SOUTH BURNETT
REGIONAL COUNCIL

ASSET MANAGEMENT PLAN

Water

27 May 2020

PO Box 336 Kingaroy Qld 4610 Phone 07 4189 9100 Facsimile 07 4162 4806

Email: info@southburnett.qld.gov.au www.southburnett.qld.gov.au

Document Control

Water Asset Management Plan					
Ver.	**Date**	**Revision Details**	**Author**	**Reviewer**	**Approver**
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Notes

1. Primary number changes to Versions (e.g. V1.00 to V2.00) will be made when the document undergoes its regular review and when significant changes are made to standards and guidelines for inspections, intervention levels or works.
2. Secondary number changes (V1.00 to V1.01) will apply to minor amendments that do not materially impact the documents and are intended only to clarify or update issues.
3. This template is based on the 2019 NAMSPLUS template purchased from the Institute of Public Works Engineering Australasia.

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Abbreviations

The following abbreviations are used in this document:

AC	Asbestos Cement
AMP	Asset Management Plan
ABS	Australian Bureau of Statistics
ADWG	Australian Drinking Water Guidelines
CAPEX	Capital Expenditure
CSS	Customer Service Standards
DWQMP	Drinking Water Quality Management Plan
FWP	Forward Works Plan
km	Kilometre
LCC	Life Cycle Cost
LCE	Life Cycle Expenditure
LoS	Levels of Service
MIPP	Maturing the Infrastructure Pipeline Program
ML	Megalitre
OPEX	Operations and Maintenance Expenditure
PVC	Polyvinyl Chloride
SBRC	South Burnett Regional Council
THM	Trihalomethane
QAO	Queensland Audit Office
PI	Performance Indicator
RUL	Remaining Useful Life
SL	Service Level
SWIM	Statewide Water Information Management
WTP	Water Treatment Plant
UL	Useful (Standard) Life
WAMMP	Water Asset Maintenance Management Plan

1.0 EXECUTIVE SUMMARY

1.1 The Purpose of the Plan

This plan covers the assets that provide potable and non-potable, bulk and service water services.

The purpose of this plan is to document current and required actions to sustainably provide Council-approved levels of service in the most cost-effective manner while appropriately managing the associated risks.

The plan sets out:

- What services Council provides, to whom and to what level.
- The whole-of-life costs of the assets used to deliver these services.
- The constraints, risks, challenges, opportunities and options associated with the delivery of these services.
- The level of funding required to sustainably deliver current levels of service for the foreseeable future.

1.2 Service Overview

Services included in this AMP are:

- Construction and maintenance services for:
  - Dams
  - Weirs
  - Bores
  - Treatment plants
  - Pump stations
  - Storage reservoirs
  - Water dispensing stations (standpipes)
  - Water mains

Water services excluded from this AMP are:

- Construction and maintenance services related to:
  - Internal water supply to Council properties and commercial enterprises (e.g., Recreation Areas, dams etc.)

1.3 Legislative Requirements

The pieces of legislation that inform and control how we deliver this service are shown in section 3.2 here.

1.4 Asset Description

Council's Water is comprised of the following assets:

Table 1: Water Asset Summary as at 30 June 2020

Asset Category	Number of Facilities	Current Replacement Cost	Accum. Depreciation	Written Down Cost
Water Transfer (above ground)				
Raw Water Pump Stations	27	$2,649,384	$951,912	$1,697,472
Water Dispensing Station (Standpipe)	4	$147,088	$24,403	$122,685
Treated Water Pump Stations	17	$2,726,386	$937,092	$1,789,294
Water Treatment and Processing (above ground)				
Treatment Plants	8	$42,032,608	$12,515,553	$29,517,056
Water Distribution (above ground)				
Distribution Trunk Mains	2	$361,586	$38,427	$323,159
Distribution Reservoirs	29	$12,256,189	$4,030,345	$8,225,844
Reservoirs*	1	$146,695	$30,370	$116,325
Water Source Storage and Supply (above ground)				
Bores	11	$939,506	$347,506	$592,000
Weirs	2	$9,399,631	$3,142,675	$6,256,956
Dams	2	$6,591,867	$3,284,604	$3,307,263
Water Bulk Storage and Supply (above ground)				
Reservoirs	10	$9,934,015	$4,211,447	$5,722,568
Water Distribution (below ground)				

Asset Category	Number of Facilities	Current Replacement Cost	Accum. Depreciation	Written Down Cost
Distribution Trunk Mains	Approx. 614[#] km	$122,865,176	$46,524,517	$76,340,659
Total cost:		**$210,050,130**	**$76,038,850**	**$134,011,280**

* Kumbia reservoir only

[#] 30% of the length (13% of CRC) comprises main less than 100 mm diameter

This asset class makes up 21.8% of the Council's total infrastructure asset stock (end June 2019 total replacement cost).

The past peaks of asset investment, e.g. 3 years ago approximately $15.5 million of above-ground assets and $14 to $15 million of below ground of assets 54 years ago, may require peaks in renewals in the future.

1.5 Levels of Service

The objective of water service provision is to:

- Provide safe, reliable and affordable water services to our communities as required under the Water Supply (Safety and Reliability) Act 2008, Local Government Act 2009 S97(2)(e).

The levels of service and standards are:

- Connected properties will receive good quality drinking water delivered under pressure, which is clear and has no obvious taste or smell
    - Treated water meets Australian Drinking Water Guidelines (ADWG), Qld. Government Water Quality and Reporting Guideline for a Drinking Water Service and Public Health Regulation 2005
    - No more than 10 water quality complaints about potable and 20 about non-potable per 1000 connections per year
    - No moderate/major public health incidents
- Connected properties can be assured of a continuous supply
    - Less than 15 breaks per 100 km of mains per year
    - No more than 20 unplanned interruptions per 1000 connections per year
    - Percentage of bursts and leaks responded to within 60 mins
- Council will provide a water supply service to meet current and planned demand.
    - At sufficient flow and pressure
    - At sufficient and appropriate locations for firefighting.

The main service consequences of the Planned Budget are:

- Ensuring a sufficient, safe and reliable water supply.

1.6 Future Demand

South Burnett and the surrounding region had an estimated population of 32,747 in 2016[1]. Using the medium series, the projected population will reach approximately 36,342 persons by the year 2036.

Total future population growth over the next 20 years is predicted to be 3,595 persons. This represents an 11% increase in the current population.

During the preparation of this plan, it was noted that the statistical projections from the Queensland Government Statistician's Office (QGSO) were significantly different from those used in the development of Council's *Local Government Infrastructure Plan* (LGIP).

Resolving this issue has been identified as an issue in the AMP Improvement Plan.

Council is currently developing a regional economic development strategy and strategic regional Water plan with Wide Bay Burnett Regional Organisation of Councils. This AMP will be reviewed following the completion of these documents.

The primary drivers of demand for this service are:

- Population change
- Industrial demand
- Customer preferences and expectations
- Health regulations
- Technological changes

These 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.

- Water Restrictions Policy
- Water-saving initiatives and devices focused on efficiency
- Recycled water

1.7 Asset Lifecycle Management Plan

1.7.1 What does it cost to provide the current level of service?

The forecast lifecycle costs necessary to provide the services covered by this Asset Management Plan includes operation, maintenance, renewal, acquisition, and disposal of assets over the 20-year planning period is approximately $224 million ($11,202,313 on average per year). In comparison, Council's planned expenditure is a sufficient $233.4 million ($11,668,398 on average per year).

1.7.1.1 Operations and Maintenance (OPEX)

Operations

The average annual operations cost for water assets is approximately $6 million per annum, and this is an acceptable 2.6% of the average current replacement cost of these assets.

Maintenance

[1] 'Projected population by local government area, Queensland, 2016 to 2041' Queensland Government Statistician's Office.

The forecast average annual maintenance cost for water assets is approximately $2.4 million per annum, and this is 1.1% of the average current replacement cost of these assets.

The SWIM reported OPEX for 2018/2019 equates to approximately $600 per connection.

As a benchmark, the SWIM reported median OPEX of other Queensland Councils was $632 per connection.

Council's marginally lower than median annual OPEX is attributable to:

- Diverse network assets
- Multiple supply areas and sources with geographically remote service areas
- Relatively young network assets – average age 36 years and remaining life 63 years
- Large service areas with proportionally low connections per kilometre of main.

1.7.1.2 Capital (CAPEX)

At present, there are few projects in the forward works program beyond year 10 due to a lack of information for decision making. This will change when Council includes recommendations from MIPP on new and upgrade projects and renewals from this AMP.

Renewals

Council's 20-year planned asset renewal forecast (forward works program) for Water assets is approximately $29.5 million over the next 20 years, which is 14% of the current replacement cost. This compares to $33.2 million of forecast renewals resulting from recent condition assessment and remaining life estimations for 2020 water valuations.

The breakup of Council's planned 20-year Water asset renewals is as follows:

- $11.8 million for Gordonbrook Dam spillway widening (2023/20024)
- $9.4 million for distribution mains
- $3.3 million for reservoirs
- $5 million for raw or filtered water storage Blackbutt (2031/2032)

New and Upgrade Capital Works

Planned new and upgrade Water works (forward works program) over the next 20 years total approximately $22.4 million. This amounts to an 11% increase on current replacement cost. This will change when Council includes in the FWP recommendations from the MIPP. The current 10-year program was conservative until the results of this study are obtained.

1.8 Financial Summary

1.8.1 What we will do

Estimated available funding (excluding depreciation) for the 20-year period is approximately $233.4 million or approximately $11.7 million on average per year as per the long-term financial plan or budget forecast. This is 4% more than the cost (approximately $224 million) to sustain the current level of service at the lowest lifecycle cost while effectively managing risk.

The reality is that only what is funded in the long-term financial plan can be provided. The emphasis of the Asset Management Plan is to communicate the consequences that this will have on the service provided and risks, so that decision making is informed.

The anticipated planned budget leaves a surplus of approximately $0.5 million on average per year of the forecast lifecycle costs required to provide services in the Asset Management Plan compared with planned budget currently included in the Long-Term Financial Plan. This is shown in the figure below.

1.8.1.1 Forecast Lifecycle Costs and Planned Budget

Figure 1: 20-Year Lifecycle Summary

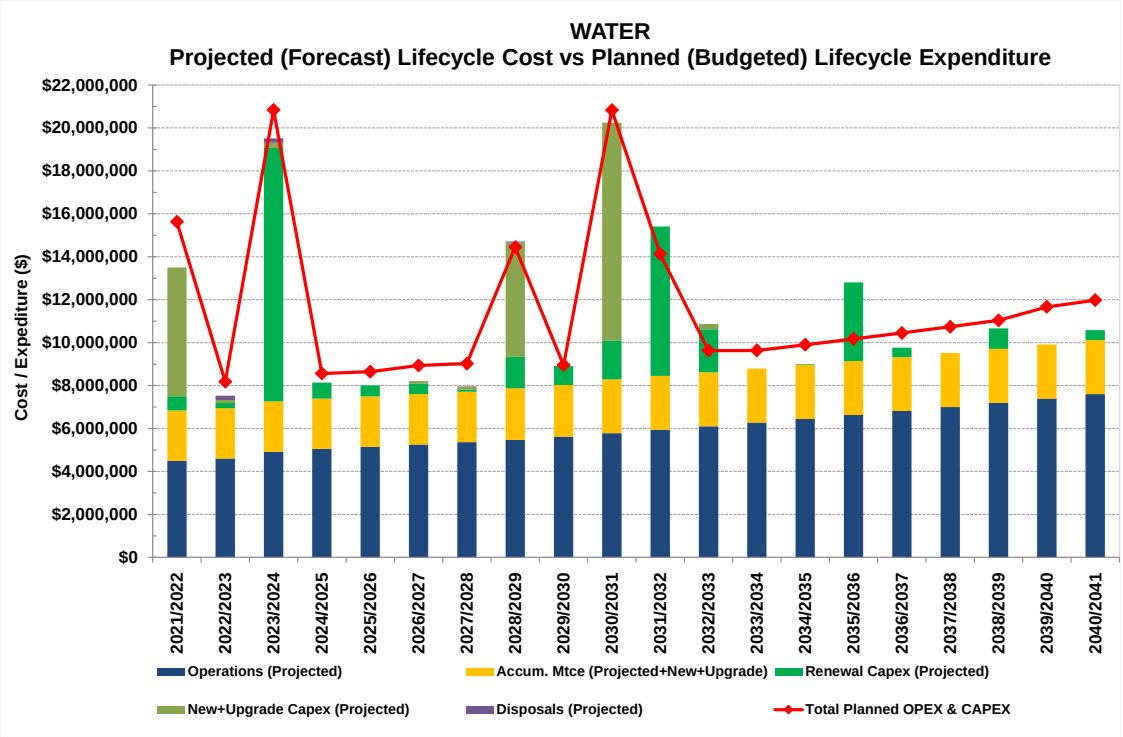


Figure Costs are in current (real) dollars.

We plan to provide the following:

- Operation, maintenance, renewal, new and upgrade of water assets to meet service levels set by in annual budgets.

  The renewals within the first 10 years include for:

  - Distribution Mains ($300,000 plus) –
    - Main Replacement and Upgrade at Kingaroy $548,000 [2022/2023]
    - D'Agular Hwy (Drayton to Racecourse Road) at Nanango $1,008,000 [2023/2024]
    - Harris Road (Walter to Silky Oak) at Kingaroy $700,000 [2030/2031]
    - Rising Main (Harris to New Reservoir) at Kingaroy $320,000 [2030/2031]
    - Fisher Street Pump Station (Cnr Fisher St and Haly St) at Kingaroy $320,000 [2030/2031]
  - Reservoirs –
    - Kingaroy Hts 0.5 ML Replacement Reservoir at Kingaroy $1,000,000 [2021/2022]
    - Reservoir 1 ML Replacements at Proston $1,200,000 [2021/2022]
    - AC pipework Scott St Res at Wondai $50,000 [2021/2022]
    - AC pipework Hospital Res at Nanango $50,000 [2021/2022]

- Kingaroy Heights 2 x 0.5 ML Reservoirs Reline at Kingaroy $500,000 [2024/2025]
- Premier Drive 1 ML Storage Reline at Kingaroy $500,000 [2025/2026]

- Raw Water Pump Station –
  - AC pipework Old Raw Water PS at Blackbutt $50,000 [2021/2022]
- Dams
  - Gordonbrook Dam Spillway Widening, Kingaroy $11,800,000 [2023/2024]

The new and upgrade works over the 20 years include for:

- Additional water allocation purchase (up to 1500 ML required for Kingaroy) $2,000,000 [2021/2022]
- Distribution Reservoirs –
  - Mt Wooroolin, Kingaroy $4,000,000 [2021/2022]
  - Water Storage, Kingaroy $5,000,000 [2028/2029]
- Distribution Trunk Mains –
  - Main Replacement & Upgrade, Kingaroy $137,000 [2022/23]
  - D'Agular Hwy (Drayton to Racecourse Road), Nanango $252,000 [2022/2023]
  - D'Agular Hwy (Drayton to Racecourse Road), Nanango $252,000 [2023/24]
  - Scott St Trunk Upgrade (Scott St Res to Haley St), Wondai $106,000 [2026/2027]
  - Haly St (Kingaroy St to Fisher St), Kingaroy $65,000 [2027/2028]
  - Jarrah St (Haly to Sommerset), Kingaroy $21,000 [2027/2028]
  - Sommerset St (Alford to Knight), Kingaroy $54,000 [2027/2028
  - Walter Road (Knight to Harris), Kingaroy $58,000 [2028/2029]
  - Replacement 'Scott St Trunk Upgrade (Haley St to Burrows St), Kingaroy $260,000 [2028/2029]
  - Rising Main (Harris to New Reservoir), Kingaroy $80,000 [2030/31]
  - Fisher Street Pump Station, Kingaroy $80,000 [2030/31]
- Weirs
  - Proston Weir possible ownership change as backup, Proston $250,000 [2032/33]
- McCauley Weir, rising main, pump stations and treatment facilities, main to Boondooma Dam pipeline, Nanango $10,000,000 [2030/2031]

1.8.2 What we cannot do

We currently allocate enough budget to sustain these services at the specified standard or to provide all new services being sought.

1.8.3 Managing the Risks

Our present budget levels are sufficient to continue to manage risks in the medium term.

1.9 Asset Sustainability Assessment

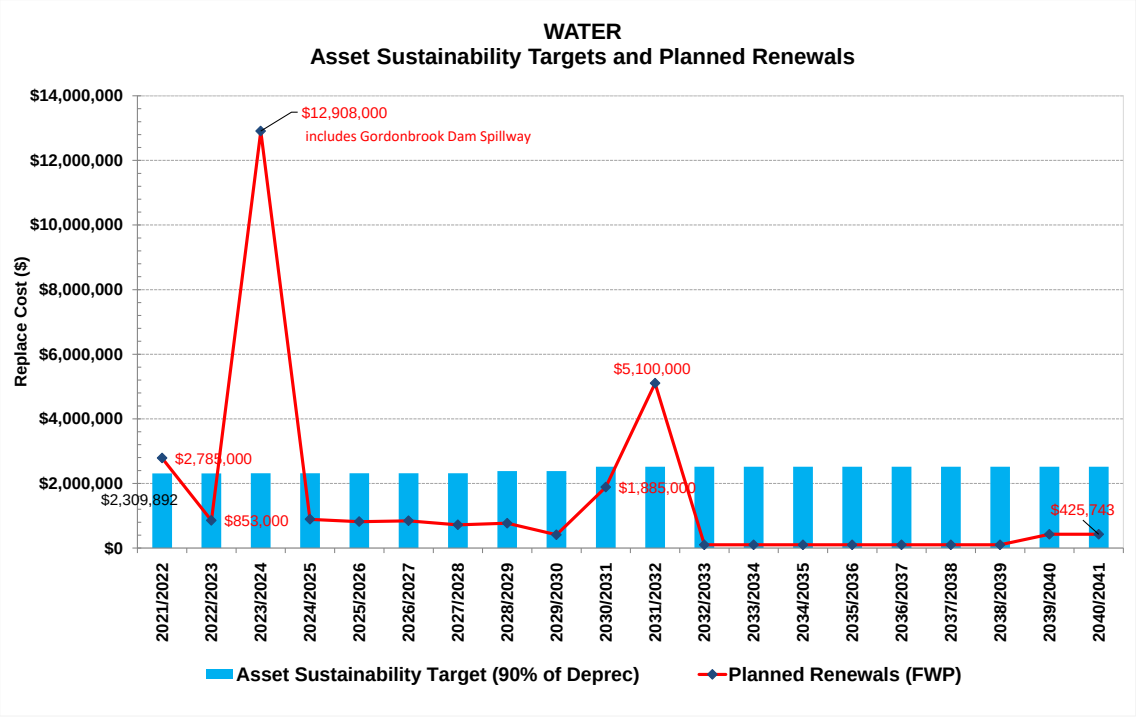
Based on current levels of service and funding, this service is financially sustainable in the medium term (i.e., next 10 years).

Over 10 years, the sustainability target is an average annual $2.4 million compared to planned renewals expenditure of approximately $2.3 million.

Over 20 years, the sustainability target is an average annual $2.43 million compared to planned renewals expenditure of approximately $1.5 million.

The diagram below shows that planned asset renewal expenditure in several years, particularly the second decade, is expected to be below the target of 90% of depreciation. Increased renewals expenditure will likely be required to avoid a decline in service levels.

Figure 2: Asset Renewal Investment Planned Against Target



1.10 Asset Management Practices

Our systems to manage our Water assets include:

- *TechnologyOne* asset management system and financial management systems
- *MapInfo* geographical information system (GIS)

Assets requiring renewal/replacement are identified by analysing asset condition. The method used is described in Section 6.2 here.

1.11 Monitoring and Improvement Program

The next steps required to improve asset management practices are shown in Section 10.4 here. The key elements of this improvement plan are:

- Review asset register data accuracy via review of actual plans and historical data
- Confirm Assets for Renewals in Forward Budgets
- Prepare and prioritise 3-year rolling renewals program
- Confirm New and Upgrade Capital Works Projects in Forward Budgets after additional analysis, review and financial modelling
- Review Capital Works Budgeting and Financial Capacity
- Implement an improved Capital Works Delivery process from inception to delivery
- Monitor and confirm operations and maintenance spend
- Confirm condition/performance of assets through coordinated asset inspection program and repair analysis.
- Condition assess critical below ground mains through co-ordinated asset inspection program.
- Identify critical assets and asset risk profile
- Implement 2019 DWQMP Recommendations
- Document Maintenance Management Strategy and Schedule
    - Document Maintenance Management Activities
- Develop Critical Spares Inventory Management System
- Asset Register/GIS Updates and Improvements Process
- Improve ‘As Constructed’ Data Capture procedure
- Define Staff Roles and Responsibilities

2.0 Introduction

2.1 Background

This Asset Management Plan communicates:

- the requirements for the sustainable delivery of Water services through management of assets, risk and compliance with regulatory requirements; and
- the required funding to provide the specified levels of service over the long-term planning period.

The Asset Management Plan should be read in conjunction with other Council planning documents, namely:

- Asset Management Policy (2019)
- Asset Management Strategy (2018)
- Asset Management Governance Framework (2019)
- Operational Budget – Water (2020)
- Water 10 yr Capital Works
- Long Term Financial Plan.

Council owns and maintains dams, weirs, bores, treatment plants, pump stations, storage reservoirs, water dispensing stations (standpipes) and water mains that provide Water services to the entire South Burnett region.

Figure 3: South Burnett Region

This Asset Management Plan covers the major asset types that make up Council's Water network/portfolio. These assets are used to provide potable and non-potable, bulk and service water services.

A detailed profile of the assets covered in this Asset Management Plan is shown in Section 5 here.

The infrastructure assets included in this plan have a total replacement cost of $210,050,130.

Council's asset management maturity level concerning its Water services has not been assessed. The2018 Asset Management Review and maturity assessment identified the biggest gaps were in the Key Areas:

- Asset Management Plans
- Level of Service
- Skills

- Processes and Evaluation.

On-going investment and support are required to improve our asset lifecycle and information management practices for water services. This investment will enhance the quality of future iterations of this plan.

2.2 Goals and Objectives of Asset Ownership

Our goal in managing assets is to sustainably meet the defined level of service (as amended from time to time) in the most cost-effective manner while adequately controlling the risks associated with delivering those services.

The key elements of infrastructure asset management are:

- Providing a defined level of service and monitoring performance;
- Managing the impact of growth through demand management and infrastructure investment;
- Taking a lifecycle approach to developing cost-effective management strategies for the long-term that meet the defined level of service;
- Identifying, assessing and appropriately controlling risks, and
- Linking to a long-term financial plan which identifies required, affordable forecast costs and how it will be allocated.

2.3 Planning framework

Key elements of the Asset Management Planning framework required to deliver on these goals are:

- Levels of service – specifies the services and levels of service to be provided,
- Future demand – how this will impact on future service delivery and how this is to be met,
- Lifecycle management – how to manage its existing and future assets to provide defined levels of service,
- Financial summary – what funds are required to provide the defined services,
- Asset management practices – how we manage the provision of the services,
- Monitoring – how the plan will be monitored to ensure objectives are met,
- Asset management improvement plan – how we increase asset management maturity.

Other references to the benefits, fundamentals principles and objectives of asset management are:

- International Infrastructure Management Manual 2015[2]
- ISO 55000[3] International Asset Management Standard

2.4 Core and Advanced Asset Management Planning

The concepts of ‘core’ and ‘advanced asset management are discussed in Section 4.2.1 of the International Infrastructure Management Manual 2015.

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[2] Based on IPWEA 2015 IIMM, Sec 2.1.3, p 2| 13

[3] ISO 55000 Overview, principles and terminology

As a ‘core’ Asset Management Plan, this document includes:

- a review of strategic trends facing the Council and potential impacts on the asset stock, asset condition and performance against key indicators;
- long term financial forecasts for the 20-years from 2021/22 to 2040/41;
- an assessment of the financial sustainability of the assets included in this plan; and
- an improvement plan for managing the assets.

The financial implications of providing the specified levels of service into the future are also provided in a separate spreadsheet model that accompanies this Asset Management Plan.

However, the following caveats should be noted about the quality of information contained in this initial plan:

- Council’s Planned (i.e. Budgeted) CAPEX is derived from the current (April 2020) FWP.
- Council’s Planned (i.e. Budgeted) Opex is based on water operational budget as at April 2020.
- Forecast renewals are derived from valuations as at 30 June 2020 based on Asset register as at April 2020].

Notwithstanding these caveats, the benefits of this plan are:

- It will assist Council to make informed decisions about its Water assets;
- It documents Council’s current methodology for managing the Water assets across the asset lifecycle;
- It identifies opportunities for improvement in the way Council operates and manages its Water;
- It documents Council’s plan for improving its management practices of Water assets;
- It provides an initial assessment of the financial sustainability of the current Water levels of service.
- Future versions of the plan will contain refined asset lifecycle cost forecasts based on improved asset data.

2.5 Stakeholders

Key stakeholders in this Asset Management Plan are shown below:

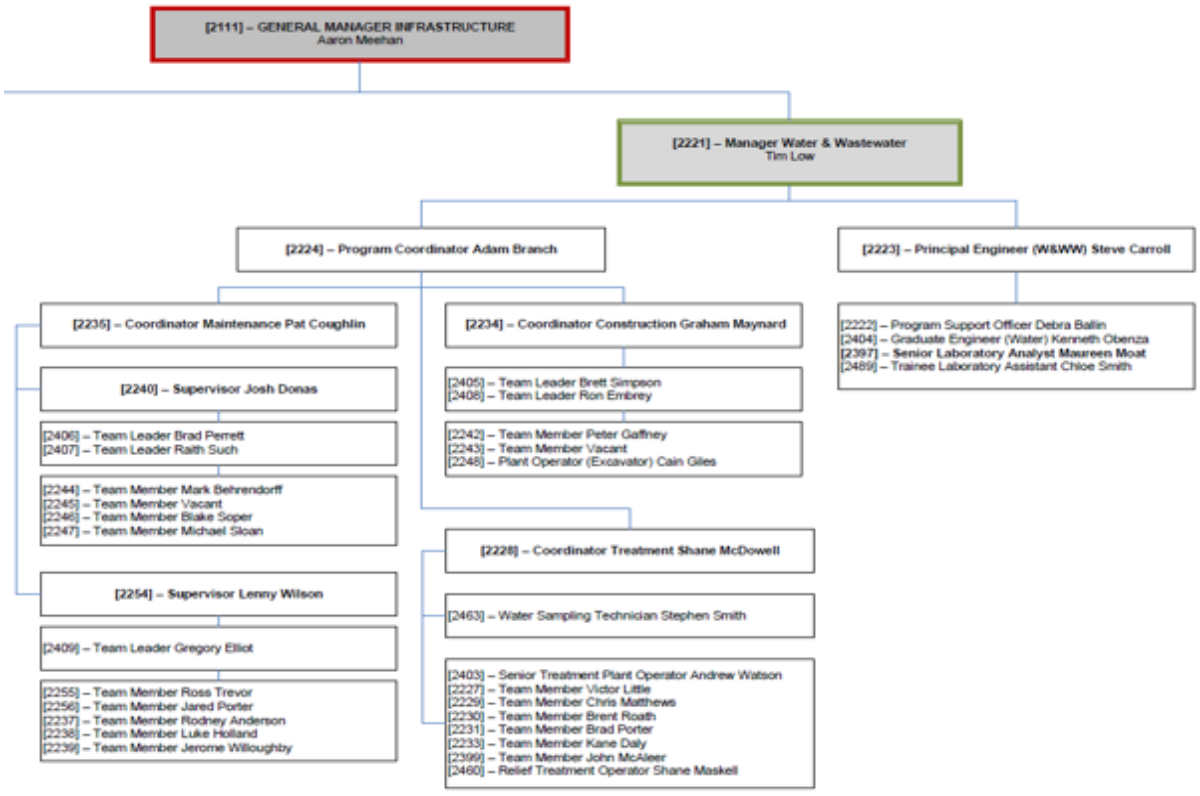
Table 2: Key Stakeholders in the Asset Management Plan

Key Stakeholder	Role in Asset Management Plan
Councillors	• Stewards of the community's resources and assets. • Represent the needs of the community and their service level expectations. • Endorse asset management policy and plans. • Ensure the organisation is financially sustainable.
Chief Executive Officer (CEO)	• Overall responsibility for developing an asset management policy, plans and procedures and reporting on the status and effectiveness of asset management within Council. • Allocate resources to meet the organisation's objectives in providing approved levels of service while managing risks; • Ensuring the organisation is financially sustainable.
Asset Management Group	• Custodian of the corporate asset register for Water assets and ensuring the asset valuations are accurate; • Preparation of asset sustainability and financial reports incorporating asset depreciation in compliance with current Australian accounting standards; • Asset Management System and Geographic Information System development and administration; • Develop 10 Year Capital Works Plans and budgeting; • Ensure approved funds are applied appropriately to ensure best value for money is delivered to the community; • Develop the maintenance standards required, so Council meets the specified technical and community levels of service.
Staff	• Verify the size, location, condition and performance of assets. • Provide local knowledge/history about Water assets. • Perform Capital Works, Operation and Maintenance activities as directed to meet agreed levels of service; • Liaison internally with the Senior Management Team around asset activity prioritisation and planning.
The community (residents, businesses, property owners), Developers, Consultants/Contractors)	• Be informed of service levels, risks and associated costs. • Participate in consultation processes. • Provide feedback on the quality and value for money of Council's services.
State and Federal Government	• Provide Leadership in promoting Best Practice Asset Management. • Recognising the importance of local government assets to the community.

Key Stakeholder	Role in Asset Management Plan
	• Contribute funding to support the provision, maintenance and renewal of community assets.

Our organisational structure for service delivery for Water assets is detailed below.

Figure 4: Water-Related Business Functions



2.6 Customer Research and Expectations

Council currently gauges customer satisfaction and expectations around Water levels of service through:

- Analysis of customer service requests.
- Gathering stakeholder feedback during community Listening Tours.

Future revisions of the Asset Management Plan will incorporate customer consultation mechanisms around service levels and costs of providing the service. This will assist the Council in matching the service types, levels, risks and consequences with the community's ability and willingness to pay for these services.

3.0 LEVELS OF SERVICE

3.1 Strategic and Corporate Goals

This Asset Management Plan has been prepared in accordance with the South Burnett Regional Council vision, mission, goals and objectives as set out in the *Corporate Plan 2018/19 to 2022/23*.

Our organisational mission is:

South Burnett Region, working together building a strong, vibrant and safe community

Council has articulated five strategic priorities in the Corporate Plan 2018-2023, namely:

- Enhancing our Community
- Growth and Opportunity
- Our Environment
- Infrastructure
- Organisational Excellence

Our vision for Council's Water assets is:

The provision of quality services and infrastructure for our community that is planned, provided and managed on sound asset management principles

Our goals and objectives for Water assets (and how these are addressed in this Asset Management Plan) are summarised below.

Table 3: Water Service Goals[4]

Goal	Objective	How Goal and Objectives are addressed in the Asset Management Plan
INF1 Infrastructure that meets our communities needs	INF1.1 - Provide and maintain water infrastructure in accordance with sustainable asset management practices	Planned (budgeted) life cycle expenditure (OPEX and CAPEX) is compared to forecast costs needed to minimise the life cycle costs associated with the service provision
	INF1.2 - Provide and maintain financially sustainable utility infrastructure in accordance with asset management practices	Future planned renewals are compared to the asset sustainability target set by the State (i.e., 90% of asset class depreciation).
	INF1.3 - Provide and maintain other Council owned infrastructure to meet community needs in accordance with asset management practices	Not Applicable

[4] From the Corporate Plan 2018 - 2023

3.2 Legislative Requirements

Legislative requirements that impact the delivery of the Water service are outlined below.

Table 4: Legislative Requirements

Legislation	Requirement
Local Government Act 2009 & Local Government Regulation 2012	Sets out role, purpose, responsibilities and powers of local governments, including the preparation of a long term financial plan supported by Asset Management Plans for sustainable service delivery. The Local Government (Finance, Plans & Reporting) Regulation is subordinate legislation.
Work Health and Safety Regulation 2011	The objective of this Act is to prevent a person's death, injury or illness being caused by a workplace, by a relevant workplace area, by work activities, or by plant or substances for use at a relevant place. Sets out roles and responsibilities to secure the health, safety and welfare of persons at work.
Australian Accounting Standards	Comply with national accounting standards in relation to how Council's assets are valued and reported in its financial accounts.
Electrical Safety Act 2002 and Regulation 2013 (Qld)	This Act is directed at eliminating the human cost to individuals, families and the community of death, injury and damage/destruction of property that can be caused by electricity.
Environmental Protection Act 1994	The object of this Act is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development). Services to conform to state-wide integrated conservation strategy. Responsible for the protection of air quality and the control of pollution, waste, noise and radiation.
Public Health Act 2005 and Public Health Regulation 2018	The Act is aimed at protecting and promote the health of the Queensland public by preventing, controlling and reducing risks to public health, providing for the identification of, and response to, notifiable conditions / public health emergencies
Plumbing and Drainage Act 2018 and Regulation 2019	The Act aims to regulate the carrying out of plumbing and drainage work in a way that reduces risks to public health and safety, and the environment. This is achieved by establishing a licensing scheme to ensure all plumbing or drainage work, other than unregulated work, is carried out by persons who are qualified to carry out the work; requiring plumbing or drainage work to be carried out in compliance with the code requirements for the work and establishing a framework for approving particular plumbing.
Telecommunication Act 1997	The Act regulates the activities of a number of participants in the telecommunications industry, including 'carriers' and 'carriage service providers'.

Legislation	Requirement
Australian Radiation Protection and Nuclear Safety Act 1998	The object of this Act is to protect the health and safety of people and to protect the environment, from the harmful effects of radiation. It established a regime to regulate the operation of nuclear installations and the management of radiation sources, where these activities are undertaken by Commonwealth Government entities
Water Fluoridation Act 2008 and Water Fluoridation Regulation 2008	The object of this Act is to promote good oral health in Queensland by the safe fluoridation of public potable water supplies. It outlines requirements relating to the decision to fluoridate or not and requirements for the addition of fluoride to a public potable water supply
Civil Liability Act 2003 and Civil Liability Regulation 2014	To manage negligence, elements of a claim, duty of care, standard of care and causation and to address the requirements of sections 35 and 37.
Queensland Competition Authority Act 1997 (Qld)	The Queensland Competition Authority (QCA) to develop criteria to assist the Premier and the Treasurer (the Ministers) in deciding whether to declare a government business activity to be a government monopoly business activity. QCA ensures monopoly businesses operating in Queensland, particularly in the provision of key infrastructure, do not abuse their market power through unfair pricing or restrictive access arrangements. Achieved through investigating and monitoring pricing practices of certain monopoly businesses and regulating third-party access to essential infrastructure.
Water Act 2000	Sustainable management of sewerage and other resources. The regulatory framework for providing water and sewerage services. Delivery of service to conform to regulatory requirements. This includes regulating the management, control and removal of asbestos in the workplace (including residential premises which are a 'workplace' when work is below taken by a contractor).
Water (Safety and Reliability) Act 2008	A regulatory framework for providing safe and reliable water and sewerage services in the State, including functions and powers of service providers, a regulatory framework for providing recycled water, primarily for protecting public health and protecting the interests of customers of service providers. Since 2014 specific changes to the Act were enacted aimed to simplify regulatory requirements. The Council is required to collect data (SWIM) on a pre-determined list of key performance indicators and submit to the regulator each year on or before 1 October a performance report about each of the indicators each financial year occurring immediately after the financial year ends.

3.3 Customer Values

Service levels are defined in three ways, customer values, customer levels of service and technical levels of service.

Customer Values indicate:

- what aspects of the service are important to the customer,
- whether they see value in what is currently provided and
- the likely trend over time-based on the current budget provision

Customers value have not been determined yet. This issue has been identified in the AMP Improvement Plan.

