



Edward River
COUNCIL

Edward River Council
Sewerage Asset Management Plan

March 2019

Version No.: 0.2

How to use this Plan

This Asset Management Plan (AMP) is a tactical document to support Councils understanding of its Sewerage assets, service levels, risks, and to provide operational and capital expenditure forecasts that will deliver the community outcomes detailed in the Community Strategy 2030. The AMP is set out in the following format to support easy navigation of its contents such that specific information can be readily identified to suit the reader's need.

- **Executive Summary**
This provides an overview suitable for obtaining a high-level understanding of the key issues and outcomes of the AMP. This is intended for senior decision makers and is supported by the detail in the following sections that make up the body of the AMP.
- **Section 1 - Introduction**
This section is the introduction that defines the plan's purpose, its scope, and how the AMP aligns with corporate objectives and goals. It 'sets the scene' for the AMP and how it relates to the wider organisational plan framework.
- **Section 2 - Data Details**
Defines the AMP's data inputs and assumptions. It includes the Asset Summary, Prior Year Infrastructure Delivery, Asset Age, Asset Condition Assessment Criteria, Results Summary, Asset profiling, Hierarchy, Useful Life, and Data Confidence ratings.
- **Sections 3, 4, and 5 – AMP Inputs (Service levels, Risk and Growth)**
Defines Council's service levels, current risks and demand considerations that have been used in developing this AMP. This is the basis on which the following sections have been developed.
- **Sections 6, 7, 8, 9, and 10 - 10-year forecasts**
Provides the detailed 'output' of the AMP development process with forecasts over a 10-year horizon of the works required to maintain the current service levels, mitigate identified risks, and cater for service growth and increased demand.
- **Sections 11, 12, and 13 - Financial forecasts**
focus on the financial aspects of delivering these service levels including anticipated 'financial sustainability' performance. This section is particularly relevant to inform decision making and guide continual improvement in both the AMP and achieving corporate goals.
- **Section 14 – Findings and Recommendations**
Provides a summary of the key issues and actions to be considered by Council. It includes a statement on the reliability and confidence of information to also be considered.
- **Section 15 – AMP Improvement Plan**
Provides an action plan to improve future iterations of the AMP, particularly the improvement of the plan's accuracy and reliance as a decision-making tool.
- **Appendices**
Information which is required in the AMP as reference is in the appendices. It also includes detailed works programs for new and renewal capital works that align with funding requirements and are to be aligned with short to medium term detailed operational planning.

Document Control

Distribution / Stakeholder list

All key stakeholders are to be included on the distribution list.

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* Stakeholders are to initial the final document to indicate that the report has been sighted and reviewed.

Revision History

Document Version	Date	Comments	Author	Reviewer
0.1	14/01/2019	Initial Draft	Randall Scott	Michael Todd
0.2	22/03/2019	Revised Draft	Randall Scott	Hans Muller

Certification

As the Principal officer/Asset Custodian responsible for preparing this AMP, I certify that it:

- Has been based on a series of assumptions and the best available data at the time;
- Provides a rationale for and underpins the renewal funding as specified in the related 10-year service financial forecasts; and
- Provides a strong platform from which to continue asset management advancement by identifying several areas for further improvement.

Principal Officer (if applicable): _____ Signature: _____

Asset Custodian: _____ Signature: _____

Date: _____

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Executive Summary

Purpose

The purpose of this Asset Management Plan (AMP) is to consolidate Councils understanding of its Sewerage assets, service levels, risks, and to provide operational and capital expenditure forecasts that will deliver the community outcomes detailed in the Community Strategy 2030.

The plan will support informed decision making, guide Long Term Financial Planning budget requirements and provide a path to further improve the accuracy and confidence in future iterations of this Plan.

Scope

This Asset Management Plan (AMP) covers the Sewerage assets (the Assets) that support the delivery of services to the Edward River Council (Council) Community. It has been prepared based on the International Infrastructure Management Manual (IIMM) the recognised guideline for asset management in Australia.

This AMP uses data available within Council in 2017 including Council's audited financial asset register, based on revaluations undertaken by APV in 2017. Where possible, the financial register has been supplemented by historical condition data.

The Assets

The Sewerage assets are valued at \$266.34 M and are apportioned into asset categories as detailed in Table 1 and shown in Figure 1 below.

Table 1 Sewerage Assets Summary

Asset Type	Quantity	Replacement Value (June 2018)
Treatment Plant	96	\$8,030,700
Pump Station	242	\$8,468,356
Sewer Lines	1,654	\$26,687,419
Ponds, lagoons and Dams	24	\$3,384,900
Sewer Point	1,429	\$8,915,757
Total	3445	\$55,487,132

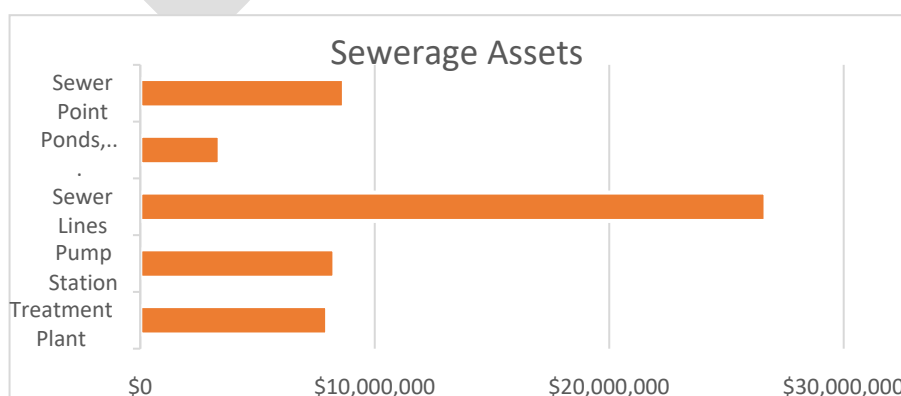


Figure 1: Sewerage Assets Summary

Asset Condition

The assets in very poor condition represent 17% (\$9.35M) of the Sewerage asset base, with an additional 21.3% (\$11.72M) considered in poor condition and requiring attention. Council's asset records indicate that a total of 38% (\$21M) of the sewerage assets are significantly deteriorated, failing or have failed. The majority of these assets are sewer lines or sewer points.

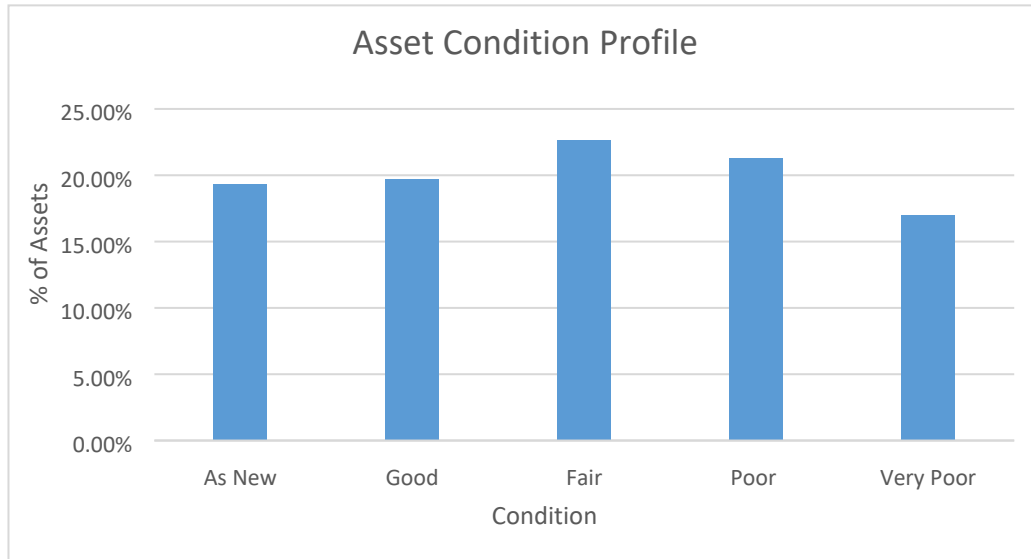


Figure 2: Sewerage Assets Condition Profile

Are We Meeting Our Adopted Service Levels?

Council is currently developing levels of service standards and performance measures. The maintenance and operations expenditure projections in this AMP are based on historical spending and therefore it may be assumed that similar future funding and if supported with appropriate investment in renewals will continue to provide current service levels.

Are We Managing Growth?

This AMP uses Council's adopted growth rate of 1%. The current assets are expected to meet the required service capacity for increased population, Council must consider the future implications that a growing asset base has on its operations and maintenance costs.

Are We Managing Our Risks?

Council has a 'duty of care' to the community, its customers, in relation to the management of the assets. There are numerous types of risks Council is concerned about, including financial, service and safety. The risks were assessed by Council based on their likelihood and consequences to generate solutions to mitigate or eliminate them. It is expected that the current maintenance activities will continue to assist in mitigating the service risks to an acceptable level. Additional funding is required to mitigate risks associated with AM practices and reliance on this AMP.

The Financials

Based on renewing current assets at the end of their useful lives, meeting current levels of service and to meet the adopted 1% annual demand growth, over the next 10 years the projected asset expenditure requirements are:

- Renewals (end of life) - \$17.1M
- New and Upgrade - \$0
- Operations and Maintenance - \$9.3M

This gives a total required expenditure of \$26.4M as shown in [Table 2](#).

Table 2 10-Year Forecast Expenditure

Financial Year Ending	Risk Treatment	New or Upgrade	Operations	Maintenance	Renewals	Total
2020	\$0	\$0	\$350,900	\$520,587	\$9,205,967	\$10,077,454
2021	\$0	\$0	\$350,900	\$533,602	\$702,500	\$1,587,002
2022	\$0	\$0	\$350,900	\$546,942	\$580,215	\$1,478,057
2023	\$0	\$0	\$350,900	\$560,616	\$116,020	\$1,027,536
2024	\$0	\$0	\$350,900	\$574,631	\$1,331,200	\$2,256,731
2025	\$0	\$0	\$350,900	\$588,997	\$278,723	\$1,218,620
2026	\$0	\$0	\$350,900	\$603,722	\$901,374	\$1,855,996
2027	\$0	\$0	\$350,900	\$618,815	\$76,400	\$1,046,115
2028	\$0	\$0	\$350,900	\$634,285	\$1,277,600	\$2,262,785
2029	\$0	\$0	\$350,900	\$650,142	\$2,613,221	\$3,614,263
Total	\$0	\$0	\$3,509,000	\$5,832,338	\$17,083,221	\$26,424,558

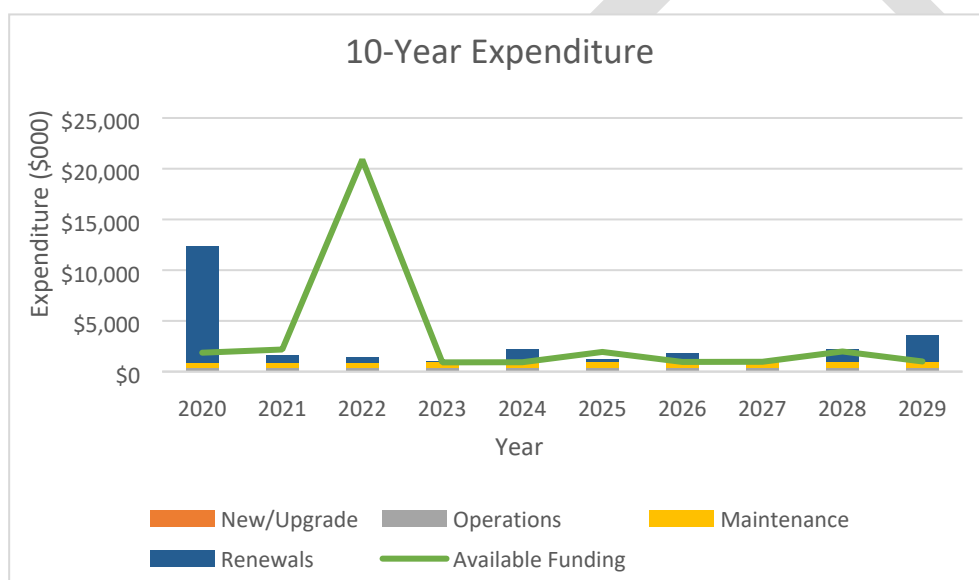


Figure 3: 10 Year Expenditure Forecasts

Council's Long-Term Financial Plan (LTFP) has allocated funding for sewerage Capital expenditure as shown in [Table 3 Long Term Financial Plan](#) below. In preparing this plan it has been assumed that the Current levels of operation and maintenance funding will continue.

From figure 3 there is an inconsistency in the timing for the renewal of funding for asset renewal and when the work is required. Provision of an annualised renewal funding allocation of \$3.0M and the levelling of the renewal program where possible will assist in addressing these inconsistencies.

Table 3 Long Term Financial Plan

Financial Year Ending	New/Upgrade	Operations & Maintenance	Renewals	Total
2020	\$0	\$871,487	\$993,000	\$1,864,487
2021	\$0	\$884,502	\$1,295,000	\$2,179,502
2022	\$0	\$897,842	\$20,000,000	\$20,897,842
2023	\$0	\$911,516	\$0	\$911,516
2024	\$0	\$925,531	\$0	\$925,531
2025	\$0	\$939,897	\$1,000,000	\$1,939,897
2026	\$0	\$954,622	\$0	\$954,622
2027	\$0	\$969,715	\$0	\$969,715
2028	\$0	\$985,185	\$1,000,000	\$1,985,185
2029	\$0	\$1,001,042	\$0	\$1,001,042
Total	\$0	\$9,341,338	\$24,288,000	\$33,629,338

Can We Financially Sustain our Current Levels of Service?

Based on the analysis of Council's expenditure requirements for asset renewal, operations and maintenance, there is enough funding in the LTFP to sustain current service levels.

What Are Our Options?

The LTFP has \$7.2M in allocated funding that is not committed to renewals, operations or maintenance programs, Council has the following options:

- Fund the Asset Management Improvement initiatives (particularly data quality and confidence issues) identified in this plan.
- Relocate the funding within the asset class. Increase the current service levels or the number of asset renewals or allocate to New asset or asset upgrade projects.
- Re-allocate to another asset class where the AMP indicates there is a shortfall in funding.
- Save funding against future rate rises or insufficient funding from grants and subsidies.

Other Considerations

The renewals requirements are based on valuation data which uses a 'straight line' deterioration or consumption model. Although the assets are approaching the end of their theoretical lives this has not generally been verified through observation. Decisions made using this AMP should consider appropriate reliance on this data. The data is considered 80% accurate.

The financial reporting of operations, maintenance and capital expenditure is not adequate to support detailed asset management activities and planning. This AMP includes assumptions for the allocation of spending to this asset class.

This AMP does not include funding required to support the improvement initiatives identified necessary to improve accuracy and reliance.

The number of assets with up to 5 years of remaining life suggests that there is a backlog of asset renewal works with assets being maintained beyond their performance life.

There are eight identified electrical components at sewerage pump station and treatment plants that have been identified as being at risk with the switchboard at the treatment plant requiring immediate attention.

Currently Council's records show that 17% of the sewerage asset are in very poor condition with an additional 21% being in poor condition. This means that 38% of the sewerage assets are significantly deteriorated, failing or have failed. The two major areas contributing to the

failing assets and deserving of further consideration are the Sewer Points and Sewer Lines. Both these asset types are inground assets with the condition generally based on the age of the asset.

The 10-year expenditure forecast for the delivery of sewerage services is \$26.4 or \$2.64M per annum. The available funding in the LTFP is \$33.63M or \$3.36M per annum.

The funding ratios reinforce that there is excess funding (\$7.2M) in the LTFP to deliver Council's Sewerage services at their current level for the next 10 years.

Actions

1. Council confirm the condition, standard asset lives, and remaining life estimates of its sewer line and sewer point assets.
2. Consideration be given to annualising (levelling) the Sewerage funding allocation in the Long-Term Financial Plan at \$3.0M per annum with the renewal programs being adjusted to comply with this funding level.
3. Prior to the adoption of the attached renewal plan, individual projects and the data held in the register be validated by inspection and where discrepancies exist the Plan and the recorded data be amended.
4. The initiatives identified in the AMP improvement plan be implemented.

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Introduction

Purpose

The purpose of this Asset Management Plan (AMP or Plan) is to:

- Consolidate Edward River Council's (Council's) understanding of its assets within the sewerage asset class
- Document levels of service and risk
- Provide short- and medium-term capital works plans
- Support informed decision making and guide Long-Term Financial Planning budget requirements
- Provide a plan to work towards improved accuracy and confidence in future iterations of this Plan.

Scope

This AMP relates to the management of Sewerage Infrastructure assets (the Assets) which are recognised as assets owned by Council. Assets in this class typically comprise of the following asset types:

- Treatment Plants
- Pump Stations
- Sewer Lines
- Sewer Points
- Ponds, lagoons and Dams

Corporate Context

In 2009 a new Integrated Planning and Reporting (IP&R) framework for NSW local government was introduced. The IP&R framework requires councils to prepare a suite of long-term strategic documents, including a Community Strategic Plan, Resourcing Strategy and Delivery Program, as well as an annual Operational Plan. Integration of these strategic documents is key to effective long-term planning and assist us in providing ratepayers with the best level of service that we can.

Figure 4 illustrates how the IP&R framework ensures that local planning and reporting is informed, relevant, and responsive to community needs.

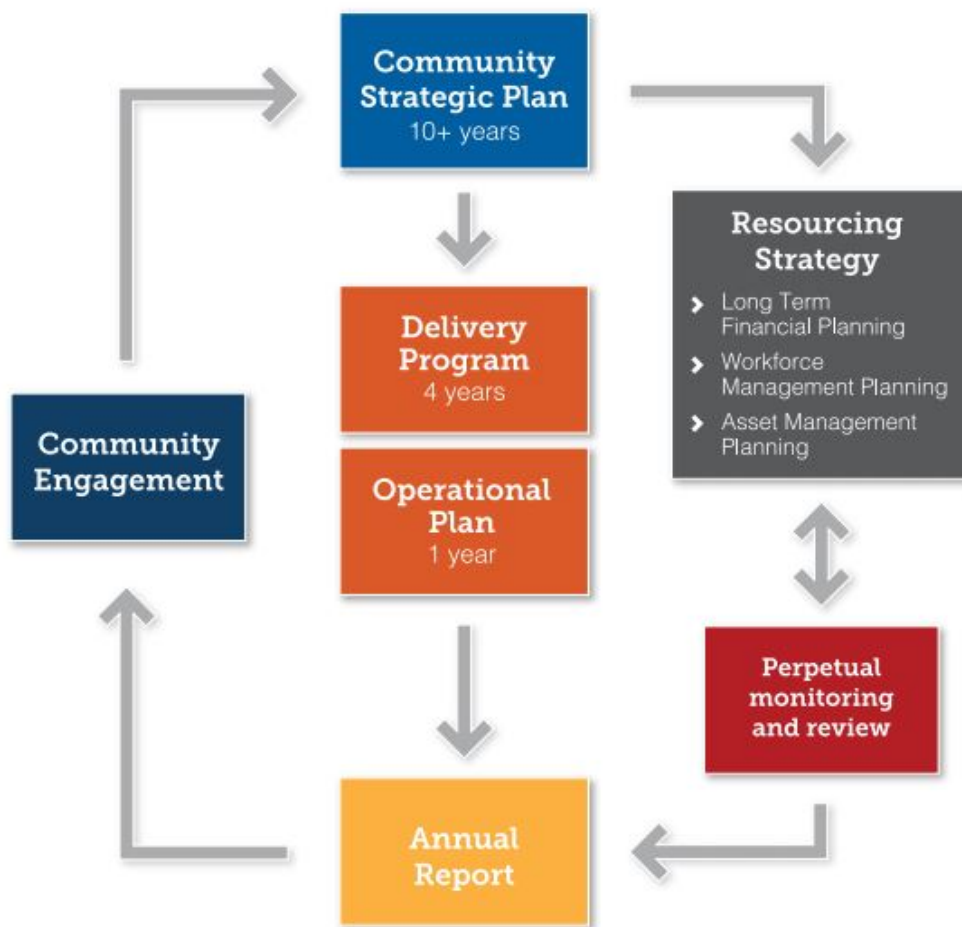


Figure 4 Integrated Planning and Reporting Hierarchy

Community Strategic Plan

The Community Strategic Plan is the highest-level plan that Council prepares. The purpose of the Plan is to identify our community's main priorities and aspirations for the future and to plan strategies for achieving these goals. In doing this, the planning process considers the issues and pressures that may impact the community and the level of resources that will realistically be available to achieve its aspirations.

Informed by extensive community and stakeholder consultation, the Edward River 2030 Community Strategic Plan seeks to answer four key questions:

- Where are we now?
- Where do we want to be in 10 years?
- How will we get there?
- How will we know when we have arrived?

At an operational level, the *Community Strategic Plan* is implemented through Council's Delivery Program and annual Operational Plans, which outline the activities and actions that are the responsibility of Council in achieving our shared vision.

Resourcing Strategy

The *Edward River 2030 Community Strategic Plan* provides a vehicle for expressing our community's long-term aspirations. However, the vision set out in this Plan will not be achieved without sufficient resources – time, money, assets, and people – to carry them out.

The Resourcing Strategy comprises the following components:

- **Asset Management Planning:** Council's asset management planning is supported by an Asset Management Policy, Asset Management Strategy, and individual Asset Management Plans for all assets under Council's control. Considering 'whole of life' asset management from planning, purchase, operation, and maintenance – to disposal of assets; the Asset Management Strategy forecasts community requirements and the capacity to meet them on a short-, medium-, and long-term basis.
- **Long Term Financial Planning:** The Long-Term Financial Plan (LTFP) tests community aspirations as contained in the Community Strategic Plan against the financial realities of delivering on those aspirations. The LTFP integrates with Edward River 2030 through the Delivery Program and one-year Operational Plan.
- **Workforce Management Planning:** The Workforce Management Plan addresses the human resourcing requirements of the Community Strategic Plan, including what people, skills, experience and expertise are required to achieve its strategic objectives.

This AMP is prepared under the above hierarchy and direction of Council's mission, values, goals and objectives.



Through consultation with government, community, business, and industry, we have developed a clear vision as to what we want the Edward River region to look like in 2030.

During this consultation, we developed a vision for the Edward River to strive toward:

We are the centre of the Southern Riverina. Home to a connected and engaged community, driven by a diverse economy. We work together to lead our community, achieve our potential and embrace our future.

This vision is designed to encourage commitment to our future and engender a sense of common purpose and responsibility in all stakeholders responsible for delivering Edward River 2030.

In 2030, our community wants the Edward River region to be:

A great place to live

A prosperous and vibrant economy

A valued and enhanced natural environment

A region with quality and sustainable infrastructure

A community working together to achieve its full potential

Relationship to Other Asset Related Council Documents

This AMP aligns and should be read in conjunction with the framework of Council documents as shown in Figure 5 below:



Figure 5 Asset Management Document Hierarchy

The table below shows the key documents that support this AMP:

<i>Document</i>	<i>How Related</i>	<i>Reference</i>
AMP Related Documents		
Asset Management Policy	<p>The Asset Management Policy includes the defining principles of asset management within Council. This AMP supports such principles by:</p> <ul style="list-style-type: none"> • Considering the entire life cycle of the assets, • Supporting the development of cost-effective management strategies for the long term, • providing a defined level of service which can be monitored and used as the basis for aligning affordability with community aspirations, • understanding and meeting the demands of growth through demand management and asset investment, 	

<i>Document</i>	<i>How Related</i>	<i>Reference</i>
	<ul style="list-style-type: none"> managing risks associated with the assets; and Defining actions required to support continuous improvement in asset management practices. 	
Condition Assessment Plan	Contains the methodologies, defect assessment procedures, and the condition rating system used to formally assess the structural integrity and appearance of assets.	
Service Level Agreement (including Maintenance Specifications)	Contains all maintenance and operational specification requirements for assets under this AMP.	
Risk Register	Contains all identified asset related risks applicable to this AMP.	
Maintenance Manual	Contains details on how maintenance activities are to be delivered to meet adopted levels of service.	
Other Related Documents		
Land Development Guidelines	Contains design and construction details for new assets.	Council website
Others...		
External/Specialist Reports	Catchment Analysis, etc.	

Stakeholder Input

Various stakeholders were considered in the preparation of this AMP who will have different roles in implementing its outcomes. These stakeholders and their role are shown in Table 4.

Table 4: Key Stakeholders

<i>Key Stakeholder</i>	<i>Role</i>
Councillors	<ul style="list-style-type: none"> Represent needs of community. Allocate resources to meet Council's objectives in providing services while managing risks. Ensure the organisation is financially sustainable. Custodians of the assets and services, providing the interface with the community regarding the levels of service, good governance, and management practices.
CEO	<ul style="list-style-type: none"> Manage organisation operational activities and future planning strategic direction.
Director Corporate Services	<ul style="list-style-type: none"> Long-Term Financial Plans and operational financial data. Defining information requirements for audit and reporting purposes.
Director Infrastructure	<ul style="list-style-type: none"> Manage delivery of the AMP and initiatives.

	<ul style="list-style-type: none"> • Capital works projects planning and deliver. • Operational and service levels, data information and analysis.
Community and Ratepayers	<ul style="list-style-type: none"> • User of services. • Source of funding.
State and Commonwealth Government	<ul style="list-style-type: none"> • Active in the management of assets and services across the region.
Council Staff	<ul style="list-style-type: none"> • Directly involved with the renewal, maintenance and operation of the network and the management framework, both operationally and financially. • Delivery of operational plans informed by this AMP.
Emergency Services	<ul style="list-style-type: none"> • Respond to community needs and emergency situations.

Legislative Requirements

Council is required to meet many legislative requirements including Federal and State legislation and regulations. Key relevant legislation is shown in Table 5.

Table 5: Legislative Requirements

<i>Legislation</i>	<i>Requirement</i>
Local Government Act NSW (1993)	<p>8B Principles of sound financial management</p> <p>The following principles of sound financial management apply to councils:</p> <p>(c) Councils should have effective financial and asset management, including sound policies and processes for the following:</p> <p>(i) performance management and reporting, (ii) asset maintenance and enhancement,</p> <p>403 Resourcing strategy</p> <p>(1) A council must have a long-term strategy (called its "resourcing strategy") for the provision of the resources required to implement the strategies established by the community strategic plan that the council is responsible for. (2) The resourcing strategy is to include long-term financial planning, workforce management planning and asset management planning.</p>

This Sewerage AMP contributes to supporting Council's legislative requirements.

Plan Maturity

This AMP is targeted at a first cut, ‘core-level’ AMP as defined in the International Infrastructure Management Manual. Detailed information is in Table 6 below.

Core level AMP’s are developed to meet minimum legislative and organisational requirements and provide basic technical management outputs, including:

- Statements on current levels or aspirational levels of service
- Forward asset replacement programs
- Associated cash flow projections.

Table 6 Core Level Asset Management Capabilities

AM CATEGORY	Core Assessment requirements
Asset Management Plans	<ul style="list-style-type: none"> • Plan contains basic information on assets, service levels, planned works, and financial forecasts (5-10 years) and future improvements. • The plan also includes executive summary, description of services and key/critical assets, top-down condition and performance description, future demand forecasts, description of supporting AM processes, 10-year financial forecasts, and 3-year AM improvement plan.

