STORMWATER ASSET MANAGEMENT PLAN

2022

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1 Executive Summary

The compilation of an Asset Management Plan (AMP) is a process of investigation and review of data from multiple sources, including Council's Engineering and Finance Departments, Works Depot and External Consultants. The first iteration of these asset plans in 2014 identified significant opportunities to improve Councils asset knowledge, documentation, budgeting, construction methodologies and maintenance management.

Since Council's acceptance of the first AMP, improved data collection and field validation using tailored technology, upskilling of staff to undertake field based condition assessment, implementation of a componentised asset register and maintenance management system and integration with Councils finance systems and software have yielded significant improvements in Council's asset management maturity. Council engaged consultants Esk Mapping to complete a detailed survey of the stormwater network including condition assessment. The resulting high quality of underpinning data allowed for the creation of a robust Stormwater System Management Plan (SSMP) developed by Entura.

In addition to the above improvements, Council have engaged specialist asset management consultants Assetic to undertake strategic analysis of our stormwater data and provide Council with an optimised 10 year spending forecast for the period 2022 to 2032. Further detail of this optimised spending is included in Section 6.

1.1 Purpose of the Plan

The fundamental purpose of this Stormwater Asset Management Plan is to improve Council's long-term strategic management of its Stormwater Infrastructure assets in order to cater for the community's required levels of service in the future as detailed under Section 3. The plan defines the state of Council's Stormwater assets at the close of the past financial year, the 10-year funding required to achieve Council's adopted asset performance targets and the planned asset management activities over a 10-year planning period.

The Sorell community is continually growing and its forecast growth over the next 25 years is more than 5.7 times the state average. As a result of this growth, Council's services are in high demand along with requests for new facilities, infrastructure and recreational spaces. (Annual Report 2018-19, Mayors Report).

This Plan encompasses a variety of infrastructure assets and therefore the following is a list of the asset categories used within Assetic that make up Councils Stormwater Asset Class.

This Plan encompasses the following infrastructure asset categories:

- Stormwater Drains
- Stormwater Pits
- Stormwater End Structures
- Stormwater Culverts
- Stormwater Gross Pollutant Traps (GPT)
- Stormwater Open Drains and Raingardens

The following two figures demonstrate where this AMP sits amongst other Sorell Council documentation and what elements ideally feed the AMP and what outputs come out of a successfully implemented AMP.

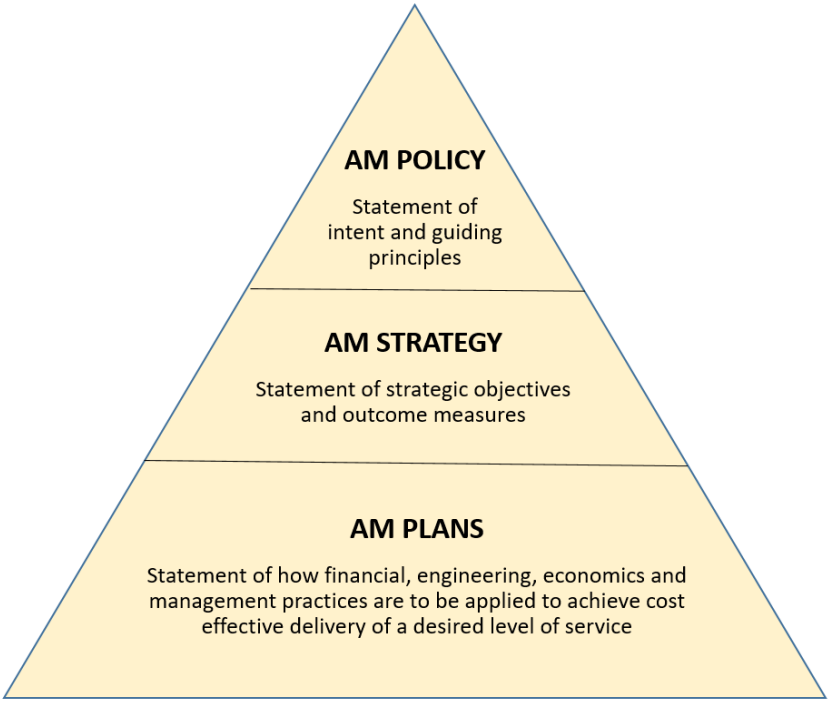

Figure 1. Council's document hierarchy and descriptions of each for which all are published on Council's website to adhere to the Local Government Act.

1.2 Current State of Council's Assets

Stormwater assets have a total replacement cost of $67 million with a written down value of $49.9 million as of June 30th 2022. Table 1 below shows the asset category breakdown for these amounts.

Table 1. A break up of the asset categories that make up the stormwater asset class and their respective replacement costs, depreciated replacement costs and consumption ratios as of June 30 2022.

	Asset Category	Gross Replacement Cost ($)	Accumulated Depreciation ($)	Fair Value ($)	Estimated Annual Depreciation ($)	Fair Value / GRC %
Revalued amount at 30 June 2022	End Structures	361,517	93,263	268,254	4,519	74%
	Open Gardens and Raingardens	1,822,028	303,925	1,518,103	28,977	83%
	Stormwater Culverts	7,512,393	2,994,016	4,518,376	75,124	60%
	Stormwater Drains	45,115,144	11,765,136	33,350,009	451,151	74%
	Stormwater GPT	490,225	71,005	419,220	9,805	86%
	Stormwater Pits	12,503,934	2,631,280	9,872,654	162,653	79%
Total		**67,805,242**	**17,858,625**	**49,946,617**	**732,229**	**74%**

1.3 Asset Funding Levels

The forecast lifecycle cost necessary to provide the services covered by this Stormwater Asset Management Plan including maintenance and capital expenditure of assets over a 10 year planning period is demonstrated in table 2 below.

Table 2. Asset funding Level over a 10-year planning period for Stormwater Assets for Capital Expenditure on Renewal or Replacement of Existing Assets as of June 30th 2022.

Year Ending 30 June:	2023 Year 1 Plan $'000	2024 Year 2 Plan $'000	2025 Year 3 Plan $'000	2026 Year 4 Plan $'000	2027 Year 5 Plan $'000	2028 Year 6 Plan $'000	2029 Year 7 Plan $'000	2030 Year 8 Plan $'000	2031 Year 9 Plan $'000	2032 Year 10 Plan $'000	2033 Year 11 Plan $'000	2034 Year 12 Plan $'000	2035 Year 13 Plan $'000	2036 Year 14 Plan $'000
Capital Expenditure on Renewal or Replacement of Existing Assets:														
Stormwater	115	776	795	797	797	797	797	797	797	797	797	797	797	797

Asset Renewal Funding Ratio:

Based on Current LTFP Budget for High Level of Service	458%
Based on Current LTFP Budget for Standard Level of Service	613%
Based on Current LTFP Criticality Based	824%

Asset Consumption Ratios:

Stormwater	74%

Asset Sustainability Ratio:

Based on Current LTFP Budget for High Level of Service	22%
Based on Current LTFP Budget for Standard Level of Service	3%
Based on Current LTFP Budget Criticality Based	12%

1.4 Action Plan

The next steps to improve asset management practices resulting from this AMP are as follows:

- Inform the Long Term Financial Plan more appropriate renewal budget requirements.
- Communicate as necessary if changes to corporate risk register are required.
- Obtain functionality ratings for all stormwater assets and use this ranking for input into advanced iteration of renewals forecasting.
- Create a schedule for yearly CCTV investigation of stormwater drain network to better understand condition data of underground assets.
- Establish a 6 monthly inspection of major stormwater culverts

- Further condition assessment of stormwater pits by stormwater works crew to further define renewals program.
- Review all stormwater assets in condition 4 or greater as selected for renewal by the 10 year renewals program.
- Investigate the most cost effective renewal options for larger pipes (eg. slip lining).
- Continue to populate service criteria at the component level as after condition assessments are complete to drive the asset condition / performance curve.

2 Current State of Council's Assets

2.1 Key Indicators

The Stormwater Asset Class is comprised of a variety of different assets that make up 6 asset categories. The following table provides the quantum of Transport assets by asset category managed by Council as at 30th June 2022.

Table 3. A Summary of Stormwater Assets managed by Council as at 30th of June 2022.

Transport Categories	Measure	Additional Information
Stormwater Drains	95 Km	Asset Sub Type: Gravity Main — 3726; Customer Connection — 1315
Stormwater Pits	2,894 Qty	Asset Sub Type: Manhole — 1324; Pit — 1570
Stormwater End Structures	441 Qty	
Stormwater Culverts	1,169 Qty	
Stormwater Gross Pollutant Traps	20 Qty	
Stormwater Open Drains and Rain Gardens	57 Qty	Asset Type: Open Drains — 39; Rain Gardens — 18

The Current State of Council's Stormwater Assets can be demonstrated through an assets Overall Service Index (OSI). *Table 4* provides the high level OSI of Council's Stormwater assets. This was derived from the valuation index at the component level. The distribution percentage is as per current quantity of the assets where condition data is available. The current condition of the assets has been used in predictive modelling to determine the required funding levels for asset renewal and maintenance. The detail of funding level options detailed in Section 6 Asset Funding Levels.

Table 4. A Summary of the percent of the valuation index at each valuation index grouping

Asset Class		Condition Rating Date	New	Very Good	Good	Fair	Poor	Very Poor / EoL
			0-1	1-2	2-3	3-4	4-5	5-6
Stormwater Drains		Jun-17	15%	14%	48%	21%	1%	1%
Stormwater Pits		Jun-17	15%	23%	42%	13%	5%	1%
Stormwater End Structures		Jun-17	13%	10%	48%	19%	7%	3%
Stormwater Culverts		Jun-17	6%	3%	21%	66%	3%	1%
Stormwater GPTs		Jun-17	39%	56%	0%	6%	0%	0%
Stormwater Open Drains and Rain Gardens		Jun-17	32%	11%	53%	4%	0%	0%

Table 5 below demonstrates the asset consumption ratio per Stormwater Asset Category.

Table 5. Asset consumption ratio per Stormwater Asset Category (Total Depreciated Replacement Cost / Total Replacement Cost)

Asset Category	Total Replacement Cost	Total Depreciated Replacement Cost	Asset Consumption Ratio
Culverts	7,512,393	4,518,376	60%
Open Drains and Rain Gardens	1,822,028	1,518,103	83%
Stormwater Drains	45,115,144	33,350,009	74%
Stormwater End Structures	361,517	268,254	74%
Stormwater GPTs	490,225	419,220	86%
Stormwater Pits	12,503,934	9,872,654	79%
Grand Total	67,805,242	49,946,617	74%

2.2 Asset Class Status

The following collection of pie charts demonstrate the overall condition status for each of the asset categories included in this plan. The condition score was derived from a condition assessment of all above ground assets. For Stormwater Drains a condition score was derived from the age of overlying road. A

score of between 0-6 was used as the rating system at the time the data was collected. (0 being brand new and 6 being End of Life, a full description can be found in Table 14 in section 3.5 Condition Assessment Framework).

