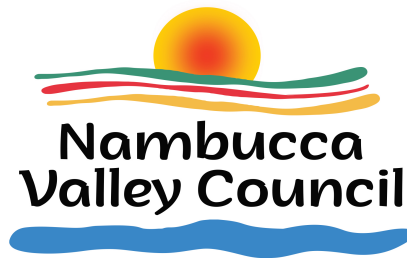




# Nambucca Valley Council



## Sewerage Services Asset Management Plan (Concise)



August 2022

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### NAMS.PLUS Asset Management Plan Templates

NAMS.Plus offers two Asset Management Plan templates – ‘Concise’ and ‘Comprehensive’.

The Concise template is appropriate for those entities who wish to present their data and information clearly and in as few words as possible whilst complying with the ISO 55000 Standards approach and guidance contained in the International Infrastructure Management Manual.

The Comprehensive template is appropriate for those entities who wish to present their asset management plan and information in a more detailed manner.

**The entity can choose either template to write/update their plan regardless of their level of asset management maturity and in some cases may even choose to use only the Executive Summary.**

**The illustrated content is suggested only and users should feel free to omit content as preferred (e.g. where info not currently available).**

**The concise Asset Management Plan may be used as a supporting document to inform an overarching Strategic Asset Management Plan.**

This is the **Concise** Asset Management Plan template.

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# 1 EXECUTIVE SUMMARY

Nambucca Valley is located on the mid north coast of NSW about 500km north of Sydney and approximately 50km South of Coffs Harbour. The urban areas within Nambucca Valley are serviced by sewerage reticulation systems and the rural settlements are serviced by on-site septic management systems.

This asset class was subject to a comprehensive revaluation, completed in the 2021/22 financial year.

## 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 20-year planning period.

This plan covers the infrastructure assets that provide collection and treatment of domestic and industrial sewage.

## 1.2 Asset Description

These assets include:

- Gravity Sewer Mains
- Sewer Manholes
- Sewer Rising Mains
- Sewage Pump Stations
- Sewage Treatment Plants

These infrastructure assets have significant value estimated at \$120,934,036.

## 1.3 Levels of Service

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

The main services consequences are:

- Increased blockages and sewage overflows
- Increased odour complaints

## 1.4 Future Demand

The main demands for new services are created by:

- Population growth
- Climate change
- Environmental concerns

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.

- Regular maintenance to manage the assets in operational condition.
- Ensure the fees and charges are adequate for renewal and upgrade of future assets.
- Expansion of reticulation network to serve new developments through developer contribution.
- Integrated Water Cycle Management Strategy (IWCM)

## 1.5 Lifecycle Management Plan

### What does it Cost?

**Table 1.5: Total life cycle cost for Sewerage assets**

Nambucca SC - Report 1 - Executive Summary AM Plan (Sewerage-VN_S1_V1)	
What does it cost?	(\$000s)
10 year total cost [10 yr Ops, Maint, Renewal & Upgrade Proj Exp]	<b>\$31,860</b>
10 Year Average Cost	<b>\$3,186</b>
10 year total LTFP budget [10 yr Ops, Maint, Renewal & Upgrade LTFP Budget]	<b>\$31,252</b>
10 year average LTFP budget	<b>\$3,125</b>
10 year AM financial indicator	<b>98%</b>
10 year average funding shortfall	<b>-\$60.8</b>

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 is \$3,186,068 on average per year.

## 1.6 Financial Summary

### What we will do

Estimated available funding for this period is \$3,125,253 on average per year as per the long term financial plan or budget forecast. This is 98% of the cost to sustain the current level of service at the lowest lifecycle cost.

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 delivers a shortfall of \$60,815 on average per year of the projected expenditure required to provide services in the AM Plan compared with planned expenditure currently included in the Long Term Financial Plan. This is shown in the figure below.

#### Projected Operating and Capital Expenditure

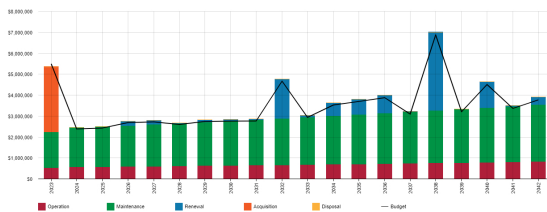


Figure Values are in current (real) dollars.

Council can overcome this shortfall by increasing sewerage usage charges to ensure that budget increases for operation and maintenance can be accommodated.

Similarly capital renewal, upgrade and new works can be financed through the appropriate sewerage access charges, as part of the new development. Loans will be required to cover the capital expenditure with repayments covered by the developer charges.

Council will need to borrow money to meet renew and replace assets as required especially in 2029. If there is no history of breakages, leakage or problems the renewal of pipe assets may be deferred and will reduce capital renewal. Additionally, Council may carry out condition assessments of the aged mains, and renew based on this assessment.

We plan to provide sewerage services for the following:

- Operation, maintenance, renewal and upgrade of rising mains, gravity mains, manholes, pump stations and treatment plants to meet service levels set by annual budgets.
- Carry out inlet works at Scotts Head STP, and rising mains 10 at Macksville in the 10-year planning period.
- New system to Valla UGA sewer pump station and rising main are included in the 10-year planning period.

### What we cannot do

We currently do **not** allocate enough funding to sustain these services at the desired standard or to provide all new services being sought. Works and services that cannot be provided under present funding levels are:

- Relining all defective sewer mains when due
- Providing additional storage at pumping stations
- Conduct a condition assessment of all mains
- Providing standby generators at treatment plants

### Managing the Risks

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

The main risk consequences are:

- Service interruption
- Environmental pollution
- Repair cost
- Loss of image

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

- Providing a condition assessment of sewerage assets approaching end of life and prioritise renewal and upgrade works.
- Develop a proactive maintenance program and implementing.
- Regular monitoring and risk assessment of critical assets.

## 1.7 Asset Management Practices

Our systems to manage assets include:

- Authority Financial Management System
- Asset Register
- Geographical Information System(GIS)

Assets requiring renewal/replacement are identified from one of three methods provided in the 'Expenditure Template'.

- Method 1 uses Asset Register data to project the renewal costs using acquisition year and useful life to determine the renewal year, or
- Method 2 uses capital renewal expenditure projections from external condition modelling systems (such as Sewerage Management Systems), or
- Method 3 uses a combination of average network renewals plus defect repairs in the Renewal Plan and Defect Repair Plan worksheets on the 'Expenditure template'.

Method 1 was used for this asset management plan.

## **1.8 Monitoring and Improvement Program**

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

- Develop a risk management plan.
- Implement a training programme to assure that staffs have the necessary skills to implement and review the asset management plan.
- Continually update and review asset register.
- Continually review the remaining life of assets following site inspections and re-assessing the condition.

## 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 20-year planning period.

The asset management plan is to be read with the Nambucca Valley Council's planning documents. This should include the Asset Management Policy and Asset Management Strategy where these have been developed along with other key planning documents:

- **Strategic Business Plan for Sewerage Services 2012**
- **Integrated Water Cycle Management Strategy Report 2009**
- **Integrated Water Cycle Management Issues Paper –March 2017**

The infrastructure assets covered by this asset management plan are shown in Table 2.1. These assets are used to provide sewerage services.

**Table 2.1: Assets covered by this Plan**

Asset Category	Dimension	Replacement Value
Rising mains	44.8 Km of mains ranging from 40mm to 375mm diameter.	\$10,793,972
Gravity mains	146.1 Km of mains ranging from 100mm to 600mm diameter.	\$48,605,892
Manholes	3028 Nos	\$13,072,924
Pumping Stations	59 Pumping Stations(PS) <ul style="list-style-type: none"> <li>• Nambucca Heads Sewer Network PS -14 Nos</li> <li>• Valla Beach Sewer Network PS -14 Nos</li> <li>• Macksville Sewer Network PS -18 Nos</li> <li>• Scotts Head Sewer Network PS - 8 Nos</li> <li>• Bowraville Sewer Network PS – 1 No</li> </ul>	\$19,086,213
Treatment Plants	Nambucca Heads STP-15000EP ( which also services Valla Beach and Hyland Park) Macksville STP-5500EP Scotts Head STP-2000EP Bowraville STP-1200EP	\$29,375,035
<b>TOTAL</b>		<b>\$120,934,036</b>

## 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, and
- 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 <sup>1</sup>
- ISO 55000<sup>2</sup>

## 2.3 Core and Advanced Asset Management

This asset management plan is prepared as a 'core' asset management plan over a 20 year planning period in accordance with the International Infrastructure Management Manual<sup>3</sup>. 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

This 'core' asset management plan is prepared to facilitate consultation prior to adoption by the Nambucca Valley Council. Future revisions of the asset management plan will incorporate community consultation on service levels and costs of providing the service. This will assist the council and stakeholders in matching the level of service required, service risks and consequences with the community's ability and willingness to pay for the service.

Council engaged Jetty Research to complete a random telephone survey of Valley ratepayers in order to gauge the level of satisfaction with facilities and services managed by Nambucca Valley Council. The results were documented in a report dated December, 2021. The table below represents the most recent community satisfaction surveys reported for importance and satisfaction levels for the sewerage service:

**Table 3.1: Community Satisfaction Survey Levels**

Performance Measure	Result
Satisfaction with Council's overall performance	43% satisfied
Comparison of importance mean scores on Sewerage services (1-5, with 5 being higher satisfaction)	3.73 in 2021 and 3.58 in 2019, a 4% change
Comparison of satisfaction scores on Sewerage services (1-5, with 5 being higher satisfaction)	4.05 in 2021 and 4.06 in 2019, 0% change

Community satisfaction information is used in developing the Strategic Plan and in the allocation of resources in the budget.

<sup>1</sup> Based on IPWEA 2015 IIMM, Sec 2.1.3, p 2 | 13

<sup>2</sup> ISO 55000 Overview, principles and terminology

<sup>3</sup> IPWEA, 2015, IIMM.

### 3.2 Strategic and Corporate Goals

This asset management plan is prepared under the direction of the council's vision, mission, goals and objectives.

Our vision is:

**Nambucca Valley ~ Living at its best**

Our mission is:

**The Nambucca Valley will value and protect its natural environment, maintain its assets and infrastructure and develop opportunities for its people**

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**

Goal	Objective	How Goal and Objectives are addressed in AM Plan
To ensure that the community has a sewerage service that complies with health and environmental standards and meets community expectations	<ul style="list-style-type: none"><li>• To strive for excellence in customer service;</li><li>• To ensure sustainable infrastructure and assets;</li><li>• To have a strong economic base;</li><li>• To meet community expectations;</li><li>• To maintain suitably experienced staff;</li><li>• To provide necessary services efficiently;</li><li>• To be dynamic and responsive to change; and</li><li>• To be environmentally committed and responsible</li></ul>	<ul style="list-style-type: none"><li>• Minimal response time</li><li>• Managing and funding the long-term capital works program</li><li>• Systematic rehabilitation and renewal of ageing assets</li><li>• Take advantage of new technologies such as telemetry, low cost sewerage schemes, to achieve cost effective operations</li><li>• Managing inflow and infiltration and sewer overflows to the environment</li><li>• Improving treated effluent quality to complying with regulatory requirements</li><li>• Maintaining skilled staff</li></ul>

The 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
<b>Pricing</b>	
Local Government Act 1993	<p>Determining developer charges:</p> <ul style="list-style-type: none"><li>• provide a source of funding for infrastructure required for new urban development</li><li>• provide signals regarding costs of urban development and encourage less costly forms</li></ul> <p>Need to be more accountable. Need for better asset management.</p>

Legislation	Requirement
Environmental Planning and Assessment Act 1979	Determining developer charges. Requirement for LEP and DCPs. Council control of service approvals.
Local Government Regulation 1993 (Savings and Transitional)	Determining developer charges.
Independent Pricing and Regulatory Tribunal Act 1992	Gives powers to the Independent Pricing and Regulatory Tribunal to inquire into and regulate prices. IPART has developed a set of consistent pricing principles to be adopted by local government authorities. Guidelines for 'user pays' charging system in the water and wastewater industry.
Water Industry Competition Act 2006	Establishment of third-party access regime for water and sewerage infrastructure to encourage competition. Authorisation of IPART to regulate licensed private network operators to ensure services are delivered in a safe and reliable manner.
<b>Environmental Protection</b>	
Protection of the Environment Operations Act 1997 Brings together: <ul style="list-style-type: none"> <li>• Clean Air Act 1961</li> <li>• Clean Waters Act 1970</li> <li>• Pollution Control Act 1970</li> <li>• Noise Control Act 1975</li> <li>• Environmental Offences and Penalties (EOP) Act 1989</li> </ul>	Regulating pollution activities and issue of licenses as well as the monitoring of and reporting on waste output. Council is required to be "duly diligent" in undertaking the scheme operations.
Soil Conservation Act 1938	Conserves soil resources and farm water resources and the mitigation of erosion and land degradation. Preservation of watercourse environments.
Environmental Planning and Assessment Act 1979	Determining developer charges. Requirement for LEP and DCPs. Council control of service approvals.
Catchment Management Act 1989	Promotes the coordination of activities within catchment areas. Council believes this Act has implications for the management of river water quality and quantity. Requirement for ongoing management plan. Requirement of Capital Works Plan under Sydney Catchment Authority Regulations.
<b>Health and Safety</b>	
Public Health Act 2010	Prevention of the spread of disease. Effluent disposal methods. Delivery of quality water.
Workplace Health and Safety Act 2011	Council's responsibility to ensure health, safety and welfare of employees and others at places of work. Likely be cost implications. Impacts all operations. Note public safety – insurance



### 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 Nambucca Valley Council's 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:

<b>Quality</b>	How good is the service ... <i>what is the condition or quality of the service?</i>
<b>Function</b>	Is it suitable for its intended purpose .... <i>Is it the right service?</i>
<b>Capacity/Use</b>	Is the service over or under used ... <i>do we need more or less of these assets?</i>

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.

**Council's measures** are measures of fact related to the service delivery outcome e.g. number of occasions when service is not available, condition %'s of Very Poor, Poor/Average/Good, Very good.

These Organisational 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.
<b>Service Objective:</b> ensure that the community has a sewerage service that complies with health and environmental standards and meets community expectations				
<b>Quality</b>	Customer Feedback/complaints			
	Service complaints	No./ 1000 connections	<10	<5
	Odour complaints			
	-Treatment works (outside designated buffer zone)	No./ 1000 connections	0	0
	-Pumping Stations		< 1	0
	-Reticulation system		<1	0
	Billing and account complaints	No./ 1000 connections	<10	<10
	Other complaints	No./ 1000 connections	<10	<10
Response Times for Feedback/ Complaints				
	Average connect time to a telephone operator	Seconds	30	30
	General complaints and inquiries:	Working days	10	10
	-Written complaints			
	- Personal/oral complaints	Working days	5	5
	Confidence levels		medium	medium
<b>Function</b>	Category 1- Failure due to rainfall and deficient capacity (overflows to the environment)	No/Year	<50 per year	<10 per year

	Category 2- Failures due to pump or other breakdown including power failure	No/Year	0 per year	0 per year
	Category 3- Failures due to main blockages and collapses	No/Year	<100 per year	<50 per year
	Sewage treated to	% of total volume of sewage treated		
	-Primary level only		100	100
	-Secondary level		100	100
	-Tertiary level		30	90
	Recycle/reuse of effluent	% total volume of sewage treated	8	8
	Effluent discharge compliance with licence limits	% of samples/year	66%	100
Response time for system failures				
	Priority 1- Major spill, significant environmental or health impact, or affecting large number of consumers (i.e. major mains)			
	During working hours	Minutes	180	90
	During after hours	Minutes	180	120
	Priority 2- Moderate spill, some environmental or health impact, or affecting small number of consumers ( i.e. other mains)			
	During working hours	Minutes	180	90
	During after hours	Minutes	180	120
	Priority 3- (Minor spill, little environmental or health impact, or affecting a couple of consumers			
	During working hours	Minutes	180	180
	During after hours	Minutes	180	180
	Confidence levels		high	high
<b>Capacity and Use</b>	Service Availability	% of service area	99% of urban areas	100% of current & future urban areas
	-Extent of area serviced			
	Confidence levels		medium	Medium

### 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. chemical dosing, effluent quality monitoring, infrastructure inspections / condition assessments, energy, solid removals, monitoring pumping times, bio solids processing, communication 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. pump maintenance, wet well clearing and treatment plant maintenance, sewer pressure cleaning etc.),
- Renewal – the activities that return the service capability of an asset up to that which it had originally (e.g. pump renewal, pipeline replacement and relining, test equipment renewal etc.),
- Upgrade/New – the activities to provide a higher level of service (e.g. Replace pipe with larger diameter pipe, treatment plant upgrade etc.) or a new service that did not exist previously (e.g. new subdivision sewer mains, new pressure sewerage systems, etc.).

Service and asset managers plan, implement and control technical service levels to influence the customer service levels.<sup>4</sup>

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 **
<b>TECHNICAL LEVELS OF SERVICE</b>				
<b>Operations</b>				
	Managing sewer network and treatment plants in operative condition	Telemetry and SCADA	Automated system and the operational staff to manage any issues Funds allocated in current budget	Allocation of adequate funds to manage existing and new assets.
		<b>Budget</b>	\$544,000	As per the projected expenditure
<b>Maintenance</b>				
	Assure the reliability of the infrastructure	Reactive service requests completed within adopted time frame.	100% of reactive service requests are completed within 180 minutes	100% of reactive service requests are completed within 90-120 minutes
		Proactive maintenance activities completed as scheduled	80% of planned maintenance activities at treatment plants are completed to schedule. Fortnightly general maintenance to all the pumping stations.  Reactive maintenance to sewer mains and manholes.  Yearly maintenance to wet wells	Weekly general maintenance to large pumping stations and fortnightly to other pumping stations as scheduled.  6 monthly scheduled maintenance to wet wells and pumps  Yearly scheduled inspections and maintenance to sewer Additional \$50,000 from the current budget for proactive maintenance of

<sup>4</sup> IPWEA, 2015, IIMM, p 2 | 28.

Service Attribute	Service Activity Objective	Activity Measure Process	Current Performance *	Desired for Optimum Lifecycle Cost **
				sewer mains and manholes.
		<b>Budget</b>	\$1,694,320	\$2,200,000 per annum
<b>Renewal</b>				
	Assure the serviceability of the infrastructure	Progress of the renewal programme and the information on the asset register	Relining and replacing sewers. Replacing pumps. Replacing mechanical and electrical items of Treatment Plants	Planned capital renewals -Relining sewers -Replacing pumps -Replacing switchboards -Replacing mechanical and electrical items of Treatment Plants
		<b>Average Budget</b>	\$342,764	Subject to revaluation
<b>Upgrade/New</b>				
	To assure the infrastructure meets the demand.	Progress of the capital works programme	New pressure sewer system. Upgrading recycled water system in Bowraville.	As per the capital works programme
		<b>Average Budget</b>	\$3,118,000	For review

Note: \* Current activities and costs (currently funded)

\*\* Desired activities and costs to sustain current service levels and achieve minimum life cycle costs (not currently funded)

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. 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 growth	19,598 in 2020	Estimated annual average population growth from 2015- 20 is 1.63%	Augmentation of Sewage Treatment Plants and pumping stations.
Climate Change	High rainfall intensity during extreme weather conditions	Unknown	Damaging infrastructure. The infrastructure is not planned for extreme weather conditions.
Tourist population	297000 <sup>5</sup> (September 2014 - Four year annual average total visitors (overnight and domestic day trips) for Nambucca Shire Council)	Adopted increase in peak period: Bowraville STP-2% Macksville STP-13% Scotts Head STP-89% Nambucca Heads STP-44% Rural areas-0%	Insignificant as the visitor population is taken into account during planning stage.
Demographics	Estimated annual average Age over 60 years population growth from 2015-20 is 11.4%	Unknown	Insignificant
Environmental concerns	Treated Effluent discharging standards to meet EPA licence limits	Likely to increase	Improve treatment process.

#### 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 growth	Augmentation of treatment plants and pumping stations	Additional funds to upgrade treatment plants and pumping stations Allocate funds for Infiltration reduction measures New reticulation mains will be funded by developers.
Treated effluent discharging standards	Improve treatment process	Additional funds to upgrade treatment plants
Climate change	Damaging infrastructure	Request disaster relief funds to assist the Council

#### 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)**

<sup>5</sup> Destination NSW, September 2019 “LGA Profile – Nambucca”

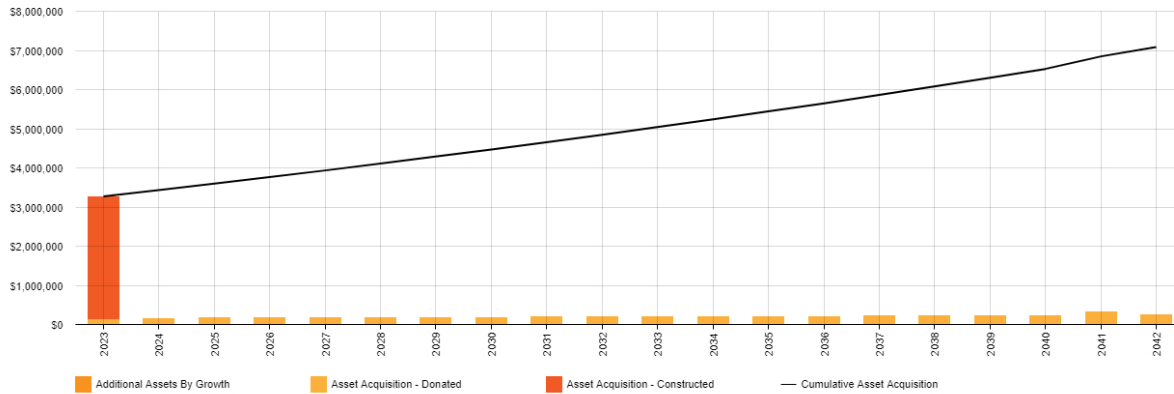


Figure 2: Asset Age Profile

Figure Values are in current (real) dollars.

The age profile shows seven large spikes which indicate the acquiring of major assets within the Valley. The spikes indicate specific significant sewer installation/upgrade projects e.g. treatment works upgrades etc. The timing of when these assets will require renewal funding is assessed based on the Asset Register (condition assessment) and demand drivers, and funds will be allocated in Capital Works Programme.

### 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**

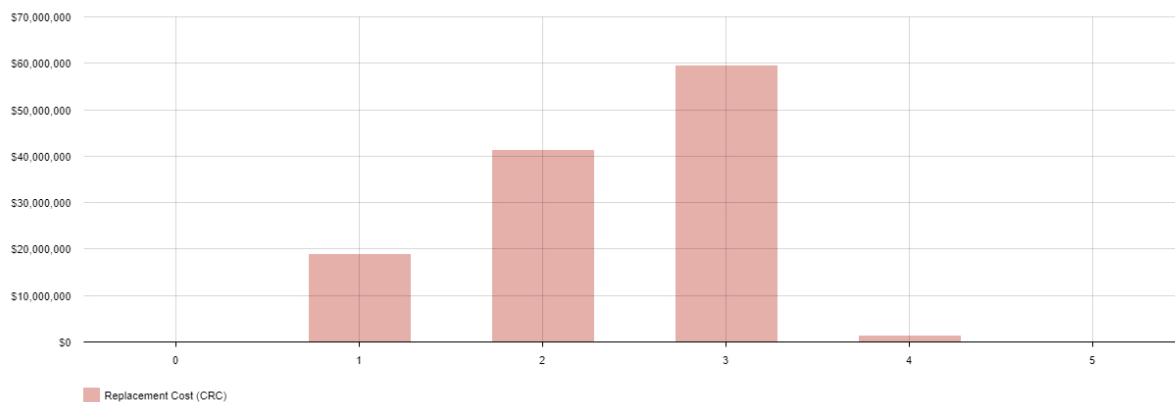
Location	Service Deficiency
Bowraville Sewerage treatment Plant <sup>6</sup>	The effluent quality of the plant varies considerably. The recycled water system of this plant does not meet its objectives.
Macksville Sewerage Treatment Plant	Effluent quality of the plant varies due to poor design of the catch tank.
Sewer Network	Blockages from tree roots and wet wipes

### 5.1.3 Asset condition

Condition is monitored based on the actual performance of the asset and the information on the asset register.

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

**Fig 3: Asset Condition Profile**



The majority of Council's assets are rated as condition 2 or 3, meaning that they require regular maintenance to provide the level of service required. The assets with a condition rating of 1 are new assets. Assets rated as condition 4 need to be further inspected and assessed to determine whether or not they are in need of renewal or can be maintained at an acceptable condition with ongoing maintenance.

Figure Values are in current (real) dollars.

<sup>6</sup> The above service deficiencies were identified from HydroScience Report 2015-Recycled Water Management System for Bowraville Recycled Water Scheme, EPA licences returns and based on the MERIT customer requests. Condition assessment was reviewed with the 2021/22 revaluation of the sewer and water networks.

Condition is measured using a 1 – 5 grading system<sup>7</sup> as detailed in Table 5.1.3.

**Table 5.1.3: Simple Condition Grading Model**

Condition Grading	Description of Condition
1	<b>Very Good:</b> only planned maintenance required
2	<b>Good:</b> minor maintenance required plus planned maintenance
3	<b>Fair:</b> significant maintenance required
4	<b>Poor:</b> significant renewal/rehabilitation required
5	<b>Very Poor:</b> physically unsound and/or beyond rehabilitation

## 5.2 Operations and Maintenance Plan

Operations include regular activities to provide services such as chemical dosing, effluent quality monitoring, infrastructure inspections / condition assessments, energy, solid removals, monitoring pumping times, bio solids processing, communication etc.

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 such as pump maintenance, wet well clearing and treatment plant maintenance, sewer pressure cleaning.

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 \$
2020/21	\$1,709,098
2021/22	\$1,756,000
2022/23	\$1,694,320

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.

**Figure 4: Projected Operations and Maintenance Expenditure**

<sup>7</sup> IPWEA, 2015, IIMM, Sec 2.5.4, p 2 | 80.



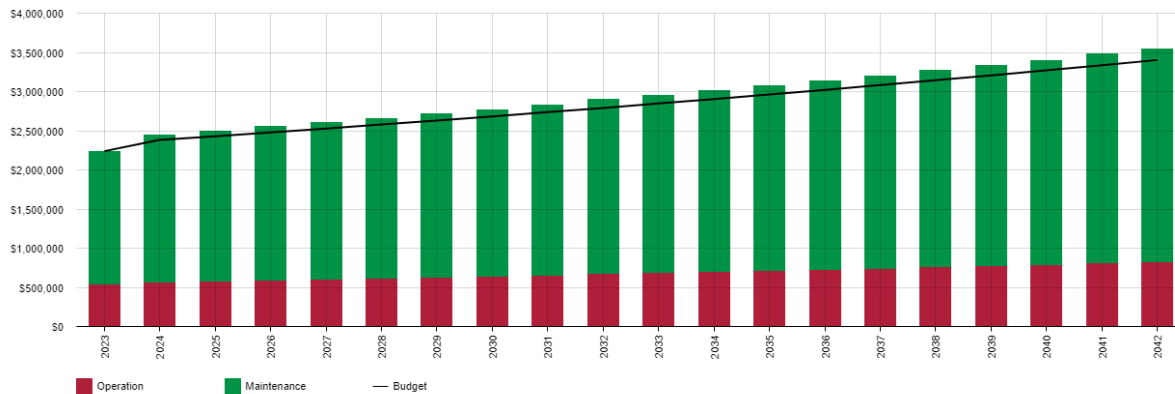


Figure Values are in current (real) dollars.

The figure indicates that operation and maintenance costs will rise slightly over time due to the new assets that are acquired because of new development. The organisation has to identify additional funds required for the maintenance of new and upgraded assets otherwise; it will create a negative impact on the service delivery.

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 one of three methods provided in the 'Expenditure Template'.

- Method 1 uses Asset Register data to project the renewal costs using acquisition year and useful life to determine the renewal year, or
- Method 2 uses capital renewal expenditure projections from external condition modelling systems (such as Pavement Management Systems), or
- Method 3 uses a combination of average network renewals plus defect repairs in the Renewal Plan and Defect Repair Plan worksheets on the 'Expenditure template'.

Method 1 as used for this asset management plan.

#### 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 defective sewer mains), or
- To ensure the infrastructure is of sufficient quality to meet the service requirements(e.g. Sewage overflows)6,
- 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, and
- Have replacement with a modern equivalent asset that would provide the equivalent service at a savings.<sup>8</sup>

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**

\*\*Council does not have a priority ranking criteria for renewal and replacement of sewerage assets. The following ranking criterion is only a proposal.

Criteria	Weighting
Risk of failure of the asset	70%
Condition of the asset/Criticality	20%
Operation and maintenance cost	10%
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 is required is shown in Fig 5. Note that all amounts are shown in current (real) dollars.

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

**Fig 5: Projected Capital Renewal and Replacement Expenditure**

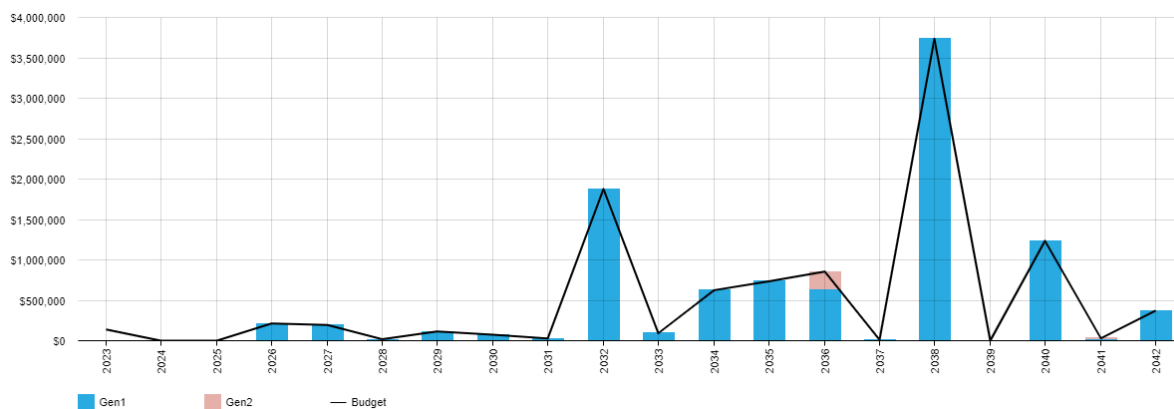


Figure Values are in current (real) dollars.

The graph indicates that expenditure on renewals is expected to increase in 2032 and 2038 significantly. This is mainly relates to some of the pumps and switchboards reaching the end of their estimated useful lives. The asset condition of these mains has not been critically assessed, but is rather based on their age and expected life. The requirement to replace these assets needs to be better assessed prior to the timing of their proposed renewal. If there is no history of failures or problems the renewal of these assets may be deferred.

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.

<sup>8</sup> Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3 | 97.

## 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**

\*\*Council does not have a priority ranking criteria for new sewerage assets. The following ranking criterion is only a proposal.

Criteria	Weighting
Population Growth	70%
Climate Change	15%
Environmental concerns/ Legislative requirements	15%
Total	100%

### 5.4.2 Summary of future upgrade/new assets expenditure

Projected upgrade/new asset expenditures are summarised in Fig 6. The projected upgrade/new capital works program is shown in Appendix C. All amounts are shown in current dollar values.

**Fig 6: Projected Capital Upgrade/New Asset Expenditure**

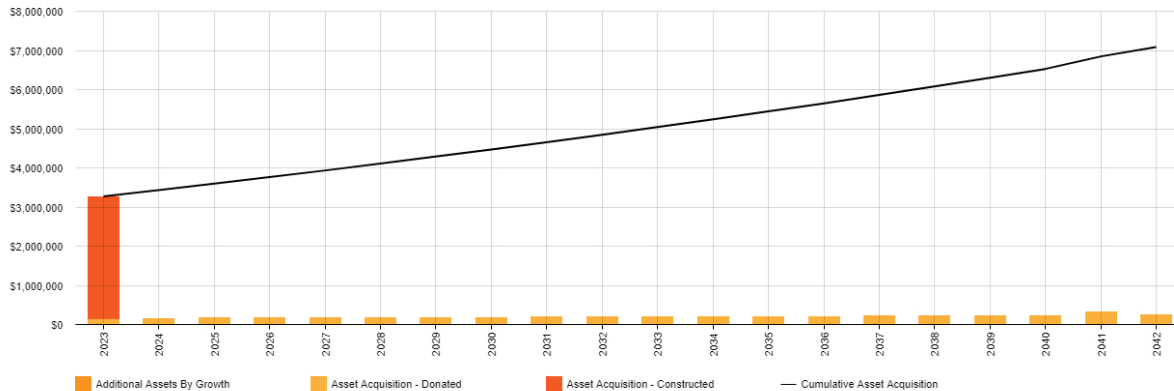


Figure Values are in current (real) dollars.

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.

Construction of the new infrastructure creates a positive impact on the service delivery. However the acquiring these new assets will commit the funding of ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required.

### 5.4.3 Summary of asset expenditure requirements

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

**Fig 7: Projected Operating and Capital Expenditure**

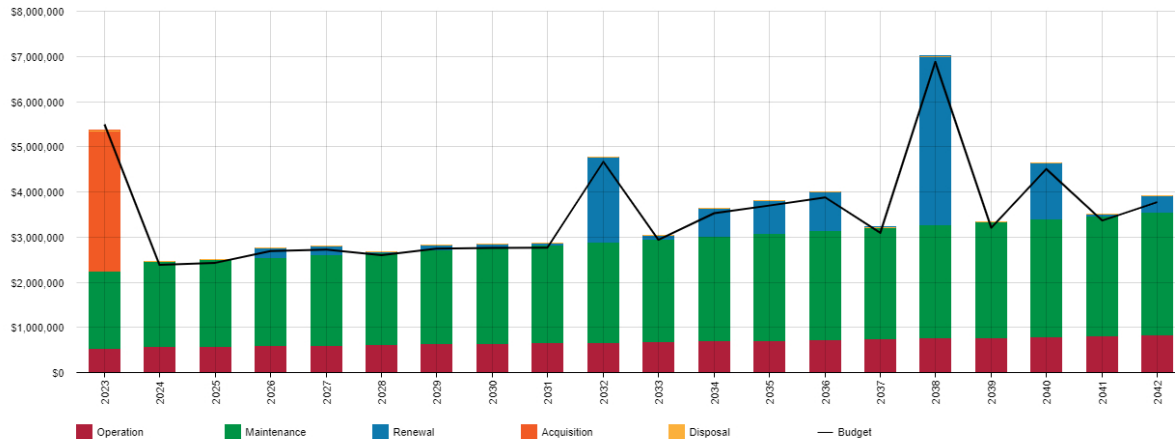


Figure Values are in current (real) dollars.

As the capital upgrade/new works are not evenly distributed the figure indicates funding gaps in certain years. Two spikes in 2032 and 2038 indicate that capital renewal of pump and electrical assets is required as a result of the assets reaching the end of their useful life based on age. Resources should be allocated to a more detailed condition assessment prior to any renewal works being undertaken, as this provides opportunities to smooth this spike by extending the lives of those assets that are in better condition. Some assets may also be brought forward, also to smooth this over a number of years.

## 5.5 Disposal Plan

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation. No assets have been identified for disposal without renewal/replacement.

## 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’<sup>9</sup>.

An assessment of risks<sup>10</sup> 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.

<sup>9</sup> ISO 31000:2009, p 2

<sup>10</sup> Need to develop Infrastructure Risk Management Plan

## 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
Gravity sewers and manholes	Collapse of pipes and manholes	Operational failure and environmental pollution
Pumping mains	Collapse of pipes	Operational failure and the environmental pollution
Pumping stations	Sewage overflow due to power outage	Operational failure and the environmental pollution
Treatment Plants	Treatment process failure due to power outage/ failure of mechanical items	Operational failure and the environmental pollution

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

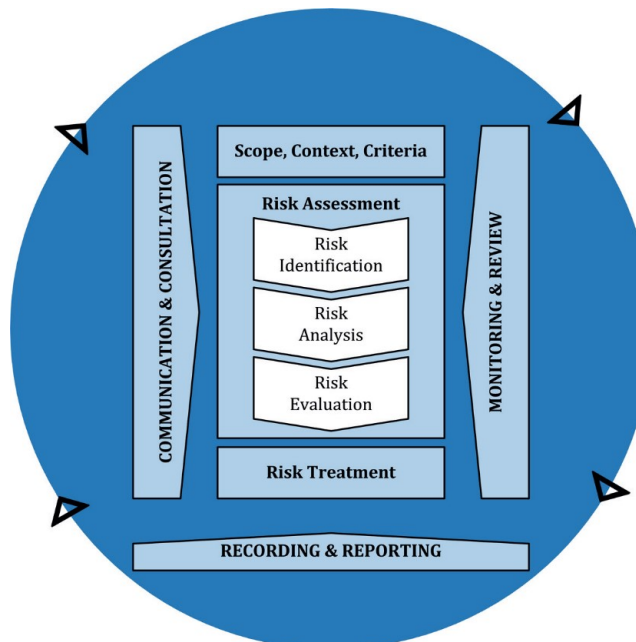
## 6.2 Risk Assessment

The risk management process used in this project is shown in Figure 6.2 below.

It is an analysis and problem solving technique designed to provide a logical process for the selection of treatment plans and management actions to protect the community against unacceptable risks.

The process is based on the fundamentals of the ISO risk assessment standard ISO 31000:2018.

**Fig 6.2 Risk Management Process – Abridged**



Source ISO 31000 2018, Figure 1, p9

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<sup>11</sup> 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 'Very High' (requiring immediate corrective action) and 'High' (requiring corrective action) risk ratings identified in the Infrastructure Risk Management Plan. 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 Council.

**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
Gravity sewer mains	Sewer main breaks and leaks	H	Condition assessment in 5 years and develop an action plan for repairs /relining	Low	\$200,000 Funds allocated from Capital works programme per annum
Sewer mains	Rising Collapse of rising main	H	Condition assessment and develop an action plan for replacing/relining	Low	Unknown
Gravity sewers and manholes	Blockages due to tree roots resulting sewage overflows	H	Develop a proactive maintenance program and implement	Low	\$500,000 for 10 years
Pumping Stations	Sewage overflow due to power outage	H	Provide additional storage. Standby power supply arrangement in place to overcome a critical situation	Low	In Capital works programme. For standby power supply-Develop a plan to manage a critical situation. Cost-Unknown
Sewage Treatment Plant	Civil, electrical or mechanical failure	H	Scheduled maintenance and regular inspections	Low	In maintenance budget
Sewage Treatment Plant	Treatment failure due to power outage	H	Standby power supply arrangement in place to overcome a critical situation	Low	For standby power supply-Develop a plan to manage a critical situation. Cost-Unknown

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

<sup>11</sup> Need to develop Infrastructure Risk Management Plan

### 6.3 Infrastructure Resilience Approach

The resilience of our critical infrastructure is vital to our customers and the services we provide. To adapt to changing conditions and grow over time we need to understand our capacity to respond to possible disruptions and be positioned to absorb disturbance and act effectively in a crisis to ensure continuity of service.

Resilience is built on aspects such as response and recovery planning, financial capacity and crisis leadership.

Our current measure of resilience is shown in Table 6.4 which includes the type of threats and hazards, resilience assessment and identified improvements and/or interventions.

No current measures available. This is a proposal only.

**Table 6.4: Resilience**

Threat / Hazard	Resilience LMH	Improvements / Interventions
Sewage overflows due to high intensive rainfall/ Flooding	Low	Infiltration reduction measures to minimise the impact. Emergency management plan.
Service disruption due to structural/Mechanical/Electrical failure	Medium	Provide additional storage at pumping stations and treatment plants. Bypass arrangements  Reactive maintenance plan (Materials in stock/ Multi skilled staff/Machinery and equipment)
Service disruption due to power failure	Medium	Arrange back up power supply  Additional storage at pumping stations and treatment plants

### 6.4 Service and Risk Trade-Offs

The decisions made in adopting this AM Plan are based on the objective to achieve the optimum benefits from the available resources.

#### 6.4.1 What we cannot do

There are some operations and maintenance activities and capital projects that are unable to be undertaken within the next 10 years. These include:

- Proactive maintenance to new assets in sewer network
- Condition assessment of rising mains
- Replacing / relining all sewer mains with expired useful life based on age. Resources will have to be allocated to more detailed condition assessment to more accurately determine the life of these assets.

#### 6.4.2 Service trade-off

Operations and maintenance activities and capital projects that cannot be undertaken will maintain or create service consequences for users. These include:

- Service disruption due to unexpected failure of sewer rising mains and gravity sewers
- Consumer dissatisfaction and public image
- Polluting water ways and the impact on the businesses such as oyster growers
- Impact on recreation facilities

### 6.4.3 Risk trade-off

The operations and maintenance activities and capital projects that cannot be undertaken may maintain or create risk consequences. These include:

- Environmental pollution
- Impact on the economic growth
- Risk to public health
- Financial risk

These actions and expenditures are considered in the projected expenditures, and where developed are included in the Risk Management Plan.

## 7. FINANCIAL SUMMARY

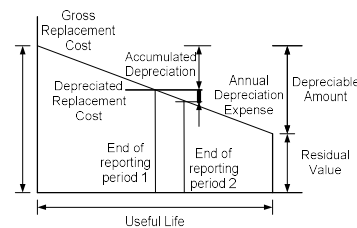
This section contains the financial requirements resulting from all the information presented in the previous sections of this asset management plan. The financial projections will be improved as further information becomes available on desired levels of service and current and projected future asset 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	\$120,934,036
Depreciable Amount	\$120,934,036
Depreciated Replacement Cost <sup>12</sup>	\$77,853,746
Asset Consumption	\$43,080,289



#### 7.1.1 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, and
- medium term budgeted expenditures/projected expenditure (over 10 years of the planning period).

#### Asset Renewal Funding Ratio

Asset Renewal Funding Ratio<sup>13</sup> 105%

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 105% of the funds required 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.

<sup>12</sup> Also reported as Written Down Value, Carrying or Net Book Value.

<sup>13</sup> AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.



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 \$3,186,068 on average per year.

Estimated (budget) operations, maintenance and capital renewal funding is \$3,125,253 on average per year giving a 10 year funding shortfall of \$60,815 per year. This indicates 98% of the projected expenditures needed to provide 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.

#### **7.1.2 Projected expenditures for long term financial plan**

Table 7.1.2 shows the projected expenditures for the 10 year long term financial plan.

Expenditure projections are in current dollar values.

**Table 7.1.2: Projected Expenditures for Long Term Financial Plan (\$)**

Year	Acquisition	Operation	Maintenance	Renewal	Disposal	Budget
2023	\$3,118,000	\$544,680	\$1,694,320	\$0.00	\$0.00	\$5,494,947.00
2024	\$0	\$571,618	\$1,879,659	\$0.00	\$0.00	\$2,382,516.00
2025	\$0	\$583,513	\$1,918,771	\$0.00	\$0.00	\$2,430,166.00
2026	\$0	\$595,647	\$1,958,671	\$213,120.00	\$0.00	\$2,691,890.00
2027	\$0	\$608,025	\$1,999,374	\$193,317.00	\$0.00	\$2,721,662.00
2028	\$0	\$620,653	\$2,040,896	\$17,933.00	\$0.00	\$2,596,845.00
2029	\$0	\$633,534	\$2,083,254	\$114,993.00	\$0.00	\$2,745,483.00
2030	\$0	\$646,676	\$2,126,466	\$73,841.00	\$0.00	\$2,756,941.00
2031	\$0	\$660,081	\$2,170,547	\$27,214.00	\$0.00	\$2,763,976.00
2032	\$0	\$673,757	\$2,215,515	\$1,876,602.00	\$0.00	\$4,668,099.00
2033	\$0	\$687,709	\$2,261,390	\$92,661.00	\$0.00	\$2,939,988.00
2034	\$0	\$701,940	\$2,308,188	\$624,929.00	\$0.00	\$3,529,203.00
2035	\$0	\$716,459	\$2,355,928	\$735,338.00	\$0.00	\$3,697,697.00
2036	\$0	\$731,271	\$2,404,630	\$855,515.00	\$0.00	\$3,877,122.00
2037	\$0	\$746,380	\$2,454,313	\$12,255.00	\$0.00	\$3,094,294.00
2038	\$0	\$761,794	\$2,504,996	\$3,734,726.00	\$0.00	\$6,878,406.00
2039	\$0	\$777,517	\$2,556,699	\$0.00	\$0.00	\$3,206,553.00
2040	\$0	\$793,557	\$2,609,443	\$1,235,894.00	\$0.00	\$4,506,577.00
2041	\$0	\$809,921	\$2,663,250	\$30,205.00	\$0.00	\$3,366,302.00
2042	\$0	\$827,055	\$2,719,590	\$370,810.00	\$0.00	\$3,773,629.00

## 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.

Council can manage the shortfall by making adjustments to the sewerage charges in order to increasing revenue that can be used to cover the additional operation and maintenance costs. The requirement to replace the aged pipes, needs to be better assessed prior to the timing of their proposed renewal. If there is no history of breakages or problems the renewal of these assets may be deferred hence renewal cost will be reduced.

### 7.3 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:

Key Assumptions made in AM Plan and Risks of Change

- The operational budget for the year ending 2017 is adequate to keep the assets at their service potential at this stage
- The adopted growth rate will be consistent for the next 10 years.
- Accuracy of the predicted renewal and replacing expenditure is based on the reliability of the asset register
- The expenditure projection for capital upgrade/new works reflects the present Capital Works Programme. As IWCM strategic report is currently being reviewed there is a possibility for further minor changes.

### 7.4 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<sup>14</sup> in accordance with Table 7.4.

Table 7.4: 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 $\pm 2\%$
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 $\pm 10\%$
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 $\pm 25\%$
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 $\pm 40\%$
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.

<sup>14</sup> IPWEA, 2015, IIMM, Table 2.4.6, p 2 | 71.

## 8. PLAN IMPROVEMENT AND MONITORING

### 8.1 Status of Asset Management Practices<sup>15</sup>

#### 8.1.1 Accounting and financial data sources

- AUTHORITY financial management system
- Operational Plan for Sewerage Services
- Local Government Regulation 1993
- Independent Pricing and Regulatory Tribunal Act 1992

#### 8.1.2 Asset management data sources

- Asset register
- Geographical Information System
- MERIT customer service requests
- Capital works programme
- Unit rates for works and materials
- Current level of service
- Service risks
- Information on asset renewals and replacements

### 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	Continuous updating of the asset register to assure the accuracy and the reliability of data	Manager Assets	Asset Officer	Ongoing
2	Verifying costs with actual costs when projects are completed	Manager Assets	Asset Officer	Ongoing
3	Reporting asset renewals and upgrades to Asset Officer when projects are completed	Manager Water and Sewerage	Water and Sewerage Engineer/Staff	Ongoing
4	Develop a risk management plan and updating	Manager Water and Sewerage	Water and Sewerage Engineer/Staff	January 2023
5	Inspect and re-asses the condition of assets to estimate the remaining life of assets and the useful life	Manager Assets Manager Water and Sewerage	Asset Officer Staff	July/August 2023
6	Review customer level of service	Assistant General Manager Engineering Services / Manager Water and Sewerage	Staff/Community	August 2022
7	Maintain Geographical Information System up to	Manager	GIS Officer/Asset	June 2022

<sup>15</sup> ISO 55000 Refers to this the Asset Management System

	date	Information Technology/ Assistant General Manager Engineering Services	Staff	
8	Asset Management training programme to ensure staff have the necessary knowledge and skills	Assistant General Manager Engineering Services / Manager Assets	Staff/Training Provider	As required

### 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 years of each Local Government 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

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- Strategic Business Plan for Sewerage Services 2012
- Annual operation, maintenance and capital works budget 2017
- Integrated Water Cycle Management Strategy Report 2009

## **10. APPENDICES**

Appendix A	Projected 10 year Capital Renewal and Replacement Works Program
Appendix B	Acquisition Forecast
Appendix C	Operational Forecast
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Appendix E	Renewal Forecast
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Appendix G	Budget Summary by Lifestyle Activity

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

CVR ID	GIS ID	Asset Name	To	Remaining Life	Forecast Renewal	Renewal Cost	Useful Life
2523766	7654	Aeration tank - Diffused aeration unit Sewer Treatment Works Nambucca	0.0	3	2026	\$61,774	10
2523890	7656	Aeration tank no 2 - Aerator Sewer Treatment Works Nambucca	0.0	3	2026	\$151,346	10
						\$213,120	
2523742	7653	Water pump Sewer Treatment Works Scotts Head	0.0	4	2027	\$4,660	25
2523743	7653	Main Switchboard Sewer Treatment Works Scotts Head	0.0	4	2027	\$37,482	25
2524008	7655	Sludge digestion tank - Mixer Sewer Treatment Works Bowraville	0.0	4	2027	\$4,796	25
2524066	7623	Pump No 1 Sewer Pump Stations - No 1 Macksville	0.0	4	2027	\$7,289	25
2524067	7623	Pump No 2 Sewer Pump Stations - No 1 Macksville	0.0	4	2027	\$7,289	25
2524111	7658	Pump No 2 Sewer Pump Stations - No 6 Macksville	0.0	4	2027	\$9,576	25
2524128	7612	Pump No 2 Sewer Pump Stations - No 8 Macksville	0.0	4	2027	\$39,049	25
2524247	7620	Electrical Switchboard Sewer Pump Stations - No 5 Nambucca Heads	0.0	4	2027	\$8,963	25
2524286	7617	Pump No 1 Sewer Pump Stations - No 9 Nambucca Heads	0.0	4	2027	\$5,520	25
2524287	7617	Pump No 2 Sewer Pump Stations - No 9 Nambucca Heads	0.0	4	2027	\$5,520	25
2524311	7619	Pump No 1 Sewer Pump Stations - No 13 Nambucca Heads	0.0	4	2027	\$9,790	25
2524312	7619	Pump No 2 Sewer Pump Stations - No 13 Nambucca Heads	0.0	4	2027	\$9,790	25
2524359	7635	Pump No 1 Sewer Pump Stations - No 4 Scotts Head	0.0	4	2027	\$5,280	25
2524360	7635	Pump No 2 Sewer Pump Stations - No 4 Scotts Head	0.0	4	2027	\$5,280	25
2524407	7639	Pump No 1 Sewer Pump Stations - No 2 Valla Beach	0.0	4	2027	\$13,431	25
2524454	7625	Pump No 1 Sewer Pump Stations - No 8 Valla Beach	0.0	4	2027	\$6,534	25
2524455	7625	Pump No 2 Sewer Pump Stations - No 8 Valla Beach	0.0	4	2027	\$6,534	25
2524490	7605	Pump No 2 Sewer Pump Stations - No 13 Valla Beach	0.0	4	2027	\$6,534	25
						\$193,317	
2524406	7639	For earth dosing pump Sewer Pump Stations - No 2 Valla Beach	0.0	5	2028	\$1,760	15
2524202	7660	Pro-bac dosing pump Sewer Pump Stations - No 18 Macksville	0.0	5	2028	\$1,760	15
2523793	7654	Micro bug aeration system - dosing pump Sewer Treatment Works Nambucca	0.0	5	2028	\$1,760	15
2523868	7656	Caustic soda - Dosing pump Sewer Treatment Works Nambucca	0.0	5	2028	\$9,105	15
2523832	7654	Alum dosing - Secondary pump 2 Sewer Treatment Works Macksville	0.0	5	2028	\$3,548	15
						\$17,933	
2523828	7654	Alum dosing - Primary pump 1 Sewer Treatment Works Macksville	0.0	6	2029	\$3,154	15
2523829	7654	Alum dosing - Primary pump 2 Sewer Treatment Works Macksville	0.0	6	2029	\$3,154	15
2523831	7654	Alum dosing - Secondary pump 1 Sewer Treatment Works Macksville	0.0	6	2029	\$3,548	15
2523728	7653	Pasveer - Decanter No 2 Sewer Treatment Works Scotts Head	0.0	6	2029	\$13,817	25
2523733	7653	Pasveer - Sludge Pump Sewer Treatment Works Scotts Head	0.0	6	2029	\$10,234	25
2524273	7614	Electrical Switchboard Sewer Pump Stations - No 8 Nambucca Heads	0.0	6	2029	\$57,929	25
2524017	7655	Water pressure pump Sewer Treatment Works Bowraville	0.0	6	2029	\$4,660	25
2524397	7643	Bio Oxygen Odour Control Unit Sewer Pump Stations - No 1 Bowraville	0.0	6	2029	\$10,327	25
2520273	7655	Dosing pump control cabinet Sewer Treatment Works Bowraville	0.0	6	2029	\$8,170	25
						\$114,993	
2524061	7622	Telemetry Sewer Pump Stations - No 1 Bowraville	0.0	7	2030	\$8,772	20
2523986	7655	Inlet - Mag flow meter Sewer Treatment Works Bowraville	0.0	7	2030	\$8,968	20
2524274	7614	Activated carbon adsorption unit Sewer Pump Stations - No 8 Nambucca Heads	0.0	7	2030	\$6,341	20
2524236	7616	Odour Controller Sewer Pump Stations - No 4 Nambucca Heads	0.0	7	2030	\$21,137	20
2523818	7654	Effluent - Mag flowmeter Sewer Treatment Works Macksville	0.0	7	2030	\$12,674	20
2523839	7654	Telemetry Sewer Treatment Works Macksville	0.0	7	2030	\$9,413	20
2523878	7656	Aeration tank no 1 - Radar Level Sensor Sewer Treatment Works Nambucca	0.0	7	2030	\$6,536	20
						\$73,841	

2523860	7656	Alum - Dosing pump No 1 Sewer Treatment Works Nambucca	0.0	8	2031	\$5,622	15
2523861	7656	Alum - Dosing pump No 2 Sewer Treatment Works Nambucca	0.0	8	2031	\$5,622	15
2523862	7656	Alum - Dosing pump No 3 Sewer Treatment Works Nambucca	0.0	8	2031	\$5,622	15
2532956	7638	Magnesium Hydroxide Dosing Unit - Sewer Pump Station No 1	0.0	8	2031	\$2,196	10
2532957	7638	Magnesium Hydroxide Dosing Unit - Sewer Pump Station No 2	0.0	8	2031	\$2,038	10
2533305	9420	Pump No 1 Sewer Pump Station - No 16 Nambucca Heads	0.0	8	2031	\$2,038	10
2533308	9432	Pump No 1 Sewer Pump Station - No 17 Nambucca Heads	0.0	8	2031	\$2,038	10
2533311	9433	Pump No 1 Sewer Pump Station - No 18 Nambucca Heads	0.0	8	2031	\$2,038	10
						\$27,214	



2523870	7656	Caustic soda - Pump Sewer Treatment Works Nambucca Heads	0.0	9	2032	\$10,234	25
2523874	7656	Aeration tank no 1 - Aerator no 1 Sewer Treatment Works Nambucca Heads	0.0	9	2032	\$68,830	25
2523875	7656	Aeration tank no 1 - Aerator no 2 Sewer Treatment Works Nambucca Heads	0.0	9	2032	\$68,830	25
2523876	7656	Aeration tank no 1 - Aerator no 3 Sewer Treatment Works Nambucca Heads	0.0	9	2032	\$68,830	25
2523877	7656	Aeration tank no 1 - Aerator no 4 Sewer Treatment Works Nambucca Heads	0.0	9	2032	\$68,830	25
2523882	7656	Aeration tank no 1 - Decanter No 1 Sewer Treatment Works Nambucca Heads	0.0	9	2032	\$36,966	25
2523883	7656	Aeration tank no 1 - Decanter No 2 Sewer Treatment Works Nambucca Heads	0.0	9	2032	\$24,644	25
2523848	7656	Inlet - Electrical Switchboard Sewer Treatment Works Nambucca Heads	0.0	9	2032	\$17,522	25
2523851	7656	Grit - Classifier Sewer Treatment Works Nambucca Heads	0.0	9	2032	\$24,003	25
2523852	7656	Grit - Mixer Sewer Treatment Works Nambucca Heads	0.0	9	2032	\$4,796	25
2523853	7656	Grit - Blower No 1 Sewer Treatment Works Nambucca Heads	0.0	9	2032	\$15,770	25
2523854	7656	Grit - Blower No 2 Sewer Treatment Works Nambucca Heads	0.0	9	2032	\$15,770	25
2523857	7656	Alum - Dosing Switchboard Sewer Treatment Works Nambucca Heads	0.0	9	2032	\$17,691	25
2523894	7656	Aeration tank no 2 - Ammonia / nitrate sensor Sewer Treatment Works Nambucca Heads	0.0	9	2032	\$16,379	20
2523727	7653	Pasveer - Decanter No 1 Sewer Treatment Works Scotts Head	0.0	9	2032	\$13,817	25
2523737	7653	Sludge pontoon - Mixer Sewer Treatment Works Scotts Head	0.0	9	2032	\$7,604	25
2523729	7653	Pasveer - Aerator No 1 Sewer Treatment Works Scotts Head	0.0	9	2032	\$47,343	25
2523731	7653	Pasveer - Aerator No 3 Sewer Treatment Works Scotts Head	0.0	9	2032	\$47,343	25
2523794	7654	Micro bug - Aeration system contolter Sewer Treatment Works Macksville	0.0	9	2032	\$1,024	25
2523773	7654	Aeration tank - Electrical switchboards Sewer Treatment Works Macksville	0.0	9	2032	\$8,963	25
2523809	7654	Supernatant - Pump 1 Sewer Treatment Works Macksville	0.0	9	2032	\$7,289	25
2523810	7654	Supernatant - Pump 2 Sewer Treatment Works Macksville	0.0	9	2032	\$7,289	25
2523821	7654	Reuse water - Pump no1 Sewer Treatment Works Macksville	0.0	9	2032	\$4,660	25
2523822	7654	Reuse water - Pump no2 Sewer Treatment Works Macksville	0.0	9	2032	\$4,660	25
2523823	7654	Reuse water - Electrical Switchboard Sewer Treatment Works Macksville	0.0	9	2032	\$1,024	25
2523753	7654	Inlet - Drain and screw press Sewer Treatment Works Macksville	0.0	9	2032	\$11,680	25
2523760	7654	Grit - Removal blower No 1 Sewer Treatment Works Macksville	0.0	9	2032	\$14,600	25
2523761	7654	Grit - Removal blower No 2 Sewer Treatment Works Macksville	0.0	9	2032	\$14,600	25
2523762	7654	Grit - Blower Switchboard Sewer Treatment Works Macksville	0.0	9	2032	\$5,204	25
2523757	7654	Grit - Mixer Sewer Treatment Works Macksville	0.0	9	2032	\$4,796	25
2523768	7654	Aeration tank - Decant System Sewer Treatment Works Macksville	0.0	9	2032	\$100,966	25
2523779	7654	Septage receival - Pump no 1 Sewer Treatment Works Macksville	0.0	9	2032	\$6,307	25
2523780	7654	Septage receival - Pump no 2 Sewer Treatment Works Macksville	0.0	9	2032	\$6,307	25
2523781	7654	Septage receival - Pump station Switchboard Sewer Treatment Works Macksville	0.0	9	2032	\$5,204	25
2523782	7654	Aeration blower no 1 Sewer Treatment Works Macksville	0.0	9	2032	\$57,960	25
2523783	7654	Aeration blower no 2 Sewer Treatment Works Macksville	0.0	9	2032	\$57,960	25
2524237	7616	Pump No 1 Sewer Pump Stations - No 4 Nambucca Heads	0.0	9	2032	\$58,701	25
2524227	7607	Pump No 1 Sewer Pump Stations - No 3 Nambucca Heads	0.0	9	2032	\$32,759	25
2524228	7607	Pump No 2 Sewer Pump Stations - No 3 Nambucca Heads	0.0	9	2032	\$32,759	25
2524235	7616	Electrical Switchboard Sewer Pump Stations - No 4 Nambucca Heads	0.0	9	2032	\$77,733	25
2524218	7610	Pump No 1 Sewer Pump Stations - No 2 Nambucca Heads	0.0	9	2032	\$32,759	25
2524219	7610	Pump No 2 Sewer Pump Stations - No 2 Nambucca Heads	0.0	9	2032	\$32,759	25
2524203	7660	Pump No 1 Sewer Pump Stations - No 18 Macksville	0.0	9	2032	\$6,534	25
2524204	7660	Pump No 2 Sewer Pump Stations - No 18 Macksville	0.0	9	2032	\$6,534	25
2524137	7624	Pump No 2 Sewer Pump Stations - No 9 Macksville	0.0	9	2032	\$43,135	25
2524144	7606	Pump No 1 Sewer Pump Stations - No 10 Macksville	0.0	9	2032	\$22,174	25
2524145	7606	Pump No 2 Sewer Pump Stations - No 10 Macksville	0.0	9	2032	\$22,174	25
2523997	7655	Detention pond - flocculator timber fence Sewer Treatment Works Macksville	0.0	9	2032	\$22,818	35
2524053	7622	Concrete driveway Sewer Pump Stations - No 1 Bowraville	0.0	9	2032	\$7,905	50
2524012	7655	Sludge Pump well - Electrical Switchboard Sewer Treatment Works Macksville	0.0	9	2032	\$2,881	25
2524126	7612	Electrical Switchboard Sewer Pump Stations - No 8 Macksville	0.0	9	2032	\$17,992	25
2524110	7658	Pump No 1 Sewer Pump Stations - No 6 Macksville	0.0	9	2032	\$9,576	25
2524077	7649	Pipe work & valve Sewer Pump Stations - No 2 Macksville	0.0	9	2032	\$4,521	50
2524371	7631	Electrical Switchboard Sewer Pump Stations - No 6 Scotts Head	0.0	9	2032	\$8,963	25
2524372	7631	Pump No 1 Sewer Pump Stations - No 6 Scotts Head	0.0	9	2032	\$6,534	25
2524376	7630	Concrete driveway Sewer Pump Stations - No 7 Scotts Head	0.0	9	2032	\$32,937	50
2524381	7630	Pump No 1 Sewer Pump Stations - No 7 Scotts Head	0.0	9	2032	\$10,115	25
2524382	7630	Pump No 2 Sewer Pump Stations - No 7 Scotts Head	0.0	9	2032	\$10,115	25
2524405	7639	Electrical Switchboard Sewer Pump Stations - No 2 Valla Beach	0.0	9	2032	\$11,261	25
2524414	7640	Electrical Switchboard Sewer Pump Stations - No 3 Valla Beach	0.0	9	2032	\$12,661	25
2524415	7640	Pump No 1 Sewer Pump Stations - No 3 Valla Beach	0.0	9	2032	\$20,902	25
2524416	7640	Pump No 2 Sewer Pump Stations - No 3 Valla Beach	0.0	9	2032	\$20,902	25
2524421	7641	Electrical Switchboard Sewer Pump Stations - No 4 Valla Beach	0.0	9	2032	\$11,261	25
2524335	7636	Pump No 1 Sewer Pump Stations - No 1 Scotts Head	0.0	9	2032	\$26,929	25
2524336	7636	Pump No 2 Sewer Pump Stations - No 1 Scotts Head	0.0	9	2032	\$26,929	25
2524310	7619	Electrical Switchboard Sewer Pump Stations - No 13 Nambucca Heads	0.0	9	2032	\$8,963	25
2524319	7608	Pump No 1 Sewer Pump Stations - No 14 Nambucca Heads	0.0	9	2032	\$9,576	25
2524320	7608	Pump No 2 Sewer Pump Stations - No 14 Nambucca Heads	0.0	9	2032	\$9,576	25
2524463	7638	Pump No 1 Sewer Pump Stations - No 9 Valla Beach	0.0	9	2032	\$41,793	25
2524464	7638	Pump No 2 Sewer Pump Stations - No 9 Valla Beach	0.0	9	2032	\$41,793	25
2524470	7629	Electrical Switchboard Sewer Pump Stations - No 10 Valla Beach	0.0	9	2032	\$8,963	25
2523890	7656	Aeration tank no 2 - Aerator Sewer Treatment Works Nambucca Heads	0.0	9	2032	\$227,020	20
						\$1,876,602	

## Appendix B –Acquisition Forecast

Acquisition forecasts are based on current trends in development growth and urban redevelopment and expansion. Growth trends will be monitored and forecasts adjusted accordingly.

Year	Constructed	Donated	Growth
2023	\$3,118,000	\$156,368	\$0
2024	\$0	\$159,814	\$0
2025	\$0	\$163,336	\$0
2026	\$0	\$166,936	\$0
2027	\$0	\$170,616	\$0
2028	\$0	\$174,376	\$0
2029	\$0	\$178,219	\$0
2030	\$0	\$182,147	\$0
2031	\$0	\$186,162	\$0
2032	\$0	\$190,265	\$0
2033	\$0	\$194,458	\$0
2034	\$0	\$198,744	\$0
2035	\$0	\$203,124	\$0
2036	\$0	\$207,601	\$0
2037	\$0	\$212,177	\$0
2038	\$0	\$216,853	\$0
2039	\$0	\$221,632	\$0
2040	\$0	\$226,517	\$0
2041	\$0	\$321,510	\$0
2042	\$0	\$236,140	\$0

## Appendix C –Operational Forecast

Costs will be apportioned to match available budget and address service expectations. Growth is factored in to allow for acquisition of new assets and will be monitored and adjusted to match growth trends.

Year	Forecast	Additional Costs	Additional Forecast	Total Forecast
2023	\$544,680	\$16,044.40	\$0.00	\$544,680.00
2024	\$555,574	\$783.09	\$0.00	\$571,618.38
2025	\$566,685	\$800.35	\$0.00	\$583,512.50
2026	\$578,019	\$817.99	\$0.00	\$595,646.81
2027	\$589,579	\$836.02	\$0.00	\$608,024.81
2028	\$601,371	\$854.44	\$0.00	\$620,652.81
2029	\$613,398	\$873.27	\$0.00	\$633,534.31
2030	\$625,666	\$892.52	\$0.00	\$646,675.56
2031	\$638,179	\$912.19	\$0.00	\$660,081.06
2032	\$650,943	\$932.30	\$0.00	\$673,757.25
2033	\$663,962	\$952.84	\$0.00	\$687,708.56
2034	\$677,241	\$973.85	\$0.00	\$701,940.44
2035	\$690,786	\$995.31	\$0.00	\$716,459.25
2036	\$704,602	\$1,017.24	\$0.00	\$731,270.56
2037	\$718,694	\$1,039.67	\$0.00	\$746,379.81
2038	\$733,068	\$1,062.58	\$0.00	\$761,793.50
2039	\$747,729	\$1,086.00	\$0.00	\$777,517.06
2040	\$762,683	\$1,109.93	\$0.00	\$793,557.06
2041	\$777,937	\$1,575.40	\$0.00	\$809,921.00
2042	\$793,496	\$1,575.40	\$0.00	\$827,055.13

## Appendix D –Maintenance Forecast

The maintenance forecast includes provision for growth in acquisition, this factor will be monitored and maintenance expenditure adjusted accordingly.

Year	Forecast	Additional Costs	Additional Forecast	Total Forecast
2023	\$1,694,320	\$52,717	\$0	\$1,694,320
2024	\$1,826,942	\$2,573	\$0	\$1,879,659
2025	\$1,863,481	\$2,630	\$0	\$1,918,771
2026	\$1,900,751	\$2,688	\$0	\$1,958,671
2027	\$1,938,766	\$2,747	\$0	\$1,999,374
2028	\$1,977,541	\$2,807	\$0	\$2,040,896
2029	\$2,017,092	\$2,869	\$0	\$2,083,254
2030	\$2,057,434	\$2,933	\$0	\$2,126,466
2031	\$2,098,583	\$2,997	\$0	\$2,170,547
2032	\$2,140,554	\$3,063	\$0	\$2,215,515
2033	\$2,183,365	\$3,131	\$0	\$2,261,390
2034	\$2,227,033	\$3,200	\$0	\$2,308,188
2035	\$2,271,573	\$3,270	\$0	\$2,355,928
2036	\$2,317,005	\$3,342	\$0	\$2,404,630
2037	\$2,363,345	\$3,416	\$0	\$2,454,313
2038	\$2,410,612	\$3,491	\$0	\$2,504,996
2039	\$2,458,824	\$3,568	\$0	\$2,556,699
2040	\$2,508,000	\$3,647	\$0	\$2,609,443
2041	\$2,558,160	\$5,176	\$0	\$2,663,250
2042	\$2,609,323	\$5,176	\$0	\$2,719,590

## Appendix E – Renewal Forecast

Renewals identified from asset register.

Year	Renewal Forecast	Renewal Budget
2023	\$0	\$137,947
2024	\$0	\$0
2025	\$0	\$0
2026	\$213,120	\$213,120
2027	\$193,317	\$193,317
2028	\$17,933	\$17,933
2029	\$114,993	\$114,993
2030	\$73,841	\$73,841
2031	\$27,214	\$27,214
2032	\$1,876,602	\$1,876,602
2033	\$92,661	\$92,661
2034	\$624,929	\$624,929
2035	\$735,338	\$735,338
2036	\$855,515	\$855,515
2037	\$12,255	\$12,255
2038	\$3,734,726	\$3,734,726
2039	\$0	\$0
2040	\$1,235,894	\$1,235,894
2041	\$30,205	\$30,205
2042	\$370,810	\$370,810

## **Appendix F – Disposal Forecast**

At the time of writing this asset management plan, Council has not identified any assets for disposal.

## Appendix G – Budget Summary by Lifestyle Activity

Year	Acquisition	Operation	Maintenance	Renewal	Disposal	Total Budget
2023	\$3,118,000	\$544,680	\$1,694,320	\$0.00	\$0.00	\$5,494,947.00
2024	\$0	\$571,618	\$1,879,659	\$0.00	\$0.00	\$2,382,516.00
2025	\$0	\$583,513	\$1,918,771	\$0.00	\$0.00	\$2,430,166.00
2026	\$0	\$595,647	\$1,958,671	\$213,120.00	\$0.00	\$2,691,890.00
2027	\$0	\$608,025	\$1,999,374	\$193,317.00	\$0.00	\$2,721,662.00
2028	\$0	\$620,653	\$2,040,896	\$17,933.00	\$0.00	\$2,596,845.00
2029	\$0	\$633,534	\$2,083,254	\$114,993.00	\$0.00	\$2,745,483.00
2030	\$0	\$646,676	\$2,126,466	\$73,841.00	\$0.00	\$2,756,941.00
2031	\$0	\$660,081	\$2,170,547	\$27,214.00	\$0.00	\$2,763,976.00
2032	\$0	\$673,757	\$2,215,515	\$1,876,602.00	\$0.00	\$4,668,099.00
2033	\$0	\$687,709	\$2,261,390	\$92,661.00	\$0.00	\$2,939,988.00
2034	\$0	\$701,940	\$2,308,188	\$624,929.00	\$0.00	\$3,529,203.00
2035	\$0	\$716,459	\$2,355,928	\$735,338.00	\$0.00	\$3,697,697.00
2036	\$0	\$731,271	\$2,404,630	\$855,515.00	\$0.00	\$3,877,122.00
2037	\$0	\$746,380	\$2,454,313	\$12,255.00	\$0.00	\$3,094,294.00
2038	\$0	\$761,794	\$2,504,996	\$3,734,726.00	\$0.00	\$6,878,406.00
2039	\$0	\$777,517	\$2,556,699	\$0.00	\$0.00	\$3,206,553.00
2040	\$0	\$793,557	\$2,609,443	\$1,235,894.00	\$0.00	\$4,506,577.00
2041	\$0	\$809,921	\$2,663,250	\$30,205.00	\$0.00	\$3,366,302.00
2042	\$0	\$827,055	\$2,719,590	\$370,810.00	\$0.00	\$3,773,629.00