



Water Supply Network

Asset Management Plan

February 2023 (Version 2.4)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Document Control** | | **Uralla Shire Council**  **Water Asset Management Plan** | | | |
| Document ID: UINT/21/4462 | | | | | |
| **Rev No** | **Date** | **Revision Details** | **Author** | **Reviewer** | **Approver** |
| 1 | June 2014 | Version 1 | RD | DES |  |
| 1.1 | 8 April 2015 | Final | JL | DES |  |
| 1.2 | 16 October 2015 | Reviewed Yield Study outcomes included, asset values updated to 2015 rates. | JL | DES |  |
| 1.3 | 6 May 2020 | Reviewed document in-line with current data. | AM |  |  |
| 1.4 | April 2021 | Update the plan with current information and data | AM | DES |  |
| 2 | March 2022 | Version 2 draft | AM. MWS | DID |  |
| 2.1 | 10 May 2022 | Revised by Finance Advisory Committee | PSO |  |  |
| 2.2 | February 2023 | Revision of final draft version | AM,MWS | Interim DID | GM |
| 2.3 | February 2023 | Councillor Workshop | AM |  | Council |
| 2.4 | 28 February 2023 | Public exhibition | AM |  | Council |
| 2.5 | TBC | Adopted | AM |  | Council |

**TABLE OF CONTENTS**

[1. EXECUTIVE SUMMARY iv](#_Toc126063490)

[2. INTRODUCTION 8](#_Toc126063491)

[2.1 Background 8](#_Toc126063492)

[2.2 Goals and Objectives of Asset Management 9](#_Toc126063493)

[2.3 Plan Framework 10](#_Toc126063494)

[2.4 Core and Advanced Asset Management 12](#_Toc126063495)

[2.5 Community Consultation 12](#_Toc126063496)

[3. LEVELS OF SERVICE 13](#_Toc126063497)

[3.1 Customer Research and Expectations 13](#_Toc126063498)

[3.2 Legislative Requirements 13](#_Toc126063499)

[3.3 Current Levels of Service 14](#_Toc126063500)

[3.4 Desired Levels of Service 16](#_Toc126063501)

[4. FUTURE DEMAND 17](#_Toc126063502)

[4.1 Demand Forecast 17](#_Toc126063503)

[4.2 Changes in Technology 18](#_Toc126063504)

[4.3 Demand Management Plan 18](#_Toc126063505)

[4.4 New Assets for Growth 19](#_Toc126063506)

[5. LIFECYCLE MANAGEMENT PLAN 20](#_Toc126063507)

[5.1 Background Data 20](#_Toc126063508)

[5.1.1 Physical parameters and condition of existing assets 20](#_Toc126063509)

[5.1.2 Asset capacity and performance 25](#_Toc126063510)

[5.1.3 Asset condition 25](#_Toc126063511)

[5.1.4 Asset valuations 26](#_Toc126063512)

[5.1.5 Asset hierarchy 26](#_Toc126063513)

[5.2 Risk Management Plan 27](#_Toc126063514)

[5.3 Routine Maintenance Plan 28](#_Toc126063515)

[5.3.1 Maintenance plan 28](#_Toc126063516)

[5.3.2 Standards and specifications 29](#_Toc126063517)

[5.3.3 Summary of future operations and maintenance expenditures 29](#_Toc126063518)

[5.4 Renewal/Replacement Plan 30](#_Toc126063519)

[5.4.1 Renewal plan 30](#_Toc126063520)

[5.4.2 Renewal standards 30](#_Toc126063521)

[5.4.3 Summary of projected renewal expenditure 30](#_Toc126063522)

[5.5 Creation/Acquisition/Upgrade Plan 31](#_Toc126063523)

[5.5.1 Selection criteria 31](#_Toc126063524)

[5.5.2 Standards and specifications 32](#_Toc126063525)

[5.5.3 Summary of projected upgrade/new assets expenditure 32](#_Toc126063526)

[5.6 Disposal Plan 32](#_Toc126063527)

[6. FINANCIAL SUMMARY 33](#_Toc126063528)

[6.1 Financial Statements and Projections 33](#_Toc126063529)

[6.1.1 Financial sustainability in service delivery 33](#_Toc126063530)

[6.1.2 Expenditure projections for long term financial plan 34](#_Toc126063531)

[6.2 Funding Strategy 34](#_Toc126063532)

[6.3 Key Assumptions made in Financial Forecasts 34](#_Toc126063533)

[7. ASSET MANAGEMENT PRACTICES 35](#_Toc126063534)

[7.1 Accounting/Financial Systems 35](#_Toc126063535)

[7.1.1 Accounting and financial systems 35](#_Toc126063536)

[7.1.2 Accountabilities for financial systems 35](#_Toc126063537)

[7.1.3 Accounting standards and regulations 35](#_Toc126063538)

[7.1.4 Capital/maintenance threshold 35](#_Toc126063539)

[7.1.5 Required changes to accounting financial systems arising from this Water Asset Management Plan 35](#_Toc126063540)

[7.2 Asset Management Systems 35](#_Toc126063541)

[7.2.1 Asset management system and registers: 35](#_Toc126063542)

[7.2.2 Accountabilities for asset management system and data 36](#_Toc126063543)

[7.2.3 Linkage from asset management to financial system 36](#_Toc126063544)

[7.2.4 Required changes to asset management system arising from this Asset Management Plan 36](#_Toc126063545)

[7.3 Information Flow Requirements and Processes 36](#_Toc126063546)

[7.4 Standards and Guidelines 36](#_Toc126063547)

[8. PLAN IMPROVEMENT AND MONITORING 38](#_Toc126063548)

[8.1 Performance Measures 38](#_Toc126063549)

[8.2 Improvement Plan 38](#_Toc126063550)

[8.3 Monitoring and Review Procedures 38](#_Toc126063551)

[REFERENCES 39](#_Toc126063552)

[APPENDICES 1](#_Toc126063553)

[APPENDIX A: Projected 10 year Operation and Maintenance, Capital Renewal and Upgrades Works Program 2](#_Toc126063554)

[Appendix B Abbreviations 5](#_Toc126063555)

[Appendix C Glossary 6](#_Toc126063556)

1. EXECUTIVE SUMMARY

Uralla Shire

Uralla Shire Council is a medium sized NSW rural Council with an area of 3,215 sq km and a shire population of 6,048 people located in the New England Tablelands region of NSW. Uralla is located approximately 545km by road north west of Sydney on the New England Highway. There are two urban centres within the local government area which have potable water supplies for approximately 2400 people in Uralla and about 400 people in Bundarra.

What is the purpose of the plan?

This Water Asset Management Plan is one of seven asset management plans covering all community assets for which Council is responsible. These fall under the Asset Management Policy and the Asset Management Strategy.

This asset management plan details information about infrastructure assets including actions required to provide an agreed level of service in the most cost effective manner while outlining associated risks. The plan defines the services to be provided, how the services are provided and what funds are required to provide the services over a 10-year planning period. .

This plan covers the infrastructure assets that provide the water supply for the Uralla Shire Council. The water Service network assets comprise:

* Dams, weirs
* Water treatment plants
* Reservoirs
* Water pumping stations
* Water gauging stations
* Reticulation mains
* Transfer/trunk mains

These water service infrastructure network assets have significant value estimated at a current replacement cost of **$33,848,069.**

What does it Cost?

There are two key indicators of cost to provide the Water Supplies service:

* The life cycle cost being the average cost over the life cycle of the asset, and
* The total maintenance and capital renewal expenditure required to deliver existing service levels in the next 10 years covered by Council’s long term financial plan.

The life cycle cost to provide the water supplies service is estimated at $2.08 Million per annum. Council’s planned estimate revenue in the life of asset management plan is $1.52 Million which gives a life cycle sustainability index of 0.89. Council’s present funding levels are insufficient to provide beyond existing services at current levels in the long term. There is need to minimise the disconnect between what is needed to provide sustainable services at acceptable level for the future in this Water Supply Asset Management Plan and what is provided in financial plans. This will improve consistency in the council’s long term planning

The total maintenance, capital renewal and upgrade expenditure required for water supplies service and projected operating income from the water service including financial sustainability is summarised in Table 1.1 below.

##### Table 1.1 Projected financial outlays over the 10-year planning period 2022 -2032

|  |  |
| --- | --- |
| Projected 10 year capital renewals, new / upgrade expenditure | $3,800,500 |
| Projected operational expenditure | $17,032,987 |
| Projected 10 Year Average cost | $2,083,349 |
| Project 10 year operating revenue | $15,209,913 |
| Projected 10 year average funding shortfall | -$1,823,074 |
| 10 year asset management financial indicator | 0.89 |

What we will do

Council plans to operate and maintain the two water supply systems to achieve the following strategic outcomes:

* To provide sufficient safe drinking and general water use to areas connected to or capable of connecting to the Uralla or Bundarra water supply systems
* To complete the renewals and upgrading works necessary to maintain the assets covered under this management plan
* Meet the levels of service required by regulators.

What we cannot do

The level of service we can provide is constrained by the available resources. .

Managing the Risks

There are risks associated with providing the service and not being able to complete all identified activities and projects. The major risks have been identified as:

* Insufficient bulk water security
* Increasing backlog in renewals
* Quality of water supplied
* Health and safety of public and staff
* Dam Safety compliance –Kentucky Creek Dam.
* Non- availability of current and up to date SCADA and Telemetry System for monitoring and producing reports

We will endeavour to manage these risks within available funding by:

* Investigating options for water source augmentation using current grants
* Achieving systems compliance with the 12 elements in the Framework for Management of Drinking Water Quality in the ADWG (2011).
* Maintaining water supply infrastructure to a high standard and in accordance with adopted levels of service and making due provision for renewal and/or upgrading of assets.
* Responding promptly to service issues
* Inspect dam annually and following major flow events.
* Installing an industry compliant SCADA and Telemetry system for our water supply network.

The Next Steps

Implement a comprehensive asset management system linked to Council’s finance system by::

* Updating asset registers and mapping to ensure all Council-owned assets are captured
* Analysing available performance data obtained from new SCADA and Telemetry System;
* Determining updated asset condition ratings by compiling a comprehensive history of water pipe failures;
* Revising asset failure modes and risks;
* Regularly revising and updating the renewals plan based on the above information.
* Carrying out a network modelling and analysis;

**Questions you may have**

What is this plan about?

This asset management plan covers the infrastructure assets that serve the Uralla and Bundarra communities’ water services. These assets include dams, weirs, treatment plants, reservoirs, stations and mains throughout the Council area that enable people to have access to safe and high quality water supplies.

What is an Asset Management Plan?

Asset management planning is a comprehensive process to ensure delivery of services from infrastructure is provided in a financially sustainable manner.

An asset management plan details information about infrastructure assets including actions required to provide an agreed level of service in the most cost effective manner. The plan defines the services to be provided, how the services are provided and what funds are required to provide the services.

Why is there a funding shortfall?

Much of Council’s two water supply schemes were constructed with funding from government grants which are often provided and accepted without consideration of ongoing operations, maintenance and replacement needs.

Many of these assets are now approaching the later years of their useful life and will require replacement. In addition, levels of service from the assets decrease if renewals are not done and maintenance costs begin to increase.

Council’s present funding levels are inconsistent with the cost required to provide existing services at current levels in the medium term and meet the capital renewals required for sustainable asset management and to cater for future growth.

What options do we have?

