






# Stormwater Drainage

## Asset Management Plan

**2019 to 2029**

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2016-2026	07/03/2016	Draft prepared in conjunction with Asset/Service Managers and presented to Council for adoption.
2018-2028	18/09/2017	Review undertaken with major changes being update of financial information and risk management section, together with inclusion of Condition Assessment Manual and Unit Rates as appendices.
2019-2029	18/03/2019	Annual review conducted, with major changes being update of financial information. Converted to new format AM Plan.

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# 1 EXECUTIVE SUMMARY

## Context

The fundamental purpose of this Stormwater Drainage Asset Management Plan (Stormwater Drainage AM Plan) is to improve Council's long-term strategic management of its infrastructure Stormwater Drainage assets in order to cater for the community's desired levels of service in the future, in accordance with Council's key strategic documents and demonstrate reasonable management in the context of Council's available financial and human resources.

The Stormwater Drainage AM Plan achieves this by setting standards, service levels and programmes which Council will develop and deliver. The standards and service levels have been set in accordance with user needs, regulations, industry practice and legislative codes of practice.

## What does the plan Cover?

The Stormwater Drainage asset portfolio comprises:

- Stormwater Pits
- Stormwater Pipes
- Drainage Bores
- Culverts

These Stormwater Drainage assets have a replacement value of \$1,154,532 as at 30<sup>th</sup> June 2018.

## What doesn't the plan Cover?

All stormwater drainage assets associated with Mount Gambier Airport and Mount Gambier and District Saleyards (assets associated with these services are included within their respective master plans).

## What does it Cost?

There are two key indicators of cost to provide the Stormwater Drainage asset portfolio :

- The life cycle cost being the average cost over the life cycle of the asset; and
- The total maintenance and capital renewal expenditure required to deliver existing service levels in the next 10 years covered by Council's long term financial plan.

The total operations, maintenance and capital renewal expenditure required to sustain the CWMS asset base over the next ten years at current service levels is estimated at \$368,570, an average of \$36,857 per annum. Council's planned lifecycle expenditure for year one of this AM Plan is \$33,201.

## What we will do

Council plans to provide Stormwater Drainage services for the operation, maintenance, renewal and upgrade of all assets as outlined in Section 2.2 to meet service levels set by Council within annual budget.

## Managing the Risks

There are risks associated with providing the service and not being able to complete all identified activities and projects. We have identified major risks as:

- Insufficient resources including funding and staff to replace/renew assets in accordance with renewal forecasts maintenance standards.
- Incomplete/inaccurate asset data, particularly the condition of the CWMS components. This potentially leads to poor decision making and lack of funding for maintenance and renewals.

We will endeavour to manage these risks within available funding by:

- Conducting regular condition audits and site inspections to determine the remaining useful life of assets and maintenance requirements.
- Request funding for renewals as required and monitor trends of maintenance requirements.

## 2. INTRODUCTION

### 2.1 Background

This asset management plan (AM Plan) has been developed to support Council’s Strategic AM Plan and communicates the actions required for the responsive management of assets (and services provided from assets), compliance with regulatory requirements, and funding needed to provide the required levels of service over a 20-year planning period.

Much of Council’s core asset management information is detailed within the Strategic AM Plan and it is therefore important that this document be read in conjunction with that Plan along with other Council key planning documents including:

- Strategic Management Plan
- Long Term Financial Plan
- Annual Business Plan
- Asset Management Policy
- Asset Accounting Policy
- Risk Management Framework

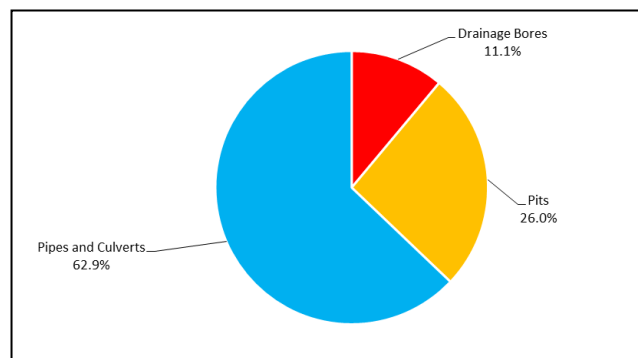
### 2.2 Assets Covered by this Plan

The Stormwater Drainage assets covered by this AM Plan are shown in table below.

Note: All values throughout this AM Plan are shown in current (real) dollars.

*Assets covered by this Plan (by asset category) as at 30<sup>th</sup> June 2018*

Asset Category	Quantity	Replacement Value
Drainage Bores	23	\$128,156
Stormwater Pits	181	\$300,238
Stormwater Pipes and Culverts	5089 metres	\$726,138
<b>TOTAL</b>		<b>\$1,154,532</b>



### 3. LEVELS OF SERVICE

#### 3.1 Community Levels of Service

Service Attribute	Level of Service Objective	Performance Measure Process	Desired Level of Service	Current Level of Service
Quality/Condition	Provide well maintained stormwater facilities that meet community expectation	User satisfaction measurement survey	Community satisfaction $\geq 80\%$	<i>Not Recently Measured (See Note Below)</i>
Function/Safety	Provide stormwater system that is low risk to community	Number of injuries/ property damage	< 5 per annum	2017/18 - 0
	Absence of significant Work Health and Safety hazards	All significant hazards identified and removed or mitigated where possible.	Adequate documentation to ensure hazards identified and mitigated against. Measures in place to manage any incident.	Ongoing
Capacity/Utilisation	Ensure stormwater facilities have appropriate design capacity	Customer requests relating to property flooding	<5 Per Annum	2017/18 - 6

#### 3.2 Technical Levels of Service

Service Attribute	Level of Service Objective	Performance Measure Process	Desired Level of Service	Current Level of Service
Operations and Maintenance <i>Budget \$33,201 (Year 1)</i>	Assets inspected periodically to assess condition and performance.	Visual and CCTV Inspections	Rolling Network Audit	Ongoing
Renewal <i>Budget \$0 (Year 1)</i>	Assets renewed at the end of their useful life.	All assets targeted for renewal as part of whole-of-life approach.	Condition based inspections of system to form backbone of the continued refinement of the whole-of-life Model.	Ongoing
Upgrade/New <i>Budget \$0 (Year 1)</i>	New assets designed and constructed in accordance with Development Act, Building Code, Local Government Act and related Council policies and Australian Standards.	All new stormwater drainage assets.	Audit of contract documentation by internal and external parties for financial, environmental and safety compliance of projects. Design Consultancy to be provided with minimum Council policy requirements and to meet required standards.	Achieved and Ongoing

**Notes:**

- At this point in time, Council is unable to formerly measure current levels of service criteria except anecdotally. As the Asset Management System and Customer Request System matures, a more accurate measure of current service levels can be provided.

#### 3.3 Maintenance Response Levels of Service

Activity	Intervention Level	Response Times				
		Hierarchy	Make Safe	Repair	Replacement	Perf Target
Replacement of damaged Stormwater Pit Lid	Damaged or Displaced Stormwater Pit Lid	All	2 Days	7 Days	7 Days	80%
Replacement of damaged Stormwater Pit	Damage or structural cracking of stormwater pit	All	2 Days	14 Days	21 Days	80%
Replace /Repair of cracked or displaced stormwater pipe	Noted Cracks or Displacement of Stormwater Pipe of greater than <25mm	All	NA	60 Days	120 Days	80%

Activity	Intervention Level	Response Times				
		Hierarchy	Make Safe	Repair	Replacement	Perf Target
Replace /Repair of cracked or displaced stormwater pipe	Noted Cracks or Displacement of Stormwater Pipe or noted Void >25mm	All	NA	30 Day	60 Days	80%
Repair or Reconstruct of Damaged Headwall	Reported Structural Damage to Headwall which poses risk to connected Assets or Persons	All	2 Days	14 Days	28 Days	80%
Collapsed Stormwater Pipe	Renewal of Collapsed Stormwater Pipe	All	8 Hours	30 Days	60 Days	80%

### 3.4 Desired Levels of Service

At present, indications of desired levels of service are obtained from various sources including residents’ feedback to Councillors and staff, service requests and correspondence. Council has yet to quantify desired levels of service. This will be done as part of Councils’ future community consultation process and incorporated into future revisions of this AM Plan.

### 3.5 Asset Hierarchy

Service Hierarchy	Description
Township	Stormwater assets located within a township and generally consist of pipes, side entry pits and drainage bores.
Rural	Stormwater assets located on rural area and predominantly consists of a culvert under the road.



## 4. FUTURE DEMAND

### 4.1 Demand Drivers and Impact of Services

Demand Factor	Present Position	Projection	Impact on Services
Population and Demographics *	8,203 (based on 2016 Census data) 63.3% increase in people aged 65 years and over from 2011 to 2016.	Steady increase of 0.9% per annum, with the increase expected to occur mainly in the older demographic 65+.	No impact.
Development	Increase in the development of rural living sub divisions.	Expected to continue.	Additional maintenance requirements as new stormwater drainage systems are constructed.
	Development undertaken in both township and rural areas.	Expected to continue.	Some localised strain on existing stormwater drainage services may be expected.
Environment	Higher frequency of extreme weather events.	Unknown at this stage, but changes likely.	Additional pressure on existing stormwater drainage, potential flooding.
Legislative Requirements	Community awareness on environmental and sustainability issues is increasing.	Community expectation for assets to be environmentally sustainable as awareness increases.	Possible minor reduction in stormwater production due to environmental awareness.
	Assets are constructed and maintained in accordance with current legislation.	Potential for legislation to change.	Potential for higher construction, operation and maintenance costs if legislation was to impose additional requirements.

\* Current population and demographical information can be found in the Strategic AM Plan.

### 4.2 Changes in Technology Forecast to Affect Delivery of Services

Technology Change	Affect on Service Delivery
No changes in technology forecast to affect delivery of services included in this AM Plan.	

### 4.3 Demand Management Plan

Demand Driver	Impact on Services	Demand Management Plan
Development	Additional maintenance requirements as new stormwater drainage systems are constructed.	Adjust maintenance programs accordingly.
	Some localised strain on existing stormwater drainage services may be expected from new development.	Implement elements of water sensitive urban design into either new or reconstructed roadways. This would assist in reducing the velocity of stormwater flows and also improve the quality of the stormwater.
Environmental	Additional pressure on existing stormwater drainage from extreme weather events, potential flooding.	Continually monitor existence of flooding to identify potential trouble spots.
	Possible minor reduction in stormwater production due to environmental awareness.	No plan required.
Legislative Requirements	Potential for higher construction, operation and maintenance costs if legislation was to impose additional requirements.	Costs to be monitored and considered during annual budget planning process.

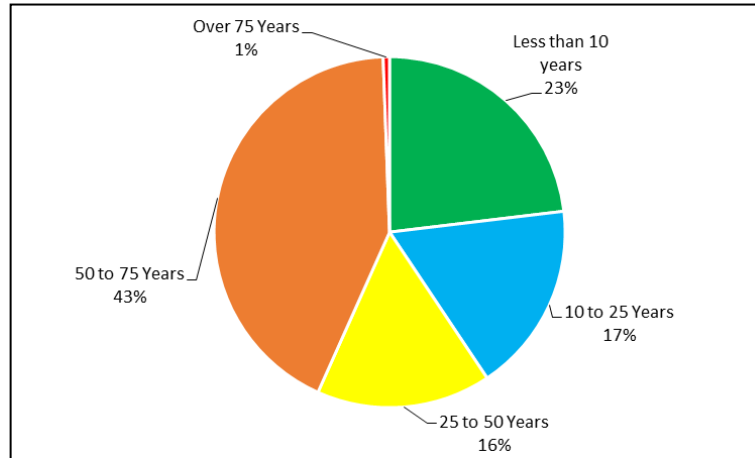
### 4.4 New Assets for Growth

Development growth within the Council area is considered to be quite minor and its expected impact on stormwater drainage assets is estimated to be minimal. Appropriate controls during the development of sub divisions is believed to be adequate to handle the demand for new assets. Future revisions of this AM Plan will consider the impact of changes to Development Plans.

