



Tablelands Regional Council



Asset Management Plan WATER 2023-2032





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1.0 EXECUTIVE SUMMARY

1.1 The Purpose of the Plan

This Asset Management Plan (AMP) demonstrates that we are managing Tablelands Regional Council's (TRC) water assets in a responsible manner. It has been developed in accordance with our Asset Management Policy and principles of the Strategic Asset Management Plan (SAMP).

This Asset Management Plan details information about our water assets. The plan outlines the management approach to:

- Describing and aligning delivery objectives of water assets to Tablelands 2030+ strategic objectives.
- 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 water assets.
- Funds required to operate the water assets; and
- Continual improvement in the management of the assets and performance monitoring.

1.2 Asset Description

This Asset Management Plan has a focus on drinking water services provided to the community and the infrastructure assets that support these services.

Our water asset portfolio has an estimated replacement cost of **\$183.2 million** (as at 30 June 2023).

The water asset portfolio includes groundwater bores, river intake structures, a referable dam, water treatment plants, water mains, hydrants, valves, pump stations, reservoirs, chlorinators, and water meters.

1.3 Levels of Service

We are continuing to develop comprehensive levels of service for our water assets to meet community expectations whilst maintaining financial sustainability. At present, management of water assets, including intervention points and chosen treatment methods, is based upon:

- Available budget and resource allocations.
- Feedback from the community; and
- Active monitoring of the performance of the water asset portfolio.

The customer levels of service are outlined in Council's Customer Service Standards Water & Wastewater 2020 – 2025. We are currently in the process of finalising our technical service standards.

1.4 Future Demand

It is expected that future demand for services will be driven by:

- Population change.
- Change in design standards.
- Increase in level of service.
- Climate change.
- Council financial sustainability.
- Community satisfaction; and
- Changes to legislation, Codes of Practice and Guidelines.

These demand drivers will be managed through a combination of managing existing assets, upgrading of existing assets, construction of new assets, non-asset based demand management initiatives, minimising



climate change impact on assets and better management of customer expectations whilst maintaining financial sustainability.

1.5 Lifecycle Management Plan

Lifecycle planning describes the approach to maintaining an asset from construction to disposal. It involves the prediction of future performance of an asset, or a group of assets, based on investment scenarios and maintenance strategies.

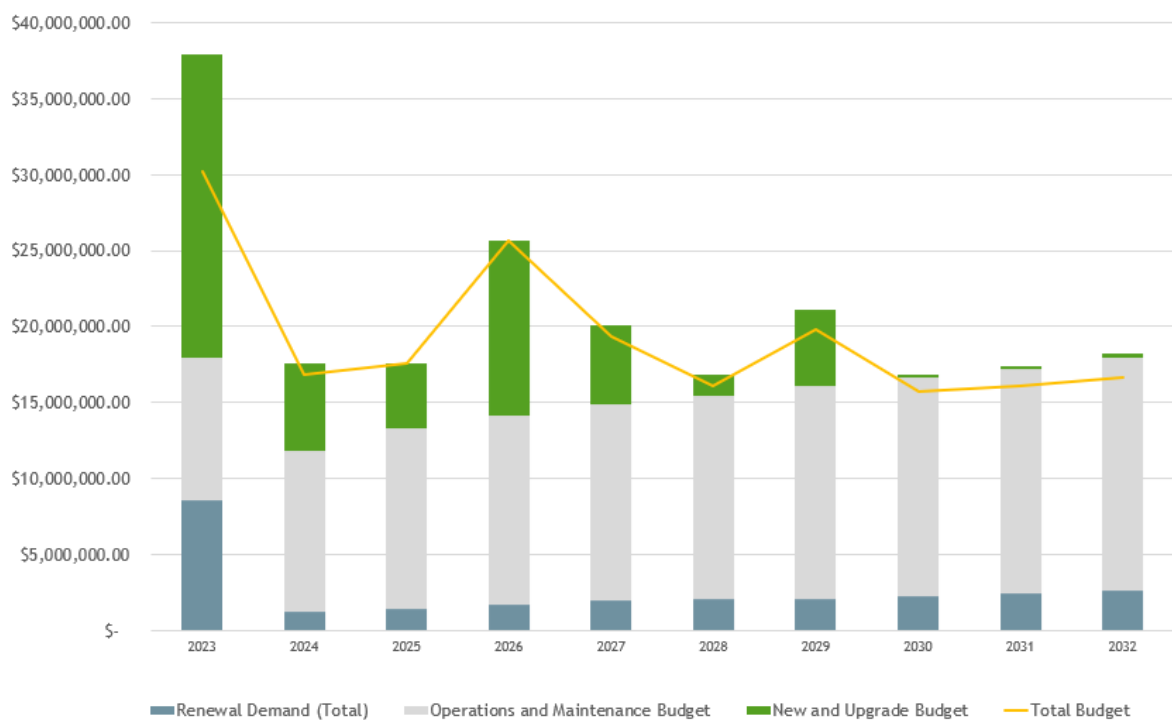
Our current approach to managing and operating our water assets is transitioning to a more proactive approach as we are continually improving our knowledge on performance, changing requirements, and service demands.


We are always striving to improve our approach to lifecycle management to make sure that we deliver on our service commitments in the most cost effective and efficient manner.

1.6 Financial Summary

Based on our current forecasting, the renewal demand of existing water assets over the next ten (10) years is **\$26.1 million** or **\$2.61 million** on average per year. This total renewal demand is inclusive of **\$7.52 million** of renewal backlog. Whilst the condition data from the valuation registers provides the best available source of consolidated condition information, the asset register may not accurately reflect the existing assets in operation and the condition reports may not reflect current condition of the assets. Improvement actions have been identified in the AMP to review data accuracy.

Our Long-Term Financial Plan has currently allocated about **\$10.9 million** for water asset renewals over the next 10 years, which means we are only funding **42%** of our required renewal over the next 10 years. The following graph shows the financial summary of water assets.





It is expected that the above funding ratio would change significantly in the next couple of years as detailed renewal plans are developed following the undertaking of condition assessments as per tasks identified in the Improvement Plan (Section 9.1) with particular focus on data cleansing and accuracy.

At present, the condition data from the valuation registers provides the best available source of consolidated condition information, the asset register may not accurately reflect the existing assets in operation and the condition reports may not reflect current condition of the assets.

1.7 Our priority

We will continue to inspect and proactively maintain our water assets to ensure they are safe and functional within the current levels of service. We also need to prioritise renewals, upgrades, expansion and adding new water assets to our water asset base according to priorities and annual budget allocations to ensure that water assets meet customer service levels and comply with all relevant statutory requirements and Australian Standards.

We will continue to work with local community, industries, businesses and both state and federal government to press for more funding to ensure that the Tablelands continues to grow.

1.8 Risk Management

There are number of strategic risks that need to be carefully managed in order to maintain our asset base to the expected standards and continue to provide the current level of service. These risks, existing risk treatments, and residual risk ratings are documented in our corporate risk register and carefully monitored by the Council. These risks are:

- Business Disruption.
- Inability to effectively coordinate response to disaster.
- Poor operational management.
- Inability to effectively engage with the community - poor communication and engagement.
- Legislative Non-Compliance.
- Lack of capacity, skills, or capabilities to meet emerging needs and impacts service delivery.
- Infrastructure planning and delivery fail to meet community and service standards; and
- Risks associated with Climate Change

We are currently in the process of reviewing our operational risks relevant to water services.

1.9 Monitoring and Improvement Plan

This Water Asset Management plan has identified 25 improvement actions to improve overall management of water assets in the following areas.

- Asset data management,
- Level of service,
- Condition assessments,
- Renewal program development,
- Operational risk assessment; and
- Resource requirements.



2.0 INTRODUCTION

2.1 Background

The TRC local government area is located in Far North Queensland, about 100 kilometres south-west of Cairns. The considerable range in elevation, rainfall and soil types produce an incredibly diverse and beautiful region encompassing World Heritage rainforests, crater lakes, dry savannah, wetlands, tropical waterfalls and unique birdlife and wildlife. The Tablelands region is perfectly positioned as the food bowl of the tropics and is an ideal outdoor recreation destination.

With the Tablelands an ideal place to raise a family, we are experiencing exponential growth particularly in Atherton, Tolga and Yungaburra. Our population is approaching 27,000 and many of the new arrivals are young professionals with families.



Figure 1: Tablelands Regional Council Area

The TRC provides town water services to 14 communities across the region. These water supply schemes draw from a variety of sources including river, dam and groundwater bores, before passing through treatment systems and a distribution network. These schemes are:

Atherton, Tolga, Kairi, Tinaroo	Millstream North
Bellview Estate	Millstream South
Cassowary Heights	Mt Garnet
Herberton	Ravenshoe
High Country Estate	Tinaroo Park
Malanda/Davies	Walkamin
Millaa Millaa	

2.2 Purpose of the Plan

This Asset Management Plan covers a 10-year horizon and is intended to demonstrate how we will support Council's vision in the provision of water assets to plan, develop and maintain infrastructure that is sustainable. This is achieved by applying the principles of responsible asset management planning, the objective of which is to deliver the required level of service to existing and future customers in the most cost-effective way.

The purpose of the Asset Management Plan is to ensure our water assets fulfil their intended purpose and life expectancy at the most economical cost to the community. It balances financial, design and technical practices with community expectations to achieve this purpose. The key objectives of this plan are to:

- Provide a plan to convey the long-term planning and strategy for the management of our water assets.
- Improve understanding of service level standards and options, while improving customer satisfaction and organisational image.
- Identify optimal whole of lifecycle costs to provide target levels of service.
- Provide the basis for improved understanding and forecasting of asset related management options and costs to meet funding demands.
- Clearly justify long term works programmes and evidence of future funding requirements; and
- Manage the environmental, financial, and reputational risks of asset failure.

2.3 Asset Management Plan Structure

This Asset Management Plan has been prepared using good practice guidance from the *ISO55000 - Asset Management standard, International Infrastructure Management Manual* and has been developed based on existing processes, practices, data, and standards. We are 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 our assets. It is intended that our Asset Management Plans should always reflect as closely as practicable actual practices used in managing its assets. Only in this way will we be best able to ascertain its long-term financial needs for delivering sustainable assets and services.

2.4 Our Water Assets

The following table shows the summary of our water assets.

Asset Class	Asset Type	Asset Quantity
Water	Intakes	16
	Water Mains	417km
	Hydrants	2477
	Valves	2246
	Water Treatment Plants	6
	Booster Pump Stations	17
	Reservoirs	41
	Dams	1
	Water Meters	9369
	Groundwater Bores	18

Table 1: Summary of Water Assets

2.5 Key Stakeholders

The following table presents a list of key stakeholders in water service.

Key Stakeholder	Role in Asset Management Plan
Connected customers	Customers receiving water from Council's water supply network develop community expectations.
Councillors	Represent needs of community/shareholders. Allocate resources to meet planning objectives in providing services while managing risks. Ensure organisation is financial sustainable; and Endorse asset management policy and plan
Executive Leadership Team	Ensure compliance and delivery
Council Officers	Compilation and verification of data. Ensure plan represent the technical and community service levels Review AMPs; and Operate and maintain assets in accordance with the AMP.
Department of Regional Development, Manufacturing and Water	Implementation, monitoring and enforcement of the Water Supply (Safety and Reliability) Act 2008
Queensland Health	Administering the Public Health Act 2005 and Public Health Regulation 2018

Table 2: Key Stakeholders - Water Services

3.0 STRATEGIC ALIGNMENT

This Asset Management Plan is aligned with the TRC Asset Management Policy, Strategic Asset Management Plan (SAMP) and Corporate Plan 2021-2026. The objective of this Asset Management Plan is to support the Tablelands 2030+ Community Plan.

3.1 Strategic Goals and Objectives

Tablelands 2030+ is Council's Community Plan. It outlines the community's aspirations and long-term vision for TRC. The vision of Tablelands 2030+ is:



“We will celebrate and embrace our uniqueness, community connections, First Nations Peoples, diversity, and enviable healthy lifestyle.

We will continue to focus on sustainable provision of assets, business development and regional planning while protecting our natural environment and good quality agricultural land.

We will be inclusive, respecting diversity and providing equitable access to all.

We will be resilient and adaptable, responding to change and opportunities”.

Tablelands 2030+ has been prepared by Council in collaboration with, and on behalf of residents. Responsibility for meeting the long-term community vision and desired outcomes rests with everyone.

The Tablelands 2030+ Community Plan not only provides a clear vision it also sets out the priority steps we can take towards achieving that vision so that we can work together to make the Tablelands the place we want it to be.

The Tablelands 2030+ makes a commitment to outcomes and priority initiatives across several strategic objectives that align with the Community Vision. The key aims and priority areas are:

- Environment,
- Healthy Lifestyle,
- Community,
- Infrastructure; and
- Economy.

Effective asset management supports the strategic objectives and outcomes of Tablelands 2030+ and the delivery of sustainable services and programs. This Asset Management Plan is integrated with Tablelands 2030+ and provides a view (both strategic and in financial terms) of how we propose to manage the water assets that we own and control.



3.1.1 TABLELANDS 2030+ Key Priority Areas – Water Assets

The following table presents the key priority areas relevant to water services in Tablelands 2030+.

Key Priority Area	Aim & Objective	Outcome
Environment	Climate Resilience	Community is prepared for the potential increase in natural disasters Climate impacts are accounted for when planning essential services and infrastructure.
	Sustainable Housing & Development	Onsite water collection for domestic and industrial uses that doesn't require treated water.
Infrastructure	Future Living	Reduction in time taken to apply/ approve infrastructure development
	Serving Community	Efficient and adequate essential services.
Economy	Local Skills	Increased in-region training opportunities.
		Specially skilled workforce unique to region.

Table 3: Strategic Community Objectives – Water Assets

In addition to these key areas, under the strategic theme “Infrastructure” in our Corporate Plan 2021-2026, we are committed to provide **“effective water and wastewater planning and management”**.

The Tablelands Regional Council’s Operational Plan holds an annual list of specific KPIs assigned to the water section. These are reviewed and adopted on an annual basis.

3.2 Water Supply Strategy

The Water Supply Strategy provides a necessary framework for future investment to secure water sources for each of the 14 town water schemes within TRC area. A combination of increased demand, inconsistency in supply, ageing infrastructure and increased health standards have resulted in several town water supply schemes that experience disruptions in service in recent decades and the Strategy provides a roadmap for improving 14 town water supply schemes in the TRC area.