Other “Core” Assessment requirements that can be included in the AMP include the following:

Risk Management	<ul style="list-style-type: none"> • Risk framework developed. • Critical assets and high risks identified. • Documented risk management strategies for critical assets and high risks.
Quality Management	<ul style="list-style-type: none"> • Defined quality policy and basic Quality Management System. • All critical activity processes documented.
Levels of Service and Performance Management	<ul style="list-style-type: none"> • Customer groups defined, and requirements informally understood. • Levels of service and performance measures in place covering a range of service attributes. • Annual reporting against performance targets.
Demand Forecasting	<ul style="list-style-type: none"> • Demand forecasts based on robust projection of a primary demand factor (e.g.: population growth) and extrapolation of historic trends. • Risk associated with demand change broadly understood and documented. • Demand management is considered in major asset planning.
Operational Planning	<ul style="list-style-type: none"> • Emergency response plan is developed. • Asset utilisation is measured for critical asset groups and is routinely analysed.
Maintenance Planning	<ul style="list-style-type: none"> • Asset criticality considered in response processes. • Fault tracking and closure process. • Strategy for prescriptive versus performance-based maintenance developed. • Key maintenance objectives established and measured.
Capital Works Planning	<ul style="list-style-type: none"> • Projects have been collated from a wide range of sources such as hydraulic models, operational staff, and risk processes. • Capital projects for the next three years are fully scoped and estimated.
Financial and Funding Strategies	<ul style="list-style-type: none"> • 10+ year financial forecasts based on current AMP outputs. • Significant assumptions are specific and well-reasoned. • Expenditure captured at a level useful for AM analysis.
Asset Register Data	<ul style="list-style-type: none"> • Sufficient information to complete asset valuation — basic physical information recorded in a spreadsheet or similar (e.g. location, size, type), but may be based on broad assumptions or not complete. • Replacement cost and asset age/life. • Asset hierarchy, asset identification and asset attribute systems documented.
Asset Condition	<ul style="list-style-type: none"> • Condition assessment programme in place for major asset types, prioritised based on asset risk. • Data supports asset life assessment. • Data management standards and processes documented.

	<ul style="list-style-type: none"> • Programme for data improvement developed.
Information Systems	<ul style="list-style-type: none"> • Asset register enables hierarchical reporting (at component to facility level). • Customer request tracking and planned maintenance functionality enabled. • System enables manual reports to be generated for valuation, renewal forecasting.
Service Delivery Mechanisms	<ul style="list-style-type: none"> • Service delivery roles clearly allocated (internal and external), with contracts in place for external service provision.

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Existing Infrastructure Base

This section provides an overview of the infrastructure assets covered by this AMP. The overview provides an understanding of the age, value, and condition of Council's existing infrastructure asset base.

Asset Summary

A summary of the Sewerage assets covered by the AMP are included in Table 7.

Table 7: Asset Summary

<i>Asset Type</i>	<i>Quantity</i>	<i>Replacement Value (June 2018)</i>
<i>Treatment Plant</i>	96	\$8,030,700
<i>Pump Station</i>	242	\$8,468,356
<i>Sewer Lines</i>	1,654	\$26,687,419
<i>Ponds, lagoons and Dams</i>	24	\$3,384,900
<i>Sewer Point</i>	1,429	\$8,915,757
<i>Total</i>	3445	\$55,487,132

The total length of sewer lines is 110,695 metres.

Asset Hierarchy and Useful Life

Implementing an asset hierarchy is one of the most important steps in building an effective asset management program. Such a hierarchy provides both context and organization to the asset register.

The asset register is the fundamental building block for asset management and when organised in hierarchical order is the vehicle by which the information system most effectively enables the assessment of the assets as individual components, composite assets, or groups of assets.

While it is not absolutely necessary to organise asset records in a hierarchical structure (they could simply be listed in date of creation order for example), doing so greatly simplifies the search for the proper record when entering data and greatly facilitates the roll up/drill down concept for data reporting.

An asset's useful life is the period over which a depreciable asset is expected to be fully consumed. This period can be significantly impacted by Council's maintenance practices.

The useful life of an asset is initially based on the manufacturer's recommended (expected) life. This is subject to change however, based on historical evidence of the impact of the local environment on the expected life.

The hierarchy and useful lives of Council's assets are provided in Table 8 below.

Table 8: Asset Lives and Hierarchy

Asset Class	Asset types	Component Types	Asset Life
Sewerage	Ponds, lagoons and Dams Pump Station Sewer Lines Sewer Point Treatment Plant	Access	30
		Access, Platforms, Ladders and Handrails	30
		Actuated Control Valve	30
		Aerator	30
		Blower	30
		Boundary Kit	20
		Bridge Rotating Arm	30
		Bunding	50
		CCTV	0
		Control Panel	30
		Dewatering Unit	30
		Dosing Pump	30
		Dosing Tank	15
		Ducting Vent	50
		Earthworks	150
		Electrical	30
			40
		Fan	30
		Fence	30
		Filter	80
		Flowmeter	15
		Gravity	80
		Grit Classifier	30
		Inlet Structure	50
		Inspection Riser	50
		Jetty	50
		Lagoon Pond	100
		Lifting Equipment	30
		Lighting	30
		Low Pressure	80
		Maintenance Shaft	80
		Manhole Circular	80
		Manhole Rectangular	80
		Mixer	30
		Motor Control Centre	30
		Odour Bed	50
		Piles	80
		Pipe Work	50
		Pipework, Valve and Fitting	50
		Pit	80
		Pump	40
		Pump Well	80
		Retaining Wall	50
		Rising Main	80
		Rising Main Private	80
		Safety Shower Eye Wash	30
		Screen	30
Sensor	15		
Sludge Bed	50		
Sludge Scraper	30		
Storage Tank	80		
	50		
Structure	60		
	80		
Switchboard	30		
Tank	15		
	15		
Telemetry	30		
	40		
Valve	50		
Vent Stack	30		
Weir Dam	125		
Wing Wall	50		

Asset Remaining Useful Life

The remaining useful lives of the assets are based on:

- Inspections by a suitable qualified person
- Calculated from supplied construction dates and adopted asset lives, or
- Estimated from the condition of the asset as a percentage of the expected life.

A summary of the value of sewerage assets categorised by their asset type and remaining lives is listed in Table 9 and displayed in Figure 6.

Table 9: Asset Remaining Lives by Replacement Values

Remaining life (yrs)	Treatment Plant	Pump Station	Sewer Lines	Ponds, lagoons and Dams	Sewer Point
0	\$787,600	\$55,900	\$5,984,675	\$20,000	\$2,357,792
5	\$2,223,100	\$440,535	\$0	\$60,100	\$6,200
10	\$601,200	\$2,842,101	\$6,618	\$111,200	\$1,586,200
15	\$101,300	\$2,156,300	\$0	\$113,200	\$62,760
20	\$89,500	\$38,600	\$219,694	\$0	\$279,260
25	\$187,900	\$610,400	\$903,154	\$0	\$366,010
30	\$5,300	\$459,800	\$1,239,439	\$0	\$508,180
35	\$1,218,000	\$403,500	\$4,830,349	\$0	\$1,448,865
40	\$114,000	\$824,000	\$966,801	\$0	\$466,010
45	\$0	\$68,300	\$1,734,386	\$0	\$653,490
50	\$52,000	\$473,619	\$162,349	\$65,000	\$79,160
55	\$0	\$92,500	\$2,624,313	\$0	\$60,680
60	\$1,236,000	\$0	\$219,002	\$894,500	\$22,220
65	\$61,800	\$0	\$391,895	\$0	\$12,450
70	\$1,122,000	\$0	\$3,265,204	\$0	\$801,105
75	\$0	\$0	\$4,122,115	\$0	\$65,845
80	\$0	\$2,800	\$17,425	\$0	\$139,530
95	\$0	\$0	\$0	\$10,100	\$0
105	\$92,500	\$0	\$0	\$0	\$0
115	\$31,000	\$0	\$0	\$0	\$0
120	\$0	\$0	\$0	\$570,600	\$0
145	\$0	\$0	\$0	\$580,700	\$0
150	\$107,500	\$0	\$0	\$959,500	\$0

Backlog of \$9.02M with \$11.9M to be completed in the next 5 years.

The number of assets with up to 5 years of remaining life suggests that there is a backlog of asset renewal works with assets being maintained beyond their performance life. The assets in with remaining life less than 10 years have been included in Appendix E Renewals Program along with their current condition rating.

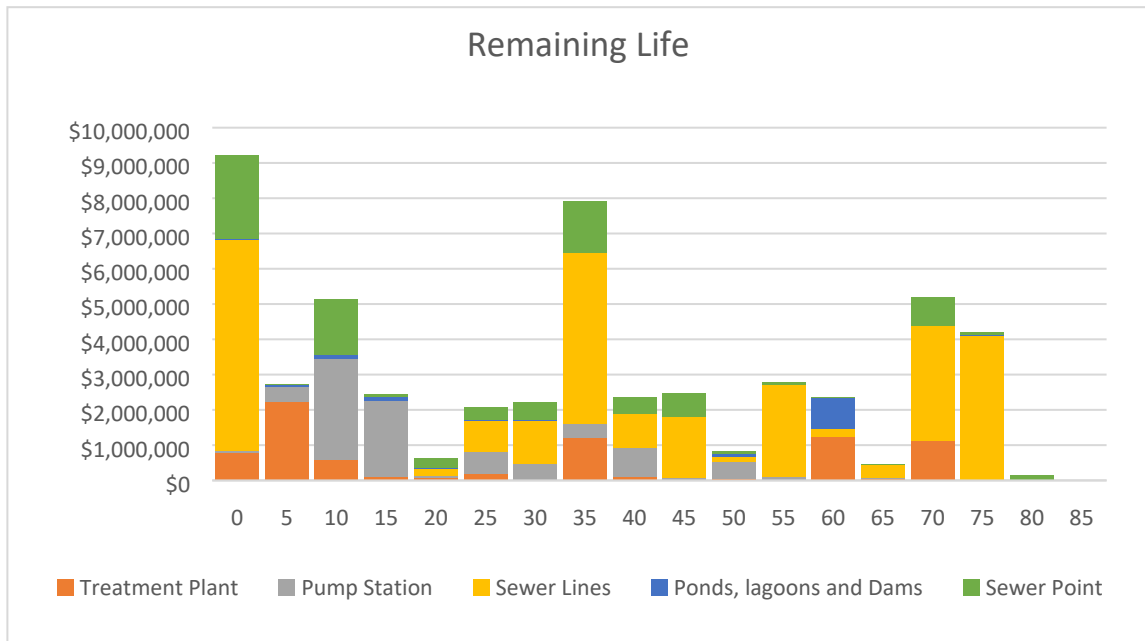


Figure 6: Asset Remaining Life

Age Profile

The age profile of the assets can be seen in Figure 7 below.

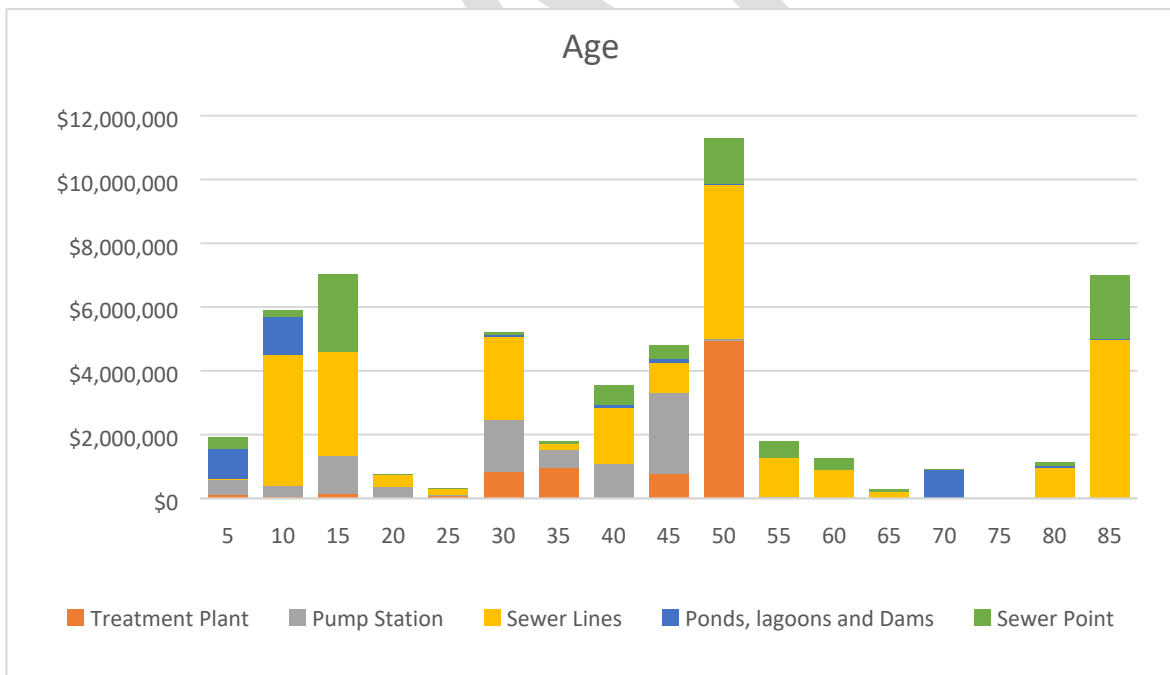


Figure 7: Asset Age Profile

Asset Condition

Council has adopted a condition assessment method using a 5-point scale rating, varying from 'Very Good' to 'Very Poor' condition as can be seen in Table 10 below.

Table 10: Structural Condition Grading Model

Grade	Condition	%Remaining Useful Life	Description
1	Very Good	>70%	Sound physical condition. No signs of deterioration Only normal maintenance required.
2	Good	70% - >50%	Acceptable physical condition; minor deterioration visible, no short-term failure risk. Minor defects only. Only minor work required, if any.
3	Fair	50% - >10%	Acceptable physical condition; minimal short-term failure risk but potential for deterioration in long-term. Minor defects only. Minor components or isolated sections of the asset may need replacement or repair now but asset functions safely at adequate level of service. Work may be required but asset is serviceable. Maintenance required to restore the asset to an acceptable level of service.
4	Poor	10% - >4%	Significant deterioration evident. Failure likely in short-term. Likely need to replace most or all of the asset. No immediate risk to health or safety but works are required to ensure asset remains safe. Substantial work required in short-term, asset barely serviceable. Asset requires renewal – works to be programmed.
5	Very Poor	<4%	Failed or failure imminent. Immediate need to replace most or the entire asset. Health and safety hazards exist which present a possible risk to public safety, or asset cannot be serviced/operated without risk to personnel. Asset is effectively unserviceable. Major work or replacement required urgently.

Currently Council's records show that 17% (\$9.65M) of the sewerage asset are in very poor condition with an additional 21% (\$11.72M) being in poor condition. This means that 38% (\$21.37M) of the sewerage assets are significantly deteriorated, failing or have failed.

The summary of asset condition by asset type shown in [Figure 9](#) indicates that the two major areas contributing to the failing assets and deserving further consideration are the Sewer Points and Sewer Lines. Both these asset types are inground assets with the condition generally based on the age of the asset.

It is recommended that CCTV of the Sewer Line and visual inspections of the Sewer Points be undertaken as a matter of importance to confirm the recorded condition, remaining life estimates and to inform the 10-year works programs.

Table 11: Asset Condition Profile (as a percentage of the Asset Base)

Asset Type	Condition (% of Asset Base)					Total
	As New	Good	Fair	Poor	Very Poor	
Treatment Plant	0.41	0.20	9.63	3.74	0.50	14.5
Pump Station	2.49	5.50	6.69	0.53	0.05	15.3
Sewer Lines	11.72	7.48	5.53	12.19	11.18	48.1
Ponds, lagoons and Dams	3.82	1.82	0.46	0.00	0.00	6.1
Sewer Point	0.85	4.54	0.34	4.66	5.67	16.1
Total	19.30	19.54	22.65	21.11	17.40	100.0

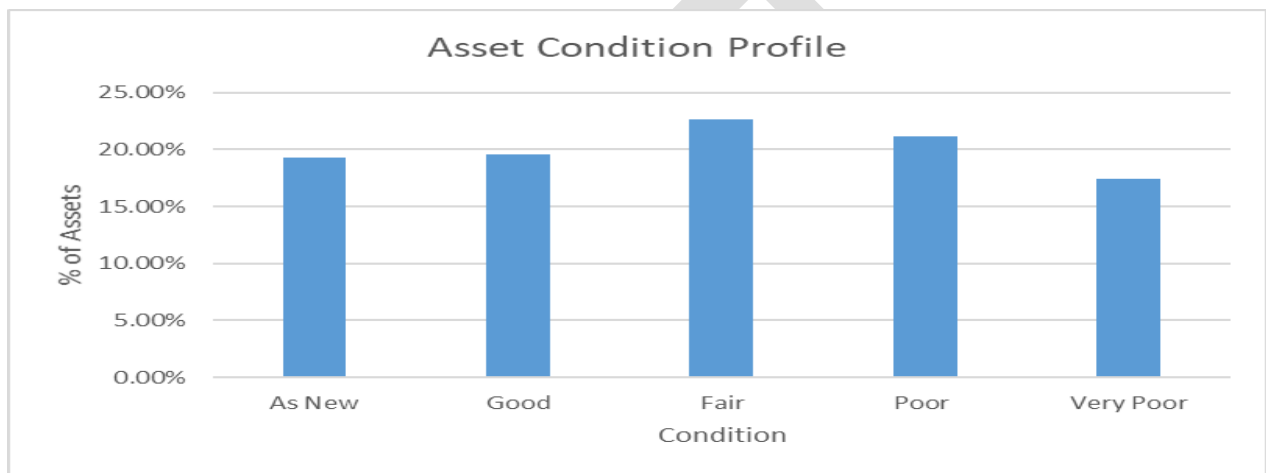


Figure 8: Asset Condition Profile

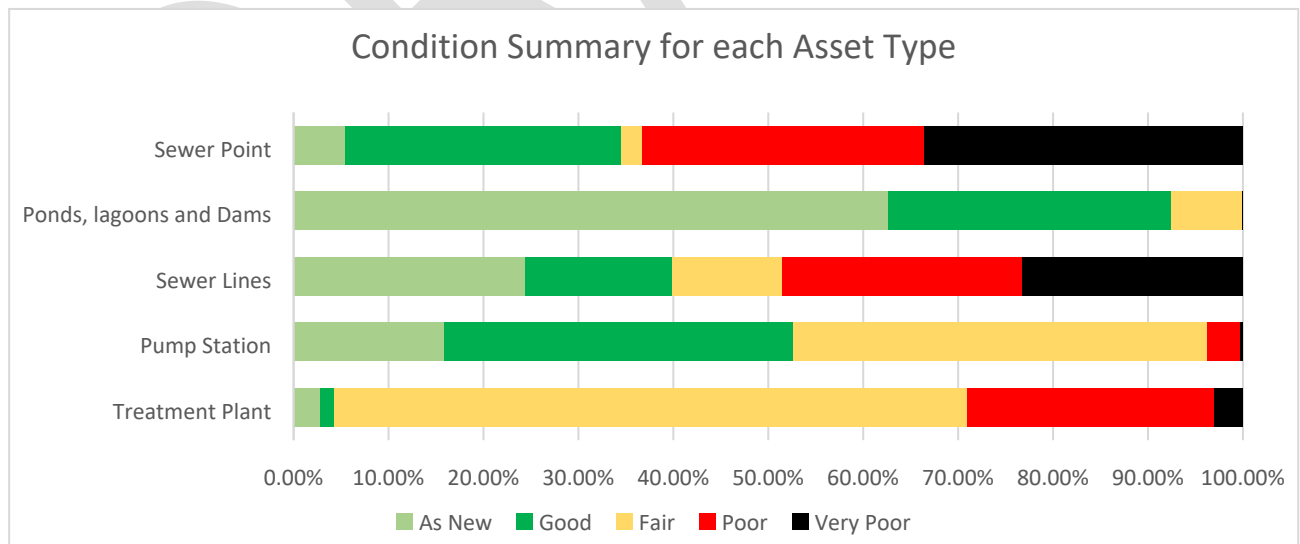


Figure 9: Asset Condition Profile by asset type

Note:

The remaining life data indicated \$11.9M of works needs to be undertaken in the next 5 years while the condition data identified \$21.4M of significantly deteriorated, failing or failed assets. This variation indicates a mis-alignment between the Financial and Technical asset data sets.

Asset Criticality

A critical asset is an asset for which the financial, business or service level consequences of failure are sufficiently severe to justify proactive inspection and rehabilitation. Critical assets have a lower threshold for action than non-critical assets.

Although critical assets have a high consequence of failure, they don't necessarily have a high likelihood of failure

Asset Criticality is a measure of how critical an asset is to the functioning of and/or the services provided by Council.

The importance or degree of asset criticality has been proposed to be based on the consequences of failure, i.e. consequences of failure are assigned a criticality factor.

Elements that may impact on asset criticality include:

- Safety
- Cost of Failure
- Complexity
- Severity of Duty
- Impact of failure
- Impact on Environment
- Location
- Loss of service
- Number of Customers Serviced
- Site function
- Public image impact

Social, environmental & economic factors may be considered.

Social may include

- Community disruption
- Health and safety
- Litigation

Environmental factors that may need to be considered are

- natural waterways
- parks
- national parks
- recreational grounds

Economic

- business and commercial activities being disrupted
- costs to the community

Criticality has been assigned using the ratings in

[Table 12.](#)

[Table 12 Criticality Ratings](#)

Criticality Rating				
1	2	3	4	5
<i>Insignificant</i>	<i>Minor</i>	<i>Moderate</i>	<i>Major</i>	<i>Extreme</i>

Based on the above criteria preliminary criticality levels have been assigned by asset types as indicated in [Table 13](#) below. The resultant criticality profile is shown in [Figure 10](#) and [Table 14](#).

Further iterations of this plan will develop council’s asset criticality models and improve the quality of the criticality assessment for individual assets.

Table 13: Asset Criticality Levels (Default value based on Asset Type)

Asset Types	Component Type	Criticality Ratings
Pump Station	Electricals	4
	Pumps	3
	Telemetry	4
Sewer Lines	Rising Main	3
Treatment Plant	Electricals	4
	Switchboard	5
	Telemetry	4
All other Assets		2

Table 14: Sewerage Network Criticality by Current Replacement Cost

Asset type	1	2	3	4	5
Ponds, lagoons and Dams		\$3,384,900			
Pump Station		\$5,331,100	\$1,687,800	\$1,260,300	
Sewer Lines		\$20,224,619	\$6,440,610		
Sewer Point		\$8,683,375			
Treatment Plant		\$7,800,900		\$130,800	\$36,500

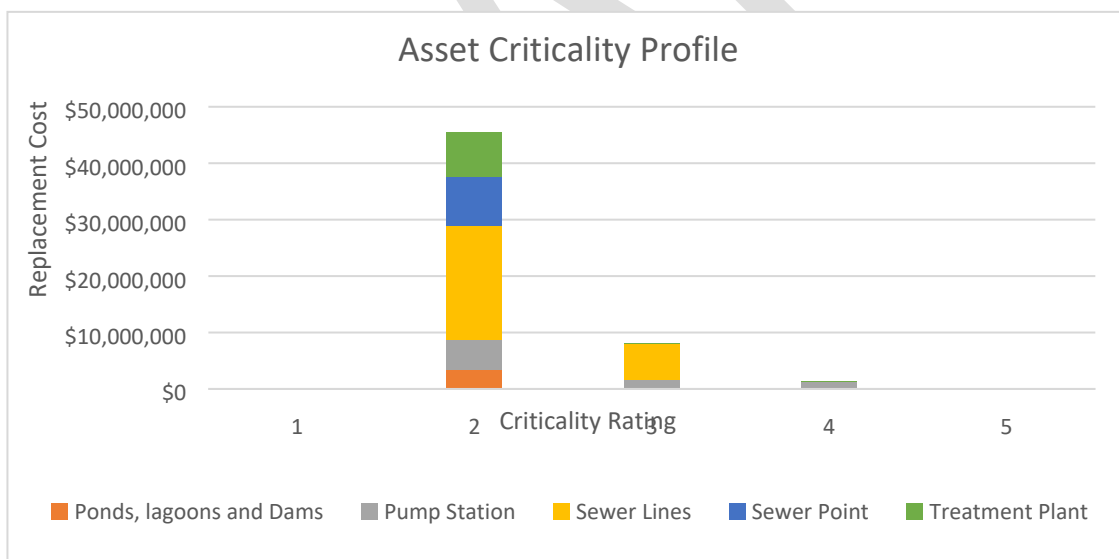


Figure 10: Sewerage Network Criticality Profile

Data Confidence

The lifecycle assessment is only as precise as the accuracy of the data Council holds. This data includes revaluation data of the assets, financial data, and asset register details.

Table 15: Data Confidence Rating

<i>Grade</i>	<i>Description</i>	<i>Accuracy</i>
1	Accurate	100%
2	Minor Inaccuracies	95%
3	50% Estimated	80%
4	Significant Data Estimated	70%
5	All Data Estimated	60%

(Section 4.3.7 of the IIMM, Version 3.0, 2006)

The sewerage data has been given subjective data confidence rating of 3.

Further iterations of this plan will develop council's data confidence models and improve the quality of the assessment for each asset class.

Levels of Service

Level of Service Document Hierarchy

- **Edward River Community Strategy 2030**

The Community Strategy establishes, through community consultation, Council's aspirational goals and objectives for the delivery of Sewerage services.

- **Asset Management Plan**

This Asset Management Plan (AMP) develops technical measures against which the aspirational goals and objectives can be measured (Technical Levels of Service).

- **Service Level Agreement**

The service level agreement (SLA) is a formal agreement between those responsible for the assets and the services they deliver, and the operational areas of Council charged with maintaining, operating, and upgrading existing assets or constructing new infrastructure.

- **Activity Specification**

The activity specification defines the target performance measures for maintenance, operations, or construction activities. It sets routine inspection and maintenance frequencies and for reactive maintenance sets intervention levels, response times, activity duration targets.

- **Maintenance Management Plan**

The Maintenance Management Plan (MMP) details how each activity is to be completed and may include the following:

- Standard Operating Procedures
- Work Instructions
- Hazard Risk Assessment
- References to Equipment Maintenance Manuals (particularly fleet, plant, mechanical and electrical assets)

Community Strategy 2030 (Community Levels of Service)

The Community Strategy relevant to this AMP is

Outcome 4 - A region with quality and sustainable infrastructure

The outcome targets relevant to Sewerage services are:

4.3 Our water and sewer infrastructure is efficient and fit for purpose

Table 16: Council's Goals

Council Role
<ul style="list-style-type: none">Effectively maintain the region's water and sewer infrastructure.Undertake sound asset management planning and asset mapping.Where appropriate, upgrade existing or provide new infrastructure.

In addition to Council's Sewerage aspirational goal and roles as detailed in Table 16 above, the Community Levels of Service relate to subjective service delivery outcomes that the community wants in terms of safety, quality, quantity, reliability, responsiveness, value, and legislative compliance.

Community levels of service measures used in this service management plan are:

- Quality - How good is the service?*
- Function - Does it meet users' needs?*
- Capacity/Utilisation - Is the service over or under used?*

These community levels of service promised by Council are outlined in Table 17.

Table 17: Community Levels of Service

Service Level Outcome	Principle Activity	Strategic Elements	Performance Outcome	Assessed by
Reliability	Sewerage doesn't impact other services	Unobtrusive service	No disruptions from sewerage network	Number of interruptions/year
Quality	Good value sewerage services No Odours	Sewage collection, transport and treatment remains affordable	Agreed level of service delivered within budget allocations while maintaining an acceptable level of risk and asset life expectations. Cost of sewerage services does not increase more than inflation	Quantitative cost assessment
Function	Provide an effective method of collection and disposal of wastewater No backup of sewage into properties No overflows of sewage into public places/waterways Sewerage re-use	Sewerage system functions as designed Water re-use from treatment plants is optimised Sewerage network doesn't impact the environment	Water re-use from treatment plants is optimised Sewage treatment meets all relevant environmental guidelines	Water quality testing Environmental impact assessment
Condition	Sewerage network is maintained in good condition.	The condition of the sewerage assets is regularly assessed.	Condition rating for the Sewerage Network assets.	Movement in the assessed condition of the assets % of renewal programs delivered
Capacity & Utilisation	Provides adequate population capacity	Network has sufficient capacity to meet community expectations.	The capacity of the sewerage network will have capacity to meet population growth expectations	% of sewerage network by value that has poor or very poor capacity or utilisation compared with criteria set out in technical service levels for various.

