

APPENDIX C – STORMWATER – ASSET MANAGEMENT PLAN

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

This Asset Management Plan includes all of Council's culverts and channels, stormwater pipes, pits and gross pollutant traps.

As the owner and operator of Stormwater 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.

C1.1 PURPOSE OF THIS PLAN

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

This plan includes the following scope of management:

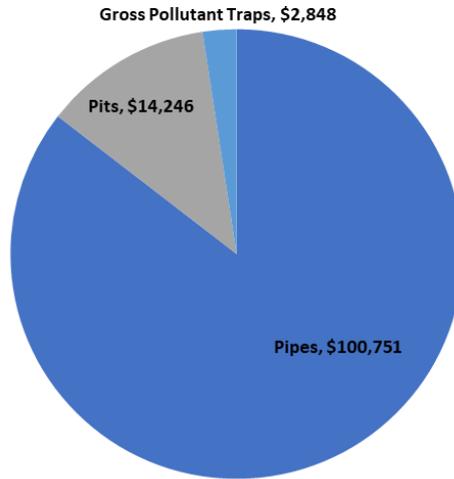
- asset inventory, values and condition
- asset based levels of service
- demand and service management
- risk management
- development of the long-term financial plan (LTFFP) for the maintenance and renewal of Stormwater assets.

C1.2 PORTFOLIO OVERVIEW

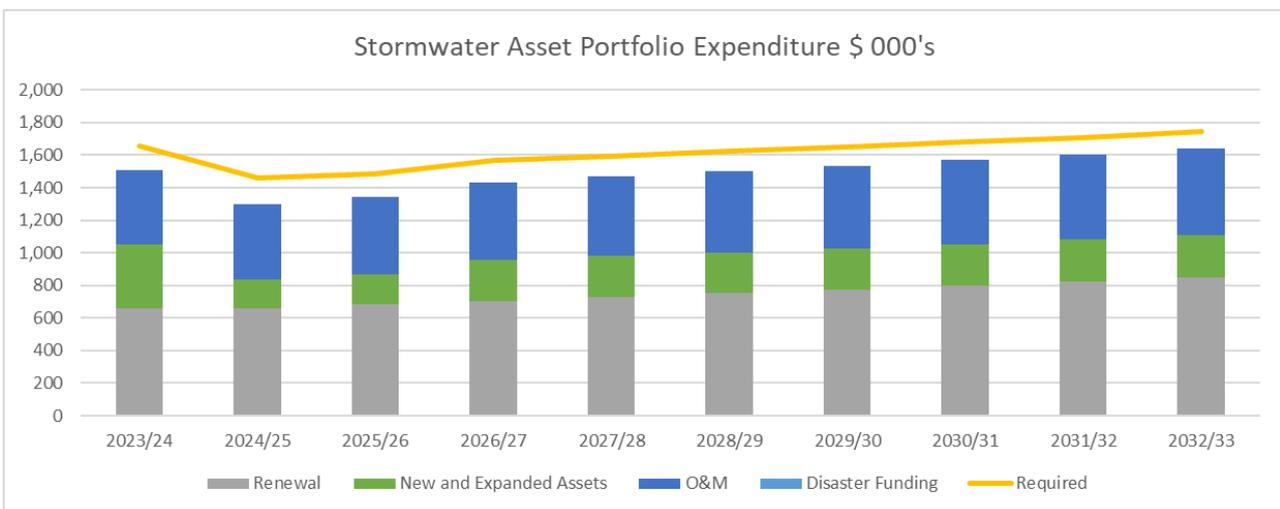
Figure 1 Portfolio Overview

Asset Class ▾

STORMWATER ASSET PORTFOLIO VALUE \$ 000'S



Infrastructure Ratios	Budget 2023/24	Estimated 2032/33	Funding gap \$ 000's	
Infrastructure renewals ratio	92.42%	101.86%	Yr 1	(-\$54)
			5 Yr Average	(-\$46)
			10 Yr Average	(-\$24)
Infrastructure Backlog Ratio	1.87%	1.60%	Yr 1	\$0
			5 Yr Average	\$0
			10 Yr Average	\$0
Infrastructure Maintenance Ratio	82.47%	81.85%	Yr 1	(-\$97)
			5 Yr Average	(-\$98)
			10 Yr Average	(-\$104)
Total Funding Gap			Yr 1	(-\$151)
			5 Yr Average	(-\$144)
			10 Yr Average	(-\$128)



C1.3 ASSET CLASS SUMMARY

Council is currently in the process of recovering following the 2022 flood events and will need to review whether previously adopted capacity standards sufficiently address the increasing intensity and frequency of large storm events. Further, Council has a low degree of confidence in the available condition data given as only a small sample of assets have been utilised to determine the condition along side the age of the assets and as such the portfolio has been underfunded for both CAPEX and OPEX work relative to other NSW councils. In light of this Council has renewed its focus on improving the quality of its 'decision grade' data to transition to a more strategic approach of managing the portfolio.

