



Hinchinbrook Shire Council

# Asset Management Plan- Water

June 2023



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**HINCHINBROOK**  
SHIRE COUNCIL



Hinchinbrook Shire Council  
**Asset Management Plan- Water**  
June 2023

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# DOCUMENT CONTROL

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## Version Control Protocol:

- 1. Primary number changes to Versions (e.g. V1.00 to V2.00) apply when the document undergoes its regular review and/or when significant changes are made.**
2. Secondary number changes to Versions (e.g. V1.00 to V1.01) apply to minor amendments that do not materially impact the documents and are intended only to clarify or update issues.



## Abbreviations

AMP	Asset Management Plan
ABS	Australian Bureau of Statistics
FWP	Forward Works Plan
LCC	Life Cycle Cost
LCE	Life Cycle Expenditure
LoS	Levels of Service
LTFP	Long Term Financial Plan
HSC	Hinchinbrook Shire Council
QAO	Queensland Audit Office
QTC	Queensland Treasury Corporation
PI	Performance Indicator
RUL	Remaining Useful Life
SL	Service Level



## Executive Summary

This Asset Management Plan (AMP) covers assets that provide potable water to the Hinchinbrook community. Water assets provide a critical service to the community with the provision of life sustaining quality drinking water. Council's water supply is also essential to many businesses and provides firefighting capability in the urban areas of the region.

The purpose of this AMP is to assist Council in:

- Documenting its current management approach of water assets;
- Understanding and managing significant constraints, risks and challenges associated with delivery of this services;
- Improve and understand the level of funding required to sustainably deliver water services for the next 10 years; and
- Identifying opportunities to improve the management of water assets to generate sustainable funding levels for the provision of potable water.

Hinchinbrook Shire Council (HSC) is responsible for the management of the Shire's potable water reticulation network and provision of safe and reliable drinking water to the community. Council is an approved Water Service Provider and provides high quality drinking water to over 4,800 connections servicing over 10,500 people.


These services are provided through the provision of:

- Bores and raw water intakes
- Treatment plants
- Pump stations
- Reservoirs
- Water mains
- Water meter and service connections

Due to the ongoing regulatory requirements associated with the water service the asset class has some of the more mature systems and processes in terms of asset and risk management. There are still opportunities to better understand and manage risk in a way that is more aligned with Council's Risk Appetite Statement.

As with all of Council's asset classes improvements in data collection and maintenance as well as financial reporting structures is required to inform the ongoing and improved management of the water asset class.

The oldest parts of Council's network are nearing 100 years old which traditionally signals the start of a period of widespread renewals. While Council's passive assets are generally performing well which can be attributed to apparently good installation practices, good materials and low operating pressures these assets still have finite lives and better understanding of future renewal profiles will equip Council to plan for maintaining service levels in the most economical way.



A number of key improvement opportunities have been identified in the water class, including:

- Undertake detailed assessment of reservoirs and use information to update forward works program
- Ensure asset revaluations focus on condition data on assets approaching end of life & trunk/critical assets. Spatially mapping main breaks and incorporating this data into revaluations is considered critical.
- Review current main break data, remaining useful lives and historic construction records to understand water main renewal demands beyond the period of this AMP. Use this information to review water charging model and develop strategies to fund the expected spike in renewal demand.
- Review DWQMP risk register to incorporate asset related risks identified in this AMP as well as reviewing controls following change of key operational staff. Following review consider adjusting operation budget to align residual risks with Council's risk appetite statement.



# 1 BACKGROUND

## 1.1 Purpose of the Plan

The purpose of this AMP is to assist Council in:

- Documenting its current management approach of water assets;
- Understanding and managing significant risks;
- Support legislative and regulatory requirements;
- Developing a 10 year capital works program;
- Identifying opportunities to improve the management of water assets; and
- Identifying opportunities to improve the Financial sustainability of the water asset class.

This 'core' AMP documents Council's asset management planning information for the water assets. This plan focuses on the identification of the major challenges and opportunities within the water asset class.

The data available to develop this AMP was collated from several different sources. Council has in some cases attempted to align data however due to the complexity of Council's asset registers and GIS this data is often misaligned making combined analysis difficult. Council has also attempted to ensure data in its Technology One asset register aligns with GIS and revaluation data however as there is no reconciliation process or data review processes the data within Technology One has limited use.

Often more detailed assessments undertaken by the Water or Assets team is not linked or reflected in financial reporting information which makes the traditional and detailed analysis of the data produce outputs of limited value.

At a class level the data Council has available is adequate to support the application of industry benchmarks to inform program level maintenance and renewal needs. These trends have been verified by operational staff and provide a sound basis upon which to develop this core level AMP. Based on the current rate of renewals it is considered that the ongoing sustainability of this class is reasonable for the next 10 years however improvements in data quality is required to improve the confidence of this assessment.

## 1.2 Council's Vision, Aims, Outcomes and Strategies

This AMP has been prepared in accordance with the HSC's vision, mission and values as set out in the Corporate Plan 2020-2025.

Our mission is:

"To provide leadership in making locally responsive and informed decisions, delivering quality services and facilities to the Hinchinbrook Community."

Council's five key priorities are based on the following identified community priorities:

1. Built Environment
2. Prosperity





3. Lifestyle
4. Natural Environment
5. Organisational Sustainability

Our vision for Council Water assets is:

*Develop, manage and maintain networks and services to provide high quality water and wastewater.*

Council intends to deliver on its commitments through a commitment to strategic asset management, implementing forward works programs based on sound strategic asset principles and service demands.

Contributing to our Council vision:

“To strengthen our vibrant regional lifestyle and prosperous economy by growing the population of and opportunities for the Hinchinbrook Shire.”

To achieve our mission and vision we will lead by values and be deliberate about making decisions based on these values:

Our Values are:

Integrity	We will lead our community with integrity and vision. We will embrace change, foster innovation, and be honest and transparent at all times.
People Focused	We value our community, our stakeholders and our employees. We will treat all persons with fairness and respect. Council will implement services from a customer perspective.
Excellence	We will always strive to do our best, to be industry leaders and to look for opportunities in pursuit of continuous improvement.
Sustainability	We will be practical, focused, and effective in our delivery of services and programs for the community.

The key elements to meeting these strategies are:

- Ensuring adequate renewal, maintenance and operational funding is allocated to effectively operate Council's water service;
- Accepting the financial reality of the community and organisation;
- Taking a life cycle approach;
- Developing cost-effective management strategies for the long term;
- Providing a defined affordable level of service and monitoring performance;
- Review our services to ensure they meet our customer needs within the financial



constraints of Council;

- Managing risks associated with asset failures;
- Sustainable use of physical resources; and
- Continuous improvement in asset management practices.

### **1.3 Key Stakeholders**

Good asset management requires the alignment of resources with all people understanding the objectives and then playing their respective roles in the management of assets and the delivery of services to the community. Table 1 outlines the roles and responsibilities for asset management within HSC.