Technical Levels of Service

Technical levels of service support the community levels of service by turning subjective requirements of the Community Levels of Service into objective assessments. These technical measures aim to quantify the performance of the assets and services they provide and relate to the allocation of resources to service activities that the organisation undertakes to best achieve the desired community outcomes and demonstrate effective organisational performance.

Technical service measures are linked to annual budgets covering:

- Operations – the regular activities to provide services such as opening hours, cleansing frequency, mowing frequency, etc.
- Maintenance – the activities necessary to retain an assets as near as practicable to an appropriate service condition (e.g. road patching, unsealed road grading, building and structure repairs),
- Renewal – the activities that return the service capability of an asset up to that which it had originally (e.g. frequency and cost of road resurfacing and pavement reconstruction, pipeline replacement and building component replacement),
- Upgrade – the activities to provide an higher level of service (e.g. widening a road, sealing an unsealed road, replacing a pipeline with a larger size) or
- New – a new service that did not exist previously (e.g. a new library).

Asset managers plan, implement and control technical service levels to influence the community service levels.¹

These technical Levels of Service are outlined in Table 18 by asset classification.

¹ IPWEA, 2011, IIMM, p 2.22

Table 18: Technical Levels of Service

Classification		Sewerage		
Service Statement		<i>Cost effective improvement of sewage transport, treatment and disposal with minimal environmental impact</i>		
Performance Measure		<i>Number of complaints per annum</i>		
Service Factors		Community Levels of Service	Technical Levels of Service	Performance Measures
Quality				
<i>Effective sewerage transport and treatment</i>	<i>An unobtrusive service</i>	<p><i>No nuisance from sewage services</i></p> <p><u>Operations & Maintenance</u></p> <ul style="list-style-type: none"> <i>Inspect assets on a routine basis to identify their condition</i> <i>Inspect assets on a routine basis to identify and address any defect and safety concerns</i> <i>Maintain assets in a tidy, safe, and functional condition</i> 	<p><i>100% of Activities identified in the SLA met.</i></p> <p><i>30% of Asset Base condition assessed annually</i></p> <p><i>Defect inspections 90% of sewerage assets</i></p> <p><i><1 complaint / month</i></p>	
		<p><u>Renewal</u></p> <ul style="list-style-type: none"> <i>Renew/replace components when they no longer function.</i> <i>Renew/replace assets when they degrade to a dangerous level.</i> 	<p><i>Average network condition remains constant or improves.</i></p> <p><i>90% delivery of renewal programs</i></p>	
Function				
<i>Environmental Compliance</i> <i>Affordability and whole of life management</i>	<i>Sewerage treatment meets all relevant environmental guidelines</i> <i>Sewerage collection, transport and treatment remains affordable</i>	<p><u>New/Upgrade</u></p> <ul style="list-style-type: none"> <i>Provide new/upgraded infrastructure to cater for community growth in accordance with infrastructure plan, and existing community demand</i> <i>Provide new/upgraded infrastructure as required to comply with industry standards or statutory requirements</i> <i>Ensure new/upgraded infrastructure is designed and constructed in accordance with Council's Guidelines.</i> 	<p><i>90% delivery of CAPEX programs</i></p> <p><i>100% Compliance with design standards and guidelines</i></p> <p><i>5> complaints / annum</i></p>	
Capacity/Utilisation				
<i>Sewerage re-use</i>	<i>Water re-use from treatment plants is optimised</i>	<p><i>Conduct studies for beneficial use of bio-solids and reclaimed water</i></p> <p><u>New/upgraded</u></p> <ul style="list-style-type: none"> <i>Ensure new/upgraded infrastructure for re-use is designed and constructed in accordance with Council's Guidelines.</i> 	<p><i>100% Compliance with design standards and guidelines</i></p> <p><i>Customer surveys</i></p> <p><i>Promote water reuse</i></p>	

Growth

Development

The new assets required to meet development growth will be acquired free of cost from land developments and constructed/acquired by Council.

Acquiring these new assets will commit Council to fund on-going operations, maintenance and renewal costs for the period that the service provided from the assets is required. These future costs are identified and considered in developing forecasts of future operations, maintenance and renewal costs.

Demand

Factors affecting demand include population change, changes in demographics, seasonal factors, vehicle ownership, consumer preferences and expectations, economic factors, agricultural practices, and environmental.

Specific to Council, the demand factor that may impact on service delivery are summarised in Table 19.

Table 19: Demand Impact

<i>Demand Driver</i>	<i>Current Position</i>	<i>Projected Position</i>	<i>Potential Impact</i>	<i>Response Required</i>
Community Growth*	8949 residents	*No current prediction available.	Population growth will result in an increase in asset use and have an impact on the lifecycle cost of the assets.	There is not enough growth to have a significant impact on services.
Demographic*	Median age 44.7 22.2% >65 years of age	*No current prediction available.	Increases in the median age increases the importance for service accessibility.	The average population being relatively young will increase the need for community Sewerage infrastructure.
Tourism	Tourism and related industries account for less than XX% of the total employed in the Council area.	*No current prediction available.	An increase in visitors to the area will have a larger effect on infrastructure services.	Council will not have to increase size of the asset base specifically for tourism increases.

(*Australian Bureau of Statistics – [Edward River Council])

Growth/Demand Response

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

Non-asset solutions focus on providing the required service without the need for Council to own the assets and management actions including reducing demand for the service, reducing the level of service (allowing some assets to deteriorate beyond current service levels) or educating customers to accept appropriate asset failures.

Opportunities for demand will be developed in future revisions of this asset management plan.

Council's current adopted growth rate is 1% per annum. There is existing capacity in the Sewerage network to cater for this level of growth for the foreseeable future.

Risk Management

Risk Management Objectives

Council has a 'duty of care' to the community in relation to management of the assets and appropriate management of risk. Council must reduce risk where it is reasonable to do so. Risks that affect Council include:

- Risks associated with the loss of service by the failure of critical assets
- Financial risks from a lack of due diligence in the management of funding for the renewal, maintenance, and operation of the assets.
- Operational risks where data and information are not maintained to standards which enable competent decision making and management outputs.

The objectives to be achieved in managing risks under the AMP are:

- Identify high risk assets
- Maintain Levels of Service
- Mitigate risks to the public
- Reduce the number and magnitude of unplanned asset failures.

Managing risks involves identifying, assessing and determining risk management option.

Risk options vary depending on several factors, including but not limited to:

- Available resources and funding,
- Risk assessment level and
- Network demand.

In this way, it may be reasonable to mitigate a lower risk when it is not practical to mitigate a high risk.

For each identified risk Council can elect to adopt one of the following positions:

- *Take the risk*
- *Transfer the risk*
- *Treat the risk*
- *Terminate the risk*

Risk Assessment Method

Risks vary in both likelihood and consequence. Analysing risks in a risk matrix can help to quantify the risk to then identify necessary treatment actions. The risk matrix used to assess Council's risks is shown below.

LIKELIHOOD	CONSEQUENCES				
	1	2	3	4	5
	<i>Negligible</i>	<i>Minor</i>	<i>Moderate</i>	<i>Major</i>	<i>Catastrophic</i>
<i>A. Rare</i>	Low	Low	Low	Moderate	High
<i>B. Unlikely</i>	Low	Low	Moderate	High	High
<i>C. Possible</i>	Low	Moderate	Moderate	High	Extreme
<i>D. Likely</i>	Moderate	Moderate	High	Extreme	Extreme
<i>E. Almost Certain</i>	Moderate	High	High	Extreme	Extreme

The options to 'treat' risks are broadly outlined below.

Risk Assessment	Treatment Options
Low (L)	<p>Acceptable Risk</p> <ul style="list-style-type: none"> Unlikely to require specific application of resources Manage by routine procedures Monitor, review and react.
Moderate (M)	<p>Acceptable Risk</p> <ul style="list-style-type: none"> Unlikely to cause much damage and/or threaten the efficiency and effectiveness of the activity Treatment plans to be developed and implemented by operational managers Manage by specific monitoring or response procedures.
High Risk (H)	<p>Generally unacceptable</p> <ul style="list-style-type: none"> Likely to cause some damage, disruption, or breach of controls Senior management attention needed, and management responsibility specified Treatment plans to be developed and reported to executives.
Extreme (E)	<p>Not acceptable</p> <ul style="list-style-type: none"> Likely to threaten the survival or continued effective function of the organisation, either financially or politically Must be managed by senior management with detailed treatment plan in place Immediate action required.

Risk Analysis - Asset Failure

The asset risk has been calculated using the criticality of the asset as a measure of the consequence of failure and the condition rating as the likelihood of the asset failing. A risk rating was assigned to every Sewerage asset.

Table 20 and Table 21 quantify the number of assets at each level of risk, Council's risk exposure to asset failure in the Sewerage network, and the assets assessed as having an extreme risk of failure.

Table 20 Risk Rating Matrix

Likelihood	Consequence				
	1	2	3	4	5
1		374	25	5	
2		425	24	24	1
3		472	21	25	
4		1051	15	7	
5		946	5	1	

The eight (8) assets with an extreme risk rating are included in Table 21 below. One of these assets have a condition rating of 5 therefore it can be assumed that they are already included in Council's Sewerage renewal program. For the other seven assets it is suggested that a review of their condition be undertaken, and their inspection frequency be increased accordingly.

Table 21 Extreme Risks

Asset Number	Asset type	Facility Name	Component	Condition	Current Replacement Cost
SE01633 - 05	Pump Station	SPS 10	Electrical	4	\$40,000
SE01639 - 06	Pump Station	SPS 6	Electrical	4	\$124,000
SE01640 - 04	Pump Station	SPS 17	Electrical	4	\$12,000
SE01645 - 106	Treatment Plant		Electrical	5	\$10,400
SE01645 - 33	Treatment Plant		Electrical	4	\$21,000
SE01645 - 62	Treatment Plant		Electrical	4	\$15,000
SE01650 - 04	Pump Station	SPS 16	Electrical	4	\$15,000
SE01653 - 04	Pump Station	SPS 13	Electrical	4	\$12,500

Risk Analysis - Operational Activities

Table 22: Sewerage Operational Risk Assessment

<i>Asset at Risk</i>	<i>Risk ID</i>	<i>Critical Incident</i>	<i>Cause</i>	<i>Likelihood</i>	<i>Consequences</i>	<i>Rating</i>
Sewerage	S1	Failure to detect sewer line failure causing sewer leak	Reduced Asset inspection programs	Unlikely	Major	High
Sewerage	S2	Poor Quality Assets provided or constructed	Failure to comply with Council's guidelines	Rare	Major	Moderate

Operational Risk Report

The risk report resulting from the assessment is included as Table 23 below.

Table 23: Risk Report

<i>ID</i>	<i>Risk Description</i>	<i>Risk Assessment</i>	<i>Action</i>	<i>Proposed Treatment Options</i>	<i>Estimated Cost</i>	<i>Target Risk Result</i>
S1	Assets are being acquired or created and recorded in the asset register. The information recorded is not appropriate. (e.g. Asset Name: "Capital works")	High	Treat	Improve processes and procedure documentation Train staff Improve data recording of Ops & Maint. Exp Improve asset data recording, capitalisation and management	\$TBA	Moderate
S2	Annual works programs are not being delivered. (plan, design and construct within a single year)	High	Treat	Amend budgets to include Forward Planning and Forward Design allocations.	Nil	Moderate

TBA (To Be Assessed) are reactive in nature and will be addressed when the issue arises

Long Term Funding

The available funding was estimated based on the financial model provided by Council. The Capital expenditure has been extracted from Council's Financial Model, however the operations and maintenance expenditure funding forecasts are imbedded in the model data and not clearly identified by asset class. Therefore, these operational expenditure funding forecasts are based on current levels of expenditure. The assumption being that this level of funding is enough to deliver the current service levels.

The forecasts estimated in this AMP should be used as an indication of expenditure levels and distribution required for the Long-Term Financial Plan.

Long Term Financial Plan Summary

The LTFP funding available for operations, maintenance and infrastructure renewals is shown in Table 24 and Figure 11. The total allocation over the term of the LTFP is \$33.63M or \$3.363M per annum.

Table 24: Long Term Financial Plan

<i>Financial Year Ending</i>	<i>New/Upgrade</i>	<i>Operations & Maintenance</i>	<i>Renewals</i>	<i>Total</i>
2020	\$0	\$871,487	\$993,000	\$1,864,487
2021	\$0	\$884,502	\$1,295,000	\$2,179,502
2022	\$0	\$897,842	\$20,000,000	\$20,897,842
2023	\$0	\$911,516	\$0	\$911,516
2024	\$0	\$925,531	\$0	\$925,531
2025	\$0	\$939,897	\$1,000,000	\$1,939,897
2026	\$0	\$954,622	\$0	\$954,622
2027	\$0	\$969,715	\$0	\$969,715
2028	\$0	\$985,185	\$1,000,000	\$1,985,185
2029	\$0	\$1,001,042	\$0	\$1,001,042
Total	\$0	\$9,341,338	\$24,288,000	\$33,629,338

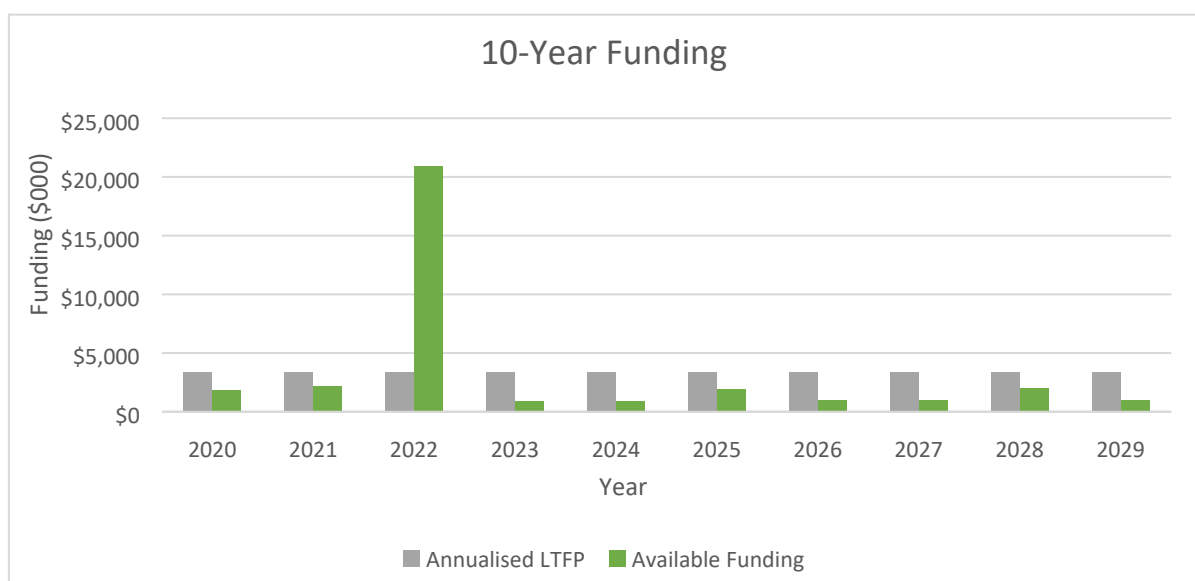


Figure 11: Sewerage Network funding in the Long-Term Financial Plan

Operations & Maintenance

Operations and Maintenance activities relate to the day-to-day running and upkeep of assets, the costs of which are particularly significant for dynamic/short-lived assets.

Operations expenditure is recurrent expenditure, which is continuously required to provide a service. In common use the term typically includes, eg power, fuel, staff, plant equipment, street sweeping, mowing, on-costs and overheads but excludes maintenance and depreciation.

Maintenance activities are those necessary for retaining an asset as near as practicable to its original condition, including regular ongoing day-to-day work necessary to keep assets functioning and in good repair. It is operating expenditure required to ensure that the asset reaches its expected useful life.

Maintenance Specifications

The links below contain the maintenance specification details (A summary of maintenance activities is attached in [Appendix C – Maintenance Activity Specification](#)).

Table 25 Operations and Maintenance Documents

<i>Maintenance Specification Details</i>		
<i>Document</i>	<i>Status</i>	<i>Document Reference</i>
Sewerage SLA	Up to Date	Draft
Activity Specification	Up to Date	Draft
Maintenance Manual	To be Drafted	

Operations & Maintenance Program

Currently maintenance is managed based on historical information and trends. The maintenance service objectives are to:

- Maintain Council's infrastructure in a safe, serviceable and aesthetic condition to the satisfaction of Council and the community;
- Maintain and preserve the functionality and value of the existing assets;
- To provide and maintain a safe environment for the community within the constraints of Council's financial capacity and resource capability, while displaying a reasonable "duty of care"; and
- Ensure the provision of a high standard of customer service and that customer requests are responded to quickly efficiently.

Council's future operations and maintenance expenditure is based on last financial year's financial statements. This data only provided very limited granularity and insight into the operations and maintenance work it represents. The operations and maintenance expenditure is not broken down into specific tasks. From this data it is not possible to assess whether the level of operations and maintenance being conducted is appropriate or how it will change over the planning period.

The associated increase in required operations and maintenance expenditure has been included Council's adopted growth rate (2.5%).

The projected operations and maintenance expenditure can be seen in *Table 26* and *Figure 12* below.

Table 26 Forecast Operations and Maintenance expenditure

Financial Year Ending	Operations	Maintenance	Total
2020	\$350,900	\$520,587	\$871,487
2021	\$350,900	\$533,602	\$884,502
2022	\$350,900	\$546,942	\$897,842
2023	\$350,900	\$560,616	\$911,516
2024	\$350,900	\$574,631	\$925,531
2025	\$350,900	\$588,997	\$939,897
2026	\$350,900	\$603,722	\$954,622
2027	\$350,900	\$618,815	\$969,715
2028	\$350,900	\$634,285	\$985,185
2029	\$350,900	\$650,142	\$1,001,042
Totals	\$3,509,000	\$5,832,338	\$9,341,338

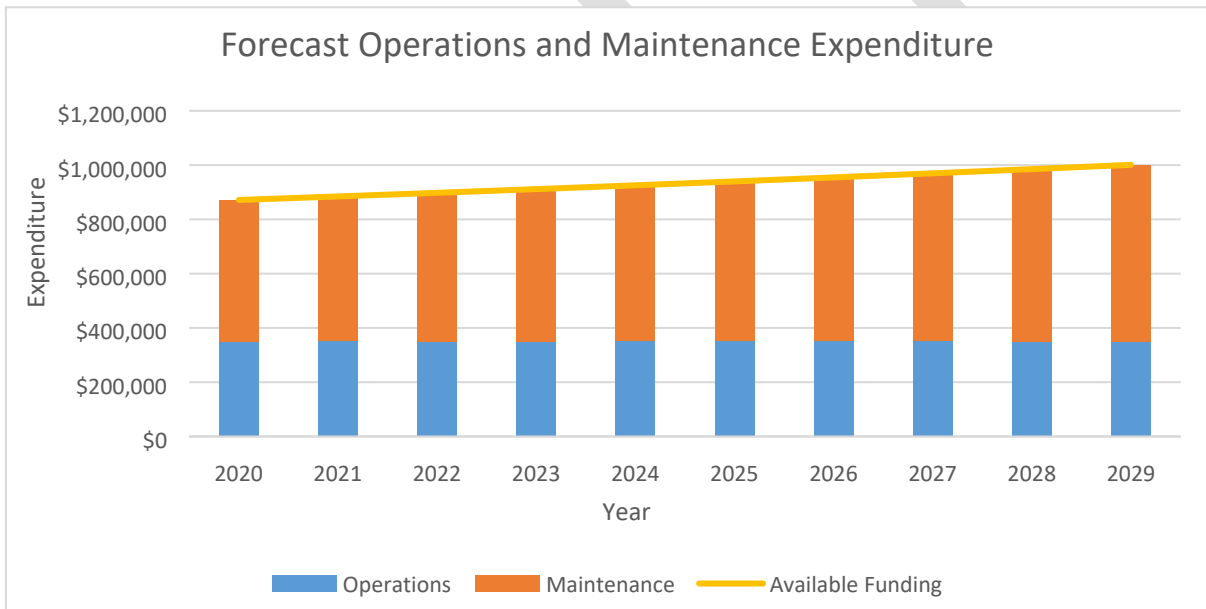


Figure 12: Operations and Maintenance Expenditure Forecasts

The annualised expenditure on operations and maintenance activities for the next 10 years is \$934,100 per annum

Maintenance Expenditure Ratio

A following ratio is calculated based on the current Sewerage maintenance expenditure (\$871,500) as a percentage of the current replacement value of the Sewerage assets.

Table 27: Operations & Maintenance Funding Ratio

Maintenance Expenditure Ratio	1.57%
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This compares favourably to the estimated maintenance expenditure levels based on the depreciation of assets with a condition greater than or equal to 3. The estimated expenditure level is shown in [Table 28 Depreciation Expense levels](#).

Table 28 Depreciation Expense levels

<i>Condition</i>	<i>Annual Depreciation</i>
3	\$175,602
4	\$138,831
5	\$112,322
Total	\$426,754

The annual depreciation total in represents 0.77% of the current replacement cost of the asset base.

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Renewals Planning

Renewal expenditure does not increase the asset’s design capacity but restores, rehabilitates, replaces, or renews an existing asset to its original or lesser required service potential. Work over and above restoring an asset to original service potential is classed as upgrade or new works expenditure.

The renewals are based on the asset valuation data. Additionally, the assets that had been programmed in Council’s capital works program have been included for comparison.

The renewals forecasting includes 3 different approaches as follows:

Depreciation Renewals

This is a ‘top down’ approach that uses the depreciation or ‘consumption’ rate as a guide to how much Council should be investing in renewals to effectively maintain the assets. This is calculated from the financial register using valuation data. This does not necessarily reflect the technical condition of the assets or the potential impact on the life of the asset due to changes in maintenance and operational practices.

Condition Renewals

This is a more rigorous ‘bottom up’ approach that uses the condition of each asset and develops a renewal program on timely investment of expenditure to renew the asset at the end of its life. The forecast renewal expenditure is then more representative of when the expenditure is required.

Planned Renewals

Council does not have a planned renewal program suitable to inform this plan.

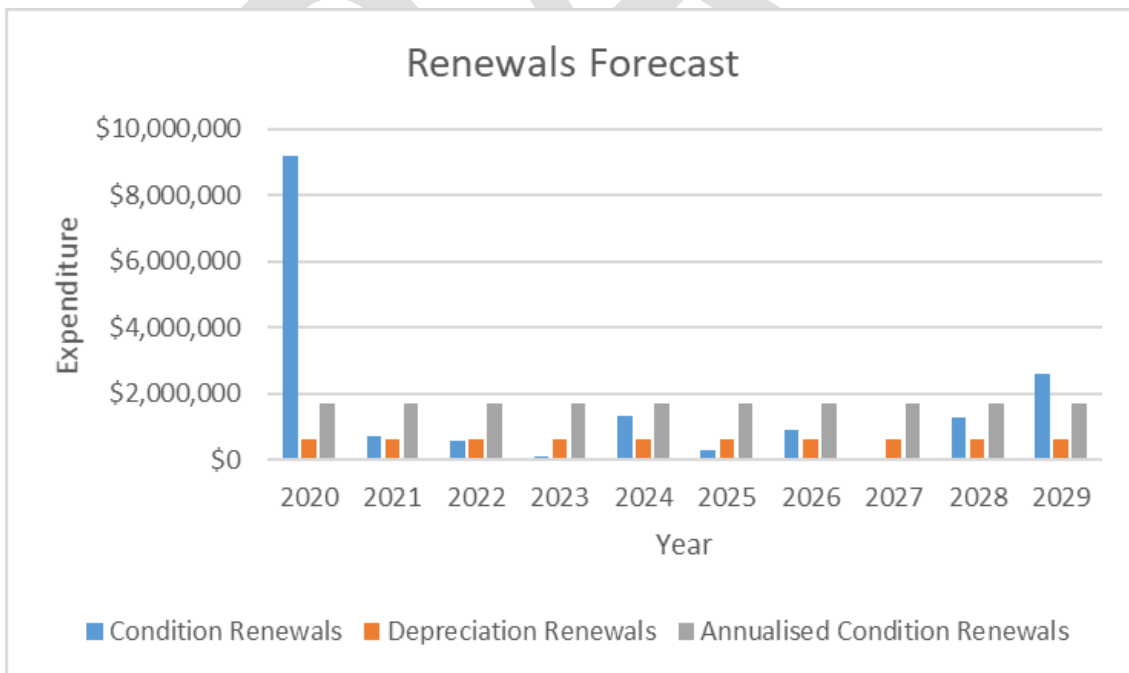


Figure 13 Forecast Renewal Expenditure

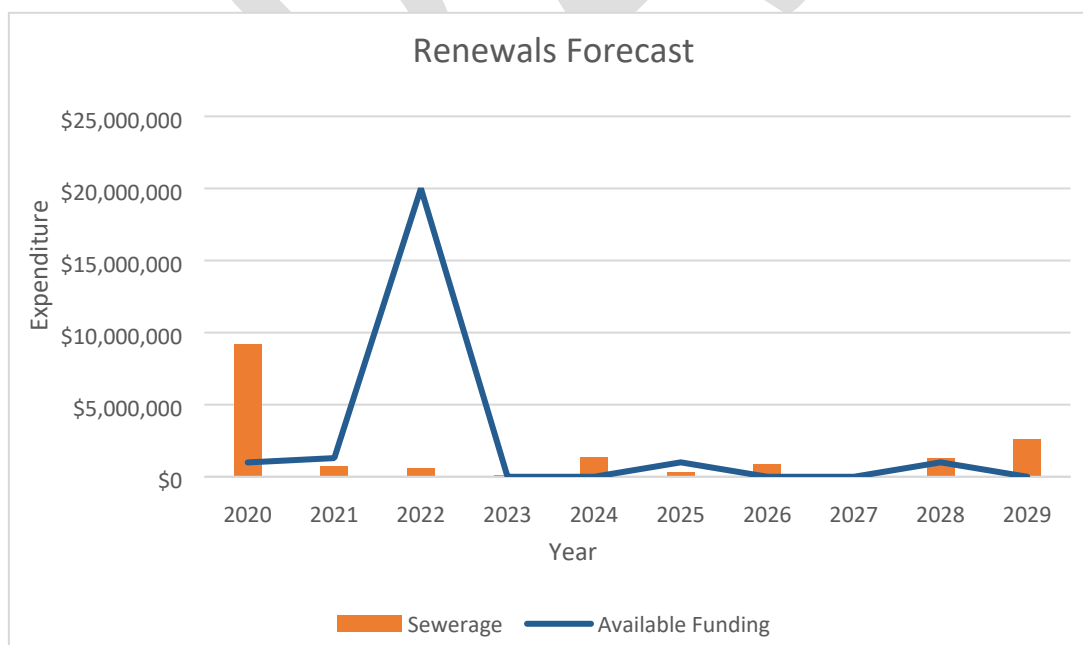
The value of the renewals in the first year of the plan as shown in Figure 13 and Table 29 below suggests a number of sewerage assets have reached the end of their service life and are awaiting renewal. Deferred renewals, i.e. those assets identified for renewal and/or replacement and not scheduled in capital works programs are to be included in the risk analysis process in the risk management plan as unfunded renewals.