The Council needs to better align asset management planning with long term financial planning. We need to the following options to provide appropriate levels of service and manage risks of our water system:

* Raise the charges.
* Improve asset knowledge so that data accurately records the asset inventory, how assets are performing and when assets are not able to provide the required service levels;
* Improve our efficiency in operating, maintaining, replacing existing and constructing new assets to optimise life cycle costs;
* Identify and manage risks associated with providing services from infrastructure;
* Make trade-offs between service levels and costs to ensure that the community receives the best return from infrastructure;
* Identify assets surplus to needs for disposal to make saving in future operations and maintenance costs;
* Consult with the community to ensure that services and costs meet community needs and are affordable;
* Develop partnership with other bodies, where available to provide services; and
* Seek additional funding from governments and other bodies to better reflect a ‘whole of government’ funding approach to infrastructure services.

What happens if we don’t manage the shortfall?

It is likely that council will have to reduce service levels in some areas, unless revenue is increased. For water, the service level reduction may include a reduction in reliability of the water supply and quality of water delivered to customers and more frequent restrictions on supply.

What can you do?

Council will be pleased to consider your thoughts on the issues raised in this asset management plan and suggestions on how Council may change or reduce its services mix to ensure that the appropriate level of service can be provided to the community within available funding.

**Asset management practices**

Uralla Shire Council’s systems to manage assets include:

* Council’s Authority financial package
* The Long Term Financial Plan
* The water supply asset register
* Geographical Information Systems (GIS)
* Records of Maintenance incidents
* Routine inspections

Assets requiring renewal/replacement are identified from one of three widely recognised methods:

* Method 1 uses Asset Register data to project the renewal costs using acquisition year and useful life to determine the renewal year, or
* Method 2 uses capital renewal expenditure projections from external condition modelling systems (such as Water Distribution Network Models), or
* Method 3 uses a combination of average network renewals plus defect repairs in the Renewal Plan and Defect Repair Plan worksheets.

Method 1 was used for this asset management plan. However, the current acquisition year for above-ground facilities is fairly accurate, but acquisition year data for pipe network confidence level is currently low.

2. INTRODUCTION

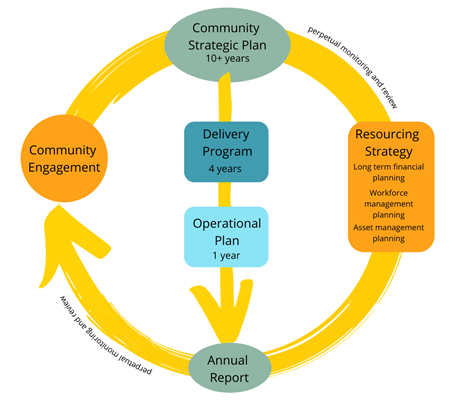
2.1 Background

This asset management plan is to demonstrate responsive management of assets (and services provided from assets), compliance with regulatory requirements, and to communicate funding needed to provide the required levels of service. It sets out the optimum schedule of activities which include operations, maintenance, renewals, acquisitions and disposals and the timing and the costs associated with these life cycle activities. In other words, it simply tells us what the council should spend and when to provide appropriate level of service at the lowest cost option and management of risks.

The asset management plan is to be read in conjunction with Council’s Asset Management Policy, Asset Management Strategy and the following associated planning documents:

* Uralla Shire Council Community Strategic Plan 2022 -2032
* Uralla Shire Council Delivery Plan 2022- 2026
* Uralla Shire Council Operational Plan 2022- 2023
* Uralla Shire Council Ten Year Draft Long Term Financial Plan 2022 -2032

This water asset management plan has a direct relationship with the following associated planning process and documents Figure 2-1 below:



##### Figure 2-1- Asset management planning process within the Integrated Planning and Reporting Framework

This infrastructure assets covered by this asset management plan are shown in Table 2.1.

##### Table 2.1: Assets covered by this Plan

|  |  |  |
| --- | --- | --- |
| Asset Category | Description | Total Replacement Value |
| Uralla Water Supply Network | Pump Stations, Water Storage assets , Chemical Dosing, water transfer assets Disinfection units, Primary and secondary Flocculation Sedimentation, Pipe networks and site works | $30,303,411 |
| Bundarra Water Supply Network | Pump Stations, Water Storage, Chemical Dosing, Clearwater Storage, CI Dosing, Backwash System , Filtration –Gravity Filters system, Fluoridation System, Distribution pipework, Settled Water Feed system, Settling Lagoons, Treatment process system, and Site works | $ $3,544,658 |
| **Total** | | **$ $33,848,069** |

Water Supply assets have been planned to be revalued in 2022/23.

The key stakeholders in the preparation and implementation of this plan are:

* Residential water users (including those with special needs)
* Local businesses
* Sports and recreational clubs
* NSW Department of Planning, Industry and Environment
* NSW Health
* Environmental Protection Authority
* NSW Natural Resources Access Regulator (NRAR)
* NSW Local Land Services

2.2 Goals and Objectives of Asset Management

Part of the role of Council is to provide services to its community. Some of these services are provided by infrastructure assets. Council has acquired infrastructure assets by ‘purchase’, by contract, construction by council staff and by donation of assets constructed by developers and others to meet increased levels of service.

Council’s goal in managing infrastructure assets is to meet the required level of service in the most cost effective manner for present and future consumers. The key elements of infrastructure asset management are:

* Taking a life cycle approach (i.e. considering both the cost of acquisition, operation, maintenance and disposal or renewal of assets over their entire lifetime)
* Developing cost‐effective management strategies for the long term,
* Providing a defined level of service and monitoring performance,
* Understanding and meeting the demands of growth through demand management and infrastructure investment,
* Managing risks associated with asset failures,
* Sustainable use of physical resources,
* Continuous improvement in asset management practices.[[1]](#footnote-1)

The goal of this asset management plan is to:

* Document the services/service levels to be provided and the costs of providing the service,
* Communicate the consequences for service levels and risk, where desired funding is not available, and
* Provide information to assist decision makers in trading off service levels, costs and risks to provide services in a financially sustainable manner.

This asset management plan is prepared under the direction of Council’s vision, mission, goals and objectives.

**Council’s Vision is:** In 2032 the Uralla Shire community will be vibrant with a growing economy supporting a sustainable quality of life that values its heritage.

**Council’s Mission is:** Uralla Shire Council listens to and facilitates the aspirations of the community.

**Council’s Community Strategic Objectives:**

1. We have an accessible, inclusive and sustainable community.
2. We drive the economy to support prosperity.
3. We are good custodians of our environment.
4. We are an independent shire and well-governed community.

Assets are inspected, maintained, upgraded and renewed as necessary or as specified in specific works programs to ensure they:

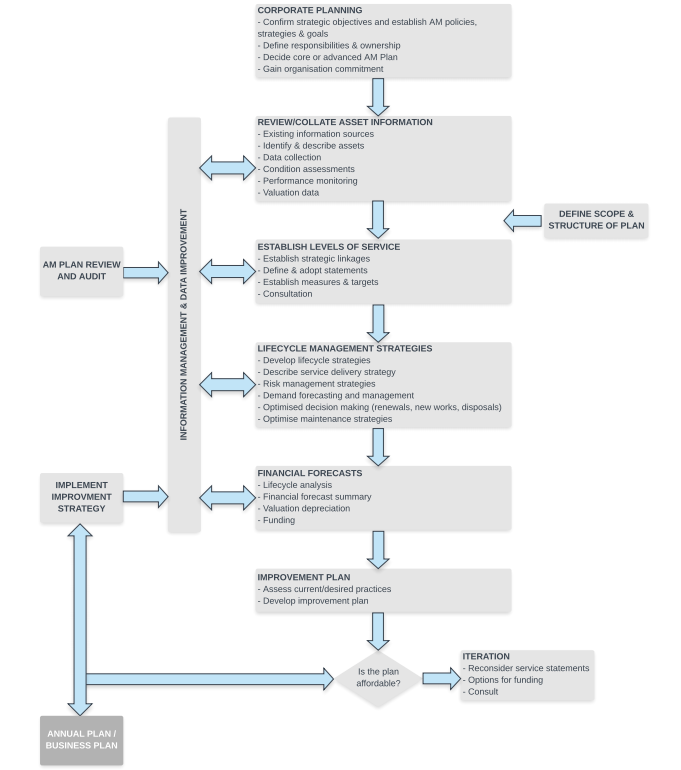
* provide quality output of water supply;
* reach their expected lifecycle;
* perform to their maximum capability;
* satisfy community expectations and needs;
* satisfy budget limitations; and
* meet safety and regulatory requirements.

2.3 Plan Framework

Key elements of the plan are:

* Levels of service – specifies the services and levels of service to be provided by council.
* Future demand – how this will impact on future service delivery and how this is to be met.
* Life cycle management – how the organisation will manage its existing and future assets to provide the required services
* Financial summary – what funds are necessary to provide the required services.
* Asset management practices
* Monitoring – how the plan will be monitored to ensure it is meeting the organisation’s objectives.
* Asset management improvement plan

A road map for an Asset Management Plan is shown in Figure 2-2 below:



##### Figure 2-2- Road Map for preparing an asset management plan

##### Source: IIMM Fig 1.5.1, p1.11

2.4 Core and Advanced Asset Management

This asset management plan is prepared as a first cut ‘core’ asset management plan in accordance with the International Infrastructure Management Manual[[2]](#footnote-2). It has been prepared to meet minimum legislative and organisational requirements for sustainable service delivery and long term financial planning and reporting. Core asset management is a ‘top down’ approach where analysis is applied at the ‘system’ or ‘network’ level.

Importantly, future revisions of this asset management plan will move towards “advanced” asset management using a “bottom up” approach for gathering asset information for individual assets to support the optimisation and programs to meet agreed service levels. “Advanced” asset management is strongly driven by good quality and well‑organised data about the assets to inform decision–making and target investments. Council needs to invest in gathering, organising and analysing data on its assets to refine its investment decisions on asset renewal, upgrade and disposal.

This asset management plan is to be read in conjunction with the following planning document, upon which current adopted levels of service, long term financial modelling and a capital works program to cater for predicted growth in service areas are based:

* USC Strategic Business Plan for Water Supply and Sewerage Services
* USC 10 year draft Long Term Financial Plan 2022 - 2032

2.5 Community Consultation

This ‘core’ asset management plan is prepared to facilitate community consultation initially through feedback on public display of draft asset management plans prior to adoption by Council. Future revisions of the asset management plan will incorporate community consultation on service levels and costs of providing the service. This will assist Council and the community in matching the level of service needed by the community, service risks and consequences with the community’s ability to pay for the service.

3. LEVELS OF SERVICE

3.1 Customer Research and Expectations

Council has not previously carried out any formal research on customer expectations. Existing levels of service have been determined through consultation with internal stakeholders i.e. Council staff and councillors. A system of recording complaints/requests is in place. Leaks and ‘dirty’ water are the most common issues. Further research to determine customer expectations will be carried out prior to future updates of the asset management plan.

Community group ZNET Uralla undertook survey of Uralla residents in 2020 regarding water security and found strong support for action to improve drought security.

