Asset Management Plan - Stormwater

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1	26 June 2024	First version of Asset Management Plan - Stormwater

Contents

1 Executive Summary

This Asset Management Plan (AMP) is part of a suite of Portfolio AMPs, which together sit under the Asset Management Strategy (AMS). It is to be read in conjunction with the AMS and Four Year Capital Works Program.

This AMP provides an overarching document of Council's management of, and investment in, the Stormwater Asset Class over a 10-year planning period.

Council manages a water asset class of 230km of pipes and culverts, plus other assets across a broad range of asset categories, worth a combined $249M. The average condition of these structures is 2.0, which is defined as therefore being in 'good' condition.

The level of service that Council provides through this asset class can be described within the three categories of: Provision, Renewal, and Maintenance and Operations. What Council delivers through these levels of service are driven by consideration of: Risk Management, Community Satisfaction and Strategies and Masterplans. But is constrained by funding and availability of resourcing.

Review of the 2022 Community Satisfaction Survey demonstrate stormwater drainage continuing to grow in importance for the community, however the community's satisfaction with the stormwater drainage continues to decline. This shows a clear disconnect between Council's current performance in the provision of adequate drainage and the community's expectations.

In review of Levels of Service, it is noted that available budgets are heavily constrained by both funding and resourcing availability. And so despite the noted satisfaction performance gap, these constraints mean that solutions will need to be found whilst maintaining exist budget levels. Potential opportunities being investigated are a more strategic approach being adopted for maintenance, as well as programming & delivery of more effective capital renewal & upgrade projects.

A community wide survey will also be conducted in 2024/25 to better understand the community's dissatisfaction with Council's drainage services, such that targeted solutions/improvements can then be made. It needs to be better understood as to if the community is dissatisfied with provision of drainage to new areas, quality of existing drainage infrastructure, management of creeks or delivery of water quality outcomes

In order to provide an analysis of financial investment required across the planning period, calculation of forecast asset base growth must be completed. Asset base growth is calculated through consideration of the value of the asset class growing as result of new and upgrade projects, assets contributed through development, development contributions plans and indexation, as well as subtracting any known asset disposals.

It is forecast that across the planning period the asset base will grow by $115M.

Recommended financial investment for the Renewal Level of Service and Maintenance and Operations Level of Service is calculated at $16M and $9M respectively. These have been calculated through aligning renewals with annual depreciation, and ensuring maintenance and operational budgets increase in step with asset base growth.

The Long-Term Financial Plan is able to accommodate the required investment in asset renewal across the life of the plan, but it cannot accommodate the maintenance and operations investment largely as result of asset base growth exceeding the Council rate peg.

This will therefore result in a lowering of levels of service and will prevent assets from reaching their desired useful life - which in turn increases renewal expenditure requirements. Future iterations of the Asset Management Plan will further investigate and identify potential solutions to this difficult situation.

Asset management is a journey of continuous improvement, and so the AMP concludes with a concise Improvement Plan detailing the asset management maturity tasks programmed for the years ahead.

2 Asset Systems & Structures

2.1 Asset Planning Framework

The Asset Management Planning Framework, as summarised in Figure 1, integrates into the wider IP&R Framework and ensures Council performs the Asset Management functions of planning, coordinating, controlling, executing, monitoring and improving the activities associated with managing its assets.

In accordance with the Integrated Planning & Reporting (IP&R) Framework, which all NSW Local Governments are subject to, Council is required to prepare a suite of strategic documents – one being the Resourcing Strategy. It is through the Resourcing Strategy that the Asset Management Framework of Council is defined and endorsed.

The Asset Management Framework has three primary components:

1. *Asset Management (AM) Policy:* defines Council's Asset Management objectives.
2. *Asset Management Strategy (AMS):* also known as a Strategic Asset Management Plan (SAMP), shows how Council will achieve the objectives of the AM Policy. It is a road map for the delivery of these asset management objectives in accordance with the principles set in the AM Policy. It is to be continually monitored and regularly reviewed, in alignment with the formulation of the Long-Term Financial Plan (LTFP) and the Delivery Program & Operational Plans adopted annually by Council.
3. *Asset Management Plans (AMP):* further explores the high-level summary contained in the AMS with a detailed analysis of inventory, risk, levels of service and sustainability undertaken. AMPs are developed for all major infrastructure asset classes, grouped by the type of function the assets serve – i.e., community assets or a specific business unit.
   - Community assets
     - Transport
     - Stormwater
     - Buildings & Aquatics
     - Open Space & Recreation
     - Water
     - Wastewater
   - Business units
     - Cemeteries
     - Resource Recovery Centre
     - Southern Regional Livestock Exchange

The AMPs are continually reviewed, to ensure long-term sustainability of the Council services they support. They are informed by community consultation and will be used as core inputs into the development of Council's Long Term Financial Plan.
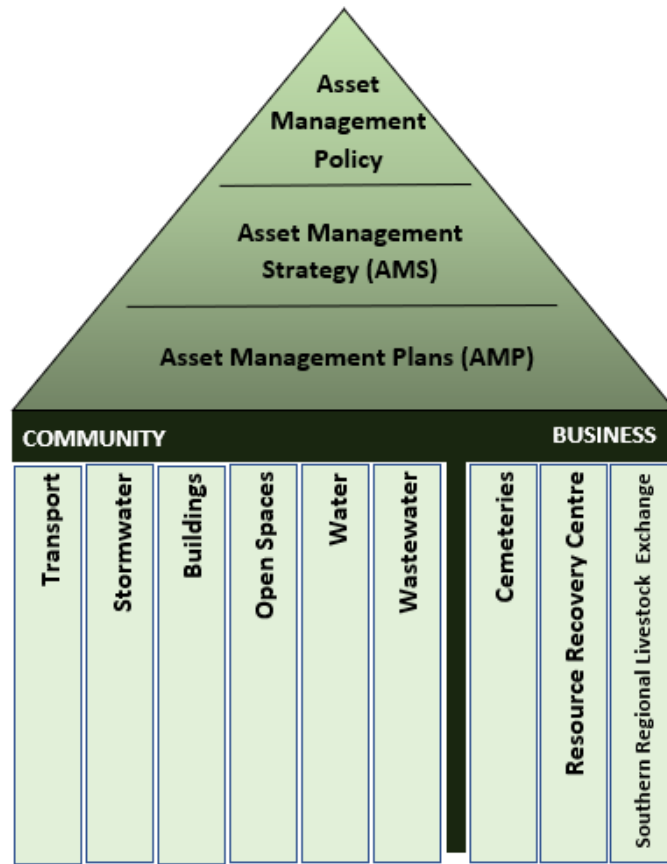
Figure 1 Asset Management Planning Framework

2.2 Asset Planning Systems

Wingecarribee Shire Council utilises several databases and systems to deliver on asset planning requirements. These databases and systems are summarised in Table 1 below:

System / Database	Description / Purpose
Conquest	Asset register – inventory, condition & attributes
ArcGIS	Spatial data
Technology One – Finance	Budgeting, purchase orders, expenditure
Technology One – Enterprise Content Management (ECM)	Record keeping
Technology One – Customer Request Management (CRM)	Workflow management for customer requests
Pulse – Project Management	Scoping and project control for Capital Projects
Drains	Stormwater Modelling Software

Table 1 Asset Planning Systems

It is however acknowledged that Council has embarked on a digital transformation journey, with Council executing a 10-year contract at the 19 October 2022 Council Meeting with Technology One. This contract will see all Technology One modules and additional options being made available to Council and them being progressively implemented across the organisation. A 10-year roadmap for the implementation of the Technology One suite is currently being developed.

This will generate asset planning outcomes through modernisation and integration of the works management asset register and strategic asset modules. This will enable Council to model asset conditions that will result from 10 year funding scenarios, which will in turn enable data driven decision-making to achieve financial sustainability.

2.3   Organisational Structure

Council has adopted a centralised approach to Asset Planning with all asset management and network planning functions being consolidated within the Assets Team. Management of operations and maintenance, as well as capital project delivery, are primarily distributed across the teams of Shire Presentation, Water Services and Project Delivery. The below figures detail the structure of these teams within the Service & Project Delivery Directorate, as well as that of the Assets Team.
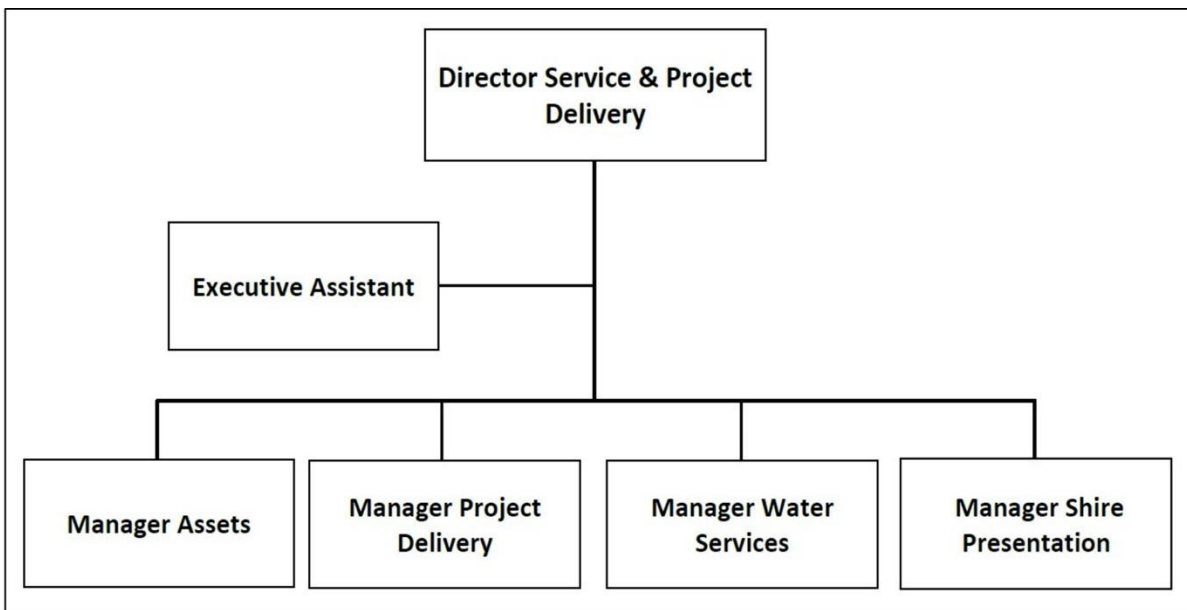