Table 1: Key Stakeholders and Roles

Role	Who	Responsibilities
Strategic Direction	Councillors	Represent needs of the community and service level expectations Set Council's risk appetite Accountable for organisations financial sustainability Key Goals and Strategic Objectives/Priorities Corporate Plan & Policies Providing resources to achieve AM objectives Act as stewards for all Council Assets
Operational Decision Making	Executive Management Team	Allocation of resources Provision of sound organisation structure Lead the organisations culture Managing risks in accordance with adopted appetite Manage Statutory Requirements Develop and Administer Policies Provide Service Strategy Asset management objectives
Strategic Alignment	Asset Management Steering Committee	Policy development and review Overview of implementation of Strategic Asset Management Plan and Improvement Plan Championing promotion of adequate resourcing for asset management Whole of Council asset performance monitoring Asset related risks are capture in Council Risk Management System Demonstrate whole of organisation support for sustainable asset management Wider accountability for achieving and reviewing sustainable asset management practices
Organisational Alignment	Asset Management Working Group	Encourage buy-in and responsibility; Coordinate strategic planning, information technology and asset management activities Promote uniform and fit for purpose asset management practices across the organisation Information sharing across IT hardware and software Pooling of corporate expertise Championing of asset management improvement initiatives
Tactical / Operational	Asset Custodians Maintenance Managers Service Managers	Service delivery Asset data capture Operational risk management Alignment of service levels to budgets Asset Management Plan Development Development of renewal and upgrade plans Asset specific condition monitoring Asset and resource optimisation Asset Maintenance and Operations Identification of asset disposal opportunities Identification of service efficiency opportunities

## 1.4 Legislative Requirements

The management of assets is often driven by complex legislative arrangements. Table 2 provides a list of Legislation that is relevant to the Water Asset Class.

Table 2: Legislation and Requirements

Legislation	Requirement
Local Government Act	Sets out role, purpose, responsibilities and powers of local governments including the preparation of a long-term financial plan supported by asset management plans for sustainable service delivery.
Water Supply (Safety and Reliability) Act 2008	Provides a regulatory framework for providing water and sewerage services in the State, including functions and powers of service providers. The Act also provides a regulatory framework for providing recycled water and drinking water quality, primarily for protecting public health
Public Health Act 2005	The object of this Act is to protect and promote the health of the Queensland public.
Public Health Regulation 2018	Prescribes standards for the quality of water and requirements for the management of the quality of water.
Australian Drinking Water Guidelines 2011	Provide a basis for determining the quality of water to be supplied to consumers in all parts of Australia. They are intended to provide a framework for the good management of drinking water supplies that if implemented will assure safety at the point of use.
Work Health and Safety Act & Regulation 2011	Sets out roles and responsibilities to secure the health, safety and welfare of persons at work.
The Australian Accounting Standards	The Australian Accounting Standards consisting of AASB13, AASB 16, AASB116 define the financial accounting requirements related to assets.



## 2 ASSET DESCRIPTION

This AMP is for the Council owned water assets. Currently all buildings major that are directly related to the provision of water services are included in the building class.

### 2.1 Asset Numbers and Values

The assets included in this AMP are shown in the following table 3. Asset valuations for the water class have been undertaken from a high level financial revaluation approach with data then loaded into TechnologyOne. Data is based on the TechnologyOne asset register for water assets as at 1 July 2022.

Table 3: Extent of Assets (1 July 2022)

Asset Sub Category	Number
Buildings	2
Car Parks	1
Electrical	74
Generators	2
Roads	1
Water Hydrants	1376
Water Mains	1306
Water Meters & Service	5299
Water Nodes	841
Water Plant & Equipment	50
Water Pump	60
Water Pump Stations	32
Water Reservoirs	35
Water Treatment Facility	68
Water Treatment Systems	39
<b>Total</b>	<b>9194</b>

### 2.2 Asset Registers

Council's asset register is maintained in TechnologyOne which is Council's primary ERP (Enterprise Resource Planning) system. This system offers advanced capabilities when it is well configured and data is regularly maintained. There are considerable benefits when data in TechnologyOne and Council's GIS (geographic information system) are linked and the linkages are well maintained. In addition, having a single point of truth and linking operational information from field teams to assets also offers benefits if the data is maintained.



Improving organisational understanding of data management, maintenance and reporting principles will help progressively improve the data quality in the asset register. Improving other operational registers in a way that aligns with the GIS and TechnologyOne would also assist in improved reporting capabilities and management of assets.

Opportunities within the water asset class include:

- Componentisation approach developed during the 2021 asset revaluation to be fully incorporated into TechnologyOne when updating the asset register during capitalization or other data improvement projects. While the water asset register has more consistent naming conventions and componentisation than other asset classes there is still room for improvement.
- Improving data structures and naming conventions to allow for more meaningful reporting to be undertaken in future. Loading and maintaining useful attributing collected at revaluation in either TechnologyOne or the GIS (with automated reconciliation and updating processes). It is important for Council to develop a single point of truth that has appropriate attributing available for management purposes.
- Focus in future revaluations and data improvement projects on developing a single point of truth in a "combined register". Operational staff should be involved in the project and focus should be on assets of high criticality and nearing end of life. Thought should be given to the management reporting that would enable better decision-making to occur and this should drive the data capture and maintenance approach. Data levels should also be aligned with the businesses ability to maintain the data and keep it in a reliable state.
- Linking main break data in the GIS to the asset register to inform future revaluation processes.

## 2.3 Asset Age and Remaining Life

Asset lives for water assets in Council's asset register vary from 4 to 162 years. Council's 2021 asset revaluation had useful life ranges from 5 to 180 years. Use of the Useful Life, Remaining Useful Life and Expiry Date fields within TechnologyOne requires review to improve consistency and reporting. A single point of truth needs to be adopted and all other data that could be misinterpreted should be archived and removed from the GIS and TechnologyOne.

Table 4 provides the average age and average remaining useful life (RUL) for assets by Asset Type.

**Table 4: Average Age and Average Remaining Useful Life by Asset Type Base on 2021 Revaluation Data.**

Asset Type	Average Useful Life	Average Remaining Useful Life
Civil	70	44
Electrical	18	11
ENVELOPER	101	99
Mechanical	22	16



Asset Type	Average Useful Life	Average Remaining Useful Life
Pipe Works & Fitting	42	26
VALVE	71	41
Water Connection - Flowmeter	70	68
Water Connection - LONG	61	34
Water Connection - SHORT	61	35
Water Hydrants	70	38
Water Mains	90	50

Based on the 2021 revaluation data there was \$8.9M of water assets that will reach end of life within the 10 year planning period covered by this AMP. Recent levels of funding for water renewals have been relatively limited based on historically low numbers of water main breaks however, Council staff are generally comfortable that the level of funding for water main renewals is adequate at the current point in time.

Spatially mapping water main break locations and using this information to inform future remaining useful life assessments would be useful to determine trends. While Council staff report of relatively low rates of main breaks due to low pressures and what is to be considered good installation practices and materials at the time it will be important to identify when AC mains start to fail as this will likely happen all in a condensed timeframe reflecting the installation of the original water supply system in the different townships. If this occurs funding this renewal demand will represent a significant challenge so improving data to improve the confidence on when this time will come should be a focus of Council.

In the immediate term Council needs to focus on understanding the remaining useful lives of reservoirs and other significant and critical assets within its water distribution network. This data is needed to provide a better understanding of the timeframes and costs associated with keeping these critical assets operational.

One challenge facing most water supply entities is the internal corrosion of ductile iron pipes which choke the system limiting flows to the point that fire fighting requirements are not met. It has been a recent focus of Council's renewal programs to renew cast iron mains where fire fighting flows are compromised. This issue is most common within the older parts of Ingham however additional flow and pressure testing is required to better understand the extent of the issue. Future revaluations should consider the remaining useful life of cast iron mains based on flow requirements and not simply age and break history.

## 2.4 Condition

Asset Condition data within TechnologyOne is of questionable value with 93% of assets reporting as condition 1. The data suggests that there is only \$0.5M of assets in condition 4 (poor) and 5 (very poor) however financial data suggests that \$7.67M will require renewal in the next 10 years.



## 3 LEVELS OF SERVICE

### 3.1 Background

Within the asset management industry its common practice to describe service levels in two terms, *Community Levels of Service* and *Technical Levels of Service*.