C1.4 ASSET INVENTORY, VALUES AND CONDITION

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

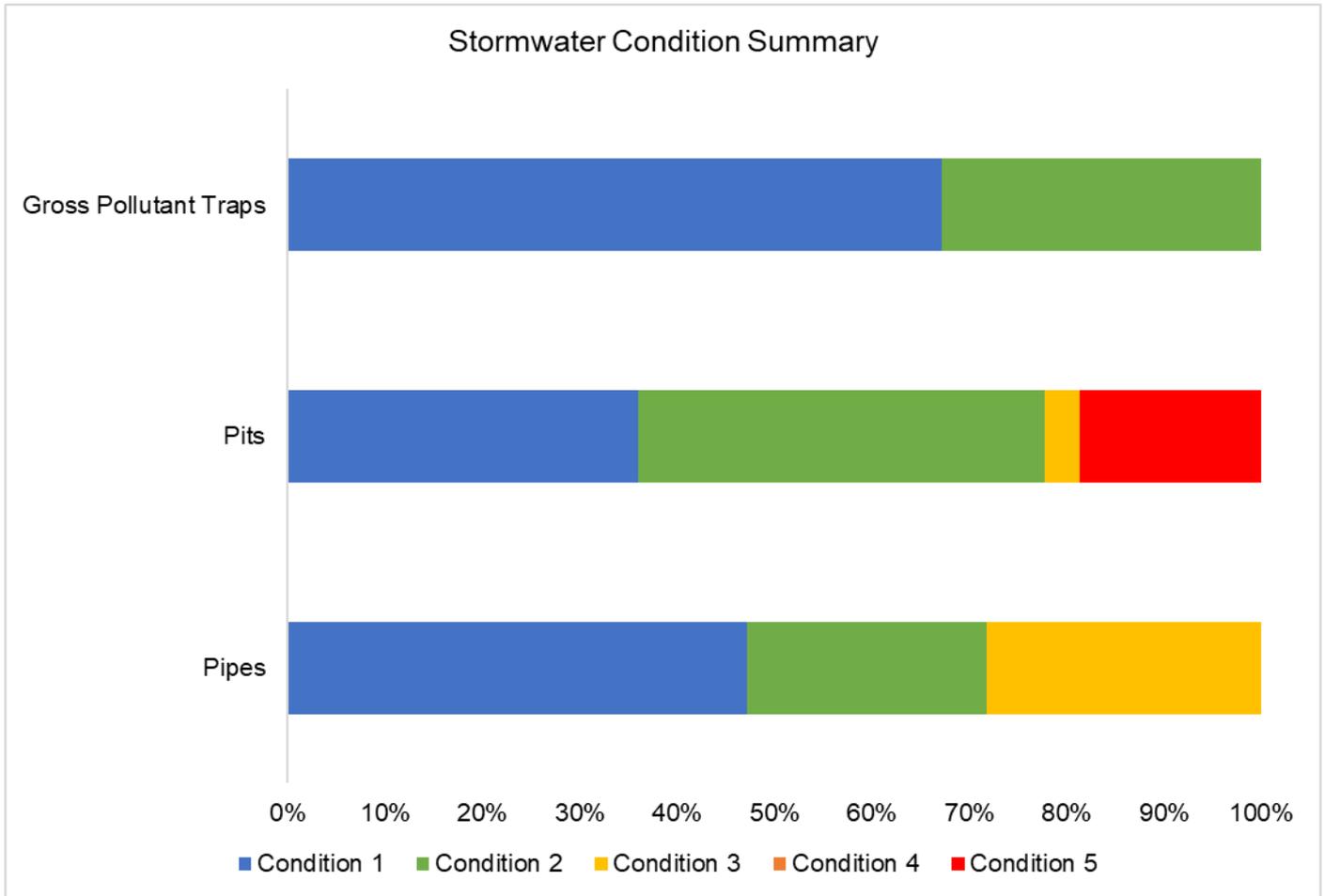
Table 1 Stormwater Inventory

Asset Class	Asset	Unit of Measure	Units
Stormwater	Pipes	KM	152
Stormwater	Box Culverts	KM	1.5
Stormwater	Channels	KM	7
Stormwater	Conduits	M	212
Stormwater	Pits	No.	5,885
Stormwater	Treatment Devices	No.	45

