Asset Management Plan

Retaining Walls

2018-28

Randwick City Council
a sense of community

TABLE OF CONTENTS

1 EXECUTIVE SUMMARY

1.1 The Purpose of the Plan

Asset management planning is a comprehensive process to ensure delivery of services from infrastructure is provided in a financially sustainable manner.

This asset management plan details information about infrastructure assets including actions required to provide an agreed level of service in the most cost effective manner while outlining associated risks. The plan defines the services to be provided, how the services are provided and what funds are required to provide the services over a 10-year planning period.

This plan covers retaining walls on Council land.

1.2 Asset Description

The Retaining Wall asset class comprises:

- 25 timber retaining walls:
- 148 sandstone retaining walls;
- 56 concrete block retaining walls;
- 70 brick retaining walls.

These infrastructure assets have significant value estimated at $20,538,466.

1.3 Levels of Service

Our present funding levels are sufficient to continue to provide existing services at current levels in the medium term.

If sufficient funding levels are not maintained, the main service consequences are:

- Visual concerns about the condition of retaining walls;
- Restricted access due to safety issues;
- Reduced structural capacity.

1.4 Future Demand

The main demands for new services are created by development and land improvement required to support:

- Population;
- Demographics;
- Technological changes;
- Community preference and aspirations.

These will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management. Demand management practices include non-asset solutions, insuring against risks and managing failures.

Demand management practices for Council's retaining wall assets include:

- Effective management of existing infrastructure via regulation, education and influencing stakeholders on the use of assets;
- Upgrade critical infrastructure and provide new infrastructure to meet the demand.

1.5 Lifecycle Management Plan

What does it Cost?

The projected outlays necessary to provide the services covered by this Asset Management Plan (AM Plan) includes operations, maintenance, renewal and upgrade of existing assets. Over the 10-year planning period, the funding required is $596,000 or $60,000.00 on average per year of which $73,000 relates to projected renewal.

Retaining walls are long life assets and the age profile of this asset class results in the requirement for only a small amount of renewal work during the planning period. Overall, our retaining wall assets are depreciating at $263,146 annually and budget allocation over and above the projected renewals covered by this Asset Management Plan is required to ensure the future sustainability of this asset class beyond the 10-year planning period.

1.6 Financial Summary

What we will do

Estimated available funding for this period is $2,942,000 or $294,000 on average per year as per the long-term financial plan or budget forecast. This is 493 percent of the cost to sustain the current level of service at the lowest lifecycle cost over the 10-year planning period.

The infrastructure reality is that only what is funded in the long-term financial plan can be provided. The emphasis of the Asset Management Plan is to communicate the consequences that this will have on the service provided and risks, so that decision making is "informed".

The allocated funding provides a surplus of $235,000 on average per year over the projected expenditure required to provide services in the AM Plan. This is shown in the figure below.

The surplus should be set aside to cover the difference between annual depreciation and renewals over the planning period. This will ensure that the existing levels of service can be maintained beyond the 10-year planning period and for the life of the assets. This effectively returns the sustainability ratio to 1 across the life of the assets.

Projected Operating and Capital Expenditure

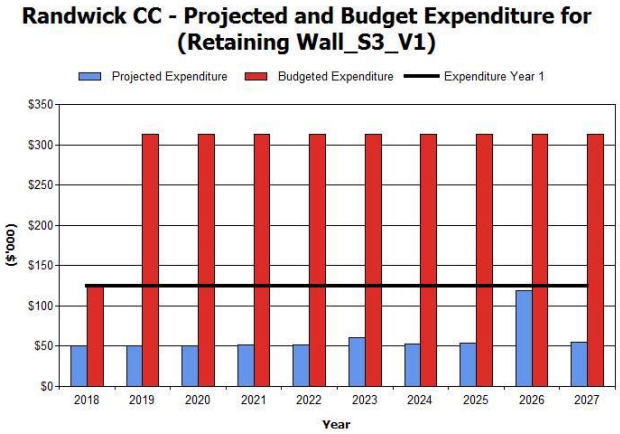


Figure values are in current (real) dollars.

We plan to provide services for the following:

- Operation, maintenance, renewal and upgrade of Wall, Footing, railing, anchors and cladding to meet service levels set by in annual budgets;
- Asset renewals and upgrades within the 10-year planning period.

Managing the Risks

Our present funding levels are sufficient to continue to manage risks in the medium term.

There are risks associated with providing the service and not being able to complete all identified activities and projects. We have identified major risks as the failure of a retaining structure supporting a road corridor or retaining earth adjacent to a high use recreational area.

We will endeavour to manage these risks within available funding by:

- Identifying high and extreme risk walls;
- Planned Inspections for high and extreme risk walls;
- Monitoring development that may impact on retaining wall assets;
- Develop an operational and maintenance plan and allocate funding to carry out remediation work as required.

1.7 Asset Management Practices

Our systems to manage assets include:

- Technology One;
- GIS-(ESRI Arcmap);
- Photographs;
- Electronic data capturing tools (ESRI Arc Collector);
- Risk management techniques and tools.

Assets requiring renewal/replacement are identified from a process of annual condition assessment to 20% of the network. The asset register is updated to include data form the inspections allowing future works programs to be projected.

1.8 Monitoring and Improvement Program

The next steps resulting from this asset management plan to improve asset management practices are:

- The procurement of a Strategic Asset Management System to allow sophisticated modelling, forecasting and risk management. (*Key Asset Management Strategy 7)*
- The formation of an Asset Management Steering Group to ensure a consistent asset centric approach across the organisation that is consistent with the Asset Management Policy and Strategy. (*Key Asset Management Strategy 2)*
- Further identification and refinement of costs associated with managing this asset class. (*Key Asset Management Strategy 4)*

These next steps are aligned with Key Strategies identified Council's Asset Management Strategy 2018-28.

2. INTRODUCTION

2.1 Background

This asset management plan communicates the actions required for the responsive management of assets (and services provided from assets), compliance with regulatory requirements, and funding needed to provide the required levels of service over a 10-year planning period.

This asset management plan is to be read with the following associated planning documents:

- The Randwick City Plan;
- Delivery Plan 2018-21 and annual Operational Plans;
- Asset Management Policy;
- Asset Management Strategy 2018-28;
- Long Term Financial Plan 2018-28;
- Resourcing Strategy-Workforce Plan 2018-28;
- ICT Digital Strategy 2018-28;
- Randwick City Council Community Consultation Principles and Consultation Planning Guide.

This plan aligns with the Asset Management Strategy 2018-28 and covers a 10-year planning period. Figures within the plan extend beyond the 10-year planning period for the purpose of projecting asset management challenges beyond the life of the plan.

The infrastructure assets covered by this asset management plan are shown in Table 2.1. These assets are used to provide stability of earth embankments.

Table 2.1: Assets covered by this Plan

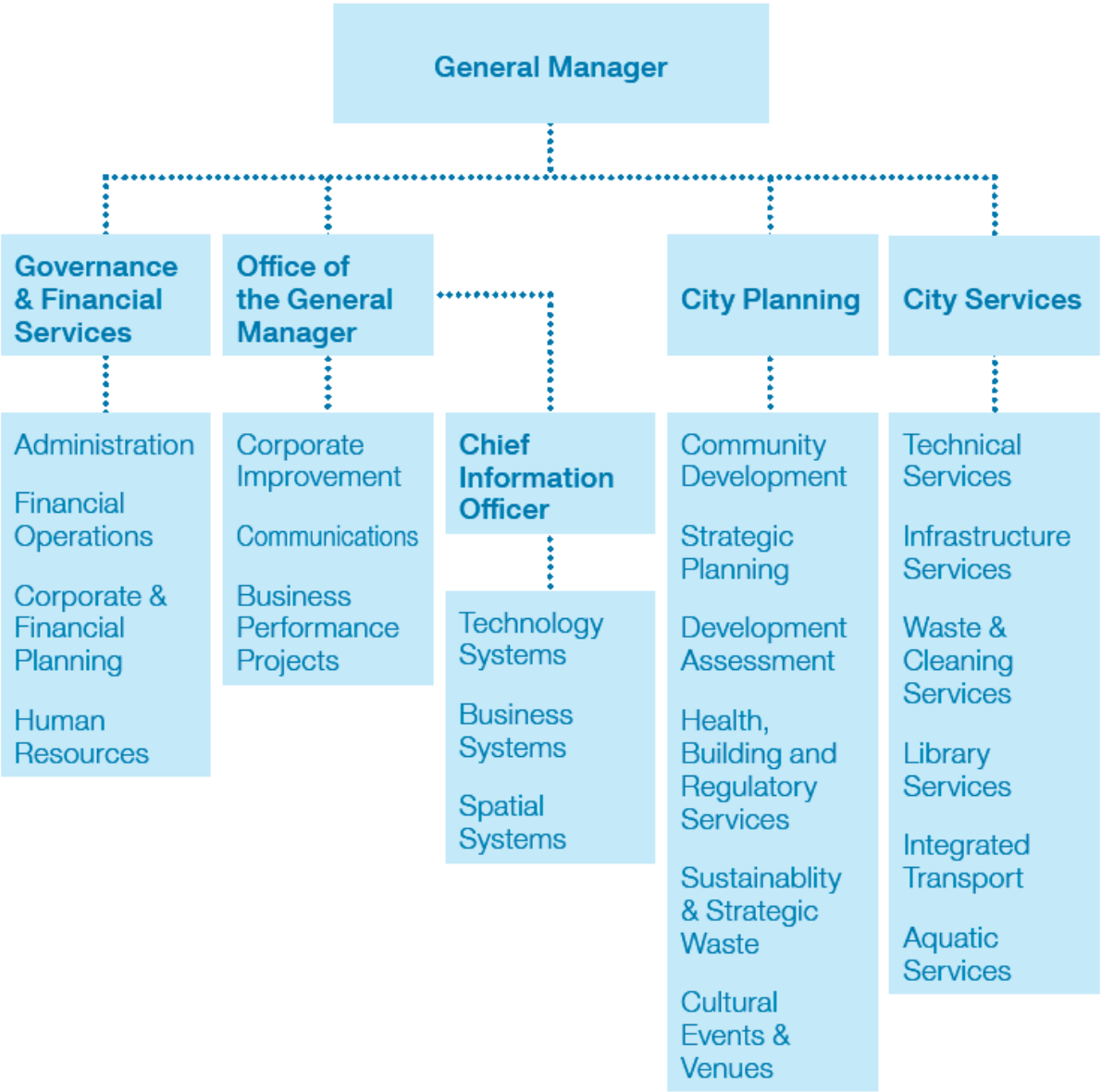
Asset Category	Quantity	Replacement Value
Timber retaining walls	25	$401,203
Sandstone retaining walls	148	$12,410,288
Concrete block retaining walls	57	$4,789,009
Brick retaining walls	70	$2,937,946
ROUNDED TOTAL	**300**	**$20,538,466**