## 5. LIFECYCLE MANAGEMENT PLAN

### 5.1 Asset Age Profile

*Age Profile (by replacement value)*



### 5.2 Asset Capacity and Performance

Location	Service Deficiency
-	No service deficiencies known at this time.

The above service deficiencies were identified from records of faults and emergencies.

### 5.3 Asset Condition

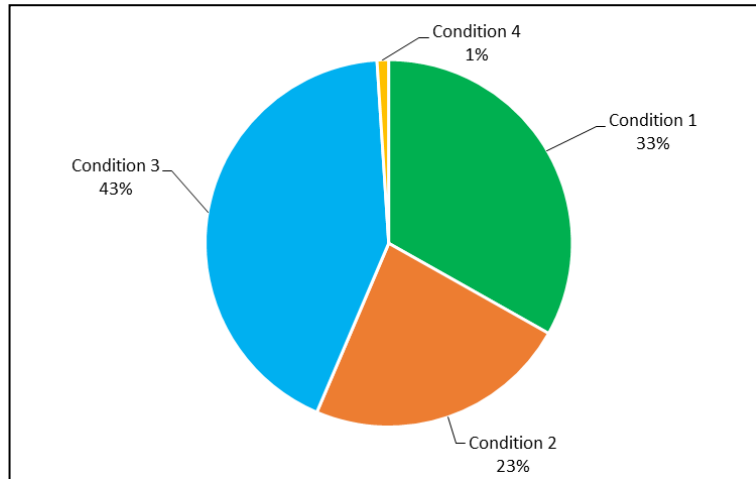
Township areas have an extensive network of pipes, manholes and flushing points that are largely buried underground and out of sight. The only evidence of an underground wastewater network in most cases is where manholes and flushing points are raised to the surface to enable inspection and maintenance to occur more readily. As such, the condition of underground assets is difficult to ascertain without the use of Closed Circuit Television (CCTV) technology which is both expensive and time consuming.

Typically a wastewater drainage network comprises a number of connections to households and business, a series of gravity mains that collect the effluent and one or more pump stations that carry effluent from the lower parts of the catchment to higher ground or to the treatment plant.

Gravity mains (pipes) can vary in diameter and material depending on when they were constructed and for what design inflow. The majority of the wastewater network is constructed from PVC pipe. The anticipated useful life of these pipe assets is estimated to be between 80-100 years but this is yet to be confirmed. Council will continue to monitor the condition of these pipes over time and will review its assumptions on a regular basis.

A full condition assessment of all CWMS assets was undertaken by HDS Australia in November 2017. The assessment comprised a combination of visual, age and history of failure. A detailed condition assessment manual can be found in the Appendices.

**Asset Condition (by % of assets)**



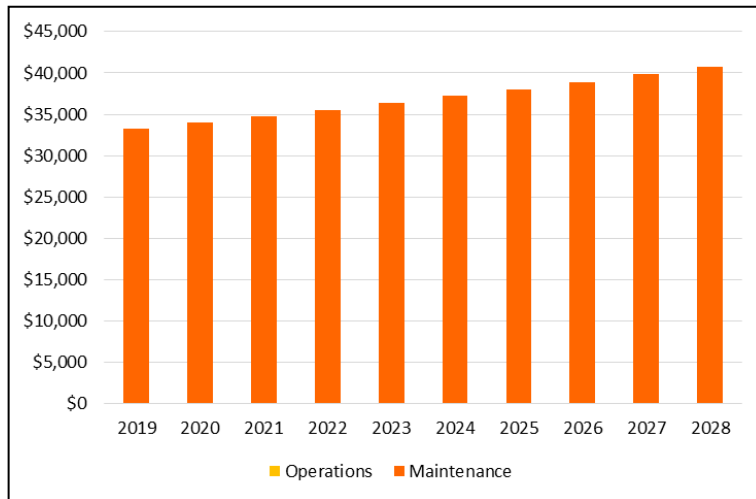
**5.4 Operations and Maintenance**

5.4.1 Operations and Maintenance Expenditure Trends

Year	Operations \$	Maintenance \$
2018 Actual	\$0	\$23,328
2019 Budget	\$0	\$33,201
2020 Estimate	\$0	\$33,965

5.4.2 Future Operations and Maintenance

**Operations and Maintenance Expenditure**



## 5.5 Renewal Plan

### 5.5.1 Ranking Criteria

Criteria	Weighting
Strategic Plan Objectives	20%
Regulatory Change (including environmental criteria)	20%
Community Expectation (Current vs Future Level of Service)	15%
Funding Availability	45%
<b>Total</b>	<b>100%</b>

### 5.5.2 Renewal expenditure

There is no capital renewal expenditure included in the program at this time.

## 5.6 New/Upgrade Plan

### 5.6.1 Ranking Criteria

Criteria	Weighting
Legislative Compliance	50%
Service Deficiency	50%
<b>Total</b>	<b>100%</b>

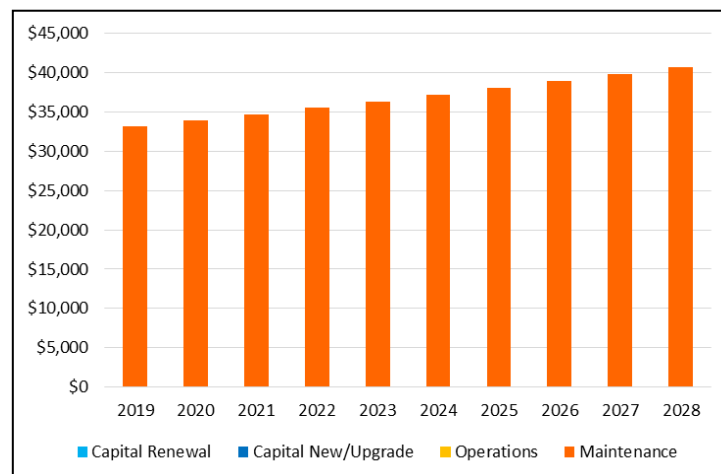
### 5.6.2 New/Upgrade expenditure

There is no capital new/upgrade expenditure included in the program at this time.