Table 2 Stormwater 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
Stormwater	\$117,845	\$74,617	-\$633	66%	30%	1%	1%	2%

Figure 2 Stormwater Condition Summary



C1.5 ROLES AND RESPONSIBILITIES

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

Table 3 Stormwater Roles and Responsibilities

Position	Role	Asset Class	Responsibilities	Functions
Manager Assets	Asset Owner	Stormwater	This position takes ownership responsibility for the management of assets and is usually responsible for policy and over all asset strategy	<ul style="list-style-type: none"> 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	Stormwater	This position is the technical expert and has responsibility for collecting and maintaining asset data, determining works programs and maintenance strategies etc.	<ul style="list-style-type: none"> 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
Roads Delivery Manager	Asset Delivery – CAPEX/OPEX Service Delivery – Operations	Stormwater	Responsible for the day-to-day maintenance, operations and services delivered by assets as well as the delivery of capital works	<ul style="list-style-type: none"> Controls asset use, in line with policy Deliver programmed and reactive maintenance, internal/external Deliver and / or manage capital works Manage all operations and service delivery functions Manage service user expectations Deliver adopted levels of service

C1.6 ASSET BASED LEVELS OF SERVICE

Table 4 Stormwater Levels of Service

Key performance indicator	Level of service	Performance measurement process	Target performance	Current performance
Accessibility	Access to stormwater drainage is available to residents.	Customer complaints		
Quality/condition	Services minimises damage to property and people from impacts of flooding	Customer complaints	Percent of ratepayers are satisfied that the stormwater network is fit for purpose increasing. Fewer properties reporting exterior damage from flooding per year.	
	Percent of assets in condition 4 or better	Condition assessment	90% of assets in satisfactory condition or better.	
	Percent of network inspected	Condition assessment	10% per year.	
Reliability/responsiveness	Percent compliance with Council's documented response time	Council's customer request system	90% of requests are completed within Council's customer charter.	
Community satisfaction and involvement	Service provides social benefit to the whole community	Community satisfaction report	Percentage of the community agree that they have a good stormwater network increasing.	
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	Maintenance and operating cost per km is in line with benchmarking against comparable regional councils.	
Sustainability	Assets are managed with respect for future generations	Life cycle approach to managing assets	Prepare a ten-year asset condition and age based renewals plan. Ensure the plan is approved by authorities and updated every four years.	
		Community satisfaction survey	Percent of the community agree that the stormwater infrastructure is fit for purpose increasing.	
		Consumption ratio	Between 50% and 75%.	
	Assets meet financial sustainability ratios	Renewal funding ratio	Between 90% and 110%.	
		Long term funding ratio	Between 95% and 105%.	
Health and safety	Services do not cause a hazard to people	Annual Inspections, operational reports and safety audits CRMS data	No of health nuisance reported from facilities or assets (noise, mosquitoes, etc) decreasing complaints.	
			Sumps, drains and watercourses maintained in accordance with specification decreasing complaints.	

C1.7 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 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, Council's '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.