Figure 2 Service and Project Delivery Directorate
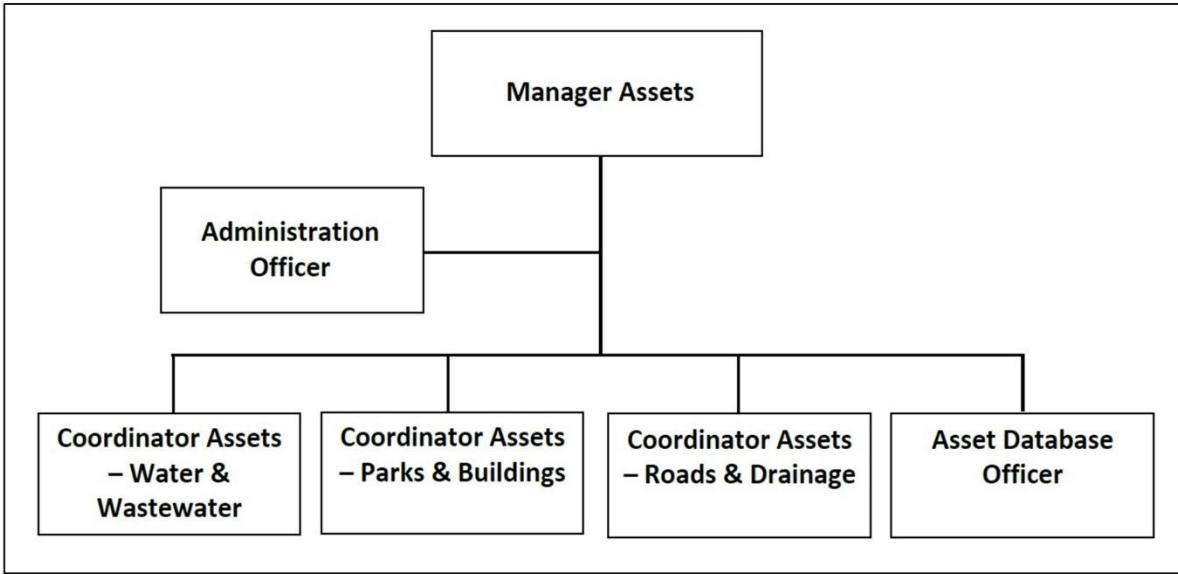
Figure 3 Asset Team Structure
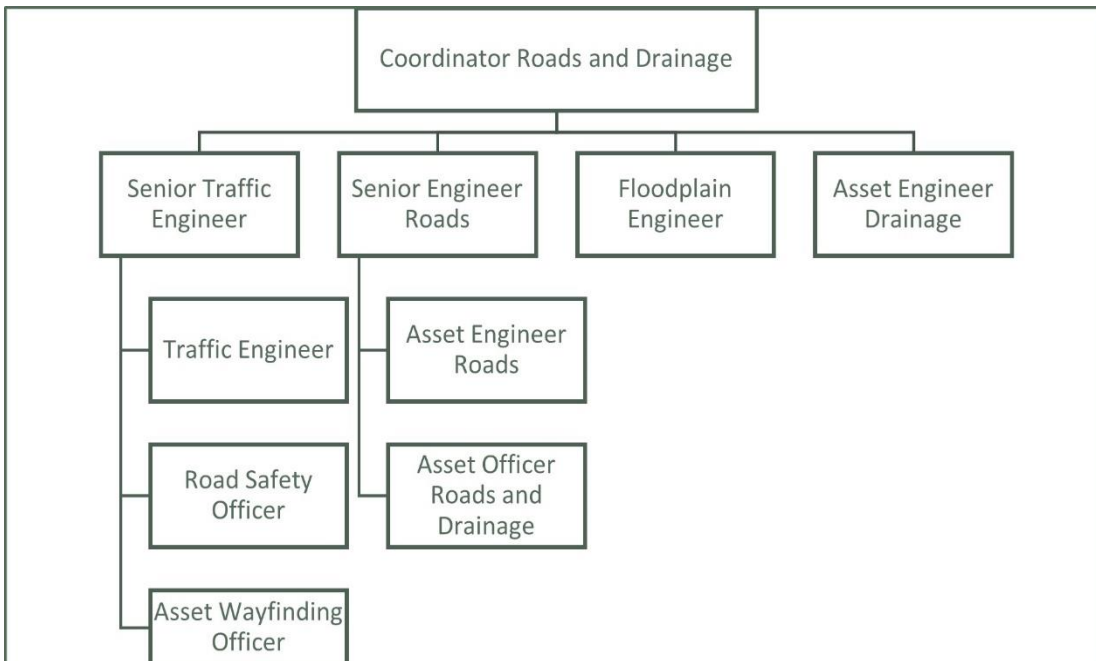
Figure 4 Roads and Drainage Team Structure

3 Our Assets

3.1 Asset Class Inventory

Council drainage assets are pits, pipes, headwalls, culverts, kerb and gutter, table drains, lined channel, detention basins. The table below provides an inventory of council drainage assets.

Asset Category	Amount	Unit of Measure
Stormwater Conduits - Culverts	7,918	metres
Stormwater Conduits - Causeway	248	metres
Stormwater Conduits - Swale	3,252	metres
Stormwater Conduits - Pipes	213,238	metres
Stormwater Conduits -Open Channels	59,770	metres
Stormwater Facilities - Detention Basins	73	item
Stormwater Nodes - Headwalls	2,486	item
Stormwater Nodes - Pits	7,044	item
Stormwater Nodes - SQIDS (GPTs)	47	item

Table 2 Stormwater Assets

Council manages 19,627 assets with a Current Asset Cost of $249.02million.

Asset inventory is maintained and updated through three primary means:

- Recognition of constructed assets – both through Council delivered capital projects, but also assets dedicated to Council through subdivision development.
- Ad-hoc Asset Inspections – inspections are regularly conducted in response to customer or internal requests, as well as part of project scoping phases.
- Scheduled Asset Inspections – all assets are to feature within a schedule of asset inspections. The frequency of inspection would be commensurate to the rate of degradation of the asset, as well as consequence of failure and cost of inspection.

The value and count of road assets below will differ to that of the Asset Management Strategy due to a comprehensive road and related infrastructure inspection completed in 2023/24.

The split of asset amounts across these asset categories is provided in Figure 5 below.

Count of Assets

	Causeway	Culverts	Detention Basin	GPT	Headwall	Open Channels	Pipes	Pit	Table & Swale Drains	Dam
Total	13	482	73	47	2,486	713	8,740	7,044	24	5