## 5.7 Summary of asset expenditure requirements

The financial projections from this asset plan are shown below for projected operating (operations and maintenance) and capital expenditure (renewal and new/upgrade assets).

**Asset Expenditure Requirements**



## 5.8 Disposal Plan

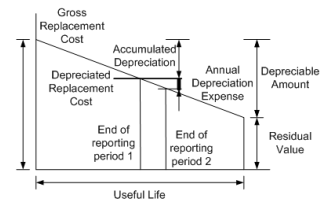
Asset	Reason for Disposal	Timing	Disposal Expenditure	Operations & Maintenance Annual Savings
No planned disposals.	-	-	\$0	\$0

## 6. FINANCIAL SUMMARY

### 6.1 Asset valuations

The value of assets recorded in the asset register as at 30<sup>th</sup> June 2018 covered by this AM Plan are shown below. Assets are valued at fair value at cost to replace service.

Gross Replacement Cost	\$1,154,532
Depreciable Amount	\$1,154,532
Accumulated Depreciation	\$406,114
Depreciated Replacement Cost <sup>1</sup>	\$748,419
Annual Average Asset Consumption <sup>2</sup>	\$11,380



A desktop revaluation of all Stormwater Drainage assets was undertaken using reviewed unit rates and a combination of visual condition and age/failure history in 2014.

Council’s applied depreciation method and estimates for asset useful lives, for the purposes of calculating depreciation, together with unit rates which are used for valuation of assets are contained in the appendices.

### 6.2 Sustainability

Council’s sustainability reporting reports the rate of annual asset consumption and compares this to asset renewal and asset upgrade and expansion. Note that these ratios are based on year one of this AM Plan.

Asset Consumption 0.99%  
*(Depreciation ÷ Depreciable amount)*

Asset Sustainability Ratio 0%  
*(Capital renewal ÷ Annual depreciation)*

### 6.3 Projected expenditures for long term financial plan

Year	Operations	Maintenance	Projected Capital Renewal	Capital Upgrade/ New	Disposals
2019	\$0	\$33,201	\$0	\$0	\$0
2020	\$0	\$33,965	\$0	\$0	\$0
2021	\$0	\$34,746	\$0	\$0	\$0
2022	\$0	\$35,545	\$0	\$0	\$0
2023	\$0	\$36,363	\$0	\$0	\$0
2024	\$0	\$37,199	\$0	\$0	\$0
2025	\$0	\$38,055	\$0	\$0	\$0
2026	\$0	\$38,930	\$0	\$0	\$0
2027	\$0	\$39,825	\$0	\$0	\$0
2028	\$0	\$40,741	\$0	\$0	\$0

<sup>1</sup> Also reported as Written Down Value, Carrying or Net Book Value.

<sup>2</sup> Also reported as Annual Depreciation.

## 7. RISK MANAGEMENT

### 7.1 Critical Risks and Treatment Plans

Service at Risk	What can Happen	Risk Rating	Risk Treatment Plan
Structural Condition of Culverts	A small percentage of new culverts can fail	High	Ensure new Culverts are quality checked before installation to ensure no chance of structural failure. Additionally, include quality controls which are in place in relation to installation.
Lack of knowledge of the condition of assets resulting in poor decision-making.	Most stormwater assets are underground assets. Condition of the assets are not easily assessed	High	Improve processes for capturing condition data. Analyse data and prioritise works program based on risk.
Road Assets	Failure of pavement due to underground culvert collapse	High	Introduction of CCTV Program to identify areas of risk and aid in development of future works programs
Stormwater System	Property flooding	High	Review and update Development Plan. Upgrade underground system based on risk priority.

## 8. PLAN IMPROVEMENT AND MONITORING

### 8.1 Improvement Plan

Action	Responsibility	Timeline
<b>Completed and Ongoing Actions</b>		
Develop risk management plan.	MOD/WM	Framework Completed
Develop condition assessment manual for condition.	WM/AMC2	Completed
Investigate options to allow for differentiation of maintenance expenditure as planned and un-planned.	WM/AMC2	Completed
Implement inspection program and review maintenance practices to ensure alignment with service level requirements.	AMC2	Ongoing
<b>Current and Outstanding Actions</b>		
No current and outstanding actions		

### 8.2 Monitoring and Review Procedures

This AM Plan will be updated annually to ensure it represents the current service level, asset values, projected operations, maintenance, capital renewal and replacement, capital upgrade/new and asset disposal expenditures and projected expenditure values.

## 9. APPENDICES

Appendix A Projected 10 year Capital Renewal Works Program

Appendix B Projected 10 year Capital Upgrade/New Works Program

Appendix C Condition Assessment Manual

Appendix D Assets Included in this Plan

Appendix E Asset Unit Rates, Useful Lives and Valuation Matrices



## **Appendix A    Projected 10 Year Capital Renewal Program**

There is no capital renewal expenditure included in the program at this time.

## **Appendix B Projected 10 Year Capital Upgrade/New Program**

There is no capital new/upgrade expenditure included in the program at this time.

## Appendix C Condition Assessment Manual

The primary purpose of this manual is to act as a guide for assessing, determining and assigning a condition rating to Council's Stormwater Drainage assets in a systematic and consistent manner. The condition assessment enables Council to determine the overall condition of its Stormwater Drainage assets for valuation purposes as well as identify those assets that require additional maintenance or renewal in future years.

Due to the underground nature of some Stormwater Drainage, visual assessment can be cost prohibitive. For this reason, the network condition can also be intuitively determined via a desktop assessment utilising age and failure history.

STORMWATER PITS			
Visual Assessment		Intuitive/Desktop Assessment Using Age	
Rating	Description	Rating	Description
0	Asset is brand new.	0	Brand New Pit constructed within previous twelve months.
1	Near as new condition with no defects. Pit is fully serviceable. Irrespective of age.	1	All pits constructed post 2000.
2	Superficial deterioration and fine roots starting to protrude into Pit.	2	All pits constructed between 1985 and 1999.
3	Deterioration of Pit. Minor sedimentation in Pit or minor tree roots protruding into Pit and/or minor settlement of inlet and outlet pipes.	3	All pits constructed between 1955 and 1984.
4	Pit shows signs of imminent failure. Pit is between 30% to 50% blocked by sedimentation/sludge or tree root infestation and/or inlet or outlet pipe has settled creating some obstruction to stormwater flow discharge.	4	All pits constructed between 1935 and 1954.
5	Pit has failed. Pit is more than 50% blocked by sedimentation/sludge or tree root infestation and/or inlet or outlet pipe has settled creating some obstruction to stormwater flow discharge.	5	All pits constructed pre 1935.

