

**WATER AND WASTE WATER ASSET MANAGEMENT PLAN
PREPARED FOR YARRABAH ABORIGIINAL SHIRE COUNCIL**

JULY 2021



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1. EXECUTIVE SUMMARY

1.1 The purpose of the Plan

This Asset Management Plan has been developed in accordance with Council's Asset Management Policy and principles of the Asset Management Strategy (Objectives).

This asset management plan details information about Council's water and waste water assets. The plan outlines the management approach to:

- Describing and aligning the assets to services (as informed by corporate and service planning);
- Managing the future demand for assets to achieve and maintain financial sustainability;
- Optimising the lifecycle management of assets (achieving service demand at lowest lifecycle cost);
- identifying and managing risks associated with the relevant asset (including criticality and condition);
- What funds (operating and capital) are required to operate the asset portfolio in alignment with the asset management plan over a 10-year planning period; and
- Continual improvement in the management of assets and performance monitoring.

Council's water and sewer assets contribute to the community by:

- Providing good quality drinking water to both residential and commercial customers;
- Collection and Treatment of waste water;
- Providing services to accommodate future development.

1.2 Asset Description

The Yarrabah water supply scheme is comprised of the following: Surface water is sourced from a weir located in Reeves Creek and four (4) bores. The surface water supply is transported to the treatment plant under gravity and the submersible bore water pumps transport raw water to the treatment plant.

The sewerage system consists of gravity 150mm, 225mm and 300mm diameter mains and a total of seven pump stations. The associated pressure mains transport the sewage from the pump stations to a

series of ponds. There are six ponds one of which is aerated. Treated effluent from the final pond discharges to Kappa Creek.

Asset Class	Asset Type	Component	Quantity	Unit	Replacement Cost (\$)
Water	Raw Water Supply				1,215,683
	1,215,683				
	Water Treatment & Equipment				502,208
	Water Treatment Equip Total				
					502,208
Storage					2,640,081
	Storage Total				
					2,640,081
Water Mains	Mains		41,903	metres	8,356,872
	Water Mains Total				
					8,356,872
Grand Total					12,714,844

Asset Class	Asset Type	Component	Quantity	Unit	Replacement Cost (\$)
Waste Water	Wastewater Treatment & Equipment				1,983,746
	Waste Water Treatment Equip Total				
					1,983,746
Sewer Mains	Mains		17,231	metres	7,938,537
	Sewer Mains Total				
					7,938,537
Grand Total					9,922,283

These infrastructure assets have a replacement value of \$22.637 Million.

1.3 Levels of Service

Water and Sewerage services are largely governed and regulated by the State government. Statutory requirements set the framework for minimum levels of service required, which is complemented by Council's Water & Wastewater Customer Service Standards and Drinking Water Quality Management Plans for the water supply scheme.

This Plan provides an outline of Customer and Technical levels of service. These levels of service are focused on maintaining regulatory standards and service response times.

Current levels of service are used as the baseline in developing the operational, maintenance, renewal and upgrade/ new funding requirements outlined in this Plan.

1.4 Future Demand

QLD Population Projections produced by the Queensland Treasury¹ indicate that the population of Yarrabah is estimated to increase from 2,927 to 3,565 between 2021 and 2041.

There is increased expectations on a higher levels of service of drinking water reliability and quality.

The main demands for new/changing services are created by:

- Population change
- Council financial sustainability
- Council operational and services priority changes
- Climate change
- Stricter environmental and Reef Protection requirements.

These will be managed through a combination of managing existing assets, upgrading existing assets and providing new assets to meet demand and demand management.

We will implement demand management practices to control future increased costs of water assets, including the consideration of non-asset solutions such as water conservation (demand management) via community education and awareness programs

1.5 Financial Summary

1.5.1 What Does it Cost?

The projected outlays necessary to provide the services covered by this plan for renewals, over the 10-year planning period is \$175,394 on average per year. The renewal data is based on modelling sourced from the valuation data and reflects the recent upgrades to the assets that have been undertaken through grant funding.

1.5.2 What We Will Do In A Constrained Funding Environment?

We plan to provide the following water and sewerage related services:

- Operation, maintenance, renewal and upgrade of our system to meet the required Customer Service Standards and other legislated requirements
- Continue vigorous pursuit of State Government grants for water and sewerage related assets,
- Plan asset rehabilitation to ensure that the highest priority assets are targeted for renewal each financial year. Prioritisation must be based on risk

The regular collection of physical condition data will continue to enhance Council's condition information to indicate the needs to be addressed in the immediate to short-term which will require investment. The accuracy of this information should be verified to determine if the measured condition is reflective of asset performance prior to any major funding decisions being made.

1.5.3 What we cannot do with constrained funding

Works and services that cannot be provided under present funding levels are:

- Upgrade of all identified functional deficiencies across our networks immediately with these done on a risk prioritised basis. This will allow the works to occur under a number of budget cycles.

¹ Source: Queensland Government population projections, 2018 edition; Australian Bureau of Statistics, *Population by age and sex, regions of Australia*, 2016 (Cat no. 3235.0).

2. INTRODUCTION

2.1 Background

This Asset Management Plan outlines the required management approach to:

- describing and aligning the assets to services (as informed by corporate and service planning);
- managing the future demand for assets to achieve and maintain financial sustainability;
- optimising the lifecycle management of assets (achieving service demand at the lowest lifecycle cost);
- identifying and managing risks associated with the relevant asset (including criticality and condition);
- what funds (operating and capital) are required to operate the asset portfolio in alignment with the asset management plan over a 10-year planning period; and
- continual improvement in the management of assets and performance monitoring.

The asset management plan is to be read with the Council's Asset Management Policy and Asset Management Strategy along with the Council Corporate Plan and Council Operational Plan.

The diagram below shows the different documents which influence this Asset Management Plan.

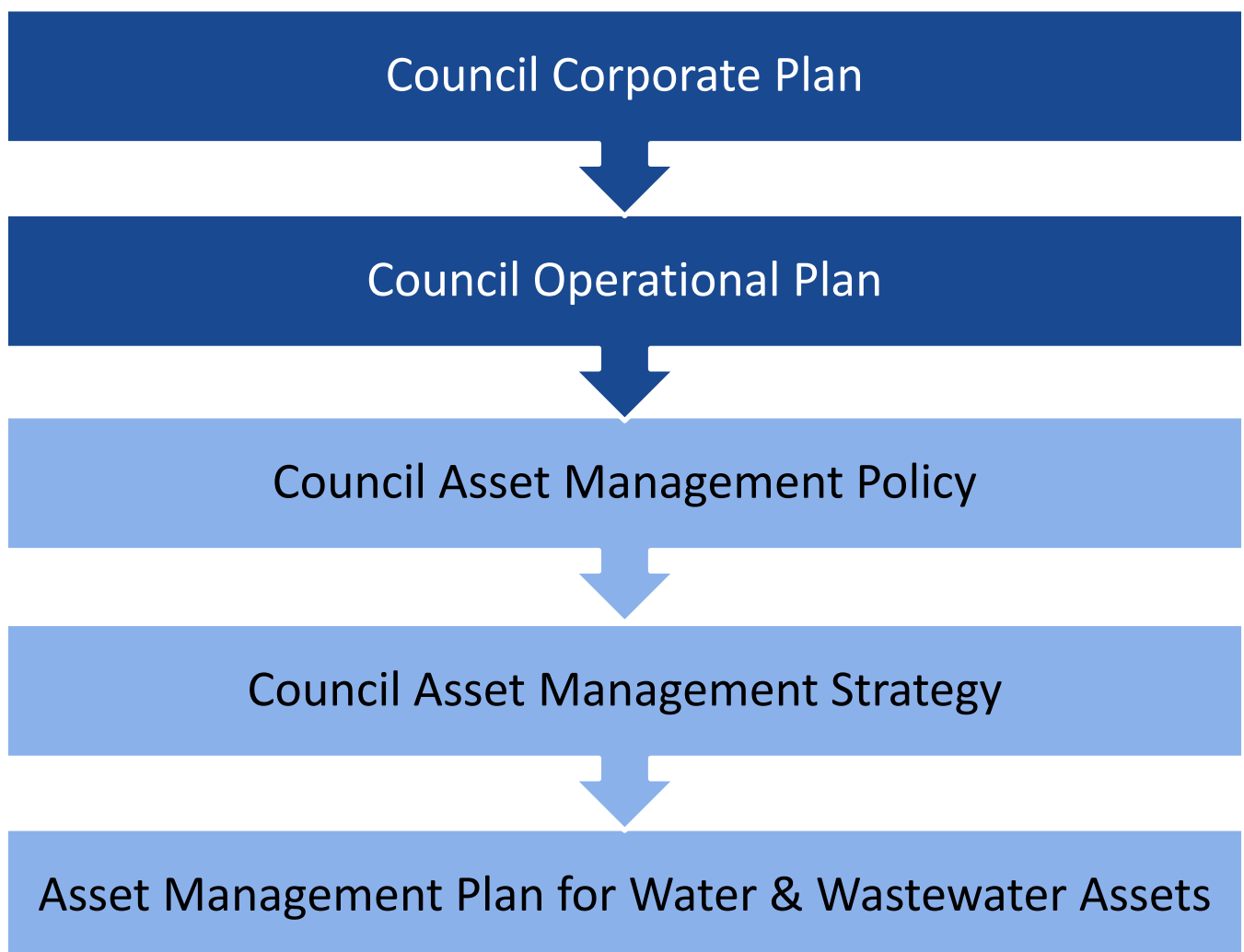


Figure 1 - Asset Management Document Relationship

The infrastructure assets covered by this asset management plan are shown in Table 1 and 2. Note that the above tables exclude some portable equipment items and non-active assets and are based on the most recent comprehensive revaluation dated 2018.

Yarrabah Aboriginal Shire Council's water and waste water infrastructure aims to provide safe, healthy and efficient water and a sewerage services to enhance the overall liveability of the Yarrabah community.

