



Hinchinbrook Shire Council

# Asset Management Plan- Sewerage

June 2023



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**HINCHINBROOK**  
SHIRE COUNCIL



Hinchinbrook Shire Council  
**Asset Management Plan- Sewerage**  
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) for Hinchinbrook Shire Council's sewerage assets, was developed using data from Council's Financial Asset Register and Council's budget. Sewerage assets provide a critical service to the community by allowing the community to hygienically dispose of wastewater.

The purpose of this AMP is to assist Council in:

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

Management of the sewerage class has been driven by legislative requirements meaning that funding for renewals and maintenance have met the immediate needs of the class in recent years. Council has had ongoing relining program for gravity mains in place for over a number of years meaning that with continued efforts gravity mains should remain serviceable for the future.

The emerging issue for Council is the condition of its sewer pump stations and rising mains. While Council has been renewing many of the electrical components of its pump stations when they fail the more significant components of these assets are nearing end of life. The renewal of these assets comes with significant financial implications and also creates operational challenges that need to be planned for and managed during construction.

Sewer rising (pressure) mains represent critical assets in Council's sewerage network. Failure of these assets creates significant operational challenges as well as having the potential to cause significant environmental harm. Unlike gravity mains which are relatively easy to assess condition and renew by relining, rising mains are difficult and costly to assess condition and renew. To reduce the likelihood of significant failures a program of rising mains renewals is required in the next 10 years and beyond.

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

- Undertake detailed assessment of pump stations and rising main 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 gravity main relining information and incorporating this data into revaluations is considered critical.
- Review network capacity to accommodate planned growth and adjust planning scheme or LTFP and AMP to reflect capacity requirements to accommodate growth.
- Consider option to include buildings that are essential to and only exist to provide the sewerage service into the sewerage class. This will allow for easier revaluations as well as easier reporting and understanding the entire cost of providing the service.



# 1 BACKGROUND

## 1.1 Purpose of the Plan

The purpose of this AMP is to assist Council in:

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

This 'core' plan documents asset management planning information for the sewerage assets for the HSC. This plan focuses on the identification of the high level challenges and opportunities within the sewerage asset class.

The data available to develop this AMP came from a number of different sources with relatively poor alignment and no consistent key to join data. Traditional and detailed analysis of the data is of limited value as the data was never created nor has it been maintained in a way that facilitates reliable analysis. At a class level the data Council has available is adequate to identify trends and that the ongoing sustainability of this class is reasonable for the next 10 years, however improved condition data on active assets is required to verify this assessment.

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

This AMP has been prepared in accordance with the HSC 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 sewerage 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 sewerage 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.c outlines the roles and responsibilities for asset management within HSC.





**Table 1.c: 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 1.d provides a list of Legislation that is relevant to the sewerage asset class.

Table 1.d: 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.
Environmental Protection Act 1994	Act to protect 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.
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.
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 sewerage assets. Currently all buildings major that are directly related to the provision of sewerage services are included in the building class.

### 2.1 Physical Parameters

The assets included in this AMP are shown in the following table, based on Council's 2019 asset revaluation.

Table 2.a: Extent of Assets (1 July 2022)

Asset Sub Category	Number
Treatment Plants	2
Sewer Pump Stations	70
Sewer Gravity Mains	61km
Sewer Rising Mains	47km



Sewer Nodes	935
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## 2.2 Asset Valuations

Asset valuations for the sewerage class have been undertaken from a high level valuation approach with data then loaded into TechnologyOne. Table 2b details the value of assets in the sewerage class based on 2021 revaluation data.

Table 2.b: Asset Valuations by Asset Type at 1 July 2022

Asset Type	Replacement Cost	Written Down Value
Civil	\$8,539,600	\$3,672,462
Electrical	\$1,600,300	\$1,060,038
Lighting	\$4,250	\$3,825
Mechanical	\$1,514,700	\$710,576
Pipe Works & Fitting	\$585,000	\$356,989
Security	\$111,500	\$69,690
Sewer Envelope	\$12,308	\$12,209
Sewer Gravity Main	\$17,137,815	\$11,613,321
Sewer Manhole	\$2,741,400	\$1,252,261
Sewer Rising Main	\$4,144,825	\$2,771,169
Shed	\$64,500	\$46,372
<b>Total</b>	<b>\$36,456,198</b>	<b>\$21,568,912</b>

## 2.3 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 sewerage 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 sewer 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 relining data in the GIS to the asset register to inform future revaluation processes.

