

# Sewerage Asset Management Plan 2019-2023



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# Sewerage Asset Management Plan 2019 - 2023

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## Executive Summary

The objective of infrastructure asset management is to ensure that assets provide their required levels of services in the most cost effective manner. This Asset Management Plan focuses on the management of the Queanbeyan-Palerang Regional Council's (QPRC) Sewerage infrastructure assets. This plan specifies the requirements for effective management of this asset group and the corresponding financial implications. This plan is reviewed annually, with a formal update completed every 4 years.

Effective asset management of the Queanbeyan-Palerang's sewerage infrastructure assets will contribute towards achievement of the following strategic objectives<sup>1</sup> :

- Maintenance of sewerage infrastructure to allow safe (public health) and equitable collection and treatment of sewage for communities across our region; and
- Advocacy for QPRC's Integrated Water Cycle Management (IWCM).

The contribution towards achievement of these strategic goals and asset management objectives will be achieved by:

- Stakeholder consultation to establish and confirm service standards.
- A regular program of inspections and monitoring activities to assess asset condition and performance.
- Application of a systematic analysis to prioritise renewals and establish the most cost effective works programs.
- Continuously reviewing and improving the quality of Asset Management practices.

QPRC's sewerage infrastructure assets comprises of:

- Pipes/mains;
- Manholes/ Pits
- Pump Stations;
- Treatment Plants;

These assets have a current replacement cost of \$238 Million as at 30 June 2019.

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<sup>1</sup> QPRC Community Strategic Plan 2018-2028

## Table of Contents

<b>1</b>	<b>Introduction .....</b>	<b>6</b>
1.1	Background.....	6
1.2	Assets included in this Plan .....	6
1.3	Strategic and Corporate Goals .....	7
1.4	Legislative Requirements .....	7
<b>2</b>	<b>Levels of Service.....</b>	<b>8</b>
2.1	Community Level of Service .....	8
2.2	Technical Level of Service.....	11
2.2.1	Design and Construction Standards.....	11
2.2.2	Maintenance Standards .....	11
<b>3</b>	<b>Future Demand.....</b>	<b>13</b>
3.1	Demand Driver.....	13
3.2	Population Change .....	13
3.3	New Technology .....	13
3.4	Climate Change and Sustainability.....	13
3.5	New sewerage infrastructure assets from growth.....	14
3.6	Demand Management Plan .....	14
<b>4</b>	<b>Lifecycle Management Plan .....</b>	<b>15</b>
4.1	Physical Parameters.....	15
4.2	Asset Age Profile .....	16
4.3	Asset Capacity & Performance.....	16
4.4	Asset Condition.....	17
4.5	Asset Valuation.....	18
4.6	Maintenance Plan .....	19
4.7	Renewal Plan.....	20
4.8	Creation / Acquisition / Upgrade Plan.....	22
4.9	Disposal Plan.....	22
<b>5</b>	<b>Risk Management Planning .....</b>	<b>23</b>
5.1	Critical Assets .....	23
5.2	Infrastructure Risk Management Plan .....	23
<b>6</b>	<b>Financial Summary .....</b>	<b>24</b>
6.1	Financial Statements and Projections .....	24
6.2	Funding Requirements – Asset Replacement .....	25

# Sewerage Asset Management Plan 2019 - 2023

---

6.3	Funding Strategy .....	25
6.4	Valuation Forecast.....	26
6.5	Key Assumptions made in Financial Forecasts .....	26
6.6	Forecast Reliability and Confidence .....	27
<b>7</b>	<b>Plan Improvement and Monitoring .....</b>	<b>28</b>
7.1	Improvement Plan.....	28
7.2	Monitoring and Review Procedures.....	28
7.3	Performance Measures .....	28
<b>8</b>	<b>References.....</b>	<b>30</b>
	Table 1: Community Level of service .....	9
	Table 2 - Maintenance Standards.....	11
	Table 3: Sewerage Infrastructure Asset Inventory Summary (as at 30 June 2019) .....	15
	Table 4: Known Service Performance Deficiencies .....	16
	Table 5 - Condition Rating Table .....	18
	Table 6- Renewal Forecasting Method .....	21
	Table 8 - Risk Management Plan.....	23
	Table 9: Renewal expenditure trends .....	25
	Table 10: SS7 Reporting.....	25
	Table 11: Sewerage asset management improvement plan.....	28
	Figure 1: Community Satisfaction Survey Results.....	8
	Figure 2: Asset age profile .....	16
	Figure 3: Asset condition .....	18
	Figure 4: Asset valuation .....	19
	Figure 5: Forecast O & M Expenditure .....	20
	Figure 6: Summary of asset expenditure & gifted value (historical & predicted) .....	24
	Figure 7: Projected value, depreciated expense and depreciated replacement cost .....	26

## 1 Introduction

### 1.1 Background

The Queanbeyan-Palerang Regional Council's sewerage infrastructure assets provide valuable services to the area enabling a safe and reliable sewage collection network & treatment facilities. These assets must be properly maintained and developed to continue to provide adequate service and benefits for generations in the future. This plan demonstrates Council's responsive management of sewerage infrastructure assets (and services provided from these assets), compliance with regulatory requirements and proposed funding requirements to provide the required levels of service.

This plan demonstrates how Council will achieve this outcome by applying the principles of responsible Asset Management Planning, the object of which is to:

'Deliver the required level of service to existing and future customers in the most cost effective way'.

The key elements of infrastructure asset management are<sup>2</sup> :

- Taking a life cycle approach.
- Developing cost-effective management strategies for the long term.
- Providing a defined level of service and monitoring performance.
- Understanding and meeting the demands of growth through demand management and infrastructure investment.
- Managing risks associated with asset failures.
- Sustainable use of physical resources.
- Continuous improvement in asset management practices.

This Sewerage Infrastructure AMP is to read with Council's Asset Management Policy, Strategic Asset Management Plan (SAMP) and the following associated planning documents:

- QPRC Community Strategic Plan 2018 – 28;
- QPRC Delivery Program 2018 – 21;
- QPRC Operational Plan 2019 – 20;
- QPRC Strategic Directions;
- QPRC Integrated Water Cycle Management Strategy.

### 1.2 Assets included in this Plan

Sewerage infrastructure assets are only incorporated in this plan. Information of other asset classes should be referred to the relevant Asset Management Plan.

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<sup>2</sup> IPWEA, 'International Infrastructure Management Manual', 2015

# Sewerage Asset Management Plan 2019 - 2023

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Under the sewerage infrastructure, the following Asset Categories are included in this AMP:

- Pipes/mains
- Pump Stations
- Treatment Plants

Some of these assets classes/categories also pertain to other AMPs however, only assets assigned to service of sewerage are included in this AMP.