3.2 Legislative Requirements

Councils have a responsibility to meet various legislative requirements including Australian and NSW legislation and regulation. Relevant legislation includes the items shown in Table 3.2 below:

##### Table 3.2: Legislative Requirements

|  |  |
| --- | --- |
| **Legislation** | **Requirement** |
| Environmental Planning and Assessment Act 1979 (EP&A Act)  Environmental Planning and Assessment Amendment Act 2008 | Sets out the guidelines used by Council to provide sustainable and environmentally responsible planning, development and land use.  Provides for Council control of local development and approval of infrastructure expansion. |
| Local Government Act 1993 | 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. |
| Protection of the Environment Operations Act 1997 | Sets environmental standards, goals, protocols and guidelines to reduce pollution and environmental harm. |
| Work Health and Safety Act 2011 | Guides employers and employees on their roles and responsibilities to provide and maintain a safe workplace which protects against harm to health, safety and welfare from hazards and risks arising from work as is reasonably practicable. |
| Water Management Act 2000 | Regulates the sustainable extraction of water from rivers (water sharing plans and environmental flows). |
| Water Management Amendment Bill 2004 | Amends the Water Management Act 2000 (the Principal Act) to facilitate the commencement of the Act and published water sharing plans and to deal with aspects of the National Water Initiative. |
| Public Health Act 2010 | Guides the promotion, protection and improvement of public health, the control of risks to public health, the control of infectious diseases, and the prevention of the spread of infectious diseases. |
| Native Vegetation Act 2003 | Regulates the clearing of native vegetation on land in NSW. |
| Fluoridation of Public Water Supplies Act 1957 | This Act controls and regulates the addition of fluoride to a public water supply by a water supply authority, including Councils. |
| Australian Drinking Water Guidelines 2011 | Provides guidance on the required quality of drinking water supplied by a local water utility. |

3.3 Current Levels of Service

Council has defined service levels in two ways.

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

Community levels of service measures used in the asset management plan are:

Quality How good is the service?

Function Does it meet users’ needs?

Safety Is the service safe?

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

Technical service measures are linked to annual budgets covering:

* Operations – the regular activities to provide services
* Maintenance – the activities necessary to retain an assets as near as practicable to its original condition (eg clean storage tanks, flush distribution system, clean chemical feed lines, repair leaking pipes etc.),
* Renewal – the activities that return the service capability of an asset up to that which it had originally (eg pipeline relining/replacement ),
* Upgrade – the activities to provide an higher level of service (eg , replacing a pipeline with a larger size),
* New - a new service that did not exist previously (eg a recycled water system).

Council’s current service levels and desired levels of service are detailed below in Table 3.3.

##### Table 3.3: Current Service Levels

| **Key**  **Performance Measure** | **Level of Service Objective** | **Performance Measure Process** | **Desired Level of Service** | **Current Level of Service (2019-2022)** |
| --- | --- | --- | --- | --- |
| **COMMUNITY LEVELS OF SERVICE** | |  | |  |
| Quality | Provide an efficient and safe water supply to consumers. | Customer enquiries or complaints. | No more than 3 water quality complaints and 4 service complaints per 1,000 properties in each year. | Rate of quality complaints 9 per 1000 properties per year and 11 service complaints per 1000 properties per year (water meter faults) |
| Provide a minimum static pressure. | Customer enquiries or complaints. | Minimum 20m head to urban water supply customers at point of connection | No guarantee of minimum pressure. |
| Function | Provide an uninterrupted water supply. | Scheduled and non-scheduled water interruptions. | Less than 10 unplanned interruptions to water supply per year. | Average of 9 water main and service connection breaks per 100 properties per year. |
| Respond to customer complaints promptly. | Response and repair times. | Response within 1 hour. Average duration of interruption less than 3 hours. | Response times vary.  Average duration 100 minutes. |
| Safety | Ensure the safety of the public and staff. | Number of incidents that could compromise safety. | No incidents. | Low level of staff lost time due to injury. No history of potential threats to public on compliance with SWMS’s safety. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **TECHNICAL LEVELS OF SERVICE** | | | | |
| Operations |  |  |  |  |
|  | Comply with health  and quality regulations | Results of regular testing. | 100% of treated water samples comply with the Australian Drinking Water  Guidelines. | See results below (in Maintenance) |
| Capacity to treat sufficient water to service future customer demand. | Capacity of Uralla  WTP. | WTP has a design capacity of 5 ML/day. | Peak day 2.9 ML.  Peak week 12.8 ML |
| Capacity of  Bundarra WTP. | WTP has a design capacity of  0.8 ML/day. | Peak day 0.34 ML  Peak week 1.37 ML |
| Drought security | No. of annual water restrictions | Restrictions per the 5/10/10 Duration/Frequency/Severity rule.  Ie. less than 5% of time spent in water restrictions, less than 10% chance of restrictions being applied and restrictions require (on average) a 10% reduction in unrestricted demand. | Dams are too small to supply the future estimated dry year demand for Uralla. Historically Uralla has had few water restrictions but restrictions are frequently applied in Bundarra for even short dry spells. |
| Economic efficiency | Operating cost per property | Operating cost to be below the median for NSW country LWUs. | $689 (Water only) compared to the statewide weighted mean of $492. |
| Skilled operators | Level of qualification | Water operator and back up operator have Level III training in plant operation. | Most staff have Level III accreditation. |
| Accessibility | | | | |
|  | Provide access to water supply for  residents in Uralla and Bundarra townships with rates applied fairly and consistently | User‐pay system  continued    Average usage per year | At least 50% of residential revenue from Usage Charges (towns <4000 connections)  Report to Council on the annual water consumption per connection. | Currently complies at 51%.  Average Annual Residential water supplied (Potable) per connection: 154 kL. |
| To ensure that rural residential dwellings have adequate available water supplies. | Amount of water  Sold. | Rural residents are able to purchase water at reasonable price. | Rural residents are able to purchase water at $6.00 per kl. |
| Maintenance-Uralla WTP | | | | Date range July 2020 to Jan 2022 |
|  | Provide regular water testing. | E.Coli | Per government regulation | 100% complying |
| pH | Per government regulation | 100% complying |
| Colour | Per government regulation | 100% complying |
| Turbidity | Per government regulation | 100% complying |
| Total Coliforms (mpn/100 ml) | Per government regulation | 100% complying |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Maintenance- Bundarra WTP | | | | |
|  | Provide regular water inspections. | E. Coli | Per government regulation | 100% complying |
| pH | Per government regulation | 100% complying |
| Colour | Per government regulation | 100% complying |
| Turbidity | Per government regulation | 100% complying |
| Total Coliforms (mpn/100mL) | Per government regulation | 100% complying |
| Renewal | | | | |
|  | Replacement of water infrastructure’ and electrical/mechanical components of water treatment plants (WTP) and pump stations as necessary. | Frequency of mains  renewal <100 years.  Identified WTP and pump station renewal works are completed. | Mains replacements are scheduled according to age. All programmed mains replacement and upgrade works are completed in the program year. | Limited history of mains replacement depends on funding availability and is  less than sustainable. |
| Upgrade/New | | | | |
|  | Capacity to store sufficient raw water to meet projected future demand. | Raw water storage volumes. | Available storage meets projected 30 year demand for a secure yield based on the 5/10/10 security of supply rule. | Water source augmentation needed as existing dams are insufficient to supply the future estimated dry year demand for Uralla. Bundarra yield does not meet the 5/10/10 rule[[3]](#footnote-3). |

3.4 Desired Levels of Service

At present, the above indications of desired levels of service have been obtained from various sources including residents’ feedback to Councillors and staff, service requests and correspondence as well as our own knowledge. Council has yet to quantify and formally adopt desired levels of service. This will be undertaken in future revisions of this asset management plan.

The Levels of Service in this plan have been developed with a customer focus and grouped into core customer value areas that are referred as ‘Service Level Outcomes’. These service level outcomes (or sometimes referred as service criteria) include:

* Accessibility and/or availability
* Affordability
* Health and Safety
* Quality/condition
* Reliability / Responsiveness
* Customer satisfaction
* Sustainability

4. FUTURE DEMAND

4.1 Demand Forecast

Factors affecting demand include population change, changes in demographics, seasonal factors, pricing, consumer preferences and expectations, economic factors, climatic changes, technology, agricultural practices, environmental awareness, demand management etc.

Demand factor trends and impacts on service delivery are summarised in Table 4.1 below.

##### Table 4.1: Demand Factors, Projections and Impact on Services

| **Demand factor** | **Present position** | **Projection** | **Impact on services** |
| --- | --- | --- | --- |
| Population | Uralla Township 2,728 (2021 Census). Population connected to town water supply estimated 2386 people. | The NSW Department of Planning and Environment has predicted minor annual population decrease of 1.15% in the Uralla Shire over the next 20 years. As the population will likely shift from rural to urban, the town centres may remain relatively stable. | Treatment plant, pump stations, reservoirs and trunk mains currently have adequate capacity. |
| Bundarra Township 674 (2021 Census) of which approximately 400 connected to town water | The NSW Department of Planning and Environment has predicted minor annual population decrease of 1.15% in the Uralla Shire over the next 20 years. As the population will likely shift from rural to urban, the town centres may remain relatively stable. | Treatment plant, pump stations, reservoirs and trunk mains currently have adequate capacity but raw water storage is inadequate. |
| Demographics | Median age of population is 47 years compared to 39 in NSW. Proportion of population over 55 years is higher in Uralla than NSW average. Proportion 20 to 54 years is lower than NSW average. | There will be an increasing percentage of older residents in the next two decades. | A high demand on aged care services and facilities over the next 20 years. |
| Electricity costs | Electricity costs are a significant part of operating costs, especially to operate pumps and mixers. | Electricity prices have risen substantially due to demand, generator outages and rising fuel costs. See for instance https://aemo.com.au/newsroom/media-release/electricity-prices-driven-by-outages-and-higher-generation-costs-in-volatile-march-quarter and https://newsroom.unsw.edu.au/news/business-law/energy-crisis-why-are-electricity-prices-set-rise | Major facilities such as the treatment plants use significant amounts of power each month. Council will continue to pursue grant funding for additional solar panel systems to reduce grid usage. |
| Environmental awareness | The community and Council are more environmentally aware and responsible. | Council will be required to implement further sustainability measures including reduced CO2e emissions. | This will require a greater allocation of funds towards improving facilities and services to meet environmental standards. |
| Water levels | Currently, the secure yield from the catchment is insufficient to supply the current estimated dry year demand for both Uralla and  Bundarra schemes. Arsenic levels just above drinking water guideline levels in Kentucky Creek Dam found in 2019/20 drought. Modified treatment dealing with Arsenic satisfactorily.. | Annual water resources could become less predictable due to  changes in climate.  Future dry spells may again see elevated Arsenic levels in Kentucky Creek dam from springs. | Water restrictions could become more frequent and more severe. |
| Climate change | Water infrastructure currently  designed for historical rainfall  regime and environments  including design of  stormwater management  system and pollutant  interception infrastructure. | Projections from 2020 studies in the Gwydir catchment are for reduced annual rainfall, prolonged droughts coupled with frequent short, sharp droughts, higher evaporation particularly in winter/spring and less replenishment of groundwater aquifers. Higher temperatures and reduced rainfall will also increase demand for water. | Water restrictions could become more frequent and more severe. Need for greater emphasis on water conservation. Potential for disruptions due to power outages in severe weather as well as supply chain disruptions (eg. delays getting materials, parts, etc) |

4.2 Changes in Technology

Technology changes forecast to affect the delivery of services covered by this plan are detailed in Table 4.2 below.

##### Table 4.2: Changes in Technology and Forecast effect on Service Delivery

|  |  |
| --- | --- |
| **Technology Change** | **Effect on Service Delivery** |
| Use of reclaimed water becomes financially sustainable. | Will enable use of potable water for irrigation of recreation and sporting fields to be replaced by reclaimed water. |
| Telemetry improvements | Faster reaction time to address process incidents/problems, greater insight to water demands. |
| Smart water meters | Automated weekly or daily meter reads to replace manual six-monthly reads. Timely detection of hidden leaks in household plumbing, greater insight to domestic and commercial water use patterns, potential for customers to self-monitor their water usage |

4.3 Demand Management Plan

Demand for new services will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management. Demand management practices include non‐asset solutions, detailed investigation of problems to refine the scope and timing of renewals/new infrastructure, insuring against risks and managing failures.