3.4 Known Customer Service Issues

The following customer service issues have already been identified for this service:

3.4.1 Critical Issues:

- THM's and taste of water at Kingaroy - long term safety and aesthetics of water quality when sourced solely from Gordonbrook Dam
- The hardness of water at Nanango
- Short term reliability of bulk supply for Kingaroy, Proston and Blackbutt without an additional source of supply acquisition. Failure probability of 1:13 years.

3.4.2 Chronic Issues:

- No chronic issues

3.5 Service Strategy

3.5.1 CAPEX Strategy

Capital works are generally undertaken by Council construction crews, e.g. reticulation water mains and meters. Tenders are let for contractors to undertake and project manage large/complex works, e.g. trunk mains, reservoirs and roof replacements, treatment plants. Projects funded under Works for Queensland (W4Q) program generally preclude the use of Council staff.

3.5.2 OPEX Strategy

The operations and maintenance strategy entails having critical spares and general operation, inspection and maintenance activities being carried out by Council staff. Electrical repairs (other than components easy to replace) and other specialised repairs/servicing are undertaken by external providers, e.g. PRV maintenance, reservoir cleaning.

3.6 Customer Levels of Service

The proposed Customer Levels of Service in the table below are considered in terms of:

Quality	How good is the service? What is the condition or quality of the service?
Function	Is it suitable for its intended purpose? Is it the right service?
Capacity/Use	Is the service over or under-used? Do we need more or less of these assets?

The table below summarises the performance measure being used, the current performance, and the expected performance based on the present funding level.

These are measures of fact related to the service delivery outcome (e.g., number of occasions when service is not available, the percentage split by asset condition: Very Poor, Poor/Average/Good, Very Good) and provide a balance in comparison to the customer perception that may be more subjective.

Table 5: Customer Level of Service Measures

Type of Measure	Level of Service	Performance Measure	Current Performance	Expected Trend Based on Planned Budget
Quality	Connected properties will receive good quality drinking water delivered under pressure, which is clear and has no obvious taste or smell.	• Number of samples outside ADWG value. • Number of water quality complaints (potable<10 and non-potable <20 per 1000 conn. per year) • Number of moderate/major water public health incidents (0 per year)	• Some values outside for several schemes 2017/18 – refer DWQMP • Potable 0.8 per and non-potable 0 (2018/19) • Nil	Improving Meeting standards Meeting standard
Confidence levels			High	Medium
Function	Connected properties can be assured of a continuous supply	• Number of unplanned interruptions (20 or less per 1000 conn. per year) • Number of breaks (less than 15 per 100 km per year) • Percentage of bursts and leaks responded to within 60 mins	• 105.5 (2018/19) • 6.4 (2018/19) • 79% (2018/19)	Meeting standard Improving Improving
Confidence levels			High	Medium
Capacity	Council will provide a water supply service sufficient to meet current and planned demand.	• Council will provide a water supply service of sufficient capacity (flow & pressure) • Water will be accessible for firefighting.	Adequate	Likely inadequate – revised increased budget when modelling results available

3.6.1 Service Hierarchy

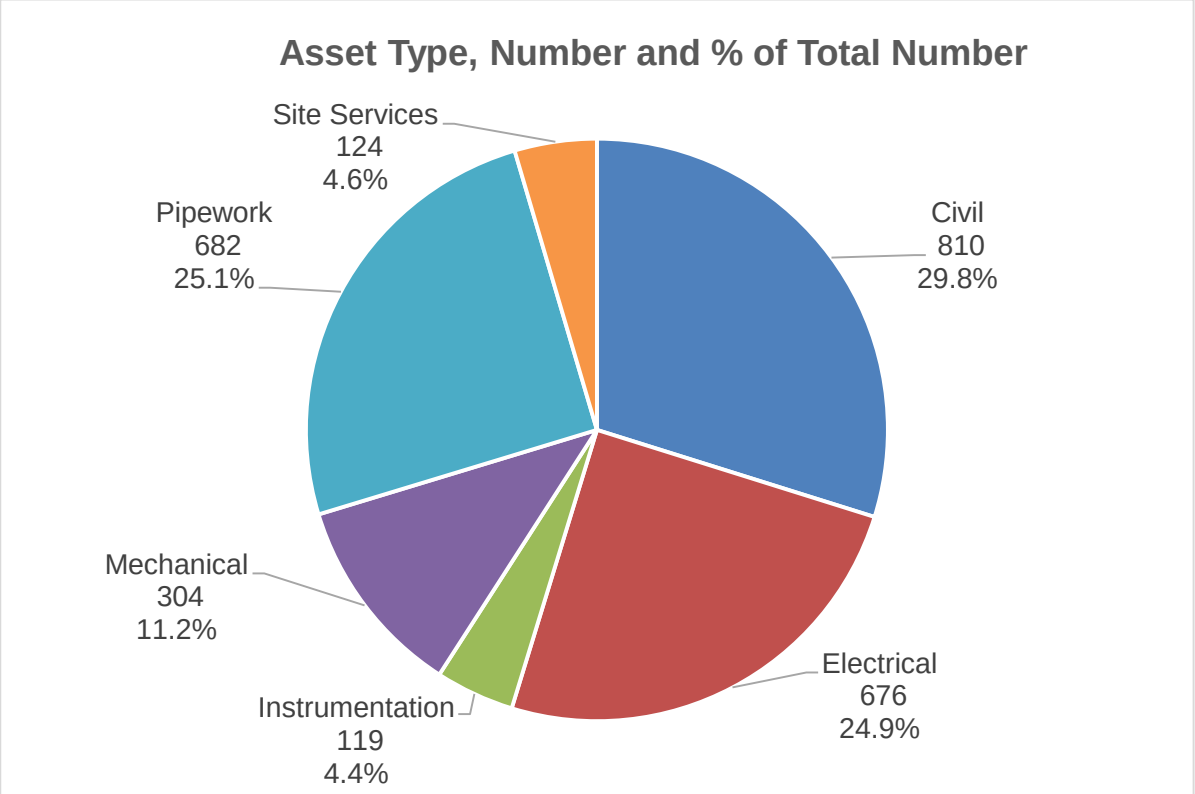
Council uses a hierarchical Water asset classification system to determine levels of service. Construction, renewal and maintenance standards as based on the function of the asset type.

The distribution of Council's Water assets is shown below.

Table 6: SBRC Water Asset Distribution as at April 2020 for Valuations

Service Group	Asset Type	Quantity
Above Ground (Active)	Civil	810
Above Ground (Active)	Electrical (includes telemetry, control equipt.)	676
Above Ground (Active)	Instrumentation	119
Above Ground (Active)	Mechanical	304
Above Ground (Active)	Pipework (including valves & fittings)	682
Above Ground (Active)	Site Services	124
Below Ground (Passive)	Pipework (including valves & fittings)	2,356
Total:		**5,089**

Figure 5: Water Asset Distribution by Type at May 2020



3.7 Technical Levels of Service

Technical Levels of Service – To deliver the customer values, and impact the achieved Customer Levels of Service, are operational or technical measures of performance. These technical measures relate to the activities and allocation of resources to best achieve the desired customer outcomes and demonstrate effective performance.

Service and asset managers plan, implement and control technical service levels to influence the service outcomes.[5]

3.7.1 Technical Activities

The table below shows the activities expected to be provided under the current Planned Budget allocation, and the Forecast activity requirements being recommended in this Asset Management Plan.

3.7.2 Pipework (Below Ground)

Table 7: Technical Levels of Service: Pipework, Valves & Fittings (Below Ground)

Key Performance Measure	Level of Service	Performance Measure	Performance Target	Current Performance (SWIM 2028/2019)
Pipework, Valves & Fittings (Below Ground)				
Safe, reliable and affordable water services				
Asset Condition	Not Determined	Not Determined	Not Determined	Not Determined
Performance	Connected properties can be assured of a continuous supply	Number of Breaks	Less than 15 per 100km of mains per year	6.4 Overall ☺ (Blackbutt, Boondooma, Proston Potable, Yallakool=0, Kingaroy=2.8, Murgon=8.4, Nanango=20.3,Wondai=19.4, Kumbia=6.5, Proston Rural=2 .8, Wooroolin=23.8)
Safety	Water Quality	Number of samples outside ADWG value. Number of Water Quality Complaints	ADWG and Water Quality and Reporting Guideline Potable Supply Schemes: Less than or equal to ten (10) water quality complaints per 1000 connections per year Non-Potable Supply Schemes:	Some values outside for several schemes 2017/18 - refer DWQMP 1.2 Overall ☺ Blackbutt=2.3, Kingaroy=1.2, Murgon=1.8, remainder=0 Kumbia, Proston Rural, Wooroolin=0

[5] IPWEA, 2015, IIMM, p 2|28.

Key Performance Measure	Level of Service	Performance Measure	Performance Target	Current Performance (SWIM 2028/2019)
			Less than or equal to twenty (20) water quality complaints per 1000 properties per year	

4.0 FUTURE DEMAND

4.1 Demand Drivers

Drivers affecting demand include things such as population change, industrial and commercial demand, regulations, changes in demographics, seasonal factors, consumer preferences and expectations, technological changes, economic factors, agricultural practices (e.g. Proston rural scheme), environmental awareness, etc.

4.2 Demand Forecasts

4.2.1 Population Change

South Burnett and the surrounding region had an estimated population of 32,747 in 2016[6]. Using the medium series, the projected population will reach approximately 36,342 persons by the year 2036.

Total future population growth over the next 20 years is predicted to be 3,595 persons (11%).

Table 8: South Burnett Population Growth Estimates 2016-41 (QGSO)

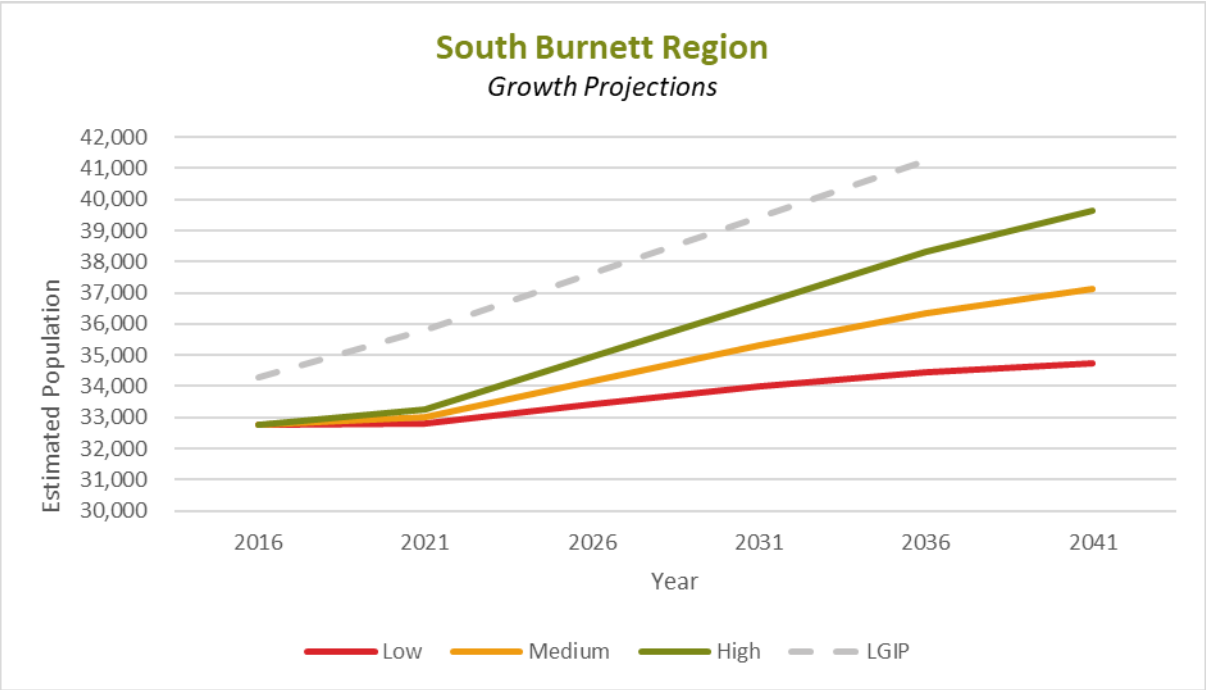
Projected Population				Average Annual Change (Medium Series)	
Year	**Low Series**	**Medium Series**	**High Series**	**Number**	**%**
2016	32,747	**32,747**	32,747		
2021	32,799	**33,017**	33,255	**270**	0.82%
2026	33,422	**34,170**	34,955	**1,153**	3.49%
2031	34,009	**35,295**	36,650	**1,125**	3.29%
2036	34,469	**36,342**	38,320	**1,047**	2.97%
2041	34,720	**37,107**	39,643	**765**	2.11%

During the preparation of this plan, it was noted that the statistical projections from the Queensland Government Statistician's Office (QGSO) were significantly different from those used in the development of Council's *Local Government Infrastructure Plan* (LGIP).

Resolving this issue has been identified as an issue in the AMP Improvement Plan.

[6] 'Projected population by local government area, Queensland, 2016 to 2041' Queensland Government Statistician's Office.

Figure 6: Regional Growth Projections (2016 - 2041): QGSO and LGIP (ABS)



It appears that the LGIP used data directly from the 2016 Census undertaken by the ABS.

As the QGSO website makes clear, there are several problems with using the raw Census data for population projection, so we have chosen to use the QGSO data.

This issue noted this issue in the AMP Improvement Plan.

4.2.2 Equivalent Population Change

The data Council has about the number of connected properties in 2019 and projected future demand for service catchments comes from Council's Local Government Infrastructure Plan (LGIP). The issues with LGIP population projections are explained above. It is also noted more accurate data is required for the number of connections at some locations (see footnotes).

Table 9: 2019 connections and projected demand (LGIP)

Service Catchment	Connected Properties	Existing and projected demand (EP) (Source: LGIP)					
	2019	2016	2021	2026	2031	2036	Ultimate
Blackbutt	442	1,112	1,195	1,290	1,389	1,484	2,215
Boondooma	14[7]	ND	ND	ND	ND	ND	ND
Kingaroy	4,871	12,212	13,015	14,012	15,140	16,050	28,844
Murgon	1,116	3,369	3,563	3,803	4,058	4,300	6,512
Nanango	1,352	4,076	4,197	4,423	4,688	4,882	8,731
Kumbia	109	ND	ND	ND	ND	ND	ND
Proston	249[8]	407	422	443	452	465	557
Proston Rural	264[7]	ND	ND	ND	ND	ND	ND

[7] Boondooma has more connections then listed

[8] connected properties for Proston and Proston Rural unreliable

Service Catchment	Connected Properties	Existing and projected demand (EP) (Source: LGIP)					
	2019	2016	2021	2026	2031	2036	Ultimate
Wondai	1,127	3,652	3,834	4,058	4,298	4,567	7,420
Wooroolin	84						
Yallakool	1	ND	ND	ND	ND	ND	ND
Total:	**9,102**	**24,828**	**26,226**	**28,029**	**30,025**	**31,748**	**54,279**

ND – Not Determined

4.3 Demand Impact and Demand Management Plan

Council is currently developing a regional economic development strategy and a strategic regional Water plan with Wide Bay Burnett Regional Organisation of Councils. This AMP will be refreshed following the completion of these documents.

The impact of demand drivers that may affect future service delivery and use of assets are shown in the table below.

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 can include non-asset solutions, insuring against risks and managing failures.

Opportunities identified to date for demand management are shown in the table below. Further opportunities will be developed in future revisions of this Asset Management Plan.

Table 10: Demand Management Plan

Demand driver	Current position	Projection	Impact on services	Demand Management Plan
Population Growth and Industrial development	Increasing in some locations	Increased demand in some locations, e.g. Murgon Meatworks	Need for new/upgraded capital expenditure	Water Restrictions Policy; water-saving initiatives and devices focused on efficiency
Non-potable water for urban / non-urban needs	Non-potable water supplied for urban and non-urban uses, e.g., agriculture, golf courses	Increased demand and quality	Need for capital expenditure	Recycled water is substitute of potable water for non-urban

4.4 Asset Programs to meet Demand

The new assets required to meet demand may be acquired, donated or constructed. The planned new asset and upgrades for the next 20 years to cater for future demand projections and service requirements are listed below.

New Assets:

- 2021/2022
  - Treatment Plants – Regional, purchase additional water allocation (up to 1500 ML required for Kingaroy)
  - Reservoirs – Kingaroy, Mt Wooroolin New Reservoir
- 2028/2029
  - Distribution Reservoirs – Kingaroy, Water Storage
- 2030/2031
  - Weirs – Nanango, McCauley Weir, rising main, pump stations and treatment facilities, main to Boondooma Dam pipeline
- 2032/2033
  - Weir – Proston, Proston Weir (possible ownership change as backup weir)

Upgraded Assets:

- 2022/23
  - Distribution Trunk Mains - Kingaroy, Main Replacement & Upgrade
- 2023/24
  - Distribution Trunk Mains -Nanango, 'Agular Hwy (Drayton to Racecourse Road)
- 2026/2027
  - Distribution Trunk Mains -Wondai, Scott St Trunk Upgrade (Scott St Res to Haley St)
- 2027/2028
  - Distribution Trunk Mains -Kingaroy, Haly St (Kingaroy St to Fisher St)
  - Distribution Trunk Mains - Kingaroy, Jarrah St (Haly to Somerset)
  - Distribution Trunk Mains - Kingaroy, Somerset St (Alford to Knight)
- 2028/2029
  - Distribution Trunk Mains - Kingaroy, Walter Road (Knight to Harris)
  - Distribution Trunk Mains - Wondai, Replacement 'Scott St Trunk Upgrade (Haley St to Burrows St)
- 2030/2031
  - Distribution Trunk Mains - Kingaroy, Rising Main (Harris to New Reservoir)
  - Distribution Trunk Mains - Kingaroy, Fisher Street Pump Station.

It should be noted that acquiring new assets will commit Council to ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required. Future operations, maintenance and renewal costs are identified here for inclusion in the long-term financial plan. Refer to the Lifecycle Management Plan (Section 6.0) and Financial Summary (Section 8.0) sections of this plan for details.

4.5 Climate Change and Adaption

Once 5,000 connect properties is reached, Council is required to start reporting on Greenhouse Gas issues. In addition, there are regulator KPIs for drought and water supply to consider.

The impacts of climate change can have a significant impact on the assets we manage and the services they provide. In the context of the Asset Management Planning process, climate change can be considered as both a future demand and a risk.

How climate change will impact on assets can vary significantly depending on the location and the type of services provided, as will how we respond and manage those impacts.

As a minimum, we should consider both how to manage our existing assets given the potential climate change impacts, and then also how to create resilience to climate change in any new works or acquisitions.

Council has not formally identified climate change strategies. Possible opportunities for management of climate change impacts on existing assets are shown in the table below.

Table 11: Managing the Impact of Climate Change on Assets

Climate Change Description	Projected Change	Potential Impact on Assets and Services	Planned Actions
Increased frequency and severity of storm events	Increasing number of declared disaster events.	Increased service disruption due to power outage, flood inundation Increased asset requirements. Shorter useful life of assets. Increased asset impairment expense.	Increased focus on planned and preventative maintenance.

Additionally, how we construct new assets should recognise that there is an opportunity to build in resilience to climate change impacts. Building resilience will have several benefits, including:

- Assets will withstand the impacts of climate change
- Services can be sustained
- Assets that can endure may potentially lower the lifecycle cost and reduce their carbon footprint

The impact of climate change on assets is a new and complex discussion, and resilience opportunities will be developed in future revisions of this Asset Management Plan.

4.6 Technological Change

The impacts of climate change can have a significant impact on the assets we manage and the services they provide. In the context of the Asset Management Planning process, climate change can be considered as both a future demand and a risk.

5.0 ASSET PROFILE

5.1 Asset Hierarchy

An asset hierarchy provides a framework for structuring data in an information system to assist in the collection of data, reporting information and making decisions. The hierarchy shown in Appendix B includes the asset class and components used for asset planning and financial reporting, as well as the service level hierarchy used for service planning and delivery.

5.2 Asset Quantities and Costs

Council's Water assets are costed at fair value (the cost to replace service capacity) and depreciated using the straight-line method over their useful lives.

The best available estimate of the cost of Council's Water assets is shown below.

Current Replacement Cost **$ 210,050,130**

Depreciated Replacement Cost[9] **$ 134,011,280**

Annual Depreciation **$ 2,479,037**

These costs are comprised of the following components:

Table 12: Water Asset Valuation Summary as at 30 June 2020

Asset Category/ Sub-category	Number of Facilities	Current Replacement Cost ($)	Written Down Value ($)	Annual Depreciation ($)
Water Transfer (above ground)				
Raw Water Pump Stations	27	$2,649,384	$1,697,472	$73,142
Water Dispensing Station (Standpipe)	4	$147,088	$122,685	$2,473
Treated Water Pump Stations	17	$2,726,386	$1,789,294	$49,627
Water Treatment and Processing (above ground)				
Treatment Plants	8	$42,032,608	$29,517,056	$765,095
Water Distribution (above ground)				
Distribution Trunk Mains	2	$361,586	$323,159	$9,849
Distribution Reservoirs	29	$12,256,189	$8,225,844	$122,041

[9] Also reported as Written Down Cost, Carrying or Net Book Cost.

Asset Category/ Sub-category	Number of Facilities	Current Replacement Cost ($)	Written Down Value ($)	Annual Depreciation ($)
Reservoirs[10]	1	$146,695	$116,325	$1,458
Water Source Storage and Supply (above ground)				
Bores	11	$939,506	$592,000	$13,439
Weirs	2	$9,399,631	$6,256,956	$78,331
Dams	2	$6,591,867	$3,307,263	$57,341
Water Bulk Storage and Supply (above ground)				
Reservoirs	10	$9,934,014.85	$5,722,567.89	$98,788.91
Water Distribution (below ground)				
Distribution Trunk Mains	~ 614 km[11]	$122,865,175.81	$76,340,658.79	$1,207,451.66
Total:		**$210,050,130**	**$134,011,280**	**$2,479,037**

This asset class was valued in April 2020, and the following changes were noted in the Valuer's report:

1. Moderate to significant modification to construction rates (refer valuation report) based on a modern equivalent replacement cost or based on actual dimensions and construction rates by first principles.
2. Includes significant costs for assets previously not valued and new assets.

5.3 Asset Useful Lives

5.3.1 Typical Asset Useful Lives

As part of the preparations for the 2020 Water Asset Revaluation, the use of prescribed standards for useful lives was assessed. Standardising useful lives across this asset class has improved the accuracy of remaining useful life estimates.

These typical useful lives were developed through modelling, assessment and the application of engineering experience to Council's local conditions.

[10] Kumbia reservoir only

[11] 30% of length (13% of CRC) comprises main less than 100 mm diameter

Table 13: Typical Useful Lives for Water Assets

Asset Category	Asset Sub-category	Average Useful Life (Years)
Above Ground – Bore Field Dam Distribution Reservoir Distribution Trunk Main Raw Water Pump Stations Treated Water Pump Stations Water Dispensing Station (Standpipe) Reservoir Water Treatment Plant	Civil	120
	Electrical	25
	Instrumentation	15
	Mechanical	30
	Pipework, Valve and Fitting	70
	Site Services	60
Below Ground – Distribution Trunk Mains	25 RS, 25 PVC, 25 POLY, 25 PE, 25 MDPE, 25 GWI 32 MDPE, 40 POLY, 40 GI, 40 GALV, 40 PE80, 50 PVC, 50 POLY, 50 PE80, 50 PE, 50 HDPE, 50 GWI, 63 PE80, 63 PE, 63 POLY, 75 AC, 80 PVC, 80 PE80, 80 PE, 90 HDPE, 90 AC	65
	150 CICL,100 PVC,100 PVC-O,110 MDPE,150 AC,150 GWI,150 PE100,150 PVC,150 PVC-M,150 PVC-O,150 STEEL,180 HDPE,180 PE,180 PE100,180 PVC-U,200 AC,200 CICL,200 DICL,200 PVC,200 PVC-M,200 PVC-O,225 CI,225 PVC-M,225 PVC-U,250 AC,250 CI,250 CICL,250 DICL,250 MPVC,250 PE100,250 PVC,300 CI, 300 DICL,355 PE100,375 CI,375 CICL,375 DICL, 450 GRP	110

5.3.2 Remaining Useful Lives

There is a relationship between asset useful life and some of the major service levels chosen by Council. For Water assets, service levels relate to the condition of the asset and are measured differently for each asset type.

5.3.2.1 Civil, Electrical, Instrumentation, Mechanical, Instrumentation and Site Services

For civil, electrical, instrumentation, mechanical and instrumentation assets, the remaining useful life is related to the percentage of the asset affected by wear and tear due to usage.

5.3.2.2 Pipework, Valves and Fittings and Distribution Trunk Mains

For pipework, valves and fittings, and distribution trunk mains, the remaining useful life is related to the percentage of the asset affected by material corrosion.

5.4 Asset Age Profile

The age profile of the assets included in this Asset Management Plan is shown below.

Figure 7: Age Profile – Above Ground Assets

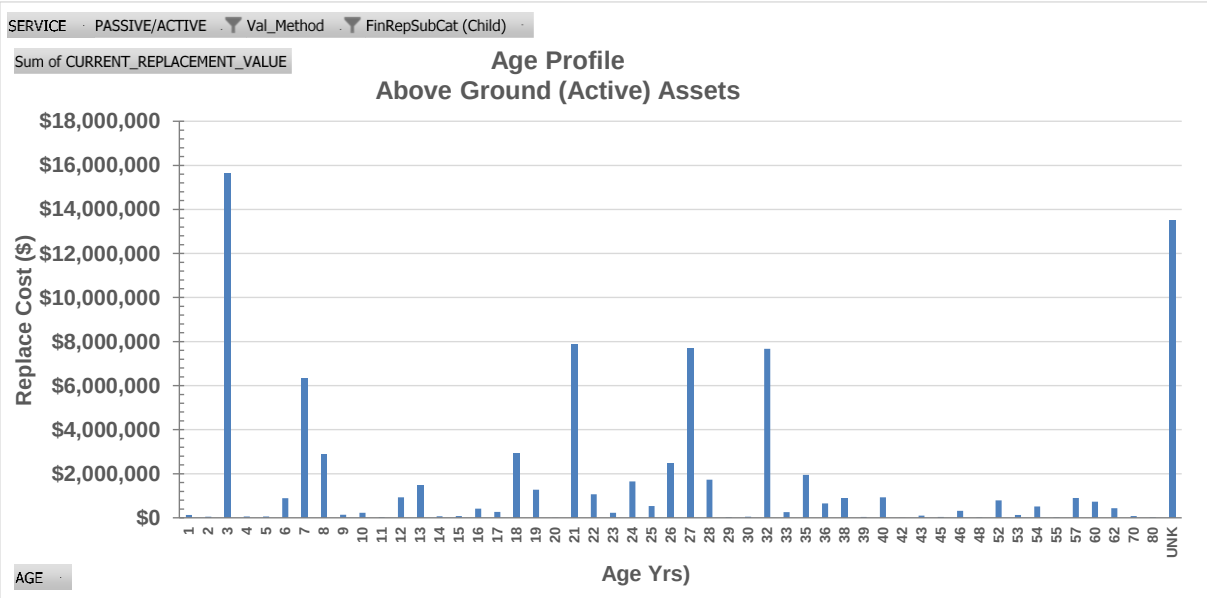
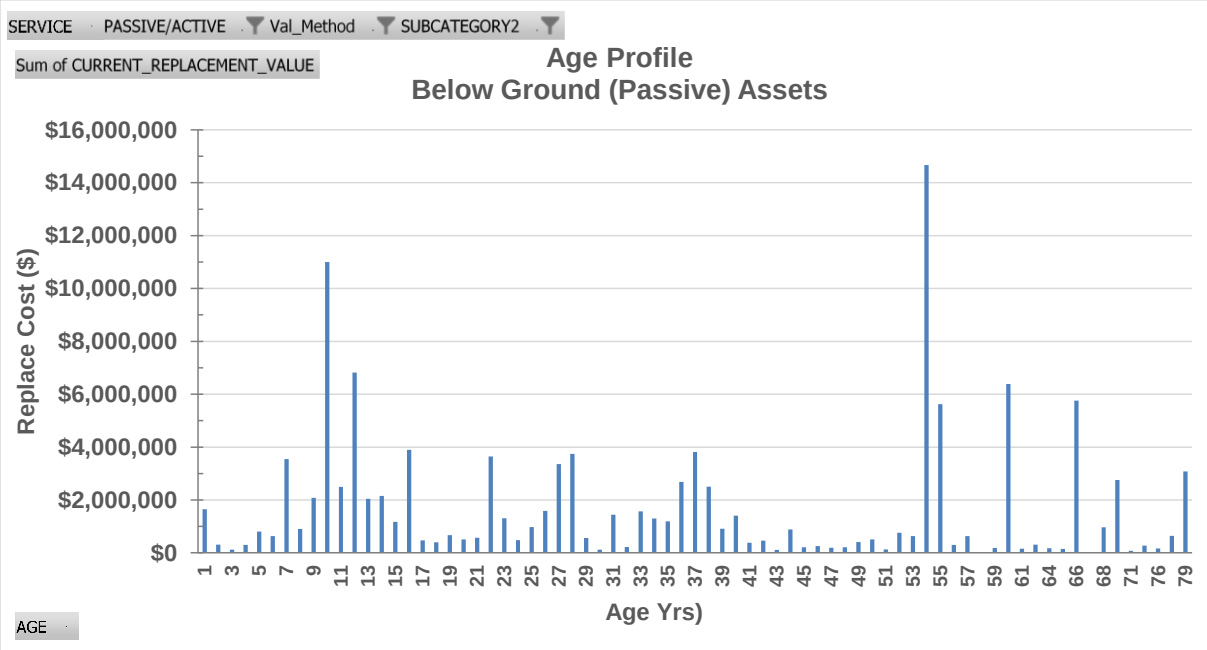


Figure 8: Age Profile – Below Ground Assets



All figure costs are shown in current (real) dollars.

The replacement cost weighted average age of all above ground (active) assets is 16.8 years. The weighted average ages of types are - civil 17.5 years, electrical 14.7 years, instrumentation 9.7 years, mechanical 14.8 years, pipework, valves and fittings 17.3 years, site services 8.1 years.

The weighted average age of all below ground (passive) distribution trunk mains is 35.7 years.

The average remaining life of all above ground (active) assets is 37.9 years. The average remaining life of civil 64.3 years (54% of useful life).), electrical 12.3 years (49%), instrumentation 7 years (47%), mechanical 16.4 years (55%), pipework, valves and fittings 38.6 years (55%) and site services 28.1 years (47%).

The average remaining life of all below ground (passive) assets is 63.1 years (distribution trunk mains with useful life 65 or 110 years).

The past peaks of asset investment, e.g. 3 years ago approximately $15.5 million of above-ground assets and $14 to $15 million of below ground of assets 54 years ago, may require peaks in renewals in the future.

5.5 Pipework Length, Material and Size Profile

The length and material for below-ground pipework diameters included in this Asset Management Plan are shown in the profiles below. 53% of the pipework length is comprised of AC and PVC 100 mm and 150 mm diameter pipe.

Figure 9: Pipework Size Profile – Below Ground Assets

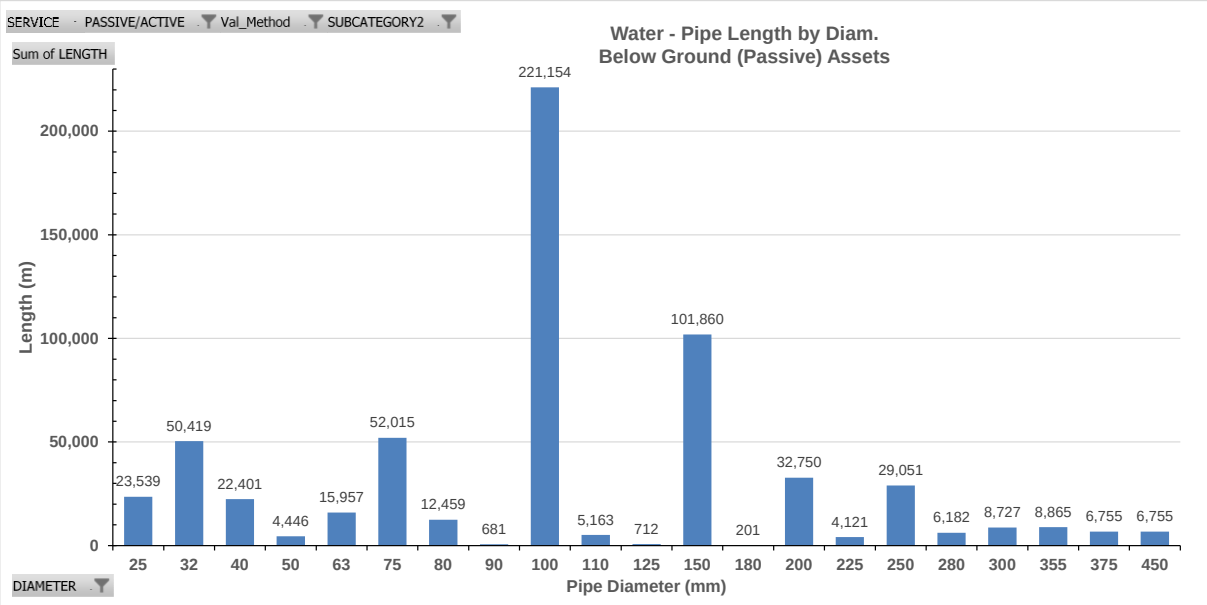
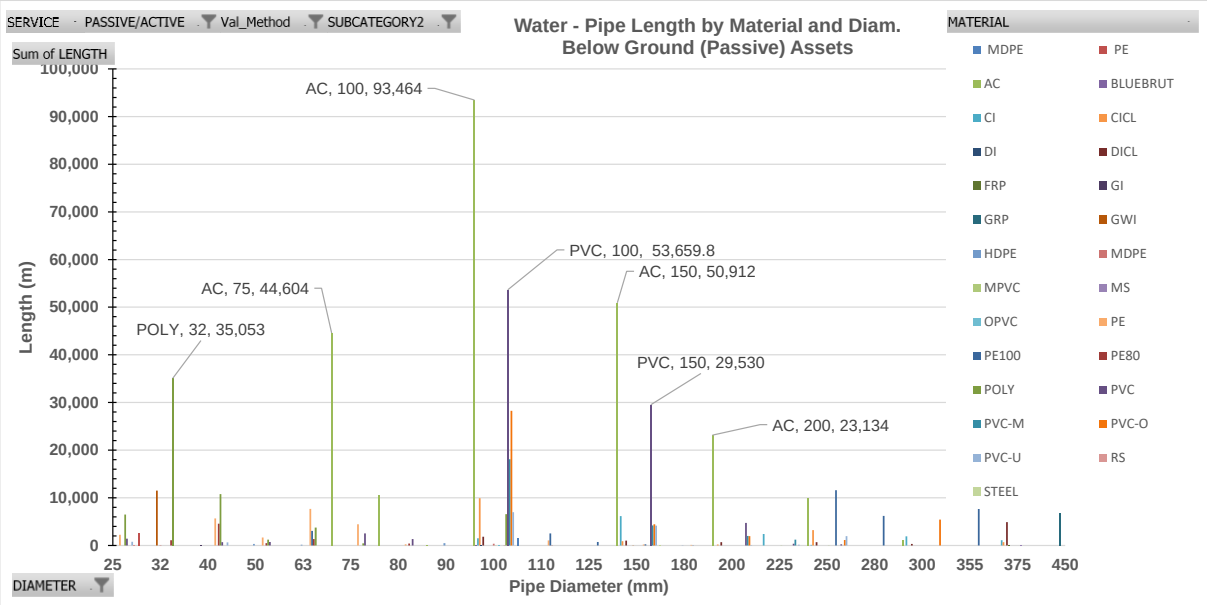


Figure 10: Pipework Size and Material Profile – Below Ground Assets



5.6 Asset condition

Asset condition is measured using the 0 (new) – 10 (failed) grading scheme shown below.

