial areas of Council.

Information Flow Requirements and Processes

The key information flows into this asset management plan are:

- The asset register data on size, age, value, remaining life of the network
- The unit rates for categories of assets, materials and works
- The adopted service levels
- Projections of various factors affecting future demand for services
- Correlations between maintenance and renewal, including an understanding of asset deterioration
- Data on new or upgraded assets acquired by Council

The key information flows from this AMP are:

- The resulting budget, valuation and depreciation projections
- The asset useful life analysis

These impact the Resourcing Strategy (Long Term Financial Plan), Strategic Business Plan, annual budget and departmental business plans and budgets.

It is essential to incorporate records of inspections, maintenance and capital works activities into the asset management system to maintain their currency and to permit analysis of performance for the development of predictions of future performance.

Maintenance and renewal activities should be prioritised to mitigate risk to the asset and its users. For example, timber piles should be replaced when their section diameter is reduced by 50% to limit the risk of collapse.

Standards and Guidelines

Relevant standards and guidelines include:

- NSW Local Government Act 1993
- Australian Accounting Standards (AASB 13 & AASB 116)
- Relevant Transport for NSW (TfNSW) standards and specifications
- Building Code of Australia
- MOSPLAN
- IPWEA, 2015, 'International Infrastructure Management Manual'
- IPWEA, 2015, 'Australian Infrastructure Financial Management Manual'
- DLG Code of Accounting and Reporting Practice
- DLG Integrated Planning and Reporting Manual and Guidelines
- AUS-SPEC/Natspec documentation sets which assist Councils with works and maintenance management and contracts
- AS/NZS/ISO 31000:2018 Risk Management Principles and Guidelines

PLAN IMPROVEMENT AND MONITORING

Performance Measures

The effectiveness of this Asset Management Plan can be measured in the following ways:

- The degree to which the required cashflows identified in the plan are incorporated into Council's Resourcing Strategy, Council's long term financial plan and Strategic Management Plan
- The degree to which adopted organisation 1 to 10-year detailed works programs, budgets, business plans and organisational structures take into account the 'global' works program trends provided by the asset management plan
- Community acceptance including Levels of Service and risk management plan

Improvement Plan

Council will continually be developing and improving its knowledge, systems and processes and strategies to ensure it is providing the level of asset management necessary to competently, responsibly and sustainably manage the community's assets now and into the future.

Council has a number of short to medium (1-4 years) and longer-term goals (4-10 years). In the short to medium term, the Council aims to improve further in how asset management is conducted. In the marine dataset, assets remaining useful life has more influence on calculating depreciation than other asset inventories. It is used to inform useful life review and changes. In the short term, this will be refined and the same technique applied to the asset inventories covered under the four other asset management plans. More improvements are highlighted in Table 21.

Action	Priority	Timeline
The determination of remaining useful lives via condition inspection, modelling (e.g. deterioration trends), data collection and observation of historical data to better inform of the useful lives of assets	High	2021/22
Integration of revaluation threshold to identify assets required to be revalued and identify assets that can be listed at cost only	Medium	2021/22
Use of AMS to assist with calculating asset life cycle costs, planning asset renewals and prioritising and scheduling maintenance	Medium	2023/24
In collaboration with the Environment Team, engage a Marine Biologist to identify and locate ecosystems on Marine Assets and review and consider current work practices	Medium	2024/25
Improvement of marine GIS mapping (mapping of individual marine assets), to assist officers more in planning works and reviewing condition of assets	Low	2021/22

Table 21 - Asset management improvement plan

Longer-term goals include achieving more advanced asset management practice in a range of asset management areas including key areas of asset knowledge, strategic asset planning, maintenance and works processes.