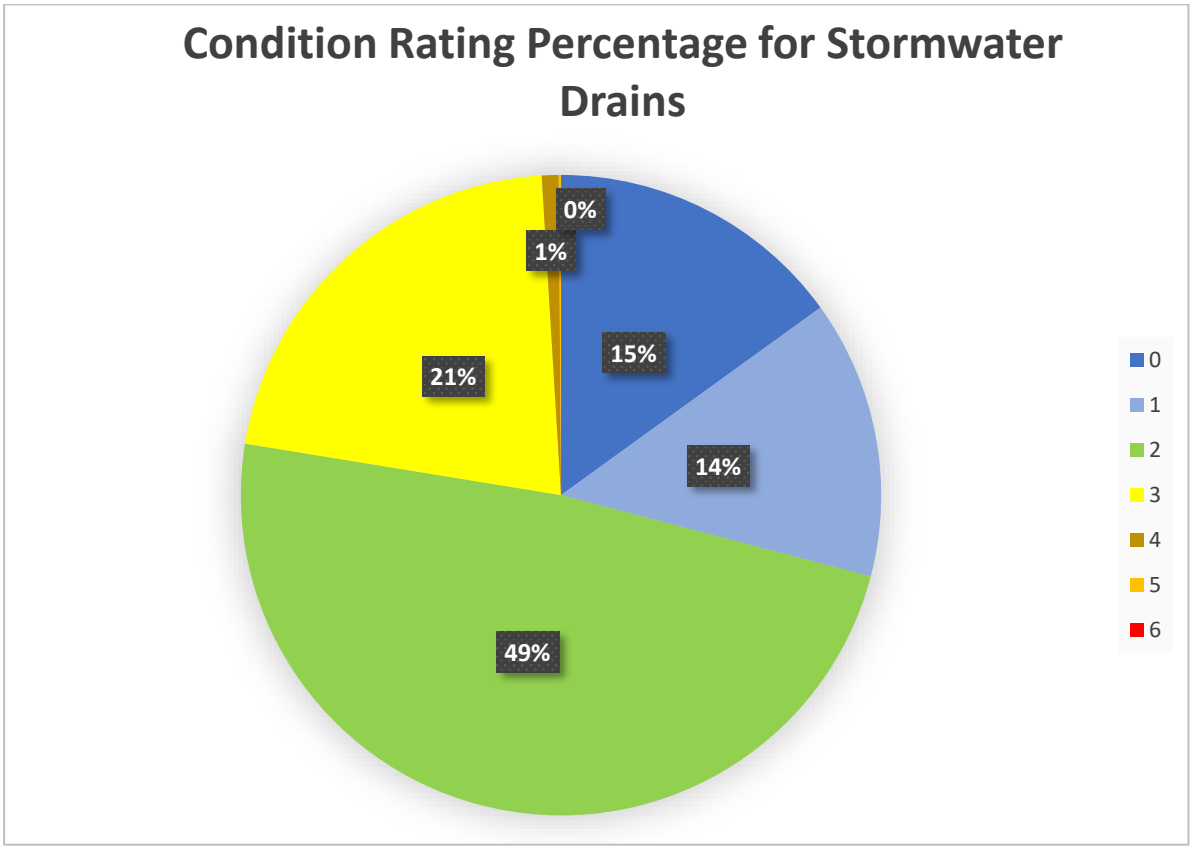

Figure 2. Current Overall Service Indicator (OSI) of Stormwater Drains as of 30 June 2022 by Asset quantity.

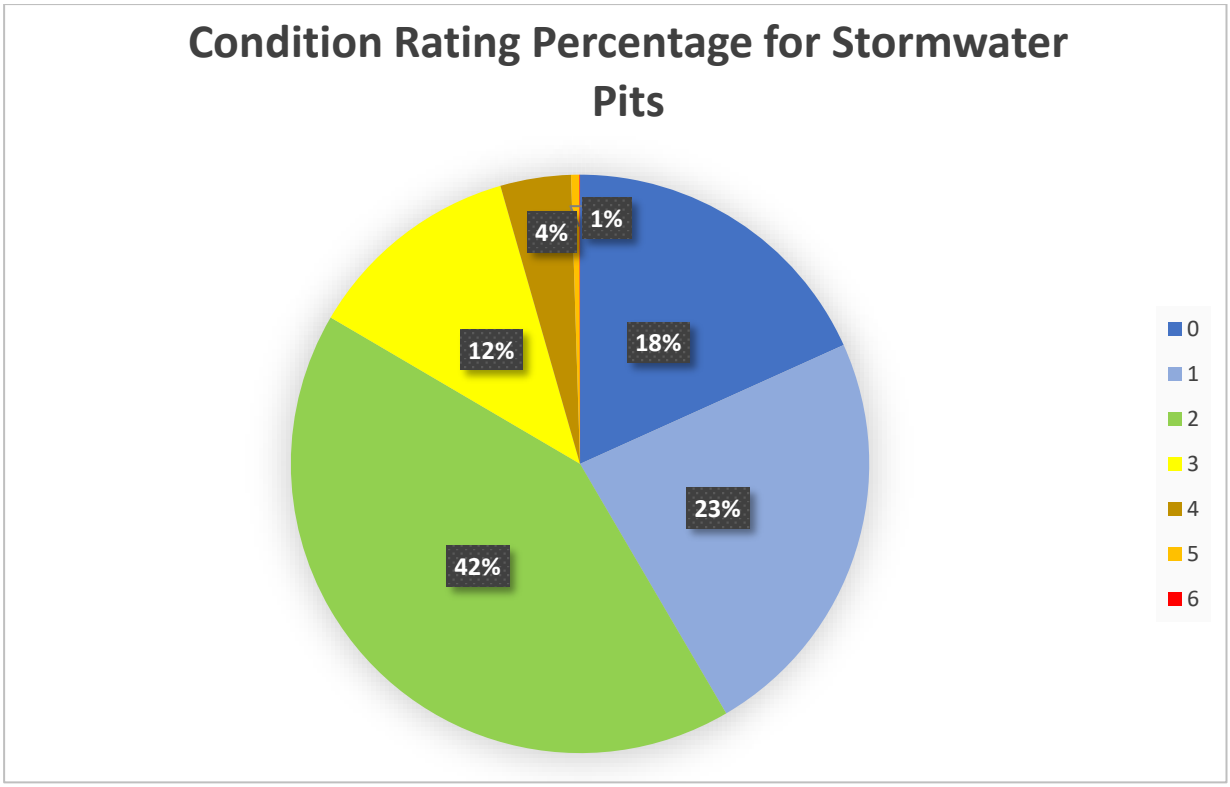

Figure 3. Current Overall Service Indicator (OSI) of Stormwater Pits as of 30 June 2022 by Asset quantity.

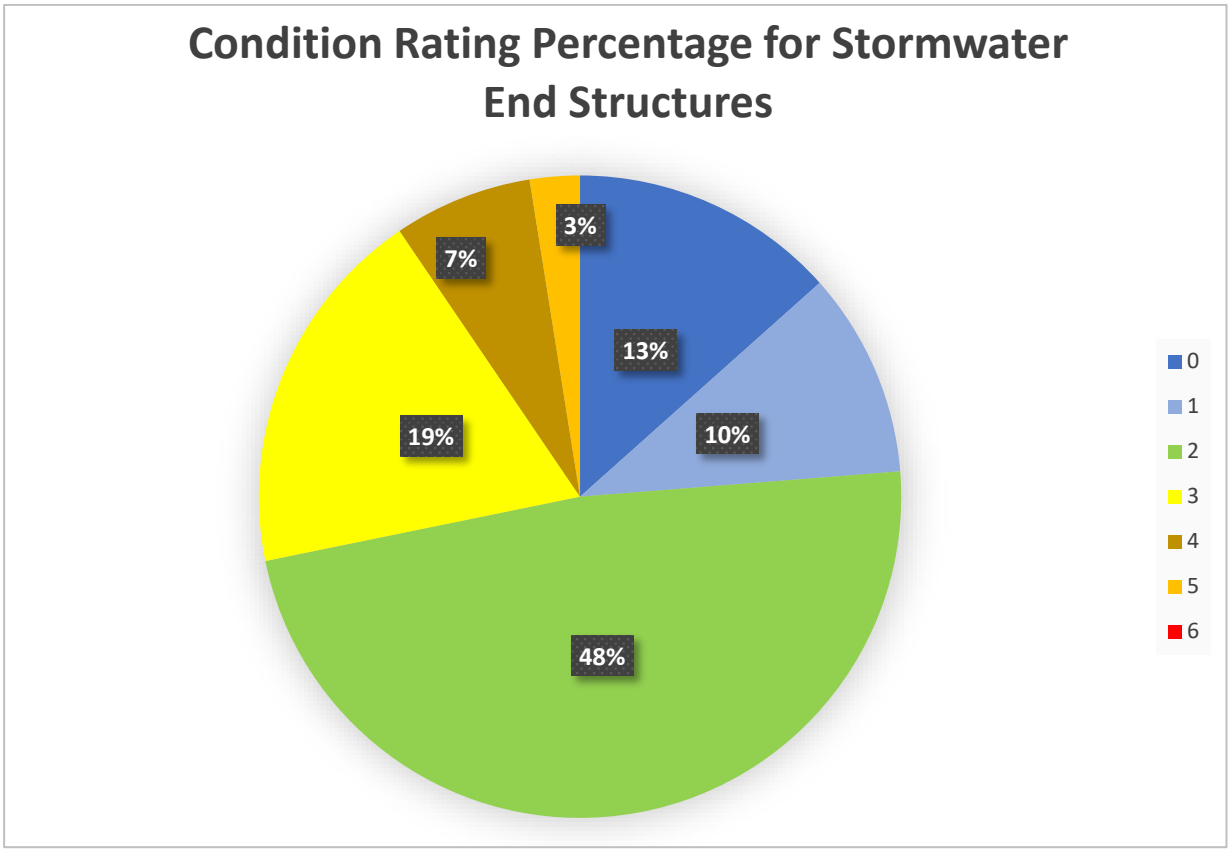

Figure 4. Current Overall Service Indicator (OSI) of Stormwater End Structures as of 30 June 2022 by Asset quantity.