Table 14: Water Asset Condition Rating Scheme

Condition Rating	Description	% Asset Remaining [12]
0	Brand New	100
1	Near new with no visible deterioration	90
2	Excellent overall condition early stages of deterioration.	80
3	Very good overall condition with obvious deterioration evident.	70
4	Good overall condition, obvious deterioration, serviceability impaired very slightly.	60
5	Fair overall condition, obvious deterioration, some serviceability loss.	50
6	Fair to poor overall condition, obvious deterioration, some serviceability loss.	40
7	Poor overall condition, obvious deterioration, some serviceability loss, high maintenance costs	30
8	Very poor overall condition, severe deterioration, very high maintenance costs. Consider renewal.	20
9	Extremely poor condition, severe serviceability problems, renewal required immediately.	10
10	Failed asset, no longer serviceable. Should not remain in service.	0

The above rating scheme is used for visual assessment of above-ground accessible assets.

Council intends to confirm condition/performance of assets through a co-ordinated asset inspection program and implement a 'Fault Report Record' for call outs.

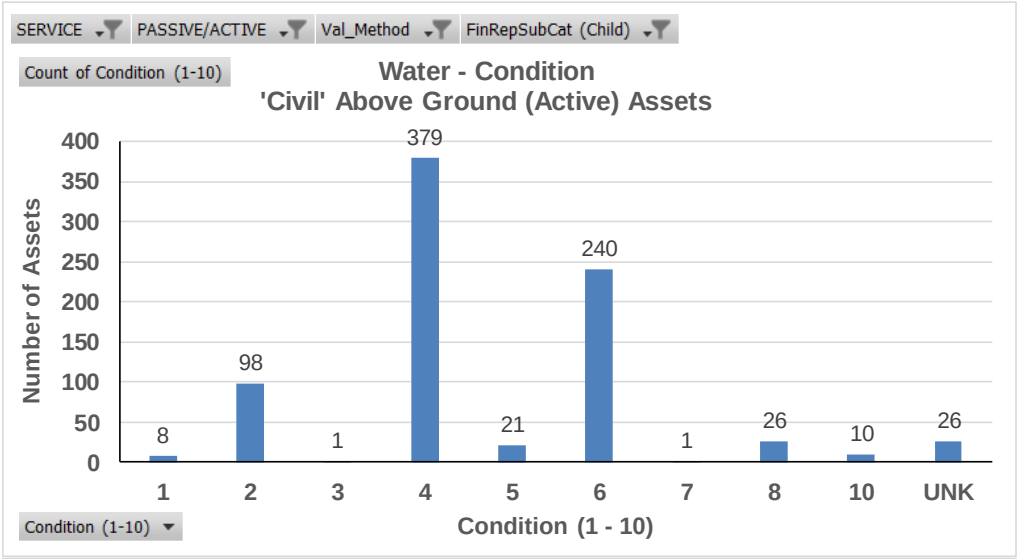
5.6.1 Civil, Electrical, Instrumentation, Mechanical, Instrumentation and Site Services

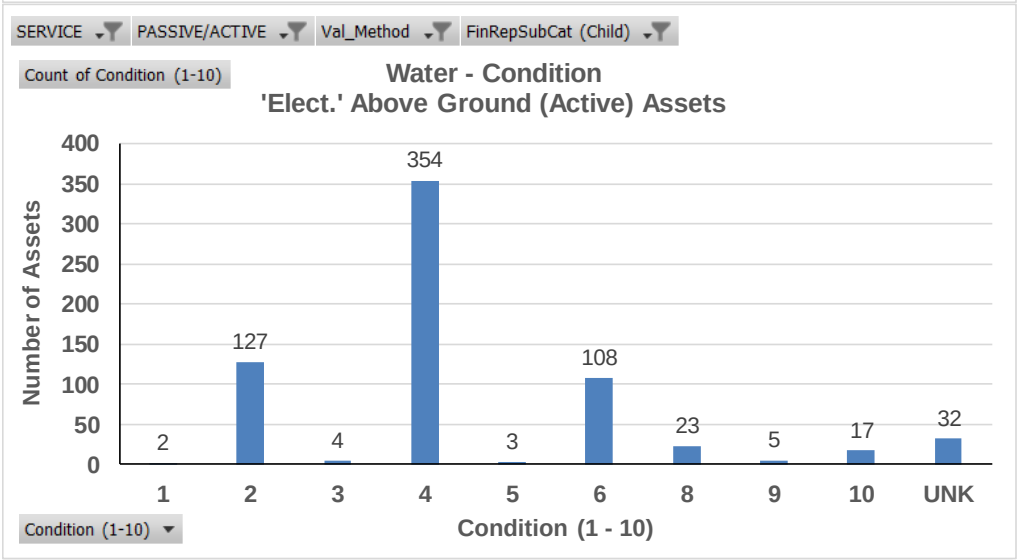
Asset condition was assessed visually (in 2019) for water civil electrical, instrumentation, mechanical, instrumentation and site services assets where accessible. Otherwise, the asset condition is estimated from the estimated age for (standard) useful lives.

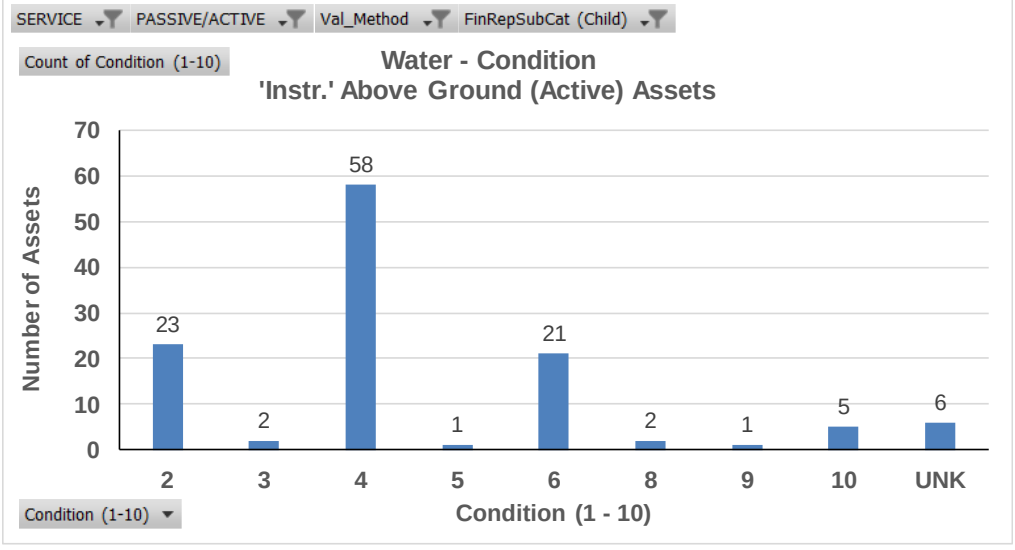
The distribution of condition for assets by child sub-category is shown below.

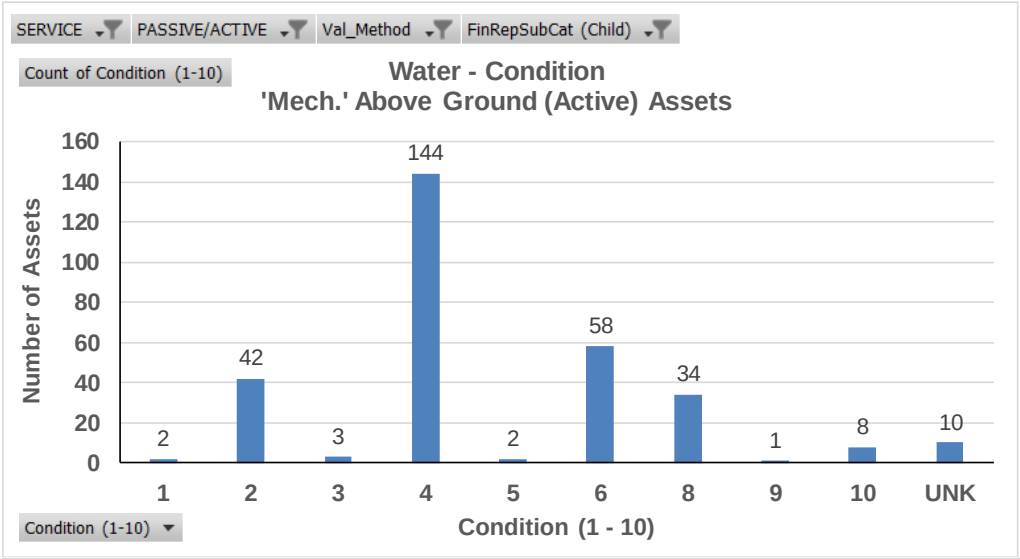
Figure 11: Condition Profile – 'Child' Above Ground Assets

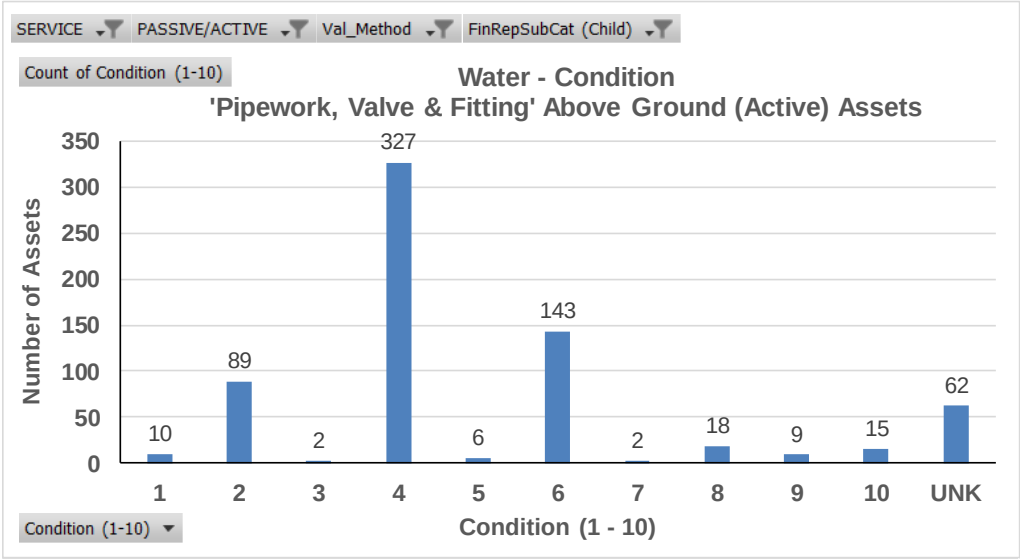
[12] Based on estimated delivery of future economic benefit.

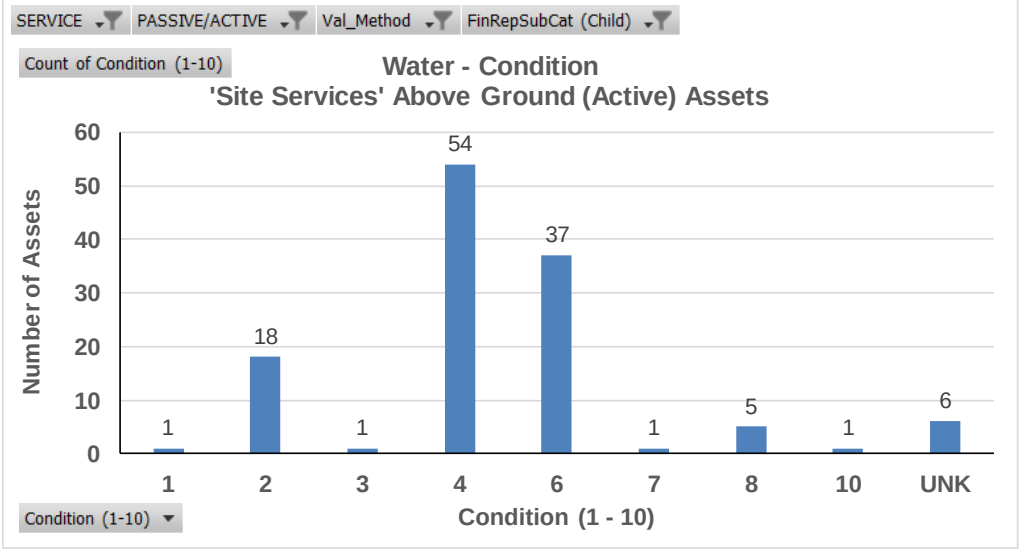

SERVICE
PASSIVE/ACTIVE
Val_Method
FinRepSubCat (Child)
Count of Condition (1-10)
Water - Condition
'Civil' Above Ground (Active) Assets
Number of Assets
400
350
300
250
200
150
100
50
0
379
240
98
8
1
21
1
26
10
26
1
2
3
4
5
6
7
8
10
UNK
Condition (1-10)
Condition (1 - 10)


SERVICE
PASSIVE/ACTIVE
Val_Method
FinRepSubCat (Child)
Count of Condition (1-10)
Water - Condition
'Elect.' Above Ground (Active) Assets
Number of Assets
400
350
300
250
200
150
100
50
0
354
127
108
2
4
3
23
5
17
32
1
2
3
4
5
6
8
9
10
UNK
Condition (1-10)
Condition (1 - 10)


SERVICE
PASSIVE/ACTIVE
Val_Method
FinRepSubCat (Child)
Count of Condition (1-10)
Water - Condition
'Instr.' Above Ground (Active) Assets
Number of Assets
70
60
50
40
30
20
10
0
58
23
21
2
1
2
1
5
6
2
3
4
5
6
8
9
10
UNK
Condition (1-10)
Condition (1 - 10)

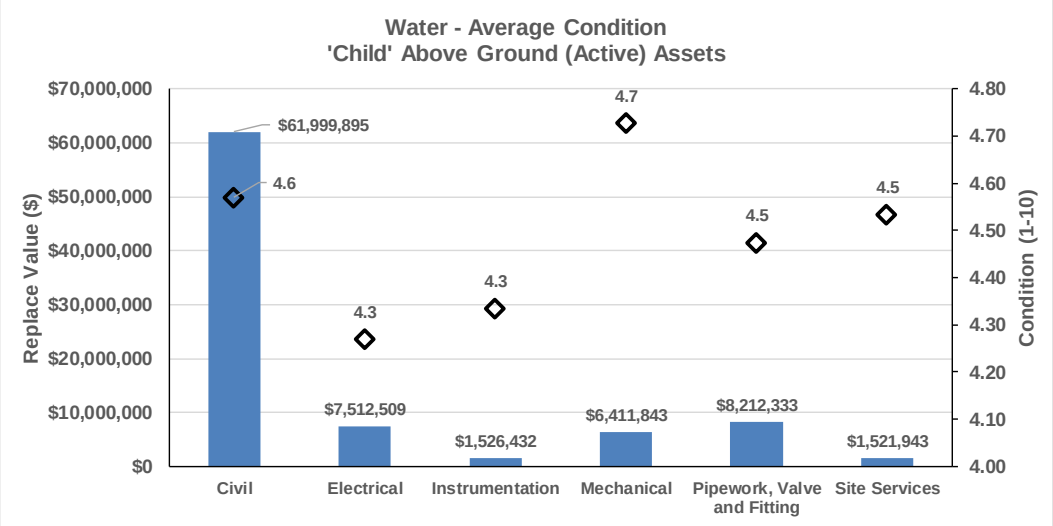

SERVICE
PASSIVE/ACTIVE
Val_Method
FinRepSubCat (Child)
Count of Condition (1-10)
Water - Condition
'Mech.' Above Ground (Active) Assets
Number of Assets
160
140
120
100
80
60
40
20
0
144
58
42
34
2
3
2
1
8
10
1
2
3
4
5
6
8
9
10
UNK
Condition (1-10)
Condition (1 - 10)


SERVICE
PASSIVE/ACTIVE
Val_Method
FinRepSubCat (Child)
Count of Condition (1-10)
Water - Condition
'Pipework, Valve & Fitting' Above Ground (Active) Assets
Number of Assets
350
300
250
200
150
100
50
0
327
143
89
62
10
2
6
2
18
9
15
1
2
3
4
5
6
7
8
9
10
UNK
Condition (1-10)
Condition (1 - 10)


SERVICE
PASSIVE/ACTIVE
Val_Method
FinRepSubCat (Child)
Count of Condition (1-10)
Water - Condition
'Site Services' Above Ground (Active) Assets
Number of Assets
60
50
40
30
20
10
0
54
37
18
1
1
1
5
1
6
1
2
3
4
6
7
8
10
UNK
Condition (1-10)
Condition (1 - 10)

The distribution of average condition versus replacement cost for all child assets is shown below. The chart indicates overall averages of fair to good condition for each child category.

Figure 12: Average Condition vs Cost Profile – 'Child' Above Ground Assets

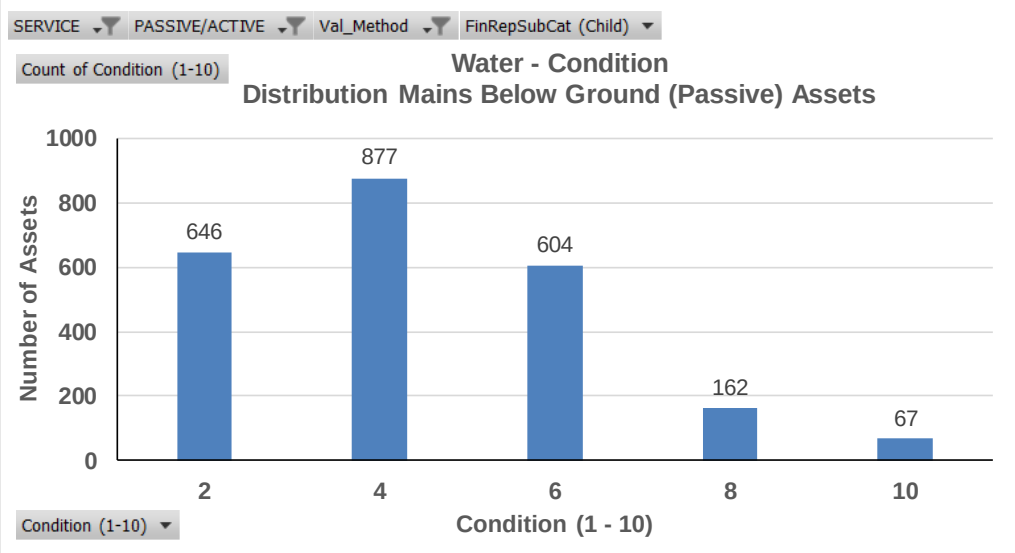


5.6.2 Distribution Trunk Mains

Asset condition is estimated from age for (standard) useful lives.

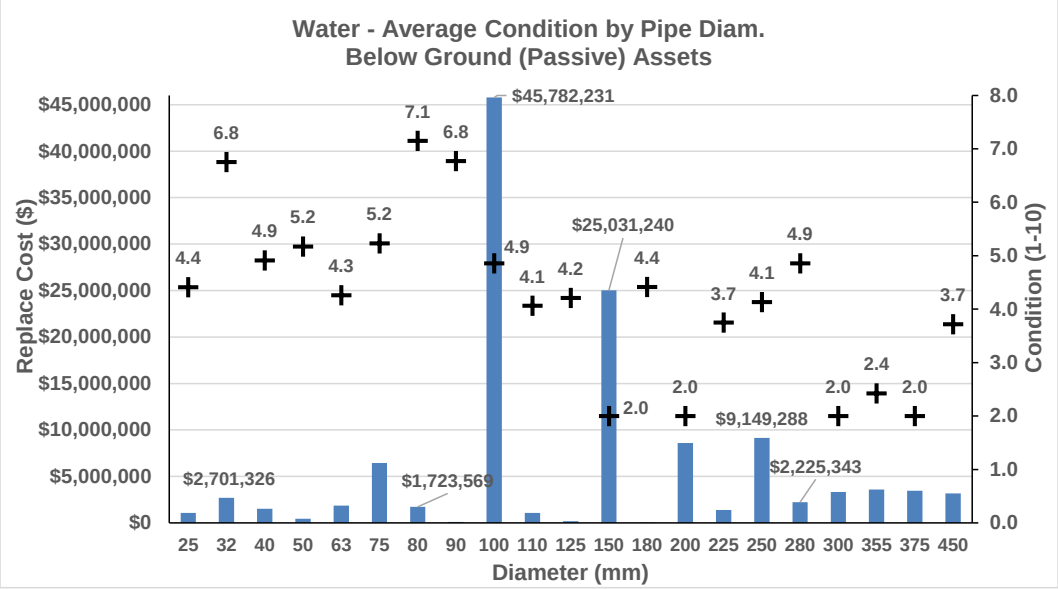
The distribution of condition for water distribution trunk mains is shown below.

Figure 13: Condition Profile – Distribution Trunk Mains Below Ground Assets



The distribution of average condition for below-ground water pipe diameters versus replacement cost is shown below.

Figure 14: Average Condition vs Cost Profile – Below Ground Pipework Assets



Approximately $70.8 million (58%) of current replacement cost comprises 100 mm and 150 mm diameter mains with condition rated fair and excellent respectively.

Table 15: Asset Category Average Condition as at 2020

Asset Category	Average Condition (1-10)
Raw Water Pump Stations	5
Water Dispensing Station (Standpipe)	3
Treated Water Pump Stations	4
Treatment Plants	4
Distribution Trunk Mains (above ground)	5
Distribution Reservoirs	4
Reservoirs	5
Bore Fields	5
Weirs	**8**
Dams	5
Distribution Trunk Mains (below ground)	4

5.7 Asset Utilisation

The utilisation of the Murgon bulk water supply is low, and the Kingaroy bulk supply utilisation is above acceptable risk standards, that is 1 in 13-year failure probability.

5.8 Asset Capacity and Performance

5.8.1 Capacity

The design capacity of each treatment plant is compared to 2018/19 average daily production output (from 2018/19 SWIM data) in the table below. Indications are all treatment plants have sufficient capacity for the medium term.

Table 16: WTP Production Output versus Design Capacity

WTP	Design Capacity (ML/d)	2018/19 Average Production (ML/d)	Excess Capacity (%)
Blackbutt WTP*	1.15	0.2	508%
Boondooma Dam WTP	0.11	0.03	282%
Kingaroy (Gordonbrook) WTP	9.72	3.2	208%
Murgon WTP	6.4	0.7	760%
Nanango WTP#	1	0.8	22%
Proston WTP	0.3	0.1	104%
Wondai WTP	2.6	0.6	330%
Yallakool WTP	>0.1	0.02	508%
Total	**21.38**	**5.7**	**275%**

* WTP currently downgraded due to supply issues with irrigators (7-10L/s)

Nanango treatment comprises only a disinfection dosing station and probable higher output needs confirming

5.8.2 Asset Performance

Assets are generally provided to meet design standards where these are available. Locations where deficiencies in service performance are known are detailed in the table below.

Table 17: Known Service Performance Deficiencies

Location	Service Deficiency
Gordonbrook Dam	Dam reliable yield is 50% of nominal yield due to water quality issues (Bromide and salts)

The above service deficiencies were identified from monitoring of raw water quality.

6.0 LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how South Burnett Regional Council plans to manage and operate its assets at the approved levels of service (Refer to Section 3) while managing life cycle costs. At present, there are few projects in the forward works program beyond year 10 due to a lack of information for decision making This will change when Council includes recommendations from the MIPP.

6.1 Operations and Maintenance Plan

Operations include regular activities to provide services. Examples of typical operational activities include pumping raw and treated water and treatment of raw water.

Maintenance includes all actions necessary for retaining an asset as near as practicable to an appropriate service condition including regular ongoing day-to-day work necessary to keep assets operating. Examples of typical maintenance activities include:

- Bores – 100 hrs flow test and casing inspection including iron build-up
- Reservoirs including at WTPs – weekly site inspections (e.g. vermin proofing) and structural integrity civil inspections, staged bi-annually cleaning by contract divers (live) and annual full safety audit inspections.
- Telemetry – annual testing of radio, battery
- Pump Stations – regular inspections, including pumps (mechanical and electrical). Annual full safety audit inspection
- Instruments (analysers and laboratory) – annual serving contracts for inspections
- Magnetic Flowmeters – Bi-annual calibration
- Treatment plants - Six monthly full safety audit inspection, Detailed schedules in manuals for large mechanical items (e.g. blower oil tested). Reactive removal of lagoon sludge build-up.
- Water reticulation pipework – work is largely of a reactive nature and is unplanned. Main breaks are attended to as soon as possible to restore water supply to customers. The work is generally identified via customer complaints that are communicated to the Council's operational staff. Previously ad-hoc air scouring (iron/manganese at Kingaroy) and reactive high velocity scouring in response to dirty water complaint or a water quality test result anomaly.
- Valves – air release testing program not done but is proposed, ad-hoc testing by Contractor of pressure reducing (and cleaning in line strainer) and backflow prevention, reactive replacement of actuators for control valves
- Hydrants – cleaning out, painting, marking and maintenance resulting from flow and pressure tests on a regular basis every 3 years (every 4th hydrant).

Other than for treatment plants, maintenance is generally reactive, and redundancy and or spares relied upon in many instances, e.g. 3 Nanango bores, duplicate pumps, operation, and maintenance activities for treatment plants are undertaken in accordance with plant operation and maintenance manuals.

The historical operations and maintenance expenditure for the last three years (2016/17 to 2018/19) taken from SWIM reported data are summarised below. Average annual OPEX is approximately $7.25 million.

Table 18: Average Historical OPEX by Subcategory

Asset Type	3 Years Avg. Annual OPEX ($)	% of Total OPEX	% of Replacement Costs
Below ground (passive) assets	$4,347,261	60%	3.5%
Above ground (active) assets	$2,898,174	40%	3.3%
Total	**$7,245,435**		**3.4%**

Future annual OPEX is based on the current Forward Works Planning program amounts ($6,685,206 in 2020/21, $6,837,184 in 2021/22, $6,992,977 in 2022/23 etc.). The breakdown of budgeted expenditure into operations and maintenance is derived from the forecast expenditure for 2019/20, based on 41 weeks of actuals by account description. It is summarised by Business Unit below:

Table 19: Forecast 2019/20 OPEX by Business Unit

Business Unit	Operations $	Maintenance $
Business Unit: 1114 - Water & Wastewater Administration	$338,924.04	$52,785.44
Business Unit: 1115 - Water General Operations	$721,072.13	$412,269.08
Business Unit: 1116 - Blackbutt Water Supply	$324,604.67	$96,852.36
Business Unit: 1117 - Boondooma Water Supply	$20,856.54	$25,061.78
Business Unit: 1118 - Kingaroy Water Supply	$1,841,417.92	$783,958.47
Business Unit: 1119 - Kumbia Water Supply	$18,833.86	$18,237.24
Business Unit: 1120 - Murgon Water Supply	$453,938.67	$215,028.48
Business Unit: 1121 - Nanango Water Supply	$297,042.47	$275,209.49
Business Unit: 1122 - Proston Water Supply	$364,004.40	$176,660.92
Business Unit: 1124 - Tingoora Water Supply	$260.31	$484.27
Business Unit: 1125 - Wondai Water Supply	$389,057.88	$196,431.18
Business Unit: 1126 - Wooroolin Water Supply	$19,681.13	$26,336.70
Total:	**$4,789,694**	**$2,279,315**

The trend in maintenance budgets is shown in the table below.

Table 20: Maintenance Budget Trends

Year	Maintenance Budget ($)
2018/19	$1,436,744
2019/20 (forecast)	$2,279,315
2020/21 (FWP portion)	$1,916,111

Year	Maintenance Budget ($)
2020/21 (Forecast based on 2019/20 actuals)	$2,279,037
Total:	$7,911,207

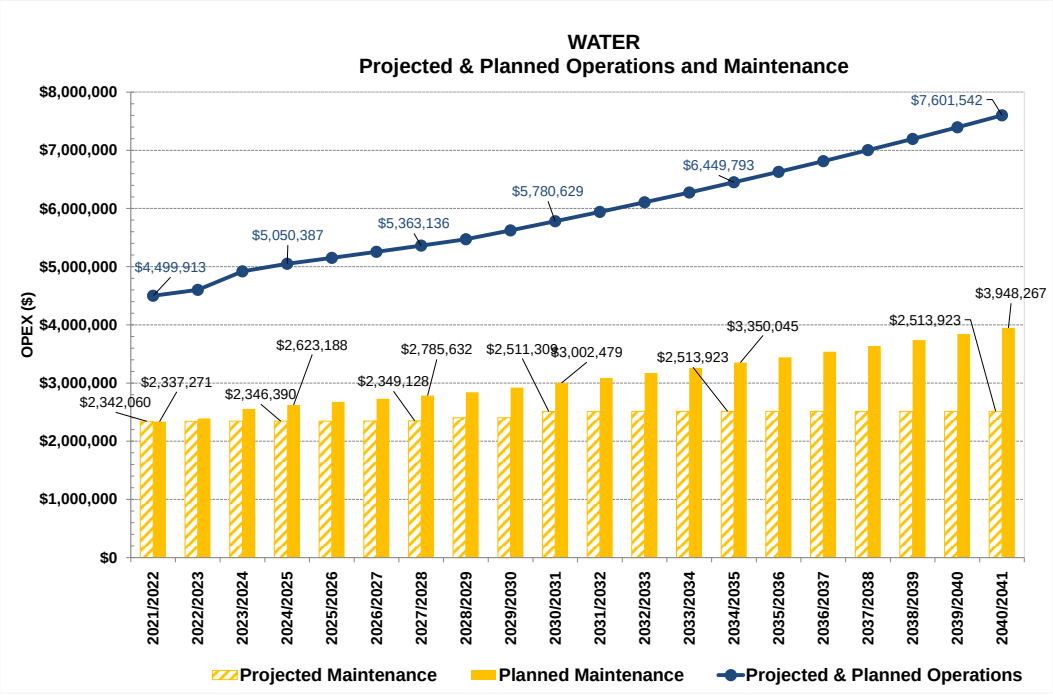
Maintenance budget levels are adequate to meet projected service levels, which may be less than or equal to current service levels. Where maintenance budget allocations are such that they will result in a lesser level of service, the service consequences and service risks have been identified. They are highlighted in this Asset Management Plan and service risks considered in the Infrastructure Risk Management Plan.

Assessment and priority of reactive maintenance are undertaken by staff using experience and judgement based on risk, giving priority to impacts directly affecting customers.

6.1.1 Summary of forecast operations and maintenance costs

Forecast operations and maintenance costs are expected to vary in relation to the total cost of the asset stock. If additional assets are acquired, future operations and maintenance costs are forecast to increase. If assets are disposed of, the forecast operation and maintenance costs are expected to decrease. The diagram below shows the 'projected' (forecast) operations and maintenance costs relative to the proposed operations and maintenance 'planned' budget.

Figure 15: Projected and Planned OPEX



All figure costs are shown in current (real) dollars.

Projected maintenance is based on the forecast 2019/20 actual maintenance spend as a 1.09% proportion of current replacement cost and allowance made for increased maintenance from future new and upgraded assets. Projected maintenance will increase by 7% over the 20 years to $2,513,923 compared to $3,948,267 (69%) for planned (budgeted).

The 20-year average projected and planned maintenance spends are approximately $2.44 million and $3.09 million, respectively.

Projected operations spend is not able to be quantified and is assumed to be the same as planned (budgeted) spend, which is based on forecast 2019/20 actuals indexed over the 20 years in line with FWP increases.

6.2 Renewal Plan

Renewal is major capital work which does not significantly alter the original service provided by the asset. It restores, rehabilitates, replaces or renews an existing asset to its original service potential. Asset renewal should not increase future maintenance costs.

Work over and above restoring an asset to original service potential is considered to be an acquisition or upgrade which will result in additional future operations and maintenance costs.

Assets requiring renewal are identified from one of two approaches in the Lifecycle Model.

The first method uses Asset Register data to project the renewal costs (current replacement cost) and renewal timing (acquisition year, although there is a lack of confidence in Council's age data, plus updated useful life to determine the renewal year), or

The second method uses an alternative approach to estimate the timing and cost of forecast renewal work (i.e. condition modelling system to determine remaining useful life, staff judgement, average network renewals, or other).

South Burnett Regional Council typically uses the second method, i.e., projected long-term renewals are determined using recent asset condition assessments to inform remaining lives and thus expiry year.

The typical useful lives of assets last reviewed for the 30 June 2020 Valuations[13] and used to develop projected asset renewal forecasts are shown in section 5.3 here.

6.2.1 Renewal ranking criteria

Asset renewal is typically undertaken to either:

- Ensure the reliability of the existing infrastructure to deliver the service it was constructed to facilitate (e.g. replacing a pump that has frequently failed) or
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g. condition of a pump).[14]

It is possible to prioritise renewals by identifying assets or asset groups that:

- Have a high consequence of failure,
- Have high use and subsequent impact on users would be significant,
- Have higher than expected operational or maintenance costs, and
- Have potential to reduce life cycle costs by replacement with a modern equivalent asset that would provide the equivalent service.[15]

The proposed ranking criteria used to determine the priority of identified renewal proposals is detailed in the table below. This is used in the absence of a risk rating assessment (i.e. condition or age if unknown for likelihood of failure versus criticality for consequences of failure). Council may choose to vary the weightings for above and below ground assets.

[13] SBRC Valuation Report Water & Sewerage 2020 V1.1

[14] IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.

[15] Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|97.

Table 21: Renewal Priority Ranking Criteria

Criteria	Weighting
Condition (or age if unknown)	25%
Economics (LCC – cost and difficulty of repairs vs replacement)	10%
Technical Obsolescence	15%
Reliability (outage/failure frequency, effect on system or customers)	20%
Workplace Health and Safety Risk (risk of illness/injury)	30%
Total	**100%**

6.3 Summary of historical renewal costs

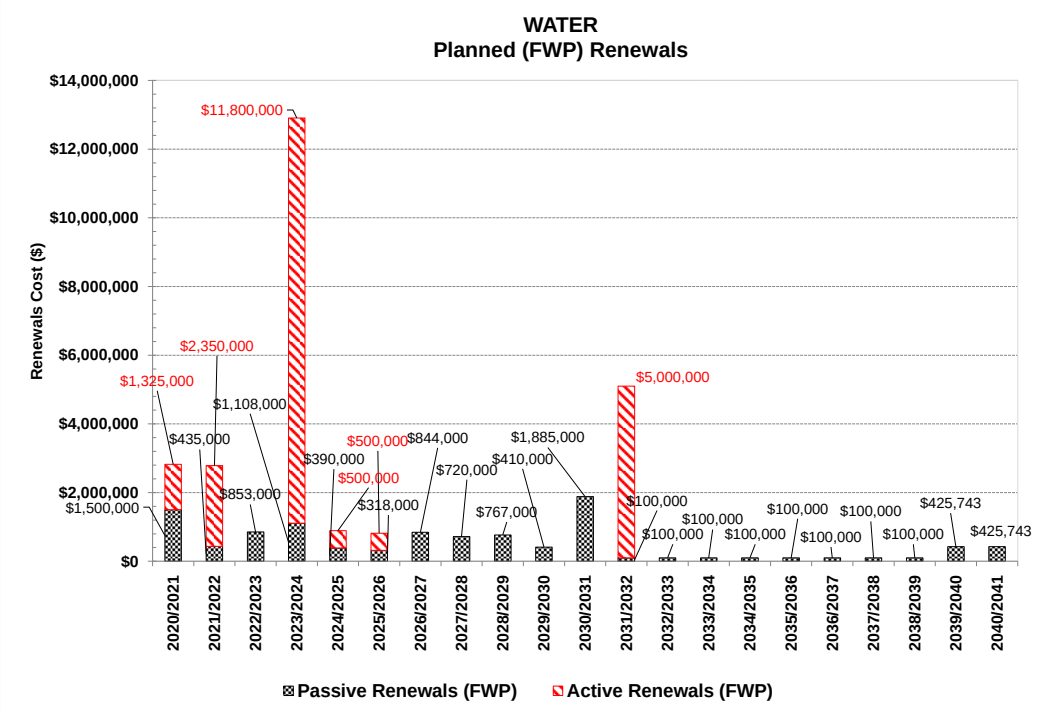
The annual amount of approximately $280,000 was spent on Water asset renewals for the last five years to 2018/19 as reported by Council in the SWIM data.