## 2.4 Asset Age and Remaining Life

Asset lives for sewerage assets in Council's asset register vary from 2 to 150 years. Council's 2021 asset revaluation had useful life ranges from 5 to 210 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 2.d provides the average age and average remaining useful life (RUL) for assets by Asset Type.

**Table 2.d: Average Age and Remaining Useful Life by Asset Type Base on 2021 Revaluation Data.**

Asset Type	Average Useful Life - Short	Average Remaining Useful Life - Short	Average Useful Life - Long	Average Remaining Useful Life - Long
Civil	72	48	100	84
Electrical	12	8		
Lighting	39	35		
Mechanical	26	17		
Pipe Works & Fitting	88	58		



Asset Type	Average Useful Life - Short	Average Remaining Useful Life - Short	Average Useful Life - Long	Average Remaining Useful Life - Long
Security	27	19		
Sewer Envelope	85	84	150	149
Sewer Gravity Main	85	49	159	128
Sewer Manhole	70	19	150	99
Sewer Rising Main	96	66		
Shed	41	23	100	82

Based on the 2021 revaluation data there was \$1.76M of sewerage assets that will reach end of life within the 10 year planning period covered by this AMP. Based on the financial asset register \$2.06M of assets will reach end of life within the same planning period.

Recent levels of funding for sewerage renewals have been focused on relining of gravity mains with Council staff generally comfortable that the level of funding for gravity main renewals is adequate at the current point in time. In the immediate term Council needs to focus on understanding the remaining useful lives of pump stations and rising mains within its sewerage network. This data is needed to provide a better understanding of the timeframes and costs associated with keeping these critical assets operational.

Renewal funding for pump stations and rising mains will need to be increased over the next 10 years as these critical assets which have significant consequence if they fail are approaching end of their operational life.

Council's financial asset register reports that 89% of assets are in condition 1 which is not considered to be accurate. Updating the financial asset register with the latest revaluation data will provide a more realistic view of the condition profile in future updates of this asset management plan.

## 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 the 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;
- 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 sewer main with a 150mm sewer main) or a new service that did not exist previously (e.g. extending the sewer service area and supply network);

Service levels for sewerage are defined and reported on annually in Council's Customer Service Standard for Water and Sewerage Services and annual reports. See:

<https://www.hinchinbrook.qld.gov.au/water-waste-and-roads/water-and-sewerage/customer-service-standard/>



### 3.2 Sustainable Asset Base

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

The 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 \$36M of sewerage assets should be between \$0.54M and \$1.8M (excluding depreciation). When depreciation figures from Council's financial statements of \$0.46M are included the total cost of ownership of the sewerage assets owned by Council is estimated to be \$1M to \$2.26M per annum.

Council's current maintenance and operations expenditure on sewerage assets is in the order of \$0.83m per annum which is on the lower end of the range recommended by QTC. Being on the lower end of the range will mean that the amount of preventative maintenance that is being undertaken on active assets will be minimal which will be shortening the lives of active assets and increasing the risk of unexpected failures.

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

- Ensure treatment plant operations are optimized;
- Reducing energy costs by reviewing tariffs, monitoring and reducing consumption and potentially installing solar on assets that will be maintained for greater than 20 years;
- Continuing to attempt to identify and reduce points of inflow and infiltration into the network to reduce pumping and treatment costs; and
- Consideration of higher treatment processes resulting in reuse options for recycled water.

### 3.3 Risk Management

Due to the environmental regulations around the operation of sewerage assets risk management principles are generally well embedded within the sewerage operations of Council.

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.

Generally the performance and operations of the sewerage 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 adjust develop new data, systems and approaches to manage service provision. It is critical for Council to adequately support and resource the sewerage service to ensure any changes in risk management approach can be implemented.

Strategic level risks for Council to consider in the sewerage asset class include:

- Natural Disasters & limitation of insurance policy.
- Many of Council's sewer pump stations are reaching an age where renewal of major components will be required in the next 10 years and beyond. As these assets play a key role to the operation and are difficult to renew while in service a broader strategy should be considered to optimize this renewal program. Optimising the design of renewal works, sequencing of rising main and pump station renewals and timing works in the dry season will assist in reducing the cost of this extensive and long term program.
- The condition of rising mains is difficult and expensive to determine. These assets are critical within the sewerage network and improving understanding of their condition should be a priority to allow for more informed management of risk.
- Review of forecast growth areas to ensure the sewerage system has adequate capacity to accommodate growth (particularly Lucinda STP). Consideration to a development density that allows for on-site treatment should be given to allow for development without the ongoing costs of sewerage collection and treatment. Noting that as environmental regulations increase the costs of effluent treatment rises significantly.
- Sewer relining programs have been restoring the integrity of Council's gravity mains however inflow and infiltration remains a challenge. While Council has undertaken smoke testing to identify locations where stormwater is flowing into the sewer network the problem remains significant with wet weather flows in some areas being greater than 10 times dry weather flows. Pumping and treating stormwater during the north Queensland wet season adds to energy and chemical costs. Currently overflow arrangements reduce the amount of stormwater that is pumped and processed however if environmental regulations remove or reduce this option in future Council would be exposed to significant increases in upgrade and operational costs.
- The Lucinda STP is reported as operating adequately under current loading and license conditions. Council needs to ensure adequate funding and resources are made available