Table 2.1.1: Key Stakeholders in the AM Plan

Key Stakeholder	Role in Asset Management Plan
Council Representatives (Includes Councillors and the Mayor)	• Represent needs of community/shareholders, • Allocate resources to meet the organisation's objectives in providing services while managing risks, • Ensure organisation is financially sustainable.
Council Officers	• Manage Retaining Wall Assets, • Ensure level of service provided meets needs of residents and visitors, • Implement the components identified in the Retaining Wall asset management plan.
Residents	• Core users of the land improved by the construction of Retaining Wall assets. • Their needs, wants and expectations are conveyed to the Council and should be reflected in desired levels of service.

Visitors	• Their needs, wants and expectations drive the development in areas of the highest visitor usage and also commercial areas.
Insurers	• Insurers have interest in implementation of systems which allow Council to gain better knowledge of the condition of their assets. • Systems should be reflected in the number of claims made against each asset group.

Our organisational structure for service delivery of infrastructure assets is detailed below.



2.2 Goals and Objectives of Asset Ownership

Our goal in managing infrastructure assets is to meet the defined level of service (as amended from time to time) in the most cost effective manner for present and future consumers. The key elements of infrastructure asset management are:

- Providing a defined level of service and monitoring performance;
- Managing the impact of growth through demand management and infrastructure investment;
- Taking a lifecycle approach to developing cost-effective management strategies for the long-term that meet the defined level of service;
- Identifying, assessing and appropriately controlling risks;
- Linking to a long-term financial plan which identifies required, affordable expenditure and how it will be allocated.

Other references to the benefits, fundamentals principles and objectives of asset management are:

- International Infrastructure Management Manual 2015 [1];
- ISO 55000 [2].

2.3 Plan Framework

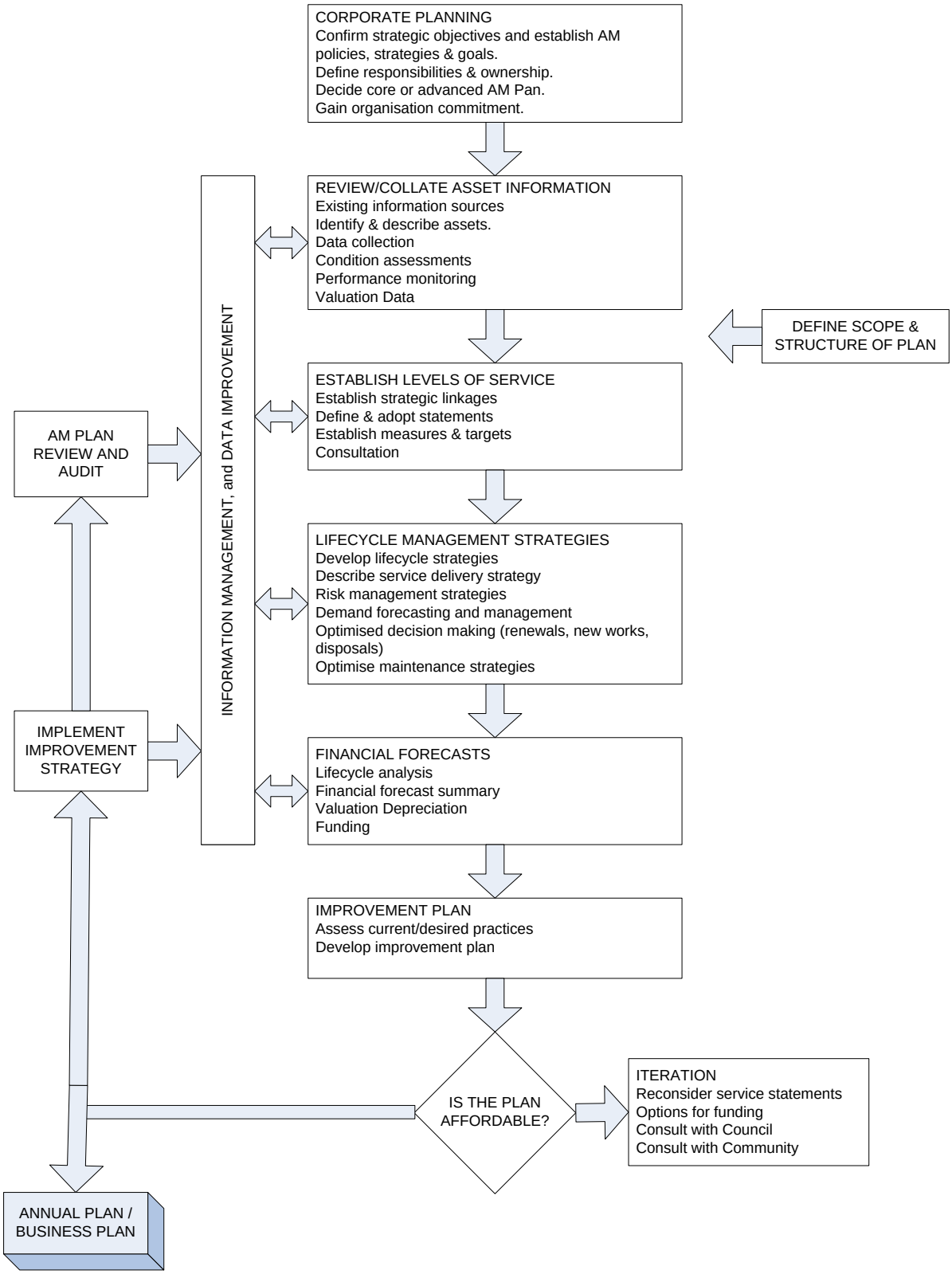
Key elements of the plan are

- Levels of service – specifies the services and levels of service to be provided by the organisation;
- Future demand – how this will impact on future service delivery and how this is to be met;
- Life cycle management – how Council will manage its existing and future assets to provide defined levels of service;
- Financial summary – what funds are required to provide the defined services;
- Asset management practices;
- Monitoring – how the plan will be monitored to ensure it is meeting organisation's objectives;
- Asset management improvement plan.

A road map for preparing an asset management plan is shown below.

[1] Based on IPWEA 2015 IIMM, Sec 2.1.3, p 2| 13

[2] ISO 55000 Overview, principles and terminology


CORPORATE PLANNING
Confirm strategic objectives and establish AM policies, strategies & goals.
Define responsibilities & ownership.
Decide core or advanced AM Pan.
Gain organisation commitment.
REVIEW/COLLATE ASSET INFORMATION
Existing information sources
Identify & describe assets.
Data collection
Condition assessments
Performance monitoring
Valuation Data
DEFINE SCOPE & STRUCTURE OF PLAN
ESTABLISH LEVELS OF SERVICE
Establish strategic linkages
Define & adopt statements
Establish measures & targets
Consultation
AM PLAN REVIEW AND AUDIT
INFORMATION MANAGEMENT, and DATA IMPROVEMENT
LIFECYCLE MANAGEMENT STRATEGIES
Develop lifecycle strategies
Describe service delivery strategy
Risk management strategies
Demand forecasting and management
Optimised decision making (renewals, new works, disposals)
Optimise maintenance strategies
IMPLEMENT IMPROVEMENT STRATEGY
FINANCIAL FORECASTS
Lifecycle analysis
Financial forecast summary
Valuation Depreciation
Funding
IMPROVEMENT PLAN
Assess current/desired practices
Develop improvement plan
IS THE PLAN AFFORDABLE?
ITERATION
Reconsider service statements
Options for funding
Consult with Council
Consult with Community
ANNUAL PLAN / BUSINESS PLAN

2.4 Core and Advanced Asset Management

This asset management plan is prepared as a 'core' asset management plan over a 10-year planning period in accordance with the International Infrastructure Management Manual[3]. Core asset management is a 'top down' approach where analysis is applied at the system or network level. An 'advanced' asset management approach uses a 'bottom up' approach for gathering detailed asset information for individual assets.

3. LEVELS OF SERVICE

3.1 Customer Research and Expectations

In 2014 Council commissioned a community satisfaction survey conducted by Micromex Research[A]. The survey was administered by a computer aided telephone system to a sample of 1,000 residents. The most recent customer satisfaction survey reported satisfaction levels for the following services.

Table 3.1: Community Satisfaction Survey Levels

Performance Measure	Satisfaction Level*
Overall satisfaction with Council's performance	95%
Maintaining local roads	72%
Long-term planning for the City	80%
Council's response time to request for service	78%

*Based on Top 3 box (percentage of residents indicating they are very satisfied, satisfied, or somewhat satisfied).

