APPENDIX D – WATER SUPPLY – ASSET MANAGEMENT PLAN

This asset management plan covers the portfolio of water supply assets that deliver a wide range of services to the Lismore City Council community.

This Asset Management Plan includes all of Council's treatment, storage, pumping and reticulation infrastructure.

As the owner and operator of Water assets, Council has a responsibility for a number of functions including:

- maintenance
- renewal and refurbishment
- upgrades and improvements
- disposal of assets.

The planning of these functions is outlined in this asset management plan.

D1.1 PURPOSE OF THIS PLAN

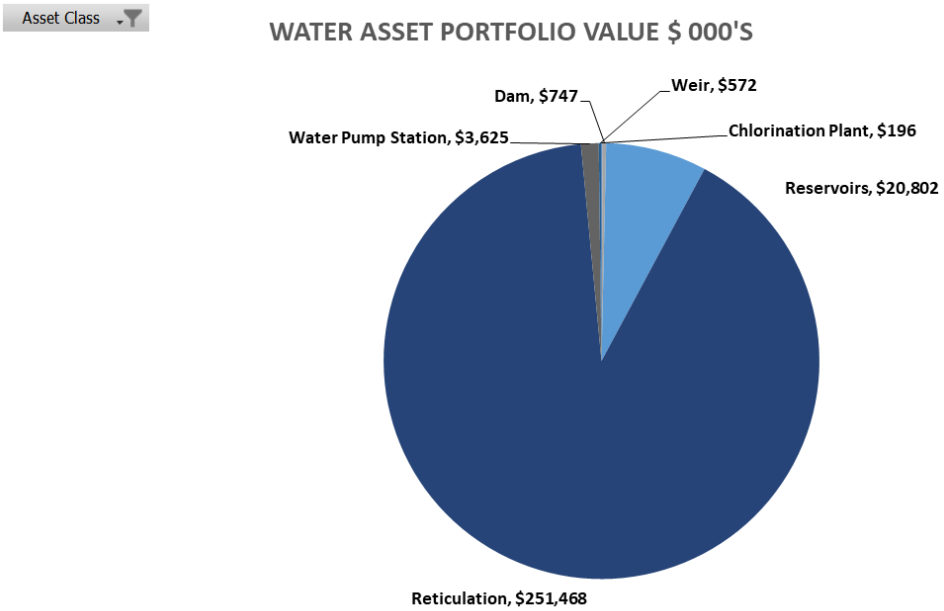
The purpose of this asset management plan is to develop a strategic framework for the maintenance and renewal of Water assets and to provide an agreed level of service in the most effective manner.

This plan includes the following scope of management:

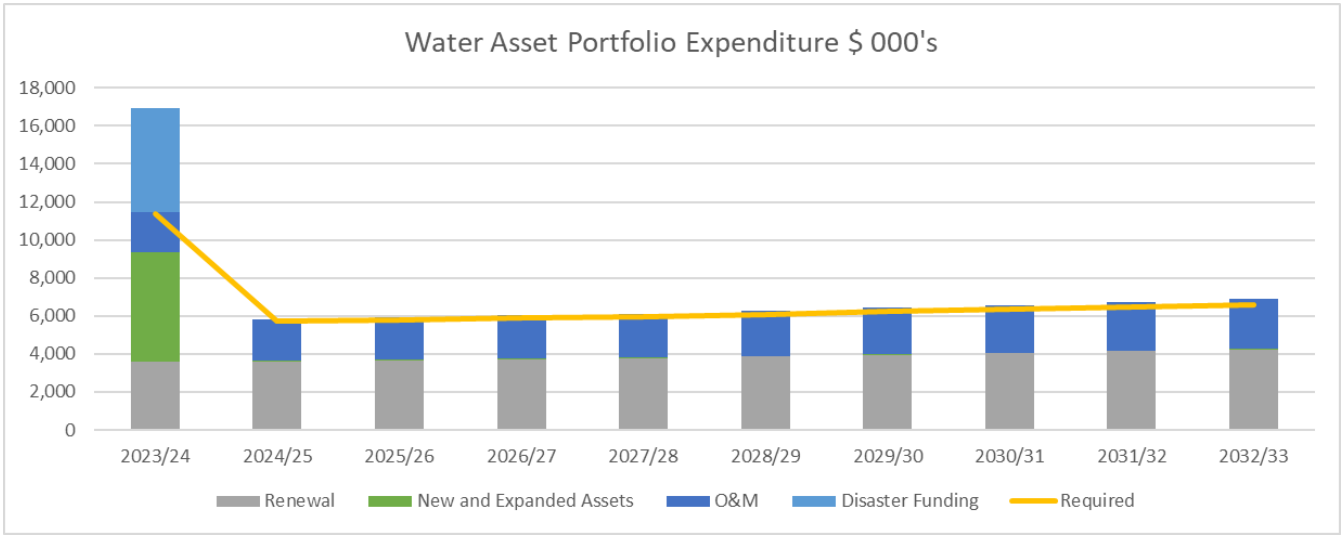
- asset inventory, values and condition
- asset based levels of service
- demand and service management
- risk management
- development of the long-term financial plan (LTFP) for the maintenance and renewal of Water assets.