to maintain and operate the plant to prolong the timing of major renewals. When renewing the plant in future Council should focus on a design that allows for the current process and license conditions to be retained to keep whole of life costs low. If Council wants to increase capacity or improve the treatment process it is strongly recommended that the whole of life cost implications be understood before committing to an upgrade.

- Condition of some buildings (buildings asset class) and reservoirs requires further investigation and funding to rectify issues.
- Assumptions around the number and life of gravity main relining treatments should be reviewed by engineering staff to confirm that the accounting assumptions are accurate given current technologies and relining practices used by Council.
- Relatively small operational team with limited surplus capacity to cover for periods of extended absenteeism or during periods of high staff turnover.

The Improvement Plan outlines opportunities for Council to improve its risk management practices to align with its risk appetite.

## 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 4.1 provides forecast population projects based on Census data.

Table 4.1 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 sewerage class will be focused on improving network and treatment efficiency and any upgrades required due to increasing regulatory requirements. Servicing the beach communities may also be a driver for asset growth however affordability and financial sustainability needs significant consideration prior to implinetnig new sewerred areas.



## 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 modeling. Based on available data which has been reviewed by Council staff the figures in table 5.a represent the best available data for historical maintenance costs.

Table 5.a: Historical Operations and Maintenance Costs (2019-2022)

Expenditure Type	\$
Operations	\$0.65M
Maintenance	\$0.19M
<b>Total OPEX (O &amp; M)</b>	<b>\$0.84M</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

Council has had a significant focus on the relining of gravity sewers and manholes for a number of years. These works have been focused on the older parts of the network in an effort to reduce inflow and infiltration of stormwater into Council's sewer network. Renewals of active assets have been on a smaller scale with a focus on pumps and electrical systems including SCADA (supervisory control and data acquisition).

#### 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 Asset Management Plan commenced. Council's Local Government Infrastructure Plan had a number of upgrade projects listed with all of these projects being considered critical included in this Asset Management Plan.

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:

- Lucinda STP will be maintained with adequate maintenance funding provided when required. With appropriate maintenance & no additional loading this plant is



expected to last another 10 years before major renewals are required. A \$0.5m allocation to commence planning and design for a renewal of the plant has been made to ensure that this project remains in Council's future works program.

- Renewal of two smaller and two larger pump stations based on priority within the next 10 years.
- Replacement of the main rising main that connects to the Ingham STP.
- Installation of an improved inlet process at the Ingham STP.
- 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.

### 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 5a. 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.b shows projected and planned renewals alongside depreciation. Planned renewals are significantly higher than projected for a number of reasons, including:

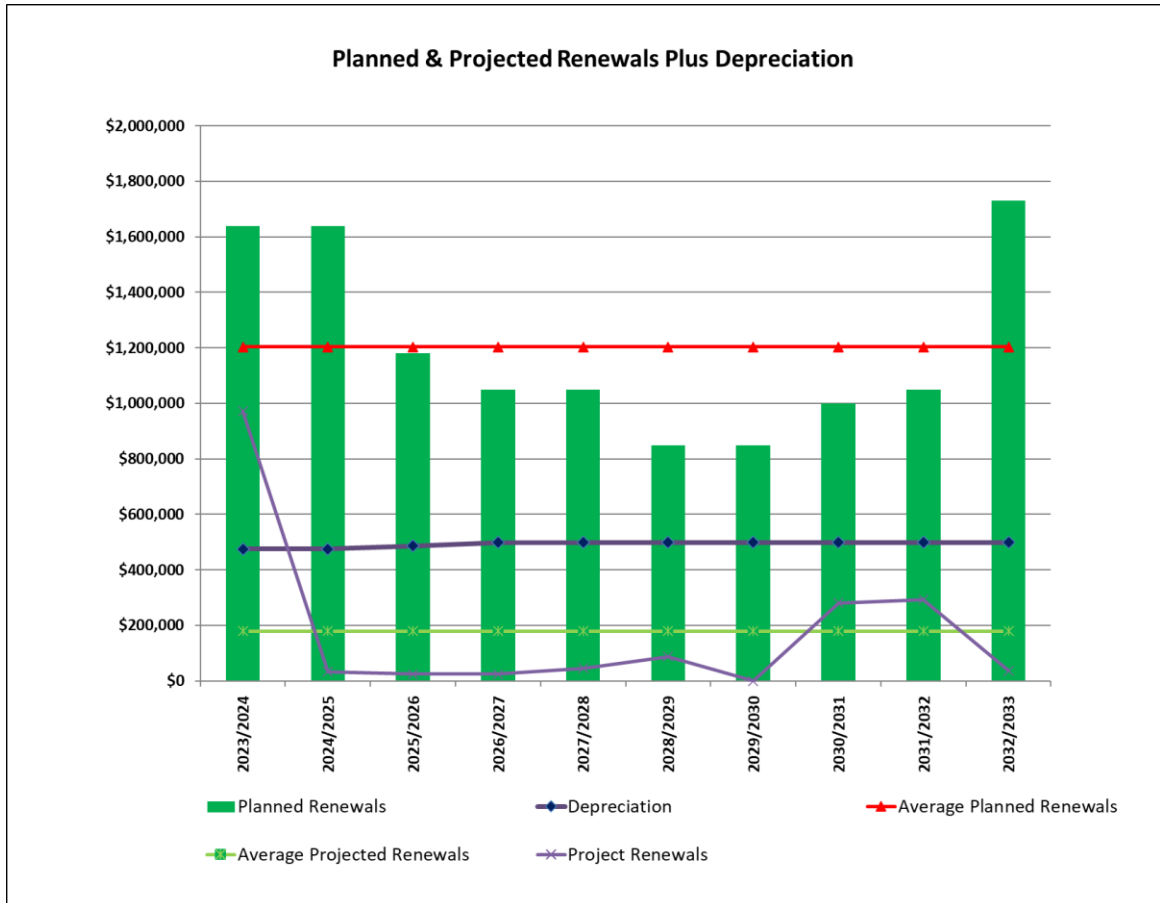
- Condition of rising mains and pump stations not well represented in the financial asset register;
- Continued early renewals of gravity mains (relining) due to need to reduce inflow and infiltration;
- Upgrade to Ingham Sewerage Treatment Plant Inlet

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 5.a: 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
Gravity main relining program	renewal	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$2,500,000
Pump stations renewal program	renewal	\$25,000	\$25,000	\$450,000	\$500,000	\$500,000	\$50,000	\$50,000	\$500,000	\$450,000	\$500,000	\$3,050,000
Treatment plant renewal program	renewal							\$250,000	\$250,000		\$500,000	\$1,000,000
Rising Main Renewals	renewal	\$1,050,000	\$1,050,000	\$180,000	\$180,000	\$180,000	\$180,000	\$180,000	\$180,000	\$180,000	\$180,000	\$3,540,000
SCADA/Electrical/pump renewal program	renewal	\$200,000	\$200,000	\$200,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$200,000	\$920,000
Manhole renewal program	renewal	\$50,000	\$50,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$900,000
Ingham Sewer Treatment Plant inlet works	upgrade			\$900,000	\$700,000							\$1,600,000