*Community Levels of Service* relate to the service outcomes that the community wants in terms of safety, quality, quantity, reliability, responsiveness, cost effectiveness and legislative compliance.

Community levels of service measures commonly used in asset management planning are:

- Quality How good is the service?
- Function Does it meet users' needs?
- Safety Is the service safe?

*Technical Levels of Service* support the community service levels and are operational or technical measures of performance. These technical measures relate to the allocation of resources to service activities that the Council undertakes to best achieve the desired community outcomes.

Technical service measures are linked to annual budgets covering:

- Operations – the regular activities to provide services such as opening hours, cleansing frequency, etc.;
- Maintenance – the activities necessary to retain an assets as near as practicable to its original condition;
- Renewal – the activities that return the service capability of an asset up to that which it had originally;
- Upgrade – the activities to provide a higher level of service (e.g. replacing a 100mm water main with a 150mm water main) or a new service that did not exist previously (e.g. extending the water service area and supply network);

Within Queensland all operators of water networks that provide potable water for public use report annually on their levels of service. Service levels for water are defined and reported on annually in Council's Drinking Water Quality Management Plan and annual reports. See:

<https://www.hinchinbrook.qld.gov.au/water-waste-and-roads/water-and-sewerage/drinking-water-quality-management-plan/>





### 3.2 Sustainable Asset Base

Based on the financial position of Council ensuring that water service is prioritised and provided adequate funding is essential to ensure the health and safety of all residents within the areas serviced by Council's water network.

The Queensland Treasury Corporation (QTC) whole of life cost tool provides Council with benchmarking guidance of operational and maintenance costs based on the gross cost of an asset. The tool helps understand the whole of life costs that come with asset ownership depending on the asset type.

Based on QTC benchmarking the operational & maintenance budget for \$55.5M of water assets should be between \$1.49M and \$1.96M (excluding depreciation). When depreciation figures from Council's financial statements of \$0.94M are included the total cost of ownership of the water assets owned by Council is estimated to be \$2.43M to \$2.9M per annum.

Council's current maintenance and operations expenditure on water assets is in the order of \$1.1M per annum with depreciation partially funded. This represents between a \$0.38M and \$0.8M per annum shortfall excluding depreciation and a \$0.63M to \$1.2M per annum shortfall including depreciation.

Compared to other asset classes Council is funding water service reasonably well. Funding levels are enabling critical renewals to be undertaken within a reasonable time frame and operationally Council is meeting its requirements under industry guidelines and key performance indicators however as noted in the DRDMW HSC DWQMP Audit 2021 Report Council would benefit from applying additional resources to better implement its risk management improvement program. Consideration should also be given in future operational budgets to undertaking additional flow and pressure testing to better understand firefighting capacity as well as improving the robustness and reliability of some of Council's operational processes.

Provision of potable water is one of the most critical services Council provides, ensuring adequate funding is available to operate the water service needs to remain high on Council's list of priorities. Due to the nature of the water supply service identification of opportunities to generate savings is more difficult than other classes. Options available to Council to generate ongoing savings include:

- Disposal of assets originally installed to provide fluoridation;
- Consider the future reduction or removal of service to very low density rural areas where income from water charges does not cover asset costs. Alternatively a higher charge for very low density may need to be considered to make these services profitable;
- Ensure treatment plant operations are optimized; and
- Reducing energy costs by reviewing tariffs, monitoring and reducing consumption and potentially installing solar on assets that have high energy costs and adequate roof area.



### 3.3 Risk Management

Council's Risk Appetite Statement confirms Council's commitment to its community to responsibly manage its assets. Key commitments include:

- There is no acceptance for decisions/actions that adversely impact the ongoing viability/efficiency of strategically critical and/or essential infrastructure, assets or services;
- There is considerable acceptance for decisions/actions/initiatives that promote, secure or improve the ongoing viability/efficiency of strategically critical and/or essential infrastructure, assets or services;
- There is considerable acceptance for decisions/actions/initiatives that promote, secure or improve the ongoing viability/efficiency of strategically critical and/or essential infrastructure, assets or services;
- Financial viability over the short, medium and long term must be highly certain and supported by an established finance framework and long-term financial sustainability strategy that drives the region's strategic direction on behalf of the community through effective and responsible policy, planning and decision making; and
- There will be no acceptance of decisions that have a significant negative impact on Council's long term financial sustainability.

Provision of high-quality drinking water is a critical service for the community. As a result this service is heavily regulated and as a result risk management practices are relatively mature when compared to other service areas. Risk in the water class is well documented in Council's Drinking Water Quality Management Plan. This plan identifies a significant number of health, asset and operational risks and details mitigation and management strategies used by Council. The plan also identifies improvement opportunities.

Generally the performance and operations of the water asset class is well aligned with Council's risk appetite statement. The recent change in operational management staff provides a good opportunity to review and test some of the risk management controls that have been in place at Council for many years. As is the case in any organisation the loss of key staff with significant experience and operational knowledge requires the organisation to review data, systems and approaches to service provision. It is critical for Council to adequately support and resource the water service team to properly consider current and future amendments to service delivery and Council's risk appetite.

Strategic level risks for Council to consider in the water asset class include.

- Natural Disasters & limitation of insurance policy.
- Increasing water quality and testing requirements including Health Based Targets are likely to increase the cost of water treatment and testing requirements. This will likely increase energy costs and other operational costs which will increase the cost of water.



- Water security during prolonged dry weather.
- Sustainability of service in low density rural areas. Not only are these areas not profitable they create water quality management issues.
- Improving understanding of when AC mains will require widespread renewal and developing funding strategies.
- Fire flow requirements may not be met in certain areas. It is important to understand this and communicate with emergency services.
- Condition of some buildings (buildings asset class) and reservoirs requires further investigation and funding to rectify issues.
- Relatively small operational team with limited surplus capacity to cover for periods of extended absenteeism or during periods of high staff turnover.
- Understanding the useful life of Smart Meters and planning for the renewals in future Asset Management Plans.
- No allowance for service connection renewals sees ongoing repairs of services that should be replaced.

The Improvement Plan outlines opportunities for Council to improve its risk management practices to align with its risk appetite. However as the improvement plan is based on current resource levels significant risk exposure will remain.

## 4 FUTURE DEMANDS

The Hinchinbrook Shire population was 10,990 in 2016, declining to 10,920 in 2021 and estimated 10,184 in 2026. The current growth rate is flat and predicted to continue as such or decline further in future years. It is estimated the (medium) projected population will reach approximately 9,253 by year 2036. Table 5 provides forecast population projects based on Census data.

Table 5 Population Projection

Projected Population				Average Annual Change	
	Low Series	Medium Series	High Series	(Medium Series)	
				Number	Per Cent
2016	10,990	10,990	10,990		
2021	10,920	10,920	10,920	-80	-0.7%
2026	10,002	10,184	10,378	-736	-7.2%
2031	9,411	9,732	10,077	-451	-4.44%
2036	8,776	9,253	9,768	-478	-4.92%
2041	8,175	8,780	9,768	-473	-5.12%

Demand is not viewed as influencing this class of assets over the next 20 years. Upgrades in the water class will be focused on improving network resilience and any upgrades required due to increasing regulatory requirements.

## 5 WHOLE OF LIFECYCLE MANAGEMENT PLAN

### 5.1 Operations and Maintenance Expenditure (Opex)

#### 5.1.1 Historical

Three years of historical maintenance and operations expenditure figures have been taken from Council's financial system and averaged for the purposes of financial modelling. Based on available data which has been reviewed by Council staff the figures in table 6 represent the best available data for historical maintenance costs.

