



2023 - 2033 STORMWATER ASSET MANAGEMENT PLAN

Town of Walkerville
Adopted November 2023

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1.0 Introduction

1.1 The Purpose of the Plan

This Asset Management Plan (AMP) details information about infrastructure assets and includes actions required to provide an agreed level of service in the most cost-effective manner, while outlining associated risks. The Plan defines the services to be provided, how the services are provided and what funds are required across the 10-year planning period. The AMP will inform Council's Long Term Financial Plan, which identifies expenditure requirements over a 10-year planning period.

Council's goal for managing stormwater infrastructure assets is to meet the defined level of service (as amended from time to time) in the most cost effective manner for present and future consumers. The key elements of infrastructure asset management are:

- Providing a defined level of service and monitoring performance;
- Managing the impact of growth through demand management and infrastructure investment;
- Taking a lifecycle approach to developing cost-effective management strategies for the long-term that meet the defined level of service;
- Identifying, assessing and appropriately controlling risks; and
- Informing Council's Long Term Financial Plan, which captures AMP expenditure requirements.

1.2 Stormwater Asset Details

1.2.1 Asset Class Summary

This AMP recognises the value of assets from the 30 June 2023 financial valuations (as shown in Table 1).

Table 1: Financial valuations

Asset Class	Gross Replacement Cost	Accumulated Depreciation	Fair Value	Annual Depreciation Expense
Stormwater Drains	\$ 19,462,593	\$ 6,298,436	\$ 13,164,157	\$ 130,124
Stormwater Structures	\$ 3,849,523	\$ 1,699,498	\$ 2,150,025	\$ 39,652
Total	\$ 23,312,116	\$ 7,997,934	\$ 15,314,182	\$ 169,776

1.2.2 Stormwater Asset Information

The asset sub-classes covered by this AMP are shown in Table 2.

Table 2: Asset sub-classes

Asset Sub-Class	Quantity	Asset Sub-Class	Quantity
<u>Stormwater Drains</u>		<u>Stormwater Pits</u>	
Stormwater Pipes	891 segments 26,837 metres in length	Side Entry Pits	522
Stormwater Culverts	46 segments 21,936 metres in length	Junction Box/Manholes	295
<u>Water Sensitive Urban Design</u>		Grated Inlet Pits	50

Tree Nets/B-PODS	71	Headwall/Outlet Structures	8
Rain Gardens	13	Soakage Pits	3
Gross Pollutant Traps	5		

1.2.3 Useful Life Information

The useful life of the asset is an estimate or expected duration between placing the asset into service and removing it from service on the basis of obsolescence or when it ceases to provide the 'minimum benefits' that it was intended to provide. In short, it is the period between which the future economic benefits embodied in that asset are expected to be consumed by the users.

Council's useful lives (in years) have been derived as follows:

1. Reference and bench-marking with the *IPWEA Asset Management and Financial Management Guidelines, Practice Note 12 2017 Useful Life of Infrastructure*.
2. Assessing remaining service potential is derived from visual condition inspections, where known. Alternatively, construction dates are used to determine total estimated useful lives.

Table 3: Asset useful life information

Asset Type	Useful Life (year)
Stormwater Drains	150
Stormwater Pits	100
Water Sensitive Urban Design	50