6.4 Summary of future renewal costs

The amount budgeted for Water asset renewals is $1,820,000 for 2019/20 and $2,825,000 for 2020/21. Future planned renewals in the FWP for below ground (passive) and above ground (active) assets including $11.8 million Gordonbrook Dam spillway (2023/2024) and $5 million Boobir storage (2031/2032) are shown in the chart below. All figure costs are shown in current (real) dollars.

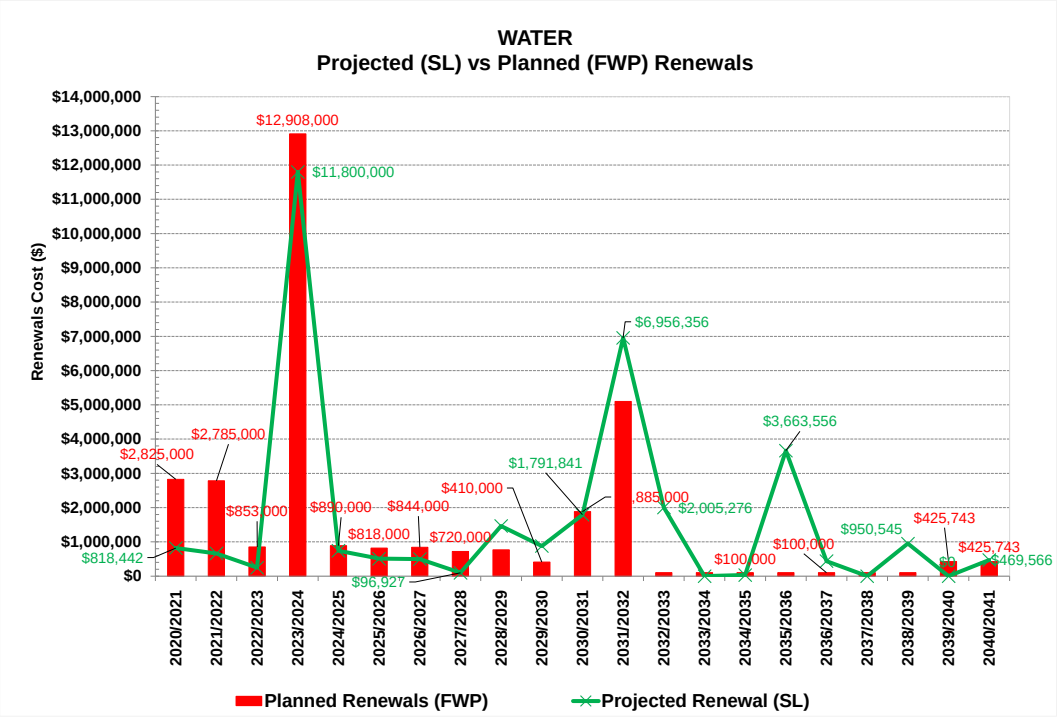
It is acknowledged that many mains to go in are also planned as upgrades, not just renewals. That is, increasing a 100DN to a 225DN, for example, which was based on the 2016 model MIPP will change.

Figure 16: Planned Renewals – Below Ground (passive) and Above Ground (active)



Forecast renewal costs are projected to increase over time if the asset stock increases. The chart below shows the forecast costs associated with renewals relative to the proposed (planned) renewal budget. Detailed summaries of the forecast 20-year (2021/2022 to 2040/2041) renewal costs are provided in Appendix J and assets due for replacement within the next 10 years provided in a separate spreadsheet.

Figure 17: Projected and Planned Renewals



The forecast renewal costs to year 2030/2031 are adequately met by Council's proposed renewal budgets. Over the following years, the budgets will need to be increased to align with forecast renewals expenditure.

Deferred renewal (assets identified for renewal and not scheduled in capital works programs) should be included in the risk analysis process in the risk management plan.

'Planned' long-term renewals expenditure taken from Council's forward works plan that is based on factors such as available funding, community expectations and the like. SBRC has developed a comprehensive 10-year plan based on its Asset Management Strategy and Policy.

Council is focused predominately on asset renewals and strengthening its asset registers and systems to be able to state its planned renewal position confidently. This means that as our asset systems mature, we will need to review forward works programs on an ongoing basis.

Total planned renewals (forward works program) spend is approximately $29.5 million over the 20 years, which is 14.1% of the current replacement cost (compared to 15.8% for $33.2 million forecast renewals).

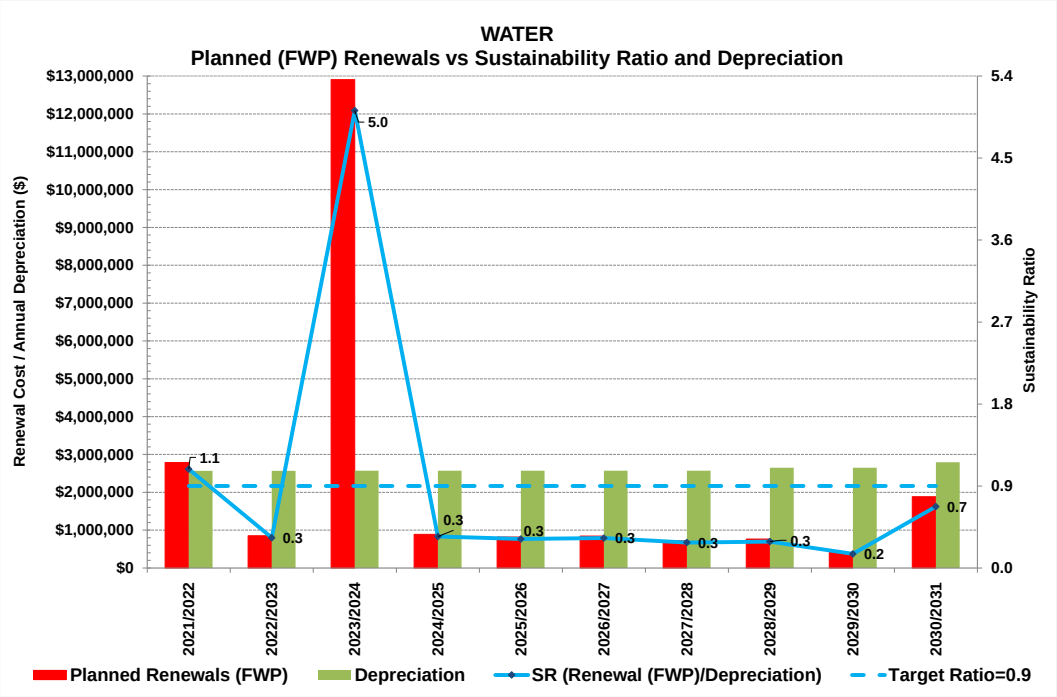
Over the first 10 years, the total planned renewals spend is approximately $22.9 million, which is 10.9% of the current replacement cost (compared to 8.9% for approximately $18.7 million forecast renewals). The majority of these planned renewals are:

- Dams - Gordonbrook Dam Spillway Replace and Upgrade; Widen Spillway to meet FIA and Spillway Adequacy - Due 2025 - Either 100% by 2025 or 75% by 2025 and 100% by 2035 - Design due 2 year prior to construction $11,800,000 [2023/24]

- Main Replacement Distribution Mains ($300,000 plus)–
  - Main Replacement and Upgrade at Kingaroy $548,000 [2022/23]
  - D'Agular Hwy (Drayton to Racecourse Road) at Nanango $1,008,000 [2023/24]
  - Harris Road (Walter to Silky Oak) at Kingaroy $700,000 [2030/31]
  - Rising Main (Harris to New Reservoir) at Kingaroy $320,000 [2030/31]
  - Fisher Street Pump Station (Cnr Fisher St and Haly St) at Kingaroy $320,000 [2030/31]
- Reservoirs –
  - Kingaroy Hts 0.5 ML Replacement Reservoir at Kingaroy $1,000,000 [2021/22]
  - Reservoir 1 ML Replacements at Proston $1,200,000 [2021/22]
  - AC pipework Scott St Res at Wondai $50,000 [2021/22]
  - AC pipework Hospital Res at Nanango $50,000 [2021/22]
  - Kingaroy Heights 2 x 0.5 ML Reservoirs Reline at Kingaroy $500,000 [2024/25]
  - Premier Drive 1 ML Storage Reline at Kingaroy $500,000 [2025/26]
- Raw Water Pump Station –
  - AC pipework Old Raw Water PS at Blackbutt $50,000 [2021/22]

A comparison over the first 10 years of planned renewals expenditure versus forecast depreciation and the ratio of renewals to depreciation (sustainability ratio) is shown below. The chart shows the State's sustainability target of 90% of depreciation.

Figure 18: Planned Renewals, Depreciation and Sustainability Ratio



6.5 Acquisition Plan

Acquisition reflects are new assets that did not previously exist or works which will upgrade or improve an existing asset beyond its existing service capacity. Acquisitions may be the result of growth, demand, social or environmental needs. Assets may also be donated to Council be developers or other levels of government.

6.5.1 Selection criteria

Proposed upgrade of existing assets, and new assets, are identified from various sources such as community requests, proposals identified by strategic plans or partnerships with others. Potential upgrade and new works should be reviewed to verify that they are essential to the Entities needs. Proposed upgrade and new work analysis should also include the development of a preliminary renewal estimate to ensure that the services are sustainable over the longer term. Verified proposals can then be ranked by priority and available funds and scheduled in future works programmes. The priority ranking criteria are detailed in the table below.

Table 22: Acquired Assets Priority Ranking Criteria

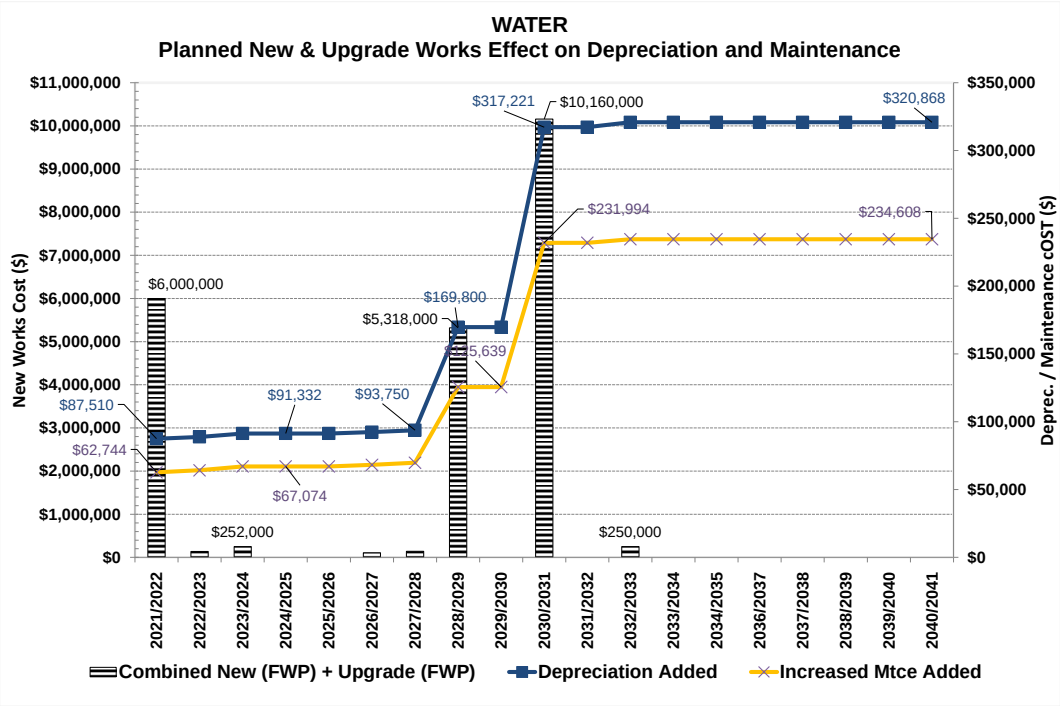
Criteria	Weighting
System performance improvement	35%
Reliability of treatment improvement	35%
Maintenance minimisation	10%
Links to Community Plan and Corporate Plan	5%
Links to works programs and strategies	5%
Community Request	10%
Total	**100%**

6.5.2 Summary of future asset acquisition costs

When an Entity commits to new or upgraded assets, they must be prepared to fund future operations, maintenance and renewal costs. They must also account for future depreciation when reviewing long term sustainability.

When reviewing the long-term impacts of asset acquisition, it is useful to consider the cumulative cost of the acquired assets being taken on by the Entity. The cumulative cost of all acquisition work, including assets that are constructed and contributed shown in the chart below. The Planned (Budgeted) Forward Works Program Projects are listed in Appendix I. This will change when Council includes in the FWP recommendations from the MIPP. The current 10 years FWP is conservative until the results of this study are obtained.

Figure 19: Acquisition Summary



All figure costs are shown in current (real) dollars.

Expenditure on new assets and services in the capital works program will be accommodated in the long-term financial plan, but only to the extent that there is available funding. The above chart shows the impact of new and upgraded assets that will require a commitment to the funding of ongoing operations, increased depreciation, maintenance and renewal costs for the period that the service provided from the assets is required.

6.5.3 Summary of asset forecast costs

The financial projections from this asset plan are shown in the diagram below. These projections include forecast costs for asset acquisition, operation, maintenance, renewal, and disposal, shown relative to the proposed budget. Depreciation is excluded.

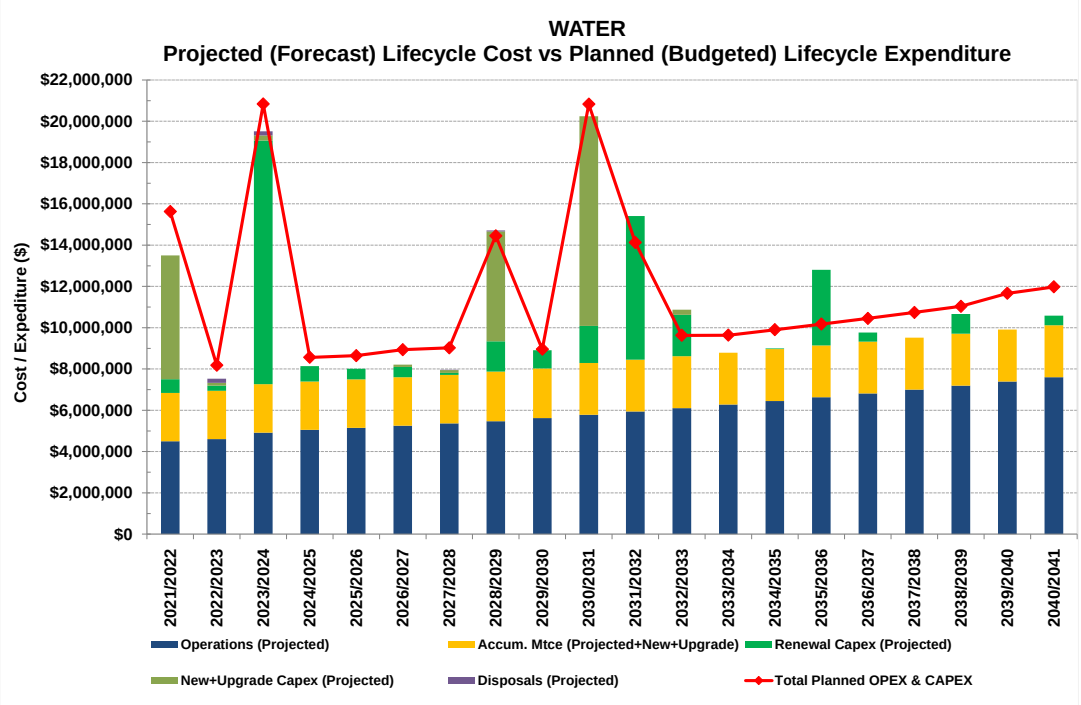
The bars in the graphs represent the forecast costs needed to minimise the life cycle costs associated with the service provision. The proposed budget line indicates the estimate of available funding. The gap between the forecast work and the proposed budget is the basis of the discussion on achieving a balance between costs, levels of service and risk to achieve the best value outcome.

The planned (budgeted) expenditure meets the forecast cost for the majority of years. The average annual planned and forecast expenditures are approximately $11.7 million and $11.2 million, respectively.

Significant projects in 2021/2022 are $2 million for purchasing a water allocation, $4 million for new ML Mt Wooroolin reservoir to cater for increased demand, $1 million for Kingaroy Hts reservoir replacement and $1.2 million for Proston reservoirs replacement.

A significant project in 2023/2024 is the planned $11.8 million widening of the Gordonbrook Dam Spillway to meet regulatory safety requirements, due by 2025. A significant new works project in 2030/2031 is a $10 million provision for supply from McCauley Weir, rising main, pump stations, treatment facilities or main to Boondooma Dam pipeline.

Figure 20: 20 Year Lifecycle Summary



All figure costs are shown in current (real) dollars.

6.6 Disposal Plan

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation. Assets identified for possible decommissioning and disposal and associated costs are shown in the table below. Any costs or revenue gained from asset disposals is included in the long-term financial plan.

Table 23: Assets Identified for Disposal

Asset	Reason for Disposal	Timing	Disposal Costs	Annual OPEX Savings
Demolish old Murgon WTP Building and Storage Shed, Wondai WTP Building	AC roof	2022/23	$200,000	Nil currently, not maintained
Demolish old Wondai WTP Buildings Fick's Crossing	Disused, structurally dangerous	2023/24	$200,000	Nil currently, not maintained
Distribution main Haly St (Fisher to Willowglen)	Not in-service AC main	2027/28	$15,000	Nil currently, not maintained
Distribution main Haly St (Fisher to West), Kingaroy	Not in-service AC main	2028/29	$50,000	Nil currently, not maintained

7.0 RISK MANAGEMENT PLANNING

The purpose of infrastructure risk management is to document the findings and recommendations resulting from the periodic identification, assessment and treatment of risks associated with providing services from infrastructure, using the fundamentals of International Standard ISO 31000:2018 Risk management – Principles and guidelines.

Risk Management is defined in ISO 31000:2018 as: 'coordinated activities to direct and control with regard to risk'[16].

An assessment of risks[17] associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a 'financial shock', reputational impacts, or other consequences. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, and the consequences should the event occur. The risk assessment should also include the development of a risk rating, evaluation of the risks and development of a risk treatment plan for those risks that are deemed to be non-acceptable.

7.1 Critical Assets

Critical assets are defined as those which have a high consequence of failure causing significant loss or reduction of service. Critical assets (scheme components/ sub-components) have been identified in the 2019 DWQMP as part of work to identify and reduce risks.

Typical failure modes and the impact on service delivery for asset categories are summarised in the table below. Failure modes may include physical failure, collapse or essential service interruption.

Table 24: Failure modes and Impacts for Asset Categories

Critical Assets (by Category)	Failure Mode	Impact
Below ground pipework	Breaks, leaks, and degradation	Interrupted supply, loss of water
Bores	Casing corrosion, breakage	Poor water quality
Dams and Weirs	Structural	Loss of water, possible interrupted supply, environmental and social (inundation downstream)
Civil	Structural failure, coating failure, unsafe, degradation,	Service outage / interruption
Electrical	Component failure, will not operate, overload, burnt out, insulation worn out, unsafe, degradation, performance loss, degradation, software failure	Service outage, interrupted / inefficient processes, e.g. Treatment and poor water quality

[16] ISO 31000:2009, p 2

[17] Risk Management Policy 2018

Critical Assets (by Category)	Failure Mode	Impact
Mechanical (incl. valves)	Structural, bearing/seal failure, component failure, seized/jammed, worn out, unsafe	Overflows to the environment, health impacts, interrupted transfer and treatment process, poor water quality

By identifying critical assets and failure modes, an organisation can ensure that investigative activities, condition inspection programs, maintenance and capital expenditure plans are targeted at critical assets.

In order to manage risk, Council has service agreements in place and standardised equipment (e.g., dosing pumps and parts/components in stores or easily available). A stocktake of minimum parts required is done every two weeks, and critical spares are held at treatment plants.

7.2 Infrastructure Resilience Approach

The resilience of our critical infrastructure is vital to the ongoing provision of services to customers. To adapt to changing conditions, we need to understand our capacity to 'withstand a given level of stress or demand', and to respond to possible disruptions to ensure continuity of service.

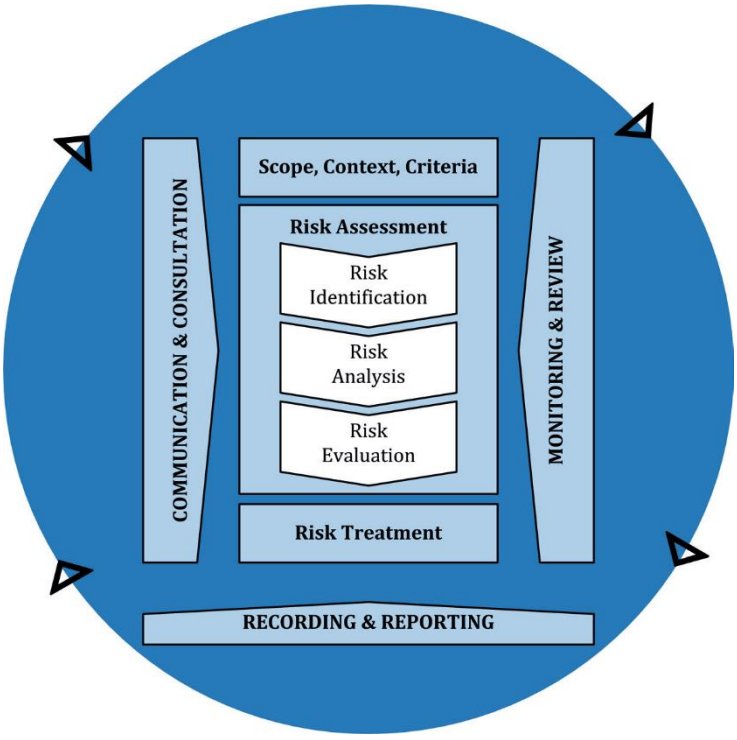
We do not currently measure our resilience in service delivery. This will be included in future iterations of the Asset Management Plan.

7.3 Risk Assessment

[18]The risk management process used is shown in the figure below. It is an analysis and problem-solving technique designed to provide a logical process for the selection of treatment plans and management actions to protect the community against unacceptable risks. This process is based on the fundamentals of International Standard ISO 31000:2018. Council's current Risk Management Policy (due for review last December 2019) including the process for identifying and managing risks, is based on AS/NZS ISO 31000:2009.

The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur,

Figure 21: Risk Management Process (Abridged)



[18] Source: ISO 31000:2018, Figure 1, p9

development of a risk rating, evaluation of the risk and development of a risk treatment plan for non-acceptable risks.

An assessment of risks[19] associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a 'financial shock', reputational impacts, or other consequences.

7.4 Risk Treatment

Section 4.2 of the DWQMP provides results of the assessment of risks, preventative measures/barriers and proposed additional risk reduction actions. Section 5.2 provides further details on managing risks for Critical Control Points at treatment plants, operations and maintenance procedures, managing incidents and emergencies, the overall Risk Management Improvement Program and operational and verification monitoring programs.

The treatment costs of implementing the Risk Management Improvement Program in the DWQMP have not yet been determined.

[19] Risk Management Policy 2018

8.0 FINANCIAL SUMMARY

This section contains the financial requirements resulting from the information presented in the previous sections of this Asset Management Plan. The financial projections will be improved as the discussion on desired levels of service and asset performance matures.

8.1 Long-Term Financial Forecast

Council's Long-Term Financial Forecast for this asset class is as follows:

8.2 Forecast costs for long term financial plan

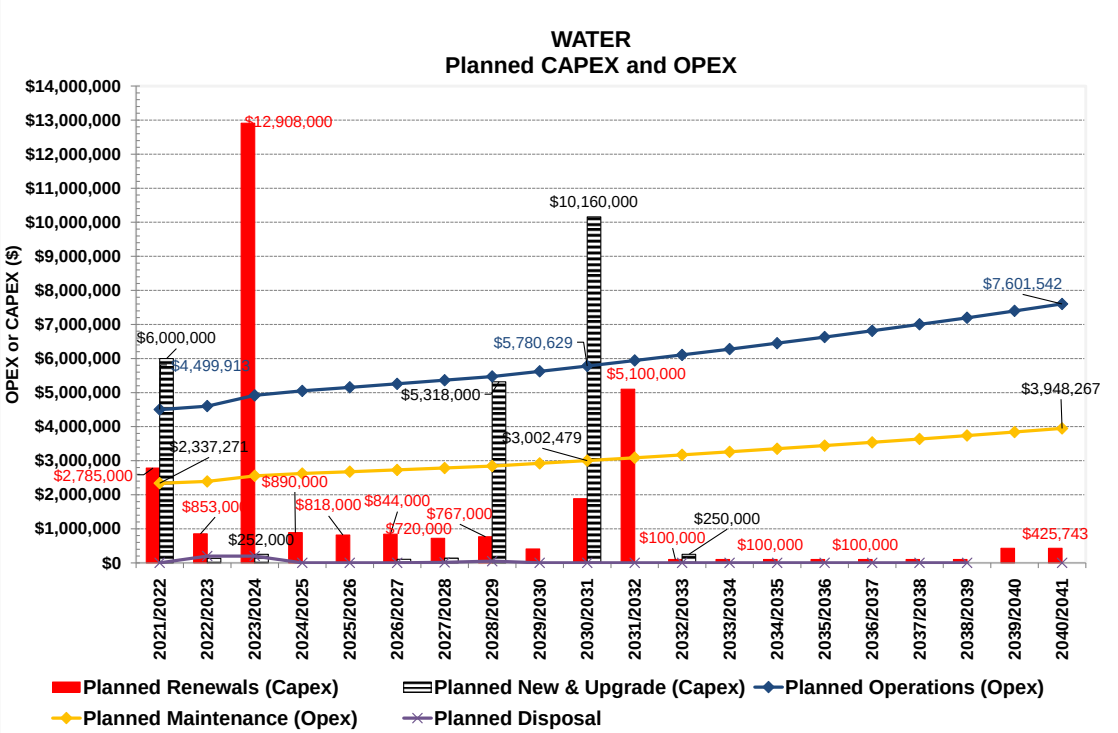
This Asset Management Plan identifies the forecast operations, maintenance and renewal costs required to provide a defined level of service to the community over a 20-year period.

Forecast costs are shown in 2019/20 real costs.

Table 25: Forecast Costs for Long Term Financial Plan

Year	Forecast Acquisition	Forecast Operation	Forecast Maintenance	Forecast Renewal	Forecast Disposal
2021/2022	$6,000,000	$4,499,913	$2,342,060	$662,548	$0
2022/2023	$137,000	$4,602,449	$2,343,585	$246,669	$200,000
2023/2024	$252,000	$4,918,803	$2,346,390	$11,800,000	$200,000
2024/2025	$0	$5,050,387	$2,346,390	$743,116	$0
2025/2026	$0	$5,152,123	$2,346,390	$510,269	$0
2026/2027	$106,000	$5,256,350	$2,347,569	$499,080	$0
2027/2028	$140,000	$5,363,136	$2,349,128	$96,927	$15,000
2028/2029	$5,318,000	$5,472,551	$2,404,954	$1,464,666	$50,000
2029/2030	$0	$5,624,481	$2,404,954	$877,387	$0
2030/2031	$10,160,000	$5,780,629	$2,511,309	$1,791,841	$0
2031/2032	$0	$5,941,113	$2,511,309	$6,956,356	$0
2032/2033	$250,000	$6,106,051	$2,513,923	$2,005,276	$0
2033/2034	$0	$6,275,569	$2,513,923	$0	$0
2034/2035	$0	$6,449,793	$2,513,923	$32,354	$0
2035/2036	$0	$6,628,853	$2,513,923	$3,663,556	$0
2036/2037	$0	$6,812,885	$2,513,923	$437,484	$0
2037/2038	$0	$7,002,026	$2,513,923	$0	$0
2038/2039	$0	$7,196,418	$2,513,923	$950,545	$0
2039/2040	$0	$7,396,207	$2,513,923	$0	$0
2040/2041	$0	$7,601,542	$2,513,923	$469,566	$0
Total	**$22,363,000**	**$119,131,281**	**$48,879,346**	**$33,207,641**	**$465,000**

Figure 22: Planned CAPEX and OPEX



8.3 Sustainability of service delivery

There are two key indicators of sustainable service delivery that are considered in the Asset Management Plan for this service area. The two indicators are the:

- asset renewal funding ratio (proposed renewal budget for the next 10 years divided by the forecast renewal costs for the next 10 years), and
- medium-term forecast costs compared to proposed (planned) budget (over 10 years of the planning period).

8.3.1 Medium-term (10-year) financial planning period

Over the 10-year period to 2030/31, the forecast total renewal cost is $18,692,505 compared to the higher budgeted total cost of $22,880,000.

8.3.2 Asset Renewal Funding Ratio

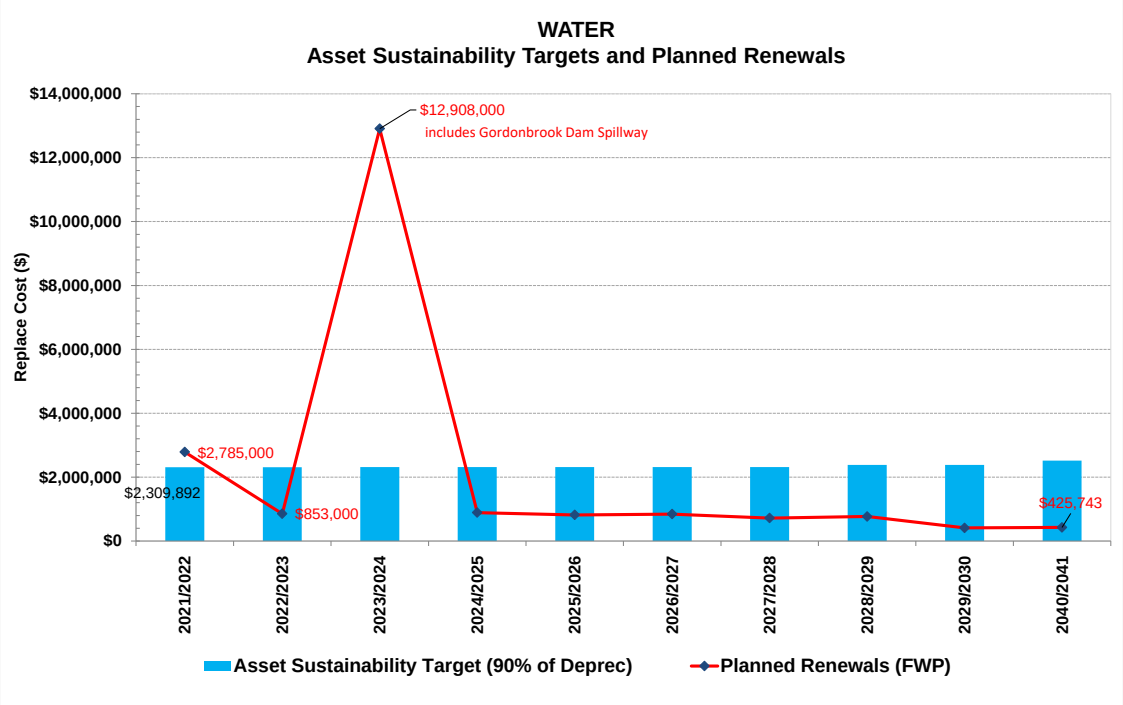
The Asset Renewal Funding Ratio[20] represents Forecast Renewals divided by Forecast Depreciation expressed as a percentage.

The Asset Renewal Funding (Asset Sustainability) Ratio is an important indicator that illustrates that over the next 10 years we expect to have an average 88% of the funds required for the optimal renewal of assets (56% over the next 20 years).

Annual predictions for planned renewals for the next 10 years are illustrated in the chart below. These are shown against the asset sustainability target set by the State (i.e., 90% of asset class depreciation). The 10 years annual average sustainability target is $2,347,531 compared to the planned renewals average annual $2,288,000 indicating asset sustainability over this period if current service levels are maintained.

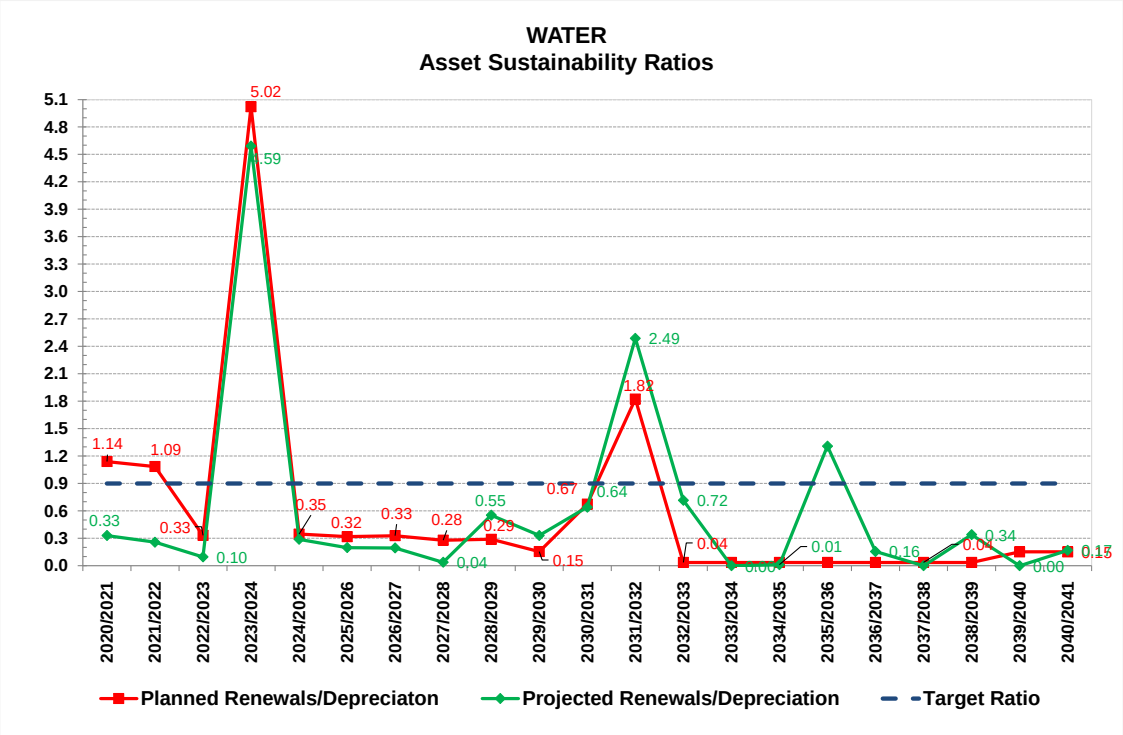
[20] AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

Figure 23: Asset Sustainability Targets and Planned Renewals



The chart below shows ratios for projected (forecast) and planned renewals against the target for 20 years.

Figure 24: Asset Sustainability Ratios for Planned and Projected Renewals



The 20 years forecast renewal costs and the proposed renewal budgets (from FWP) are listed in Appendix F.

8.3.3 Observations

The planned renewals expenditure is sufficient in the medium term.

8.3.4 Implications

Review planned renewals expenditure needs for the longer term – a likely increase is required based on forecast expenditure.