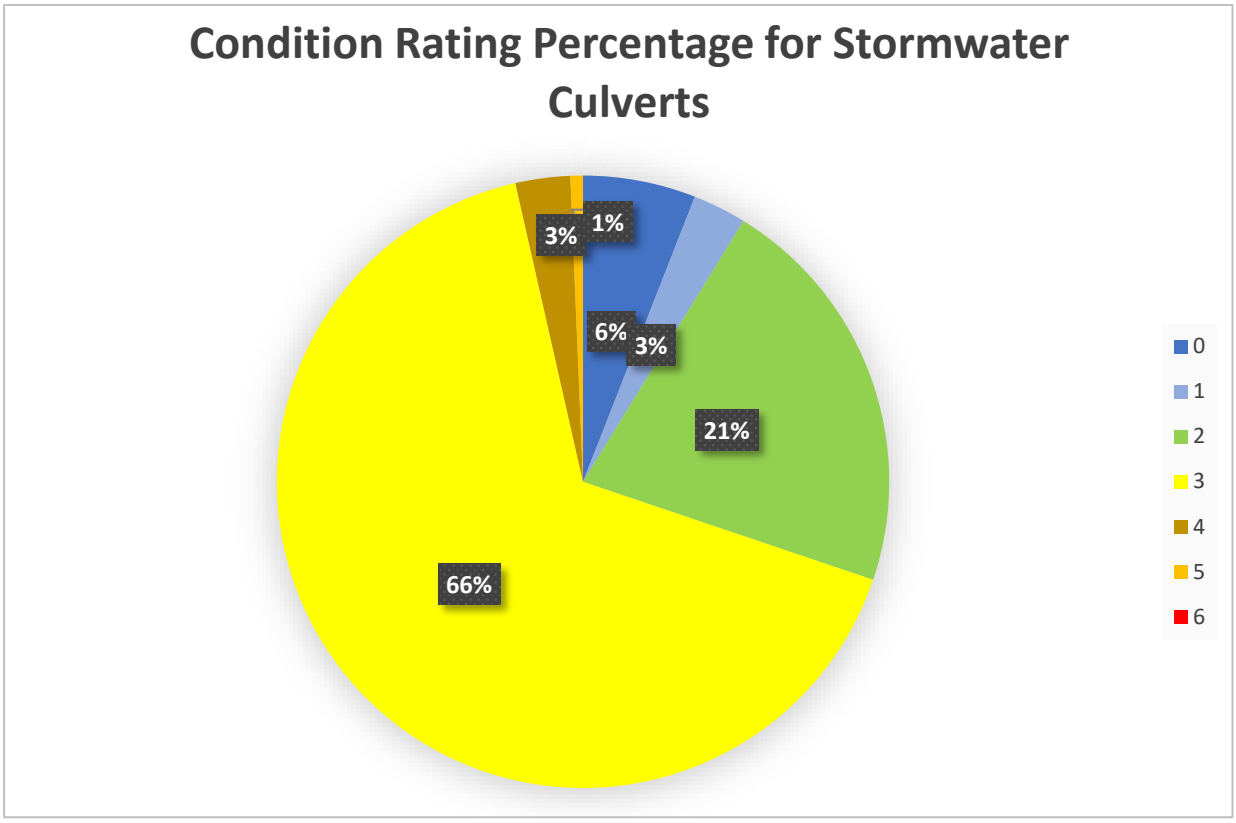

Figure 5. Current Overall Service Indicator (OSI) of Stormwater Culverts as of 30 June 2022 by Asset quantity.

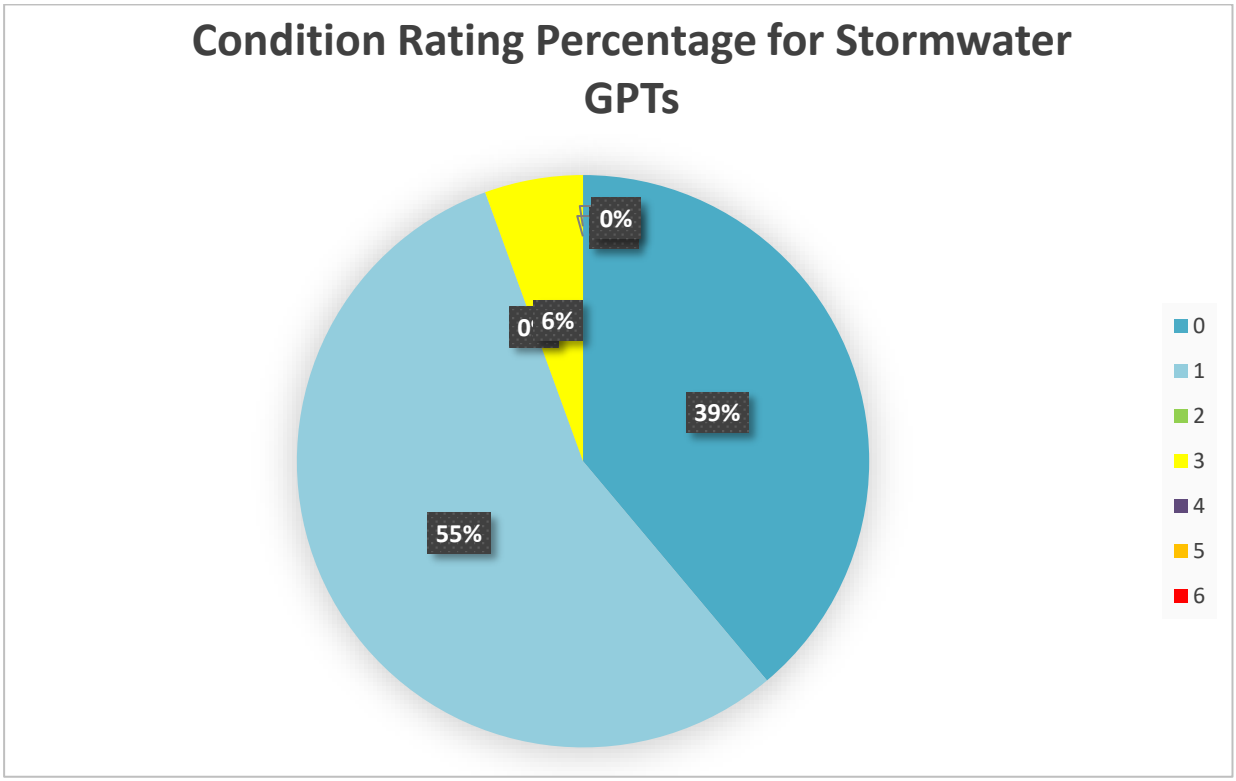

Figure 6. Current Overall Service Indicator (OSI) of Stormwater GPTs as of 30 June 2022 by Asset quantity.

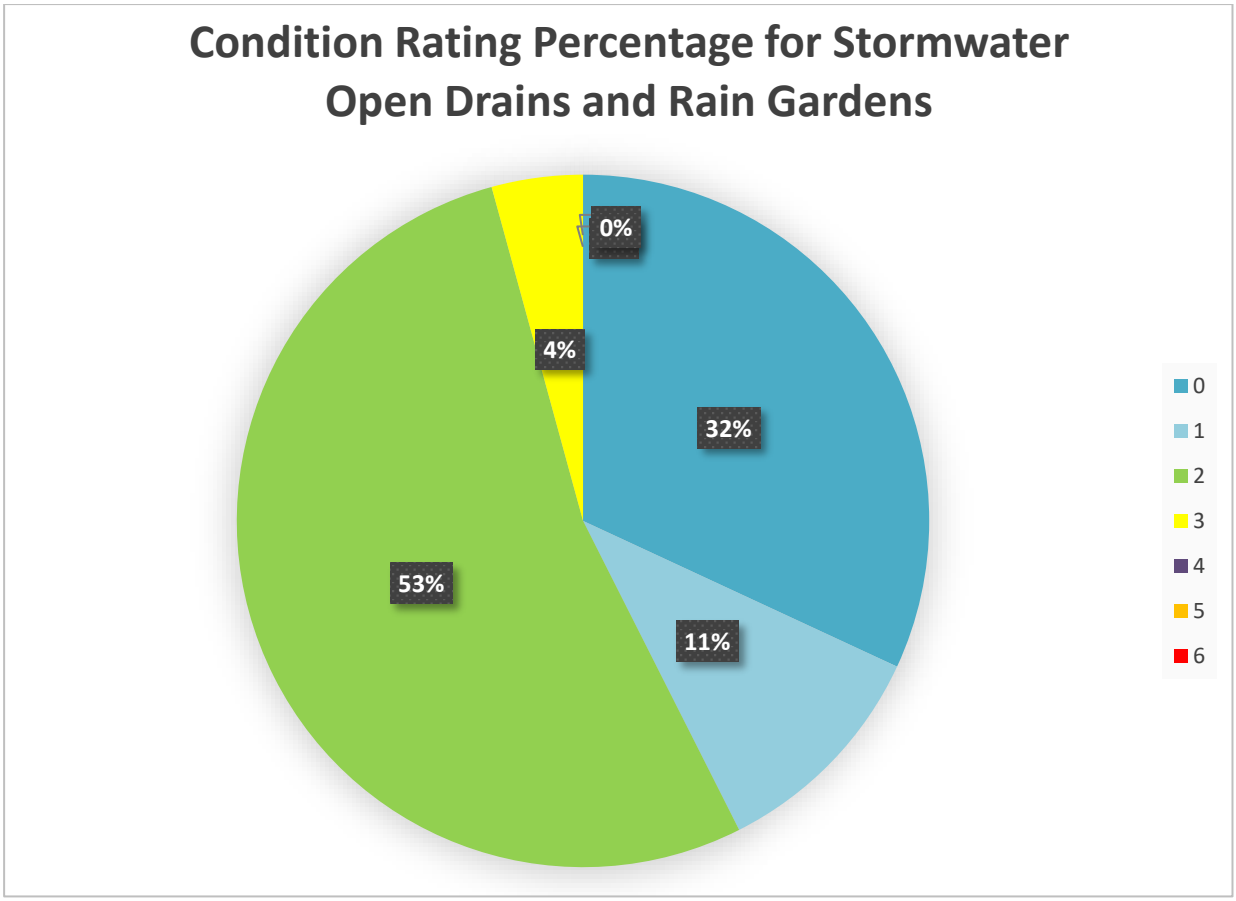

Figure 7. Current Overall Service Indicator (OSI) of Stormwater Open Drains and Rain Gardens as of 30 June 2022 by Asset quantity.

Note: Stormwater Condition of 0 is predominately derived from gifted assets from 2017 to now. Further information on condition frameworks is described in Section 3.5.

3 Levels of Service and Condition Assessment

3.1 Strategic Level of Service

This AM Plan is prepared under the direction of Sorell Council's vision, mission, goals and objectives.

Our vision is:

A proud, thriving and inclusive South East Community.

Our mission is:

To facilitate a vibrant, sustainable and liveable South East Region.

Strategic goals have been set by Sorell Council. The relevant goals and objectives and how these are addressed in this AM Plan are summarised in Table 6. These strategic goals link directly to Councils Strategic Plan 2019-2029 and can be found on Councils website.

Table 6. Goals and how these are addressed in this Plan

Goal	Objective	How Goal and Objectives are addressed in the AM Plan
Provide safe and reliable stormwater drainage assets	Construct and maintain stormwater infrastructure to appropriate standards	Regular proactive inspection and maintenance of asset condition. Ensure constructed and acquired assets meet design standards and future demands. Upgrade capacity issues on a priority basis.
Improved risk management	Identify and address all high level risks and critical assets	Implement a structured approach to manage risks and critical stormwater assets (Section 6).
Long term Financial Sustainability	Responsible stewardship and a sustainable asset management for the organisation	Completion and adoption of a credible AMP which identifies required expenditure and a 10 year renewal program which details how it will be spent as well as continuous improvements to the maintenance program.

There are many legislative requirements relating to the management of assets. Legislative requirements that impact the delivery of the Stormwater service are outlined in Table 7.

Table 7. Legislative Requirements

Legislation	Requirement
Local Government Act	Sets out the responsibilities and requirements of local government, including the adoption of long term financial plan supported by asset management plans to ensure sustainable levels of service.
Environmental Protection Act	Sets out the requirements of environmental protection.
Urban Drainage Act 2013	Outlines the requirements and obligations of Council's provision of stormwater services.

Plumbing Regulations 2014, Buildings Regulations 2014 and Buildings Act 2016	Outlines Building and Plumbing Regulations
Pitt Water Nature Reserve Management Plan 2013	Outlines the legislative management objectives for the Pitt Water Nature Reserve, including the improvement of water quality, particularly in Orielton Lagoon through better stormwater management.
Sorell Council Stormwater in New Developments Interim Policy 2022 (DRAFT)	Sets out requirements for how stormwater is managed in new developments in response to changes in the planning system.