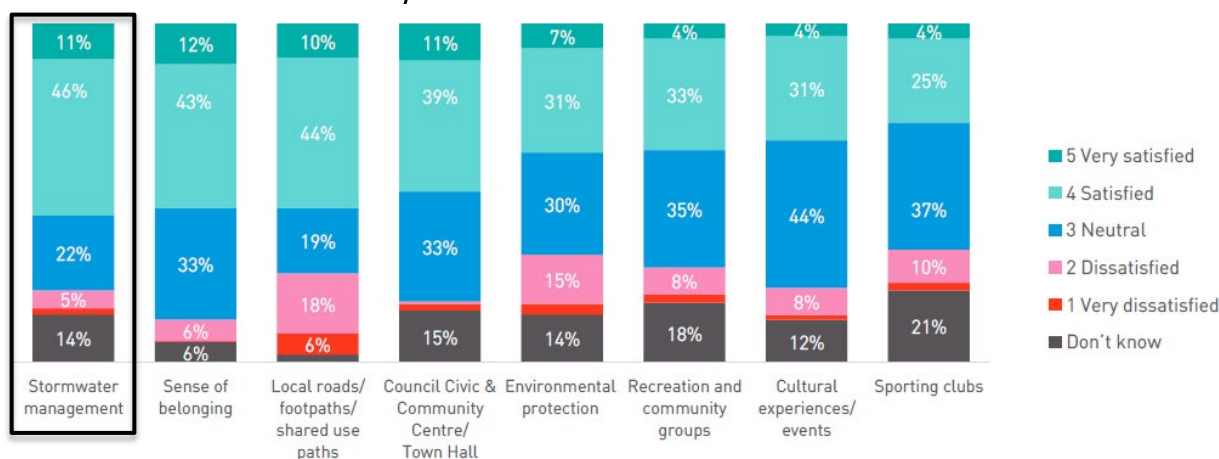
2.0 Levels of Service

2.1 Customer Levels of Service











2.1.1 2023 Community Perceptions & Satisfaction Survey

Council undertook a community survey in 2023 (Graphic 1), where 382 randomly selected Town of Walkerville residents were surveyed. Stormwater management was identified in this survey as a critical service that Council provides. The results show that Council benchmarks very well against other Council's in Stormwater Management (Table 2.2), and although a small percentage of the community are dissatisfied (5%) with our management of stormwater, 57% of our residents were either Satisfied or Very Satisfied with our management of stormwater.

Graphic 1: Level of satisfaction – services



Graphic 2: Benchmark of Council services against other Councils

Satisfaction with Services	Walkerville	COUNCIL A	COUNCIL B	COUNCIL C	COUNCIL D	COUNCIL E	COUNCIL E
	Mean	Mean	Mean	Mean	Mean	Mean	Mean
Cultural programs and events	3.3	3.8		3.0	3.5	3.8	
Community centres	3.7				3.8		
Community engagement and consultation	 3.8	3.6	2.4	2.9		3.5	
Sense of belonging	3.6						
Customer service	 3.8		2.9				
Economic Development	3.3				3.4		
Environmental protection	3.3						
Library services	4.1		3.4	3.4	4.3		4.3
Ovals / sporting facilities	 3.4		3.2				
Parks / reserves /playgrounds	 3.9	3.9	3.1				3.8
Heritage	 3.5	3.3					
Public lighting	 3.6		2.8	3.0			
Recreation and community groups	3.4						
Local roads / footpaths/ shared use paths	 3.4	3.3	2.3	2.8	3.1	3.4	
Safe and secure area	4.0						
Services for the aged	 3.4				3.4		
Sporting clubs	3.2						
Stormwater management	 3.7			3.1			
Visual presentation of the area	3.7	3.9	3.0			3.6	
Traffic management (ease of travelling and moving around area)	 3.6	3.3		2.5		3.3	3.4
Economic and active area	3.3						
Waste collection / recycling services	4.1	4.2	2.7	3.2	3.8		

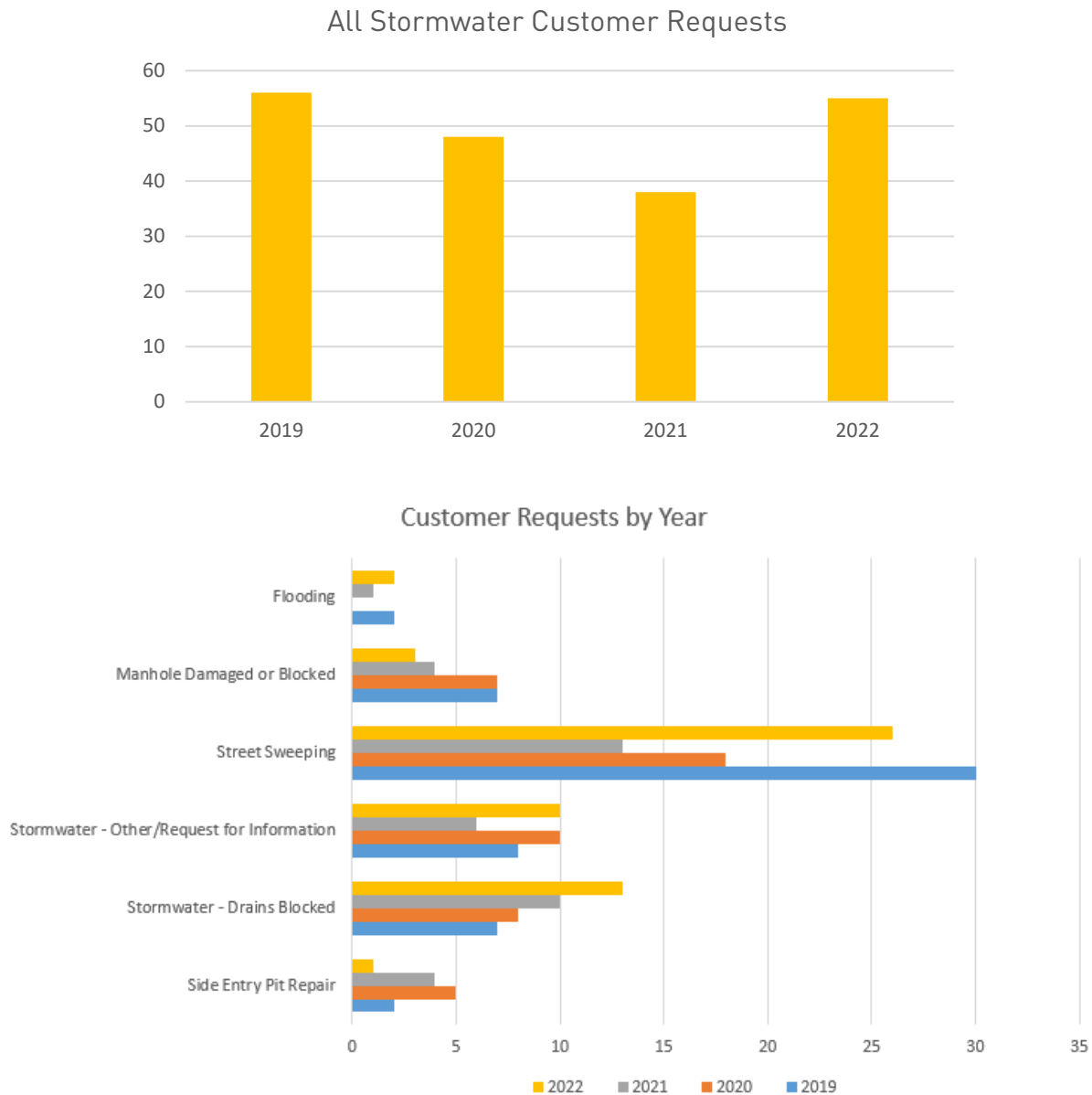
2.1.2 Customer Request Data (last 4 years)