Council's current status of Marine assets planning are:

- Comprehensive revaluation of marine completed in July 2017 including verification of asset location, attribute and condition data for all marine assets
- Condition, renewals, new works, maintenance, cost, utilisation and performance data for all assets collected and recorded on an ongoing basis
- Further improvements in the asset management system to display more information about capital works and providing details such as renewal dates, upgrade reasoning, partial renewals and disposals
- Work order system in place on the asset management system which records where and how much works costs and who is the contractor responsible for completing the works
- Marine asset data is all available in the asset management system and all end of year financial reporting is completed there as well
- More informed information about the remaining useful life of marine assets which helps to inform adjustments to the useful life of these assets
- Spatial data is available for most marine assets within GIS (MapInfo) providing the location of these assets
- Basic demand forecasting and demand management considerations have been incorporated into the AMP
- Comprehensive 10-year asset works programs completed

- Routine maintenance and inspection manual developed which describes the identification of risk and intervention levels, routine maintenance, reactive maintenance and emergency action plan
- Basic integration of asset long term financial forecasts into organisation long term financial planning and resourcing strategies
- Asset management development linked strongly with MOSPLAN
- Condition inspection processes in place
- No major failures or issues sourced from complaints

Monitoring and Review Procedures

This Asset Management Plan is to be reviewed and updated at least every 4 years (standard Council term) and as a minimum should be aligned with the review of Council's Community Strategic Plan and Delivery Program.

The assets values, data and modelling that informed this plan were done prior to the ramifications of the COVID-19 pandemic being known. Due to these circumstances, in 18 months time a review and update will take place to account for changes.

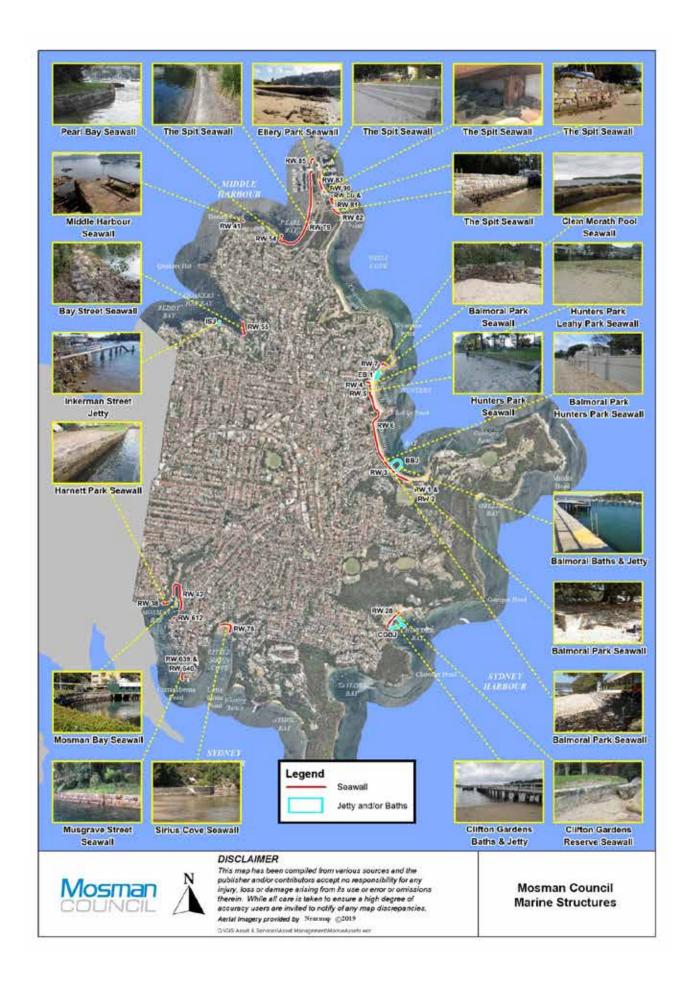
Under normal circumstances, every 2 years there will be a minor review and the plans will be amended to recognise any changes in service levels or budget and resources during this time. The capital works program may need modification due to these changes.