The Strategy outlines the most efficient and effective solutions to improve the quality and reliability of town water supplies and has been informed by a comprehensive assessment of potential options to improve these water supply schemes.

The basis of strategy development has been the provision of appropriate **Water Quality** levels of service for the community, in terms of both water supply source reliability and water quality. Additionally, the ability to deliver water, through a review of the distribution system capacity, and potential benefits of demand management are considered. The key themes within the Water Supply Strategy are:



Strategy Aspect	Strategy Aspect Approach
Water Reliability	Considers the actual reliability of all sources of water available to the system, including potential for restrictions and Council's ability to respond to significant shortfalls in supply (emergency/drought response).
Quality Security	Considers the quality of raw water available to the system, current treatment capabilities and residual water quality delivered to the supply network. Water quality is benchmarked, and necessary upgrades are determined to meet the latest health-based water quality standards.
Distribution Management	Reviewing capacity of distribution system elements to deliver treated water to network and/or major network storages, identifying any necessary upgrades.
Demand Management	Examining the benefits of demand reduction on the overall performance of the system as well as benefits to the council's financial plan.

Table 4: Water Strategy Aspects - Approach

3.3 Council Policies, Strategies and Plans Relevant to Water Assets

The following table shows various Council policies, strategies and plans that are relevant to and support management of water assets.

Policy/Strategy/Plan
Asset Management Policy
Strategic Asset Management Plan
Drinking Water Quality Management Plan
Water Strategy and associated Water Quality Improvement Plans
SCADA (Supervisory Control and Data Acquisition) Strategy
Long-Term Financial Plan
Revenue Policy
10 Year Capital Plan
Communication and Engagement Strategy
Procurement Policy
Enterprise Risk Framework and Corporate Risk Register
Business Continuity Plan



Corporate Plan 2021-2026
TRC Planning Scheme
Operational Plan and Annual Budget
Customer Experience Strategy
Local Disaster Management Plan and Subplans
Climate Risk Management Strategy
Customer Service Standards Water and Wastewater 2020 - 25



4.0 LEVELS OF SERVICE

Levels of Service is the defined quality of service of an asset. Understanding the required level of service is vital for lifecycle management, as this largely determines an asset’s development, operation, maintenance, replacement, and ultimate disposal. In developing the levels of service outlined in this Asset Management Plan, we have given due regard to the following:

Community Requirements (Customer Expectations)	These are the expectations of the customers/community. These expectations must be balanced with the community’s ability and desire to pay (balancing risk, cost, and performance).
Strategic Goals and Objectives (Strategic Drivers)	The lifecycle management of assets (service offered by assets, service delivery mechanism and specific levels of service that Council wishes to achieve) will be consistent with goals and objectives stated in the Community Vision and Council Plan.
Legislative Requirements (Mandatory Requirements)	These are the objectives and standards that must be met, set by legislation, regulations, Codes or Practice, etc that impact the way assets are managed.
Industry Standards and Guidelines (Operating Requirements)	Design and construction standards and guidelines that provide the principles and minimum standards for an asset.

4.1 Customer Research and Expectations

At TRC we realise in order to create a great customer experience we need to work in partnership with our community and respond to our customers’ needs. The Customer Service Strategy 2021-2024 commits TRC to being a leading customer-centric organisation by delivering consistent, respectful and timely customer interactions, customer-focused systems and processes, and enhanced digital and face-to-face opportunities to support customers to transact and interact how they want, when they want.

The TRC Corporate Plan 2021–26 sets the strategic direction for activities and guides the delivery of quality services for our community. Our purpose is to be a community focused, efficient and sustainable organisation. The key strategic themes are:

- Our Organisation — is progressive, efficient, transparent, and collaborative,
- Our Community — is active, inclusive, connected and empowered,
- Our Economy — is growing, diverse, resilient, and agile,
- Our Environment — is valued, managed and healthy; and
- Our Infrastructure — is well planned, integrated and fit-for-purpose.

This strategy aligns with our organisational commitment to:

- Model leadership and good governance,
- Collaborate and build partnerships to plan and deliver quality services,
- Deliver customer focussed systems and processes; and
- Grow a high-performance culture that delivers excellent outcomes and financial sustainability.

It informs and supports several documents including those relating to communication and engagement, economic development, culture, inclusion, information management, community services, planning and development, facilities and complaints.

Evolving customer needs and expectations are captured through:

- Customer feedback — evaluating compliments and complaints,



- Internal feedback — from frontline staff who interact directly with our customers and staff who indirectly influence the customer experience,
- Data analysis — information on our customers, services, and communication/service channels,
- Industry trends — industry and local government trends in delivering quality customer experiences; and
- Community consultation — for example Community Satisfaction Report 2019.

Driving improvements in customer experience will be underpinned by continuous improvement within the focus areas of:

- People are priority,
- Streamlined systems and processes; and
- Access and inclusion.

We will use our customer interactions, internal systems, customer satisfaction surveys, community engagement and third-party audits to collect feedback and be responsive to evolving customer and community expectations, priorities and aspirations.

4.1.1 Community Satisfaction/Importance Rating

Council's community satisfaction survey was conducted between 20 September and 13 October 2019 to measure community perceptions of Council services.

A total of 668 residents across 6 communities completed the survey and was representative across age and gender within the region. The communities were defined by the closest town to where the respondent lives. The 6 communities and corresponding towns are shown in the table below.

Community	Towns
Community 1	Herberton and Wondecla
Community 2	Evelyn, Innot Hot Springs, Millstream North, Millstream South, Mt Garnet, Ravenshoe, and Tumoulin
Community 3	Malanda, Millaa Millaa and Tarzali
Community 4	Lakeside, Pearamon, Tinaroo Park, Tinaroo Waters and Yungaburra
Community 5	Atherton
Community 6	Kairi, Tinaroo, Tolga and Walkamin

Table 5: Communities - Community Survey 2019

The following diagram shows the satisfaction with water services by our communities as per our 2019 community satisfaction survey results.

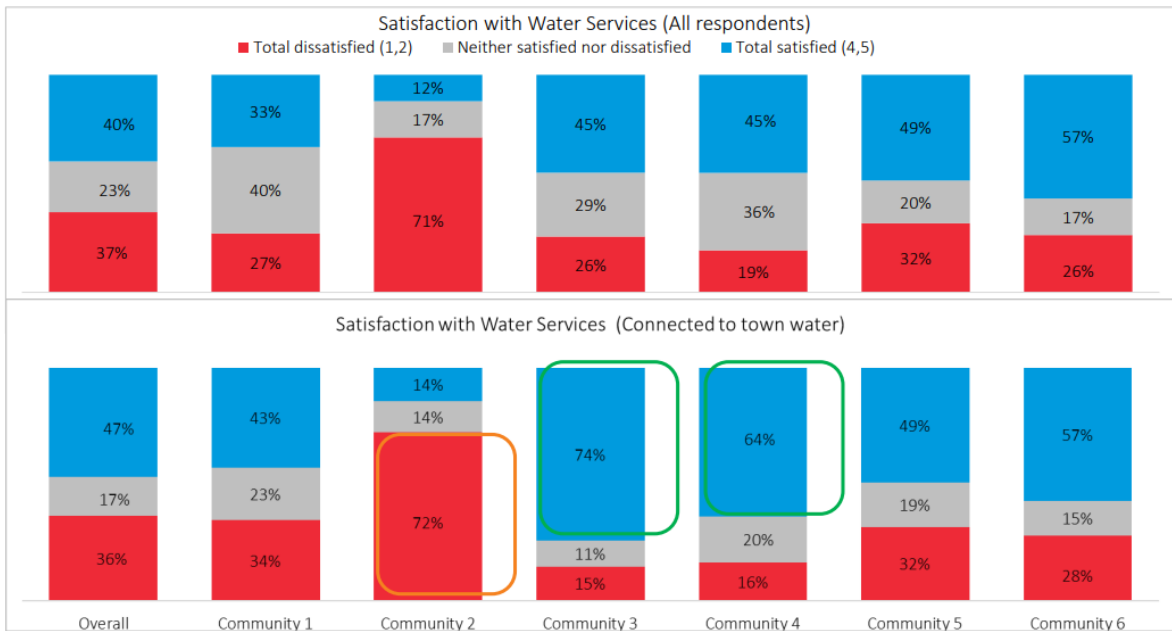


Figure 2: Satisfaction with Water Services by Community – 2019 Community Satisfaction Survey

According to the 2019 community satisfaction survey results, water services has been identified as a service of high importance with high dissatisfaction in some communities.

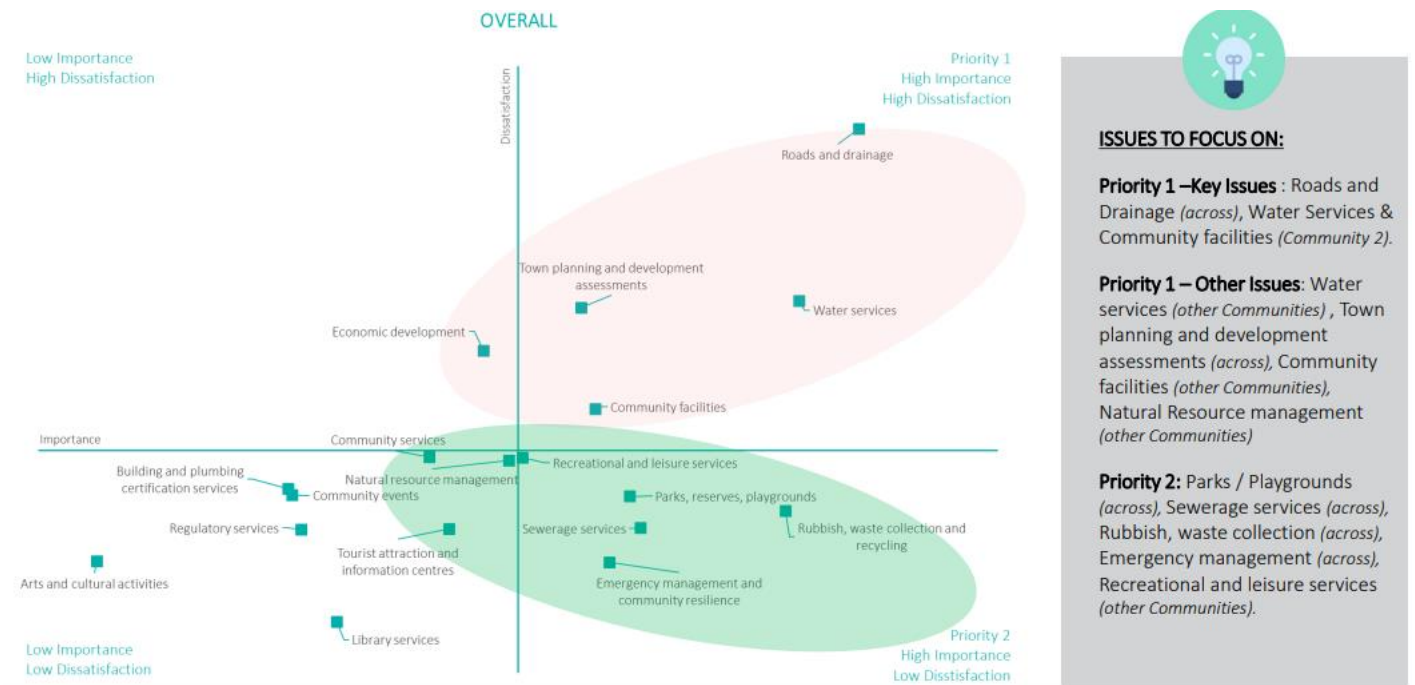


Figure 3: Rating-Water Services - 2019 Community Satisfaction Survey

Improvement Opportunity

1. Conduct a community engagement process to identify community expectations in relation to water services in communities with high dissatisfaction ratings.

4.2 Legislative Requirements

There are many legislative requirements relating to the management of assets. The following table shows a list of the main legislations applicable to water assets.

Legislation	Requirement
<i>Local Government Act 2009</i>	This Act provides for the transparent and equitable conduct of elections of councillors of Queensland's local governments. The Act also ensures and reinforces integrity in Queensland's local governments.
<i>Water Act 2000 (Qld)</i>	Provides a framework for the planning, allocation and use of surface water and groundwater in Queensland, including regulating major water impoundments (e.g., dams and weirs) and extraction through pumping for irrigation and other uses.
<i>Water Supply (Safety and Reliability) Act 2008</i>	Applies to all drinking water service providers. This includes all councils or organisations, which own water infrastructure and intend to charge for the supply, involved in treating, transmitting, or reticulating water for drinking purposes. Water service providers are required to have a drinking water quality management plan (DWQMP) in place and comply with the plan and any conditions placed upon the plan.
<i>Work Health and Safety Act 2011</i>	Sets out roles and responsibilities to secure the health, safety, and welfare of persons at work and covering injury management, emphasising rehabilitation of workers particularly for return to work. Organisations are to provide a safe working environment and supply equipment to ensure safety.
<i>Environmental Protection Act 1994</i>	Sets out the framework for the protection of Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends.
<i>Public Health Act 2010</i>	Addresses a range of public health matters, such as notification of diseases and conditions and the regulation of areas that have the potential to affect public health, such as drinking water, water cooling systems, skin penetration and public swimming pools. The Act sets out a series of legislative requirements governing a wide range of public health issues including water.
<i>Dams Safety Act 2015</i>	Provides the management requirements and risks that may arise in relation to dams (including any risks to public safety and to environmental and economic assets) are of a level that is acceptable to the community, proper and efficient management in matters relating to dam safety and the application of risk management and the principles of cost benefit analysis in relation to dam safety.

Table 6: Legislations Relevant to Water Service

4.3 Industry Standards and Guidelines

The Australian Drinking Water Guidelines (ADWG) are non-mandatory standards, designed using the best available scientific evidence to address both the health and aesthetic quality of supplying good quality drinking water. The ADWG are intended for use by all agencies involved in the supply of drinking water including catchment and water resource managers, drinking water suppliers, water regulators, and health authorities. They set the standards that our water assets are designed to achieve.

The majority of standards applicable to our water infrastructure are covered by the Water Services Association of Australia (WSAA), the Far North Queensland Regional Organisation of Councils (FNQROC) Development Manual , along with a range of other industry standards.