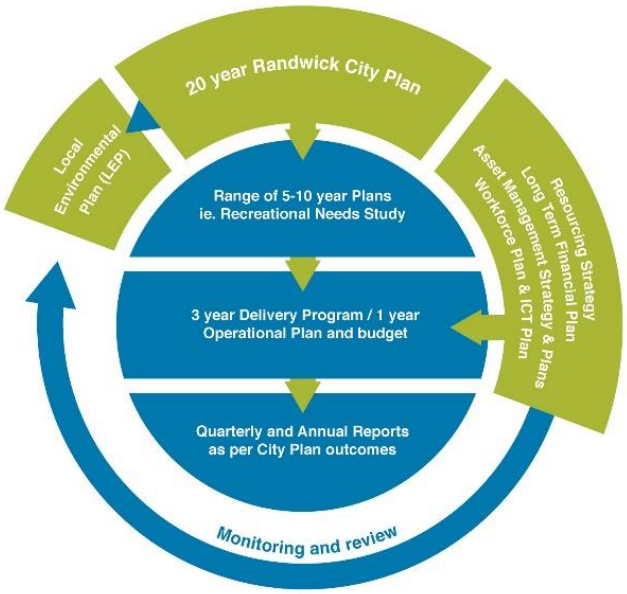
Community satisfaction information is used in developing the 10-year Randwick City Plan and in the allocation of resources in the budget.

3.2 Strategic and Corporate Goals

This asset management plan is prepared under the direction of the 10-year Randwick City Plan and within the Integrated Planning and Reporting (IPR) framework.

[3] IPWEA, 2015, IIMM.
[A] TRIM D02266591

Integrated Planning and Reporting framework



This plan will guide the delivery of actions by Council to achieve the following City Plan Outcomes:

Outcome 1: Leadership in Sustainability.

Outcome 6: A Liveable City.

Relevant goals and objectives and how these are addressed in this asset management plan are:

Table 3.2: Goals and how these are addressed in this Plan

Randwick City Plan Outcome	Direction	Objective	How Goal and Objectives are addressed in AM Plan
Outcome 6: A Liveable City	Direction 6a: Our public infrastructure and assets are planned, managed and funded to meet the community expectations and defined levels of service.	Implement the strategic asset management system to deliver intergenerational equity and meet the Council's obligations as the custodian of our community's assets.	The implementation of a Strategic Asset Management System is a part of the monitoring and improvement program within this Asset Management Plan.
Outcome 6: A Liveable City	Direction 6a: Our public infrastructure and assets are planned, managed and funded to meet the community expectations and defined levels of service.	Conduct programmed asset maintenance management in accordance with adopted service levels.	The Retaining Wall Asset Management Plan includes funding for operations and maintenance and provisions for performance monitoring against adopted service level.
Outcome 6: A Liveable City	Direction 6c: The safety of our community is paramount and is acknowledged and supported through	Conduct minor reactive maintenance management in accordance with adopted service levels.	• Respond to customer requests within service level agreements. • Identify High and Extreme risk walls. • Planned Inspections for high and extreme risk walls.

	proactive policies, programs and strategies.		• Develop an operational and maintenance plan and allocate funding to carry out remediation work as required
Outcome 1. Leadership in Sustainability	Direction 1a: Council has a long-term vision based on sustainability	Ensure financial strategies underpin Council's asset management policies and strategic vision.	The Retaining Wall Asset Management Plan aligns with Council's Resourcing Strategy, including the Asset Management Strategy, Workforce Plan and Long-Term Financial Plan.

Council will exercise its duty of care to ensure public safety in accordance with the infrastructure risk management plan prepared in conjunction with this AM Plan. Management of infrastructure risks is covered in Section 6.

3.3 Legislative Requirements

There are many legislative requirements relating to the management of assets. These include:

Table 3.3: Legislative Requirements

Legislation	Requirement
Local Government Act 1993	Sets out role, purpose, responsibilities and powers of local governments including the preparation of a long-term financial plan supported by asset management plans for sustainable service delivery.
Workplace Health and Safety Act 2011	*"Protecting workers and other persons against harm to their health, safety and welfare through the elimination or minimisation of risks arising from work…"*
Australian Accounting Standard AASB116	Reporting on asset condition and consumption to Councilors, management and the community.
Civil Liability Act 2002 and Civil Liability Amendment (Personal Responsibility) Act 2002	Protects the Council from civil action by requiring the courts to take into account the financial resources, the general responsibilities of the authority and the compliance with general practices and applicable standards.
Roads Act 1993	To provide public access to roads, to classify roads, to act as the local road authority, to carry out certain functions e.g. road works and to regulate activities on public roads.

3.4 Customer Levels of Service

Service levels are defined service levels in two terms, customer levels of service and technical levels of service. These are supplemented by organisational measures.

Customer Levels of Service measure how the customer receives the service and whether value to the customer is provided.

Customer levels of service measures used in the asset management plan are:

Quality How good is the service … *what is the condition or quality of the service?*

Function Is it suitable for its intended purpose …. *Is it the right service?*

Safety It is safe for its intended purpose?

Capacity/Use Is the service over or under used … *do we need more or less of these assets?*

The current and expected customer service levels are detailed in Tables 3.4 and 3.5. Table 3.4 shows the expected levels of service based on resource levels in the current long-term financial plan.

Organisational measures are measures of fact related to the service delivery outcome e.g. number of occasions when service is not available, condition percentages of Very Poor, Poor/Average/Good, Very Good.

These Organisational/Organizational measures provide a balance in comparison to the customer perception that may be more subjective.

Table 3.4: Customer Level of Service

	Expectation	Performance Measure Used	Current Performance	Expected Position in 10 Years based on the current budget.
Service Objective: To ensure that retaining structures are safe, fit for purpose and aesthetically compliment the area.				
Quality	Provide retaining walls free from obvious defects.	Respond to CRM's within SLA timeframe.	94.44% resolved within SLA time frame.	Maintain the current performance.
		Organisational measure % of retaining walls in very good/ good condition and poor/very poor condition.	90% good to very good condition.	Maintain current performance.
	Confidence levels		High	High
Function	Retaining structures meet user requirements.	Projected retaining wall renewals are completed when required.	There is currently no retaining wall renewal backlog.	Maintain current performance.
	Confidence levels		High	High
Safety	Retaining walls are safe for their intended purpose.	Respond to CRM's within SLA timeframe.	94.44% resolved within SLA time frame.	Maintain the current performance.
	Confidence levels		High	High

3.5 Technical Levels of Service

Technical Levels of Service - Supporting the customer service levels are operational or technical measures of performance. These technical measures relate to the allocation of resources to service activities to best achieve the desired customer outcomes and demonstrate effective performance.

Technical service measures are linked to the activities and annual budgets covering:

- Operations – the regular activities to provide services (e.g. opening hours, cleansing, mowing grass, energy, inspections, etc.);
- Maintenance – the activities necessary to retain an asset as near as practicable to an appropriate service condition. Maintenance activities enable an asset to provide service for its planned life (e.g. road patching, unsealed road grading, building and structure repairs);
- Renewal – the activities that return the service capability of an asset up to that which it had originally (e.g. road resurfacing and pavement reconstruction, pipeline replacement and building component replacement);
- Upgrade/New – the activities to provide a higher level of service (e.g. widening a road, sealing an unsealed road, replacing a pipeline with a larger size) or a new service that did not exist previously (e.g. a new library).

Service and asset managers plan, implement and control technical service levels to influence the customer service levels.[4]

Table 3.5 shows the technical levels of service expected to be provided under this AM Plan. The 'Desired' position in the table documents the position being recommended in this AM Plan.

Table 3.5: Technical Levels of Service

Service Attribute	Service Activity Objective	Activity Measure Process	Current Performance	Desired for Optimum Lifecycle Cost
TECHNICAL LEVELS OF SERVICE				
Operations				
	Apply a risk management approach to retaining wall inspections.	Annual /5yearly inspections.	20% of the total number of walls are inspected per annum and further 27 walls identified as requiring annual inspections.	Satisfied with current performance.
		Budget	$30,000	
Maintenance				
	Respond to service requests.	Service requests completed within established service levels.	94.44% resolved within SLA time frame.	Satisfied with current performance.
	Identify planned maintenance.	Annual or 5yearly inspections.	20% of the total number of walls are inspected per annum and further 27 walls identified as requiring annual inspections.	Satisfied with current performance.
		Budget	$20,000	
Renewal				
	Infrastructure meets the needs of users.	Retaining walls are renewed when required.	Retaining walls are renewed as required.	Satisfied with current performance.
		Budget	$236,000	
Upgrade/New				
	Upgrade / New retaining wall assets as required.	As needed as part of other projects or development.	Upgrade / new retaining walls are funded by the developer or under the project budget with new assets capitalised into the retaining wall register.	Maintain current approach.

It is important to monitor the service levels provided regularly as these will change. The current performance is influenced by work efficiencies and technology, and customer priorities will change over time. Review and establishment of the agreed position which achieves the best balance between service, risk and cost is essential.

[4] IPWEA, 2015, IIMM, p 2|28.

4. FUTURE DEMAND

4.1 Demand Drivers

Drivers affecting demand include things such as population change, regulations, changes in demographics, seasonal factors, vehicle ownership rates, consumer preferences and expectations, technological changes, economic factors, agricultural practices, environmental awareness, etc.

4.2 Demand Forecasts

The present position and projections for demand drivers that may impact future service delivery and use of assets were identified and are documented in Table 4.3.

4.3 Demand Impact on Assets

The impact of demand drivers that may affect future service delivery and use of assets are shown in Table 4.3.