Figure 5 - Asset Category by Count

Value of Assets

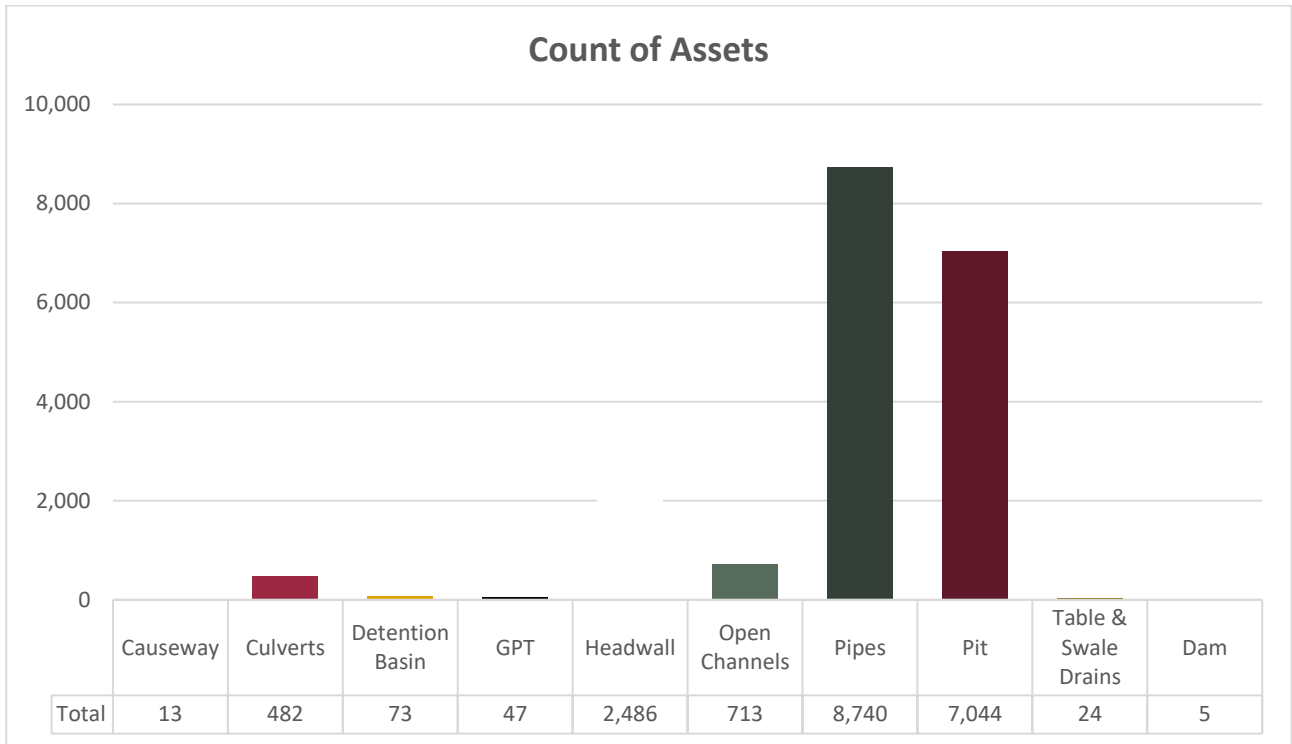|	Causeway	Culverts	Detention Basin	GPT	Headwall	Open Channels	Pipes	Pit	Table & Swale Drains	Dam
Total	$.03M	$21.05M	$27.56M	$2.81M	$6.15M	$33.54M	$131.44M	$19.64M	$.92M	$5.88M
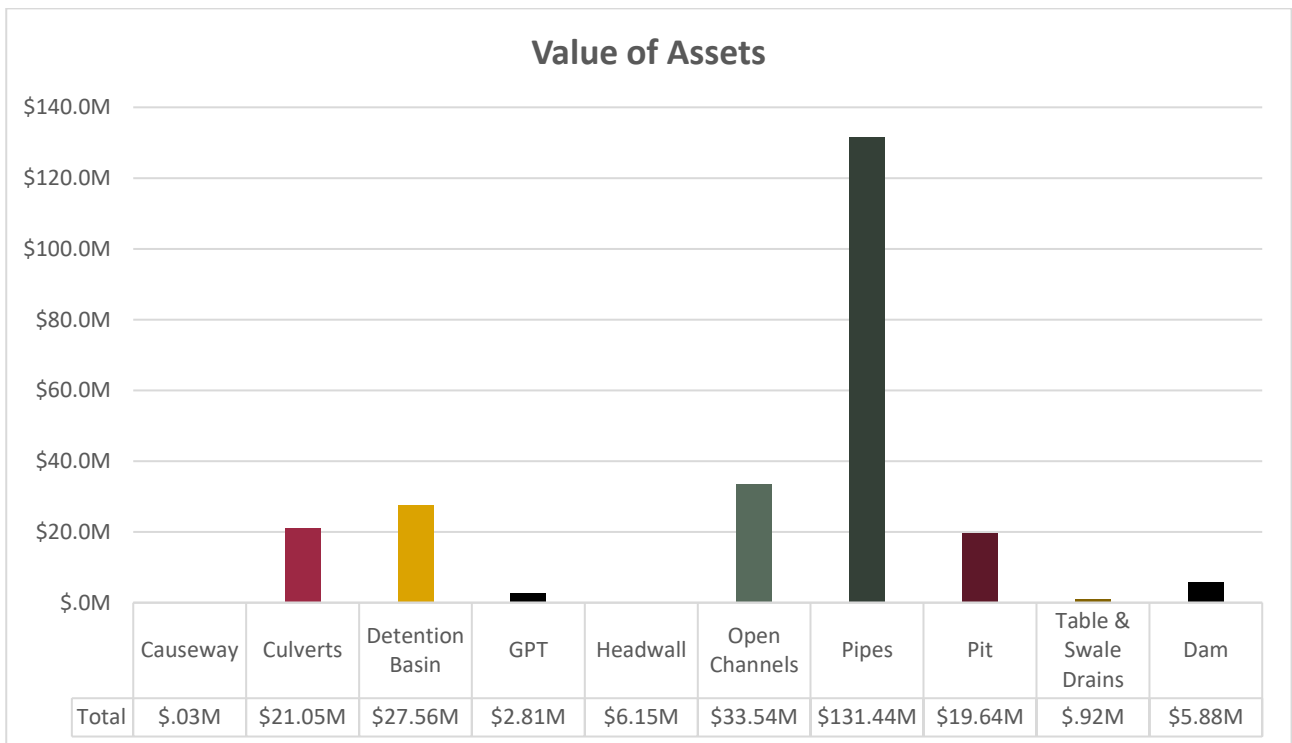
Figure 6 Current Asset Value

Assets are valued in accordance with the Detailed revaluations of asset classes are undertaken in accordance with Australian Accounting Standards and so a comprehensive revaluation of

each asset class is undertaken at a minimum every five years. Outside of the comprehensive revaluation years, fair value assessments are to be undertaken on an annual basis for all asset classes. If the assessment identifies that a material change has occurred, the corresponding asset classes will be indexed with an industry accepted index.

A comprehensive valuation for stormwater was performed in the financial year 2021/22. Next valuation will fall on financial year 2026/27.

3.2 Asset Class Condition

Asset conditions are assessed as part of comprehensive network inspections, conducted per the schedule contained in Section 5.3. These assessments are undertaken in accordance with the relevant Practice Notes issued by the Institute of Public Works Engineering Australasia.

 The condition rating scale is 1-5:

1. As new / excellent
2. Good / satisfactory
3. Fair / tolerable
4. Poor / intolerable
5. Very poor / reconstruction required

Asset Condition by current replacement cost is shown in Figure 7 Asset Condition Profile (by value).

Asset Condition - by Value of Assets

	1	2	3	4	5
Causeway	$.03M				
Culverts	$9.77M	$3.25M	$4.71M	$.75M	$2.57M
Dam	$5.81M	$.07M			
Detention Basin	$13.44M	$8.29M	$4.51M	$1.32M	
GPT	$.94M	$1.46M	$.36M	$.06M	
Headwall	$.96M	$1.23M	$.94M	$1.99M	$1.02M
Open Channels	$5.24M	$26.33M	$1.97M		
Pipes	$47.64M	$32.91M	$41.55M	$5.82M	$3.53M
Pit	$8.76M	$5.10M	$5.38M	$.25M	$.14M
Table & Swale Drains		$.57M	$.03M	$.05M	$.27M

Figure 7 Asset Condition Profile (by value)

Wingecarribee
SHIRE COUNCIL

Asset Condition - by Count of Assets

	1	2	3	4	5
Causeway	13				
Culverts	167	120	103	35	57
Dam	4	1			
Detention Basin	21	31	14	7	
GPT	14	24	8	1	
Headwall	498	428	456	848	256
Open Channels	109	585	19		
Pipes	3,348	2,233	2,275	633	251
Pit	3,090	1,890	1,923	90	51
Table & Swale Drains		11	1	3	9

Figure 8 Asset Condition Profile (by Asset Count)

Reviewing this data, it is evident that $18M of assets are deemed to be of Condition 4 or 5 – and so would need renewal. This equates to 7% of the asset class by value, and 12% of the asset class by asset count.

The overall average condition of Council's drainage assets is good / satisfactory. However, there are 24.4 % assets are in condition 3 which might be worthy of including into current year inspection list before they turn into 4 and 5. Average condition rating for stormwater assets is 2.08.

Asset Category	Average Condition	
	By Count of Asset	By Value of Asset
Table & Swale Drains	3.42	1.00
Pit	1.88	2.20
Pipes	2.11	1.65
Open Channels	1.87	1.83

Headwall	2.97	3.14
GPT	1.91	1.90
Detention Basin	2.10	1.65
Culverts	2.37	1.88
Causeway	1.00	3.01
Dam	1.20	1.01
Grand Total	**2.08**	**2.04**

Table 3 - Average Asset Condition

3.3   Age Profile

Construction years have not been recorded for many older assets. As a result, when comprehensive inspections and revaluations are undertaken, construction years are estimated using the asset condition and expected useful life, assuming straight-line deterioration. As a result, the written down value of the asset can be used, together with the Useful Life, to calculate an estimated construction year.

The following figure displays the estimated value of assets constructed across the decades. From the graph it appears that for 1917-1926 period growth was low, but there was a steady period of asset base growth.
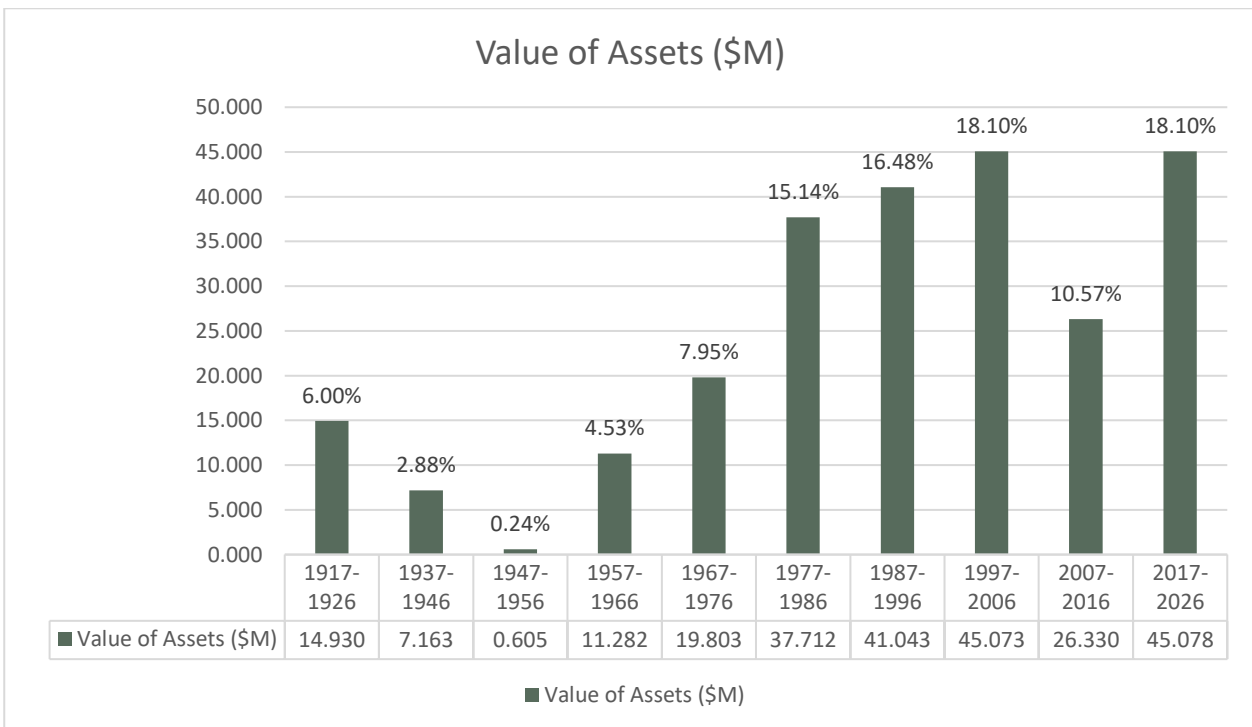

Figure 9 Age Profile of Assets

3.4   Asset Category Inventory

Over 50% of the value of the stormwater network is in the 213.1 km of stormwater pipes.

The following tables provide further insight into this asset category.