STORMWATER PIPES			
Visual Assessment		Capacity Assessment	
Rating	Description	Rating	Description
0	Asset is brand new.	0	Brand New Pipe constructed within previous two years.
1	No cracking, deflection, deformation, seal exposure and/or connections as-new	1	All pipes constructed post 2000.
2	Minor or insignificant cracking, deformation and/or minor connection deterioration (seal exposure)	2	All pipes constructed between 1985 and 1999.
3	Moderate cracking, deflection (<10mm) or deformation and/or collars or joint cracked or affected by tree roots, deteriorated rubber seals	3	All pipes constructed between 1955 and 1984.
4	Major cracking, deformation, Deflection (>10mm) and/or collars showing evidence of breaking away or failed rubber rings	4	All pipes constructed between 1935 and 1954.
5	Pipe Failure or Imminent Failure, Pipe Loss, Visible Voids	5	All pipes constructed pre 1935.

## Appendix D Assets included in this Plan

Location	Road Name	Asset Type	Date Built	Qty	Replacement Value	Hierarchy
Allendale East	Bryan Street	Pipe	1/01/2011	98.93	\$14,275.60	Township
Allendale East	Bryan Street	Bore	1/01/2011	1.00	\$5,000.00	Township
Allendale East	Bryan Street	Pit	1/01/2011	5.00	\$10,300.00	Township
Allendale East	Jess Road	Pipe	1/01/1955	9.00	\$1,298.70	Rural
Allendale East	Mortimer Street	Pipe	1/01/2006	7.66	\$1,105.34	Township
Allendale East	Mortimer Street	Bore	1/01/2006	1.00	\$5,000.00	Township
Allendale East	Mortimer Street	Pit	1/01/2006	3.00	\$7,900.00	Township
Allendale East	Mortimer Street	Pipe	1/01/2011	13.50	\$1,948.05	Township
Allendale East	Pannells Road	Pipe	1/01/1955	18.00	\$2,597.40	Rural
Allendale East	Sewarts Road	Pipe	1/01/1955	10.00	\$1,443.00	Rural
Allendale East	Wash Lane	Pipe	1/01/1955	8.00	\$1,154.40	Rural
Allendale East	William Street Central	Pipe	1/01/2011	25.06	\$3,616.16	Township
Allendale East	William Street Central	Bore	1/01/2011	1.00	\$5,000.00	Township
Allendale East	William Street Central	Pit	1/01/2011	3.00	\$7,900.00	Township
Allendale East	William Street Central	Pipe	1/05/2014	19.83	\$2,861.47	Township
Allendale East	William Street Central	Bore	1/05/2014	1.00	\$11,245.00	Township
Allendale East	William Street Central	Pit	1/05/2014	3.00	\$10,850.78	Township
Blackfellows Caves	Hammer Parade	Pipe	1/01/1990	122.83	\$17,724.37	Township
Blackfellows Caves	Hammer Parade	Pit	1/01/1990	7.00	\$8,400.00	Township
Blackfellows Caves	Saunders Road	Pipe	1/01/1990	71.18	\$10,271.27	Township
Blackfellows Caves	Saunders Road	Pit	1/01/1990	2.00	\$2,400.00	Township
Blackfellows Caves	Unger Street	Pipe	1/01/1990	67.47	\$9,735.92	Township
Blackfellows Caves	Unger Street	Pit	1/01/1990	2.00	\$2,400.00	Township
Burrungule	Schutz Road	Pipe	1/01/1955	10.00	\$1,443.00	Rural
Burrungule	Stringybark Road	Pipe	1/01/1955	9.00	\$1,298.70	Rural
Cape Douglas	Cape Douglas Road	Pipe	1/01/1972	110.00	\$15,873.00	Rural
Cape Douglas	Christians Road	Pipe	1/01/1972	54.00	\$7,792.20	Rural
Cape Douglas	Megaws Lane	Pipe	1/01/1955	85.00	\$12,265.50	Rural
Cape Douglas	Meyers Road	Pipe	1/01/1972	99.00	\$14,285.70	Rural
Cape Douglas	Meyers Road	Pipe	1/01/1990	55.00	\$7,936.50	Rural
Cape Douglas	Spehrs Road	Pipe	1/01/1955	27.00	\$3,896.10	Rural
Carpenter Rocks	Carpenter Rocks Road	Pipe	1/01/1955	20.00	\$2,886.00	Rural
Carpenter Rocks	Carpenter Rocks Road	Pipe	1/04/2017	108.54	\$6,878.05	Township
Carpenter Rocks	Carpenter Rocks Road	Pit	1/04/2017	3.00	\$3,600.00	Township
Carpenter Rocks	Three Chain Road (Carpenter Rocks)	Pipe	1/01/1990	8.00	\$1,154.40	Rural
Caveton	Sea Coast Hill Road	Pipe	1/01/1990	39.00	\$5,627.70	Rural
Compton	Bill James Court	Pipe	1/01/1990	20.00	\$2,886.00	Rural
Compton	Burnda Road	Pipe	1/01/1955	10.00	\$1,443.00	Rural
Compton	Compton Hall Road	Pipe	1/01/1955	8.00	\$1,154.40	Rural
Compton	Compton Rise Crescent	Pipe	1/01/2007	13.00	\$1,875.90	Rural
Compton	Mount Percy Road	Pipe	1/01/1955	18.00	\$2,597.40	Rural
Dismal Swamp	Carney Lake Road	Pipe	1/01/1955	10.00	\$1,443.00	Rural
Donovans	Adams Street	Pipe	1/01/2004	30.58	\$4,412.69	Township
Donovans	Adams Street	Bore	1/01/2004	1.00	\$5,000.00	Township
Donovans	Adams Street	Pit	1/01/2004	5.00	\$10,300.00	Township
Donovans	Donovans Road	Pit	1/01/2006	1.00	\$1,200.00	Township