## 1.3 Strategic and Corporate Goals

This Sewerage Infrastructure AMP has been prepared under the direction of Council's vision, mission, goals and objectives. The community outcomes and strategic goals for the management of QPRC's sewerage infrastructure assets are outlined in the following documents:

- QPRC Community Strategic Plan 2018 – 28;
- QPRC Delivery Program 2018 – 21;
- QPRC Operational Plan 2019 – 20;

## 1.4 Legislative Requirements

QPRC has to meet many legislative requirements including Australian and State legislation and State regulations. These include:

- Local Government Act 1993;
- Local Government Amendment (Planning and Reporting) Act 2009;
- Environment Planning and Assessment Act 1979;
- Civil Liability Act 2002;
- Public Health Act 1991;
- Environmental Offences & Penalties Act 1989;
- Protection of the Environment Operations Act 1989;
- Work Health & Safety Act 2011;
- Dangerous goods Act 1975;
- Contaminated Land Management Act 1997;

This is not a full and comprehensive list of all legislative requirements Council is required to adhere to in maintaining infrastructure assets. QPRC will exercise its duty in compliance with all legislation to the best of its ability.

## 2 Levels of Service

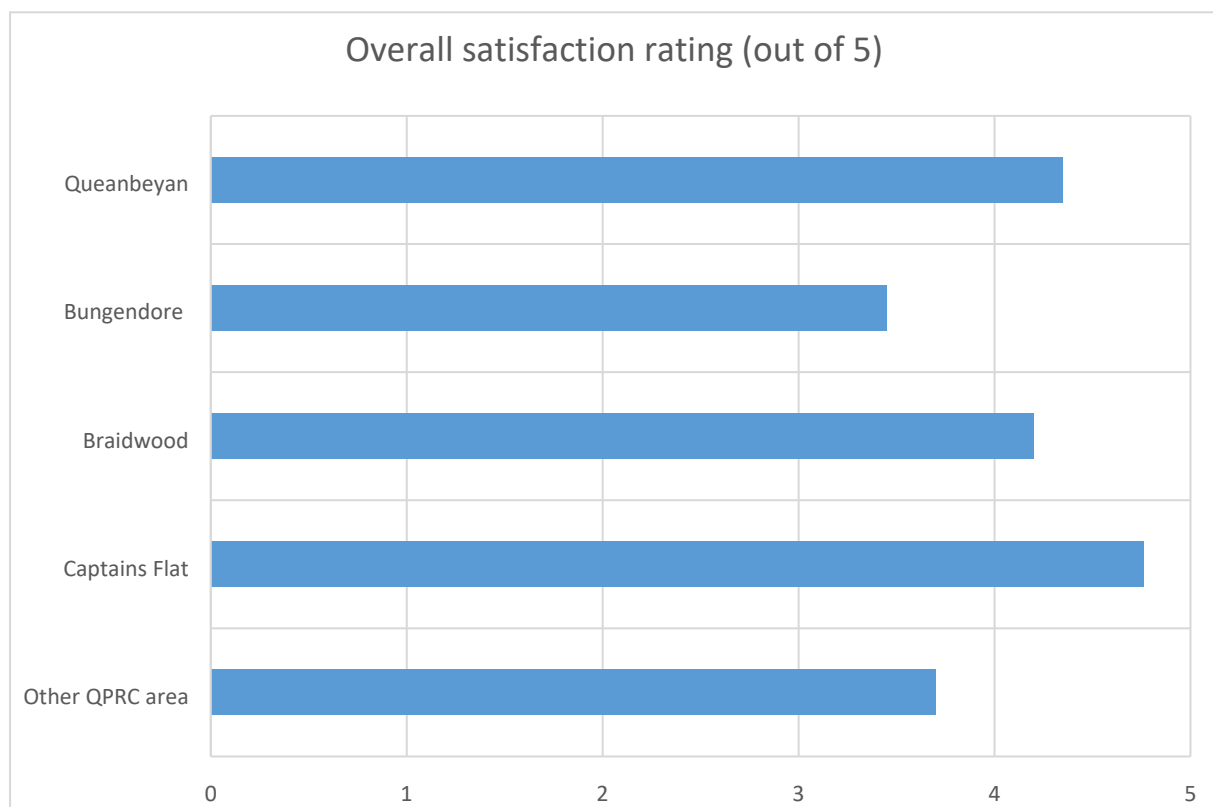
### 2.1 Community Level of Service

Community levels of service relate to the service outcomes that the community wants in terms of quality, reliability, responsiveness, amenity and safety.

In August 2018, a custom service survey was conducted to:

- Assess resident satisfaction; and
- Better understand the community's priorities with regard to service and facilities.

The results of the survey have been utilised as an indicator of community satisfaction with QPRC's core sewerage infrastructure assets. The overall satisfaction rating for sewerage infrastructure was 4.25 out of 5.



**Figure 1: Community Satisfaction Survey Results**

QPRC when benched marked against eight other similar sized NSW Council's received an overall satisfaction rating of 3.5/5 compared to an average satisfaction rating of 3.2/5. The bench marking also indicated QPRC was performing at the top end of community satisfaction for all services provided.

Of all the asset classes surveyed, QPRC's sewage collection and treatment rated the highest satisfaction rating. Sewage collection also rated 5<sup>th</sup> highest on importance compared to other services provided by QPRC. When bench-marked against similar Councils, QPRC was performing at the top of the rating system.



# Sewerage Asset Management Plan 2019 - 2023

Currently, QPRC do not have a formal process to measure community levels of service. This plan proposes using customer service requests to indicate performance against levels of service. Performance indicators have not been set within this plan and will be required to be reviewed as better data is provided.

**Table 1: Community Level of service**

Service Attribute	Service Objective	Performance Measure Process	Current Performance	Expected position in 10 years based on current LTFP
<b>COMMUNITY OUTCOMES</b>				
<ul style="list-style-type: none"> <li>• An integrated and well maintained transport network via roads and shared paths to support the local community and promote activity</li> <li>• Council ensures developed infrastructure is constructed in compliance with assessed standards and is 'fit for purpose'</li> <li>• Safe and well maintained built facilities meet the cultural, recreational tourism and community service needs of all ages and abilities in our community</li> <li>• Plan and implement effective infrastructure to assist maximising experiences for the Shires' visitors.</li> </ul>				
<b>COMMUNITY LEVELS OF SERVICE</b>				
<b>Customer Connections</b>				
Quality	Sewerage system designed to incorporate all eligible customer connections	Compliance to plumbing standards and periodic smoke testing to identify possible illegal connections and leaking customer pipework	TBD	>95% Compliance
Function	Provides a dedicated connection point between customer and sewerage network	Customer requests relating to backflows	TBD	3 per 1000 connections
Capacity/ Utilisation	Every customer within the sewerage area is connected to the sewerage system	Number of unconnected properties within sewerage area	TBD	0
<b>COMMUNITY LEVELS OF SERVICE</b>				
<b>Gravity Sewers</b>				
Quality	All sewage collected in the system is contained within the sewerage system and does not impact environment under peak dry	Sewage overflows reported	TBA	0 overflows occur under PDWF conditions

