District Council of
YANKALILLA

Stormwater

Asset Management Plan

August 2023

Document Control

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4.0	3/08/2023	Final for Council Endorsement	PL		C23156

Contents

Abbreviations

Abbreviation	Term
AMP	Asset Management Plan
SWAMP	Stormwater Asset Management Plan
LTFP	Long Term Financial Plan
SMP	Strategic Management Plan
SWMP	Stormwater Management Plan
WSUD	Water Sensitive Urban Design
ESCOSA	Essential Service Commission of South Australia
YNCSMP	Yankalilla, Normanville, Carrickalinga Stormwater Management Plan

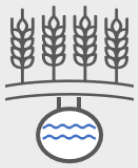
Executive Summary

Total Replacement Cost: $21,628,408

Township Stormwater Pipes
$15.7M
TOTAL REPLACEMENT
42km
MEASURE

Township Stormwater Nodes*
$4.2M
TOTAL REPLACEMENT
1451(qty)
6km
MEASURE

Township Stormwater Storage & WSUD
$78k
TOTAL REPLACEMENT
8 (qty)
MEASURE



Rural Cross Drain Pipes & Culverts
$1.5M
TOTAL REPLACEMENT
3.74km
MEASURE

Rural Cross Drain Nodes
$116k
TOTAL REPLACEMENT
59 (qty)
MEASURE

Council provides a stormwater infrastructure network to residential and commercial properties in both the rural areas and built up township. The network manages the quality and quantity of rainfall runoff minimising flooding and property damage to our community. This asset management plan (AMP) focuses on the management of Council's stormwater assets.

Effective asset management of Council's transport assets will support Council in achieving the following strategic objectives:

- To achieve Council's vision: "**Our Environment**" *is a tapestry of living landscapes*; "**Our Community** *is a connected network of townships and rural settlements*" and "**Our Infrastructure** *is taking us places*.
- Protect the community and both private and public assets from flooding;
- Manage the quality of runoff and effect on receiving environments;
- Investigate opportunities to reuse stormwater;
- Protect watercourses and riparian ecosystems;
- Guide the planning of new development, open space, recreation, and amenity; and
- Sustainable management of stormwater infrastructure, including maintenance.

STORMWATER LEVELS OF SERVICE

Quality
Stormwater network is well maintained to minimise local blockages.

Function
Stormwater assets are 'fit for purpose' meeting community needs

Utilisation
Stormwater system has suitable capacity to prevent inundation of

Condition
Stormwater assets in serviceable condition

Renewal
Sustainably managing the renewal of assets.

Safety
Ensure safety compliance standards are met

Executive Summary

STORMWATER FUTURE DEMANDS

Population & Demographic

Population is predicted to be 6927 by 2030.

Seasonal Factors

Green Change - Increase number of people living in rural style allotment but not working the land.

Sea Change - Increase population living in coastal township areas.

Climate Change

Increase frequency and intensity of weather events

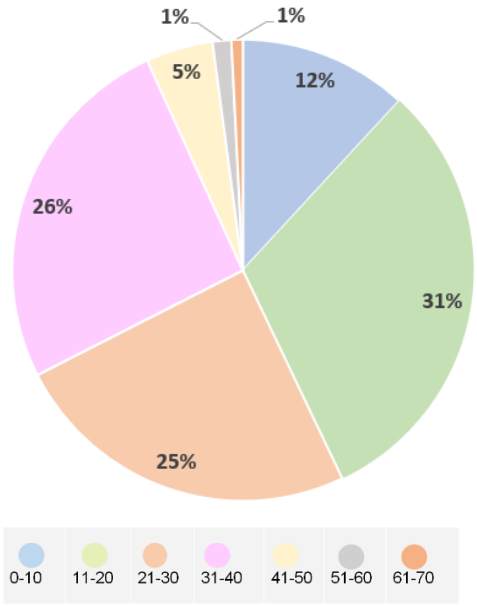
Water Usage Costs

Pervious gardens and lawn areas replaced by impervious paved areas

Technology Changes

Looking for efficient and effective ways to improve stormwater management

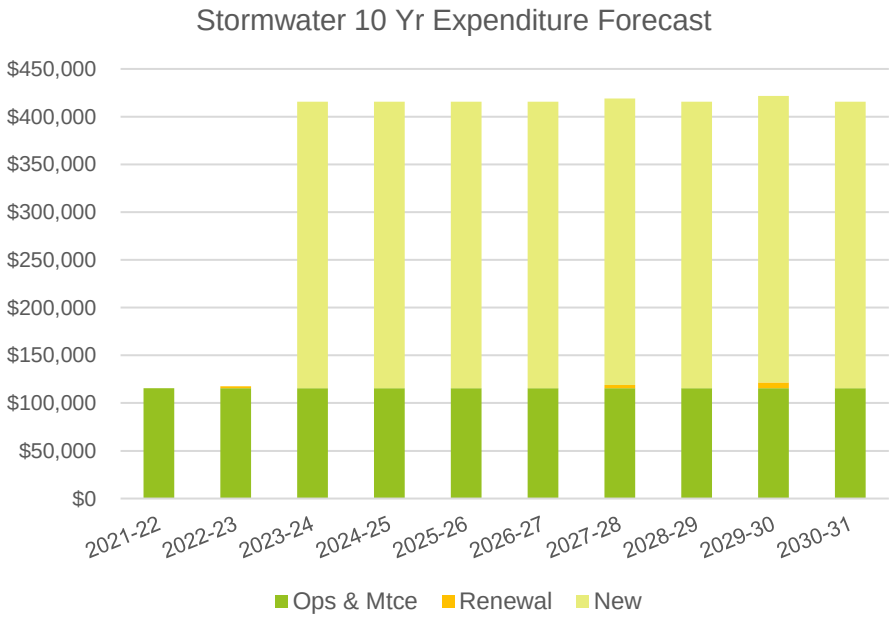
ASSET RANGE DISTRIBUTION



Age Range of Stormwater Assets

Council has not had a physical condition audit of its stormwater assets, consequently, Council cannot use condition assessments to identify where assets are within their defined useful lives. As such, this AMP will adopt the useful life for service standard. The age distribution can provide an indication of condition to inform upcoming renewals for Council.

STORMWATER FINANCIAL SUMMARY



The total financial projection for maintenance, capital renewal and capital new of the stormwater assets is $3.2M over the next 10 years. With today's volatile economic climate, Council will annually review this forecast to ensure all stormwater assets are maintained in accordance with service levels and current standards.

Council will strive to improve the quality of its asset management practices. Our improvement plan identifies our responsibility to increase data confidence through asset condition audits of stormwater assets.

Performance measures are in place to track Council's performance of its transport assets and asset management practices.

1 INTRODUCTION

1.1 Why does Council need an Asset Management Plan?

In accordance with the Local Government Act 1999 (the Act) and the Strategic Plan - 2030 Vision, Council provides a range of community services to the members of the local community and visitors. The services include transport services, waste management services, environmental services, social and recreational services, open space services, stormwater drainage services, and coastal and beach management services.

Under the Act, Council is required to develop and adopt an infrastructure and asset management plan covering a period of at least 10 years. In addition, Council is required to adopt a long-term financial plan associated with such service plans also covering a period of at least 10 years. There is a direct link between the development and implementation of these two plans, with the LTFP updated to reflect forecast expenditure as detailed within these plans. Variations to the scheduled works within the AMP and the LTFP may be adjusted as the need arises

The primary intent of asset management is to meet a required level of service in the most cost-effective way, through the creation, acquisition, maintenance, operation, rehabilitation, and disposal of assets to provide for present and future community needs. The Stormwater Asset Management Plan will be a living document over the next 4 years complying to all legislative requirements, and to communicate funding required to provide the required levels of service over a 10-year planning period.

This plan also aims to:

- Align with ISO 55000 (international standard for asset management) without seeking accreditation as an ISO document or process.
- Align the delivery of asset management activities with the organisation's goals and objectives; this process is known as the "line of sight" with asset management.
- Create transparency and accountability through all aspects of asset management ensuring all stakeholders understand their roles and responsibilities for achieving the Plan's aims.

The recent review of the Local Government Act 1999, and the commencement of the Essential Service Commission of SA's (ESCOSA) Rate Oversight Scheme, will focus on the effectiveness and robustness of Council's strategic management planning processes and financial sustainability. With changes in section 122 (Strategic Management Plans) and section 123 (Annual Business Plan and Budget), it is important that there is a clear and transparent alignment between the Long Term Financial Plan (LTFP) and Assets Management Plans (AMPs) – both arising under council's Strategic Management Plans (SMP). These plans are critical documents as they plan out how Council intend to manage its financial position and performance over the longer term.