C1.8 LIFECYCLE – MAINTENANCE STRATEGY

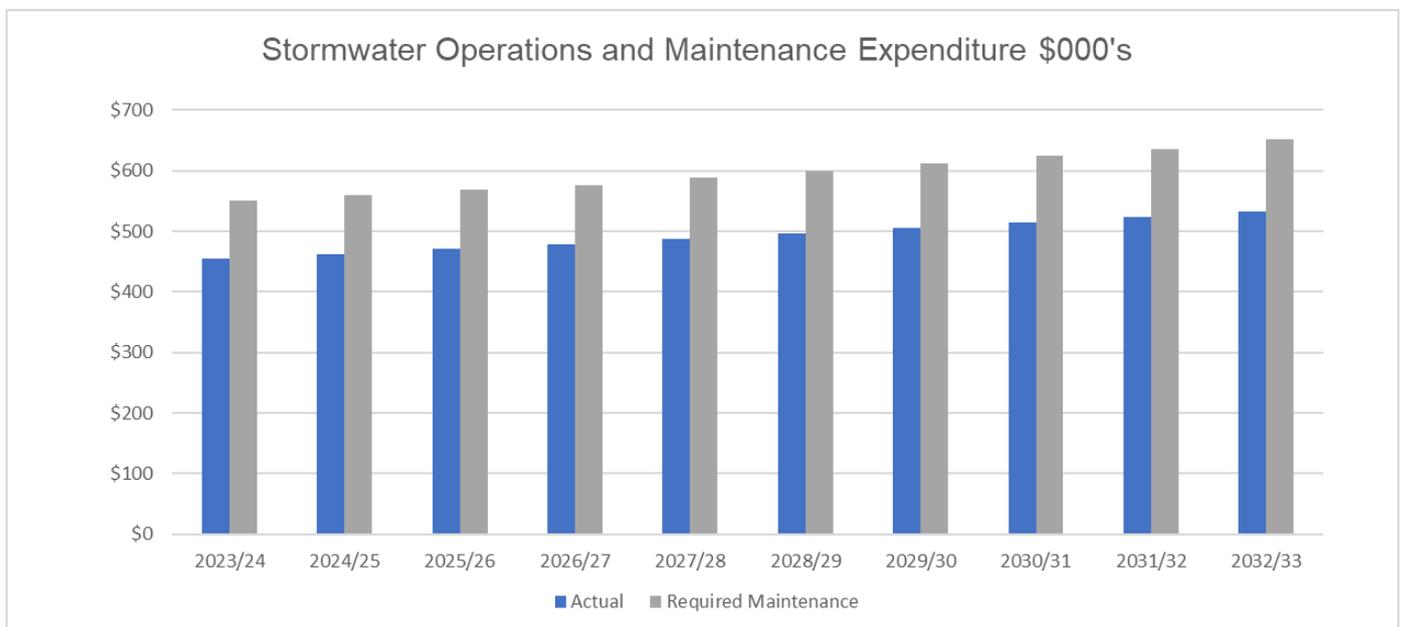
Maintenance includes all actions necessary for retaining an asset as near as practicable to an appropriate service condition, including regular ongoing day-to-day work necessary to keep assets functioning but excluding rehabilitation or renewal. It is the operating expenditure required to ensure that 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 Stormwater assets. Due to the nature of these assets, maintenance activities have been highly reactive in nature.

Council, however, does undertake proactive inspections of its stormwater treatment devices prior to storm events.

Figure 3 OPEX Projections



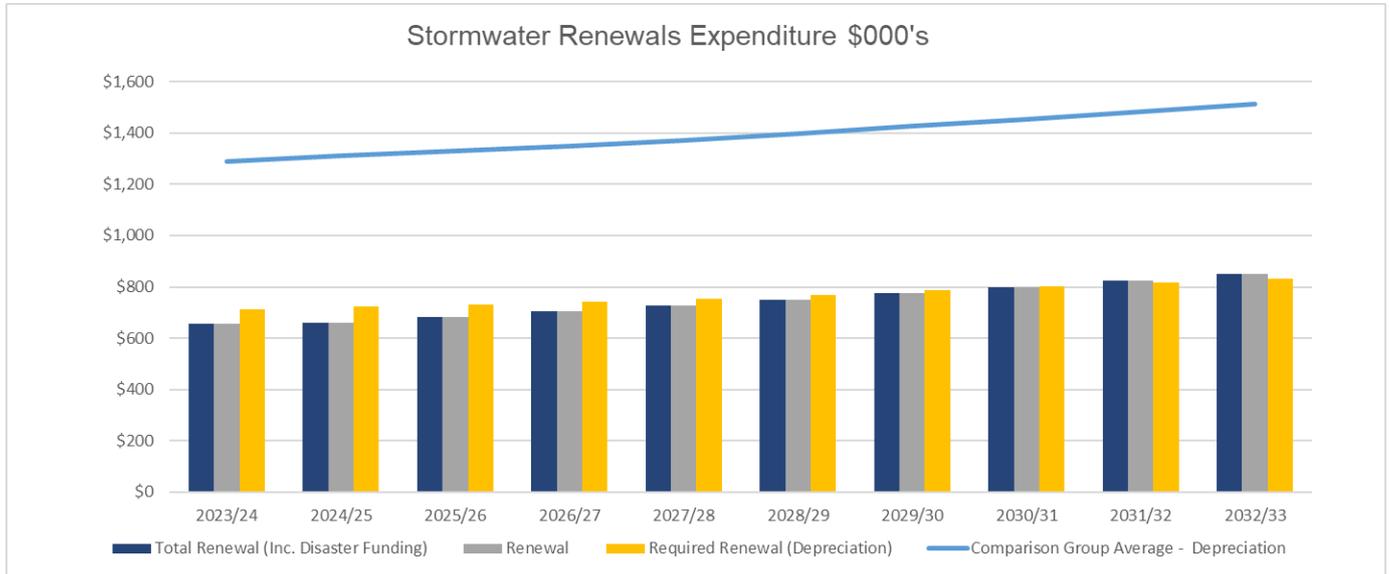
Council compared its budgeted/actual OPEX expenditure for its Stormwater portfolio against similarly categorised councils by the Office of Local Government. This showed that comparatively Council should allocate additional funds to the maintenance of its stormwater portfolio. This has been recognised with an increase the 2023/2024 maintenance budget.