## Sewerage Asset Management Plan 2019 - 2023

	weather flow condition.			
Function	Provides a continuous service free from interruptions	Number of blockages/chokes CCTV monitoring of sewer network	TBA	20 per 100 km sewer Risk approach undertaken for CCTV inspections
Capacity/ Utilisation	Gravity sewers capable of handling peak wet weather flows without overflow	Sewer inflow/infiltration reduction monitoring	TBA	Peak Wet Weather to Average Dry Weather Flows do not exceed 8 at the STP inlet
<b>COMMUNITY LEVELS OF SERVICE</b>				
<b>Sewage Pumping Stations</b>				
Quality	No odour, noise or overflows occur as a result of the normal operation of all pumping stations	Customer Requests	TBA	< 2 Customer requests received per sewerage system
Function	Pumping stations operate trouble free all year round	Pump Station Faults recorded through SCADA system	TBA	< 2 pump station failures recorded per year.
Capacity/ Utilisation	Pumping system has adequate capacity and system storage to handle peak wet weather events without overflow	Pump Station overflows recorded through SCADA system	TBA	4 hour emergency storage provided at a minimum at each pumping station.
<b>COMMUNITY LEVELS OF SERVICE</b>				
<b>Sewage Treatment Plants</b>				
Quality	All licence conditions meet	Sampling of environmental receptors	99%	100% compliant
Function	Treatment plant is designed treat all sewage collected within the system and discharge treated effluent on a continuous basis taking into account normal flow fluctuations	Number of plant by-passes recorded in a given year	TBA	0
Capacity/ Utilisation	System is designed to meet agreed peak wet weather demands without	Inlet flow monitoring.  SCADA plant records	TBA	TBA

# Sewerage Asset Management Plan 2019 - 2023

	comprising effluent quality			
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## 2.2 Technical Level of Service

### 2.2.1 Design and Construction Standards

The standard of construction of new sewerage infrastructure assets and for enhancing, renewing and refurbishing existing sewerage infrastructure assets will be in accordance with the standards adopted by Council in any particular instance.

Generally any design and construction work required on sewerage infrastructure assets will be considered as Capital Work and as such, is required to comply with QPRC's Project Management Framework.

### 2.2.2 Maintenance Standards

Levels of service for maintenance of the sewerage infrastructure assets take into account:

- Industry standards<sup>3</sup>;
- The need to provide a sewerage infrastructure network that is safe (public health) to collect & treat sewage for all users; and
- Ability of Council to fund maintenance activities.

The technical standards for maintenance activities need to be defined in the QPRC Sewerage Infrastructure Maintenance Plan. Currently QPRC does not have this maintenance plan; it is aimed to develop this maintenance plan and update the technical standards in future revision of this AMP.

**Table 2 - Maintenance Standards**

Asset Feature	Functional Requirements of Maintenance
Sewer	<ul style="list-style-type: none"> <li>• Provide safe (public health) &amp; adequate network facility to collect &amp; treat sewage.</li> </ul>
Treatment Works	<ul style="list-style-type: none"> <li>• Provide suitable level of treatment of sewerage prior to discharge to environment</li> </ul>

The following matters have also been taken into account with development of the maintenance standards:

- Routine maintenance standards – routine maintenance, repair functions and standards, intervention levels and actions are based on risk assessment for a particular

<sup>3</sup> IPWEA NSW Guidelines and Practice Notes  
Sewerage Code of Australia

## Sewerage Asset Management Plan 2019 - 2023

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asset element. Standards vary across the network in line with relevant risk factors such as location to waterways, capacity of the network, the susceptibility of assets to deterioration, the cost effectiveness of repairs, and competing priorities for funding.

- Repair and maintenance works – routine maintenance and repair works are undertaken within a specified reasonable period of time having regard to intervention action priorities, and to specified standards.
- Temporary measures – temporary works to be undertaken to reduce the risk of an incident until such time as maintenance or repair works can be completed. Response times and measures (eg. warning signs, flashing lights, safety-barriers) are determined based on the risk to safety and the type, volume and nature of failure.
- Emergency works – works required to be undertaken immediately outside routine works programs to ensure the safety of the public as a result of emergency incidents. Emergency works include traffic incident management, major equipment failure, power failure, floods, storms and spillages.

The Sewerage Maintenance Plan (Under Development) details all planned and routine maintenance schedules that are in place for this asset class. As QPRC transitions towards a more proactive maintenance planning position, this document will be amended with additional inspections and routine maintenance work orders documented. It is envisaged that proactive inspections and maintenance activities will be delivered through Councils Enterprise Asset Management system's Mobility platform.

## 3 Future Demand

### 3.1 Demand Driver

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

### 3.2 Population Change

Queanbeyan-Palerang's population has been growing consistently around 2% per annum in previous years and in 2018 was 59,499. Over the life of this asset management plan, population is expected to continue to grow at a rate of 1.8% per annum.

Population growth will primarily occur in residential developments in Googong, South Jerrabomberra and Bungendore. This increase in population and dwelling growth will contribute to increased demand on the existing sewerage infrastructure assets requirements.

### 3.3 New Technology

Changes in technology may enable QPRC to better understand asset life and operation and maintenance requirements for its sewerage infrastructure assets.

New technologies that may impact the water infrastructure assets include:

- Better telemetry data being available and linking hydraulic models to provide real time operational information;
- Better and more reliable instrumentation to monitor system operation;
- Improved water efficient appliances and water management techniques to reduce sewer flows;
- Changes in sewage treatment systems and chemicals used to ensure the sustainability of the system; and
- Advances in WHS and assets used within the sewerage system.

### 3.4 Climate Change and Sustainability

Planning asset management activities will need to make allowances for potential climate change conditions. Some of the predicted impacts of climate change include:

- Lower annual rainfall – decrease in sewer inflows and infiltration
- Higher average temperatures – may increase odour issues
- More severe weather incidents (average v extreme conditions) – may increase risk of overflows occurring

## 3.5 New sewerage infrastructure assets from growth

Significant urban expansion has been planned over the life of this asset management plan that includes:

- Continued development of the Googong Township area
- Development of South Jerrabomberra/Tralee area
- Development of Bungendore

The new sewerage infrastructure assets will be acquired from developer contributions and will be delivered directly by Council to ensure the new developments are linked to existing infrastructure. Major sewerage infrastructure planned to be delivered by Council includes sewerage connection with Jerra Business Park, Captain's Flat & Queanbeyan sewage treatment plant construction/upgrade etc.

Additional assets will increase the obligation of ongoing maintenance & renewal costs.

Projected additional assets & their maintenance/renewal costs are summarised in section 6.

## 3.6 Demand Management Plan

QPRC's Asset Strategy outlines the following objectives that address demand drivers and align with cross border and regional infrastructure strategies and spatial asset planning.

- Manage asset backlog & risk
- Support connection of communities and health of the community, local economy and environment
- Sustainability cater for population growth and integrational equity
- Integrate with cross border infrastructure and align with regional infrastructure strategies
- Establish affordable and acceptable standards, including intervention levels, gifted assets from developments
- Plan assets spatially taking a corridor/network approach; and to analyse condition and failure.