Table 6: Historical Operations and Maintenance Costs (2019-2022)

Expenditure Type	\$
Operations	\$0.4M
Maintenance	\$0.68M
<b>Total OPEX (O &amp; M)</b>	<b>\$1.08M</b>

#### 5.1.2 Future

For the purposing of this asset management plan the historical average has been used with a 3% annual increase being applied as well as the inclusion of additional operations and maintenance costs associated with new or upgraded assets.

### 5.2 Capital Expenditure (Capex)

#### 5.2.1 Historical

It is understood that the initial water network in Ingham was installed in the 1930's with significant expansion in the 1950's and 1960's. The beach communities received water supply in the early 1970's with Trebonne following in the late 1970's and Toobanna serviced in the early 1980's. Renewals have focused on the original network assets which represent a relatively small portion of the current network. The replacement of the assets installed during the growth period of the 1950's-1980's sits towards the end of the 10-year planning period of this asset management plan.

Council's water staff have reported that renewal funding has generally been adequate given the low main breaks experienced in the passive network. Renewals of active assets have generally kept up with requirements however given the age of Council's network it is expected that renewals for all assets will increase in the coming years.

#### 5.2.2 Forward Works Program

Council's current budget process has a year to year focus and no forward works program was available when the development of this AMP commenced. Council's Local Government Infrastructure Plan had a number of upgrade projects listed with two of those projects being considered critical, included in this AMP.

As outlined earlier Council's asset data has limitations in terms of use to develop a forward works program. As a result the forward renewals plan has been developed



based on the asset data, input from staff and applying industry benchmarks that have been reviewed by staff to suit local conditions. In addition the forward works program also considers:

- Inclusion of Taylors Beach and Trebonne main duplication to provide system redundancy following the decommissioning of the reservoirs within the townships;
- Inclusion of emergency generators at the depot to enable basic operations during extended power supply disruptions;
- Condition inspections of reservoirs will be undertaken to inform updated timing and estimates for the reservoir renewal program. Council will consider rehabilitation options and/or the use of large scale domestic style storage options;
- Renewals Smart Meters will be factored into the next revision of this Asset Management Plan;
- Spatial mapping of water main breaks will be linked to assets and data used to inform future revaluations;
- Upgrades to meet health based targets are not included due to uncertainty. Council should consider options for external funding including loans to cover upgrade costs;
- Fluoride assets will not be renewed;
- Renewal Program allocations have been made to represent the estimated renewal demand across the asset class (with the abovementioned assumptions applied). Council should be developing lists of renewals within each of these programs 2-3 years in advance with prioritisation within the programs occurring annually. As condition inspection processes improve Council should also be reviewing the program allocations in future years. By working at least 2-3 years in advance Council should be able to develop funding strategies that can deal with any changes that emerge. This approach also increases the opportunities to attract grant funding as projects are identified in advance and can be shovel ready;and,
- Council will make ongoing the improvements identified in section 7.

### **5.2.3 Future Capital Funding**

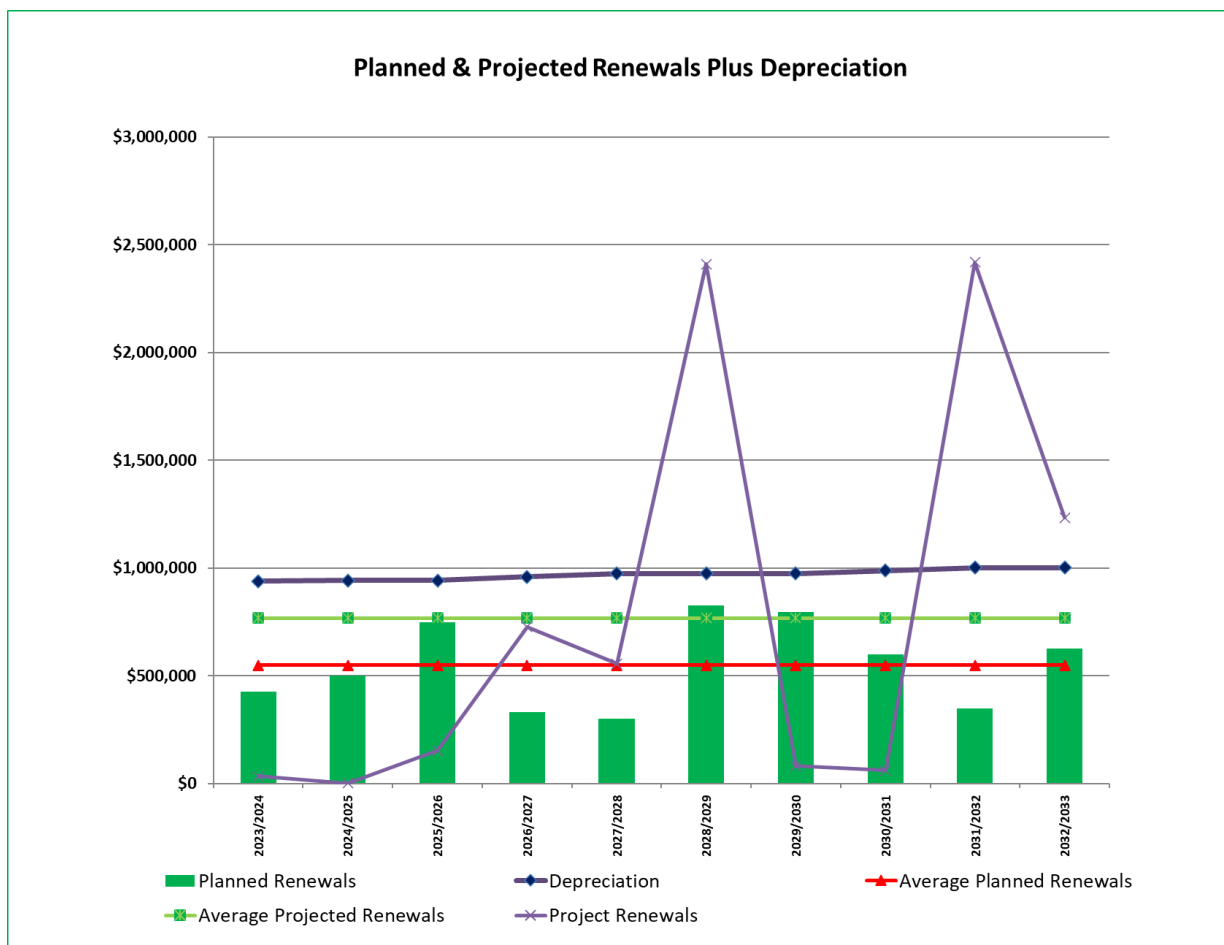
Planned renewals total \$5.5m for the 10 year period based on the forward works program shown in Table 7. Projected renewals total \$7.67M for the next 10-years to 2033 derived from valuations data for remaining useful lives. Thus, the average amount projected for renewals from valuations is approximately \$0.77M per year (in current dollars).

Figure 5.a shows projected and planned renewals alongside depreciation. The major spikes in the projected renewals come from the asset register still containing fluoride assets showing as requiring renewal in 2028 as well as large number of water meters showing as needing renewal in 2031. As outlined earlier Council needs to focus future revaluations on improving data for assets nearing end of life which will improve data in the asset register and make for more accurate renewal forecasting.