Table 29 Forecast renewal expenditure

Financial Year Ending	Condition Renewals	Annualised Condition Renewals	Planned Renewals	Depreciation Renewals
2020	\$9,205,967	\$1,708,322	\$0	\$621,199
2021	\$702,500	\$1,708,322	\$0	\$621,199
2022	\$580,215	\$1,708,322	\$0	\$621,199
2023	\$116,020	\$1,708,322	\$0	\$621,199
2024	\$1,331,200	\$1,708,322	\$0	\$621,199
2025	\$278,723	\$1,708,322	\$0	\$621,199
2026	\$901,374	\$1,708,322	\$0	\$621,199
2027	\$76,400	\$1,708,322	\$0	\$621,199
2028	\$1,277,600	\$1,708,322	\$0	\$621,199
2029	\$2,613,221	\$1,708,322	\$0	\$621,199
Total	\$17,083,221	\$17,083,221	\$0	\$6,211,989

Renewals Program

This renewal requirement does not include any amount dedicated to a renewal project which upgrades or increases the level of service. Any additional amount for this is to be reported through the New and Upgrade Requirement within the *New and Upgrade* chapter of this AMP.



This plan provides an indicative program information for the renewal of the assets.

The renewal plan based on the condition and remaining life data held against each asset in the asset register has been prepared and is attached in Appendix D – Renewals Plan.

Prior to the adoption of the renewal plan, a review of individual projects and the data held in the register will be validated by inspection and where discrepancies exist the Plan and the recorded data will be amended.

Comparative Renewals Funding Ratio

A following ratio is calculated based on the available renewal funding in the LTFP against the condition based and depreciation-based renewal expenditure forecasts. The Ratio for the different assessment methods is included in *Table 30: Renewal Funding Ratio*.

Table 30: Renewal Funding Ratio

<i>Expenditure Type</i>	<i>Depreciation Based</i>	<i>Condition Based</i>
Asset Renewal Funding Ratio	3.91	1.46

A ratio above indicates that Council has allocated funds in the LTFP sufficient to renew sewerage assets as they reach the end of their useful life.

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New and Upgrade

New and Upgrade expenditure is for the provision of, or improvement to, an asset where the outlay can reasonably be expected to provide benefits beyond the year of outlay, including a value management approach that aims to produce the most economic and creative solutions.

New/Upgrade Prioritisation Approach

The considerations taken into account when prioritising new/upgrade Projects. The discussion may include some example criteria as documented below:

- New/upgrade projects that involved legislative drivers were prioritised over others that did not, to ensure compliance with statutory requirements.
- Once the legislation assessment was completed, projects were assessed against alignment with approved Council plans, policies, and strategies. This was essential to ensure projects were not being developed outside the scope of strategic Council documents.
- A risk assessment was undertaken, to identify projects with higher risk. This was necessary to identify the consequences and impacts if projects were not undertaken. Projects identified as higher risk were prioritised over those with a lower risk.
- An assessment of community growth and demand based on technical levels of service on services within the Council area was undertaken. This highlighted that projects associated with growth areas such as the northern growth corridor warranted being prioritised over those not located in such an area.
- For projects concerning the upgrade of existing assets, these were given priority over new assets in order to maximise / enhance existing infrastructure before investing in new, additional assets
- Include evidence of a value management approach taking into consideration the Whole of Life costs of each project

New / Upgrade Program

It is an objective of the Community Strategy to undertake projects that generate new infrastructure or upgrade existing infrastructure, therefore Council is currently reviewing its Long-Term Financial Plan to determine if after funding asset operations, maintenance and renewal there is funding available for these works.

Therefore, there is not a new/upgrade program available for inclusion in this AMP.

Disposal / Rationalisation

Council has undertaken a review of the configuration, type and location of Sewerage assets and the service delivery process relevant to the activity, when an asset becomes uneconomical to maintain or rehabilitate, or is no longer required.

There is currently no information regarding any assets that may have been disposed of. It has been assumed that all assets on the register are in use.

Disposals

There have been no assets identified for disposal however some asset recorded in the asset register no longer exist, therefore a disposal plan will need to be developed once the asset data issues have been addressed.

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Forecast Expenditure

Financial Summary

The forecast expenditure to deliver the planned New/upgrade program, the condition renewal plan and sustain the current level of operations and maintenance is outlined in Table 31 below. This gives a 10-year total of \$28.6M.

Table 31: 10-Year Forecast Expenditure

Financial Year Ending	Risk Treatment	New or Upgrade	Operations	Maintenance	Renewals	Total
2020	\$0	\$0	\$350,900	\$520,587	\$9,205,967	\$10,077,454
2021	\$0	\$0	\$350,900	\$533,602	\$702,500	\$1,587,002
2022	\$0	\$0	\$350,900	\$546,942	\$580,215	\$1,478,057
2023	\$0	\$0	\$350,900	\$560,616	\$116,020	\$1,027,536
2024	\$0	\$0	\$350,900	\$574,631	\$1,331,200	\$2,256,731
2025	\$0	\$0	\$350,900	\$588,997	\$278,723	\$1,218,620
2026	\$0	\$0	\$350,900	\$603,722	\$901,374	\$1,855,996
2027	\$0	\$0	\$350,900	\$618,815	\$76,400	\$1,046,115
2028	\$0	\$0	\$350,900	\$634,285	\$1,277,600	\$2,262,785
2029	\$0	\$0	\$350,900	\$650,142	\$2,613,221	\$3,614,263
Total	\$0	\$0	\$3,509,000	\$5,832,338	\$17,083,221	\$26,424,558

The estimated available funding forecast is outlined in Table 24: Long Term Financial Plan above.

The comparison of the projected 10-year expenditure and the funding included in the LTFP can be seen in Figure 14 below.

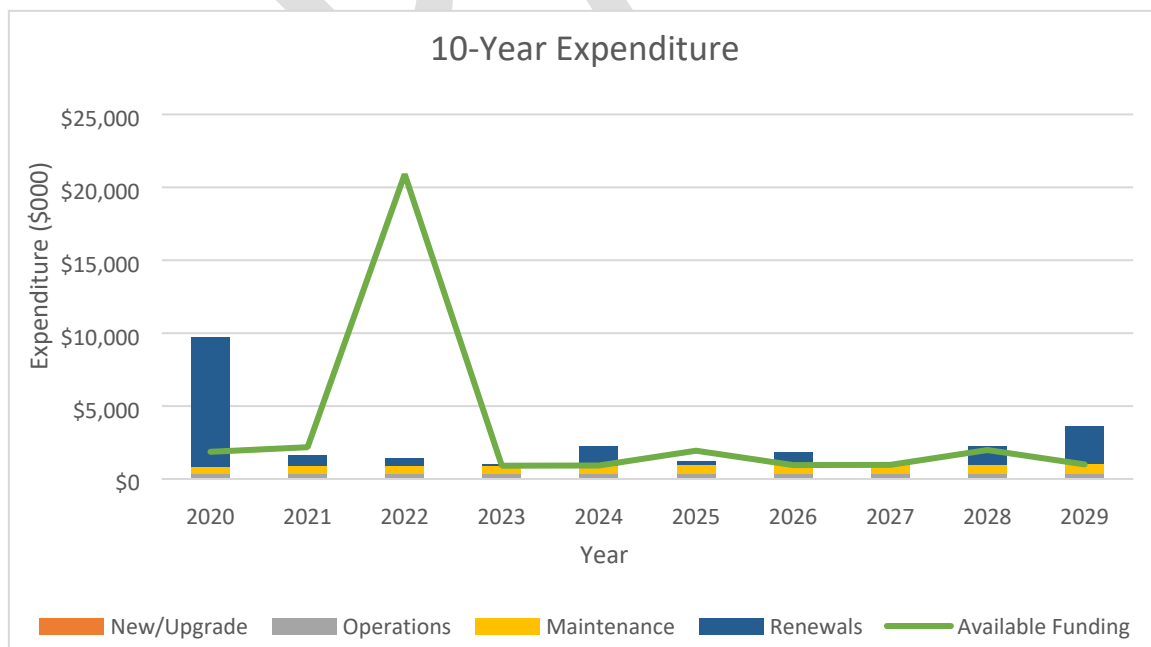
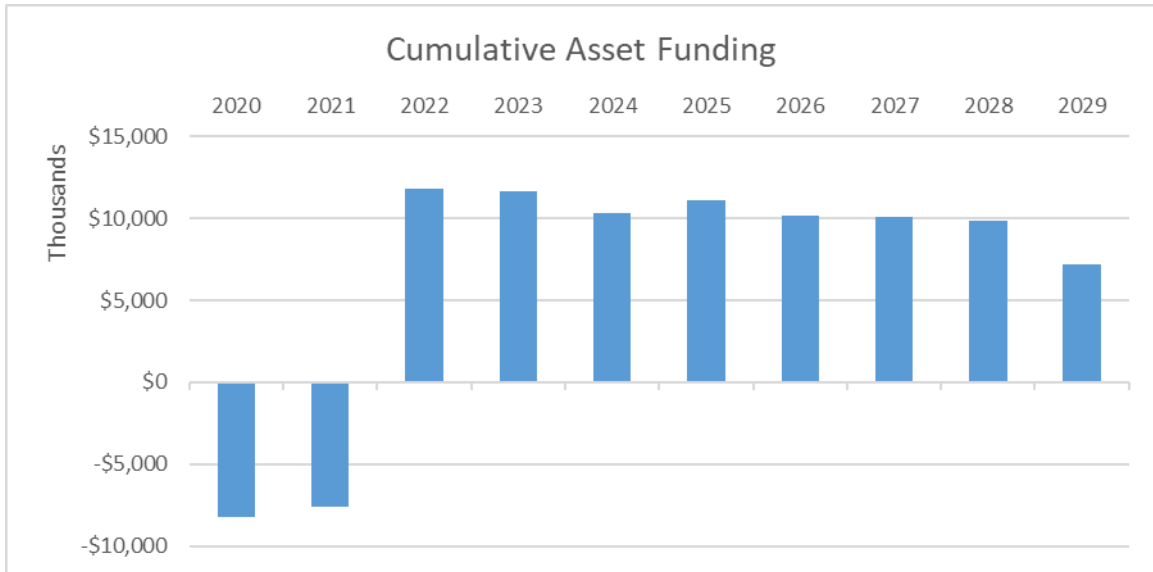


Figure 14: Expenditure Forecast

The cumulative gap between the funding and expenditure results in a financial surplus of \$7.2M at the end of the 10-year period. This can be seen in Figure 15.

Figure 15: Funding Surplus



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Asset Values

The valuation is based on:

- A review of the asset register;
- Unit rates based on Council’s construction costs and published rates; and
- Condition assessments to determine remaining useful life.

Table 32: Asset Valuations

Asset Class	Replacement Cost	Accumulated Depreciation	Fair Value	Annual Depreciation
Sewerage Assets	\$55,487,132	\$21,690,808	\$33,796,324	\$690,221

Asset values are forecast to remain the same no new/upgrade capital works are planned at this stage.

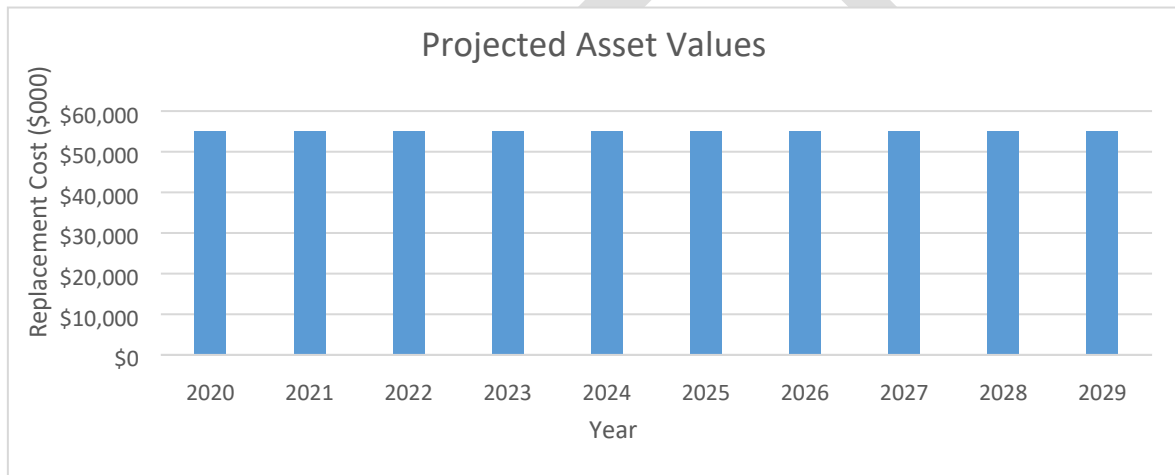


Figure 16: Asset Valuation Forecast

shows the projected asset values over the planning period. The depreciation expense can be seen in Figure 17 below.

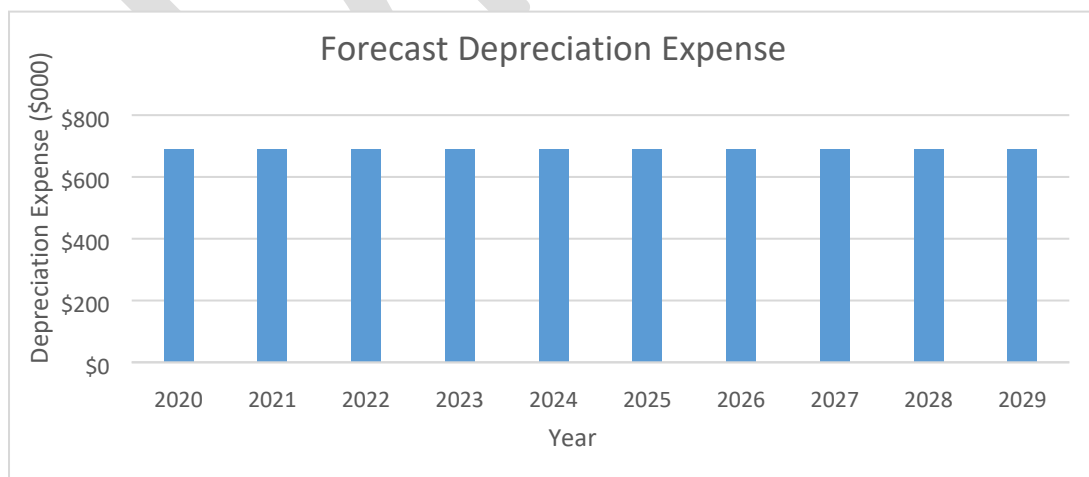


Figure 17: Projected Depreciation Expense

The value of the depreciated assets will vary over the planning period depending on the rates of addition of new assets, disposal of old assets and consumption and renewal of existing assets. The projected value of the depreciated assets is expected to increase as

the expenditure on renewals is more than the depreciation rate, this can be seen in Figure 18.

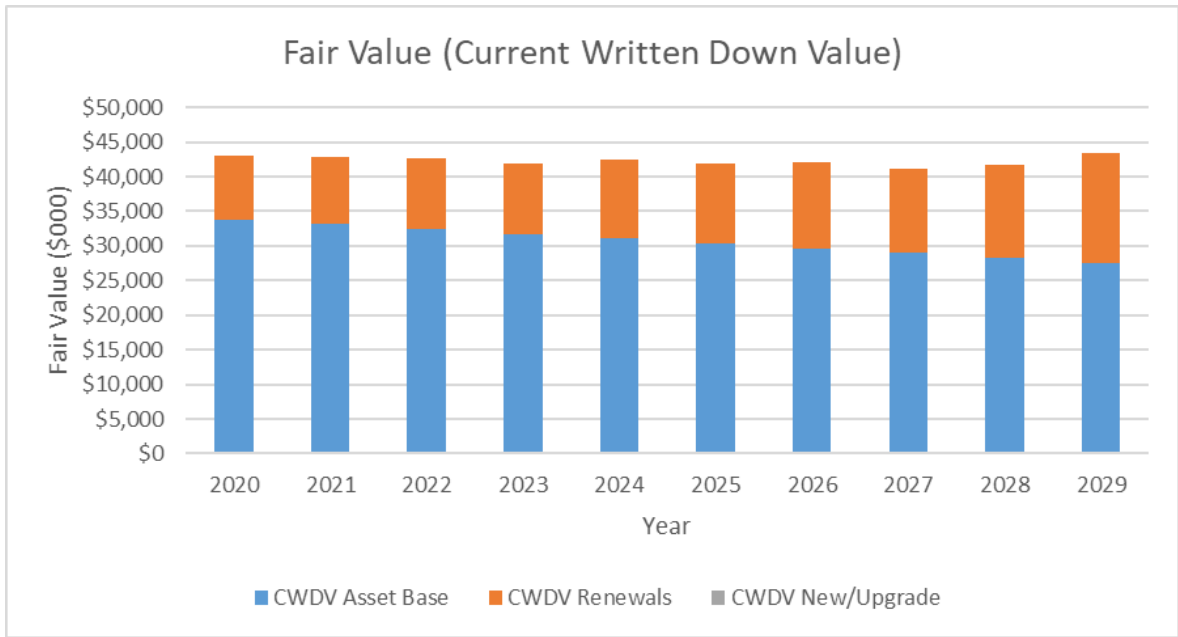


Figure 18: Projected Value of Depreciated Assets

Performance Ratios and Sustainability

Annual Ratios

The sustainability outputs are provided to demonstrate the trends that the currently anticipated expenditure will have on key measures. Capital Expenditure for 2017-2018 is shown in Table 33.

Table 33: Capital Expenditure 2017-2018

Year	Capital Renewal Expenditure	Capital New/Upgrade Expenditure	Total Capital Expenditure
2017-2018	\$325,540	\$6,580,470	\$6,906,010

Consumption Ratio

The consumption ratio provides a measure of the percentage of the asset base consumed to date and an indication of how fast the assets are being consumed each year and whether investment may require adjustment.

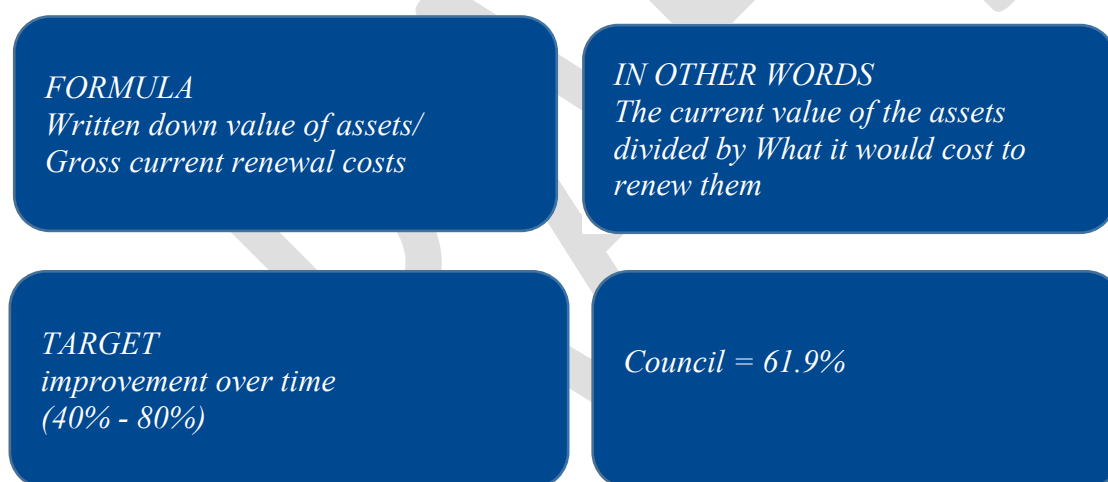


Table 34: Annual Asset Consumption

Annual Asset Consumption (Depreciation/Depreciable Amount)	1.24%
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The Annual Asset Renewal Ratio provides a measure of the rate of investment in renewals.

Table 35: Annual Asset Renewal

Annual Asset Renewal (Capital Renewal Expenditure/Depreciable Amount)	0.59%
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The Annual New & Upgrade ratio provides an indication of the rate of growth of the asset base.

Table 36: Annual New & Upgrade Ratio

<i>Annual New/Upgrade</i> <i>(Capital New & Upgrade / Depreciable Amount)</i>	13.5%
--	-------

Sustainability Ratio (Levels of Service)

Knowing the extent and timing of any required increase in funding will assist Council in providing services to their communities in a financially sustainable manner.

There are three key indicators for service delivery sustainability that have been considered in the analysis of the services provided by this asset class. These indicators are:

- **Medium term ratios 5 and 10 year.**
This ratio compares the projected operations, maintenance and capital renewal expenditures to the available funding. The Capital renewal estimate is based on the condition of the asset base. This also includes the operations and maintenance expenditure incurred because of planned new and upgraded assets.
It is an indication of the expenditure required to deliver current levels of service to existing customers and cater for growth.
- **Whole of life ratio**
This ratio compares the projected operations, maintenance and capital renewal expenditures to the available funding. The Capital renewal estimate is based on the average annual renewal costs modelled over 100 years.
It is an indication of the expenditure required to deliver current levels of service to the current customer base over the life of the current asset base.

These forecast expenditures have been compared to funding allocations for the same expenditure types in the 10-year period to identify any funding discrepancies.

<p><i>FORMULA</i> <i>Life Cycle Costs (Ops, Maint, Renewal)</i> <i>Funding Allocation</i></p>	<p><i>IN OTHER WORDS</i> <i>Average annual ops, maint, and renewal costs</i> _____ <i>Average allocated funding</i></p>
<p><i>TARGET</i> <i>A percentage greater than 90%</i></p>	<p><i>Council</i> <i>5-year</i> = 163% <i>10-year</i> = 130% <i>Whole of Life</i> = 207%</p>

Table 37: Service Sustainability

	<i>5 Year Financial Planning Period</i>	<i>10 Year Financial Planning Period</i>	<i>Whole of Life Costs</i>
Forecast Expenditure	\$16,426,780	\$26,030,850	\$1,624,355
Forecast Budget	\$26,778,878	\$33,629,338	\$3,362,934
Funding Surplus	\$10,352,098	\$7,598,488	\$1,738,579
Funding Ratio	1.63	1.3	2.07

The funding ratios in Table 37 reinforce that there is sufficient funding in the LTFP to deliver Council's Sewerage services at their current level for the next 10 years.

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Evaluation of findings

Currently Council's records show that 17% of the sewerage asset are in very poor condition with an additional 21% being in poor condition. This means that 38% of the sewerage assets are significantly deteriorated, failing or have failed. The two major areas contributing to the failing assets and deserving of further consideration are the Sewer Points and Sewer Lines. Both these asset types are inground assets with the condition generally based on the age of the asset.

The number of assets with up to 5 years of remaining life suggests that there is a backlog of asset renewal works with assets being maintained beyond their performance life.

There are eight identified electrical components at sewerage pump station and treatment plants that have been identified as being at risk with the switchboard at the treatment plant requiring immediate attention.

The 10-year expenditure forecast for the delivery of sewerage services is \$26.4 or \$2.64M per annum. The available funding in the LTFP is \$33.63M or \$3.36M per annum.

The funding ratios reinforce that there is excess funding (\$7.2M) in the LTFP to deliver Council's Sewerage services at their current level for the next 10 years.

Actions

1. Council confirm the condition, standard asset lives, and remaining life estimates of its sewer line and sewer point assets.
2. Consideration be given to annualising (levelling) the Sewerage funding allocation in the Long-Term Financial Plan at \$3.0M per annum with the renewal programs being adjusted to comply with this funding level.
3. Prior to the adoption of the attached renewal plan, individual projects and the data held in the register be validated by inspection and where discrepancies exist the Plan and the recorded data be amended.
4. The initiatives identified in the AMP improvement plan be implemented.

Plan Improvement

Performance Measures

The effectiveness of the asset management plan can be measured in various ways including:

- The degree to which the required cash flows identified in the development of the final plan are incorporated into Council's long-term financial plan and Community/Strategic Planning processes and documents,
- The degree to which 1-5-year detailed works programs, budgets, business plans and organisational structures take into account the 'global' works program trends provided by the asset management plan;
- The degree to which the existing and projected service levels and service consequences (what we cannot do), risks and residual risks are incorporated into the Council's Strategic Plan associated plans,
- The Asset Renewal Funding Ratio achieving the target of 1.0.

Monitoring and Review Procedures

This plan will be reviewed during annual budget preparation and amended to recognise any material changes in service levels and/or resources available to provide those services as a result of the budget decision process.

This plan has a life of three years and is due for major review in 2019.

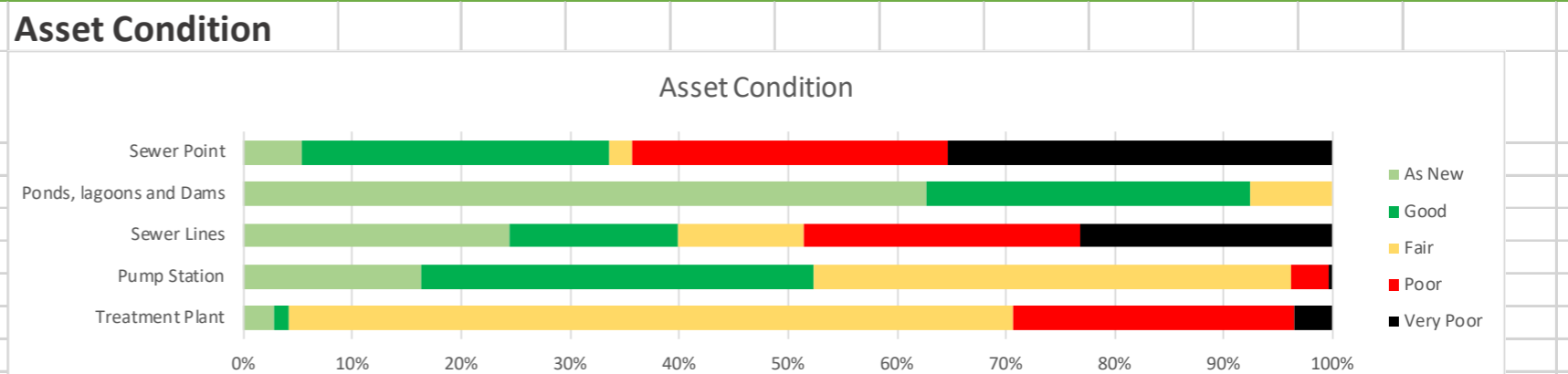
Improvement Plan

An asset management improvement plan generated from this asset management plan is shown in

<i>Task No.</i>	<i>Task</i>	<i>Responsibility</i>	<i>Resources Required</i>	<i>Timeline</i>
1	<i>Develop a condition assessment program, supported by a data management procedure and Condition assessment manuals</i>			
2	<i>Develop an asset criticality model for this asset class</i>			
3	<i>Confirm current levels of service for the assets and identify future demand impacts on levels of service.</i>			
4	<i>Review asset naming descriptions. Update where necessary.</i>			
5	<i>Conduct asset inspections, condition assessments and valuation based on new data set.</i>			
6	<i>Develop priority ranking system for renewal/maintenance program.</i>			
7	<i>Review Asset Management processes and procedures and establish new or update as necessary.</i>			
8	<i>Prepare assets financial inputs for financial reporting.</i>			
9	<i>Develop distinction between operations, maintenance and capital works. Consider in this assessment the distinction between maintenance and renewal works.</i>			
10	<i>Develop an asset data confidence model to prioritise data improvement activities</i>			
11	<i>Develop a corporate demand management plan and associated models.</i>			
12	<i>Apply the demand management plan to all asset groups, at each level to ensure that Council understands the funding needs to deliver the works.</i>			
13	<i>Align the Long-Term Financial Plan to the expenditure forecasts found in this Asset Management Plan</i>			
14	<i>Review standard lives for asset components.</i>			
15	<i>Assess remaining life against asset condition</i>			
16	<i>Undertake an annual review and update of this asset management plan.</i>			

Edward River Council
State of the Assets - Sewerage

Asset Value				
Asset Class	Replacement Cost	Accumulated Depreciation	Current Value	Average Annual Asset Consumption
Ponds, lagoons and	\$3,384,900	\$273,714	\$3,111,186	\$15,982
Pump Station	\$8,468,356	\$2,806,471	\$5,661,885	\$132,583
Sewer Lines	\$26,687,419	\$11,574,084	\$15,113,335	\$284,878
Sewer Point	\$8,915,757	\$3,832,116	\$5,083,641	\$144,702
Treatment Plant	\$8,030,700	\$3,204,423	\$4,826,277	\$112,076
Total	\$55,487,132	\$21,690,808	\$33,796,324	\$690,221

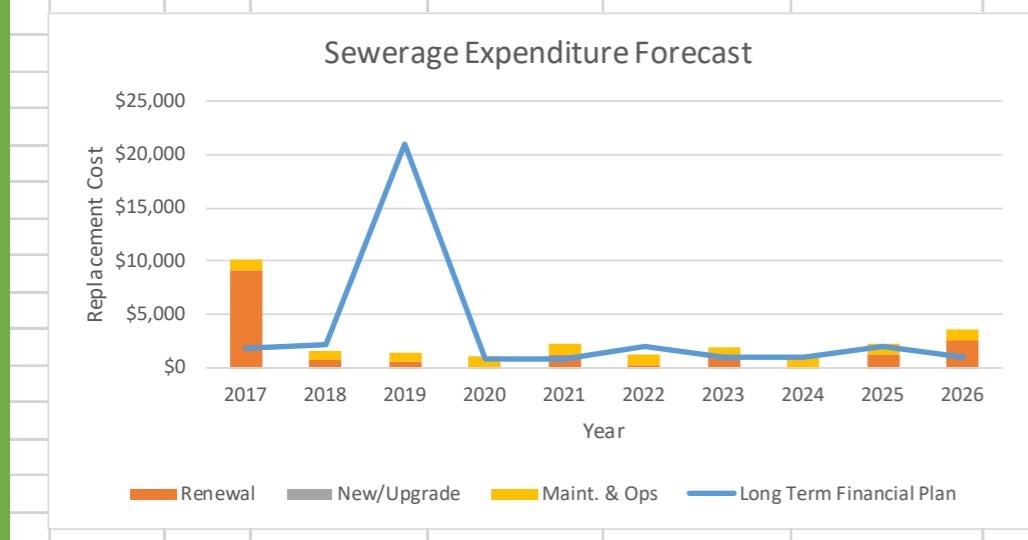


Current Levels of Service
The levels of service for the services that the Buildings and Other Infrastructure assets deliver have been defined. Council is currently conducting a review to establish the link between operations & maintenance activities and levels of service.