8.4 Funding Strategy

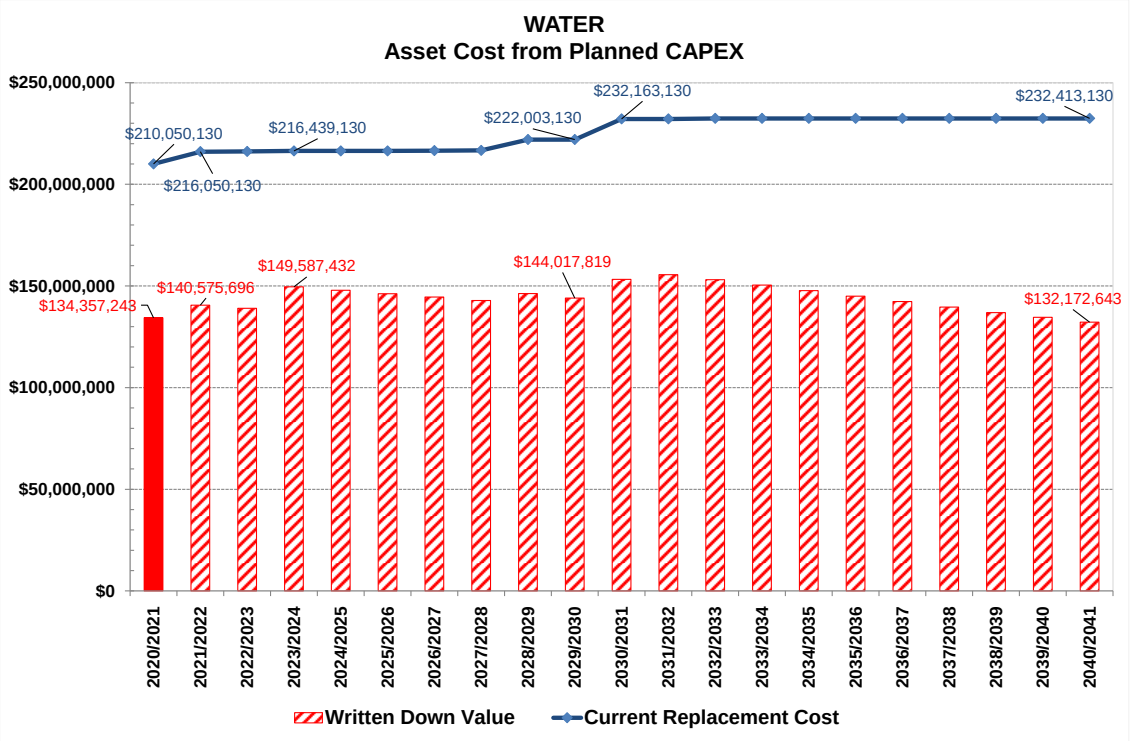
The proposed funding for assets is outlined in Council's budget and long-term financial plan.

Council's financial strategy articulates what funding will be provided and how it will be sourced. The Asset Management Plan communicates how and when this funding will be spent, along with the service and risk consequences of various service alternatives.

8.5 Valuation Forecasts

Over the next 20-years, Council is expected to add $22,363,000 to the cost of its Water assets. This will increase the current replacement cost to approximately $232.4 million (10.6%) as these additional assets are added. The written down value is forecast to decrease by approximately $2.1 million (-1.7%) from $134,357,243 (2010/21) to $132,172,643.

Figure 25: Asset Costs from Planned CAPEX (20 Years)



Additional assets will generally add to the operations and maintenance needs in the longer term. Additional assets will also require additional costs due to future renewals. Any additional assets will also add to future depreciation forecasts.

8.6 Key Assumptions Made in Financial Forecasts

In compiling this Asset Management Plan, it was necessary to make some assumptions. This section details the key assumptions made in the development of this Asset Management Plan. It should provide readers with an understanding of the level of confidence in the data behind the financial forecasts.

Key assumptions made in this Asset Management Plan are:

- All costs are shown in 2019/20 real costs and make no allowance for inflations.
- In developing the renewals forecasts, assumptions have been made relating to asset remaining lives and unit replacement costs derived from 2020 water valuations.
- OPEX forecast for 2019/20 is based on 41 weeks of actual spend (excluding dividends and depreciation), and the operations and maintenance amounts (as a basis for splits of future OPEX) are allocated from Account Number Description. Where a cost has not been able to be allocated (e.g. 'Salary- Overtime'), it has been split 60:40 for Operations: Maintenance. A more detailed analysis of activity costs has been undertaken.
- Operations costs are allocated in the proportion 20:80 and maintenance costs 60:40 for passive: active assets based on actuals obtained for another similar regional Qld. Council.
- Forecast and planned operations spend is the same and indexed in line with annual budgeted OPEX increases.
- Forecast maintenance costs for Council's current asset stock is based on (forecast) actuals for 2019/20 plus increased maintenance due to new and upgraded assets as a percentage of cost. That percentage is the 2019/20 maintenance as a proportion of 2020 replacement cost.
- The budgeted and forecast costs for new, upgrade and renewals project over the 20-year period are based on Council provided data for the first 18 years and the historical average annual cost adopted for the remaining 2 years.
- The list of new and upgrade CAPEX projects is incomplete. Council is awaiting outcomes in coming months of consultant 'Morris Water' modelling, e.g. pipeline upgrade costs, which will inform updates of the FWP and the next version of Water AMP.

8.7 Forecast Reliability and Confidence

The forecast costs, proposed budgets, and valuation projections in this Asset Management Plan are based on the best available data. For effective asset and financial management, it is critical that the information is current and accurate. Data confidence is classified on an A - E level scale[21] in accordance with the table below.

Table 26: Data Confidence Grading System

Confidence Grade	Description
A. Highly reliable	Data based on sound records, procedures, investigations and analysis, documented properly and agreed as the best method of assessment. Dataset is complete and estimated to be accurate ± 2%
B. Reliable	Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example, some of the data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation. Dataset is complete and estimated to be accurate ± 10%
C. Uncertain	Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available. Dataset is substantially complete, but up to 50% is extrapolated data and accuracy estimated ± 25%
D. Very Uncertain	Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete, and most data is estimated or extrapolated. Accuracy ± 40%
E. Unknown	None or very little data held.

The estimated confidence level for and reliability of data used in this Asset Management Plan is shown in the table below.

Table 27: Data Confidence Assessment for Data used in the Asset Management Plan

Data	Confidence Assessment	Comment
Demand drivers	C	If population growth or industrial development forecasts prove to be incorrect, there may be over or under investment in new assets.
Growth projections	C	If growth forecasts prove to be incorrect, there may be over or under investment in new assets.
Acquisition forecast	D	Incomplete - Council is awaiting outcomes of modelling to inform updates of the FWP and the next version of Water AMP.
Operation forecast	D	Future amounts are in proportion to 2019/20 forecast spend based on 41 weeks of actuals. The Council OPEX budget which does not identify operation and maintenance separately is based on historical data
Maintenance forecast	D	Future amounts are in proportion to 2019/20 forecast spend based on 41 weeks of actuals.

[21] IPWEA, 2015, IIMM, Table 2.4.6, p 2|71.

Data	Confidence Assessment	Comment
		The Council OPEX budget which does not identify operation and maintenance separately is based on historical data
Renewal forecast - Asset costs	**B**	Forecast costs are taken from recent 2020 valuations - for above ground assets at 'child' level and below ground assets at an individual asset level. Planned are taken from the approved FWP are based on condition and performance data
- Asset useful lives	**B**	The 2020 valuations used 2019 condition ratings for assessed visible and accessible above-ground assets. Asset age as a proportion of useful life has been used to estimate remaining life and condition for the balance of assets.
- Condition modelling	**C**	The 2020 valuations used 2019 condition ratings for assessed visible and accessible above-ground assets. Asset age as a proportion of useful life has been used to estimate remaining life and condition for the balance of assets. Risk assessment and sample non-destructive testing is desirable for older critical below-ground assets (e.g., trunk mains)
Disposal forecast	**C**	Included below renewals in the FWP – has been split out of FWP for purposes of analyses for this AMP. Costs in FWP are based on experience

The estimated confidence level for (and reliability of) the data used in this Asset Management Plan is considered to be 'C'.

9.0 INFORMATION MANAGEMENT

9.1 Asset Information Management Systems

9.1.1 Asset Register

Council uses *TechnologyOne* as its corporate asset management system. The asset register is part of this solution. The *TechnologyOne* asset register holds both structured non-spatial asset data and financial information about the assets (e.g., valuations).

9.1.2 GIS

Council uses the MapInfo geographical information system (GIS) to store structured spatial information about its Water assets. The GIS is also used to capture and display spatial data (e.g., cadastral, topographic and aerial information).

9.1.3 Records Management System

Council uses the *TechnologyOne* Records Management solution to capture, store and organise unstructured documents (e.g., letters, reports, etc.).

Design and As Constructed drawings are stored in a shared network drive.

9.1.4 Customer Request System

Council uses *TechnologyOne* to record and manage all incoming Customer Requests or complaints.

9.1.5 Work Management System

[If you have a works management system the describe it here, otherwise state that you use a manual works management system. A works management system is used for creating and managing work orders, inspections and defects against assets. It has both reactive and scheduled components].

9.1.6 Work Category Definitions

Council's Finance Department is currently reviewing work category definitions to support more consistent reporting of activity. We expect the following work categories:

Table 28: Work Category Definition

Work Type	Work Category	Description
CAPEX	New/ Expansion	Expenditure, which creates a new asset to meet additional service level requirements, e.g. new building, road, etc.
	Renewal/ Refurbishment	Expenditure on an existing asset, which, restores, rehabilitates, replaces existing asset to its original capacity, e.g. resurfacing of roads.
	Upgrade	Expenditure, which enhances an existing asset to provide a higher level of service, e.g. widening of road seal.
OPEX	Maintenance	Recurrent expenditure, periodically or regularly required as part of the anticipated schedule of works required keeping assets operating, edge road patching.
	Operations	Recurrent expenditure or regular activities to provide public health, safety and amenity, e.g. street sweeping, grass mowing, street lighting, cost of supply from utilities, such as water, electricity etc.
	Disposal	Expenditure related to the disposal of an asset.

The development of a standardised method for allocating asset-related costs has been identified in the AMP Improvement Plan.

9.1.7 Financial Management System

Council uses *TechnologyOne* as its corporate financial management system. It records and stores and reports on all financial and business operations. *TechnologyOne* is used for the entire spectrum of financial activity, including:

- General Ledger
- Job costing
- Procurement
- Inventory
- HR and payroll

Data is entered into (or generated within) the system from source documentation (e.g., staff timesheets for payroll transactions or purchase orders for goods and services).

Technology One also generates all statutory and financial management reports that are available to all levels of staff and elected representatives.

9.1.8 ICT Infrastructure Platform

Council's ICT platform (i.e., network, servers and computing devices) meet Water Services' requirements.

There are some connectivity issues at remote sites, but these relate more to the telecommunication providers' networks than Council's ICT infrastructure.

9.1.9 Systems Fitness-for-Purpose Assessment

The information systems used to manage Wastewater assets are fit-for-purpose because:

- Wastewater services operations are supported by our own software (i-Weigh).
- This software isn't integrated with Council's TechnologyOne platform. However, for what Waste Services pay in yearly subscription fees compared to an alternative integrated solution, any manual input is presently cost-effective.
- TechnologyOne is labour intensive to set up and maintain. However, this is the corporate solution and, therefore, it is unlikely that Wastewater Services will change.

9.2 Asset Data Management

9.2.1 Accounting and financial data sources

This Asset Management Plan utilises accounting and financial data. The source of this data is the *TechnologyOne* enterprise application suite.

9.2.2 Financial Management Data Requirements

9.2.2.1 Asset Valuation

In accordance with Accounting Standard AASB1041, Council is required to account for all its assets, including the cost of current and non-current assets in financial reports thereby identifying to the community the level of investment in assets. These assets are then depreciated on an annual basis with the aim of reflecting the community usage of its infrastructure assets.

Council splits its Assets into classes for valuation purposes. Council asset classes are:

- Land
- Buildings
- Plant & Equipment
- Roads, Drainage & Bridges
- Water
- Sewerage
- Other Infrastructure

Each class is valued in its entirety to reflect its fair cost. Council uses independent external valuers to undertake the valuation process. Verification of the completeness of Council's Asset Register will be undertaken as part of the development of the Individual Asset Plans.

9.2.2.2 Asset Depreciation

Council's infrastructure assets are non-current assets, and their depreciation is treated as follows:

- Buildings, plant and equipment, infrastructure, and other assets which have limited useful lives are systematically depreciated over their useful lives to the Council in a manner which reflects the consumption of the service potential embodied in those assets. Estimates of remaining useful lives and residual costs are made regularly. Depreciation rates and methods are reviewed annually.
- Where infrastructure assets have separately identifiable components that are subject to regular replacement, these components are assigned distinct useful lives and residual costs, and a separate depreciation rate is determined for each component.

9.2.2.3 Capitalisation of Assets

Each class of assets have been recognised in accordance with Council's Asset Management Policy. The asset recognition thresholds detailed in the policy have applied when recognising Water assets unless otherwise stated here.

9.2.2.4 Asset management data sources

This Asset Management Plan also utilises asset management data. The primary source of this data is the *TechnologyOne* enterprise application suite.

TechnologyOne data is augmented with other asset-related data stored in:

- MapInfo (GIS)
- Shared network drives (Drawings)
- Spreadsheets (asset modelling data)

9.2.3 Asset Management Data Requirements

Electronically stored data is vital to sound management of assets. It is used for several purposes, including the development of rolling works programs based on the priority of needs. These programs are then used for strategic financial modelling for the organisation.

9.2.4 Data Management Roles and Responsibilities

9.2.4.1 Asset Data Manager

The manager of the asset will determine the extent of additional information required to manage, maintain and report on infrastructure assets to ensure optimal asset function and asset lifecycle as well as management.

9.2.4.2 Asset Section

Asset Section staff are responsible for ensuring the updating and maintaining of the asset data to meet the organisational operational and financial requirements in delivering efficient and effective asset management.

This means ensuring that inspection data and information from Works Orders, is entered into the system. Other officers may perform some data entry tasks; however, the Asset Officers remain responsible for the integrity of this data.

It should be noted that procedures for Works Orders are still in development, and there is no formal system currently in place. However, it is an aim to have a functioning Works Order system to support sound asset management.

9.2.5 Data Quality Assessment

A key issue with collecting and storing this information is the recognition that it must be kept up-to-date. Obsolete data can produce meaningless information when efforts are made to use it for works programming and financial modelling.

As there may be a prohibitive cost to data collection, consideration must be given to collecting and storing only that data which will be useful to management needs.

10.0 PLAN IMPROVEMENT AND MONITORING

10.1 Status of Asset Management Practices[22]

The current level of asset management maturity has not been formally determined. It is likely to be at a minimum (Basic) to Core level.

10.2 Improvement Priorities

- Review asset register data accuracy via review of actual plans and historical data
- Confirm Assets for Renewals in Forward Budgets
- Prepare and prioritise 3-year rolling renewals program
- Confirm New and Upgrade Capital Works Projects in Forward Budgets after additional analysis, review and financial modelling
- Review Capital Works Budgeting and Financial Capacity
- Implement an improved Capital Works Delivery process from inception to delivery
- Monitor and confirm operations and maintenance spend
- Confirm condition/performance of assets through coordinated asset inspection program and repair analysis.
- Condition assess critical below ground mains through co-ordinated asset inspection program.
- Identify critical assets and asset risk profile
- Implement 2019 DWQMP Recommendations
- Document Maintenance Management Strategy, Schedule and Activities
- Develop Critical Spares Inventory Management System
- Asset Register/GIS Updates and Improvements Process
- Improve 'As Constructed' Data Capture procedure
- Define Staff Roles and Responsibilities

10.3 Key Performance Indicators (Improvement)

The effectiveness of this Asset Management Plan can be measured in the following ways:

- The degree to which the required forecast costs identified in this Asset Management Plan are incorporated into the long-term financial plan.
- The degree to which the detailed multi-year works programs, budgets, business plans and corporate 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, risks and residual risks are incorporated into the Strategic Plan and associated plans.
- Progress towards the achievement of Council's Asset Renewal Funding Ratio target (this target is currently 90%).

[22] ISO 55000 Refers to this as the Asset Management System

10.4 Improvement Plan

The improvement plan generated from this Asset Management Plan is shown below.

Table 29: Water Asset Management Improvement Plan

Item	Improvement Task	Description	Priority (H/M/L)	Internal $	External $	Responsible Person	Completion Date
LEVELS OF SERVICE							
1	Confirm LOS	Confirm proposed LOS and include in CSS	High	To Be determined	To Be determined	Manager WWW	June 2020
2	Confirm Customer Service Standard	Finalise draft 2019 Customer Service Standard including review of targets in line with outcomes of this AMP.	Medium	To Be determined	To Be determined	Manager WWW	June 2020
3	Formally gauge customer satisfaction and expectations	Incorporate customer consultation mechanisms around on service levels and costs of providing the service	Medium	To Be determined	To Be determined	Manager WWW	June 2021
CAPEX							
4	Confirm Assets for Renewals in Forward Budgets	Adopt the asset renewal profiles to meet service levels in the AMP as the basis for future renewals budgeting and revising the forward works plan	High	To Be determined	To Be determined	Manager WWW	June 2021.
5	Prepare 3-year rolling renewals program	For assets identified in the 5-year renewal profiles monitor their condition/performance and confirm assets for short term (3 year) rolling renewals program.	High	To Be determined	To Be determined	Manager WWW	June 2021.
6	Prioritise 3 years renewals program	Prioritise 3 years renewals program using criteria in this AMP with high priority renewals for next years detailed in works program and budget.	High	To Be determined	To Be determined	Manager WWW	June 2021.

Item	Improvement Task	Description	Priority (H/M/L)	Internal $	External $	Responsible Person	Completion Date
7	Confirm New and Upgrade Capital Works Projects in Forward Budgets	Confirm the need, extent, timing and cost of proposed new and upgrade capital works projects after additional analysis, review and financial modelling. There are few if any new or upgrade projects in the forward years of the Forward Works Program. A review and improvement of the LGIP projects (and thus FWP) based on modelling reviews etc. are required.	Medium	To Be determined	To Be determined	Manager WWW	June 2021.
8	Improve Capital Works Budgeting	Clearly identify (e.g. via Project ID), separate renewal, new, upgrade and disposal capital works in forward works program.	Low	To Be determined	To Be determined	Manager WWW	June 2021.
9	Improve Capital Works Plan Development and Coordination	Develop methodology and accurate 3- 5-year plan with indicative 10 year to allow better coordination of year-to-year planning for water assets and design together with consideration for Works section projects	Medium	To Be determined	To Be determined	Manager WWW	June 2021.
10	CAPEX Budgeting Review	Review Capital Works Budgeting and Financial Capacity	High	To Be determined	To Be determined	Manager WWW	December 2020
11	Capital Works Delivery Process	Implement an improved Capital Works Delivery process from inception to delivery	High	To Be determined	To Be determined	Manager WWW	June 2021.
OPEX							
12	Monitor operations and maintenance spend	Monitor and report on OPEX trends/exceptions for facilities and take corrective action as required.	Medium	To Be determined	To Be determined	Manager WWW	June 2021.

Item	Improvement Task	Description	Priority (H/M/L)	Internal $	External $	Responsible Person	Completion Date
13	Confirm operations and maintenance forecasts	Identify operations and maintenance in forecast budgets based on sound knowledge of actuals (activity budgeting). To date, Council has not been able to separate operations cost from maintenance.	High	To Be determined	To Be determined	Manager WWW	June 2021.
ASSETS							
14	Confirm condition/performance of assets	Confirm condition/performance of assets through co-ordinated asset inspection program and repair analysis Consider implementing a 'Fault Report Record' for call outs - repairs, inspections to record condition/performance of assets, e.g. main breaks, sewer connection blockages.	Medium	To Be determined	To Be determined	Water & Wastewater Engineer	June 2021.
15	Condition assess at risk (critical) below ground mains	Carry out nondestructive testing of sample aged/critical mains to determine condition and probability of failure	Low	To Be determined	To Be determined	Water & Wastewater Engineer	June 2021.
RISK							
16	Determine asset risk profile	Assign risk rating to all assets	Medium	To Be determined	$15,000	Water & Wastewater Engineer	December 2020
17	Identify critical assets	Identifying critical assets and failure modes to enable targeted investigative activities, condition inspection programs, maintenance and capital expenditure plans for critical assets	Medium	To Be determined	To Be determined	Water & Wastewater Engineer	June 2021.
OPERATIONS AND MAINTENANCE							

Item	Improvement Task	Description	Priority (H/M/L)	Internal $	External $	Responsible Person	Completion Date
18	Implement 2019 DWQMP Recommendations	Determine the treatment costs of implementing the Risk Management Improvement Program	High	To Be determined	To Be determined	Project Coordinator Water & Wastewater	June 2021.
19	Implement 2019 DWQMP Recommendations	Section 5.2 – Review Reservoirs and Reticulation procedures	High	To Be determined	To Be determined	Project Coordinator Water & Wastewater	December 2020.
20	Implement 2019 DWQMP Recommendations	Section 5.2 – Develop additional Reservoirs and Reticulation procedures (see RMIP in Appendix A)	Medium	To Be determined	To Be determined	Project Coordinator Water & Wastewater	December 2021.
21	Implement 2019 DWQMP Recommendations	Section 5.2 – Develop additional WTP procedures (O & M manuals)	Medium	To Be determined	To Be determined	Project Coordinator Water & Wastewater	December 2021.
22	Implement 2019 DWQMP Recommendations	Section 5.4 – All actions for Risk Management Improvement Program	High	To Be determined	To Be determined	Project Coordinator Water & Wastewater	August 2021
23	Maintenance Management Strategy and Schedule	Document Council's Maintenance Management Strategy for asset types including refine/develop, document in summary form a 'Maintenance Schedule' (e.g. a calendar year program of activities with frequency and responsibility).	Medium	To Be determined	To Be determined	Project Coordinator Water & Wastewater	June 2021

Item	Improvement Task	Description	Priority (H/M/L)	Internal $	External $	Responsible Person	Completion Date
24	Document Maintenance Management Activities	Document the required minimum routine inspection and maintenance management activities and prepare basic inspection/ checklists that align with technical service measures, particularly for critical assets, e.g. pump station, reservoir inspections (external/internal)	Medium	To Be determined	To Be determined	Project Coordinator Water & Wastewater	June 2021
25	Develop Critical Spares Inventory Management System	Continue to identify, list and procure if necessary, spares for critical assets and components including contact details documented for suppliers/repairers, e.g. pumps.	Medium	To Be determined	To Be determined	Project Coordinator Water & Wastewater	June 2021
DATA MANAGEMENT							
26	Asset Register/GIS Updates and Improvements Process	Complete the update of GIS mapping as required	Medium	To Be determined	To Be determined	Water & Wastewater Engineer	June 2021
27	Asset Register/GIS Updates and Improvements Process	Review asset register data accuracy via review of actual plans and historical data	High	To Be determined	To Be determined	Water & Wastewater Engineer	June 2021
28	Asset Register/GIS Updates and Improvements Process	Identify/confirm critical valves and ensure they are separated out in register (could be included in Pipework, Valves & Fittings)	Medium	To Be determined	To Be determined	Water & Wastewater Engineer	June 2021
29	Asset Register/GIS Updates and Improvements Process	Decide on the process to correct asset attribute data inconstancies. Address missing and incorrect attribute data (main sizes, materials and install dates/age, or a mixture of all)	Medium	To Be determined	To Be determined	Water & Wastewater Engineer	June 2021

Item	Improvement Task	Description	Priority (H/M/L)	Internal $	External $	Responsible Person	Completion Date
30	Asset Register/GIS Updates and Improvements Process	Develop a process for field capture (e.g. staff measure onsite as part of routine operations) and GIS/register system updating of missing asset attribute data	Medium	To Be determined	To Be determined	Water & Wastewater Engineer	June 2021
31	Improve 'As Constructed' Data Capture procedure	Develop and implement 'as constructed' work procedure and Process to handover Donated Assets (e.g. in Asset Accounting Manual)	Medium	To Be determined	To Be determined	Water & Wastewater Engineer	June 2021
STAFF MANAGEMENT							
32	Define Roles and Responsibilities	Ensure roles and responsibilities are clearly defined and communicated for positions relating to water asset management.	Medium	To Be determined	To Be determined	Manager WWW	June 2021

10.5 Monitoring and Review Procedures

This asset management plan will be reviewed bi-annually. This review shall include, but not be limited to:

- Condition and performance of assets:
  - Changes in overall condition;
  - Levels of service achieved;
  - Financial forecasts;
  - Validation of estimated costs for asset works.
- Progress on Capital Works Development Program;
- Recommendations for amendments;
- The performance and appropriateness of asset documents, including:
  - Asset Management Policy;
  - Asset Management Strategy;
  - Individual Asset Management Plans;
  - Individual Asset Class Specifications.

10.5.1 Audit Review Process

Council will implement an audit process to ensure:

- Assets are recorded accurately within Council's asset management system;
- Condition assessments and maintenance inspections are conducted in accordance with Council's Individual Asset Class Specifications frequency, methodology and criteria;
- Works programs are developed according to relevant criteria;
- Works are completed in accordance with Council's Individual Asset Specifications;
- Completed works are recorded in the asset management system; and
- Expenditure is correctly allocated between capital and maintenance in accordance with Council's guidelines.

10.5.2 Reviewing Maintenance Management Performance

SBRC has developed a Water Asset Maintenance Management Plan that defines the maintenance service and standard levels for Water assets.

Part of the annual budget process is to review asset performance following the delivery of the maintenance program. Actual expenditures are compared to those budgeted, and any significant variances are analysed with any necessary remedial action accounted for in the new budget.

Effectiveness of the various maintenance activities is reviewed to ensure that they are delivering what is required to keep the asset performing at the required level of service.

Part of this process is to determine whether it is effective to continue funding maintenance or in fact that the particular asset or asset component requires rehabilitation, renewal or upgrading or even being downgraded.

10.5.3 Reporting Asset Achievements

Council's Annual Report is the vehicle used to report asset management achievements of its CAPEX and OPEX strategies against planned targets and programs to the community.

11.0 REFERENCES

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Appendix A: Glossary

The following terms defined/ described to clarify concepts referred to in this document.

Table 30: Glossary

Term	Description
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	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.
Asset Management Plan	A plan developed for the management of one or more infrastructure assets that combines multi-disciplinary management techniques (including technical and financial) over the lifecycle of the asset in the most cost-effective manner to provide a specified level of service. A significant component of the plan is a long-term cash flow projection for the activities.
Asset Renewal	Replacement or rehabilitation to original size and capacity of a water asset or the component of the asset. Renewals are “capitalised” so that the cost can be depreciated over the future life of the asset.
Core Asset Management	Asset management which relies primarily on the use of an asset register, maintenance management systems, job/resource management, condition assessment and defined levels of service, in order to establish alternate treatment options and long term cash flow predictions. Priorities are usually established on the basis of financial return gained by carrying out the work (rather than risk analysis and optimised renewal decision making).
Infrastructure Assets	Physical assets of the entity or of another entity that contribute to meeting the public's need for access to major economic and social facilities and services, e.g. roads, drainage, footpaths and cycleways. These are typically large, interconnected networks or portfolios of composite assets. The components of these assets may be separately maintained, renewed or replaced individually so that the required level and standard of service from the network of assets is continuously sustained. Generally, the components and hence the assets have long lives. They are fixed in place and are often have no market value.
Level of Service	The defined service quality for a particular service against which service performance may be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental, acceptability and cost).
Life Cycle Cost	The life cycle cost (LCC) is the average cost to provide the service over the longest asset life cycle. It comprises annual maintenance and asset consumption expense, represented by depreciation expense. The Life Cycle Cost does not indicate the funds required to provide the service in a particular year.
Life Cycle Expenditure	The Life Cycle Expenditure (LCE) is the actual or planned annual maintenance and capital renewal expenditure incurred in providing the service in a particular year. Life Cycle Expenditure may be compared to Life Cycle Cost to give an initial indicator of life cycle sustainability.

Term	Description
Maintenance and Renewal Sustainability Index	The ratio of estimated budget to projected expenditure for maintenance and renewal of assets over a defined time (e.g. 5, 10 and 15-years).
Performance Measure	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.
Reactive Maintenance	Unplanned repair work carried out in response to service requests and management/supervisory directions.
Scheduled Maintenance	Maintenance carried out in accordance with a routine maintenance schedule, e.g. scheduled pump maintenance.
Planned Maintenance	Repair work that is identified and managed through the customer requests system (e.g. Dataworks). These activities include inspections, assessing the condition against failure/breakdown experience, prioritising, scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.
Rate of Annual Asset Renewal	A measure of the rate at which assets are being renewed per annum expressed as a percentage of their depreciable amount (capital renewal expenditure/ depreciable amount).
Reactive Maintenance	Unplanned repair work carried out in response to service requests & management / supervisory directions.
Recurrent Expenditure	Relatively small (immaterial) expenditure or that which has benefits expected to last less than 12 months. Recurrent expenditure includes operating and maintenance expenditure.
Remaining Life	The time remaining until an asset ceases to provide the required service level or economic usefulness. Age plus remaining life is economic life (also useful life).
Renewal Expenditure	Major works which do not increase the asset's design capacity but restores, rehabilitates, replaces or renews an existing asset to its original service potential.
Upgrade/Expansion Expenditure	Work over and above restoring an asset to original service potential.
Useful Life (also economic 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 the estimated or expected time between placing the asset into service and removing it from service, or the estimated period of time over which the future economic benefits embodied in a depreciable asset, are expected to be consumed by the Council.
New Assets	Activities that create a water asset that did not exist previously or extend an asset beyond its original size or capacity. New assets are also "capitalised", but they increase the asset base rather than restore its capacity to perform.

Appendix B: Water Asset Hierarchy

Council's Water asset hierarchy is shown below.

Table 31: SBRC Approved Water Hierarchy

Functional Use (L1)	Functional Use (L2)
Water Distribution	Reticulation Supply Mains
Water Distribution	Reticulation Supply Service Conduits & Metering
Water Distribution	Distribution Trunk Mains
Water Distribution	Distribution Trunk Schemes
Water Distribution	Raw Water Mains
Water Treatment & Processing	Treatment Plants
Water Treatment & Processing	Distribution Dosing Plants
Water Treatment & Processing	Distribution Monitoring Plants
Water Treatment & Processing	Facilities & Site Infrastructure
Water Transfer	Raw Water Pump Station
Water Transfer	Treated Water Pump Station
Water Transfer	Facilities & Site Infrastructure
Water Bulk Storage & Supply	Weirs
Water Bulk Storage & Supply	Dams
Water Bulk Storage & Supply	Reservoirs
Water Bulk Storage & Supply	Other Off-Stream Storage
Water Bulk Storage & Supply	Catchments
Water Bulk Storage & Supply	Facilities & Site Infrastructure

Appendix C: Acquisition Forecast

Table 32: Acquisition Forecast Summary

Year	Growth
2021/2022	$6,000,000
2022/2023	$137,000
2023/2024	$252,000
2024/2025	$0
2025/2026	$0
2026/2027	$106,000
2027/2028	$140,000
2028/2029	$5,318,000
2029/2030	$0
2030/2031	$10,160,000
2031/2032	$0
2032/2033	$250,000
2033/2034	$0
2034/2035	$0
2035/2036	$0
2036/2037	$0
2037/2038	$0
2038/2039	$0
2039/2040	$0
2040/2041	$0
Total	**$22,363,000**

Appendix D: Operation Forecast

'Additional Operation Forecast 'is the increase from the previous year (i.e. current year minus previous year).