4.4 Levels of Service

Levels of service are generally set based on legislative and compliance obligations, and historical standards that we have used in the past. To support this, we have prepared high level performance measures to monitor the effectiveness of its service delivery for community and technical levels of service. In future, we expect to undertake community consultation to validate our 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.

4.4.1 Customer Levels of Service

Customer Levels of Service measure how the customer receives the service and whether value to the customer is provided. Customer levels of service measures used in the Asset Management Plan are:

Quality	How good is the service ... 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?

Table 7: Customer Service Measures

We are committed to the delivery of water services to the Tablelands community and our Customer Service Standards Water & Wastewater 2020-25, detail our obligations, expectations from the community, levels of services and processes. As part of our commitment we have established and strive to achieve the performance measures in Table 8.

Performance Measure	Target Performance	Current Performance 2022
Water main breaks	Less than 17 per 100km of pipe	7.5
Unplanned water interruptions	Less than 250 incidents per 1000 connections	28.7
Response time	Maximum of 5 hours	100%
Water quality complaints	Less than 10 per 1000 connections	1.7
Water service complaints	Less than 50 per 1000 connections	1.1
Water quality sampling	More than 98% of water quality samples taken each year will contain no Escherichia coli.	100%

Table 8: Customer Service Standards

4.4.2 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 the items in table 9.



Operations (Reliability, Safety, and Responsiveness)	The regular activities to provide services
Maintenance (Reliability, Safety, and Responsiveness)	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
Renewal (Condition and Cost)	The activities that return the service capability of an asset up to that which it had originally
Asset Improvements (Availability, Function, Sustainability and Capacity)	The activities to provide a higher level of service or a new service that did not exist previously.

Table 9: Technical Service Measures



We are currently in the process of developing our technical levels of service. The following table shows technical levels of service indicators that are part of our annual reporting to Queensland Government in 2022 and two new indicators; asset renewal ratio and asset consumption ratio as stipulated by Department of State Development, Infrastructure, Local Government and Planning.

	Performance Indicator	Performance Measure	Target	Reported (2022)
Operations & Maintenance	Annual Maintenance Cost	TBD	TBD	\$4,088,000
	Confidence that water demands will be met over the next 18 months	TBD	TBD	High
	Confidence that water demands will be met over the next 5 years	TBD	TBD	High
	Operating cost per property	TBD	TBD	\$787
	Operating cost – water	TBD	TBD	\$10,618,000
	Volume of water imported from other schemes	TBD	TBD	275ML
	Volume of real and apparent water losses (NRW)	TBD	TBD	1583ML
Capital Works	Forecast 5 Year Average annual renewals	TBD	TBD	\$1,526,000
	Percentage of capital works completed	TBD	TBD	TBD
	Asset renewal ratio	TBD	TBD	N/A
Finance	Asset consumption ratio	TBD	TBD	N/A

Table 10: Technical Level of Service Indicators (Proposed)

Improvement Opportunity



2. Review current technical levels of service.
3. Adopt and document technical levels of service.

5.0 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.

5.1 Demand Forecasts and Impacts on Assets

The present position, demand drivers, and their potential impacts on future service delivery and use of assets are presented in the table below.

Demand Drivers	Present Position	Projection	Impact
Population Change	26,844 in June 2022	27,243 by 2031	Future population growth will generate additional demand for water infrastructure.
Increase in Levels of Service	Council is in the process of evaluating current levels of service.	It is expected that levels of service will increase to meet legislations as they change, and to meet customer expectations.	Increase in capital costs. Increase in operational costs. Additional resource requirements.
Aging Infrastructure	Current water asset consumption is 41% indicating an aging asset base	Assets will continue to age. Timely renewal of aging assets based on the condition will help alleviate impacts of aging assets.	Increase in maintenance and renewal requirements. Risks associated with potential asset failures.
Climate Change	<p>The <i>Bureau of Meteorology and CSIRO 2022 State of the Climate</i> report outlines the following impacts of climate change in Australia:</p> <ul style="list-style-type: none"> Australia's climate has warmed by an average of 1.47 ± 0.24 °C since national records began in 1910. Sea surface temperatures have increased by an average of 1.05 °C since 1900. <p>This has led to an increase in the frequency of extreme heat events over land and sea.</p>	<p>Water assets are impacted by a range of changing climate conditions:</p> <ul style="list-style-type: none"> More intense and frequent rainfall. More severe drought periods. Changes to humidity levels. Longer and more intense heat spells. Changes in ground water levels 	<p>Higher levels of deterioration may result in increased asset maintenance requirements and changed schedules to maintain asset in a serviceable condition, resulting in increased maintenance costs.</p> <p>Frequent drying and wetting of soil causing stabilisation issues in buried pipes.</p>



Demand Drivers	Present Position	Projection	Impact
Council Financial Sustainability	Utility charges are the main source of funding for renewal, upgrade and new projects.	May result in funding constraints for future projects.	Achieving equitable distribution of resources. Ensure community receives maximum benefit from the investment in water infrastructure.
Community Satisfaction	Poor rating of water supply and service	Increased expectations from the community	Council will be expected to revisit asset intervention levels to meet community expectations. Need for management of community expectations.
Changes in Legislation	Council is required to meet all legislative requirements relevant to water services.	The changes in legislation may add an additional demand for asset upgrades.	Increased monitoring, reporting, and increased operational, capital and compliance costs.

Table 11: Demand Drivers, Projections, and Impact on Water Service

5.2 Water Supply Demand

The following plots provide population and demand projections for all communities, as considered in the Water Strategy. Demands vary from between 430 Litres per equivalent person per day, up to 750 Litres per equivalent per day across the various communities, as a result of different land uses, community profile and local climate for each locality.

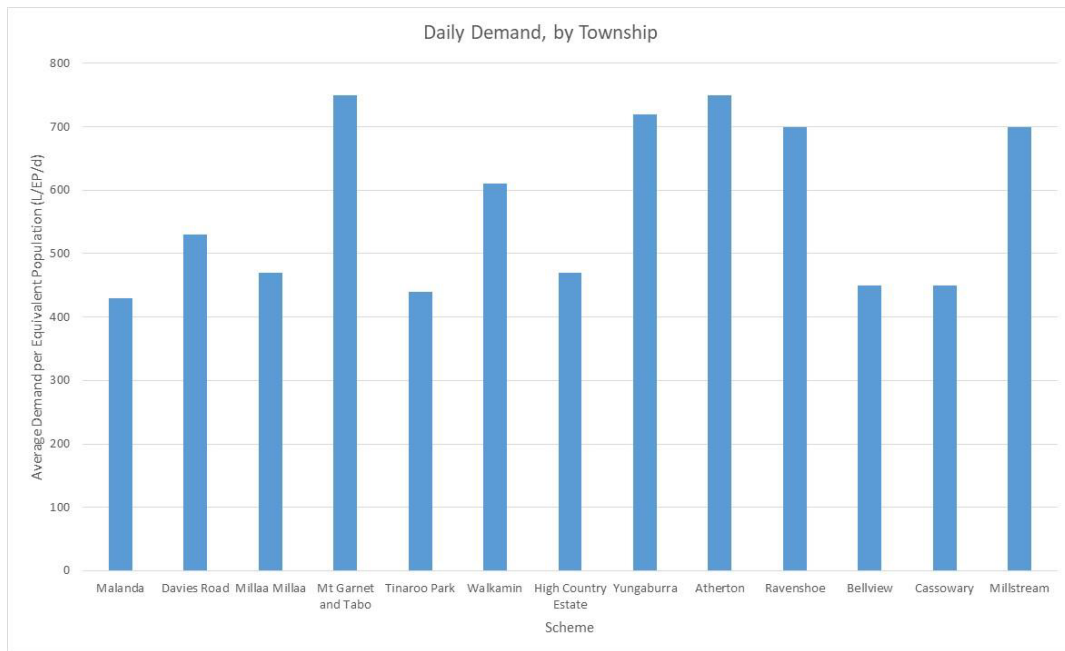


Figure 4: Daily Demand by Township (Source: Water Strategy 2021)

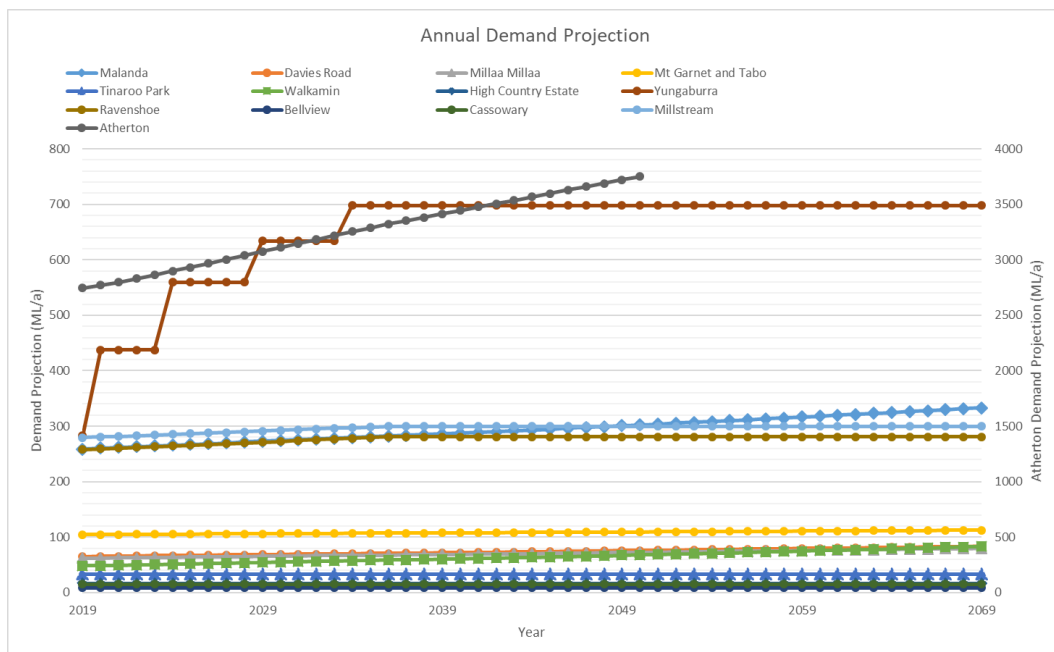


Figure 5: Demand Forecast - Water Schemes (Source: Water Strategy 2021)

5.3 Demand Management Strategy

Demand management (DM) is a term that describes initiatives to reduce the amount of water that is used by consumers. Reducing the amount of water being supplied can help to:

- Improve the reliability of a water supply scheme,
- Lengthen the life of infrastructure,
- Delay the need to upgrade infrastructure,
- Reduce the amount of water being drawn from the environment; and



- Delay the time until alternative supplies are operated during drought and the costs associated with operating the alternative sources.

TRC has engaged AECOM Pty Ltd to develop a Water Demand Management Strategy including the consideration of initiatives such as:

- Efficiency based initiatives (e.g., efficient fixtures, permanent conservation measures),
- Introduction of smart metering,
- System leakage reduction; and
- Education campaign.

The table below presents the additional strategies being implemented to meet the current projected demands on water assets.

Demand	Demand Management Activities
Population Change/Increase in Level of Service/Changes in Legislation	Continue to implement Water Strategy actions
Increased Community Expectations	Prepare long term water asset maintenance and renewal programs.
Achieve Financial Sustainability	Review asset criticality, inspection programs and maintenance programs to identify improvements.
	Conduct level of service analysis including community desired level of service and review affordability and risks.
Adapting to climate change	Ensure that the Financial Plan and Asset Plan are integrated and reflect future asset needs.
	Undertake impact analysis of climate change on water assets. Use results of recent flood studies/modelling to identify impact on water assets.
Design Standards	Ensure design standards take into consideration climate change, local conditions, increasing demand and whole of life costings.

Table 12: Demand Management Strategies – Water

5.4 Programs to Meet Demand

New and upgrade projects to meet our future demand included in the 10 Year CAPEX program are listed in table 13.

		Program	10 Year Total
Upgrade	Raw Water	Barron River intake upgrade	\$450,000



		Bore level monitors and bulk water meters - Compliance requirement	\$450,000
		Upper Barron Intake Rd upgrade	\$150,000
		Wild River Dam - Compliance matters	\$100,000
		Water Strategy Yungaburra - Water intake renewal	\$1,020,000
	Water Mains	Network improvements - Beech St: Elm to Gillies Hwy Yungaburra	\$250,000
		Network improvements - Pressure boosting HZ - Atherton	\$405,000
		Network improvements -Extension of Logan St to Weaver St 300mm main - Atherton	\$80,000
		Water Strategy Yungaburra - Water main upgrades	\$918,000
		Water Network Improvements	\$450,000
		Water Strategy Atherton - Concept design for network upgrades growth driven	\$200,000
	Water Treatment	High Country Chlorination upgrade	\$50,000
		Water Strategy Millaa Millaa - Water treatment plant upgrade	\$350,000
		Water strategy Mount Garnet - Water treatment plant improvements	\$1,640,000
		Water Strategy Yungaburra - Water treatment plant upgrade	\$882,900
		Water Strategy Ravenshoe - Project management contract admin Ravenshoe WQIP	\$385,000
		Water Strategy Ravenshoe - New water treatment plant Ravenshoe and pipelines to Millstream	\$15,678,400
New	Power Supply	Emergency power supply - Generators water, wastewater and waste sites	\$700,000
	Water Strategy	Water Strategy Atherton - New transfer pump station Atherton to Tolga	\$218,000
		Water Strategy Atherton - Tolga transfer pump station and pipes from Atherton - 7,640m 50l/s @35m head	\$4,411,600
		Water Strategy Atherton - NW sector bore investigation and installation	\$1,100,000
		Water Strategy Atherton - Water transfer pipelines from new NW bore to 12th Ave reservoir	\$11,325,200
		Water Strategy Walkamin - New bore and transfer mains	\$925,000
		Water Strategy Malanda - Interconnect Malanda and Davies Road supplies	\$7,270,000

Table 13: Planned New and Upgrade Capital Programs to Meet Demand



6.0 LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how we plan to manage and operate the assets at the agreed levels of service while managing life cycle costs.

We are the custodian of a portfolio of water assets with a replacement value of \$183.2 million as reported in our financial statements as at 30 June 2023. These assets require ongoing planning and management to meet both stakeholder and legislative requirements within the financial resources available to us. Our water portfolio is summarised in the table below.