Current Risks
Council has identified 8 sewerage assets (value \$250,000) with an extreme risk rating. The risk rating is a result of the high consequence of failure, however the assets are in good condition. Therefore, the treatment adopted will be to increase the inspection frequency.

Conclusion
Council has sufficient funding available to sustainably deliver the sewerage Infrastructure services.

Financial Forecasts												
	Expenditure (\$'000)											
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total	
Renewal	\$9,206	\$702	\$580	\$116	\$1,331	\$279	\$901	\$76	\$1,278	\$2,613	\$17,083	
New/Upgrade	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Maint. & Ops	\$871	\$885	\$898	\$912	\$926	\$940	\$955	\$970	\$985	\$1,001	\$9,341	
Total	\$10,077	\$1,587	\$1,478	\$1,028	\$2,257	\$1,219	\$1,856	\$1,046	\$2,263	\$3,614	\$26,425	
Long Term Financial Plan												
Renewal	\$993	\$1,295	\$20,000	\$0	\$0	\$1,000	\$0	\$0	\$1,000	\$0	\$24,288	
New/Upgrade	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Maint. & Ops	\$871	\$885	\$898	\$912	\$926	\$940	\$955	\$970	\$985	\$1,001	\$9,341	
Total	\$1,864	\$2,180	\$20,898	\$912	\$926	\$1,940	\$955	\$970	\$1,985	\$1,001	\$33,629	
Surplus	-\$8,213	\$593	\$19,420	-\$116	-\$1,331	\$721	-\$901	-\$76	-\$278	-\$2,613	\$7,205	
Cumulative Surplus	-\$8,213	-\$7,620	\$11,799	\$11,683	\$10,352	\$11,073	\$10,172	\$10,096	\$9,818	\$7,205		



Sustainability		
Consumption Ratio	Indicates the Written Down Value of Council's Depreciable assets relative to their 'as new' value in up to date prices (highlights aged condition)	61%
Asset Sustainability Ratio	Indicates whether Council is renewing or replacing existing assets at the same rate as the overall stock of assets is wearing out.	47%
Asset Renewal Funding Ratio	Indicates the extent to which the required CAPEX on renewals per the asset management plan have been incorporated into the 10 year financial plan.	142%
Life Cycle Cost	Average annual cost based on 10 year projections of operations and maintenance expenditure and depreciation value.	\$1,624,355
Life Cycle Budget	Average annual budget based on 10 year projections of operations, maintenance and capital renewal expenditure.	\$3,362,934
Life Cycle Gap	Average annual surplus or shortfall based on operations, maintenance, capital renewal and depreciation.	\$1,738,579
Life Cycle Indicator	Indicates the projected costs and depreciation relative to the current budget averaged over 10 years.	207%

Appendix B - Asset Management Practices

Council is currently using TechOne financial system for asset accounting processes and related reporting functions. Asset data included in the system is directly integrated with the financial system.

The intention is to record, further develop and consolidate the processes used for asset and services management, and then review the systems available which will complement those processes. The timeframe for that review will be established in the Asset and Services Management Practices Improvement Strategy.

The finance module is the responsibility of the finance department. The engineering and finance departments are jointly responsible for ensuring the integrity of the system and asset financial information overall.

TechOne has an asset database module that Council uses to monitor their assets. In this way the asset and financial data bases can be aligned. The key information flows into this asset management plan are:

- *Council corporate and operational plans;*
- *Service requests from the community;*
- *Network assets information;*
- *The unit rates for categories of work/materials,*
- *Current levels of service and expenditures;*
- *Projections of various factors affecting future demand for services and new assets acquired by Council;*
- *Future capital works programs; and*
- *Financial asset values.*

The key information flows from this asset management plan are:

- *The projected works program and trends;*
- *The resulting budget and long-term financial plan expenditure projections; and*
- *Financial sustainability indicators.*

These will impact the Long-Term Financial Plan, Strategic Longer-Term Plan, annual budget and departmental business plans and budgets.

Standards, guidelines and policy documents referenced in this asset management plan are:

- *Council Corporate Plan (2013-2018).*
- *Council Operational Plan (2015/2016)*
- *Council Asset Management Policy*
- *Council Asset Management Strategy*
- *National Construction Code of Australia*
- *Disability and Discrimination Act*
- *Applicable Australian Standards associated with asset maintenance, renewal and upgrade works.*

Appendix C – Maintenance Activity Specification

Activity No	Activity	Description	Hierarchy	Inspection Frequency	Intervention Level	Maintenance Frequency	Response time	Target Duration	Complaints Target	Asset Custodian	Service Provider	GL Code
1	Mains break repairs and maintenance Urban and Rural	Repairing break along water reticulation network	Trunk Lines	As per call in of fault visible	Water is leaking and visible at surface	1 trunk break per year	1 day	1 day	10 Complaints per year for all breaks.		Supervisor Water and Sewerage Operations	OP1671
			Reticulation	As per call in of fault visible	Water is leaking and visible at surface	3 breaks per week on average	1 day	4 - 6 Hours		Supervisor Water and Sewerage Operations	Water Reticulation Rural OP1677 Water Reticulation OP1672	
			Service Lines	As per call in of fault visible	Water is leaking and visible at surface	3 service lines break per week	1 day	4 – 6 Hours		Supervisor Water and Sewerage Operations		
2	STP Operations	To test, treat effluent and to operate the STP	Telemetry	As per call in or fault	Alarms, Visual	5-10 breakdowns per year	1 Day	1 Day	0		Supervisor Water and Sewerage Operations	OP1681
			Lab testing equipment	Weekly	Visual	Whenever is required	1 Day	1 Day	0	Supervisor Water and Sewerage Operations		
			STP	Daily	Pump run times, Alarms	Daily	1 day	1 Day	0	Supervisor Water and Sewerage Operations		
3	STP maintenance	To maintain the STP and all equipment to a high standard	Pumps	as per maintenance schedule	Pump run times alarms visual	weekly	1 day	1 week	0		Supervisor Water and Sewerage Operations	
			Valves	as per maintenance schedule	Visual and by the operation of the valve	As maintenance is required	1 day	1 week	0		Supervisor Water and Sewerage Operations	
			filters	as per maintenance schedule	By maintenance schedule and visual inspections	weekly	1 day	1 week	0		Supervisor Water and Sewerage Operations	
			Telemetry	As per call in or fault	Alarms/visual	5-10 breakdowns per year	1 Day	1 Day	0		Supervisor Water and Sewerage Operations	
4	Pump Station Maintenance	To maintain the Pump Stations and all equipment to a high standard	Pumps	As per maintenance schedule	Pump-Runtimes- Alarms-visual	Weekly	1 Day	1 Week	0		Supervisor Water and Sewerage Operations	OP1683
			Pump Well	As per maintenance schedule	Visual	Weekly	1 Day	1 Week	0		Supervisor Water and Sewerage Operations	
			Telemetry	As per call in or fault	Alarm	5-10 faults a year	1 Day	1 Day	0		Supervisor Water and Sewerage Operations	
5	Low Pressure Sewer Maintenance	To maintain the Low-Pressure Sewer System and all equipment to a high standard	Low pressure sewer mains	As per call in of faulty & maintenance programme	Water is leaking and visible at surface	Yearly	1 day	1 day	1		Supervisor Water and Sewerage Operations	OP1686
			Pumps	As per call in of faulty & maintenance programme	Alarm	As per breakdown	1 day	1 day	2		Supervisor Water and Sewerage Operations	
			Tank	As per call in of faulty &	Alarm	As per breakdown	1 day	1 day	1		Supervisor Water and Sewerage Operations	

Activity No	Activity	Description	Hierarchy	Inspection Frequency	Intervention Level	Maintenance Frequency	Response time	Target Duration	Complaints Target	Asset Custodian	Service Provider	GL Code
				maintenance programme								
			Control box	As per call in of faulty & maintenance programme	alarm	As per breakdowns	1 day	1 day	3		Supervisor Water and Sewerage Operations	
6	Sewer, Manhole & Vents Maintenance & Inspections	To maintain manhole and vents to a high standard	Manhole Cover	As per call in or fault	Visual	3-5 repairs per year	1 Day	1 Day	0		Supervisor Water and Sewerage Operations	OP1685
			Manhole surround	As per call in or fault	Visual	1-3 repairs per year	1 Day	1 Week	0		Supervisor Water and Sewerage Operations	
			Vents	As per call in or fault	Visual	1 repair per year	1 Day	1 Week	0		Supervisor Water and Sewerage Operations	
7	Sewer Maintenance & Repairs	Repair & replace sewer reticulation	Sewer Mains	As per call in of fault visible	Blocked sewer main, sinkhole	5 per week	1 day	1 day	2 per week		Supervisor Water and Sewerage Operations	OP1684
			Boundary Riser	As per call in of fault visible	Blocked or broken riser	5 per week	1 day	1 day	2 per week		Supervisor Water and Sewerage Operations	
8	WTP operations and testing	Provide potable drinking water through the operation of the plant and water testing	Telemetry	Daily	Signal lost, alarms	Daily	1 day	1 day	0		Supervisor Water and Sewerage Operations	OP1666
			Lab testing equipment	Daily	Faulty, alarms	Daily	1 day	1 day	0		Supervisor Water and Sewerage Operations	
			Pumps	weekly	alarms	weekly	1 day	2 days	0		Supervisor Water and Sewerage Operations	
9	WTP maintenance	To maintain the WTP and all equipment to a high standard	telemetry	Daily	Signal loss alarms	Daily	1 day	1 day	0		Supervisor Water and Sewerage Operations	OP1665
			Lab testing	Daily	Faulty, alarms	Daily	1 day	1 day	0		Supervisor Water and Sewerage Operations	
			Dosing equipment	Daily	Faulty, alarms	Daily	1 day	1 day	0		Supervisor Water and Sewerage Operations	
			pumps	weekly	Faulty, alarms	weekly	1 day	2 days	0		Supervisor Water and Sewerage Operations	
10	Water storage inspections and maintenance	To ensure the water storage tanks and surrounding areas are in good condition	telemetry	Daily	Alarms, loss of signal	Daily	1 day	1 day	0		Supervisor Water and Sewerage Operations	OP 1667/OP1668
			Reservoir	Weekly	As reported through inspection schedule	Weekly	1 day	1 day	0		Supervisor Water and Sewerage Operations	
			valves	As required	As required	As required	1day	1 week	0		Supervisor Water and Sewerage Operations	
11	Water pump stations operations and maintenance urban & rural	To ensure pumps are delivering & operating at full capacity, Maintain pump houses to a good condition	telemetry	Daily	Alarms, loss of signal	Daily	1 day	1 day	0		Supervisor Water and Sewerage Operations	OP1669 OP1670 OP1676
			Pumps	Weekly	Alarms, as required	Weekly	1 day	1 week	0		Supervisor Water and Sewerage Operations	
			Electrical equipment	weekly	Alarms, as required	As required	1 day	1 week	0		Supervisor Water and Sewerage Operations	
12	Valve and hydrant maintenance and repair	Ensure valve and hydrants are accessible and in good working condition	Hydrants	2 X Yearly	As Required	2 X Yearly	1 day	1 day	2 a year		Supervisor Water and Sewerage Operations	OP 1673
			Valves	2 X Yearly	As Required	2 X Yearly	1 day	1 day	2 a year		Supervisor Water and Sewerage Operations	
13	Water Meter Reading & Maintenance Urban & Rural	Ensure water meters & Toggle are accessible and in good working condition	Water Meter	As Required	Water is leaking & visible at surface	2 X a year	1 day	4 hrs	2 a year		Supervisor Water and Sewerage Operations	OP1674 OP1675 OP1678 OP1679

Activity No	Activity	Description	Hierarchy	Inspection Frequency	Intervention Level	Maintenance Frequency	Response time	Target Duration	Complaints Target	Asset Custodian	Service Provider	GL Code
			Taggle	As Required	No Signal	2 X a year	1 day	4 hrs	2 a year		Supervisor Water and Sewerage Operations	
			Mi Water program	As required	As per call in	When requested	1 day	1 Day	0		Supervisor Water and Sewerage Operations	
14	Water Main Flushing	For cleaning the interior of water distribution mains by sending a rapid flow of water through the mains	Hydrant stand	2 X a year	As Required	2 X a year	1 day	2 months a year	2 a year		Supervisor Water and Sewerage Operations	
			Hoses	When in use	As required	When required	1 Day	1 Hour	0		Supervisor Water and Sewerage Operations	
15	Litter Traps Inspection & Maintenance	Clean out litter traps to stop rubbish entering the river system	Litter Traps	Yearly or as required	Empty after storm event	Yearly	1 day	2 days	0		Supervisor Water and Sewerage Operations	OP1527/OP1529
16	Pipes, Culverts & Pitts Blockages	To clear any obstruction or blockages	Pipes	As Required	As Required	As Required	1 day	4 hrs	2 a year		Supervisor Water and Sewerage Operations	OP1526
			Culverts	As required	As required	As required	1 day	4 hours	0		Supervisor Water and Sewerage Operations	
			Pits	As required	As required	As required	1 day	4 hours	0		Supervisor Water and Sewerage Operations	
17	Vegetation Control	Ensure a clean and safe work environment.	Pump stations	Weekly	As required	As required	1 Day	1 week	0		Supervisor Water and Sewerage Operations	As per operational task numbers?
			Manholes	As per call in or fault	As required	As required	1 Day	1 Day	0		Supervisor Water and Sewerage Operations	
			Valve covers	2X per year when flushing	As required	As required	1 Day	1 Day	0		Supervisor Water and Sewerage Operations	
			Hydrant covers	2X per year when flushing	As required	As required	1 Day	1 Day	0		Supervisor Water and Sewerage Operations	
18	Fence and Gate maintenance	Ensure safety and restrict unauthorised access	Pump stations	Weekly	Inspection	When required	1 Day	1 Day	0		Supervisor Water and Sewerage Operations	As per operational task numbers?
			WTP	Daily	Inspection	When required	1 Day	1 Day	0		Supervisor Water and Sewerage Operations	
			STP	Daily	Inspection	When required	1 Day	1 Day	0		Supervisor Water and Sewerage Operations	
19	Roads (sealed and unsealed) maintenance	Ensure roads are restored to certain standard									Supervisor Water and Sewerage Operations	As per operational task numbers?

Appendix D – Renewals Plan

Asset type	Facility Name	Renewal Year	Component	Asset Number	Component Name	Condition	Backlog	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Grand Total		
Ponds, lagoons and Dams		2019	Aerator	SE01645 - 110	Sludge Mixer(Aerator)	3	\$20,000											\$20,000		
		2021	Aerator	SE01645 - 112	Aerator 2	3		\$12,700											\$12,700	
			Aerator	SE01645 - 113	Aerator 3	3		\$12,700											\$12,700	
			Blower	SE01645 - 12	Odour Blower 1	3		\$26,500											\$26,500	
			Fence	SE01645 - 111	Fencing	3		\$8,200											\$8,200	
		2025	Sensor	SE01645 - 114	Instrumentation	3								\$8,400					\$8,400	
		2026	Pipe Work Pipework, Valve and Fitting	SE01645 - 121	Pipe Work Odour Pipe Work & Fitting	SE01645 - 11	3								\$77,900				\$77,900	
Ponds, lagoons and Dams Total							\$20,000	\$60,100					\$8,400	\$102,800				\$191,300		
Pump Station		2023	Telemetry	SE01645 - 126	Telemetry	3					\$8,500							\$8,500		
		2026	Pipe Work	SE01645 - 123	Pipe Work	3								\$18,700				\$18,700		
			Pipe Work	SE01645 - 90	Pipe Work	3								\$12,500				\$12,500		
		2029	Pump	SE01645 - 92	Pump	3											\$15,800	\$15,800		
		House Boat Pump Station	2019	Access, Platforms, Ladders and Handrails	APV-ER-DC-SE-004	Stair	3	\$10,000												\$10,000
			2024	Jetty	APV-ER-DC-SE-002	Water and Marine Assets	3						\$22,000							\$22,000
			2026	Pipework, Valve and Fitting	APV-ER-DC-SE-006	Pipe Work	3								\$4,700				\$4,700	
				Pipework, Valve and Fitting	APV-ER-DC-SE-011	Pipe Work	3								\$14,000				\$14,000	
		Pump Staion 5	2029	Electrical	APV-ER-DC-SE-007	Electrical	3											\$10,500	\$10,500	
				Structure	APV-ER-DC-SE-001	Platform Structure	3											\$130,000	\$130,000	
			2026	Pipe Work	SE01645 - 21	Pipe Work	3								\$23,900				\$23,900	
		Pump Staion 6	2029	Electrical	SE01645 - 24	Electrical	3											\$10,500	\$10,500	
				Pump	SE01645 - 22	Pump 1	3											\$34,100	\$34,100	
				Pump	SE01645 - 23	Pump 2	3											\$34,100	\$34,100	
		Pump Station - Barham Rd;; Septic Pump Station	2026	Pipe Work	SE01645 - 26	Pipe Work	3								\$36,400				\$36,400	
2029	Electrical		SE01645 - 29	Electrical	3											\$21,000	\$21,000			
Sewer Pump Station (Private);;Adjacent to 140 Crispe St;; Sewer Pump Station (Private);;Adjacent to Aero Club Rooms at Airport;; Sewer Pump Station (Private);;Saleyards Rd;;	2020	Structure	SE01689	Pump Station - Complete	1		\$0											\$0		
	2024	Access	APV-ER-DC-SE-019	Hardstand	2							\$4,000						\$4,000		
SPS 1	2020	Structure	SE02704	Pump Station - Complete	1		\$0											\$0		
	2020	Structure	SE02786	Pump Station - Complete	1		\$0											\$0		
	2020	Structure	SE02787	Pump Station - Complete	1		\$0											\$0		
	2021	Fan	SE01638 - 08	Deodarising Fan	3			\$26,000										\$26,000		
	2024	Fence	SE01638 - 07	Fencing	2							\$4,100						\$4,100		

		Telemetry	SE01638 - 06	Telemetry	2			\$10,500			\$10,500
	2026	Pipework, Valve and Fitting	SE01638 - 04	Pipe Work	3				\$44,500		\$44,500
	2029	Structure	SE01638 - 01	Structure	3					\$854,100	\$854,100
SPS 10	2019	Lifting Equipment	SE01633 - 09	Hoist Frame	3	\$6,000					\$6,000
	2024	Telemetry	SE01633 - 06	Telemetry	2			\$10,500			\$10,500
	2026	Pipework, Valve and Fitting	SE01633 - 04	Pipe Work	3				\$29,700		\$29,700
	2028	Electrical	SE01633 - 05	Electrical	4					\$40,000	\$40,000
	2029	Structure	SE01633 - 01	Structure	3					\$151,100	\$151,100
SPS 11	2018	Fence	SE01643 - 07	Fencing	4	\$2,700					\$2,700
	2023	Telemetry	SE01643 - 06	Telemetry	3			\$10,500			\$10,500
	2026	Pipework, Valve and Fitting	SE01643 - 04	Pipe Work	3				\$25,400		\$25,400
	2029	Electrical	SE01643 - 05	Electrical	3					\$40,000	\$40,000
SPS 12		Structure	SE01643 - 01	Structure	3					\$109,300	\$109,300
	2021	Fence	SE01635 - 07	Fencing	3		\$2,500				\$2,500
	2024	Telemetry	SE01635 - 06	Telemetry	2			\$10,500			\$10,500
	2026	Pipework, Valve and Fitting	SE01635 - 04	Pipe Work	3				\$25,400		\$25,400
	2029	Electrical	SE01635 - 05	Electrical	3					\$40,000	\$40,000
SPS 13		Structure	SE01635 - 01	Structure	3					\$132,700	\$132,700
	2021	Lifting Equipment	SE01653 - 06	Hoist Frame	3		\$5,200				\$5,200
	2023	Telemetry	SE01653 - 05	Telemetry	3			\$10,500			\$10,500
	2027	Electrical	SE01653 - 04	Electrical	4				\$12,500		\$12,500
SPS 15	2022	Pipework, Valve and Fitting	SE01654 - 03	Pipe Work	3		\$11,200				\$11,200
	2024	Telemetry	SE01654 - 05	Telemetry	2			\$10,500			\$10,500
	2025	Pump	SE01654 - 02	Pump	5				\$8,600		\$8,600
SPS 16	2029	Structure	SE01654 - 01	Structure	3					\$15,500	\$15,500
	2021	Pump	SE01650 - 02	Pump	4		\$8,600				\$8,600
	2022	Pipework, Valve and Fitting	SE01650 - 03	Pipe Work	3			\$6,200			\$6,200
	2023	Telemetry	SE01650 - 05	Telemetry	3			\$10,500			\$10,500
	2028	Electrical	SE01650 - 04	Electrical	4					\$15,000	\$15,000
SPS 17	2029	Structure	SE01650 - 01	Structure	3					\$16,500	\$16,500
	2019	Fence	SE01640 - 06	Fencing	3	\$18,000					\$18,000
		Lifting Equipment	SE01640 - 07	Hoist Frame	3	\$4,000					\$4,000
	2024	Pump	SE01640 - 02	Pump	5			\$10,700			\$10,700
		Telemetry	SE01640 - 05	Telemetry	2			\$10,500			\$10,500
	2026	Pipework, Valve and Fitting	SE01640 - 03	Pipe Work	3				\$9,800		\$9,800
	2028	Electrical	SE01640 - 04	Electrical	4					\$12,000	\$12,000
SPS 18	2029	Structure	SE01640 - 01	Structure	3					\$37,300	\$37,300
	2018	Fence	SE01644 - 07	Fencing	4	\$2,000					\$2,000
	2022	Pipework, Valve and Fitting	SE01644 - 04	Pipe Work	3			\$35,200			\$35,200
	2023	Telemetry	SE01644 - 06	Telemetry	3			\$10,500			\$10,500
	2026	Pump	SE01644 - 02	Pump 1	4				\$51,100		\$51,100
SPS 19	2029	Structure	SE01644 - 01	Structure	3					\$157,900	\$157,900
	2022	Pipework, Valve and Fitting	SE01648 - 03	Pipe Work	3			\$6,200			\$6,200
	2024	Telemetry	SE01648 - 05	Telemetry	2			\$10,500			\$10,500
	2025	Pump	SE01648 - 02	Pump	4				\$8,600		\$8,600

Gravity	SE00182	150 Dia. - Depth 1.5 < 3.0	5	\$16,417	\$16,417
Gravity	SE00183	150 Dia. - Depth 1.5 < 3.0	5	\$23,995	\$23,995
Gravity	SE00185	150 Dia. - Depth 1.5 < 3.0	5	\$12,339	\$12,339
Gravity	SE00186	150 Dia. - Depth 1.5 < 3.0	5	\$2,010	\$2,010
Gravity	SE00187	150 Dia. - Depth 1.5 < 3.0	5	\$15,984	\$15,984
Gravity	SE00190	150 Dia. - Depth 3.0 < 4.5	5	\$22,775	\$22,775
Gravity	SE00191	150 Dia. - Depth 3.0 < 4.5	5	\$25,621	\$25,621
Gravity	SE00192	150 Dia. - Depth 1.5 < 3.0	5	\$10,462	\$10,462
Gravity	SE00193	150 Dia. - Depth 1.5 < 3.0	5	\$6,290	\$6,290
Gravity	SE00194	150 Dia. - Depth 1.5 < 3.0	5	\$5,785	\$5,785
Gravity	SE00201	150 Dia. - Depth 3.0 < 4.5	5	\$6,037	\$6,037
Gravity	SE00205	150 Dia. - Depth 1.5 < 3.0	5	\$6,094	\$6,094
Gravity	SE00206	150 Dia. - Depth 1.5 < 3.0	5	\$2,154	\$2,154
Gravity	SE00207	150 Dia. - Depth 1.5 < 3.0	5	\$6,622	\$6,622
Gravity	SE00208	375 Dia. - Depth > 4.5	5	\$5,574	\$5,574
Gravity	SE00209	375 Dia. - Depth 3.0 < 4.5	5	\$3,101	\$3,101
Gravity	SE00210	150 Dia. - Depth < 1.5	5	\$3,159	\$3,159
Gravity	SE00211	150 Dia. - Depth > 4.5	5	\$12,471	\$12,471
Gravity	SE00212	375 Dia. - Depth 3.0 < 4.5	5	\$24,256	\$24,256
Gravity	SE00214	375 Dia. - Depth 3.0 < 4.5	5	\$13,629	\$13,629
Gravity	SE00218	375 Dia. - Depth 3.0 < 4.5	5	\$17,707	\$17,707
Gravity	SE00219	375 Dia. - Depth 3.0 < 4.5	5	\$14,934	\$14,934
Gravity	SE00221	150 Dia. - Depth 3.0 < 4.5	5	\$6,601	\$6,601
Gravity	SE00222	375 Dia. - Depth > 4.5	5	\$45,399	\$45,399
Gravity	SE00223	150 Dia. - Depth 3.0 < 4.5	5	\$20,280	\$20,280
Gravity	SE00224	150 Dia. - Depth 1.5 < 3.0	5	\$2,146	\$2,146
Gravity	SE00225	150 Dia. - Depth 1.5 < 3.0	5	\$10,981	\$10,981
Gravity	SE00226	150 Dia. - Depth 1.5 < 3.0	5	\$6,646	\$6,646
Gravity	SE00227	150 Dia. - Depth 1.5 < 3.0	5	\$12,475	\$12,475
Gravity	SE00229	150 Dia. - Depth 1.5 < 3.0	5	\$10,867	\$10,867
Gravity	SE00230	150 Dia. - Depth < 1.5	5	\$925	\$925
Gravity	SE00231	150 Dia. - Depth < 1.5	5	\$2,700	\$2,700
Gravity	SE00232	150 Dia. - Depth < 1.5	5	\$1,662	\$1,662
Gravity	SE00233	150 Dia. - Depth < 1.5	5	\$417	\$417
Gravity	SE00234	150 Dia. - Depth 1.5 < 3.0	5	\$3,398	\$3,398
Gravity	SE00235	150 Dia. - Depth 1.5 < 3.0	5	\$1,974	\$1,974
Gravity	SE00236	150 Dia. - Depth 1.5 < 3.0	5	\$5,601	\$5,601
Gravity	SE00237	150 Dia. - Depth 1.5 < 3.0	5	\$6,887	\$6,887
Gravity	SE00238	150 Dia. - Depth 1.5 < 3.0	5	\$14,287	\$14,287
Gravity	SE00240	150 Dia. - Depth 1.5 < 3.0	5	\$999	\$999
Gravity	SE00241	150 Dia. - Depth 1.5 < 3.0	5	\$8,180	\$8,180
Gravity	SE00243	150 Dia. - Depth 1.5 < 3.0	5	\$14,175	\$14,175
Gravity	SE00244	150 Dia. - Depth 3.0 < 4.5	5	\$18,399	\$18,399
Gravity	SE00245	375 Dia. - Depth > 4.5	5	\$40,054	\$40,054
Gravity	SE00262	150 Dia. - Depth < 1.5	5	\$5,395	\$5,395
Gravity	SE00263	150 Dia. - Depth < 1.5	5	\$13,574	\$13,574
Gravity	SE00264	150 Dia. - Depth < 1.5	5	\$5,672	\$5,672
Gravity	SE00391	150 Dia. - Depth 1.5 < 3.0	5	\$6,222	\$6,222
Gravity	SE00393	150 Dia. - Depth < 1.5	5	\$8,580	\$8,580
Gravity	SE00394	225 Dia. - Depth 1.5 < 3.0	5	\$15,500	\$15,500