Location	Road Name	Asset Type	Date Built	Qty	Replacement Value	Hierarchy
Donovans	Dry Creek Road	Pipe	1/01/1955	20.00	\$2,886.00	Rural
Donovans	Dry Creek Road	Culvert	1/03/2016	6.74	\$409.99	Township
Donovans	Dry Creek Road	Pit	1/03/2016	1.00	\$118.18	Township
Donovans	Glenelg Avenue	Pipe	1/01/2006	18.32	\$2,643.58	Township
Donovans	Glenelg Avenue	Bore	1/01/2006	1.00	\$5,000.00	Township
Donovans	Glenelg Avenue	Pit	1/01/2006	3.00	\$7,900.00	Township
Donovans	Holloway Street	Pipe	1/01/2006	121.63	\$17,551.21	Township
Donovans	Holloway Street	Pit	1/01/2006	5.00	\$6,000.00	Township
Donovans	Leslie Court	Bore	1/01/2006	1.00	\$5,000.00	Township
Donovans	Leslie Court	Pit	1/01/2006	1.00	\$1,200.00	Township
Donovans	UN0870 Unnamed Road	Pipe	1/01/1955	10.00	\$1,443.00	Rural
Eight Mile Creek	Galpins Road	Pipe	1/01/1955	33.00	\$4,761.90	Rural
Eight Mile Creek	Lower Nelson Road	Pipe	1/01/1955	140.00	\$20,202.00	Rural
Eight Mile Creek	Peacocks Road	Pipe	1/01/1972	33.00	\$4,761.90	Rural
Eight Mile Creek	Peacocks Road	Pipe	1/01/1990	11.00	\$1,587.30	Rural
German Creek	Bowerings Road	Pipe	1/01/1955	19.50	\$2,813.85	Rural
German Creek	Brownes Flat Road	Pipe	1/01/1955	13.00	\$1,875.90	Rural
German Creek	Chants Lane	Pipe	1/01/1955	8.00	\$1,154.40	Rural
German Creek	German Creek Road	Pipe	1/01/1955	18.00	\$2,597.40	Rural
German Creek	Kongorong-Tantanoola Road	Pipe	1/01/1955	70.00	\$10,101.00	Rural
Glenburnie	Racecourse Crescent	Pipe	1/07/2014	179.47	\$29,127.98	Rural
Glenburnie	Racecourse Crescent	Pit	1/07/2014	11.00	\$13,200.00	Rural
Glenburnie	Sycamore Road	Pipe	1/01/1955	14.00	\$2,020.20	Rural
Kongorong	Crowes Road	Pipe	1/01/1955	9.00	\$1,298.70	Rural
Kongorong	Glynns Road	Pipe	1/01/1955	20.00	\$2,886.00	Rural
Kongorong	Mount Salt Road	Pipe	1/01/1990	20.00	\$2,886.00	Rural
Kongorong	Neechy Flat Road	Pipe	1/01/1990	10.00	\$1,443.00	Rural
Kongorong	Nene Valley Road	Pipe	1/01/1972	10.00	\$1,443.00	Rural
Kongorong	Pudneys Road	Pipe	1/01/1990	11.00	\$1,587.30	Rural
Kongorong	Shepherds Lane	Pipe	1/01/1942	40.00	\$5,772.00	Rural
Mil-Lel	Highfield Avenue	Pipe	1/01/2009	11.00	\$1,587.30	Rural
Mil-Lel	Kennedy Avenue	Pipe	1/01/1990	13.00	\$1,875.90	Rural
Mil-Lel	Peweena Road	Pipe	1/01/1955	38.00	\$5,483.40	Rural
Mil-Lel	Rexwells Court	Pipe	1/01/2009	20.00	\$2,886.00	Rural
Mil-Lel	Sherwin Road	Pipe	1/01/1955	11.00	\$1,587.30	Rural
Mingbool	Clezy Road	Pipe	1/01/1942	80.00	\$11,544.00	Rural
Mingbool	Dip Road	Pipe	1/01/1955	10.00	\$1,443.00	Rural
Mingbool	Dip Road	Pipe	1/01/1972	10.00	\$1,443.00	Rural
Mingbool	Dip Road	Pipe	1/01/1990	10.00	\$1,443.00	Rural
Mingbool	Kentish Road	Pipe	1/01/1955	14.00	\$2,020.20	Rural
Mingbool	Kirby Road	Pipe	1/01/1955	20.00	\$2,886.00	Rural
Mingbool	Milroy Road	Pipe	1/01/1942	27.00	\$3,896.10	Rural
Mingbool	Milroy Road	Pipe	1/01/1955	36.00	\$5,194.80	Rural
Mingbool	Mingbool Road	Pipe	1/01/1955	40.00	\$5,772.00	Rural
Mingbool	Quarry Road	Pipe	1/01/1955	8.00	\$1,154.40	Rural
Moorak	Kilsby Road	Pipe	1/01/1955	20.00	\$2,886.00	Rural
Moorak	Sisters Road	Pipe	1/01/1990	10.00	\$1,443.00	Rural
Moorak	Skene Road	Pipe	1/01/1955	10.00	\$1,443.00	Rural
Mount Gambier	Pinehall Avenue	Bore	1/01/2004	1.00	\$5,000.00	Township