Non‐asset solutions focus on providing the required service without the need for the council to own more assets. Examples of non‐asset solutions in the water industry include water conservation education, rebate schemes for ‘smart’ water appliances, user pays pricing and water restrictions policies.

Opportunities identified to date for demand management are shown in Table 4.3 below. Further opportunities will be developed in future revisions of this asset management plan.

##### Table 4.3: Demand Management Plan Summary

|  |  |
| --- | --- |
| **Service Activity** | **Demand management plan** |
| Maintenance | Conduct routine inspections and carry out timely repairs to water infrastructure assets according to work plans and community requests. |
| Upgrades and renewals | Monitor the condition and lifespan of assets and plan renewals and upgrades accordingly. |
| Customer Service requests | Record all customer service requests relating to water assets and analyse the data collected to identify shortcomings in asset performance affecting levels of service. Use the data collected to identify and implement solutions. |
| Leak detection survey/water hammer management | Periodic acoustic survey to find undetected leaks and fix them. Reduction in mains breaks by arresting water hammer impacts (surge control) |
| Pricing | Inclined block tariff for water pricing to encourage water conservation |
| Water saving education / subsidies | Ongoing education to raise awareness of need for water conservation. Subsidies for water saving devices (appliances, storages) to reduce household water consumption. |

4.4 New Assets for Growth

The new assets required to meet growth will be acquired free of cost from land developments and constructed by either the developer (e.g. reticulation) or Council (e.g. trunk mains) or a combination of the two.

Acquiring these new assets will commit Council to fund ongoing operations and maintenance costs for the period that the service provided from the assets is required. These future costs are identified and taken into account in developing forecasts of future operations and maintenance costs, as well as future renewal and replacement costs.

5. LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how Council plans to manage and operate the assets at the agreed levels of service (defined in Section 3) while optimising life cycle costs.

5.1 Background Data

5.1.1 Physical parameters and condition of existing assets

The assets covered by this asset management plan are shown in Table 2.1 on page 2.

Water infrastructure asset profile information consisting of economic life, condition, capacity, age, and function, purpose, and asset consumption rates is not currently available for all water supply assets. This information is a guide to when the asset will need renewal or other intervention to keep it functioning satisfactorily. A water infrastructure asset profile will be developed in future revisions of this asset management plan.

#### **Present Scheme Outline**

Uralla Shire Council operates two water supply schemes which serve primarily the urban areas of Uralla and Bundarra. The surrounding rural areas mainly rely on rainwater tank supplies for domestic water. In drought times these rural areas can become dependent on urban water supplies for basic needs (eg. through water tankers) thus adding to town water demand.

#### **Uralla**

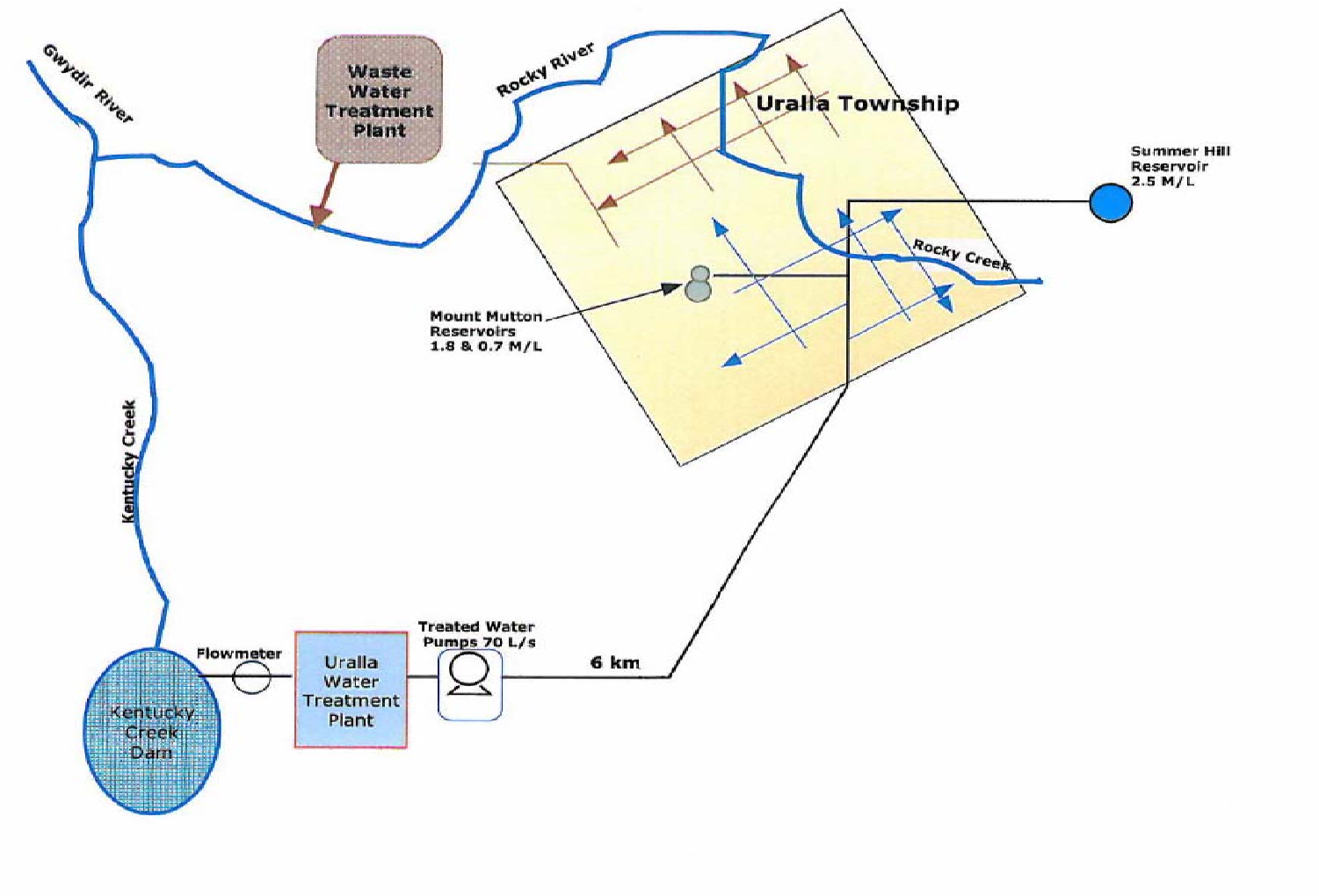
Uralla Township is sourced from Kentucky Creek Dam located approximately 5 km south west of Uralla. The dam has a total storage of 500 ML, of which 75 ML is assumed to be dead storage, leaving an effective storage of 425 ML. Current extraction of raw water for Uralla varies between 230 and 350 ML per annum. Uralla Shire Council is licensed to extract up to 621 ML per annum to meet urban demand from the Kentucky Creek catchment.

Raw water is pumped from the storage dam on Kentucky Creek through 85m of pipeline to the inlet of the Uralla Water Treatment Plant which is a conventional water treatment works.

Sodium hypochlorite and ammonia are added to the raw water. Alum, sodium hypochlorite, powdered activated carbon (PAC) and polymer are added using four rapid mixing compartments. The dosed water is then mixed in the flocculation chambers before entering a sedimentation tank. After sedimentation, more PAC is added and the water is then filtered through two Granular Activated Carbon (GAC) filters. The filtered water is dosed with sodium hypochlorite for disinfection and soda ash for pH correction.

The dosed filtered water is then gravity fed to a clear water tank. The clear water is then fluoridated before being pumped to service reservoirs at Summerhill and Mt Mutton and reticulated to the Uralla urban area customers via gravity mains.

A schematic diagram showing the layout of the Uralla water supply scheme is shown below in Figure 5‐1.



##### Figure 5‐1 ‐ Uralla Water Supply schematic

#### **Bundarra**

Bundarra is serviced by Taylors Pond on the Gwydir River which has a total storage capacity of around 83 ML of which 8 ML is dead storage, leaving an effective storage of 75 ML. Uralla Shire Council is licensed to extract up to 93 ML per annum from the Gwydir River for the urban supply at Bundarra. Records indicate that demand varies between 38 and 56 ML per annum with the average demand being 47 ML per annum.

There are currently 229 water assessments in Bundarra supplied from a conventional sedimentation and sand filtration water treatment plant similar in operation to the Uralla plant.

The plant has a design capacity of 0.8 ML per day plus a 20% hydraulic loading. Water is sourced from a pump well adjacent to Taylors Pond and following treatment, is pumped to two service reservoirs located on the northern and western extremities of the village.

A system of urban water restrictions is in place and restrictions in some form are applied to Bundarra water users in most years.

#### 5.1.1.1 Storage dams and weirs

In 2013, Council commissioned NSW Public Works/SMEC to carry out a secure yield study on the catchments for both water supplies. The study projected that the modelled unrestricted dry year demand for the two supplies will increase from a current 381 ML to 433 ML in 2044 for Uralla and from a current 62 ML to 71 ML in 2044 for Bundarra.

The outcomes of the secure yield modelling gave an estimated secure yield of between 196 and 228 ML per annum for the Uralla supply and between 41 and 61 ML per annum for Bundarra, depending on the security of supply rule that Council adopts.

The study concluded that:

*“The modelling indicates that the Uralla water supply system would need to be augmented to provide a secure yield which matches the dry year demand... and that the Bundarra system would need to be augmented to provide a secure yield meeting the average current demand in climate change conditions applying the 5/10/10 rule.”*

Consequently, Council will need to upgrade the Uralla water supply system and additional storage will be required to maintain security of Bundarra supply. As the first step to sizing and costing these upgrades, in 2014 a preliminary headworks sizing was undertaken which looked at the potential increase in capacity of Kentucky Creek Dam and the sizing of an off‐river storage to be constructed at Bundarra in order to supply the needs of both towns for the next 30 years. Preliminary estimates in 2014 indicated that the order‐of‐cost to upgrade the Uralla raw water storage dam is $4m and to provide off‐stream storage at Bundarra is $260,000. Subsequent to the severe 2019 drought, with the help of the NSW Government, Council is investigating other source augmentation options such as development of groundwater bores. Testing drilling to see if a viable groundwater source is available near Uralla will occur in 2022.

#### 5.1.1.2 Reservoirs

There are three storage reservoirs in Uralla and two in Bundarra. The Uralla structures were commissioned in the mid-1960s and are now about 60% through their expected 100 year life. The Bundarra reservoirs were built in 1985 so have more than 70% of useful life remaining albeit the southern reservoir had a serious leak repaired in 2020 using crack injection and will need to be further monitored. Whilst all structures are generally in good condition, all reservoirs have roofs which will need attention in the medium term (say within 10 years). Improvements to safe access are also needed at all reservoirs (eg. new ladders or ladder cages).

#### 5.1.1.3 Pumping stations

The water pumping equipment at both Uralla and Bundarra are in good condition. The pumps and switchboards have been upgraded in the last 20 years and incorporate recent technology.

#### 5.1.1.4 Water treatment facilities

Both water treatment plants (WTPs) use a similar basic operation as described in Section 5.1.1 above and are constantly maintained by trained operators. The Bundarra plant was changed from gas chlorine operation to sodium hypochlorite in 2003 and an activated carbon treatment was installed at Uralla in early 2000. The sand media in the Uralla WTP filters was replaced with granular activated carbon in 2020 to treat a drought-related spike in arsenic in the dam water. Further investigation of the arsenic source and type (organic/inorganic) is needed.