Asset Class	Asset Type	Component	Quantity	Unit	Replacement Cost (\$)	Fair Value (\$)	Annual Depreciation (\$)	
Water	Raw Water Supply			.	1,215,683	852,746	40,931	
				.				
						1,215,683	852,746	40,931
	Water Treatment & Equipment				502,208	389,847	20,250	
Water Treatment Equip Total					502,208	389,847	20,250	
	Storage				2,640,081	1,902,100	39,455	
	Storage Total					2,640,081	1,902,100	39,455
	Water Mains	Mains	41,903	metres	8,356,872	7,237,652	109,945	
	Water Mains Total					8,356,872	7,237,652	109,945
Grand Total					12,714,844	10,382,345	210,581	

Table 1 – Water Assets Covered by this Plan

Asset Class	Asset Type	Component	Quantity	Unit	Replacement Cost (\$)	Fair Value (\$)	Annual Depreciation (\$)
Waste Water	Wastewater Treatment & Equipment				1,983,746	1,670,706	19,580
	Waste Water Treatment Equip Total				1,983,746	1,670,706	19,580
	Sewer Mains	Mains	17,231	metres	7,938,537	6,139,992	172,446
	Sewer Mains Total				7,938,537	6,139,992	172,446
Grand Total					9,922,283	7,810,698	192,026

Table 2 – Waste Water Assets Covered by this Plan

2.2 Plan Framework

This Asset Management Plan has been prepared using good practice guidance from the ISO55000 – Asset Management standard, International Infrastructure Management Manual (IPWEA) and responds to various Queensland Audit Office recommendations in their reporting.

Council is committed to striving towards best appropriate asset management practices and it is recognised that this asset management plan will need to be updated periodically to reflect changes to management of Council's assets.

It is intended that Council's asset management plans should always reflect as closely as practicable actual practices used in managing its assets. Only in this way will Council be best able to ascertain its long-term financial needs for delivering sustainable assets and services.

2.3 Key Stakeholders

Our assets are utilised by a broad cross-section of the community. The stakeholders in the management of Council's water and sewerage assets are many and often their needs are wide-ranging. The relevant key stakeholders are:

- The community in general;
- Residents and businesses;
- Visitors to the area;
- Emergency agencies (Police, Fire, Ambulance, etc);
- Regulatory Agencies
- State and Federal Government that periodically provide support funding to assist with management of the network; and
- Council's Insurers.

The community's needs and expectations are predominantly about having safe good quality drinking water and a sewer system that meets regulatory requirements without any impact on public health or environment. This plan will demonstrate to the various stakeholders that Council is managing its water and sewer assets in a responsible manner

2.4 .Goals and Objectives of Asset Ownership

Our goal in managing infrastructure assets is to meet the defined range and levels of service in the most cost-effective manner for present and future consumers. By achieving the most cost-effective approach, we will contribute the affordability and liability of our community, including a vibrant, growing and efficient local economy. The key elements of infrastructure asset management are:

- Providing a defined level of service and monitoring performance;
- Managing the impact of growth through demand management and infrastructure investment;
- Taking a lifecycle approach to developing cost-effective management strategies that meet the defined levels of service;
- Identifying, assessing and appropriately controlling risks; and
- Linking to a long-term financial plan which identifies required, affordable expenditure and how it will be allocated.

3. LEVELS OF SERVICE

This section outlines the level of service or performance criteria that are required and the basis of the decision behind their adoption. The levels of service support Council’s strategic goals and are based on community expectations and statutory requirements.

3.1 Strategic and Corporate Goals

The Council Corporate Plan 2016-21 outlines the following strategic goals relating to its infrastructure portfolio in regards to water & sewerage assets:

Goals:

- Healthy Communities
 - Provide a Water Supply
 - Providing a waste water system

- Sustainable Communities
 - Utilising 10 year financial modelling
 - Developing asset management plans
 - Development of 10 year capital works plans
 - Focus on maintaining community assets

3.2 Functional Hierarchy

An asset hierarchy provides a framework for structuring data in an information system to assist in collection of data, reporting information and making decisions.

The hierarchy includes the asset class and component used for asset planning and financial reporting and service level hierarchy used for service planning and delivery. The recommended service hierarchy for Council’s water and sewer assets is shown in Table 3.

Service Hierarchy	Service Level Objective
Water Assets	
Level 1 – Weir, Bores, Water Treatment Plant	Maintain the treatment capacity of the water treatment plant to ensure legislative requirements are met in producing potable drinking water
Level 2 – Water Pumps and Trunk /Transfer Mains	Maintain water pump stations and trunk water mains to ensure that the reticulation network is provided with adequate flow and pressure.
Level 3 - Water Reservoir	Maintain water storage so that it is functional and safe.
Level 4 – Reticulation Network	Maintain the reticulation network to ensure adequate water flow and pressure are met. This includes maintaining valves, hydrants and water meters in working order.

Sewer Assets	
Level 1 – Sewer Treatment Plants	Maintain the treatment capacity of the sewer treatment plant to ensure legislative requirements are met in the management of sewage and disposal of treated effluent.
Level 2 – Sewer Trunk Network	Maintain the trunk sewerage pump stations and rising mains to allow for the efficient collection and conveyance of sewage.
Level 3 – Sewer Reticulation Network	Maintain the gravity network including manholes to ensure that customer expectations are met with minimal blockages.

Table 3 - Asset Functional Hierarchy

3.3 Alignment to Services

The assets covered by this asset management plan contribute and support the delivery of the following Council services:

Asset Type	Service Delivered	Council Service Category
Water Meters	Accurate measurement of consumption	Water Consumption Management
Water Mains and Pump Stations	Conveyance of potable and non-potable water supply	Water supply
Water Reservoir	Adequate storage to meet emergency requirements and Peak day demands	Water supply and pressure
Bore Infrastructure, Water Treatment Plant	Treatment of raw water to meet the targets of the Australian Drinking Water Requirements (ADWG)	Drinking water supply
Sewer mains and Pump Stations	Collection of sewage via reticulation system	Sewer services to community
Sewer Treatment Plant	Treatment of Sewage in accordance with regulatory requirements	Responsible disposal of treated effluent.

Table 4 - Services Delivered by Assets

3.4 Levels of Service

The adopted levels of service for water and sewer include a combination of customer and technical performance measures. The provision of water and sewerage services are heavily regulated due to the nature of the services. These legislative requirements provide the basis for water quality, effluent quality, noise and sludge management standards. The service levels which relate to customer satisfaction are targets and not intended to be customer contracts. The LOS are categorised into the following 3 areas;

Water Supply	<ul style="list-style-type: none"> Quality, quantity and pressure Response times to service interruptions
Sewerage	<ul style="list-style-type: none"> Proportion of sewage treated to various standards Number of overflow events Response times to system failures
Customer	<ul style="list-style-type: none"> Frequency of customer complaints Response times for customer feedback/complaints

Table 5 - Categories of Levels of Service

3.4.1 Customer Levels of Service

Service levels are defined service levels in two terms, customer levels of service and technical levels of service. These are supplemented by organisational measures.

Customer Levels of Service measure how the customer receives the service and whether value to the customer is provided.

Council's Customer Service Standards for Water & Wastewater 2003 and Drinking Water Quality Management Plan (DWQMP) 2016 form the basis of the customer and technical levels of service outlined in Tables following. Council completes state wide Drinking Water Quality Management Plan (DWQMP) reports each year that Queensland State compiles into the annual Queensland's SWIM Benchmarking Report.

Customer levels of service measures used in the asset management plan are:

Quality	How good is the service e.g. <i>what is the condition or quality of the service?</i>
Function	Is it suitable for its intended purpose e.g. <i>Is it the right service?</i>
Capacity/Use	Is the service over or under used e.g. <i>do we need more or less of these assets?</i>

Customer Service Levels – Water Services

Service Level Outcome	Principle Activity	Strategic Elements	Performance Outcome	Assessed by
Reliability	Reliability and capacity of pipe network	Reduce pipe breakages and increase response to reported complaints	Reduce pipe breakages per annum. Reduce response to breakages and written correspondence follow up time	Response time and number of pipe breakages
	Sewerage doesn't impact other services	Unobtrusive service	No disruptions from sewerage network	Number of interruptions per year
Quality	Provide an effective method of treatment and distribution of bore water	Reduce customer complaints	No water related customer complaints Reduce response and written correspondence follow up time.	Number of water related customer complaints.
	Meet QLD DERM standards as set out in conditions of approval	Measurement of non-compliance with DERM license requirements.	No non-compliance events	Number of non-compliance events
	Provide a safe compliant sewerage treatment system	Sewerage discharges effluent to minimise impact on environment	Minimise any sewerage overflows onto public and community properties	Number of related customer complaints
Function	Meet standards as set out in approved Drinking Water Quality Management Plan (DWQMP) water	Number of water supply outages and pipe breakages	Reduce outages and pipe breakages	Number of outages and pipe breakages
	Capacity of sewerage infrastructure	Maintain existing infrastructure to meet demand. Replace asset components as required.	Network capacity meets current demand. No sewerage system downtime	Demand/Capacity Downtime of system per month.
Condition	Provide appropriate levels of operations, maintenance and renewals to provide a reliable service	Monitor and condition assess plant equipment & infrastructure and pipes	Pipes, plant and water meters are checked and monitored regularly	Frequency with which all water infrastructure checked
	Provide appropriate levels of operation, maintenance and renewal to provide reliable service	Maintaining and renewing the sewer system most efficiently to reduce costs, downtime and risk	No system failures Reduce number of pump replacements per annum	Number of system failures and pump replacements.

Table 6 - Customer Level of Service Measures

3.5 Technical Levels of Service

Technical Levels of Service – Supporting the customer service levels are operational or technical measures of performance. These technical measures relate to the allocation of resources to service activities to best achieve the desired customer outcomes and demonstrate effective performance.