1.2 Background

The purpose of stormwater assets are to provide a network of underground pipes and culverts within the townships enabling rainfalls to be directed from the roads. Throughout the rural areas, stormwater assets are located where it is necessary to direct water under the road (cross drains).

This AMP replaces the last AMP (2016) and will assist with achieving our goals in managing Council's Stormwater assets to:

- Meet the required level of service in the most cost-effective manner for present and future customers.
- Comply with regulatory requirements;
- Consult and communicate necessary funding requirements to provide the required levels of service over the next ten years.

In lay, the plan defines the services to be provided, how the services are provided, and what funds are required to provide the service.

Council's stormwater assets covered in this AMP include:

- Township Stormwater Drains
- Township Nodes (headwalls, pits, pollutant traps, maintenance holes and soakage pits)
- Township Storage and WSUD
- Rural Cross Drain, pipes and Culvert
- Rural Cross Drain Nodes (headwall, pits, erosion protection types)
- Rural Stormwater – Other (scour protection, junction box)

Figure 1 illustrates the quantum of stormwater assets by asset category managed by Council.

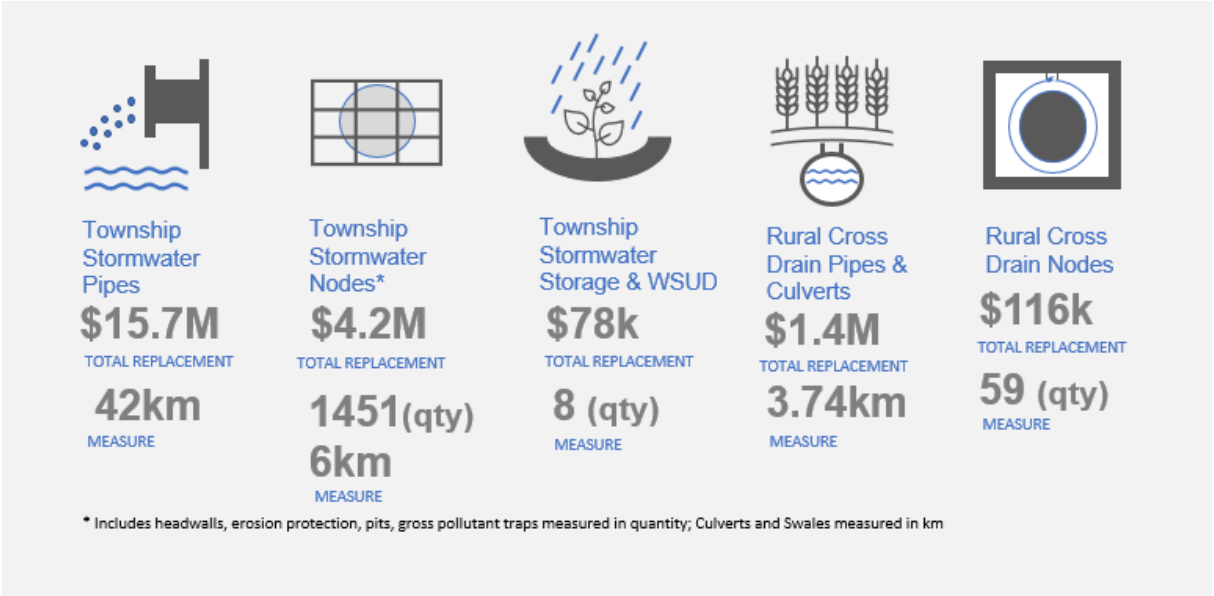


Figure 1 Stormwater Asset Category

The Stormwater Asset Management Plan works in conjunction with the following Council's plans, strategies and policies (Table 1):

Plans, Strategies and Policies
District of Yankalilla Strategic Plan (2030 Vision)
Long Term Financial Plan 2023-2033
Asset Management Policy
Asset Accounting Policy
Yankalilla, Normanville, and Carrickalinga Stormwater Management Plan (July 2020)
Catchment Assessment and Masterplans Second Valley and Randalsea (Aug 2017)

Table 1: Plans, Strategies and Policies

Assets controlled by Council are used widely across a broad section of the community. It is important that assets are maintained and renewed based on functionality, need, and fit of purpose. The best measure of an asset being fit for purpose is likely to be the user of the asset. Asset users are therefore key stakeholders of this Stormwater AMP. Table 2 displays the stakeholders where consultation is necessary when Council requires input in determining the levels of service and intervention levels of its Stormwater assets.

Key Stakeholders	Roles in Asset Management Plan
Council	Endorsement of the asset management policy strategy and plans Allocate resources to meet Council objectives in providing services while managing risks
Audit & Risk Committee	Endorsement of the asset management policy strategy and plans
Executive Leadership Team	To provide leadership and strategic direction Review Asset Management Policy and Asset Management Strategies To ensure that community needs, and the outcomes of service reviews are incorporated into asset management planning and Long-Term Financial Plan To ensure that training of Councillors and staff in financial and asset management practices is provided Support for asset management driven budget and Long Term Financial Plans To ensure that accurate and reliable information is presented to Council To ensure appropriate delegations and approval processes are followed

Key Stakeholders	Roles in Asset Management Plan
Infrastructure Management	Facilitate development of Asset Management Plans To oversee the implementation of the Asset Management Policy and Asset Management Strategies To oversee the ongoing development and review of service plans and asset management plans To ensure that community needs, and the outcomes of service reviews are incorporated into asset management plans To promote and raise awareness of asset management within the organisation To ensure relevant health and wellbeing, human rights and equity principles and strategies are taken into consideration To develop and implement asset management improvement plan To provide and manage the asset management information system(s) Integrate asset management and financial plans and reporting To develop and implement maintenance, renewal, and capital works programs in accordance with the Asset Management Policy, Strategy, Plans, as well as budget allocations. Develop Specific Management Plans (upgrade, renewal, maintenance, operations, disposal) To deliver levels of service to agreed risk and cost standards and expectations To report asset related risk and damage To establish and monitor asset compliance and risk inspection regimes To manage asset condition assessments
Finance Department	To ensure that the asset valuations are accurate Develop supporting policies i.e. Asset Accounting Policy To prepare asset sustainability and financial reports incorporating asset depreciation in compliance with current Australian Accounting standards.
Operations and Maintenance Manager	Unit Managers are responsible for understanding expectations of levels of service through effective, ongoing engagement with the community (user of the service) Planning for changes to operations and maintenance as well as undertake minor renewal works

Table 2 - Key Stakeholders in Asset Management Plan

1.3 GOALS AND OBJECTIVES

The goal of asset management is to provide the desired level of service through the provision and management of physical assets in the most cost-effective manner, for present and future generations.

The core objectives for Council's stormwater assets are to:

- Protect the community and both private and public assets from flooding;
- Manage the quality of runoff and effect on receiving environments;
- Investigate opportunities to reuse stormwater;
- Protect watercourses and riparian ecosystems;
- Guide the planning of new development, open space, recreation, and amenity; and
- Sustainable management of stormwater infrastructure, including maintenance.

As well as achieving the above core objectives, this Stormwater Asset Management will need to demonstrate an alignment with the following District of Yankalilla's Strategic Plan's 2030 vision, themes, and priorities:

OUR ENVIRONMENT

VISION:

Our Environment is a tapestry of living landscapes.

PRIORITIES:

- Protecting our natural environment and rural lifestyle
- Living sustainably
- Ensuring sensitive development

OUR COMMUNITY

VISION:

Our Community is a connected network of townships and rural settlements.

PRIORITIES:

- Providing for our children, young people, and families
- Accessing health, emergency, and community services
- Building community connections.

OUR INFRASTRUCTURE

VISION:

Our Infrastructure is taking us places:

PRIORITIES:

- Getting around
- Delivering township infrastructure

1.4 PLAN FRAMEWORK

The asset management framework includes the following key elements of this plan:

- Levels of service - Defines the level of service Council delivers to its customers and how they are measured.
- Future demand – The impact on future service delivery and how the demand will be met.
- Lifecycle management – What Council has planned to manage and operate the assets at the agreed levels of service while optimising lifecycle cost.
- Risk management – How Council manages its assets' risks.
- Financial summary – The funds needed to provide the agreed levels of service.
- Plan improvement and monitoring – how Council will improve with is asset management maturity and how the plan will be measured.