Table 4.3: Demand Drivers, Projections and Impact on Services

Demand drivers	Present position	Projection	Impact on services
Population	140,660 (As at June 30 2016, ABS estimated resident population – whole of Randwick Council area).	NSW Department of Planning and Environment projects a 23% increase in population by 2036 within Randwick Local Government Area.	An increase in population will require an increase in community and infrastructure services. Existing services may require amendment to cater for changes in use or increased patronage.
Available modes of alternative transport	2014 community survey indicates that constructing cycle ways are important (3.34, where 1=not at all important, 5 =very important).	NA	Cycle ways and footpaths.
Demographics	Randwick City Council has: -18% over 60 YO -43% in the 20-45 YO group (As at June 30 2016, ABS estimated resident population – whole of Randwick Council area).	Greater proportion of 10-20 YO (>35% growth). Greater proportion of over 60 YO (>45% growth). Low proportion of 25-45 YO (<10% growth).	Greater need for aged and disability access. Increase in population will require improvements to public transport infrastructure and accessible recreational infrastructure.

These demand drivers may impact on retaining wall assets as land is modified to meet changing community needs.

4.4 Demand Management Plan

Demand for new services will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management. Demand management practices can include non-asset solutions, insuring against risks and managing failures.

Opportunities identified to date for demand management are shown in Table 4.4. Further opportunities will be developed in future revisions of this asset management plan.

Table 4.4: Demand Management Plan Summary

Demand Driver	Impact on Services	Demand Management Plan
Population	Increased demand for usable recreational areas. Rehabilitation / development of previously unusable areas to cater for the demands.	Effective management of existing infrastructure via regulation, education and influencing stakeholders on the use of assets. Upgrade critical infrastructure and provide new infrastructure to meet the demand.

4.5 Asset Programs to meet Demand

The new assets required to meet demand can be acquired, donated or constructed. Additional assets are discussed in Section 5.5. The summary of the cumulative value of additional asset is shown in Figure 1.

Figure 1: Upgrade and New Assets to meet Demand – (Cumulative)

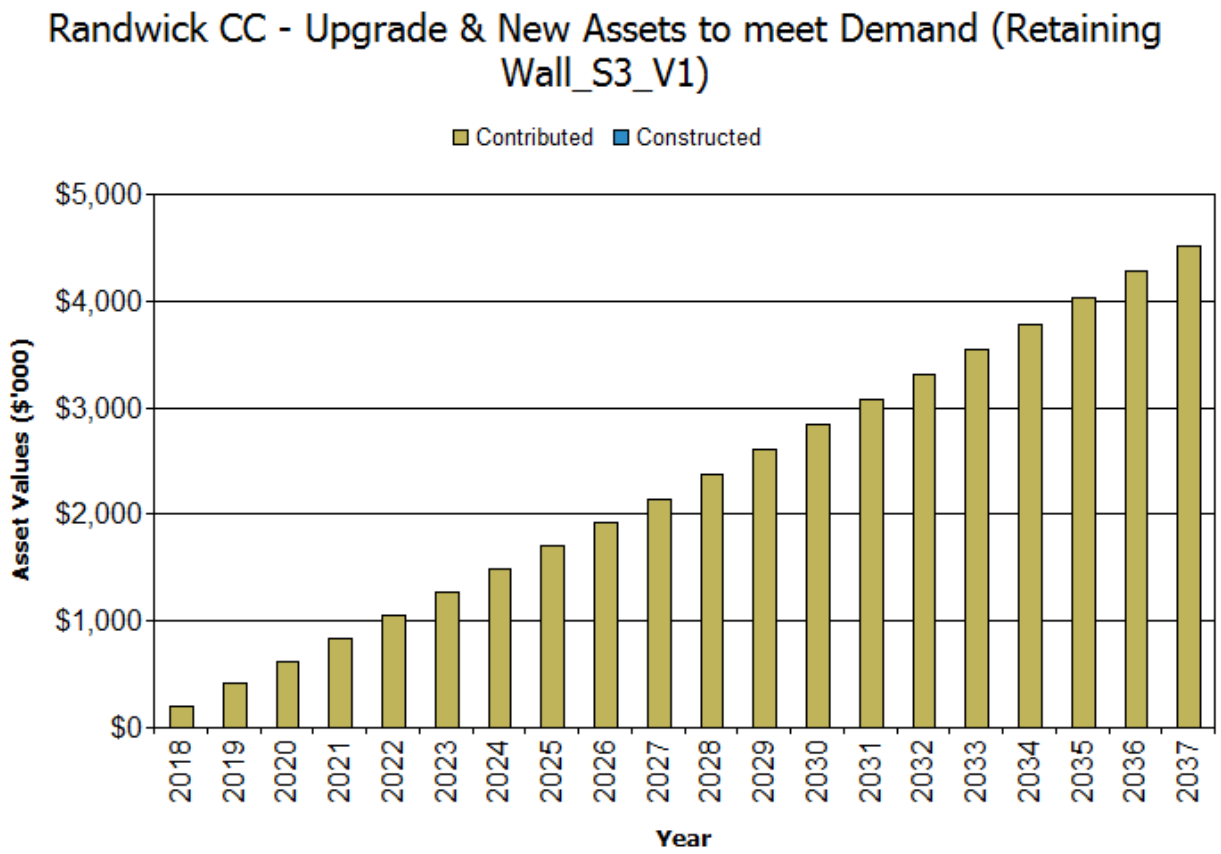


Figure values are in current (real) dollars.

Acquiring these new assets will commit ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required. These future costs are identified and considered in developing forecasts of future operations, maintenance and renewal costs for inclusion in the long-term financial plan further in Section 5.

Currently growth of Council's dedicated assets for retaining wall is insignificant.

5. LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how the Council plans to manage and operate the assets at the agreed levels of service (defined in Section 3) while managing life cycle costs.

5.1 Background Data

5.1.1 Physical parameters

The assets covered by this asset management plan are shown in Table 2.1.

Retaining wall assets consist of Concrete, Sands stone, Timber & Brick walls where majority of walls are located in the hilly areas of Coogee, Clovelly, and Maroubra suburbs.

The age profile of the assets included in this AM Plan are shown in Figure 2.

Figure 2: Asset Age Profile

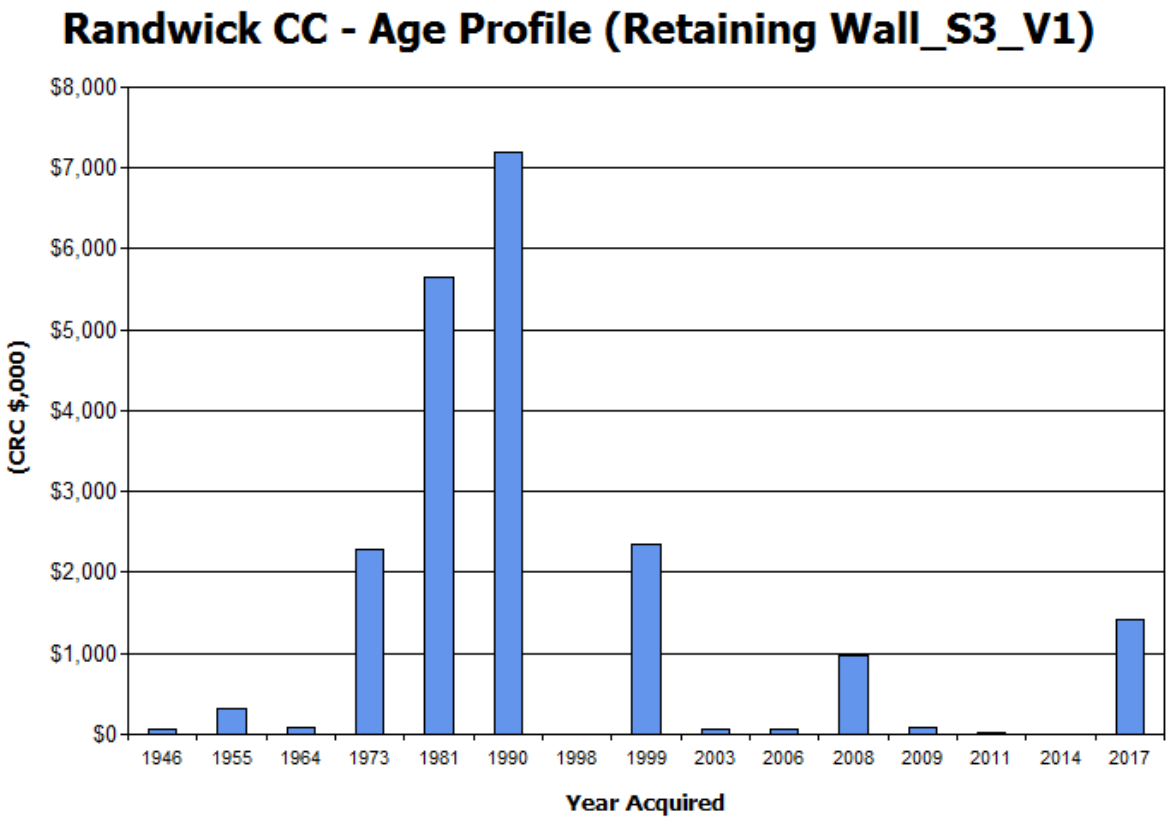


Figure values are in current (real) dollars.

According the Figure 2, majority of retaining walls had been built between 1973 and 1990 and thus anticipated major renewals would fall between 2035 to 2060 period.

5.1.2 Asset capacity and performance

Assets are generally provided to meet design standards where these are available.

Locations where deficiencies in service performance are known are detailed in Table 5.1.2.

Table 5.1.2: Known Service Performance Deficiencies

Location	
Nil	

5.1.3 Asset condition

Council inspects 20 percent of the entire asset network every year. The monitoring of retaining structure assets is encompassed within this program. Retaining structures identified as critical are assessed annually.