Figure 5.b: Planned and Projected Renewals and Depreciation

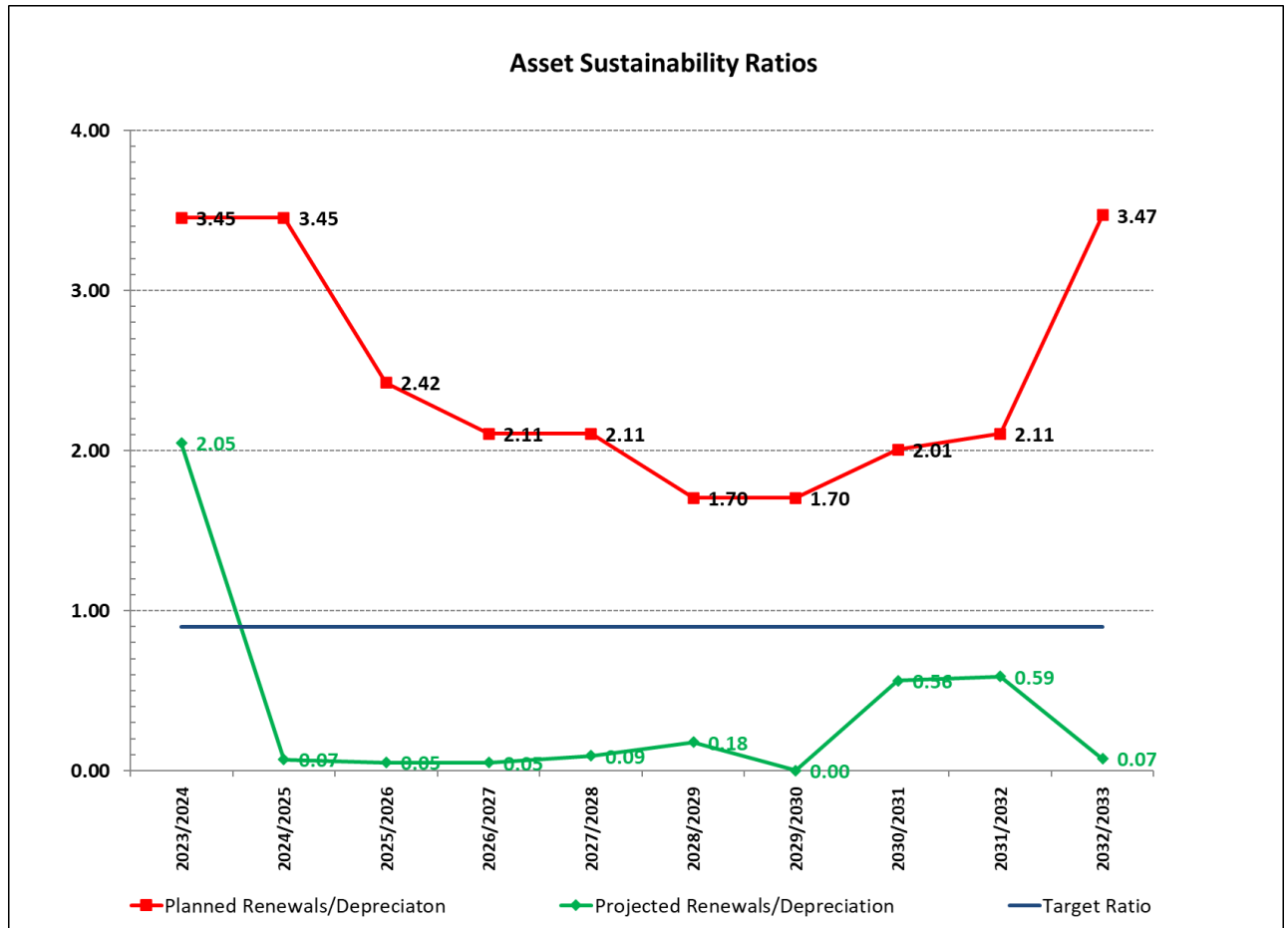


### 5.3 Asset Sustainability Ratio

Council's planned (budgeted) new and upgrade works over the next 10 years averages approximately 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 Queensland Audit Office sets a target for renewals that is equal to or greater than 90% of depreciation.

The current total annual depreciation is \$0.46M per annum. A 90% target equates to \$0.41M per annum. Projected renewals over the next 10 years average \$0.18M per year (39%) which indicates a significant shortfall. Planned renewals average \$1.2M per year which significantly exceeds the 90% target. This is largely due to the significant planned investment in the renewal of high risk rising mains and pump stations as well as ongoing investment in relining and manhole renewals. These figures are also high given the long life component of gravity mains being 180-210 years which lowers the depreciation expense figure. Figure 5.c shows the annual sustainability ratio based on planned and projected renewals.