Table 7: Planned 10 years Renewals

Program/Project	Cost Type	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	10 Year Total
Watermains	renewal	\$175,000	175,000	\$175,000	\$175,000	\$175,000	\$175,000	\$175,000	\$175,000	\$175,000	\$175,000	<b>\$1,750,000</b>
Reservoirs	renewal		\$200,000	\$200,000			\$495,000	\$495,000			\$50,000	<b>\$1,440,000</b>
Water Meters	renewal	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$150,000	<b>\$600,000</b>
Treatment plants	renewal	\$25,000	\$50,000		\$30,000		\$30,000		\$50,000		\$75,000	<b>\$260,000</b>
Water Valves/Hydrants - Emergent program	renewal	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	<b>\$250,000</b>
SCADA/Electrical/pumps	renewal	\$150,000	\$150,000	\$150,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$350,000	\$150,000	<b>\$1,200,000</b>
Trebonne main duplication	expansion			\$100,000	\$800,000	\$1,640,000						<b>\$2,540,000</b>
Taylor's main duplication	expansion							\$1,020,000	\$1,020,000			<b>\$2,040,000</b>
Depot Generators	expansion							\$200,000				<b>\$200,000</b>

Figure 5.a: Planned and Projected Renewals and Depreciation



### 5.3 Asset Sustainability Ratio

A financial measure of satisfactory levels of expenditure on asset replacements is the Asset Sustainability Ratio - the net capital expenditure on replacements as a percentage of the depreciation. It indicates whether the amount of replacement exceeds or is less than the amount of depreciation, that is, whether assets are being replaced at the rate they are wearing out. Although not a true reflection of the required long-term funding, depreciation does indicate the rate of consumption of assets. The QAO sets a target for renewals that is equal to or greater than 90% of depreciation.

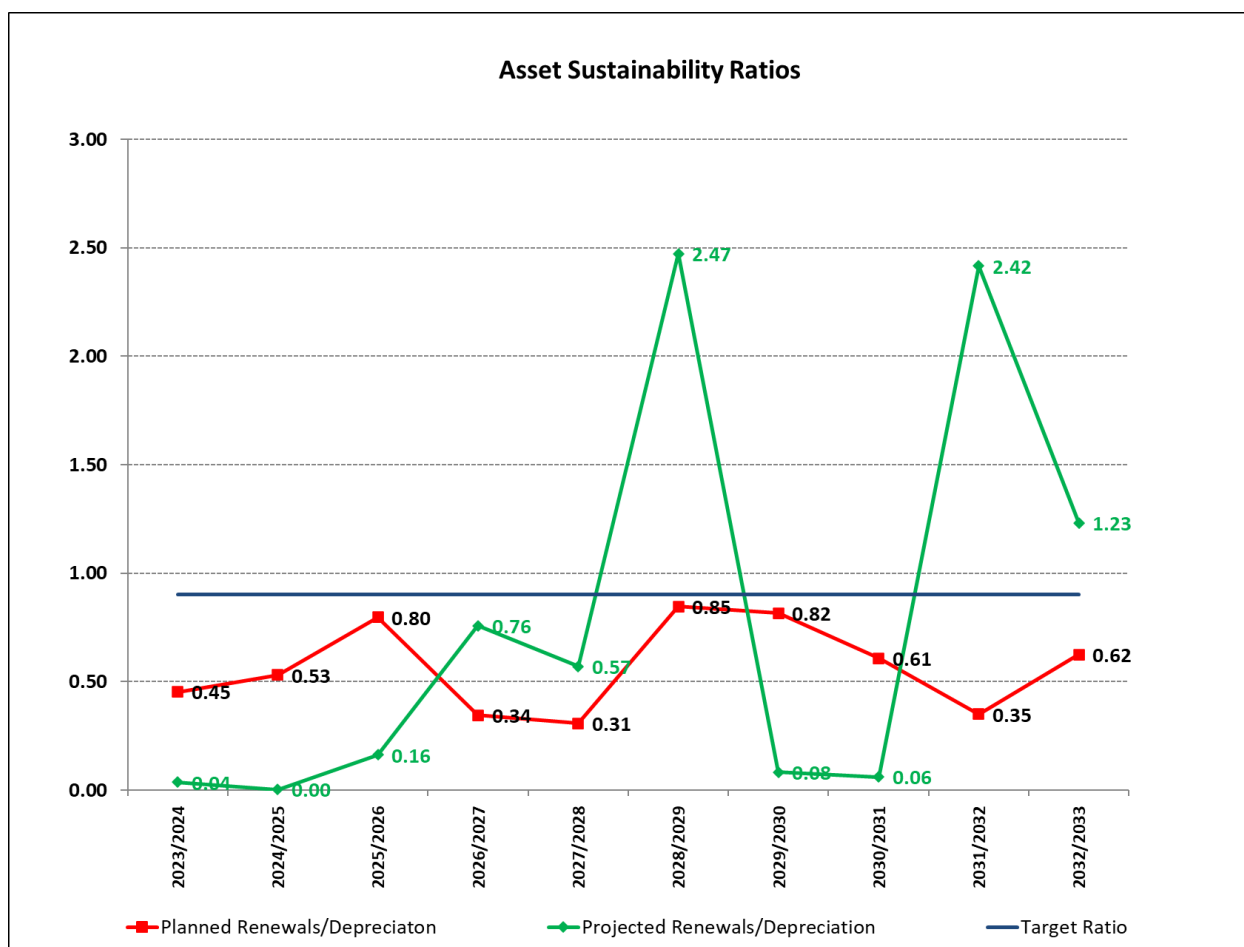
The current total annual depreciation is \$0.94M per annum. A 90% target equates to \$0.85M per annum. Projected renewals over the next 10 years average \$0.55M per year (65%) which indicates a significant shortfall. Figure 5.b shows the annual sustainability ratio based on planned and projected renewals. While the long term average is lower than the target, Council's financial position as well as the limited current demand makes improving this ratio difficult.

Major renewal demand sits just outside the planning period of this asset management plan, resulting in the increase of this percentage in future versions of this Asset Management Plan. If Council were in a more financially sustainable position it would be advisable to be putting funds into renewal reserves, however, given the significant shortfall in terms of funding depreciation this is not considered practical.



Council should use the next 5 years to understand the longer-term renewal profiles and incorporate this into water charges modelling.

Figure 5.b: Asset Sustainability Ratios



## 5.4 Asset Consumption Ratio

This ratio seeks to highlight the aged condition of a local government's stock of physical assets. If a local government is responsibly maintaining and renewing/replacing its assets in accordance with a well prepared asset management plan, then the fact that its' Asset Consumption Ratio may be relatively low and/or declining should not be cause for concern – providing it is operating sustainably.

The Asset Consumption Ratio is calculated by dividing the written down value of the assets by the current replacement cost of the assets. A ratio of 50% or greater means that Council is maintaining the standard of its assets, if the ratio is between 60% and 75%

The Asset Consumption Ratio for Water is 58% based on Councils 2021-2022 financial statements.

