

# Water

# Asset Management Plan

2025-2035



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Richmond Valley Council recognises the people of the Bundjalung Nation as Custodians and Traditional Owners of this land and we value and appreciate the continuing cultural connection to lands, their living culture and their unique role in the life of this region in the past, present and future.

# Executive Summary

Richmond Valley Council (RVC) provides water and sewer services to residential, industrial, and fringe rural customers within the major townships of the Local Government Area (LGA). This provision of this service relies on pump stations, reservoirs, and associated infrastructure for which it has responsibility within the LGA.

The purpose of this plan is to provide a structured process of management of Council's water reticulation system, documenting the quantity, condition, level of service (LoS) provided, financial planning, risk management, operation, maintenance and renewal of the assets. The plan takes into consideration the legislative requirements of Council in managing such public assets, while balancing the risk and demand for infrastructure with long term financial affordability. The detailed information in this plan provides the framework for responsible asset management of these vital community assets.

The water supply is a combination of water extraction under licence from the Richmond River at Casino, with a supply provided by Rous County Council in the Lower River Region of the LGA. The safe, efficient and effective delivery of potable water to the community is managed via the processes and practices listed within this Asset Management Plan. The water network is valued at \$123,956,604 at 30 June 2024, and detailed in the following table:

## Water Infrastructure

| Asset Group      | Asset Type                                             | Quantity of Water Assets | Length of Assets (km) | 2024 Gross Replacement Cost |
|------------------|--------------------------------------------------------|--------------------------|-----------------------|-----------------------------|
| Connections      | Service connection pipes                               | 7776                     | 96.54                 | \$ 7,145,549                |
| Filling Stations | Filling stations, batteries, card readers, signs       | 14                       |                       | \$ 102,090                  |
| Hydrants         | Fire hydrants                                          | 2249                     |                       | \$ 6,492,665                |
| Meters           | Water meters                                           | 7165                     |                       | \$ 3,025,476                |
| Pipelines        | Pipes main, encasement, fire service                   | 5397                     | 200.91                | \$ 53,704,675               |
| Pump Stations    | Pits, control cabinets, pumps, pipes etc.              | 162                      |                       | \$ 6,040,259                |
| Reservoirs       | Pits, control cabinets, pumps, pipes etc.              | 305                      |                       | \$ 22,594,279               |
| RTU PLC          | PLC                                                    | 8                        |                       | \$ 40,350                   |
| Swabbing Pits    | Tee and elbow pipes,                                   | 39                       |                       | \$ 74,660                   |
| Treatment Plants | Pits, air conditioners, flow meters, pumps, pipes etc. | 409                      |                       | \$ 21,872,795               |
| Valves           | Stop valves, scour valves etc.                         | 1404                     |                       | \$ 2,863,806                |
| Total            |                                                        | 24,928                   | 297.45                | \$ 123,956,604              |



## Key Issues

A summary of key issues related to the management of Council's water infrastructure are identified in the following table:

### Key Issues

| Asset                                      | Key Issues                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Strategic and Forward planning</b>      | <ul style="list-style-type: none"><li>• Quantity and quality of Information provided by Council staff on the performance of the water supply system.</li><li>• Strategic planning and options assessment for Casino water supply including the Regional Strategic Planning of the Northern Rivers Regional Bulk Water Supply Strategy.</li><li>• Risk Management Strategies</li><li>• Drinking Water Management System</li></ul> |
| <b>Reticulation and Distribution Mains</b> | <ul style="list-style-type: none"><li>• Broken watermains and services</li><li>• Jammed hydrants</li><li>• Dirty Water</li><li>• Water leaks</li><li>• Poor water pressure</li><li>• Funding and cost of renewals/capital works</li></ul>                                                                                                                                                                                        |
| <b>Water Meters</b>                        | <ul style="list-style-type: none"><li>• Water Hammer</li><li>• Faulty or damaged meters</li></ul>                                                                                                                                                                                                                                                                                                                                |
| <b>Reservoirs</b>                          | <ul style="list-style-type: none"><li>• Leaks in reservoir walls</li><li>• Seizing of valves</li><li>• Dust ingress</li></ul>                                                                                                                                                                                                                                                                                                    |
| <b>Pump Stations</b>                       | <ul style="list-style-type: none"><li>• Faulty or failing pumps</li><li>• Pump Failures</li><li>• Loss power</li><li>• WHS Issues</li></ul>                                                                                                                                                                                                                                                                                      |
| <b>Water Treatment Plant</b>               | <ul style="list-style-type: none"><li>• Funding and cost of renewals/ major capital works</li><li>• Manual handling of chemicals</li><li>• Fluoride breaches of drinking water quality</li><li>• WHS issues</li><li>• Filtration issues</li><li>• High level organics from raw water source</li><li>• Upgrade of system for increased demand.</li></ul>                                                                          |

## Levels of Service - Performance

Service levels of water infrastructure assets is determined through customer expectations, strategic goals and statutory requirements. Council submits annual regulatory service level reporting to NSW Department of Planning and Environment under an assurance framework which is benchmarked against State-Wide water authorities.

Council has identified minimum standard performance targets, service levels for response time and priority allocations. Improvements in measuring and reporting performance targets is required with consideration of implementing community and technical levels of service.

The community evaluation provides a measure of the customers perspective with results evaluated of mixed performance from increased community satisfaction to a reduction in recent satisfaction.

The technical service levels are a measure of water quality, compliance, loss of network water, availability, security and limits on restrictions.

## Demand - New Infrastructure

Specific government projects that will impact on the water supply network infrastructure include the Regional Jobs Precincts, Growth Management Strategy, Casino and the Mid Richmond Place Plans. The Growth Management Strategy<sup>1</sup> identified that the significant events of the past five years including bushfire, COVID-19 pandemic and the February 2022 floods changed the dynamics of the Northern Rivers with Casino emerging as a strategic centre into the future. This strategy documents planning of growth areas for residential and employment areas throughout the LGA. As the population grows demand for new, and upgrades to existing, essential services will be required.

The 2024 NSW Government<sup>2</sup> population projections identified changes to migration patterns to regional NSW where many regional towns and cities will grow faster than the rural hinterland. The population projections far exceeding the earlier 2022 projections with the main driver being the effect of COVID-19 pandemic on net overseas migration and young families and retirees looking for sea or tree change within rural areas.

The revised projections model a steady increase with an average population growth of 0.21% per annum between 2021 & 2024. This increase requires planning and consideration for an increase in housing supply and essential public infrastructure including Council's water supply network.

The Casino Place Plan<sup>3</sup> identifies improving water quality and long-term consideration for drinking water supply including infrastructure estimated at \$15.97 million required to implement strategic items identified as part of the employment and residential development expansion.

Current bulk water is not a current issue, but with climate changes, longer periods of drought and increased growth Council must ensure there is sufficient water to meet future demands.

## Demand - Existing Water Infrastructure

Council has adopted a Water Management Strategy '*Richmond Valley Water for Life 2050*' to set a pathway to preserve and manage our community water resources supporting sustainable growth over the next 25 years. This strategy assists in the planning of water security and upgrades relevant to climate change, changing land use conditions, new subdivision and developments. It recognises the existing aging infrastructure reaching the end of the asset life with escalating costs for replacement. The planned water and sewer capital works program over the next 15 years has a cost estimated over \$200 million.

## Lifecycle Analysis Water Infrastructure

Water network assets on average have a remaining useful life of 78% of their expected lifecycles based on average condition; however more critical infrastructure assets including water pump stations, water treatment plants and reservoirs are all approaching on average 60% of their useful life.

Larger issues including water security and the long-term holding capacity of Jabour Weir in the township of Casino provide ongoing challenges which necessitate a large commitment to improved levels of service and scheme augmentation programs. Regional strategic planning including the Northern Rivers Regional Bulk Water Supply Strategy will assist with the forward planning enabling Council to meet demand from a growing population.

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<sup>1</sup> [https://richmondvalley.nsw.gov.au/wp-content/uploads/2023/04/230412\\_Growth-Management-Strategy-original.pdf](https://richmondvalley.nsw.gov.au/wp-content/uploads/2023/04/230412_Growth-Management-Strategy-original.pdf)

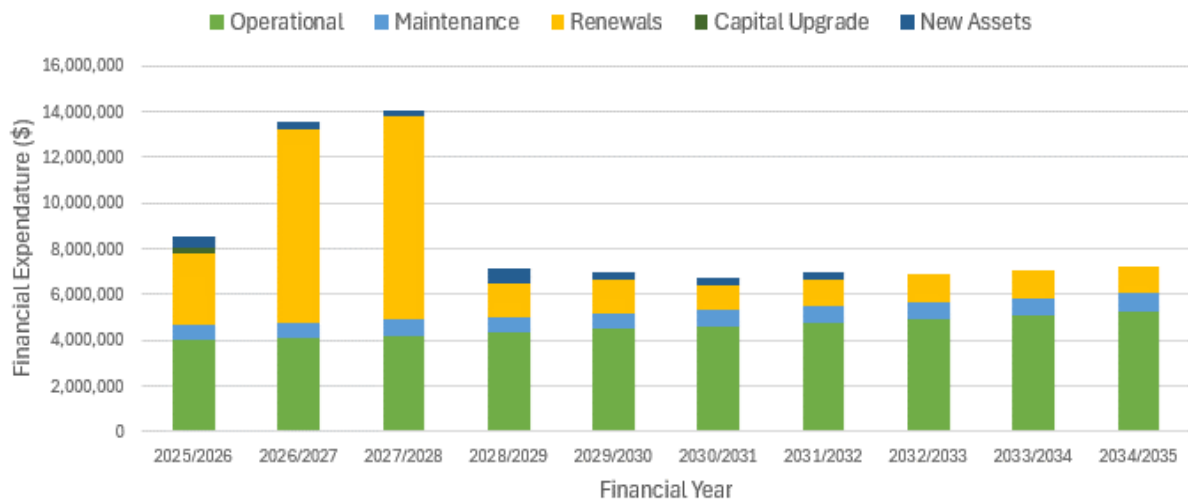
<sup>2</sup> <https://www.planning.nsw.gov.au/data-and-insights/population-projections/key-findings>

<sup>3</sup> [https://richmondvalley.nsw.gov.au/wp-content/uploads/2023/04/230412-Final\\_Casino-Place-Plan-original.pdf](https://richmondvalley.nsw.gov.au/wp-content/uploads/2023/04/230412-Final_Casino-Place-Plan-original.pdf)

## Ten Year Financial Forecast

The 10-year financial forecast is detailed within **Appendix F** for Council's water infrastructure including new, upgrades and capital works for each asset group. The reasons for the expenditure are identified for each asset group in Lifecycle Management Plans.

### Ten Year Financial Projections



Council's water supply infrastructure requires further long-term planning where major financial investment will be required to replace or major upgrades over a within the next 30-50 years. This occurs within the ageing infrastructure of the water treatment plant and reservoirs. The current supply of bulk water meets customer demand with demand expected to increase with the implantation of the Regional Jobs Precinct and Place Plans.

A major issue concerning water supply infrastructure management is the question of who pays for needed works such as the community through special rates, developer contributions or consumers via recurrent charges. This will be significant with supporting new developments or expansion areas as identified within the draft Casino Place Plan.

To overcome this problem there should be available a range of a blended funding options considered:

- Rating charges for water supply;
- Special rates or charges schemes;
- Development contributions;
- Loan borrowings; and
- Available grants, e.g., special purpose State Government grants.

## Asset Management Improvements

The following list has been extracted from the improvements summarised in Section 9. The list below represents the most important improvements required:

- Continue the capture of data for all water assets and monitor condition. The data capture can be updated as part of normal operations or when servicing/inspecting assets. Link assets data to the GIS.
- Collect the data and complete the valuations for water management devices, pump stations and treatment plants. Prepare scope of works for upcoming valuations.
- Develop the criticality framework for the water infrastructure identifying critical infrastructure across the LGA with the view to improving the management decisions.
- Complete the identification of the infrastructure risk register for Council's water assets considering current controls, actions and funding required to decrease risk levels.
- Undertake ongoing analysis of future renewal requirements using the condition data.
- Analyse the customer request results to address problem areas and maintain performance.
- Collect and monitor defect histories to identify trends in performance of asset types.
- Address critical assets framework for improving maintenance plans across entire water infrastructure assets.
- Use demand projections coupled with other knowledge e.g., risk to develop 10-year forecast projections of upgrade works and new works. Use predictive models to identify appropriate levels of funding and the impacts of future condition.
- Operations Manuals should be updated to ensure the data is current and accurate or at least reference the Asset Register.
- Establish service standards and technical service levels to support the quantity and quality of data captured.



# 1. Introduction

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Richmond Valley is custodian of an extensive range of community assets that it provides to facilitate delivery of its services to the community.

This Water Asset Management Plan (WAMP) has been developed to assist Council manage water infrastructure, taking into consideration the important links with the whole of the Northern Rivers and Rous County Council.

This plan is to be read in conjunction with the Council's Strategic Business Plan for Water and Sewer, IWCM Plan, Business Continuity Plan, Drought Management Plan, Demand Management Plan, Risk Management Strategy Water Supply, Long Term Capital Plan and Community Strategic Plan.