1.5 CORE AND ADVANCED ASSET MANAGEMENT

This asset management plan is prepared as a core AMP over a 10-year planning period in line with the IIMM. Core asset management is a 'top down' approach with analysis is applied at the 'system' or 'network' level. This plan is prepared to meet minimum legislative and organisational requirements for sustainable service deliver and long-term financial planning and reporting.

2 LEVELS OF SERVICE

2.1 CUSTOMER RESEARCH

Council is continually working to improve its understanding of the community perceptions of Council. To assist Council in planning for and ensuring it is meeting community needs, continuous research is sought to establish a deeper understanding and provide an evidence based quantitative measure of community perceptions towards the services provided by Council.

The most recent community benchmark survey, conducted in 2018, reported the satisfaction level on the overall rating of Council's performance as illustrated in Table 3. Limited questions were asked relating to Council's stormwater assets, but the community did point out the following points on how Council could improve in the near future:

- Roads/improve drainage (i.e. add gutters)/better maintenance/ensure repaired/fix potholes/attention to dirt roads
- Stormwater/install to more roads/prevent draining into creeks

2.2 LEGISLATIVE REQUIREMENTS

There are many legislative requirements that Council must adhere to when it comes to maintaining its assets. Legislative requirements that impact the delivery of Council stormwater services are listed in Table 3.

Legislation	Requirements
Aboriginal Heritage Act 1998	An Act to provide for the protection and preservation of the Aboriginal heritage; to repeal the Aboriginal and Historic Relics Preservation Act 1965 and the Aboriginal Heritage Act 1979; and for other purposes.
Australian Accounting Standards	Standards applied in preparing financial statements, relating to the valuation, revaluation and depreciation of open space assets.
Development Act 1993	An Act to provide for planning and regulate development in the State; to regulate the use and management of land and buildings, and the design and construction of buildings; to make provision for the maintenance and conservation of land and buildings where appropriate; and for other purposes.
Planning, Development, and Infrastructure Act 2016	An Act to provide for matters that are relevant to the use, development and management of land and buildings, including by providing a planning system to regulate development within the State, rule with respect to the design, construction and use of buildings, and other initiatives to facilitate the development of infrastructure, facilities and environments that will benefit the community.
Environmental Protection Act	An Act to provide the protection of the environment; to establish the Environment Protection Authority and define its functions and powers; and for other purposes. Consideration of this act should be undertaken for the provision, development or management of open space.

Legislation	Requirements
Local Government (Stormwater Management Amendment Act 2007)	Outlines the Stormwater Management Agreement between State and Local Governments, establishment of the Stormwater Management Authority and preparation of Stormwater Management Plans.
National Construction Code 2014	Sets out minimum standards for stormwater management for property development.
Landscape South Australia Act 2019	An Act to promote sustainable and integrated management of the State's natural resources; to make provision for the protection of the State's natural resources.
Local Government Act 1999.	Sets out role, purpose, responsibilities, and powers of local governments including the preparation of long-term financial plan supported by asset management plans for sustainable service delivery.
Work Health and Safety Act 2012	An Act to provide for the health, safety, and welfare of persons at work; and for other purposes.

Table 3 - Legislative requirements

2.3 LEVEL OF SERVICE

The primary purpose of stormwater assets is to manage the quality and quantity rainfall runoffs, enabling minimal property damage, danger and disruption to the community from flooding.

Levels of service are a key business influencer and drives all asset management decisions. It describes:

- What Council intends to deliver to customers.
- The service quality, functionality, and capacity.
- The performance measures.
- The service target.

The adopted levels of service for stormwater assets are based on legislative requirements, customer research and expectations, and Council's strategic goals. By using performance measures, Council can see how it is doing in terms of delivering levels of service.

Council has identified two levels of service:

- Community Levels of Service – the service outcomes that the community wants.
- Technical Levels of Service – measures the service that Council provides.

Key Performance Measure		Levels of Service	Performance Measure	Service Target
COMMUNITY LEVELS OF SERVICE				
	Quality	The stormwater network is well maintained to minimise local blockages.	Customer service request	< 10/yr.
	Function	Stormwater assets to meet service needs, 'fit for purpose'	Community Survey	Satisfaction level - Good (7.0-7.9)
		Use of roads and footpaths is not affected by excess surface water.	Customer service request	< 5/yr.
	Utilisation	The Stormwater system provided has suitable capacity to prevent inundation of properties	Customer service request Inundation of dwellings	< 2/yr.

Key Performance Measure		Levels of Service	Performance Measure	Service Target
TECHNICAL LEVELS OF SERVICE – Summarised created by Sproutt				
	Condition	Physical state of stormwater assets in a serviceable condition	Average condition of stormwater assets	Equal or less than condition rating 3
	Renewal	Sustainably managing the renewal of assets	Asset Renewal Ratio	100%
	Utilisation	Stormwater assets have the capacity to meet the community need	Property flooding incidents for a 10 year rain event	0 Reports of property flooding
	Safety	Safety compliance standards are achieved	Number of accidents or injuries	0

3 FUTURE DEMANDS

3.1 DEMAND DRIVERS

Overtime, the community's demand for the services that the Council provide changes. The reason for change can be varied, but some of the demand drivers are population, demographics, seasonal factors, vehicle ownership, consumer preferences and expectations, agricultural practice, technology, and environmental factors. Naturally as service demand changes, Council assets may also need to change.

3.2 DEMAND FORECASTS

The present position, future projection, demand factors and impacts on service delivery are summarised in Table 4.

CURRENT POSITION	DEMAND FORCAST	DEMAND IMPACT
 **POPULATION AND DEMOGRAPHIC**		
Population increase: ➢ Total estimated current population 5,520	Under Structural Plan, URS, 2015, planned to accommodate 6,927 in 2030	Increase in township allotments will increase flows in downstream drainage systems and pollutant loads on receiving waters, potentially requiring more stormwater infrastructure.
Changing demographics: ➢ 25% of population aged over 65 years old	Growth in aging population	Increased demand for higher density aged care developments with smaller garden areas, which could increase flows on downstream drainage system.
 **SEASONAL FACTORS**		
"Green Change" Factors: ➢ The rural population live on and make a living from the farmland with vehicles suitable for variable unsealed road conditions.	Increased number of people living in rural style allotments, but not working the land.	Little impact anticipated on stormwater assets.
"Sea Change" Factors: ➢ Most existing dwellings in the seaside township are private holiday or rental holiday accommodation.	Increase number of dwelling and percentage of the population living presently in seaside township areas; In many instances, the increase in permanent population will not result in increase in rate base.	More demand for infrastructure improvements to protect existing coastal environments.

CURRENT POSITION	DEMAND FORCAST	DEMAND IMPACT
		Less tolerance of 'nuisance' flows across township properties.
	CLIMATE CHANGE	
Current climate conditions used as the basis for infrastructure design and use.	Severe weather events continue to increase based on current trends.	More intense rainfall events are likely to place increased pressure on the drainage network to carry larger volumes of stormwater runoff.
	WATER USAGE COSTS	
Currently properties generally contain pervious areas of lawn and garden	Pervious garden and lawn areas will be replaced by impervious paved areas.	Increased stormwater flows to downstream systems (may be offset by onsite storage and reuse).

Table 4 - Future Demands

3.3 Changes in Technology

Council strives to monitor new asset treatments that may be available to increase the life of its stormwater assets. Table 5 describes the technology changes that are forecasted to affect the delivery of service covered by this plan.

These technical logical factors need to be assessed in determining the scoping requirements for maintenance works, renewal, upgrade, and new stormwater projects. Potential changes to asset management technology will evolve, in particular the monitoring and data collection functions. These upgrades in technology may require consideration of modifications to service levels as in when appropriate.

TECHNOLOGY CHANGE	EFFECT ON SERVICE DELIVERY
	TECHNOLOGY CHANGE
Advanced Design on Gross Pollutant Traps (GPT)	More effective way in capturing water pollutants making it easier to clean and clear.
Advanced trenchless techology	Less disturbance in populated areas.

TECHNOLOGY CHANGE	EFFECT ON SERVICE DELIVERY
Acqufier storage	Water can be harvested and store underground only to be retrieved at a later required time to irrigate parks and reserves etc.
Improved pipe laying	Reduce pipe laying costs of stormwater pipelines enabling a cost effective method of restoring the service level back to the desired level.
Improved CCTV or pipe inspection technology	A more cost effective methods for monitoring the condition of the stormwater network.
New Pipe material	Replacement of old material pipes (clay & asbestos) to modern and cost effective materials such as poly pipes and reinforced concrete fibre pipes.
New side entry pits	New pits integrated with grates for easier and more cost effective inspection, maintenance and cleaning resulting to a reduction in life cycle cost.
Water Sensitive Urban Design (WSUD)	Reduces flow rates from new developments and provides higher quality runoff (e.g. stormwater diversions for watering street trees, rain gardens)

Table 5 - Changes in Technology

3.4 DEMAND MANAGEMENT PLAN

The demand for District of Yankalilla will increase proportionally with the forecasted prediction listed in table 5 (above table).