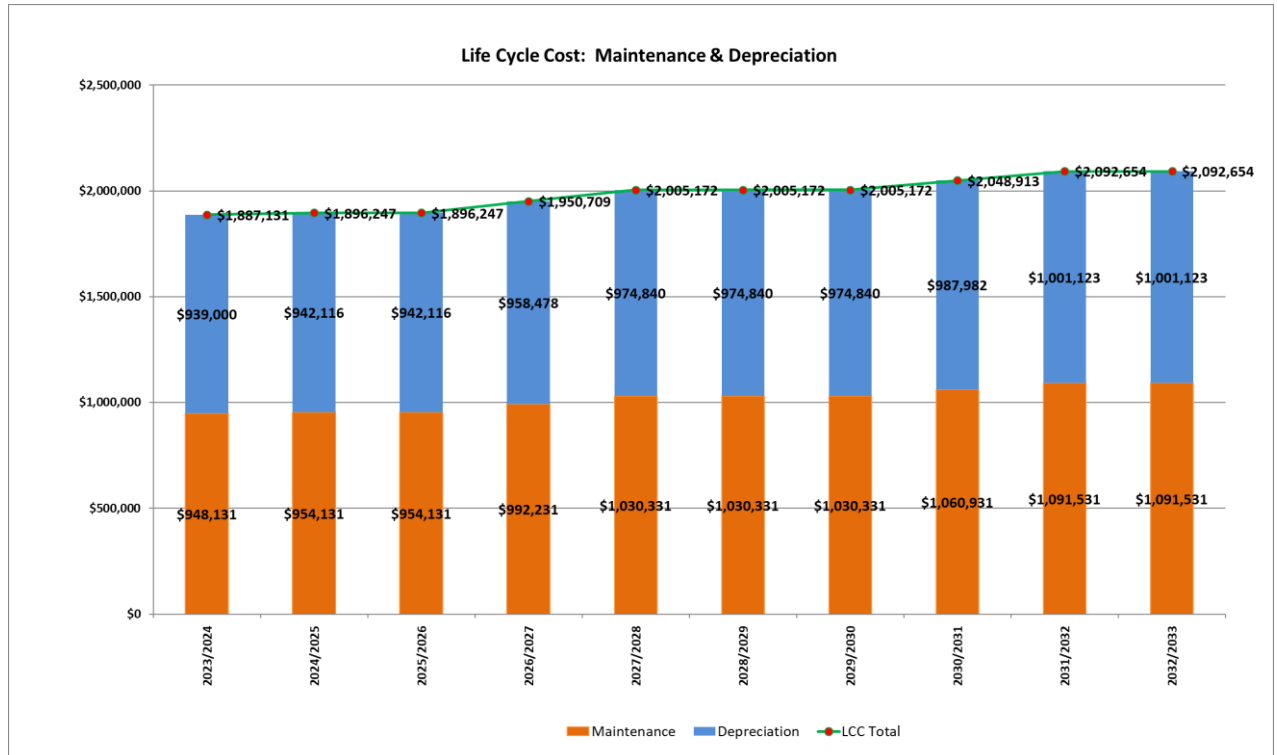


## 6 FINANCIAL SUMMARY

### 6.1 Summary Financial Projections

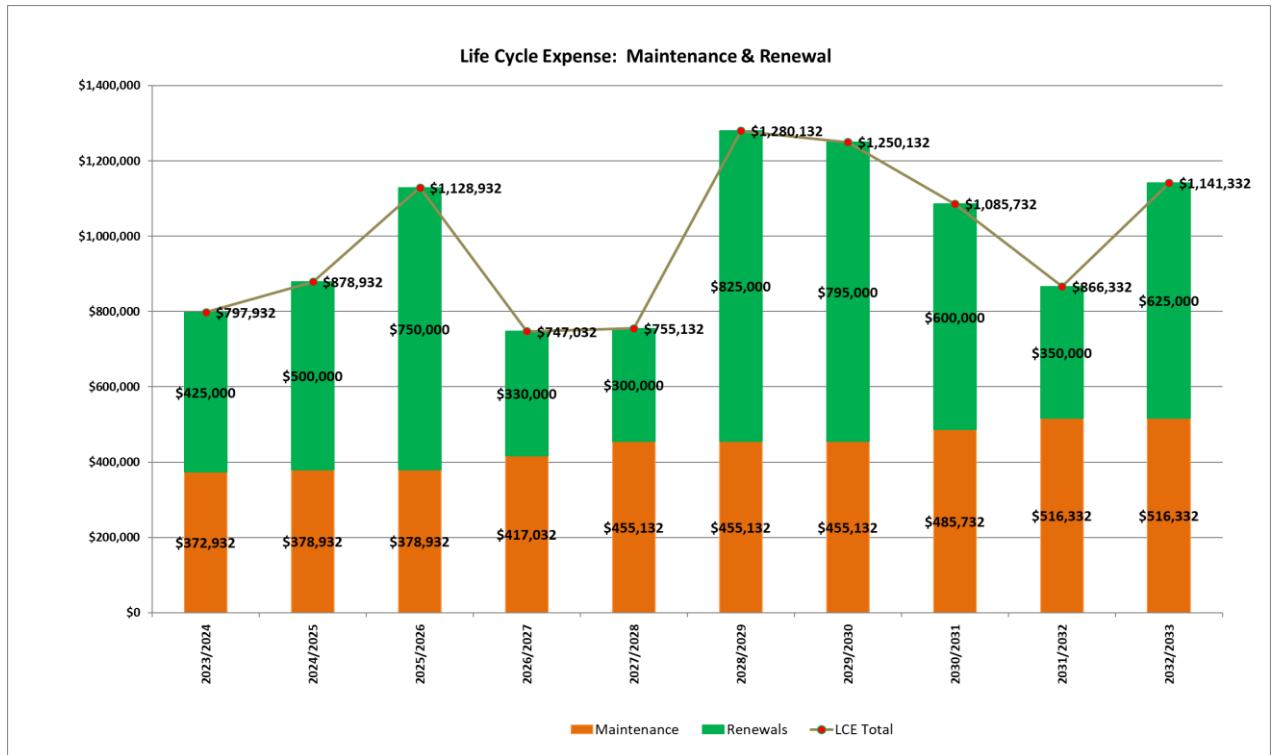
The Life Cycle Cost (LCC) shown in Figure 6.a is the average projected cost to provide the service over the longest asset life cycle. It comprises required annual maintenance based on Queensland Treasury Corporation benchmarks and asset consumption expense, represented by depreciation expense. The average LCC over the forward 10 years to provide the water assets is estimated at approximately \$1.78M per annum.

Figure 6.a: Life Cycle Cost



Life Cycle Expenditure (LCE) shown in Figure 6.b may be compared to LCC to give an initial indicator of life cycle sustainability. LCE is Council's actual or planned annual maintenance and capital renewal expenditure incurred in providing the service in a particular year. The average LCE over the forward 10 years to provide the water assets is estimated at approximately \$0.99M per annum. Thus the ratio LCE:LCC is 0.56. It is expected that this ratio will improve over time as Council's asset data improves and funding for renewals increases to meet the future demand. Council should also consider increasing maintenance expenditure to come closer to QTC benchmarks. Increasing maintenance expenditure should help prolong the life of asset as well as improving the reliability of this critical service.