3.2 Customer Values

Service levels are defined in three ways, customer values, customer levels of service and technical levels of service.

Customer Values indicate:

- What aspects of the service is important to the customer.
- Whether they see value in what is currently provided and
- The likely trend over time based on the current budget provision.

Table 8. Customer Values

Service Objective:			
Customer Values	**Customer Satisfaction Measure**	**Current Feedback**	**Expected Trend Based on Planned Budget**
No Blocked pits / localized flooding	Number of Complaints / Customer Relation Management (CRMs)	Periodic calls / CRMs generally during periods of heavy rainfall.	Expected to stay the same or increase
No Pollution of waterways / RAMSAR areas	Number of Complaints / CRMs	Number of Complaints / CRMs	Expected to decrease due to stricter regulations
Accurate and up to date flood modelling	Number of Complaints / CRMs	General complaints that property is within flood zone	Expected to stay the same
Clean / unblocked open drains	Number of Complaints / CRMs	Periodic calls / CRMs generally during periods of heavy rainfall.	Expected to stay the same or increase

3.3 Customer Levels of Service

The Customer Levels of Service are considered in terms of:

Condition How good the service is… what is the condition or quality of the service?

Function Is it suitable for its intended purpose …. Is it the right service?

Capacity/Use Is the service over or under used … do we need more or less of these assets?

In Table 9 under each of the service measures types (Condition, Function, Capacity/Use) there is a summary of the performance measure being used, the current performance, and the expected performance based on the current budget allocation.

These are measures of fact related to the service delivery outcome e.g. number of occasions when a service is not available or proportion of replacement value by condition percentage provides a balance in comparison to the customer perception that may be more subjective.

Table 9. Customer Level of Service Measure Type

Type of Measure	Level of Service	Performance Measure	Current Performance	Expected Trend Based on Planned Budget
Condition	Condition of Stormwater Pits	Stormwater Pit Condition Assessment	 Currently based on an extensive pit condition assessment in 2017 most pits were found to be in fair to good condition. Stormwater drain condition is largely unknown	Condition expected to stay the same or decrease based on planned budget
	Confidence levels		High (Professional Judgement supported by extensive data) Low for Stormwater drains	Medium (Professional judgement supported by data sampling
Function	Water quality discharged from the Stormwater Network	Gross Pollutant Trap / WSUD Installation and Maintenance	GPTs cleaned / emptied yearly No water quality monitoring program for outfalls in place	To increase based on development regulations
	Confidence levels		Medium (Professional judgement supported by data sampling	Medium (Professional judgement supported by data sampling)
Capacity	Capacity of Stormwater pipe network	Percentage of pipes full given a flood event	>50% of network not full at 100 AEP Event	To increase based on planned budget and development regulations

	Confidence levels		High (Professional Judgement supported by extensive data)	High (Professional Judgement supported by extensive data)

3.4 Operational / Technical Level of Service

Technical Levels of Service – To deliver the customer values, and impact the achieved Customer Levels of Service, are operational or technical measures of performance. These technical measures relate to the activities and allocation of resources to best achieve the desired customer outcomes and demonstrate effective performance.

Technical service measures are linked to the activities and annual budgets covering:

- Acquisition – the activities to provide a higher level of service (e.g. widening a road, sealing an unsealed road, replacing a pipeline with a larger size) or a new service that did not exist previously (e.g. a new library).
- Operation – the regular activities to provide services (e.g. opening hours, cleansing, mowing grass, energy, inspections, etc.
- Maintenance – the activities necessary to retain an asset as near as practicable to an appropriate service condition. Maintenance activities enable an asset to provide service for its planned life (e.g. road patching, unsealed road grading, building and structure repairs).
- Renewal – the activities that return the service capability of an asset up to that which it had originally provided (e.g. road resurfacing and pavement reconstruction, pipe replacement and building component replacement).

Service and asset managers plan, implement and control technical service levels to influence the service outcomes.[1]

Table 10 shows the activities expected to be provided under the current 10-year Planned Budget allocation, and the Forecast activity requirements being recommended in this AM Plan.

Table 10. Technical Levels of Service

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance*	Recommended Performance **
TECHNICAL LEVELS OF SERVICE				
Acquisition	Reduction in pollutants from stormwater runoff.	Number of Complaints / CRMs related to pollution of	Water Sensitive Urban Design (WSUD) installations included with development where	All developments include, or contribute to, WSUD installations to reduce runoff and pollutants e.g.

[1] IPWEA, 2015, IIMM, p 2|28.

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance*	Recommended Performance **
		waterways & Water Testing	extent of impervious pavement exceeds 500m^2	installation of rainwater tanks, bio-retention swale drains and GPTs
	Reduction in volume of stormwater runoff from new developments .	Update the Stormwater flood model to show impact from new development	Any planned developments where extent of impervious pavement exceeds 500m^2 will need to update the stormwater flood model to ensure the development will not add to flooding issues.	All planned developments will need to update the stormwater flood model to ensure the development will not add to flooding issues.
	New / Upgrade of Stormwater infrastructure identified as being under capacity by the SSMP	Identified as High Priority Potential Flooding Area in the Stormwater System Management Plan	Planned renewal / upgrade of all High Priority Potential Flooding Areas	Planned renewal / upgrade of all High & Medium Priority Potential Flooding Areas
		Budget	*$410,000*	*$800,000*
Operation	Inspection and silt / debris removal from Stormwater Pits	Number of Complaints / CRMs related to localized flooding or Pit Blockages	Planned and Reactive Inspection and Cleaning of Stormwater Pits	Programmed cleaning of Critical Stormwater Pits before forecast major rain event
	Street Sweeping to remove extra debris from entering	Number of Complaints / CRMs related to localized flooding or Pit Blockages	6 weekly street sweeping program	Fortnightly street sweeping program

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance*	Recommended Performance **
	stormwater pits			
	Emptying Trash Racks and silt removal from GPT's	Number of Complaints / CRMs related to pollution of waterways & Water Testing	GPTs inspected yearly and cleaned / emptied as required	GPTs inspected on a 6 monthly schedule and cleaned / emptied as required
	Clearing waterways and open drains of debris and vegetation	Number of Complaints / CRMs related to blocked / overgrown open drains	As required cleaning of waterways and open drains	Programmed cleaning of waterways and open drains
	Routine maintenance to all Raingardens and Bio-Retention devices	Number of Complaints / CRMs related to blocked / overgrown raingardens	As required cleaning of waterways and open drains	Programmed cleaning of Raingardens and Bio-Retention devices
		Budget	$495,000	*$900,000*
Maintenance	Replacement of rusted / damaged stormwater pit grates	Number of Complaints / CRMs related to blocked / damaged pit grates	Yearly pit lid replacement program for lids reported rusted / damaged by inspection	Replacement of all old style steel pit grates
		Budget	*$115,000*	*$250,000*
Renewal	Renewal of stormwater pits in poor condition	Number of Complaints / CRMs related to	Planned renewal of selection of poor condition pits yearly	Renewal of all poor condition pits

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance*	Recommended Performance **
		damaged stormwater pits		
	Renewal of stormwater outfalls in poor condition	Number of Complaints / CRMs related to damaged stormwater outfalls	Planned renewal of selection of poor condition outfalls yearly	Renewal of all poor condition outfalls
		Budget	*$115,000*	*$330,000*
Disposal	Disposal of assets no longer in service	Currently no performance measures		
		Budget	*$0 – No disposals planned*	*$0 – No disposals planned*

Note: * Current activities related to Planned Budget.

** Expected performance related to forecast lifecycle costs.

It is important to monitor the service levels regularly as circumstances can and do change. Current performance is based on existing resource provision and work efficiencies. It is acknowledged changing circumstances such as technology and customer priorities will change over time.

In addition to the above tables summarising the lifecycle activities, Sorell Council has adopted Assetic's operational and tactical maintenance workflows across all asset classes recognised in Assetic. Below is a diagram of these 2 work flows and how they relate to each other.

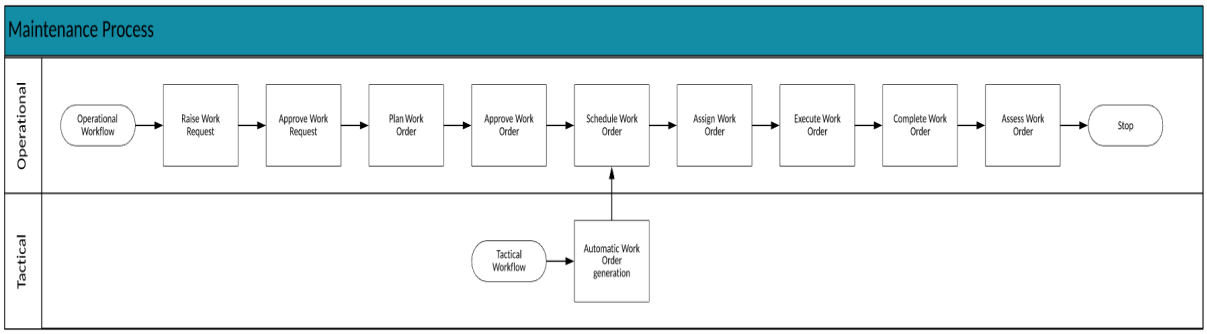

Figure 8. Assetic Maintenance Workflows (ref: Sorell SCADMS document by Assetic, page 30).

Operational maintenance workflow is primarily used for the non-repeatable work that can be planned and scheduled. Whereas the tactical workflow is used as the preventative maintenance strategy and the

work as prior approval by management including funding, number of treatments and their frequency. This allows for high confidence in maintaining the acceptable asset condition throughout its life.
An overview of Councils adopted technical maintenance levels of service and response times are outlined below in Table 11.

Table 11. Stormwater Response Times

Priority Code	Priority Description	Response Time (hr)
1	Urgent (Today)	24
2	Important (6 Weeks)	1008
3	Required (16 Weeks)	2688
4	Maintenance (26 Weeks)	4368
5	Monitor (52 Weeks)	8736

In addition to dedicated response times Council have customised its Failure, Cause and Remedy categorisations within the maintenance module of Assetic. The following tables demonstrates the details the types of Failure, Cause and Remedy codes.

Failure items are only available for those work orders related to corrective maintenance and I much like a defect checklist. The full list of failure codes for stormwater can be found in Table 12.

Table 12. Stormwater FCR Failure Items (source SCADMS document Table 39 prepared by Assetic 2018)

Failure Code	Failure Notation	Sub Failure Code	Sub Failure Notation
1	Failure Types	1	Blockage
		2	Breakage
		3	Debris
		4	Erosion
		5	Other
		6	Vegetation

Cause Code	Cause Notation	Sub Cause Code	Sub Cause Notation
01	Cause of Failure	01	Asset Age
		02	Blockage
		03	Faulty Element
		04	General Wear & Tear
		05	Other
		06	Vandalism
		07	Vehicle Damage
		08	Weather Event

3.4.1 Remedy

Remedy items are a new concept in the Assetic Maintenance and available for selection on any type of Work Order raised in the Plan area. They are similar to Work Activities in myData, but are used more so as a summary of the work to be performed (any Tasks, Crafts and Service Activities assigned to the Work Order will define the activity more specifically).