Stormwater and street sweeping customer requests have been collected in Council’s records management system over the past 4 calendar years (2019-2022) in the following pre-set categories:

- Flooding – 5 requests
- Side Entry Pit Repair – 12 requests
- Manhole Damaged or Blocked – 21 requests
- Stormwater Drains Blocked – 38 requests
- Stormwater Other/Request for Information – 34 requests
- Street Sweeping - 87
- Total – 197 requests

A summary of the total number of customer requests relating to stormwater and street sweeping each calendar year can be found in Graphic 3 and 4 below. There are on average 28 stormwater customer requests per year over the past 4 years and 22 requests for street sweeping per year. The relatively low number of stormwater customer requests reflects the high level of satisfaction that residents have with Council’s stormwater management practices.

Graphic 3 & 4: Total number of roads customer requests per year and category



2.2 Technical Levels of Service - Stormwater Condition Profile

Stormwater asset condition is calculated using an age profile as it is not cost effective to perform condition assessments on the whole underground pipe network. Instead, Council conducts a condition audit sample (approximately 5% a year) of assets based on their risk, age and location. These condition audits allow Council to check for structural integrity and undertake repairs accordingly.

Stormwater infrastructure condition is classified by age using a 1 – 5 grading system as detailed in Table 4. It is important that a consistent approach is used in reporting asset performance enabling effective decision support. A finer grading system may be used at a more specific level, however, for reporting in the AM plan results are translated to a 1 – 5 grading scale for ease of communication.

Table 4: Condition Grading System

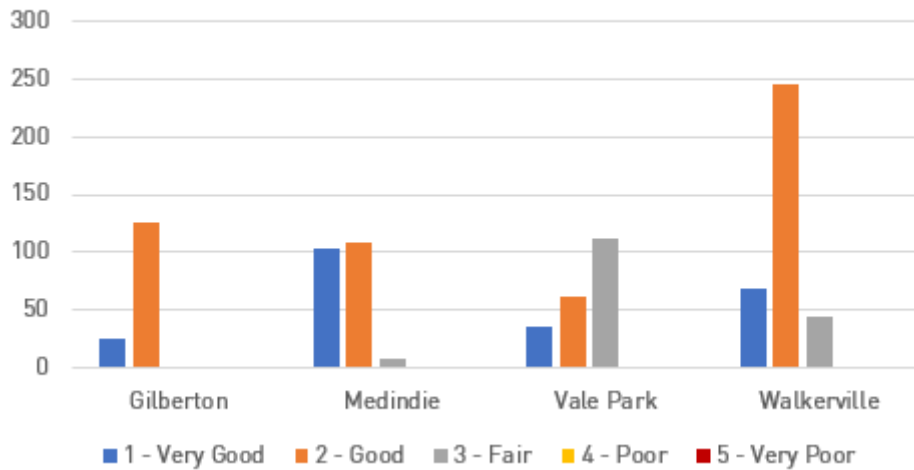
Condition Grading (OSI)	Description of Condition
1	Very Good: free of defects, only planned and/or routine maintenance required *Based on useful life age span - Pipes: 0 – 30 years Pits: 0 - 20 years WSUD: 0 – 10 years
2	Good: minor defects, increasing maintenance required plus planned maintenance Based on useful life age span - Pipes: 31 – 60 years Pits: 21 - 40 years WSUD: 11 – 20 years
3	Fair: defects requiring regular and/or significant maintenance to reinstate service *Based on useful life age span - Pipes: 61 – 90 years Pits: 41 - 60 years WSUD: 21 – 30 years
4	Poor: significant defects, higher order cost intervention likely *Based on useful life age span - Pipes: 91 – 120 years Pits: 61 - 80 years WSUD: 31 – 40 years
5	Very Poor: physically unsound and/or beyond rehabilitation, immediate action required *Based on useful life age span - Pipes: 121 – 150 years Pits: 81 - 100 years WSUD: 41 – 50 years