Pipe Materials	Length (km)
Reinforced Concrete	197.9
Asbestos Cement	6.2
Fibre Reinforced Cement	4.2
UPVC	1.8
Unknown	1.6
Vitreous Clay	0.3
Ribbed Polypropylene	1.1
Total	213.1

Figure 10 Stormwater Pipes by Material

	150	200	225	300	375	450	525	575	600	675	750	825	900	1050	1200	1350	1500	1800
Length of Pipe (Km)	0.26	0.18	0.45	26.30	64.42	38.79	13.58	0.04	24.53	5.55	15.76	2.45	7.15	4.00	2.36	1.19	1.02	0.64
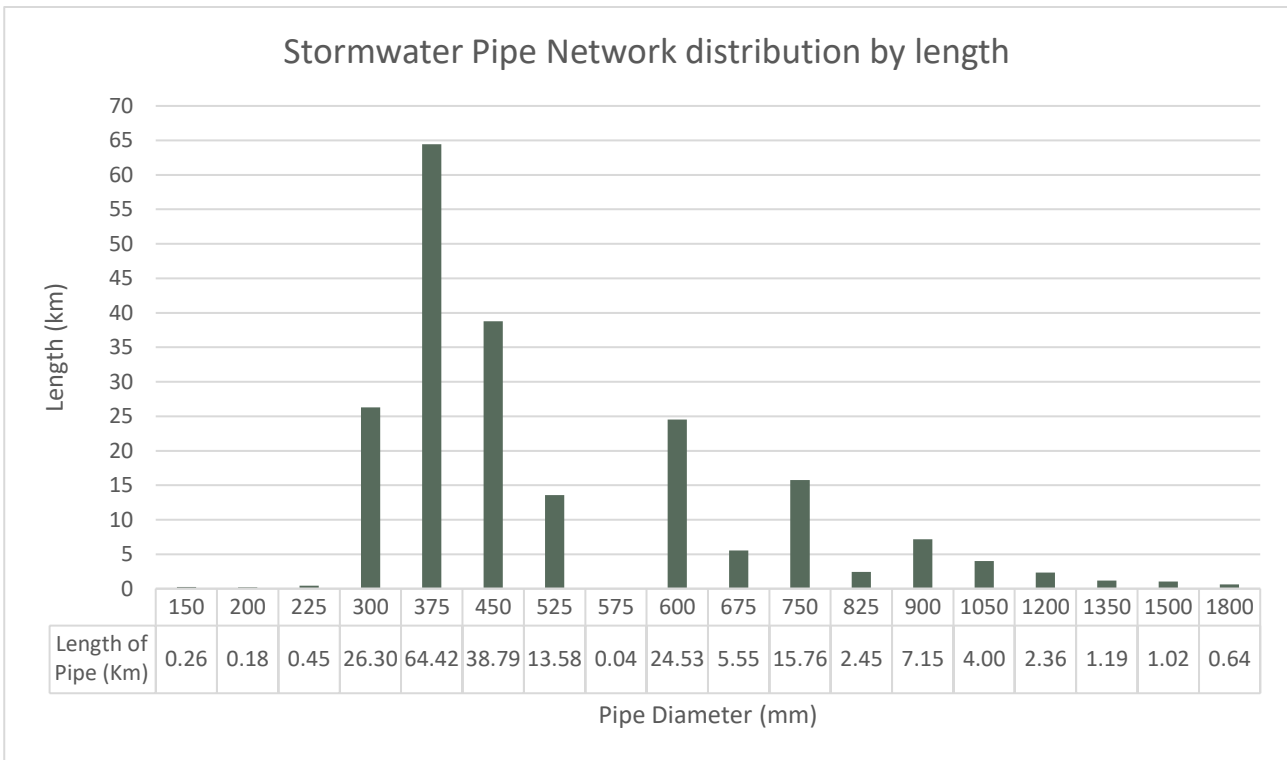
Figure 11 Stormwater Pipes Length

3.5   Data Confidence

Confidence in the completeness and accuracy of stormwater asset data is mixed.

Asset inventory data for the three town centres and some villages is of high confidence, however inventory data is missing entirely for many villages – examples being Yerrinbool, Colo Vale, Hill Top, Balmoral and Berrima. Drainage infrastructure along rural roads is also largely uncaptured.

The majority of condition data is derived from an age-based calculation. With a rolling CCTV program, it is desired that 5% of the network may be inspected per year – which will enable higher confidence to be had in condition and inventory data.

Further inventory data collection is listed within the Improvement Program of Section 8.

4   Drivers of Level of Service

Levels of Service (LoS) are comprised of four components: provision, renewal, maintenance and operations. Each LoS is constrained by funding & resource availability, however the fundamental drivers of LoS can be identified in three categories:

*   Risk Management
*   Community Satisfaction
*   Strategies & Masterplans

4.1   Risk Management

This section identified the risks to Council and the public arising from various stormwater assets.

A Risk Assessment has been completed for the asset class, covering generic hazards that are typical across the entire asset network and consideration of Critical Assets.

4.1.1 Critical Assets

Critical assets are those assets that have a high consequence of failure in terms of community impact. By identifying critical assets and failure modes, an organisation can ensure that condition inspection programs, maintenance and capital expenditure plans are targeted to ensure that the risk of critical asset failure is minimised.

Critical assets for the stormwater asset class are determined to be:

*   The trunk drainage network – that is stormwater pipes of diameter greater than 900mm and culverts greater than 0.636m2 in area.
*   Flood retention basins and dams having current replacement cost over $500k.

The following tables provide an indication as to the magnitude of these critical assets.

Diameter (mm)	Length of Pipes (km)
900	7.15
1050	4.00
1200	2.36
1350	1.19
1500	1.02
1800	0.64
	16.36 Km

Table 4 - Critical Assets: Pipes

Box culvert Size	Length in meter
1200X600	256.4
1200X900	6
1200X1200	119
1250X900	198
1500X600	393.4
1500X750	11

1500X900	24
1500X1200	274.46
1500X1600	52
1800X600	237.49
1800X900	171
1800X1200	80
1850X1700	13
1900X600	20
2100X450	40.32
2100X600	53
2100X900	176
2100X1200	115
2150X750	116
2300X700	23
2400X600	10.8
2400X750	81
2400X900	45
2400X1200	101.22
2400X1800	109
2700X600	212.19
2700X900	95.2
2700X1200	25
2800X1300	32
3000X600	149.1
3000X750	20
3000X900	35
3000X1200	46
3000X1500	72
4000X2500	21.9
4200X900	91.6
4200X1200	19.6
6100x2950	9
Total	**3.55 km**

Table 5 Critical Assets: Box Culverts

Asset Category	Location	Asset ID	Year Acquired	Value	Condition

Detention Basin	1 Old South Road Bowral	182882	2003	2.27	1
Detention Basin	1 Old South Road Bowral	182898	2003	1.88	1
Detention Basin	1 Old South Road Bowral	182891	2003	1.21	1
Detention Basin	13-15 fern Brook Crescent Mittagong	184976	2003	0.71	3
Detention Basin	Drainage Reserve Eloura Lane Moss Vale	184978	1970	0.61	3
Dam	Bowral Golf Course, Bowral	36024	1983	1.26	1
Dam	62 Alfred Street Mittagong	36027	1917	4.54	1

Table 6 Critical Assets: Basins and Dam

4.1.2 Risk Assessment Framework

Risk (R) Matrix			Consequence (C)				
			Severe	**Major**	**Moderate**	**Minor**	**Insignificant**
Likelihood (L)		**Almost Certain**	Extreme	Extreme	High	High	Moderate
		Likely	Extreme	Extreme	High	Moderate	Moderate
		Possible	Extreme	High	Moderate	Moderate	Low
		Unlikely	High	High	Moderate	Low	Insignificant
		Rare	High	Moderate	Low	Insignificant	Insignificant

Table 7 Risk Assessment Framework

4.1.3 Risk Assessment

Risk	Source	Inherent Risk			Treatment	Residual Risk			Implementation Status	Responsible Team	Level of Service
		C	L	R		C	L	R			
Personal injury	Pipes and Culverts	MOD	POS	M	Inspect pipes and culverts in accordance with inspection regime prioritised to account for trunk drainage	MOD	RAR	L	Current	Assets	Operations
					Reactive maintenance of pipes & culverts through CRM system				Current	Shire Presentation	Maintenance
					Programming and renewal of assets in accordance with useful life				Current	Assets	Renewal
	Pits & Headwalls	MOD	POS	M	Reactive maintenance of stormwater pits & headwalls through CRM system	MOD	RAR	L	Current	Shire Presentation	Maintenance
					Inspect locations susceptible to sediment and debris blockages in accordance inspection regime				Future	Assets / Shire Presentation	Operations
	Detention basins	MOD	UNL	M	Inspect detention basins in accordance with inspection regime	MOD	RAR	L	Future	Assets	Operations
					Reactive maintenance of assets through CRM system				Current	Shire Presentation	Maintenance
					Programming and renewal of assets in accordance with useful life				Current	Assets	Maintenance
	Open Channels & Creeks	MOD	UNL	M	Inspect open channels & creeks in accordance with inspection regime	MOD	RAR	L	Future	Assets	Operations
					Reactive maintenance of channels to address significant blockages				Current	Shire Presentation	Maintenance
Reduction in water quality	GPT	MIN	LIK	M	Define acceptable GPT devices, consolidate GPT network, identify & prioritise new install locations, develop prioritised cleaning schedule	INS	RAR	I	Future	Assets	Provision
					Removal of pollution from GPTs on scheduled basis				Future	Shire Presentation	Operations
					Review Subdivision DAs and SWXs to ensure satisfactory GPT design				Current	Assets	Provision
	Secondary & Tertiary water quality improvement devices	MIN	LIK	M	Define acceptable secondary & tertiary devices, identify & prioritise new install locations, develop prioritised cleaning schedule	INS	RAR	I	Future	Assets	Provision
					Develop Operation & Maintenance Plans for the complex systems				Future	Assets	Operations
					Removal of pollution from secondary & tertiary devices on scheduled basis				Future	Shire Presentation	Operations

Risk	Source	Inherent Risk			Treatment	Residual Risk			Implementation Status	Responsible Team	Level of Service
		C	L	R		C	L	R			
Personal injury and loss of property	Flooding behaviour of LGA not understood	SEV	POS	E	Develop flood studies and floodplain risk management studies in accordance with the Flood Prone Land Policy and the Floodplain Development Manual	MOD	UNL	M	Current	Assets	Provision
	Stormwater network of insufficient capacity	MAJ	POS	H	Pursue funding opportunities to progress infrastructure upgrades identified within Floodplain Risk Management Plans.	MOD	UNL	M	Current	Assets	Provision

Table 8 Risk Assessment

4.2 Community Satisfaction

Council's community satisfaction survey is undertaken biennially and tracks Council's performance in service delivery, identifies priority areas and evaluates community attitudes towards customer services, communication and Council as an organisation.