Demand for new services will be managed through a combination of managing existing assets, upgrading existing assets, providing new assets to meet demand and demand management. Council will determine the ability of the existing assets to manage increased usage for new and housing developments. Developers will be required to provide additional infrastructure for the existing network and upgrade where necessary to ensure adequate drainage. Opportunities identified to date for demand management are shown in Table 6. Further opportunities will be developed in future revisions of this AMP.

SERVICE ACTIVITY	DEMAND MANAGEMENT PLAN
Land Division	Land Division development to include stormwater management controls to ensure protection of downstream environments
Installing New Assets	Prepare prioritised program of new stormwater assets identified in stormwater studies in a 10 year capital works program.
Upgrading Existing Assets	Prepare prioritised program of asset investigations and upgrades identified in stormwater studies to include in my 10 year capital works program.

Table 6 - Demand Management Opportunities

4 LIFECYCLE MANAGEMENT

Life cycle management details how Council plans to manage and operate (from planning to disposing) its stormwater assets at the agreed level of service while optimising total cost of ownership at an appropriate level of risk.

This section outlines the stormwater asset data (condition, valuation, revaluation, useful life) and processes needed to effectively manage, renew, and upgrade the infrastructure assets.

It is worth noting that while significant time is spent on the decision to create or acquire a new asset, historically local government has not adequately considered the financial costs of maintaining that asset from creation through to its disposal or replacement. New assets require initial expenditure; however new assets also require financial commitment for the assets lifecycle costs which can be up to five times the initial expenditure.

The cost of an asset lifecycle can be divided into four major stages:

- Creation / Acquisition;
- Routine Maintenance;
- Capital Renewal/Replacement; and
- Decommission.

These major stages are explained in this section of Life Cycle Management.

Variability of these stages also exists within different stormwater categories, as stormwater function may influence the renewal versus replacement strategies.

The major stages can be further divided into specific processes as listed in Figure 2. In each stage of the lifecycle, varying events will trigger the need to begin the next phase of the cycle. Further details on the processes of these lifecycle stages for stormwater assets is provided in the following sections.

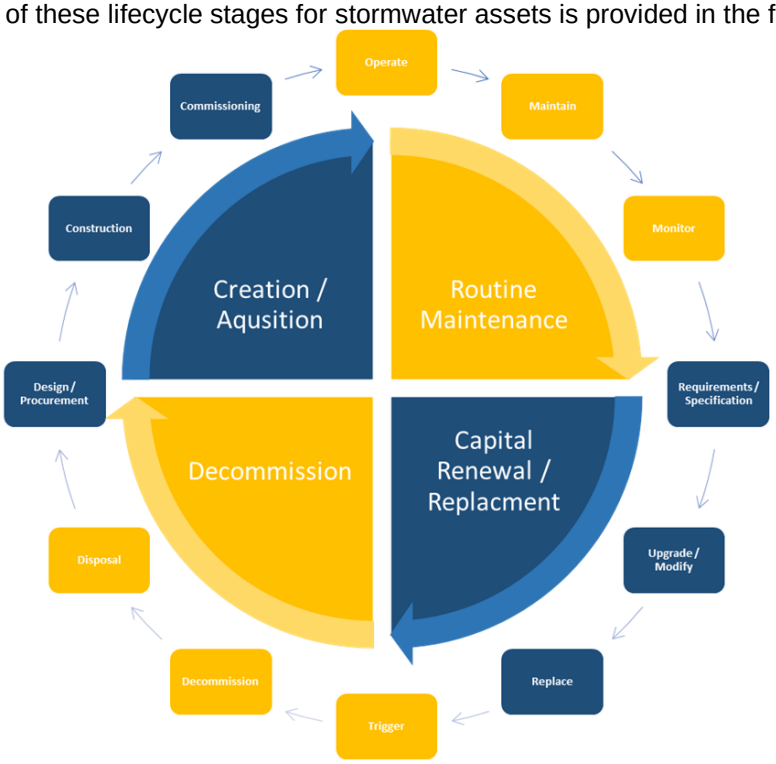


Figure 2 - Asset Lifecycle Flowchart

4.1 ASSET CONDITION

The objective of a condition assessment is to provide sufficient information on asset condition to allow informed strategic asset planning and management decisions to be made.

Council has not had a physical condition audit of its stormwater assets, consequently, Council cannot use condition assessments to identify where assets are within their defined useful lives at any given point in time. As such, this AMP will adopt the useful life for service standard.

However, it is worth noting that the age of an asset does not always relate to the actual condition of the asset. As part of Council's improvement plan, a sample size visual inspection of the stormwater network is recommended, allowing Council to understand the actual condition of its assets.

4.1.1 AGE BASED CONDITION

Stormwater assets are generally situated underground and are difficult to visually inspect. The age distribution can provide an indication of condition to inform upcoming renewals for Council. The stormwater age profiles are illustrated in the following figures 3. The data indicates:

- 2% of the Council's stormwater assets (township drains and nodes) are over 50 years old and will require condition monitoring for deterioration.
- 5% of township stormwater drains and nodes are nearing 50 years old, and Council will see an increase in renewals in the next 50 years.
- 1% of stormwater assets are on its last 10% (1-10 years) of their useful life and require intervention, Table 7;

Figure 3 illustrates the age distribution across Council's stormwater assets. This age distribution can assist with the condition of the stormwater assets and inform Council of future renewals.

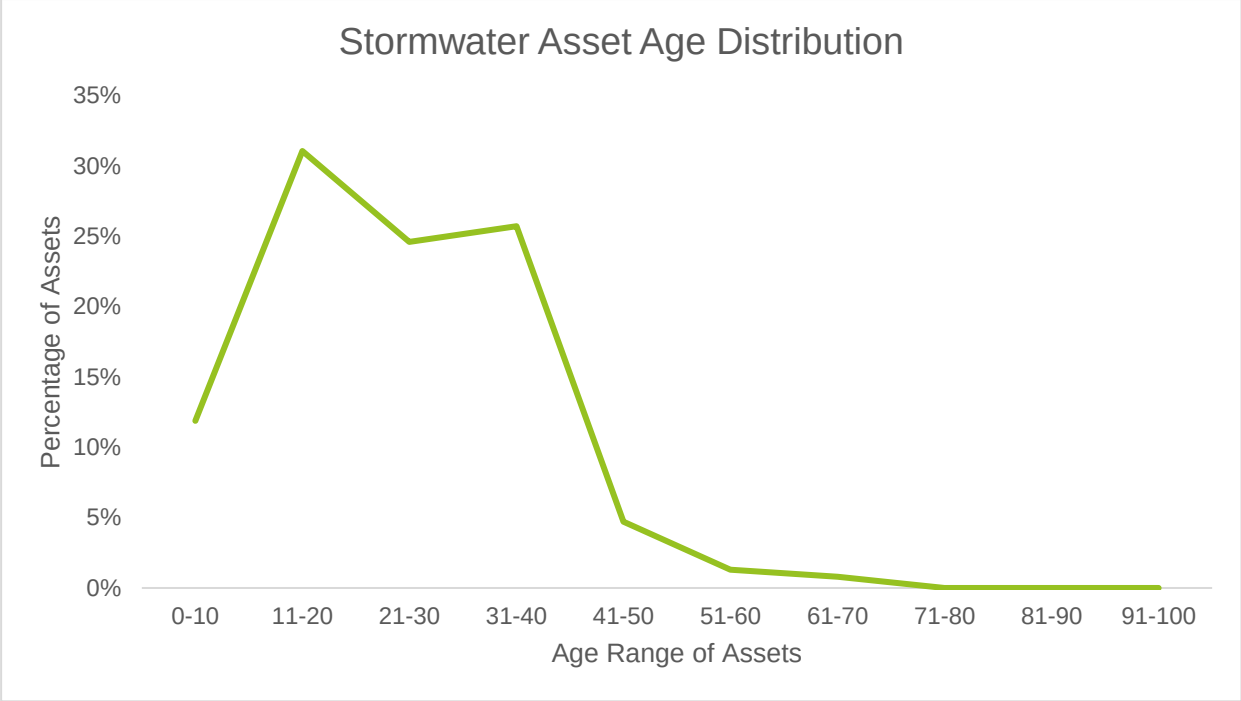


Figure 3 - Stormwater Asset Age Distribution

Stormwater pipes are considered to have useful service lives of 100 years and various stormwater nodes between 50-100 years. This is based on an estimated structural life. The detailed lives of stormwater assets are shown in Table 7.