REFERENCES

- Mosman Community Strategic Plan (MOSPLAN)
- Mosman Council Asset Management Policy
- Mosman Council Asset Management Strategy
- Integrated Planning and Reporting Guidelines for local government in NSW Planning a sustainable future 2013
- IPWEA, 2015, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australia, Sydney, www.ipwea.org.au
- IPWEA, 2015, 'Australian Infrastructure Financial Management Manual', Institute of Public Works Engineering Australia, Sydney, www.ipwea.org.au
- AS/NZS/ISO 31000:2018 Risk Management Principles and Guidelines
- .idcommunity, 2018, Mosman Municipal Council community profile, idcommunity, http://profile.id.com.au/mosman
- Photography by Ben Williams Photography, 2020

APPENDICES





APPENDIX B

BALMORAL BATHS AND JETTY VISUAL INSPECTION REPORT AND INTERACTIVE PLAN

In May 2019, ARUP had completed a Visual Inspection Report of the Balmoral Baths and Jetty. This included assessing the condition and structural capacity of the jetty and to determine the extent of upgrade and repair works required. The results of this included an Inspection Defect Drawing, Marq Inspection Report, Dive Report and Interactive Plan.

The defect drawing and Marq inspection report informed Council where works are required on the jetty and if it requires capital works or maintenance only. The maintenance work is then recommended as either reactive or preventative.

D.1 Observation Altitude Observation Longitude Observation Latitude Structure Type Inspected -0.56787109375 151.253025988258 -33.8279183814617 Jetty Decking Structure Material Condition Description (Optional) Timber Good Jetty decking generally in good condition with only minor surface weathering and some minor natural timber defects evident general observation applying to all decking in this zone

Figure A - Example of Observation in Marq Report

The Dive Report is an assessment of the piles supporting the jetty. This included the measurements of the diameter of the pile at certain points along its height, the overall height/length of the pile, a visual condition rating (1-7) and comments.

The condition rating determined here was then converted and adopted into the 1-5 condition scale in the marine inventory. This rating was applied as the condition rating as of 30 June 2019 (excepting any circumstances where there were works on the pile between this inspection and 30 June).

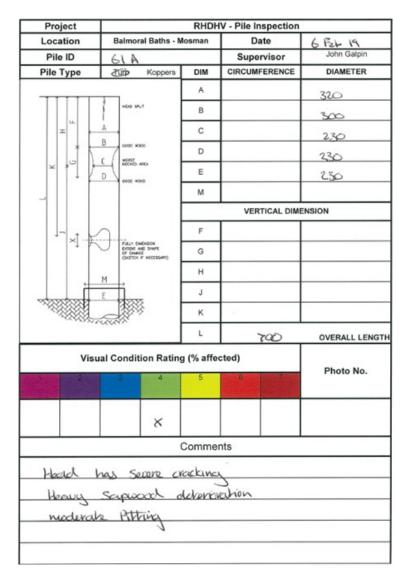


Figure B - Example of Inspection in Dive Report

As part of the report, ARUP generated an interactive plan of the Balmoral Baths and Jetty.

The interactive plan and panorama photos of the jetty at approximately 150 locations are available here:

www.arup.com.au/pano/balmoraljetty

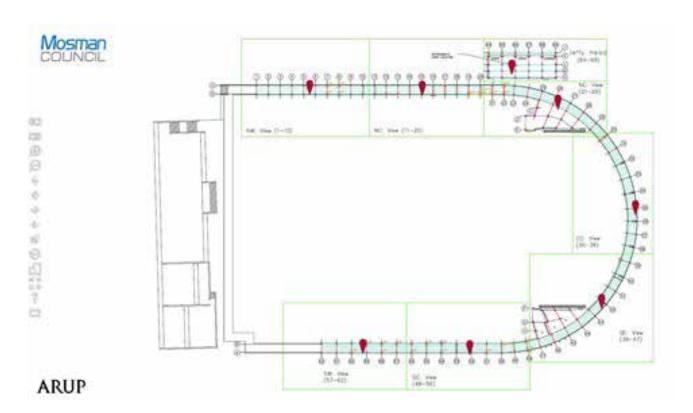


Figure C - Balmoral Baths and Jetty Interactive Plan

APPENDIX C

MARINE ASSETS 10 YEAR LIFECYCLE FINANCIAL FORECASTS

Marine Assets 10 Year Operational and Capital Forecasts (in 2019/20 dollar values, \$000s)