Further, the emergency repair and clean-up costs following the 2022 flood events have been excluded from this comparison.

C1.9 LIFECYCLE – RENEWAL/REPLACEMENT STRATEGY

Council’s assets are renewed in line with the Urban Stormwater Management Plan which dictates specifications for new stormwater assets in development areas. Capital works programs are currently developed based on the condition and remaining life of assets. When assets are flagged as approaching end of life, an inspection is undertaken to validate the remaining life of an asset and then is programmed into Council’s capitals works program accordingly.

Figure 4 CAPEX Projections



Council compared its budgeted/actual CAPEX expenditure for its stormwater portfolio against its annual depreciation requirements. This showed that Council allocated additional funds to meet the required level of funding and it is anticipated that the condition of these assets will be maintained. However, it should be noted that stormwater infrastructure has extended economic lives and Council has proactively sought out grant funding to fund aging infrastructure.

Council also compared its depreciation against similarly categorised councils by the OLG which showed that Council depreciates its assets at a rate significantly lower than that of the comparison group.

While it would seem that initially there has been minimal damage to Council’s stormwater infrastructure, as damage is identified Council will incorporate any increases in capital expenditure into its long-term financial projections. Further, the replacement of existing infrastructure will require a degree of upgrade as Council incorporates additional resilience into its infrastructure to manage the impacts of climate change.

C1.10 EXPENDITURE PROJECTIONS

Table 6 Stormwater 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
Stormwater	Actual											
	Renewal	866	657	661	683	705	728	751	775	799	824	849
	New and Expanded Assets	0	394	177	187	250	251	253	254	255	257	258
	Maintenance and Operations	270	455	463	471	479	488	497	506	515	524	533
	Total Expenditure	1,135	1,507	1,301	1,341	1,434	1,467	1,500	1,534	1,569	1,604	1,640
	Required											
	Required Renewal (Depreciation)	647	711	722	733	744	755	770	786	801	817	834
	New and Expanded Assets	0	394	177	187	250	251	253	254	255	257	258
	Required O&M	544	552	560	568	577	588	600	612	624	637	652
	Total	1,191	1,657	1,459	1,488	1,571	1,595	1,623	1,651	1,681	1,710	1,743
	Overall (GAP)	-56	-151	-158	-147	-136	-127	-122	-117	-112	-106	-103
	Comparison Group – Depreciation	1,174	1,291	1,310	1,330	1,350	1,370	1,397	1,425	1,454	1,483	1,512
	Comparison Group - Total	1,718	2,237	2,047	2,085	2,176	2,209	2,250	2,291	2,333	2,376	2,422
	Comparison Overall (GAP)	-582	-730	-746	-744	-742	-742	-750	-757	-764	-771	-782