Whilst the current operations generally meet health testing requirements, the Uralla plant was not able to meet 100% compliance for total coliforms in 2010‐11 and 2012‐13 or Aluminium removal in 2013‐14 and 2014‐15. Bundarra was unable to meet 100% compliance for total coliforms and free chlorine in 2012‐13 and had boil water alerts in 2019 and 2020 due to problems with chlorine residual and turbidity.

Corrosion of concrete and masonry surfaces at the Uralla Water Treatment Plant has occurred due to leaks/overflow of corrosive chemicals and will need to be addressed soon to prevent further damage.

#### 5.1.1.5 Trunk water mains

Trunk water mains from the 1980s upgrade are in good condition with most less than 50% through their expected life. There is some capacity to accommodate future growth. However older trunk mains in Uralla have burst several times in recent years which may be age-related or due to impacts from waterhammer. The efficacy of the fittings to arrest pressure surges (waterhammer) need to be confirmed.

#### 5.1.1.6 Reticulation water mains

Many of the water reticulation mains are made from Asbestos Cement (AC) which was a common material for water pipes from the 1940s to 1980s. More recently constructed pipes are made from Polyvinyl Chloride (PVC).

AC pipes typically have a life expectancy of 60-80 years, thus water mains installed in the 1940s are near the end of their useful life. Direct measurement of water pipe condition is difficult and expensive so the number of bursts/leaks is used as a surrogate. Information from operational staff is that short lengths of reticulation pipes have been replaced, usually in response to bursts and records of these replacements are incomplete. There are exceptions in King St, Queen St and Uralla St North where whole blocks have been renewed due to repeat bursts. Replacing unreliable pipes in short sections in response to repeated bursts is less cost effective on a ‘per metre’ basis than replacing entire blocks of pipe.

The reticulation system is reported to have low numbers of recorded main breaks as listed below from data submitted by Council to the Local Water Utility Performance Reporting Database. Further checking of this data is required to be sure it is complete. Based on the data available break rates per 100km of mains are higher than the statewide median for local water utilities. Breaks in mains (100mm diameter pipes or bigger) need to be distinguished from breaks in small components (small diameter pipes and meters) as typically it is the smaller components that leak the most. Burst mains interrupt water supply to customers and may temporarily result in ‘dirty water’ complaints which needs more flushing to clear dirty water from the pipes. Table 5.1 below show historical mains breaks per 100 km at Uralla as compared to state-wide.

**Table 5.1 Historical mains breaks per 100 km at Uralla as compared to state-wide 2015-2021.**

|  |  |  |  |
| --- | --- | --- | --- |
| **YEAR** | **Total mains breaks** | **Breaks per 100km mains (Uralla)** | **Breaks per 100km mains (State-wide median)** |
| 2015-16 | 8 | 12.90 | 8.90 |
| 2016-17 | 10 | 16.18 | 10.8 |
| 2017-18 | 19 | 30.74 | 9.05 |
| 2018-19 | 5 | 8.09 | 10.12 |
| 2019-20 | Nil reported | n/a | 11.58 |
| 2020-21 | 17 | 27.5 | 9.95 |

In 2011 Council engaged specialist consultants to carry out a study of the Uralla system to determine the level of leakage. The following is an extract from the Final Report ‐ USC Leak Detection and Associated Services (2011):

*“The types and numbers found were surprisingly lower than had been anticipated. We have no explanation as to why this is but compared to other systems we have recently completed, this produced the lowest number and lowest leakage of any system we have surveyed in the LGSA programme”*

A similar acoustic leak detection survey in mid-2022 found a total of 19 leaks in Council water pipes across Uralla and Bundarra.

Figure 5-2 shows burst trunk main in Hill Street, Uralla in 2021.



##### Figure 5‐2 ‐ Burst trunk main in Hill Street, Uralla (2021)

#### 5.1.1.7 Hydrants and valves

Hydrants and valves are replaced or renewed on a periodic basis as required. The value of these assets is included with the valuation of the reticulation mains.

#### 5.1.1.8 Customer meters

Common industry practice is to replace customer water meters after 10-15 years in service to ensure meters are accurately recording water usage for billing. Faulty or stopped meters are found during water meter reading and then scheduled for replacement. A program to routinely replace a set of old meters runs through each year.

#### 5.1.1.9 Telemetry

The water supply telemetry communications and Supervisory Control and Data Acquisition (SCADA) system has been in place since 2001. A new system at Uralla Water Treatment Plant was commissioned in 2013. The SCADA and telemetry system are basic in nature and do not meet the current industry standards. A new, industry-standard SCADA to monitor the new Bundarra sewer scheme was commissioned in 2021 but it does not monitor Bundarra’s water system. An expansion of that system to an industry-standard SCADA that monitors water and sewer at both Uralla and Bundarra is proposed in Council’s 10 year Capital Works/Upgrade program for 2022-23. This will enable remote monitoring of water and sewer to operations in Uralla and Bundarra which will improve response times and efficiency.

5.1.2 Asset capacity and performance

Council’s services are generally provided to meet design standards where these are available.

Locations where deficiencies in service performance are known are detailed in Table 5.1.2 below.

##### Table 5.1.2: Known Service Performance Deficiencies

|  |  |
| --- | --- |
| **Location** | **Service Deficiency** |
| Uralla | Water quality – occasional taste and odour problems and ‘dirty’ water complaints |
| Uralla | Low water pressure for properties located close to supply reservoirs. |
| Uralla | High turbidity water in Kentucky Creek Dam from intense storms requires high level of chemical dosing to treat. |
| Bundarra | Low raw water supply during extended periods of low rainfall. |
| Bundarra | Hot weather impact on maintaining compliance for microbiological safety, boil water alerts in summer 2019 and 2020 |

The above service deficiencies were identified from the knowledge of Council management, community enquiries, and Council inspections.

5.1.3 Asset condition

Asset Condition is measured using a 1 – 5 rating system[[4]](#footnote-4) as detailed in Table 5.1.3 below.

##### Table 5.1.3: IIMM Description of Condition

|  |  |
| --- | --- |
| **Condition Rating** | **Description** |
| 1 | Excellent condition: Only planned maintenance required. |
| 2 | Very good: Minor maintenance required plus planned maintenance. |
| 3 | Good: Significant maintenance required. |
| 4 | Fair: Significant renewal/upgrade required. |
| 5 | Poor: Unserviceable. |

Based on recent revaluation by Australis Asset Advisory Group (30 June 2022), most of Council’s water assets are in good condition by replacement value (i.e Significant maintenance required). The asset condition data reveals that 18% of both active and passive assets are approaching the end of their useful life and their condition is either category 4 or 5. About 7.7 kilometres of 200 mm diameter pipes in condition 4 and 9.4 kilometres of 200 mm diameter pipes in condition 5 have a remaining life of two years and would require a total of $871,826 to replace them within the next two years. As per Morrison Low report although the condition of the data in general is ‘reliable’ it often lacks key elements and collection procedures are uncertain which reduces confidence in the data. Details of Council’s asset condition reported as at 30 June 2022 are tabulated below:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Asset Class | Asset Condition (% of CRC) | | | | | |
| 1 | 2 | 3 | 4 | 5 | Unknown |
| Overall Water Supply Assets | 4% | 8.0% | 63% | 12% | 6% | 5% |
| Passive Water Supply Assets | 0% | 13% | 71% | 8% | 0% | 9% |
| Active Water Supply Assets | 10% | 3% | 54% | 19% | 14% | - |

The condition is represented as a percentage of replacement cost value.

5.1.4 Asset valuations

The value of assets recorded in the asset register as at May 2017 covered by this asset management plan is shown below. A revaluation of water supply assets will occur in 2022/23.

2017 Replacement Cost $ 33,848,069

Depreciable Amount $14,115,126

Depreciated Replacement Cost $ 19,732,943

Annual Depreciation Expense $ 557,115

Council’s sustainability reporting reports the rate of annual asset consumption and compares this to asset renewal and asset upgrade and expansion. Asset Consumption is 1.65% *(= $557,115 depreciation ÷ $33,848,069 replacement cost)*.

Data from the Annual Financial Statements below shows that between 2008/09 and 2020/21 Council spent $0.587M on water asset renewals/additions while the accumulated depreciation in the same period was $3.234M. This data may underestimate the amount Council has spent on renewals as operational staff report having replaced some water mains and service pipes though it is unclear if the costs were capitalised or expensed. A significant portion of water assets are approaching end-of-life. As renewals spending is not keeping up with depreciation this will increase the backlog of renewals work in the future. The Morrison Low (2018) report noted “*there is a significant under expenditure on asset renewals…a greater focus on renewals is required.*” Council will need to ensure that it is renewing assets at the rate they are being consumed over the medium‐long term and funding the life cycle costs for all new assets and services in its long term financial plan so as to provide services in a financially sustainable manner.

Table 5.1.4 below illustrates historical Water Supply network asset movements from the USC Annual Financial Statements from 2009 to 2021.

##### Table 5.1.4 Water Supply asset movements from the USC Annual Financial Statements 2008/09 to 2020/21 (Note 9a Infrastructure Property Plan and Equipment) $,000

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **YEAR** | **Asset additions (Renewals)** | **Asset additions (New)** | **Carrying value asset disposals** | **Depreciation expense** | **Adjustments & transfers** | **Re-valuation decrements to equity** | **Re-valuation increments to equity** | **Gross carrying amount** | **Accumulated Depreciation** | **Net Carrying Amount** |
| 2009 | 30 | 0 | 0 | -52 | 0 | 0 | 476 | 17,087 | -732 | 16,355 |
| 2010 | 54 | 0 | 0 | -54 | 0 | 0 | 480 | 17,644 | -809 | 16,835 |
| 2011 | 92 | 0 | 0 | -54 | 0 | 0 | 538 | 18,301 | -890 | 17,411 |
| 2012 | 7 | 0 | 0 | -246 | 0 | 0 | 429 | 18,738 | -1,138 | 17,600 |
| 2013 | 101 | 0 | 0 | -247 | 0 | -3497 | 0 | 15,307 | -1,351 | 13,957 |
| 2014 | 47 | 0 | 0 | -181 | 0 | 0 | 387 | 15,784 | -1,575 | 14,209 |
| 2015 | 30 | 0 | 0 | -184 | 0 | 0 | 405 | 16,052 | -1,592 | 14,60 |
| 2016 | 30 | 0 | 0 | -242 | 0 | 0 | 213 | 16,322 | -1,861 | 14,461 |
| 2017 | 0 | 3 | 0 | -246 | 0 | -305 | 0 | 27,543 | -13,629 | 13,914 |
| 2018 | 15 | 0 | 0 | -453 | 0 | 0 | 284 | 28,137 | -14,377 | 13,760 |
| 2019 | 0 | 0 | 0 | -439 | 0 | 0 | 213 | 28,587 | -15,053 | 13,534 |
| 2020 | 0 | 13 | 0 | -424 | 0 | 0 | 125 | 28,872 | -14,624 | 13,248 |
| 2021 | 157 | 8 | 0 | -412 | 0 | 0 | 120 | 29,304 | -16,184 | 13,120 |

5.1.5 Asset hierarchy

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

Council is currently developing a service hierarchy which will be included in a later revision of this plan.

5.2 Risk Management Plan

An assessment of risks associated with service delivery from infrastructure assets has identified critical risks that will result in loss or reduction in service from infrastructure assets or a ‘financial shock’ to the organisation. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, develops a risk rating, evaluates the risk and develops a risk treatment plan for non‐acceptable risks.

Risk management is defined in AS/NZS 4360:2004 as “the culture, processes and structures that are directed towards realising potential opportunities whilst managing adverse effects”.