	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025	2025/ 2026	2026/ 2027	2027/ 2028	2028/ 2029
	1	2	3	4	5	6	7	8	9	10
Annual Depreciation	253	257	257	257	257	257	257	257	257	257
Planned Expen	diture ("Nor	n-sustainable	e" Assets Ca	se)						
Operations	0	0	0	0	0	0	0	0	0	0
Maintenance	51	51	51	51	51	51	51	51	51	51
New Work	250	0	10	0	0	0	0	0	0	10
Renewals	430	40	280	290	290	290	260	300	290	180
Total	731	91	341	341	341	341	311	361	341	241
Required Expe	nditure ("Su	stainable" A	ssets Case)		^		•			^
Operations	0	0	0	0	0	0	0	0	0	0
Maintenance	42	43	43	43	43	43	43	43	43	43
New Work	250	0	10	0	0	0	0	0	0	10
Renewals	253	257	257	257	257	257	257	257	257	257
Total	544	300	310	300	300	300	300	300	300	310

APPENDIX D

MARINE PROVISIONAL CAPITAL WORKS PROGRAM 2019/20-2028/29

Year	Facility	Works Description	Estimated Cost (\$)
2019/2020	Balmoral Baths & Jetty	Piles, Sub - Structure, Decking, Sharknet	390,000
2019/2020	Clifton Garden Baths & Jetty	Beach Access Ramp, Sharknet	270,000
2019/2020	Various Seawall	Grouting/inspection	20,000
2020/2021	Balmoral Baths & Jetty	Sharknet	10,000
2020/2021	Balmoral Baths & Jetty	Decking and railing works	20,000
2020/2021	Clifton Garden Baths & Jetty	Sharknet	10,000
2021/2022	Balmoral Baths & Jetty	Sharknet	20,000
2021/2022	Inkerman Jetty & Seawall	Renewal works	150,000
2021/2022	Various Seawall	Renewal works	70,000
2022/2023	Balmoral Baths & Jetty	Decking/Handrails	85,000
2022/2023	Clifton Garden Baths & Jetty	Sharknet	20,000
2022/2023	Clifton Garden Baths & Jetty	Concrete Deck and Piles	150,000
2023/2024	Balmoral Baths & Jetty	Decking/Piles	150,000
2023/2024	Clifton Garden Baths & Jetty	Handrails and Sharknet	50,000
2023/2024	Various Seawall	Renewal works	60,000
2024/2025	Balmoral Baths & Jetty	Sharknet/Decking	65,000
2024/2025	Clifton Garden Baths & Jetty	Handrails and Piles	100,000
2024/2025	Various Seawall	Renewal works	100,000
2025/2026	Balmoral Baths & Jetty	Decking/Handrails	100,000
2025/2026	Clifton Garden Baths & Jetty	Sharknet/Handrail	50,000
2025/2026	Inkerman Jetty	Inspection/general works	10,000
2025/2026	Various Seawall	Renewal works	50,000
2026/2027	Balmoral Baths & Jetty	Piles/Sharnet/Decking	200,000

Year	Facility	Works Description	Estimated Cost (\$)
2026/2027	Clifton Garden Baths & Jetty	Handrails	50,000
2027/2028	Balmoral Baths & Jetty	Decking	40,000
2027/2028	Clifton Garden Baths & Jetty	Decking/Piles	150,000
2027/2028	Various Seawall	Renewal works	50,000
2028/2029	Balmoral Baths & Jetty	Sharknet	20,000
2028/2029	Clifton Garden Baths & Jetty	Sharknet	20,000
2028/2029	Various Seawall	Renewal works	100,000