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 the organisation 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<sup>4</sup>. Examples of non-asset solutions include providing services from existing infrastructure such as aquatic centres and libraries that may be in another community area or public toilets provided in commercial premises.

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<sup>4</sup> IPWEA, 2011. IIMM. Table 3.4.1

## 4 Lifecycle Management Plan

This section outlines asset performance and condition information, and uses Asset Management principles to develop broad strategies and works programs to achieve the required service standards.

It presents an analysis of the available information and the life cycle management plans covering the three key work activities to manage the sewerage infrastructure asset classes:

- Operations and Maintenance Plan - Activities undertaken to ensure efficient operation and serviceability of the assets. This will ensure that the assets retain their service potential over the course of their useful life.
- Renewal Plan - Provides a program of progressive renewal of individual assets. Deteriorating asset condition primarily drives renewal needs.
- Enhancement Plan - Provides a program of system enhancements to improve parts of the system performing below target service standards and to develop the system to meet any future demand requirements. Sub-standard asset performance primarily drives asset development needs.

### 4.1 Physical Parameters

Following are the summaries of sewerage infrastructure assets covered in this AMP:

**Table 3: Sewerage Infrastructure Asset Inventory Summary (as at 30 June 2019)**

Asset Type	Bungendore	Braidwood	Captains Flat	Queanbeyan	Googong	Total
Sewerage Connections	1,199	595	233	15,550	1,800	19,327
Sewer Mains - Gravity	44 km	21 km	7 km	329 km	38 km	439 km
Sewage Pumping Stations	10	7	1	15	2	35
Sewage Treatment Plants	1	1	1	1	1	5

## 4.2 Asset Age Profile

The age profile of the assets included in this AMP is shown in the figure below:

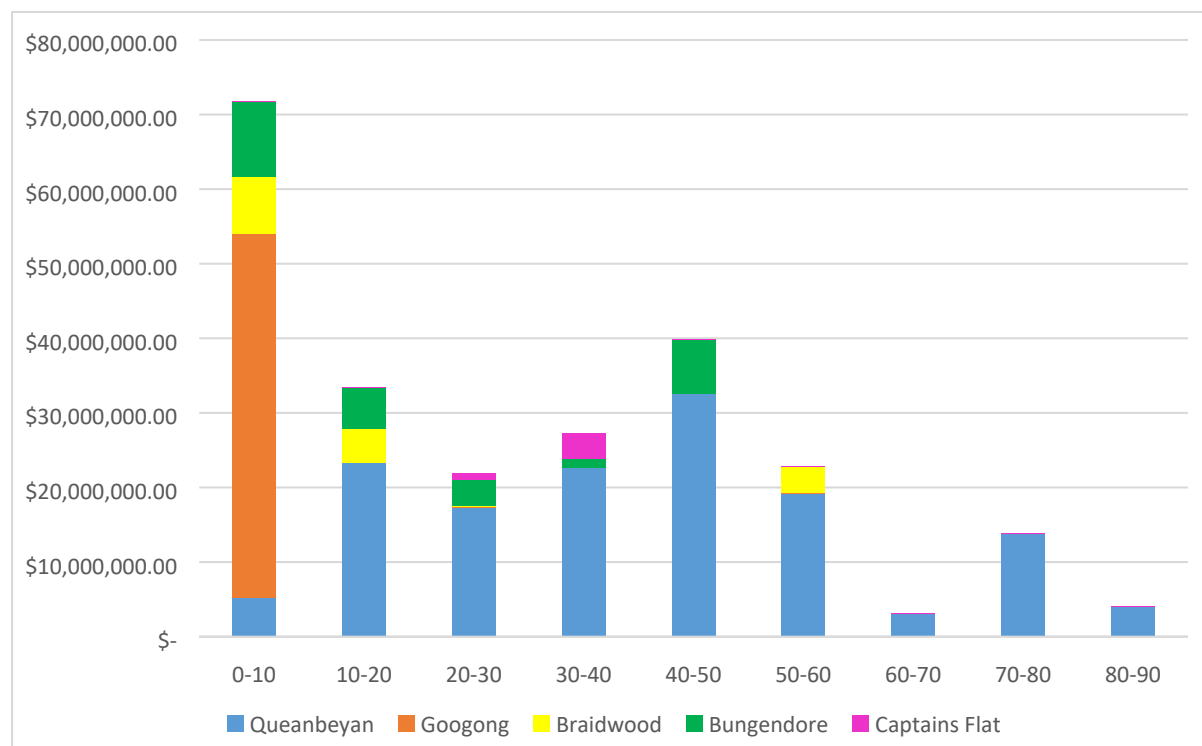


Figure 2: Asset age profile

## 4.3 Asset Capacity & Performance

Council’s sewerage infrastructure network services are generally provided to meet design standards and level of service.

Table 4: Known Service Performance Deficiencies

Asset Class	Service Deficiency
Customer Connections	Significant areas of faulty customer connections have been detected using smoke testing. Additional work is required to be undertaken to identify root cause of issues and to put in place corrective solutions to minimise infiltration/inflows to the sewer system.
Sewer System	<p>Accurate information regarding sewer capacity and performance is poorly understood. Hydraulic models exist for Queanbeyan only which are out of date and have not been validated. A new hydraulic model is required to be developed and calibrated to current conditions. Initially the models are required for the purpose of strategic planning only. Operational models will be considered in future.</p> <p>VC pipe is in operation in some areas of QPRC. These pipes may need replacing in the near future and will be subject to the development of a sewer main replacement program.</p>
Pump Stations	Most sewerage pumping station information is current, however additional asset collection/breakdown is required to gain a better picture of capacity and performance requirements. This will also input into hydraulic models to verify if pump selection is optimal.



# Sewerage Asset Management Plan 2019 - 2023

	<p>There are known issues associated with some pumping station switchboard condition and compliance with current safety standards.</p>
<p>Treatment Plants</p>	<p>Capacity and performance limitations have been identified at QPRC's 5 sewerage treatment plants.</p> <ul style="list-style-type: none"> <li>• Googong WRP will continue to be augmented to meet the requirements and demands placed on it by the ongoing development of Googong Village.</li> <li>• Queanbeyan STP is old and has many components that are in poor condition and are reaching the end of their useful life. As a result, a new STP is proposed to be constructed that will meet future capacity and modern performance in regards to sustainability, effluent quality, biosolid management and WHS.</li> <li>• Bungendore STP whilst reasonably new, will require additional augmentation to meet future population growth in Bungendore by approximately 2022.</li> <li>• Braidwood STP is considered of adequate capacity and is meeting performance requirements at present. A future augmentation will be required if growth continues.</li> <li>• Captains Flat STP is currently being refurbished to meet current technology and to reduce risk of performance issues occurring into the immediate future. Captains Flat capacity issues are not expected to occur and a decrease in EP may occur over the next decade.</li> </ul>

The above service deficiencies were identified from technical knowledge and expertise through existing AM systems and staff. Capacity and performance needs to be monitored and adjustments made as it is identified.