* The useful life of stormwater assets has been determined by *IPWEA Asset Management and Financial Management Guidelines, Practice Note 12 2017 Useful Life of Infrastructure*

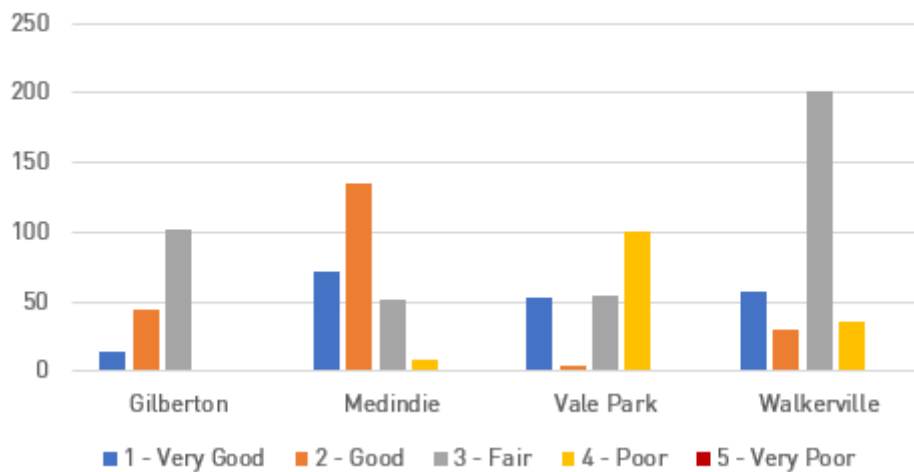
Overall, the condition of our stormwater assets is ‘good to fair’ with the average condition equating to 2.2. Based on the age profile of these assets, no stormwater assets require renewal until the year 2036, however to make sure that our drains are well maintained and function optimally, yearly inspections are carried out on our at most risk assets and repairs are done as required.

It should be noted in the graphs below that the condition of Council stormwater assets is based on the predicted useful life of the asset and its construction age. Therefore stormwater pits appear to have a much lower condition rating than pipes even though they were potentially constructed at the same time.

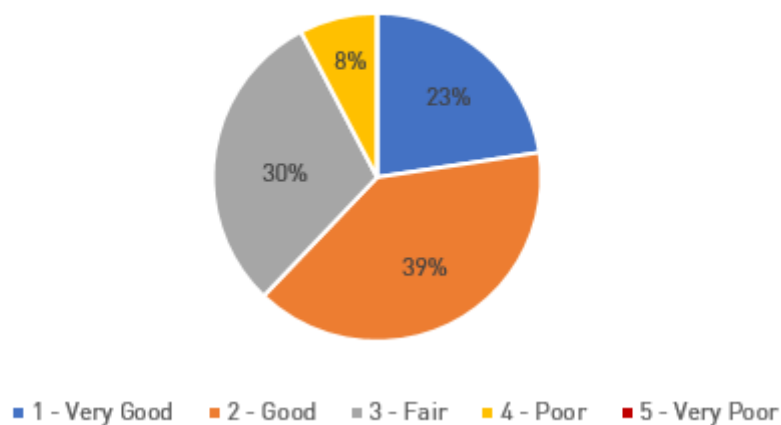
Stormwater Pipes - Condition by Suburb



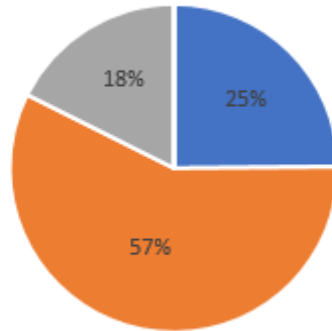
Stormwater Structures - Condition by Suburb