The objectives of the community satisfaction survey process are to:

- Measure the importance of, and satisfaction with, services and facilities provided by Council
- Compare levels of satisfaction for Council's services and facilities with similar councils
- Assist Council in identifying service priorities for the community
- Evaluate Council's customer services and communication

The survey covers facilities and services provided by Council identifying both importance and satisfaction on a 5-point scale, with 1 = low and 5 = high.

The most recent community survey was conducted in 2022, with the results of the prior years also provided for comparison. The following table contains the items relevant to this asset management plan.

Service	Importance			Satisfaction			2022 Performance Gap
	2019	**2021**	**2022**	**2019**	**2021**	**2022**	
Providing adequate drainage	4.35	4.44	4.57	2.99	2.75	2.56	40%

Table 9 Community Satisfaction Survey Result

In the table above, the 2022 Performance Gap is the difference between community importance and community satisfaction.

Community survey results demonstrate stormwater drainage continuing to grow in importance for the community, however the community's satisfaction with the stormwater drainage continues to decline.

This shows a clear disconnect between Council's current performance in the provision of adequate drainage and the community's expectations.

Resultant actions will be further explored in Chapter 5 Levels of Service.

4.3 Strategies & Masterplans

The third driver of Levels of Service can be broadly grouped as Strategies and Masterplans. Council prepares strategies and masterplans across all asset classes to ensure that network planning, implementation and maintenance is being conducted in a wholistic, considered and effective manner.

4.3.1 Drainage Masterplans:

Draft Stormwater Masterplans have been developed for several villages of the Shire – however further refinement is required to enable their public exhibition and final adoption by Council.

The vision is for Stormwater Masterplans to be developed for areas that a Floodplain Risk Management Plan is not suitable, as result of the area not being subject to significant flooding.

However, it is acknowledged that the infrastructure works noted within the Stormwater Masterplans will exceed Council's available stormwater capital budgets. And so the primary

purpose of the Masterplans is to ensure that suitable upgrades are included within conditions of consent for future developments, as well as providing options for grant funding opportunities.

The table below details the status and program of Stormwater Masterplan development:

Location	Status	Level of Service it influences
West Mittagong	Complete – October 2013	Provision
Wembley Road & Farnborough Drive Catchments	Complete – September 2017	Provision
Yerrinbool	Draft – Adoption by Council forecast for July 2024	Provision
New Berrima	Draft – Adoption by Council forecast for 2025/26	Provision
Hilltop	Draft – Adoption by Council forecast for 2025/26	Provision
Bundanoon	Draft – Adoption by Council forecast for 2025/26	Provision
Colo Vale	Not Started – Adoption by Council forecast for 2026/27	Provision

Table 10 Drainage masterplan

4.3.2 Floodplain Management Program

Council develops flood studies and floodplain risk management plans in accordance with the Flood Prone Land Policy and the Floodplain Development Manual.

The resultant Floodplain Risk Management Plans contain a variety of actions for Council to undertake in order to manage flooding hazards within the catchment. The actions will generally fall within the categories of either infrastructure upgrades, development controls, emergency services and community education. A comprehensive list of actions and their corresponding implementation status is available on the Council website and updated on a quarterly basis.

The table below provides a summary of the Flood Studies and Risk Management Studies that Council has completed or are in progress.

Catchment	Study	Status	Year of Completion	Level of Service it influences
Nattai Ponds	Flood Study	Complete	2016	-
	Risk Management Study and Plan	Complete	2020	Provision
Nattai River	Flood Study	Complete	2014	-
	Risk Management Study and Plan	Complete	2017	Provision
	Flood Study	Complete	2013	-

Gibbergunyah Creek	Risk Management Study and Plan	Complete	2016	Provision
Bowral (Mittagong Creek)	Flood Study	Complete	2009	-
	Risk Management Study and Plan	Complete	2009	Provision
	Revision of Risk Management Study and Plan	In progress	Forecast - 2025	Provision
Whites Creek	Flood Study	Complete	2012	-
	Risk Management Study and Plan	Complete	2012	Provision
	Revision of Risk Management Study and Plan	Complete	2020	Provision
Burradoo BU2	Flood Study	Complete	2010	-
	Risk Management Study and Plan	Complete	2014	Provision
Robertson Village (Caalong Creek)	Overland Flow Study	Complete	2016	-
	Risk Management Study and Plan	Complete	2016	Provision

Table 11 Floodplain Management Program

5   Levels of Service

Levels of Service (LoS) are comprised of four components: provision, renewal, maintenance and operations. These four components are best understood in isolation, but an adjustment to one result in changes to others, so they must be considered together.

In this AMP, maintenance and operations are considered together due to there being no distinction within Council's current financial system.

5.1   Provision

The Provision LoS relates to what Council provides, how much and where. Council's stormwater asset network is composed of 19,627 assets with a total value of $249M.

The Provision LoS is not consistent across the Shire as subdivisions & development are completed in accordance with the standards of the time – and these standards change with time. Urban and rural centres also generally contain different stormwater drainage networks – with urban areas more likely to feature kerb and gutter with pits and pipes, whereas rural areas will generally consist of a network of swales with pipes only at road crossings.

The Provision LoS for new subdivisions & development is therefore that which is stipulated in the documents which govern it, namely Council's:

- Local Environmental Plan
- Development Control Plans
- Engineering Design and Construction Specifications
- Developer Contribution & Servicing Plans

That withstanding, due to the Level of Service Drivers described in Section 4, Council must be striving for progressive implementation of a consistent Provision Level of Service across the Shire.

This is to be primarily achieved through the implementation of actions identified through Stormwater Masterplans and Floodplain Risk Management Plans – the details of which are provided in Section 4.4.

It is however acknowledged that these Masterplans and Risk Management Plans have not been developed for all areas within the Shire, and so upgrades will be considered in these areas on a case-by-case basis.

There is significant financial support available for the implementation of actions identified within Floodplain Risk Management Plans from State and Federal grant funding programs – the annual Floodplain Management Plan being the primary source.

Unfortunately, there are limited funding opportunities for the implementation of Stormwater Masterplans and so they will primarily be utilised to inform conditions of consent for developments, as well as providing options for unique grant funding opportunities when available. However opportunities will be taken as part of road and drainage renewal projects to deliver improved drainage outcomes when possible.

It is to also be noted that the Wingecarribee Stormwater Management Policy provides detail as to areas of Council and private responsibility for the management of the stormwater network.

5.2   Renewal

The Renewal LoS defines how often Council intends to replace existing assets with a Modern Engineering Equivalent Replacement Asset (MEERA), including disposal of the existing asset.

This renewal frequency is termed 'useful life' and adjusting this value has significant implications for annual depreciation, with asset useful being a direct factor in its calculation. Annual investment in the capital renewal of assets should ideally equate to the value of annual depreciation. Although asset degradation and failure will not follow a straight line across financial years, failure to maintain asset renewal at the rate of annual depreciation will result in an overwhelming volume of renewal works in later years.

Adjustments to asset useful life also has impacts on required maintenance and operations expenditures. Shorter useful lives generally result in less required maintenance, all other factors being equal, and vice versa.

Summary of useful lives for stormwater asset categories are provided below:

Asset Class	Asset Category	Useful life (years)
Stormwater	Pits	100
	Pipes	100
	GPT	80
	Headwall	80

Table 12 Useful lives

The intent is therefore that all stormwater assets will be renewed prior to exceeding their designated useful life.

However, renewal works will also be based on asset condition. When an asset is found to be of Condition 4 or 5 it will then be programmed for renewal within the Capital Works program.

5.3   Maintenance & Operations

Maintenance and operation activities are completed in both a proactive and reactive fashion across the asset network. Many operational activities by their nature are more readily able to be scheduled and completed in a timely & controlled way. Maintenance activities are more difficult to deliver in scheduled fashion, with mature systems and full resourcing required to do so – however even then reactive works cannot be completely eliminated.

Results from the recent community satisfaction survey show a noted lack of satisfaction in Council's current maintenance level of service for the stormwater networks.

Nevertheless, maintenance and operations budgets are heavily constrained by both funding and resourcing availability. Although results of the recent community satisfaction survey indicate a performance gap in stormwater maintenance, these constraints mean that solutions will need to be found whilst maintaining exist budget levels.

Potential opportunities being investigated are a more strategic approach being adopted for maintenance, as well as programming & delivery of more effective capital renewal & upgrade projects.

A community wide survey will also be conducted in 2024/25 to better understand the community's dissatisfaction with Council's drainage services, such that targeted solutions/improvements can then be made. It needs to be better understood as to if the community is dissatisfied with provision of drainage to new areas, quality of existing drainage infrastructure, management of creeks or delivery of water quality outcomes.

Maintenance and operations level of service will be provided under two categories: inspections and maintenance.

5.3.1 Inspections:

Inspections will be of two categories. Scheduled inspection and reactive inspection.

- Scheduled inspection

As part of the risk management of the asset network, all assets are to be inspected at a regular interval. The frequency of the inspection will be commensurate to the magnitude of the network as well as the assets rate of decay. The following condition inspection frequencies have been adopted for the following asset categories:

Asset Class	Asset Category	Inspection Method	Inspection Frequency
Stormwater	Pits	CCTV Tractor Camera	20 years (5% of network inspected annually)
	Pipes	CCTV Tractor Camera	20 years (5% of network inspected annually)
	GPT	Visual Inspection	Annually
	Headwall	Visual Inspection	5 years (20% of network inspected annually)
	Detention Basins	Visual Inspection	Annually

Table 13 Scheduled Asset Inspection

- Reactive inspection

Reactive inspections will be conducted as required in response to notification, or suspicion, of asset structural or performance failure. The reactive inspection will generally be an onsite visual inspection; however, CCTV Tractor Cameria inspections will be utilised to inspect the stormwater pipeline network.