Table 33: Operation Forecast Summary

Year	Additional Operation Forecast	Total Operation Forecast
2021/2022	$357,171	$4,499,913
2022/2023	$102,536	$4,602,449
2023/2024	$316,354	$4,918,803
2024/2025	$131,584	$5,050,387
2025/2026	$101,736	$5,152,123
2026/2027	$104,227	$5,256,350
2027/2028	$106,786	$5,363,136
2028/2029	$109,415	$5,472,551
2029/2030	$151,930	$5,624,481
2030/2031	$156,148	$5,780,629
2031/2032	$160,484	$5,941,113
2032/2033	$164,939	$6,106,051
2033/2034	$169,518	$6,275,569
2034/2035	$174,224	$6,449,793
2035/2036	$179,060	$6,628,853
2036/2037	$184,032	$6,812,885
2037/2038	$189,141	$7,002,026
2038/2039	$194,392	$7,196,418
2039/2040	$199,789	$7,396,207
2040/2041	$205,335	$7,601,542
Total:	**$3,458,801**	**$119,131,279**

Appendix E: Maintenance Forecast

Table 34: Maintenance Forecast Summary

Year	Additional Maintenance Forecast	Total Maintenance Forecast
2021/2022	$62,745	$2,342,060
2022/2023	$1,525	$2,343,585
2023/2024	$2,805	$2,346,390
2024/2025	$0	$2,346,390
2025/2026	$0	$2,346,390
2026/2027	$1,179	$2,347,569
2027/2028	$1,559	$2,349,128
2028/2029	$55,826	$2,404,954
2029/2030	$0	$2,404,954
2030/2031	$106,355	$2,511,309
2031/2032	$0	$2,511,309
2032/2033	$2,614	$2,513,923
2033/2034	$0	$2,513,923
2034/2035	$0	$2,513,923
2035/2036	$0	$2,513,923
2036/2037	$0	$2,513,923
2037/2038	$0	$2,513,923
2038/2039	$0	$2,513,923
2039/2040	$0	$2,513,923
2040/2041	$0	$2,513,923
Total:	**$234,608**	**$48,879,345**

Appendix F: Renewal Forecast Summary

Table 35: Renewal Forecast Summary

Year	Renewal Forecast	Renewal Budget
2020/2021	*$818,442*	*$2,825,000*
2021/2022	$662,548	$2,785,000
2022/2023	$246,669	$853,000
2023/2024	$11,800,000	$12,908,000
2024/2025	$743,116	$890,000
2025/2026	$510,269	$818,000
2026/2027	$499,080	$844,000
2027/2028	$96,927	$720,000
2028/2029	$1,464,666	$767,000
2029/2030	$877,387	$410,000
2030/2031	$1,791,841	$1,885,000
2031/2032	$6,956,356	$5,100,000
2032/2033	$2,005,276	$100,000
2033/2034	$0	$100,000
2034/2035	$32,354	$100,000
2035/2036	$3,663,556	$100,000
2036/2037	$437,484	$100,000
2037/2038	$0	$100,000
2038/2039	$950,545	$100,000
2039/2040	$0	$425,743
2040/2041	$469,566	$425,743
Total	**$33,556,516**	**$31,930,743**

Appendix G: Disposal Summary

Table 36: Disposal Activity Summary

Year	Disposal Forecast	Disposal Budget
2022/2023	$200,000	$200,000
2023/2024	$200,000	$200,000
2027/2028	$15,000	$15,000
2028/2029	$50,000	$50,000
Total:	**$465,000**	**$465,000**

Appendix H: Budget Summary by Lifecycle Activity

Table 37: Budget Summary by Lifecycle Activity

Year	Acquisition	Operation	Maintenance	Renewal	Disposal	Total
2021/2022	$6,000,000	$4,499,913	$2,337,271	$2,785,000	$0	$15,622,184
2022/2023	$137,000	$4,602,449	$2,390,528	$853,000	$200,000	$8,182,977
2023/2024	$252,000	$4,918,803	$2,554,844	$12,908,000	$200,000	$20,833,647
2024/2025	$0	$5,050,387	$2,623,188	$890,000	$0	$8,563,575
2025/2026	$0	$5,152,123	$2,676,031	$818,000	$0	$8,646,154
2026/2027	$106,000	$5,256,350	$2,730,166	$844,000	$0	$8,936,516
2027/2028	$140,000	5,363,136	$2,785,632	$720,000	$15,000	$9,023,768
2028/2029	$5,318,000	$5,472,551	$2,842,462	$767,000	$50,000	$14,450,013
2029/2030	$0	$5,624,481	$2,921,375	$410,000	$0	$8,955,856
2030/2031	$10,160,000	$5,780,629	$3,002,479	$1,885,000	$0	$20,828,108
2031/2032	$0	$5,941,113	$3,085,835	$5,100,000	$0	$14,126,947
2032/2033	$250,000	$6,106,051	$3,171,504	$100,000	$0	$9,627,555
2033/2034	$0	$6,275,569	$3,259,552	$100,000	$0	$9,635,121
2034/2035	$0	$6,449,793	$3,350,045	$100,000	$0	$9,899,837
2035/2036	$0	$6,628,853	$3,443,049	$100,000	$0	$10,171,903
2036/2037	$0	$6,812,885	$3,538,636	$100,000	$0	$10,451,521
2037/2038	$0	$7,002,026	$3,636,877	$100,000	$0	$10,738,903
2038/2039	$0	$7,196,418	$3,737,844	$100,000	$0	$11,034,263
2039/2040	$0	$7,396,207	$3,841,615	$425,743	$0	$11,663,565
2040/2041	$0	$7,601,542	$3,948,267	$425,743	$0	$11,975,552
Total	**$22,363,000**	**$119,131,281**	**$61,877,200**	**$29,531,486**	**$465,000**	**$233,367,000**

Appendix I: Budgeted Forward Works Program Projects

Table 38: Budgeted Forward Works Program Projects

Year	Subcategory2	Location	Description_1	Renewal	Upgrade	New	Disposal	Total
2021/2022	Reservoirs	Wondai	AC pipework replacements at active assets	$50,000	$0	$0	$0	**$50,000**
2021/2022	Reservoirs	Nanango	AC pipework replacements at active assets	$50,000	$0	$0	$0	**$50,000**
2021/2022	Reservoirs	Blackbutt	AC pipework replacements at active assets	$50,000	$0	$0	$0	**$50,000**
2021/2022	Treatment Plants	Regional	Purchase additional Water allocation	$0	$0	$2,000,000	$0	**$2,000,000**
2021/2022	Reservoirs	Kingaroy	Kingaroy Hts Replacement Reservoir-	$1,000,000	$0	$0	$0	**$1,000,000**
2021/2022	Reservoirs	Kingaroy	Mt Wooroolin New Reservoir	$0	$0	$4,000,000	$0	**$4,000,000**
2021/2022	Reservoirs	Proston	Reservoir Replace Reservoirs	$1,200,000	$0	$0	$0	**$1,200,000**
2021/2022	Distribution Trunk Mains	Kingaroy	Main Replacement	$205,000	$0	$0	$0	**$205,000**
2021/2022	Distribution Trunk Mains	Kingaroy	River Road (Barron to Youngman incl Barron Indust) 492m, upgrade to 225mm	$130,000	$0	$0	$0	**$130,000**

Year	Subcategory2	Location	Description_1	Renewal	Upgrade	New	Disposal	Total
2021/2022	Distribution Trunk Mains	Regional	Water Meter replacement	$100,000	$0	$0	$0	**$100,000**
2022/2023	Reservoirs	Murgon & Wondai	Demolish old WTP Buildings	$0	$0	$0	$200,000	**$200,000**
2022/2023	Distribution Trunk Mains	Kingaroy	Main Replacement	$205,000	$0	$0	$0	**$205,000**
2022/2023	Distribution Trunk Mains	Kingaroy	Main Replacement & Upgrade	$548,000	$137,000	$0	$0	**$685,000**
2022/2023	Distribution Trunk Mains	Regional	Water Meter replacement	$100,000	$0	$0	$0	**$100,000**
2023/2024	Dams	Kingaroy	Gordonbrook Dam Spillway Replace and Upgrade	$11,800,000	$0	$0	$0	**$11,800,000**
2023/2024	Treatment Plants	Wondai	Demolish old WTP Buildings	$0	$0	$0	$200,000	**$200,000**
2023/2024	Distribution Trunk Mains	Nanango	D'Agular Hwy (Drayton to Racecourse Road)	$1,008,000	$252,000	$0	$0	**$1,260,000**
2023/2024	Distribution Trunk Mains	Regional	Water Meter replacement	$100,000	$0	$0	$0	**$100,000**
2024/2025	Reservoirs	Kingaroy	Kingaroy Heights 2 x reservoirs reline	$500,000	$0	$0	$0	**$500,000**
2024/2025	Distribution Trunk Mains	Kumbia	Stuart River Rising Main Kumbia	$290,000	$0	$0	$0	**$290,000**
2024/2025	Distribution Trunk Mains	Regional	Water Meter replacement	$100,000	$0	$0	$0	**$100,000**
2025/2026	Reservoirs	Kingaroy	Premier drive storage reline	$500,000	$0	$0		**$500,000**

Year	Subcategory2	Location	Description_1	Renewal	Upgrade	New	Disposal	Total
2025/2026	Distribution Trunk Mains	Wondai	MacKenzie Street - Water Main	$75,000	$0	$0		**$75,000**
2025/2026	Distribution Trunk Mains	Murgon	Garrick Street - Water Main	$95,000	$0	$0		**$95,000**
2025/2026	Distribution Trunk Mains	Murgon	Lamb Street (Bunya Hwy xing to Stephens St)	$18,000	$0	$0		**$18,000**
2025/2026	Distribution Trunk Mains	Nanango	Fitzroy St (Appin to Alfred)	$30,000	$0	$0		**$30,000**
2025/2026	Distribution Trunk Mains	Regional	Water Meter replacement	$100,000	$0	$0		**$100,000**
2026/2027	Distribution Trunk Mains	Murgon	Rose Street (Thorn to end)	$45,000	$0	$0	$0	**$45,000**
2026/2027	Distribution Trunk Mains	Proston	Hivesville Main Line Stage 4	$200,000	$0	$0	$0	**$200,000**
2026/2027	Distribution Trunk Mains	Wondai	Haley Street - Water Main	$55,000	$0	$0	$0	**$55,000**
2026/2027	Distribution Trunk Mains	Wondai	Scott St Trunk Upgrade (Scott St Res to Haley St)	$424,000	$106,000	$0	$0	**$530,000**
2026/2027	Distribution Trunk Mains	Nanango	Elk St (Henry to George)	$20,000	$0	$0	$0	**$20,000**
2026/2027	Distribution Trunk Mains	Regional	Water Meter replacement	$100,000	$0	$0	$0	**$100,000**
2027/2028	Distribution Trunk Mains	Nanango	Drayton St (Burnett to George)	$60,000	$0	$0	$0	**$60,000**
2027/2028	Distribution Trunk Mains	Kingaroy	Haly St (Kingaroy St to Fisher St)	$260,000	$65,000	$0	$0	**$325,000**

Year	Subcategory2	Location	Description_1	Renewal	Upgrade	New	Disposal	Total
2027/2028	Distribution Trunk Mains	Kingaroy	Jarrah St (Haly to Sommerset)	$84,000	$21,000	$0	$0	**$105,000**
2027/2028	Distribution Trunk Mains	Kingaroy	Sommerset St (Alford to Knight)	$216,000	$54,000	$0	$0	**$270,000**
2027/2028	Distribution Trunk Mains	Kingaroy	Haly St (Fisher to Willowglen)	$0	$0	$0	$15,000	**$15,000**
2027/2028	Distribution Trunk Mains	Regional	Water Meter replacement	$100,000	$0	$0	$0	**$100,000**
2028/2029	Distribution Reservoirs	Kingaroy	Water Storage	$0	$0	$5,000,000	$0	**$5,000,000**
2028/2029	Distribution Trunk Mains	Kingaroy	XHL Pressure Zone Realignment	$75,000	$0	$0	$0	**$75,000**
2028/2029	Distribution Trunk Mains	Kingaroy	Walter Road (Knight to Harris)	$232,000	$58,000	$0	$0	**$290,000**
2028/2029	Distribution Trunk Mains	Kingaroy	Haly St (Fisher to West) - Decommission	$0	$0	$0	$50,000	**$50,000**
2028/2029	Distribution Trunk Mains	Wondai	Replacement 'Scott St Trunk Upgrade (Haley St to Burrows St)	$260,000	$260,000	$0	$0	**$520,000**
2028/2029	Distribution Trunk Mains	Regional	Water Meter replacement	$100,000	$0	$0	$0	**$100,000**
2029/2030	Distribution Trunk Mains	Wondai	South Street Water Main Replacement (Scott to Kent)	$135,000	$0	$0	$0	**$135,000**
2029/2030	Distribution Trunk Mains	Wooroolin	Frederick Street (Bunya Hwy to Allens Rd)	$90,000	$0	$0	$0	**$90,000**

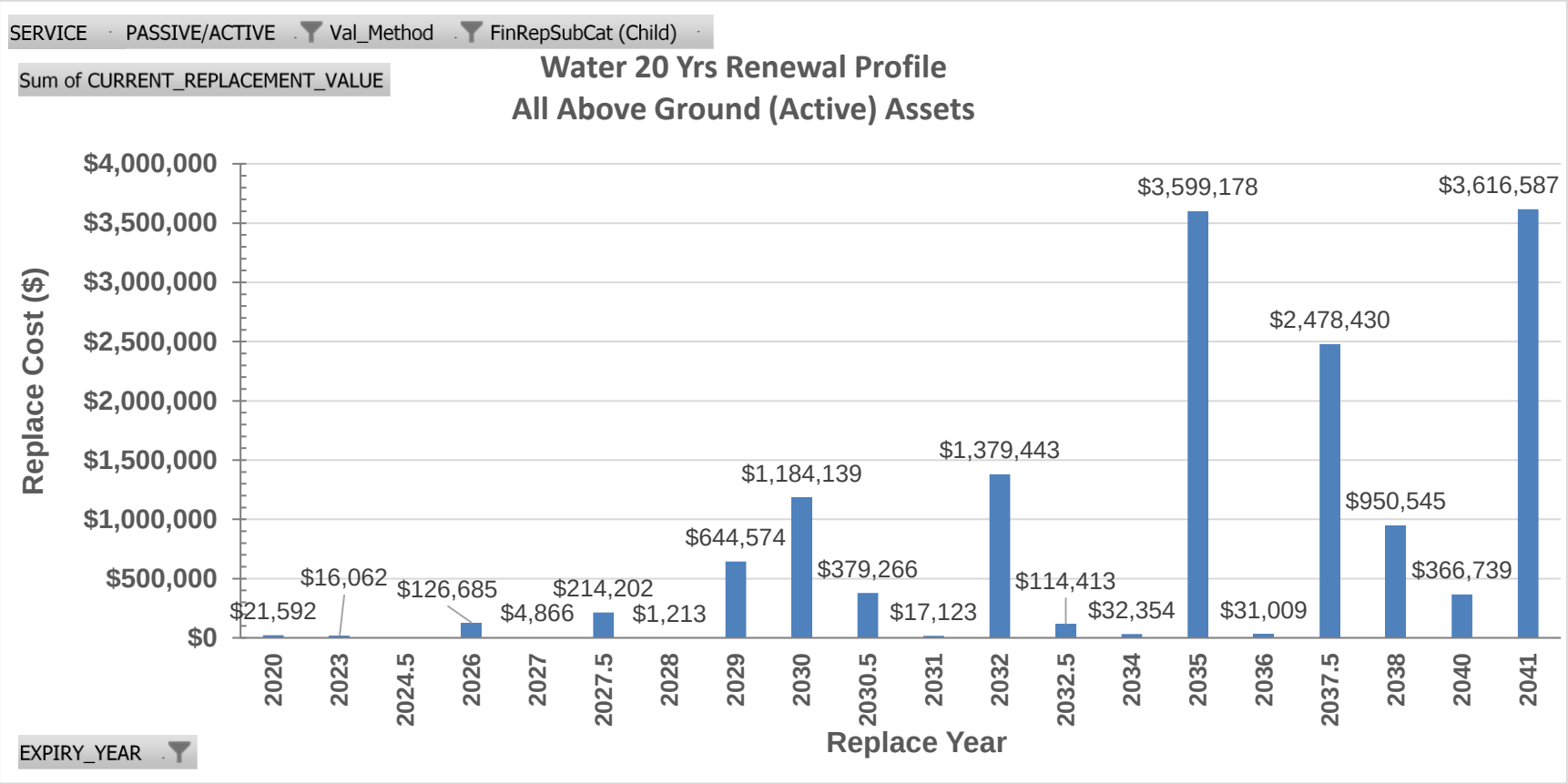
Year	Subcategory2	Location	Description_1	Renewal	Upgrade	New	Disposal	Total
2029/2030	Distribution Trunk Mains	Wooroolin	Allens Road (Frederick St to Kate St)	$70,000	$0	$0	$0	**$70,000**
2029/2030	Distribution Trunk Mains	Wooroolin	Bunya Hwy (Kate St to end)	$20,000	$0	$0	$0	**$20,000**
2029/2030	Distribution Trunk Mains	Nanango	Hamilton Road Rising Main (old to Mc Wier)	$95,000	$0	$0	$0	**$95,000**
2028/2029	Distribution Trunk Mains	Regional	Water Meter replacement	$100,000	$0	$0	$0	**$100,000**
2030/2031	Weirs	Nanango	McCauley Weir, rising main, pump stations and treatment facilities, main to Boondooma Dam pipeline or Regional Pipeline from Kingaroy	$0	$0	$10,000,000	$0	**$10,000,000**
2030/2031	Distribution Trunk Mains	Kingaroy	Queen Street - Water Main	$50,000	$0	$0	$0	**$50,000**
2030/2031	Distribution Trunk Mains	Kingaroy	Harris Road (Walter to Silky Oak)	$700,000	$0	$0	$0	**$700,000**
2030/2031	Distribution Trunk Mains	Kingaroy	Rising Main (Harris to New Reservoir)	$320,000	$80,000	$0	$0	**$400,000**
2030/2031	Distribution Trunk Mains	Kingaroy	Fisher Street Pump Station	$320,000	$80,000	$0	$0	**$400,000**
2030/2031	Distribution Trunk Mains	Wondai	Scott St (Bunya Hwy to Reservoir)	$190,000	$0	$0	$0	**$190,000**

Year	Subcategory2	Location	Description_1	Renewal	Upgrade	New	Disposal	Total
2030/2031	Distribution Trunk Mains	Nanango	Goode St (Wickham to Bright)	$105,000	$0	$0	$0	**$105,000**
2030/2031	Distribution Trunk Mains	Wondai	Hines Road Water Pump Station - Tingoora Water PS	$100,000	$0	$0	$0	**$100,000**
2030/2031	Distribution Trunk Mains	Regional	Water Meter replacement	$100,000	$0	$0	$0	**$100,000**
2031/2032	Distribution Trunk Mains	Regional	Water Meter replacement	$100,000	$0	$0	$0	**$100,000**
2031/2032	Reservoirs	Blackbutt	Water Storage.	$5,000,000	$0	$0	$0	**$5,000,000**
2032/2033	Weirs	Proston	Proston Weir	$0	$0	$250,000	$0	**$250,000**
2032/2033	Distribution Trunk Mains	Regional	Water Meter replacement	$100,000	$0	$0	$0	**$100,000**
2033/2034	Distribution Trunk Mains	Regional	Water Meter replacement	$100,000	$0	$0	$0	**$100,000**
2034/2035	Distribution Trunk Mains	Regional	Water Meter replacement	$100,000	$0	$0	$0	**$100,000**
2035/2036	Distribution Trunk Mains	Regional	Water Meter replacement	$100,000	$0	$0	$0	**$100,000**
2036/2037	Distribution Trunk Mains	Regional	Water Meter replacement	$100,000	$0	$0	$0	**$100,000**
2037/2038	Distribution Trunk Mains	Regional	Water Meter replacement	$100,000	$0	$0	$0	**$100,000**
2038/2039	Distribution Trunk Mains	Regional	Water Meter replacement	$100,000	$0	$0	$0	**$100,000**
2039/2040	Distribution Trunk Mains	Regional	*2010/22 - 2038/39 Average Spend*	$425,743	$0	$0	$0	**$425,743**

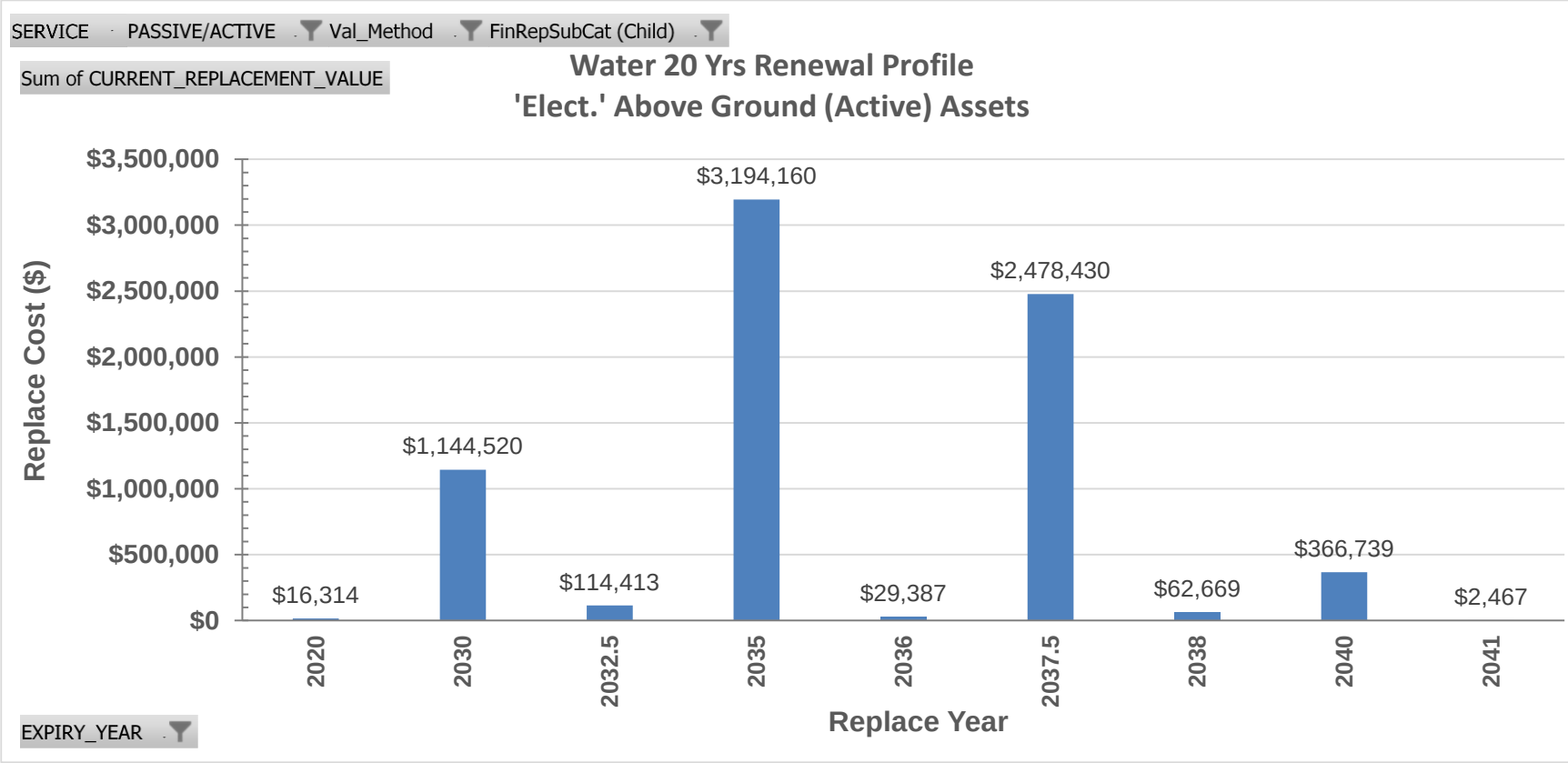
Year	Subcategory2	Location	Description_1	Renewal	Upgrade	New	Disposal	Total
2040/2041	Distribution Trunk Mains	Regional	*2021/22 - 2038/39 Average Spend*	$425,743	$0	$0	$0	**$425,743**
Total				**$29,531,486**	**$1,113,000**	**$21,250,000**	**$465,000**	**$52,359,486**

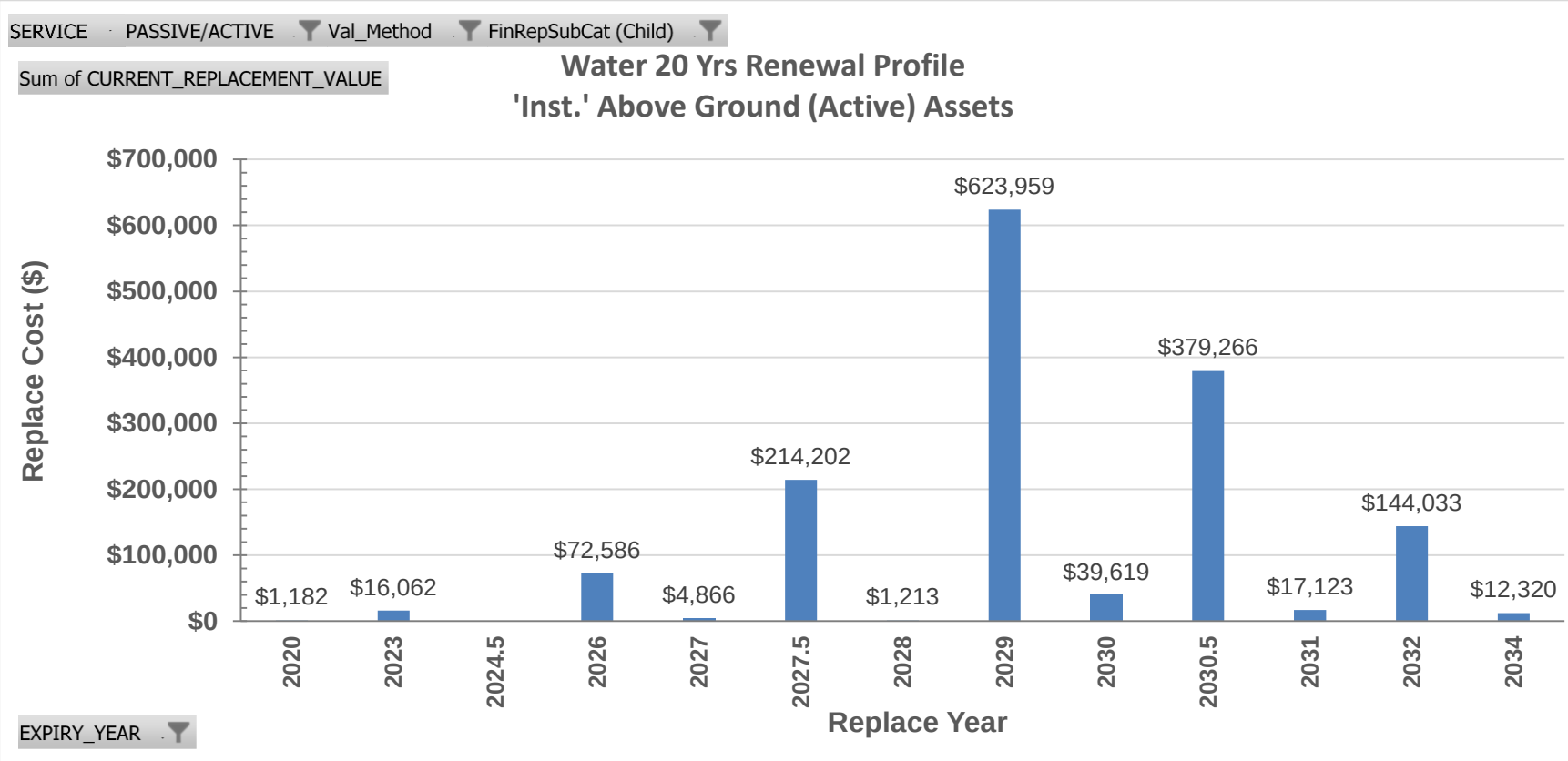
Appendix J: 20 Years Forecast Renewals

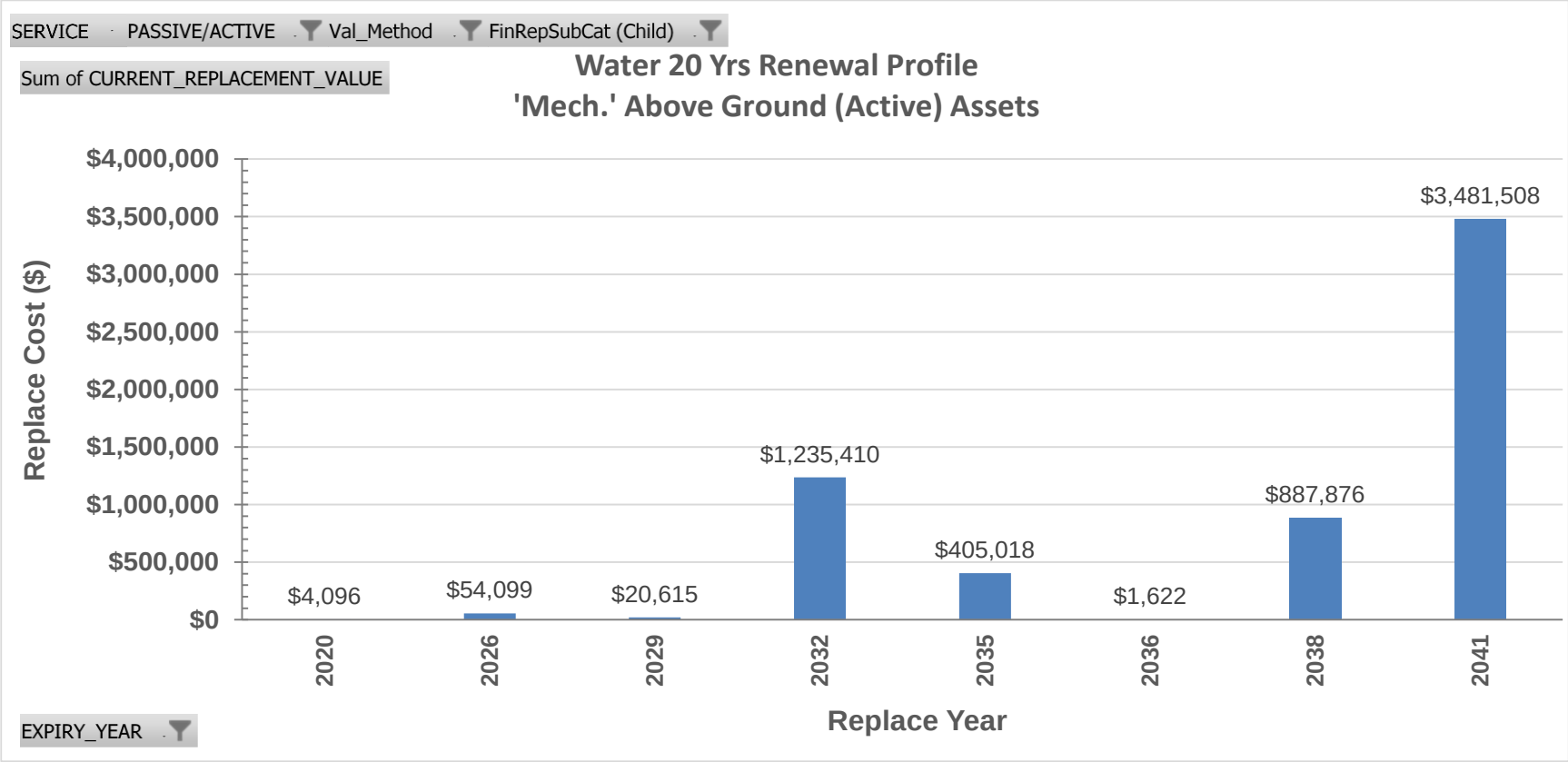
Figure 26 Forecast Renewals

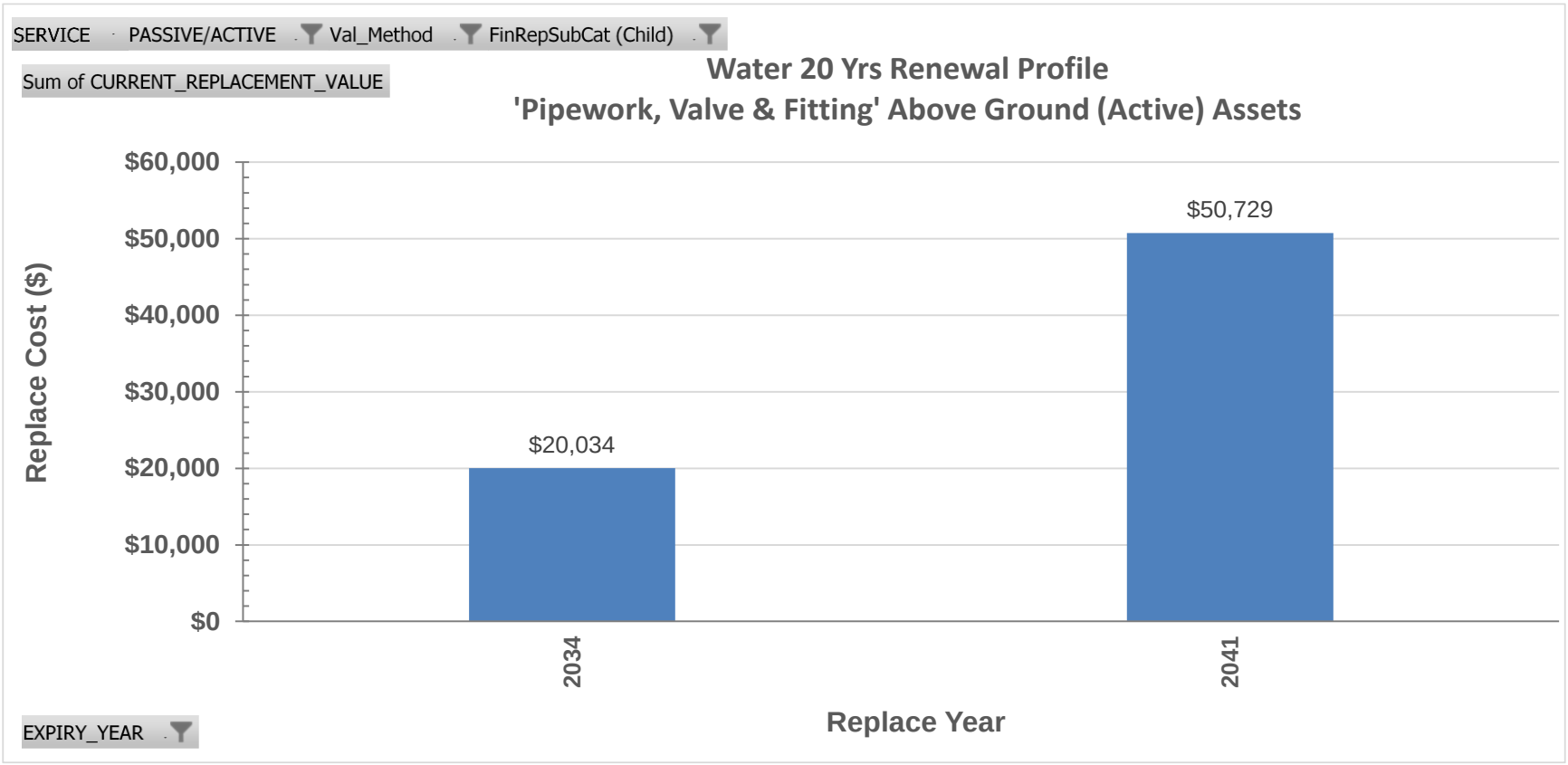


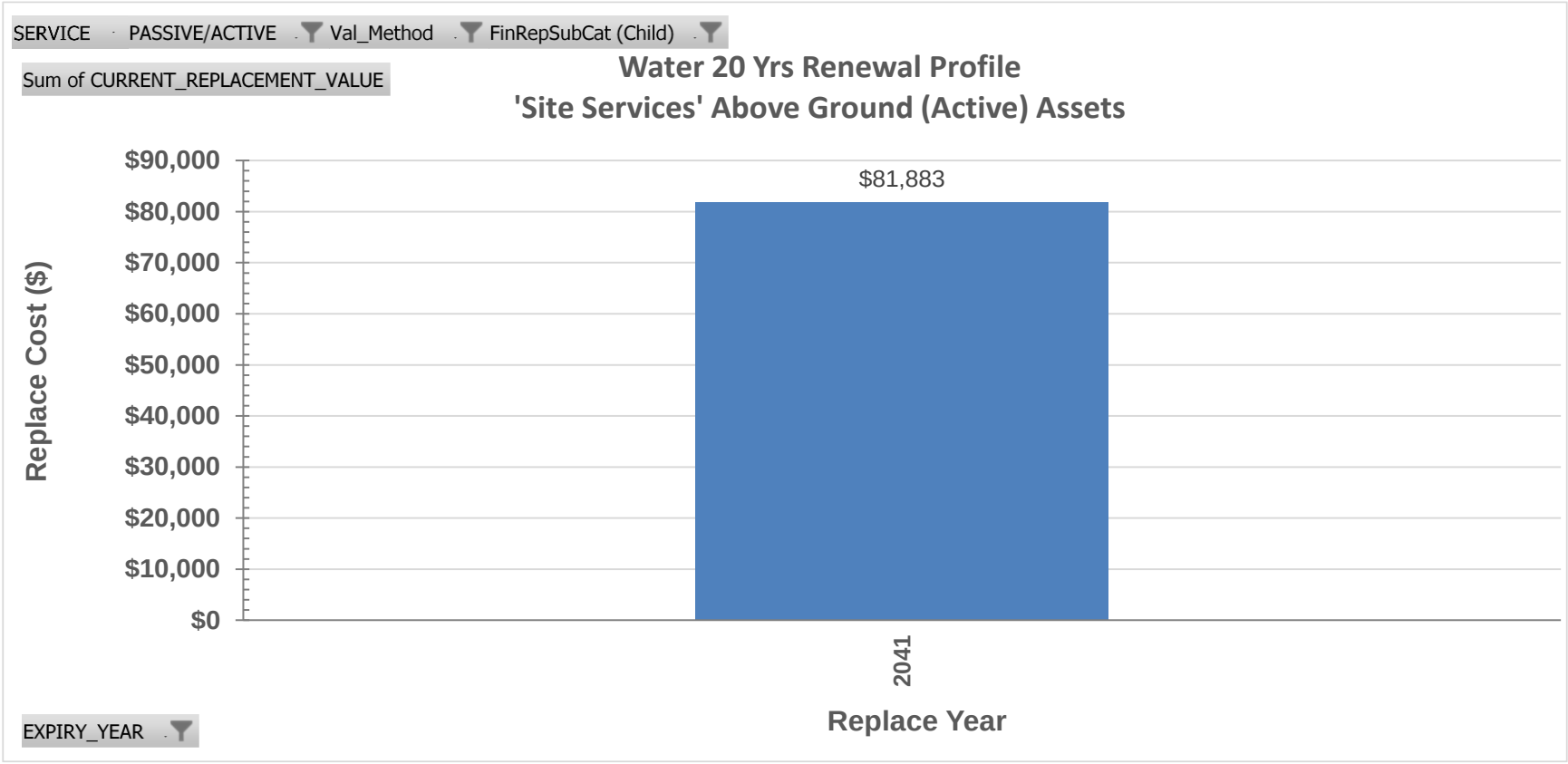
Nil 'Civil'