Asset Description	Asset Type	Standard Life	Current Life	Life Remaining	Replacement Rate
SW Grated Inlet Pit (N01312) in Graham Street	300mm x 300mm SW Grated Inlet Pit	50	49	1	917.50
SW Grated Inlet Pit (N01150) in Main South Road	300mm x 300mm SW Grated Inlet Pit (Low Service Level)	65	62	3	917.50
SW Grated Inlet Pit (N01151) in Charles Street	300mm x 300mm SW Grated Inlet Pit (Low Service Level)	65	62	3	917.50
SW Grated Inlet Pit (N01162) in Charles Street	300mm x 300mm SW Grated Inlet Pit (Low Service Level)	65	62	3	917.50
SW Grated Inlet Pit (N01266) in Main South Road	450mm x 450mm SW Grated Inlet Pit (Low Service Level)	65	62	3	1,374.00
SW Grated Inlet Pit (N01267) in Main South Road	450mm x 450mm SW Grated Inlet Pit (Low Service Level)	65	62	3	1,374.00
SW Grated Inlet Pit (N01318) in Main South Road	450mm x 450mm SW Grated Inlet Pit (Low Service Level)	65	62	3	1,374.00
SW Grated Inlet Pit (N01321) in Hutchinson Street	900mm x 450mm SW Grated Inlet Pit (Low Service Level)	55	52	3	2,171.00
SW Grated Inlet Pit (N01322) in Main South Road	1200mm x 450mm SW Grated Inlet Pit (Low Service Level)	65	62	3	2,740.00
SW Grated Inlet Pit (N01180) in Carrickalinga Road	900mm x 900mm SW Grated Inlet Pit	50	44	6	3,189.00
SW Headwall (N01262) in Main South Road	300-450mm SW Headwall	70	62	8	890.00
SW Headwall (N01263) in Main South Road	300-450mm SW Headwall	70	62	8	890.00

Asset Description	Asset Type	Standard Life	Current Life	Life Remaining	Replacement Rate
SW Headwall (N01264) in Main South Road	300-450mm SW Headwall	70	62	8	890.00
SW Headwall (N01268) in Main South Road	300-450mm SW Headwall	70	62	8	890.00
SW Headwall (N01306) in Main South Road	525-600mm SW Headwall	70	62	8	1,057.50
SW Headwall (N01307) in Main South Road	525-600mm SW Headwall	70	62	8	1,057.50
SW Headwall (N01383) in Charles Street	300-450mm SW Headwall	70	62	8	890.00
				Total	**22,457.00**

Table 7 - Stormwater Assets with 10% Remaining Useful Life

4.2 USEFUL LIFE

A recent desktop valuation of Council's Stormwater assets was performed at a component level which enables assets to be assigned an average useful life for each component to determine depreciation rates. Here, the useful life of a stormwater asset is assumed to be the time that an asset is expected to last before total replacement is required. It is likely that during their useful life, some assets will require maintenance.

Stormwater assets useful life are administered by 2 factors:

- Structural deterioration – e.g. when a pipe or an asset fails due to age/physical deterioration and renewal is required.
- Suitability – despite being in good physical condition, an asset is no longer suitable for its intended purpose e.g. pipe's capacity is exceeded.

Council's Asset Register is updated annually to reflect changes resulting from major renewal and upgrade works delivered via Council's capital works program, as well as factoring in disposals and additions.

Table 8 displays the useful life of Council's stormwater assets classified into asset groups.

Asset Category	Asset group	Average Standard Useful Life (Years)
Township Drains	Box Culvert	70
Township Drains	Concrete Pipe	100
Township Drains	PVC Pipe	96

Asset Category	Asset group	Average Standard Useful Life (Years)
Township Drains	Swale	70
Township Nodes	Allotment Connection	70
Township Nodes	Bubble Up Pit	70
Township Nodes	Double Side Entry Pit	80
Township Nodes	Erosion Protection	100
Township Nodes	Field Gully Pit	50
Township Nodes	Grated Inlet Pit	52
Township Nodes	Grated V Inlet Pit	50
Township Nodes	Gross Pollutant Trap	50
Township Nodes	Headwall	70
Township Nodes	Inlet Erosion Protection	100
Township Nodes	Inlet Headwall	70
Township Nodes	Inlet Structure	70
Township Nodes	Junction Box	80
Township Nodes	Maintenance Hole	70
Township Nodes	Outlet Erosion Protection	100
Township Nodes	Outlet Headwall	76
Township Nodes	Outlet Structure	70
Township Nodes	Side Entry Pit	80
Township Other	Rain Garden	20
Rural Drain	Box Culvert	70
Rural Drain	Cross Drain Pipe	100

Asset Category	Asset group	Average Standard Useful Life (Years)
Rural Nodes	Erosion Protection	100
Rural Nodes	Headwall	70
Rural Nodes	Pit	70

Table 8 - Asset Useful Life

Climate change will inevitably affect our stormwater assets' useful lives. Material lives may not withstand the continuously changing intensity of temperatures, heatwaves, rainfalls, and storms – reducing the assets useful lives. These impacts are identified in the future demand and risk management of this AMP.

4.3 ASSET VALUATION

Valuations are undertaken in alignment with Australian Accounting Standard 'AASB13 Fair Value', and 'AASB116 Property Plant and Equipment'. These valuations are required every three years at minimum, with an independent audit required every five years. Valuations are undertaken to satisfy the financial reporting requirements and to understand the cost to replace assets.

The valuation of Council's stormwater assets is summarized in the table below Table 9.

Asset Category	Replacement Value	Accumulated Depreciation	Written Down Value
Township Stormwater Drains	$15,713,766	$3,569,989	$12,143,776
Township Stormwater Nodes	$4,180,060	$1,214,145	$2,965,915
Township Other (Storage & WSUD)	$78,524	$2,662	$75,862
Rural Cross Drains	$1,540,349	$395,807	$1,144,542
Rural Cross Drain Nodes	$115,709	$8,081	$107,628
TOTAL	**$21,628,408**	**$5,190,684**	**$16,437,723**

Table 9 - Stormwater Assets Valuation

4.4 OPERATIONS AND MAINTENANCE PLAN

Operations include regular activities to provide services. Examples of typical operational activities include cleaning gross pollutant traps.

Maintenance include all actions necessary for retaining an asset as near as practicable to an appropriate service condition including regular ongoing day-to-day work necessary to keep assets operating. Examples of typical maintenance activities include repairing pit lids and pipe junctions. This work is not capitalised and does not increase the service life of the asset.

The District of Yankalilla will operate and maintain the stormwater assets to provide the defined levels of service to approved budgets in the most cost effective way.

4.4.1 SUMMARY OF FUTURE COSTS

The projected recurrent maintenance budget for stormwater assets is shown in Figure 4. No anticipation of CPI and growth increase, changes in demand and complexity have been factored into this forecasted operations and maintenance budget over the next 10 years. Both the operations and maintenance budget has been significantly reduced since the last AMP in 2016. With much of the anticipated big economic impacts Australia will face and is currently facing, this budget may not be sufficient to meet unknown consequences. The CPI assumption will likely change on annual budgets through the LTFP.