D1.2 PORTFOLIO OVERVIEW

Figure 1 Water AMP Portfolio Overview



Infrastructure Ratios	Budget 2023/24	Estimated 2032/33	Funding gap $ 000's	
Infrastructure renewals ratio	237.55%	95.04%	Yr 1	$5,224
			5 Yr Average	$852
			10 Yr Average	$312
Infrastructure Backlog Ratio	12.10%	11.10%	Yr 1	(-$19,728)
			5 Yr Average	(-$19,767)
			10 Yr Average	(-$19,749)
Infrastructure Maintenance Ratio	117.46%	123.04%	Yr 1	$316
			5 Yr Average	$356
			10 Yr Average	$404
Total Funding Gap			Yr 1	(-$14,188)
			5 Yr Average	(-$18,558)
			10 Yr Average	(-$19,034)



D1.3 ASSET CLASS SUMMARY

Council currently has a significant portion of its reticulation network currently in either poor or very poor condition (72.6 KM). Budgeted funding for the portfolio is adequate to maintain it at its current condition and level of service however there is a significant backlog which is not addressed. Further, while individual assets were not significantly impacted by the 2022 flooding events ($2.3m impairment), the relocation of homes and businesses out of Lismore will require a review of the current composition of assets along with the additional pressures placed on Council by Rous Water.

D1.4 ASSET INVENTORY, VALUES AND CONDITION

The assets covered by this asset management plan are shown below:

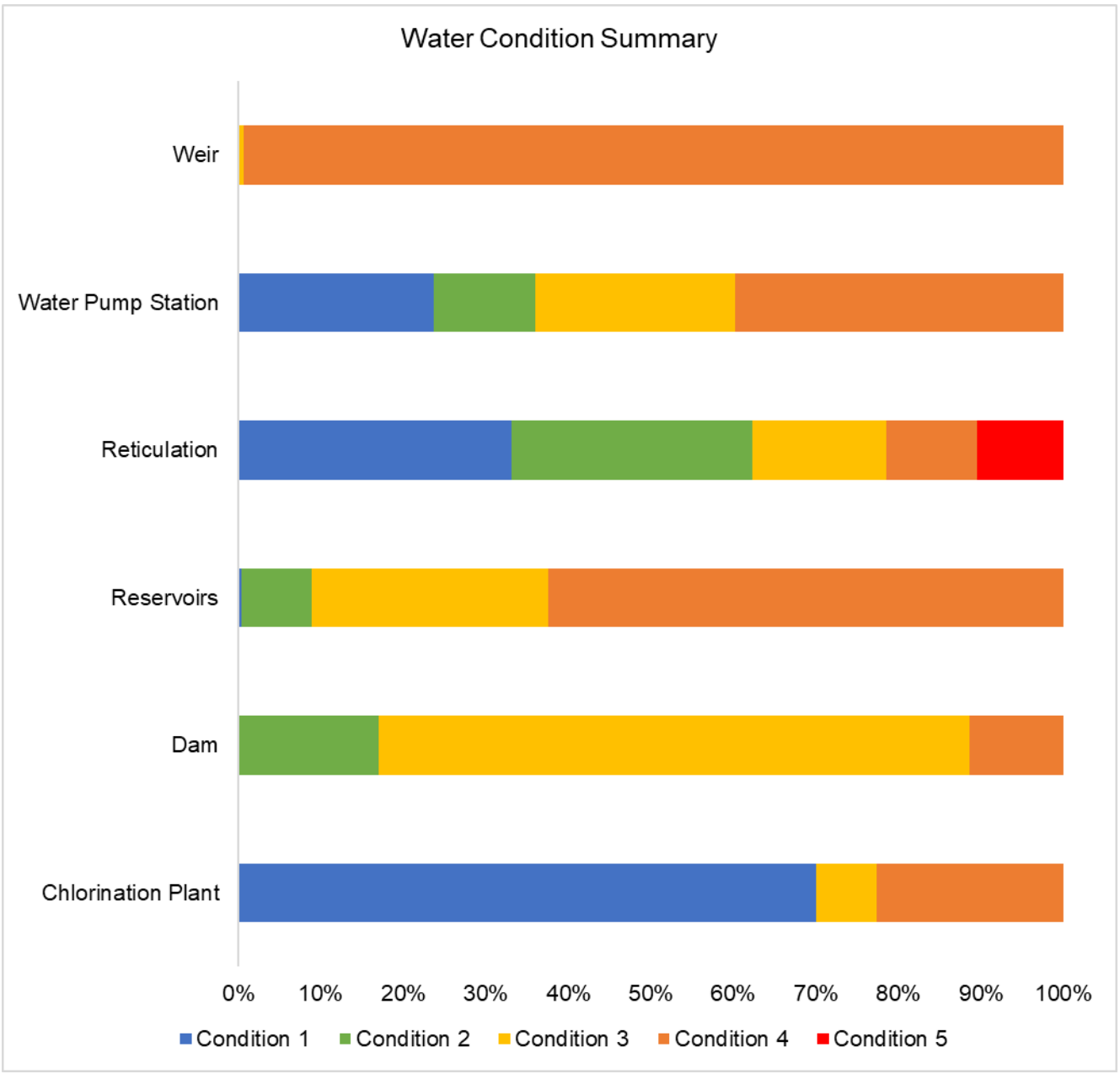
Table 1 Water Inventory

Asset Class	Asset	Unit of Measure	Units
Water	Reticulation Mains	KM	368
Water	Pump Stations	No.	7
Water	Reservoirs	No.	18
Water	Dam	No.	1
Water	Weir	No.	1
Water	Chlorination Plants	No.	2

Table 2 Water Portfolio Valuation

Asset	Gross Replacement Cost $000's	Written Down Value $000's	Annual Depreciation $000's	Condition 1	Condition 2	Condition 3	Condition 4	Condition 5
Water	$277,410	$156,519	$3,240	31%	24%	20%	15%	10%

Figure 2 Water Condition Summary



D1.5 ROLES AND RESPONSIBILITIES

Council has adopted the following roles and responsibilities matrix for its Water assets.

Table 3 Water Roles and Responsibilities

Position	Role	Asset Class	Responsibilities	Functions
Manager Assets	Asset Owner	Water Active Water Passive	This position takes ownership responsibility for the management of assets and is usually responsible for policy and over all asset strategy	Establish long term policy and strategy Establish existing demand for assets Establish future demand for assets (type and standard) Establish long term community expectation Implement policy and strategy for existing assets Establish community asset service level Ensure integration of asset management into Council's community, delivery and operational plans & resourcing Strategy Maintain and develop asset systems and reporting Ensure asset accounting is accurate and maintained, and asset valuation, Develop capital works prioritisation Develop capital works program Liaison with the organisation as a whole on asset matters
Asset Engineer	Asset Custodian	Water Active Water Passive	This position is the technical expert and has responsibility for collecting and maintaining asset data, determining works programs and maintenance strategies etc.	Develop and oversee capital works and maintenance program Handover and documentation Control budgets Develop asset plans Asset condition rating Risk management Data custodian – Hierarchy, level of detail Recommendation of asset disposal and renewal 4yr program
Manager Water and Wastewater	Asset Delivery – OPEX Service Delivery – Operations	Water Active Water Passive	Responsible for the day-to-day maintenance, operations and services delivered by assets	Controls asset use, in line with policy Deliver programmed and reactive maintenance, internal/external Manage all operations and service delivery functions Manage service user expectations Deliver adopted levels of service
Capital Delivery Engineer	Asset Delivery CAPEX	Water Active Water Passive	Responsible for the day-to-day delivery of capital works.	Controls asset use, in line with policy Deliver and / or manage capital works

D1.6 ASSET BASED LEVELS OF SERVICE

Table 4 Water Levels of Service

Key performance indicator	Level of service	Performance measurement process	Target performance	Current performance
Accessibility	Provision of a reliable water service where water supply services are available	Customer complaints	Provision of a reliable water service to properties where water supply services are available	
			Water main breaks per 100km in line with IPART accountability measures.	
Quality/condition	Provide clean and safe drinking water.	Water Quality Sampling & Customer complaints	100% compliance with drinking water standard.	
			Drinking water quality complaints for 1000 properties in line with IPART accountability measures	
	Percent of assets in condition 4 or better	Condition assessment	95% of assets in satisfactory condition or better.	
Reliability/ responsiveness	Percent compliance with Council's documented response time	CRMS data	90% of requests are completed within Council's customer charter.	
Community satisfaction and involvement	Customers are happy with the services provided	Community satisfaction survey	The net differential between importance and performance is positive.	
Affordability	The services are affordable and managed at lowest possible cost for required level of service	Review of service agreements and benchmark with other councils	Total operating costs per volume of water distributed is equal or less than the industry average.	
Sustainability	Long-term plans are prepared	Lifecycle approach to managing assets	Achieve compliance with 2022 Department of Planning and Environment strategic planning assurance framework.	
	Water resources are used efficiently and sustainably	Water consumption/usage records	Per capita peak water consumption remains constant (or reduces by 5%).	
	Assets meet financial sustainability ratios	Consumption ratio	Between 50% and 75%.	
		Renewal funding ratio	Between 90% and 110%.	
		Long term funding ratio	Between 95% and 105%.	
Health and safety	A safe working environment provided for people involved in providing the service	Health and Safety - reported incidents	Zero personal injury incidents associated with system operation and maintenance	
			Health and safety manual and contract specification are 100% compliant with HSE act.	

D1.7 FUTURE DEMAND

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 include non-asset solutions, insuring against risks and managing failures.