The Remedy items configured in Assetic's default FCR Categorisation were used as a starting point and then simplified for use across all custom FCR Categorisations. SC may add or remove Remedy items from these lists as required. Remedy items can also have an optional description and example entered for each, which SC may wish to populate (e.g. a remedy of 'Repair' on a stormwater pit might have a description of "Damaged grated stormwater pit" and an example of "Replace grate and repair concrete surrounds").

Table 13. FCR Remedy items

Remedy Code	Activity	Remedy Use
01	Repair	Corrective
02	Replace	Corrective & Preventative
03	Inspect	Corrective & Preventative
04	Modify	Corrective & Preventative
05	Monitor	Corrective & Preventative
06	Other	Corrective & Preventative

3.5 Condition Assessment Framework

The condition of Council's aboveground stormwater infrastructure was assessed in 2017 as part of the Stormwater Network Data collection survey. The condition rating was based on a 0-6 rating scale obtained from Assetic. The condition survey has allowed for a more strategic maintenance program, capital budgeting and further scheduling of stormwater asset renewals and or upgrades.

3.5.1 Stormwater Condition Framework

Table 14. Condition Rating Scale and respective description used in Stormwater data collection.

Condition Grading	Description of Condition	Remaining Life
0	**New:** Asset in new or near new condition	100% to 95% Useful life remaining
1	**Very Good:** No Defects	95% to 80% Useful life remaining
2	**Good:** Minor defects. Only planned maintenance required	80% to 60% Useful life remaining
3	**Fair:** Some Defects. Minor maintenance required plus planned maintenance	60% to 40% Useful life remaining
4	**Poor:** Plan for renewal. Significant maintenance required	40% to 20% Useful life remaining
5	**Very Poor:** Significant renewal/rehabilitation required	20% to 5% Useful life remaining
6	**End of Life:** No remaining service potential	5% to 0% Useful life remaining

Condition of the stormwater pipe network has been estimated based off the age of the adjacent road and the condition of adjoining pits. To better understand the actual condition of the stormwater pipe network, Sorell Council has planned to use CCTV survey to obtain actual condition data on our underground stormwater assets. The CCTV survey provides pipe defects which and a Water Services Association Australia (WSAA) Structural Mean Score for each pipe. This is converted into a condition grading using Table 15.

Table 15. WSAA Score Condition Rating

Condition	Rating	Rating Description	WSAA Structural Mean Score
1	Very Good	Pipe shows no indication of distress or deterioration. Sound construction. No or insignificant loss of hydraulic capacity. Defects present, may include those typically caused from fabrication or construction.	0-0.5
2	Good	Minor deterioration of the pipe has occurred. Minor defects are present. No immediate action required— Standard programmed condition assessment.	>0.5-1.0
3	Fair	Moderate deterioration of the pipe has occurred. Developed defects are present but not affecting short-term structural integrity. Monitor with programmed condition assessment for rehabilitation and/or renewal in medium term.	>1.0-2.0
4	Poor	Serious deterioration of the pipe has occurred. Significant defects are present and potentially affecting structural integrity. Immediately undertake risk assessment and As appropriate to outcomes of above, schedule appropriate action, which may include rehabilitation and/or renewal within 2-10 years. Further investigate as required.	>2.0-5.0
5	Very Poor	Extensive defects are present and potentially affecting structural integrity. Immediately undertake risk assessment and further investigation, and, take appropriate action, which may include immediate rehabilitation and/or renewal immediately or within 12 months.	>5

3.5.2 Performance Indicators

The National State of the Assets 2018 report cites that the infrastructure performance is currently and consistently measured using 3 main indicators outlined in table x below.

Table 16. Infrastructure Performance Indicators

Indicator	What's Measured	
Condition	How good is the service?	What is the condition or quality of the service
Function	Is the service suitable for its intended purpose?	Is it the right service?
Capacity / Utilisation	Is the service under or over utilised?	Do we need more or less of these assets?

A Capacity rating was assigned to each pipe using data from the Stormwater System Management Plan produced by Entura. The capacity value was based off the Annual Exceedance Probability (AEP) event at which the pipe becomes full or reaches capacity.

Table 17. AEP Capacity Rating

AEP at which Pipe is at Capacity	Entura Capacity Rating	Assetic Capacity Score
100	1	5
50	2	4
20	5	3
10	10	3
5	20	2
2	50	2
1	100	1
> 1%	999	1

In order to drive response time to a stormwater work order and determine inspection frequency a criticality rating was calculated. Factors used to determine criticality for stormwater infrastructure are described in Table 18 below.

Table 18. Criticality Rating Table and suggested Inspection Frequency

Description	Criticality Rating	Inspection Frequency
These are SWD Systems where failure is the most disruptive and expensive to the community. They should be subject to more frequent and rigorous inspection activities. The following are examples of such criticality: • SWD systems under major buildings or major structures • SWD systems servicing the Sorell CBD precinct • SWD systems providing draining to arterial transport network • SWD systems comprising pipes of >1200mm diameter • SWD systems within high risk flood areas	High	Quarterly and before a predicted major storm event
These are SWD Systems where failure is likely to be less disruptive but still of significant to the affected community. They should be subject to more frequent and rigorous inspection activities. The following are examples of such criticality: • SWD systems providing drainage to collector road network • SWD systems comprising pipes of >375mm diameter	Medium	Yearly
These are SWD Systems where failure is likely to be of low significance in terms of disruption to the affected community. They require less frequent inspection however, such should still drive proactive maintenance and remedial action. The following are examples of such criticality:	Low	Every 2 Years

• SWD systems providing drainage to low density urban development • SWD systems providing drainage to local access road network.		

A series of maps showing the spatial distribution of Council's stormwater infrastructure by criticality ranking can be seen in Appendix C.

4 Key Achievements and Practices

4.1 AM Achievements

The greatest achievements since 2014/15 stormwater AMP have been:

- Robust Stormwater System Management Plan with prioritisation of flood mitigation improvements and completion or secured funding of 6 of 9 high and medium risk improvements to date.
- High quality of underpinning data including full survey of stormwater infrastructure including condition assessment and location / invert levels with a +- 3cm accuracy to allow for flood modelling analysis.
- The migration and implementation of Council's asset data to Assetic's cloud based asset register. This has allowed for customisation and deployment of field based service activities. Particular focus on the corrective and preventive maintenance program was made in order to rebalance preventative versus reactive maintenance.
- Council have also integrated Assetic and Navision (finance system) for the last 3 years whereby actual activity based costings are being attributed back to the asset / component and therefore data is now available to support how much it costs the organisation to undertake work at a capital and operational level based on failure type and locality.
- 2022 Independent revaluation of the stormwater asset class by Assetic.
- Created Assetic Predictor model to develop a 10 year renewal program for stormwater assets.
- CCTV survey of 1% of piped stormwater network to further refine condition assessment.
- Development of criticality rating for stormwater infrastructure to determine maintenance response time and inspection frequency.
- Use of Assetic inspection maintenance routing tool to inspect stormwater assets.
- Successful in securing $1.7M in funding for stormwater projects under the National Flood Mitigation Infrastructure Program 2021-22.
- Capturing actual maintenance cost against stormwater assets using Assetic's Maintenance Module.
- Successful in securing $1.8M in funding for stormwater outfall renewal and upgrade through the Coastal and Estuarine Risk Mitigation Program.

4.2 *AM Practice*

4.2.1 Componentisation

Stormwater asset types consist of one "Main" component except for stormwater culverts, which consist of two components - a "Main" pipe component and a "Headwall" component.

Figure 9. Showing stormwater pipe components (left) and stormwater culvert components (right).

4.2.2 Strategic AM Maintenance Practices – Stormwater

Stormwater maintenance is divided into two strategies: Periodic maintenance carried out annually and a cyclic routine maintenance program undertaken monthly. Stormwater infrastructure is inspected using the Assetic Routing tool. The Assetic routing tool allows for quick and easy creation of work orders while completing an inspection route. Critical stormwater infrastructure inspections are scheduled quarterly and before a major flood event. Stormwater GPT's are inspected 6 monthly and emptied as required.

Table 19. Previous and future Maintenance Budgets

Year	Maintenance Budget $
2021/22	$90,000
2022/23	$115,000
2023/24	$
2024/25	$

Using Assetic's Maintenance module Council have also been able to capture actual maintenance cost against stormwater assets. This has allowed for maintenance costing analysis and more accurate asset lifecycle costing. This data allowed for a recent maintenance cost condition analysis review to be carried out, which showed a strong correlation between deteriorating condition and increase in maintenance cost for stormwater assets (Figure 10).

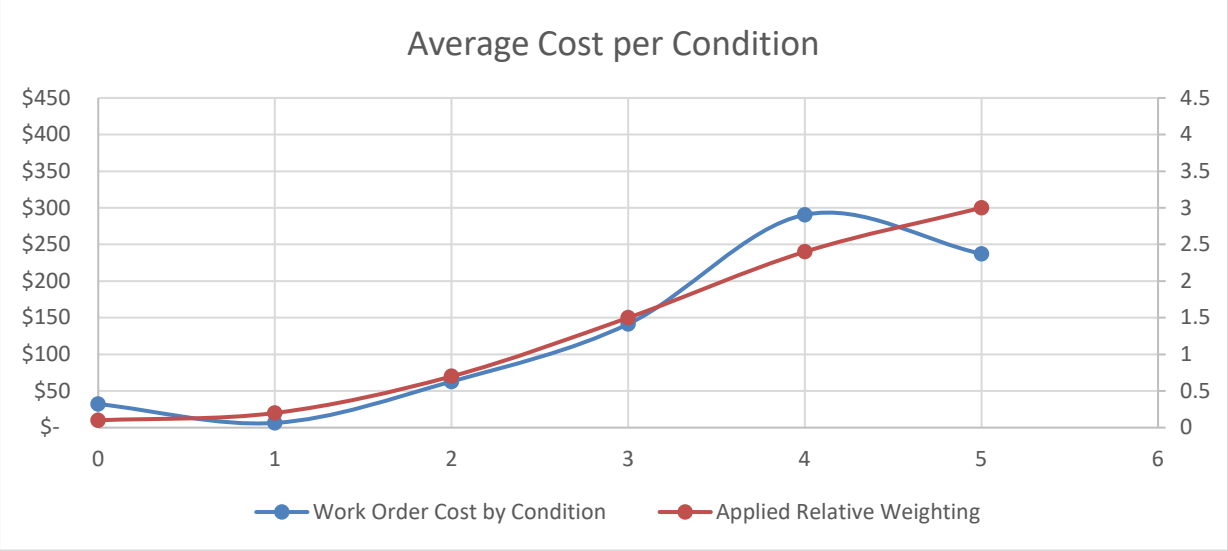

Figure 10 Maintenance Work Order Cost by Condition Rating

5 Demand Management / Risk Management

5.1 Demand Drivers

Drivers affecting demand include things such as population change, regulations, changes in demographics, seasonal factors, vehicle ownership rates, consumer preferences and expectations, technological changes, economic factors, agricultural practices, environmental awareness, etc.

5.2 Demand Forecasts

The present position and projections for demand drivers that may impact future service delivery and use of assets have been identified and documented.

5.3 Demand Management Plan / Current Controls

The impact of demand drivers that may affect future service delivery and use of assets are shown in Table 4.3.

Demand for new services will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management. Demand management practices can include non-asset solutions, insuring against risks and managing failures.

Opportunities identified to date for demand management are shown in Table 20. Further opportunities will be developed in future revisions of this AM Plan.