Asset Class	Asset Type	Quantity	Replacement Value	Accumulated Depreciation	Written Down Value
Water	Distribution Network	417km Water Mains	\$156,896,674	\$68,179,320	\$88,717,355
		2477 Hydrants			
		2246 Valves			
	Pump Stations	43	\$8,596,816	\$3,772,952	\$4,823,864
	Raw Water Supply	1 Dam	\$8,354,435	\$266,357	\$8,088,078
		17 Bores			
	Storage	53 Reservoirs	\$2,064,315	\$595,194	\$1,469,122
	Water Treatment Plant (WTP)	6 WTPs	\$7,299,942	\$2,664,049	\$4,635,893
Total			\$183,212,183	\$75,477,871	\$107,734,311

Table 14: Financial Summary – Water Assets

The responsibility of managing roads and buildings supporting water services are currently being reviewed by the executive leadership team.

Improvement Opportunity



4. Clarify roles and assign responsibilities for asset management of roads and buildings supporting water services.

6.1 Asset Data & Information

Council is committed to maintain the currency of all water asset data. There are a number of initiatives currently underway to improve asset data and systems to centralise water asset information:

- Understanding all capabilities of new Asset Management Information System (TechOne), including staff training,
- Water asset data cleansing; and
- Development of data hierarchy for water assets.


The current asset register does not contain all relevant attribute data of water assets, highlighting the need for register review and collection of relevant attribute data.

The information handover process of gifted assets and new assets created as part of the capital works program and new developments needs to be improved and streamlined in order to keep asset registers up to date.




It should also be noted that, while asset inspection programs are in place for key assets, currently we do not systematically record maintenance history of all water assets and this poses a challenge for informed decision making, particularly when it comes to renewals and resource allocations.

Improvement Opportunities



5. Continue cleansing of water asset data.
6. Develop a data schema for water assets.
7. Review all asset data and collect missing information.
8. Develop an asset hierarchy for all water assets.
9. Configure new asset hierarchy in the Asset Management Information System (AMIS).
10. Upload all water asset data on to AMIS and Geographic Information System (GIS).
11. Align financial asset register with the register within AMIS.

Improvement Opportunities



12. Review asset handover process upon completion of capital works, identify gaps, and implement improvements.
13. Review asset handover process for assets created by new developments, identify gaps, and implement improvements.

6.2 Data Confidence

Data is important in underpinning our approach to consistent levels of service, asset management, and investment decision making. It is therefore important for us to understand the data we have available on our assets, the level of confidence there is in that data, and any data gaps that may exist. Descriptions of each of the confidence levels are provided in Table 16. The data confidence assessment structure is based on the International Infrastructure Management Manual and the dimensions used are those that are considered to be the foundation for enabling good practice asset management.

Confidence Level	Description
High	Data based on sound records, procedures, investigations, and analysis, documented properly but has minor shortcomings. Dataset is complete and estimated to be accurate $\pm 10\%$
Medium	Data based on sound records, procedures, investigations, and analysis which is incomplete or unsupported, or extrapolated from a limited sample. Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated $\pm 25\%$
Low	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 $\pm 40\%$

Table 15: Data Confidence Level Description

Whilst the condition data from the valuation registers provides the best available source of consolidated condition information, the asset register may not accurately reflect the existing assets in operation and the condition data may not reflect the current condition of the assets.

The following table presents the current confidence level of water asset information.

Asset Category	Asset Type	Completeness of Asset Register	Attribute Details	Spatial Data	Condition Information	Maintenance History
Distribution Network	Cl Dosing	Low	Low	Low	Medium	Medium
	Flow Control	Medium	Medium	Medium	Medium	Low
	Mains	High	Medium	High	Medium	Medium
Pump Station	Booster	Low	Low	Medium	Low	Low
Raw Water Supply	Bore	Medium	Medium	High	Medium	Medium
	Surface Water	Low	Low	Medium	Medium	Medium
Storage	Reservoir	Low	Low	High	High	Medium
	Tank	High	Medium	High	High	Medium
WTP	Pump	Medium	Medium	High	Medium	Medium
	Storage	Medium	Medium	High	High	Medium
	Treatment	Low	Low	Medium	Medium	Medium

Table 16: Confidence Level - Water Asset Information

6.3 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 our budgets.

We use a 1 to 5 condition rating system for water assets as described in Table 15.

Score	Condition Rating	Characteristics
1	Very Good	Asset is new or very close to as new.
2	Good	Asset is no longer in new condition. Only minor maintenance may be required.
3	Fair	The asset is serviceable and in a satisfactory condition however some maintenance may be required to address aesthetic, safety, or functional issues.
4	Poor	Asset requires significant maintenance or replacement of the asset is required
5	Very Poor	Asset is physically unsound, and replacement is required

Table 17: Condition Rating System



Our condition grading system follows good practice guidance as provided by various industry standards including the *International Infrastructure Management Manual*. Condition data for our water assets is derived from valuation registers as at June 2023 and the derived condition data have been used for renewal modelling.

6.3.1 Current Condition – Distribution Network

Majority of distribution network assets are in very good to fair condition. Approximately 15% of water mains and 88% of the chlorine dosing pumps within the distribution network are in poor to very poor condition. However, it should be noted that the confidence level of condition information of dosing pumps is “medium” (see Table 16). Therefore, confirmation of the condition of the dosing pumps is required prior to renewal intervention.

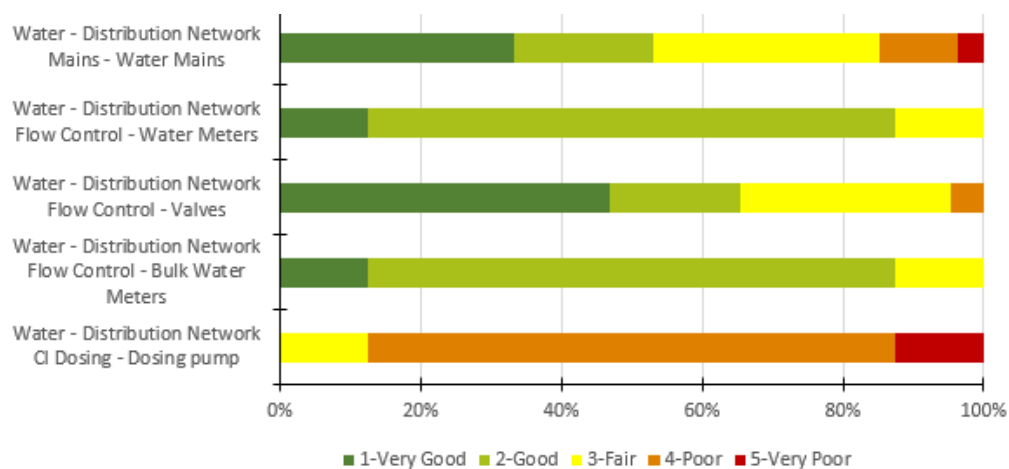


Figure 6: Condition profile – Water Distribution Network

6.3.2 Current Condition – Pump Stations (Distribution Network)

Approximately 35% of pumps, 25% of SCADA assets, and 18% of switchboards are in poor to very poor condition and may require intervention soon. The remaining pump stations assets are in very good to fair condition.

A SCADA Strategy has been completed in 2021 and is currently being implemented over consecutive years to address identified condition issues.

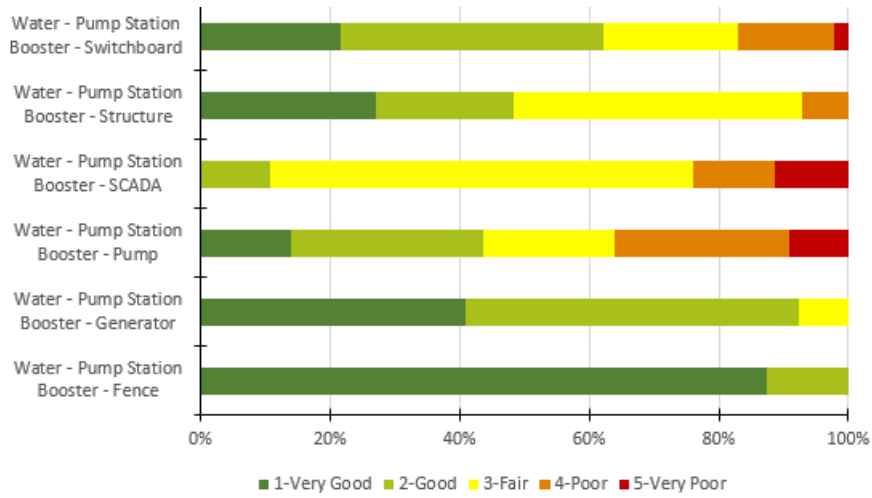
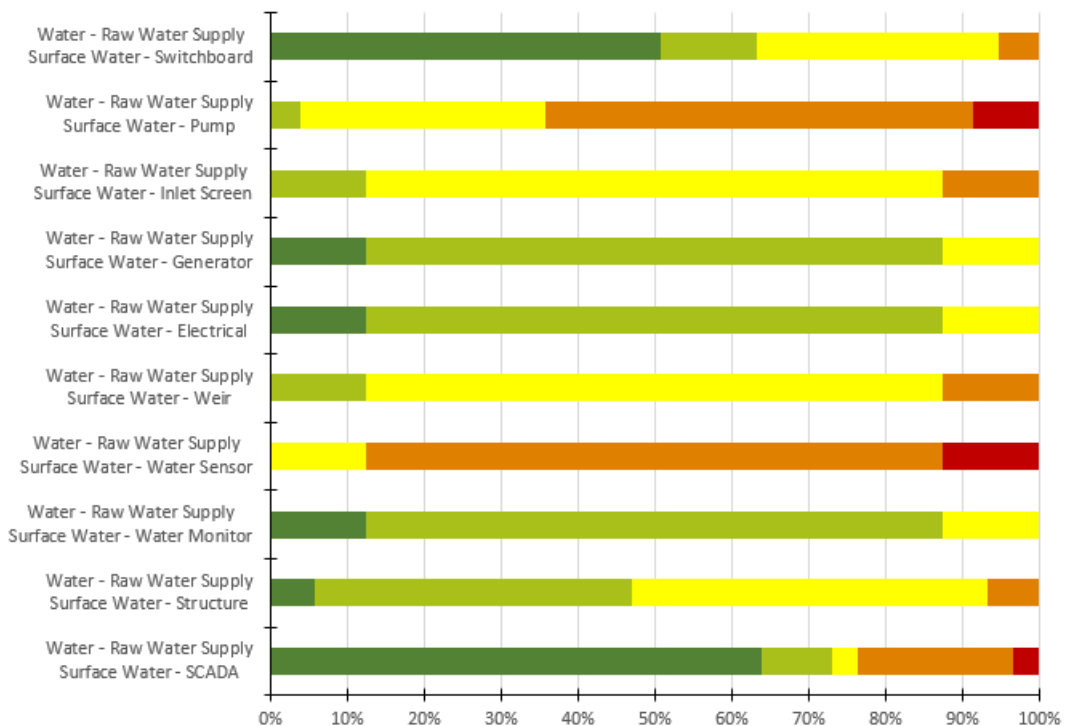


Figure 7: Condition profile – Water Pump Stations

6.3.3 Current Condition – Raw Water Supply

Based on the condition data in the valuation reports, surface water pumps and telemetry sensors require inspection in the short-term to ascertain whether the condition reports are valid. If the data reflects current status, then immediate attention may be required for these assets.



It should be noted that the Wild River Dam is a referable dam with routine inspections in place. It recently passed a 5-year inspection with a few maintenance items identified that have been rectified. Therefore, the condition of this dam within valuation data is not reflective of the actual condition of the dam.



It should be noted that Atherton raw water infrastructure which is currently not in use and not planned to be used for several decades has been included in this AMP. It also includes Ravenshoe intake which was recently upgraded. Therefore, condition data presented within valuation information may not be reflective of the actual condition of assets or relevant to current water operations.

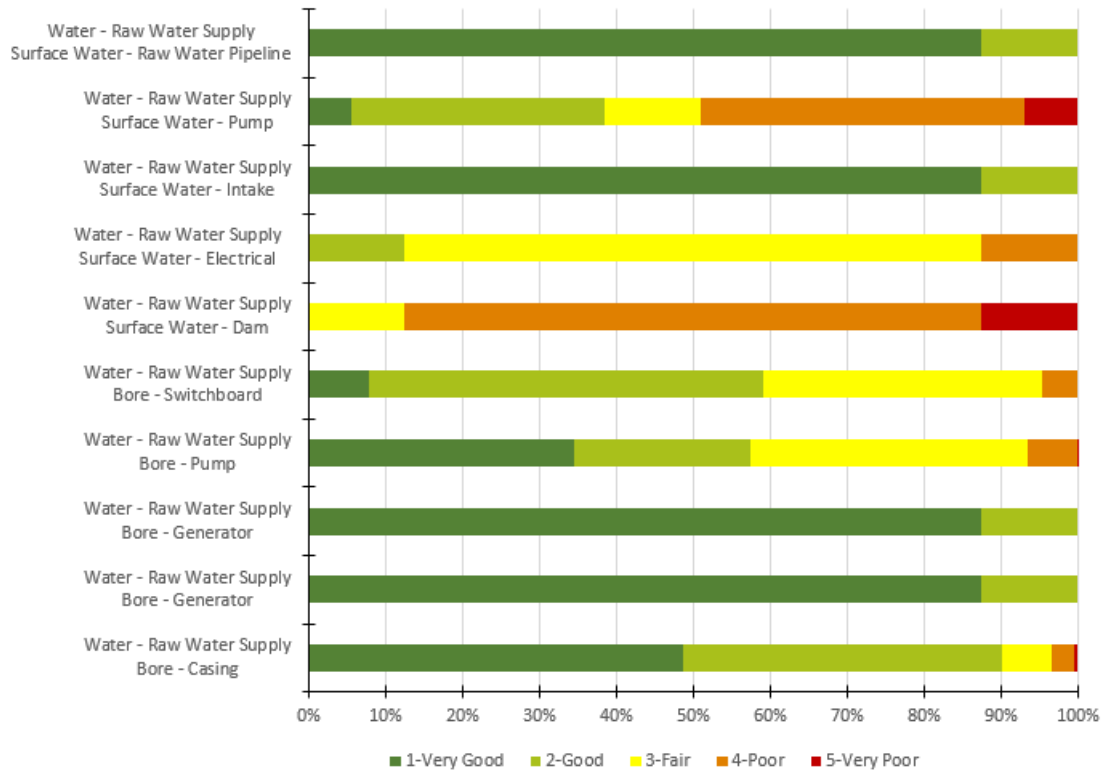


Figure 8: Condition Profile – Raw Water Supply Assets

6.3.4 Current Condition – Water Storage

Approximately 22% of telemetry assets are in poor to very poor condition and would require immediate intervention. A SCADA Strategy has been completed in 2021 and is currently being implemented over consecutive years to address identified condition issues.