Council is committed to the identification and elimination or reduction of risks associated with hazards that arise throughout Council’s operations as far as reasonably practicable. Our risk assessment process includes:

* Identifying credible risks;
* Analysing the likelihood of the risk event occurring;
* Assessing the consequences should the event occur;
* Developing a risk rating (‘likelihood’ times ‘consequences’, as shown in Table 6.1.3 below);
* Evaluating the risk; and
* Detailing a risk treatment plan for non-acceptable risks.

An assessment of risks associated with service delivery from infrastructure assets has identified critical risks that will result in loss or reduction in service from infrastructure assets or a ‘financial shock’ to the organisation. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, develops a risk rating, evaluates the risk and develops a risk treatment plan for non-acceptable risks.

Once the asset criticality and likelihood have been identified and rated, the risk score can be calculated. Table 5.2.1 illustrates Council’s water supply network risk matrix and a theoretical approach in terms of which form of asset management actions might be required. In the “Worst Case” Scenario columns at right combines the highest consequence figures with the highest likelihood to indicate the most critical assets for addressing Council’s water supply network levels of service and meet the environmental requirements.

***Table 5.2.1: Uralla Shire Council Risk Matrix***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | CONSEQUENCES | | | | |
| LIKELIHOOD | Minimal | Minor | Moderate | Major | Catastrophic |
| Almost certain | Medium | Medium | High | Catastrophic | Catastrophic |
| Likely | Medium | Medium | High | Catastrophic | Catastrophic |
| Possible | Low | Medium | Medium | High | Catastrophic |
| Unlikely | Low | Low | Medium | High | High |
| Rare | Low | Low | Medium | Medium | High |

Critical risks, being those assessed as ‘Very High (VH)’ ‐ requiring immediate corrective action and ‘High (H)’ – requiring prioritised corrective action identified in the draft Infrastructure Risk Management Plan are summarised in Table 5.2 below

##### Table 5.2: Critical Risks and Treatment Plans

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Service or Asset at Risk** | **What can Happen** | **Risk** **Rating**  **(VH, H)** | **Risk Treatment Plan** | **Associated Costs (over 10 years)** |
| Bulk Supply of water | Severe water shortage from drought due to insufficient water storage, including impacts on water quality | VH | Development of additional water supply source | $2 million |
| Water Meters | Loss of revenues for Council /inaccurate reading due too old and faulty water meters | H | Replace old water meters over a period of 10 years | $1 million |
| Treatment Plants | Non-efficient sludge and scum removal | H | Design, remove and replace Travelling Bridge for Clarifier Tank | $350,000 |
| Distribution System | Pipe bursts and infrastructure failure | H | Programmed mains replacement. | $1,642,608 |

5.3 Routine Maintenance Plan

Routine maintenance is the regular on‐going work that is necessary to keep assets operating, including instances where portions of the asset fail and need immediate repair to make the asset operational again.

5.3.1 Maintenance plan

Maintenance includes reactive, planned and specific maintenance work activities.

Reactive maintenance is unplanned repair work carried out in response to service requests and management/supervisory directions.

Planned maintenance is repair work that is identified and managed through a maintenance management system (MMS). MMS activities include inspection, 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.

Specific maintenance is planned replacement of higher value components/sub‐components of assets that is undertaken on a regular cycle including replacement of UV bulbs, replacing valves, etc. This work generally falls below the capital/maintenance threshold but may require a specific budget allocation.

Actual past maintenance expenditure is shown in Table 5.3.1 below, noting the spike in 2019-20 was due to extra costs dealing with the arsenic incident during the drought and the NSW government contributed to the cost of dealing with this incident.

##### Table 5.3.1: Operation and maintenance (including depreciation) Expenditure Trends

|  |  |
| --- | --- |
| **Year** | **Maintenance Expenditure** |
| 2018-19 | $1,293,610 |
| 2019-20 | $1,432,886 |
| 2020-21 | $2, 144,448 |
| 2021-22 | 1,520,344 |

Current maintenance expenditure levels are considered to be adequate to meet required service levels. Future revision of this asset management plan will include linking required maintenance expenditures with required service levels.

Assessment and prioritisation of reactive maintenance is undertaken by operational staff using experience and judgement.

5.3.2 Standards and specifications

Maintenance work is carried out in accordance with manufacturer’s Standards and Specifications and facilities operations and maintenance manuals and Council’s engineering code

5.3.3 Summary of future operations and maintenance expenditures

Future operations and maintenance expenditure including depreciation is forecast with the value of the asset stock as shown in Figure 4 below. The Operations and maintenance expenditures were calculated based on best practices and are to be considered in the Council’s Long Term Financial Plan 2022 -2032.

##### Figure 5.1: Projected Operations and Maintenance and Depreciation Expenditure

Deferred maintenance, ie works that are identified for maintenance and unable to be funded are to be included in the risk assessment process in the infrastructure risk management plan.

Maintenance is funded from the operating budget and grants where available. This is further discussed in Section 6.2 on page 28.

5.4 Renewal/Replacement Plan

Renewal expenditure is major work which does not increase the asset’s design capacity but restores, rehabilitates, replaces or renews an existing asset to its original service potential. Work over and above restoring an asset to original service potential is upgrade/expansion (eg. extra capacity) or new works expenditure. As noted in Section 5.1.4 information in the Financial Statements indicates Council has not been renewing assets to match their consumption.

5.4.1 Renewal plan

Assets requiring renewal are identified from one of following three methods:

* Method 1 uses Asset Register data to project the renewal costs for renewal years using acquisition year and useful life, or
* Method 2 uses capital renewal expenditure projections from Water Network Modelling and Analysis, or
* Method 3 uses a combination of average *network renewals* plus *defect repairs* in the *Renewal Plan* and *Defect Repair Plan*

Method 1 was used for this asset management plan though with low confidence of acquisition year data accuracy for below-ground assets.

The ranking criteria used to determine priority of identified renewal proposals is detailed in Table 5.4.1.

##### Table 5.4.1: Renewal Priority Ranking Criteria

|  |  |
| --- | --- |
| **Criteria** | **Weighting** |
| Condition of asset | 75% |
| Age (as a percentage of useful life) | 25% |
| **Total** | **100%** |

Renewal will be undertaken using ‘low‐cost’ renewal methods where feasible. The aim of ‘low‐cost’ renewals is to restore the service potential or future economic benefits of the asset by renewing the assets at a cost less than their original installation cost. Examples of low cost renewal include trenchless lining of trunk mains as distinct from conventional open-trenching.

5.4.2 Renewal standards

Renewal work is carried out in accordance with the following Standards and Specifications.

* Water Services Association of Australia national codes for water supply
* Water Directorate guidelines
* Relevant international standards (eg. American Water and Wastewater Association)

5.4.3 Summary of projected renewal expenditure

As stated in Section 5.1.4 Council has spent limited funds on Water asset renewals in the past decade. Spending on renewals will need to catch up on the backlog of assets reaching their end of useful life. Collection and analysis of more asset condition information will help to refine future renewal decisions and cost estimates. Renewal costs are summarised in Figure 5. Note that all costs are shown in 2021 dollar values. The projected capital renewal cost as compared with operational cost is shown in Figure 5.2 below

##### Figure 5: Projected Capital Renewal Expenditure as compared with project operation expenditure

Deferred renewal, ie those assets identified for renewal and not scheduled for renewal in capital works programs are to be included in the risk assessment process in the risk management plan.

Renewals are to be funded from capital works programs and grants where available. This is further discussed in Section 6.2.

5.5 Creation/Acquisition/Upgrade Plan

New works are those works that create a new asset that did not previously exist, or works which upgrade or improve an existing asset beyond its existing capacity. They may result from growth, social or environmental needs. Assets may also be acquired at no cost to the Council from land development. These assets from growth are considered in Section 4.4.

5.5.1 Selection criteria

New assets and upgrade/expansion of existing assets are identified from various sources such as water network modelling and analysis, demand management, councillor or community requests, proposals identified by strategic plans or partnerships with other organisations. Candidate proposals are inspected to verify need and to develop a preliminary estimate. Verified proposals are ranked by priority and available funds and scheduled in future works programmes. The priority ranking criteria is detailed in Table 5.5.1 below.

##### Table 5.5.1: Upgrade/New Assets Priority Ranking Criteria

|  |  |
| --- | --- |
| **Criteria** | **Weighting** |
| Strategic Business Plans | 80% |
| Future demand | 20% |
| **Total** | **100%** |

5.5.2 Standards and specifications

Standards and specifications for new assets and for upgrade/expansion of existing assets are the same as those for renewal shown in Section 5.4.2.

5.5.3 Summary of projected upgrade/new assets expenditure

Currently, Council do not any have plans for acquiring new assets related to supply of water to the community or any plans for upgrade of existing system except for (i) the identified need for source augmentation of bulk water and (ii) some small extensions of reticulation to provide looped feeds (eg. Duke St to link to Rowan Ave). There will also be new water assets received by Council from the developers which will be maintained by the Council.

Council is proposing to do a water network modelling and analysis in FY 2023-24 to understand deficiencies in capacity of the distribution networks and this may result in addition of new assets to the network, upgrade of existing network or both.

These new assets are to be funded from a capital works loan program and grants where available. This is further discussed in Section 6.2.

5.6 Disposal Plan

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relocation. Currently there are no assets identified for possible decommissioning and disposal except for those assets programmed for renewal. It is assumed that the residual value of replaced assets will be nil or scrap value only.

Should assets be identified for disposal in the future, cashflow projections from asset disposals will be developed and included in future revisions of this asset management plan.

6. FINANCIAL SUMMARY

This section contains the financial requirements resulting from all the information presented in the previous sections of this asset management plan. The financial projections will be improved as further information becomes available on desired levels of service and current and projected future asset performance.

6.1 Financial Statements and Projections

The financial projections are shown in Table 6.2 in Appendix A for projected operating (operations and maintenance, income and funding deficit) and Table 6.3 in Appendix A for capital expenditure (renewal and upgrade/expansion/new assets), net disposal expenditure and estimated budget funding. Note that all costs are shown in 2021 dollar values.

6.1.1 Financial sustainability in service delivery

There are three key indicators for financial sustainability that have been considered in the analysis of the services provided by this asset category, these being long term life cycle costs/expenditures and medium term projected/budgeted expenditures over 5 and 10 years of the planning period.

#### 6.1.1.1 Long term ‐ Life Cycle Cost

Life cycle costs (or whole of life costs) are the average costs that are required to sustain the service levels over the longest asset life. Life cycle costs include operations and maintenance expenditure and asset consumption (depreciation expense).

A shortfall between life cycle cost and life cycle expenditure is the life cycle gap. The gap between Income and required Expenditure covered by this asset management plan is -$1,823,074 (‐ve = gap, +ve = surplus). Life cycle expenditure is 89 % of life cycle costs giving a life cycle sustainability index of 0.89.

The life cycle costs and life cycle expenditure comparison highlights any difference between present outlays and the average cost of providing the service over the long term. If the life cycle expenditure is less than that life cycle cost, it is most likely that outlays will need to be increased or cuts in services made in the future.

Knowing the extent and timing of any required increase in outlays and the service consequences if funding is not available will assist organisations in providing services to their communities in a financially sustainable manner. This is the purpose of the asset management plans and long term financial plan.

#### 6.1.1.2 Long term – 10 year financial planning period

This asset management plan identifies the projected operations, maintenance and capital renewal expenditures required to provide an agreed level of service to the community over a 10 year period. This provides input into 10 year financial and funding plans aimed at providing the required services in a sustainable manner.

These projected expenditures may be compared to budgeted expenditures in the 10 year period to identify any funding shortfall. In a core asset management plan, a gap is generally due to increasing asset renewals for ageing assets.