Figure 5.c: 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%

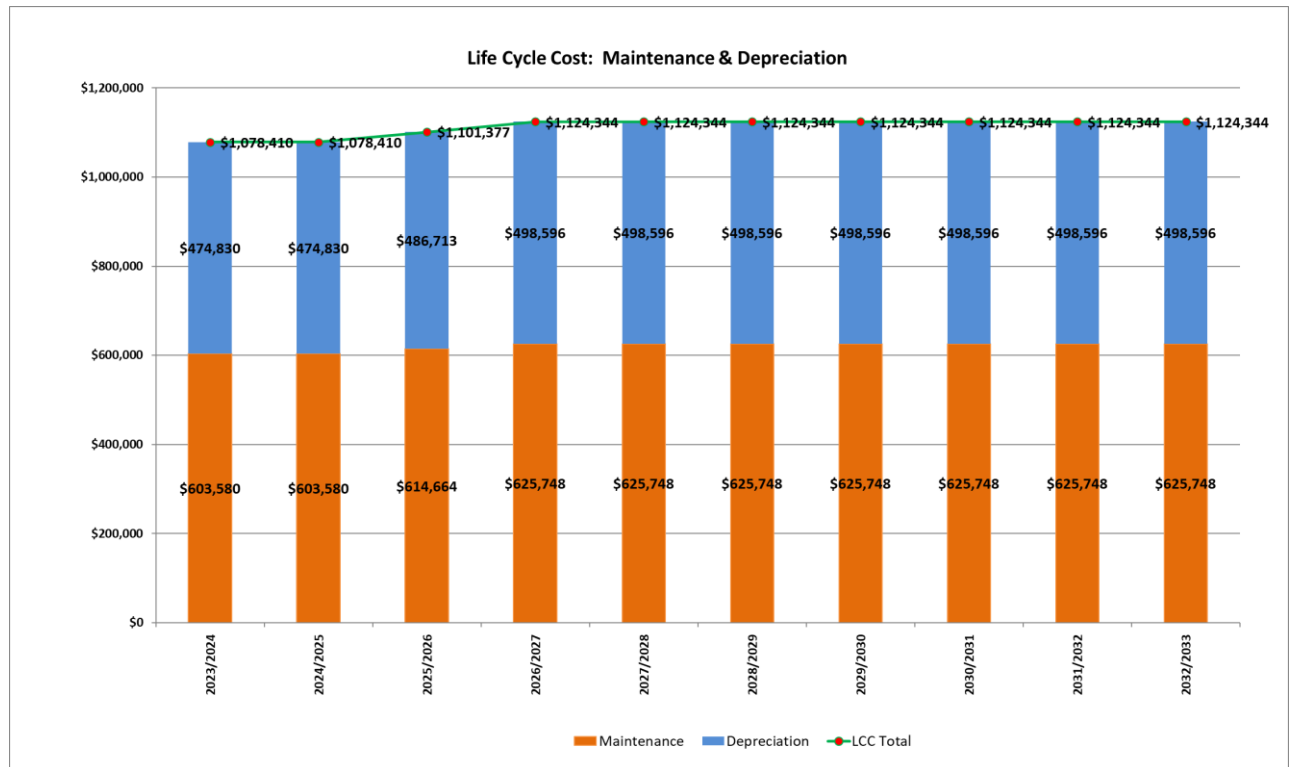
The Asset Consumption Ratio for Sewer is 58% based on Councils 2021-2022 financial statements.

## 6 FINANCIAL SUMMARY

### 6.1 Summary Financial Projections

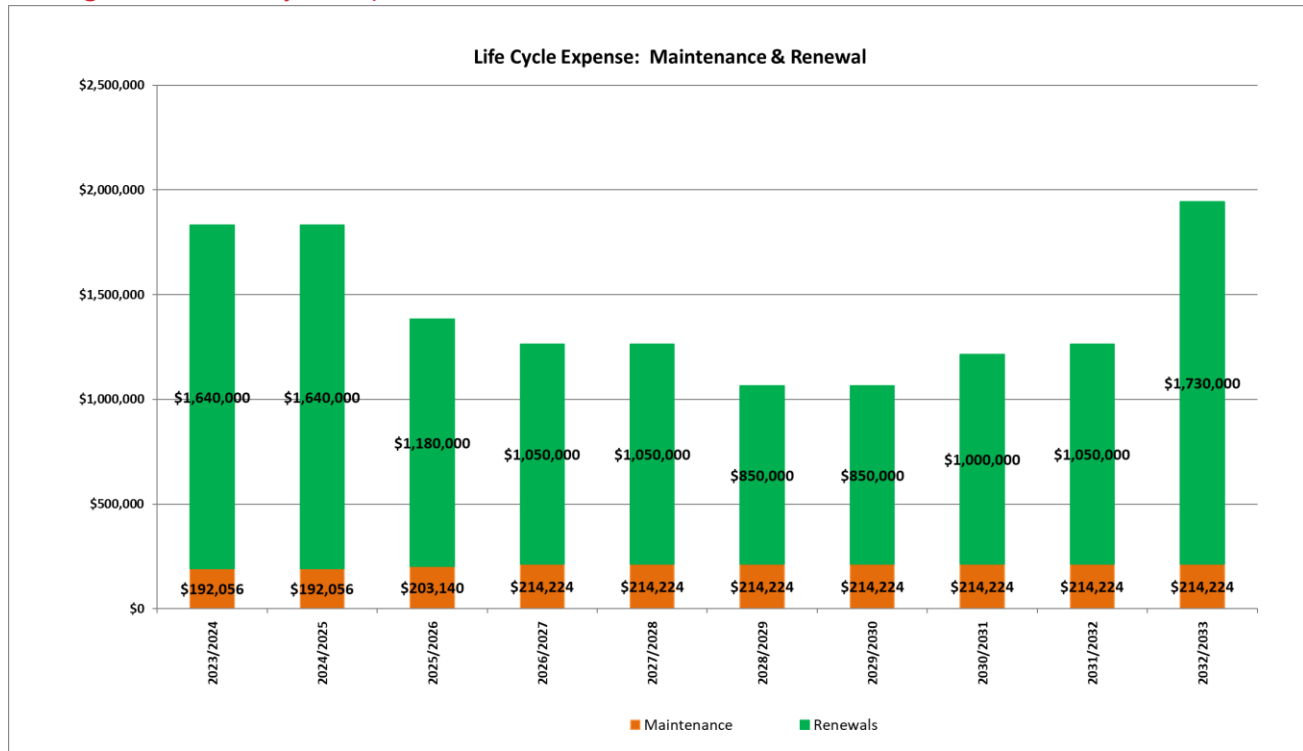
The Life Cycle Cost (LCC) shown in Figure 6.a is the average projected cost to provide the service over the longest asset life cycle. It comprises required annual maintenance based on Queensland Treasury Corporation benchmarks and asset consumption expense, represented by depreciation expense. The average LCC over the forward 10 years to provide the sewerage service is estimated at approximately \$0.8M 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 sewerage service is estimated at approximately \$1.4M per annum. Thus the ratio LCE:LCC is 1.77. This ratio is high as Council is currently in a period of significant renewals of assets that have a significant consequence if they fail.