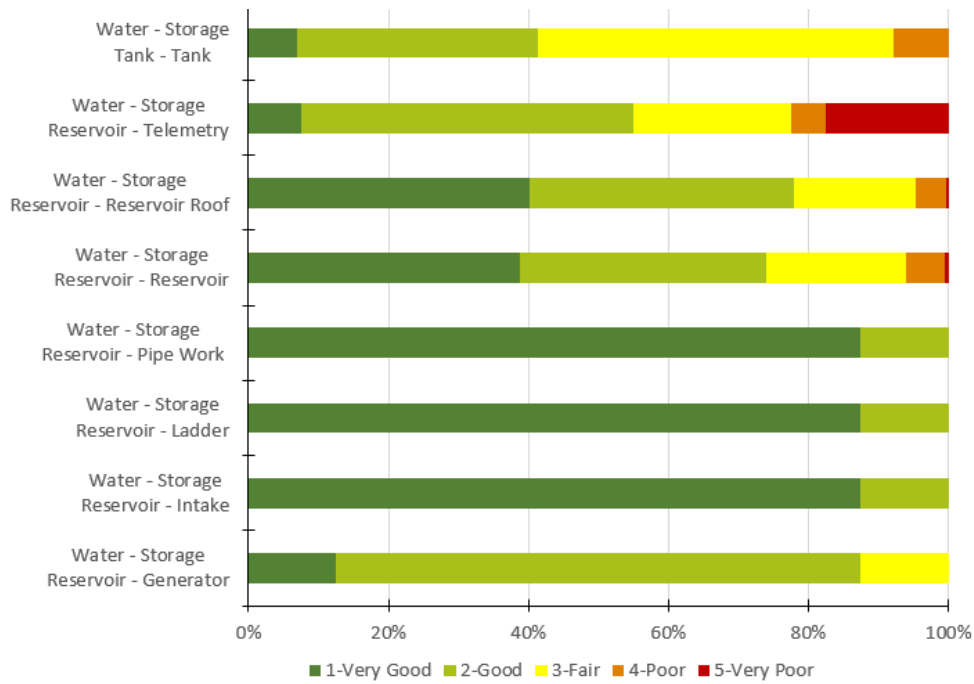
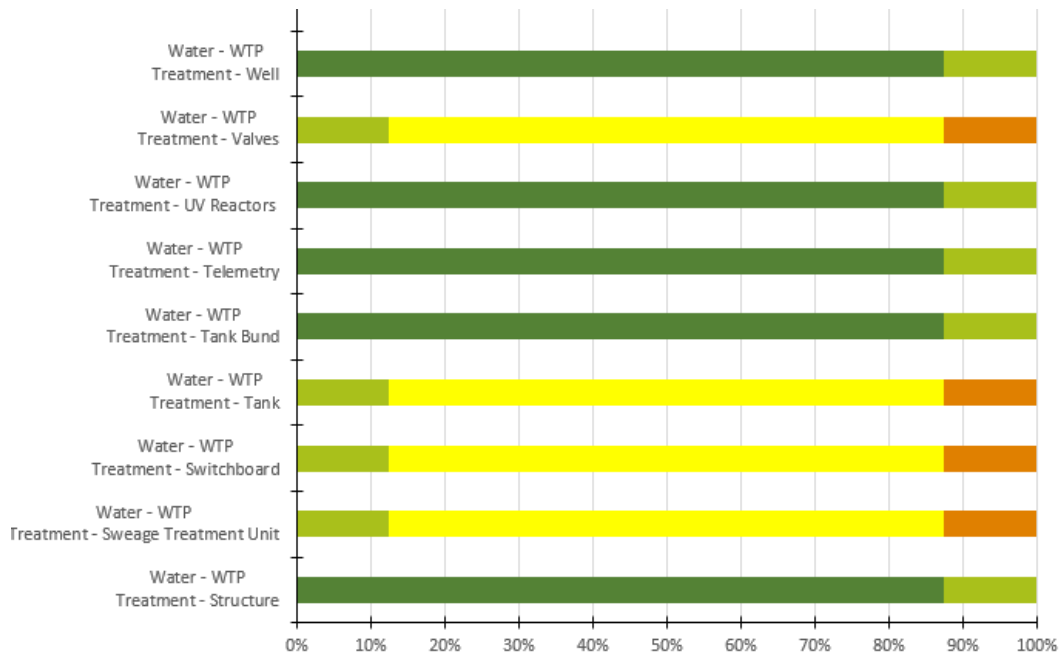


Figure 9: Condition Profile – Water Storage

6.3.5 Current Condition – Water Treatment Plant (WTP)

The majority of WTP assets are in very good to fair condition based on the valuation reports. Some streaming current units, sensors & analysers, pumps, SCADA, and sand filters are poor to very poor condition. The condition of these assets needs to be assessed in the short-term to identify assets that require immediate intervention.



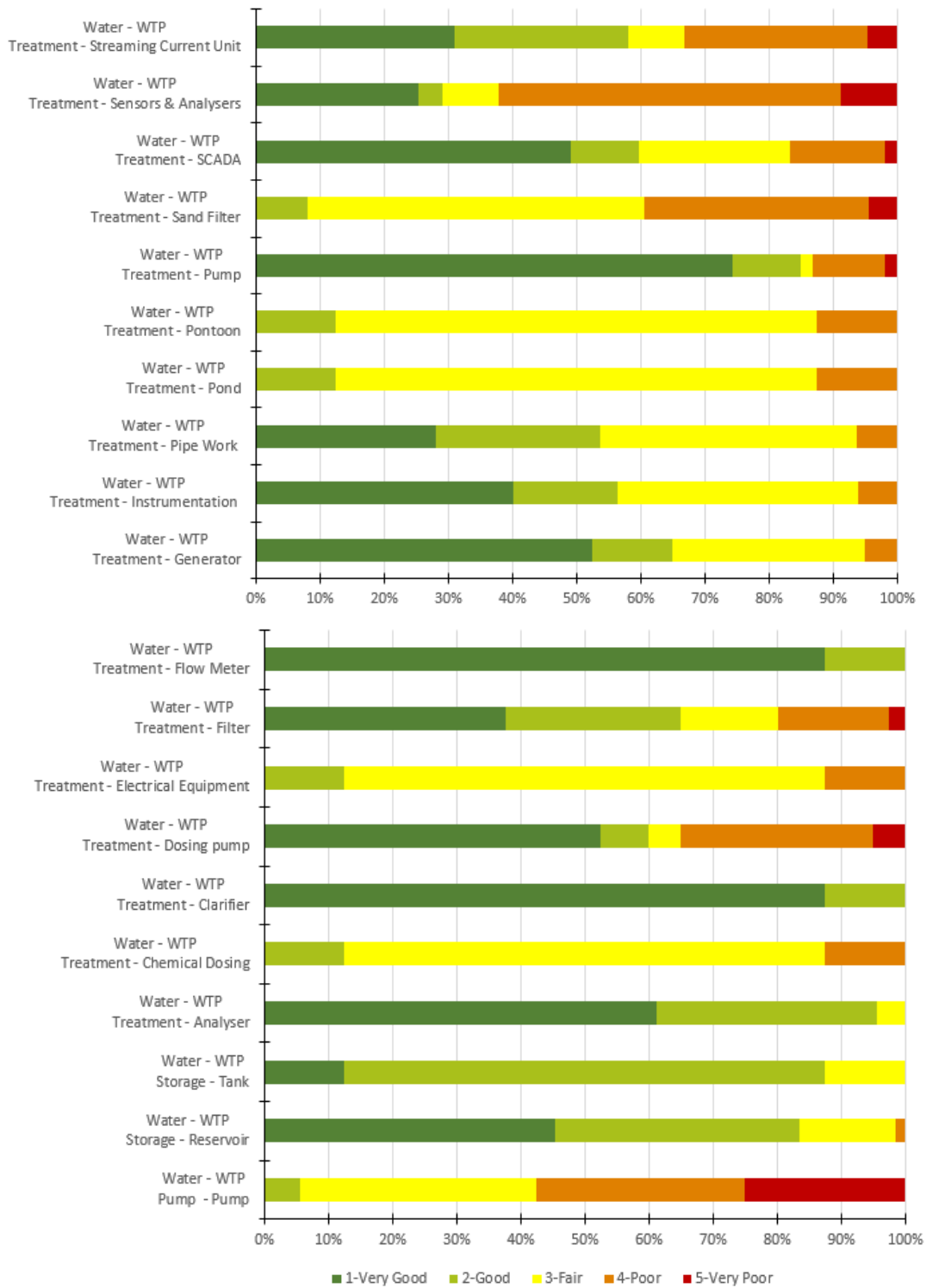


Figure 10: Condition Profile: Water Treatment Plant (WTP) Assets



6.4 Asset Maintenance and Inspections – Water Assets

We carry out a number of maintenance and inspection programs to meet our compliance requirements and ensure that key assets are kept in working order. We are currently in the process of reviewing and consolidating our routine maintenance and inspections schedules for the entire water asset base. We are aiming to provide optimum level of maintenance and care in a financially and environmentally sustainable manner with the available resources.

In order to carry out effective planning and competent management of our water assets, it is essential that maintenance and performance related information is collected through disciplined and regular inspections of the whole portfolio. Some programs we are currently undertaking are listed below:

- All compliance related maintenance and inspections,
- Pump station inspections,
- Dam inspections; and
- Condition assessment of water reservoirs.

However, our inspections and maintenance are predominantly paper based, and we are moving towards implementing a planned maintenance and inspections program.

Improvement Opportunity



14. Develop and implement planned maintenance and inspection program for water assets.
15. Identify resource requirement for implementation of planned maintenance and inspection program.
16. Allocate funding for planned maintenance and inspection programs through the Long-Term Financial plan (LTFP).
17. Review work order management process and identify improvements to record and automate work order management process.



6.4.1 Future Operations and Maintenance Costs

The figure below outlines the forecast operations and maintenance budgets based on the understanding of the current levels of service delivered for our water assets.

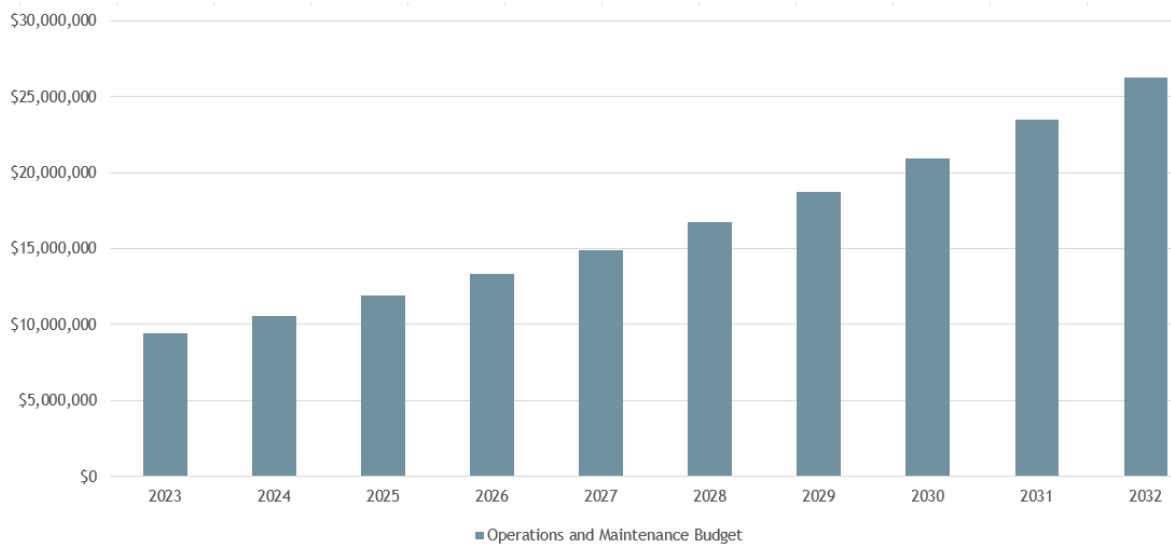


Figure 11: Operations and Maintenance Expenditure

The total operations and maintenance budget over the next 10-years starting 2023/24 is \$129.2 million. This is the required operations and maintenance budget to continue to deliver present service standards over the long term.

The maintenance expenditure requirements comprise two components: routine maintenance and operations, and reactive maintenance. The routine program is made up of ongoing activities required to maintain the amenity, safety, and functionality of our water networks. The increase in the routine program is indicative of the need to fund operations and maintenance associated with the creation of new assets acquired over the period. The majority of these new assets are created through our own capital works program.

The Council is currently meeting all key customer levels of service included in the Customer Service Standards and DWQMP targets under current budget allocations.

As noted above, the planned maintenance and inspection schedules are currently being reviewed. Current budget allocations will be reviewed at the end of this review process to ensure that allocations are adequate to support new planned maintenance and inspection schedules.

6.5 Water Asset Renewals

Renewal is major work that does not increase the design capacity of an asset but restores, rehabilitates, replaces, or renews the 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.

6.5.1 Renewal Strategy

Renewal strategies are based on assessing a range of factors to ensure the appropriate level of investment is targeted at the optimum time to ensure assets remain fit for purpose and that renewal plans are efficient and effective. The factors considered include the following:

- Criticality,
- Maintenance and/or failure history,
- Age,
- Expected life,
- Remaining useful life,
- Condition (where known),
- Condition prediction,
- Geographical grouping,
- Demand and use patterns; and
- Timing in relation to associated asset renewal plans.

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 performance, rate of deterioration, and a prediction of the optimum time to renew.

6.5.2 Renewal Ranking Criteria

In general, renewal works are prioritised and planned by assessing the following considerations:

- Risk and asset criticality,
- Physical condition,
- Ability to meet service levels,
- Safety issues,
- Community/user feedback; and
- Location.