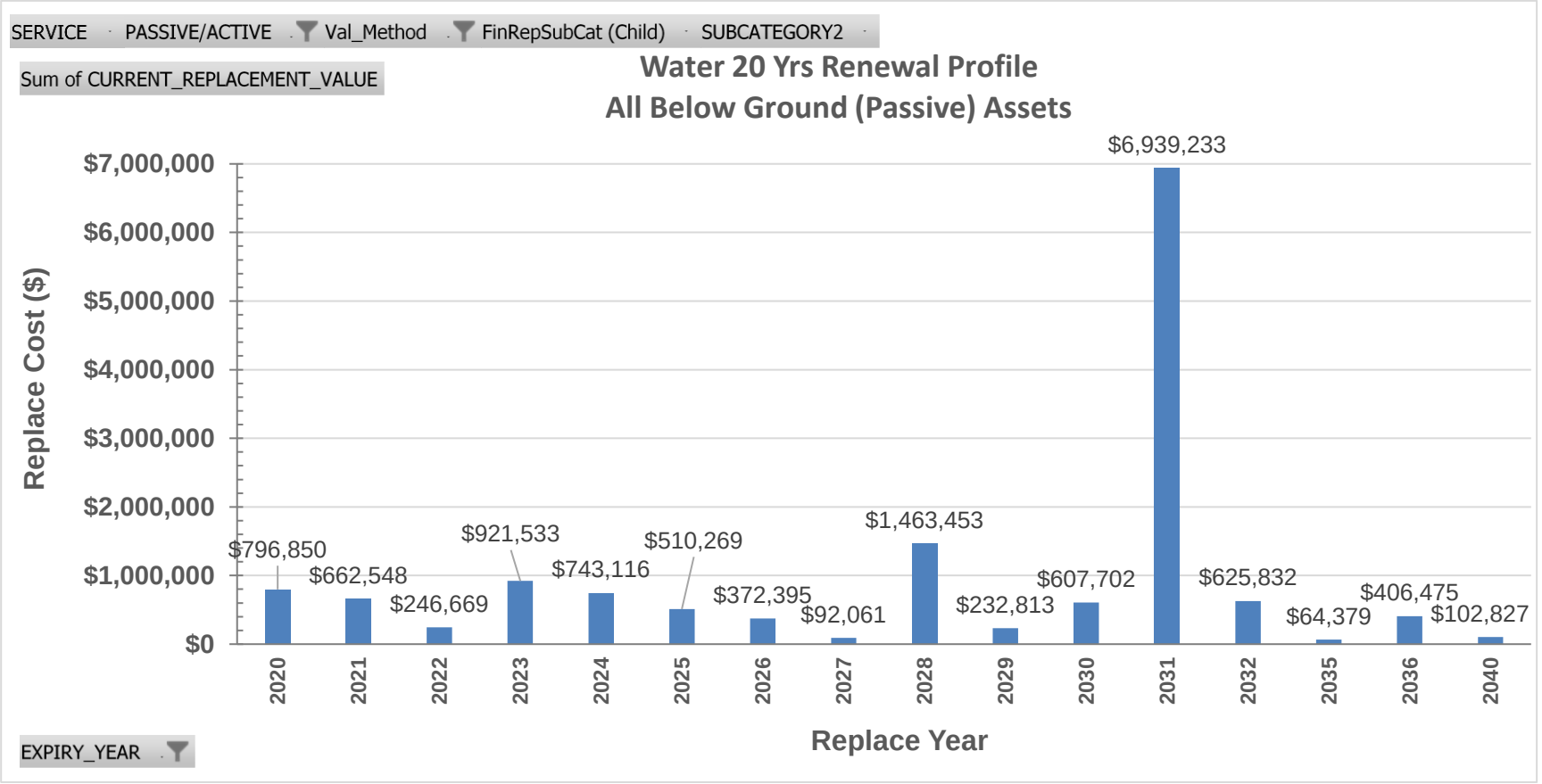

SERVICE
PASSIVE/ACTIVE
Val_Method
FinRepSubCat (Child)
Sum of CURRENT_REPLACEMENT_VALUE
Water 20 Yrs Renewal Profile
'Elect.' Above Ground (Active) Assets
Replace Cost ($)
$3,500,000
$3,000,000
$2,500,000
$2,000,000
$1,500,000
$1,000,000
$500,000
$0
$16,314
$1,144,520
$114,413
$3,194,160
$29,387
$2,478,430
$62,669
$366,739
$2,467
2020
2030
2032.5
2035
2036
2037.5
2038
2040
2041
Replace Year
EXPIRY_YEAR

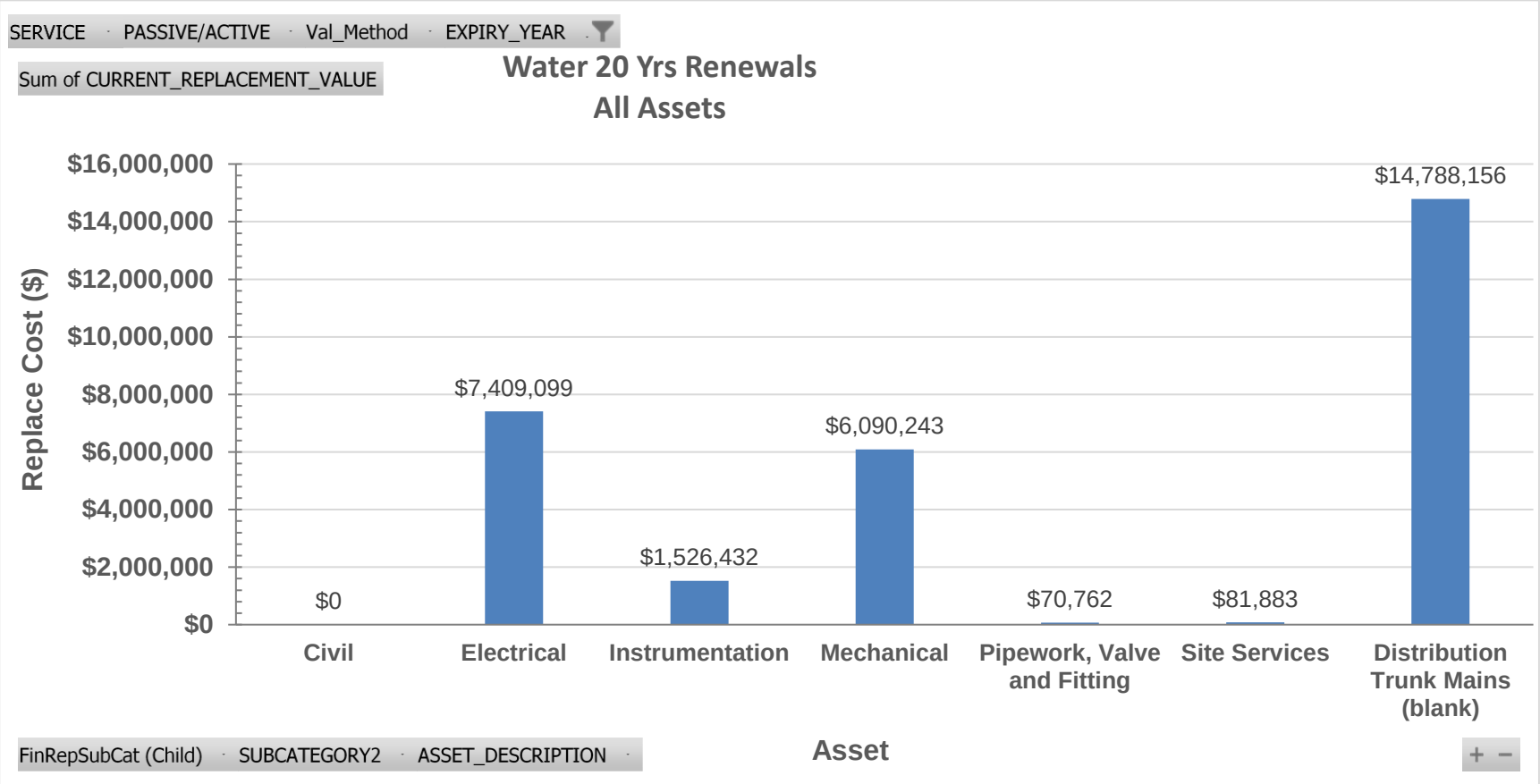

SERVICE
PASSIVE/ACTIVE
Val_Method
FinRepSubCat (Child)
Sum of CURRENT_REPLACEMENT_VALUE
Water 20 Yrs Renewal Profile
'Inst.' Above Ground (Active) Assets
$700,000
$600,000
$500,000
$400,000
$300,000
$200,000
$100,000
$0
Replace Cost ($)
$1,182
$16,062
$72,586
$4,866
$214,202
$1,213
$623,959
$39,619
$379,266
$17,123
$144,033
$12,320
2020
2023
2024.5
2026
2027
2027.5
2028
2029
2030
2030.5
2031
2032
2034
Replace Year
EXPIRY_YEAR


SERVICE
PASSIVE/ACTIVE
Val_Method
FinRepSubCat (Child)
Sum of CURRENT_REPLACEMENT_VALUE
Water 20 Yrs Renewal Profile
'Mech.' Above Ground (Active) Assets
$4,000,000
$3,500,000
$3,000,000
$2,500,000
$2,000,000
$1,500,000
$1,000,000
$500,000
$0
Replace Cost ($)
$4,096
$54,099
$20,615
$1,235,410
$405,018
$1,622
$887,876
$3,481,508
2020
2026
2029
2032
2035
2036
2038
2041
Replace Year
EXPIRY_YEAR


SERVICE
PASSIVE/ACTIVE
Val_Method
FinRepSubCat (Child)
Sum of CURRENT_REPLACEMENT_VALUE
Water 20 Yrs Renewal Profile
'Pipework, Valve & Fitting' Above Ground (Active) Assets
$60,000
$50,000
$40,000
$30,000
$20,000
$10,000
$0
Replace Cost ($)
$20,034
$50,729
2034
2041
Replace Year
EXPIRY_YEAR


SERVICE
PASSIVE/ACTIVE
Val_Method
FinRepSubCat (Child)
Sum of CURRENT_REPLACEMENT_VALUE
Water 20 Yrs Renewal Profile
'Site Services' Above Ground (Active) Assets
$90,000
$80,000
$70,000
$60,000
$50,000
$40,000
$30,000
$20,000
$10,000
$0
Replace Cost ($)
$81,883
2041
Replace Year
EXPIRY_YEAR


SERVICE
PASSIVE/ACTIVE
Val_Method
FinRepSubCat (Child)
SUBCATEGORY2
Sum of CURRENT_REPLACEMENT_VALUE
Water 20 Yrs Renewal Profile
All Below Ground (Passive) Assets
$7,000,000
$6,000,000
$5,000,000
$4,000,000
$3,000,000
$2,000,000
$1,000,000
$0
Replace Cost ($)
$796,850
$662,548
$246,669
$921,533
$743,116
$510,269
$372,395
$92,061
$1,463,453
$232,813
$607,702
$6,939,233
$625,832
$64,379
$406,475
$102,827
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2035
2036
2040
Replace Year
EXPIRY_YEAR


SERVICE
PASSIVE/ACTIVE
Val_Method
EXPIRY_YEAR
Sum of CURRENT_REPLACEMENT_VALUE
Water 20 Yrs Renewals
All Assets
$16,000,000
$14,000,000
$12,000,000
$10,000,000
$8,000,000
$6,000,000
$4,000,000
$2,000,000
$0
Replace Cost ($)
$0
$7,409,099
$1,526,432
$6,090,243
$70,762
$81,883
$14,788,156
Civil
Electrical
Instrumentation
Mechanical
Pipework, Valve and Fitting
Site Services
Distribution Trunk Mains (blank)
FinRepSubCat (Child)
SUBCATEGORY2
ASSET_DESCRIPTION
Asset

SUMMARY- ALL ASSET RENEWALS BY LOCATION

CURRENT REPLACEMENT VALUE Column Labels																				
Row Labels	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2034	2035	2036	2038	2040	2041	Grand Total
Active	**$21,592**			**$16,062**			**$126,685**	**$4,866**	**$1,213**	**$644,574**	**$1,184,139**	**$17,123**	**$1,379,443**	**$32,354**	**$3,599,178**	**$31,009**	**$950,545**	**$366,739**	**$3,616,587**	**$11,992,109**
Blackbutt								$4,866		$2,489		$14,723	$132,471		$21,916	$21,911	$427,375	$250,066	$75,036	$950,853
Boondoomba Dam							$12,968			$2,400			$78,606		$800					$94,774
Kingaroy									$1,213	$149,944					$3,090,453	$9,098	$172,118		$2,093,703	$5,516,529
Kumbia							$0			$0	$0		$3,700				$29,127	$9,124	$733	$42,685
Murgon	$4,096						$24,487			$233,989	$47,781		$14,972		$112,938		$266,148	$22,637	$1,381,505	$2,108,553
Nanango				$13,200						$31,107	$4,400		$37,781		$140,258		$10,417		$56,937	$294,100
Proston	$1,182						$36,927			$49,502	$18,464		$163,114		$225,527		$4,252	$63,821	$3,819	$566,608
Wondai				$2,862			$52,303			$175,144	$1,113,494		$931,757	$20,034	$2,316		$6,880	$19,356	$4,853	$2,328,998
Wooroolin													$17,042		$4,970			$1,736	$0	$23,749
Yallakool	$16,314											$2,400		$12,320			$34,227			$65,261
Passive	**$796,850**	**$662,548**	**$246,669**	**$921,533**	**$743,116**	**$510,269**	**$372,395**	**$92,061**	**$1,463,453**	**$232,813**	**$607,702**	**$6,939,233**	**$625,832**		**$64,379**	**$406,475**		**$102,827**		**$14,788,156**
Blackbutt													$71,547							$71,547
Kingaroy	$146,988	$615,787	$246,669	$921,533	$45,039				$575,730	$232,813		$900,267				$403,572		$16,148		$4,104,547
Kumbia						$510,269			$96,016		$179,972									$786,258
Murgon							$198,557	$36,812												$235,369
Nanango	$451,238				$698,077		$44,314		$61,570			$100,142								$1,355,342
Proston Rural												$5,938,824	$554,286					$86,679		$6,579,788
Wondai		$46,760					$129,524	$55,249	$730,136		$119,722				$64,379	$2,903				$1,148,673
Wooroolin	$198,624										$308,008									$506,632
Grand Total	**$818,442**	**$662,548**	**$246,669**	**$937,594**	**$743,116**	**$510,269**	**$499,080**	**$96,927**	**$1,464,666**	**$877,387**	**$1,791,841**	**$6,956,356**	**$2,005,276**	**$32,354**	**$3,663,556**	**$437,484**	**$950,545**	**$469,566**	**$3,616,587**	**$26,780,265**

ACTIVE ASSETS BY LOCATION

Sum of CURRENT_REPLACEMENT_VALUE	Column Labels												
Row Labels	2027	2027.5	2029	2030.5	2031	2032	2035	2036	2037.5	2038	2040	2041	Grand Total
Blackbutt	**$4,866**	**$258**	**$2,489**	**$5,241**	**$14,723**	**$132,471**	**$21,916**	**$21,911**	**$531,168**	**$427,375**	**$250,066**	**$75,036**	**$1,487,520**
Water Distribution	**$4,866**			**$5,241**	**$14,723**		**$20,625**	**$3,244**		**$2,441**	**$179,994**	**$4,214**	**$235,348**
Distribution Reservoirs	$4,866			$5,241	$14,723			$3,244		$2,441	$1,747	$4,214	$36,475
Blackbutt Reservoir 1-Child-Electrical								$1,622					$1,622
Blackbutt Reservoir 1-Child-Instrumentation	$4,866												$4,866
Blackbutt Reservoir 1-Child-Mechanical								$1,622					$1,622
Blackbutt Reservoir 2-Child-Electrical										$2,441			$2,441
Blackbutt Reservoir 2-Child-Instrumentation					$7,322								$7,322
Blackbutt Reservoir HL-Child-Electrical												$2,467	$2,467
Blackbutt Reservoir HL-Child-Instrumentation					$7,401								$7,401
Tarong Header Tank-Child-Electrical											$1,747		$1,747
Tarong Header Tank-Child-Instrumentation				$5,241									$5,241
Tarong Header Tank-Child-Mechanical												$1,747	$1,747
Distribution Trunk Mains							$20,625				$178,247		$198,872
Nukku Pipeline-Yarraman Offtake-Child-Electrical											$178,247		$178,247
Wivenhoe Offtake-Child-Pipework, Valve and Fitting							$20,625						$20,625
Water Source Storage & Supply		**$258**					**$1,291**						**$1,549**
Dams		$258					$1,291						$1,549
Boobir Dam-Child-Instrumentation		$258											$258
Boobir Dam-Child-Mechanical							$1,291						$1,291
Water Transfer			**$2,489**			**$61,648**		**$18,667**			**$70,072**		**$152,876**
Treated Water Pump Stations			$2,489			$14,934		$18,667					$36,089
Blackbutt HL PS-Child-Electrical								$18,667					$18,667
Blackbutt HL PS-Child-Instrumentation			$2,489										$2,489
Blackbutt HL PS-Child-Mechanical						$14,934							$14,934
Raw Water Pump Stations						$46,715					$70,072		$116,787
Tarong Pump Station-Child-Electrical											$70,072		$70,072
Tarong Pump Station-Child-Instrumentation						$46,715							$46,715
Water Treatment & Processing						**$70,822**			**$531,168**	**$424,935**		**$70,822**	**$1,097,748**
Treatment Plants						$70,822			$531,168	$424,935		$70,822	$1,097,748
Blackbutt WTP-Child-Electrical									$531,168				$531,168
Blackbutt WTP-Child-Instrumentation						$70,822							$70,822
Blackbutt WTP-Child-Mechanical										$424,935			$424,935
Blackbutt WTP-Child-Site Services												$70,822	$70,822
Grand Total	**$4,866**	**$258**	**$2,489**	**$5,241**	**$14,723**	**$132,471**	**$21,916**	**$21,911**	**$531,168**	**$427,375**	**$250,066**	**$75,036**	**$1,487,520**

SERVICE	(All)				
PASSIVE/ACTIVE	Active				
Val_Method	SLRT				
FinRepSubCat (Child)	(Multiple Items)				
Sum of CURRENT_REPLACEMENT_VALUE	**Column Labels**				
Row Labels	**2026**	**2029**	**2032**	**2035**	**Grand Total**
Boondooma Dam	**$12,968**	**$2,400**	**$78,606**	**$800**	**$94,774**
Water Distribution		**$2,400**	**$800**	**$800**	**$4,000**
Distribution Reservoirs		$2,400	$800	$800	$4,000
Boondooma Dam Distribution Reservoirs-Child-Electrical				$800	$800
Boondooma Dam Distribution Reservoirs-Child-Instrumentation		$2,400			$2,400
Boondooma Dam Distribution Reservoirs-Child-Mechanical			$800		$800
Water Treatment & Processing	**$12,968**		**$77,806**		**$90,774**
Treatment Plants	$12,968		$77,806		$90,774
Boondooma Dam WTP-Child-Instrumentation	$12,968				$12,968
Boondooma Dam WTP-Child-Mechanical			$77,806		$77,806
Grand Total	**$12,968**	**$2,400**	**$78,606**	**$800**	**$94,774**

Sum of CURRENT_REPLACEMENT_VALUE	Column Labels								
Row Labels	2027.5	2028	2029	2030.5	2035	2036	2038	2041	Grand Total
Kingaroy	**$37,688**	**$1,213**	**$149,944**	**$348,951**	**$3,090,453**	**$9,098**	**$172,118**	**$2,093,703**	**$5,903,168**
Water Distribution	**$31,354**		**$83,926**		**$40,836**		**$27,975**		**$184,092**
Distribution Reservoirs	$31,354		$83,926		$40,836		$27,975		$184,092
Drive in Reservoir (Reservoir 8)-Child-Electrical					$384				$384
Drive in Reservoir (Reservoir 8)-Child-Instrumentation			$1,151						$1,151
Drive in Reservoir (Reservoir 8)-Child-Mechanical							$384		$384
Fisher Street Reservoir (Reservoir 3)-Child-Electrical					$3,682				$3,682
Fisher Street Reservoir (Reservoir 3)-Child-Instrumentation	$11,047								$11,047
Fisher Street Reservoir (Reservoir 3)-Child-Mechanical					$3,682				$3,682
Golf Course Reservoir (Reservoir 11)-Child-Electrical					$273				$273
Golf Course Reservoir (Reservoir 11)-Child-Instrumentation			$820						$820
Golf Course Reservoir (Reservoir 11)-Child-Mechanical							$273		$273
Kingaroy Hts HL Reservoir (Reservoir 12)-Child-Instrumentation			$3,820						$3,820
Kingaroy Hts HL Reservoir (Reservoir 12)-Child-Mechanical							$1,273		$1,273
Kingaroy Hts Reservoir (Reservoir 10)-Child-Instrumentation	$6,947								$6,947
Kingaroy Hts Reservoir (Reservoir 10)-Child-Mechanical					$2,316				$2,316
Kingaroy Hts Reservoir (Reservoir 9)-Child-Electrical					$2,369				$2,369
Kingaroy Hts Reservoir (Reservoir 9)-Child-Instrumentation			$7,107						$7,107
Kingaroy Hts Reservoir (Reservoir 9)-Child-Mechanical							$2,369		$2,369
Mt Wooroolin Reservoir (Reservoir 1) - Disinf-Child-Electrical					$0				$0
Mt Wooroolin Reservoir (Reservoir 1) - Disinf-Child-Instrumentatio			$0						$0
Mt Wooroolin Reservoir (Reservoir 1) - Disinf-Child-Mechanical							$0		$0
Mt Wooroolin Reservoir (Reservoir 1)-Child-Electrical					$7,537				$7,537
Mt Wooroolin Reservoir (Reservoir 1)-Child-Instrumentation			$22,612						$22,612
Mt Wooroolin Reservoir (Reservoir 1)-Child-Mechanical							$7,537		$7,537
Orana Reservoir (Reservoir 2)-Child-Electrical					$6,113				$6,113
Orana Reservoir (Reservoir 2)-Child-Instrumentation			$18,339						$18,339
Orana Reservoir (Reservoir 2)-Child-Mechanical							$6,113		$6,113
Premier Drive Reservor (Reservoir 13)-Child-Electrical					$4,142				$4,142
Premier Drive Reservor (Reservoir 13)-Child-Instrumentation			$12,426						$12,426
Premier Drive Reservor (Reservoir 13)-Child-Mechanical							$4,142		$4,142
Reservoir Street Reservoir (Reservoir 4)-Child-Electrical					$4,275				$4,275
Reservoir Street Reservoir (Reservoir 4)-Child-Instrumentation			$12,825						$12,825
Reservoir Street Reservoir (Reservoir 4)-Child-Mechanical							$4,275		$4,275
Reservoir Street Reservoir (Reservoir 5)-Child-Instrumentation	$13,360								$13,360
Reservoir Street Reservoir (Reservoir 5)-Child-Mechanical					$4,453				$4,453
Taabinga Heights Reservoir (Reservoir 6)-Child-Electrical					$715				$715
Taabinga Heights Reservoir (Reservoir 6)-Child-Instrumentation			$2,145						$2,145
Taabinga Heights Reservoir (Reservoir 6)-Child-Mechanical							$715		$715
Taabinga Heights Reservoir (Reservoir 7)-Child-Electrical					$894				$894
Taabinga Heights Reservoir (Reservoir 7)-Child-Instrumentation			$2,681						$2,681
Taabinga Heights Reservoir (Reservoir 7)-Child-Mechanical							$894		$894

Water Source Storage & Supply	**$6,334**		**$0**		**$63,337**		**$0**		**$69,670**
Dams	$6,334		$0		$63,337		$0		$69,670
Gordonbrook Dam-Child-Electrical					$31,668				$31,668
Gordonbrook Dam-Child-Instrumentation	$6,334								$6,334
Gordonbrook Dam-Child-Mechanical					$31,668				$31,668
Gordonbrook Dam-Destratifier-Child-Electrical					$0				$0
Gordonbrook Dam-Destratifier-Child-Instrumentation			$0						$0
Gordonbrook Dam-Destratifier-Child-Mechanical							$0		$0
Water Transfer		**$1,213**	**$66,018**		**$369,151**	**$9,098**	**$144,143**		**$589,623**
Treated Water Pump Stations		$1,213	$24,024		$180,179	$9,098	$144,143		$358,657
Kingaroy Heights Water Pump Station (WPS 8)-Child-Electrical						$9,098			$9,098
Kingaroy Heights Water Pump Station (WPS 8)-Child-Instrumentation		$1,213							$1,213
Drive In Water Pump Station (WPS 7)-Child-Electrical					$12,473				$12,473
Drive In Water Pump Station (WPS 7)-Child-Instrumentation			$1,663						$1,663
Drive In Water Pump Station (WPS 7)-Child-Mechanical							$9,978		$9,978
Golf Course Water Pump Station (WPS6)-Child-Electrical					$18,667				$18,667
Golf Course Water Pump Station (WPS6)-Child-Instrumentation			$2,489						$2,489
Golf Course Water Pump Station (WPS6)-Child-Mechanical							$14,934		$14,934
Haly St Water Pump Station (WPS 1)-Child-Electrical					$38,436				$38,436
Haly St Water Pump Station (WPS 1)-Child-Instrumentation			$5,125						$5,125
Haly St Water Pump Station (WPS 1)-Child-Mechanical							$30,749		$30,749
Harris Road Water Pump Station (WPS 5)-Child-Electrical					$21,465				$21,465
Harris Road Water Pump Station (WPS 5)-Child-Instrumentation			$2,862						$2,862
Harris Road Water Pump Station (WPS 5)-Child-Mechanical							$17,172		$17,172
MaCaulay Drive Water Pump Station (WPS 9)-Child-Electrical					$5,478				$5,478
MaCaulay Drive Water Pump Station (WPS 9)-Child-Instrumentation			$730						$730
MaCaulay Drive Water Pump Station (WPS 9)-Child-Mechanical							$4,382		$4,382
Orana Water Pump Station (PS 2)-Child-Electrical					$33,621				$33,621
Orana Water Pump Station (PS 2)-Child-Instrumentation			$4,483						$4,483
Orana Water Pump Station (PS 2)-Child-Mechanical							$26,897		$26,897
Premier Drive Water Pump Station (WPS 4)-Child-Electrical					$28,575				$28,575
Premier Drive Water Pump Station (WPS 4)-Child-Instrumentation			$3,810						$3,810
Premier Drive Water Pump Station (WPS 4)-Child-Mechanical							$22,860		$22,860
Reservoir Street Water Pump Station (WPS 3)-Child-Electrical					$21,465				$21,465
Reservoir Street Water Pump Station (WPS 3)-Child-Instrumentation			$2,862						$2,862
Reservoir Street Water Pump Station (WPS 3)-Child-Mechanical							$17,172		$17,172
Raw Water Pump Stations			$41,994		$188,972				$230,966
Gordonbrook Intake & PS-Child-Electrical					$62,991				$62,991
Gordonbrook Intake & PS-Child-Instrumentation			$41,994						$41,994
Gordonbrook Intake & PS-Child-Mechanical					$125,981				$125,981
Water Treatment & Processing				**$348,951**	**$2,617,129**			**$2,093,703**	**$5,059,783**
Treatment Plants				$348,951	$2,617,129			$2,093,703	$5,059,783
Gordonbrook WTP-Child-Electrical					$2,617,129				$2,617,129
Gordonbrook WTP-Child-Instrumentation				$348,951					$348,951
Gordonbrook WTP-Child-Mechanical								$2,093,703	$2,093,703
Grand Total	**$37,688**	**$1,213**	**$149,944**	**$348,951**	**$3,090,453**	**$9,098**	**$172,118**	**$2,093,703**	**$5,903,168**

SERVICE	(All)												
PASSIVE/ACTIVE	Active												
Val_Method	SLRT												
FinRepSubCat (Child)	(Multiple Items)												
Sum of CURRENT_REPLACEMENT_VALUE	**Column Labels**												
Row Labels	**2024.5**	**2026**	**2027.5**	**2029**	**2030**	**2030.5**	**2032**	**2037.5**	**2038**	**2040**	**2041**	**Grand Total**
Kumbia	**$0**	**$0**	**$1,959**	**$0**	**$0**	**$2,410**	**$3,700**	**$733**	**$29,127**	**$9,124**	**$733**	**$47,787**
Water Distribution							**$2,200**	**$733**			**$733**	**$3,667**
Reservoirs							$2,200	$733			$733	$3,667
Kumbia Reservoir-Child-Electrical								$733				$733
Kumbia Reservoir-Child-Instrumentation							$2,200					$2,200
Kumbia Reservoir-Child-Mechanical											$733	$733
Water Source Storage & Supply	**$0**	**$0**	**$1,959**	**$0**	**$0**	**$2,410**	**$1,500**		**$29,127**	**$9,124**	**$0**	**$44,120**
Bore fields	$0	$0	$1,959	$0	$0	$2,410	$1,500		$29,127	$9,124	$0	$44,120
Reedy Ck Bore 1-Child-Electrical										$5,624		$5,624
Reedy Ck Bore 1-Child-Instrumentation						$2,410						$2,410
Reedy Ck Bore 1-Child-Mechanical									$16,067			$16,067
Reedy Ck Bore 2-Child-Instrumentation			$1,959									$1,959
Reedy Ck Bore 2-Child-Mechanical									$13,060			$13,060
Stuart River Bore 1-Child-Electrical					$0							$0
Stuart River Bore 1-Child-Instrumentation	$0											$0
Stuart River Bore 1-Child-Mechanical				$0								$0
Stuart River Bore 1-Child-Pipework, Valve and Fitting											$0	$0
Stuart River Bore 1-Child-Site Services											$0	$0
Stuart River Bore 2-Child-Electrical					$0							$0
Stuart River Bore 2-Child-Instrumentation		$0										$0
Stuart River Bore 2-Child-Mechanical							$0					$0
Stuart River Bore 5-Child-Electrical										$1,750		$1,750
Stuart River Bore 5-Child-Instrumentation							$750					$750
Stuart River Bore 6-Child-Electrical										$1,750		$1,750
Stuart River Bore 6-Child-Instrumentation							$750					$750
Grand Total	**$0**	**$0**	**$1,959**	**$0**	**$0**	**$2,410**	**$3,700**	**$733**	**$29,127**	**$9,124**	**$733**	**$47,787**

Row Labels	2020	2026	2027.5	2029	2030	2032	2035	2037.5	2038	2040	2041	Grand Total
Murgon	**$4,096**	**$24,487**	**$38,620**	**$233,989**	**$47,781**	**$14,972**	**$112,938**	**$1,726,882**	**$266,148**	**$22,637**	**$1,381,505**	**$3,874,054**
Water Bulk Storage & Supply	**$4,096**	**$24,487**	**$38,620**		**$8,162**	**$4,067**	**$25,746**					**$105,177**
Reservoirs	$4,096	$24,487	$38,620		$8,162	$4,067	$25,746					$105,177
Golf Course Reservoir-Child-Electrical					$4,096							$4,096
Golf Course Reservoir-Child-Instrumentation		$12,287										$12,287
Golf Course Reservoir-Child-Mechanical	$4,096											$4,096
Hospital Reservoir-Child-Electrical					$4,067							$4,067
Hospital Reservoir-Child-Instrumentation		$12,200										$12,200
Hospital Reservoir-Child-Mechanical						$4,067						$4,067
Retschlag Street Water Reservoir-Child-Electrical							$12,873					$12,873
Retschlag Street Water Reservoir-Child-Instrumentation			$38,620									$38,620
Retschlag Street Water Reservoir-Child-Mechanical							$12,873					$12,873
Water Transfer				**$3,738**	**$39,619**	**$10,906**	**$87,191**		**$266,148**	**$22,637**		**$430,239**
Treated Water Pump Stations				$3,738		$10,906	$87,191		$87,862	$22,637		$212,334
Murgon Clear Water PS-Child-Electrical							$59,157					$59,157
Murgon Clear Water PS-Child-Instrumentation						$7,888						$7,888
Murgon Clear Water PS-Child-Mechanical									$47,326			$47,326
Nutt St WPS-Child-Electrical							$28,034					$28,034
Nutt St WPS-Child-Instrumentation				$3,738								$3,738
Nutt St WPS-Child-Mechanical									$22,428			$22,428
Retschlag Street Water PS-Child-Electrical										$22,637		$22,637
Retschlag Street Water PS-Child-Instrumentation						$3,018						$3,018
Retschlag Street Water PS-Child-Mechanical									$18,109			$18,109
Raw Water Pump Stations					$39,619				$178,286			$217,905
Barambah Creek Raw Water Pump Station-Child-Electrical									$59,429			$59,429
Barambah Creek Raw Water Pump Station-Child-Instrumentation					$39,619							$39,619
Barambah Creek Raw Water Pump Station-Child-Mechanical									$118,857			$118,857
Water Treatment & Processing				**$230,251**				**$1,726,882**			**$1,381,505**	**$3,338,638**
Treatment Plants				$230,251				$1,726,882			$1,381,505	$3,338,638
Murgon WTP-Child-Electrical								$1,726,882				$1,726,882
Murgon WTP-Child-Instrumentation				$230,251								$230,251
Murgon WTP-Child-Mechanical											$1,381,505	$1,381,505
Grand Total	**$4,096**	**$24,487**	**$38,620**	**$233,989**	**$47,781**	**$14,972**	**$112,938**	**$1,726,882**	**$266,148**	**$22,637**	**$1,381,505**	**$3,874,054**

SERVICE	(All)										
PASSIVE/ACTIVE	Active										
Val_Method	SLRT										
FinRepSubCat (Child)	(Multiple Items)										
Sum of CURRENT_REPLACEMENT_VALUE	**Column Labels**										
Row Labels	**2023**	**2027.5**	**2029**	**2030**	**2032**	**2035**	**2037.5**	**2038**	**2041**	**Grand Total**
Nanango	**$13,200**	**$5,667**	**$31,107**	**$4,400**	**$37,781**	**$140,258**	**$7,617**	**$10,417**	**$56,937**	**$307,384**
Water Bulk Storage & Supply	**$13,200**		**$22,852**	**$4,400**		**$4,400**	**$7,617**	**$7,617**		**$60,086**
Reservoirs	$13,200		$22,852	$4,400		$4,400	$7,617	$7,617		$60,086
Hamilton Rd Reservoir-Child-Electrical				$4,400						$4,400
Hamilton Rd Reservoir-Child-Instrumentation	$13,200									$13,200
Hamilton Rd Reservoir-Child-Mechanical						$4,400				$4,400
Hospital Hill Reservoir-Child-Electrical							$7,617			$7,617
Hospital Hill Reservoir-Child-Instrumentation			$22,852							$22,852
Hospital Hill Reservoir-Child-Mechanical								$7,617		$7,617
Water Source Storage & Supply		**$5,667**			**$37,781**	**$13,223**			**$56,937**	**$113,609**
Bore fields		$5,667			$37,781	$13,223			$56,937	$113,609
Nanango Bore A-Child-Electrical						$4,346				$4,346
Nanango Bore A-Child-Instrumentation		$1,863								$1,863
Nanango Bore A-Child-Mechanical					$12,417					$12,417
Nanango Bore A-Child-Site Services									$6,208	$6,208
Nanango Bore B-Child-Electrical						$4,439				$4,439
Nanango Bore B-Child-Instrumentation		$1,902								$1,902
Nanango Bore B-Child-Mechanical					$12,682					$12,682
Nanango Bore B-Child-Pipework, Valve and Fitting									$25,364	$25,364
Nanango Bore C-Child-Electrical						$4,439				$4,439
Nanango Bore C-Child-Instrumentation		$1,902								$1,902
Nanango Bore C-Child-Mechanical					$12,682					$12,682
Nanango Bore C-Child-Pipework, Valve and Fitting									$25,364	$25,364
Water Transfer						**$11,197**		**$2,799**		**$13,997**
Water Dispensing Station						$11,197		$2,799		$13,997
Nanango Water Dispensing Stn-Child-Electrical						$11,197				$11,197
Nanango Water Dispensing Stn-Child-Mechanical								$2,799		$2,799
Water Treatment & Processing			**$8,255**			**$111,438**				**$119,693**
Treatment Plants			$8,255			$111,438				$119,693
Nanango WTP-Child-Electrical						$61,910				$61,910
Nanango WTP-Child-Instrumentation			$8,255							$8,255
Nanango WTP-Child-Mechanical						$49,528				$49,528
Grand Total	**$13,200**	**$5,667**	**$31,107**	**$4,400**	**$37,781**	**$140,258**	**$7,617**	**$10,417**	**$56,937**	**$307,384**