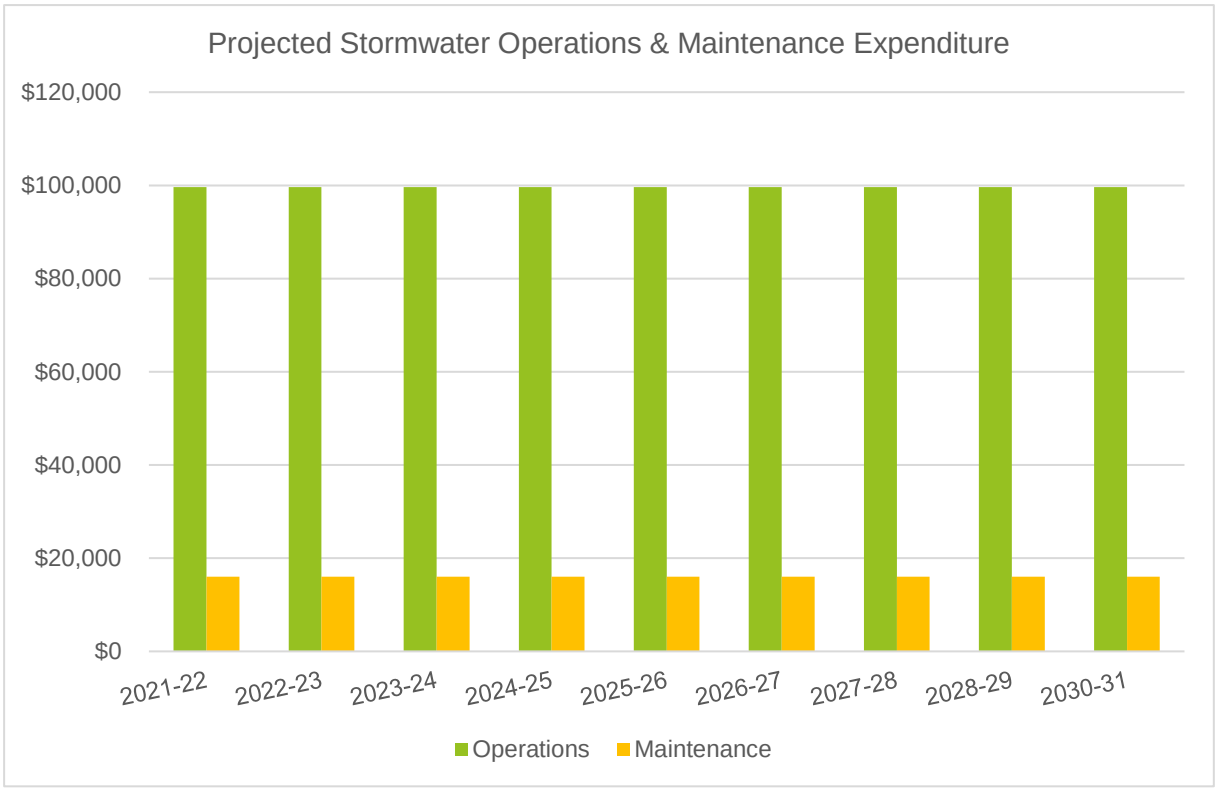


Figure 4 - 10 year Stormwater Operations and Maintenance Projected Expenditure

4.5 RENEWAL PLAN

Capital renewal is major work that restores, rehabilitates, replaces or renews an existing asset to return it to the modern equivalent standard performance and level of service. Renewal planning is essential as it ensures adequate funding is available and assets are replaced at an optimum time to maintain the level of service.

4.5.1 RENEWAL IDENTIFICATION

Capital renewal expenditure is expected to change over time as the stormwater asset portfolio increase in size, complexity, and age.

Currently, Council does not have any renewal identification methods for stormwater assets. This is highlighted in the improvement plan where Council will develop methods in identifying stormwater assets that require renewing.

Council understands that data confidence level plays a major role in the development of the renewal identification methods. The more accurate the data, the more refined and accurate future renewal programs will be.

4.5.2 RENEWAL STRATEGIES

Verified renewal projects are ranked by priority and the available funds available. If the cost is beyond Council's financial ability to fund the verified renewals, such projects are deferred. The impact of the deferral on the assets ability to still provide the required level of service will be assessed. Deferred renewal works may not always have an immediate impact on the short term operations of the assets; however, repeated deferrals will create a long term liability on the already deteriorating asset.

Council may discount the condition of its assets and consider early renewal interventions due to changes in standards, safety issues, changes in levels of service, funding opportunities or alignment with external projects, strategies, and plans.

4.5.3 SUMMARY OF FUTURE COSTS

There is currently no established capital renewal or upgrade programs for Council's stormwater assets but assets requiring renewal are identified through:

- Stormwater assets aged condition and useful life
- Yankalilla, Normanville, and Carrickalinga Stormwater Management Plan
- Second Valley, Randalsea Stormwater Management Plan.

The projected future renewal expenditure based on the remaining useful life is shown in figure 5.

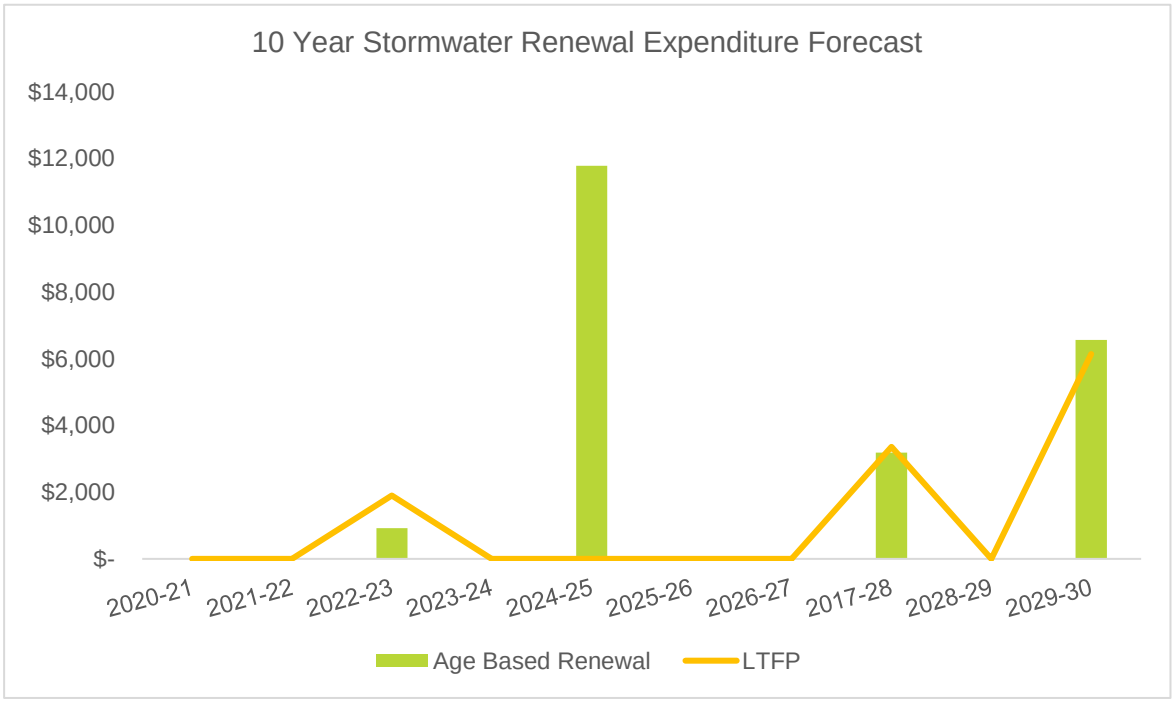


Figure 5 - 10 Year Stormwater RENEWAL Expenditure Forecast

The plan identifies a total spend of $22,500 for township stormwater asset renewal (grated inlet pits and headwalls) based on the age of the assets over the next 10 years. The current LTFP expenditure over the budget projection of $11,400 will not be sufficient to renew the end of life assets. When renewal works are deferred, the impact of the deferral on the assets ability to still provide the required level of service will be assessed. Deferred work may not impact significantly on the short term operation of the assets; however, repeated deferrals will create a backlog (liability) in the longer term.

Apart from using the assets' age for future renewals, most of the future expenditure will be used for projects highlighted in the Yankalilla, Normanville and Carrickalinga Stormwater Management Plan and Second Valley Randalsea Stormwater Management Plan. The following items have been identified as having drainage deficiencies and will need intervention in the near future:

Location	Service Deficiency
Second Valley	Lack of capacity of stormwater system
	Erosion of watercourse
Yankalilla	Lack of capacity of stormwater system
	Number of inlets along Main Street do not have sufficient capacity, exacerbating stormwater runoffs in the road reserve.
Normanville	Lack of capacity of stormwater system resulting to flooding at low lying areas (Mountain, James, and Mary Ave) during major storm events
Carrickalinga	Potential overland flow through both private and public open space during moderate to major rainfall events. These include locations where the land falls away from the road at stormwater inlets on Dorset Ct, Riverview Dr and Elizabeth Cr.
	Stormwater outfalls along the dunes system to the west of Gold Coast Dr discharge to informal channels or directly to the coast may post significant erosion and scouring risks in the area.

Table 10 - Identified Drainage Deficiencies

Mitigation strategies and the need for further investigations have been identified to reduce flood risk and address drainage deficiencies. Yankalilla, Normanville and Carrickalinga are relatively small townships where expensive capital works programs will be difficult to fund. As such, the mitigation measures suggested effective, low-cost approaches that have an increase chance of being implemented.