5.3.2 Maintenance:

Maintenance works are currently completed on a solely reactive basis. This is largely as result of current work management systems, but also due to available resourcing.

The current level of service can therefore be detailed as such in the following table:

Activities	Reactive or scheduled	Annual Budget
• Pit, pipe and headwall clearing. • Repairs and replacement of minor items • Vegetation and litter removal • Cleaning of GPTs and water quality devices	Reactive	$669,971

Table 14 Maintenance Activities

As an improvement for 2024/25, it is planned that GPT cleaning will move towards a scheduled program – with all GPTs being programmed for cleaning at least once per year.

6 Asset Base Growth

Council's asset base will expand over the next 10 years through committed and expected new & upgrade expenditure, assets contributed by development through conditions of consent, and the Developer Contributions & Servicing Plans. This growth can be decreased through asset disposals; however, no significant disposals are currently committed.

In this analysis, all future asset values, as well as planned and recommended expenditures, assume indexation rate of 3.0% per annum.

6.1 New & Upgraded Assets

The new and upgrade asset projects category covers those projects resourced by Council or grant funding, but excluding Development Contributions, that involve existing assets being enhanced or new assets being constructed.

The table below summarises the new or upgrade projects that Council is known to be delivering within the 10-year window of this AMP. These projects are being funded by Council through a combination of General Fund, Stormwater Management Levy and Grant funding. The financial year listed is that in which the project will be completed, but construction may have commenced in the years prior.

Asset Class	Financial Year	Project Name	Value
Stormwater	2025/26	Retford Farm Basin	$6.15M
Stormwater	2025/26	Gascoigne Street Drainage	$0.81M
Stormwater	2025/26	Sunninghill Ave Burradoo	$1.85M
Stormwater	2025/26	Drapers Road Drainage	$0.80M
Stormwater	2025/26	Penrose Road Drainage	$0.30M
Stormwater	2026/27	Bowral Golf Course Basins	$2.00M

Table 15 New and Upgraded Assets

6.2 Assets Contributed by Development through Conditions of Consent

As development occurs, particularly within the new living areas identified within the Wingecarribee Local Housing Strategy, it is intended that infrastructure be provided at a rate consistent with the Provision LoS in existing parts of the Wingecarribee Local Government Area.

With the Wingecarribee Local Housing Strategy setting an objective of a 50:50 split of infill and greenfield development, it is therefore forecast that only 50% of the annual population growth will result in asset base growth.

Reviewing the rate of contributed assets across 2021/22 and 2022/23, it is observed that the value of contributed assets is equivalent to 30% of this forecast population growth from greenfield development. Which is understood to be the result of assets contributed through this method generally being of a non-major nature. (eg sewer pipelines will be contributed through a development, but not another sewage treatment plant).

Financial Year	Population Forecast	Population Growth	Forecast Asset Base Growth
2023/24	53,615	1.1%	0.16%

2024/25	54,196	1.1%	0.16%
2025/26	54,776	1.1%	0.16%
2026/27	55,357	1.1%	0.16%
2027/28	55,975	1.1%	0.17%
2028/29	56,593	1.1%	0.17%
2029/30	57,212	1.1%	0.16%
2030/31	57,830	1.1%	0.16%
2031/32	58,448	1.1%	0.16%
2032/33	59,138	1.2%	0.18%

Table 16 Forecast ID Population Growth

6.3   Developer Contributions and Servicing Strategies

An important funding source for new infrastructure are Development Contributions collected under Section 7.11 and 7.12 of the Environmental Planning and Assessment Act. These contributions fund a significant proportion, though not all, of the infrastructure required by new development.

Council currently primarily levies contributions through the following plan relating to stormwater.

- Stormwater Development Servicing Plan 2010

As of 30 June 2023, $640K is currently held in reserve for the delivery of infrastructure items detailed within this plan. However, it is acknowledged that the infrastructure program within the plan is due for revision, with it being currently uncertain whether contributions are being received in line with expected forecasts – as well as whether the magnitude of Council co-funding detailed within the Plan remains financially viable.

Several strategic studies have been completed or are in progress which will inform future updates to the plans, these being:

- Floodplain Risk Management Plans
- Stormwater Masterplans

Therefore, only projects that currently feature within the 2024/25 to 2028/29 Capital Works Program which are funded by developer contributions are to be included within this section.

These being:

- Retford Farm Detention Basin
- Bowral Golf Course Detention Basin
- Sunninghill Avenue Drainage Upgrade
- Gascoigne Street Drainage Upgrade

6.4   Asset Disposals

Asset disposals entail the removal of an existing asset without replacing it with a similar asset. No such disposals are considered in this AMP. This may be examined in future revisions when considering the results of community engagement.

6.5   Asset Indexation

Indexation rate of 3.0% p.a has been applied across the 10-year forecast period. This aligns with the indexation rate adoption in the LTFP. The same rate has been adopted in this AMS to ensure that lifecycle costs and associated budgets are comparable in future financial years.

6.6   Asset Base Growth

Total asset base growth is comprised these components:

*   Asset upgrades
*   Assets contributed by development through conditions of consent.
*   Development Contributions
*   Subtracting asset disposals
*   Indexation

The stormwater asset base is forecast to see $115M of growth across the 10-year window of this AMP.

Annual Asset Base Growth

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
Indexation	$8.1m	$8.4m	$8.9m	$9.3m	$9.6m	$9.9m	$10.2m	$10.5m	$10.8m	$11.2m
Disposals	$.m	$.m	$.m	$.m	$.m	$.m	$.m	$.m	$.m	$.m
Conditions of Consent	$.4m	$.5m	$.5m	$.5m	$.5m	$.6m	$.6m	$.6m	$.6m	$.6m
Section 7.11 and 7.12	$.m	$2.4m	$.5m	$.m	$.m	$.m	$.m	$.m	$.m	$.m
New & Upgrades	$.m	$7.5m	$1.5m	$.m	$.m	$.m	$.m	$.m	$.m	$.m

■ New & Upgrades   ■ Section 7.11 and 7.12   ■ Conditions of Consent   ■ Disposals   ■ Indexation

Figure 12 Annual Asset Base Growth

Cumulative Asset Base Growth

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
Asset Base Value	$279m	$298m	$309m	$319m	$329m	$339m	$350m	$361m	$373m	$385m

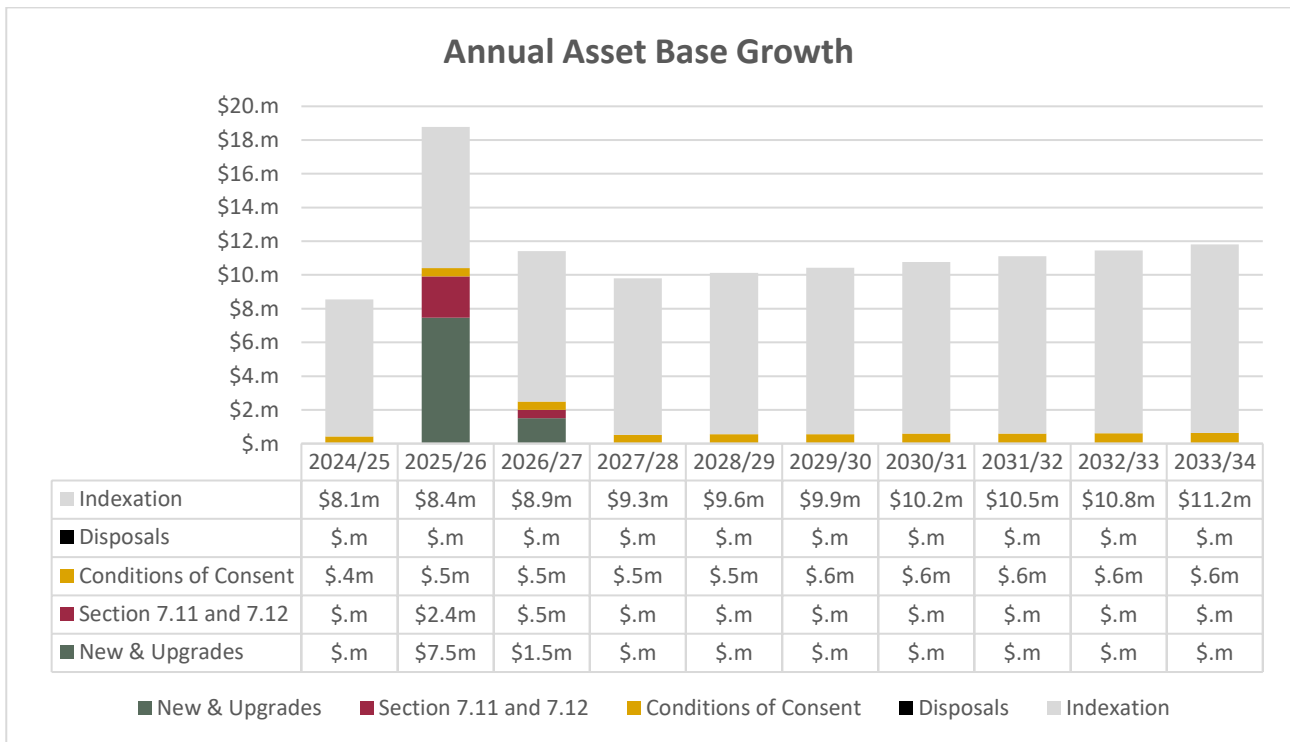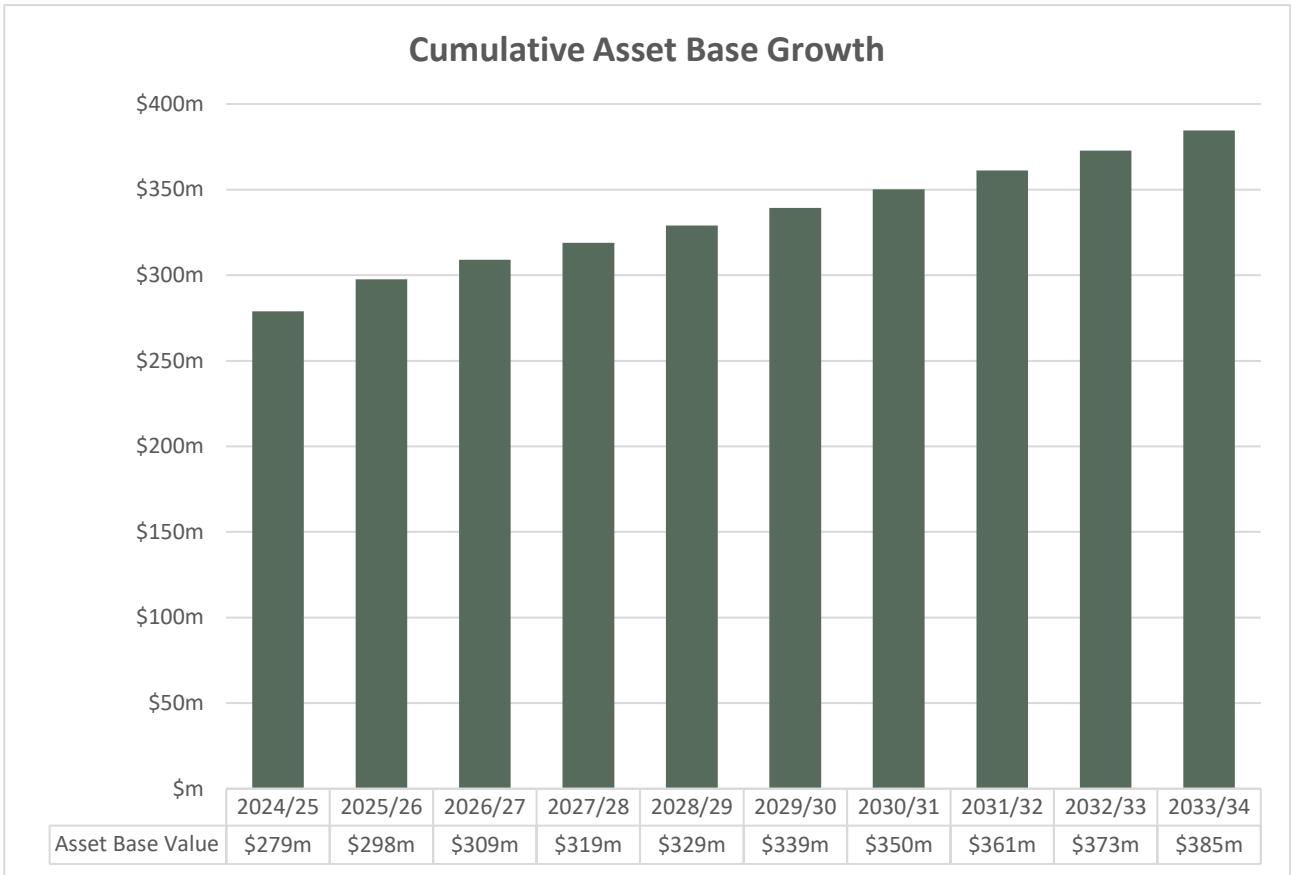*Figure 13 Cumulative Asset Base Growth*