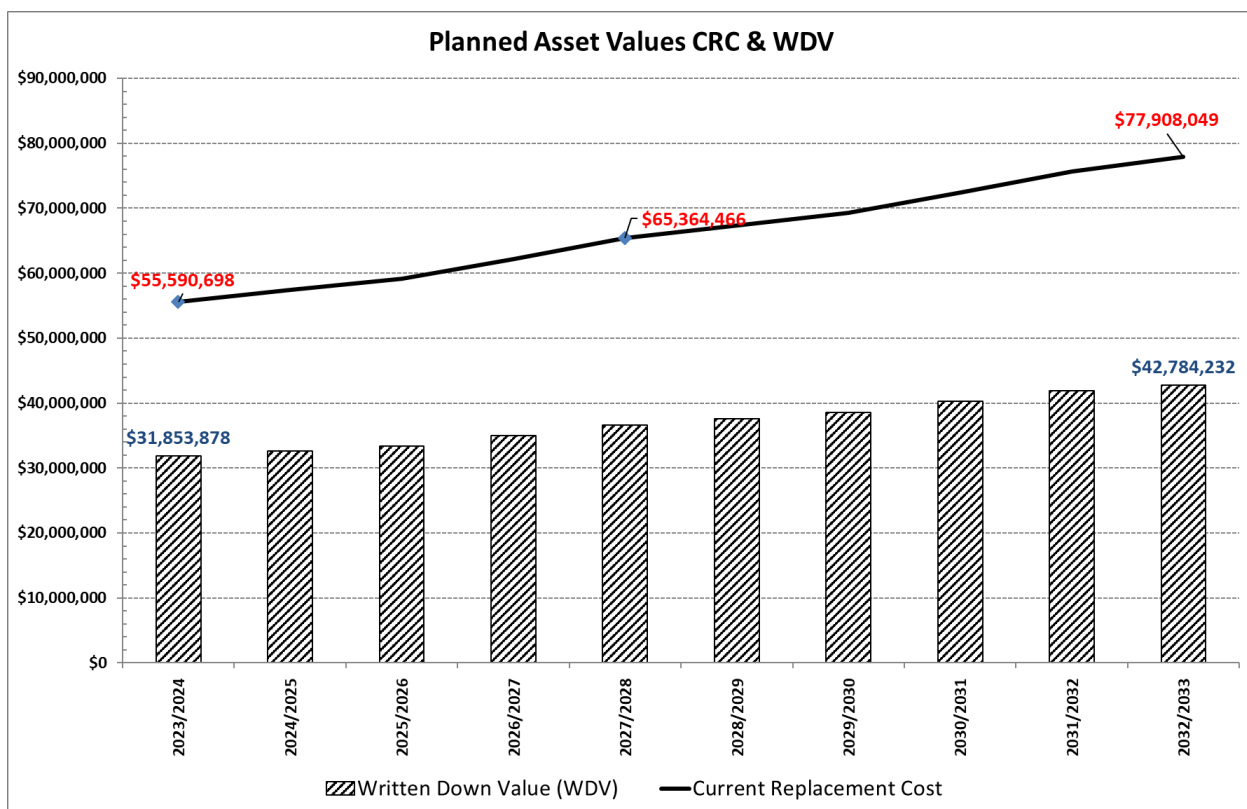
Figure 6.b: Life Cycle Expenditure



## 6.2 Future Valuations

Over the next 10-years, escalation in the cost of materials, labour and services will increase the value of Council's asset based and annual depreciation. Current escalation rates in the water class are relatively high as the class has assets that relate to both civil and building indices. Figure 6.c shows projected asset valuations for the water class, to present a balanced forecast annual indexation of 3% has been adopted. Council needs to ensure that cost increases are passed onto consumers to ensure that the organisation continues to meet legislative requirements.

Figure 6.c: Asset Values from Planned Capex & Indexation




### 6.3 Key Assumptions made in Financial Forecasts

This section details the key assumptions made in presenting the information contained in this asset management plan and in preparing forecasts of required operating and capital expenditure and asset values, depreciation expense and carrying amount estimates. It is presented 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:

- Natural disasters (such as flood), vandalism and other unplanned events are not considered in the asset lifecycles;
- Information within the water register and values are based on current knowledge only;
- Maintenance and operations allocations are largely based on maintaining current budget levels; and
- Depreciation has been calculated on a straight-line basis.

Other assumptions as detailed in section 5.2.2



Accuracy of future financial forecasts will be improved in future revisions of this asset management plan by the following actions:

- Provision of a detailed 1-3 year forward work plan (Council should then consider extending the plan to 5-10 years however shifting from year to year budgeting to 1-3 year budgeting will take significant focus but is achievable);
- Improved asset revaluation processes that incorporate operational information, increased focus on assets nearing end of life and industry benchmarks to better inform 10 year renewal plans
- Higher detail and definition in relation to the current expenditures by type e.g. operating, maintenance, renewal, upgrade/new;
- Full Implementation of a single Asset Register that is linked to the GIS;
- Maintaining the Asset Register and GIS integrity; and
- Reviewing useful lives for assets in conjunction with spatially linked main break information.

## 7 IMPROVEMENT PROGRAM AND MONITORING

### 7.1 Improvement Program

Focus areas for Water assets are related to better understanding the condition of assets so that renewals can be effectively planned into the future. As the water area is subject to regular review and reporting as a water regulator it is expected that many of the operational and risk based issues relevant to water assets will be managed and improved through this process.

Figure 7.a provides a list of improvements that Council should pursue in the water asset class.

Figure 7.a: Improvement Program

Improvement Task	Timeframe
Undertake detailed assessment of reservoirs and use information to update forward works program	2023
Ensure asset revaluations focus on condition data on assets approaching end of life & trunk/critical assets. Spatially mapping main breaks and incorporating this data into revaluations is considered critical.	Ongoing
Develop service connection renewal strategy and include financial allocation in future AMP and Budgets	2024
Review DWQMP risk register to incorporate asset related risks identified in this AMP as well reviewing controls following change of key operational staff. Following review consider adjusting operation budget to align residual risks with Council's risk appetite statement.	2024
Review current main break data, remaining useful lives and historic construction records to understand water main renewal demands	2025



beyond the period of this Asset Management Plan. Use this information to review water charging model and develop strategies to fund the expected spike in renewal demand.

Consider option to include buildings that are essential to and only exist to provide the water service into the water class. This will allow for easier revaluations as well as easier reporting and understanding the entire cost of providing the service.

2026 (prior to next revaluation)



## 7.2 Performance Measures

No data on asset management performance measures was available at the time of preparation of this AMP. Council should develop performance measures which can include:

- Adoption of the AMP by Council;
- Degree to which recommended cashflows are incorporated into long term financial plans and funding strategies;
- Degree to which works recommended by the AMP are incorporated into adopted budgets and capital works programs; and
- Achievement of tasks recommended in Improvement Program.

## 8 REFERENCES

- IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/IIMM](http://www.ipwea.org/IIMM)
- IPWEA, 2009, 'Australian Infrastructure Financial Management Guidelines', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/AIFMG](http://www.ipwea.org/AIFMG).
- IPWEA, 2011, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/IIMM](http://www.ipwea.org/IIMM).
- ISO 55000 Asset Management Standards, Australian Standards Board
- Accounting Standards, Australian Accounting Standards Board
- Local Government Act 2009, Department of Local Government QLD
- Community Town Infrastructure Policy
- Hinchinbrook Shire Council Comprehensive Revaluation Report 2019
- Local Government Act 2009, Department of Local Government QLD
- Hinchinbrook Shire Council, Corporate Plan 2021-2025
- Hinchinbrook Shire Council Operational Plan 2021-22
- Hinchinbrook Shire Drinking Water Quality Management Plan (revision F)
- DRDMW HSC DWQMP Audit 2021



## **APPENDICES**

### APPENDIX A

# **Definitions**



## Appendix A: Definitions

<b>Asset Condition Assessment</b>	The process of continuous or periodic inspection, assessment, measurement and interpretation of the resultant data to indicate the condition of a specific asset so as to determine the need for some preventative or remedial action.
<b>Asset Management</b>	The combination of management, financial, economic, engineering and other practices applied to physical assets with the objective of providing the required level of service in the most cost effective manner.
<b>Asset Management Plan</b>	A plan developed for the management of one or more infrastructure assets that combines multi-disciplinary management techniques (including technical and financial) over the lifecycle of the asset in the most cost effective manner to provide specified level of service. A significant component of the plan is a long term cash flow projection for the activities.
<b>Asset Renewal</b>	Replacement or rehabilitation to original size and capacity of a road or drainage asset or the component of the asset. Renewals are "capitalised", so that the cost can be depreciated over the future life of the asset.
<b>Core Asset Management</b>	Asset management which relies primarily on the use of an asset register, maintenance management systems, job/resource management, condition assessment and defined levels of service, in order to establish alternate treatment options and long term cash flow predictions. Priorities are usually established on the basis of financial return gained by carrying out the work (rather than risk analysis and optimised renewal decision making).
<b>Infrastructure Assets</b>	Physical assets of the entity or of another entity that contribute to meeting the public's need for access to major economic and social facilities and services, e.g. roads, drainage, footpaths and cycle ways. These are typically large, interconnected networks or portfolios of composite assets. The components of these assets may be separately maintained, renewed or replaced individually so that the required level and standard of service from the network of assets is continuously sustained. Generally, the components and hence the assets have long lives. They are fixed in place and are often have no market value.
<b>Level of Service</b>	The defined service quality for a particular service against which service performance may be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental, acceptability and cost).