Figure 6.b: Life Cycle Expenditure

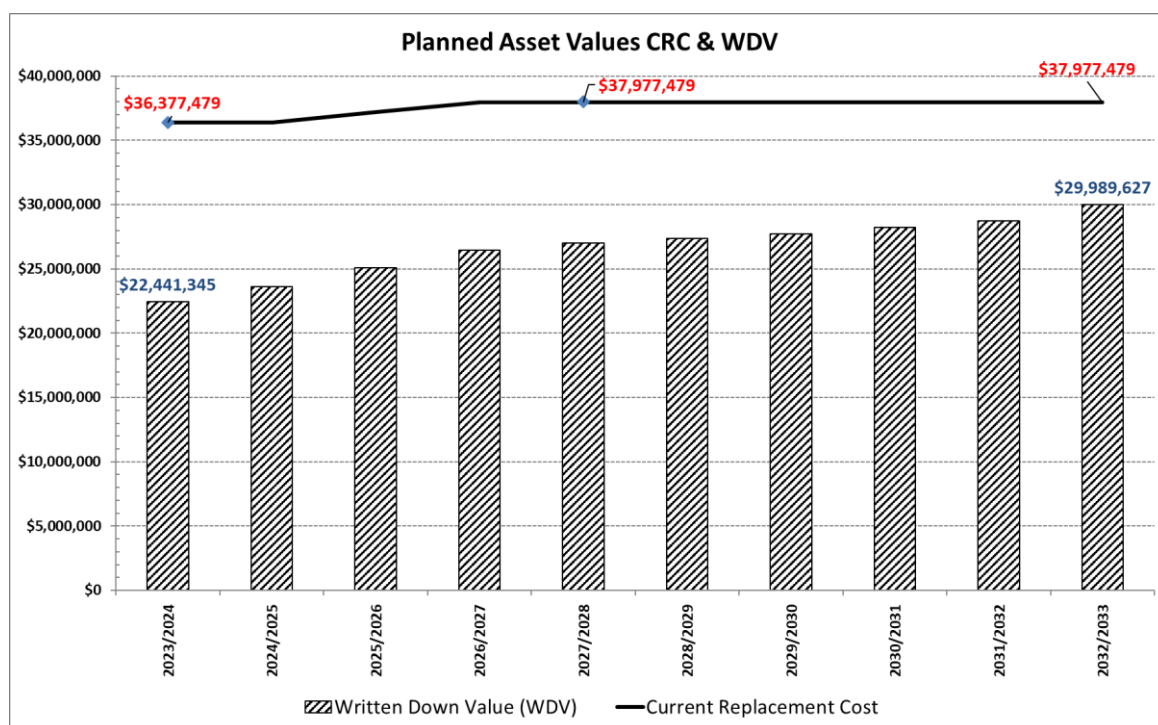


## 6.2 Future Valuations

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 sewerage 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 sewerage 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 sewerage 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 may 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);
- Condition assessment of pump stations;



- Performance and condition assessment of rising mains;
- 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
- Reviewing useful lives for assets in conjunction with spatially linked gravity main relining information.
- Full Implementation of a single Asset Register that is linked to the GIS; and
- Maintaining the Asset Register and GIS integrity.