Mitigation options for local flood management include the following:

Issue	Mitigation Option	Capital Cost (GST excl)
Localised sag issues and nuisance flooding of private land	Site inspection and design of site-specific remediation	$5,000
Water ponding in roadways and protection of road verges	Provide kerb and gutter and formal driveway crossing in all residential streets	$75/metre
Low-capacity swales	Investigate options for increasing existing swale capacity in problem areas	$6,000
	Enforce a minimum raised floor level above natural surface	

Table 11 - Stormwater Mitigation Option

4.6 ACQUISTION PLAN (NEW CAPITAL)

New capital relates to new assets or a significantly improved level of service that did not previously exist. They may result from various needs resulting from demands such as population growth, seasonal factors, climate, and technology change (as mentioned in section 4).

4.6.1 CAPITAL INVESTMENT STRATEGIES

New stormwater assets are created and decided upon from various sources:

- Community requests
- Council's resolutions
- Projects proposed for each year's annual plan aligning to the strategic priorities.
- Grant opportunities
- Partnership with external organisation

New projects are then prioritised each year against all other Council's proposals and asset categories.

4.6.2 SUMMARY OF FUTURE COSTS

Figure 6 illustrates the projected future spend through new/upgrade of capital works for stormwater assets. A total of $2.1 million is budgeted across 10 years, starting in 2023/24. This budgeted forecast will begin to address the drainage deficiency issues as identified in table 11 above. Council is yet to decide on what capital new projects they need to undertake but it will be based on the 'high priority' recommendations set out in the Yankalilla, Normanville and Carrickalinga SMP and Second Valley Randalsea SMP.

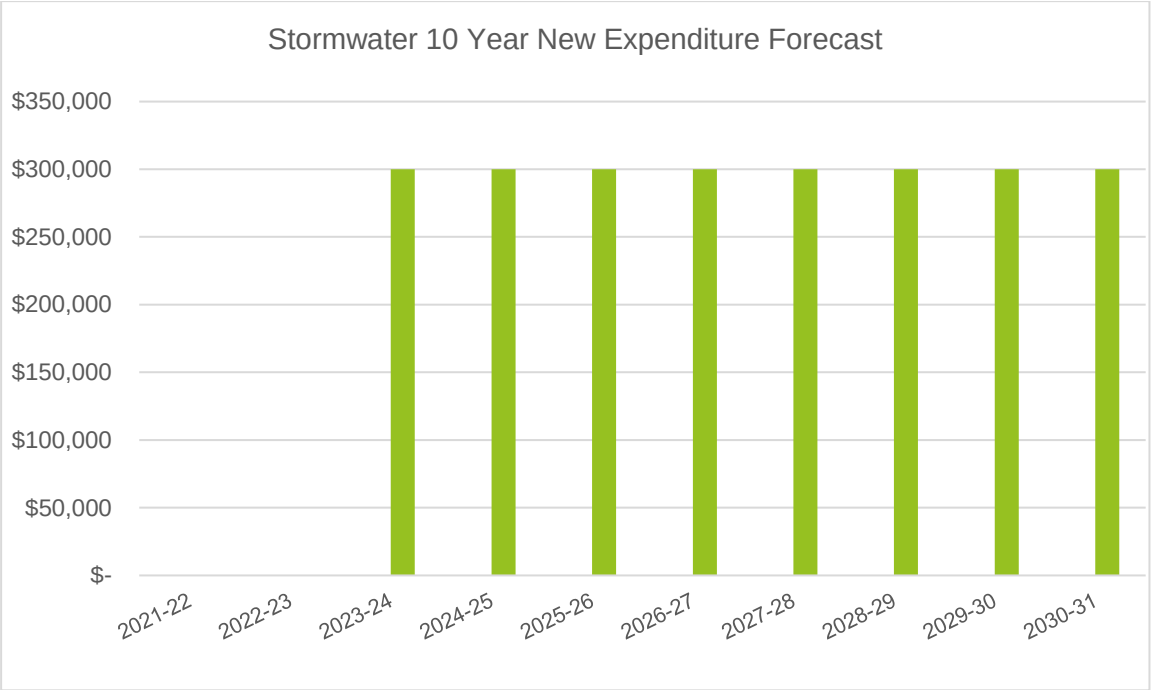


Figure 6 - 10 Year Capital NEW Expenditure Forecast

4.7 DECOMMISION PLAN

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition, or relocation.

Decommission of assets can evolve in the following situations:

- The end of useful life of existing assets.
- Safety factors inherent to the asset.
- Non-compliance of the asset, resulting in infeasible remedial budgets and prompting a modern equivalent replacement.

Decommissioning of an asset can involve the following actions:

- Design and replace the asset with a modern, fit for purpose equivalent.
- Removing the asset to repurpose the land in line with Council's long-term strategy.

Council has no planned disposals for stormwater assets, and for this reason, no funding is required or expected from decommissioning of any assets at this current point in time.

5 RISK MANAGEMENT

5.1 CRITICAL ASSETS

An assessment of risks associated with service delivery from stormwater infrastructure assets has been undertaken by Council. The risk assessment process identified are as follows:

5.2 RISK ASSESSMENT

An assessment of risks associated with service delivery from stormwater infrastructure assets has been undertaken by Council. The risk assessment process identified are as follows:

- Risk Management Context
  - Establishes the objectives, stakeholders, key issues, and criteria against which risks will be evaluated.

- Identify the Risk:
  - Identifies what risk events are likely to impact on assets and services.

- Analyse the Risk:
  - Reviews the existing controls and then analyses the likelihood of an event occurring and the consequence of the event to determine the level of risks.

- Assess the Risk:
  - Assesses and ranks (risk rating) the identified risks in a Risk Register

- Treat the Risks:
  - Identified actions to reduce/control the risk.

Critical risks assessed as being 'Very High' requiring immediate corrective action and 'High', requiring prioritised corrective action will be identified with associated costs in future revisions of the plan.

Table 12 displays Council's risk management for stormwater assets and will require annual revision.

Service or Asset at Risk	What can Happen	Ris Rating	Risk Treatment Plan	Responsibility	Completion Date
Township stormwater systems identified in Yankalilla Normanville Carrickalinga Stormwater Management Plan	Inundation of Properties	High	Include investigations and infrastructure upgrade works identified in YNC SMP for consideration in future Long Term Financial Plan (LTFP) and Annual Business Plan.	Infrastructure Management Team	Ongoing
Stormwater discharges to Yankalilla Bay identified in Yankalilla	Pollutant carried into Marine Environment	High	Include investigations and infrastructure upgrade works identified in YNC	Infrastructure Management Team	Ongoing

Service or Asset at Risk	What can Happen	Ris Rating	Risk Treatment Plan	Responsibility	Completion Date
Normanville Carrickalinga Stormwater Management Plan			SMP for consideration in future Long Term Financial Plan (LTFP) and Annual Business Plan.		
Second Valley and Randalsea Stormwater systems	Inundation of properties	High	Include investigations and infrastructure upgrade works identified in Second Valley Randlesea SMP for consideration in future Long Term Financial Plan (LTFP) and Annual Business Plan.	Infrastructure Management Team	Ongoing
Climate change not planned for properly with respect to asset management.	Inundation of properties	High		Infrastructure Management Team	Ongoing
Council unable to fund capital and maintenance due to economic downturn.		High	Council to factor in inflation rate when establishing budgets in LTFP to cover for the volatile economic climate.	Executive Leadership Team Director Corporate Services	Ongoing
Not managing assets appropriately due to poor quality of data within AMP.		High	Physical condition assessment of Stormwater assets (CCTV)	Infrastructure Management Team	2025/2026

Table 12 – Risks

6 FINANCIAL SUMMARY

This section contains the financial requirements resulting from all the information presented in sections 4 of this asset management plan. The financial projections will continue to see improvements as Council will revise the plan at an ongoing basis.

6.1 VALUATION FORECAST

Council's decision to create new assets through its capital works projects in the future will likely see an increase in value of its stormwater asset portfolio. Additional assets will likely increase the operational and maintenance cost in the future.

6.2 EXPENDITURE FORECAST

Figure 13 shows the financial projections for maintenance, capital renewal and capital new expenditure for stormwater assets. This forecasted projection is set out in the Long-Term Financial Plan and is set at a constant amount over the next 10 years. No new capital works program has been set for the next 10 years allowing Council to undertake new capital works as and when required each year based on the recommendations set out in the Yankalilla, Normanville and Carrickalinga SMP and Second Valley Randalsea SMP. It is important to note that the predicted stormwater budgets for maintenance, capital renewal and capital new will require methodical revision to tackle consequences from today's volatile economic and environmental climate.