Table 20. Demand Management Plan

Demand driver	Current position	Projection	Impact on services	Demand Management Plan
Increased Population	Population now is 15,709 (2020; Treasury Dept. Tas).	19,278 (2039; Treasury Dept. Tas).	Increased housing and increased pressure / demand on stormwater network	Head water charge for new developments to raise money to upgrade the stormwater network to cope with growing demand.
Increased residential and low-density residential developments	Currently about 100 residential blocks and 10 LDR blocks developed per year	Based on population growth this could reach 150 residential blocks and 15 LDR blocks per year	Increasing development will result in more GPT and WSUD assets for Council to Maintain	Ensure GPT and WSUD Assets created meet design standards and are easy to maintain and empty.
Legislation - Water Sensitive Urban Design (WSUD) initiatives	The State government guidelines are currently discretionally used	Initiatives may be legislated in future years	Increased expenditure in maintenance and capital works	Increase planned budget for capital works and maintenance

5.4 Asset Programs to Meet Demand

The new assets required to meet demand may be acquired, donated or constructed. Additional assets are discussed in Section 5.4.

Acquiring new assets will commit Council to ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required. These future costs are identified and considered in developing forecasts of future operations, maintenance and renewal costs for inclusion in the long-term financial plan (Refer to Section 5).

5.5 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 we respond and manage those impacts.[2]

As a minimum we consider how to manage our existing assets given potential climate change impacts for our region.

Risk and opportunities identified to date are shown inTable 21.

Table 21. Managing the Impact of Climate Change on Assets and Services

Climate Change Description	Projected Change	Potential Impact on Assets and Services	Management
Increased storm intensity	More frequent short, high intensity rainfall events	Increased localised flooding	More frequent Pit inspections and cleaning. Proactive inspections scheduled before a major rainfall event.
Sea level rise and Coastal Inundation	Higher Tides and erosion along coastal areas	Damage to Outfalls along coastal areas, backup of stormwater network during high tides	New stormwater infrastructure along coastal areas should be designed to withstand sea level rise.
Increased drought periods	Longer dry periods of little to no rainfall	Stormwater asset maintenance and renewal can be neglected during dry periods when stormwater services receive less thought and funding.	Adhere to the maintenance and renewal structure laid out in the stormwater AMP.

^More information on climate change specifically for the Sorell Geographical area can be found in a document written for Sorell Council by University of Tasmania, Climate Change Information for Decision Making.

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

- Assets will withstand the impacts of climate change;

[2] IPWEA Practice Note 12.1 Climate Change Impacts on the Useful Life of Infrastructure

- Services can be sustained; and
- Assets that can endure may potentially lower the lifecycle cost and reduce their carbon footprint

Table 22 summarizes some asset climate change resilience opportunities.

Table 22. Stormwater Asset Resilience to Climate Change

New Asset Description	Climate Change impact these assets?	Build Resilience in New Works
Storm Intensity	Rainfall intensities increased by 20%	This scenario has been modelled in the SSMP and provides modelling outputs which can be used to inform future stormwater design.
Sea Level Rise	0.90m sea level rise	This scenario has been modelled in the SSMP and provides modelling outputs which can be used to inform future stormwater design.
Flood Modelling	Flooding as a result of extreme weather events	Adapt pit and open drain inspection and maintenance frequency (eg. fix blockages before predicted weather events).

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.

5.6 Risks and Treatments

Critical risks are those assessed with 'Very High' (requiring immediate corrective action) and 'High' (requiring corrective action) risk ratings identified in the Infrastructure Risk Management Plan. The residual risk and treatment costs of implementing the selected treatment plan is shown in Table 23. It is essential that these critical risks and costs are reported to management and the elected Councillors. Sorell Council's Corporate Risk Register which was developed in conjunction with GHD in 2022 also categorizes several of these risks.

Table 23. Risks and Treatment Plans

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Residual Risk *	Treatment Costs
Stormwater network	Unknown condition of underground assets could lead to failure	High	Camera survey of selection of underground Pipes / Pits to ground truth condition data	Low	$10,000
Stormwater network	High rate of residential growth result in insufficient capacity of stormwater network	High	Develop Storm water head works charge to allow upgrade of infrastructure as new developments are approved	Low	$30,000
Stormwater network	Loss of key staff / unable to attract skilled operators	High	Mentoring and training opportunities for staff	Low	$20,000
Stormwater network blockages causes localized flooding	Council can be found liable for damages	High	Document Pit inspections and plan inspections before major rain events to show proof of cleaning / inspection	Low	$10,000
Shack communities transitioning to residential lack originally built stormwater infrastructure	Increased impervious surfaces concentrating stormwater runoff / localized flooding	High	Address flooding issues highlighted in the SSMP on a priority basis	Low	$20,000
Stormwater network	Damage to underground stormwater assets by external contractors	High	Make Asset location data available via Dial Before you Dig platform	Low	$2,000
Development stormwater design & calculations currently not reviewed	Flooding issues from incorrect calculations. Failure to protect overland flow paths	High	External Peer review of stormwater design and calculations	Low	$5,000

Up to date and accurate flood model analysis	Flooding issues / damages due to inaccurate flood model data	High	Keep model up to date by re-running the model with the latest SW data	Low	$20,000

Note * The residual risk is the risk remaining after the selected risk treatment plan is implemented.

5.7 Infrastructure Resilience Approach

The resilience of our critical infrastructure is vital to the ongoing provision of services to customers. To adapt to changing conditions we need to understand our capacity to 'withstand a given level of stress or demand', and to respond to possible disruptions to ensure continuity of service.

Resilience recovery planning, financial capacity, climate change risk assessment and crisis leadership.

Our current measure of resilience is shown in Table 24 which includes the type of threats and hazards and the current measures that the organisation takes to ensure service delivery resilience.

Table 24. Resilience Assessment

Threat / Hazard	Assessment Method	Current Resilience Approach
1 in 100 year flood event	Up to date flood modelling and ensure future developments / projects are constructed to cope with a 1 in 100 year flood event.	High
Coastal Erosion	Ensure future developments / projects are not constructed within the "High" or "Medium" risk coastal erosion risk areas	High
Coastal Inundation	Ensure future developments / projects are not constructed within the "High" or "Medium" risk coastal inundation risk areas	Low

5.8 Service and Risk Trade-Offs

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

5.8.1 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. These include:

- Bring all stormwater assets up to capacity for a 1 in 100 year flood event.
- Renew / Upgrade all recommendations made in the Stormwater System Management Plan.
- CCTV camera survey of the entire stormwater drain network in any one year.

5.8.2 Service trade-off

If there is forecast work (operations, maintenance, renewal, acquisition or disposal) that cannot be undertaken due to available resources, then this will result in service consequences for users. These service consequences include:

- Some of the stormwater network will be under capacity for a 1 in 100 year flood event.
- Some Medium and Low risk recommendations made in the SSMP will not be implemented.
- We will endeavour to survey a section of the stormwater drain network each year.
- Not meeting customer expectations.

5.8.3 Risk trade-off

The operations and maintenance activities and capital projects that cannot be undertaken may sustain or create risk consequences. These risk consequences include:

- Short term low hazard localised flooding in some areas during a 1 in 100 year flood event.
- Complaints from residents affected by localised flooding.
- Best estimate condition for some stormwater drains.
- Council's reputation could suffer as a result of not meeting customer levels of service / expectations.

These actions and expenditures are considered and included in the forecast costs, and where developed, the Risk Management Plan.

6 Asset Funding Levels

6.1 Asset Valuations

The Stormwater financial class was recently re-valued in June 2022. All assets were valued using level 3 valuation inputs using the cost approach. The approach estimated the replacement cost for each asset by componentising the assets into significant parts with different useful lives and taking into account a range of factors.

Replacement Cost (Current/Gross)	$67,805,242
Depreciable Amount	$49,946,617
Depreciated Replacement Cost[3]	$49,946,617

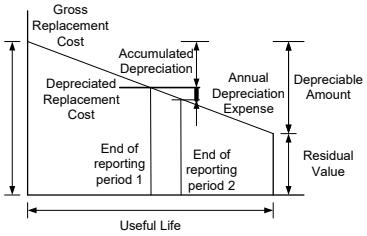

Table 25. Valuation Summary, revalued amount at 30 June 2022

Financial Sub Class	Gross Replacement Cost ($)	Accumulated Depreciation ($)	Fair Value ($)	Estimated Annual Depreciation ($)	Fair Value / GRC %
End Structures	361,517	93,263	268,254	4,519	74%
Open Gardens and Raingardens	1,822,028	303,925	1,518,103	28,977	83%
Stormwater Culverts	7,512,393	2,994,016	4,518,376	75,124	60%
Stormwater Drains	45,115,144	11,765,136	33,350,009	451,151	74%
Stormwater GPT	490,225	71,005	419,220	9,805	86%
Stormwater Pits	12,503,934	2,631,280	9,872,654	162,653	79%
Total	**67,805,242**	**17,858,625**	**49,946,617**	**732,229**	**74%**

Assetic's approach is considered asset centric consumption which can be interpreted as a straight-line depreciation where the annual depreciation = replacement value / useful life.

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

1. Reference and bench-marking with the *IPWEA Asset Management and Financial Management Guidelines, Practise Note 12 2017 Useful Life of Infrastructure*.
2. Where known construction dates, assessing remaining service potential as derived from visual condition inspections to determine total estimated useful lives.

[3] Also reported as Written Down Value, Carrying or Net Book Value.

Assetic provided Sorell Council a valuation manual that details the methodology used (Assetic for Sorell Council, Stormwater Revaluation Methodology & Report June 2022). Please refer to for valuation patterns used / Remaining service potential, useful lives and components adopted in accordance with AASB 116.

6.2 Forecast 10-Year Funding Required

Table 26. Net Strategy Cost Summary for Stormwater June 30 2022

Simulation	Total Treatment Cost over 10 years
Current Funding (LTFP) - High LoS	$1,586,545
Current Funding (LTFP) - Medium LoS	$1,185,231
Current Funding (LTFP) - Standard LoS	$229,181
Unlimited Funding Scenario - High LoS	$1,586,545
Unlimited Funding Scenario - Medium LoS	$1,185,231
Unlimited Funding Scenario - Standard LoS	$229,181
Current Funding (LTFP) – Criticality Based	$882,196
Unlimited Funding Scenario - Criticality Based	$882,196

LoS = Level of Service, LTFP = Long Term Financial Plan (based on Depreciation)

Table 26 describes the treatments necessary for a number of different funding strategies. The different treatment scenario outputs have been generated from Assetic's Predictor for a 10-year period. The outputs are based on three models, High Level of Service, Medium Level of Service and a Standard Level of Service. A criticality based scenario is also shown.

The high LoS treatment intervenes with the condition is 4 or greater (Refer to Table 14 for condition scale). The medium LoS treatment intervenes when the condition is 4.5 or greater and the Standards LoS the treatment intervention is at a 5 or greater. In the constrained budget (LTFP) funding scenarios, when budget is exceeded treatment preference is given to high criticality assets. A further criticality based scenario was modelled in which treatment intervention at 4 or greater for high and medium criticality assets and intervention at 5 or greater for low criticality assets.

Treatments were categorized into renewal and upgrade. Capacity rating for stormwater assets (described in Table 17) was used to determine whether an asset was under capacity and therefore triggered an upgrade treatment. A renewal treatment was selected for assets with a good capacity rating (1-2). Further information on treatments types, criteria and effects can be found in the Stormwater Lifecycle Modelling: Basis of Design document which outlines the methodology used in creating the predictive model.