Gravity	SE00396	225 Dia. - Depth 1.5 < 3.0	5	\$5,277	\$5,277
Gravity	SE00397	225 Dia. - Depth 1.5 < 3.0	5	\$10,844	\$10,844
Gravity	SE00398	225 Dia. - Depth 1.5 < 3.0	5	\$19,429	\$19,429
Gravity	SE00399	225 Dia. - Depth 1.5 < 3.0	5	\$22,525	\$22,525
Gravity	SE00400	225 Dia. - Depth 1.5 < 3.0	5	\$26,527	\$26,527
Gravity	SE00401	225 Dia. - Depth 3.0 < 4.5	5	\$29,879	\$29,879
Gravity	SE00403	150 Dia. - Depth 3.0 < 4.5	5	\$21,298	\$21,298
Gravity	SE00404	150 Dia. - Depth 1.5 < 3.0	5	\$6,574	\$6,574
Gravity	SE00405	150 Dia. - Depth 1.5 < 3.0	5	\$14,095	\$14,095
Gravity	SE00406	150 Dia. - Depth 1.5 < 3.0	5	\$18,218	\$18,218
Gravity	SE00407	150 Dia. - Depth 1.5 < 3.0	5	\$10,441	\$10,441
Gravity	SE00408	150 Dia. - Depth 3.0 < 4.5	5	\$19,978	\$19,978
Gravity	SE00409	150 Dia. - Depth 3.0 < 4.5	5	\$18,999	\$18,999
Gravity	SE00423	150 Dia. - Depth 1.5 < 3.0	5	\$6,276	\$6,276
Gravity	SE00428	150 Dia. - Depth 1.5 < 3.0	5	\$16,174	\$16,174
Gravity	SE00429	150 Dia. - Depth 1.5 < 3.0	5	\$18,615	\$18,615
Gravity	SE00430	150 Dia. - Depth 1.5 < 3.0	5	\$11,067	\$11,067
Gravity	SE00431	150 Dia. - Depth 1.5 < 3.0	5	\$6,621	\$6,621
Gravity	SE00432	150 Dia. - Depth 1.5 < 3.0	5	\$4,779	\$4,779
Gravity	SE00434	150 Dia. - Depth 1.5 < 3.0	5	\$15,062	\$15,062
Gravity	SE00436	150 Dia. - Depth 3.0 < 4.5	5	\$26,269	\$26,269
Gravity	SE00437	150 Dia. - Depth 3.0 < 4.5	5	\$7,688	\$7,688
Gravity	SE00438	150 Dia. - Depth 3.0 < 4.5	5	\$5,968	\$5,968
Gravity	SE00439	150 Dia. - Depth 3.0 < 4.5	5	\$20,616	\$20,616
Gravity	SE00440	150 Dia. - Depth < 1.5	5	\$6,617	\$6,617
Gravity	SE00441	150 Dia. - Depth < 1.5	5	\$3,694	\$3,694
Gravity	SE00442	150 Dia. - Depth < 1.5	5	\$13,344	\$13,344
Gravity	SE00443	150 Dia. - Depth 1.5 < 3.0	5	\$18,776	\$18,776
Gravity	SE00444	150 Dia. - Depth 1.5 < 3.0	5	\$9,181	\$9,181
Gravity	SE00445	150 Dia. - Depth 1.5 < 3.0	5	\$20,188	\$20,188
Gravity	SE00446	150 Dia. - Depth < 1.5	5	\$2,657	\$2,657
Gravity	SE00447	150 Dia. - Depth < 1.5	5	\$4,487	\$4,487
Gravity	SE00448	150 Dia. - Depth 1.5 < 3.0	5	\$16,513	\$16,513
Gravity	SE00449	150 Dia. - Depth 1.5 < 3.0	5	\$23,816	\$23,816
Gravity	SE00450	150 Dia. - Depth 1.5 < 3.0	5	\$18,471	\$18,471
Gravity	SE00451	150 Dia. - Depth 3.0 < 4.5	5	\$21,013	\$21,013
Gravity	SE00452	150 Dia. - Depth 3.0 < 4.5	5	\$7,859	\$7,859
Gravity	SE00453	150 Dia. - Depth 3.0 < 4.5	5	\$19,197	\$19,197
Gravity	SE00454	150 Dia. - Depth 3.0 < 4.5	5	\$6,149	\$6,149
Gravity	SE00455	150 Dia. - Depth 3.0 < 4.5	5	\$1,861	\$1,861
Gravity	SE00456	150 Dia. - Depth > 4.5	5	\$15,031	\$15,031
Gravity	SE00457	375 Dia. - Depth > 4.5	5	\$51,830	\$51,830
Gravity	SE00458	150 Dia. - Depth 1.5 < 3.0	5	\$17,751	\$17,751
Gravity	SE00459	150 Dia. - Depth 1.5 < 3.0	5	\$10,062	\$10,062
Gravity	SE00460	150 Dia. - Depth 1.5 < 3.0	5	\$1,161	\$1,161
Gravity	SE00461	150 Dia. - Depth 1.5 < 3.0	5	\$5,794	\$5,794
Gravity	SE00462	150 Dia. - Depth 3.0 < 4.5	5	\$24,121	\$24,121
Gravity	SE00463	150 Dia. - Depth 3.0 < 4.5	5	\$24,144	\$24,144
Gravity	SE00464	150 Dia. - Depth < 1.5	5	\$9,653	\$9,653
Gravity	SE00465	150 Dia. - Depth 1.5 < 3.0	5	\$11,810	\$11,810

Gravity	SE00466	375 Dia. - Depth > 4.5	5	\$19,072	\$19,072
Gravity	SE00484	375 Dia. - Depth > 4.5	5	\$23,007	\$23,007
Gravity	SE00488	150 Dia. - Depth < 1.5	5	\$5,518	\$5,518
Gravity	SE00489	150 Dia. - Depth 1.5 < 3.0	5	\$16,612	\$16,612
Gravity	SE00491	150 Dia. - Depth 3.0 < 4.5	5	\$19,025	\$19,025
Gravity	SE00492	150 Dia. - Depth 3.0 < 4.5	5	\$9,341	\$9,341
Gravity	SE00493	150 Dia. - Depth 3.0 < 4.5	5	\$7,937	\$7,937
Gravity	SE00494	150 Dia. - Depth 3.0 < 4.5	5	\$12,890	\$12,890
Gravity	SE00497	150 Dia. - Depth 1.5 < 3.0	5	\$11,924	\$11,924
Gravity	SE00498	150 Dia. - Depth 3.0 < 4.5	5	\$24,848	\$24,848
Gravity	SE00499	150 Dia. - Depth > 4.5	5	\$30,903	\$30,903
Gravity	SE00500	150 Dia. - Depth 3.0 < 4.5	5	\$12,220	\$12,220
Gravity	SE00501	375 Dia. - Depth > 4.5	5	\$58,143	\$58,143
Gravity	SE00504	150 Dia. - Depth 1.5 < 3.0	5	\$18,291	\$18,291
Gravity	SE00505	150 Dia. - Depth 1.5 < 3.0	5	\$4,877	\$4,877
Gravity	SE00506	150 Dia. - Depth 1.5 < 3.0	5	\$11,829	\$11,829
Gravity	SE00507	150 Dia. - Depth 1.5 < 3.0	5	\$15,940	\$15,940
Gravity	SE00508	150 Dia. - Depth 1.5 < 3.0	5	\$5,458	\$5,458
Gravity	SE00509	150 Dia. - Depth 3.0 < 4.5	5	\$19,652	\$19,652
Gravity	SE00512	150 Dia. - Depth 1.5 < 3.0	5	\$12,572	\$12,572
Gravity	SE00513	375 Dia. - Depth > 4.5	5	\$74,942	\$74,942
Gravity	SE00514	150 Dia. - Depth > 4.5	5	\$24,738	\$24,738
Gravity	SE00515	150 Dia. - Depth > 4.5	5	\$21,312	\$21,312
Gravity	SE00519	150 Dia. - Depth > 4.5	5	\$9,415	\$9,415
Gravity	SE00520	150 Dia. - Depth > 4.5	5	\$25,799	\$25,799
Gravity	SE00521	150 Dia. - Depth > 4.5	5	\$21,781	\$21,781
Gravity	SE00522	150 Dia. - Depth 3.0 < 4.5	5	\$28,279	\$28,279
Gravity	SE00523	150 Dia. - Depth 3.0 < 4.5	5	\$28,642	\$28,642
Gravity	SE00528	150 Dia. - Depth > 4.5	5	\$7,031	\$7,031
Gravity	SE00529	150 Dia. - Depth > 4.5	5	\$26,844	\$26,844
Gravity	SE00530	150 Dia. - Depth 1.5 < 3.0	5	\$6,699	\$6,699
Gravity	SE00531	150 Dia. - Depth > 4.5	5	\$4,300	\$4,300
Gravity	SE00532	375 Dia. - Depth > 4.5	5	\$52,640	\$52,640
Gravity	SE00533	375 Dia. - Depth > 4.5	5	\$58,988	\$58,988
Gravity	SE00537	150 Dia. - Depth 1.5 < 3.0	5	\$14,601	\$14,601
Gravity	SE00538	150 Dia. - Depth 1.5 < 3.0	5	\$11,947	\$11,947
Gravity	SE00539	150 Dia. - Depth 3.0 < 4.5	5	\$17,420	\$17,420
Gravity	SE00540	150 Dia. - Depth 3.0 < 4.5	5	\$17,528	\$17,528
Gravity	SE00541	150 Dia. - Depth 3.0 < 4.5	5	\$17,156	\$17,156
Gravity	SE00542	150 Dia. - Depth 3.0 < 4.5	5	\$8,917	\$8,917
Gravity	SE00543	150 Dia. - Depth 3.0 < 4.5	5	\$8,480	\$8,480
Gravity	SE00544	150 Dia. - Depth 3.0 < 4.5	5	\$17,211	\$17,211
Gravity	SE00545	150 Dia. - Depth 1.5 < 3.0	5	\$18,716	\$18,716
Gravity	SE00546	150 Dia. - Depth 3.0 < 4.5	5	\$26,075	\$26,075
Gravity	SE00549	150 Dia. - Depth 1.5 < 3.0	5	\$7,540	\$7,540
Gravity	SE00550	150 Dia. - Depth 1.5 < 3.0	5	\$13,820	\$13,820
Gravity	SE00551	150 Dia. - Depth 1.5 < 3.0	5	\$16,924	\$16,924
Gravity	SE00552	150 Dia. - Depth 1.5 < 3.0	5	\$13,902	\$13,902
Gravity	SE00553	150 Dia. - Depth 3.0 < 4.5	5	\$19,736	\$19,736
Gravity	SE00554	150 Dia. - Depth 1.5 < 3.0	5	\$7,883	\$7,883

Gravity	SE00555	150 Dia. - Depth 1.5 < 3.0	5	\$5,898	\$5,898
Gravity	SE00556	150 Dia. - Depth 1.5 < 3.0	5	\$18,454	\$18,454
Gravity	SE00557	150 Dia. - Depth 3.0 < 4.5	5	\$25,588	\$25,588
Gravity	SE00558	150 Dia. - Depth 3.0 < 4.5	5	\$16,237	\$16,237
Gravity	SE00559	150 Dia. - Depth > 4.5	5	\$22,959	\$22,959
Gravity	SE00560	150 Dia. - Depth > 4.5	5	\$25,364	\$25,364
Gravity	SE00561	150 Dia. - Depth 1.5 < 3.0	5	\$7,108	\$7,108
Gravity	SE00562	150 Dia. - Depth 1.5 < 3.0	5	\$7,713	\$7,713
Gravity	SE00563	150 Dia. - Depth 1.5 < 3.0	5	\$12,492	\$12,492
Gravity	SE00564	150 Dia. - Depth 1.5 < 3.0	5	\$7,629	\$7,629
Gravity	SE00565	150 Dia. - Depth 1.5 < 3.0	5	\$6,436	\$6,436
Gravity	SE00566	150 Dia. - Depth 1.5 < 3.0	5	\$6,353	\$6,353
Gravity	SE00567	150 Dia. - Depth 3.0 < 4.5	5	\$16,187	\$16,187
Gravity	SE00568	150 Dia. - Depth > 4.5	5	\$18,882	\$18,882
Gravity	SE00570	150 Dia. - Depth > 4.5	5	\$26,888	\$26,888
Gravity	SE00571	150 Dia. - Depth < 1.5	5	\$4,821	\$4,821
Gravity	SE00572	150 Dia. - Depth 1.5 < 3.0	5	\$3,392	\$3,392
Gravity	SE00573	150 Dia. - Depth 1.5 < 3.0	5	\$15,271	\$15,271
Gravity	SE00574	150 Dia. - Depth 3.0 < 4.5	5	\$25,506	\$25,506
Gravity	SE00575	150 Dia. - Depth > 4.5	5	\$22,130	\$22,130
Gravity	SE00576	150 Dia. - Depth > 4.5	5	\$20,136	\$20,136
Gravity	SE00577	150 Dia. - Depth 1.5 < 3.0	5	\$9,757	\$9,757
Gravity	SE00578	150 Dia. - Depth 1.5 < 3.0	5	\$8,582	\$8,582
Gravity	SE00579	150 Dia. - Depth 1.5 < 3.0	5	\$1,815	\$1,815
Gravity	SE00580	150 Dia. - Depth 1.5 < 3.0	5	\$1,383	\$1,383
Gravity	SE00581	150 Dia. - Depth 1.5 < 3.0	5	\$13,842	\$13,842
Gravity	SE00582	150 Dia. - Depth 3.0 < 4.5	5	\$19,145	\$19,145
Gravity	SE00583	150 Dia. - Depth 3.0 < 4.5	5	\$15,845	\$15,845
Gravity	SE00584	150 Dia. - Depth 3.0 < 4.5	5	\$26,309	\$26,309
Gravity	SE00585	150 Dia. - Depth 1.5 < 3.0	5	\$10,608	\$10,608
Gravity	SE00586	150 Dia. - Depth < 1.5	5	\$5,444	\$5,444
Gravity	SE00587	150 Dia. - Depth 1.5 < 3.0	5	\$18,435	\$18,435
Gravity	SE00588	150 Dia. - Depth 1.5 < 3.0	5	\$12,710	\$12,710
Gravity	SE00596	150 Dia. - Depth 1.5 < 3.0	5	\$2,517	\$2,517
Gravity	SE00600	150 Dia. - Depth < 1.5	5	\$4,556	\$4,556
Gravity	SE00601	150 Dia. - Depth 1.5 < 3.0	5	\$14,116	\$14,116
Gravity	SE00602	150 Dia. - Depth 1.5 < 3.0	5	\$5,326	\$5,326
Gravity	SE00604	150 Dia. - Depth 1.5 < 3.0	5	\$1,599	\$1,599
Gravity	SE00607	150 Dia. - Depth 1.5 < 3.0	5	\$10,512	\$10,512
Gravity	SE00608	150 Dia. - Depth 1.5 < 3.0	5	\$4,741	\$4,741
Gravity	SE00609	150 Dia. - Depth 1.5 < 3.0	5	\$14,517	\$14,517
Gravity	SE00610	150 Dia. - Depth 1.5 < 3.0	5	\$5,810	\$5,810
Gravity	SE00613	150 Dia. - Depth 1.5 < 3.0	5	\$2,786	\$2,786
Gravity	SE00614	150 Dia. - Depth 1.5 < 3.0	5	\$10,495	\$10,495
Gravity	SE00618	150 Dia. - Depth 1.5 < 3.0	5	\$13,816	\$13,816
Gravity	SE00619	150 Dia. - Depth 3.0 < 4.5	5	\$17,421	\$17,421
Gravity	SE00620	150 Dia. - Depth > 4.5	5	\$24,438	\$24,438
Gravity	SE00621	150 Dia. - Depth > 4.5	5	\$34,439	\$34,439
Gravity	SE00622	150 Dia. - Depth > 4.5	5	\$10,556	\$10,556
Gravity	SE00623	150 Dia. - Depth 3.0 < 4.5	5	\$24,436	\$24,436

Gravity	SE00624	150 Dia. - Depth 1.5 < 3.0	5	\$10,942	\$10,942
Gravity	SE00625	150 Dia. - Depth 3.0 < 4.5	5	\$19,363	\$19,363
Gravity	SE00626	150 Dia. - Depth 1.5 < 3.0	5	\$16,719	\$16,719
Gravity	SE00627	150 Dia. - Depth 3.0 < 4.5	5	\$8,839	\$8,839
Gravity	SE00628	150 Dia. - Depth 3.0 < 4.5	5	\$13,372	\$13,372
Gravity	SE00629	150 Dia. - Depth 1.5 < 3.0	5	\$21,725	\$21,725
Gravity	SE00630	150 Dia. - Depth 1.5 < 3.0	5	\$15,251	\$15,251
Gravity	SE00631	150 Dia. - Depth 1.5 < 3.0	5	\$3,701	\$3,701
Gravity	SE00633	150 Dia. - Depth < 1.5	5	\$6,307	\$6,307
Gravity	SE00634	150 Dia. - Depth < 1.5	5	\$7,579	\$7,579
Gravity	SE00635	150 Dia. - Depth 1.5 < 3.0	5	\$17,822	\$17,822
Gravity	SE00638	150 Dia. - Depth 1.5 < 3.0	5	\$3,218	\$3,218
Gravity	SE00653	150 Dia. - Depth 3.0 < 4.5	5	\$18,068	\$18,068
Gravity	SE00654	150 Dia. - Depth < 1.5	5	\$6,395	\$6,395
Gravity	SE00657	150 Dia. - Depth < 1.5	5	\$2,744	\$2,744
Gravity	SE00659	150 Dia. - Depth 1.5 < 3.0	5	\$9,311	\$9,311
Gravity	SE00662	150 Dia. - Depth > 4.5	5	\$22,218	\$22,218
Gravity	SE00663	150 Dia. - Depth > 4.5	5	\$34,707	\$34,707
Gravity	SE00664	150 Dia. - Depth 3.0 < 4.5	5	\$16,176	\$16,176
Gravity	SE00665	150 Dia. - Depth > 4.5	5	\$33,860	\$33,860
Gravity	SE00666	150 Dia. - Depth > 4.5	5	\$17,655	\$17,655
Gravity	SE00667	150 Dia. - Depth 3.0 < 4.5	5	\$22,961	\$22,961
Gravity	SE00668	225 Dia. - Depth > 4.5	5	\$39,443	\$39,443
Gravity	SE00669	225 Dia. - Depth > 4.5	5	\$14,351	\$14,351
Gravity	SE00670	225 Dia. - Depth > 4.5	5	\$21,807	\$21,807
Gravity	SE00671	225 Dia. - Depth > 4.5	5	\$4,226	\$4,226
Gravity	SE00672	225 Dia. - Depth > 4.5	5	\$10,503	\$10,503
Gravity	SE00673	150 Dia. - Depth 1.5 < 3.0	5	\$13,005	\$13,005
Gravity	SE00674	150 Dia. - Depth < 1.5	5	\$13,005	\$13,005
Gravity	SE00675	150 Dia. - Depth 1.5 < 3.0	5	\$13,848	\$13,848
Gravity	SE00676	150 Dia. - Depth > 4.5	5	\$20,627	\$20,627
Gravity	SE00677	225 Dia. - Depth > 4.5	5	\$24,088	\$24,088
Gravity	SE00680	150 Dia. - Depth > 4.5	5	\$28,069	\$28,069
Gravity	SE00681	225 Dia. - Depth > 4.5	5	\$40,584	\$40,584
Gravity	SE00682	225 Dia. - Depth > 4.5	5	\$10,687	\$10,687
Gravity	SE00683	225 Dia. - Depth > 4.5	5	\$12,284	\$12,284
Gravity	SE00684	150 Dia. - Depth 1.5 < 3.0	5	\$8,086	\$8,086
Gravity	SE00686	225 Dia. - Depth > 4.5	5	\$33,237	\$33,237
Gravity	SE00687	150 Dia. - Depth < 1.5	5	\$1,272	\$1,272
Gravity	SE00689	225 Dia. - Depth 3.0 < 4.5	5	\$1,834	\$1,834
Gravity	SE00690	225 Dia. - Depth 3.0 < 4.5	5	\$30,576	\$30,576
Gravity	SE00691	225 Dia. - Depth > 4.5	5	\$12,032	\$12,032
Gravity	SE00692	225 Dia. - Depth > 4.5	5	\$12,858	\$12,858
Gravity	SE00693	225 Dia. - Depth > 4.5	5	\$26,849	\$26,849
Gravity	SE00694	150 Dia. - Depth 1.5 < 3.0	5	\$12,810	\$12,810
Gravity	SE00695	225 Dia. - Depth 3.0 < 4.5	5	\$23,623	\$23,623
Gravity	SE00696	225 Dia. - Depth > 4.5	5	\$30,657	\$30,657
Gravity	SE00697	150 Dia. - Depth 1.5 < 3.0	5	\$5,855	\$5,855
Gravity	SE00698	225 Dia. - Depth 3.0 < 4.5	5	\$1,488	\$1,488
Gravity	SE00708	150 Dia. - Depth 3.0 < 4.5	5	\$7,610	\$7,610

Gravity	SE00709	150 Dia. - Depth < 1.5	5	\$3,906	\$3,906
Gravity	SE00717	150 Dia. - Depth 1.5 < 3.0	5	\$10,308	\$10,308
Gravity	SE00718	150 Dia. - Depth 1.5 < 3.0	5	\$18,962	\$18,962
Gravity	SE00719	150 Dia. - Depth 1.5 < 3.0	5	\$23,087	\$23,087
Gravity	SE00720	150 Dia. - Depth 1.5 < 3.0	5	\$14,948	\$14,948
Gravity	SE00723	150 Dia. - Depth 1.5 < 3.0	5	\$3,310	\$3,310
Gravity	SE00724	225 Dia. - Depth 3.0 < 4.5	5	\$9,001	\$9,001
Gravity	SE00725	150 Dia. - Depth 1.5 < 3.0	5	\$15,676	\$15,676
Gravity	SE00726	150 Dia. - Depth 1.5 < 3.0	5	\$17,444	\$17,444
Gravity	SE00728	225 Dia. - Depth 3.0 < 4.5	5	\$30,298	\$30,298
Gravity	SE00729	225 Dia. - Depth 3.0 < 4.5	5	\$587	\$587
Gravity	SE00730	150 Dia. - Depth < 1.5	5	\$3,085	\$3,085
Gravity	SE00731	150 Dia. - Depth 1.5 < 3.0	5	\$11,166	\$11,166
Gravity	SE00733	225 Dia. - Depth 3.0 < 4.5	5	\$17,279	\$17,279
Gravity	SE00734	225 Dia. - Depth 3.0 < 4.5	5	\$20,058	\$20,058
Gravity	SE00735	150 Dia. - Depth 3.0 < 4.5	5	\$11,650	\$11,650
Gravity	SE00736	150 Dia. - Depth 3.0 < 4.5	5	\$24,689	\$24,689
Gravity	SE00737	225 Dia. - Depth 3.0 < 4.5	5	\$28,195	\$28,195
Gravity	SE00738	225 Dia. - Depth > 4.5	5	\$28,606	\$28,606
Gravity	SE00739	150 Dia. - Depth 1.5 < 3.0	5	\$9,584	\$9,584
Gravity	SE00742	150 Dia. - Depth > 4.5	5	\$8,534	\$8,534
Gravity	SE00810	150 Dia. - Depth 1.5 < 3.0	5	\$10,186	\$10,186
Gravity	SE00811	150 Dia. - Depth 1.5 < 3.0	5	\$10,554	\$10,554
Gravity	SE00816	150 Dia. - Depth 1.5 < 3.0	5	\$15,873	\$15,873
Gravity	SE00821	150 Dia. - Depth < 1.5	5	\$8,354	\$8,354
Gravity	SE00822	150 Dia. - Depth < 1.5	5	\$1,983	\$1,983
Gravity	SE00823	150 Dia. - Depth < 1.5	5	\$1,330	\$1,330
Gravity	SE00824	150 Dia. - Depth < 1.5	5	\$8,766	\$8,766
Gravity	SE00828	150 Dia. - Depth 1.5 < 3.0	5	\$12,314	\$12,314
Gravity	SE00829	150 Dia. - Depth 1.5 < 3.0	5	\$17,961	\$17,961
Gravity	SE00830	150 Dia. - Depth < 1.5	5	\$2,678	\$2,678
Gravity	SE00831	150 Dia. - Depth < 1.5	5	\$11,382	\$11,382
Gravity	SE00833	150 Dia. - Depth 1.5 < 3.0	5	\$8,486	\$8,486
Gravity	SE00883	225 Dia. - Depth 3.0 < 4.5	5	\$22,288	\$22,288
Gravity	SE00884	150 Dia. - Depth 1.5 < 3.0	5	\$17,403	\$17,403
Gravity	SE00885	225 Dia. - Depth 1.5 < 3.0	5	\$19,514	\$19,514
Gravity	SE00886	150 Dia. - Depth 1.5 < 3.0	5	\$5,513	\$5,513
Gravity	SE00887	150 Dia. - Depth 1.5 < 3.0	5	\$5,921	\$5,921
Gravity	SE00888	150 Dia. - Depth 1.5 < 3.0	5	\$11,940	\$11,940
Gravity	SE00895	150 Dia. - Depth 3.0 < 4.5	5	\$24,694	\$24,694
Gravity	SE00942	150 Dia. - Depth < 1.5	5	\$5,798	\$5,798
Gravity	SE00943	150 Dia. - Depth 1.5 < 3.0	5	\$13,598	\$13,598
Gravity	SE00944	150 Dia. - Depth 1.5 < 3.0	5	\$14,184	\$14,184
Gravity	SE00945	150 Dia. - Depth 1.5 < 3.0	5	\$12,382	\$12,382
Gravity	SE00946	150 Dia. - Depth 1.5 < 3.0	5	\$18,191	\$18,191
Gravity	SE00948	150 Dia. - Depth < 1.5	5	\$9,288	\$9,288
Gravity	SE00949	150 Dia. - Depth 1.5 < 3.0	5	\$13,340	\$13,340
Gravity	SE00950	150 Dia. - Depth 1.5 < 3.0	5	\$14,753	\$14,753
Gravity	SE01088	150 Dia. - Depth 1.5 < 3.0	5	\$9,286	\$9,286
Gravity	SE01089	150 Dia. - Depth < 1.5	5	\$1,537	\$1,537