The following indicators are used to determine the criticality of an asset:

- Have a high consequence of failure,
- Have high use and subsequent impact on users would be greatest,
- Have the highest average age relative to their expected lives,
- Are identified in the Asset Management Plan as key cost factors,
- Have high or increasing operational or maintenance costs; and
- Have replacement with a modern equivalent asset that would provide the equivalent service and provide operational savings.

It should be noted that many of our renewals are reactive and there is a need for development of a condition-based renewal program.

Improvement Opportunity



18. Undertake cyclic condition assessments to identify and record asset condition.
19. Develop renewal programs based on observed asset conditions.
20. Develop a renewal ranking and prioritisation criteria.



6.5.3 Summary of 10-Year Water Asset Renewal Program

The following table presents a summary of our 10-year water asset renewal programs.

	Program	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	10 Year Total
Renewal	Chlorine dosing sites asset renewals	\$0	\$40,000	\$40,000	\$40,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$420,000
	Electrical switchboard renewal water, wastewater and waste sites	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$50,000	\$50,000	\$50,000	\$50,000	\$380,000
	Fencing of assets renewal water, wastewater and waste sites	\$0	\$0	\$25,000	\$0	\$0	\$0	\$30,000	\$0	\$0	\$25,000	\$80,000
	High Country storages - renewal of reservoir/pressure pump	\$0	\$0	\$50,000	\$150,000	\$0	\$0	\$0	\$0	\$0	\$0	\$200,000
	Millstream water mains - Replacement of white PVC mains	\$0	\$0	\$100,000	\$100,000	\$100,000	\$250,000	\$0	\$0	\$0	\$0	\$550,000
	Network improvements - replace mains in Kehoe Pl or Ceder St (road upgrade)	\$0	\$0	\$0	\$0	\$150,000	\$0	\$0	\$0	\$0	\$0	\$150,000
	Renewal of buildings across water, wastewater and waste	\$0	\$20,000	\$0	\$20,000	\$0	\$20,000	\$0	\$20,000	\$25,000	\$20,000	\$125,000
	Reticulation and service line renewal	\$100,000	\$150,000	\$100,000	\$150,000	\$100,000	\$150,000	\$100,000	\$200,000	\$200,000	\$200,000	\$1,450,000
	Reticulation water pumps renewal	\$30,000	\$0	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$270,000
	SCADA renewal and upgrade water, wastewater and waste sites	\$250,000	\$250,000	\$250,000	\$200,000	\$200,000	\$200,000	\$150,000	\$200,000	\$200,000	\$200,000	\$2,100,000
	Water Meter replacement	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$100,000	\$100,000	\$100,000	\$825,000
	Water Reservoirs - replace joint seals internally	\$0	\$0	\$0	\$400,000	\$300,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$1,950,000
	Water reservoirs renewal	\$200,000	\$0	\$700,000	\$550,000	\$150,000	\$150,000	\$100,000	\$200,000	\$100,000	\$100,000	\$2,250,000
	Water Treatment Plant ageing infrastructure replacement program	\$75,000	\$0	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$675,000
Water Treatment Plant filter media replacement	\$100,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$100,000	\$0	\$200,000	
Water valve replacement program	\$0	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$50,000	\$50,000	\$270,000	

Table 18: 10 Year Renewal Program – Water Assets

It should be noted that funding allocations for switchboards and SCADA include switchboards and SCADA for water, wastewater, and waste services. Therefore, only 1/3 of total renewal funding was applied for renewal of switchboards and SCADA within water services. Renewal funding for buildings and fencing have been omitted from the water renewal forecast modelling.



6.5.4 Renewal Modelling Assumptions

The analysis to determine future asset renewal requirements is based on the best available information held by the Council. The future funding forecasts will be revised and refined to best represent the performance of the asset base as the maturity of the asset management practices improves.

The renewal funding projections presented within this asset management plan are based on the following assumptions:

- The renewal costs are based on the asset data register as of 1 July 2023,
- Asset quantities and financial information within the current asset registers are assumed to be correct,
- Asset condition was derived using useful life, accumulated depreciation, and replacement cost of assets presented in the financial information,
- Intervention standards is based on providing a balanced level of service before assets reach “very poor” condition,
- The renewal models are subject to the limitations of the CT Management renewal model and data used in it, which includes assumed performance of the asset types, deterioration curves, and trigger intervention levels,
- Useful lives for water assets are Council’s adopted lives and are assumed to be a reasonable estimate of the life of the water assets,
- All projections are in present dollar value,
- Future renewal funding levels are derived from the Financial Plan,
- Service levels are based on current service levels and may not reflect community expectations; and
- Water asset hierarchy built for the purpose of renewal modelling was not provided within the financial information. The hierarchy adopted for renewal modelling is a reasonable approximation of the hierarchy of water assets.

6.5.5 Asset Useful Lives

The following table shows a high-level summary of useful lives of water assets.

Asset Category	Asset Type	Asset Sub Type	Useful Life (Years)
Distribution Network	CI Dosing	Dosing pump	7
	Depot	Safety Kit	6
		Generator	25
	Flow Control	Bulk Water Meters	11
		Valves	30
		Water Meters	3
	Mains	Water Mains	100
		Water Sampling Point	20
Pump Station	Booster	Dosing pump	20
		Fence	30
		Generator	25
		Prefilter	7
		Pump	25
		SCADA	20
		Structure	45
		Switchboard	25
Raw Water Supply	Bore	Casing	55
		Generator	25
		Pump	20
		Switchboard	30
	Surface Water	Dam	80
		Electrical	30
		Intake	50
		Pump	20
		Raw Water Pipeline	50
		SCADA	20
		Structure	50
		Water Monitor	7
		Water Sensor	7
		Weir	80
		Electrical	30
		Generator	25
		Inlet Screen	80
		Pump	15
Switchboard	30		



Storage	Reservoir	Generator	25
		Intake	60
		Ladder	30
		Pipe Work	40
		Reservoir	65
		Reservoir Roof	35
		Telemetry	30
WTP	Tank	Tank	55
	Pump	Pump	20
	Storage	Reservoir	50
		Tank	50
	Treatment	Analyser	15
		Chemical Dosing	20
		Clarifier	40
		Dosing pump	15
		Electrical Equipment	20
		Filter	30
		Flow Meter	20
		Generator	25
		Instrumentation	20
		Pipe Work	60
		Pond	80
		Pontoon	20
		Pump	20
		Sand Filter	50
		SCADA	20
		Sensors & Analysers	10
		Streaming Current Unit	10
		Structure	80
		Sewage Treatment Unit	20
		Switchboard	30
		Tank	15
		Tank Bund	15
		Telemetry	15
UV Reactors	20		
Valves	20		
Well	60		

Table 19: Useful Life- Water Assets



6.6 Overall Renewal Forecast and Budget – Water Assets

Capital budget renewal forecasts have been developed primarily from condition ratings and financial useful lives in valuation reports where available, and where not available aged-based data as an indicative guide. The data confidence levels in table 16 reflect the varying levels of confidence in the completeness of the asset registers and the accuracy of the condition ratings. However, with asset registers now consolidated and a project to optimise asset records underway, future budgets are expected to be amended. This project will strengthen our records and provide data confidence enabling enhanced forecasting of new, renewal and upgrade works. On completion of this project, our LTFP will align with the endorsed capital requirements identified.

The following graph shows:

- Level of funding required for renewal of water assets to achieve our service level objectives,
- The amount of funding which we are projected to commit for renewal from our current Long Term Financial Plan (LTFP); and
- Total renewal demand over the next 10 years (\$26 million).

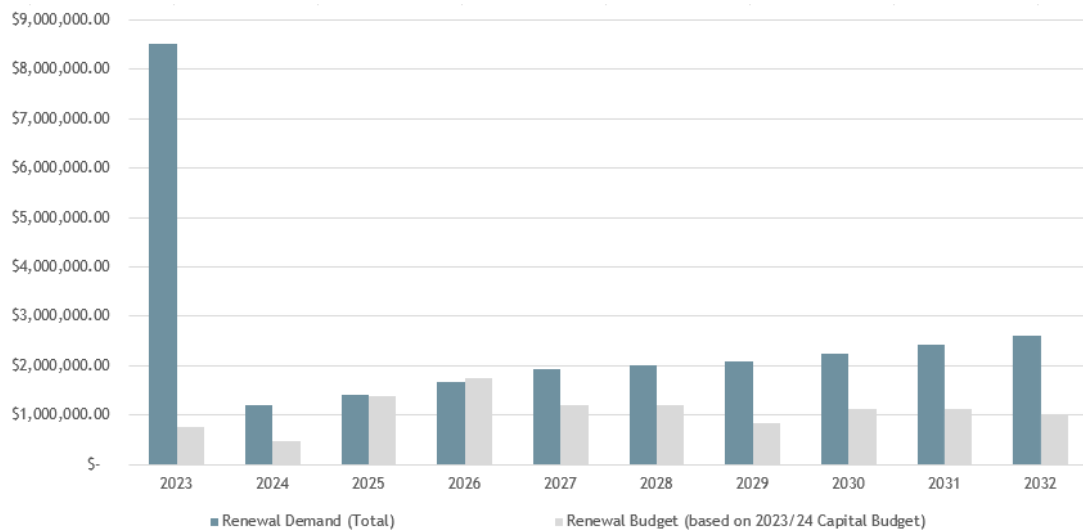


Figure 12: Renewal Forecast Vs Renewal Budget - Water Assets

The Following graph shows the distribution of overall condition of water assets over the next years under current funding levels. It is forecasted that the value of assets in “very poor” condition will increase from \$5.2 million to \$17.9 million over the next 10 years under current funding levels.

Therefore, it is important to conduct condition assessments of all water assets which will further strengthen the level of confidence in data. The renewal programs based on observed condition data oppose to age-based condition data will enable enhanced long-term renewal forecasts.

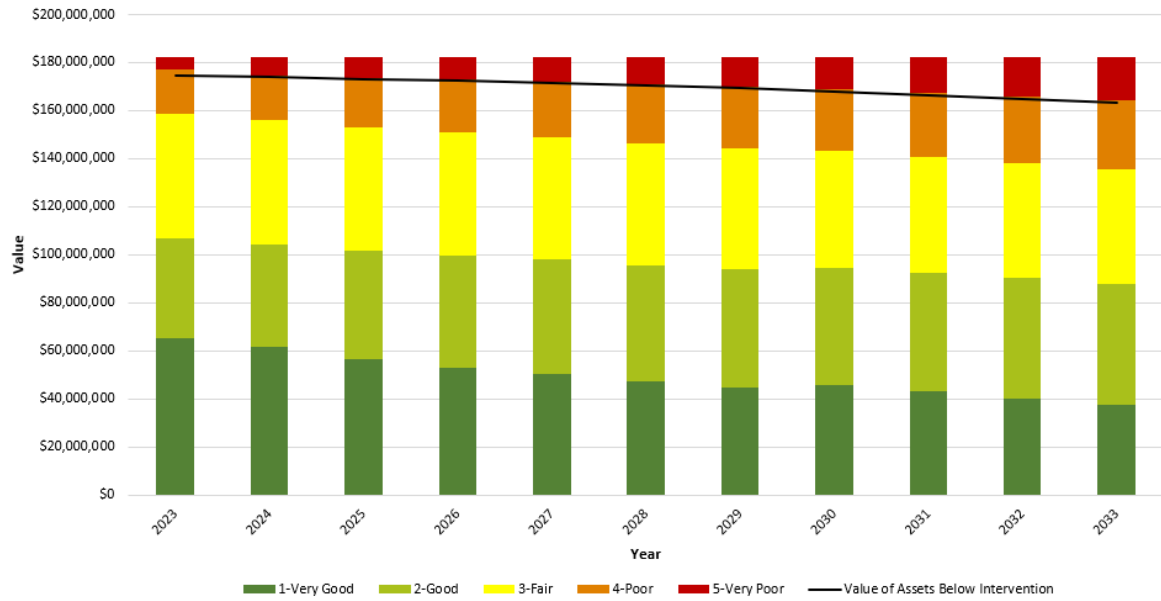


Figure 13: Condition Distribution of Water Assets Over 10 Years

Improvement Opportunities



21. Review current renewal funding allocations to identify gaps.



6.7 New/Upgrade/Expansion Plan

Decisions pertaining to the acquisition (new), upgrade, and expansion of an asset is carried out taking into account full lifecycle costing of the planned asset. The following criteria is used when budget proposals are prepared.

- Capital cost of the asset,
- Total borrowing costs associated with acquisition of the asset (if any),
- Total capital outlay required for the asset (sum of the above),
- Expected annualised maintenance & operational costs associated with the asset,
- Expected reduction in any existing annualised maintenance & operational costs via efficiency gains or asset rationalisations,
- Expected annualised renewal costs associated with the asset,
- Total annualised lifecycle cost (sum of the above annualised costs),
- Total lifecycle cost (total annualised cost times useful life); and
- Forecasted net position after acquisition, and consequences of not acquiring the asset.

The current forecast is based on water new and upgrade capital projects included in the capital works program. Total forecast expenditure on water new, upgrade, and expansion projects totals \$48.9 million over the next 10 years which is an average of \$4.89 million per annum.

Projected upgrade/new asset expenditures are shown in the graph below.

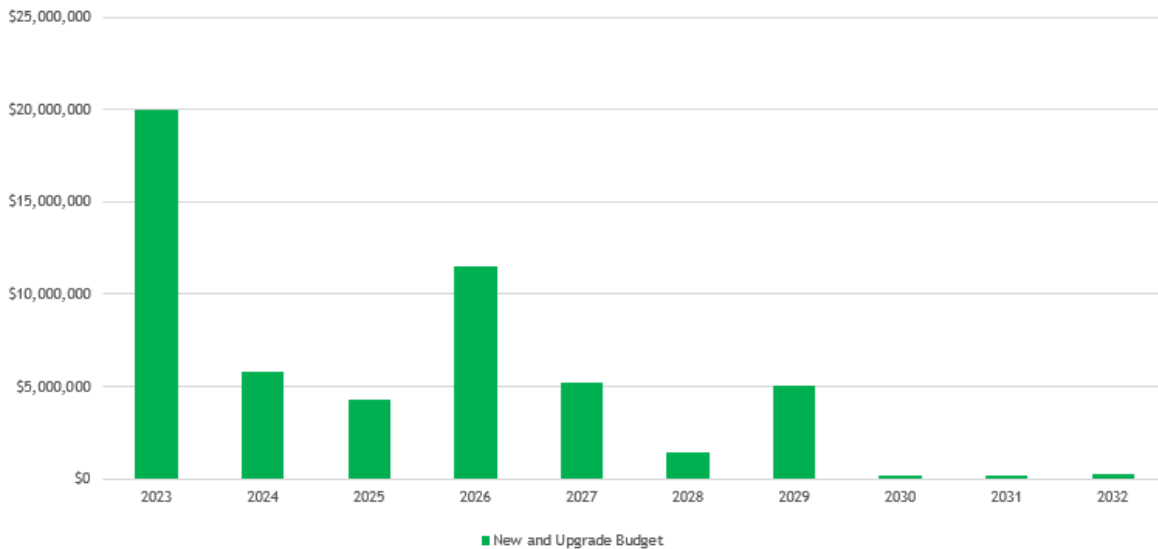


Figure 14: Budget - New, Upgrade, and Expansion Projects



The following table presents a summary of our 10-year water asset new and upgrade programs.