## 4.4 Asset Condition

Asset condition has been determined for QPRC's assets based on a combination of inspections, age profile and staff experience with the Asset Condition stored in the Asset Register against each asset. Council is committed to regular condition data collection in order to mitigate risk and to make informed decisions in accessing the whole of life costs for the asset.

Council has been carrying CCTV condition assessment for sewerage pipes for quite few years; and so far completed around 25% of the total network.

Council utilises the IIMM condition rating system of 1 – 5.

# Sewerage Asset Management Plan 2019 - 2023

Table 5 - Condition Rating Table

Condition Rating	Description of Condition
1	Excellent – As New
2	Good – Minor Defects Only
3	Average – Maintenance Required to Return to Acceptable Level of Service
4	Poor – Consider Renewal
5	Very Poor – Approaching Unservicable and Requires Replacement

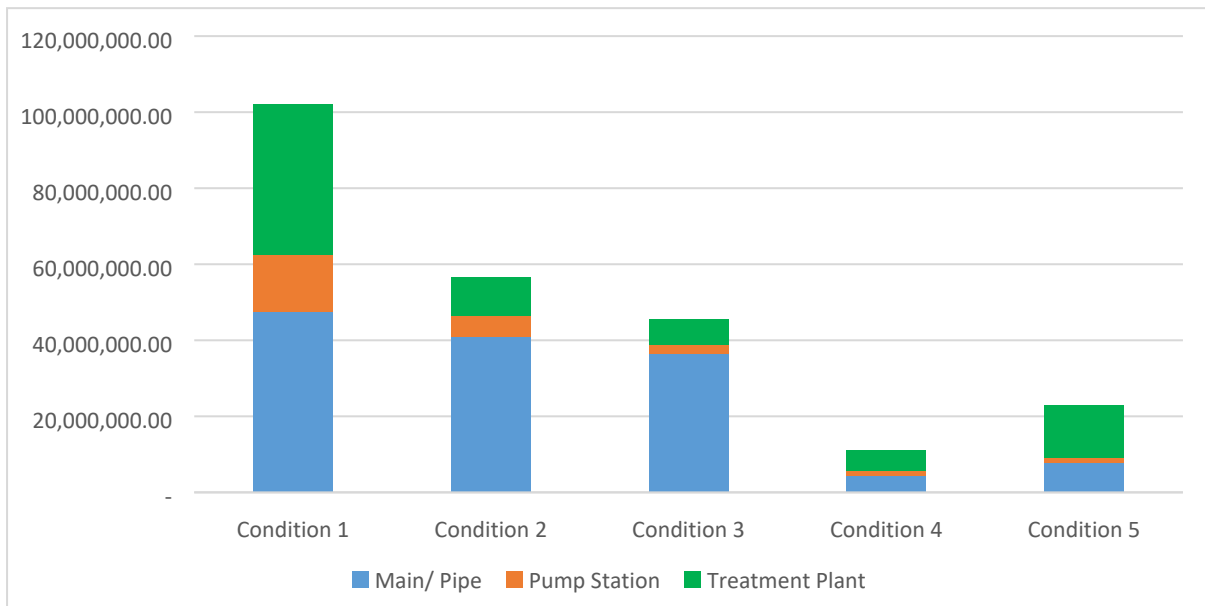


Figure 3: Asset condition

## 4.5 Asset Valuation

QPRC sewerage infrastructure assets were valued as at 12 May 2016 as part of the formation of Queanbeyan-Palerang Regional Council. An external valuation company conducted the asset valuation. Since the valuation date, additional assets have been realised and capitalised through QPRC's Capitalisation Directive and asset indexations applied according to the Australian Accounting Guidelines.

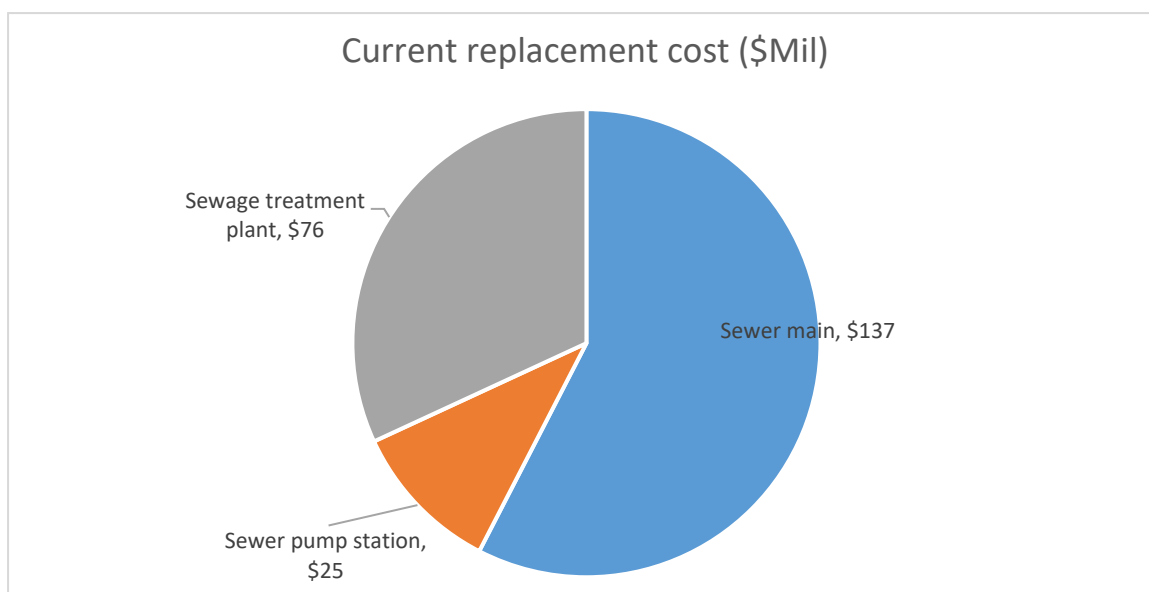


Figure 4: Asset valuation

## 4.6 Maintenance Plan

Maintenance planning is required to ensure that council are adequately managing its asset base in an optimal manner. The average expenditure on operational and maintenance activities for the sewerage infrastructure asset base was **\$3.09M (1.29% of Depreciable Value)**. Due to the current financial accounting system in operation, a reliable breakdown of operational versus maintenance costs is not available. Similarly, a split of maintenance costs for the various asset classes not fully understood.