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

Operations	The regular activities to provide services (e.g. access, mowing grass, inspections, response times 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. Table 2 defines the road classification and type for maintenance purposes.
Renewal	The activities that return the service capability of an asset up to that which it had originally (e.g. Road resurfacing and pavement reconstruction)
Asset Improvements	The activities to provide a higher level of service (e.g. Widening a road, sealing an unsealed road)

Table 7 – Technical level of Service Measures

Service and asset managers plan, implement and control technical service levels to influence the customer service levels.

Technical Service Levels – Water and Sewerage Services

Performance Indicator	Performance Measure	Target	Reported (2019/20)
Operations			
Water			
Response/reaction time to incidents (all events)	Response to incident < 25 mins	100%	100%
Relative incidence of planned interruption water incidents	Ratio	1:5	
Minimum pressure at property boundary	Kpa	220	
Maximum pressure at property boundary	Kpa	500	
Drinking water quality complaints per year		<15	11
Drinking water quality incidents per year	Number of incidents	5	5
Urban supplies - E.Coli		98%	100%
Urban supplies - Turbidity			N/A
Urban supplies - pH		98%	100%
Urban supplies - Iron			
Operating Cost - Water	Per Connection		\$ N/A
Sewerage			
Sewerage Scheme complaints per year		<10	
Response/reaction time to incidents (all events)	Response to all events < 60 Minutes	100%	
Operating Cost - Sewerage	Per Connection		

Maintenance			
Water			
Unplanned interruptions per year			
Annual Maintenance Cost Water	Budget		
Sewerage			
Annual Maintenance Cost Sewerage	Budget		
Renewals			
Water			
Forecast 5 Year Average annual renewals	Budget		
Sewerage			
Forecast 5 Year Average annual renewals	Budget		

Table 8 – Technical level of Service Levels²

It is noted that Council is providing regular reporting as required by DERM. The above table data is currently incomplete and requires further updating from Council's Engineering Department. This has been identified as an Improvement recommendation for the next update.

3.6 Customer Research and Expectations

3.6.1 Community Consultation

At this stage, target customer research has not been undertaken for Council's Water and Wastewater Assets.

Council is committed to transparent and informed decision making in relation to the management of its assets and services through engagement with the community. Council undertakes inclusive community consultation to define service levels and performance measures through the development of its Corporate Plan, the Operational Plan, and Annual Budget. These discussions provide input to Council's strategic directions which are supported by the various services, projects and programmes which its delivers.

Wherever practicable, community input is sought on appropriate aspects of planning our water and wastewater and by way of consultation. However, Council acknowledges that it needs to do more work with its community in developing levels of service and it will target discussions when making decisions which influence the way that Council delivers its services and manage our assets.

Once service levels and budget funding issues have been properly reconciled, it is appropriate that Council should consult with the community to ensure that these service levels are meeting community expectations.

² Sources YASC – Drinking Water Quality Management Plan Report – Dec 2020
YASC – Customer Service Standards 2003

3.7 Legislative Requirements

There are many legislative requirements relating to the management of assets. These include:

Legislation	Requirement
Local Government Act 2009 & Local Government Regulation 2012	Sets out role, purpose, responsibilities and powers of local governments including the preparation of a long term financial plan supported by asset management plans for sustainable service delivery.
Water Supply (Safety and Reliability) Act 2008	The purpose of this Act is to provide for the safety and reliability of water supply.
Land, Water and Other Legislation Amendment Act 2013.	Includes amendment of Water Act 2000.
Australian Drinking Water Guidelines 6, 2011.	The ADWG provides Australia's legislative guidelines and framework for suppliers as supply managers (Council); and States/ territories (Qld) as auditors of water supply safety
Public health Act (2005).	The object of this Act is to protect and promote the health of the Queensland public.
Work Health and Safety Regulation 2011	Sets out roles and responsibilities to secure the health, safety and welfare of persons at work.
Environmental Protection Act 1994	Sets out guild lines for land use planning and promotes sharing of responsibilities between various levels of government in the state.

Table 9 – Legislative Requirements

4. FUTURE DEMAND

The objective of asset management is to create, operate, maintain, rehabilitate and replace assets at the required level of service for present and future customers in a cost effective and environmentally sustainable manner. The asset management plan must therefore forecast the needs and demands of the community in the future and outline strategies to develop the assets to meet these needs.

4.1 Strategic Direction

There are a number of existing strategies and plans which have been developed to provide a strategic response to the demands, challenges and opportunities which the ongoing management of the assets covered by this plan present. These documents include:

- Corporate Plan
- Operational Plan
- Planning Scheme
- Local Government Infrastructure Plan

5. LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how Council plans to manage and operate the assets at the agreed levels of service (defined in Section 3) while managing life cycle costs.

5.1 Background Data

The assets covered by this asset management plan are shown in Table 2. Council is responsible for the provision, operation and maintenance of infrastructure used to source, treat and transport potable water to the community residents for domestic and community purposes. There are no farming or industrial processes in the community which require large quantities of water from the treated water supply. Due to its relatively isolated location Council does not provide a water service to any surrounding districts.

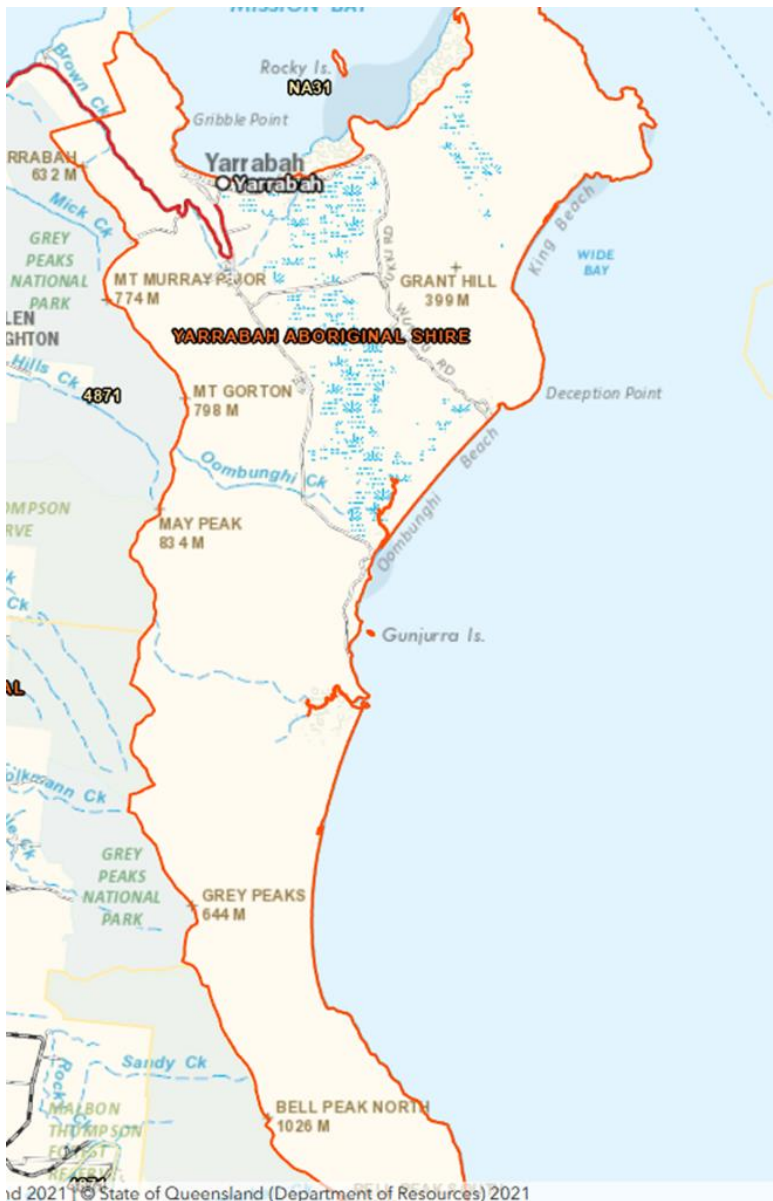


Figure 2 – Yarrabah Aboriginal Shire Council Overview³

³ Source: Queensland Government – Government Globe

5.2 Asset Description

5.2.1 Water Supply System

The following is a summary of the key components of the water supply system:

The surface water is sourced from a weir located in Reeves Creek and four (4) bores. The surface water supply is transported to the treatment plant under gravity and the submersible bore water pumps transport raw water to the treatment plant. Both sources are used during normal operations.

However, the creek supply is taken off-line during rain events, as there is no treatment process to remove/reduce turbidity (such as filtration).

Water is stored in 2 concrete reservoirs (3ML and 2.7ML) as disinfected that can currently supply the whole community through a reticulated gravity system.

The bores are relatively deep at 45 m with secured bore heads and casing. The creek intake is high up in the terrain where there are no development or animal farming. So the intake catchment is well protected and quite pristine. For these reasons, currently there is no treatment (except disinfection) for the water supply.