	Program	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	10 Year Total
Upgrade	Barron River intake upgrade	\$0	\$0	\$50,000	\$400,000	\$0	\$0	\$0	\$0	\$0	\$0	\$450,000
	Bore level monitors and bulk water meters - compliance requirement	\$150,000	\$100,000	\$100,000	\$0	\$0	\$0	\$100,000	\$0	\$0	\$0	\$450,000
	High Country Chlorination upgrade	\$0	\$0	\$50,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$50,000
	Network improvements - Beech St: Elm to Gillies Hwy Yungaburra	\$0	\$0	\$0	\$0	\$250,000	\$0	\$0	\$0	\$0	\$0	\$250,000
	Network improvements - pressure boosting HZ - Atherton	\$0	\$0	\$40,000	\$65,000	\$300,000	\$0	\$0	\$0	\$0	\$0	\$405,000
	Network improvements -Extension of Logan St to Weaver St 300mm main - Atherton	\$0	\$0	\$80,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$80,000
	Upper Barron Intake Rd upgrade	\$0	\$0	\$150,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$150,000
	Water Network Improvements	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$150,000	\$150,000	\$150,000	\$450,000
	Water Strategy Atherton - concept design for network upgrades growth driven	\$200,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$200,000
	Water Strategy Millaa Millaa - Water treatment plant upgrade	\$0	\$0	\$0	\$50,000	\$300,000	\$0	\$0	\$0	\$0	\$0	\$350,000
	Water strategy Mount Garnet - Water treatment plant improvements	\$0	\$0	\$0	\$152,000	\$656,000	\$832,000	\$0	\$0	\$0	\$0	\$1,640,000
	Water Strategy Yungaburra - Water intake renewal	\$750,000	\$270,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,020,000
	Water Strategy Yungaburra - water main upgrades	\$0	\$0	\$0	\$650,000	\$178,000	\$0	\$0	\$0	\$0	\$90,000	\$918,000
	Water Strategy Yungaburra - Water treatment plant upgrade	\$50,000	\$82,900	\$750,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$882,900
Wild River Dam - compliance matters	\$0	\$50,000	\$50,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$100,000	
Water Strategy Atherton - Replace 1ML reservoir 12th Avenue with 3ML	\$0	\$0	\$0	\$0	\$0	\$400,000	\$4,000,000	\$0	\$0	\$0	\$4,400,000	
New	Emergency power supply - generators water, wastewater and waste sites	\$0	\$0	\$150,000	\$150,000	\$150,000	\$150,000	\$100,000	\$0	\$0	\$0	\$700,000
	Water Strategy Atherton - new transfer pump station Atherton to Tolga	\$0	\$0	\$50,000	\$168,000	\$0	\$0	\$0	\$0	\$0	\$0	\$218,000
	Water Strategy Atherton - NW sector bore investigation and installation	\$55,000	\$165,000	\$880,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,100,000
	Water Strategy Atherton - Tolga transfer pump station and pipes from Atherton - 7,640m 50l/s @35m head	\$0	\$0	\$250,000	\$800,000	\$3,361,600	\$0	\$0	\$0	\$0	\$0	\$4,411,600
	Water Strategy Atherton - Water transfer pipelines from new NW bore to 12th Ave reservoir	\$0	\$566,300	\$1,698,800	\$9,060,100	\$0	\$0	\$0	\$0	\$0	\$0	\$11,325,200
	Water Strategy Malanda - Interconnect Malanda and Davies Road supplies	\$4,000,000	\$3,270,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$7,270,000
	Water Strategy Ravenshoe - New water treatment plant Ravenshoe and pipelines to Millstream	\$14,478,400	\$1,200,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$15,678,400
	Water Strategy Ravenshoe - Project management contract admin Ravenshoe WQIP	\$300,000	\$85,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$385,000
	Water Strategy Walkamin - new bore and transfer mains	\$0	\$0	\$0	\$0	\$0	\$75,000	\$850,000	\$0	\$0	\$0	\$925,000

Table 20: 10 Year New and Upgrade Program – Water Assets



6.8 Asset Disposal

Assets are considered suitable for disposal for the following reasons:

- No longer required (service no longer provided/unsuitable for re-use),
- Unserviceable, operationally inefficient or beyond economic repair,
- Functionally and/or technologically obsolete,
- Surplus to current or immediately foreseeable needs,
- Part of an asset replacement program; and
- Contains environmentally sensitive or hazardous material.

Council's Asset Disposal Policy provides for the identification, assessment and decision-making processes that inform the Council of their responsibilities in the asset disposal process. This Policy applies to all Council staff, volunteers and contractors involved in the disposal of Council assets.

6.9 Summary of Asset Expenditure Requirements

We are projecting a deficit in capital and operational funding when compared to the level of funding that we predict will be required over the forthcoming 10-year period as shown in Table 21.

Key Financial Performance Indicators for Current Projected Funding	
Total Lifecycle Costs over next 10 years (Projected Demand)	\$209,186,281
Total Lifecycle Budget over next 10 years (From Financial Plan)	\$193,920,682
Total Lifecycle Funding Deficit	-\$15,265,599
Average Lifecycle Funding Deficit per Annum	-\$1,526,560
Percentage Lifecycle Funding Being Met	93%

Table 21: Key Financial Indicators

However, we need to ensure that our forecasts are correct and need to put effort into reviewing our asset condition and useful lives where appropriate and the funding we are proposing to set aside in our long-term plans. It should be noted that condition data has been derived using useful life and remaining life data provided in the 2023 valuation data. Therefore, it is important that the Council undertake condition assessment of all water assets to validate these forecasts. We also need to focus on determining appropriate and affordable levels of service in consultation with the community. It is only once service standards have been agreed to can well informed lifecycle costs be projected and used to inform the Financial Plan.



7.0 RISK MANAGEMENT

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

7.1 Risk Management Process

Our risk management framework and processes are in accordance with AS/NZS ISO 31000:2009 – Risk Management – Principles and 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 our delivery of services and management of assets. The objective of the risk management process with regards to our assets is to ensure that:

- All significant operational and organisational risks are understood and identified,
- The highest risks that need to be addressed in the short to medium term are identified; and
- Strategies and treatments to address risks are identified and applied.

An assessment of risks associated with service delivery from infrastructure assets has identified the most critical risks we face in relation to our water asset portfolio. The risk assessment process identifies and assesses risks, develops a risk rating and develops a risk treatment plan for non-acceptable risks.

This process helps to determine the risks associated with water assets by identifying the use, priority and timeframes to be considered. The principal objectives of this risk management process in relation to water assets includes:

- To provide safe water supply and service to the community,
- To enable a system of proactive maintenance (where possible),
- To identify areas that require maintenance through a systematic and prioritised inspection system,
- To facilitate scheduling and resource allocation where required; and
- To establish a priority system for carrying out maintenance works.

7.1.1 Risk Assessment

There are four (4) types of inspections that Council carries out with respect to risk identification and assessment. They are,

- Routine Inspections,
- Supplementary Inspection,
- External Inspection Request; and
- Internal Inspection Request.

Routine Inspections are the primary type of inspection carried out by Council and represent a proactive method of risk identification.

The supplementary inspections are performed in addition to routine inspections. These inspections may be performed for the following reasons:

- Following a storm event, flood, bushfire,
- Review / audit of previously completed Routine Inspections,
- Inspection seeking a specific defect type; and
- Criticality of asset.

External inspection requests are the requests from the public on condition and risks associated with our water assets. These inspection requests are registered by Council's Customer Request Management (CRM) system and assigned to the appropriate council officer for action.



Internal inspection requests are generated by councillors, council staff and other Council representatives. These requests are handled in the same manner as an External Inspection Requests.

7.1.2 Risk Control

During inspections control of “risk exposure” requires control measures to be implemented. Some of the control measures that Council will be able to use to lessen our exposure to risk are,

- Use of warning signs to indicate potential hazard,
- Erection of temporary barriers or barricades around the area until the risk is eliminated,
- Eliminate the risk by asset repair; and
- Planning and allocating resources for the long-term replacement.

All requests are assigned a typical response time based on the criticality of the asset and the levels of service prescribed in our Customer Service Standards, Water & Wastewater 2020-25.

7.2 Critical Assets

Assets which have a high consequence of failure are identified as critical assets. Generally, criticality frameworks assess assets against the following areas outlined in Risk Management Framework:

- Service interruption,
- Public safety,
- Environmental impact,
- Financial Impact,
- Reputation/ Complaints and Legal Action Impact,
- Political Impact; and
- Obligation/ Legislative/ Standard Compliance Impact.

Critical Asset(s)	Failure Mode	Impact
Dams & Reservoirs	Unable to retain water	Loss of water supply
Water Pump Stations	Mechanical and electrical equipment failure	Interrupted water supply and/or pressure reductions or increases
Chlorinators	Instrumentation and injection equipment failure	Inadequate or overdosing of chlorine may occur
Trunk mains	Burst	Interrupted water supply
PRV's	Failure of PRVs	Results in high pressures causing damage to older reticulation mains house services and customers internal water appliances
SCADA and telemetry assets	Electrical, instrumentation or communications failure	Inability to receive alarms or monitor asset performance

Table 22: Critical Assets - Water

Improvement Opportunity



22. Develop an asset criticality framework.
23. Assess assets and identify criticality of assets based on asset criticality framework.

7.3 Risks and Treatment Plans – Water Assets

The following table presents risks relevant to water assets.

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan
Water transfer trunk mains	Due to the size and possible access difficulties failure of these mains could potentially cause interrupted supply to thousands of customers	VH	Ongoing assessment and tree clearing
Reservoirs	Structural failure and leaks would require emergency shutdown of reservoirs and resupply from other zones	H	Annual cleaning and assessment from diving contractors
Various pump stations	Failure to operate would realise possible short term interrupted supply to major towns	H	Periodic maintenance and upgrades to switchboards, pumps and valves to reduce risk. Stand by generators in place where required
Pressure Reducing Valves (PRV's)	Failure of PRVs will result in high pressures causing damage to older reticulation mains, house services and customers internal water appliances	H	Monitoring of PRVs and planned maintenance
Catchment management	Failure to meet health & chemical parameters of the water quality guidelines. Reduced short & long-term ability to supply water according to business plan levels of service	VH	Intake inspections and inspections to identify contamination and general risk assessment of catchment area. Accredited dam safety training.
Water treatment	Failure to meet health & chemical parameters of Drinking Water Quality Guidelines	VH	Removal by oxidation using primary chlorination. Extensive flushing program of reticulation mains. Plan for additional treatment facilities to provide additional barriers
Decreasing grant opportunities	Failure to meet capital investments required to meet demand	VH	Achieving equitable distribution of resources. Consideration given to decreasing grant opportunities in long term financial planning.
Climate change	Reduced availability of water resources and inability to comply with water extraction rules	VH	Demand management and pricing controls

Table 23: Risks Associated with Water Assets



7.4 Operational Risk Register

The operational risk register is currently being developed. Some of the operational risks that will be identified within the operational risk register are:

- Absence of record keeping for routine maintenance and inspection programs for all asset classes,
- Impact of asset failure on business continuity as documented in Business Continuity Plan (BCP); and
- Identification of critical assets.

Improvement Opportunities



24. Identify operational risks associated with management of water assets.
25. Develop an Operational Risk Register

7.5 Climate Change Risk

The impacts of climate change have the potential to have a significant impact on the assets that we manage and the services that are provided. 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 will impact on assets can vary significantly depending on the location and the type of asset and services provided, as will how we respond and manage these impacts.

Adaption and mitigation strategies for our water assets are developing as we understand the climate change impacts in greater detail. As a minimum we consider how to manage our existing assets given potential climate change impacts for our region. Climate change indicators, potential impacts as they relate to water assets and suitable management actions have been identified in the table below:

Climate Change Indicator	Potential Impact on Water Assets and Services	Management Actions
Drought	Reduction in water available for consumption	Investigate different scenarios for water availability, supply, and demand.
		Develop strategies to reduce water consumption.
Extreme Rainfall (Flooding)	Accelerated degradation of assets, reduced life expectancy, and increased lifecycle costs.	Identify when and where water assets are most likely to be exposed to increased frequency and intensity of riverine and pluvial flooding through asset risk modelling. Undertake flood mapping to identify hot spots.
		Reactive and proactive maintenance – to identify and initiate repairs where needed to maintain/improve asset integrity now.
		Factor future flooding impacts into design and maintenance program.
Soil Subsidence	Soil expansion and contraction causing damage to water mains	Use climate risk modelling to identify when and where water assets are most likely to be exposed to soil subsidence.
		Understand the prevalence of clay soils and changes to the wetting and drying climate cycles.
Bushfires	Destruction of water assets	Use climate risk modelling to identify when and where water assets are most likely to be exposed to bushfire.
		Plan for rapid assessment of fire impacted assets to ensure that assets have maintained integrity post event.
		Train staff for assessment tasks particularly for priority asset classes.
Extreme wind	Trees and debris causing damage to assets	Identify when and where assets are most likely to be exposed to increased frequency and intensity of extreme wind through asset risk modelling.
		Where possible initiate ongoing management of vegetation to reduce risk of trees and debris impacting water assets.
Higher Carbon Emissions	Legislative requirements to reduce emissions.	Implement energy efficient methods in operation and maintenance of assets.