## 7 IMPROVEMENT PROGRAM AND MONITORING

### 7.1 Improvement Program

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

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

Figure 7.a: Improvement Program

Improvement Task	Timeframe
Undertake detailed assessment of pump stations and rising main 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 gravity main relining information and incorporating this data into revaluations is considered critical.	Ongoing
Review network capacity to accommodate planned growth and adjust planning scheme or LTFP and AMP to reflect capacity requirements to accommodate growth.	2024
Consider option to include buildings that are essential to and only exist to provide the sewerage service into the sewerage 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 Asset Management Plan. Council should develop performance measures which can include:

Adoption of the Asset Management Plan by Council:

- Degree to which recommended cashflows are incorporated into long term financial plans and funding strategies;
- Degree to which works recommended by the asset management plan 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
- Customer Service Standard for Water and Sewerage Services 2014



## **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>										
Existing assets only	\$1,640,000	\$1,640,000	\$1,180,000	\$1,050,000	\$1,050,000	\$850,000	\$850,000	\$1,000,000	\$1,050,000	\$1,730,000
<b>Renewal Capex (SL)</b>										
	\$971,652	\$33,000	\$24,600	\$25,000	\$45,790	\$88,200	\$0	\$280,497	\$292,947	\$37,000
<b>Accumulative Gap (FWP-SL)</b>										
Positive is a short fall in funding. Negative is overspend (before condition or service requires).	\$668,348	\$2,275,348	\$3,430,748	\$4,455,748	\$5,459,958	\$6,221,758	\$7,071,758	\$7,791,261	\$8,548,314	\$10,241,314
<b>Maintenance (FWP)</b>										
	\$192,056	\$197,818	\$203,752	\$209,865	\$216,161	\$222,646	\$229,325	\$236,205	\$243,291	\$250,589
<b>Maintenance (SL)</b>										
	\$603,580	\$621,687	\$640,338	\$659,548	\$679,335	\$699,715	\$720,706	\$742,327	\$764,597	\$787,535
<b>New Capex (FWP)</b>										
	\$0	\$0	\$800,000	\$800,000	\$0	\$0	\$0	\$0	\$0	\$0
<b>Maintenance (New Capex)</b>										
	\$0	\$0	\$11,084	\$11,084	\$0	\$0	\$0	\$0	\$0	\$0



APPENDIX C

# **Projected Renewals from Valuations**



## Appendix C: Projected Renewals from Valuations

Assets with 10 Years or Less RUL –

Sum of CURRENT_REPLACEMENT_VALUE	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Electrical Infrastructure\Electrical	\$ 10,000	\$ 10,000			\$ 24,000	\$ 18,000		\$ 114,000	\$ 29,000	\$ 37,000
Electrical Infrastructure\Electrical\Distribution Board	\$ 6,000									
Mechanical\Generators						\$ 41,500				
Sewer\Sewer Plant & Equipment		\$ 13,000						\$ 55,000	\$ 8,000	
Sewer\Sewer Pump	\$ 3,352		\$ 9,600	\$ 25,000	\$ 21,790			\$ 111,497	\$ 255,947	
Sewer\Sewer Pump Stations										
Sewer\Sewer Treatment Facility						\$ 28,700				
Sewer\Sewer Treatment Systems	\$ 952,300	\$ 10,000	\$ 15,000							
Passive										
Sewer\Sewer Mains										
Sewer\Sewer Nodes										
<b>TOTAL</b>	<b>\$ 971,652</b>	<b>\$ 33,000</b>	<b>\$ 24,600</b>	<b>\$ 25,000</b>	<b>\$ 45,790</b>	<b>\$ 88,200</b>	<b>\$ -</b>	<b>\$ 280,497</b>	<b>\$ 292,947</b>	<b>\$ 37,000</b>



GPO Box 422, Brisbane Q 4001

**P:** (07) 4911 2716

**E:** [info@shepherdservices.com.au](mailto:info@shepherdservices.com.au)

**W:** [shepherdservices.com.au](http://shepherdservices.com.au)

Shepherd Services Pty Ltd ACN 611 140 946