7 Financial Lifecycle Forecast

The Council assets described in Section 3, with the asset base growth forecast in Section 6, require resourcing across their lifecycle to achieve the LoS contained in Section 5.

The two main components are renewal expenditure, and maintenance and operations expenditure, which sum together to give the recommended overall expenditure on Council assets over the next 10 years.

7.1 Renewal Forecast

To ensure that satisfactory condition is maintained across the asset base and the Infrastructure Backlog Ratio benchmark is achieved, capital renewal works should be undertaken when assets reach the end of their useful lives. These capital renewal works involve disposing of the existing asset and constructing the MEERA.

However, if the expiry of useful lives or asset conditions are solely relied upon to inform these recommended renewals, annual budgets fluctuate significantly, which creates difficulties from a resourcing perspective. Rather, it is better practice to average out the recommended renewal expenditure in order to reduce annual fluctuations. When future Delivery Programs are prepared, actual allocations to each asset class may vary depending upon the scale of individual projects.

Figure 19 below shows the annual renewal expenditure required for each asset class, with the requirement increasing each year as result of the asset base ever increasing. It is recommended that a total of $16M is invested in stormwater asset renewal across the next 10 years. The Capital Works Program and Long-Term Financial Plan currently accommodates $15M of stormwater asset renewal, with grant opportunities to be pursued to bring total investment into alignment with that required.

Figure 9 shows the renewal budget featured in the Capital Works Program and Long-Term Financial Plan, as well as the required renewal expenditure to align with asset depreciation. In 2024/25 and 2025/26 expenditure will well exceed that of annual depreciation with significant investment in asset renewal in accordance with the final two years of the SRV application. However, in the years subsequent, distribution of the SRV funding across asset classes will be in accordance with the annual depreciation of asset classes.

That withstanding, total investment across the 10-year planning period is in alignment with asset depreciation.
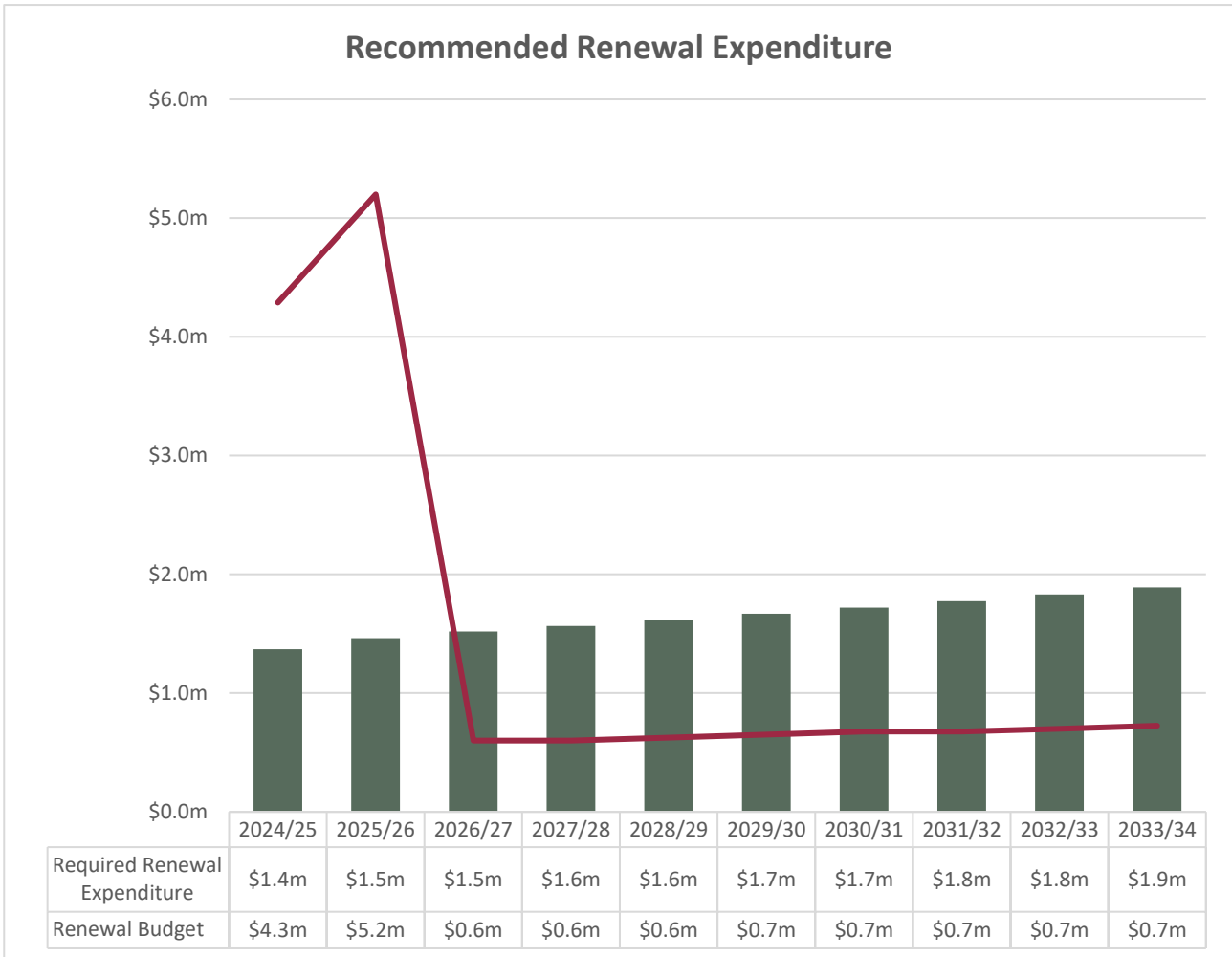
Recommended Renewal Expenditure

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
Required Renewal Expenditure	$1.4m	$1.5m	$1.5m	$1.6m	$1.6m	$1.7m	$1.7m	$1.8m	$1.8m	$1.9m
Renewal Budget	$4.3m	$5.2m	$0.6m	$0.6m	$0.6m	$0.7m	$0.7m	$0.7m	$0.7m	$0.7m

Figure 14 Recommended Renewal Expenditure

7.2   Maintenance & Operations Forecast

To sustain the current Maintenance and Operations LoS whilst accommodating a growing asset base, annual maintenance & operations budget increases are required. The required maintenance and operations expenditure across the 10-year period is therefore forecast at $9.1M.