Condition - All Stormwater Assets

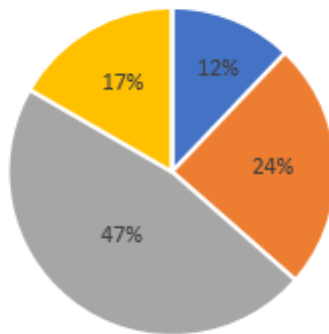


Condition - Stormwater Pipes



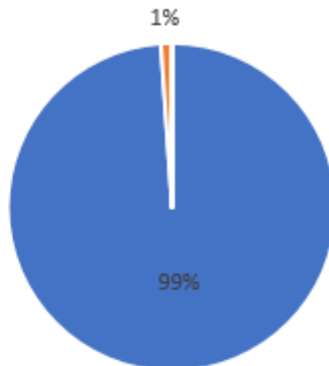
■ 1 - Very Good ■ 2 - Good ■ 3 - Fair ■ 4 - Poor ■ 5 - Very Poor

Condition - Stormwater Pits



■ 1 - Very Good ■ 2 - Good ■ 3 - Fair ■ 4 - Poor ■ 5 - Very Poor

Condition - WSUD Assets



■ 1 - Very Good ■ 2 - Good ■ 3 - Fair ■ 4 - Poor ■ 5 - Very Poor

2.3 Technical Levels of Service Targets

The technical measures below relate to the activities and allocation of resources to best achieve the desired customer outcomes and demonstrate effective performance.

Table 5 shows the activities expected to be provided under the current 10-year planned budget allocation, and the forecast activity requirements identified in this AMP.

Table 5: Technical levels of service

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance*	Recommended Performance**
TECHNICAL LEVELS OF SERVICE				
Acquisition	No acquisitions are planned over the course of the plan			
		Budget	<i>\$0</i>	<i>\$0</i>
Operation	Programmed street sweeping to keep streets clean and ensure that pits and drains do not block up.	Performance is monitored by the number of CRs that are reported on a monthly basis.	Street sweeping is programmed to reach each street and main road once a month. Additional sweeps are programmed in Autumn.	Maintain existing street sweeping program
		Budget	<i>\$80,018</i>	<i>\$80,018</i>
	Programmed stormwater inspection	Inspections are programmed based in drain criticality and proximity to future road renewals	Stormwater inspections occur once a year and aim to inspect 5% of the network	
		Budget	<i>\$15,000</i>	<i>\$15,000</i>
Maintenance	Maintenance of damaged pit lids, block drains, damaged sections of drain and cleaning of rain gardens.	Maintenance work is undertaken on a proactive and reactive basis	Approximately 3-5 pit lid replacements can be achieved.	Retain existing expenditure and service levels
		Budget	<i>\$21,600 (annual average over 10 years)</i>	<i>\$21,600</i>
Renewal	Repairs to damaged pipes. Structural repair to the banks of the river Torrens. New stormwater lines and WSUD.	Repairs are undertaken based on pipe inspection. New and upgrade infrastructure will be informed by the new Stormwater	Current funding suggests that there is an excess of funding, however, the increase in budget will be required to fund any work that arises from the SMP plus future	The additional renewal funding listed will be required for SMP and long-term renewal funding.

		Management Plan (SMP).	stormwater renewals.	
		Budget	<i>\$155,400</i>	<i>\$155,400</i>
Disposal	No disposals are planned over the course of the plan			
		Budget	<i>\$0</i>	<i>\$0</i>

Note: * Current activities related to Planned Budget.
 ** Expected performance related to forecast lifecycle costs.

2.4 Acquisition Plan

Acquisitions are new assets that did not previously exist or works which will upgrade or improve an existing asset beyond its existing capacity. They may result from growth, demand, social or environmental needs. The Town of Walkerville’s stormwater network is considered fully developed and accordingly no road acquisitions are expected over the course of this plan. There is also no expected Greenfield developments where stormwater will be vested to Council during this time.