Figure 5 Stormwater Sustainability Ratios*

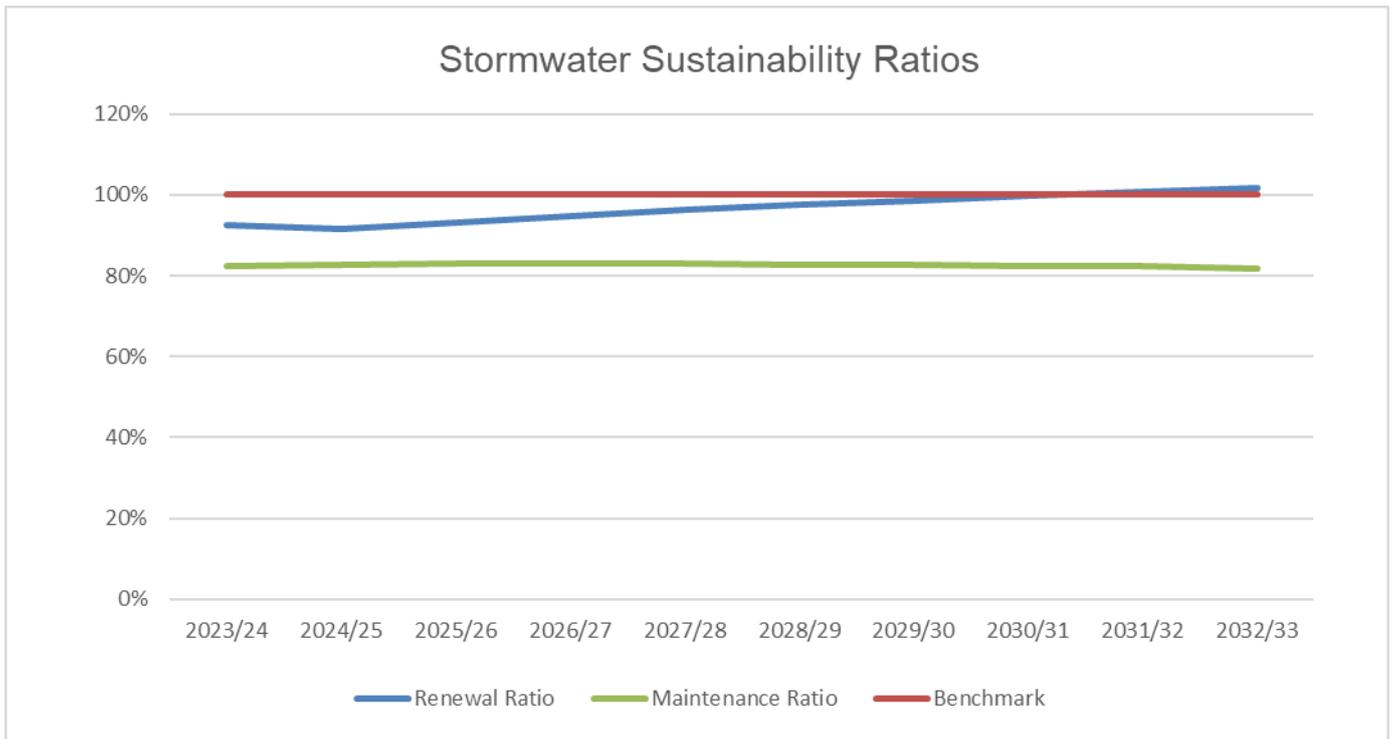
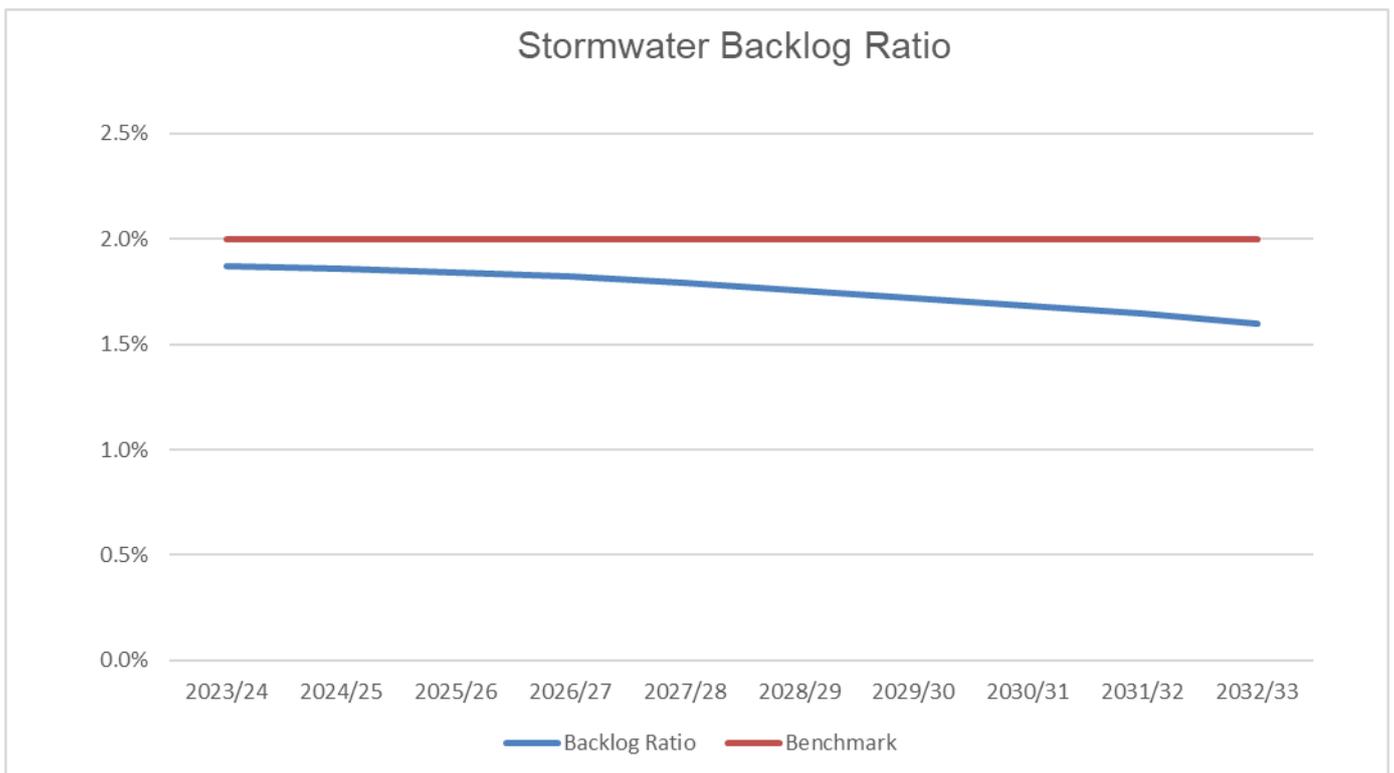


Figure 6 Stormwater Backlog Ratio*



C1.11 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 Stormwater portfolio.

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

Table 7 Criticality Criteria

Criteria	High	Medium	Low
Road classification	Arterial	Primary Collector/Local Collector	Local Access
Waterway area	Roads near or parallel to waterways	Road runs perpendicular to waterways	Road near retention/treatment system
Emergency services	Police Ambulance	RFS, NSWFB, SES	Airfield, Council Depot
Schools	40km zones		
Bus routes	School Bus Routes		
Accident history	Fatality	Accidents (hospitalisation)>5	
Commercial/Industrial	Roads to Energy Supply/Distribution Facilities	Roads to Quarry/Waste/Water Supply/Treatment Facilities	Roads to Administration (Essential Services)
Isolated communities	Only one road providing access to or from a community		

C1.12 RISK MANAGEMENT

Council utilises a corporate risk framework which aligns with ISO 31000:2018. The framework has been adopted for Council's stormwater 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
Stormwater	Pipe Failure – due to lack of renewal	High	Based on the expected useful life of stormwater assets very few are due for renewal, however, ensure adequate budget is allocated to match asset deterioration profiles.	Moderate
Stormwater	Pipe Failure – Unforeseen	High	Undertake condition sampling to validate condition data	High
Stormwater	Service Levels not being achieved due to increasing intensity and frequency of stormwater events	High	Identify at risk assets and upgrade accordingly	Moderate

C1.13 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
Stormwater	Reliable	Uncertain	Acceptable	Acceptable

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

C1.14 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 Stormwater 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 develop condition inspection/sampling program for its stormwater portfolio	H	Assets	30/09/23
Asset knowledge processes			
Strategic asset planning processes			
Council to assess stormwater infrastructure needs based on flood modelling and develop capital works program accordingly.	H	Assets	30/03/24
Council to review long-term (ten-year) lifecycle costing requirements including CAPEX and OPEX as well as the depreciation and maintenance requirements of Stormwater 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 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
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

C1.15 CAPITAL WORKS PROGRAM

Refer to 2023/24 Adopted Budget by program.