The water infrastructure network is valued at \$123,956,604 at 30 June 2024 and consists of 200 km of pipelines and associated infrastructure. This includes a weir, water treatment plant, 13 reservoirs, and 8 water pump stations over five separate water schemes which covers two separate water supply systems - Casino and the Mid to Lower Richmond River area.

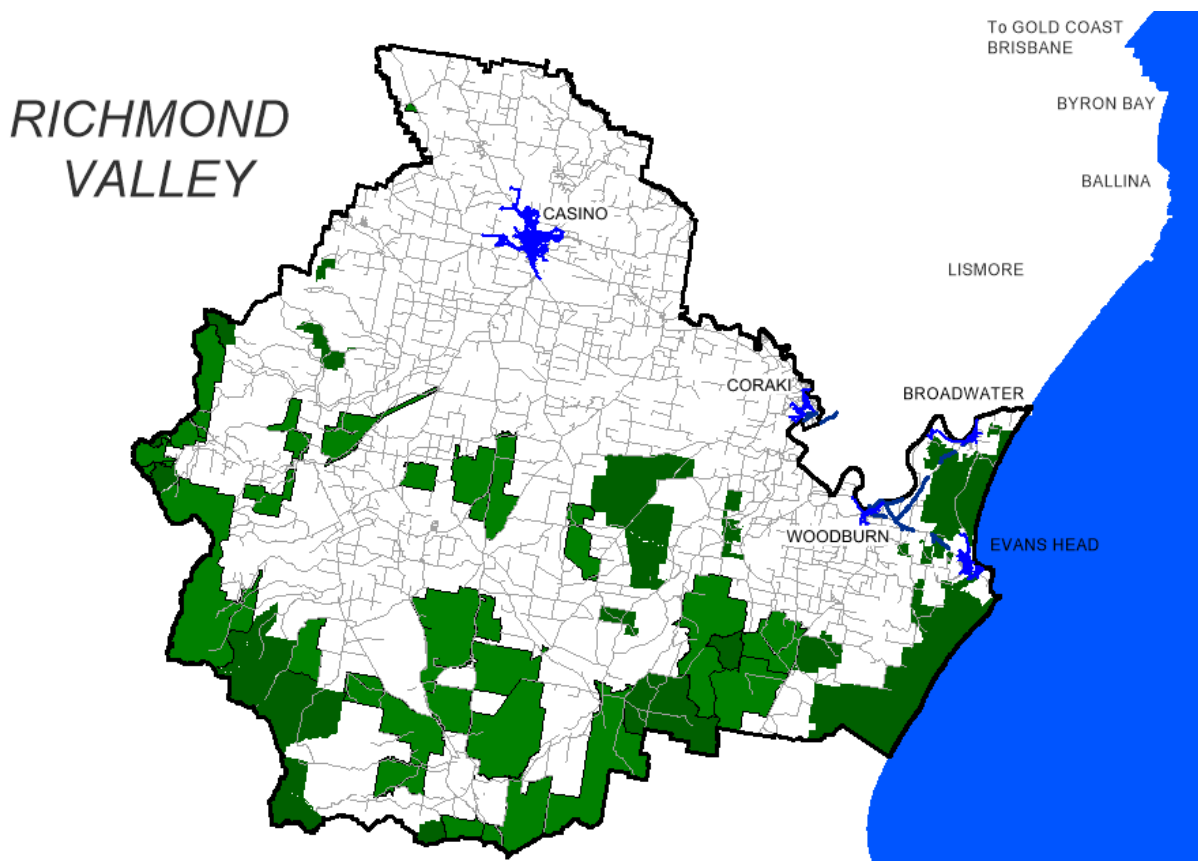


Figure 1-1: Water Supply Network for Richmond Valley Council

## 1.1 Purpose of this Plan

This WAMP is intended to demonstrate how the Council will, by applying the principles of responsible AM planning manage Council's infrastructure to an agreed standard of service.

In this context the specific objectives of this WAMP are to:

- Demonstrate responsible stewardship.
- Translate the Council strategic goals into water strategies and action plans.
- Determine the services to be provided, the target service standards that Council aims to achieve, and the measures used to monitor the performance of the water network.
- Manage risk of asset failure.
- Achieve savings by optimising whole of life costs; and
- Support long term financial planning.

This AM Plan covers a period of 10 years commencing 1 July 2025. This plan has direct links to Council's Strategic Business Plan for Water and Sewer which provides a more detailed strategic and demand analysis. This AM Plan is required to be regularly reviewed to ensure its continued relevance and alignment with demand and strategic alignment.

## 1.2 The Asset Management Plan Process

The Asset Management Plan is a revision of the previously adopted plan from 2022. The amendments include a review of the existing asset register, alignment with regional and Councils organisations strategic goals, future needs, continuous improvement, and integration with long term financial plans.

An AM Plan translates strategic goals and plans into specific goals and objectives which are relevant to a particular activity for Council.

The AM plan combines management, financial, engineering and technical practices to ensure the LoS required by customers is provided at the most economical cost to the community and the environment.

The AM Planning process commences with defining stakeholders needs and Council's legislative obligations, incorporating into Council's Community Strategic Plan. This is reflected in Council's Asset Management Policy, Asset Management Strategy, Asset Management Plans and Operational Delivery Plans which are linked to the Long-Term Financial Plan and Resourcing Strategies.

The relationship to corporate planning process is detailed below. The legal framework and relationships to other planning, strategic and documents can be found in Section 1.3 and **Appendix B**.



### 1.3 Relationship with the Corporate Planning Process

AM plans are a key component of Council's planning process, linking with the following plans and documents:

**Community Strategic Plan:** Council's Community Strategic Plan (CSP) Richmond Valley 2040 continues the key directions established in the 2023 CSP supporting four key function: strengthening our role within the region, creating a great place to live, protecting our environment and delivering a service for the community. This plan guides Councils strategic direction for the 2025-29 delivery program.

**Delivery Program and Operational Plan:** The Delivery Program (DP) and Operational Plan (OP) systematically translate the CSP goals into actions. These are the principal activities and individual projects to be undertaken by the Council to implement the strategies established by the CSP within the resources available under the Resourcing Strategy. Council's Delivery Program for 2025-29 is supported by the 2025-26 Operational Plan.

**Annual Report:** The Annual Report focuses on the implementation of the Delivery Program and Operational Plan. The report includes information that is prescribed by the *Local Government Act 1993* and by the Office of Local Government Policy through Integrated Planning and Reporting Framework (IP&R).

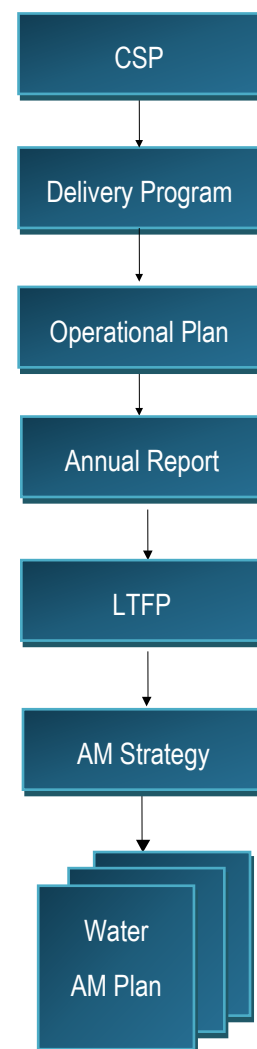
**Long-Term Financial Plan:** The Long-Term Financial Plan (LTFP) is a 10-year rolling plan that informs decision-making and demonstrates how the objectives of the CSP and commitments of the DP and OP will be resourced and funded. The LTFP captures financial implications of asset management and workforce planning.

**AM Strategy:** Outlines the processes to manage the long-term sustainability of existing and future infrastructure and continuously improve our asset management practices. Council's objective is to allocate resources to provide services at an agreed quality, cost and time by using the optimal asset stock needed to deliver corporate objectives whilst controlling the exposure to risk and loss.

The AM strategy is reviewed every four years in alignment with IP&R planning cycle ensuing a useful and up-to-date management tool and reference document.

The AM strategy aligns with the corporate direction and provides the management direction over the next 10 years.

**Richmond Valley Council Policies:** The policies are needed to provide direction for the implementation of AM practices. Policies that apply to the management of water assets include the Asset Management Policy, Water Management Policy, Risk Management Policy, Concealed Water Leak – Granting of Allowance, and Drinking Water Quality Policy.



## 1.4 Asset Management Plan Format

This WAMP contains nine sections, each of which are explained in Table 1.1.

**Table 1-1: AM Plan Format**

| SECTION                    | SUBJECT MATTER                                                                                                                                                                                                                                                                       |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Introduction               | Introduction to AM, outlines the purpose, scope and format of the plan, identifies key stakeholders and legislative requirements, and describes the relationship with other plans.                                                                                                   |
| Asset Network              | Outlines Council's network of assets including quantity and value.                                                                                                                                                                                                                   |
| Strategic Environment      | Identifies the current working environment, the strategic and corporate goals with a summary of the documents that support the environment.                                                                                                                                          |
| Levels of Service          | Outlines the levels of service required based on the research of customer expectations, statutory requirements, strategic and corporate goals. It also contains tables detailing expected and current performance measures.                                                          |
| Demand Forecast            | Details the future growth trends, the impact of these trends on infrastructure and demand management strategies to deal with the projected growth.                                                                                                                                   |
| Risk Management            | Outlines Council's risk management framework including risk events with their severity and consequence.                                                                                                                                                                              |
| Lifecycle Management Plan  | Gives an overview of the whole of life management concerning each asset type. For each type it details (where applicable) its current performance, operations plan, maintenance plan, renewal/replacement plan, upgrade/enhancement plan, creation/new works plan and disposal plan. |
| Financial Summary          | Details the 10-year financial forecast with its associated assumptions and discussion. It contains an asset valuation for each asset type and their associated confidence levels. It also outlines the Council's funding strategy.                                                   |
| Improvement and Monitoring | Deals with methods of monitoring performance by detailing AM processes, systems and data. It outlines a 4-year AM improvement plan. It also details procedures for monitoring and reviewing this AM Plan.                                                                            |

**Note:** All Asset Management Plans are based on the framework recommended in the Institute of Public Works Engineering Australia's International Infrastructure Management Manual (Australia / New Zealand Edition).



## 2. Asset Network

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### 2.1 Our Water Network

The water network consists of 200 km of pipelines and associated infrastructure. Council's major water infrastructure assets consist of a weir, water treatment plant, 13 reservoirs, 8 water pump stations over five separate water schemes which covers two separate water supply systems - Casino and the Mid to Lower Richmond River (MLRR) area. The definitions for each of the asset types across the water asset network are:

- **Water Connections:** consisting of pipes and fittings from the water main to the water inlet pipe of the distribution serving the abutting property.
- **Water Filling Stations:** location and facilities for obtaining bulk water which is purchased via a metered infrastructure.
- **Water Hydrants:** fitting generally located within public locations to attach hoses to water mains. Generally utilised for emergency services (firefighting hoses).
- **Water Meters:** instrument for recording water quantity passing through the outlet used for servicing water accounting billing based upon used consumptions.
- **Water Pipelines:** physical pipelines for transporting drinking water to customers.
- **Water Pump Stations:** installed when the water is unable to flow through pipelines via gravity, Pumps are utilised to increase the pressure, or quantity of water over a period of time. The water pump stations assets contain an extensive amount of asset types to operate these facilities.
- **Water Reservoirs:** large storage holding tank used for the storage of water prior to supplying to residents within a set geographical area.
- **Water RTU PLC:** RTU is a Remote Terminal Unit, PLC is a Programmable Logic Controller, both being an electrical device used for automated control of a suite of devices such as pumps, valves etc.
- **Water Treatment Plant:** location which improves the quality of water to be safe to consume. The water treatment plant assets contain an extensive amount of asset types to operate this facility.
- **Water Values:** fitting that allows for regulation control (stop values, scour, backflow prevention values, and check values).

The water infrastructure and quantities for Council's water network is summarised in Table 2-1 and further details and breakdown of the asset quantities refer to **Appendix C**.

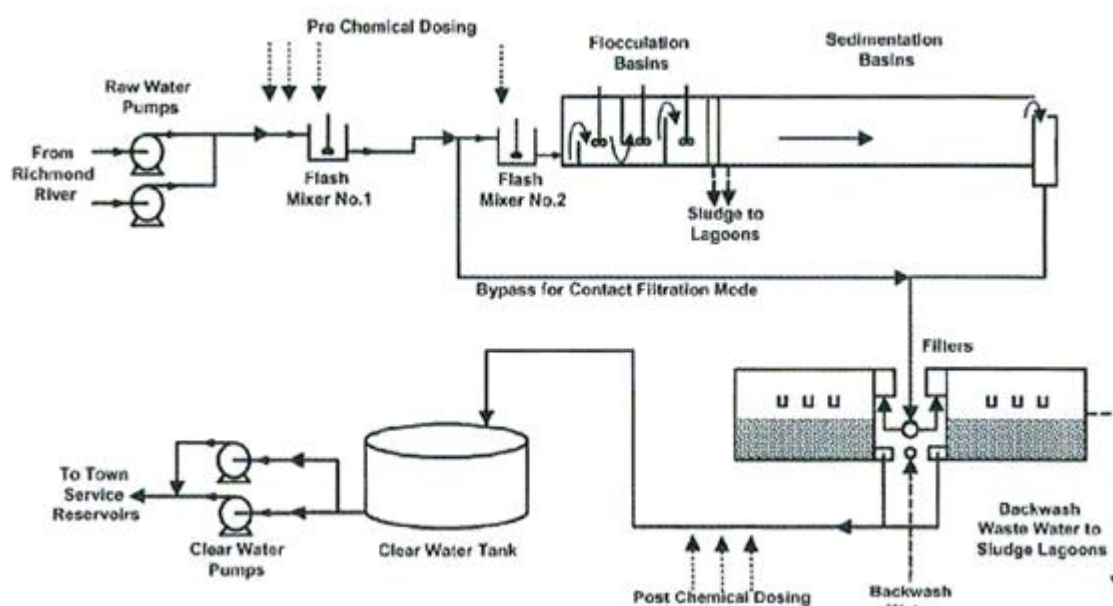


**Table 2-1: Summary of Water Asset Network**

| Asset Group            | Asset Type                                             | Unit | Quantity of Water Assets | Length of Assets (km) |
|------------------------|--------------------------------------------------------|------|--------------------------|-----------------------|
| Water Connections      | Service connection pipes                               | km   | 7776                     | 96.54                 |
| Water Filling Stations | Filling stations, batteries, card readers, signs       | No.  | 14                       |                       |
| Water Hydrants         | Fire hydrants                                          | No.  | 2249                     |                       |
| Water Meters           | Water meters                                           | No.  | 7165                     |                       |
| Water Pipelines        | Pipes main, encasement, fire service                   | km   | 5397                     | 200.91                |
| Water Pump Stations    | Pits, control cabinets, pumps, pipes etc.              | No.  | 162                      |                       |
| Water Reservoirs       | Tanks, pits, control cabinets, pumps, pipes etc.       | No.  | 305                      |                       |
| Water RTU PLC          | PLC                                                    | No.  | 8                        |                       |
| Water Swabbing Pits    | Tee and elbow pipes                                    | No.  | 39                       |                       |
| Water Treatment Plants | Pits, air conditioners, flow meters, pumps, pipes etc. | No.  | 409                      |                       |
| Water Valves           | Stop valves, scour valves etc.                         | No.  | 1404                     |                       |
| Total                  |                                                        |      | 24,928                   | 297.45                |

## Casino Water Treatment Plant

The Casino water treatment plant, on Summerland Way, was built in 1985 and officially open in March 1986. Raw water is drawn from the Richmond River upstream of the Jabour Weir north west of the town. Treated water is stored in three reservoirs in North Casino and one reservoir in South Casino. Major water consumers in Casino include the Casino Food Co-op (formally Northern Cooperative Meat Company), Casino Hide Traders and Richmond Dairies. There is no relationship between quantity and replacement value as shown in **Appendix C**, e.g., there is only one treatment plant, but it represents approximately 18% of the value of the water network.



**Figure 2-1: Casino Water Treatment Plant Process Flows<sup>4</sup>**

<sup>4</sup> Source: Operations Manual – Casino WTP

Figure 2-1 illustrates the treatment process through the plant from the Richmond River to the town service reservoirs.

The Casino water treatment plant is a conventional water treatment process, utilising coagulation, flocculation, settling and filtration stages.

The water treatment plant is disaggregated into the following components being:

- Valves, pipes and fittings of a variety of diameters, materials, and configurations.
- Electrical assets such as motors, variable speed drives', control panels and cabinets etc. Electrical cabling providing access to and distribution of power, around the treatment plant.
- Mechanical devices such as a variety of pump types and sizes.
- Tanks for storage and application of chemicals on-site structures to support tanks, and pump wells.
- Ladders and stairs, platforms, and handrails to provide safety to personnel and visitors.
- Pits to support and provide access to the underground assets including pipes, flow meters, dosing points.
- On-site infrastructure such as roads, car parks, fencing and stormwater drainage.
- Structures including building structure, shed, plinth and travelling bridge. Internal pipework and fittings for transportation of fluids and chemicals.
- Safety equipment such as fire extinguishers, eye wash and showers for chemical protection.
- Overhead gantry for lifting and moving the heavy equipment around the pump station.
- A variety of pump types (dosing, pressure, clear water and sampling) are used at the WTP.
- Earthworks that were reshaped resulting from excavation and to meet the hydraulic profile required for the water treatment.
- Bunding for protection of the sites from spillage and chemical contamination.
- Switchboards for the major raw water pump station.

### **Pump Stations**

The pump stations range from the major raw water station at the Richmond River to the much smaller booster pump stations within the water schemes. Due to the complexity and size of the raw water pump station, the components assigned to the pump station are identified below.

- Valves, pipes and fittings of a variety of diameters, materials, and configurations.
- Mechanical devices such as a variety of pump types and sizes.
- Electrical assets such as motors, variable speed drives', control panels and cabinets etc.
- On-site structures to support tanks and pump wells.
- On-site infrastructure such as roads, car parks, fencing and stormwater drainage.
- Tanks for storage and application of chemicals.
- Safety equipment such as fire extinguishers, eye wash and showers for chemical protection.
- Pits to support and provide access to the underground assets including pipes, flow meters, dosing points.
- Overhead Gantry for lifting and moving the heavy equipment around the pump station.
- Ladders and stairs, platforms, and handrails to provide safety to personnel and visitors.
- Switchboards for the major raw water pump station.
- Bunding for protection of the sites from spillage and chemical contamination.

- Electrical cabling providing access to and distribution of power, around the pump stations
- Internal pipework and fittings for transportation of fluids and chemicals

While quantities of the components vary significantly across the pump stations, The pump station 'structures' outweigh any other component type at the pump stations. This is followed by the mechanical devices e.g., pumps followed by valves, pipes, and fittings.

## Reservoirs

The reservoirs consist of 13 tanks used for water storage to meet the daily demands of the community at the various towns where they are located. While the tanks are predominantly steel structures, some concrete tanks are operational. Each tank has been roofed to protect the drinking water from being contaminated by external sources such as birds. The components have been segmented to an appropriate level however as can be seen in the chart one tank is under the tank component while the remainder are under the structures category.

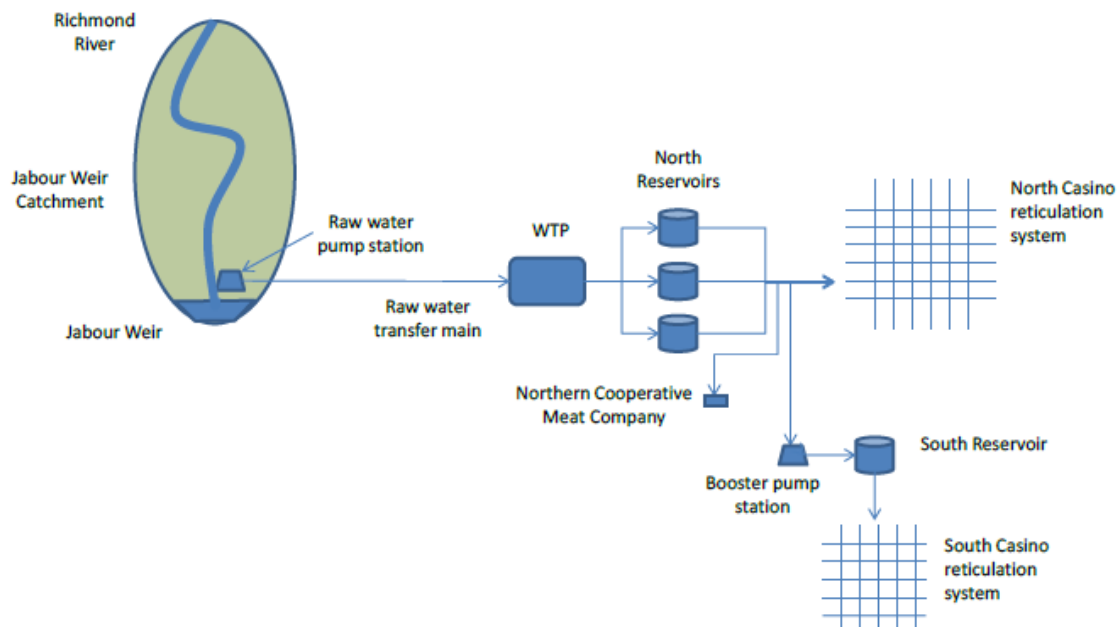


### 2.1.1 Casino Water Supply

The Casino system comprises of a weir, raw water pump stations, clear water tank, water treatment plant, four reservoirs, a booster pump station and a network of pipes (120 km) that distributes water to 10,933 people<sup>5</sup>. Raw water from the Richmond River is fully treated and reticulated to the town of Casino. Historically rainfall tends to exceed evaporation for only two months (February and March) with a rainfall deficit from April to January.

The town of Casino is serviced by a water treatment plant (WTP) and RWPS constructed in 1985 (which replaced the old water treatment plant located at South Casino). Raw water from the Richmond River flowing at Jabour Weir is extracted via a pumping station at the river. Casino's water supply sourced from the Richmond River at Casino has an entitlement of 3,427ML/pa or 25% of the total entitlement in that water source. The water is treated and reticulated to the town of Casino through a network of pipes and four reservoirs, three at North Casino and one at South Casino.

<sup>5</sup> Source: <https://profile.id.com.au/richmond-valley> (population figures 2024)



**Figure 2-2: Casino Water Supply System Flow Chart<sup>6</sup>**

### 2.1.2 Lower Richmond

The Lower Richmond River (LRR) reticulation system distributes water purchased from Rous Water. The system supplies water to the towns of Evans Head, and the villages of Broadwater, Woodburn, Rileys Hill and Coraki (which also services nearby Box Ridge). Council owns 8 reservoirs and a network of pipes (total length 80 km) distributing from the reservoirs. The source of water is a combination from Rocky Creek Dam and bores. Historically rainfall exceeds evaporation for eight months in the Rocky Creek Dam catchment (which is the source of water for lower river towns).

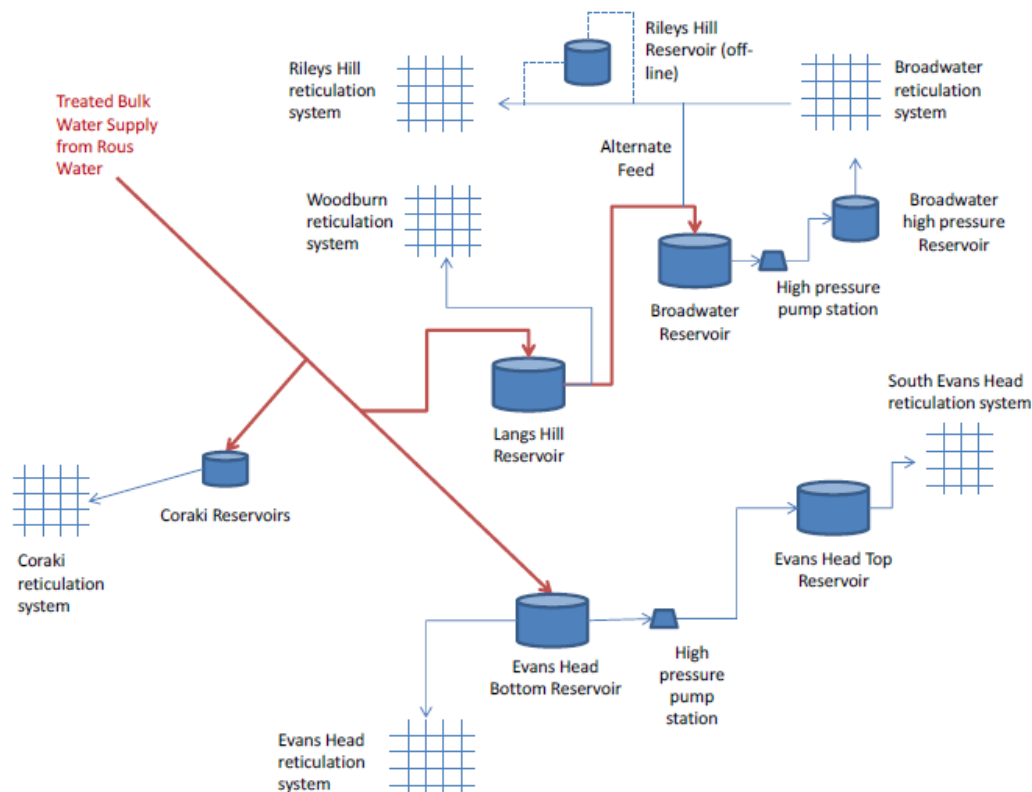
Rous Water supplies bulk water under a Water Supply Agreement (WSA) to four constituent councils in the Northern Rivers (Lismore, Byron Bay, Ballina and Richmond Valley). Rous Water is responsible for the treatment, construction, extension, protection, maintenance, control, and management of bulk water supply works. Council is responsible for assets used to distribute water services in the LRR water supply system. Richmond Valley Council owns all pipes downstream of the reservoirs, one of which (Langs Hill Reservoir) is leased to Rous Water. The town of Evans Head is provided with water by two reservoirs. North Evans Head is serviced by the lower reservoir; whilst part of South Evans Head is supplied by the high zone, and the remaining serviced by the low zone reservoir.

Council distributes water to customers in the Lower River area through four separate distribution servicing:

1. Evans Head, population served approximately 3,024 people.
2. Broadwater, Woodburn district, population served approximately 2,626 people and.
3. Coraki district, population served approximately 2,125 people <sup>7</sup>.

<sup>6</sup> Source: RVC Water Asset Management Plan 2017 – 2027 – Pg. 14

<sup>7</sup> Source: <https://profile.id.com.au/richmond-valley> (population figures 2024)



**Figure 2-3: Lower River Water Supply System Flow Chart<sup>8</sup>**

The village of Woodburn is served by one reservoir located on Langs Hill via Woodburn. Coraki is comprised of a Lower Reservoir and two smaller tower reservoirs that also serve the locality of Box Ridge via interconnecting pipes. An in-line booster system provides increased pressure to the Box Ridge community during nominated hours of the day.

Rileys Hill receives water from the Broadwater reservoir. There is a small reservoir at Rileys Hill which acted as a backup when the Broadwater Sugar Mill was operating. The villages of Rappville and Fairy Hill are not supplied with a reticulated water supply, water is harvested and provided by individual private rainwater tanks.

Council plans to augment the water supply and sewerage schemes to cater for growth, improve sustainability and achieve more integrated systems. Major projects may include:

- Augmentation of the Casino water source to increase yield and improve reliability of supply;
- Investigation and implementation of an emergency water source for Casino to improve reliability in drought and emergencies; and
- Possible implementation of an irrigation re-use scheme to recycle water from Evans Head.

<sup>8</sup> Source: RVC Water Asset Management Plan 2017 – 2027 – Pg. 15

## 2.2 Water Functional Hierarchy

The water hierarchy is based upon asset type, and attribute details of each asset (condition, material and dimensions) which provides a classification that assists in criticality, inspection frequencies, maintenance regimes and standards for new construction.

The water classifications specify each water or ancillary area by water use function, reflects the perceived risk associated of each water asset type and are used to differentiate service levels and maintenance standards.

Council water network with projected design lives is detailed in **Appendix C**.

## 2.3 Asset Performance

Council monitors and models the condition of water assets through inspection information, revaluation processes and maintenance treatments. Condition information is compiled and kept in Asset Master Asset Management system. Reporting and extracts of this data contributes to the development of works programs.

Performance monitoring of the water assets includes:

- Asset condition.
- Age profile.
- Customer requests; and
- Maintenance inspections.

### 2.3.1 Condition Assessments

Full network condition assessments are conducted every 5 years through the statutory revaluation process. As part of the asset revaluations for Water and Sewer infrastructure the network was reviewed in 2022, prior to the natural flood disaster in February. Condition assessments were recorded for all above ground assets with the condition ratings being included within this AM Plan.

Both the water treatment plant and pump stations were visited, and the asset condition recorded and rated on a 5-point scaling system (1 - Excellent condition and gradually progressing down the scale to 5 - extremely poor condition). The spread of years for water pump station replacement are based on condition based remaining life.

When condition assessments have not been recorded or updated (eg water pipelines assets underground and inaccessible), the remaining life based on observation or age plays an integral part in establishing future works programs and the long-term replacement of existing assets. As water infrastructure assets have a combination of observation or age condition assessment, the remaining life based on observation would take precedent over the aged based remaining life where possible.

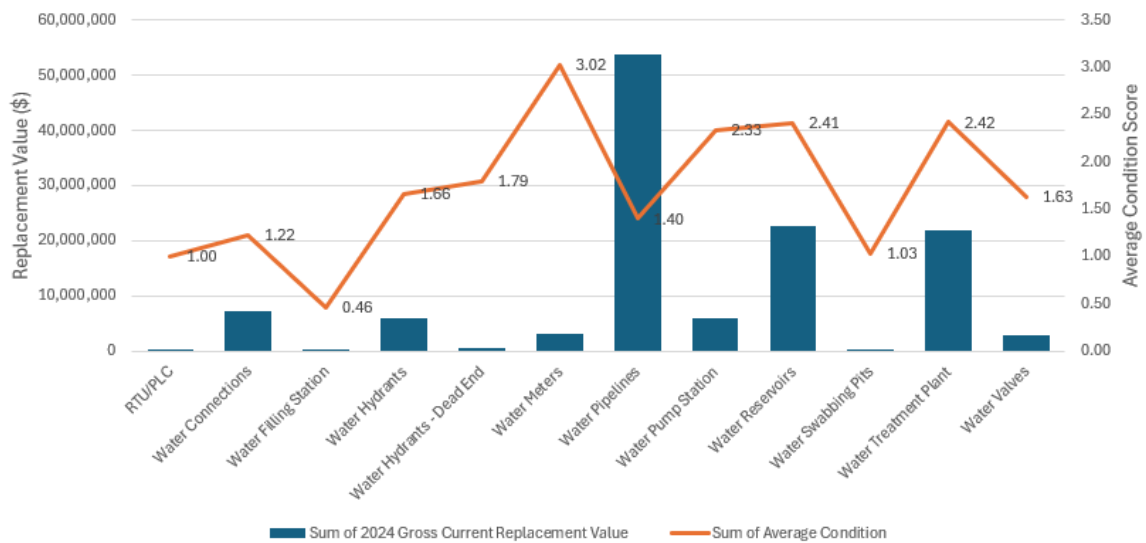
The condition framework for water assets is attached in **Appendix D**.

As can be seen from the age profiles, each of the asset groups comprise of a single high-cost peak, that represents the cost of replacement of assets at that point in time. During the additional analysis, all the points showing peak cost could be initially spread across +/- 5 years to reduce the funding burden. As the asset conditions are updated over time the asset remaining lives should be adjusted to reflect the real state of the assets. As the peak in the pipelines profile represents a significant number of water mains, it should be initially spread over +/- 20 years, as in reality, the assets would likely require replacement over that timeframe and is likely to be normally distributed.

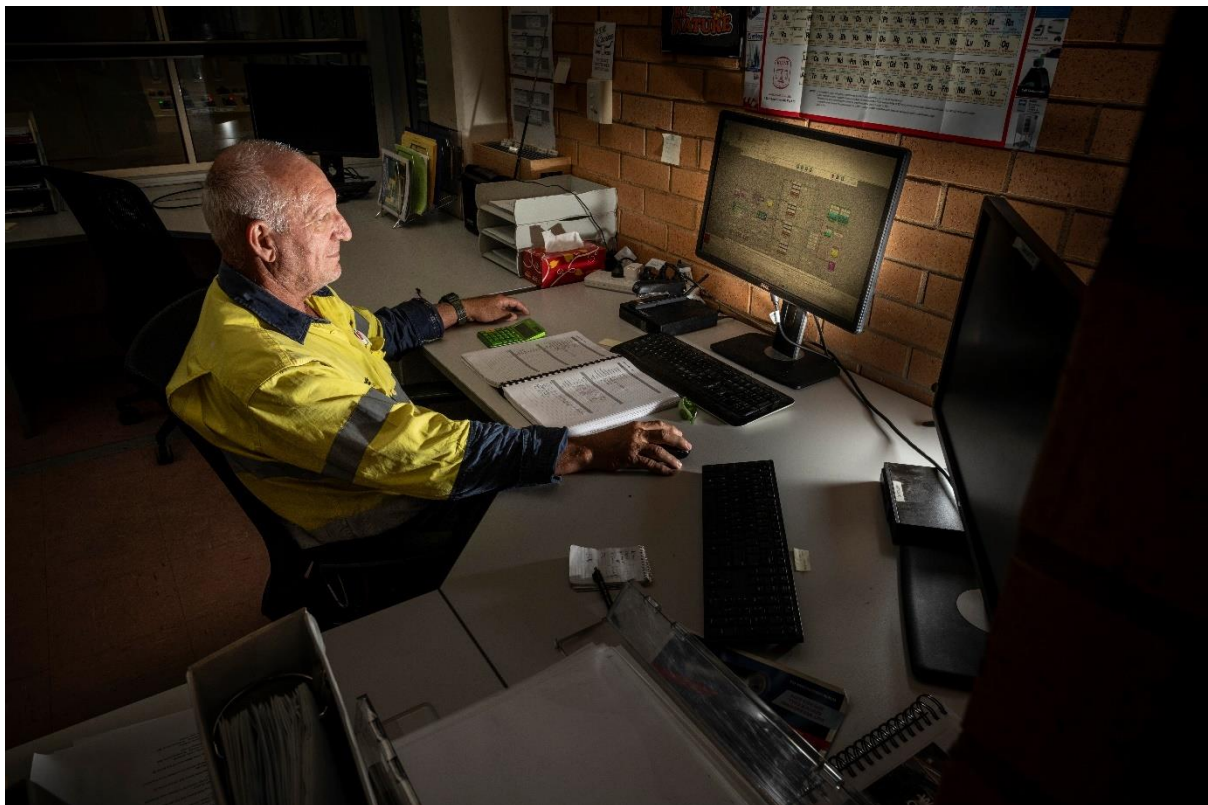
Figure 2-4 illustrates the replacement value of the asset types while simultaneously displaying the average condition of each asset type. As to be expected, the asset types with the largest value are the pipelines, reservoirs and the treatment plant.

Council continues to invest in information systems and evidence-based data including condition ratings, remaining useful life, depreciation patterns which improve the infrastructure and long-term financial planning functions, for the next ten years and new works scheduled to improve the water business.

The average condition of the assets within each asset type varies between 0.5 (Excellent) and 3.5 (Average).



**Figure 2-4: 2024 Total Replacement Value and Average Condition Score by Asset Type**



### 2.3.2 Customer Requests

Customer requests can be used as a measure of asset performance. Water infrastructure related customer requests received over the past four years are included in the table below:

**Table 2-2: Water Infrastructure Related Customer Requests**

| ASSET TYPES                                  | 2020/2021 | 2021/2022 | 2022/2023 | 2023/2024 | TOTAL | TRENDS |
|----------------------------------------------|-----------|-----------|-----------|-----------|-------|--------|
| Water Infrastructure Maintenance and Repairs | 426       | 196       | 702       | 669       | 1993  | ↗      |
| Water Pressure                               | 17        | 8         | 12        | 21        | 58    | ↗      |
| Water Quality                                | 26        | 3         | 11        | 14        | 54    | ↘      |
| Water Supply Issues                          | 19        | 12        | 21        | 20        | 72    | ↔      |
| TOTAL                                        | 488       | 219       | 746       | 724       | 2177  | ↗      |

Trend Legend:

|   |                                          |   |                                           |
|---|------------------------------------------|---|-------------------------------------------|
| ↑ | Consistent increase in customer requests | ↔ | No real change in customer request levels |
| ↘ | Customer requests trending lower         | ↗ | Customer requests trending higher         |

It can be observed from the above table that requests are increasing for water asset areas. Whilst the service levels have remained unchanged Council predicts community focus has been redirected to other priorities as a result of the natural disasters that have occurred in the past 3-5 years being drought, fires, flooding and COVID-19. Council has improved water quality and improve issues surrounding pressure, all other areas have a trend of increased requests from the community.



## 3. Strategic Environment

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It is essential that the AM plan and associated practices align with the strategic direction identified by Council.

### 3.1 Corporate Vision

The following Vision and Mission are the basis of Council's Strategic Direction and reflect the input received from the community as part of the Community Strategic Plan processes.

Council's vision is:

***A growing, sustainable community, with a relaxed lifestyle, beautiful environment and thriving economy***

Council's mission is:

***To protect and improve the quality of life for our community, and for future generations.***

Richmond Valley 2040 Community Strategic Plan continues the directions established in the 2023 document supporting four key themes:

- strengthening our role within the region,
- creating great places to live,
- protecting our unique environment and
- delivering for our community.

This plan guides Council's strategic direction for the 2025-29 delivery program.

### **Asset Management Principles**

The following guiding principles (which are regarded as essential elements for good local government) are to be utilised as part of the everyday decision-making processes, actions and management of RVC assets:

- good governance (delivers good performance, minimises risks, ensures transparency and accountability, and promotes efficiency and effectiveness);
- representative democracy and community support. (Council's direction/activities broadly reflect its community demographics and to have community support);
- sound policy (a strong and sustainable LGA requires clear direction via a policy and planning framework);
- sufficient resources (a vibrant LGA needs human and financial resources to implement its decisions and to fulfil statutory obligations);
- meaningful planning (planning is a process to translate community needs and aspirations into Council services. To be meaningful Plans must result in actions and outcomes for the community);
- connectedness (a strong local government environment requires a high level of connectivity across all the community); and
- strong leadership (effective local government and outcomes can only be achieved via strong community leadership through Councillors and staff).

## Values

Council's Community Strategic Plan developed through various community engagement processes, identified Council's values which are 'Passion' and 'Integrity'.

### Integrity

- Acting honestly and fairly
- Being inclusive and working together
- Delivering on our commitments
- Respecting our responsibilities

### Passion

- Being a faithful steward of community resources
- Caring for our community
- Making a positive difference
- Being courageous and resilient
- Always doing the best we can
- Embracing new ideas and change.

## 3.2 Strategic and Corporate Goals related to Water Infrastructure

Council is focused on improving the Water Infrastructure networks. Core objectives related water Infrastructure of the 'Richmond Valley 2040' are:

*Objective #1 – Establish the Richmond Valley as a regional growth centre*

*Objective #5 – Provide infrastructure that meets community needs*

*Objective #7 –Reduce impact on the environment*

Richmond Valleys "Water for Life 2050" strategy outlines a plan for long-term water security with focus on water supply security, improve water resource management, reduce environmental impacts, and enhance the sustainability of water services in the Richmond Valley. Forward planning is being undertaken for Stage 1 of the water security project for Casino investing more than \$10m in improving the water treatment plant. Council is committed to partner with Rous Water to deliver the Regional Demand Management Strategy.

The Objectives of relevance to this AM plan include:

- Provide a defined LoS and monitoring performance;
- Managing the impact of growth through demand management and infrastructure investment;
- Taking a lifecycle approach to developing cost-effective management strategies for the long-term that meet a defined LoS;
- Identifying, assessing and appropriately controlling risks;
- Having a LTFP which identifies required, affordable expenditure and how it will be financed;
- Ensure adequate maintenance and renewal of water infrastructure and assets; and
- Advocate for additional water funding from all levels of government.

Progress against these objectives will be measured by community satisfaction with water maintenance and repairs.

### 3.2.1 Annual Report

Council has a statutory obligation and community interest to present annual reports that communicate performance against targets, outcomes, efficiency and cost effectiveness over time. This includes presenting details on how Council has managed community infrastructure and delivered services to the community. Details of Council's business area and services are provided in Table 3-1.

**Table 3-1: Council Plan Priorities and Actions**

| Business Area                   | Description of Services Provided                                                                                                                   |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Projects and Performance</b> | Specification, tendering and delivery of major capital works projects.                                                                             |
| <b>Infrastructure Services</b>  | Survey, design and specification for capital and renewal projects.                                                                                 |
| <b>Asset Planning</b>           | Asset information compilation, database management, mapping, works prioritisation and programming, financial reporting, valuations. Grant funding. |
| <b>Asset Operations</b>         | Operations of the water network and developing the operations budget.                                                                              |
| <b>Asset Maintenance</b>        | Maintenance planning, resource management, establishing the maintenance budget and defect inspections.                                             |
| <b>Asset Renewal</b>            | Developing the renewals works program.                                                                                                             |
| <b>Asset Disposal</b>           | Proposing the disposal of assets and decommissioning them.                                                                                         |

Key initiatives associated with the water network include:

- Further develop an integrated approach to asset management for water infrastructure that is consistent with National Asset Management frameworks;
- Deliver the Richmond Valley Delivery Program;
- Deliver the 2025-2026 Operational Plan; and
- Delivery the actions identified in the Richmond Valleys "Water for Life 2050" strategy

A service performance outcome indicator will be the community satisfaction rating out of 100 with how Council has performed on the condition and services of local water.

The Annual Report further identifies achievements for the water infrastructure attributed to each department with a capital works program.

### 3.2.2 Asset Management Policy, 2025

This policy acknowledges that management of the community's several hundred million dollars' worth of infrastructure assets is a core function of the Council and that sound asset management is essential to enable the Council to meet its responsibilities for:

- Delivering high quality services to current and future communities;
- Providing and maintaining community infrastructure;
- Ensuring financial sustainability; and
- Encouraging and supporting the economic and social development of the LGA.

Key objectives of the policy include.

- Provide an appropriate LoS to meet the community needs and expectations in a financially sustainable manner.
- Undertaking a whole of life approach to asset management, recognising assets must be planned, provided, maintained and renewed so that they continue to meet the service delivery needs of the community within the context of providing best value to the community.
- Ensuring Council has the information knowledge and understanding the long-term risk of managing public infrastructure.
- Ensuring Council meeting statutory requirements of asset management linking to the IP&R planning framework.
- The implementation and maintenance of an Asset Management system which supports all Asset Management Practices. It is a combination of processes, data, and software applied to provide the essential outputs for effective asset management such as reduced risk and optimum infrastructure investment. The Asset Management System links to other information systems within Council such as the property system, geographic information system (GIS), finance system and document management system, integrating asset management with all of Council's operations.

### 3.2.3 Water for life 2050 <sup>9</sup>

Richmond Valley Water for Life 2050 Strategy brings together projects that have commenced in the 2020-24 Council term which lay the foundations for future water security.

Despite the challenges of the 2022 floods and the ongoing recovery program, Council has continued to work towards the community's long-term vision for growth and to carefully plan for the essential infrastructure needed for the future.

The water strategy builds on these foundations to set a pathway for the next 25 years, with plans to invest more than \$200m by 2050. This is Council's legacy to the Richmond Valley community, and trust that it will be carried forward for the benefit of future generations.



<sup>9</sup> Source: Richmond Valley Water Management Strategy 2024

### 3.3 Key Stakeholders

This plan recognises the following key stakeholders as outlined in Table 3-2.

**Table 3-2: Stakeholders**

| External                                             | Internal              |
|------------------------------------------------------|-----------------------|
| The community, residents, water users and ratepayers | Councillors           |
| Emergency services                                   | Executives            |
| Government agencies (inc Rous County Council)        | Managers              |
| Developers                                           | Personnel             |
| Contractors/suppliers                                | Field Workers         |
| Utility providers                                    | Assets Department     |
| Insurers                                             | Finance Department    |
| Special interest groups                              | Operations Department |
| Tourists and visitors                                | Customer Service Area |

This plan will demonstrate to the various stakeholders that Council is managing its water assets responsibility. The above list does not exclude the role and interest of other stakeholders.



## 4. Levels of Service

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Levels of service (LoS) provide the basis for the lifecycle management strategies and works program identified within this AM plan. They support Richmond Valley's strategic goals and are based on customer expectations and statutory requirements.

The LoS will be refined over a period to align with the expectation of customers, which requires a clear understanding of customer needs, expectations, preferences and their willingness to pay for any increase in the levels of service.

One of the objectives of this AM plan is to align the LoS provided by the asset with the expectations of customers. This requires a clear understanding of customers' needs and preferences. The levels of service defined in this section are used:

- To inform customers of the characteristics of; and LoS to be offered;
- As a focus for the AM strategy developed to deliver the required LoS;
- As a measure of the effectiveness of this AM plan;
- To identify the costs and benefits of the services offered; and
- To enable customers to assess suitability, affordability and equity of the services offered.

The adopted LoS for water assets are based on staff knowledge and:

- **Customer Research and Expectations:** Information gathered from customers on expected quality and cost of services.
- **Strategic and Corporate Goals:** Provides guidelines for the scope of current and future services offered, the manner of service delivery and define specific LoS which Council wishes to achieve. (Refer to Section 3 - Strategic Environment).
- **Statutory Requirements:** Environmental standards, Regulations, Acts and Council Policies that impact on the way assets are managed (e.g., water regulations, water safety legislation). These requirements set the minimum LoS that must be provided.

Council is required to submit annual regulatory service level reports to NSW Department of Planning and Environment under an assurance framework which is benchmarked against water authorities State-Wide.

Council has identified minimum standard performance targets and service levels for response time and priority allocations.

Setting key performance indicators allows Council to monitor progress and measure performance with future recommendations to implement community and technical based service levels in line with customers' expectations part of service delivery.

## 4.1 Customer Research and Expectations

Understanding customer expectations is a key input into LoS and prioritising works across multiple asset types. This understanding will be balanced against legislative requirements, ability of obtaining funding through grant processes as well as the customers' ability/willingness to pay.

### 4.1.1 Customer Research

Customer research is carried out through several formal and informal processes within Council. Many opportunities exist for the community to provide valuable feedback on current asset LOS. Either by face-to-face contact or by telephone, letters, or e-mail etc. Customer survey results are represented in Table 4-1

There are several Council programs in place where the community is invited to submit their concerns about specific issues or to be involved in the development of the LGA.

**Table 4-1: Community Survey Results**

| PERFORMANCE MEASURES                              | Customer Survey Satisfaction Results | Customer Survey Satisfaction Results | Customer Survey Satisfaction Results |
|---------------------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
|                                                   | 2016                                 | 2021                                 | 2025                                 |
| Overall satisfaction with performance             | 94%                                  | 86%                                  | 74%                                  |
| Maintaining local water infrastructure and assets | -                                    | 82%                                  | -                                    |
| Economic development and local employment         | 3.37                                 | 3.40                                 | 3.05                                 |
| Financial management                              | 3.41                                 | 3.28                                 | 2.95                                 |
| Long term town planning                           | 3.26                                 | 3.24                                 | 2.91                                 |
| Community consultation                            | 3.17                                 | 3.31                                 | 3.07                                 |

Satisfaction Legend:

|               |                 |           |          |
|---------------|-----------------|-----------|----------|
| 1.99 or lower | Very Low        | 2.00-2.49 | Low      |
| 2.50-2.99     | Moderately Low  | 3.00-3.59 | Moderate |
| 3.60-3.89     | Moderately High | 3.90-4.19 | High     |
| 4.20-4.49     | Very High       | 4.50 +    | Extreme  |

In 2025 Council engaged Micromex to conduct the Richmond Valley Council Community Research. The random survey of 401 residents surveyed revealed their attitudes and perceptions towards current and future services and facilities provided by Council. Key objectives of the research included:

- To assess and establish the community's priorities and satisfaction in relation to Council activities, services, and facilities.
- To identify the community's overall level of satisfaction with Council's performance.
- To identify the community's level of satisfaction with regards to communication and engagement with Council.
- Understand the level of support for proposed signature projects.

At an overall level, residents expressed a 37% gap between the importance of water supply (87%) against the request for more investment (50%). The importance reflects the areas of focus where residents would like Council to focus and investment in Eater security and the network.

#### 4.1.2 Customer Expectations

The specific community LoS expectations are captured in the CSP and further demonstrated in Council's Recovery Plan. The typical customer expectation considered in determining the LoS are explored within Table 4-2.

**Table 4-2: Typical Community Expectations for Water**

| Community LoS                 | Community Expectation                                                                                                  |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------|
| <b>Safety</b>                 | Water supplied meets service standards suitable and safe for human consumption.                                        |
| <b>Quality</b>                | Maintenance is undertaken regularly to maintain good quality drinking water conditions.                                |
| <b>Quantity</b>               | Planning is being undertaken to ensure quantity and reliability of water supply is available both short and long term. |
| <b>Reliability</b>            | Reliability standards are delivered including pressure, minimal loss of supply or reduced restrictions.                |
| <b>Service Cost</b>           | Lifecycle costs are managed to deliver services within budget constraints.                                             |
| <b>Legislative Compliance</b> | Compliance with all relevant applicable legislation.                                                                   |

## 4.2 State-wide Indicators

NSW Department of Planning and Environment uses a regulatory and assurance framework to performance monitor local water utilities within regional NSW under the National Water Initiative. Performance reports are provided on the basis of social, environmental and economic performance indicators. The regulatory and assurance framework applies to ensure safe, secure, efficient, sustainable and affordable water supplies in regional NSW.

**Table 4-3: Level of Service – State-Wide Complaints**

| Customer Responsiveness Indicators (per 1000 properties) | Performance Indicator                 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 |
|----------------------------------------------------------|---------------------------------------|---------|---------|---------|---------|---------|
| Water Quality Complaints                                 | No. of complaints per 1000 properties | 3.19    | 2.45    | 2.33    | 3.61    | 2.93    |

**Table 4-4: Environmental State-wide Indicators<sup>10</sup>**

| Performance Indicator                | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | Trend | Council State-wide ranking |
|--------------------------------------|---------|---------|---------|---------|---------|-------|----------------------------|
| Headworks transfer mains length (km) | 1.97    | 1.96    | 1.96    | 1.97    | 2       | ↔     | 20                         |

<sup>10</sup> Source: NSW Department of Planning and Environment, <<https://www.industry.nsw.gov.au/water/water-utilities/lwu-performance-monitoring-data>>

| Performance Indicator                            | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | Trend | Council State-wide ranking |
|--------------------------------------------------|---------|---------|---------|---------|---------|-------|----------------------------|
| Infrastructure leakage index (ILI)               | -       | -       | -       | -       | -       |       | Not ranked                 |
| No. of main breaks per 100 km                    | 43.17   | 39.08   | 15.51   | 3.48    | 14.32   | ↑     | 11                         |
| No. of main breaks total                         | 86      | 78      | 31      | 7       | 29      | ↑     | 16                         |
| No. of pump stations                             | 7       | 7       | 7       | 7       | 7       | ↔     | 45                         |
| No. of pump stations per 100 km                  | 3.72    | 3.72    | 3.72    | 3.72    | 3.72    | ↔     | 36                         |
| Real water losses (kL/km/day)                    | 3.18    | 1.78    | -       | 3.39    | 2.7     | ↘     | 25                         |
| Real water losses (litres/connection/day)        | -       | -       | -       | -       | -       | -     | Not ranked                 |
| Rehabilitation of mains (% of total length)      | 1%      | 0.39%   | 1%      | 0%      | 1%      | ↔     | Not ranked                 |
| Rehabilitation of service connections (%)        | 1%      | 0.71%   | 1%      | 1%      | 1%      | ↔     | 15                         |
| Total Length – trunk and reticulation mains (km) | 199.2   | 199.6   | 199.9   | 201.4   | 202.5   | ↑     | 45                         |
| No. of non-residential assessments               | 804     | 797     | 796     | 798     | 810     | ↔     | Not ranked                 |
| No. of residential assessments                   | 6,774   | 6,765   | 6,772   | 6,816   | 6,835   | ↑     | Not ranked                 |
| Total no. of assessments                         | 7,578   | 7,562   | 7,152   | 7,614   | 7,645   | ↑     | Not ranked                 |

**Note:** Some of the state-wide indicators are not included as there is no annual reporting.

Trend Legend:

|   |                                          |   |                                                 |
|---|------------------------------------------|---|-------------------------------------------------|
| ↑ | Consistent improvement                   | ↔ | No real change in community satisfaction levels |
| ↘ | Initial upward trend then trending lower | ↗ | Initial downward trend then trending higher     |

Indicators such as head works transfer mains lengths and pump station numbers are used to benchmark and compare against other local water utilities. Improvements in indicators such as water loss is due to repairing concealed leaks and overall network maintenance, which has contributed to an improvement in these key indicators.

### 4.3 Minimum Standard Performance Targets

The Strategic Business Plan (2010) identified the minimum standard performance targets which have been adopted as a baseline indicator for service levels.

**Table 4-5: Water Supply Minimum Operational Performance Indicators**

| Performance Indicator                                                                                                                    | Target LoS                                 |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| <b>System Performance</b>                                                                                                                |                                            |
| Minimum pressure at water meter (m head)                                                                                                 | 12 (except for existing high-level zones)  |
| Average annual demand (kL/res property)                                                                                                  | 200                                        |
| Domestic quantity available per peak day (L / tenement / day)                                                                            | 2,500                                      |
| <b>Consumption Restrictions in Droughts</b>                                                                                              |                                            |
| Maximum frequency of restrictions (subject to supply volume, blue green algae, and Rous Water Guidelines) (number of times per 10 years) | 5                                          |
| Maximum duration of restrictions (months / 10 year period)                                                                               | 12 months                                  |
| Ability to supply demand through the worst drought on record (% of water demand)                                                         | 80 (i.e., a 20% reduction in consumption). |
| <b>Interruptions to Supply (per year per supply)</b>                                                                                     |                                            |
| <b>Planned (95% of time)</b>                                                                                                             |                                            |
| Notice given to domestic customers (between 9am and 4pm) (days)                                                                          | 1                                          |
| Notice given to industrial and commercial customers (times to be negotiated) (days)                                                      | 7                                          |
| <b>Unplanned</b>                                                                                                                         |                                            |
| Maximum duration (hours)                                                                                                                 | 8                                          |
| Maximum interruptions to supply (per 1,000 properties p.a)                                                                               | 70                                         |
| Main breaks (per 100 km main p.a.)                                                                                                       | 10                                         |
| <b>Service Provided</b>                                                                                                                  |                                            |
| Time to provide an individual, residential connection to water supply in serviced area (working days)                                    | 10                                         |
| <b>Water Quality</b>                                                                                                                     |                                            |
| Potable Water Quality                                                                                                                    | ADWG 2011                                  |

## 4.4 Response Times Standards and Priorities

Council has identified response times by prioritised event as follows. The response time is identified as the time to have staff onsite or to investigate a problem or answer an enquiry.

**Table 4-6: Response Times by Priority**

| Response Time (time to have staff onsite or to investigate a problem or answer an enquiry)                                                                                                                                                                                                                                                                                                       |                                         |                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------|
| <i>Priority, Issues and Effects</i>                                                                                                                                                                                                                                                                                                                                                              | <i>Customer given informed feedback</i> | <i>Repairs to commence</i>  |
| <i>Priority 1: A complete failure to maintain continuity of supply to large number of customers or critical user at critical time</i>                                                                                                                                                                                                                                                            |                                         |                             |
| Possible Issues: Broken water main, broken service, jammed hydrant, no water, dirty water, leak creating a major issue.<br>Typical Effects: Personal injury or risk to public health, loss of supply, major property damage, failure to maintain quality or quantity of service, large volume of water wasted, significant unplanned depletion of service reservoir, major environmental impact. | Within 1 hour                           | Within 2 hours              |
| <i>Priority 2: Partial failure to maintain continuity of supply to small number of customers or critical user at a non-critical time</i>                                                                                                                                                                                                                                                         |                                         |                             |
| Possible Issues: Missing hydrant/valve lid, poor pressure, leaking tapping, ferrule, stop tap, water main/service, valve or hydrant, minor leak on footpath or roadway, partial failure of connections, water hammer, faulty or damaged meter.<br>Typical Effects: Minor property damage, minor environmental impact.                                                                            | Within 1 working day                    | Within 24 hours             |
| <i>Priority 3: Known fault, non-urgent.</i>                                                                                                                                                                                                                                                                                                                                                      |                                         |                             |
| Possible Issues: Service disconnection, faulty hydrant/valve, missing hydrant.<br>Typical Effects: Need for preventative maintenance, minor customer impact.                                                                                                                                                                                                                                     | Within 3 working days                   | Programmed Maintenance List |

## 4.5 Performance Management

Council will require to improve system, process and technology for ease of measuring and monitoring performance and LoS deliverables. This includes improved links to Council's CRM which is operating as the maintenance system and/or upgrading systems for recording regular maintenance activities. Improved KPI and dashboard reporting will aid monitoring performance decision making in managing Council's water network infrastructure.

## 5. Demand

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Council's fundamental role is to provide services to the community and its water assets are a means to support this service delivery. Consequently, future demand for water and associated assets are tied to the demand for Council's services and this is a more complex consideration than population growth. Issues such as changing demands for services, changing mixes in the balance between public and private service provisions including changing community expectations of service levels.

Issues such as changing demands for services, changing mixes in the balance between public and private service provisions and changing community expectations of service levels, all affect the need for water assets. Predicted population growth for the Casino area is expected to be the biggest driver of demand for the reticulated water service. Other drivers of future demand include changes in household lot size, occupancy rates, dwelling mix and the uptake of water efficient devices.

### 5.1 Demand Drivers

Future demand is based on the growth in household numbers with demand from the large industrial businesses remaining constant. Previous demand management forecasting for Casino anticipated consumption to exceed the Jabour Weir extraction limit of 3,427 ML/year by 2035. Specific projects that will impact on Council's water infrastructure in the future include:

- Secure funding and commence replacement of the carbon dosing system at Casino Raw Water Pump Station.
- Commission design for Casino WTP upgrade.
- Upgrade chlorine dosing systems at Casino WTP.
- Finalise Casino water security options assessment in conjunction with Regional Jobs Precinct Masterplan and Casino Place Plan.
- Work with Rous Water and the Northern Rivers Resilience Project to finalise water security options for the Mid-Richmond.
- Implement targets from the Richmond Valley 'Water is life' Water Management Strategy, including water security options.
- Complete automation upgrade at Casino WTP and Raw Water Pump Station.
- Partner with Rous Water to deliver the regional demand management strategy.



## 5.2 Demand Forecast

In November 2024 the NSW Department of Planning, Housing & Infrastructure (DPHI) provided an update to the population projections which incorporates updated data from ABS (including the 2021 Census). The revised projections model a steady growth increase for the Richmond Valley LGA with an average population growth of 0.21% per annum between 2021 & 2041.

The Casino Place Plan was prepared in conjunction with the Richmond Valley Growth Management Strategy by consultancy firm GYDE in 2023. GYDE estimates high growth for the Casino SA2 area due to unmet housing demand and expected jobs growth resulting from the Richmond Valley Regional Job Precinct project. However, growth expected in the Evans Head SA2 to slow due to impacts from the 2022 floods.

The Mid Richmond Place Plans were produced by consultancy firm Place Design Group, utilised the services of Broad Property Research & Advisory to review demographics, in 2024. These Plans focused upon population projections for the Mid Richmond's urban communities of Coraki, Woodburn, Broadwater, Rileys Hill and Evans Head. It concluded that Evans Head SA2 estimates are understated, while Casino and the greater LGA's growth had been overstated (but it didn't consider influencing factors such as the RJP on these external areas). As such the truth lies somewhere between these studies. Table 5-1 has been compiled by Council by "cherry picking" the various "planning assumptions" from these studies to derive a high growth scenario. By assuming these increases Council will be better placed for the planning and delivery of infrastructure, including Council's water network, to meet the demands of increase housing supply.



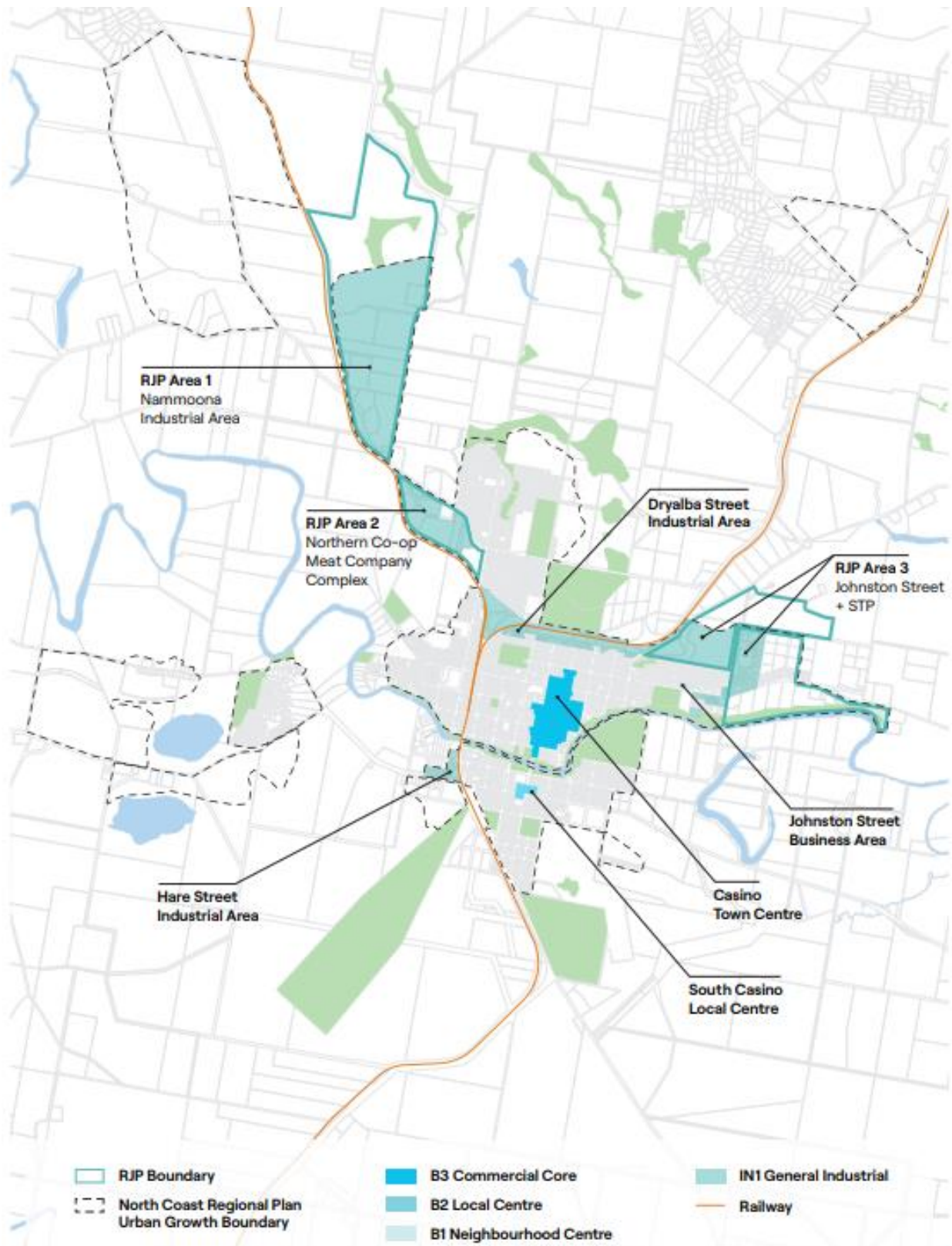
**Figure 5-1: Population Statistical Areas**

**Table 5-1: Population Change 2021– 2031<sup>11</sup>**

| Area                   | Population 2021 | Population 2031 | Population 2041 | % Change     |
|------------------------|-----------------|-----------------|-----------------|--------------|
| Casino (SA2)           | 12,595          | 14,400          | 16,700          | 1.42%        |
| Evans Head (SA2)       | 5,560           | 5,750           | 5,900           | 0.3%         |
| Casino Surrounds (SA2) | 5,395           | 5,250           | 5,050           | -0.33%       |
| <b>TOTAL</b>           | <b>23,550</b>   | <b>25,400</b>   | <b>27,650</b>   | <b>0.81%</b> |

The Regional Job Precinct (RJP) is the NSW Government initiative identifying Casino for a special activation precinct by fast tracking planning to drive growth, investment and development opportunities. The target is to unlock new industrial lands and create jobs within the region. The RJP areas in alignment with the Growth Management Strategy are shown in Figure 5-2.

<sup>11</sup> Source: Growth Management Strategy, GYDE Consulting, November 2022.



**Figure 5-2: Regional Jobs Precinct and Draft Growth Strategy Areas.**

The Casino Place Plan provides planning towards supporting growth for population, employment and housing. It is recognised that an estimated \$15.97 million is required in new water infrastructure to service the residential investigation areas.

The development areas at the time of this plan are identified in Table 5-2: Recent Developments.

**Table 5-2: Recent Developments**

| Development Area                       | Year Start | Year Finish | Dwellings / Lots | Status type  |
|----------------------------------------|------------|-------------|------------------|--------------|
| Currajong Street, Evans Head           | 2011       | 2018        | 20 lots          | Constructed  |
| Kimberley Place, Casino                | 2021       | 2021        | 4 lots           | Constructed  |
| Canning Drive, Casino                  | 2022       | 2022        | 28 lots          | Constructed  |
| George Street, Broadwater (Stage 1)    | 2019       | 2022        | 27 lots          | Constructed  |
| Industrial Land, Reynolds Road, Casino | 2022       | 2022        | 13 lots          | Construction |

Development that may result in the need for new or upgraded water related infrastructure are listed in Table 5-3:

**Table 5-3: Status of Existing Developments**

| Development Area                             | Year Start | Dwellings / Lots | Status type                                                   |
|----------------------------------------------|------------|------------------|---------------------------------------------------------------|
| Iron Gates, Evans Head                       |            | 178 lots,        | LEC determined conditional consent.                           |
| Tyme - Currajong Street, Evans Head          | 2017       | 199              | Complete                                                      |
| George Street, Broadwater (Stage 2)          | 2019       | 42 lots          | Stage 1 Constructed,<br>Stage 2 Approved / Under construction |
| Rail Freight Terminal, Reynolds Road, Casino | 2021       |                  | Approved. Partially commenced                                 |
| Stapleton Avenue, Casino                     | 2021       | 1 lot, 8 Units   | Approved / Under Construction                                 |
| Lennox Street, Casino                        |            | 46 Lots          | Rezoned, Approved                                             |
| Colches Street (Ivar Lane) Casino            | 2022       | 6                | Complete                                                      |

**Table 5-4: Future Potential Development**

| Development Area                           | Dwellings / Lots | Status type                                     |
|--------------------------------------------|------------------|-------------------------------------------------|
| Hills Road, Rileys Hill                    | 35 lots          | Future potential                                |
| Casino Industrial Estate Extension         |                  | Future potential                                |
| Hotham Street / Light Street, Casino       |                  | Future potential                                |
| Forest Grove, Fairy Hill                   |                  | Future potential                                |
| Barling Street, Casino                     |                  | Future potential                                |
| Airport Land, Evans Head                   | 50 lots          | Future potential / Strategic Redevelopment Area |
| Manifold Road, Casino, (Rural Residential) | 20 lots          | Scoping phase of rezoning                       |

| Development Area | Dwellings / Lots | Status type               |
|------------------|------------------|---------------------------|
| Fairy Hill       | 1644 lots        | Scoping phase of rezoning |

### 5.3 Demand Impact on Assets

Demand will be placed on existing water infrastructure to cope with the increasing water flow generated from the land developments. The consequence will be minimal in the short term but will result in increased wear and tear and deterioration of supporting water assets such as the water treatment plant (loading) and pumps, motors, and chemical dosing assets due to increased operation and consumption.

The water system capacity for each major water facility is identified in Table 5-.

**Table 5-5: Water System Capacity<sup>12</sup>**

| System Facility                        | Capacity                        | Capacity (ET <sup>13</sup> ) |
|----------------------------------------|---------------------------------|------------------------------|
| Jabour Weir & Raw Water Pump Station   | Secure Yield = 2,500 ML/a       | 11,600                       |
| Casino WTP                             | Capacity = 23 ML/d              | 8,600                        |
| Casino Transfer System                 | 6,254 total assessments in 2039 | 8,636                        |
| Evans Head Transfer System             | 3,113 total assessments in 2039 | 2,954                        |
| Woodburn Transfer System               | 529 total assessments in 2039   | 508                          |
| Broadwater/Rileys Hill Transfer System | 405 total assessments in 2039   | 505                          |
| Coraki Transfer System                 | 675 total assessments in 2039   | 642                          |

### 5.4 Impact of Trends on Infrastructure

#### 5.4.1 New Infrastructure

Based on the development applications identified in Table 5-3, the impacts on new water infrastructure such as pump stations, reservoirs and treatment plants can be estimated for demands until 2037. The new infrastructure in the long term based on growth may require:

- Additional water mains as the network grows in the outer fringes.
- Potential for more reservoirs for additional storage.
- New infrastructure at the treatment plant as the plant is upgraded.

#### 5.4.2 Existing Water Infrastructure

Council water strategy will assist in the planning of water upgrades relevant to changing land use conditions, such as industrial complexes and subdivision developments. In addition to water mains, the Casino Water Treatment Plant may require upgrading in the long term based on additional consumption.

<sup>12</sup> Source: RVC Development Servicing Plan, Water Supply Services, September 2010

<sup>13</sup> ET – Equivalent Tenements

#### 5.4.3 Growth Management Strategy, November 2022

The Growth Management Strategy provides guidance to shape the community as an emerging strategic centre within the NSW Northern Rivers. This includes support for both residential and industrial land development ensuring sustainable growth within the Richmond Valley area. The strategy provides clear direction for the location and priorities to manage growth over the next 10-20 years. The plan identifies the need for a coordinated approach for delivery of water supply infrastructure.

#### 5.4.4 Richmond Valley Regional Jobs Precinct, 2022

The Regional Jobs Precinct (RJP) is designed to create an additional 600+ jobs within Casino and surrounds with a focus on high-value agriculture, food processing, manufacturing, distribution and renewable energy.

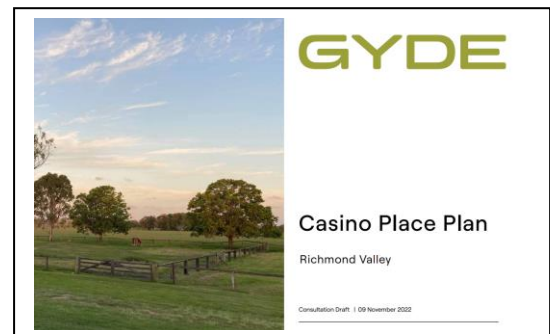
The improved planning pathway aims to attract investment and a diversity of business opportunities to grow the local workforce within Casino and surrounds. This is done through support in simplifying the planning process and reduced delays in development approvals.

#### 5.4.5 Casino Place Plan, 2022

The Casino Place Plan is a key planning support document to assist with the delivery and impacts of the Regional Jobs Precinct. Whilst the RJP focus on employment the place plan supports sustainable planning for housing, employment growth, and place outcomes.

The plan identifies additional water supply infrastructure costs of \$15.97 million required to implement the plan.

Current bulk water is not a current issue, but with climate changes, longer periods of drought, increased growth Council must ensure there is sufficient water to meet future demands.



#### 5.4.6 NOROC Regional Water Study

NOROC has resolved to develop a long-term (50 year) regional water supply strategy to evaluate potential benefits and future water supply security resulting from a regionally integrated system.

The current system serves approximately 80,000 residential properties and 7,000 non-residential properties with 23,000 ML p.a. demand/capacity. The current secure yield is 32,000 ML p.a. with a current supply surplus of 8,000 ML p.a. or 27%. The major sources are Rocky Creek Dam and Clarrie Hall Dam which provide 86% of supply to 90% of the region's population.

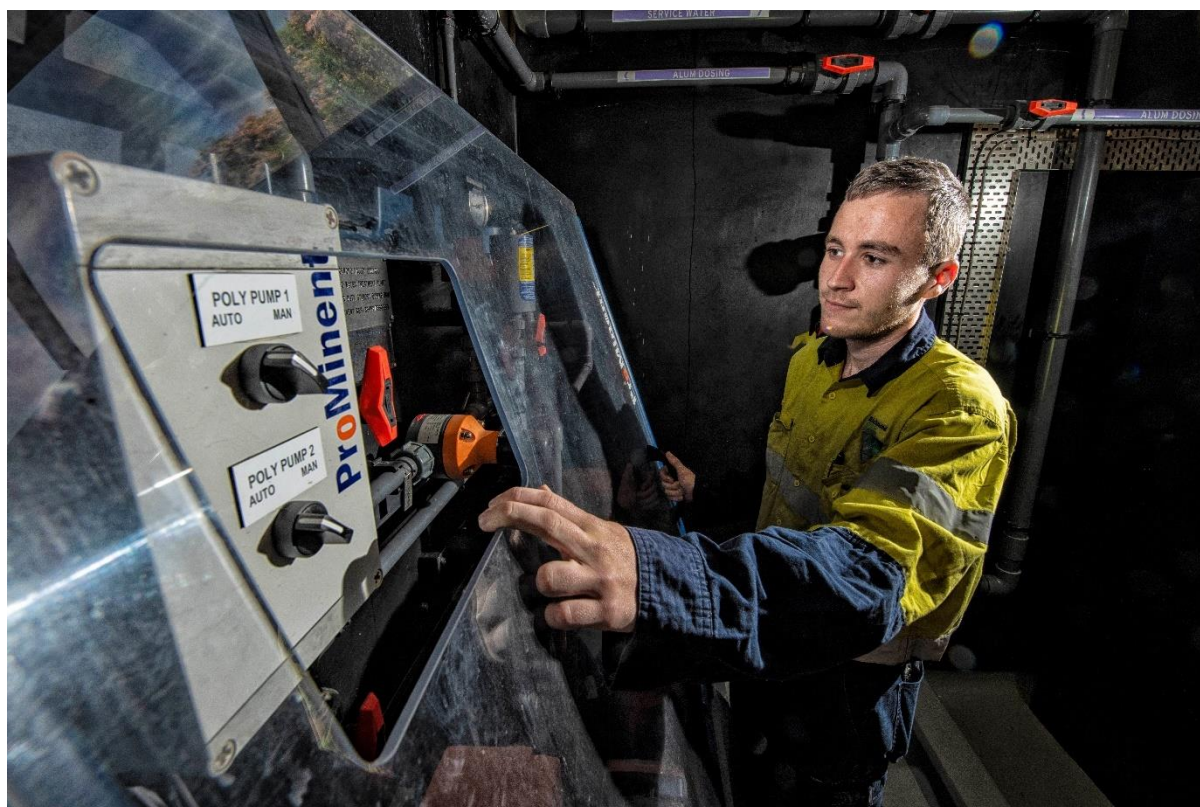
By 2060 the Northern Rivers water supplies are expected to serve approximately 146,000 residential properties and 14,000 non-residential connections. Regional demand will increase by 74% to 40,000 ML p.a., while the secure yield is expected to reduce by 26% to 26,000 ML p.a. The net effect is that the region will experience a water supply deficit of 14,000 ML p.a. or 43% of requirement.

Hydrosphere Consulting has preliminarily investigated options and recommended five scenarios to secure the long-term supply of water services in the Northern Rivers. Number one recommendation is for a large-scale centralised desalination plant that provides benefits in term of yield, climate independence and scalability. Potential risks include energy cost and NOROC has resolved to develop a long-term (50 year) regional water supply strategy to evaluate potential benefits and future water supply security resulting from a regionally integrated system.

Preliminary investigations have been completed with five options recommended to secure the long-term supply of water services in the Northern Rivers.

- |     |                                                                                                                                                                 |                          |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 1.  | Regional approach to water security via a large-scale centralised desalination plant.                                                                           | Attractiveness: High     |
| 2.. | Raise the Clarrie Hall Dam to increase yield by 8,250 ML/a; and to develop Dunoon Dam (50,000 ML/a) on the Richmond River with a predicted yield of 6,100 ML/a. | Attractiveness: Moderate |
| 3.  | Raising the capacity of Dunoon Dam to 85,000 ML/a..                                                                                                             | Attractiveness: Low      |
| 4.  | Usage of Toonumbar Dam with 20m of wall-raising; this provides benefits for Kyogle and Casino.                                                                  | Attractiveness: Low      |
| 5.  | Usage of Toonumbar Dam and raising the Clarrie Hall Dam although still susceptible to climate change.                                                           | Attractiveness: Low      |

The success of long-term regional planning will depend on a comprehensive water sharing plan developed by NSW Office of Water (NOW), a two-transfer system between major surface water sources a coordinated approach to scheme development. Individual LWU proceeding with large scale scheme developments to secure their own supplies would limit economies of scale achievable from a coordinated approach. Ultimately this will require sophisticated modelling to determine local cost benefit against regional cost benefit and ownership direction from NOW.



## 5.5 Drought Management

Richmond Valley is characterised by a sub-tropical climate with hot and humid summers and mild winters. The average rainfall for the area is 1,100 mm ranging from 1650mm along coastal areas and 1,025mm over the inland regions.

Council's Drought Management Plan ensures sound and robust mechanisms to manage town water supplies during periods of drought. These include a staged approach to water security with five levels of water restrictions for Casino triggered by river flows at Jabour Weir, and seven levels of restrictions for the Lower Richmond River area managed by Rous Water based on Rocky Creek dam storage levels.

This provides the Licensed Water Users, (LWU) and residents with a timely, efficient and affordable response to reduce water consumption during drought periods. The LWU actively cooperates with key stakeholders from Kyogle Council, Rous Water, and the Department of Natural Resources to ensure the provision of minimum water supplies for basic sanitation and health requirements.

*A key planning objective of demand management and drought management is to ensure that, in the long term, restrictions are not required more than 5% of the time and that the average frequency of restrictions is less than once every 10 years.*



The Richmond Valley was one of many NSW regions determined to be eligible for government drought support in 2018 and 2019. Due to the low rainfall in the catchment areas and falling river levels residents who receive a town water supply were subjected to level one water restrictions in January 2019. Level three water restrictions were imposed in February 2019.

Much-needed rainfall in April 2019 saw the easing of restrictions, however, the ongoing severe drought which impacted much of the Northern Rivers in November 2019 saw restrictions go back to level three and forced Council to postpone its scheduled unsealed road grading as water is a key ingredient in maintaining unsealed roads.

## 5.6 Flood Management

Flooding in Casino and the downstream river towns is a regular occurrence due to the confluence of three major river inflows: the Richmond River, Wilsons River and Bungawalbin Creek. Approximately 35% of the LGA is vulnerable to flooding, with events in the lower river towns having reoccurrence intervals of five to ten years.

The floodplain risk management plans identify immediate and longer-term mitigation measures, including:

- Flood warning and emergency planning;
- Raising community awareness;
- Development control planning;
- Voluntary house raising/purchase; and
- Infrastructure measures including levees, creek protection and drainage measures.

Richmond Valley was devastated by unprecedented flood levels in February 2022 resulting in damages to homes, businesses and major infrastructure damage. Council undertook repairs to complete repairs and improve

resilience measures for future protection of the Casino water supply systems within the Mid-Richmond villages. Council has proactively worked with Rous Water to help ensure the Mid-Richmond water supply is fully restored and operational.

## 5.7 Climate Change

The impacts of climate change on the region have been analysed by the NSW Government in conjunction with the CSIRO. The projected climate change events relevant to the water system are shown in Table 5-6.

**Table 5-6: Impacts of Climate Change**

| Climate Change                                                                     |
|------------------------------------------------------------------------------------|
| Annual precipitation decreases likely (changes +10% in rainfall intensity) by 2070 |
| Extreme heavy rainfall events may become more intense                              |
| Drier soil likely, even if precipitation increases                                 |
| Sea level rise of 900mm by 2100                                                    |

Climate change is already having major affects in Australia including droughts and extensive flooding causing more severe droughts and floods which is affecting water access for people around the world. In fact, Richmond Valley experienced three flood events in the 2021/22 year and is still repairing the damage from the first flood.

Climate change impacts lead to:

- Increasing global temperatures.
- More frequent, heavy and intense rains in the coming years.
- Excessive runoff resulting in fertilisers and contaminants polluting water supplies limiting water access for human consumption.
- The fertilisers wash into the waterways promoting rapid growth of algae and reducing the amount of oxygen levels in the water.
- People and animals can become sick or die from the toxins. The toxins may survive treatment process making drinking water unfit for consumption. This can result in industries being closed during blooms.
- As the oceans warm, coastal areas will be subject to flooding from glaciers melting.
- Desalination occurs naturally when the water warms leaching salt out of the water and contaminate aquifers.

The net effect on infrastructure is:

- Greater wear and tear on the assets from contamination, pollutants and salt intrusion.
- Infrastructure being stressed during operations following the events.
- Reduced asset life, increased operating costs e.g., chemicals, energy costs.
- Increased maintenance of assets e.g. flushing of mains, corrosion protection, extra pump servicing.

## 5.8 Demand Management Strategies

Council's operational and maintenance administration practices continue to advance with improved predictive knowledge from information systems and the adoption of industry best practices. Managing demand for services

is a combination of preventative and reactive maintenance practices that maintain asset serviceability and the timely renewal of assets that have reached end of life.

Opportunities identified for demand management include monitoring community expectations to determine LoS and analysing the cost of provision to determine the long-term affordability. There is currently a gap between community aspirations and their willingness to pay for these services. It is the responsibility of Council to articulate the evidence presented in asset and financial planning, therefore narrowing the expectations gap.

Another strategy would be to spend less on new assets and focus on “social” engineering. This would involve putting strategies in place that will result in reduced water consumption including:

- More frequent restrictions.
- Long term educational process to increase public awareness.
- Changing of shower heads, automatic on/off taps.
- Sprinkler systems to replace garden hoses.
- Use of timers on hoses.
- For industry, change fittings, and taps to reduce water usage and reduce rates.

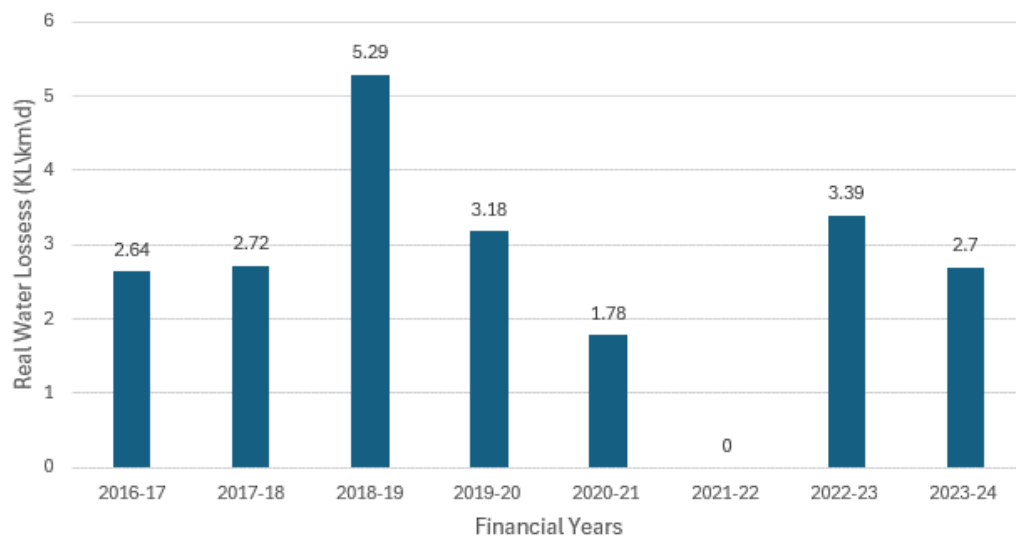
In addition, to the above, there is the technical solution of installation of recycled water schemes within towns and villages including water tanks on private residential and commercial properties.

It is important to note that acquiring additional assets from growth or by provision of additional infrastructure services, will ultimately commit council to fund ongoing operations and maintenance costs. These future costs should be identified and considered in developing forecasts of future operating and maintenance costs.



## 5.9 Real Water Losses

Real water loss refers to water losses from leaks and failures. The following chart is based on the information provided to the Department of Planning & Environment.



**Figure 5-3: Annual measure of Real Water Losses**

The average real water loss from 2016 through to 2024 is average of 3.1 KL/km/day. Council is undertaking significant works to reduce these losses as follows.

- Water main renewals.
- Connection replacements.



## 6. Risk Management

This section outlines how Council's Risk Management System will be applied when managing Council's assets. Council is committed to effectively managing risk within the organisation and the wider community and our Risk Management Policy is based on the expectation that all Council employees, contractors and others in the workplace will take responsibility for risk management.

Council's Risk Management Framework (RMF) has been developed in accordance with Australian Standard ISO31000: 2018 and forms the basis for decision making on Council's strategic planning, resource allocation and operations. The RMF has been designed to implement Council's Risk Management Policy and is supported by Risk Registers and Risk Management Procedures.

### 6.1 Key Risks and Risk Appetite

Council has identified infrastructure as one of the 10 Key Risk Areas that have potential impacts on our organisation. Ensuring that Council has the right asset base for our community and that assets are well managed and maintained is a top priority. Council uses four levels to describe its organisational risk appetite:

1. **Minimal** – Low tolerance for risk. Always prefer options that eliminate risk or have a low level of residual risk. Safety/security is the key consideration.
2. **Cautious** – Prefer safer options, smaller scale commitments and lower levels of residual risk. Will accept lower returns for greater security.
3. **Open** – Willing to consider a wide range of options if there is a demonstrated benefit for the risk involved.
4. **Adventurous** – Willing to consider all options and try new things. A preference for innovation and entrepreneurship.



Richmond Valley Council acknowledges its responsibility under the *Local Government Act 1993* to act as a faithful steward of community assets and infrastructure. Although Council is open to exploring new technologies, construction techniques and designs, it will also be diligent in ensuring that infrastructure is safe, fit for purpose, sustainable and affordable for our community.

### 6.2 Risk Management Methodology

Understanding which assets are critical and how they might fail helps focus lifecycle management strategies on what is most important. Critical water and water inventory assets are those that have major consequences or impacts if they fail and a high probability or likelihood of failing.

Asset consumptions provide an insight into the likelihood or probability of assets failing. To determine which assets are critical to the consequence of failure must be assessed and included in the analysis.

To determine risk of exposure of assets, the following simple calculation is applied:

$$\text{Risk Exposure} = \text{Probability of Failure (PoF)} \times \text{Consequence of Failure (CoF)}.$$

The basis of determining relative priority for each asset is the calculation of Business Risk Exposure (BRE) rating index. The BRE is a probability-consequence risk matrix determination using Council's Risk Matrix as shown in Table 6-1.

**Table 6-1: Risk Matrix**

| Probability of Failure |                  | Consequence of failure |               |             |             |             |
|------------------------|------------------|------------------------|---------------|-------------|-------------|-------------|
|                        | Likelihood       | C5 Major               | C4 Serious    | C3 Moderate | C2 Minor    | C1 Minimal  |
|                        | P5 Very Likely   | Extreme<br>25          | Extreme<br>20 | High<br>15  | High<br>10  | Medium<br>5 |
|                        | P4 Likely        | Extreme<br>20          | Extreme<br>16 | High<br>12  | Medium<br>9 | Low<br>4    |
|                        | P3 Possible      | High<br>15             | High<br>12    | Medium<br>9 | Medium<br>6 | Low<br>3    |
|                        | P2 Unlikely      | High<br>10             | Medium<br>8   | Medium<br>6 | Low<br>4    | Low<br>2    |
|                        | P1 Very unlikely | Medium<br>5            | Low<br>4      | Low<br>3    | Low<br>2    | Low<br>1    |

### 6.2.1 Probability of Failure

Probability of failure is derived using asset consumption and likelihood scale as outlined in Table 6-2. Assets that are reaching the end of the estimated life (high consumption) have a higher probability of failure compared to assets at the start of the estimated life (eg low consumption) have a low probability of failure.

**Table 6-2: Probability of Failure**

| % Life Consumed | Level | Probability / Likelihood | Descriptor                            | Probability of occurrence |
|-----------------|-------|--------------------------|---------------------------------------|---------------------------|
| 0-20%           | P1    | Very Unlikely            | May occur in rare circumstances       | More than 20 years        |
| 21-40%          | P2    | Unlikely                 | Could occur at some time              | Within 10-20 years        |
| 41-60%          | P3    | Possible                 | Might occur at some time              | Within 3-5 years          |
| 61-80%          | P4    | Likely                   | Will probably occur at some time      | Within 2 years            |
| 81-100%         | P5    | Very Likely              | It is expected to occur at most times | Within 1 year             |

### 6.2.2 Consequence of Failure

Consequence of failure has been established in draft format applied to water infrastructure assets. This process identifies the criticality factors to determine assets that carry the most consequences should a failure occur. A criticality assessment needs to be undertaken by Council to identify key infrastructure/assets which would classify as extreme criticality, such as:

- Assets within the raw water pump station or water treatment plant that would cause the facilities to fail through the pumping or treatment process.

- Reservoirs.
- Pipelines.
- Communications / SCADA.

Critical assets noted 'High' in time, become 'High' risk assets with the risk to be used for prioritising future capital works and maintenance programs to reduce the risk.

Consequence of failure ratings are applied to asset classes are defined in Table 6-3.

**Table 6-3: Consequence of Failure**

| Consequence     | Level | Criticality Factors                                                                      |                                         |                                                                                                        |                                                                 |
|-----------------|-------|------------------------------------------------------------------------------------------|-----------------------------------------|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
|                 |       | Operational & Technical                                                                  | Financial                               | Social                                                                                                 | Environmental                                                   |
| <b>Major</b>    | C5    | Essential and non-essential services unavailable.                                        | Financial loss > \$1M                   | Loss of life.<br>Extensive state/national media coverage.<br>Unacceptable exposure to litigation.      | Off-site environmental detrimental impacts.                     |
| <b>Serious</b>  | C4    | Wide disruption to essential services.<br>Some non-essential services unavailable.       | Financial loss between \$200K and \$1M  | Extensive (multiple injuries).<br>Some state/national media coverage.<br>Major exposure to litigation. | