Asset Management Plan

Sewer Assets

2025

City of Wagga Wagga

Contents

1.0 EXECUTIVE SUMMARY

1.1 Purpose of the Plan

Asset Management Plans (AM Plan) provide a strategic framework for managing our community's infrastructure assets, ensuring they remain safe, reliable, and capable of meeting current and future demands.

This AM Plan aims to:

- Provide a systematic approach to asset management.
- Address critical risks associated with ageing infrastructure and limited funding.
- Ensure infrastructure supports the community's social, economic, and environmental goals.

This AM Plan details information about Wagga Wagga City Council's (Council) sewer assets with key actions required to maintain service levels, optimise lifecycle costs, and support long term financial sustainability.

The plan defines the services, how they are provided and what funds are required to provide the services over the next 10 year planning period. The AM Plan expenditure forecasts inform the Long Term Financial Plan which typically considers a 10-year planning period.

1.2 Asset Description

Council's sewer network consists of several asset types to help provide efficient sewer services throughout the Local Government Area (LGA).

Table 1.2: Sewer Assets

Asset Category	Quantity	Replacement Value
Sewer Mains	722kms	$282,802,199
Sewer Manholes	11,106	$62,653,209
Sewer Pump Station	50	$34,747,282
Sewer Treatment Plants	8	$122,780,827
TOTAL		**$502,983,517**

1.3 Levels of Service

This plan covers Council's sewer network assets and includes those assets required to provide efficient and effective sewer services across the Wagga Wagga Local Government Area (LGA).

The allocation in the planned budget is sufficient to continue providing these services at their current levels for the planning period.

1.4 Future Demand

The factors influencing future demand and the impacts they have on service delivery are created by:

- Population, demographic and technological changes
- Seasonal and economic factors including climate change
- Land development and planning regulatory changes
- Shifts in community expectations

1.5 Lifecycle Management Plan

How we plan to manage and operate the assets at the agreed levels of service throughout their lifecycle is contingent on Council's 10-year Long Term Financial Plan (LTFP).

Furthermore, when Council commits to the upgrade of existing assets and the acquisition of new assets, future operations, maintenance and renewal costs including depreciation will increase.

1.5.1 What does it Cost?

The lifecycle costs necessary to provide the services covered by this AM Plan include operations, maintenance, renewal and upgrade of existing assets, and the acquisition of new assets to meet demand. Disposal of assets is also considered.

When lifecycle costs are prepared for a minimum 10-year planning period, they can be used to inform the 10-year LTFP. The first 10-year lifecycle forecast is estimated to cost $201,436,682 or $20,143,668 on average per year.

Depreciation is excluded from these cost estimates.

1.5.2 What we will do

The funding made available in the first 10 years of the LTFP is $201,436,682 or $20,143,668 on average per year which is 100% of the required cost to undertake the lifecycle activities outlined in this AM Plan.

The reality is, only what is funded in the LTFP can be provided. Informed decision making relies on the AM Plan emphasising the consequences of planned budgets on the service levels provided and communicating the residual risks. It is important to ensure the organisation is delivering the services in a financially sustainable manner.

We plan to provide the following services over the 10-year period of this AM Plan:

- Operate, maintain, renew and acquire sewer assets to meet the service levels set in annual budgets
- Renew sewer mains and manholes across the Local Government Area
- Undertake renewal and upgrade works on seven (7) sewer pump stations and three (3) sewer treatment plants

1.5.3 What we cannot do

The funding made available in the 10-year LTFP planning period is considered sufficient to deliver the levels of service provided for in this AM Plan.

Any considerations made to capacity issues within the sewer network will be considered when further information is available.

1.6 Risk Management

The planned budget is considered sufficient to continue to manage risks of the sewer asset base in the medium term.

1.7 Financial Summary

Providing financially sustainable and affordable services from infrastructure requires the careful management of service levels, costs and risks.

Two keys indicators of sustainable service delivery that are considered in this AM Plan are the Asset Renewal and Lifecycle Funding ratios. Based on the required costs and planned budget for providing stormwater services outlined in this plan, the forecast indicators for this planning period are:

- Asset Renewal Funding Ratio – 100%
- Lifecycle Funding Ratio – 100%

Asset values are forecast to increase as additional assets are added to the sewer network.

1.8 Assumptions and Improvement Planning

Key assumptions made in this AM Plan are:

- Assets are consumed at a constant rate over the pre-defined standard useful lives recorded in council's asset management system for each of the asset categories.
- Present service levels will remain constant for the life of the plan.
- Present levels of expenditure (and the relative distribution of planned and reactive maintenance, and capital renewals & new/upgrades) will remain constant for the life of the plan.

The Alternate method has been used to forecast the renewal lifecycle costs for this AM Plan.

This AM Plan is based on a low level of confidence in the asset data.

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

- Develop and improve Council's overall asset management maturity, practices and processes
- Develop a condition inspection regime for sewer mains and manholes
- Develop required annual maintenance and operational cost calculations for Council's sewer assets

2.0 INTRODUCTION

2.1 Background

This AM Plan communicates the actions and necessary funds required to sustainably deliver services through the careful management of assets for the foreseeable future.

This AM Plan is to be read in conjunction with Council's planning documents. This should include the Asset Management Policy and Strategy along with the following planning documents:

- Community Strategic Plan (CSP) 2050
- Long Term Financial Plan 2025-2026
- Local Strategic Planning Statement (LSPS) – Planning for the future: Wagga Wagga 2040
- Wagga Wagga City Council Development Servicing Plan (DSP) Sewerage Services 2013

The infrastructure assets included in this plan have a total replacement value of $502,983,517 as at 30 June 2024.

Key stakeholders in the preparation and implementation of this AM Plan are shown in Table 2.1.

Table 2.1: Key Stakeholders in the AM Plan

Key Stakeholder	Role in Asset Management Plan
Wagga Wagga City Council (Councillors)	▪ Represent the needs of the community, ▪ Allocate resources to meet planning objectives in providing services while managing risks, ▪ Ensure service sustainability.
General Manager and Executive staff	Direct and support Council staff in balancing of agreed service levels and financial ability to provide these services.
Federal Member	Represent community interest within the Federal seat of Riverina.
State Member	Represent community interest within the State seat of Wagga Wagga.
Council staff	▪ Deliver the agreed levels of service for infrastructure assets for the members of the Wagga Wagga Community ▪ Maintain a proactive approach to using asset management practices and processes to make informed decisions
Wagga Wagga Community Members (including residents and businesses)	Report perceived shortcomings, damage and safety concerns with current infrastructure within the LGA.
Federal & State Government Authorities and Agencies	▪ Provide input into overall infrastructure performance in conjunction with infrastructure under their jurisdiction. ▪ Provide financial support through grants and contributions to allow Council to achieve its asset renewal, maintenance and operational goals.
NSW Government Regulatory Authorities	▪ Safe capture, conveyance, treatment, reuse and associated management of through centralised, decentralised and onsite systems. ▪ Regulates and supports regional local water utilities in their provision of sewer services ▪ Public Health considerations ▪ Environmental regulator for water pollution activities, licensing and annual returns reporting.

2.2 Principles, Goals and Objectives of Asset Management

The principles of asset management as per the International Standards for asset management are:

- **Value**: asset management focuses on the value assets provide to the organisation over time.
- **Alignment**: asset management aligns financial, technical and operational decisions with organisational objectives.
- **Leadership**: leadership and sustained commitment at all levels are crucial for successful asset management.[1]

Our goal for managing infrastructure assets is to deliver the defined level of service (as amended from time to time) in the most cost effective manner for present and future consumers.

The key objectives of infrastructure asset management as defined by the International Infrastructure Management Manual are:

- Defining levels 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 accommodates the required expenditure and how it will be funded.[2]

[1] ISO 55000:2024 Asset Management – Vocabulary, overview, and principles
[2] IPWEA International Infrastructure Management Manual (IIMM), Sec 1.2.1

3.0 LEVELS OF SERVICE

Levels of service define the standards and performance targets that infrastructure assets are expected to meet to ensure they provide reliable, safe, and efficient services to the community.

3.1 Customer Research and Expectations

This AM Plan is prepared to facilitate consultation prior to adoption of levels of service by Council. Council has conducted local government satisfaction surveys since 2006. The survey samples residents on the levels of satisfaction with Council services and their importance.

The results of these surveys are interpreted into a quadrant analysis. This analysis combines the stated needs of the community and addresses Council's performance in relation to these needs.

Figure 3.1 below outlines the results of the most recent Community Satisfaction survey undertaken in 2024.

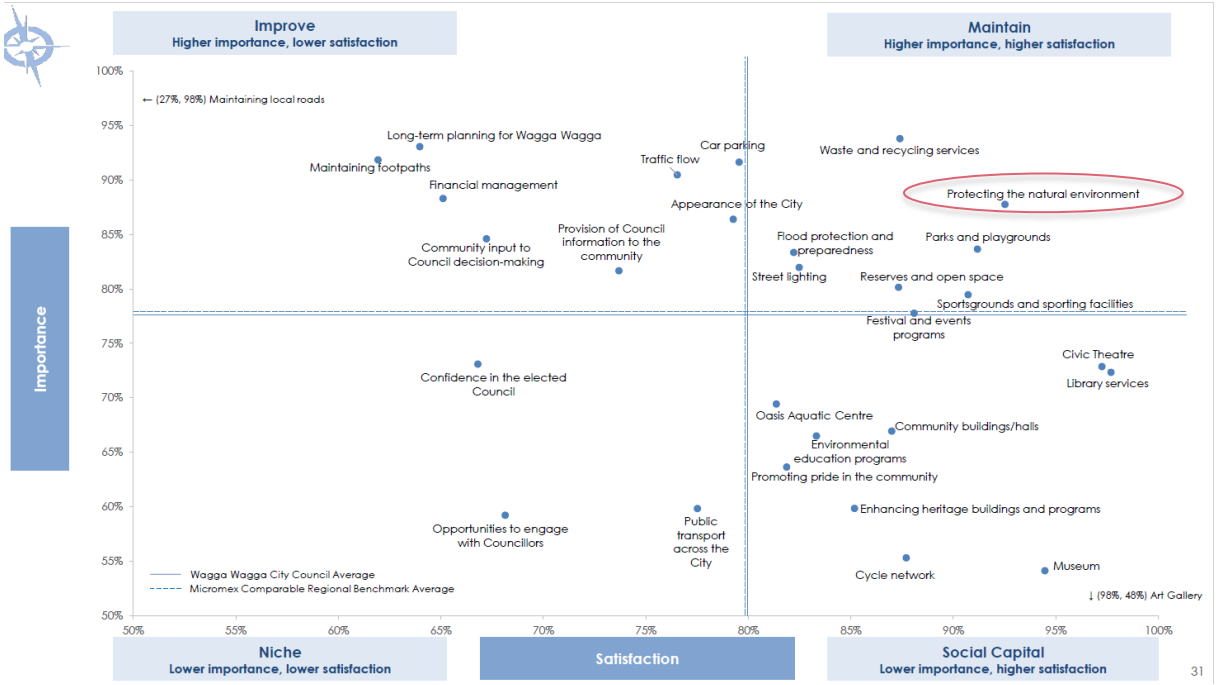

Figure 3.1: Community Satisfaction Survey 2024

The 2024 Community Satisfaction survey highlighted the following in relation to Council's sewer services:

- Protecting the natural environment had an importance rating of 88% and a satisfaction rating of 93%.

When compared to the previous 2021 survey, the importance rating has decreased slightly, whilst the satisfaction ratings in the 2024 survey have increased.

3.2 Strategic and Corporate Goals

This AM Plan is prepared in conjunction with the future vision outlined in Council's Community Strategic Plan 2050, "*Wagga Wagga - a vibrant, growing and sustainable regional city*". The Community Strategic Plan 2050 identifies four (4) strategic focus areas developed in consultation with the community:

- Vibrant – Wagga Wagga is a vibrant place to live, work and visit. We foster a thriving cultural, social, and recreational life, where health, creativity, diversity and our rich cultural heritage is valued, and people feel safe and secure within our community.
- Growing – Wagga Wagga is a progressive regional city with a strong economic future for our Local Government Area and wider region. Wagga Wagga is the Southern Regional Capital of NSW.

- Sustainable – We plan for future generations with a focus on sustainability. We protect the environment and embrace best practice as we move towards net zero emissions for the community and Council.
- Regional Leader – Wagga Wagga is a regional leader. We lead by example and set the standard for innovation, collaboration and resilience driving progress. Our approach is underpinned by good governance and planning.

Within each of these focus areas, the CSP outlines objectives and indicators which will allow Council to further define what the community's long-term vision will look like one it is realised and how we are going to measure the success of each of the focus areas and their objectives.

Asset Management Planning at Council aligns with both the Growing and Regional Leader strategic focus areas within the Community Strategic Plan 2050 and particularly the following objectives and strategies:

- Enabling Infrastructure – Wagga Wagga has a real focus on enabling infrastructure to catalyse and underpin growth.
    - Provide essential infrastructure, including sewer, roads, key housing enabling infrastructure to support growth.
    - Deliver critical community infrastructure to facilitate growth and attract business.
- Planning for the future – Wagga Wagga has sound planning for the future of Wagga Wagga.
    - Adopt a sound approach to strategic planning to ensure that we are preparing for future growth requirements of the city.

3.3 Legislative Requirements

There are many legislative requirements relating to the management of assets. Legislative requirements that impact the delivery of sewer services are outlined in Table 3.3.

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.
Local Government (General) Regulation 2021	Sets out roles, purposes, responsibilities and powers of local government, in addition to those set out in the Local Government Act 1993, including integrated planning and reporting guidelines.
Environmental Planning & Assessment Act 1979	Requirement for Local Environmental Plans and Development Control Plans. Provides for Council control of development of towns and approval of infrastructure expansion.
Protection of the Environment Operations Act 1997	Establishes requirements regarding the minimisation of waste, pollution and environmental harm.
Australian Accounting Standards	Provide the conceptual framework and standards for accounting and financial reporting.
Work Health and Safety Act 2011	Impacts all operations in relation to safety of workers and the public. Council's responsibility to ensure health, safety and welfare of employees and others at places of work.
Work Health and Safety Regulation 2017	Sets out the specific duties for managing hazards and risks to ensure health, safety and welfare.

3.4 Customer Values

Service levels are defined in three ways, customer values, customer levels of service and technical levels of service.

Customer Values indicate:

- What aspects of the service is important to the customer,
- Whether they see value in what is currently provided, and
- The likely trend over time based on the current budget provision

Table 3.4 outlines the current customer feedback received on Council's sewer network from the Community Satisfaction Survey held in 2024.

Table 3.4: Customer Values

Customer Values	Customer Satisfaction Measure	Current Feedback	Expected Trend Based on Planned Budget
Protecting the Natural Environment	Community Satisfaction Survey 2024	Importance – 88% Satisfaction – 93%	Expected to remain steady

Council has an obligation to operate its sewer business in such a way as to minimise pollution of the environment, protect ecologically sensitive areas and to promote ecological sustainability.

Customers generally value the following from Council's sewer network:

- Free flowing system from properties through connections into the Council network,
- Odour free service,
- Healthy disposal of black and grey water into the system,
- Protection of the local environment from impacts of untreated domestic and trade waste,
- Limited odour or noise impacts from treatment plants and sewer pump stations, and
- Investigate efficient and low-cost wastewater reuse opportunities.

3.5 Customer Levels of Service

The Customer Levels of Service are considered in terms of:

Condition 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?

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

Table 3.5 outlines the current condition and functional performance (as at 30 June 2024) of Council's sewer network assets.

Table 3.5: Customer Level of Service Measures

Type of Measure	Level of Service	Performance Measure	Current Performance
Condition	Sewer mains in conditions 4 and 5 are renewed	Condition ratings	Condition 1 – 75.29% Condition 2 – 24.11% Condition 3 – 0.60% Condition 4 – 0.00% Condition 5 – 0.00%
Condition	Sewer manholes in conditions 4 and 5 are renewed	Condition ratings	Condition 1 – 54.71% Condition 2 – 2.86% Condition 3 – 42.42% Condition 4 – 0.00% Condition 5 – 0.00%
Condition	Sewer Pump Station components in conditions 4 and 5 are renewed	Condition ratings	Condition 1 – 12.59% Condition 2 – 20.27% Condition 3 – 62.98% Condition 4 – 3.95% Condition 5 – 0.21%
Condition	Sewer Treatment Plant components in conditions 4 and 5 are renewed	Condition ratings	Condition 1 – 1.13% Condition 2 – 52.74% Condition 3 – 39.58% Condition 4 – 6.55% Condition 5 – 0.00%
Function	Availability of sewer network for customers	Total chokes and breaks resulting in interruption or overflow Average time of sewer interruption and response times	406 in 2023/24 reporting year 61 minutes for average interruption time 46 minutes for response time
Function	Customer complaints	Total service complaints	1,494 in 2023/24 reporting year

The Customer levels of service proposed for the sewer business is generally based on the parameters recommended by the NSW Water and Sewerage Business Planning Guidelines.

3.6 Technical Levels of Service

To deliver on the customer values, and impact Customer Levels of Service, Council has a number of operational and technical measures of performance. These measures relate to the lifecycle activities and allocation of resources to best achieve the desired customer outcomes and demonstrate effective performance.

Service and asset managers plan, implement and control technical service levels to influence service outcomes.[3]

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

Table 3.6 shows the lifecycle activities related to the current 10-year planned budget, and the forecast costs recommended in this AM Plan.

Table 3.6: Technical Levels of Service

Lifecycle Activity	Purpose of Activity	Activity Description	Required Costs	Planned Budget	Funding Ratio
Acquisition	Northern Growth Area – Sewer Upgrades	Provision of additional sewer network services linking Northern Growth Area and Bomen Special Activation Precinct.	$27,527,667	$27,527,667	
	Forest Hill Treatment Plant Augmentation & Upgrade	Upgrade and augmentation of the capacity at this plant.	$10,000,000	$10,000,000	
	Flowmeter Installations	Purchase and installation of flowmeters at pump stations.	$74,014	$74,014	
		Total Acquisition	**$37,601,681**	**$37,601,681**	**100%**
Operations	Operation of sewer treatment plants	Grounds maintenance, minor repairs and mechanical and electrical repairs as well as Environmental Licence compliance monitoring.	$5,943,278 average per year	$5,943,278 average per year	
	Operation of sewer pump stations	Pump cleaning, grounds maintenance, minor repairs and mechanical and electrical repairs.	$1,837,197 average per year	$1,837,197 average per year	
		Total Operations	**$77,804,752**	**$77,804,752**	**100%**
Maintenance	Maintain sewer mains and manholes	Jetting and root cutting, clearing blockages, small segment repairs, odour control.	$3,365,665 average per year	$3,365,665 average per year	
	Maintain sewer pump stations	Pumps pulled and checked 3 monthly and serviced every 6 months.	$41,733 average per year	$41,733 average per year	
	Maintain sewer treatment plants	Grounds maintenance, minor repairs and mechanical and electrical repairs.	$1,311,753 average per year	$1,311,753 average per year	
		Total Maintenance	**$47,191,509**	**$47,191,509**	**100%**
Renewal	Sewer Mains rehabilitation and joint connection eliminations	Relining and replacement of sewer mains.	$19,963,005 over 10 years	$19,963,005 over 10 years	

Lifecycle Activity	Purpose of Activity	Activity Description	Required Costs	Planned Budget	Funding Ratio
	Sewer Manhole relining	Relining of sewer manholes.	$10,266,178 over 10 years	$10,266,178 over 10 years	
	Sewer Pump Stations pump and plant replacements and renewals	Replacement and renewal of pumps and plant used to operate sewer pump stations.	$613,062 over 10 years	$613,062 over 10 years	
	Sewer Pump Stations – renewal works	Renewal of asset components at seven (7) identified pump stations across the LGA.	$4,406,107	$4,406,107	
	Sewer Treatment Plant – renewal works	Renewal of asset components at three (3) identified sewer treatment plants within the LGA.	$3,590,389	$3,590,389	
		Total Renewal	**$38,838,741**	**$38,838,741**	**100%**

It is important to monitor the service levels regularly as circumstances can and do change. Current performance is based on existing resource provision and work efficiencies. It is acknowledged that circumstances such as technology and customer priorities will change over time.

4.0 FUTURE DEMAND

Future demand refers to the anticipated need for infrastructure services driven by factors such as population movement, economic development, technological advancements, and changing environmental or community expectations.

4.1 Demand Drivers

A demand driver refers to the factors or trends that influence the need for infrastructure services and capacity. The factors influencing future demand are created by:

- Population, demographic and technological changes
- Seasonal and economic factors including climate change
- Land development and planning regulatory changes
- Shifts in community expectations

Demand drivers help predict future infrastructure needs and guide planning and investment decisions.

Demand for infrastructure is generated predominantly through either an increased utilisation of existing infrastructure brought about by the factors above or the requirement for new infrastructure to meet the needs of growth in new development.

The demand created by these two circumstances requires analysis to consider the ramifications to existing infrastructure networks and the ability of these networks to cope with the increased infrastructure. This analysis applies in all cases ranging from new subdivisions creating an increased load on existing networks, to changes in existing areas leading to increasing or decreasing utilisation and demand on infrastructure assets.

4.2 Impacts and Demand Management Plan

The impact on service delivery is managed through a combination of managing and upgrading existing assets and the provision of new assets to meet demand. Demand management practices can include non-asset solutions, insuring against risks and managing failures.

A demand management plan will be considered as part of future revisions of this AM Plan.

4.3 Asset Programs to meet Demand

The new assets required to meet demand may be acquired, donated or constructed.

Acquiring new assets will commit Council to ongoing operations, maintenance and renewal costs. These future costs and expenses are identified and considered in developing future forecasts for the long term financial plan.

4.4 Climate Change Adaptation

The impacts of climate change may have a significant impact on the assets we manage and the services they provide. In the context of the Asset Management Planning process climate change can be considered as both a future demand and a risk that needs to be managed.

How climate change impacts on assets will vary depending on the location and the type of services provided, as will the way in which we respond and manage those impacts.[4]

As a minimum we consider how to manage our existing assets given potential climate change impacts for our region.

[4] IPWEA Practice Note 12.1 Climate Change Impacts on the Useful Life of Infrastructure

Risk and opportunities identified to date are shown in Table 4.5.1

Table 4.5.1 Managing the Impact of Climate Change on Assets and Services

Climate change risk	Impact on services	Climate Change Management Plan
Increased rainfall variability	Increased rainfall variability and increased intensity of storm events leads to fluctuating volumes of water to deal with causing difficulty in maintaining treatment processes resulting in increased costs for electricity and chemicals.	Implement a targeted inflow and infiltration prevention program to minimise increase in volume of water in sewer network from rainfall events. Develop a program of demand management activities to reduce load on sewer network.
Increased intensity of storm events	Increased storm events lead to black outs causing pumping failure and sewer overflows resulting in public health issues, environmental harm, and possible fines.	Install permanent generator or alternate off-grid option for each pump site. Identify energy efficiency measures for assets. Evaluate the adequacy of emergency storage capacity at each treatment plant.
Increase in hot days	Increased hot days lead to odour issues which lead to impacts on the community resulting in complaints from community and possible fines.	Investigate feasibility of oxygen injection and odour control methods.
Increased flooding	Increased flooding leads to inundation of vulnerable infrastructure, causing system failure resulting in public health issues, environmental harm, repair costs and possible fines.	Identify specific flood prone assets and evaluate site specific opportunities to move or protect asset. Implement actions from the Floodplain Risk Management Plan.
Increased bushfire risk	Increase in bushfire risk leads to damage of critical infrastructure, causing system failure resulting in public health issues, environmental harm, repair costs and possible fines.	Identify specific bushfire prone assets and evaluate site specific opportunities to move or protect asset.

Additionally, the way in which we construct new and upgrade existing assets should recognise that there is opportunity to build in resilience to climate change impacts. Building resilience can have the following benefits:

- Assets will withstand the impacts of climate change;
- Services can be sustained; and
- Assets that can endure may potentially lower the lifecycle cost and reduce their carbon footprint.

Table 4.5.2 summarises opportunities to build climate change resilience into our sewer asset network.

Table 4.5.2 Building Climate Change Resilience into New and Existing Assets

Asset Description	Climate Change Impact	Resilience Plan
Generators	With more storm events predicted as a result of climate change, it is expected the sewer network will see more infiltration.	On-site generators installed
LGA-wide Sewer Network		Consider new technologies to reduce infiltration.
Sewer Treatment Plants	With more storm events predicted as a result of climate change, it is expected flooding events will be more common.	Overflow resilience to be incorporated into future plant upgrades.

The impact of climate change on new and existing assets is evolving and new opportunities will be considered in future revisions of this AM Plan.

5.0 LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how Council plans to manage and operate the assets at the agreed levels of service throughout their entire lifecycle, from acquisition to disposal. The goal is to maximise the value of the assets while minimising costs and risks, ensuring they continue to meet performance requirements over time.

From a financial perspective, infrastructure activities tend to be classified as being either Operating or Capital. The lifecycle activities used in the asset management and financial planning and reporting process cover:

- **Capital**
    - **Acquisition** – the activities to provide a higher level of service (e.g. upgraded sewer treatment plant) or a new service that did not exist previously (e.g. new pump station).
    - **Renewal** – the activities that replace or restore assets to the standard it had originally provided (e.g. sewer relining).
- **Operating**
    - **Operations** - the routine activities that keep services accessible and effective, balancing efficiency with user expectations (e.g. cleaning, electricity)
    - **Maintenance** – the preventative and corrective actions to sustain asset functionality and minimise unexpected failures. Maintenance activities enable an asset to provide service for its planned life (e.g. pipe jetting).
    - **Disposal** – the decommissioning, removing, or repurposing of assets that are no longer cost-effective, safe, or necessary (e.g. decommissioning of a pump station).

A pictorial representation of the asset lifecycle activities is shown below in Figure 5.0.

Figure 5.0: Asset Lifecycle Activities

5.1 Background Data

5.1.1 Physical parameters

The assets covered by this AM Plan are shown in Table 5.1.1.

Table 5.1.1: Assets covered by this Plan

Asset Category	Quantity	Replacement Value
Sewer Mains	722kms	$282,802,199
Sewer Manholes	11,106	$62,653,209
Sewer Pump Station	50	$34,747,282
Sewer Treatment Plants	8	$122,780,827
TOTAL		**$502,983,517**

All quantities and values shown above are as at 30 June 2024.

5.1.2 Asset capacity and performance

Assets are generally provided to meet design standards where these are available. However, there is insufficient resources to address all known deficiencies. 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
LGA-wide Sewer Network	There are concerns regarding the capacity of the network with the high level of growth in new areas and increased infill levels. A Sewer Strategy is being undertaken to allow Council to rectify any issues with capacity in identified areas.

The above service deficiency will be reviewed and defined further in future revisions of this AM Plan.

5.1.3 Asset condition

The condition of Council's sewer network assets is currently monitored through a combination of internal and external resources. External condition assessments of sewer pump stations and sewer treatment plants are undertaken every 3-5 years, with the most recent assessments being completed in 2022. Internal inspections of sewer mains and manholes are currently completed on an ad-hoc basis, with the development of a proactive condition inspection program listed as an improvement plan task for this AM Plan.

Condition is measured using a 1 – 5 grading system[5] as detailed in Table 5.1.3. It is important that a consistent approach is used in reporting asset performance enabling effective decision support. A finer grading system may be used at a more specific level, however, for reporting in the AM plan results are translated to a 1 – 5 grading scale for ease of communication.

[5] IPWEA, 2015, IIMM, Sec 2.5.4, p 2|80.

Table 5.1.3: Condition Grading System

Condition Grading	Description of Condition
1	**Excellent**: free of defects, only planned and/or routine maintenance required
2	**Good**: minor defects, increasing maintenance required plus planned maintenance
3	**Average**: defects requiring regular and/or significant maintenance to reinstate service
4	**Poor**: significant defects, higher order cost intervention likely
5	**Very Poor**: physically unsound and/or beyond rehabilitation, immediate action required

The condition profile of Council's sewer network assets is shown in Figure 5.1.3.

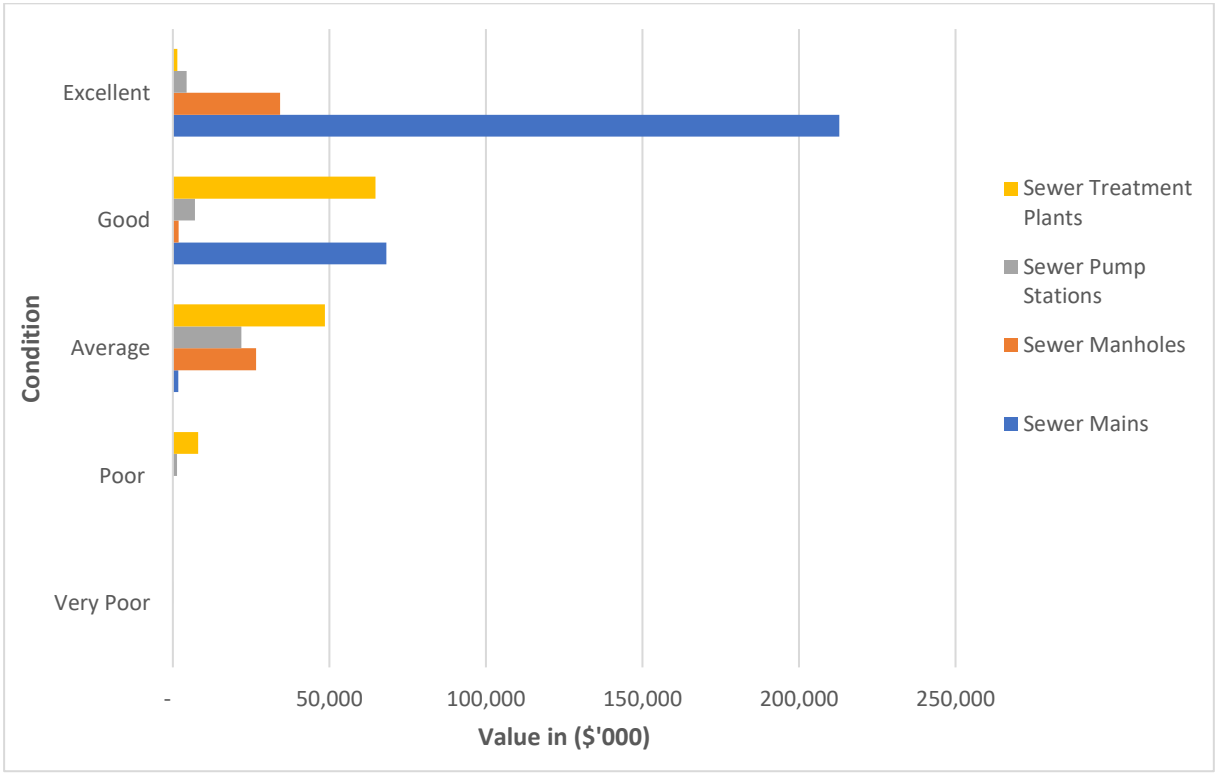

Figure 5.1.3: Asset Condition Profile

5.2 Operations and Maintenance Plan

Operations include regular activities to provide services. Examples of typical operational activities include cleaning, asset inspection, chemical and utility costs.

Maintenance includes all activities necessary for ensuring an asset remains in an appropriate service condition including regular ongoing day-to-day work necessary to keep assets operating. Examples of typical maintenance activities include jetting, tree root removal, pump station cleaning and programmed routine inspection.

Maintenance budget levels are considered to be adequate to meet the projected service level forecasts identified in this AM Plan. Where maintenance budget allocations are such that they will result in a lesser level of service, the service consequences and service risks have been identified and are highlighted in this AM Plan.

Assessment and priority of reactive maintenance is undertaken by staff using experience and judgement and the target intervention levels included in Table 5.2.1.

Table 5.2.1: Intervention Levels

Failure	Details	Response Times
System Faults	**Priority 1**: A major failure to contain sewage within the sewer system or any problem affecting a critical user (i.e. to sensitive areas) at a critical time.	1 hour (working hours) or 2 hours (after hours)
	Priority 2: A minor failure to contain sewage within the sewer system or any problem affecting a critical user at a non-critical time	3 hours (working hours) or 4 hours (after hours)
	Priority 3: A minor failure to contain sewage affecting a single property or has bad odours.	Next working day
Customer Complaints	Minor operation problems, complaint or enquiry that can be dealt with at a time mutually convenient to both the customer and Council.	Respond within 10 working days (written complaints or inquiries) Respond within 2 working days (personal complaints or inquiries)

Asset hierarchy

An asset hierarchy provides a framework for structuring data in an information system to assist in collection of data, reporting information and making decisions. The hierarchy includes the asset class and component used for asset planning and financial reporting and service level hierarchy used for service planning and delivery.

The asset service hierarchy is shown is Table 5.2.2.

Table 5.2.2: Asset Service Hierarchy

Asset Category	Asset Components
Sewer Mains	Assets are recognised as a single component.
Sewer Manholes	Assets are recognised as a single component.
Sewer Pump Stations	Assets are recognised as separate components including: ▪ Civil ▪ Electrical ▪ Mechanical ▪ Pipework and Valves ▪ Site Services
Sewer Treatment Plants	Assets are recognised as separate components including: ▪ Buildings ▪ Civil ▪ Electrical ▪ Lagoons ▪ Mechanical ▪ Pipework, Valves and Fittings ▪ Site Services

Summary of forecast operations and maintenance costs

Forecast operations and maintenance costs are expected to vary in relation to the total value of the asset stock. If additional assets are acquired, the future operations and maintenance costs are forecast to increase. If assets are disposed of, the forecast operation and maintenance costs are

expected to decrease. Figure 5.2 shows the forecast operations and maintenance costs relative to the proposed operations and maintenance planned budget.

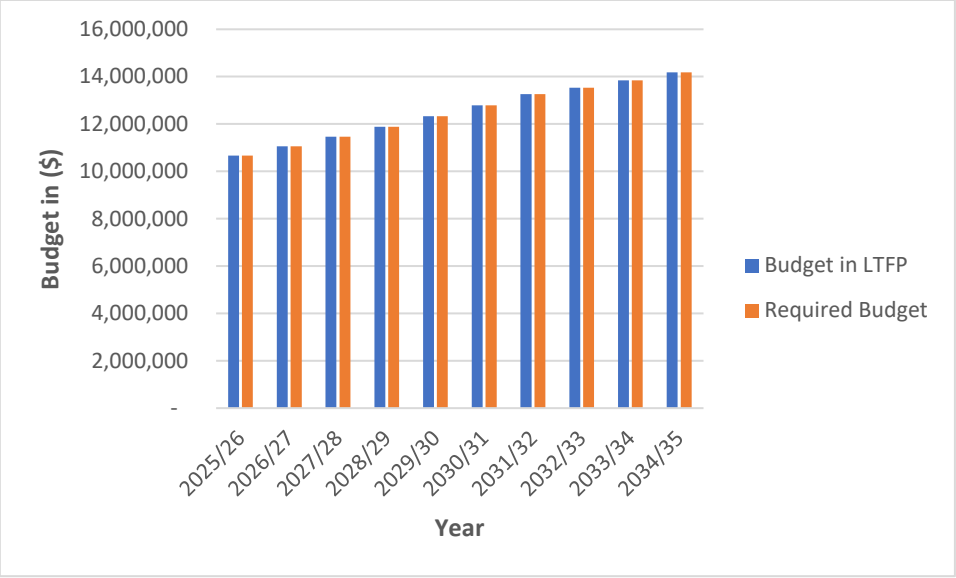

Figure 5.2: Operations and Maintenance Summary

The current operations and maintenance budgets are sufficient to maintain the current levels of service provided.

5.3 Renewal Plan

Renewal is major capital work which does not significantly alter the original service provided by the asset, 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 acquisition resulting in additional future operations and maintenance costs.

Assets requiring renewal are identified from one of two approaches.