2.5 Stormwater Management Plan

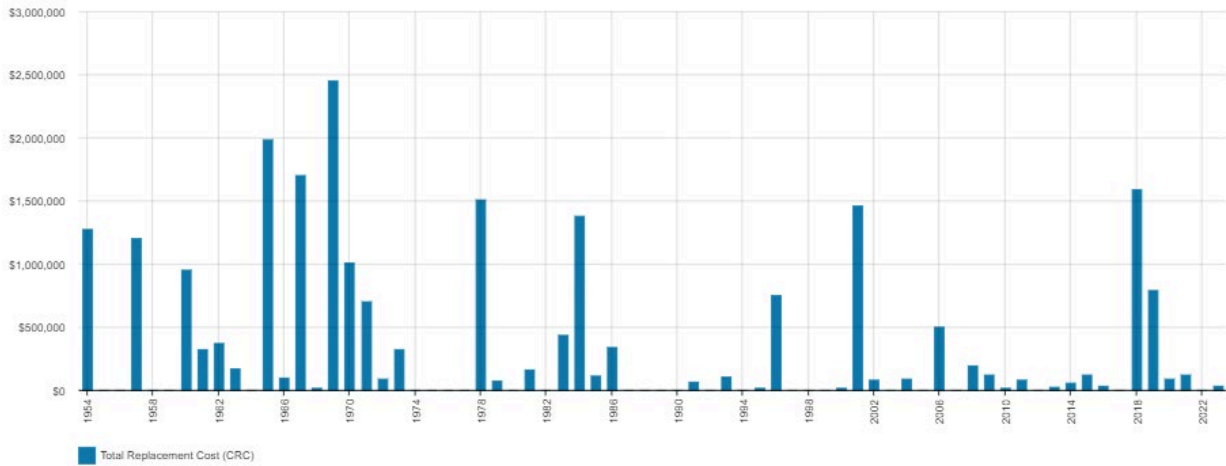
Stormwater Management Plans (SMP) provide long term strategies for flood mitigation, water quality improvement and harvesting in specific stormwater catchments. The preparation of SMPs and the capital works resulting from approved SMPs are eligible for funding assistance from the Stormwater Management Authority (SMA).

The development of the Torrens Urban North East (TUNE) catchment SMP (led by the City of Port Adelaide Enfield) has commenced in draft form, with expected project delivery to be complete by 2027/28. This catchment study includes Councils whose stormwater contribute to the northern side of the River Torrens, including the Cities of Tea Tree Gully, Port Adelaide Enfield and Adelaide as well as the Town of Walkerville. The SMP will identify potential flood inundation in our Council which will allow us to better forecast maintenance, renewal and upgrade works in the catchment, and will be reflected in future revisions of the LTFP.

3.0 Funding Summary

Graphic 5 identifies that Council’s oldest pipes and pits date back to the 1950’s, with significant network construction in the 1960’s and 70’s. With an estimated useful life of between 100 and 150 years, Council’s stormwater network is not due for capital renewal until 2036. However, Council is continuing to fund renewals to ensure that any assets that are showing signs of wear are treated to prolong their life and limit a funding spike when the network is at end of life.

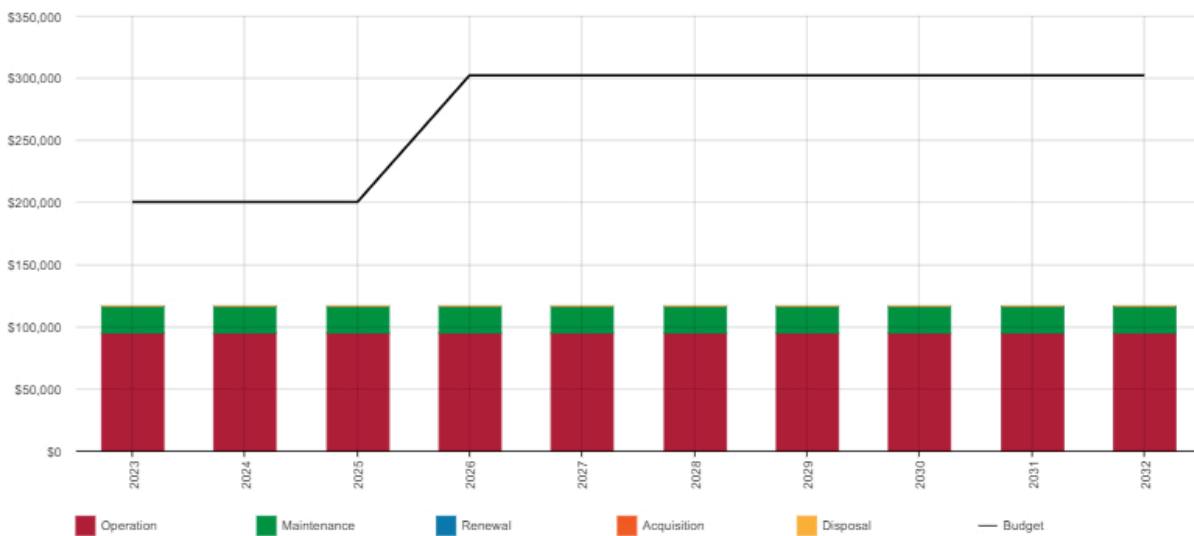
Graphic 5: Stormwater Network Age Profile