6.3 Committed Funding

Table 27. A summary of the committed funding over the next 10 years

Year	Acquisition	Maintenance	Renewal	Disposal
2022	410000	599219	114891	0
2023	540000	597563	247104	0
2024	540000	601589	0	0
2025	540000	603353	0	0
2026	540000	606480	0	0
2027	540000	610581	0	0
2028	300000	616051	3252	0
2029	300000	620623	6656	0

Year	Acquisition	Maintenance	Renewal	Disposal
2030	300000	626501	17228	0
2031	300000	635038	58661	0
2032	300000	643769	153936	0
2033	300000	652632	271609	0
2034	300000	660216	344142	0
2035	300000	665752	458670	0
2036	300000	672232	482196	0
2037	300000	673587	796563	0
2038	300000	678159	796271	0
2039	300000	683210	796952	0
2040	300000	685554	796999	0

6.4 Financial Ratios

There are two key indicators of sustainable service delivery that are considered in the AM Plan for this service area. The two indicators are the:

- asset renewal funding ratio (proposed renewal budget for the next 10 years / forecast renewal costs for next 10 years); and
- medium term forecast costs/proposed budget (over 10 years of the planning period).

Asset Renewal Funding Ratio

Asset Renewal Funding Ratio[4] - 458% based on our current funding and a High Level of Service.

The Asset Renewal Funding Ratio is an important indicator and illustrates that over the next 10 years we expect to have 458% of the funds required for the optimal renewal of assets. The figure is over 100% due to the LTFP using depreciation of stormwater assets to fund this asset class.

Table 28. Asset Renewal Funding ratio's calculated based on the predicted treatments cost per strategy

Simulation / Strategy	Planned Capital Renewals (10 years) ($)	Required Capital Expenditure i.e. Predictor Treatment cost over 10 years ($)	Asset Renewal Ratio
Current Funding (LTFP) - High LoS	$7,265,000	$1,586,545	458%
Current Funding (LTFP) - Medium LoS	$7,265,000	$1,185,231	613%
Current Funding (LTFP) - Standard LoS	$7,265,000	$229,181	3170%
Unlimited Funding Scenario - High LoS	$7,265,000	$1,586,545	458%
Unlimited Funding Scenario - Medium LoS	$7,265,000	$1,185,231	613%
Unlimited Funding Scenario - Standard LoS	$7,265,000	$229,181	3170%
Current Funding (LTFP) – Criticality Based	$7,265,000	$882,196	824%
Unlimited Funding Scenario - Criticality Based	$7,265,000	$882,196	824%

Table 28 shows us that depending on the treatment strategy used how the Asset Renewal Funding Ratio can change. As there are few outstanding condition 5 assets (due to Sorell Council's commitment to

[4] AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p

renew these assets since the 2017 condition survey) and limited condition 4 assets; there is little funding difference between the Current Funding (LTFP) and Unlimited Funding Scenarios in the first 10 years.

Asset Consumption Ratio

Table 29. Consumption Ratios for Stormwater Assets

	Financial Sub Class	Gross Replacement Cost ($)	Fair Value ($)	Consumption Ratio
Revalued amount at 30 June 2022	End Structures	361,517	268,254	74%
	Open Gardens and Raingardens	1,822,028	1,518,103	83%
	Stormwater Culverts	7,512,393	4,518,376	60%
	Stormwater Drains	45,115,144	33,350,009	74%
	Stormwater GPT	490,225	419,220	86%
	Stormwater Pits	12,503,934	9,872,654	79%
	Total	**67,805,242**	**49,946,617**	**74%**

Asset Sustainability Ratio

The Sustainability ratio has been calculated based on the different outcomes of the modelling.

Table 30. Sustainability Ratios for different funding models

Simulation	Predicted Capital Renewal expenditure over 10 years ($)	Depreciation Expense ($)	Sustainability Ratio
Current Funding (LTFP) - High LoS	$1,586,545	$7,322,290	22%
Current Funding (LTFP) - Medium LoS	$1,185,231	$7,322,290	16%
Current Funding (LTFP) - Standard LoS	$229,181	$7,322,290	3%
Unlimited Funding Scenario - High LoS	$1,586,545	$7,322,290	22%
Unlimited Funding Scenario - Medium LoS	$1,185,231	$7,322,290	16%
Unlimited Funding Scenario - Standard LoS	$229,181	$7,322,290	3%
Current Funding (LTFP) – Criticality Based	$882,196	$7,322,290	12%
Unlimited Funding Scenario - Criticality Based	$882,196	$7,322,290	12%

Sustainability ratios have also been calculated over a 20 year period to better reflect the long life of stormwater assets. For a 20 year period the Current Funding (LTFP) - High LoS sustainability ratio is 58% and the Current Funding (LTFP) – Criticality Based is 49%.

6.5 Key Assumptions

In compiling this AM Plan, it was necessary to make some assumptions. This section details the key assumptions made in the development of this AM plan and should provide readers with an understanding of the level of confidence in the data behind the financial forecasts.

Key assumptions made in this AM Plan are:

- Current rates of maintenance, operational and depreciation expenditure are an indicator for future assets.
- Renewal forecasting has used an updated useful life approach using the current useful life held in the asset register for each component.
- The Condition value 0-6 was calculated using the current valuation index per component within the asset register and was derived from an age based / straight line accounting valuation process rather than a true component condition survey results.
- Sorell municipality will increase in population as per ABS projections.
- The AMP used only current day dollars, no indenting on lifecycle forecast costs.
- All assets valued at fair value are being used for their highest and best use.
- Council does not have Residual Values applied to any Stormwater assets or asset components.
- High Level of Service see treatment intervention at condition 4 and above.
- Medium Level of Service see treatment intervention at condition 4.5 and above.
- Standard Level of Service sees treatment intervention at condition 5 and above.

7 Action Plan

7.1 AM Document Register

Table 31. Document Register

Document Type	Asset Category	Adopted Version / Date	Planned Revision
Strategic Plan (10 year)		Aug 2019-29	2023-23
Asset Management Policy		Aug 2018	Sept 2022
Asset Management Objectives			
Strategic Asset Management Plan		V2 18/09/2018	
Asset Management Plans:			
	Transport	V3 2020	
	Buildings	V2 2021	
	Stormwater Drainage	V1 2014	V2 2022
	Land Improvements	current (V1 2019)	V2 2023
Asset Capitalisation Business Rules		V2 June 2021	V3 2022 after SW revaluation
Entura for Sorell Council, Sorell Stormwater System Management Plan 2020	Stormwater		
Stormwater in New Developments Interim Policy	Stormwater	Draft October 2022	
Assetic for Sorell Council, Stormwater Revaluation Methodology & Report	Stormwater	June 2022	
Assetic for Sorell Council Stormwater Life Cycle Modelling: Basis of Design	Stormwater	October 2022	

7.2 AM Practice Improvements

It is important that an entity recognise areas of their AM Plan and planning process that require future improvements to ensure effective asset management and informed decision making. The improvement plan generated from this AM Plan is shown in *Table 32.*

Table 32. Improvement Plan

Task	Task	Responsibility	Resources Required	Timeline
1	Create a schedule for yearly CCTV investigation of stormwater drain network to better understand condition data of underground assets.	GIS & Assets Officer , Assets Manager, Stormwater Works Supervisor	$5,000-10,000 yearly	2022
2	Repeat condition assessments of stormwater pits by stormwater works crew to further define renewals program. Assess stormwater	GIS & Assets Officer , Assets Manager,	Staff time	2023

	pits for both main condition and pit lid condition.	Stormwater Works Supervisor		
3	Review operations and maintenance budget as a result of new significant assets being constructed in the next 5 years.	GIS & Assets Officer , Assets Manager, Stormwater Works Programmer	Staff time	2023
4	Review all stormwater assets currently in poor condition and plan to renew a selection of these assets each year.	Assets Team with Stormwater Works Supervisor	Staff time + 20,000 yearly	2040
5	Inform Long Term Financial Plan with more appropriate renewal budget requirements	GIS & Assets Officer , Assets Manager	Staff time	2023
6	Communicate as necessary if changes to corporate risk register are required	GIS & Assets Officer , Assets Manager	Staff time	Ongoing
7	Analyse fault code and cause of failure data regularly to identify any trends	GIS & Assets Officer , Assets Manager	Staff time	Ongoing
8	Create a schedule for regular inspection of high criticality stormwater culverts	Assets Team with Stormwater Works Supervisor	Staff time	Ongoing
9	Create a Water Quality monitoring schedule in accordance with Sorell Council's Planning Policy	Assets Team with Regulatory & Environmental Teams	Staff Time	Ongoing

7.3 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 level, asset values, forecast operations, maintenance, renewals, acquisition and asset disposal costs and planned budgets. These forecast costs and proposed budget are incorporated into the Long-Term Financial Plan or will be incorporated into the Long-Term Financial Plan once completed.

The AM Plan has a maximum life of 5 years and is due for complete revision and updating by the 2027/2028 financial year by the Councillors that reside in that year.

7.4 Performance Measures

The effectiveness of this AM Plan can be measured in the following ways:

- The degree to which the required forecast costs identified in this AM Plan are incorporated into the long-term financial plan;
- The degree to which the 1-5 year detailed works programs, budgets, business plans and corporate structures consider the 'global' works program trends provided by the AM Plan;
- The degree to which the existing and projected service levels and service consequences, risks and residual risks are incorporated into the Strategic Planning documents and associated plans; and
- The Asset Renewal Funding Ratio achieving the Organisational target (this target is often 90 – 100%). It's understood that our current asset renewal funding ratio for stormwater assets is not realistic by using depreciation as it's basis for funding and as such capital works and preventative maintenance are discussed, prioritised and actioned annually based on professional judgement.

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Appendix B: Valuation reference tables

Table B- 1. Remaining service potential has been determined and applied in line with the following valuation matrices.

Valuation Pattern	Description	Condition	Remaining Useful Life (%)
Stormwater	Brand New	0	100
	No Defects to Very Good	1	95
	Very Good to Good	2	80
	Good to Minor Defects	3	60
	Minor Defects to Fair	4	40
	Fair to Poor	5	10
	End of Life	6	0

Table B- 2. Council's useful lives (in years).