Gravity	SE01093	150 Dia. - Depth 3.0 < 4.5	5	\$20,529	\$20,529
Gravity	SE01096	375 Dia. - Depth > 4.5	5	\$24,166	\$24,166
Gravity	SE01097	150 Dia. - Depth < 1.5	5	\$4,168	\$4,168
Gravity	SE01098	150 Dia. - Depth < 1.5	5	\$3,018	\$3,018
Gravity	SE01099	150 Dia. - Depth < 1.5	5	\$3,216	\$3,216
Gravity	SE01100	150 Dia. - Depth 3.0 < 4.5	5	\$7,195	\$7,195
Gravity	SE01103	150 Dia. - Depth > 4.5	5	\$1,980	\$1,980
Gravity	SE01122	150 Dia. - Depth 1.5 < 3.0	5	\$6,015	\$6,015
Gravity	SE01123	150 Dia. - Depth 1.5 < 3.0	5	\$6,436	\$6,436
Gravity	SE01124	225 Dia. - Depth > 4.5	5	\$11,217	\$11,217
Gravity	SE01125	225 Dia. - Depth > 4.5	5	\$13,467	\$13,467
Gravity	SE01126	225 Dia. - Depth > 4.5	5	\$15,963	\$15,963
Gravity	SE01129	150 Dia. - Depth < 1.5	5	\$1,364	\$1,364
Gravity	SE01130	150 Dia. - Depth < 1.5	5	\$906	\$906
Gravity	SE01132	150 Dia. - Depth < 1.5	5	\$521	\$521
Gravity	SE01136	150 Dia. - Depth > 4.5	5	\$7,260	\$7,260
Gravity	SE01137	150 Dia. - Depth 1.5 < 3.0	5	\$2,643	\$2,643
Gravity	SE01138	150 Dia. - Depth < 1.5	5	\$3,033	\$3,033
Gravity	SE01139	150 Dia. - Depth < 1.5	5	\$543	\$543
Gravity	SE01140	150 Dia. - Depth < 1.5	5	\$3,116	\$3,116
Gravity	SE01141	150 Dia. - Depth < 1.5	5	\$2,928	\$2,928
Gravity	SE01142	150 Dia. - Depth 1.5 < 3.0	5	\$3,773	\$3,773
Gravity	SE01143	150 Dia. - Depth < 1.5	5	\$6,373	\$6,373
Gravity	SE01149	150 Dia. - Depth 3.0 < 4.5	5	\$7,419	\$7,419
Gravity	SE01150	150 Dia. - Depth 1.5 < 3.0	5	\$2,838	\$2,838
Gravity	SE01151	150 Dia. - Depth < 1.5	5	\$9,406	\$9,406
Gravity	SE01180	150 Dia. - Depth < 1.5	5	\$851	\$851
Gravity	SE01186	150 Dia. - Depth < 1.5	5	\$373	\$373
Gravity	SE01187	150 Dia. - Depth 1.5 < 3.0	5	\$6,509	\$6,509
Gravity	SE01189	225 Dia. - Depth 3.0 < 4.5	5	\$19,544	\$19,544
Gravity	SE01195	150 Dia. - Depth 3.0 < 4.5	5	\$1,370	\$1,370
Gravity	SE01198	150 Dia. - Depth < 1.5	5	\$3,511	\$3,511
Gravity	SE01199	150 Dia. - Depth < 1.5	5	\$4,635	\$4,635
Gravity	SE01200	150 Dia. - Depth < 1.5	5	\$3,924	\$3,924
Gravity	SE01209	150 Dia. - Depth 3.0 < 4.5	5	\$954	\$954
Gravity	SE01214	150 Dia. - Depth > 4.5	5	\$14,748	\$14,748
Gravity	SE01219	150 Dia. - Depth 3.0 < 4.5	5	\$7,176	\$7,176
Gravity	SE01220	150 Dia. - Depth 1.5 < 3.0	5	\$1,520	\$1,520
Gravity	SE01221	150 Dia. - Depth 1.5 < 3.0	5	\$5,485	\$5,485
Gravity	SE01222	100 Dia. - Depth 1.5 < 3.0	5	\$6,253	\$6,253
Gravity	SE01225	150 Dia. - Depth > 4.5	5	\$21,921	\$21,921
Gravity	SE01227	150 Dia. - Depth > 4.5	5	\$11,061	\$11,061
Gravity	SE01228	150 Dia. - Depth 1.5 < 3.0	5	\$3,729	\$3,729
Gravity	SE01238	150 Dia. - Depth < 1.5	5	\$4,336	\$4,336
Gravity	SE01264	150 Dia. - Depth > 4.5	5	\$16,544	\$16,544
Gravity	SE01265	150 Dia. - Depth 1.5 < 3.0	5	\$810	\$810
Gravity	SE01319	150 Dia. - Depth 1.5 < 3.0	5	\$6,468	\$6,468
Gravity	SE01438	150 Dia. - Depth 3.0 < 4.5	5	\$20,227	\$20,227
Gravity	SE01440	225 Dia. - Depth > 4.5	5	\$23,896	\$23,896
2020 CCTV	SE01681	CCTV2005	1	\$0	\$0

	CCTV	SE01683	CCTV2012	1	\$0			\$0
	Gravity	SE01333	150 Dia. - Depth < 1.5	5	\$8,911			\$8,911
	Gravity	SE01334	150 Dia. - Depth < 1.5	5	\$2,897			\$2,897
	Gravity	SE01335	150 Dia. - Depth 1.5 < 3.0	5	\$7,812			\$7,812
	Gravity	SE01336	150 Dia. - Depth < 1.5	5	\$3,679			\$3,679
	Gravity	SE01337	150 Dia. - Depth < 1.5	5	\$8,476			\$8,476
	Gravity	SE01338	150 Dia. - Depth 1.5 < 3.0	5	\$12,213			\$12,213
	Gravity	SE01339	150 Dia. - Depth 1.5 < 3.0	5	\$11,575			\$11,575
	Gravity	SE01340	150 Dia. - Depth 1.5 < 3.0	5	\$17,847			\$17,847
	Gravity	SE01341	150 Dia. - Depth 3.0 < 4.5	5	\$20,246			\$20,246
	Gravity	SE01342	150 Dia. - Depth 3.0 < 4.5	5	\$28,593			\$28,593
	Gravity	SE01343	200 Dia. - Depth 3.0 < 4.5	5	\$6,468			\$6,468
	Gravity	SE01344	150 Dia. - Depth < 1.5	5	\$7,701			\$7,701
	Gravity	SE01345	150 Dia. - Depth 1.5 < 3.0	5	\$11,633			\$11,633
	Gravity	SE01346	150 Dia. - Depth 1.5 < 3.0	5	\$11,989			\$11,989
	Gravity	SE01350	150 Dia. - Depth < 1.5	5	\$12,787			\$12,787
	Gravity	SE01351	150 Dia. - Depth < 1.5	5	\$5,908			\$5,908
	Gravity	SE01352	150 Dia. - Depth 1.5 < 3.0	5	\$20,652			\$20,652
	Gravity	SE01353	150 Dia. - Depth 1.5 < 3.0	5	\$14,171			\$14,171
	Gravity	SE01354	150 Dia. - Depth 1.5 < 3.0	5	\$13,553			\$13,553
	Gravity	SE01355	150 Dia. - Depth 1.5 < 3.0	5	\$8,240			\$8,240
	Gravity	SE01356	150 Dia. - Depth 3.0 < 4.5	5	\$14,948			\$14,948
	Gravity	SE01357	150 Dia. - Depth 1.5 < 3.0	5	\$8,628			\$8,628
	Gravity	SE01358	150 Dia. - Depth 1.5 < 3.0	5	\$9,159			\$9,159
	Rising Main	SE00547	300 Dia. - Rising Main	5	\$569,448			\$569,448
	Rising Main	SE01326	150 Dia. - Rising Main	5	\$114,012			\$114,012
	Rising Main	SE01388	150 Dia. - Rising Main	5	\$15,114			\$15,114
2025	Gravity	SE01640	P/S 17	4		\$5,823		\$5,823
2029	Gravity	SE01633	P/S 10	3			\$794	\$794
					\$4,995,824			
Sewer Lines Total				4	\$966,660	\$5,823	\$794	\$5,969,102
Sewer Point	2019	Manhole Circular	SE01789	AU/1	5	\$5,130		\$5,130
		Manhole Circular	SE01790	AUA/1	5	\$4,150		\$4,150
		Manhole Circular	SE01798	AT/1	5	\$5,130		\$5,130
		Manhole Circular	SE01800	AR/4	5	\$5,130		\$5,130
		Manhole Circular	SE01801	AR/3	5	\$4,150		\$4,150
		Manhole Circular	SE01802	AR/2	5	\$5,130		\$5,130
		Manhole Circular	SE01803	ARB/1	5	\$4,150		\$4,150
		Manhole Circular	SE01804	AR/1	5	\$5,130		\$5,130
		Manhole Circular	SE01805	ARA/1	5	\$4,150		\$4,150
		Manhole Circular	SE01845	AGD/2	5	\$5,130		\$5,130
		Manhole Circular	SE01846	AGD/1	5	\$5,980		\$5,980
		Manhole Circular	SE01847	AGA/2	5	\$5,980		\$5,980
		Manhole Circular	SE01848	AGA/7	5	\$4,150		\$4,150
		Manhole Circular	SE01849	AGA/6	5	\$5,130		\$5,130
		Manhole Circular	SE01850	AGA/5	5	\$5,130		\$5,130
		Manhole Circular	SE01851	AGA/4	5	\$5,130		\$5,130
		Manhole Circular	SE01852	AGA/3	5	\$5,980		\$5,980
		Manhole Circular	SE01853	AGA/1	5	\$5,980		\$5,980
		Manhole Circular	SE01854	AG/4	5	\$9,890		\$9,890

Manhole Circular	SE01855	AG/6	5	\$5,980	\$5,980
Manhole Circular	SE01856	AG/5	5	\$5,980	\$5,980
Manhole Circular	SE01857	AG/3	5	\$9,890	\$9,890
Manhole Circular	SE01858	AG/2	5	\$9,890	\$9,890
Manhole Circular	SE01859	AG/1	5	\$9,890	\$9,890
Manhole Circular	SE01860	AJ/7	5	\$4,150	\$4,150
Manhole Circular	SE01861	AJ/6	5	\$5,130	\$5,130
Manhole Circular	SE01862	AJ/5	5	\$5,980	\$5,980
Manhole Circular	SE01863	AJ/4	5	\$5,980	\$5,980
Manhole Circular	SE01864	AJ/3	5	\$9,890	\$9,890
Manhole Circular	SE01865	AJ/2	5	\$9,890	\$9,890
Manhole Circular	SE01866	AKA/1	5	\$5,130	\$5,130
Manhole Circular	SE01867	AJC/1	5	\$4,150	\$4,150
Manhole Circular	SE01868	AJB/1	5	\$5,130	\$5,130
Manhole Circular	SE01871	AJB/2	5	\$5,130	\$5,130
Manhole Circular	SE01873	AF/1	5	\$9,890	\$9,890
Manhole Circular	SE01876	AF/4	5	\$5,980	\$5,980
Manhole Circular	SE01877	AF/5	5	\$5,130	\$5,130
Manhole Circular	SE01878	AF/7	5	\$5,130	\$5,130
Manhole Circular	SE01879	AF/6	5	\$5,130	\$5,130
Manhole Circular	SE01884	AH/1	5	\$9,890	\$9,890
Manhole Circular	SE01885	AH/2	5	\$9,890	\$9,890
Manhole Circular	SE01886	AH/3	5	\$5,980	\$5,980
Manhole Circular	SE01887	AH/4	5	\$5,980	\$5,980
Manhole Circular	SE01889	AH/5	5	\$5,130	\$5,130
Manhole Circular	SE01890	AH/6	5	\$5,130	\$5,130
Manhole Circular	SE01891	AH/7	5	\$5,130	\$5,130
Manhole Circular	SE01892	AH/8	5	\$5,130	\$5,130
Manhole Circular	SE01893	AHB/1	5	\$5,130	\$5,130
Manhole Circular	SE01894	AK/1	5	\$5,980	\$5,980
Manhole Circular	SE01899	AL/1	5	\$5,130	\$5,130
Manhole Circular	SE01900	AL/2	5	\$4,150	\$4,150
Manhole Circular	SE01903	A/17A	5	\$5,130	\$5,130
Manhole Circular	SE01906	AN/2	5	\$5,130	\$5,130
Manhole Circular	SE01908	AP/1	5	\$5,130	\$5,130
Manhole Circular	SE01914	AQA/1	5	\$4,150	\$4,150
Manhole Circular	SE01916	AJA/1	5	\$4,150	\$4,150
Manhole Circular	SE01917	AJ/1	5	\$9,890	\$9,890
Manhole Circular	SE01918	AK/2	5	\$5,980	\$5,980
Manhole Circular	SE01919	AK/3	5	\$5,130	\$5,130
Manhole Circular	SE01920	AK/4	5	\$5,130	\$5,130
Manhole Circular	SE01921	AKB/1	5	\$5,130	\$5,130
Manhole Circular	SE01922	AK/5	5	\$5,130	\$5,130
Manhole Circular	SE01925	AM/3	5	\$5,130	\$5,130
Manhole Circular	SE01926	AMC/6	5	\$4,150	\$4,150
Manhole Circular	SE01927	AMC/5	5	\$4,150	\$4,150
Manhole Circular	SE01928	AME/1	5	\$4,150	\$4,150
Manhole Circular	SE01929	AMC/4	5	\$4,150	\$4,150
Manhole Circular	SE01930	AMD/1	5	\$4,150	\$4,150
Manhole Circular	SE01931	AMC/3	5	\$5,130	\$5,130

Manhole Circular	SE01932	AMC/2	5	\$5,130	\$5,130
Manhole Circular	SE01933	AMC/1	5	\$5,130	\$5,130
Manhole Circular	SE01934	AM/2, Covered	5	\$5,980	\$5,980
Manhole Circular	SE01937	AMA/1	5	\$5,130	\$5,130
Manhole Circular	SE01939	AMA/2	5	\$5,130	\$5,130
Manhole Circular	SE01940	AM/1	5	\$5,980	\$5,980
Manhole Circular	SE01954	AGD/3	5	\$4,150	\$4,150
Manhole Circular	SE02073	AD/7	5	\$5,130	\$5,130
Manhole Circular	SE02075	ADB/1	5	\$4,150	\$4,150
Manhole Circular	SE02076	AD/6	5	\$5,130	\$5,130
Manhole Circular	SE02078	AD/5	5	\$5,130	\$5,130
Manhole Circular	SE02079	AD/4	5	\$5,130	\$5,130
Manhole Circular	SE02080	AD/3	5	\$5,130	\$5,130
Manhole Circular	SE02081	AD/2	5	\$5,980	\$5,980
Manhole Circular	SE02082	AD/1	5	\$5,980	\$5,980
Manhole Circular	SE02083	ADA/1	5	\$4,150	\$4,150
Manhole Circular	SE02084	C/6	5	\$5,130	\$5,130
Manhole Circular	SE02085	C/5	5	\$5,130	\$5,130
Manhole Circular	SE02086	C/4	5	\$5,130	\$5,130
Manhole Circular	SE02087	C/3	5	\$5,980	\$5,980
Manhole Circular	SE02088	C/2	5	\$5,980	\$5,980
Manhole Circular	SE02089	C/1	5	\$5,980	\$5,980
Manhole Circular	SE02099	BG/1	5	\$5,130	\$5,130
Manhole Circular	SE02103	BD/5	5	\$5,130	\$5,130
Manhole Circular	SE02104	BD/4	5	\$5,130	\$5,130
Manhole Circular	SE02105	BD/3A	5	\$5,130	\$5,130
Manhole Circular	SE02106	BD/3	5	\$5,130	\$5,130
Manhole Circular	SE02108	BD/2	5	\$5,980	\$5,980
Manhole Circular	SE02109	BD/1	5	\$5,980	\$5,980
Manhole Circular	SE02110	BD/1A	5	\$5,980	\$5,980
Manhole Circular	SE02111	BD/1B	5	\$5,980	\$5,980
Manhole Circular	SE02112	AAA/3	5	\$4,150	\$4,150
Manhole Circular	SE02113	AAA/2	5	\$5,130	\$5,130
Manhole Circular	SE02114	AAA/1	5	\$5,130	\$5,130
Manhole Circular	SE02115	AA/6	5	\$5,980	\$5,980
Manhole Circular	SE02116	AAD/2	5	\$5,130	\$5,130
Manhole Circular	SE02117	AAD/1	5	\$5,130	\$5,130
Manhole Circular	SE02119	AA/5	5	\$5,980	\$5,980
Manhole Circular	SE02120	AA/4	5	\$9,890	\$9,890
Manhole Circular	SE02121	AA/3	5	\$5,980	\$5,980
Manhole Circular	SE02122	AA/2	5	\$5,980	\$5,980
Manhole Circular	SE02123	AA/1	5	\$9,890	\$9,890
Manhole Circular	SE02124	BB/3	5	\$5,130	\$5,130
Manhole Circular	SE02125	BB/4	5	\$5,130	\$5,130
Manhole Circular	SE02126	BB/2	5	\$5,980	\$5,980
Manhole Circular	SE02127	BBA/1	5	\$5,130	\$5,130
Manhole Circular	SE02129	BB/1	5	\$5,980	\$5,980
Manhole Circular	SE02130	BBA/3	5	\$4,150	\$4,150
Manhole Circular	SE02131	BBA/2	5	\$5,130	\$5,130
Manhole Circular	SE02132	C/1	5	\$9,890	\$9,890

Manhole Circular	SE02152	AE/8	5	\$5,130	\$5,130
Manhole Circular	SE02153	AE/7	5	\$5,130	\$5,130
Manhole Circular	SE02156	AEC/2	5	\$4,150	\$4,150
Manhole Circular	SE02157	AEC/1	5	\$5,130	\$5,130
Manhole Circular	SE02158	AE/6	5	\$5,980	\$5,980
Manhole Circular	SE02159	AE/5	5	\$5,980	\$5,980
Manhole Circular	SE02160	AE/4	5	\$5,980	\$5,980
Manhole Circular	SE02161	AE/3	5	\$5,980	\$5,980
Manhole Circular	SE02164	AE/2	5	\$9,890	\$9,890
Manhole Circular	SE02165	AE/1	5	\$9,890	\$9,890
Manhole Circular	SE02171	AC/3	5	\$5,130	\$5,130
Manhole Circular	SE02172	ACC/1	5	\$5,130	\$5,130
Manhole Circular	SE02173	AC/2	5	\$5,980	\$5,980
Manhole Circular	SE02174	ACB/1	5	\$4,150	\$4,150
Manhole Circular	SE02175	AC/1	5	\$5,980	\$5,980
Manhole Circular	SE02179	AB/6	5	\$9,890	\$9,890
Manhole Circular	SE02180	AB/5	5	\$9,890	\$9,890
Manhole Circular	SE02183	AB/1	5	\$5,130	\$5,130
Manhole Circular	SE02184	AB/4	5	\$9,890	\$9,890
Manhole Circular	SE02186	ABV/1	5	\$4,150	\$4,150
Manhole Circular	SE02187	ABD/1	5	\$4,150	\$4,150
Manhole Circular	SE02193	AB/2	5	\$9,890	\$9,890
Manhole Circular	SE02194	ABB/1	5	\$4,150	\$4,150
Manhole Circular	SE02195	AB/1	5	\$9,890	\$9,890
Manhole Circular	SE02196	ABA/1	5	\$5,130	\$5,130
Manhole Circular	SE02198	B/1	5	\$9,890	\$9,890
Manhole Circular	SE02202	BCA/1	5	\$4,150	\$4,150
Manhole Circular	SE02203	BC/3	5	\$5,130	\$5,130
Manhole Circular	SE02204	BC/2	5	\$5,980	\$5,980
Manhole Circular	SE02205	BC/1	5	\$5,980	\$5,980
Manhole Circular	SE02206	B/2	5	\$5,980	\$5,980
Manhole Circular	SE02207	B/3	5	\$5,980	\$5,980
Manhole Circular	SE02208	B/4	5	\$5,980	\$5,980
Manhole Circular	SE02210	BE/1	5	\$5,130	\$5,130
Manhole Circular	SE02213	ABF/4	5	\$5,980	\$5,980
Manhole Circular	SE02214	ABF/5	5	\$5,130	\$5,130
Manhole Circular	SE02215	ABF/7	5	\$4,150	\$4,150
Manhole Circular	SE02216	ABF/6	5	\$5,130	\$5,130
Manhole Circular	SE02217	ABF/3	5	\$5,980	\$5,980
Manhole Circular	SE02218	ABK/2	5	\$5,130	\$5,130
Manhole Circular	SE02219	ABK/3	5	\$4,150	\$4,150
Manhole Circular	SE02220	ABK/1	5	\$5,130	\$5,130
Manhole Circular	SE02221	ABF/2	5	\$9,890	\$9,890
Manhole Circular	SE02222	ABF/1	5	\$9,890	\$9,890
Manhole Circular	SE02223	ABE/1	5	\$9,890	\$9,890
Manhole Circular	SE02224	ABG/5	5	\$5,130	\$5,130
Manhole Circular	SE02225	ABG/6	5	\$4,150	\$4,150
Manhole Circular	SE02226	ABG/4	5	\$5,130	\$5,130
Manhole Circular	SE02227	ABG/3	5	\$5,130	\$5,130
Manhole Circular	SE02228	ABG/2	5	\$5,980	\$5,980

Manhole Circular	SE02229	ABG/2A	5	\$4,150	\$4,150
Manhole Circular	SE02230	ABG/1	5	\$5,980	\$5,980
Manhole Circular	SE02232	ABE/2	5	\$9,890	\$9,890
Manhole Circular	SE02234	ABH/3	5	\$5,130	\$5,130
Manhole Circular	SE02235	ABH/2	5	\$5,130	\$5,130
Manhole Circular	SE02236	ABH/1	5	\$5,130	\$5,130
Manhole Circular	SE02237	ABE/3	5	\$9,890	\$9,890
Manhole Circular	SE02238	ABE/4	5	\$5,980	\$5,980
Manhole Circular	SE02239	ABJ/5	5	\$5,130	\$5,130
Manhole Circular	SE02240	ABJ/4	5	\$5,130	\$5,130
Manhole Circular	SE02241	ABJ/2	5	\$5,130	\$5,130
Manhole Circular	SE02242	ABJ/3	5	\$5,130	\$5,130
Manhole Circular	SE02243	ABM/1	5	\$5,130	\$5,130
Manhole Circular	SE02244	ABJ/1	5	\$5,130	\$5,130
Manhole Circular	SE02245	ABE/5	5	\$5,980	\$5,980
Manhole Circular	SE02246	ABE/6	5	\$5,980	\$5,980
Manhole Circular	SE02247	ABE/9	5	\$4,150	\$4,150
Manhole Circular	SE02248	ABE/8	5	\$5,130	\$5,130
Manhole Circular	SE02249	ABE/7	5	\$5,130	\$5,130
Manhole Circular	SE02255	AS/1	5	\$5,980	\$5,980
Manhole Circular	SE02256	ASA/1	5	\$5,130	\$5,130
Manhole Circular	SE02257	AS/2	5	\$5,130	\$5,130
Manhole Circular	SE02258	AS/3	5	\$4,150	\$4,150
Manhole Circular	SE02259	DE/5	5	\$4,150	\$4,150
Manhole Circular	SE02260	DE/4	5	\$5,130	\$5,130
Manhole Circular	SE02264	DE/2	5	\$5,130	\$5,130
Manhole Circular	SE02265	DL/1	5	\$4,150	\$4,150
Manhole Circular	SE02266	DD/2	5	\$5,130	\$5,130
Manhole Circular	SE02267	DD/4	5	\$4,150	\$4,150
Manhole Circular	SE02268	DD/3	5	\$5,130	\$5,130
Manhole Circular	SE02269	DD/1	5	\$5,980	\$5,980
Manhole Circular	SE02270	DK/1	5	\$5,130	\$5,130
Manhole Circular	SE02273	DF/1	5	\$5,130	\$5,130
Manhole Circular	SE02274	D/5	5	\$9,890	\$9,890
Manhole Circular	SE02275	D/7	5	\$5,980	\$5,980
Manhole Circular	SE02276	DG/2	5	\$4,150	\$4,150
Manhole Circular	SE02277	DG/1	5	\$5,130	\$5,130
Manhole Circular	SE02278	DH/1	5	\$5,130	\$5,130
Manhole Circular	SE02279	D/8	5	\$5,980	\$5,980
Manhole Circular	SE02280	D/9	5	\$5,980	\$5,980
Manhole Circular	SE02281	DI/1	5	\$5,130	\$5,130
Manhole Circular	SE02282	D/10	5	\$5,130	\$5,130
Manhole Circular	SE02285	D/13	5	\$4,150	\$4,150
Manhole Circular	SE02286	D/12	5	\$4,150	\$4,150
Manhole Circular	SE02287	D/11	5	\$4,150	\$4,150
Manhole Circular	SE02288	AV/3	5	\$5,130	\$5,130
Manhole Circular	SE02289	AV/4	5	\$5,130	\$5,130
Manhole Circular	SE02290	AV/2	5	\$5,130	\$5,130
Manhole Circular	SE02291	AW/2	5	\$4,150	\$4,150
Manhole Circular	SE02292	AW/1	5	\$5,130	\$5,130