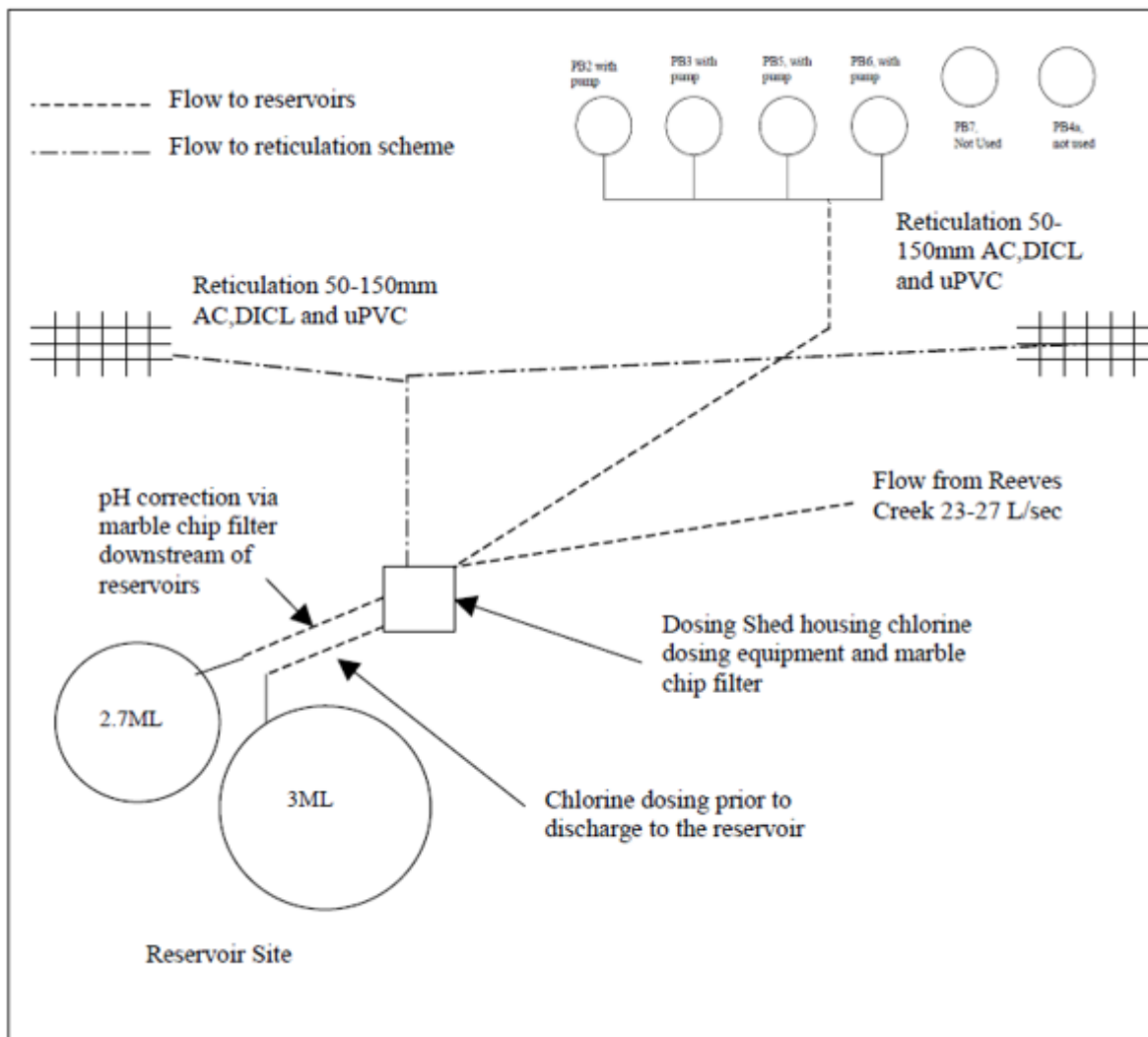


Figure 3 - YASC Council Water Supply Schematic⁴

⁴ Sources: YASC – Drinking Water Quality Management Plan 2016
YASC SAMP 2003

The water treatment process consists of PH correction and disinfection. Disinfection is done via direct injection of sodium hypochlorite on the upstream side of the storage reservoir (primary disinfection through 2 injection inlets) and one re-dose point on the downstream side when the water is fed to the community. One is the primary disinfection point dosed in the raw water pipe. The other is a re-dose as an additional security measure to maintain residual levels as water leaves the reservoirs. Due to the acidity of the raw water, pH correction is done via a sodium hypochlorite tubes on the downstream side of the reservoir.

There are water meters for residential houses to measure usage. The water reticulation mains extend throughout the main town site supplying all residents and community facilities with treated potable water. In addition there are approximately 24 fire hydrants located around the community.

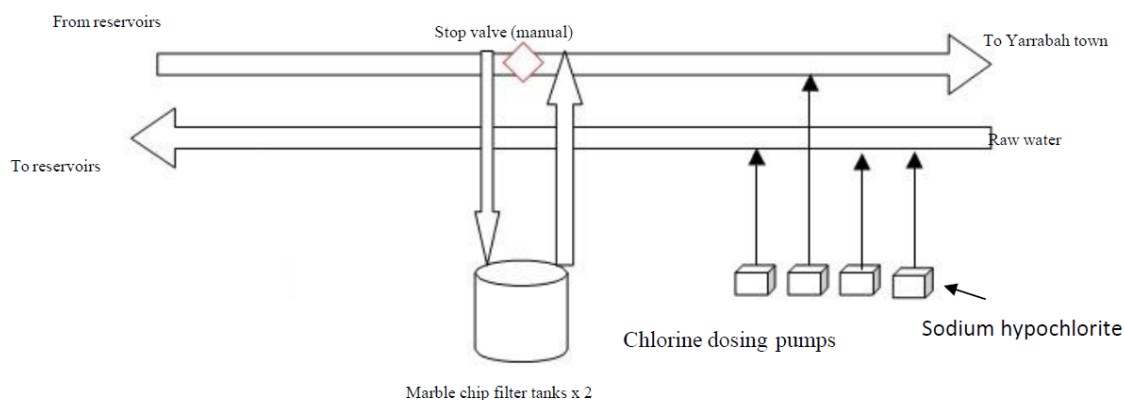


Figure 4 - YASC Council Water Treatment Schematic⁵

5.2.2 Sewerage System

The sewerage system consists of gravity 150mm, 225mm and 300mm diameter mains and a total of seven pump stations as indicated in Figure 5. The associated pressure mains that transport the sewage from the pump stations range from 100mm to 250mm. Each pump station is fitted with an emergency overflow in periods of power loss or pump failure.

The sewage is treated using a series of ponds. There are six ponds one of which is aerated. The aerated pond capacity is 5.8ML. Pond 1 is 4.7ML and ponds 2 to 5 are 3.3ML each. Treated effluent from the final pond discharges to Kappa Creek. A summary of major infrastructure include:

- Reticulated gravity sewerage collection system
- 7 pump stations
- 6 treatment ponds
- 1 aerated pond
- Septic tanks
- 2 Aerators

⁵ Source: YASC – Drinking Water Quality Management Plan 2016

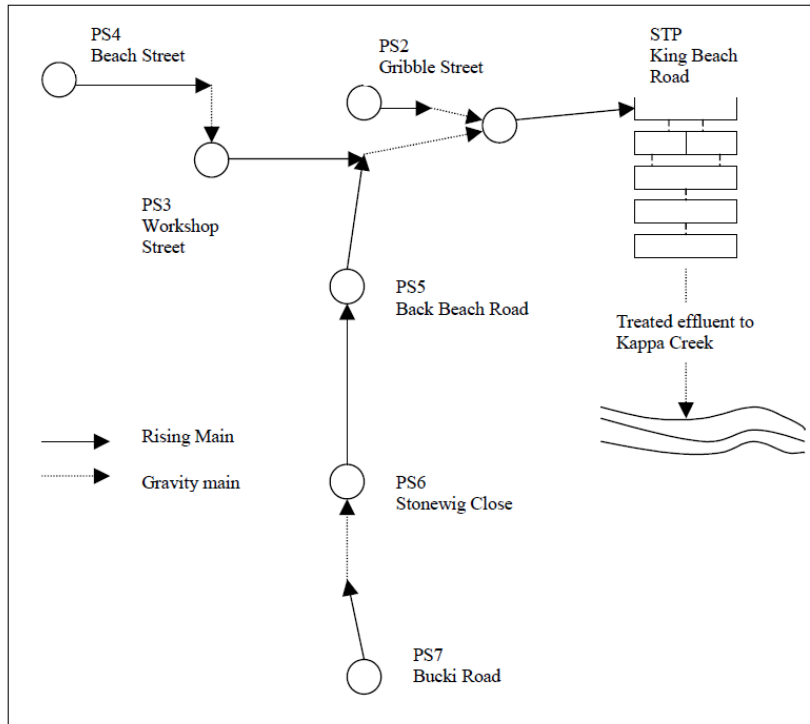


Figure 5 - YASC Council Sewerage Treatment Schematic⁶

5.3 Asset Condition

Asset condition is a measure of the health of an asset and is a key consideration in determining remaining useful life, as well as predicting how long it will be before an asset needs to be repaired, renewed or replaced. Asset condition is also an indicator of how well it can perform its function. Condition data is valuable for developing long term funding scenarios for strategic planning of Council’s budget.

Council has an inspection regime for its water and wastewater assets in place as needed for operational purposes and meeting legislative requirements. As no recent physical condition data from Council was available, valuation data has been utilised in this asset management plan.

In comparing the asset portfolio, the condition profile is compared by condition and either, length, number or replacement value depending on the asset type for each condition rating. This indicates the overall condition profile of asset assessed at each condition rating from 0-10. (0-New, 5- Fair, 10 – Failed/ End of Life).

Council Revaluation of the water and wastewater assets in 2019 provided condition data and are split by asset types is as follows:

⁶ Source: YASC SAMP 2003

<p style="text-align: center;">Water Supply Bore Casings Profile by Condition</p> <table border="1"> <thead> <tr> <th>Condition Score</th> <th>Percentage of assets (m)</th> </tr> </thead> <tbody> <tr><td>0</td><td>0%</td></tr> <tr><td>1</td><td>20%</td></tr> <tr><td>2</td><td>60%</td></tr> <tr><td>3</td><td>0%</td></tr> <tr><td>4</td><td>20%</td></tr> <tr><td>5</td><td>0%</td></tr> <tr><td>6</td><td>0%</td></tr> <tr><td>7</td><td>0%</td></tr> <tr><td>8</td><td>0%</td></tr> <tr><td>9</td><td>0%</td></tr> <tr><td>10</td><td>0%</td></tr> </tbody> </table>	Condition Score	Percentage of assets (m)	0	0%	1	20%	2	60%	3	0%	4	20%	5	0%	6	0%	7	0%	8	0%	9	0%	10	0%	<p>Water Supply bore casings are relatively longer life and is represented in this profile by the number of bores.</p> <p>These items have useful lives of 50 years. The condition shown is a function of the age and remaining life of the equipment.</p>
Condition Score	Percentage of assets (m)																								
0	0%																								
1	20%																								
2	60%																								
3	0%																								
4	20%																								
5	0%																								
6	0%																								
7	0%																								
8	0%																								
9	0%																								
10	0%																								
<p style="text-align: center;">Water Supply Bore Pumps Profile by Condition</p> <table border="1"> <thead> <tr> <th>Condition Score</th> <th>Percentage of assets (No.)</th> </tr> </thead> <tbody> <tr><td>0</td><td>0%</td></tr> <tr><td>1</td><td>0%</td></tr> <tr><td>2</td><td>0%</td></tr> <tr><td>3</td><td>0%</td></tr> <tr><td>4</td><td>33%</td></tr> <tr><td>5</td><td>0%</td></tr> <tr><td>6</td><td>34%</td></tr> <tr><td>7</td><td>33%</td></tr> <tr><td>8</td><td>0%</td></tr> <tr><td>9</td><td>0%</td></tr> <tr><td>10</td><td>0%</td></tr> </tbody> </table>	Condition Score	Percentage of assets (No.)	0	0%	1	0%	2	0%	3	0%	4	33%	5	0%	6	34%	7	33%	8	0%	9	0%	10	0%	<p>This includes all pumps that are part of the bore supply system.</p> <p>These items have useful lives of 15 years. The condition shown is a function of the age and remaining life of the equipment</p>
Condition Score	Percentage of assets (No.)																								
0	0%																								
1	0%																								
2	0%																								
3	0%																								
4	33%																								
5	0%																								
6	34%																								
7	33%																								
8	0%																								
9	0%																								
10	0%																								
<p style="text-align: center;">Water Supply Reservoirs Profile by Condition</p> <table border="1"> <thead> <tr> <th>Condition Score</th> <th>Percentage of assets (Value)</th> </tr> </thead> <tbody> <tr><td>0</td><td>0%</td></tr> <tr><td>1</td><td>0%</td></tr> <tr><td>2</td><td>65%</td></tr> <tr><td>3</td><td>35%</td></tr> <tr><td>4</td><td>0%</td></tr> <tr><td>5</td><td>0%</td></tr> <tr><td>6</td><td>0%</td></tr> <tr><td>7</td><td>0%</td></tr> <tr><td>8</td><td>0%</td></tr> <tr><td>9</td><td>0%</td></tr> <tr><td>10</td><td>0%</td></tr> </tbody> </table>	Condition Score	Percentage of assets (Value)	0	0%	1	0%	2	65%	3	35%	4	0%	5	0%	6	0%	7	0%	8	0%	9	0%	10	0%	<p>This includes the two concrete water reservoir structures.</p> <p>These items have a long life of 80 years. The condition shown is a function of the age and remaining life of the equipment</p>
Condition Score	Percentage of assets (Value)																								
0	0%																								
1	0%																								
2	65%																								
3	35%																								
4	0%																								
5	0%																								
6	0%																								
7	0%																								
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<p style="text-align: center;">Water Supply Mains Profile by Condition</p> <table border="1"> <thead> <tr> <th>Condition Score</th> <th>Percentage of assets (m)</th> </tr> </thead> <tbody> <tr><td>0</td><td>0%</td></tr> <tr><td>1</td><td>80%</td></tr> <tr><td>2</td><td>0%</td></tr> <tr><td>3</td><td>20%</td></tr> <tr><td>4</td><td>0%</td></tr> <tr><td>5</td><td>0%</td></tr> <tr><td>6</td><td>0%</td></tr> <tr><td>7</td><td>0%</td></tr> <tr><td>8</td><td>0%</td></tr> <tr><td>9</td><td>0%</td></tr> <tr><td>10</td><td>0%</td></tr> </tbody> </table>	Condition Score	Percentage of assets (m)	0	0%	1	80%	2	0%	3	20%	4	0%	5	0%	6	0%	7	0%	8	0%	9	0%	10	0%	<p>Water Mains includes all the potable water network.</p> <p>These items have long useful lives of 60 years. The condition shown is a function of the age and remaining life of the asset.</p>
Condition Score	Percentage of assets (m)																								
0	0%																								
1	80%																								
2	0%																								
3	20%																								
4	0%																								
5	0%																								
6	0%																								
7	0%																								
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9	0%																								
10	0%																								

Sewer Services																			
<p style="text-align: center;">Sewerage Lagoons - Structure Profile by Condition</p> <table border="1"> <caption>Sewerage Lagoons - Structure Profile by Condition</caption> <thead> <tr> <th>Condition Score</th> <th>Percentage of assets (\$)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>65%</td> </tr> <tr> <td>3</td> <td>35%</td> </tr> </tbody> </table>	Condition Score	Percentage of assets (\$)	1	65%	3	35%	<p>Sewer Services lagoons includes items such as:</p> <ul style="list-style-type: none"> • Pond Structures <p>These items have long useful lives of approximately 80 years. The condition shown is a function of the age and remaining life of the asset.</p>												
Condition Score	Percentage of assets (\$)																		
1	65%																		
3	35%																		
<p style="text-align: center;">Sewerage Pumps Profile by Condition</p> <table border="1"> <caption>Sewerage Pumps Profile by Condition</caption> <thead> <tr> <th>Condition Score</th> <th>Percentage of assets (No.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>16%</td> </tr> <tr> <td>2</td> <td>11%</td> </tr> <tr> <td>3</td> <td>16%</td> </tr> <tr> <td>4</td> <td>5%</td> </tr> <tr> <td>5</td> <td>11%</td> </tr> <tr> <td>6</td> <td>5%</td> </tr> <tr> <td>7</td> <td>21%</td> </tr> <tr> <td>8</td> <td>15%</td> </tr> </tbody> </table>	Condition Score	Percentage of assets (No.)	1	16%	2	11%	3	16%	4	5%	5	11%	6	5%	7	21%	8	15%	<p>This includes all pumps that are part of the Sewerage System.</p> <p>These items have useful lives of 10 years. The condition shown is a function of the age and remaining life of the equipment</p>
Condition Score	Percentage of assets (No.)																		
1	16%																		
2	11%																		
3	16%																		
4	5%																		
5	11%																		
6	5%																		
7	21%																		
8	15%																		
<p style="text-align: center;">Water Supply Rising Mains Profile by Condition</p> <table border="1"> <caption>Water Supply Rising Mains Profile by Condition</caption> <thead> <tr> <th>Condition Score</th> <th>Percentage of assets (m)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>34%</td> </tr> <tr> <td>2</td> <td>66%</td> </tr> </tbody> </table>	Condition Score	Percentage of assets (m)	1	34%	2	66%	<p>This includes all rising mains and these have been assessed by age (installation date). These pipes have a relatively long life of approx. 80 years</p>												
Condition Score	Percentage of assets (m)																		
1	34%																		
2	66%																		

Figure 6 – Condition Profile – Water and Sewer Assets⁷

What does this mean?

The condition profiles for the various assets which comprise Council's water and waste water infrastructure indicates that:

- Some of the shorter life assets such as electrical, mechanical equipment and pumps are aging and need to be closely managed in a general state that promotes safety and efficiency. The coastal environment also tends to adversely affect electrical/mechanical equipment
- The overall condition of longer life civil assets indicates that they are in good condition.

However, it is recommended that a condition assessment be undertaken to fully confirm the state of the assets plus accurate costings of maintenance and renewals.

⁷ Reference Australis Asset Advisory Group - YASC Infrastructure Assets Valuation Summary 2019

5.4 Typical Asset Useful Lives

As part of the preparations for the 2019 Asset Revaluation, the use of prescribed standards for useful lives was assessed. The revaluation assumed a number of standard typical useful lives and these were utilised for the modelling as part of this plan.

Given the environment and high water mineral content, it is recommended that these be reviewed and updated as required for this data set based on real conditions which particularly the exposed assets are subject to. A review of useful lives will be added to the improvement plan so that any changes can be included in future valuations.

Water Assets	Years	Sewer Assets	Years
Cooling Ponds	Inf	Imhoff Tank Structure	80
Pumps	15	Structures SPS	50
Mechanical/electrical	15-30	Mechanical/Electrical	20
Concrete Storage Reservoir	100	Wet Well Structures	60-100
Storage Tanks	40	Pumps	15-20
Water mains	80-100	Manhole	80
Hydrant	50	Valves	20
Valves	20-30	Gravity Mains Liner	60
		Gravity Mains VC	60
		Gravity Mains UPVC	80

Table 10 - Useful Lives for Water and Sewer Assets⁸

5.5 Routine Operations and Maintenance Plan

Effective maintenance strategies are essential to ensure that an asset performs at the desired service level on a day-to-day basis.

Operations	Includes regular activities to provide and/or services such as public health, safety and amenity.
Maintenance	Maintenance is the regular on-going work that is necessary to keep assets operating, including instances where components of the asset fail and need immediate repair to make the asset safe and operational again.

Table 11 – Maintenance Strategy Summary

5.5.1 Maintenance Strategy

The following general maintenance and operations strategies are applied to Council's water and wastewater assets:

Operations	Use and manage the assets in a manner that minimises the long term overall total cost. Undertake scheduled inspections as justified by the consequences of failure on levels of service, costs, public health, or safety.
-------------------	---

⁸ Reference Australis Asset Advisory Group – YASC Infrastructure Assets Valuation Summary 2019

Reactive Maintenance	A suitable level of preparedness for a prompt and effective response to service requests or asset failures is maintained.
Planned or Preventative Maintenance	Undertake planned asset maintenance activities to minimise the risk of critical asset failure and to maintain assets in a manner that minimises ongoing lifecycle costs.

Table 12 – Maintenance Definitions

5.5.2 Maintenance Standards

All maintenance work undertaken is in accordance with Council's standard design guides, standard drawings, and specifications for relevant plant and equipment assets or, if not, covered by these technical guides, in accordance with standard industry practices. New assets either built or acquire will be accompanied by manufacturer recommendations on maintenance to achieve full utilisation. The asset register becomes a point of truth holding this attribute information.

5.5.3 Inspections

For Council to carry out effective planning and competent management of its water and wastewater assets, both in a strategic and operational sense, it is essential that maintenance and performance related information is collected through disciplined and regular inspections of the whole of the network.