- The first method uses Asset Register data to project the renewal costs (replacement cost) and renewal timing (acquisition year plus updated useful life to determine the renewal year), or
- The second method uses an alternative approach to estimate the timing and cost of forecast renewal work (i.e. condition modelling system, staff judgement, average network renewals, or other).

The useful lives of sewer asset components range from 7½ to 210 years. These asset useful lives were last reviewed during the revaluation of sewer assets in 2022. Table 5.3 outlines the current useful lives of sewer network assets.

Table 5.3: Useful Lives of Sewer Assets

Asset Category	Useful Life
Sewer Mains	53 to 210 years
Sewer Manholes	67½ to 150 years
Sewer Pump Stations	15 to 80 years
Sewer Treatment Plants	7½ to 100 years

The estimates for renewals in this AM Plan were based on the Alternate Method, using the existing asset renewal budgets for each asset category to determine a renewal program.

5.3.1 Renewal ranking criteria

Asset renewal is typically undertaken to either:

- Ensure the reliability of the existing infrastructure to deliver the service it was constructed to facilitate (e.g. relining of sewer main), or
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g. condition of a sewer pump station).[6]

It is possible to prioritise renewals by identifying assets or asset groups that:

- Have a high consequence of failure,
- Have high use and subsequent impact on users would be significant,
- Have higher than expected operational or maintenance costs, and
- Have potential to reduce life cycle costs by replacement with a modern equivalent asset that would provide the equivalent service.[7]

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

Table 5.3.1: Renewal Priority Ranking Criteria

Asset Category	Criteria
Sewer Mains	Based on material type with build date considered. Renewal priority listing currently developed based on number of reported blockages and breakages.
Sewer Manholes	Structural condition rating and capacity rating of well.
Sewer Pump Stations	Based on pump type.
Sewer Treatment Plants	Based on capacity of infrastructure.

5.3.2 Summary of future renewal costs

Forecast renewal costs are projected to increase over time if the asset stock increases. The forecast costs associated with renewals are shown relative to the proposed renewal budget in Figure 5.3.2.

[6] IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.

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

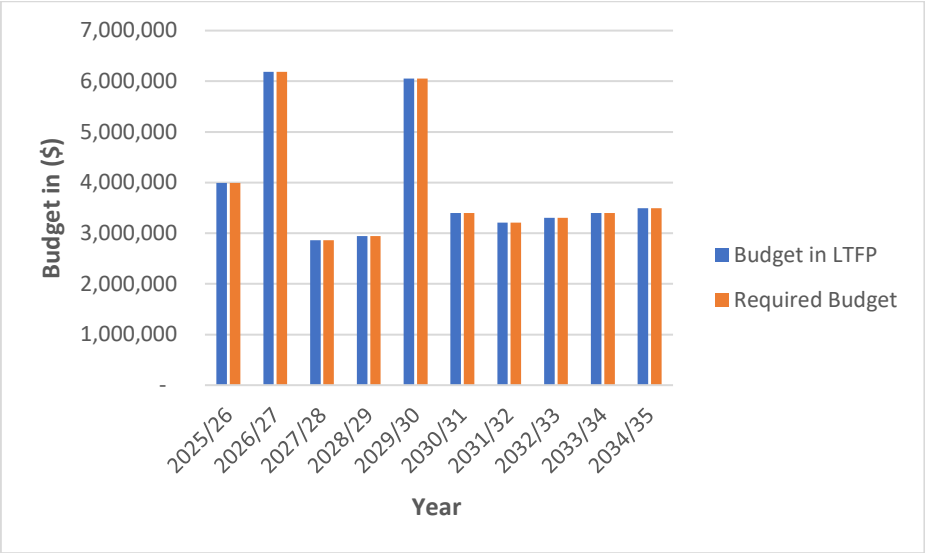

Figure 5.3.2: Forecast Renewal Costs

Council's Long Term Financial Plan identifies a number of specific asset renewal projects across the 10-year planning period, as well as recurrent budgets for the renewal of sewer mains, manholes and pump replacements. The current renewal budget is considered sufficient to continue to deliver the current level of service for asset renewals.

5.4 Acquisition Plan

Acquisition reflects new assets that did not previously exist or works which will upgrade or improve an existing asset beyond its original service level. They may result from growth, demand, social or environmental needs. Assets may also be donated to Council.

Forecast acquisition costs for the 10-year planning period are summarised in Figure 5.4.1.

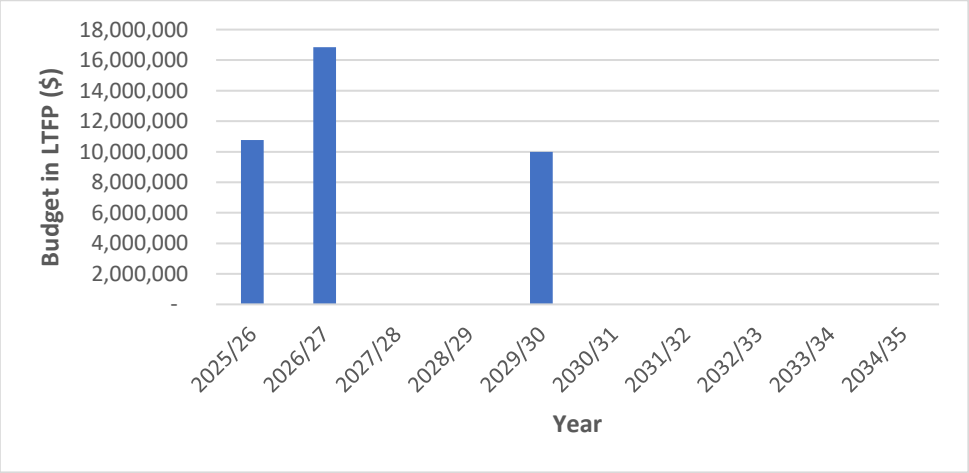

Figure 5.4.1: Acquisition Summary

Almost all new assets required in the sewer network are needed to support the growth of the city, with some upgrades required to replace assets that are nearing end of life and are being replaced in accordance with the asset management cycle. Further new and upgraded assets required in the network will be identified in the Sewer Capacity model, currently being developed. The model will identify where there are capacity issues in the network and costed scenarios to provide solutions.

5.4.1 Selection criteria

Proposed acquisition of new assets, and upgrade of existing assets, are identified from various sources such as community requests, proposals identified by strategic plans or partnerships with

others. Potential upgrade and new works should be reviewed to verify that they are essential to Council's needs.

When Council commits to new assets, they must be prepared to fund future operations, maintenance and renewal costs. When reviewing the long-term impacts of asset acquisition, it is useful to consider the cumulative value of the acquired assets being taken on by Council.

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 that there is available funding.

5.5 Disposal Plan

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation. At this time, Council has not identified any specific sewer network assets for disposal. From time to time, Council may elect to upgrade, upsize and/or decommission sewer assets as part of its capital works program identified within the Long Term Financial Plan.

5.6 Summary of Lifecycle Costs and Planned Budget

The financial projections from this asset management plan are shown in Figure 5.6.1. These projections include forecast costs for acquisition, operation, maintenance, renewal, and disposal. These forecast costs are shown relative to the proposed budget for the planning period.

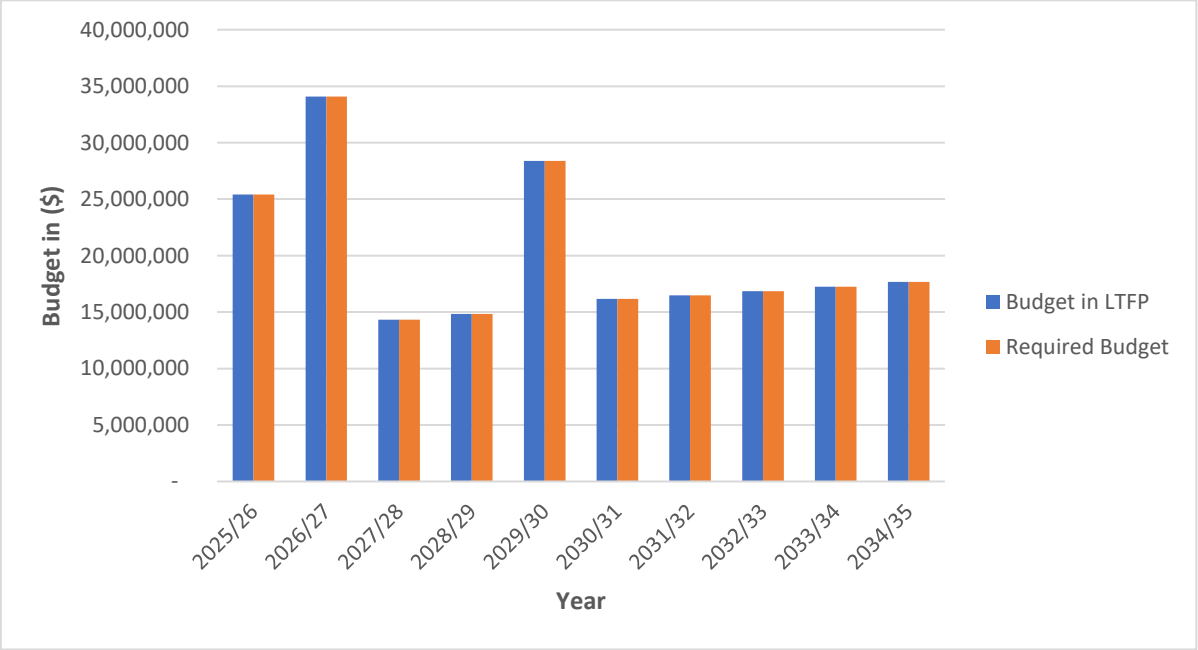

Figure 5.6.1: Lifecycle Costs and Planned Budget Summary

The current lifecycle cost budgets are considered sufficient to maintain the current levels of service provided for Council's sewer service as well as to provide the required renewal, upgrade and construction works for this service for the planning period.

6.0 RISK MANAGEMENT PLANNING

The purpose of infrastructure risk management is to document the findings 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 31000:2018 Risk management – Principles and guidelines.

Risk Management is defined in ISO 31000:2018 as: 'coordinated activities to direct and control with regard to risk'[8].

An assessment of risks associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a 'financial shock', reputational impacts, or other consequences. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, and the consequences should the event occur. The risk assessment should also include the development of a risk rating, evaluation of the risks and development of a risk treatment plan for those risks that are deemed to be non-acceptable.

6.1 Critical Assets

Critical assets are defined as those which have a high consequence of failure causing significant loss or reduction of service. Critical assets have been identified and along with their typical failure mode, and the impact on service delivery. Failure modes may include physical failure, collapse or essential service interruption.

The entire sewer network is considered critical within this AM Plan.

By identifying critical assets and failure modes an organisation can ensure that investigative activities, condition inspection programs, maintenance and capital expenditure plans are targeted at critical assets.

6.2 Risk Assessment

The risk management process used 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 International Standard ISO 31000:2018.

[8] ISO 31000:2018, p 2

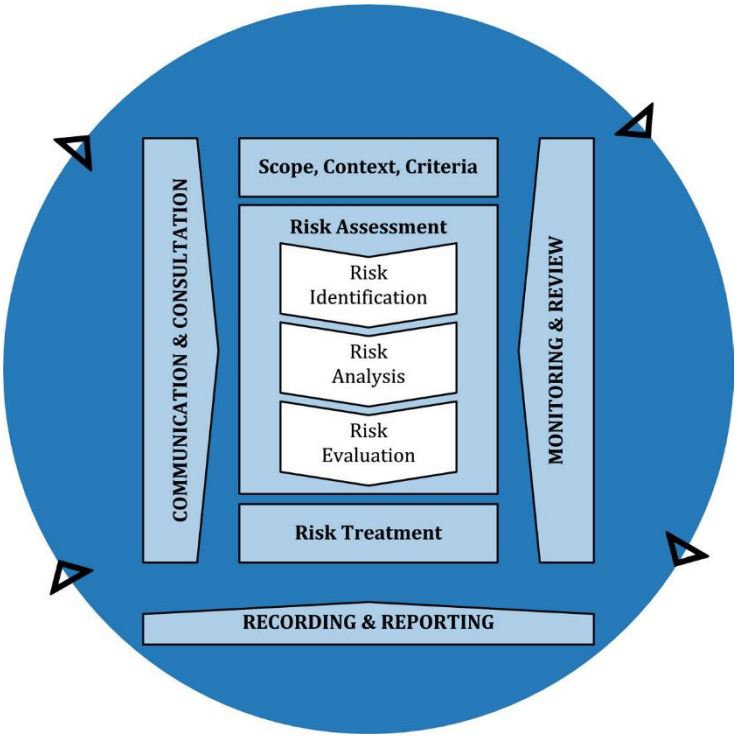

Figure 6.2 Risk Management Process – Abridged
Source: ISO 31000:2018, Figure 1, p9

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

An assessment of risks associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a 'financial shock', reputational impacts, or other consequences.

6.3 Infrastructure Resilience Approach

The resilience of our critical infrastructure is vital to the ongoing provision of services to customers. To adapt to changing conditions we need to understand our capacity to 'withstand a given level of stress or demand', and to respond to possible disruptions to ensure continuity of service.

Resilience recovery planning, financial capacity, climate change risk assessment and crisis leadership.

We do not currently measure our resilience in service delivery. This will be considered in future iterations of the AM Plan.

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

The funding made available in the 10-year LTFP planning period is considered sufficient to deliver the levels of service provided for in this AM Plan.

Any considerations made to capacity issues within the sewer network will be considered when further information is available.

6.4.2 Service trade-off

If there is forecast work (operations, maintenance, renewal, acquisition or disposal) that cannot be undertaken due to available resources, then this will result in service consequences for users. At this time, there are no identified service trade-offs for the sewer service.

7.0 FINANCIAL SUMMARY

This section contains the financial and valuation forecasts resulting from the information presented in the previous sections of this plan. Forecasts will be improved as the discussion on sustainable levels of service, risk and cost matures.

7.1 Sustainable Service Delivery

7.1.1 Financial Indicators

There are two key indicators of sustainable service delivery that are considered in the AM Plan for this service area. The two indicators are the:

- Asset Renewal Funding Ratio (planned renewal budget / forecast renewal outlays for the next 10 years), and
- Lifecycle Funding Ratio (planned lifecycle budget for the next 10 years / forecast lifecycle outlays for the next 10 years identified in the AM Plan).

Asset Renewal Funding Ratio

Asset Renewal Funding Ratio[9] **100%**

The Asset Renewal Funding Ratio illustrates that over the next 10 years we expect to be able to fund 100% of the required renewal of assets across the sewer network.

Lifecycle Funding Ratio – 10-year financial planning period

This AM Plan identifies the forecast operations, maintenance and renewal costs required to provide the levels of service to the community over a 10-year period. This provides input into the 10-year Long Term Financial Plan (LTFP) aimed at providing the required services in a sustainable manner.

This forecast work can be compared to the planned budget over the first 10 years of the planning period to identify any funding shortfall.

The forecast maintenance, acquisition and renewal costs over the 10-year planning period is $201,436,682 or $20,143,668 on average per year.

The funding made available in the first 10 years of the LTFP is $201,436,682 or $20,143,6688 on average per year. This indicates that **100%** of the forecast costs needed to provide the services documented in this AM Plan are accommodated in the proposed budget.

Providing sustainable and affordable services from infrastructure requires the management of service levels, risks, forecast outlays and financing to achieve a financial indicator of approximately 100% for the first years of the AM Plan and ideally over the 10-year life of the Long Term Financial Plan.

7.1.2 Forecast Costs (outlays) for the Long Term Financial Plan

Table 7.1.2 shows the forecast costs (outlays) required for consideration in the 10-year long term financial plan.

Providing services in a financially sustainable manner requires a balance between the forecast outlays required to deliver the agreed service levels with the planned budget allocations in the long term financial plan.

A gap between the forecast outlays and the amounts allocated in the financial plan indicates further work is required on reviewing service levels in the AM Plan and/or financial projections in the LTFP.

We will manage any ‘gap’ by communicating the service performance, cost, and risk implications in consultation with the community and key stakeholders.

[9] AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

Table 7.1.2: Forecast Costs (Outlays) for the Long Term Financial Plan

Year	Acquisition	Operation	Maintenance	Renewal
2025/26	$10,756,258	$6,618,881	$4,043,155	$3,990,614
2026/27	$16,845,422	$6,871,036	$4,184,433	$6,186,660
2027/28	$0	$7,133,652	$4,330,964	$2,862,611
2028/29	$0	$7,401,839	$4,481,301	$2,943,960
2029/30	$10,000,000	$7,685,633	$4,638,703	$6,054,342
2030/31	$0	$7,981,349	$4,801,913	$3,397,150
2031/32	$0	$8,289,547	$4,971,157	$3,207,593
2032/33	$0	$8,434,233	$5,102,299	$3,300,705
2033/34	$0	$8,599,147	$5,241,549	$3,398,672
2034/35	$0	$8,789,435	$5,396,034	$3,496,435
Total	**$37,601,680**	**$77,804,752**	**$47,191,509**	**$38,838,741**

7.2 Valuation Forecasts

The best available estimate of the value of assets included in this AM Plan are shown below.

The assets included within this plan are valued at fair value:

Current Replacement Cost $502,983,517

Depreciable Amount $502,983,517

Net Carrying Amount[10] $362,570,840

Annual Depreciation Expense $6,879,015

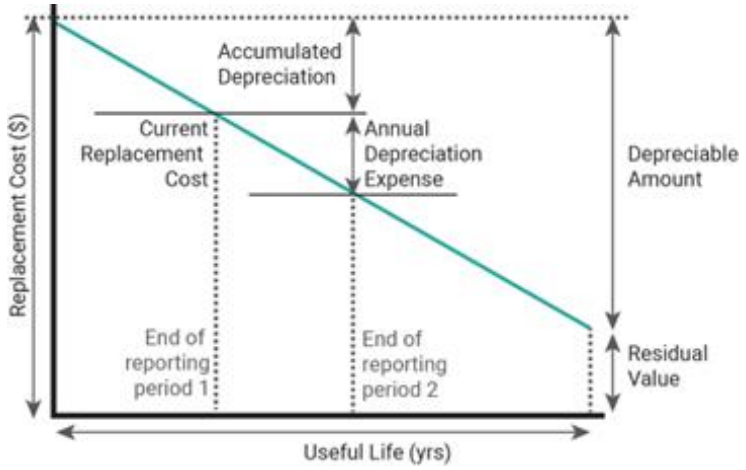

Figure 7.2.1: Valuation Terminology

Asset values are forecast to increase as additional assets are added to Council's asset base. Acquiring new assets will add to existing operations, maintenance, future renewal, and depreciation expenses.

[10] Also reported as Written Down Value.

8.0 ASSUMPTIONS AND IMPROVEMENT PLANNING

8.1 Data and Information Sources

8.1.1 Accounting and financial data sources

This AM Plan utilises accounting and financial data sourced from its Technology One finance system and myData asset management software.

8.1.2 Asset management data sources

This AM Plan utilises asset management data sourced from Council's myData asset management software.

8.2 Key Assumptions

In compiling this AM Plan, it was necessary to make some assumptions. This section details the key assumptions made in the development of this AM plan and should provide readers with an understanding of the level of confidence in the data behind the forecasts.

Key assumptions made in this AM Plan are:

- Assets are consumed at a constant rate over the pre-defined standard useful lives recorded in council's asset management system for each of the asset categories.
- Present service levels will remain constant for the life of the plan.
- Present levels of expenditure (and the relative distribution of planned and reactive maintenance, and capital renewals & new/upgrades) will remain constant for the life of the plan.

8.3 Forecast Reliability and Confidence

The forecast demands, costs, planned budgets, and valuation projections in this AM Plan are based on the best available data. For effective asset management and financial planning and reporting, it is critical that the information is reliable and up to date. Data confidence is classified on an A to E level scale in accordance with the guidance provided in the International Infrastructure Management Manual. [11]

Table 8.3: Data Confidence Grading System

Confidence Grade	Description
A. Very High	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. High	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%
C. Medium	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. Low	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%

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

Confidence Grade	Description
E. Very Low	None or very little data held.

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

8.4 Improvement Plan

It is important that we recognise gaps in the planning process that require improvement to ensure effective asset management and informed decision making. The improvement plan generated from this AM Plan is shown in Table 8.4.

Table 8.4: Improvement Plan

Task	Task	Responsibility	Resources Required	Timeline
1	Develop a condition inspection regime for sewer mains and manholes	Manager Wastewater & Stormwater	Staff time	Short term
2	Develop a renewal model for sewer mains and manholes that considers asset condition and function	Senior Financial Accountant	Staff time	Medium term
3	Develop maintenance and operations costings per sewer asset category	Manager Wastewater & Stormwater	Staff time	Medium term
4	Develop a component based renewal program for sewer pump stations based on condition, capacity and age	Manager Wastewater & Stormwater Senior Financial Accountant	Staff time	Medium term

8.5 Monitoring and Review Procedures

This AM Plan will be reviewed and updated annually to ensure it represents the current service level, asset values, forecast operations, maintenance, renewals, acquisition and asset disposal costs and planned budgets. These forecast costs and proposed budget are incorporated into the Long Term Financial Plan or will be incorporated into the Long Term Financial Plan.

The AM Plan has a maximum life of 4 years and is due for complete revision and updating within 12 months of each Local Government election.

8.6 Performance Measures

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

- The degree to which the required forecast costs identified in this AM Plan are incorporated into the Long Term Financial Plan,
- The degree to which the existing and projected service levels and service consequences, risks and residual risks are incorporated into the Strategic Planning documents and associated plans,
- The Asset Renewal Funding Ratio achieves the Office of Local Government benchmark target (greater than 100%).

9.0 REFERENCES

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