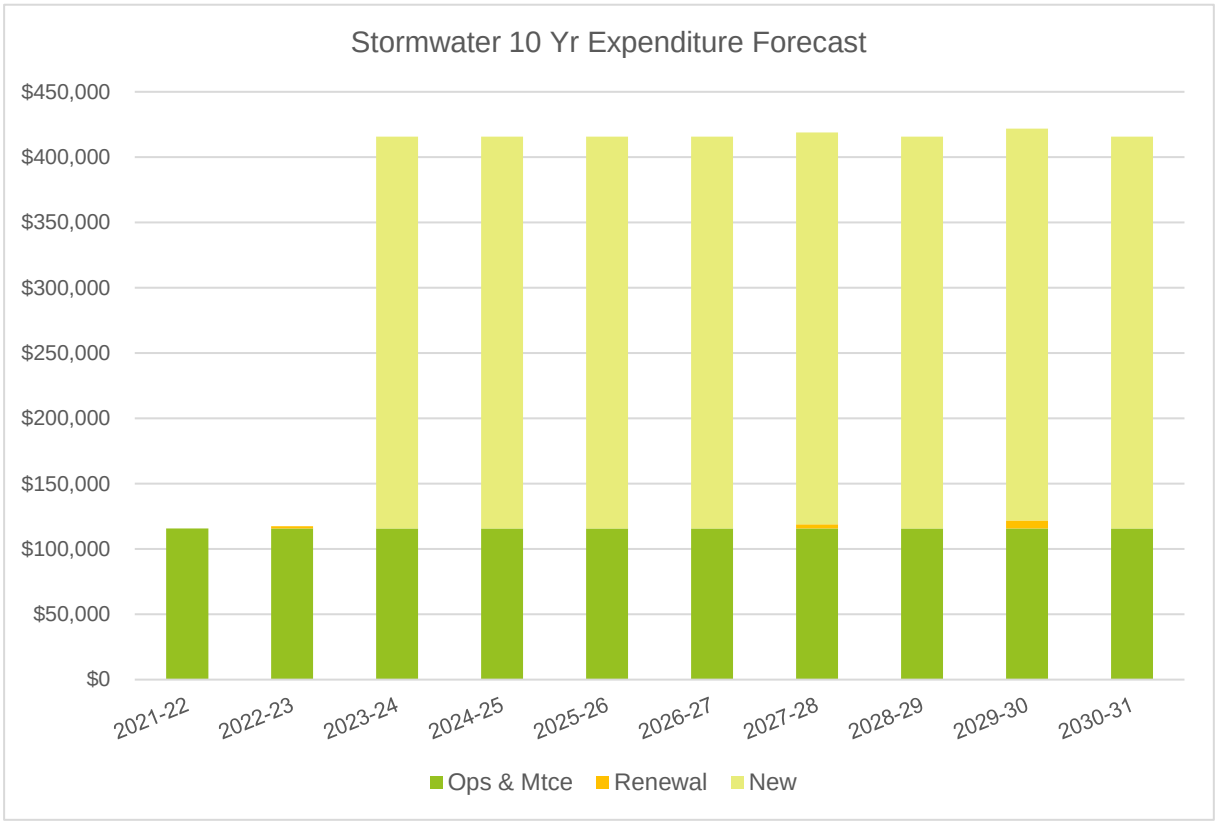


Table 13 - Stormwater 10 Year Financial Forecast

6.3 ASSET RENEWAL FUNDING RATION

The asset renewal funding ratio indicates if Council has the financial capacity to fund asset renewal at continued existing service levels. Council's target is a 100% average over the next 10 years.

Asset Renewal Funding Ratio – Stormwater 51%

This ratio is an important budget indicator over the next 10 years, Council's LTFP have only budgeted 51% of funds identified in this plan, therefore not optimising the replacement of its stormwater assets. For council to continue the service levels, Council should seek an extra $11,000 in funding to raise the asset renewal funding ration to 100%.

6.4 FUNDING STRATEGY

Projected budgets are to be funded from Council's operating, maintenance and capital budgets, loans, and reserves and external fundings e.g., Roads to Recovery, Grants Commission's local and special roads grants.

6.5 KEY ASSUMPTIONS

The assumptions made in this Stormwater Asset Management Plan are:

- Replacement costs derived from the fixed assets register in Conquest asset database.
- Valuation data derived from Tonkin's Stormwater Valuation 2021.
- Key Financial assumptions derived from Long Term Financial Plan 2023.
- The current levels of service will remain constant over the life of this AMP.
- All predicted financial figures based on current rates and are not adjusted by the inflation rate.
- Continued use of current construction techniques and materials in alignment with current standards.
- There will be no natural disaster.
- 2020-2021 is the first year of the 10 year LTFP.

6.6 DATA CONFIDENCE

The expenditure projections are based on the best available data. Data confidence is critical for expenditure projection accuracy. As new data becomes available, future plans will be updated.

Table 14 displays the 5 levels that measure data confidence.

Confidence Level	Description
A - Highly Reliable	Data based on sound records, procedures, investigations, and analysis, documented properly and agreed as the best method of assessment. Data set is complete and estimated to be accurate +-2%.
B – Reliable	Data based on sound records, procedures, investigations, and analysis, documented properly but has minor shortcomings, e.g. some of the data is old, some documentation is missing and /or reliance is placed on unconfirmed reports or some extrapolation. Dataset is complete and estimated to be accurate +-10%.

C - Uncertain	Data based on sound records, procedures, investigations, and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available. Dataset is substantially complete but u to 50% is extrapolated data and accuracy estimated +-25%.
D - Very Uncertain	Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete, and most data is estimated or extrapolated. Accuracy +-40%.
E – Unknown	None or very little data held.

Table 14 - Data confidence levels

The expenditure projections are based on the best available data. Data confidence is critical for expenditure projection accuracy. As new data becomes available, future plans will be updated.

Many stormwater assets are difficult to inspect visually as they are underground. This brings a level of uncertainty to the data confidence when visual condition audits cannot be performed easily. Council's Stormwater asset data confidence is currently **(C) – Uncertain** across condition and financial data. The risk will be controlled via periodically assessing section of the underground network using CCTV based on risk, criticality and budget availability. The improvement plan outlines how Council can improve its data confidence in the next condition assessment and revaluation in 2025/2026.

7 IMPROVEMENT AND MONITORING

7.1 IMPROVEMENT PLAN

The improvement program derived from the plan is shown in Table 15.

Task No.	Task	Responsible Officer	Resource Required	Due Date
1	Conduct visual inspection of stormwater network – Sample size to begin with.	Infrastructure Management Team	External	2025
2	CCTV investigation of pipe condition for critical assets.	Infrastructure Management Team	External	2025
3	Review and Develop Asset Maintenance Manual for Transport Assets	Infrastructure Management Team	Internal	2024
4	Develop a 5-10 year Renewal/New works program to prioritise works identified in the Stormwater Management Plans.	Infrastructure Management Team	Internal/ External	December 2023
5	Develop a 5-10 year Renewal/New works program to prioritise works identified in visual condition audits	Infrastructure Management Team	Internal /External	2025
6	Investigate grant funding sources to offset any capital and operational cost.	Infrastructure Management Team Director Assets and Environment	Internal	Ongoing
7	Develop an asset hierarchy for stormwater assets to assist in the collection of data, reporting information and making decision.	Infrastructure Management Team	Internal	2024
8	Given the current economic climate, thorough investigation on operation and maintenance costs is required to enable true budget forecasting in the upcoming years.	Infrastructure Management Team Director of Corporate Services	Internal	Ongoing
9	Develop Stormwater Renewal Identification Methods	Infrastructure Management Team	Internal	2024

Table 15 - Improvement Plan

7.2 MONITORING AND REVIEWING

This AMP will be reviewed during annual budget planning processes and amended to recognise any material changes in service levels and or resources available to provide those services as a result of budget decisions.

This plan has a life of four years and is due for revision and updating within 2 year of each Council election.

7.3 PERFORMANCE MEASURES

Council will track the performance of the Plan through the following performance measures:

- Regular financial reporting to Executive and Council
- Quarterly Strategic Plan updates of progress to Council.
- Annual review of LTFP.
- Progress reports against the Annual Business Plan to Council within the Chief Executive's Report.
- Monitoring and reporting customer request and complaint systems.
- Delivery of improvement plan.
- Review of AMP everyone 4 years (minimum).

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