Table 24: Management of Climate Change Impact on Water Assets



7.6 Building Resilience into New and Upgraded Assets

The way in which we construct new assets should recognise that there is opportunity to design and build in resilience to climate change impacts. Building resilience in our water assets will have the following benefits:

- Assets will withstand the impacts of climate change,
- Services can be sustained,
- Assets that can endure may potentially lower the lifecycle cost and reduce their carbon footprint; and
- Potentially increasing asset life and protecting financial investment returns.

As a minimum, we need to consider how to manage existing assets given the potential impacts of climate change and how to create resilience to climate change in any new works or acquisitions.

The table below summarises climate change resilience opportunities for water assets.

Climate Change Risk Event	Water Asset Resilience Opportunities
Accelerated degradation and structural damage due to climate change	Review engineering standards to ensure more robust climate resilient structures.
	Factor in coefficient of thermal expansion for materials used where applicable (increased movement allowances).
	Use trenchless technologies
High rainfall and storm events	Use materials that will weather and withstand future conditions, that is materials that are stronger, can withstand longer periods of wetting, are more resistant to thermal expansion and contraction, and are more durable in acid and saline conditions.
Increased frequency and intensity of flooding/storm	Design assets above flood levels (where applicable) or outside of flood zones, low-lying areas, and areas vulnerable to rising water table.
Drought	Favour higher quality construction materials and ensure reactive soils (particularly acid sulphate soils) are identified during design and design is altered accordingly.
Bushfires	Design assets that are cheap and replaceable in localities that are likely to experience multiple and frequent climate risks.
	Implement appropriate vegetation management programs
Reduced Carbon Emissions	Use low embodied energy materials and employ energy efficient operation and maintenance practises.
	Use either LED or solar LED and purchase green power and other renewable energy sources for lighting.

Table 25: Climate Change Resilience Opportunities - Water Assets

8.0 FINANCIAL SUMMARY

Our Long-Term Financial Plan (LTFP) provides a view of the resources that we expect to be available to us and how these will be allocated and prioritised over the next ten (10) years. Our LTFP identifies current and projected financial capacity to continue delivering high quality services, facilities, and infrastructure while identifying critical new capital investment to support our community's prosperity and to respond to our future challenges. This Water Asset Management Plan will inform the budgets and projections outlined in our LTFP for water asset management. Ongoing affordability and financial sustainability are our key objectives and the LTFP in combination with Asset Management Plans support in achieving these objectives.

This section contains the financial information resulting from all the information presented in the previous sections of this Asset Management Plan. The financial forecasts made will be refined as we improve our understanding of future asset performance and required levels of service.

8.1 Financial Statements and Projections

8.1.1 Asset valuations

The value of the assets covered by this Water Asset Management Plan as recorded in our financial asset register as of 30 June 2023 are shown below.

Current Replacement Cost	\$183,212,183
Accumulated Depreciation	\$75,477,871
Written Down Value (WDV)	\$107,734,311
Annual Average Asset Consumption	\$2,594,348

8.1.2 Asset Sustainability

We use the following indicators to measure asset sustainability:

- Asset renewal funding ratio, and
- Projected funding requirements compared with budget allocations (Long Term Financial Plan)

8.1.3 Asset Renewal Funding Ratio

Asset Renewal Funding Ratio	42%
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The Asset Renewal Funding Ratio is the most important indicator and shows that over the next ten (10) years we are expected to have 42% of the funds required for the optimal renewal and replacement of assets. The Asset Renewal Funding Ratio is calculated as the ratio between the calculated asset renewal forecast and allocated renewal funding.

8.1.4 Projected Expenditure for Long Term Financial Plan

Our Asset Management Plans and LTFP are the foundation of our long-term resource planning. These plans work together to ensure that expectations are achievable and sustainable. We are working to improve the integration between our Asset Management Plans and LTFP. The Asset Management Plans inform the Long-Term Financial Plan by identifying the amounts that are required to renew, maintain, and improve our assets over their lifecycle. The LTFP determines how much funding is available to support our assets. It incorporates knowledge of the condition of our assets, and risk assessment issues, as well as the impact of reviewing and setting intervention and service levels for our infrastructure.



The financial projections from this Asset Management Plan are shown in Figure 15 and Table 26. This covers the full lifecycle costs over the next ten (10) years to sustain current levels of service. Note that all costs are shown in real values.

The bars in the graph represent the anticipated budget needs required to achieve the lowest lifecycle costs, the budget line indicates the funding that is forecast to be available.

These amounts need to be verified against affordable levels of expenditure as determined through our LTFP and cyclic condition assessment of water assets. The gap between these informs the discussion on achieving the balance between services, costs, and risk to achieve best value outcomes.

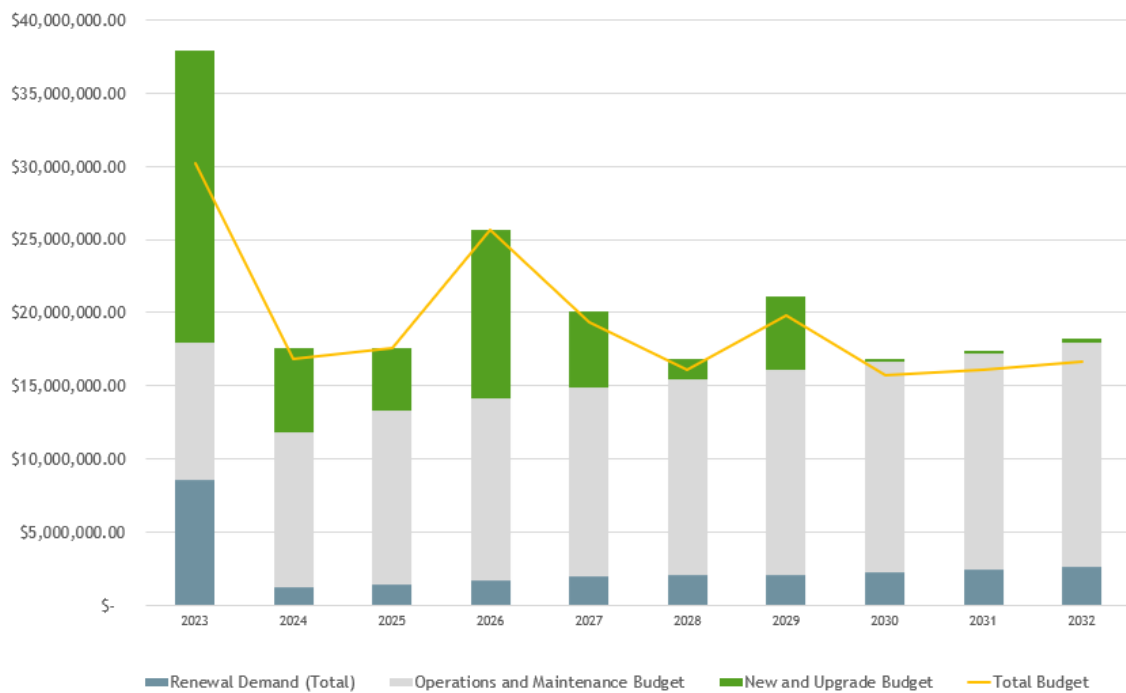


Figure 15: Total Life Cycle Cost and Demand – Water Assets

Year	Renewal Forecast	Renewal Budget	New and Upgrade	Operation & Maintenance	Total Budget	Total Lifecycle Demand
2023	\$8,525,994	\$767,600	\$19,983,400	\$9,443,576	\$30,194,576	\$37,952,970
2024	\$1,201,917	\$472,600	\$5,789,200	\$10,589,511	\$16,851,311	\$17,580,628
2025	\$1,401,323	\$1,377,600	\$4,298,800	\$11,894,388	\$17,570,788	\$17,594,511
2026	\$1,677,493	\$1,744,100	\$11,495,100	\$12,461,530	\$25,700,730	\$25,634,122
2027	\$1,925,119	\$1,204,100	\$5,195,600	\$12,957,944	\$19,357,644	\$20,078,663
2028	\$2,010,825	\$1,204,100	\$1,457,000	\$13,386,572	\$16,047,672	\$16,854,397
2029	\$2,093,858	\$834,000	\$5,050,000	\$13,946,656	\$19,830,656	\$21,090,514
2030	\$2,250,082	\$1,122,500	\$150,000	\$14,407,927	\$15,680,427	\$16,808,008
2031	\$2,436,467	\$1,122,500	\$150,000	\$14,775,385	\$16,047,885	\$17,361,852
2032	\$2,614,123	\$1,022,500	\$240,000	\$15,376,494	\$16,638,994	\$18,230,616
Total	\$26,137,199	\$10,871,600	\$53,809,100	\$129,239,982	\$193,920,682	\$209,186,281

Table 26: 10 Year Total Forecast and Current Budget - Water Assets



8.2 Funding Sources

Funding for assets is provided from our annual budget and Financial Plan. Our financial strategy determines how funding will be provided, whereas the Asset Management Plan communicates how and when this will be spent, particularly in the area of renewal investments. Major funding sources to maintain, renew and improve our water assets are shown in the table below.

Activity	Funding Source
Maintenance and Operations	Residential and non-residential utility charges
Renewal	Residential and non-residential utility charges
Capital Investments (i.e., New, upgrade, and expansion)	Renewal component of project - residential and non-residential utility charges
	Growth component of project - developer contribution charges. State and Federal Government grants

Table 27: Funding Sources

8.3 Key Assumptions Made in Financial Forecasts

The key assumptions made in this asset management plan are presented below to enable readers to gain an understanding of the levels of confidence in the data behind the financial forecasts. Key assumptions made in this Asset Management Plan are:

- Current levels of service reflect community needs,
- Future funding levels are derived from the Long-Term Financial Plan,
- No known legislative changes or other influences that will impact on or demand a change in level of service and associated funding throughout the period of the plan,
- Adequate funds to maintain water are provided to maintain the current level of service; and
- 2023 valuation data, and the condition of assets derived from 2023 valuation data are accurate and valid for the purpose of renewal modelling.



9.0 PLAN IMPROVEMENT AND MONITORING

Number of improvements for overall asset management have been identified in this Water Asset Management Plan. It is important that these improvement actions are prioritised based on the business needs/ongoing projects and sufficiently resourced.

9.1 Improvement Plan

The asset management improvement plan identified within this Asset Management Plan is shown in Table 28.



No	Task	Category	Responsibility	Resource Type	Priority	2023/24	2024/25	2025/26
1	Conduct a community engagement process to identify community expectations in relation to water services in those communities that express a high level of dissatisfaction.	Community Engagement	Manager Community Engagement/Manager Water & Waste	Internal	Medium			
2	Review current technical level of Service.	Service Levels	Manger Water & Waste	Internal	Medium			
3	Adopt and document technical levels of service.	Service Levels	Manger Water & Waste	Internal	Medium			
4	Clarify roles and assign responsibilities of asset management of roads and buildings supporting water services.	Operation & Maintenance	Manager Strategic Assets	Internal	Medium			
5	Continue cleansing of water asset data.	Data & System Improvements	Manager Water & Waste/ Manager Strategic Assets	Internal	High			
6	Develop a data schema for water assets.	Data & System Improvements	Manager Water & Waste/ Manager Strategic Assets	Internal/External	High			
7	Review all asset data and collect missing information.	Data & System Improvements	Manager Water & Waste/ Manager Strategic Assets	Internal/External	High			
8	Develop an asset hierarchy for all water assets.	Data & System Improvements	Manager Water & Waste/ Manager Strategic Assets	Internal	High			
9	Configure new asset hierarchy in AMIS.	Data & System Improvements	Manager Strategic Assets	Internal	High			
10	Upload all water asset data on to AMIS and GIS.	Data & System Improvements	Manager Strategic Assets	Internal	High			
11	Align financial asset register with the register within Asset Management Information System (AMIS).	Data & System Improvements	Manager Strategic Assets/ Manager Finance	Internal	High			
12	Review asset handover process at the completion of capital works, identify gaps, and implement improvements.	Data & System Improvements	Manager Strategic Assets/ Manager Finance	Internal	High			
13	Review asset handover process gifted assets, identify gaps, and implement improvements.	Data & System Improvements	Manager Strategic Assets/ Manager Finance	Internal	High			
14	Develop and implement planned maintenance and inspection program for water assets.	Operation & Maintenance	Manger Water & Waste	Internal/External	Medium			
15	Identify resource requirement for implementation of planned maintenance and inspection program.	Operation & Maintenance	Manger Water & Waste	Internal	Medium			
16	Allocate funding for planned maintenance and inspection programs through the Long-Term Financial plan (LTFP).	Finance	Manger Water & Waste	Internal	Medium			
17	Review work order management process and identify improvements to record and automate work order management process.	Data & System Improvements	Manager Strategic Assets	Internal	Medium			
18	Undertake cyclic condition assessments to identify and record asset condition.	Renewal Planning	Manager Strategic Assets	Internal/External	High			
19	Develop renewal programs based on observed asset conditions.	Renewal Planning	Manager Water & Waste/Manager Strategic Assets	Internal	High			
20	Develop a renewal ranking and prioritisation criteria.	Renewal Planning	Manager Strategic Assets/Manager Water & Waste	Internal	Medium			
21	Review current renewal funding allocations to identify gaps.	Renewal Planning	Manager Strategic Assets/Manager Water & Waste	Internal	Medium			
22	Develop an asset criticality framework.	Risk	Manger Water & Waste	Internal	Medium			
23	Assess assets and identify criticality of assets based on asset criticality framework.	Risk	Manger Water & Waste	Internal	Medium			
24	Identify operational risks associated with management of water assets.	Risk	Manager Water & Waste	Internal	High			
25	Develop an Operational Risk Register.	Risk	Manager Water & Waste	Internal	High			

Table 28: Improvement Actions - Water Services



9.2 Monitoring and Review - Improvement Actions

Prioritisation and Implementation of the improvement plan of this Water Asset Management Plan will be the responsibility of the Manager Water & Waste with the support and guidance from the Executive Leadership Team.

9.3 Monitoring and Review – Asset Management Plan

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 Financial Plan.

The Asset Management Plan will be completely reviewed every 4 years.

9.4 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,
- 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 including scheduled condition surveys – to confirm that they were undertaken as required,
- Maintenance of asset information systems - to ensure that stored data is current and accurate; and
- External factors - including legislative requirements, ongoing development of Council policies, plans, and other major system implementations, that may affect the contents of the asset management plan.