3.1 What we will do – renewal plan

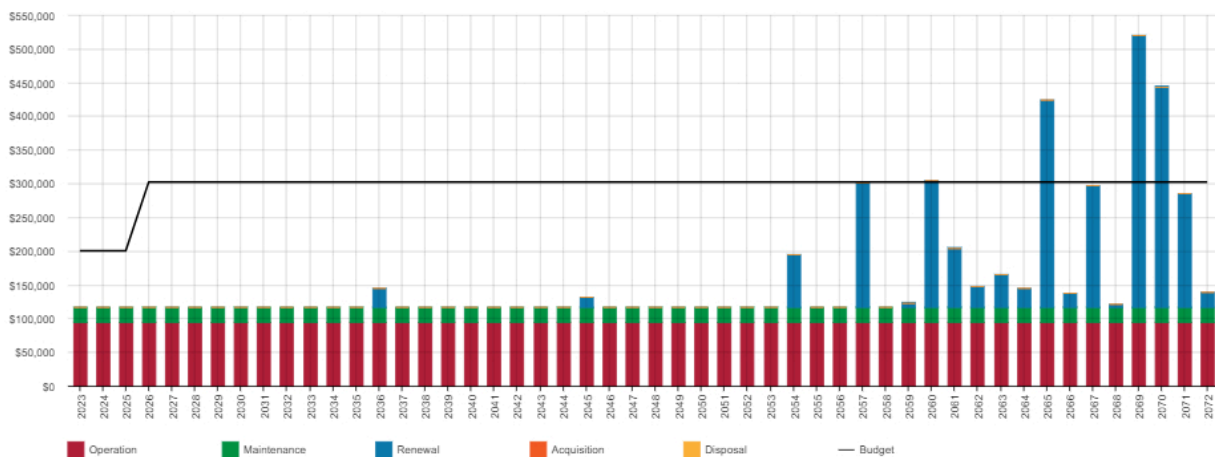
Estimated available renewal/upgrade funding for the 10 year period is \$1,554,000 or \$155,400 on average. In this instance, renewal/upgrade funding has been planned based on future need for renewals, including structural repairs identified through drainage inspection.

Graphic 6: Forecast renewal, maintenance and operating costs over the next 10 years



Graphic 7 below shows that renewal funding is needed in 2036 and then again in 2054 onwards. By spreading the renewal/upgrade funding over 50 years, we can use the funds to detect issues before the predicted useful life and repair them before they fail.

Graphic 7: Forecast renewal, maintenance and operating costs over the next 50 years



3.2 What does it Cost?

The forecast lifecycle costs necessary to provide the services covered by this AM Plan includes operation, maintenance, renewal, acquisition, and disposal of assets. Although the AM Plan may be prepared for a range of time periods, it typically informs a Long-Term Financial Planning period of 10 years. Therefore, a summary output from the AM Plan is the forecast of 10 year total outlays, which for the Stormwater pipes, pits and WSUD is estimated as **\$2,720,180** or **\$272,018** on average per year. This includes an estimated \$21,600 per year in maintenance costs and \$95,018 in street sweeping operational costs.

Table 6: Budget and Cost Allocation by Year

Year	Renewal Budget	Maintenance Cost	Operational Cost	Total Annual Cost
1	\$ 84,000	\$ 21,600	\$ 95,018	\$ 200,618
2	\$ 84,000	\$ 21,600	\$ 95,018	\$ 200,618
3	\$ 84,000	\$ 21,600	\$ 95,018	\$ 200,618
4	\$ 186,000	\$ 21,600	\$ 95,018	\$ 302,618
5	\$ 186,000	\$ 21,600	\$ 95,018	\$ 302,618
6	\$ 186,000	\$ 21,600	\$ 95,018	\$ 302,618
7	\$ 186,000	\$ 21,600	\$ 95,018	\$ 302,618
8	\$ 186,000	\$ 21,600	\$ 95,018	\$ 302,618
9	\$ 186,000	\$ 21,600	\$ 95,018	\$ 302,618
10	\$ 186,000	\$ 21,600	\$ 95,018	\$ 302,618
Total	\$ 1,554,000	\$ 216,000	\$ 950,180	\$ 2,720,180

Table 8A – Previous budget allocations and costs (last four financial years)

Year	Renewal Budget	Maintenance Budget	Operating Cost	Total Cost
2019-20	\$59,000	\$10,000	\$70,000	\$139,000
2020-21	\$40,000	\$10,000	\$60,000	\$110,000
2021-22	\$196,000	\$10,000	\$70,000	\$276,000
2022-23	\$106,000	\$20,000	\$95,000	\$221,000

4.0 Managing the Risks

4.1 Risk Assessment

Our present budget levels are sufficient to continue to manage risks and keep our current service levels in the medium term. The main risk consequences are details in Table 7 below.