The condition profile of our assets is shown in Figure 3.

Figure 3: Asset Condition Profile

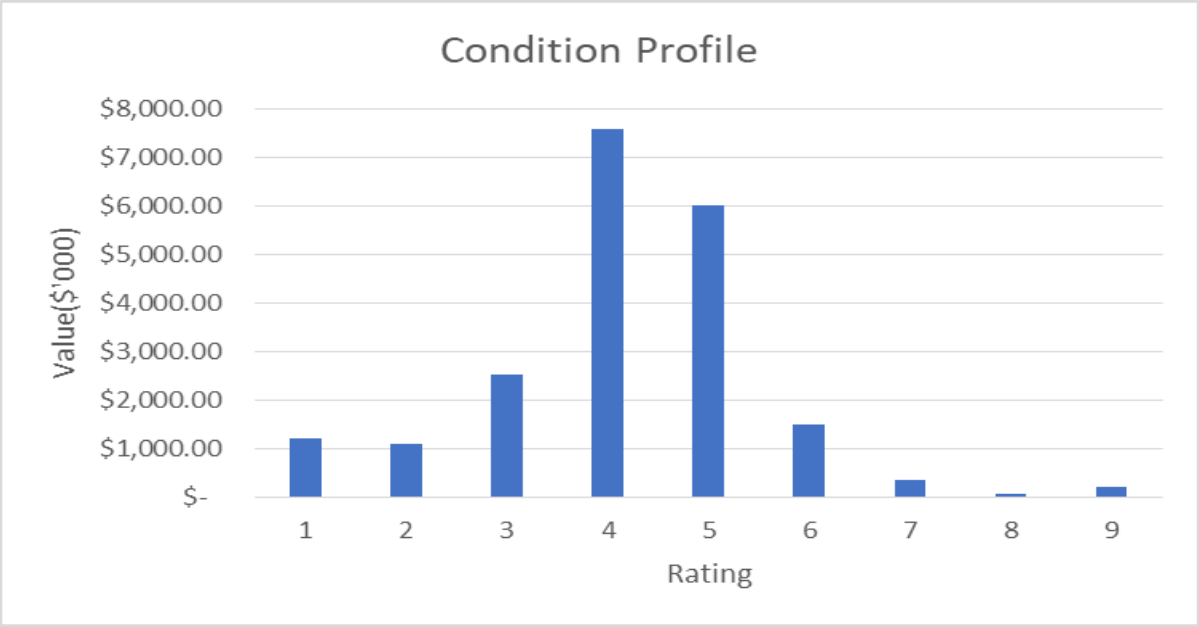


Figure 3 shows that majority of Councils retaining walls are in between very good to average condition.

Figure values are in current (real) dollars.

Condition is measured using a 1 -10 grading system as detailed in Table 5.1.3.

Table 5.1.3: Simple Condition Grading Model

Condition Rating	Condition Index	Condition Description
1	**New**	New retaining wall, no defects.
2	**Excellent**	Near new in appearance, no defects such as cracking, displacement or rotation in wall.
3	**Very Good**	Very minor aesthetic deterioration. Retaining wall appears a few years old but still structurally sound.
4	**Good**	Some aesthetic deterioration. Extremely minor cracking (hairline) may be slightly visible however still no displacement nor rotation in wall.
5	**Average**	Moderate deterioration becoming evident. Small cracking now visible (credit card width) possibly due to tree roots and soil pressure causing the initiation of minor displacement and rotation in wall.
6	**Satisfactory**	Cracking in wall (<5mm) possibly due to more extensive tree root damage and soil pressure making it clearly evident throughout wall. Displacement is visible in some parts of the wall, as is rotation from lateral pressure.
7	**Unsatisfactory**	Cracking in wall (<10mm). However, structural damage now more severe. Tree roots and soil pressure causing evident displacement and rotation and some minor loss of land fill.

8	**Poor**	Extremely poor aesthetic condition, large cracks (10mm-20mm), rotation increased since last inspection, wall now losing capability to retain backfill. Consider intervention.
9	**Reconstruction Required**	Large cracks (>20mm), displacement and or rotation of the wall shows that wall function is greatly diminished.
10	**Isolation Required**	Retaining wall at risk of failing. Large cracks (>50mm), displacement and or rotation of the wall is deemed at an unsafe level and poses risk of injury and or property damage.

5.2 Operations and Maintenance Plan

Operations include regular activities to provide services such as public health, safety and amenity, e.g. Weed cleaning.

Routine 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, e.g. clearing of weep holes, re-mortar joints etc.

Maintenance includes all actions necessary for retaining an asset as near as practicable to an appropriate service condition including regular ongoing day-to-day work necessary to keep assets operating.

Maintenance expenditure is shown in Table 5.2.1.

Table 5.2.1: Maintenance Expenditure Trends

Year	Maintenance Budget $
2016	$20,000
2017	$20,000
2018	$20,000

Maintenance expenditure levels are considered to be adequate to meet projected service levels, which may be less than or equal to current service levels. Where maintenance expenditure levels are such that they will result in a lesser level of service, the service consequences and service risks have been identified and highlighted in this AM Plan, and service risks considered in the Infrastructure Risk Management Plan.

Summary of future operations and maintenance expenditures

Future operations and maintenance expenditure is forecast to trend in line with the value of the asset stock as shown in Figure 4. Note that all costs are shown in current 2017 dollar values (i.e. real values).

Figure 4: Projected Operations and Maintenance Expenditure

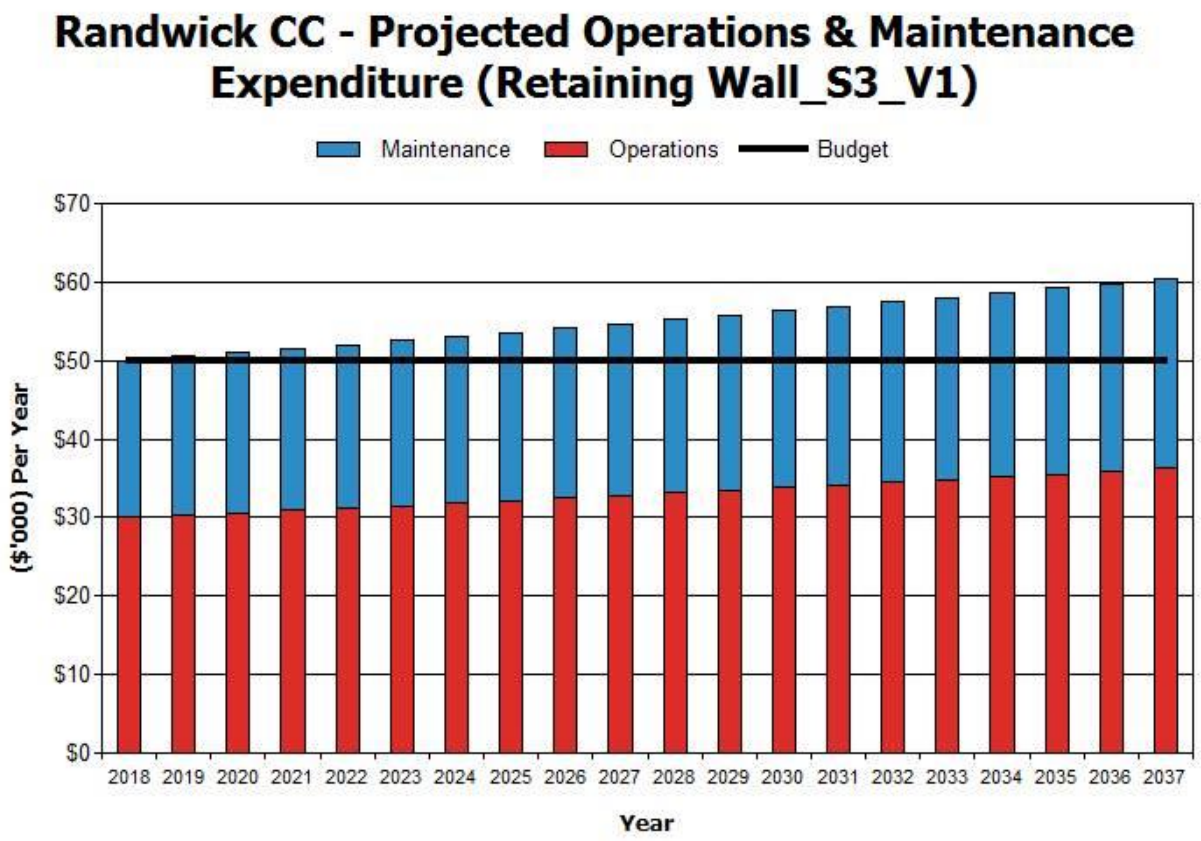


Figure Values are in current (real) dollars.

Currently Council is maintaining sufficient funding level for retaining wall maintenance and operations.

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

Maintenance is funded from the operating budget where available. This is further discussed in Section 7.

5.3 Renewal/Replacement Plan

Renewal and replacement expenditure is major work which does not increase the asset's design capacity but restores, rehabilitates, replaces or renews an existing asset to its original service potential. Work over and above restoring an asset to original service potential is considered to be an upgrade/expansion or new work expenditure resulting in additional future operations and maintenance costs.

Assets requiring renewal/replacement are identified from combination of average network renewals plus defect repairs in the Renewal Plan and Defect Repair Plan worksheets on the 'Expenditure template'.

5.3.1 Renewal ranking criteria

Asset renewal and replacement is typically undertaken to either:

- Ensure the reliability of the existing infrastructure to deliver the service it was constructed to facilitate (e.g. replacing a retaining wall that has significant rotation and rank as high risk);
- To ensure the infrastructure is of sufficient quality to meet the service requirements.