Location	Road Name	Asset Type	Date Built	Qty	Replacement Value	Hierarchy
Mount Gambier	Pinehall Avenue	Pipe	1/01/2004	17.17	\$2,477.63	Township
Mount Gambier	Pinehall Avenue	Pit	1/01/2004	12.00	\$18,700.00	Township
Mount Schank	Aldridge Road	Pipe	1/01/1955	10.00	\$1,443.00	Rural
Mount Schank	Jones Road	Pipe	1/01/1955	16.00	\$2,308.80	Rural
Mount Schank	Old Boundary Road	Pipe	1/01/1972	10.00	\$1,443.00	Rural
Mount Schank	Old Boundary Road	Pipe	1/01/1990	10.00	\$1,443.00	Rural
Nene Valley	Nene Valley Shacks Road	Pipe	1/01/1990	70.00	\$10,101.00	Rural
Pelican Point	Pelican Point Road	Pipe	1/01/1990	55.00	\$7,936.50	Rural
Pelican Point	Shellsea Court	Pipe	1/01/2010	3.25	\$468.98	Township
Pelican Point	Shellsea Court	Pit	1/01/2010	2.00	\$2,400.00	Township
Pleasant Park	Bailey Road	Pipe	1/01/1955	20.00	\$2,886.00	Rural
Pleasant Park	Paltridge Road	Pipe	1/01/1955	30.00	\$4,329.00	Rural
Port MacDonnell	Amateur Boat Ramp Road	Pit	1/01/2011	2.00	\$2,000.00	Township
Port MacDonnell	Bell Street	Pipe	1/01/1955	29.25	\$4,220.78	Township
Port MacDonnell	Bell Street	Pit	1/01/1955	1.00	\$1,200.00	Township
Port MacDonnell	Charles Street	Pit	1/01/1955	1.00	\$800.00	Township
Port MacDonnell	Compton Street	Pipe	1/01/2004	44.58	\$6,432.89	Township
Port MacDonnell	Compton Street	Pit	1/01/2004	2.00	\$2,400.00	Township
Port MacDonnell	Coral Cove	Pipe	1/01/2008	36.84	\$5,316.01	Township
Port MacDonnell	Coral Cove	Pit	1/01/2008	4.00	\$6,000.00	Township
Port MacDonnell	Cowrie Court	Pipe	1/01/2011	64.28	\$9,275.60	Township
Port MacDonnell	Cowrie Court	Pit	1/01/2011	3.00	\$3,600.00	Township
Port MacDonnell	Dingley Dell Road	Pipe	1/01/1955	20.00	\$2,886.00	Rural
Port MacDonnell	Dingley Dell Road	Pipe	1/01/1972	40.00	\$5,772.00	Rural
Port MacDonnell	Dingley Dell Road	Pipe	1/01/1990	30.00	\$4,329.00	Rural
Port MacDonnell	Elizabeth Street	Pipe	1/01/1990	82.42	\$11,893.21	Township
Port MacDonnell	Elizabeth Street	Pit	1/01/1990	3.00	\$3,600.00	Township
Port MacDonnell	Grundys Lane	Pipe	1/01/1955	16.00	\$2,308.80	Rural
Port MacDonnell	Grundys Lane	Pipe	1/01/1972	16.00	\$2,308.80	Rural
Port MacDonnell	Mariner Court	Pipe	1/11/2002	57.60	\$8,311.68	Township
Port MacDonnell	Mariner Court	Pit	1/11/2002	3.00	\$3,600.00	Township
Port MacDonnell	Nautilus Drive	Pipe	1/01/2008	15.79	\$2,278.50	Township
Port MacDonnell	Nautilus Drive	Pit	1/01/2008	2.00	\$3,600.00	Township
Port MacDonnell	Pleasant Cove Service Road	Pipe	1/01/2008	10.00	\$1,443.00	Township
Port MacDonnell	Pleasant Cove Service Road	Pit	1/01/2008	1.00	\$1,200.00	Township
Port MacDonnell	Sea Parade	Pipe	1/01/1955	378.08	\$50,423.74	Township
Port MacDonnell	Sea Parade	Pit	1/01/1955	25.00	\$28,000.00	Township
Port MacDonnell	Shell Drive	Pipe	1/01/2008	26.04	\$3,757.57	Township
Port MacDonnell	Shell Drive	Pit	1/01/2008	3.00	\$4,200.00	Township
Port MacDonnell	Smiths Road	Pipe	1/01/1955	50.00	\$7,215.00	Rural
Port MacDonnell	Springs Road	Pipe	1/01/1990	10.00	\$1,443.00	Rural
Port MacDonnell	UN0328 Unnamed Road	Pipe	1/09/2012	8.00	\$1,154.40	Rural
Racecourse Bay	Kuhl Drive	Pipe	1/01/1990	10.00	\$1,443.00	Rural
Reed Bed	Reed Bed Access Track	Pipe	1/01/1990	12.00	\$1,731.60	Rural
Suttontown	Ascott Way	Pipe	1/07/1998	20.00	\$2,886.00	Rural
Suttontown	Brian Smith Drive	Pipe	6/02/2012	170.19	\$24,558.42	Township
Suttontown	Brian Smith Drive	Pit	6/02/2012	5.00	\$9,800.00	Township
Tantanoola	Vickers Road	Pipe	1/01/1955	40.00	\$5,772.00	Rural
Tarpeena	Alexander Street	Pipe	1/01/1955	208.15	\$30,036.05	Township