Non-asset solutions focus on providing the required service without the need for the organisation to own the assets and management actions including reducing demand for the service, reducing the level of service (allowing some assets to deteriorate beyond current service levels) or educating customers to accept appropriate asset condition.

Currently, Rous Water is responsible for the implementation of the Regional Water Management Strategy – Future Water Project 2060 – which will impact Lismore by shifting to groundwater and recycled water as the future water sources for the region. Council will need do adapt and accommodate its portfolio accordingly.

Currently there is significant uncertainty around the way forward following the devastating 2022 floods, with guidance being sought around any 'planned retreat' and potential relocation of households and infrastructure. In the short – term, councils 'new' & 'upgraded' infrastructure will address the damage sustained during the flood events as well as focus on replacing assets with 'resilient' infrastructure where appropriate. As further guidance and a better understand of expected growth in the LGA is attained, council will incorporate demand strategies to address the key growth drivers in the next iteration of Council's asset management plans.

Table 5: Future demand

Demand factor	Impact on assets
Internal Migration	Council will need to regularly assess whether the current portfolios are fit for purpose and have the functionality and capacity to provide the current range of services and any additional services required into the future.
Increasing costs	Will be a requirement to continue to maximise service delivery within the funding limitations, particularly with grant funding delivering 'like for like' replacement for assets damaged during the 2022 flood events. It is likely that these assets will have to be 'upgraded' to deliver a resilient level of service.
Environment and climate	It is likely that the frequency, severity and intensity of natural disaster events will increase, and council will need to plan its infrastructure accordingly.

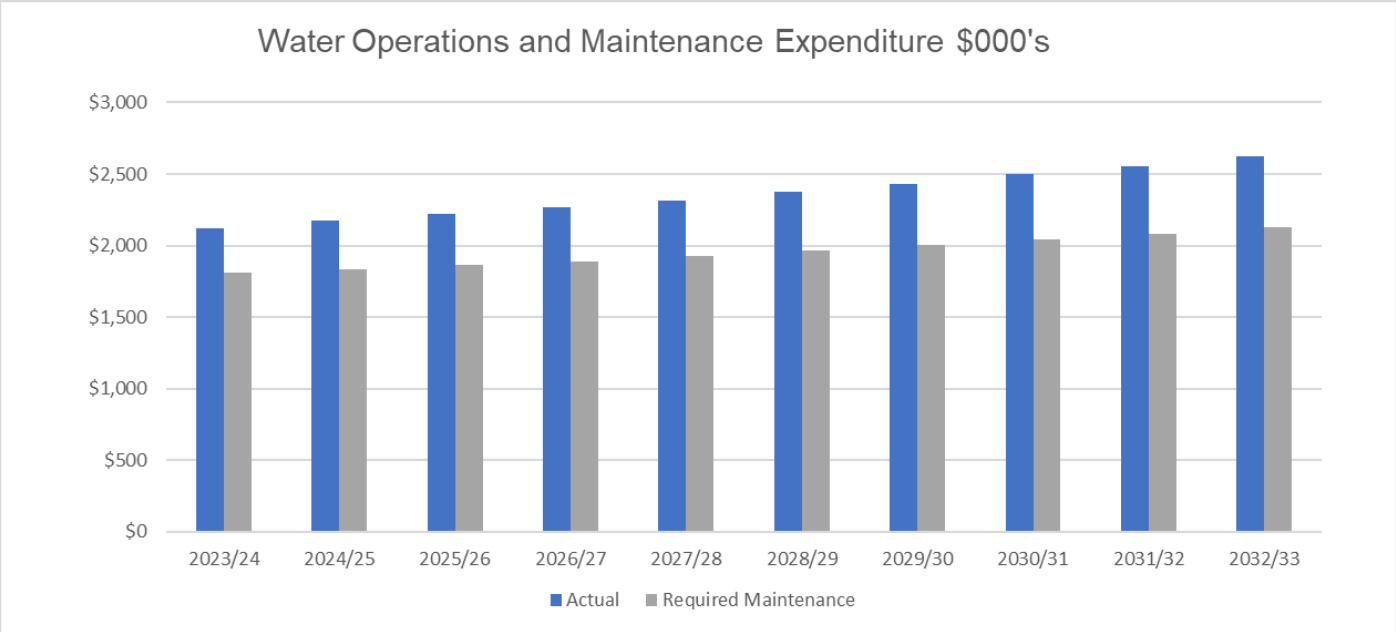
D1.8 LIFECYCLE – MAINTENANCE STRATEGY

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 functioning but excluding rehabilitation or renewal. It is operating expenditure required to ensure that the asset reaches its expected useful life. Typically, this can be categorised as:

- Operations - regular activities to provide services such as public health, safety and amenity
- Reactive Maintenance - work on breakdowns, failures and or damaged assets that are not operating or are about to fail on an ad hoc basis.
- Planned Proactive and Cyclical Maintenance – works identified through scheduled maintenance/asset inspections whereby assets are not operating as designed or to 100% capacity.