It is possible to get some indication of capital renewal and replacement priorities by identifying assets or asset groups that:

- Have a high consequence of failure;
- Have high use and subsequent impact on users would be greatest;
- Have a total value representing the greatest net value;
- Have the highest average age relative to their expected lives;
- Are identified in the AM Plan as key cost factors;
- Have high operational or maintenance costs;
- Have replacement with a modern equivalent asset that would provide the equivalent service at a savings.[5]

The ranking criteria used to determine priority of identified renewal and replacement proposals is detailed in Table 5.3.1.

Table 5.3.1: Renewal and Replacement Priority Ranking Criteria

Criteria	Weighting
Community - Function	30%
Community - Quality	15%
Technical – Risk of failure	40%
Technical – Operating/maintenance and lifecycle costs	15%
Total	**100%**

5.3.2 Summary of future renewal and replacement expenditure

Projected future renewal and replacement expenditures are forecast to increase over time when the asset stock increases. The expenditure required is shown in Figure 5. Note that all amounts are shown in current (real) dollars.

The projected capital renewal and replacement program is shown in Appendix B.

[5] Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|97.

Figure 5: Projected Capital Renewal and Replacement Expenditure

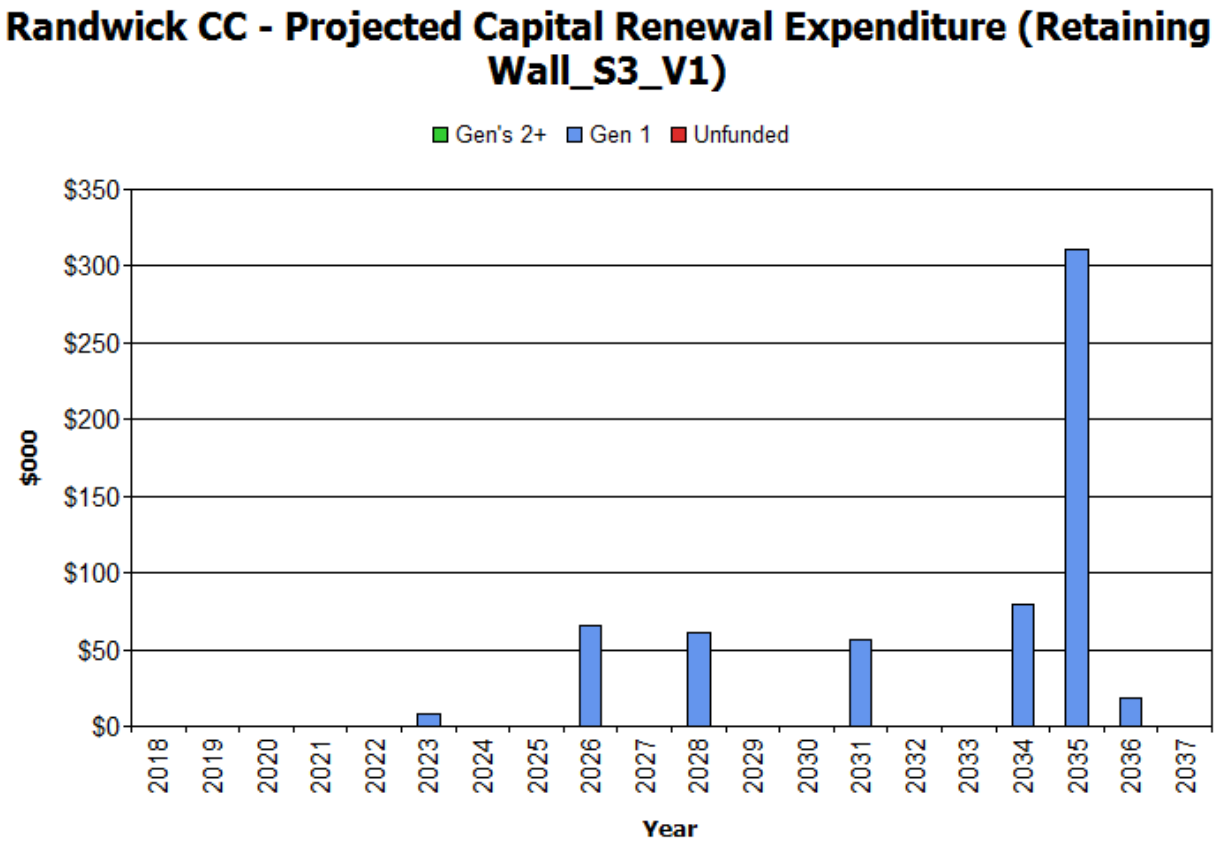


Figure values are in current (real) dollars.

It is evident that there will be significant renewal expenditure between 2034 and 2035 based on current condition of the network asset.

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

Renewals and replacement expenditure in the capital works program will be accommodated in the long-term financial plan. This is further discussed in Section 7.

5.4 Creation/Acquisition/Upgrade Plan

New works are those that create a new asset that did not previously exist, or works which will upgrade or improve an existing asset beyond its existing capacity. They may result from growth, social or environmental needs. Assets may also be acquired at no cost. These additional assets are considered in Section 4.4.

5.4.1 Selection criteria

New assets and upgrade/expansion of existing assets are identified from various sources such as community requests, proposals identified by strategic plans or partnerships with others. Candidate proposals are inspected to verify need and to develop a preliminary renewal estimate. Verified proposals are ranked by priority and available funds and scheduled in future works programmes. The priority ranking criteria is detailed below.

Table 5.4.1: New Assets Priority Ranking Criteria

Criteria	Weighting
Safety	35%
Community expectation	15%
Lifecycle costs	25%
Community benefits	25%
Total	**100%**

5.4.2 Summary of future upgrade/new assets expenditure

Currently Council does not maintain sufficient information to predict the upgrade or new retaining wall assets.

Expenditure on new assets and services in the capital works program will be accommodated in the long-term financial plan but only to the extent of the available funds

5.4.3 Summary of asset expenditure requirements

The financial projections from this asset plan are shown in Figure 7 for projected operating (operations and maintenance) and capital expenditure (renewal and upgrade/expansion/new assets). Note that all costs are shown in real values.

The bars in the graphs represent the anticipated budget needs required to achieve lowest lifecycle costs, the budget line indicates what is currently available. The gap between these informs the discussion on achieving the balance between services, costs and risk to achieve the best value outcome.

Figure 7: Projected Operating and Capital Expenditure

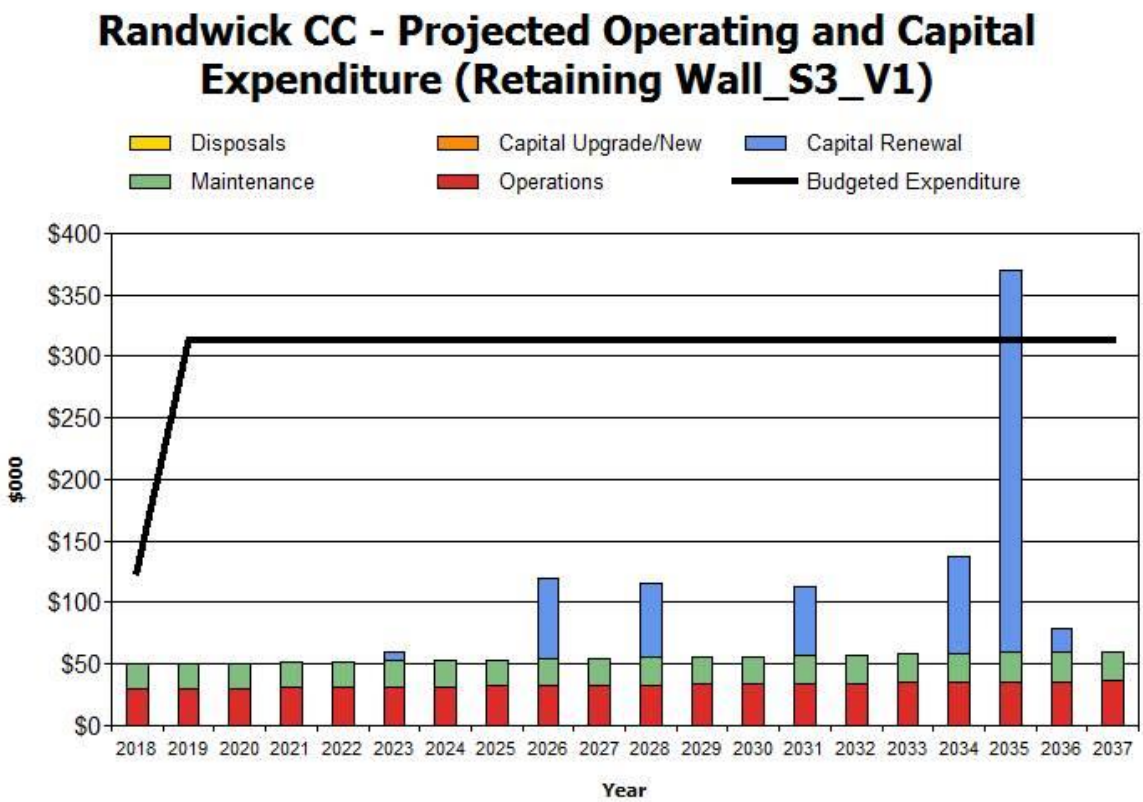


Figure values are in current (real) dollars.

According to Figure 7, Council currently allocates sufficient funding for operating and capital works. It can be noted that significant expenditure is required closer to 2035 based on current condition of the network assets and thus, Council will increase the capital renewal funding to meet the predicted expenditure.

6. RISK MANAGEMENT PLAN

The purpose of infrastructure risk management is to document the results and recommendations resulting from the periodic identification, assessment and treatment of risks associated with providing services from infrastructure, using the fundamentals of International Standard ISO 31000:2009 Risk management – Principles and guidelines.