Manhole Circular	SE02293	A/39	5	\$5,980	\$5,980
Manhole Circular	SE02294	A/45	5	\$5,980	\$5,980
Manhole Circular	SE02295	A/44	5	\$5,130	\$5,130
Manhole Circular	SE02296	A/43	5	\$5,130	\$5,130
Manhole Circular	SE02297	AY/1	5	\$5,130	\$5,130
Manhole Circular	SE02298	A/42	5	\$5,980	\$5,980
Manhole Circular	SE02299	A/41	5	\$5,980	\$5,980
Manhole Circular	SE02300	DE/1	5	\$5,980	\$5,980
Manhole Circular	SE02301	DN/1	5	\$4,150	\$4,150
Manhole Circular	SE02302	DC/3	5	\$5,130	\$5,130
Manhole Circular	SE02303	DC/2	5	\$5,980	\$5,980
Manhole Circular	SE02304	DC/4	5	\$4,150	\$4,150
Manhole Circular	SE02305	DC/5	5	\$4,150	\$4,150
Manhole Circular	SE02306	DC/3	5	\$5,130	\$5,130
Manhole Circular	SE02307	DM/1	5	\$4,150	\$4,150
Manhole Circular	SE02308	DC/1	5	\$9,890	\$9,890
Manhole Circular	SE02309	D/4	5	\$9,890	\$9,890
Manhole Circular	SE02310	D/3	5	\$9,890	\$9,890
Manhole Circular	SE02312	D/2	5	\$9,890	\$9,890
Manhole Circular	SE02313	D/1	5	\$9,890	\$9,890
Manhole Circular	SE02314	DA/1	5	\$4,150	\$4,150
Manhole Circular	SE02315	A/2	5	\$9,890	\$9,890
Manhole Circular	SE02317	A/1	5	\$9,890	\$9,890
Manhole Circular	SE02318	C/1	5	\$4,150	\$4,150
Manhole Circular	SE02319	BA/3	5	\$4,150	\$4,150
Manhole Circular	SE02320	BA/2	5	\$5,130	\$5,130
Manhole Circular	SE02321	BB/1	5	\$4,150	\$4,150
Manhole Circular	SE02322	BA/1	5	\$5,980	\$5,980
Manhole Circular	SE02323	B/1	5	\$9,890	\$9,890
Manhole Circular	SE02324	P/1	5	\$4,150	\$4,150
Manhole Circular	SE02325	B/3	5	\$9,890	\$9,890
Manhole Circular	SE02326	B/2	5	\$9,890	\$9,890
Manhole Circular	SE02327	A/8	5	\$9,890	\$9,890
Manhole Circular	SE02328	A/7	5	\$9,890	\$9,890
Manhole Circular	SE02329	A/6	5	\$9,890	\$9,890
Manhole Circular	SE02330	F/2	5	\$4,150	\$4,150
Manhole Circular	SE02331	A/5	5	\$9,890	\$9,890
Manhole Circular	SE02333	ED/2	5	\$4,150	\$4,150
Manhole Circular	SE02334	ED/1	5	\$5,130	\$5,130
Manhole Circular	SE02335	E/5	5	\$5,980	\$5,980
Manhole Circular	SE02336	E/6	5	\$5,980	\$5,980
Manhole Circular	SE02337	EC/1	5	\$5,980	\$5,980
Manhole Circular	SE02338	E/4	5	\$9,890	\$9,890
Manhole Circular	SE02339	EB/1	5	\$5,980	\$5,980
Manhole Circular	SE02340	EA/2	5	\$5,130	\$5,130
Manhole Circular	SE02341	EA/1	5	\$5,130	\$5,130
Manhole Circular	SE02345	EN/1	5	\$5,130	\$5,130
Manhole Circular	SE02348	AV/1	5	\$5,980	\$5,980
Manhole Circular	SE02349	AX/1	5	\$5,130	\$5,130
Manhole Circular	SE02350	A/40	5	\$5,980	\$5,980

Manhole Circular	SE02355	A/46	5	\$5,130	\$5,130
Manhole Circular	SE02356	AZA/1	5	\$4,150	\$4,150
Manhole Circular	SE02358	A/48	5	\$5,130	\$5,130
Manhole Circular	SE02359	A/50	5	\$4,150	\$4,150
Manhole Circular	SE02360	A/49	5	\$4,150	\$4,150
Manhole Circular	SE02361	A/48A	5	\$4,150	\$4,150
Manhole Circular	SE02362	B/11	5	\$4,150	\$4,150
Manhole Circular	SE02363	B/10	5	\$4,150	\$4,150
Manhole Circular	SE02364	B/9	5	\$5,130	\$5,130
Manhole Circular	SE02365	B/8	5	\$5,130	\$5,130
Manhole Circular	SE02366	B/7	5	\$5,980	\$5,980
Manhole Circular	SE02368	B/6	5	\$5,980	\$5,980
Manhole Circular	SE02369	B/5	5	\$9,890	\$9,890
Manhole Circular	SE02373	A/19	5	\$5,130	\$5,130
Manhole Circular	SE02374	A/18	5	\$5,130	\$5,130
Manhole Circular	SE02375	KA/1	5	\$5,130	\$5,130
Manhole Circular	SE02378	K/1	5	\$4,150	\$4,150
Manhole Circular	SE02379	A/15	5	\$5,980	\$5,980
Manhole Circular	SE02380	A/14	5	\$5,980	\$5,980
Manhole Circular	SE02381	J/1	5	\$5,130	\$5,130
Manhole Circular	SE02382	J/3	5	\$4,150	\$4,150
Manhole Circular	SE02383	J/2	5	\$5,130	\$5,130
Manhole Circular	SE02384	A/13	5	\$5,980	\$5,980
Manhole Circular	SE02385	A/12	5	\$5,980	\$5,980
Manhole Circular	SE02386	A/11	5	\$5,980	\$5,980
Manhole Circular	SE02387	X/3	5	\$4,150	\$4,150
Manhole Circular	SE02388	X/2	5	\$5,130	\$5,130
Manhole Circular	SE02389	X/1	5	\$5,130	\$5,130
Manhole Circular	SE02390	A/10	5	\$5,980	\$5,980
Manhole Circular	SE02391	H/3	5	\$5,130	\$5,130
Manhole Circular	SE02392	H/2	5	\$5,980	\$5,980
Manhole Circular	SE02393	H/1	5	\$5,980	\$5,980
Manhole Circular	SE02395	G/3	5	\$4,150	\$4,150
Manhole Circular	SE02396	G/2	5	\$5,980	\$5,980
Manhole Circular	SE02461	H/4	5	\$5,130	\$5,130
Manhole Circular	SE02472	N/6	5	\$4,150	\$4,150
Manhole Circular	SE02473	N/5	5	\$4,150	\$4,150
Manhole Circular	SE02474	N/4	5	\$4,150	\$4,150
Manhole Circular	SE02477	A/22	5	\$5,130	\$5,130
Manhole Circular	SE02478	A/21	5	\$5,130	\$5,130
Manhole Circular	SE02479	M/2	5	\$4,150	\$4,150
Manhole Circular	SE02480	M/1	5	\$4,150	\$4,150
Manhole Circular	SE02481	A/20	5	\$5,130	\$5,130
Manhole Circular	SE02525	EE/2	5	\$4,150	\$4,150
Manhole Circular	SE02526	EE/1	5	\$5,130	\$5,130
Manhole Circular	SE02527	EM/2	5	\$5,130	\$5,130
Manhole Circular	SE02528	EM/1	5	\$5,130	\$5,130
Manhole Circular	SE02574	BH/2	5	\$4,150	\$4,150
Manhole Circular	SE02575	BH/1	5	\$5,130	\$5,130
Manhole Circular	SE02576	B/6	5	\$5,130	\$5,130

	Manhole Circular	SE02577	B/5	5	\$5,980		\$5,980
	Manhole Circular	SE02580	BF/2	5	\$5,130		\$5,130
	Manhole Circular	SE02581	BF/1	5	\$5,130		\$5,130
	Manhole Circular	SE02706	F/1A	5	\$5,130		\$5,130
	Manhole Circular	SE02708	AK/1A	5	\$5,980		\$5,980
	Manhole Circular	SE02709	ACA/1	5	\$5,130		\$5,130
	Manhole Circular	SE02710	A/5A	5	\$9,890		\$9,890
	Manhole Circular	SE02711	ED/3	5	\$4,150		\$4,150
	Manhole Circular	SE02714	D/6	5	\$9,890		\$9,890
	Manhole Circular	SE02721	A/35A	5	\$4,150		\$4,150
	Manhole Circular	SE02723	A/16A	5	\$5,130		\$5,130
	Manhole Circular	SE02724	AHC/1	5	\$5,130		\$5,130
	Manhole Circular	SE02730	DH/2	5	\$5,130		\$5,130
	Manhole Circular	SE02732	ARC/1	5	\$5,130		\$5,130
	Manhole Circular	SE02733	AR/1A	5	\$5,980		\$5,980
	Manhole Circular	SE03010	900 dia. - Depth 1.5 < 3.0	5	\$5,130		\$5,130
	Manhole Rectangular	SE01788	AU/2	5	\$4,150		\$4,150
	Manhole Rectangular	SE02233	ABH/4	5	\$4,150		\$4,150
2020	Manhole Circular	SE02774	A/5	5	\$5,130		\$5,130
	Manhole Circular	SE02775	A/4	5	\$5,130		\$5,130
	Manhole Circular	SE02789	A/1	5	\$5,980		\$5,980
	Manhole Circular	SE02790	AD/3	5	\$4,150		\$4,150
	Manhole Circular	SE02791	AD/2	5	\$5,130		\$5,130
	Manhole Circular	SE02792	AD/1	5	\$5,130		\$5,130
	Manhole Circular	SE02793	AE/2	5	\$5,130		\$5,130
	Manhole Circular	SE02794	AE/1	5	\$5,130		\$5,130
	Manhole Circular	SE02795	AEB/1	5	\$5,130		\$5,130
	Manhole Circular	SE02796	AEA/1	5	\$5,130		\$5,130
	Manhole Circular	SE02797	A/2	5	\$5,980		\$5,980
	Manhole Circular	SE02798	A/3	5	\$5,980		\$5,980
	Manhole Circular	SE02799	A/4	5	\$5,130		\$5,130
	Manhole Circular	SE02800	A/6	5	\$5,130		\$5,130
	Manhole Circular	SE02801	A/5	5	\$5,130		\$5,130
	Manhole Circular	SE02802	A/7	5	\$4,150		\$4,150
	Manhole Circular	SE02803	A/8	5	\$4,150		\$4,150
	Manhole Circular	SE02804	AC/1	5	\$4,150		\$4,150
	Manhole Circular	SE02805	ACB/1	5	\$4,150		\$4,150
	Manhole Circular	SE02806	AC/2	5	\$4,150		\$4,150
	Manhole Circular	SE02807	AB/1	5	\$5,130		\$5,130
	Manhole Circular	SE02808	AB/2	5	\$5,130		\$5,130
	Manhole Circular	SE02809	AB/3	5	\$5,130		\$5,130
	Manhole Circular	SE02810	ABA/1	5	\$4,150		\$4,150
	Manhole Circular	SE02811	AB/4	5	\$4,150		\$4,150
	Vent Stack	SE02942	AC	3	\$6,200		\$6,200
2021	Vent Stack	SE02858	AC	5		\$6,200	\$6,200
	Vent Stack	SE02941	AC	5		\$6,200	\$6,200
	Vent Stack	SE02944	AC	5		\$6,200	\$6,200
	Vent Stack	SE02950	AC	5		\$6,200	\$6,200
	Vent Stack	SE02951	AC	5		\$6,200	\$6,200
	Vent Stack	SE02952	AC	5		\$6,200	\$6,200

	Vent Stack	SE02954	AC	5	\$6,200			\$6,200
	Vent Stack	SE02955	AC	5	\$6,200			\$6,200
	Vent Stack	SE02956	AC	5	\$6,200			\$6,200
2022	Vent Stack	SE02943	AC	5		\$6,200		\$6,200
2025	Boundary Kit	SE02839	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02841	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02848	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02850	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02851	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02852	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02853	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02854	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02855	Boundary Kit	2			\$20,600	\$20,600
2026	Boundary Kit	SE02931	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02932	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02933	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02934	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02935	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02936	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02937	Boundary Kit	2			\$20,600	\$20,600
2027	Boundary Kit	SE02872	Boundary Kit	2				\$20,600
	Boundary Kit	SE02876	Boundary Kit	2				\$20,600
2028	Boundary Kit	SE02879	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02880	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02881	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02882	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02883	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02884	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02885	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02886	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02887	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02888	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02889	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02890	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02891	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02892	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02893	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02894	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02895	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02896	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02897	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02898	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02899	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02900	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02901	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02902	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02903	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02904	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02905	Boundary Kit	2			\$20,600	\$20,600
	Boundary Kit	SE02973	Boundary Kit	2			\$20,600	\$20,600

	Boundary Kit	SE02974	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02977	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02978	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02979	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02980	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02981	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02982	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02983	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02984	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02985	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02986	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02987	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02988	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02989	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02990	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02992	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02993	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02994	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02995	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02996	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02997	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02998	Boundary Kit	2							\$20,600	\$20,600	
	Boundary Kit	SE02999	Boundary Kit	2							\$20,600	\$20,600	
2029	Boundary Kit	SE01684	Boundary Kit	2								\$20,600	\$20,600
	Boundary Kit	SE02870	Boundary Kit	2								\$20,600	\$20,600
	Boundary Kit	SE03012	Boundary Kit	2								\$20,600	\$20,600
	Boundary Kit	SE03030	Boundary Kit	2								\$20,600	\$20,600
	Boundary Kit	SE03053	Boundary Kit	2								\$20,600	\$20,600
	Boundary Kit	SE03054	Boundary Kit	2								\$20,600	\$20,600
	Boundary Kit	SE03055	Boundary Kit	2								\$20,600	\$20,600
	Boundary Kit	SE03056	Boundary Kit	2								\$20,600	\$20,600

Sewer Point Total						\$1,940,450	\$129,160	\$55,800	\$6,200			\$185,400	\$144,200	\$41,200	\$1,050,600	\$164,800	\$3,717,810
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Treatment Plant	2018	Lifting Equipment	SE01645 - 61	Hoist	4	\$5,200											\$5,200
	2019	Aerator	SE01645 - 07	Grit Paddle Aerator	3	\$126,600											\$126,600
		Bridge Rotating Arm	SE01645 - 32	Bridge Drive	3	\$26,500											\$26,500
		Bridge Rotating Arm	SE01645 - 69	Rotating Arm	3	\$95,000											\$95,000
		Bridge Rotating Arm	SE01645 - 73	Rotating Arm	3	\$95,000											\$95,000
		Control Panel	SE01645 - 38	Sludge Pump Control Panel	3	\$72,500											\$72,500
		Fence	SE01645 - 64	Fencing	3	\$47,000											\$47,000
		Grit Classifier	SE01645 - 10	Grit Classifier	3	\$63,000											\$63,000
		Safety Shower Eye Wash	SE01645 - 57	Safety Shower	3	\$2,500											\$2,500
		Sludge Scraper	SE01645 - 31	Bridge And Scraper	3	\$115,000											\$115,000
	2020	Mixer	SE01645 - 59	Mixer 1	5		\$0										\$0
		Mixer	SE01645 - 60	Mixer 2	5		\$0										\$0
		Pipe Work	SE01645 - 105	Pipe Work	5		\$8,300										\$8,300
		Pipe Work	SE01645 - 54	Pipe Work	4		\$93,500										\$93,500
		Pipe Work	SE01645 - 82	Pipe Work	4		\$12,500										\$12,500
		Safety Shower Eye Wash	SE01645 - 102	Safety Shower	5		\$2,500										\$2,500

Appendix E - Abbreviations

AAAC	Average annual asset consumption
AMP	Asset Management Plan
ARI	Average Recurrence Interval
CRC	Current Replacement Cost
CWMS	Community Wastewater Management Systems
DA	Depreciable Amount
EF	Earthworks/Formation
IRMP	Infrastructure Risk Management Plan
LCC	Life Cycle Cost
LCE	Life Cycle Expenditure
LGIS	Local Government Infrastructure Services
MMS	Maintenance Management System
PCI	Pavement Condition Index
RV	Residual Value
Vph	Vehicles per hour

Appendix F – Glossary

Annual Service Cost (ASC)

1. *Reporting actual cost. The annual (accrual) Cost of providing a service including operations, maintenance, depreciation, finance/opportunity and disposal costs less revenue.*
2. *For investment analysis and budgeting. An estimate of the cost that would be tendered, per annum, if tenders were called for the supply of a service to a performance specification for a fixed term. The Annual Service Cost includes operations, maintenance, depreciation, finance/opportunity and disposal costs, less revenue.*

Asset

A resource controlled by an entity as a result of past events and from which future economic benefits are expected to flow to the entity. Infrastructure assets are a sub-class of property, plant and equipment which are non-current assets with a life greater than 12 months and enable services to be provided.

Asset class

A group of assets having a similar nature or function in the operations of an entity, and which, for purposes of disclosure, is shown as a single item without supplementary disclosure.

Asset condition assessment

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.

Asset management (AM)

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.

Average annual asset consumption (AAAC)*

The amount of an Council's asset base consumed during a reporting period (generally a year). This may be calculated by dividing the depreciable amount by the useful life (or total future economic benefits/service potential) and totalled for each and every asset OR by dividing the carrying amount (depreciated replacement cost) by the remaining useful life (or remaining future economic benefits/service potential) and

totalled for each and every asset in an asset category or class.

Borrowings

A borrowing or loan is a contractual obligation of the borrowing entity to deliver cash or another financial asset to the lending entity over a specified period of time or at a specified point in time, to cover both the initial capital provided and the cost of the interest incurred for providing this capital. A borrowing or loan provides the means for the borrowing entity to finance outlays (typically physical assets) when it has insufficient funds of its own to do so, and for the lending entity to make a financial return, normally in the form of interest revenue, on the funding provided.

Capital expenditure

Relatively large (material) expenditure, which has benefits, expected to last for more than 12 months. Capital expenditure includes renewal, expansion and upgrade. Where capital projects involve a combination of renewal, expansion and/or upgrade expenditures, the total project cost needs to be allocated accordingly.

Capital expenditure - expansion

Expenditure that extends the capacity of an existing asset to provide benefits, at the same standard as is currently enjoyed by existing beneficiaries, to a new group of users. It is discretionary expenditure, which increases future operations and maintenance costs, because it increases the Council's asset base, but may be associated with additional revenue from the new user group, eg. extending a drainage or road network, the provision of an oval or park in a new suburb for new residents.

Capital expenditure - new

Expenditure which creates a new asset providing a new service/output that did not exist beforehand. As it increases service potential it may impact revenue and will increase future operations and maintenance expenditure.

Capital expenditure - renewal

Expenditure on an existing asset or on replacing an existing asset, which returns the service capability of the asset up to that which it had originally. It is periodically required expenditure, relatively large (material) in value compared with the value of the components or sub-components of the asset being renewed. As it reinstates existing service potential, it generally has no impact on revenue, but may reduce future operations and maintenance expenditure if completed at the optimum time, eg. resurfacing or resheeting a material part of

a road network, replacing a material section of a drainage network with pipes of the same capacity, resurfacing an oval.

Capital expenditure - upgrade

Expenditure, which enhances an existing asset to provide a higher level of service or expenditure that will increase the life of the asset beyond that which it had originally. Upgrade expenditure is discretionary and often does not result in additional revenue unless direct user charges apply. It will increase operations and maintenance expenditure in the future because of the increase in the Council's asset base, eg. widening the sealed area of an existing road, replacing drainage pipes with pipes of a greater capacity, enlarging a grandstand at a sporting facility.

Capital funding

Funding to pay for capital expenditure.

Capital grants

Monies received generally tied to the specific projects for which they are granted, which are often upgrade and/or expansion or new investment proposals.

Capital investment expenditure

See capital expenditure definition

Capitalisation threshold

The value of expenditure on non-current assets above which the expenditure is recognised as capital expenditure and below which the expenditure is charged as an expense in the year of acquisition.

Carrying amount

The amount at which an asset is recognised after deducting any accumulated depreciation / amortisation and accumulated impairment losses thereon.

Component

Specific parts of an asset having independent physical or functional identity and having specific attributes such as different life expectancy, maintenance regimes, risk or criticality.

Cost of an asset

The amount of cash or cash equivalents paid or the fair value of the consideration given to acquire an asset at the time of its acquisition or construction, including any costs necessary to place the asset into service. This includes one-off design and project management costs.

Current replacement cost (CRC)

The cost the entity would incur to acquire the asset on the reporting date. The cost is measured by reference to the lowest cost at which the gross future economic benefits could be obtained in the normal course of business or the minimum it would cost, to replace the existing asset with a technologically modern equivalent new asset (not a second hand one) with the same economic benefits (gross service potential) allowing for any differences in the quantity and quality of output and in operating costs.

Depreciable amount

The cost of an asset, or other amount substituted for its cost, less its residual value.

Depreciated replacement cost (DRC)

The current replacement cost (CRC) of an asset less, where applicable, accumulated depreciation calculated on the basis of such cost to reflect the already consumed or expired future economic benefits of the asset.

Depreciation / amortisation

The systematic allocation of the depreciable amount (service potential) of an asset over its useful life.

Economic life

See useful life definition.

Expenditure

The spending of money on goods and services. Expenditure includes recurrent and capital.

Fair value

The amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties, in an arms length transaction.

Funding gap

A funding gap exists whenever an entity has insufficient capacity to fund asset renewal and other expenditure necessary to be able to appropriately maintain the range and level of services its existing asset stock was originally designed and intended to deliver. The service capability of the existing asset stock should be determined assuming no additional operating revenue, productivity improvements, or net financial liabilities above levels currently planned or projected. A current funding gap means service levels have already or are currently falling. A projected funding gap if not addressed will result in a future diminution of existing service levels.

Heritage asset

An asset with historic, artistic, scientific, technological, geographical or environmental qualities that is held and maintained principally for its contribution to knowledge and culture and this purpose is central to the objectives of the entity holding it.

Impairment Loss

The amount by which the carrying amount of an asset exceeds its recoverable amount.

Investment Property

Property held to earn rentals or for capital appreciation or both, rather than for:

- a) Use in the production or supply of goods or services or for administrative purposes; or
- b) Sale in the ordinary course of business.

Key performance indicator

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.

Level of service

The defined service quality for a particular service/activity against which service performance may be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental impact, acceptability and cost.

Life Cycle Cost

1. **Total LCC.** The total cost of an asset throughout its life including planning, design, construction, acquisition, operation, maintenance, rehabilitation and disposal costs.
2. **Average LCC.** The life cycle cost (LCC) is average cost to provide the service over the longest asset life cycle. It comprises annual operations, 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.

Life Cycle Expenditure

The Life Cycle Expenditure (LCE) is the actual or planned annual operations, maintenance and capital renewal expenditure incurred in providing the service in a particular year. Life Cycle Expenditure may be compared to average Life Cycle Cost to give an initial indicator of life cycle sustainability.

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Maintenance

All actions necessary for retaining an asset as near as practicable to its original condition, including regular ongoing day-to-day work necessary to keep assets operating, eg road patching but excluding rehabilitation or renewal. It is operating expenditure required to ensure that the asset reaches its expected useful life.

Planned maintenance

Repair work that is identified and managed through a maintenance management system (MMS). MMS activities include inspection, assessing the condition against failure/breakdown criteria/experience, prioritising scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.

Reactive maintenance

Unplanned repair work that is carried out in response to service requests and management/supervisory directions.

Significant maintenance

Maintenance work to repair components or replace sub-components that needs to be identified as a specific maintenance item in the maintenance budget.

Unplanned maintenance

Corrective work required in the short-term to restore an asset to working condition so it can continue to deliver the required service or to maintain its level of security and integrity.

Maintenance and renewal gap

Difference between estimated budgets and projected required expenditures for maintenance and renewal of assets to achieve/maintain specified service levels, totalled over a defined time (e.g. 5, 10 and 15 years).

Maintenance and renewal sustainability index

Ratio of estimated budget to projected expenditure for maintenance and renewal of assets over a defined time (eg 5, 10 and 15 years).

Maintenance expenditure

Recurrent expenditure, which is periodically or regularly required as part of the anticipated schedule of works required to ensure that the asset achieves its useful life and provides the required level of service. It is expenditure, which was anticipated in determining the asset's useful life.

Materiality

The notion of materiality guides the margin of error acceptable, the degree of precision required and the extent of the disclosure required when preparing general purpose financial reports. Information is material if its omission, misstatement or non-disclosure has the potential, individually or collectively, to influence the economic decisions of users taken on the basis of the financial report or affect the discharge of accountability by the management or governing body of the entity.

Modern equivalent asset

Assets that replicate what is in existence with the most cost-effective asset performing the same level of service. It is the most cost efficient, currently available asset which will provide the same stream of services as the existing asset is capable of producing. It allows for technology changes and, improvements and efficiencies in production and installation techniques

Net present value (NPV)

The value to the Council of the cash flows associated with an asset, liability, activity or event calculated using a discount rate to reflect the time value of money. It is the net amount of discounted total cash inflows after deducting the value of the discounted total cash outflows arising from eg the continued use and subsequent disposal of the asset after deducting the value of the discounted total cash outflows.

Non-revenue generating investments

Investments for the provision of goods and services to sustain or improve services to the community that are not expected to generate any savings or revenue to Council, eg. parks and playgrounds, footpaths, roads and bridges, libraries, etc.

Operations expenditure

Recurrent expenditure, which is continuously required to provide a service. In common use the term typically includes, eg power, fuel, staff, plant equipment, on-costs and overheads but excludes maintenance and depreciation. Maintenance and depreciation is on the other hand included in operating expenses.

Operating expense

The gross outflow of economic benefits, being cash and non cash items, during the period arising in the course of ordinary activities of an entity when those outflows result in decreases in equity, other than decreases relating to distributions to equity participants.

Pavement management system

A systematic process for measuring and predicting the condition of road pavements and wearing surfaces over time and recommending corrective actions.

PMS Score

A measure of condition of a road segment determined from a Pavement Management System.

Rate of annual asset consumption

A measure of average annual consumption of assets (AAAC) expressed as a percentage of the depreciable amount (AAAC/DA). Depreciation may be used for AAAC.

Rate of annual asset renewal

A measure of the rate at which assets are being renewed per annum expressed as a percentage of depreciable amount (capital renewal expenditure/DA).

Rate of annual asset upgrade

A measure of the rate at which assets are being upgraded and expanded per annum expressed as a percentage of depreciable amount (capital upgrade/expansion expenditure/DA).

Recoverable amount

The higher of an asset's fair value, less costs to sell and its value in use.

Recurrent expenditure

Relatively small (immaterial) expenditure or that which has benefits expected to last less than 12 months. Recurrent expenditure includes operations and maintenance expenditure.

Recurrent funding

Funding to pay for recurrent expenditure.

Remaining useful life

The time remaining until an asset ceases to provide the required service level or economic usefulness. Age plus remaining useful life is useful life.

Residual value

The estimated amount that an entity would currently obtain from disposal of the asset, after deducting the estimated costs of disposal, if the asset were already of the age and in the condition expected at the end of its useful life.

Revenue generating investments

Investments for the provision of goods and services to sustain or improve services to the community that are expected to generate

some savings or revenue to offset operating costs, eg public halls and theatres, childcare centres, sporting and recreation facilities, tourist information centres, etc.

Risk management

The application of a formal process to the range of possible values relating to key factors associated with a risk in order to determine the resultant ranges of outcomes and their probability of occurrence.

Section or segment

A self-contained part or piece of an infrastructure asset.

Service potential

The total future service capacity of an asset. It is normally determined by reference to the operating capacity and economic life of an asset. A measure of service potential is used in the not-for-profit sector/public sector to value assets, particularly those not producing a cash flow.

Service potential remaining

A measure of the future economic benefits remaining in assets. It may be expressed in dollar values (Fair Value) or as a percentage of total anticipated future economic benefits. It is also a measure of the percentage of the asset's potential to provide services that is still available for use in providing services (Depreciated Replacement Cost/Depreciable Amount).

Strategic Longer-Term Plan

A plan covering the term of office of councillors (4 years minimum) reflecting the needs of the community for the foreseeable future. It brings together the detailed requirements in Council's longer-term plans such as the service management plan and the long-term financial plan. The plan is prepared in consultation with the community and details where Council is at that point in time, where it wants to go, how it is going to get there, mechanisms for monitoring the achievement of the outcomes and how the plan will be resourced.

Specific Maintenance

Replacement of higher value components/sub-components of assets that is undertaken on a regular cycle including pothole repairs, replacement of pump equipment, etc. This work generally falls below the capital/ maintenance threshold and needs to be identified in a specific maintenance budget allocation.

Sub-component

Smaller individual parts that make up a component part.

Useful life

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 Council.

Value in Use

The present value of future cash flows expected to be derived from an asset or cash generating unit. It is deemed to be depreciated replacement cost (DRC) for those assets whose future economic benefits are not primarily dependent on the asset's ability to generate net cash inflows, where the entity would, if deprived of the asset, replace its remaining future economic benefits.

Source: IPWEA, 2009, Glossary