Council currently has no documented maintenance strategy for its reticulation assets with maintenance work being highly reactive to identified faults and customer complaints. Council's active asset network is however managed in a highly proactive manner with significant scheduled and planned works programmed in Council's maintenance management system.

Figure 3 OPEX Projections

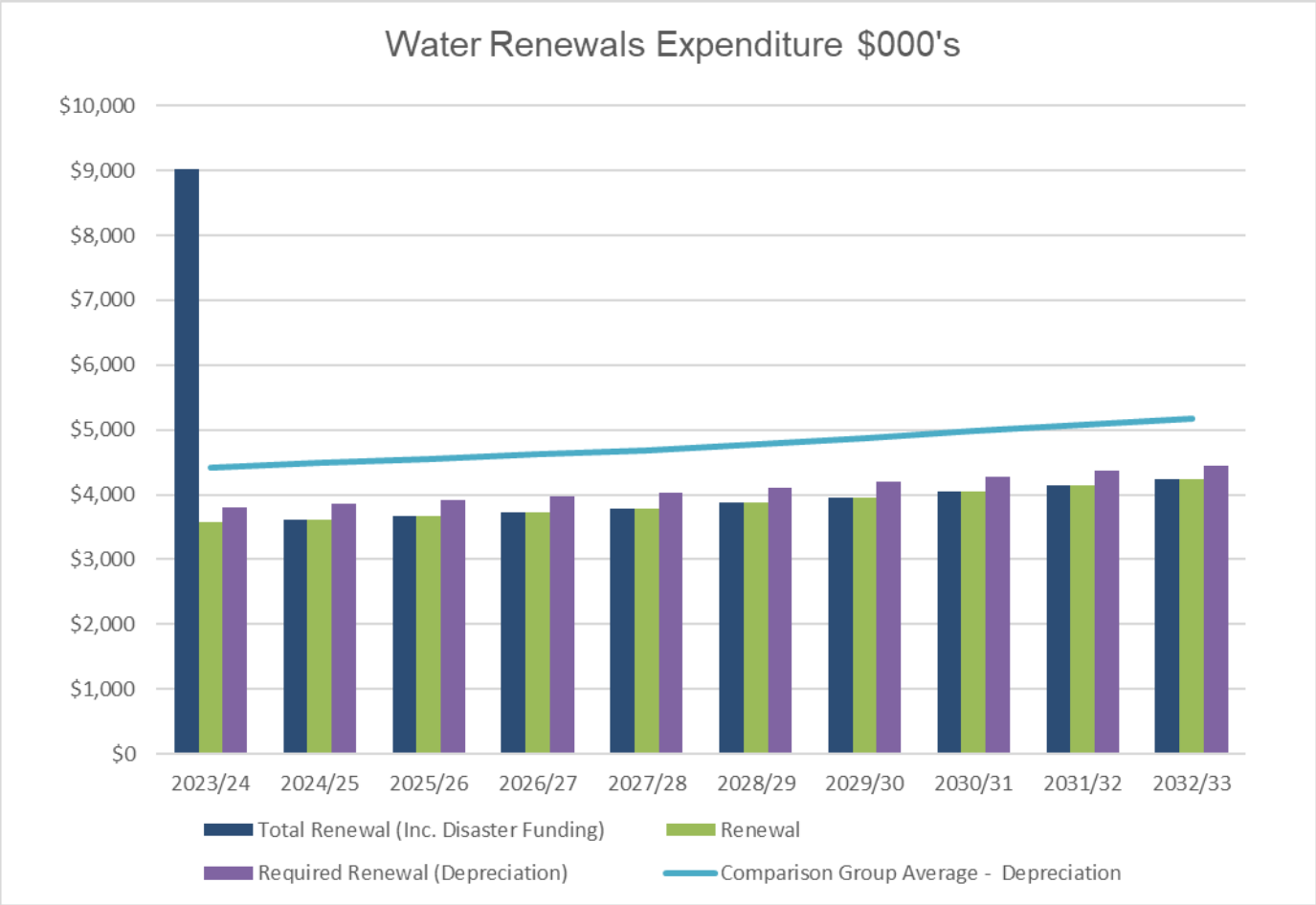


Council's budgeted/actual OPEX expenditure for its Water portfolio is higher than the calculation for the required maintenance. This can be explained that as Council has a significant portion of its 'active' portfolio in poor condition (25% in condition 4 and 5) will typically result in a higher level of maintenance activity such as leak repairs etc. Further it should be noted that the Emergency Repair and Clean-up costs following the 2022 Flood events have been excluded from this comparison. This model predicts the actual maintenance to track higher over the life of the plan as forecast renewal expenditure is not sufficient to improve the condition profile of the Water portfolio.

D1.9 LIFECYCLE – RENEWAL/REPLACEMENT STRATEGY

Council's asset renewal strategy is documented in the water and wastewater strategic business plan. The 30-year capital program considers the expected future growth, assets in poor condition as well as whether there need to be changed in levels of service provided.