Risk Management is defined in ISO 31000:2009 as: 'coordinated activities to direct and control with regard to risk'[6].

An assessment of risks[7] associated with service delivery from infrastructure assets has identified critical risks that will result in loss or reduction in service from infrastructure assets or a 'financial shock'. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, develops a risk rating, evaluates the risk and develops a risk treatment plan for non-acceptable risks.

6.1 Critical Assets

Critical assets are defined as those which have a high consequence of failure causing significant loss or reduction of service. Similarly, critical failure modes are those which have the highest consequences.

Critical assets have been identified and their typical failure mode and the impact on service delivery are as follows:

Table 6.1 Critical Assets

Critical Asset(s)	Failure Mode	Impact
Wall	Over turning	Loss or reduction of service, restricted access, casualties to users or property damage
Footing	Sliding	Loss or reduction of service, restricted access, casualties to users or property damage
Retaining structure	Global Stability	Loss or reduction of service, restricted access, casualties to users or property damage
Other Structures above the wall	Displacement or distresses	Loss or reduction of service, restricted access, casualties to users or property damage

By identifying critical assets and failure modes investigative activities, condition inspection programs, maintenance and capital expenditure plans can be targeted at the critical areas.

6.2 Risk Assessment

Currently, Council is carrying out annual retaining wall inspections to determine the following;

- Overall condition;
- Measure and monitor the rotation of walls.

[6] ISO 31000:2009, p 2
[7] 4.3.1 Hazard/Risk Identification, Assessment and Control

During this inspection, risk assessment is carried out for each wall as shown in the following figure 6.2.1.

Figure 6.2.1 Retaining wall Risk Management Process

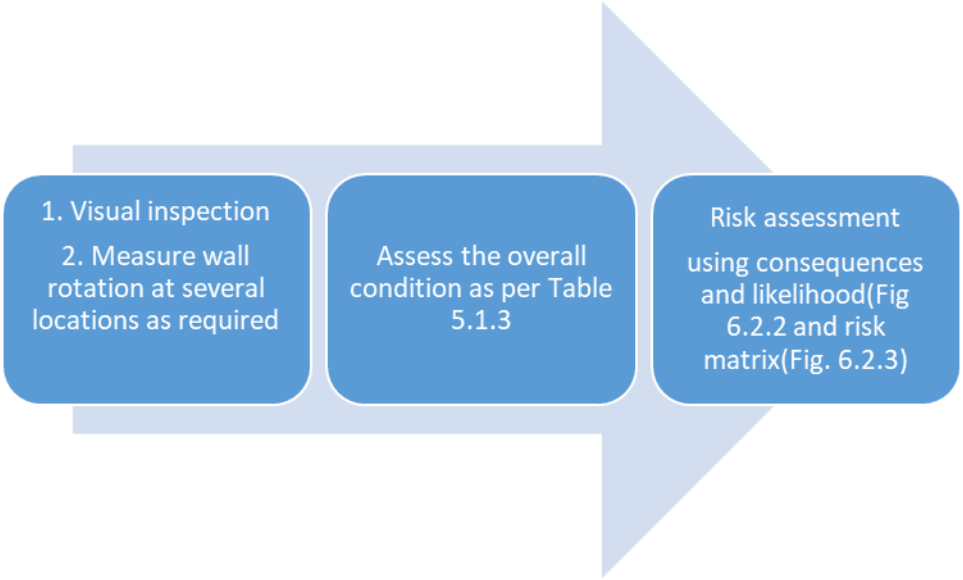


Figure 6.2.2-Risk table

Risk Assessment

Risk Factors	Consequence	Likelihood
Personal Injury		*Please note likelihood is based on condition assessment*
Financial Implications		
Environmental		
Political		

Consequence	Risk Descriptions
Catastrophic	Death, toxic release off site with detrimental effect, huge financial loss (>$100,000), sustained comprehensive negative national media coverage with major loss in community trust
Major	Extensive injuries, loss of production capability, off site release with no detrimental effects, major financial loss (>$50,000 & <$100,000), Ongoing negative media coverage in local and metro press with minimal community trust
Moderate	Medical treatment required, on-site release contained with outside assistance, high financial loss (>$10,000 & <$50,000), Short period negative media coverage with rigorous community discussion
Minor	First aid treatment, on-site release immediately contained, medium financial loss (>$1000 & <$10,000), little or no impact on community's perception of Council
Insignificant	No injuries, low financial loss (<$1000), no effect to normal operations

Figure 6.2.3- Risk matrix

	CONSEQUENCE				
LIKELIHOOD	Insignificant	Minor	Moderate	Major	Catastrophic
	-2	-3	-7	-13	-20
Almost Certain (5)	Medium (10)	High (15)	High (35)	Extreme (65)	Extreme (100)
Likely (4)	Medium (8)	Medium (12)	High (28)	High (52)	Extreme (80)
Possible (3)	Low (6)	Medium (9)	High (21)	High (39)	Extreme (60)
Unlikely (2)	Low (4)	Low (6)	Medium (14)	High (26)	High (40)
Rare (1)	Low (2)	Low (3)	Medium (7)	Medium (13)	High (20)

The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, develops a risk rating, evaluates the risk and develops a risk treatment plan for non-acceptable risks.

An assessment of risks[8] associated with service delivery from infrastructure assets has identified the critical risks that will result in significant loss, 'financial shock' or a reduction in service.

Critical risks are those assessed with 'Extreme' (requiring immediate corrective action) and 'High' (requiring corrective action) risk ratings identified in the annual inspection list and also include in the treatment plan/capital works program. The residual risk and treatment cost after the selected treatment plan is implemented is shown in Table 6.2. These risks and costs are reported to management and councillors.

Table 6.2: Critical Risks and Treatment Plans

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Residual Risk *	Treatment Costs
Retaining structures	Catastrophic or sudden failure resulting in a land collapse	VH	Develop a risk based inspection regime to ensure all retaining structure assets are inspected in accordance with the set service levels (20% every year), or if identified as a critical asset annually. Develop an operations and maintenance plan, including back flushing and clearing any subsoil drainage lines and checking for any visible signs of "sliding" or "overturning" failures. Limit the surcharge loading on retaining structures to prolong useful life and reduce the likelihood of injury to persons if the structure collapses.	Low	Nil Current budget allowance is $416 per wall per annum Nil

Note * The residual risk is the risk remaining after the selected risk treatment plan is operational.

[8] 4.3.1 Hazard/Risk Identification, Assessment and Control

7. FINANCIAL SUMMARY

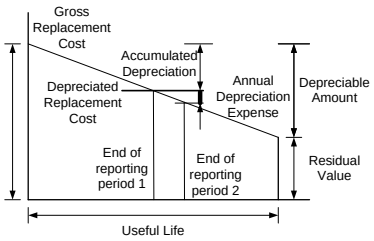
This section contains the financial requirements resulting from all the information presented in the previous sections of this asset management plan. The financial projections will be improved as further information becomes available on desired levels of service and current and projected future asset performance.

7.1 Financial Statements and Projections

7.1.1 Asset valuations

The best available estimate of the value of assets included in this Asset Management Plan are shown below. Assets are valued at fair value at cost to replace service capacity.

Gross Replacement Cost	$20,538,000
Depreciable Amount	$20,538,000
Depreciated Replacement Cost[9]	$15,096,000
Annual Average Asset Consumption	1.3%



7.1.2 Sustainability of service delivery

Two key indicators for service delivery sustainability that have been considered in the analysis of the services provided by this asset category, these being the:

- asset renewal funding ratio;
- medium term budgeted expenditures/projected expenditure (over 10 years of the planning period).

Asset Renewal Funding Ratio

Asset Renewal Funding Ratio[10] 3739 percent

The Asset Renewal Funding Ratio is the most important indicator and indicates that over the next 10 years of the forecasting that we expect to have, 3739 percent of the funds will be provided for the optimal renewal and replacement of assets.

Medium term – 10-year financial planning period

This asset management plan identifies the projected operations, maintenance and capital renewal expenditures required to provide an agreed level of service to the community over a 10-year period. This provides input into 10-year financial and funding plans aimed at providing the required services in a sustainable manner.

These projected expenditures may be compared to budgeted expenditures in the 10-year period to identify any funding shortfall. In a core asset management plan, a gap is generally due to increasing asset renewals for ageing assets.

The projected operations, maintenance and capital renewal expenditure required over the 10-year planning period is $60,00 on average per year.

[9] Also reported as Written Down Value, Carrying or Net Book Value.
[10] AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

Asset Management Plan

Retaining Walls

2018-28

Randwick City Council
a sense of community

Estimated (budget) operations, maintenance and capital renewal funding is $294,000 on average per year giving a 10-year funding surplus of $235,000 per year. This indicates 493 percent of the projected expenditures will be provided to the services documented in the asset management plan. This excludes upgrade/new assets.

Providing services from infrastructure in a sustainable manner requires the matching and managing of service levels, risks, projected expenditures and financing to achieve a financial indicator of approximately 1.0 for the first years of the asset management plan and ideally over the 10-year life of the Long Term Financial Plan.

7.1.3 Projected expenditures for long-term financial plan

Table 7.1.3 shows the projected expenditures for the 10-year long-term financial plan. Expenditure projections are in 2017 real values.