The Long-Term Financial Plan is unfortunately not able to accommodate the entirety of this desired maintenance and operations budget. This is largely as result of asset base growth exceeding the Council rate peg. This will therefore result in a lowering of levels of service and will prevent assets from reaching their desired useful life - which in turn increases renewal expenditure requirements.
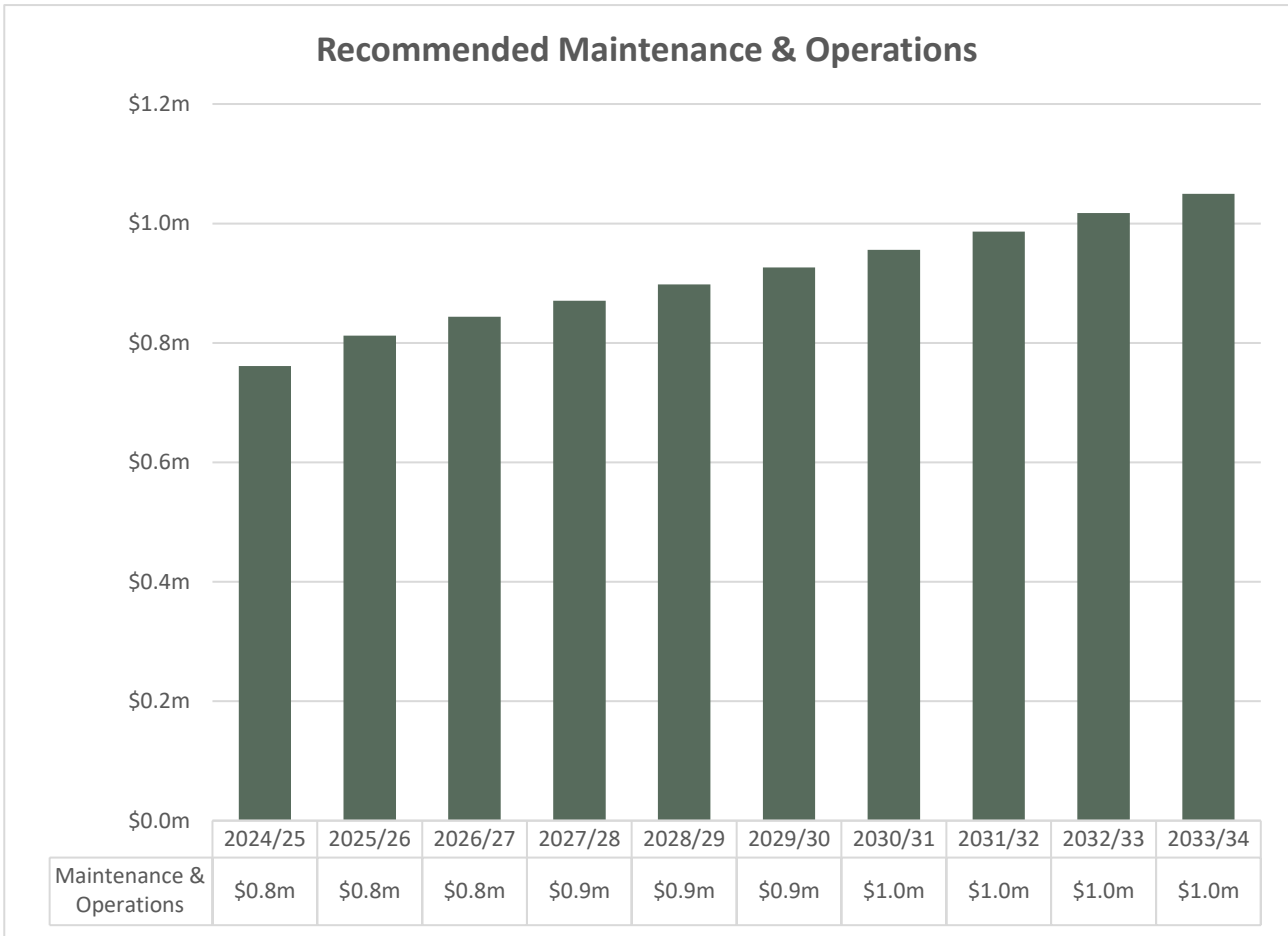
Recommended Maintenance & Operations

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
Maintenance & Operations	$0.8m	$0.8m	$0.8m	$0.9m	$0.9m	$0.9m	$1.0m	$1.0m	$1.0m	$1.0m

Figure 15 Recommended Maintenance and Operations Expenditure

7.3 Overall Forecast

The recommended overall expenditure is a combination of the new, upgrades & developer contributions from Section 6 and the recommended renewal, maintenance & operations expenditure from Section 7. Resulting in an overall recommended expenditure of $37.4M over 10 years as depicted in Figure 21.

It is however acknowledged that the full extent of this recommended expenditure cannot be accommodated within the Long-Term Financial Plan. Future iterations of the Asset Management Plan will further investigate and identify potential solutions.
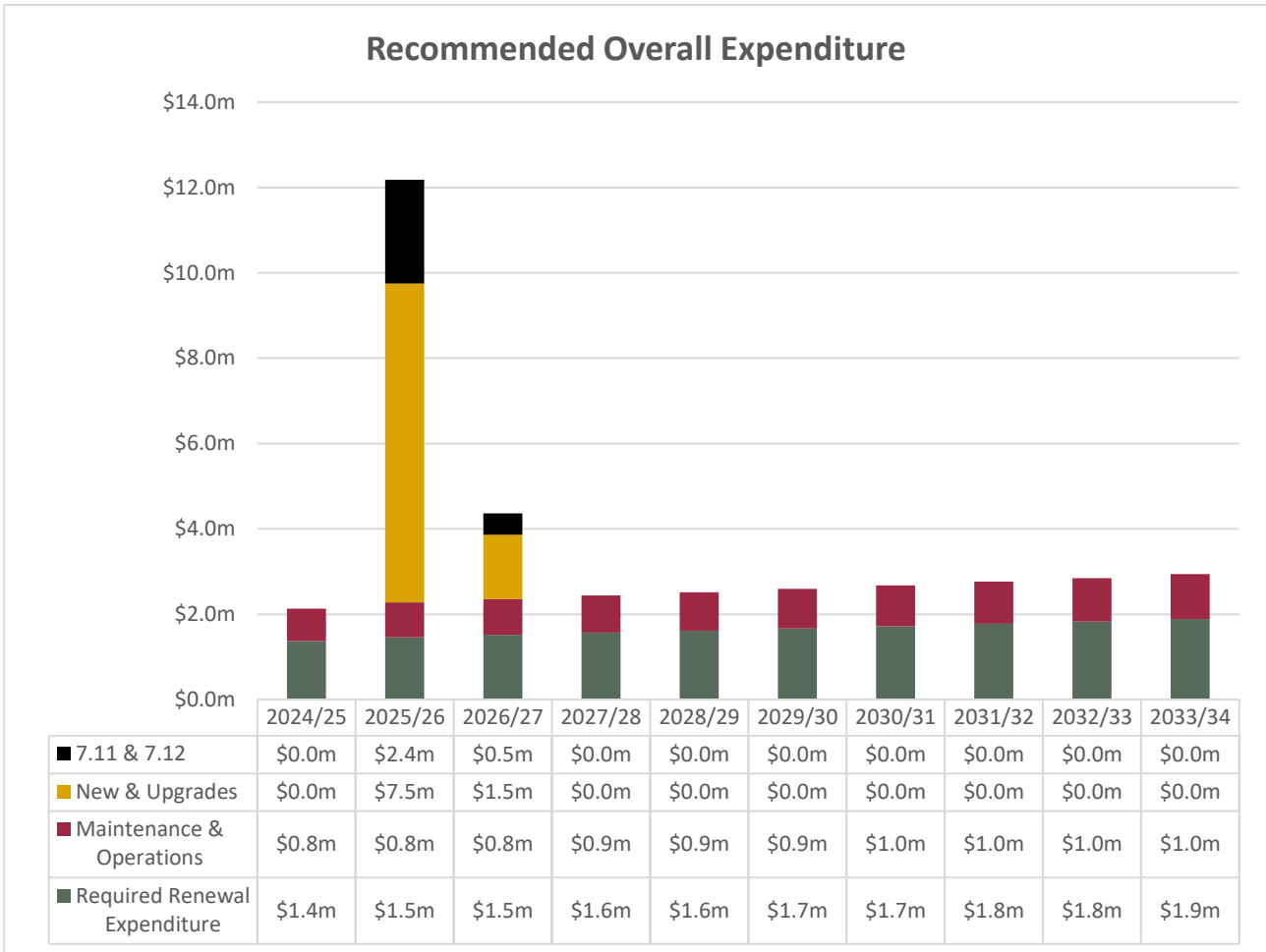
Recommended Overall Expenditure

	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
■ 7.11 & 7.12	$0.0m	$2.4m	$0.5m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m
■ New & Upgrades	$0.0m	$7.5m	$1.5m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m
■ Maintenance & Operations	$0.8m	$0.8m	$0.8m	$0.9m	$0.9m	$0.9m	$1.0m	$1.0m	$1.0m	$1.0m
■ Required Renewal Expenditure	$1.4m	$1.5m	$1.5m	$1.6m	$1.6m	$1.7m	$1.7m	$1.8m	$1.8m	$1.9m

Figure 16 - Recommended Overall Expenditure

8 Improvement Plan

Asset Planning is a journey of continuous improvement with there always being opportunities to further improve the accuracy of asset data, better understand community needs & expectations and more efficiently meet the service needs of the Shire.

To this end, an asset management improvement plan (Table 19) has been prepared to guide this journey of continuous improvement.

Ranking	Improvement	Responsibility	Timeline
1	Annual CCTV Tractor Camera inspection of 5% of stormwater pipe network	Asset Engineer Drainage	Annually
2	Community wide survey to better understand community's dissatisfaction with Council's provision and operation of drainage network.	Manager Assets	2024/25
2	Prepare scheduled GPT cleaning program	Asset Engineer Drainage	2024/25
3	Prepare GPT Masterplan	Asset Engineer Drainage	2024/25
4	Asset Inventory Capture of villages	Asset Engineer Drainage	2024/25
5	Finalise Stormwater Masterplans for: - Hill Top - Bundanoon - New Berrima	Floodplain Management Engineer	2024/25
6	Asset Inventory Capture of collector and major collector roads	Asset Engineer Drainage	2025/26
7	Prepare Stormwater Masterplan for Colo Vale	Floodplain Management Engineer	2025/26

Table 17 Asset Management Improvement Plan