The projected total operations and maintenance and capital renewal expenditure required up to FY 2031/32 is $17,032,987or $1,703,299 per year giving a 10 year funding shortfall of -$182,307per year and that of capital renewal expenditure required is $3,800,500 or $380,050 year. This is a 10 year sustainability indicator of 0.89. This indicates that Council has 89% of the projected expenditures needed to provide the services documented in the asset management plan. Planned capital expenditure of $3.74M over ten years is below $5.05M depreciation of existing assets over same time period.

#### 6.1.1.3 Medium Term – 5 year financial planning period

The projected operations and maintenance expenditure required over the first 5 years of the planning period is $7,991,424 giving a 5 year funding shortfall of -$855,338.

#### 6.1.1.4 Financial Sustainability Indicators

Providing services from infrastructure in a sustainable manner requires the matching and managing of service levels, risks, projected expenditures and funding to achieve a financial sustainability indicator of 1.0 for the first years of the asset management plan and ideally over the 10 year life of the plan.

Providing services in a sustainable manner will require matching of projected asset renewals to meet agreed service levels with planned capital works programs and available revenue.

A gap between projected asset renewals, planned asset renewals and funding indicates that further work is required to manage required service levels and funding to eliminate any funding gap.

We will manage the ‘gap’ by developing this asset management plan to provide guidance on future service levels and resources required to provide these services, and review future services, service levels and costs with the community.

6.1.2 Expenditure projections for long term financial plan

A Long Term Financial Plan is to define and accommodate the cash flow needs required to undertake the activities outlined in this asset management plan. It then generates financial reports that enable interpretation of ongoing financial sustainability and assessment of affordability. If this asset management plan cannot be fully funded in the Long Term Financial Plan for whatever reason, there is a need to review the levels of service and management of risks

6.2 Funding Strategy

Projected expenditure identified in Section 6.1 above is to be funded from future operating and capital budgets. The funding strategy should also be detailed in the organisation’s 10 year long term financial plan.

6.3 Key Assumptions made in Financial Forecasts

This section details the key assumptions made in presenting the information contained in this asset management plan and in preparing forecasts of required operating and capital expenditure and asset values, depreciation expense and carrying amount estimates. It is presented to enable readers to gain an understanding of the levels of confidence in the data behind the financial forecasts.

Key assumptions made in this asset management plan are:

* + The existing asset data base is accurate in terms of length, age and type of pipes;
  + The condition of most of the assets are in good to very good condition.

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

* + Improving the information on asset data;
  + Undertake condition rating; and
  + Reviewing useful lives for assets in conjunction with better condition assessment and development of suitable hierarchy within the asset categories.

7. ASSET MANAGEMENT PRACTICES

7.1 Accounting/Financial Systems

7.1.1 Accounting and financial systems

The financial system used by the Uralla Shire Council is Authority 6.6, through a managed service provider contract with Civica Australia. The system is managed by Council’s Finance Section producing monthly financial reports, for management and the Council’s Finance Committee and annual financial statements for audit and production to the Uralla Community and other interested parties.

7.1.2 Accountabilities for financial systems

Council’s significant accounting policies are set out in the annual financial statements Note 1.

7.1.3 Accounting standards and regulations

Council currently complies with the following standards and regulations with respect to asset accounting:

* The Australian Accounting Standards and Australian Accounting Interpretations.
* The Local Government Code of Accounting Practice and Financial Reporting
* The Local Government Act 1993 and Local Government (General) Regulation 2005.

7.1.4 Capital/maintenance threshold

* Equipment unreliable and spare parts difficult to source
* Maintenance costs >60% of new item
* Advances in technology make current equipment redundant

7.1.5 Required changes to accounting financial systems arising from this Water Asset Management Plan

* None identified.

7.2 Asset Management Systems

7.2.1 Asset management system and registers:

A number of systems and registers are used by the Uralla Shire Council for the purpose of this asset management:

* IPWEA NAMS PLUS 3
* MapInfo® (Intramaps® from January 2014) ‐ For the Geographical Information System (GIS). These systems hold the spatial information on the majority of asset groups
* Microsoft® Excel spreadsheets are used to manipulate and interrogate asset data
* Civica© “Authority” software – customer billing, water meter register and customer water consumption information
* document management and customer requests system is TRIM © (HP Software Division)
* Council is working, with Statewide Mutual Risk Officers, towards implementing a robust modern system based upon Risk Assessment tools. Other maintenance is undertaken on a reactive basis under direction from the Director Infrastructure and Development.
* Financial system ‐ Civica© Authority.

7.2.2 Accountabilities for asset management system and data

The Asset Manager has responsibility for operating and maintaining the core asset management systems within Council. The development of an annual water supply budget allocation within the Council budget is completed jointly by the Asset Manager and the Manager Water, Waste and Sewerage based upon the consultation with the Team Leader Water and Sewerage and the ten year financial plan forward estimates.

7.2.3 Linkage from asset management to financial system

Currently there is no core corporate system for asset management thus various duplications of assets records exist in different databases and have misaligned information. There are currently no direct links with operations and maintenance expenses and the individual assets.

7.2.4 Required changes to asset management system arising from this Asset Management Plan

There is an identified need to implement a core corporate system for asset management with direct links between operations and maintenance expenses and the individual assets.

Once operational, the ongoing maintenance of such a system should then become a core function within Council’s operations. However, as stated in the previous paragraph, there is no link between the asset management system and Authority and this is a required future improvement.

Council is currently investigating procurement of an asset management system that can be integrated with the Financial System and MapInfo for better management of the water assets.

7.3 Information Flow Requirements and Processes

The key information flows *into* this asset management plan are:

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

The key information flows *from* this asset management plan are:

* The projected Works Program and trends,
* The resulting budget and long term financial plan expenditure projections,
* Financial sustainability indicators.

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

7.4 Standards and Guidelines

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

* NSW Office of Water Best Practice
* Individual suppliers Operations & Maintenance Manuals
* Water Services Association of Australia standards & Auspec specifications
* NSW Water Directorate guidelines
* Council’s Significant Accounting Policy (Note 1 to Annual Financial Statements)

8. PLAN IMPROVEMENT AND MONITORING

8.1 Performance Measures

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

* The degree to which the required cashflows identified in this asset management plan are incorporated into the organisation’s long term financial plan and Community/Strategic Planning processes and documents, and
* The degree to which 1‐5 year detailed works programs, budgets, business plans and organisational structures take into account the ‘global’ works program trends provided by the asset management plan.

8.2 Improvement Plan

An asset management improvement plan generated from this asset management plan in the form of Table 8.2.

##### Table 8.2: Improvement Plan

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Task No** | **Task** | **Responsibility** | **Resources Required** | **Timeline** |
| 1 | Initiate link between the asset management system and Authority | Asset Manager/ Manager Finance | Budget/Funding | 2022/23 |
| 2 | Updating the MapInfo GIS System to capture all the water assets in the network after validation | Asset Manager/ Manager Water | GIS consultant | 2023/24 |
| 3 | Condition Assessment of all critical assets | Manager Water Waste Sewerage | Consultant | 2023/24 |
| 4 | Improved works reporting and capture of ‘as-constructed’ data | Manager Water Waste Sewerage | Budget/Funding | 2022/23 |
| 5 | Expand industry-standard SCADA | Manager Water Waste Sewerage | Budget/Funding | 2022/23 |

8.3 Monitoring and Review Procedures

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

The Plan has a life of 4 years and is due for revision and updating within 12 months of each Council election.

REFERENCES

Uralla Shire Council, *Community Strategic Plan*

Uralla Shire Council, *Delivery Program*

Uralla Shire Council, *Annual Operational Plan and Budget*.

Department for Victorian Communities (DVC), 2006, *Asset Investment Guidelines*, Glossary, Department for Victorian Communities, Local Government Victoria, Melbourne, http://www.dpcd.vic.gov.au/localgovernment/publications‐and‐research/asset‐managementand‐financial.

Institute of Public Works Engineering Australasia (IPWEA), 2006, *International Infrastructure Management Manual*, Institute of Public Works Engineering Australia, Sydney, www.ipwea.org.au.

Institute of Public Works Engineering Australasia (IPWEA ), 2008, *NAMS.PLUS Asset Management* Institute of Public Works Engineering Australia, Sydney, www.ipwea.org.au/namsplus.

Institute of Public Works Engineering Australasia (IPWEA) , 2009, *Australian Infrastructure Financial Management Guidelines*, Institute of Public Works Engineering Australia, Sydney, www.ipwea.org.au/AIFMG.

Institute of Public Works Engineering Australasia (IPWEA) , 2011, *Asset Management for Small, Rural or Remote Communities* Practice Note, Institute of Public Works Engineering Australia, Sydney, www.ipwea.org.au/AM4SRRC.

Morrison Low , 2018, Uralla Shire Council Water and Sewerage Asset Management Plan – August 2018.

NSW Department of Planning and Environment, 2020. Draft Gwydir Regional Water Strategy, September 2020. https://www.dpie.nsw.gov.au/water/plans-and-programs/regional-water-strategies/public-exhibition/gwydir-regional-water-strategy

APPENDICES

Appendix A Projected 10 year Operation and Maintenance, Capital Renewal and Upgrades Works Program

Appendix B Abbreviations

Appendix C Glossary

APPENDIX A: Projected 10 year Operation and Maintenance, Capital Renewal and Upgrades Works Program