Sum of CURRENT_REPLACEMENT_VALUE	Column Labels												
Row Labels	2020	2026	2027.5	2029	2030	2030.5	2032	2035	2037.5	2038	2040	2041	Grand Total
Proston	**$1,182**	**$36,927**	**$74,862**	**$49,502**	**$18,464**	**$20,084**	**$163,114**	**$225,527**	**$212,029**	**$4,252**	**$63,821**	**$3,819**	**$873,582**
Water Bulk Storage & Supply				**$7,221**						**$2,407**	**$2,407**		**$12,035**
Reservoirs				$7,221						$2,407	$2,407		$12,035
Proston Town Reservoir-Child-Electrical											$2,407		$2,407
Proston Town Reservoir-Child-Instrumentation				$7,221									$7,221
Proston Town Reservoir-Child-Mechanical										$2,407			$2,407
Water Distribution	**$1,182**	**$0**	**$1,562**	**$25,102**	**$0**		**$11,890**	**$3,065**	**$3,819**	**$1,845**	**$4,357**	**$3,819**	**$56,642**
Distribution Reservoirs	$1,182		$1,562	$25,102			$11,890	$3,065	$3,819	$1,845	$4,357	$3,819	$56,642
Bluff Reservoir A-Child-Instrumentation			$1,562										$1,562
Bluff Reservoir A-Child-Mechanical								$521					$521
Bluff Reservoir B-Child-Electrical								$521					$521
Bluff Reservoir B-Child-Instrumentation				$1,562									$1,562
Bluff Reservoir B-Child-Mechanical										$521			$521
Bluff Reservoir C-Child-Electrical											$1,503		$1,503
Bluff Reservoir C-Child-Instrumentation				$6,011			$4,509						$10,520
Hivesville Reservoir 1-Child-Electrical								$699					$699
Hivesville Reservoir 1-Child-Instrumentation				$2,098									$2,098
Hivesville Reservoir 2-Child-Electrical								$1,324					$1,324
Hivesville Reservoir 2-Child-Instrumentation				$3,973									$3,973
Hivesville Reservoir 2-Child-Mechanical										$1,324			$1,324
Main Reservoir - Disinf-Child-Electrical								$0					$0
Main Reservoir - Disinf-Child-Instrumentation				$0									$0
Main Reservoir - Disinf-Child-Mechanical										$0			$0
Main Reservoir-Child-Electrical									$3,819				$3,819
Main Reservoir-Child-Instrumentation				$11,458									$11,458
Main Reservoir-Child-Mechanical												$3,819	$3,819
Range Reservoir-Child-Electrical											$2,460		$2,460
Range Reservoir-Child-Instrumentation							$7,381						$7,381
Red Hill Reservoir-Child-Electrical											$394		$394
Red Hill Reservoir-Child-Instrumentation	$1,182												$1,182
Distribution Trunk Mains		$0			$0		$0						$0
Proston Tarong Pipeline Offttake-Child-Electrical					$0								$0
Proston Tarong Pipeline Offttake-Child-Instrumentation		$0											$0
Proston Tarong Pipeline Offttake-Child-Mechanical							$0						$0
Water Transfer		**$36,927**	**$45,538**	**$17,179**	**$18,464**	**$20,084**	**$151,224**	**$55,894**			**$57,056**		**$402,366**
Raw Water Pump Stations		$36,927	$45,538	$17,179	$18,464	$20,084	$151,224	$55,894			$49,844		$395,153
Hivesville Non Potable Water Pump Station 3 (WPS 3)-Child-Electric								$30,126					$30,126
Hivesville Non Potable Water Pump Station 3 (WPS 3-Child-Instrumen						$20,084							$20,084
Jones Rd Non Potable Water Pump Station 2 (WPS 2)-Child-Electrical								$25,768					$25,768
Jones Rd Non Potable Water Pump Station 2 (WPS 2)-Child-Instrument				$17,179									$17,179
Jones Rd Non Potable Water Pump Station 2 (WPS 2)-Child-Mechanical							$51,537						$51,537
Kinleymore Non Potable Booster Water Pump Station 4 (WPS 4)-Child-		$36,927			$18,464								$55,391
Kinleymore Non Potable Booster Water Pump Station -Child-Instrumen			$12,309										$12,309
Proston Raw Water Pump Station 1-Child-Electrical											$49,844		$49,844
Proston Raw Water Pump Station 1-Child-Instrumentation			$33,229										$33,229
Proston Raw Water Pump Station 1-Child-Mechanical							$99,687						$99,687
Water Dispensing Station											$7,213		$7,213
Hivesville Water Dispensing Stn-Child-Electrical											$7,213		$7,213
Water Treatment & Processing			**$27,761**					**$166,568**	**$208,210**				**$402,539**
Treatment Plants			$27,761					$166,568	$208,210				$402,539
Proston WTP-Child-Electrical									$208,210				$208,210
Proston WTP-Child-Instrumentation			$27,761										$27,761
Proston WTP-Child-Mechanical								$166,568					$166,568
Grand Total	**$1,182**	**$36,927**	**$74,862**	**$49,502**	**$18,464**	**$20,084**	**$163,114**	**$225,527**	**$212,029**	**$4,252**	**$63,821**	**$3,819**	**$873,582**

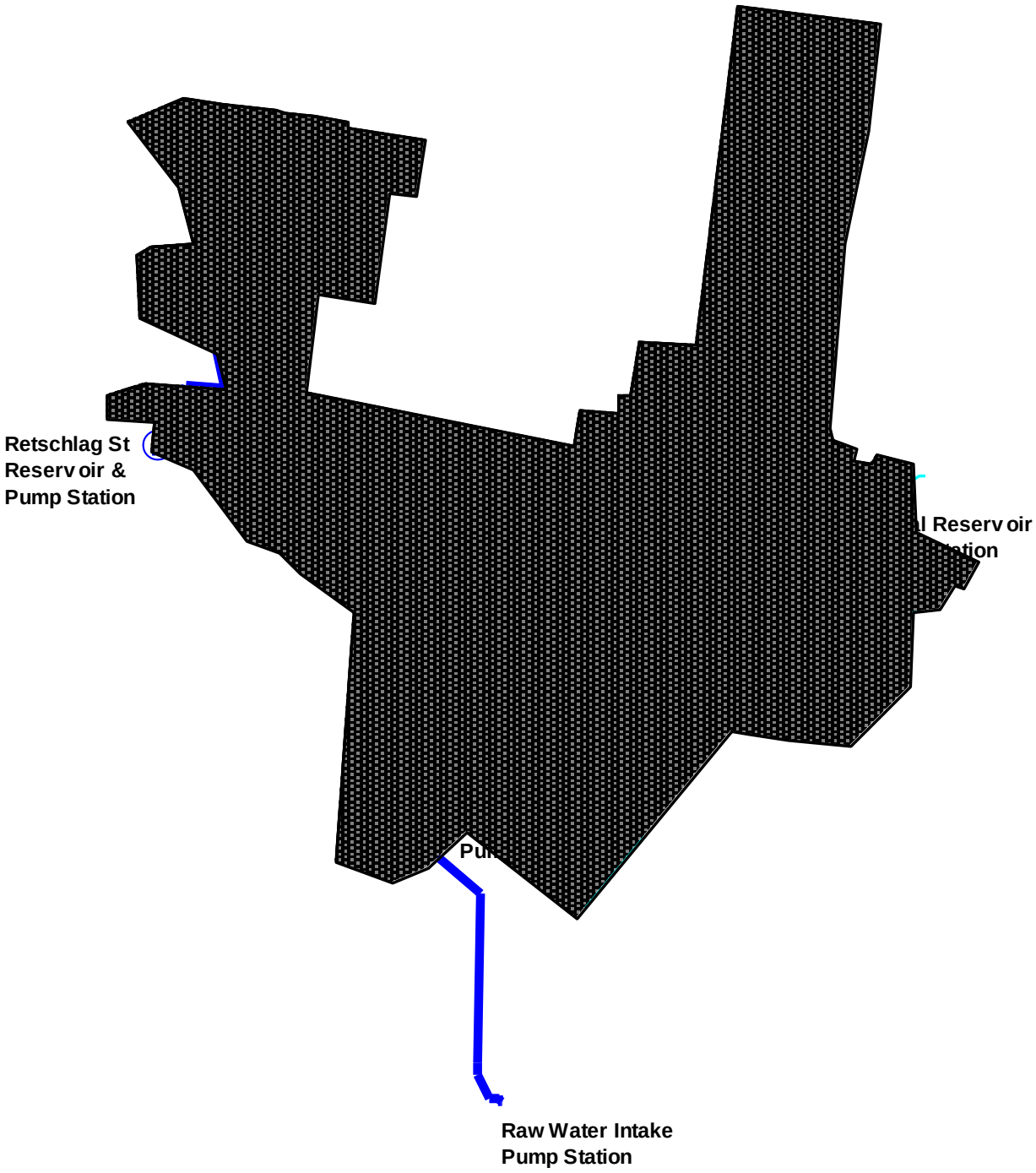
Row Labels	2023	2026	2027.5	2029	2030	2030.5	2032	2034	2035	2038	2040	2041	Grand Total
Wondai	**$2,862**	**$52,303**	**$36,509**	**$175,144**	**$1,113,494**	**$2,581**	**$931,757**	**$20,034**	**$2,316**	**$6,880**	**$19,356**	**$4,853**	**$2,368,088**
Water Bulk Storage & Supply		**$21,991**		**$25,205**	**$7,330**		**$7,330**		**$2,316**	**$6,880**			**$71,052**
Reservoirs		$21,991		$25,205	$7,330		$7,330		$2,316	$6,880			$71,052
Hines Road Reservoir 3-Child-Instrumentation				$18,258									$18,258
Hines Road Reservoir 3-Child-Mechanical										$4,565			$4,565
Hines Road Reservoir 4-Child-Electrical					$2,766								$2,766
Hines Road Reservoir 4-Child-Instrumentation		$8,297											$8,297
Hines Road Reservoir 4-Child-Mechanical							$2,766						$2,766
Scott Street Reservoir 2-Child-Electrical					$4,565								$4,565
Scott Street Reservoir 2-Child-Instrumentation		$13,694											$13,694
Scott Street Reservoir 2-Child-Mechanical							$4,565						$4,565
Tingoora Reservoir 5-Child-Electrical									$2,316				$2,316
Tingoora Reservoir 5-Child-Instrumentation				$6,947									$6,947
Tingoora Reservoir 5-Child-Mechanical										$2,316			$2,316
Water Transfer	**$2,862**	**$30,313**	**$36,509**	**$20,615**	**$136,231**	**$2,581**	**$148,480**	**$20,034**			**$19,356**	**$4,853**	**$421,832**
Treated Water Pump Stations	$2,862	$20,607	$3,280	$20,615	$71,830	$2,581	$19,677	$20,034			$19,356		$180,841
Greenview Road Pump Station (WPS 5)-Child-Electrical					$21,465								$21,465
Greenview Road Pump Station (WPS 5)-Child-Instrumentation	$2,862												$2,862
Greenview Road Pump Station (WPS 5)-Child-Mechanical		$17,172											$17,172
Greenview Road Pump Station (WPS 5)-Child-Pipework, Valve and Fitt								$20,034					$20,034
Hines Road Reservoir Pump Station (WPS 4)-Child-Electrical					$24,597								$24,597
Hines Road Reservoir Pump Station (WPS 4)-Child-Instrumentation			$3,280										$3,280
Hines Road Reservoir Pump Station (WPS 4)-Child-Mechanical							$19,677						$19,677
Scott Street Reservoir Pump Station (WPS 3)-Child-Electrical											$19,356		$19,356
Scott Street Reservoir Pump Station (WPS 3)-Child-Instrumentation						$2,581							$2,581
Tingoora Booster Station (WPS 6)-Child-Electrical					$25,768								$25,768
Tingoora Booster Station (WPS 6)-Child-Instrumentation		$3,436											$3,436
Tingoora Booster Station (WPS 6)-Child-Mechanical				$20,615									$20,615
Raw Water Pump Stations		$9,705	$33,229		$64,401		$128,803					$4,853	$240,991
Wondai Raw Water Inlet-Child-Electrical					$49,844								$49,844
Wondai Raw Water Inlet-Child-Instrumentation			$33,229										$33,229
Wondai Raw Water Inlet-Child-Mechanical							$99,687						$99,687
Wondai Raw Water Pump Station (WPS 1)-Child-Electrical					$14,558								$14,558
Wondai Raw Water Pump Station (WPS 1)-Child-Instrumentation		$9,705											$9,705
Wondai Raw Water Pump Station (WPS 1)-Child-Mechanical							$29,116						$29,116
Wondai Raw Water Pump Station (WPS 1)-Child-Site Services												$4,853	$4,853
Water Treatment & Processing				**$129,324**	**$969,933**		**$775,946**						**$1,875,203**
Treatment Plants				$129,324	$969,933		$775,946						$1,875,203
Wondai WTP-Child-Electrical					$969,933								$969,933
Wondai WTP-Child-Instrumentation				$129,324									$129,324
Wondai WTP-Child-Mechanical							$775,946						$775,946
Grand Total	**$2,862**	**$52,303**	**$36,509**	**$175,144**	**$1,113,494**	**$2,581**	**$931,757**	**$20,034**	**$2,316**	**$6,880**	**$19,356**	**$4,853**	**$2,368,088**

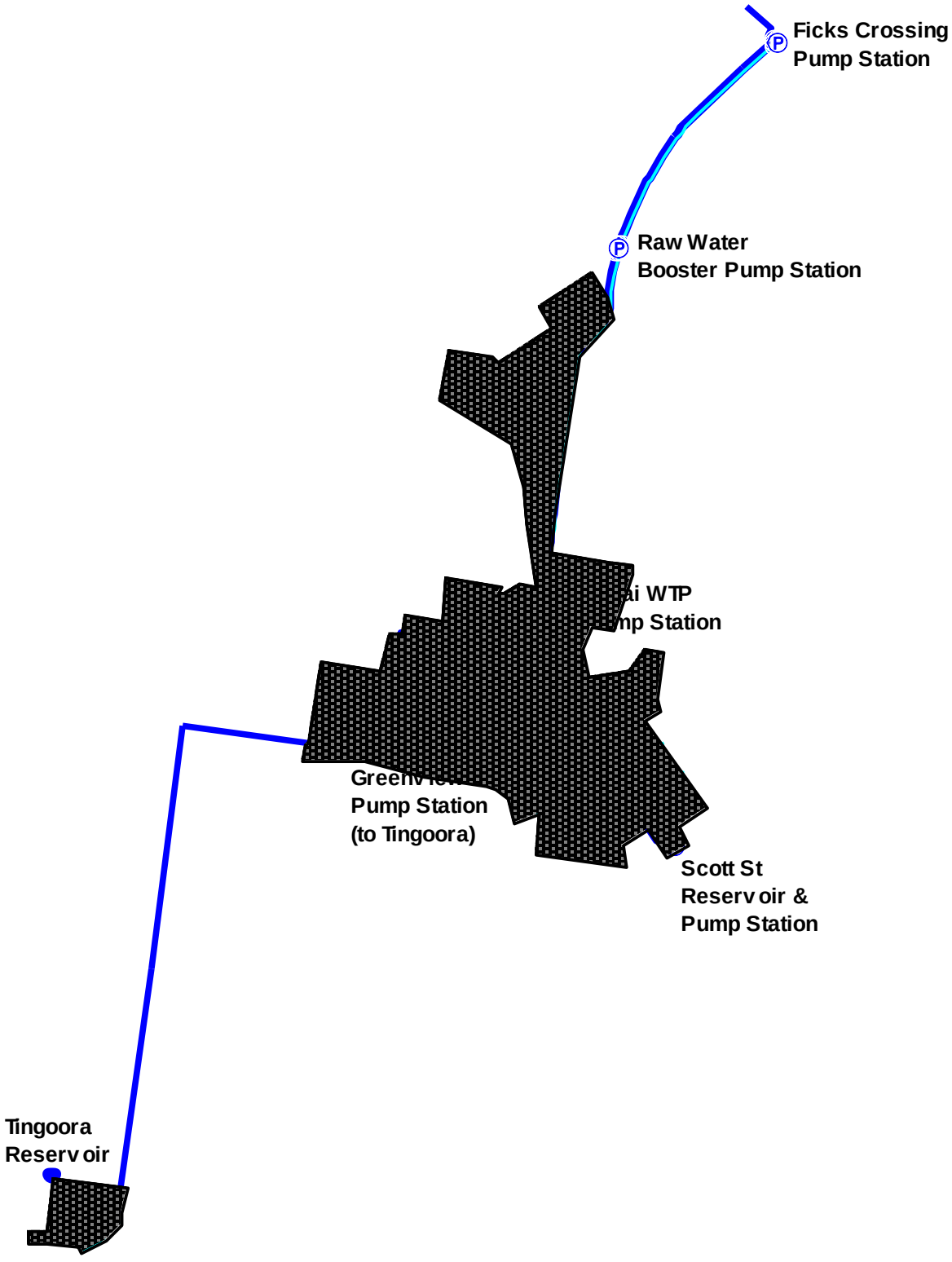
SERVICE	(All)							
PASSIVE/ACTIVE	Active							
Val_Method	SLRT							
FinRepSubCat (Child)	(Multiple Items)							
Sum of CURRENT_REPLACEMENT_VALUE	**Column Labels**							
Row Labels	**2027.5**	**2030.5**	**2032**	**2035**	**2040**	**2041**	**Grand Total**
Wooroolin	**$7,764**	**$0**	**$17,042**	**$4,970**	**$1,736**	**$0**	**$31,513**
Water Distribution	**$5,208**	**$0**	**$0**	**$1,736**	**$1,736**	**$0**	**$8,680**
Distribution Reservoirs	$5,208	$0	$0	$1,736	$1,736	$0	$8,680
Wooroolin Reservoir-Child-Electrical					$1,736		$1,736
Wooroolin Reservoir-Child-Instrumentation	$5,208						$5,208
Wooroolin Reservoir-Child-Mechanical				$1,736			$1,736
Wooroolin Storage Tank 1-Child-Electrical					$0		$0
Wooroolin Storage Tank 1-Child-Instrumentation			$0				$0
Wooroolin Storage Tank 2-Child-Electrical					$0		$0
Wooroolin Storage Tank 2-Child-Instrumentation		$0					$0
Wooroolin Storage Tank 2-Child-Mechanical						$0	$0
Water Source Storage & Supply	**$2,556**		**$17,042**	**$3,234**			**$22,833**
Bore fields	$2,556		$17,042	$3,234			$22,833
Wooroolin Bore 1-Child-Electrical				$3,234			$3,234
Wooroolin Bore 1-Child-Instrumentation	$1,386						$1,386
Wooroolin Bore 1-Child-Mechanical			$9,241				$9,241
Wooroolin Bore 2-Child-Instrumentation	$1,170						$1,170
Wooroolin Bore 2-Child-Mechanical			$7,801				$7,801
Grand Total	**$7,764**	**$0**	**$17,042**	**$4,970**	**$1,736**	**$0**	**$31,513**

SERVICE	(All)						
PASSIVE/ACTIVE	Active						
Val_Method	SLRT						
FinRepSubCat (Child)	(Multiple Items)						
Sum of CURRENT_REPLACEMENT_VALUE	**Column Labels**						
Row Labels	**2020**	**2027.5**	**2031**	**2034**	**2038**	**Grand Total**
Yallakool	**$16,314**	**$10,876**	**$2,400**	**$12,320**	**$34,227**	**$76,137**
Water Distribution			**$2,400**		**$1,600**	**$4,000**
Distribution Reservoirs			$2,400		$1,600	$4,000
Yallakool WTP - HL Tank-Child-Electrical					$800	$800
Yallakool WTP - HL Tank-Child-Instrumentation			$2,400			$2,400
Yallakool WTP - HL Tank-Child-Mechanical					$800	$800
Water Transfer	**$16,314**	**$10,876**			**$32,627**	**$59,817**
Raw Water Pump Stations	$16,314	$10,876			$32,627	$59,817
Yallakool Raw WPS-Child-Electrical	$16,314					$16,314
Yallakool Raw WPS-Child-Instrumentation		$10,876				$10,876
Yallakool Raw WPS-Child-Mechanical					$32,627	$32,627
Water Treatment & Processing				**$12,320**		**$12,320**
Treatment Plants				$12,320		$12,320
Yallakool WTP-Child-Instrumentation				$12,320		$12,320
Grand Total	**$16,314**	**$10,876**	**$2,400**	**$12,320**	**$34,227**	**$76,137**

Appendix K: Schematics

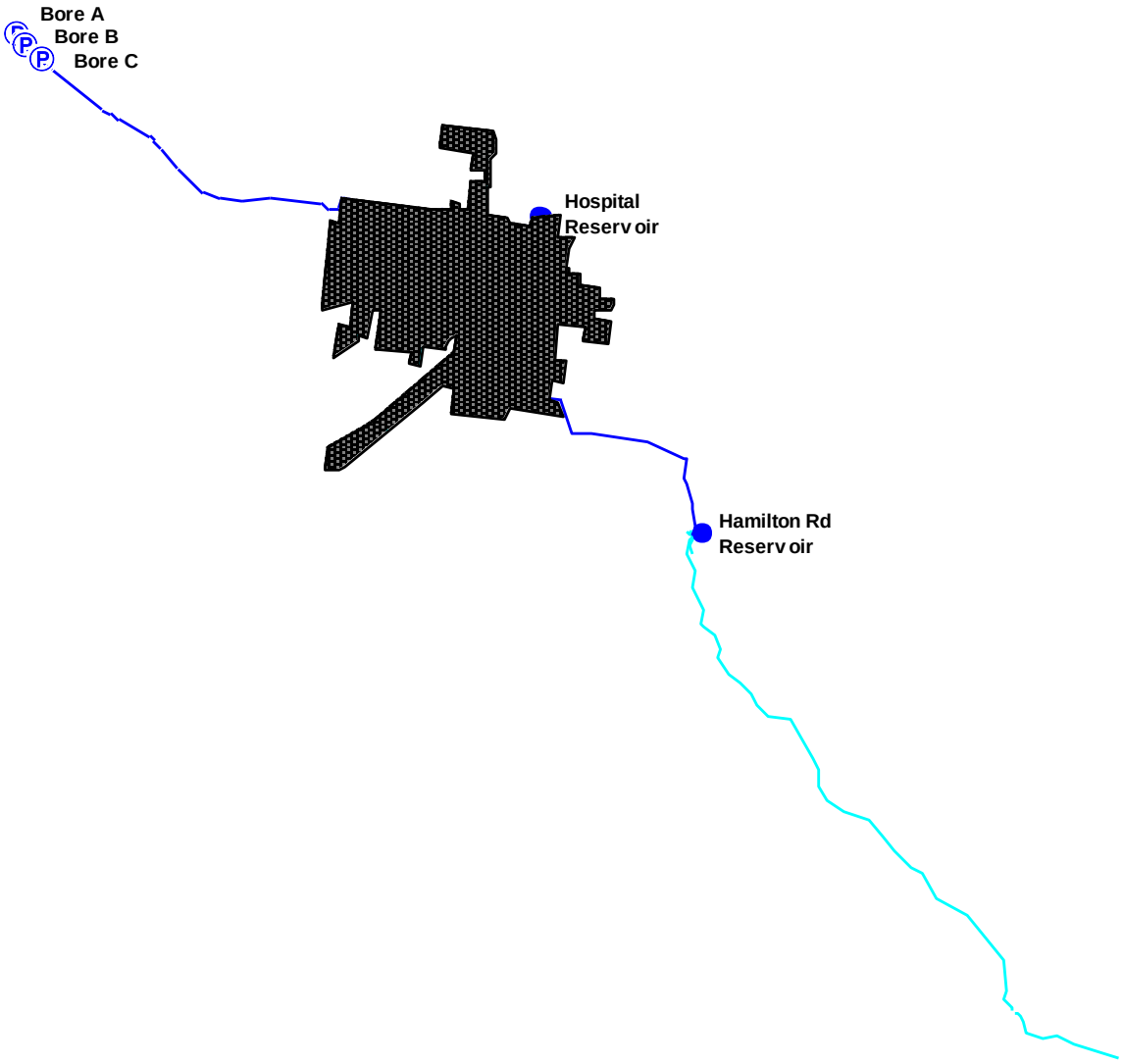
Murgon



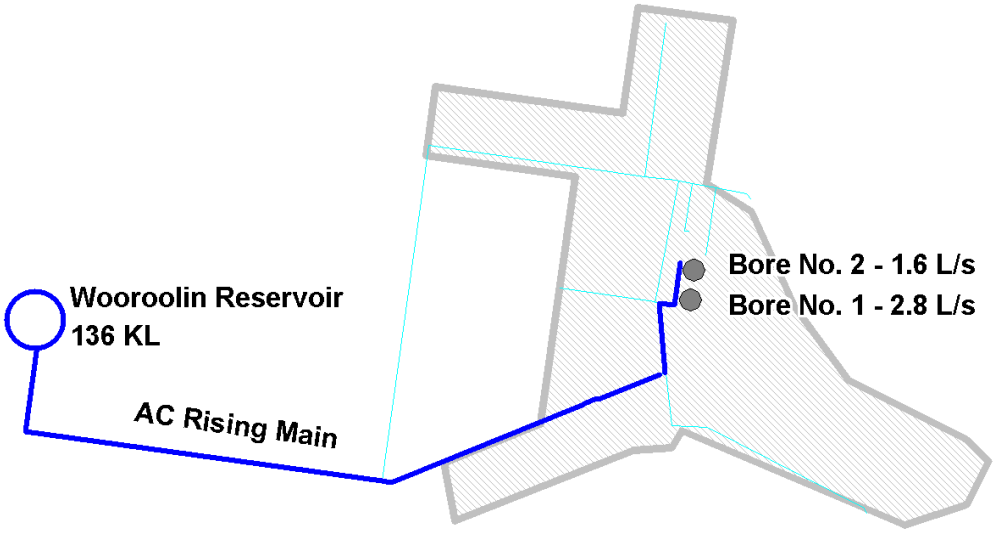

Ficks Crossing
Pump Station
Raw Water
Booster Pump Station
Scott St
Reservoir &
Pump Station
Tingoora
Reservoir

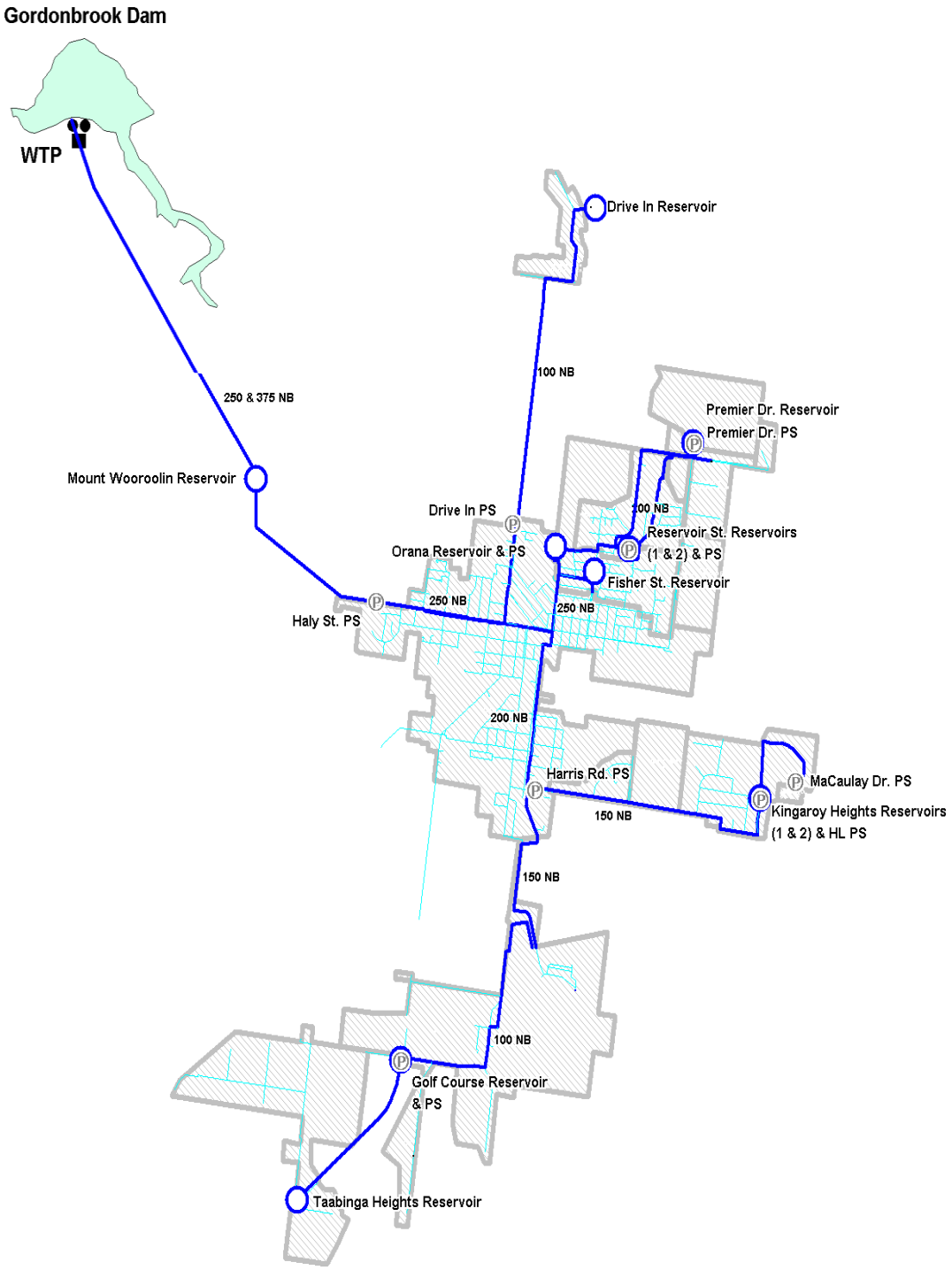
Proston

Nanango

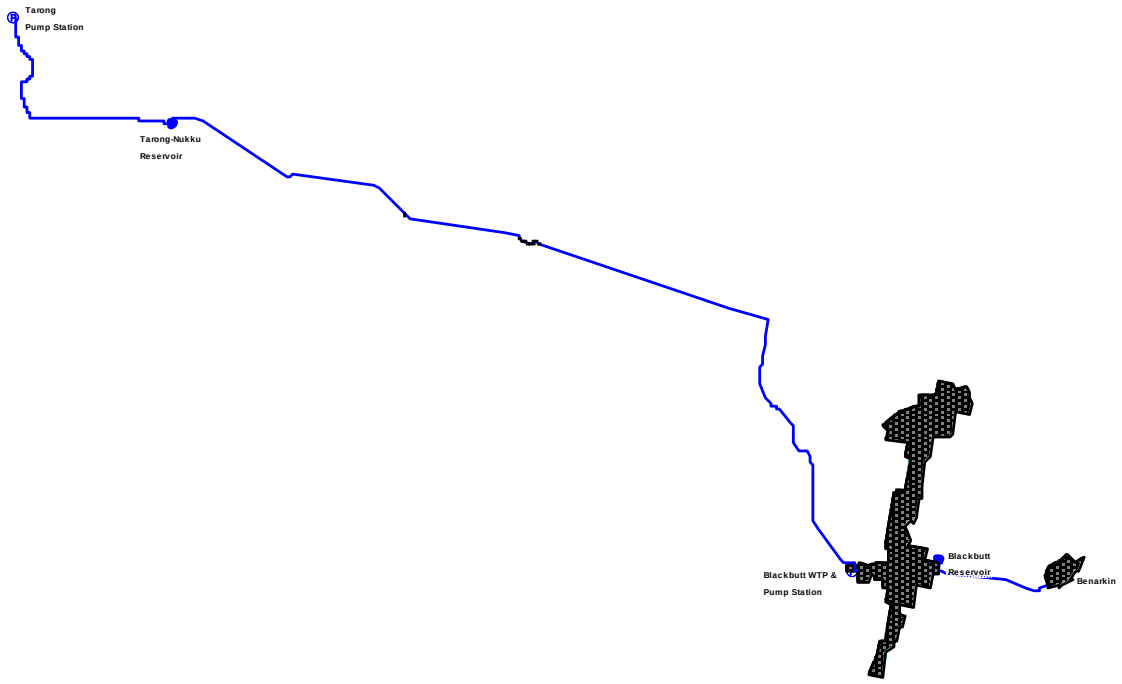

Bore A
Bore B
Bore C
Hospital
Reservoir
Hamilton Rd
Reservoir

Wooroolin

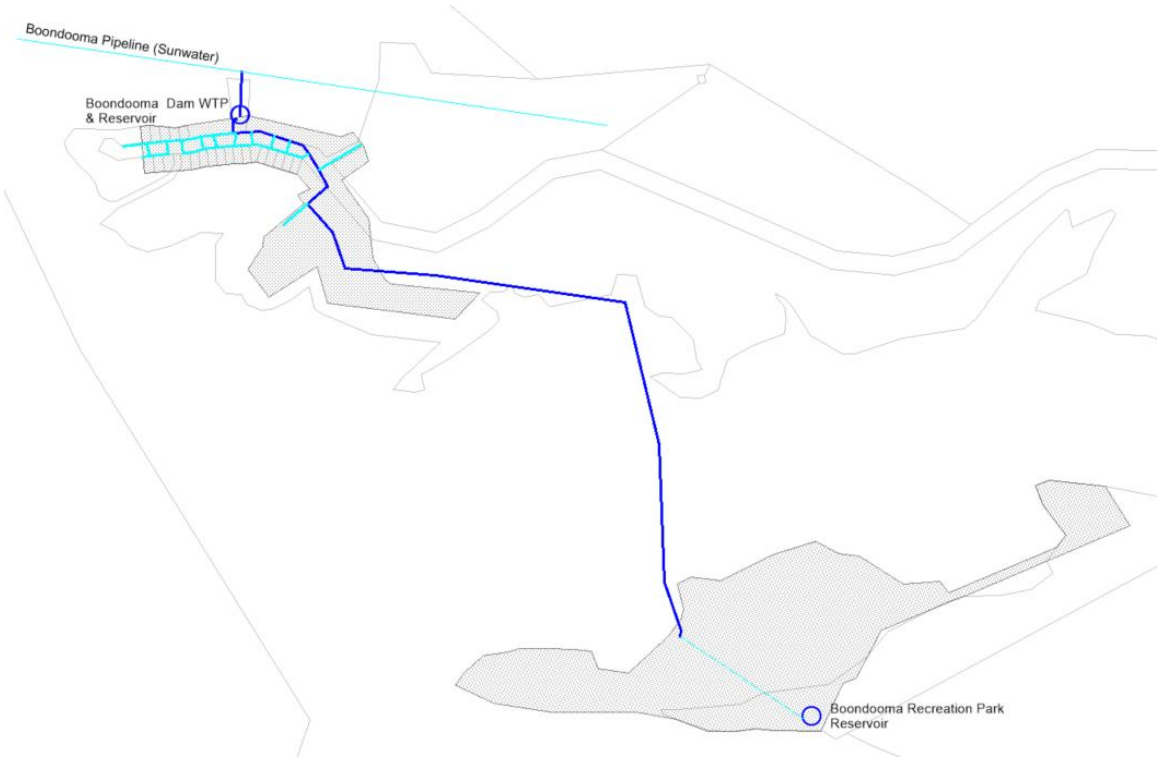

Wooroolin Reservoir
136 KL
AC Rising Main
Bore No. 2 - 1.6 L/s
Bore No. 1 - 2.8 L/s


Gordonbrook Dam
WTP
250 & 375 NB
Mount Wooroolin Reservoir
Haly St. PS
250 NB
Drive In Reservoir
100 NB
Drive In PS
Orana Reservoir & PS
250 NB
Premier Dr. Reservoir
Premier Dr. PS
100 NB
Reservoir St. Reservoirs
(1 & 2) & PS
Fisher St. Reservoir
200 NB
Harris Rd. PS
150 NB
MaCaulay Dr. PS
Kingaroy Heights Reservoirs
(1 & 2) & HL PS
150 NB
100 NB
Golf Course Reservoir
& PS
Taabinga Heights Reservoir

Blackbutt


Tarong
Pump Station
Tarong-Nukku
Reservoir
Blackbutt WTP &
Pump Station
Blackbutt
Reservoir
Benarkin

Boondooma Dam



Yallakool