Figure 4 CAPEX Projections



Council compared its budgeted/actual CAPEX expenditure for its water supply portfolio against its annual depreciation requirements. This showed that excluding the disaster funding, Council currently has a minor shortfall in funding to meet the anticipated degradation of the network. However, it should be noted that Water infrastructure has extended economic lives and Council's capital program spans 30 years with major infrastructure replacement planned outside the 10-year AMP window. Further, Council also compared its depreciation against similarly categorised councils by the OLG which showed that Council depreciates its assets at a rate slightly lower than that of the comparison group.

D1.10 EXPENDITURE PROJECTIONS

Table 6 Water Expenditure Projections

Budget Gap by Asset Group ($,000s)			2022/23 (Budget)	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
Water	**Actual**												
		Renewal	2,567	3,573	3,613	3,672	3,731	3,792	3,875	3,961	4,048	4,138	4,230
		Disaster Funding	1,350	5,450	0	0	0	0	0	0	0	0	0
		New and Expanded Assets	350	5,767	18	18	18	19	19	20	20	20	21
		Maintenance and Operations	1,989	2,123	2,172	2,220	2,268	2,317	2,375	2,434	2,498	2,558	2,622
		Total Expenditure	**6,256**	**16,912**	**5,803**	**5,909**	**6,017**	**6,128**	**6,269**	**6,415**	**6,567**	**6,716**	**6,873**
	Required												
		Required Renewal (Depreciation)	3,311	3,798	3,855	3,913	3,972	4,031	4,112	4,194	4,278	4,364	4,451
		New and Expanded Assets	350	5,767	18	18	18	19	19	20	20	20	21
		Required O&M	1,782	1,807	1,834	1,861	1,889	1,927	1,965	2,004	2,044	2,085	2,131
		Total	**5,443**	**11,372**	**5,707**	**5,792**	**5,879**	**5,977**	**6,096**	**6,218**	**6,342**	**6,469**	**6,603**
		Overall (GAP)	**812**	**5,540**	**96**	**117**	**138**	**151**	**173**	**197**	**224**	**247**	**270**
		Overall (GAP) *excluding Disaster Funding*	**-538**	**90**	**96**	**117**	**138**	**151**	**173**	**197**	**224**	**247**	**270**

*Figure 5 Water Sustainability Ratios**

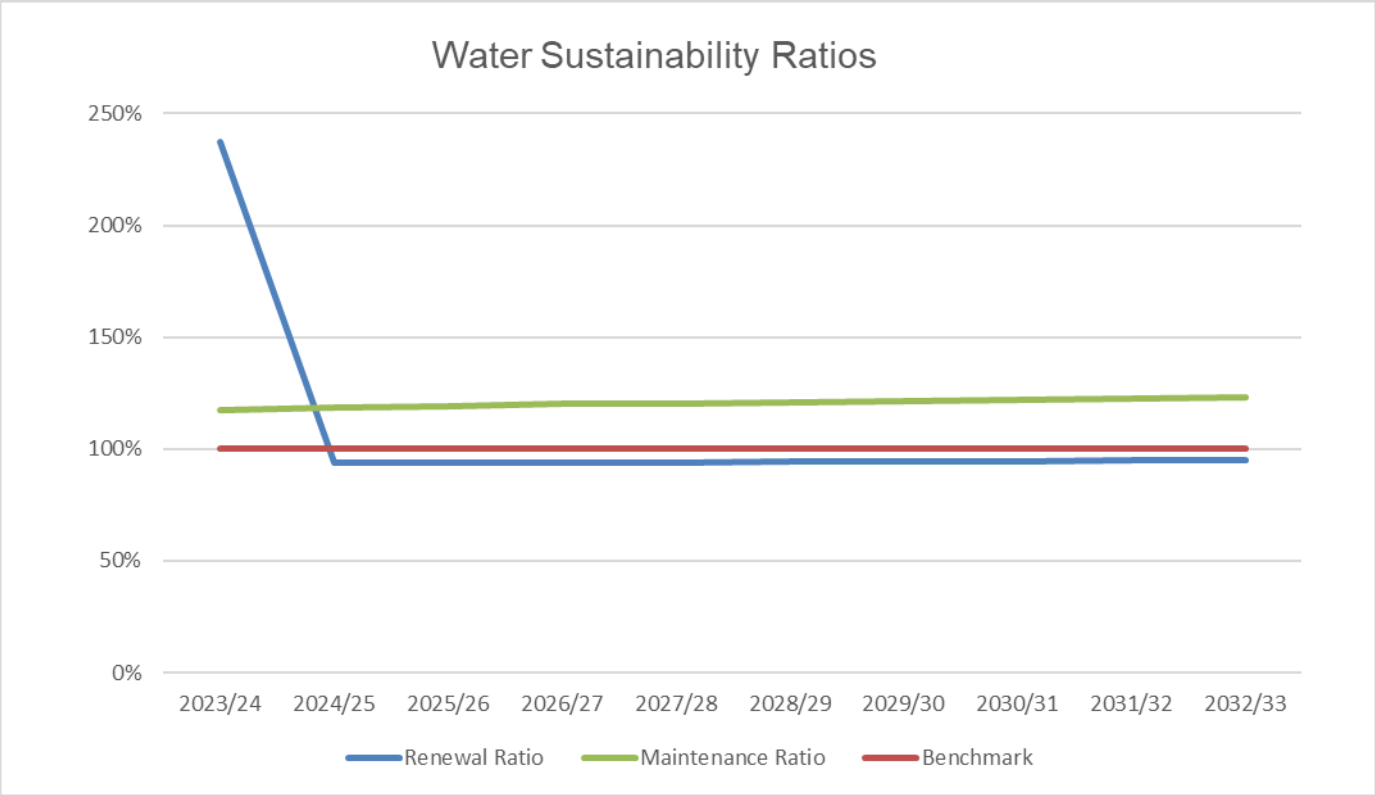
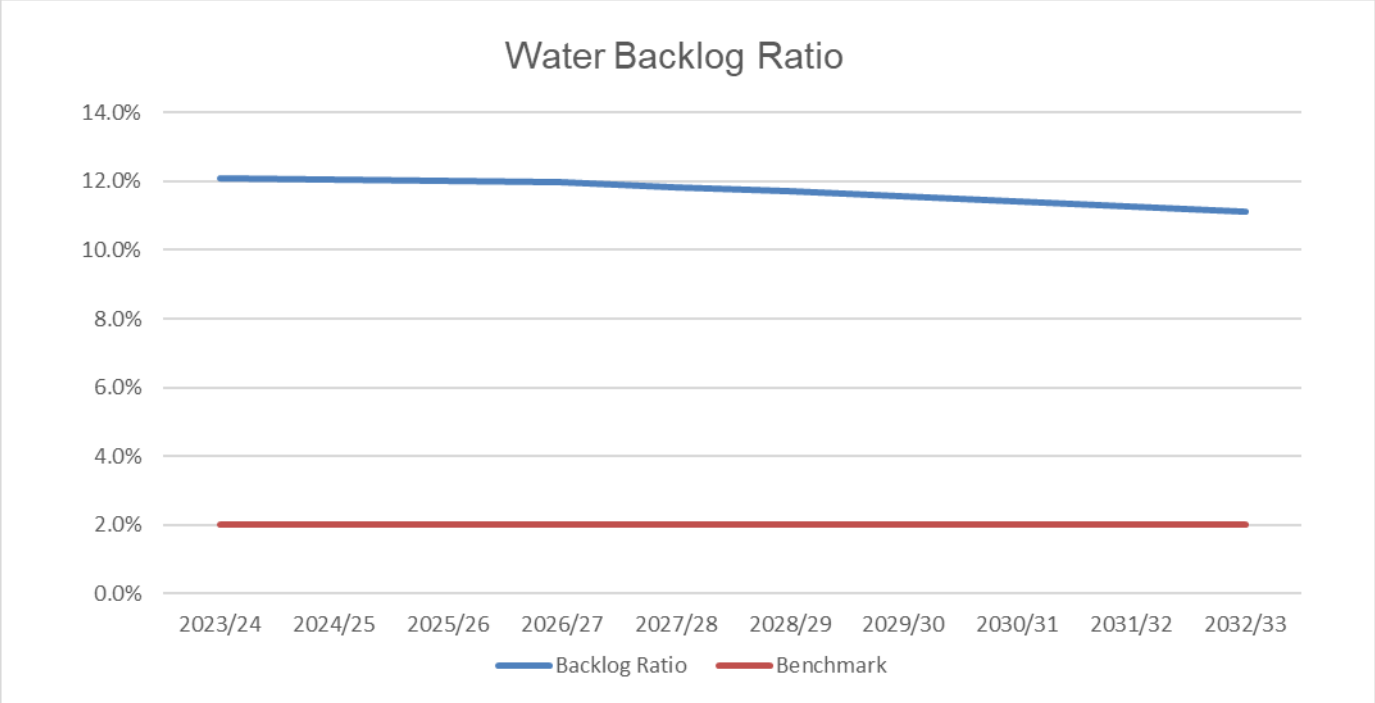


*Figure 6 Water Backlog Ratio**



D1.11 CRITICAL ASSETS

Critical assets are those assets that are likely to result in a more significant financial, environmental and social cost in terms of impact on organisational objectives. By identifying critical assets and critical failure modes, organisations can target and refine investigative activities, maintenance plans and capital expenditure plans at critical areas. Council is currently in the process of assessing and documenting the criticality of its Water portfolio.

The following attributes are currently being considered as part of this analysis:

Table 7 Criticality Criteria

Attribute	High	Medium	Low
Reticulation	Supply	Trunk	Residential Reticulation
Material	AS	CLS / PVC	
Flood zone	Yes		
Water Way	Line runs parallel to waterway	Line runs perpendicular to waterway	
Size	> 150mm Diameter	50 - 150mm Diameter	< 50mm Diameter
Pressure Pump			
Backup pump and power	No	Yes	Yes
Catchment	Large	Medium	Small
Storage Capacity			
Storage Capacity	Small	Medium	Large
Catchment	Large	Medium	Small

D1.12 RISK MANAGEMENT

Council utilises a corporate risk framework which aligns with ISO 31000:2018. The framework has been adopted for Council's Water assets and highlights the strategic risks which impact Council's asset portfolio.

Table 8 Risk Framework

Service or Asset at Risk	What can Happen	Risk Rating	Risk Treatment Plan	Residual Risk
Not meeting drinking water guidelines	High levels of naturally occurring minerals result in water guideline standards not being met	High	Monitor levels. Develop Drinking Water Quality Management Plan	Risk remains, but the information will allow appropriate planning to be developed
Premature aging of water distribution pipelines	Deterioration of pipelines at a greater rate than expected	High	Continue to improve data by carrying out sample inspections Required renewal of water supply system components is being achieved in the short to medium term Future planning improvements can be made by further documented service level risks and utilisation of these in establishing future renewal priorities	Medium
Deterioration of water supply system	Underfunding of renewals in the future can have a significant impact on increased costs, environmental impacts, and compliance	High	Additional analysis of data inventory, assessment of useful lives will be critical to ensure the long-term financial planning for water supply systems is reliable	Medium
Deterioration of water supply system	Underfunding of renewals in the future	High	Continue to develop the detail of the costs to manage the water supply system so that a strong case can be made for adequate funding	Medium

D1.13 CONFIDENCE LEVELS

The confidence in the asset data used as a basis for the financial forecasts has been assessed using the following grading system, as outlined in the following below.

Table 9: Asset data confidence scale

Confidence grade	General meaning
Highly reliable	Data based on sound records, procedure, investigations and analysis that is properly documented and recognised as the best method of assessment.
Reliable	Data based on sound records, procedures, investigations and analysis which is properly documented but has minor shortcomings; for example, the data is old, some documentation is missing, and reliance is placed on unconfirmed reports or some extrapolation.
Acceptable	Data based on sound records, procedures, investigations and analysis with some shortcomings and inconsistencies.
Uncertain	Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported or extrapolation from a limited sample.
Very uncertain	Data based on unconfirmed verbal reports and/or cursory inspection and analysis.

Summary of confidence in asset data for all asset classes is detailed in the table below.

Table 10: Asset data confidence rating

Asset class	Inventory	Condition	Age	Overall
Water	Reliable	Acceptable	Reliable	Reliable

The overall confidence level of the plan is considered to be '**reliable**'.

D1.14 IMPROVEMENT PLAN

Council is currently in the process of recovering from the 2022 flood and determining the way forward for its community and the LGA and as such has been operationally focused to ensure the day-to-day functions of Council can get back on track following the impacts of the natural disaster. Future iterations of this asset management plan will focus on a more strategic approach to managing the Water portfolios. The improvement plan below sets out the pathway for council to achieve this.

Table 11 Improvement Plan

Action	Priority	Responsible	Timing
Asset knowledge and data			
Council to develop and document guidelines and adopt a consistent approach for condition and defect assessment.	M	Assets	30/12/23
Council to identify assets with performance/capacity deficiencies to be prioritised for upgrade	M	Assets	30/09/23
Asset knowledge processes			
Strategic asset planning processes			
Council to review long-term (ten-year) lifecycle costing requirements including CAPEX and OPEX as well as the depreciation and maintenance requirements of Water portfolio.	H	Assets Finance	28/02/24
Council to develop comprehensive maintenance and renewal strategy for the management of its assets.	H	Assets	28/02/24
Council to review impact on infrastructure for Rouse Water's transition to groundwater	M	Assets	30/06/24
Council to review current service levels and SLAs and develop outcome-based service levels which align with IP&R Framework.	H	Assets Operations	28/02/24
Council to engage community on developed service levels.	H	Assets	30/09/24
Council to undertake risk and criticality assessment of its asset portfolios. In particular assets likely to be impacted by natural disasters and develop a suite of potential intervention/treatment options to increase asset resilience.	H	Assets Operations	30/09/23
Operations and maintenance work practices			
Council is to implement a maintenance management system that records maintenance activity outputs against defined assets.	H	Internal	30/09/24
Following criticality assessment, Council to develop management strategies for critical infrastructure.	H	Assets Operations	30/09/24
Council to review OPEX expenditure and whether funding can be optimised through CAPEX	M	Assets Operations Finance	30/09/23
Information systems			
Organisational context			
Council to undertake an in-depth workforce review of asset management roles and responsibilities and ensuring that all functions of asset management are covered and are being carried out.	H	Executive	30/09/23

D1.15 CAPITAL WORKS PROGRAM

Refer to 2023/24 Adopted Budget by program.