| **Table 6.1 : WATER- Uralla Shire Council- Detailed list of 10 year Capital Renewal Projects** | | | |
| --- | --- | --- | --- |
| **Year** | **Item No.** | **Capital Renewal Projects** | **Indicative Cost Estimate** |
| 2022/23 | 1 | Installation of Telemetry for USC Water Supply Network | $250,000 |
| 2022/23 | 2 | Water hammer investigation / design – Engage Consultant | $10,000 |
| 2022/23 | 3 | Depot Road - Water Main upgrade, from 100mm AC to 150mm PVC ( 140m) | $23,392 |
| 2022/23 | 4 | Fitzroy St – Water Main renewal , 100mm AC to 100mm PVC (50m) | $5,670 |
| 2022/23 | 5 | AC Water mains replacement (Condition 5) –other streets | $110,327 |
| 2022/23 | 6 | Replace water meter (100 nos.) | $100,000 |
| 2022/23 | 7 | Bathymetric survey of storage dams Bundarra and Uralla | $35,000 |
|  |  | **2022/23** | **$534,389** |
| 2023/24 | 1 | Waterworks Road –Gravel Resheeting (2.4km , 100mm thick) | $100,000 |
| 2022/23 | 2 | East St (Duke St to Prince Ave Railway track)- Water Main renewal , 100mm AC to 100mm PVC (240m) | $27,211 |
| 2023/24 | 3 | AC Water Mains replacement - other sites | $166,600 |
| 2023/24 | 4 | Apply Epoxy coating for Filter room floor (x2) | $50,000 |
| 2023/24 | 5 | Replace water meter (100 nos.) | $100,000 |
| 2023/24 | 6 | Retile Clear Water Chemical dosing pit | $10,000 |
|  |  | **2023/24** | **$453,811** |
| 2024/25 | 1 | **New** water main Duke St (south of East Ave) to loop to Rowan Ave w/- creek crossing | $60,000 |
| 2024/25 | 2 | Water Network Modelling and Analysis- consultant - model capacity of system | $40,000 |
| 2024/25 | 3 | AC Water Mains replacement (Condition 5) | $166,600 |
| 2024/25 | 4 | Replace water meter (100 nos.) | $100,000 |
| 2024/25 | 5 | Replace Stop Valves – Bundarra Water Supply network ( 6 nos.) | $4,500 |
| 2024/25 | 6 | Renewal of Pump electrical works -Bundarra | $10,000 |
|  |  | **2024/25** | **$381,100** |
| 2025/26 | 1 | AC Water Mains replacement (Condition 5) | $166,600 |
| 2025/26 | 2 | Replace water meter (100 nos.) | $100,000 |
| 2025/26 | 3 | Cathodic Protection for the Water Inlet Works as per the recommendation of the consultant | $10,000 |
| 2025/26 | 4 | Soda Ash dosing plant/room Epoxy coating | $25,000 |
|  |  | **2025/26** | **$301,600** |
| 2026/27 | 1 | AC Water Mains replacement (Condition 5) | $166,600 |
| 2026/27 | 2 | Replace water meter (100 nos.) | $100,000 |
| 2026/27 | 3 | Replace Chemical dosing pumps ( 2 nos.) | $10,000 |
| 2026/27 | 4 | Apply Epoxy coating for Pumps floor | $25,000 |
|  |  | **2026/27** | **$301,600** |
| 2027/28 | 1 | AC Water Mains replacement (Condition 5) | $166,600 |
| 2027/28 | 2 | Replace water meter (100 nos.) | $100,000 |
| 2027/28 | 3 | Design, remove and replace Travelling Bridge for Clarifier Tank | $350,000 |
| 2027/28 | 4 | Replace Water Softner | $30,000 |
|  |  | **2027/28** | **$646,600** |
| 2028/29 | 1 | AC Water Mains replacement (Condition 5) | $166,600 |
| 2028/29 | 2 | Replace water meter (100 nos.) | $100,000 |
|  |  | **2028/29** | **$266,600** |
| 2029/30 | 1 | AC Water Mains replacement (Condition 5) | $166,600 |
| 2029/30 | 2 | Replace water meter (100 nos.) | $100,000 |
| 2029/30 | 3 | Renewal of Lab equipment | $15,000 |
|  |  | **2029/30** | **$281,600** |
| 2030/31 | 1 | Replace GAC ( Granular Activated Carbon) for Gravity Sand Filter – Unit A and B | $40,000 |
| 2030/31 | 2 | AC Water Mains replacement (Condition 5) | $166,600 |
| 2030/31 | 3 | Replace water meter (100 nos.) | $100,000 |
|  |  | **2030/31** | **$306,600** |
| 2031/32 | 1 | AC Water Mains replacement (Condition 5) | $166,600 |
| 2031/32 | 2 | Replace water meter (100 nos.) | $100,000 |
| 2031/32 | 3 | Waterworks Road Grid Replacement ( 6nos) | $60,000 |
|  |  | **2031/32** | **$326,600** |
|  |  | **TOTAL** | **$3,800,500** |

##### Table 6.2: Projected Operating and Capital Expenditure and Budget

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year | Projected operational expenditure $ | | | Total income ($) | Deficit ($) |
| Operation and maintenance ($) | Depreciation ($) | Total operational cost ($) |
| 2022-23 | 1,069,486 | 450,857 | 1,520,343 | 1,357,618 | -162,725 |
| 2023-24 | 1,096,223 | 462,129 | 1,558,352 | 1,391,558 | -166,793 |
| 2024-25 | 1,123,629 | 473,682 | 1,597,311 | 1,426,347 | -170,963 |
| 2025-26 | 1,151,720 | 485,524 | 1,637,243 | 1,462,006 | -175,237 |
| 2026-27 | 1,180,513 | 497,662 | 1,678,175 | 1,498,556 | -179,618 |
| 2027-28 | 1,210,025 | 510,103 | 1,720,129 | 1,536,020 | -184,109 |
| 2028-29 | 1,240,276 | 522,856 | 1,763,132 | 1,574,421 | -188,712 |
| 2029-30 | 1,271,283 | 535,927 | 1,807,210 | 1,613,781 | -193,429 |
| 2030-31 | 1,303,065 | 549,326 | 1,852,391 | 1,654,126 | -198,265 |
| 2031-32 | 1,335,642 | 563,059 | 1,898,700 | 1,695,479 | -203,222 |
| **10 year=** | **11,981,862** | **5,051,124** | **17,032,986** | **15,209,912** | **-1,823,074** |
| **5 year=** | **5,621,571** | **2,369,853** | **7,991,424** | **7,136,085** | **-855,338** |

##### Table 6.3: Projected Capital Expenditure and disposal

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year** | **Projected capital renewals, new / upgrade expenditure $** | | | **Disposals** | **Total Capital Renewal /new /upgrades Cost ($)** |
| **Capital Renewals ($)** | **New Assets ($)** | **Total capital cost ($)** |
| 2022-23 | 534,389 | 0 | 534,389 | 0 | 534,389 |
| 2023-24 | 453,811 | 0 | 453,811 | 0 | 453,811 |
| 2024-25 | 321,100 | 60,000 | 381,100 | 0 | 381,100 |
| 2025-26 | 301,600 | 0 | 301,600 | 0 | 301,600 |
| 2026-27 | 301,600 | 0 | 301,600 | 0 | 301,600 |
| 2027-28 | 646,600 | 0 | 646,600 | 0 | 646,600 |
| 2028-29 | 266,600 | 0 | 266,600 | 0 | 266,600 |
| 2029-30 | 281,600 | 0 | 281,600 | 0 | 281,600 |
| 2030-31 | 306,600 | 0 | 306,600 | 0 | 306,600 |
| 2031-32 | 326,600 | 0 | 326,600 | 0 | 326,600 |
| **10 year=** | **3,740,500** | **60,000** | **3,800,500** | **0** | **3,800,500** |
| **5 year=** | **1,912,500** | **60,000** | **1,972,500** | **0** | **1,972,500** |

Appendix B Abbreviations

|  |  |
| --- | --- |
| **AAAC** | Average annual asset consumption |
| **AMP** | Asset management plan |
| **ARI** | Average recurrence interval |
| **BOD** | Biochemical (biological) oxygen demand |
| **CRC** | Current replacement cost |
| **CWMS** | Community wastewater management systems |
| **DA** | Depreciable amount |
| **EF** | Earthworks/formation |
| **IRMP** | Infrastructure risk management plan |
| **LCC** | Life Cycle cost |
| **LCE** | Life cycle expenditure |
| **MMS** | Maintenance management system |
| **PCI** | Pavement condition index |
| **RV** | Residual value |
| **SS** | Suspended solids |
| **vph** | Vehicles per hour |
| **WDV** | Written down value |

Appendix C Glossary

**Annual service cost (ASC)**

1. Reporting actual cost

The annual (accrual) cost of providing a service including operations, maintenance, depreciation, finance/opportunity and disposal costs less revenue.

1. For investment analysis and budgeting

An estimate of the cost that would be tendered, per annum, if tenders were called for the supply of a service to a performance specification for a fixed term. The Annual Service Cost includes operations, maintenance, depreciation, finance/ opportunity and disposal costs, less revenue.

**Asset**

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

**Asset class**

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

**Asset condition assessment**

The process of continuous or periodic inspection, assessment, measurement and interpretation of the resultant data to indicate the condition of a specific asset so as to determine the need for some preventative or remedial action.

**Asset management (AM)**

The combination of management, financial, economic, engineering and other practices applied to physical assets with the objective of providing the required level of service in the most cost effective manner.

**Average annual asset consumption (AAAC)\***

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

**Borrowings**

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

**Capital expenditure**

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

**Capital expenditure ‐ expansion**

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

**Capital expenditure ‐ new**

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

**Capital expenditure ‐ renewal**

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

**Capital expenditure ‐ upgrade**

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

**Capital funding**

Funding to pay for capital expenditure.

**Capital grants**

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

**Capital investment expenditure**

See capital expenditure definition.

**Capitalisation threshold**

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

**Carrying amount**

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

**Class of assets**

See asset class definition.

**Component**

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

**Cost of an asset**

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

**Current replacement cost (CRC)**

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

**Depreciable amount**

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

**Depreciated replacement cost (DRC)**

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

**Depreciation / amortisation**

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

**Economic life**

See useful life definition.

**Expenditure**

The spending of money on goods and services.

Expenditure includes recurrent and capital.

**Fair value**

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

**Funding gap**

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

**Heritage asset**

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

**Impairment Loss**

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

**Infrastructure assets**

Physical assets that contribute to meeting the needs of organisations or the need for access to major economic and social facilities and services, eg. 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 separate market value.

**Investment property**

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

1. use in the production or supply of goods or services or for administrative purposes; or
2. sale in the ordinary course of business.

**Key performance indicator**

A qualitative or quantitative measure of a service or activity used to compare actual performance against a standard or other target. Performance indicators commonly relate to statutory limits, safety, responsiveness, cost, comfort, asset performance, reliability, efficiency, environmental protection and customer satisfaction.

**Level of service**

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

**Life Cycle Cost**

1. **Total LCC** The total cost of an asset throughout its life including planning, design, construction, acquisition, operation, maintenance,

rehabilitation and disposal costs.

1. **Average LCC** The life cycle cost (LCC) is average cost to provide the service over the longest asset life cycle. It comprises annual operations, maintenance and asset consumption expense, represented by depreciation expense. The Life Cycle Cost does not indicate the funds required to provide the service in a particular year.

**Life Cycle Expenditure**

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

**Loans / borrowings**

See borrowings.

**Maintenance**

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

* **Planned maintenance**

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

* **Reactive maintenance**

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

* + - * **Significant maintenance**

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

* **Unplanned maintenance**

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

**Maintenance and renewal gap**

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

**Maintenance and renewal sustainability index**

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

**Maintenance expenditure**

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

**Materiality**

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

**Modern equivalent asset**

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

**Net present value (NPV)**

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

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

**Operations expenditure**

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

**Operating expense**

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

**Pavement management system**

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

**PMS Score**

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

**Rate of annual asset consumption**

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

**Rate of annual asset renewal**

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

**Rate of annual asset upgrade**

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

**Recoverable amount**

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

**Recurrent expenditure**

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

**Recurrent funding**

Funding to pay for recurrent expenditure.

**Rehabilitation**

See capital renewal expenditure definition above.

**Remaining useful life**

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

**Renewal**

See capital renewal expenditure definition above.

**Residual value**

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

**Revenue generating investments**

Investments for the provision of goods and services to sustain or improve services to the community that are expected to generate some savings or revenue to offset operating costs, eg public halls and theatres, childcare centres, sporting and recreation facilities, tourist information centres, etc.

**Risk management**

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

**Section or segment**

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

**Service potential**

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

**Service potential remaining**

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

**Strategic Longer‐Term Plan**

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

**Specific Maintenance**

Replacement of higher value components/subcomponents of assets that is undertaken on a regular cycle including repainting, building roof replacement, cycle, replacement of air conditioning equipment, etc. This work generally falls below the capital/ maintenance threshold and needs to be identified in a specific maintenance budget allocation.

**Sub‐component**

Smaller individual parts that make up a component part.

**Useful life**

Either:

1. the period over which an asset is expected to be available for use by an entity, or
2. the number of production or similar units expected to be obtained from the asset by the entity.

It is estimated or expected time between placing the asset into service and removing it from service, or the estimated period of time over which the future economic benefits embodied in a depreciable asset, are expected to be consumed by the council.

**Value in Use**

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

benefits.

Source: IPWEA, 2009, Glossary

1. IPWEA, 2006, *IIMM* Sec 1.1.3, p 1.3. [↑](#footnote-ref-1)
2. IPWEA, 2006. [↑](#footnote-ref-2)
3. Based on our drought and demand management plans [↑](#footnote-ref-3)
4. IIMM 2006, Appendix B, p B:1‐3 (‘cyclic’ modified to ‘planned’, ‘average’ changed to ‘fair’’) [↑](#footnote-ref-4)