Table 7.1.3: Projected Expenditures for Long Term Financial Plan ($000)

Year	Operations	Maintenance	Capital Renewal	Capital Upgrade/New	Disposals
2018	$30	$20	$0	$0	$0
2019	$30	$20	$0	$0	$0
2020	$31	$20	$0	$0	$0
2021	$31	$21	$0	$0	$0
2022	$31	$21	$0	$0	$0
2023	$32	$21	$8	$0	$0
2024	$32	$21	$0	$0	$0
2025	$32	$21	$0	$0	$0
2026	$32	$22	$65	$0	$0
2027	$33	$22	$0	$0	$0
2028	$33	$22	$61	$0	$0
2029	$33	$22	$0	$0	$0
2030	$34	$23	$0	$0	$0
2031	$34	$23	$56	$0	$0
2032	$34	$23	$0	$0	$0
2033	$35	$23	$0	$0	$0
2034	$35	$23	$79	$0	$0
2035	$36	$24	$311	$0	$0
2036	$36	$24	$19	$0	$0
2037	$36	$24	$0	$0	$0
All dollar values are in ($'000)'s					

7.2 Funding Strategy

Funding for assets is provided from the budget and long-term financial plan.

The financial strategy of the entity determines how funding will be provided, whereas the asset management plan communicates how and when this will be spent, along with the service and risk consequences of differing options.

7.3 Valuation Forecasts

Asset values are forecast to increase as additional assets are added.

Additional assets will generally add to the operations and maintenance needs in the longer term, as well as the need for future renewal. Additional assets will also add to future depreciation forecasts.

7.4 Key Assumptions Made in Financial Forecasts

This section details the key assumptions made in presenting the information contained in this asset management plan. It is presented to enable readers to gain an understanding of the levels of confidence in the data behind the financial forecasts.

Key assumptions made in this asset management plan are:

Table 7.4: Key Assumptions made in AM Plan and Risks of Change

- Asset values and dimensions are correct.
  Change to asset values and dimensions will have an effect on resources required to operate, maintain and renew the Retaining wall assets;

- 20 percent of Council's Retaining wall assets will be inspected annually (100 percent every 5 years) and asset condition updated accordingly.
  Monitoring of change of condition may show change in the asset's useful life which may have a subsequent change of funding required to maintain level of service;

- The estimates used for current rates of renewal will remain constant at current 2017 values for the next 10 years.
  Possible increase in renewal costs may reduce level of works budgeted with possible reduction in the asset service level.

7.5 Forecast Reliability and Confidence

The expenditure and valuations projections in this AM Plan are based on best available data. Currency and accuracy of data is critical to effective asset and financial management. Data confidence is classified on a 5 level scale[11] in accordance with Table 7.5.

Table 7.5: Data Confidence Grading System

Confidence Grade	Description
A Highly reliable	Data based on sound records, procedures, investigations and analysis, documented properly and agreed as the best method of assessment. Dataset is complete and estimated to be accurate ± 2%
B Reliable	Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example some of the data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation. Dataset is complete and estimated to be accurate ± 10%

[11] IPWEA, 2015, IIMM, Table 2.4.6, p 2|71.

Confidence Grade	Description
C Uncertain	Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available. Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated ± 25%
D Very Uncertain	Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete and most data is estimated or extrapolated. Accuracy ± 40%
E Unknown	None or very little data held.

The estimated confidence level for and reliability of data used in this AM Plan is considered to be reliable

8. PLAN IMPROVEMENT AND MONITORING

8.1 Status of Asset Management Practices[12]

8.1.1 Accounting and financial data sources

Council implemented Technology One as its financial system. This system contains a works and assets module in which work orders or tasks can be raised and costing tracked against a particular asset category.

8.1.2 Asset management data sources

Currently, Technology One system is used as asset management data source.

8.2 Improvement Plan

The asset management improvement plan generated from this asset management plan is shown in Table 8.1.

Table 8.1: Improvement Plan

Task No	Task	Responsibility	Resources Required	Timeline
1	Establishing operations and maintenance protocols for retaining wall structures.	Infrastructure Services		1 year
2	Gather data on assets needed to meet future demand.	Engineering Services	Asset Engineer/Asset Officer	Not started
3	Develop a future works program for new retaining structures.	Manager Technical Services	Asset Engineer/Coordinator Engineering services	1 year
4	Allocate a specific budget for retaining structure operations and maintenance.	Manager Financial Services	Asset Engineer/Coordinator Engineering services	1 year
5	Establish a Strategic Asset data Management system.	Manager Technical Services	Asset Engineer/Asset Officer/Coordinator Engineering services	Not started

[12] ISO 55000 Refers to this the Asset Management System

8.3 Monitoring and Review Procedures

This asset management plan will be reviewed during annual budget planning processes and amended to show any material changes in service levels and/or resources available to provide those services as a result of budget decisions.

The AM Plan will be updated annually to ensure it represents the current service level, asset values, projected operations, maintenance, capital renewal and replacement, capital upgrade/new and asset disposal expenditures and projected expenditure values incorporated into the long-term financial plan.

The AM Plan has a life of 4 years and is due for complete revision and updating within 4 year of each Council election.

8.4 Performance Measures

The effectiveness of the asset management plan can be measured in the following ways:

- The degree to which the required projected expenditures identified in this asset management plan are incorporated into the long-term financial plan;
- The degree to which 1-5 year detailed works programs, budgets, business plans and corporate structures take into account the 'global' works program trends provided by the asset management plan;
- The degree to which the existing and projected service levels and service consequences (what we cannot do), risks and residual risks are incorporated into the Strategic Plan and associated plans;
- The Asset Renewal Funding Ratio achieving the target of 1.0.

9. REFERENCES

- IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM

- IPWEA, 2008, 'NAMS.PLUS Asset Management', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/namsplus.

- IPWEA, 2015, 2nd edn., 'Australian Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/AIFMM.

- IPWEA, 2015, 3rd edn., 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM

- IPWEA, 2012 LTFP Practice Note 6 PN Long Term Financial Plan, Institute of Public Works Engineering Australasia, Sydney

10. APPENDICES

Appendix A Projected 10-year Capital Renewal and Replacement Works Program

Asset ID	Sub Category	Asset Name	From	To	Rem Life (Years)	Useful Life (Years)
RW0284	Retaining Wall	Goonda Avenue	4 Goonda Avenue , La Perouse	4 Goonda Avenue , La Perouse	5	25
RW0334	Retaining Wall	Maroubra Road	366 Maroubra Road, Maroubra	Maroubra Road 366, Maroubra	5	25
RW0297	Retaining Wall	Gale Road			8	80
RW0092	Retaining Wall	Milford Street	6 Milford Street, Clovelly	10 Milford Street, Randwick	8	80

Appendix B LTFP Budgeted Expenditures Accommodated in AM Plan

NAMS.PLUS3 Asset Management **Randwick CC**

Retaining Wall_S3_V1 **Asset Management Plan**

First year of expenditure projections **2018** (financial yr ending)

Retaining Wall

Asset values at start of planning period

			Calc CRC from Asset Register
Current replacement cost	$20,538	(000)	$20,538 (000)
Depreciable amount	$20,538	(000)	This is a check for you.
Depreciated replacement cost	$15,096	(000)	
Annual depreciation expense	$263	(000)	

Operations and Maintenance Costs for New Assets

	% of asset value		Existing %ages calculated from data in worksheet	
Additional operations costs	0.15%		0.15%	of CRC (10 yr average)
Additional maintenance	0.10%		0.10%	of CRC (10 yr average)
Additional depreciation	1.28%		1.28%	of Dep Amt
Planned renewal budget (information only)			0.37%	of CRC (Year 1 comparison)

You may use these values calculated from your data or overwrite the links.

Planned Expenditures from LTFP

Please enter depreciation in $000

20 Year Expenditure Projections Note: Enter al **2018** values

Financial year ending	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000
	Expenditure Outlays included in Long Term Financial Plan (in current $ values)										**Average of first 10 year Expenditure Outlays from LTFP**									
Operations																				
Operations **budget**	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30
Management **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AM systems **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total operations	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30
Maintenance																				
Reactive maintenance **budget**	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20
Planned maintenance **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Specific maintenance items **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total maintenance	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20
Capital																				
Planned renewal **budget**	$75	$263	$263	$263	$263	$263	$263	$263	$263	$263	$263	$263	$263	$263	$263	$263	$263	$263	$263	$263
Planned upgrade/new **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Non-growth contributed asset value	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Asset Disposals																				
Est Cost to dispose of assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Carrying value (DRC) of disposed assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

	Additional Expenditure Outlays Requirements (e.g from Infrastructure Risk Management Plan)										**Average of first 10 years Expenditure Outlays required from IRMP**									
Additional Expenditure Outlays required and not included above	2018 $000	2019 $000	2020 $000	2021 $000	2022 $000	2023 $000	2024 $000	2025 $000	2026 $000	2027 $000	2028 $000	2029 $000	2030 $000	2031 $000	2032 $000	2033 $000	2034 $000	2035 $000	2036 $000	2037 $000
Operations	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Maintenance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Capital Renewal	to be incorporated into Forms 2 & 2.1 (where Method 1 is used) OR Form 2B Defect Repairs (where Method 2 or 3 is used)																			
Capital Upgrade	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
User Comments #2																				

	Forecasts for Capital Renewal using Methods 2 & 3 (Form 2A & 2B) & Capital Upgrade (Form 2C)										**Average of first 10 years Capital Renewal & Upgrade Forecasts**									
	2018 $000	2019 $000	2020 $000	2021 $000	2022 $000	2023 $000	2024 $000	2025 $000	2026 $000	2027 $000	2028 $000	2029 $000	2030 $000	2031 $000	2032 $000	2033 $000	2034 $000	2035 $000	2036 $000	2037 $000
Forecast Capital Renewal from Forms 2A & 2B	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Forecast Capital Upgrade from Form 2C	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Randwick City Council
30 Frances Street, Randwick NSW 2031 Australia

www.randwick.nsw.gov.au
Tel: 02 9093 6000
or 1300 722 542
Fax: 02 9319 1510
Email: council@randwick.nsw.gov.au

OGM0336

Randwick City Council
a sense of community