<b>Life Cycle Cost</b>	The life cycle cost (LCC) is average cost to provide the service over the longest asset life cycle. It comprises annual maintenance and asset consumption expense, represented by depreciation expense. The Life Cycle Cost does not indicate the funds required to provide the service in a particular year.
<b>Life Cycle Expenditure</b>	The Life Cycle Expenditure (LCE) is the actual or planned annual maintenance and capital renewal expenditure incurred in providing the service in a particular year. Life Cycle Expenditure may be compared to Life Cycle Cost to give an initial indicator of life cycle sustainability.
<b>Maintenance and Renewal Sustainability Index</b>	Ratio of estimated budget to projected expenditure for maintenance and renewal of assets over a defined time (e.g. 5, 10 and 15-years).
<b>Performance Measure</b>	A qualitative or quantitative measure of a service or activity used to compare actual performance against a standard or other target. Performance indicators commonly relate to statutory limits, safety, responsiveness, cost, comfort, asset performance, reliability, efficiency, environmental protection and customer satisfaction.
<b>Reactive Maintenance</b>	Unplanned repair work carried out in response to service requests and management/supervisory directions.
<b>Scheduled Maintenance</b>	Maintenance carried out in accordance with a routine maintenance schedule e.g. scheduled maintenance grading.
<b>Planned Maintenance</b>	Repair work that is identified and managed through the customer requests system (Dataworks). These activities include inspections, assessing the condition against failure/breakdown experience, prioritising, scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.
<b>Rate of Annual Asset Renewal</b>	A measure of the rate at which assets are being renewed per annum expressed as a percentage of depreciable amount (capital renewal expenditure/ depreciable amount).
<b>Reactive Maintenance</b>	Unplanned repair work carried out in response to service requests & management / supervisory directions.
<b>Recurrent Expenditure</b>	Relatively small (immaterial) expenditure or that which has benefits expected to last less than 12 months. Recurrent expenditure includes operating and maintenance expenditure.
<b>Remaining Life</b>	The time remaining until an asset ceases to provide the required service level or economic usefulness. Age plus remaining life is economic life (also useful life).
<b>Renewal Expenditure</b>	Major works which do not increase the asset's design capacity but restores, rehabilitates, replaces or renews an existing asset to its original service potential.



<b>Upgrade/Expansion Expenditure</b>	Work over and above restoring an asset to original service potential.
<b>Useful Life (also economic life)</b>	Either:(a) the period over which an asset is expected to be available for use by an entity, or (b) the number of production or similar units expected to be obtained from the asset by the entity. It is estimated or expected time between placing the asset into service and removing it from service, or the estimated period of time over which the future economic benefits embodied in a depreciable asset, are expected to be consumed by the Council.
<b>New Assets</b>	Activities that create a road or drainage asset that did not exist previously or extend an asset beyond its original size or capacity. New assets are also "capitalised", but they increase the asset base rather than restore its capacity to perform.



APPENDIX B

# **Summary of Forecast Lifecycle Costings for 10- Years**



## Appendix B: Summary of Forecast Lifecycle Costings for 10-Years

	2022/2023	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031	2031/2032
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
<b>Renewal Capex (FWP)</b> <b>Existing assets only</b>	\$425,000	\$500,000	\$750,000	\$330,000	\$300,000	\$825,000	\$795,000	\$600,000	\$350,000	\$625,000
<b>Renewal Capex (SL)</b>	\$34,000	\$2,500	\$152,900	\$726,418	\$556,180	\$2,409,726	\$81,300	\$60,600	\$2,418,355	\$1,233,165
<b>Accumulative Gap (FWP-SL)</b> <b>Positive is a short fall in funding.</b> <b>Negative is overspend (before condition or service requires).</b>	\$391,000	\$888,500	\$1,485,600	\$1,089,182	\$833,002	-\$751,724	-\$38,024	\$501,376	-\$1,566,979	-\$2,175,144
<b>Maintenance (FWP)</b>	\$372,932	\$384,120	\$395,644	\$407,513	\$419,738	\$432,330	\$445,300	\$458,659	\$472,419	\$486,592
<b>Maintenance (SL)</b>	\$555,907	\$555,907	\$555,907	\$555,907	\$555,907	\$555,907	\$555,907	\$555,907	\$555,907	\$555,907
<b>New Capex (FWP)</b>	\$0	\$200,000	\$0	\$1,270,000	\$1,270,000	\$0	\$0	\$1,020,000	\$1,020,000	\$0
<b>Maintenance (New Capex)</b>	\$0	\$6,000	\$0	\$38,100	\$38,100	\$0	\$0	\$30,600	\$30,600	\$0



APPENDIX C

# **Projected Renewals from Valuations**



## Appendix C: Projected Renewals from Valuations

### Assets with 10 Years or Less RUL –

Row Labels	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
<b>Active</b>	\$ 34,000	\$ 2,500	\$ 152,900	\$ 710,300	\$ 548,600	\$ 2,409,726	\$ 81,300	\$ 60,600	\$ 176,000	\$ 115,600	\$ 93,319
Electrical Infrastructure\Electrical		\$ 5,000	\$ 134,000	\$ 62,000				\$ 21,000		\$ 11,963	
Mechanical\Generators										\$ 27,000	
Transport Infrastructure\Car Parks											
Transport Infrastructure\Roads\SURF											
Water Supply\Water Plant & Equipment	\$ 2,500	\$ 5,000	\$ 26,400	\$ 64,000	\$ 65,000	\$ 70,700	\$ 60,600		\$ 28,500	\$ 30,975	
Water Supply\Water Pump			\$ 37,600		\$ 88,696	\$ 7,600					
Water Supply\Water Pump Stations	\$ 31,000				\$ 42,900			\$ 18,500			
Water Supply\Water Reservoirs			\$ 352,000	\$ 1,075,000							
Water Supply\Water Treatment Facility	\$ 3,000	\$ 142,900	\$ 500,300	\$ 30,600	\$ 1,138,130	\$ 3,000		\$ 91,900	\$ 87,100	\$ 23,381	
Water Supply\Water Treatment Systems			\$ 12,000	\$ 40,000				\$ 44,600			
<b>Passive</b>			\$ 16,118	\$ 7,580				\$ 2,242,355	\$ 1,117,565		
Building and Facilities											
Sewer\Sewer Mains											
Water Supply\Water Hydrants			\$ 3,118					\$ 176,810			
Water Supply\Water Mains				\$ 7,580				\$ 46,424	\$ 1,115,365		
Water Supply\Water Meters & Service			\$ 13,000					\$ 1,296,852	\$ 2,200		
Water Supply\Water Nodes								\$ 722,269			
<b>(blank)</b>											
(blank)											
<b>Grand Total</b>	\$ 34,000	\$ 2,500	\$ 152,900	\$ 726,418	\$ 556,180	\$ 2,409,726	\$ 81,300	\$ 60,600	\$ 2,418,355	\$ 1,233,165	\$ 93,319



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