The inspection frequency regime uses a risk approach that considers the risk of failure. The higher the risk and consequences of failure, the more frequent the inspections and the quicker the response time.

Council's inspection activities can be grouped into the following categories based on definition and purpose:

Inspection Type	Description
Reactive / Safety Inspections	Reactive inspections are initiated generally by requests for maintenance received from asset users. Safety issues may be detected either as a result of programmed defect inspection or by customer request. Council's objective in relation to maintenance requests is to inspect and prioritise the work requests within specific timeframes.
Planned Inspections (Programmed Defect Inspections)	Planned or maintenance inspections involve a visual investigation to assess the condition of sub-elements or asset components. These inspections provide a basis for urgent, preventative, cyclic maintenance needs and, capital works planning.
Condition Inspections	A condition audit is a systematic inspection and identification and recording of the physical and functional adequacy of assets. The purpose of these inspections is to provide an input for life-cycle cost analysis, and asset planning purposes. This level of inspection does not identify detailed maintenance requirements but provides a basis for managing the asset portfolio from a strategic perspective.

Figure 7 - Asset Inspection Type Summary

5.6 Renewal/Replacement Plan

Renewal expenditure is major work that does not increase the asset's design capacity but restores, rehabilitates, replaces or renews an existing asset to its original service potential.

Work over and above restoring an asset to original service potential is an upgrade/expansion or new work expenditure resulting in additional future operations and maintenance costs.

Assets requiring renewal are identified using a combination of an analysis of the performance of the asset (condition, user complaints, and faults) and the strategy for renewal, for example, is it planned or reactive renewal. The data gathered as part of a condition assessment will provide long term financial budgeting inputs as part of an improved approach to maintenance and renewals planning.

5.6.1 Renewal Strategy

Council will plan capital renewal and replacement projects to meet the level of service objectives and minimise infrastructure service risks by:

- Planning and scheduling renewal projects to deliver the defined level of service in the most efficient manner;
- Undertaking project scoping for all capital renewal and replacement projects to identify:
 - The service delivery 'deficiency', present risk and optimum time for renewal/replacement;
 - The project objectives to rectify the deficiency;
 - The range of options, estimated capital and life cycle costs for each option that could address the service deficiency;
 - And evaluate the options against evaluation criteria adopted by the organisation; and
 - Select the best option to be included in capital renewal programs
- Using 'low cost' renewal methods (cost of renewal is less than replacement) wherever possible;
- Maintain a current infrastructure risk register for assets and service risks associated with providing services from infrastructure assets and reporting Very High and High risks and residual risks after treatment to management and Council;
- Review the current and required skills base and implement workforce training and development to meet the required construction and renewal needs;
- Maintain a current hierarchy of critical assets and capital renewal treatments and timings required;
- Review management of capital renewal and replacement activities to ensure Council is obtaining the best value for resources used;
- Renewal ranking criteria; and
- Asset renewal and replacement are typically undertaken to either:
 - Ensure the reliability of the existing infrastructure to deliver the service it was constructed to facilitate; or
 - To ensure the infrastructure is of sufficient quality to meet the service requirements.

As a general principle, the number and cost of repairs will determine the optimum timing to invest in the renewal of assets. Every time an asset is repaired it provides information about its condition deterioration rate and a prediction of the optimum time to renew. As the rate of repairs increases, a prediction can be made about the optimum time to renew an asset to keep the cost of ownership at the optimum level.

5.6.2 Renewal Standards

Council's construction standards are based on various standards necessary to accommodate the demands, legislative and technical requirements placed on the water and sewerage assets.

These standards take into consideration the extensive work previously undertaken by the various professional and industry bodies such as:

- Australian Standards
- WASA
- EPA Requirements

All renewal works shall comply with Council's engineering standards and specifications for design and construction which apply at the time.

5.7 Disposal Plan

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

Water and sewerage related assets are rarely, if ever, disposed. Council currently has no immediate or current strategic direction to retire or dispose of any elements of these assets however does respond to requests for acquisition from other parties as required.

6. RISK MANAGEMENT PLAN

The purpose of this section is to describe the basis of Council’s strategic risk and investment policies and the way it will manage risk associated with Council’s water and sewer assets.

6.1 Risk Management Process

Council’s risk management framework and processes are in accordance with AS/NZS ISO 31000 – Risk Management – Principles and Guidelines and HB 436:2013 – Risk Management Guidelines.

The Framework is designed to provide the architecture for a common platform for all risk management activities undertaken by Council and is used to identify specific risks associated with Council’s delivery of services and management of assets.

As is common with small communities, the most likely four primary risks across all classes of assets and services that the Council faces are namely:

- funding sustainability to support consistent Levels of Service;
- loss of key personnel;
- the need for improved skills and the ‘whole of organisation’ approach to the management of assets and services effectively; and
- failure of an asset due to inappropriate asset management.

The table below describes the typical risks and proposed treatments for the Water Supply and Sewerage Network assets based on the risk criteria nominated as per below.

Currently the operational risks are adequately managed with day to day operations. However, this management is predominantly reactive on an ad hoc basis and done in the absence of formal corporate direction due to the nature and timing of the grants process. Addressing the corporate and external risks would enable the organisation to devise and enact more appropriate treatment.

LIKELIHOOD	CONSEQUENCES				
	1. Negligible	2. Minor	3. Moderate	4. Major	5. Catastrophic
A. Rare	L	L	L	M	H
B. Unlikely	L	L	M	H	H
C. Possible	L	M	M	H	E
D. Likely	M	M	H	E	E
E. Almost Certain	M	H	H	E	E

Table 13 - Risk Framework: Source AS/NZS ISO 31000

Asset at Risk	What is the possible problem?	What is the Cause?	What would happen as a result?	Likelihood	Consequences	Risk Rating	Risk Treatment Plan	Risk after treatment	Responsible	By when
Weir	Structural Damage	Large Rain Events	Damage or loss of water storage capacity	C	4	H	Ensure regular inspections of weir structural elements are undertaken and seek specialist advice if any anomalies are identified.	H	Dw&l	
Water Intake Structures	Structural Damage	Large Rain Events	Loss or reduction to supply	C	4	H	Ensure regular inspections of weir structural elements are undertaken and seek specialist advice if any anomalies are identified	H	Dw&l	
Treatment Plant	Treatment plant fails.	Power failure.	No water treated or distributed.	C	4	H	Monitor reservoir levels.	M	Dw&l/WS	
		Pump breakdown.					Have 2 days water available in reservoir.			
		Switchboard fault.					Standby generators available.			
		Lack of water supply.					Notification to community to reduce consumption.			
High Lift Pumps	High lift pumps fail	Power failure.	Reduced or no water provided to gravity tanks.	C	4	H	Monitor reservoir levels.	L	Dw&l/WS	
		Pump breakdown.					Have 2 days water available in reservoir.			
		Switchboard fault.					Standby generators available.			
							Notification to community to reduce consumption.			
All Assets	No documentation to guide maintenance staff	Lack of up to date maintenance manuals and procedures	Staff are unable to fix problems.	C	4	H	Ensure basic maintenance manuals are provided to staff with adequate training.	L	Dw&l	
Treatment Plant	Deterioration in water quality.	Malfunction at treatment plant.	Customer complaints.	C	3	M	Monitor function of treatment plant and water quality at weir.	L	Dw&l/WS	
		Poor quality bore water.								
Mains	Break in the mains	Fault in pipe or joint.	No water distributed.	C	2	M	Maintain as constructed drawings of mains.	L	Dw&l/WS	
		Excavation of pipe.					Have fittings and pipes available for use in repairs.			
Mains	Fire hydrant leak	Fire hydrant damaged by vandalism or vehicle accident.	Water loss and/or loss of supply.	C	2	M	Ensure hydrants are clearly visible.	L	Dw&l/WS	
Mains	Failure of valve.	Deterioration of valve.	Water loss and/or loss of supply.	B	2	L	Have replacement valves available for use in repairs.	L	Dw&l/WS	
Bore	Bore fails to deliver sufficient water.	Drop in water table.	Reduced amounts of water are available. Draw on other bores is increased.	C	2	M	Monitor bores.	L	Dw&l/WS	Review monthly
Bore	Bore fails to deliver any water.	Bore pump fails.		C	2	M	Replacement pump available. Replace/refurbish pumps prior estimated failure interval.	L	Dw&l/WS	Ongoing
Bore	Bore fails to deliver any water.	Power supply interruption.	No water available for treatment and distribution.	D	3	M	Have 2 days water available in reservoir.	L	Dw&l/WS	Ongoing
							Standby generators available. Notification to community to reduce consumption.			

Table 14 – Water Infrastructure Risk Register⁹

⁹ Source: YASC Drinking Water Quality Management Plan

Asset at Risk	What is the possible problem?	What is the Cause?	What would happen as a result?	Likelihood	Consequences	Risk Rating	Risk Treatment Plan	Risk after treatment	Responsible	By when
Reticulation & Pump Stations	Blocked Pipes	Inappropriate objects entering network.	Stopping of sewerage flows to treatment.	D	3	H	Educate residents about the impacts of inappropriate objects finding their way into the network.	L	Dw&I	
		Tree roots.								
		Ground movement.								
All Sewerage Assets	No documentation to guide maintenance staff	Lack of up to date maintenance manuals and procedures	Staff are unable to fix problems.	C	4	H	Ensure basic maintenance manuals are provided to staff with adequate training.	L	Dw&I/WS	
Reticulation System including rising mains	Broken pipes	Erosion of pipes or mechanical breakage	Effluent flow to environment.	C	2	M	Carry out pipe inspections every 5 years. Maintain as constructed records and check before digging.	L	Dw&I/WS	
Pump Stations	Failure of pumps	Mechanical breakdown.	Sewage build-up in overflow tanks. Possible discharge of untreated wastewater.	C	3	M	Monitoring of pumps. Back-up generator available. Refurbish, replace pumps before failure.	L	Dw&I/WS	
		Electrical supply failure								
							Educate residents about the impacts of inappropriate objects finding their way into the network.			
Effluent Ponds	Overtopping of the ponds	Exceptional wet season	Untreated or partially treated waste flow to environment.	B	2	L	Monitor pond levels. Ensure discharge pipes and valves are operational.	L	Dw&I/WS	

Table 15 – Sewerage Infrastructure Risk Register

7. FINANCIAL SUMMARY

This section contains the financial requirements resulting from all the information presented in the previous sections of this asset management plan. The financial projections will be improved as further information becomes available on desired levels of service and current and projected future asset performance.