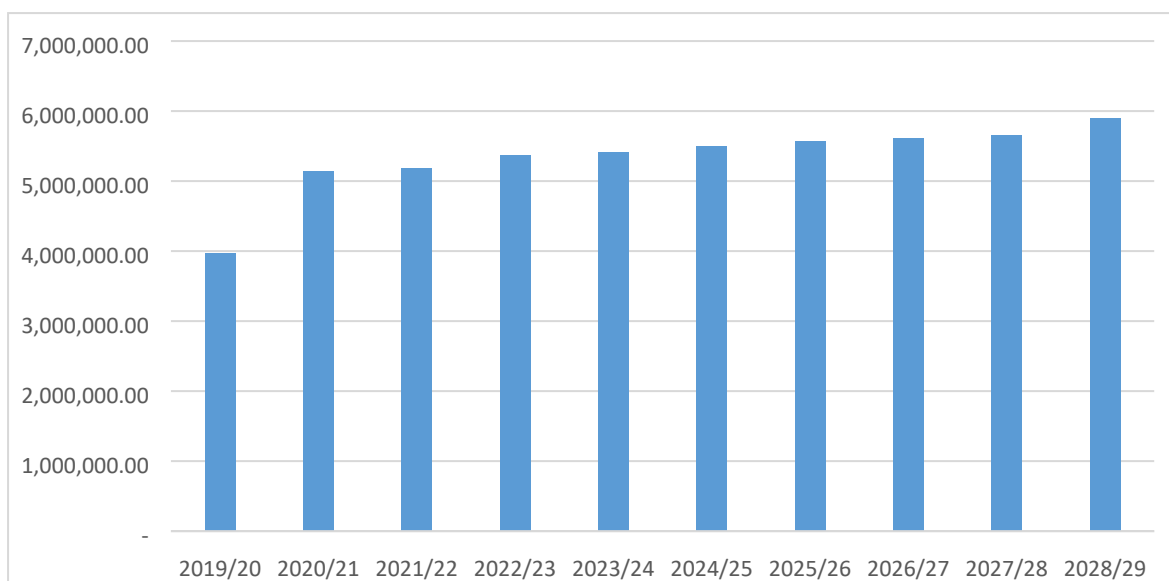
In future, Council is moving towards a work-order system that will allow maintenance costs to be more accurately captured directly against the assets which will enable a more transparent view of costs to be provided.

QPRC is endeavouring to improve its asset management practices to include more preventative maintenance activities. This includes developing scheduled inspections and maintenance tasks to reduce expensive reactive repair work.

As the work-order system develops, additional scheduled inspections and maintenance activities will be added further assisting in understanding maintenance requirements and reducing reliance on reactive repair work.

As highlighted in the community satisfaction survey (Section 2.1), the satisfaction rating for sewer services was reasonably high compared to other services provided by QPRC. This indicates that most customers are not impacted at present by any system issues.

# Sewerage Asset Management Plan 2019 - 2023



**Figure 5: Forecast O & M Expenditure**

Until a holistic picture can be provided on maintenance costs, future maintenance budgets will be increased between **2% - 3%** of depreciable value as a base figure.

If maintenance levels are decreased, there is a possibility that additional asset deterioration will occur and result in increased backlog of rehabilitation and/or replacement requirements to meet level of service requirements.

## 4.7 Renewal Plan

Renewal expenditure is major work that does not increase the asset's design capacity but restores, rehabilitates, replaces or renews an existing asset to its original service potential. Work over and above restoring an asset to original service potential is considered enhancement or new works expenditure.

Assets requiring renewal are identified from the following:

- Projected from the condition based remaining life calculation.
- Where condition data is not available; age & remaining useful life has been used to calculate.

Prioritisation of the renewal plan is based on an assessment of assets criticality in terms of importance and related risk. At present, QPRC determines priority based on past experience and knowledge of the asset networks.

Renewal works identified in terms of renewal strategies may be deferred if the cost (or aggregate cost) is beyond the current financial ability to fund it. This can occur when there are short term renewal profile peaks, or higher priority works are required on other infrastructure asset groups. When renewal works are deferred, the impact of the deferral on the assets ability to still provide the required level of service will be assessed. Although the deferral of some renewal works may not impact significantly on the short-term operation of the assets, repeated deferral will create a liability (backlog) in the longer term, which may impact on QPRC's ability to achieve an overall asset backlog of less than 2%.

# Sewerage Asset Management Plan 2019 - 2023

Table 6- Renewal Forecasting Method

Asset Class	Predictive Criteria Used	Model Used
Customer Connections	No predictive renewals undertaken	Not applicable
Sewers	Asset age and where provided, CCTV data	Remaining life and identified defects from CCTV
Sewage Pumping Stations	Asset age and visual condition inspection	Remaining life and identified pump issues/failures
Sewage Treatment Plants	Asset age and visual condition inspection	Remaining life and identified pump issues/failures

Major sewerage renewal projects identified to occur over the next 4 year period include:

- Captains Flat sewage treatment plant augmentation
- Sewer mains rehabilitation

## 4.8 Creation / Acquisition / Upgrade Plan

New works are those works that create a new asset that did not previously exist, or works which upgrade or improve an existing asset beyond its existing capacity. They may result from growth, social or environmental needs. Assets may also be required at no cost to the organisation from land development, or through 'gifts' provided to Council.

New assets and upgrade/expansion of existing assets are identified from various sources such as councillor or community requests, proposals identified by strategic plans or partnerships with other organisations.

All new assets created through Capital Project Work must have a business case developed justifying the requirement of the need as documented in QPRC's Capital Project Management Framework.

With the increased "Greenfield" land development that is occurring in Googong, Tralee, Braidwood and Bungendore, the value of new sewerage assets gifted to Council is expected to be approximately \$5 M average per year.

## 4.9 Disposal Plan

Disposal includes any activity associated with disposal of a decommissioned asset, including sale, demolition or relocation. During the course of renewal projects, some assets may be demolished, decommissioned and replaced with a new asset. This occurs during a sewer main replacement project where the existing sewer main is completely decommissioned and replaced with a new sewer main asset.

During asset capitalisation, any decommissioned assets or partially decommissioned assets will be identified and the financial values adjusted in-line with the approved accounting practices.

QPRC are currently undertaking the replacement of the Queanbeyan sewage treatment plant. The disposal of this asset is planned for 2020, as the new Queanbeyan sewage treatment plant becomes operational.

There are no other large value assets currently identified for disposal during this Asset Management Plan period.

## 5 Risk Management Planning

### 5.1 Critical Assets

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 information has been used for prioritising maintenance and renewal work. Mainly asset hierarchy has been considered as criticality ranking for this AMP. A further review of the asset criticality need to be conducted in the future revisions of this AMP.

Table 7 - Risk Management Plan

Asset Class	Critical Assets	Probable Event	Likelihood of Occurrence	Consequence	Risk Rating
Sewerage Network	Trunk sewers and rising mains from the sewage pumping stations	Failure of sewer pipe leading to inability to transfer sewage to STP	Possible	Extreme	Very High
Sewage Pumping Stations	Morisset Sewage Pumping Station	Complete failure of pumping station leading to overflows	Rare	Extreme	Very High
Sewage Treatment Plants	All	Partial failure of assets leading to major breach of licencing conditions	Possible	High	High

### 5.2 Infrastructure Risk Management Plan

Currently Sewerage Infrastructure Risk Management Plan is unavailable and will be developed in future revisions of this Sewerage Infrastructure AMP.