Location	Road Name	Asset Type	Date Built	Qty	Replacement Value	Hierarchy
Tarpeena	Alexander Street	Pit	1/01/1955	4.00	\$4,800.00	Township
Tarpeena	Anne Street	Bore	1/01/2008	1.00	\$5,000.00	Township
Tarpeena	Anne Street	Pipe	1/01/2008	21.69	\$3,129.87	Township
Tarpeena	Anne Street	Pit	1/01/2008	2.00	\$2,400.00	Township
Tarpeena	Arthur Street	Pipe	1/01/2005	68.85	\$9,935.06	Township
Tarpeena	Arthur Street	Pit	1/01/2005	4.00	\$4,800.00	Township
Tarpeena	Avondale Road	Pipe	1/01/1955	58.20	\$8,398.26	Rural
Tarpeena	Cornish Street	Pipe	1/01/1955	42.60	\$6,147.18	Township
Tarpeena	Cornish Street	Pit	1/01/1955	2.00	\$2,400.00	Township
Tarpeena	Draper Street West	Pipe	1/01/1955	28.05	\$4,047.62	Township
Tarpeena	Draper Street West	Pit	1/01/1955	2.00	\$2,400.00	Township
Tarpeena	Draper Street West	Pit	1/07/2013	1.00	\$5,500.00	Township
Tarpeena	Draper Street West	Pipe	1/05/2014	26.62	\$3,841.27	Township
Tarpeena	Draper Street West	Bore	1/05/2014	1.00	\$7,000.00	Township
Tarpeena	Draper Street West	Pit	1/05/2014	2.00	\$3,342.60	Township
Tarpeena	Edward Street	Pipe	1/01/1955	22.18	\$3,200.57	Township
Tarpeena	Edward Street	Bore	1/01/1955	1.00	\$5,000.00	Township
Tarpeena	Edward Street	Pit	1/01/1955	3.00	\$7,900.00	Township
Tarpeena	Francis Terrace West	Pipe	1/01/1955	74.94	\$10,813.84	Township
Tarpeena	Francis Terrace West	Pit	1/01/1955	2.00	\$2,000.00	Township
Tarpeena	Gambier Street	Pipe	1/01/1955	53.26	\$7,685.42	Township
Tarpeena	Gambier Street	Pit	1/01/1955	2.00	\$2,400.00	Township
Tarpeena	Henry Street	Pipe	1/01/1955	31.13	\$4,492.06	Township
Tarpeena	Henry Street	Bore	1/01/1955	1.00	\$5,000.00	Township
Tarpeena	Henry Street	Pit	1/01/1955	4.00	\$7,900.00	Township
Tarpeena	Marion Terrace	Pipe	1/01/1955	72.88	\$10,516.58	Township
Tarpeena	Marion Terrace	Pit	1/01/1955	1.00	\$1,200.00	Township
Tarpeena	Martin Crescent	Bore	1/01/1955	2.00	\$10,000.00	Township
Tarpeena	Martin Crescent	Pipe	1/01/1955	71.35	\$10,295.81	Township
Tarpeena	Martin Crescent	Pit	1/01/1955	3.00	\$7,900.00	Township
Tarpeena	Morphett Terrace	Bore	1/01/1955	2.00	\$10,000.00	Township
Tarpeena	Morphett Terrace	Pipe	1/01/1955	47.65	\$6,875.90	Township
Tarpeena	Morphett Terrace	Pit	1/01/1955	8.00	\$18,200.00	Township
Tarpeena	Pearson Street	Pipe	1/01/2000	104.03	\$15,011.53	Township
Tarpeena	Pearson Street	Pit	1/01/2000	5.00	\$6,000.00	Township
Tarpeena	Pearson Street	Pipe	1/04/2017	23.78	\$1,321.70	Township
Tarpeena	Pearson Street	Bore	1/04/2017	2.00	\$13,730.00	Township
Tarpeena	Pearson Street	Pit	1/04/2017	3.00	\$6,514.00	Township
Tarpeena	Rust Road	Pipe	1/01/1972	30.00	\$4,329.00	Rural
Tarpeena	Smith Street	Pipe	1/01/1955	35.61	\$5,138.52	Township
Tarpeena	Smith Street	Pit	1/01/1955	2.00	\$2,400.00	Township
Tarpeena	Waring Street East	Pipe	1/01/1955	24.11	\$3,479.07	Township
Tarpeena	Waring Street East	Pit	1/01/1955	3.00	\$7,900.00	Township
Tarpeena	Waring Street East	Bore	1/01/1955	1.00	\$5,000.00	Township
Tarpeena	Waring Street West	Pipe	1/01/1955	7.94	\$1,145.74	Township
Tarpeena	Waring Street West	Bore	1/01/1955	1.00	\$5,000.00	Township
Tarpeena	Waring Street West	Pit	27/05/2014	1.00	\$10,312.92	Township
Tarpeena	Waring Street West	Pipe	1/04/2017	16.26	\$2,346.32	Township
Tarpeena	West Street	Bore	1/01/1955	1.00	\$5,000.00	Township

Location	Road Name	Asset Type	Date Built	Qty	Replacement Value	Hierarchy
Tarpeena	West Street	Pit	1/01/1955	1.00	\$5,500.00	Township
Tarpeena	West Street	Pipe	9/05/2013	56.59	\$8,165.94	Township
Tarpeena	West Street	Bore	9/05/2013	1.00	\$6,180.76	Township
Wepar	Lagoon Road	Pipe	1/01/1955	9.00	\$1,298.70	Rural
Wepar	Wood Road	Pipe	1/01/1955	40.00	\$5,772.00	Rural
Worrolong	Attamura Road	Pipe	1/01/1955	10.50	\$1,515.15	Rural
Wye	Piccaninnie Ponds Road	Pipe	1/01/1955	20.00	\$2,886.00	Rural
Yahl	Church Street	Pipe	1/07/2013	15.00	\$2,164.50	Township
Yahl	Maple Court	Pipe	1/10/2016	6.90	\$995.67	Township
Yahl	Maple Court	Bore	1/10/2016	1.00	\$5,000.00	Township
<b>Total</b>						<b>\$1,154,532</b>



**Appendix E Asset Unit Rates, Useful Lives and Valuation Matrices**

Type	Unit Rate (FV) As at 1/7/18	Unit Rate Details	Useful Life	Valuation Matrix
<b>Stormwater Pits</b>				
Side Entry Pit (Single)	\$1,200 ea	Installed (cost based on previous installations)	100	Drainage Assets (Condition Based Method)
Side Entry Pit (Double)	\$5,500 ea	Installed (cost based on previous installations)		
Open Grate Pit	\$800 ea	Installed (cost based on previous installations)		
Headwall	\$400 ea	Installed (cost based on previous installations)		
Drainage Bore	\$5,000 ea	Average cost of a 70-80m deep drainage bore with casing		
<b>Stormwater Pipes</b>				
225mm	\$73.94/m	Per metre costs are installed (based on actual cost x 2). <i>Note: For the purpose of valuing stormwater drainage assets, a pipe cost of \$144.30 per metre was used. This was based on an average cost of 225-450 diameter pipe as this is the diameter used within townships.</i>	100	Drainage Assets (Condition Based Method)
300mm	\$109.00/m			
375mm	\$162.30/m			
450mm	\$231.96/m			
525mm	\$295.08/m			
600mm	\$350.00/m			
675mm	\$458.20/m			