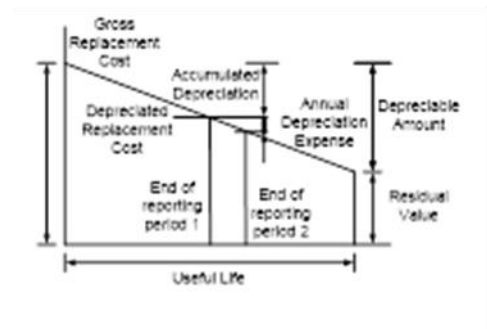
7.1 Financial Statements and Projections

7.1.1 Asset Valuations

The best available estimate of the value of assets included in this Asset Management Plan are shown below.

Water Assets

Gross Replacement Cost	\$12,714,843
Accumulated Depreciation	\$2,228,836
Depreciated Replacement Cost	\$10,486,006
Annual Average Asset Consumption	\$210,582



Sewerage Assets

Gross Replacement Cost	\$9,922,283
Accumulated Depreciation	\$2,111,584
Depreciated Replacement Cost	\$7,810,698
Annual Average Asset Consumption	\$192,026

The value of assets recorded in the asset register as at 30 June 2018 is covered by this asset management plan are shown above.

Assets are valued at fair value based on depreciated replacement cost according to Greenfield rates. Quantities represent those assets whose replacement cost meets Council's capitalisation threshold.

7.1.2 Sustainability of Service Delivery

Renewals

The Department of Local Government, Racing & Multicultural Affairs (DLGRMA) has included the Asset Sustainability Ratio as one of its key measures of sustainability¹⁰. The ratio is defined as follows:

Financial Management (Sustainability)

$$\frac{\text{Capital Expenditure on Replacement of Assets (Renewals)}}{\text{Depreciation Expenditure}}$$

The target range is greater than 90% per annum (on average over the long-term). From Council's most recent Infrastructure Revaluation, the annual depreciation across both water and sewerage asset classes is **\$402,608**. Based on the 90% target then the target annual renewal expenditure amount (for both) would be in the order of **\$362,347**.

7.1.3 Previous Expenditure on Water and Waste Water Assets

The following is the historical expenditure on water and wastewater assets:

Water Services

Year	Operations	Maintenance	Renewals	New/Upgrades
20-21			\$ 815,046	
Annual Average				

(To be completed)

Table 16 - Historical Expenditures on Water Assets ¹¹

Year	Operations	Maintenance	Renewals	New/Upgrades
20-21			\$ 1,210,455	
Annual Average				

(To be completed)

Table 17 - Historical Expenditures on Sewerage Assets ¹²

Average Annual Maintenance and Renewals Expenditures:

Water Services	\$
Sewerage	\$
Total	\$

7.1.4 Projected Expenditures for Long Term Financial Plan

Modelled Projected Expenditures

Based on the valuation data and Council condition data, the following identifies the projected renewals requirements over the next 10 years. In practice, renewals will be programmed over a number of years so that acts to “smooth” out the expenditure curve. The following table shows the predicted renewal expenditure for each class. The modelling assumes renewal expenditure on portions of the Mains due to the aging and assumes a percentage will need to be progressively renewed. In practice, this is not generally the case as mains replacement will be a function of pipe failures and bursts which will prioritise potential section replacements.

¹¹ Source WSC – Historical Cost Data - 2020

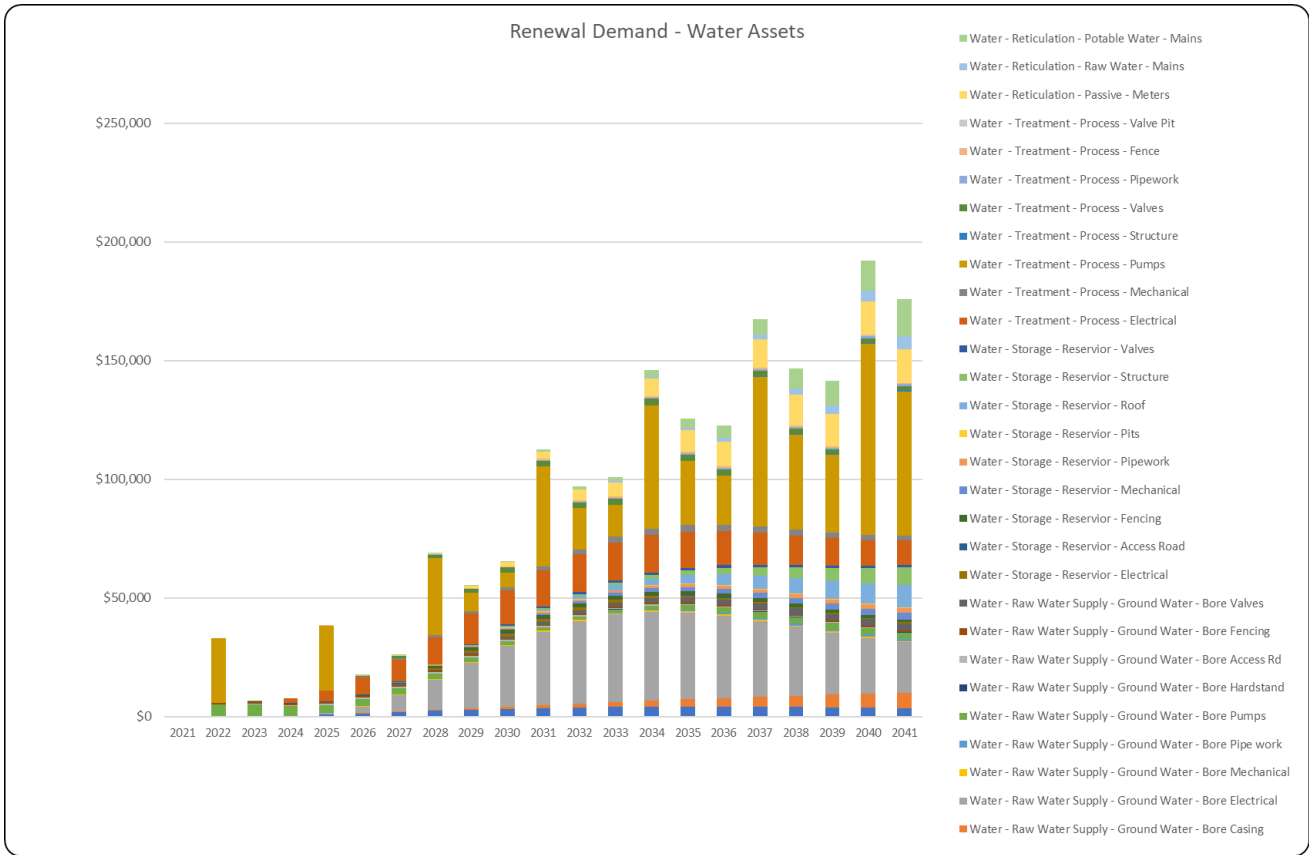


Figure 8 – Projected 10 Year Renewals – Water Assets

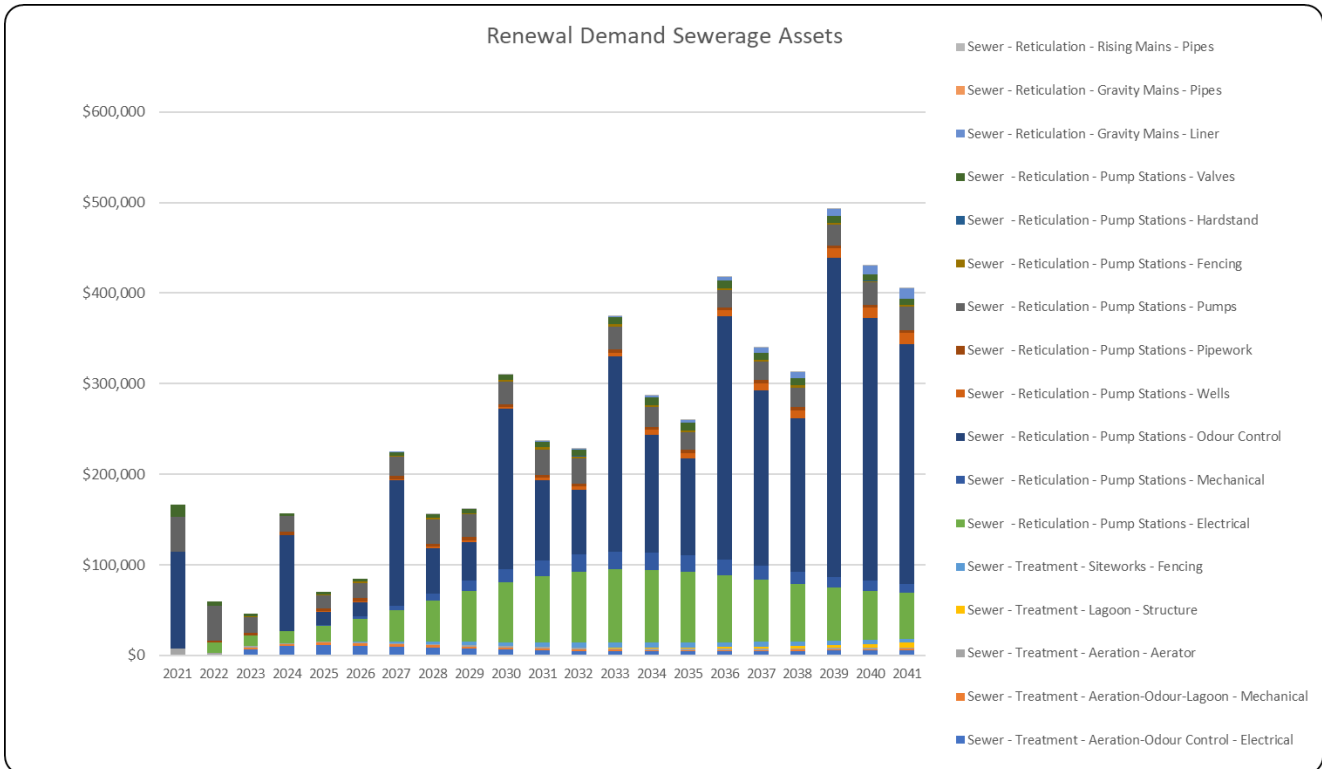


Figure 9 – Projected 10 Year Renewals – Sewerage Assets

As the modelling is based on the most recent revaluation data, the large “spike” in manholes reflects the relative age of some of the manholes. This will be reduced significantly in practice with Council’s current manhole replacement and relining program that is underway.