## 6 Financial Summary

This section contains the financial requirements resulting from all the information presented in the previous sections of this Sewerage Infrastructure AMP. The financial projections will be improved as further information becomes available on agreed level of service and current & projected future asset performance. The projections are based on the best available information and are aimed at giving a direction for the Long Term Financial Planning (LTFP).

### 6.1 Financial Statements and Projections

The financial history & projected expenditures (Operation, maintenance, renewal and new/enhancement) are shown below. Note that all costs are 2018/19 values.

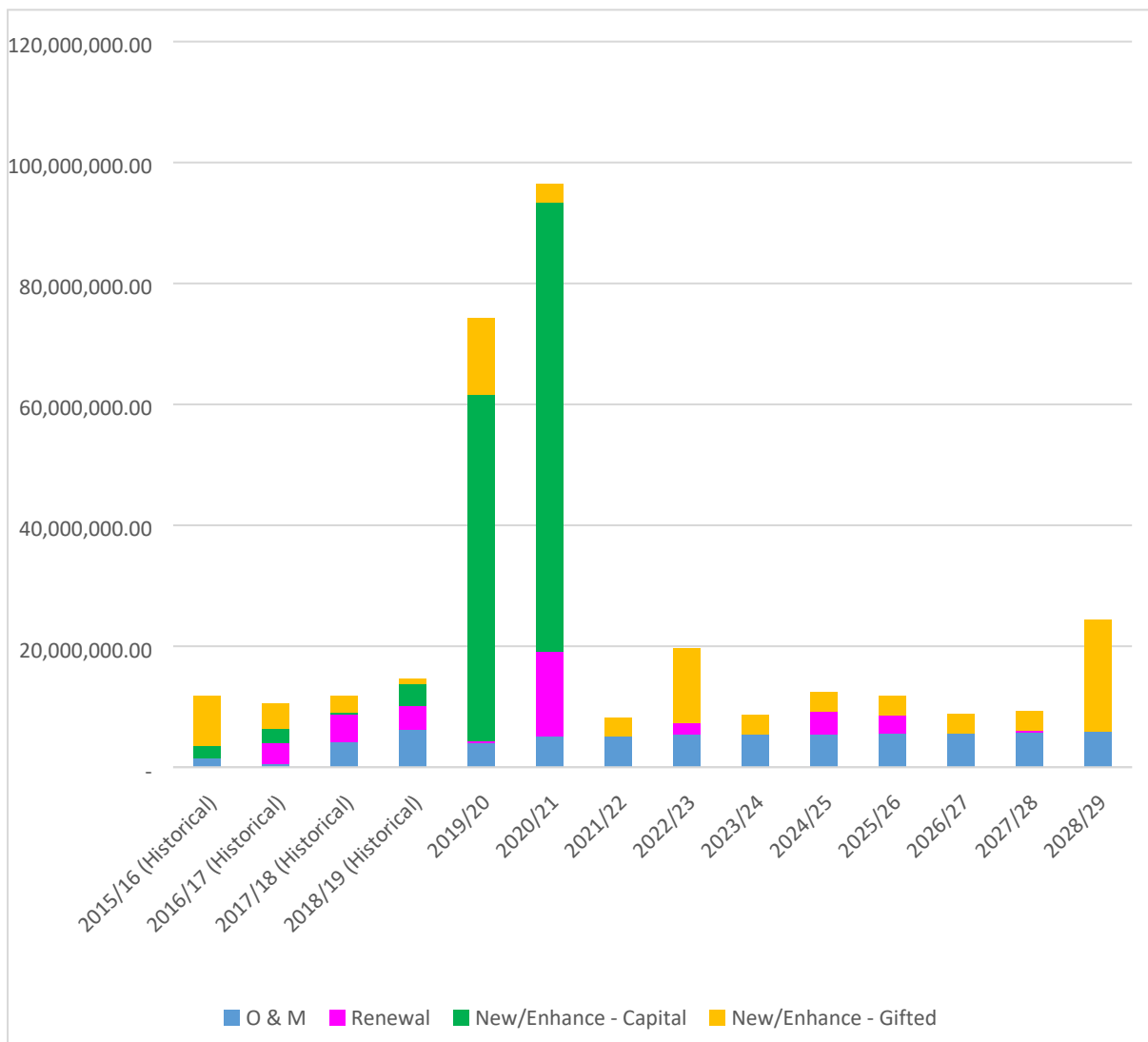


Figure 6: Summary of asset expenditure & gifted value (historical & predicted)



# Sewerage Asset Management Plan 2019 - 2023

## 6.2 Funding Requirements – Asset Replacement

In order to maintain a sustainable asset base, the funding required to replace aging and deteriorated assets should be sufficient to deliver an overall backlog of less than 2%. This will require Council to maintain an asset renewal expenditure ratio of 100%.

**Table 8: Renewal expenditure trends**

Renewal Expenditure (\$ '000)				
	2015/16	2016/17	2017/18	2018/19
Total Renewal expenditure	25	3,532	4,567	3,884
Total Annual depreciation	2,953	3,627	4,371	4,458
Renewal Expenditure Ratio %	1%	97%	104%	87%

Further financial indicators obtained through Council's requirements for reports against Special Schedule 7 in the Annual report provide indicator ratios on any asset funding gaps (backlog) and maintenance ratios.

**Table 9: SS7 Reporting**

SS7 Reporting (\$ '000)				
	2015/16	2016/17	2017/18	2018/19
Estimated Cost to bring to satisfactory standard	23,976	9,387	5,407	9,427
Net carrying amount	148,211	111,689	156,883	156,012
<b>Capital Funding Gap Ratio</b>	<b>16.2%</b>	<b>8.4%</b>	<b>3.4%</b>	<b>6.0%</b>
Required maintenance	11,154	696	4,967	4,854
Actual maintenance	1,531	548	2,025	3,552
<b>Maintenance Expenditure ratio</b>	<b>13.7%</b>	<b>79%</b>	<b>41%</b>	<b>73%</b>

QPRC's renewal expenditure has fluctuated as a result of the merger of Queanbeyan City Council and Palerang Council and the different methodologies used to record and monitor renewal costs. Generally, the adopted renewal ratio will be 100%. Renewal ratios will be monitored over the life of this Asset Management Plan and reported annually with the Financial Statements.

## 6.3 Funding Strategy

After reviewing service levels, as appropriate to ensure ongoing financial sustainability, projected expenditure in section 6.1 need to be accommodated in Council's LTFFP.

Potential funding sources include, but are not limited to:

- Operating revenue;

# Sewerage Asset Management Plan 2019 - 2023

- Grants;
- Developer contributions; and
- Loans.

## 6.4 Valuation Forecast

Asset values are forecast to increase as additional assets are added to the asset stock from construction and acquisition by Council and from asset constructed by land developers and others and donated to Council.

The figure below shows the projected sewerage infrastructure asset replacement cost, depreciated expense & depreciated replacement cost for the next 10 years in current 2019 dollar values. The valuation forecasts include developer contributions for Googong, South Jerrabomberra & Bungendore Development.