Asset Type	Expected Useful Life
Culvert	100
Culvert Headwall	80
Open Drain (Concrete) Open Drain (Earth) Detention Basin	100 20 80
Stormwater Drain	100
Stormwater End Structure	80
Stormwater GPT	50
Stormwater Pit	80

Table B- 3. Stormwater asset components

Asset Type	Component Name	Description
Culvert	Main	The whole culvert structure, except the headwalls
Culvert	Headwall	The culvert headwall
All Others	Main	The whole structure including earth works

Appendix C: Stormwater Criticality Rating Maps

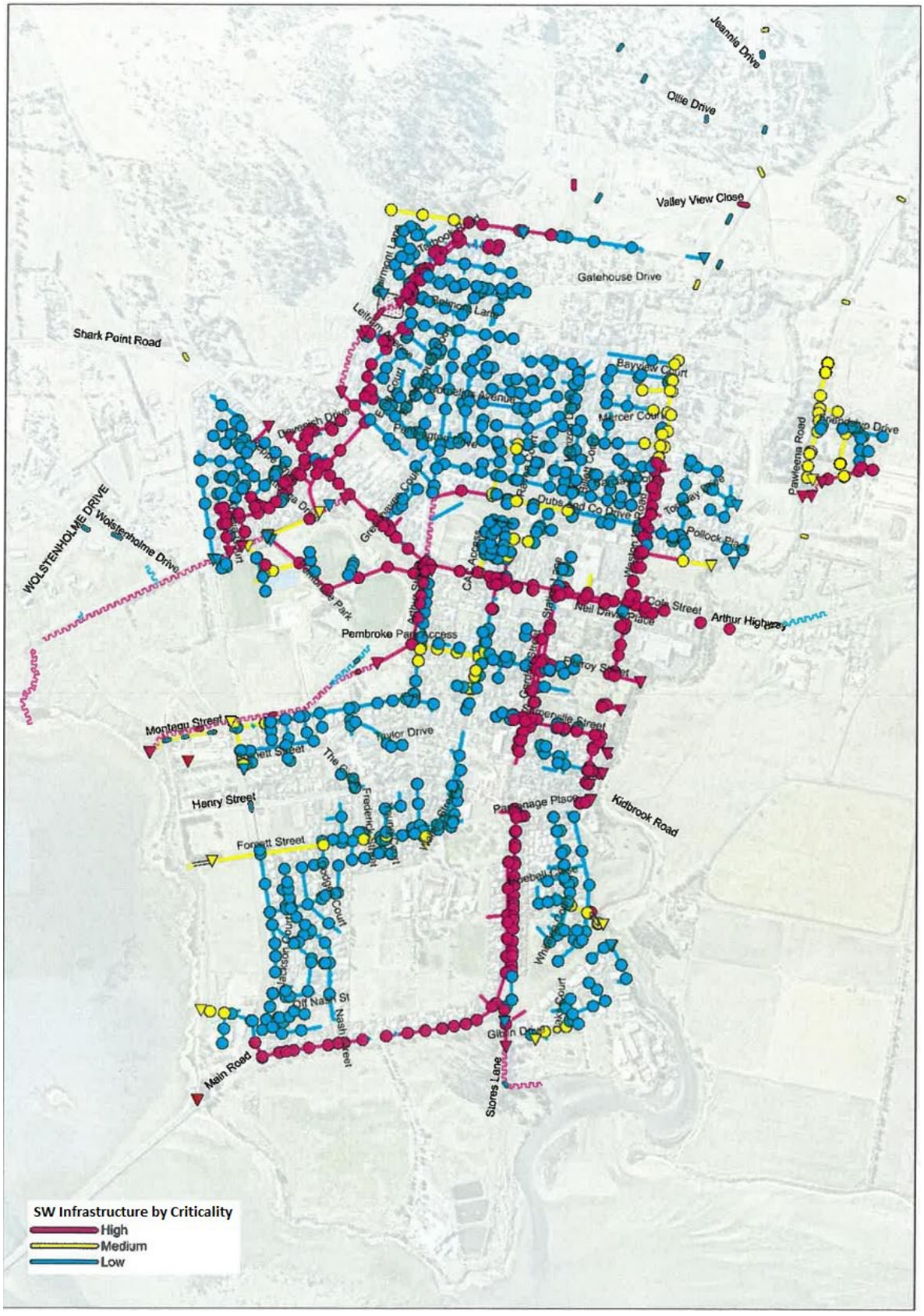

Figure C-1. Map of Sorell Stormwater Infrastructure by Criticality

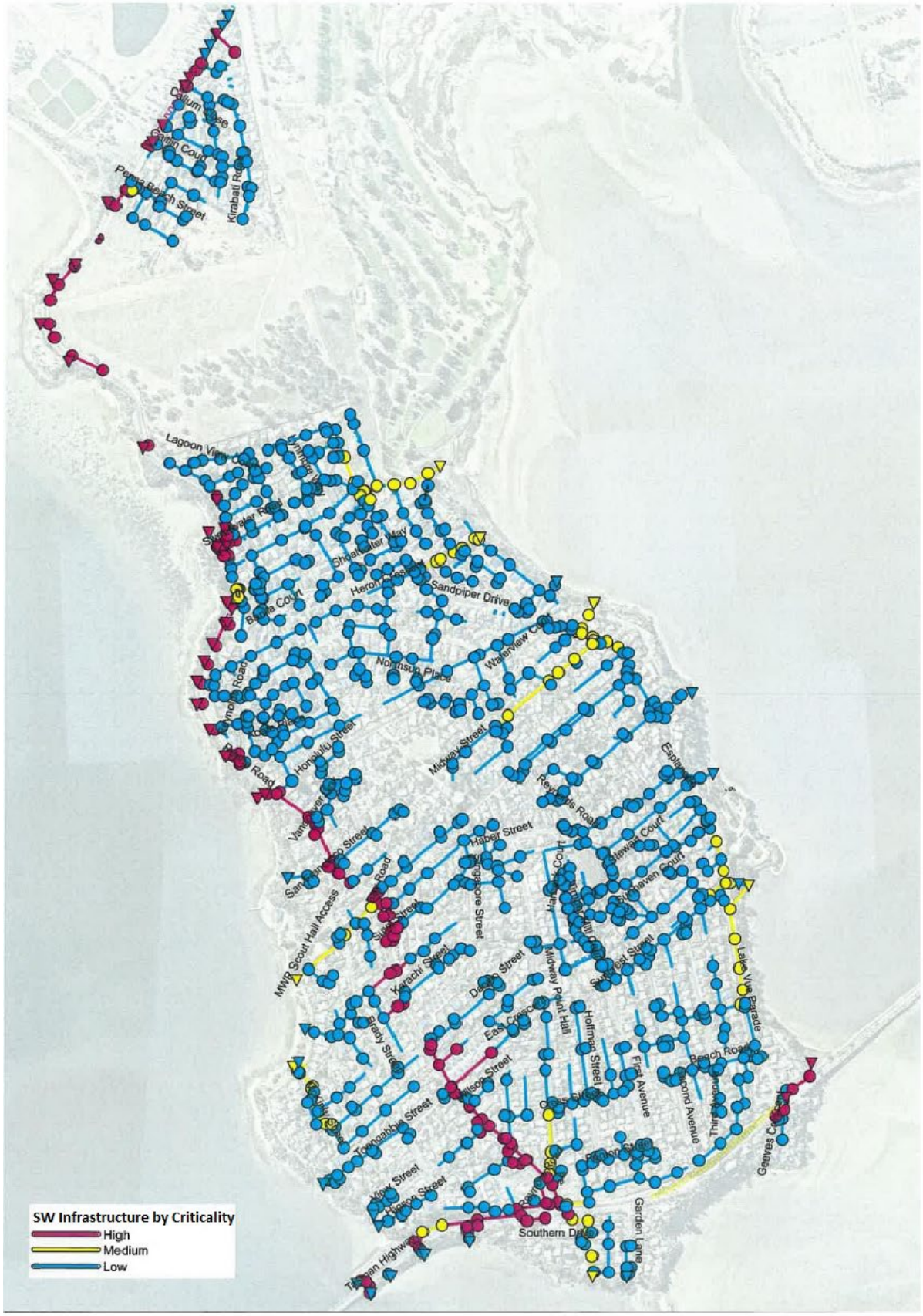

Figure C-2. Map of Midway Point Stormwater Infrastructure by Criticality

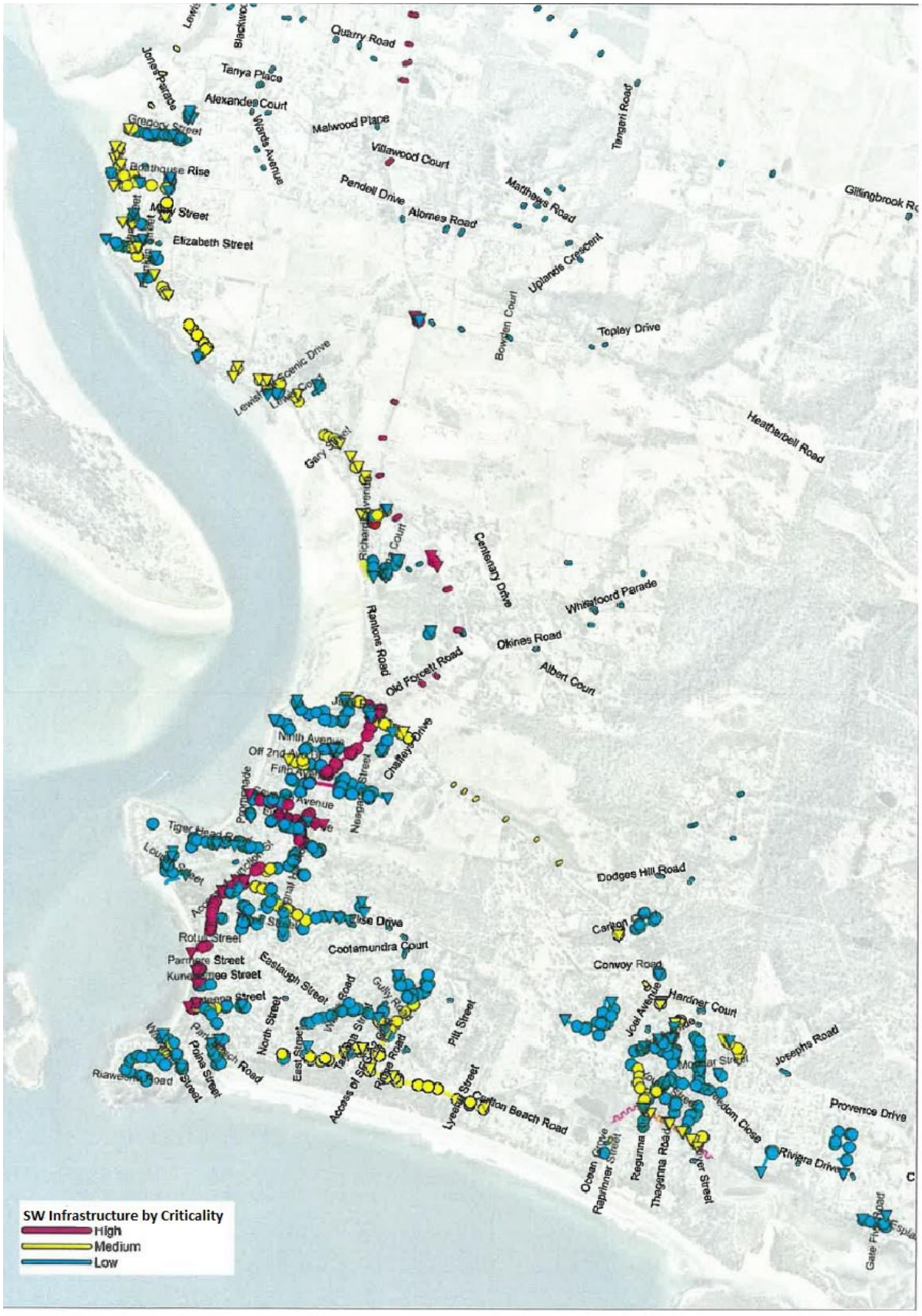

Figure C-3. Map of Dodges Ferry Stormwater Infrastructure by Criticality

Figure C-4. Map of Primrose Sands Stormwater Infrastructure by Criticality

Figure C-5. Map of Dunalley Stormwater Infrastructure by Criticality