Table 7: Risks and Treatment Plans

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Residual Risk *	Treatment Costs
Unknown Pipe and Culvert condition	Poor condition data leads to poor service and funding allocations	High	Engage an independent contractor to inspect 5% of our drainage network each year to confirm condition and identify pipes that require intervention.	Low	\$15,000 (once a year)
Blocked pipes and culverts and pits	Blocked drains prevent stormwater from draining and can cause localised flooding	High	Continue to inspect our drainage system from blockages and have affected drains cleaned	Low	\$15,000 (once a year)
Street sweeping	Road litter can significantly impact how quickly pipes and pits block up.	Medium	Maintain a consistent schedule of street sweeping with added sweeps during the Autumn months	Low	\$80,018 per year
Damaged or dislodged pit lids	Lids that are damaged or dislodged are a risk to the public and vehicles	Medium	Damaged pits are added to maintenance program each year. Dislodged pits are reported via CR and actioned promptly.	Low	\$21,600 maintenance program per year
Storm Events	Sudden large storm events that cause localised flooding	Medium	Development of a Stormwater Management Plan that identifies areas of risk due to capacity	Medium	Flood inundation study and SMP development to occur over

					the next 5 years
Box Culverts	Box culverts have been known not to reach their full useful life due to construction issues across the industry, in particular pre 1990s	Medium	Ensure box culverts are regularly included in Council's CCTV pipe audit program	Low	\$15,000 (annual CCTV inspection cost)
Network capacity upgrades	This AMP does not include funding for pipe size upgrades due to flooding issues	Medium	Council will be upgrading its flood mapping as part of its TUNE SMP. A 2010 catchment study was also undertaken, which included upgrades for to the network such as Lansdowne Terrace	Low	Unknown

4.2 Climate Change Adaptation

The impacts of climate change may have a significant impact on the assets we manage and the services they provide. In the context of the asset management planning process, climate change can be considered as both a future demand and a risk.

How climate change impacts on assets will vary depending on the location and the type of services provided, as will the way in which Council responds to and manage those impacts.

As a minimum, Council consider how to manage our existing assets, given potential climate change impacts for our region. Risks and opportunities identified to date are shown in Table 8.

Table 8: Managing the Impact of Climate Change on Assets and Services

Climate Change Description	Projected Change	Potential Impact on Assets and Services	Management
Surface Temperatures and Urban Heat Island Effect	Roads and streetscapes are a significant contributor to surface temperature increases in hotter climates	Streetscapes impact upon pedestrian health and wellbeing	Increase the number of rain gardens which not only filters stormwater and supports biodiversity, but also reduces the Urban Heat Island effect.
Greater variations in temperatures and weather patterns	Temperature and rainfall variations have the potential for flash flooding and stormwater inundation.	Our stormwater network may not have the capacity to cope with large volumes of water which has the potential to cause floods	The development of a Stormwater Management Plan and flood modelling will inform areas for upgrade.

Increased Urban Infill	Increased flow rates from hard stand areas created through land development	Increase for potential flooding due to existing infrastructure being under capacity	Increase the number of WSUD to slow down the rate of flow and filter stormwater Use of alternative methods/materials to reduce run-off
Water contamination, Environmental protection	Increased population growth – likely to increase residential waste/litter	Increase in the number of sweeps throughout the township More rubbish flowing through to the River Torrens	Investigate implementing trash racks and GPTs at stormwater outlets

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

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

The impact of climate change on assets is a new and complex discussion and further opportunities will be developed in future revisions of this AM Plan.

4.3 Service and Risk Trade-Offs

The decisions made in adopting this AM Plan are based on the objective to achieve the optimum benefits from the available resources.

4.3.1 What we cannot do

There are some operations and maintenance activities and capital projects that are unable to be undertaken within the next 10 years within this AMP. These include:

- Upgrades to the capacity of Council stormwater drains.
- Renewals to stormwater under arterial roads that are owned and managed by the Department for Infrastructure and Transport.
- River Torrens pollution treatments and erosion control management.

5.0 Improvement Plan

The improvement plan generated from this AMP is shown in Table 9.

Table 9: Improvement Plan

Task	Action	Responsibility	Timeframe
1	Identification of DIT owned stormwater to dispose from Council register	Assets & Infrastructure	12 months
2	Investigate opportunities to implement WSUD into existing network	Assets & Infrastructure	2 years

3	Prioritise inspection of pipes under planned road renewals to plan any combined works	Assets & Infrastructure	2-5 years
4	Identify capacity issues with implementation of SMP and plan accordingly	Assets & Infrastructure	5 years +
5	Improve asset condition data quality through continuation of inspections	Assets & Infrastructure	Ongoing
6	Develop customer response targets for customer requests	Asset and Infrastructure, Customer and Library Services	2024

6.0 Monitoring and Review Procedures

This AM Plan will be reviewed during the annual budget planning process and revised to show any material changes in service levels, risks, forecast costs and proposed budgets as a result of budget decisions. The AM Plan will be reviewed and updated annually to ensure it represents the current service levels, asset values, forecast operations, maintenance, renewals, acquisitions and asset disposal costs and planned budgets.