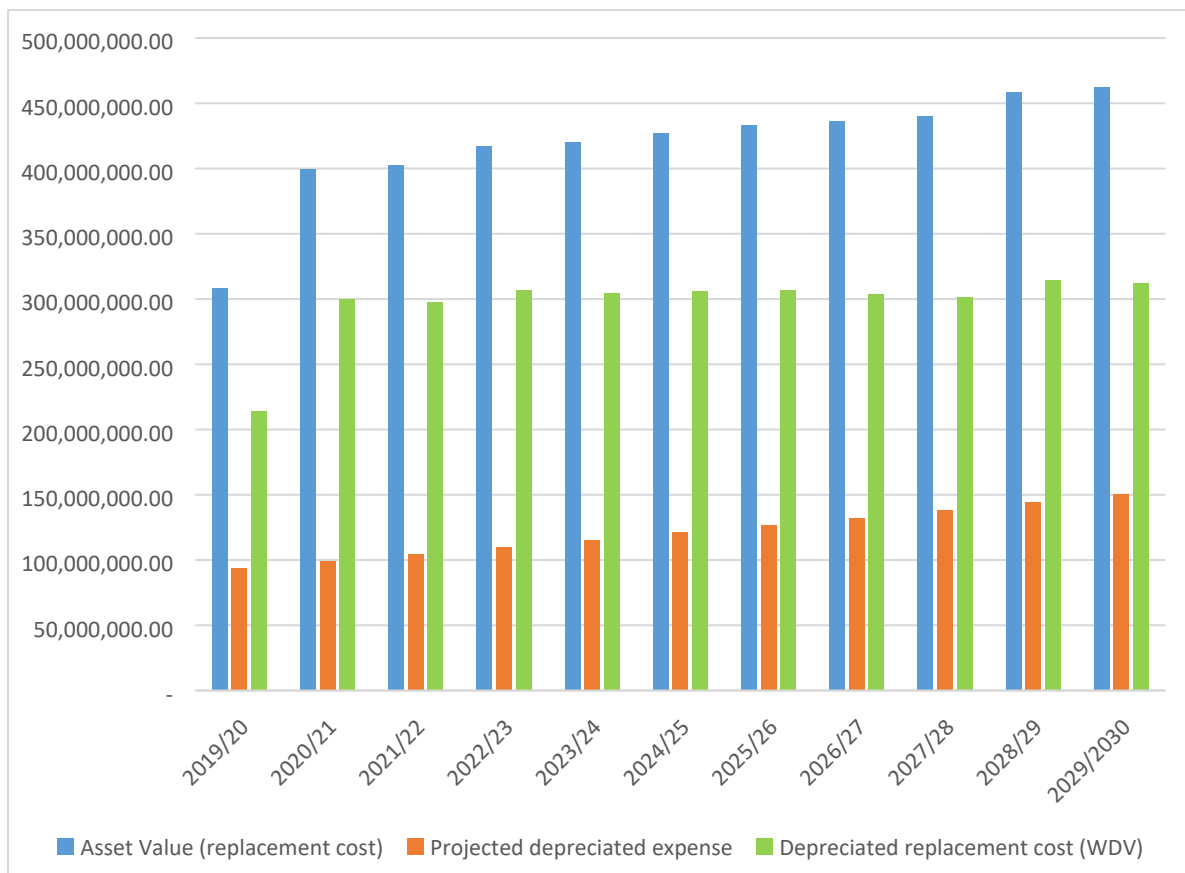


Figure 7: Projected value, depreciated expense and depreciated replacement cost

## 6.5 Key Assumptions made in Financial Forecasts

Key assumptions made in the preparation of the financial information in this Sewerage Infrastructure AMP are:

- All predicted costs stated are in current 2019 dollar values;
- Maintenance forecasts are based on maintaining current level of expenditure
- Renewal forecasts have been calculated based on available asset condition data, remaining life and asset criticality.

# Sewerage Asset Management Plan 2019 - 2023

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- Useful lives have been considered based on industry practice and IIMM guidelines.
- 12 May 2016 Valuation figures and thereafter indexation were adopted.

## 6.6 Forecast Reliability and Confidence

QPRC is a newly formed council from the amalgamation of two former councils. Two former councils had two different asset management information systems. After amalgamation we are having new asset management information system; where we are continuously refining our data.

The accuracy of the future financial forecasts may be improved in future revisions of this Sewerage Infrastructure AMP by the following actions:

- Improve asset condition data;
- Determine asset construction date;
- Refine intervention levels;
- Review and improve asset criticality;
- Implementing mobility system across all sewerage infrastructure assets will allow better prediction modelling

## 7 Plan Improvement and Monitoring

### 7.1 Improvement Plan

This asset management plan is to be continually reviewed and improvements made into how QPRC manages its asset base. The following actions have been identified in developing this asset management plan:

**Table 10: Sewerage asset management improvement plan**

Identified gap	Priority (High: 1 – 2 years; Medium: 2 – 4 years; Low: above 4 years)
Refine community levels of service including gaining community agreement to standard and key performance measurement	High
Review technical level of standards and ensure the standards reflect service levels, quadruple bottom line decision making and meets asset management requirements	Medium
Review business processes and update the Sewerage Maintenance Plans based on agreed community, technical and maintenance service standards	High
Develop a Sewerage Risk Management Plan and identify critical assets and response times	High
Review maintenance activities and develop schedules for inspections/routine maintenance tasks as required and document in maintenance plans.	Medium
Review asset register data structure and identify asset attribute data gaps	High
Continue to synchronise Asset Registers with GIS mapping functionality. This includes refining and harmonising GIS layers	High
Formalise condition assessment/inspection framework for all asset classes. Ensure condition data is less than 4 years old.	Medium
Ensure Gifted Assets correctly recorded and valued in Asset Registers	High

### 7.2 Monitoring and Review Procedures

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

Information used to support the AM Plan will be updated annually to ensure it represents the current service level, asset values, projected operations, maintenance, capital renewal and replacement, capital upgrade/new and asset disposal expenditures and projected expenditure values incorporated into the organisation's long term financial plan.

This Sewerage Infrastructure AMP has a life of 4 years (Council Election Cycle) and is due for revision and updating within 12 months of each Council election.

### 7.3 Performance Measures

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

## Sewerage Asset Management Plan 2019 - 2023

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- The degree to which the required projected expenditures identified in this Sewerage Infrastructure AMP are incorporated into council's long term financial plan,
- The degree to which 1-5 years detail work programs, budgets, business plans and organisational structures take into account the overall works program trends provided by this Sewerage Infrastructure AMP.
- Sufficient asset renewal funding (ratio with annual depreciation expense to be above 1.0) to target infrastructure backlog ratio of less than 2.0% is achieved by 2026.

## 8 References

IPWEA, 2015, International Infrastructure Management manual (IIMM), Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org.au/IIMM](http://www.ipwea.org.au/IIMM)

IPWEA, 2015, Australian Infrastructure Financial Management Guidelines, Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org.au/AIFMG](http://www.ipwea.org.au/AIFMG)

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Sewerage Code of Australia