Table 18 shows the projected expenditures for the 10-year, Long Term Financial Plan. Expenditure projections are in 2019/20 real values.

Year	Water Assets	Sewerage Assets	TOTAL
2021	\$0	\$166,515	\$166,515
2022	\$32,920	\$60,050	\$92,970
2023	\$6,263	\$46,057	\$52,321
2024	\$7,601	\$156,790	\$164,391
2025	\$38,420	\$70,292	\$108,712
2026	\$17,309	\$84,330	\$101,639
2027	\$25,796	\$223,914	\$249,711
2028	\$68,989	\$155,469	\$224,458
2029	\$55,417	\$161,912	\$217,329
2030	\$65,654	\$310,240	\$375,895

Average **\$175,394**

Table 18 - Projected Expenditures of Water & Sewerage Assets for Long Term Financial Plan

The above relatively lower levels of forecast renewals reflects the relatively recent replacement program that has occurred over the past several years. There are a number of shorter life assets that will likely require renewals but the high value long life assets replacement lives are beyond the 10 year horizon,

Council 3-5 Year Budgets

The following is Council’s 3 Year Budget for Water and Sewerage Assets and includes items identified as general maintenance as well as identified individual projects categorised as cyclic, planned maintenance, renewals or new works.

Year	Maintenance	Renewals	New/Upgrades
	Reactive/Cyclic		
2022			
2023			
2024			
Annual Average			

(To be completed)

Table 19 – Budgeted Expenditures of Water & Sewerage Assets for Long Term Financial Plan

Based on the historical cost trends plus the forward modelling, the data indicates that Council is on average expending an appropriate amount on maintenance and renewals.

7.2 Forecast Reliability and Confidence

The forecast costs, proposed budgets, and valuation projections in this Asset Management Plan are based on the best available data. For effective asset and financial management, it is critical that the information is current and accurate. Data confidence is classified on a A - E level scale¹³ in accordance with the table below.

Confidence Grade	Description
A. Highly reliable	Data based on sound records, procedures, investigations and analysis, documented properly and agreed as the best method of assessment. Dataset is complete and estimated to be accurate $\pm 2\%$
B. Reliable	Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example some of the data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation. Dataset is complete and estimated to be accurate $\pm 10\%$
C. Uncertain	Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available. Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated $\pm 25\%$
D. Very Uncertain	Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete, and most data is estimated or extrapolated. Accuracy $\pm 40\%$
E. Unknown	None or very little data held.

Table 20 - Data Confidence Grading System

The estimated confidence level for and reliability of data used in this Asset Management Plan is shown in the table below.

Data	Confidence Assessment	Comment
Demand drivers	B	Demand drivers for the Water and Sewerage Classes are derived from the various legislative requirements. There is a DWQMP which identifies water services issues/drivers
Growth projections	B	YASC relies on ABS sourced data for growth projections
Acquisition forecast	B	Forecasting of new assets are derived on growth needs and technical investigations.
Operation forecast		TBA
Maintenance forecast		TBA
Renewal forecast - Asset values		TBA
- Asset useful lives	B	Reliance was on recent Valuation data
- Condition modelling	C	No physical condition data available but there is reliance on valuation data.
Disposal forecast	N/A	Not required for these types of Assets.

Table 21 - Data Confidence Assessment for Data used in Asset Management Plan

The estimated confidence level for and reliability of data used in this Asset Management Plan is considered to be **B+**.

¹³ IPWEA, 2015, IIMM, Table 2.4.6, p 2/71.

8. PLAN IMPROVEMENT AND MONITORING

8.1 Status of Asset Management Practices

Council currently uses the following corporate information systems for recording relevant asset data and information:

Module	System
Customer Request Management	
Financial/Accounting	
Records Management	
Mapping (GIS)	
Asset Register	
Strategic Asset Management	
Mobile Solutions	
Works Management	

Table 22 – Overview of Corporate Systems

(To be completed in next update of Plan)

The asset management system underpins asset management capacity and capabilities and is a key source of information for decision making, coordination of operations, and performance reporting. It is understood that Council is investigating options for its future asset management system, it is important that a clear road map is developed for the implementation of the additional functionality of this system which is either being performed by other non-integrated solutions or manual processes.

8.2 Improvement Plan

The asset management improvement plan generated from this asset management plan is shown in Table 23.

Issue	Tasks / Processes	Timeframe	Responsibility	Status
POLICY	Update current Asset Management Policy	Regular input to Council agendas	CEO / Directors	Policy to be updated
STRATEGY	Initiate 'Whole of Life' analysis for all major projects in the Capital Works Program.		CEO / Directors	To be developed with next Budget
	Establish Long Term Financial Plans using AMP financial forecasts.		CEO / DOW/ DCED	Refined with AMP, (this plan)
RISK MANAGEMENT	Maintain and update Risk Register for water and sewerage assets	Jun-21	CEO / Directors	Initial register developed and reported
	Document assets according to risk hierarchy in order to prioritise maintenance and renewals . Apply initial criticality framework as outlined in this AMP. Then review as maturity increases.	June 21	DOW	To commence

DATA	Continue to increase the integrity of asset and services data by undertaking physical condition assessments and developing maintenance and renewals plans based on the assessments.	Jun -21	DOW/ DCED	To commence
	Maintain Asset Inventories for asset management purposes with complementary information in Asset Register	Jun-21	DOW/ DCED	Processes to be reviewed and validated
	Process reviews to ensure data is consistent and accurate across all functions, eg asset handover, as constructed drawings, etc.	Jun-21	DOW/ DCED	To commence
FINANCIAL MANAGEMENT	Ensure alignment between Asset Inventories and Asset Register	Ongoing	DOW/ DCED	Work from updated inventories
	Apply financial forecast calculation process for each asset class, and regularly test against industry indicators	Ongoing	DOW/ DCED	Initial data recorded in Asset Inventories
OPERATIONS	Establish templates and processes to provide regular reports on asset and services management status and practices improvements program, plus overall and individual asset and services performance.	Ongoing	CEO / Directors	To commence

Table 23 – Improvement Plan

Council’s Executive Management Team (EMT) will be responsible for determining the priority of the actions in this improvement plan and also to allocate a responsible officer and to identify resource needs. This is to ensure that the implementation of these improvement actions align with Council’s overall asset program.

8.3 Monitoring and Review Procedures

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

The asset management 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 incorporated into the Long Term Financial Plan.

The asset management plan will have a life of four (4) years and will be completely reviewed and updated in order to inform the development of the Corporate Plan, the Operational and Development Plan, and the Long Term Financial Plan.

8.4 Performance Measures

Performance measures will be developed to ensure that work practices and the asset management plan are reflective of each other.

The performance of the asset management plan shall be monitored against the following criteria in accordance with the process detailed below.

- Maintenance and renewal programs - to confirm that allocated budget projects were delivered on time, within budget and to the specified level of service (see following item on delivery performance).
- Inspection programs - to confirm that they were undertaken as specified in the asset management plans and any other service level agreements which may be in operation.
- Scheduled condition assessments – to confirm that they were undertaken as required.
- Maintenance of asset information systems - to ensure that stored data is current and accurate.
- External factors - including legislative requirements and reporting, ongoing development of Council policies, plans, and other major system implementations, that may affect the contents of the asset management plan.

9. GLOSSARY

The following definitions and assumptions have been used in the compilation of this report:

Asset Management Plan:

A plan developed for the management of one or more infrastructure assets that combines multi-disciplinary management techniques (including technical and financial) over the lifecycle of the asset in the most cost-effective manner to provide a specified level of service (function/purpose). A significant component of the plan is a long-term cash-flow projection for the continuation of the asset to function at its level of service.

Asset Management Team:

A team appointed by an organisation to review and monitor the corporate asset management improvement program and ensure the development of integrated asset management systems and plans consistent with organisational goals and objectives.

Asset Data:

A record of asset information considered worthy of separate identification including inventory, location, age, condition, history, financial, construction, technical and financial information about each individual asset.

Current Replacement Cost:

The cost of replacing the current service potential of an existing asset with an asset of equivalent capacity, built to current community standards and expectations.

Cyclic Maintenance:

Maintenance carried out on a programmed basis that ensures the asset is protected against deterioration and enhances appearance (e.g. cleaning of gutters).

Gap Analysis:

A method of assessing the gap between the Council's current asset management practices and the future desirable asset management practices. Also called "needs analysis" or "improvement planning", and for buildings, the financial gap between current renewal and maintenance funding and the existing asset or asset's components required renewal and maintenance funding needs.

Improvement /Upgrades:

Works required to an existing asset that changes the current functional level of service to a revised, improved or upgraded function to meet user's expectations.

Operational maintenance:

Un-programmed maintenance, carried out to ensure the asset or element remains serviceable (e.g. remove grass from down pipes).

Renewal:

Works to refurbish or replace an existing asset or asset component with facilities of equivalent capacity or performance capability.

Replacement:

The complete replacement of an asset or asset component that has reached the end of its life in order to provide a similar or agreed alternative level of service.



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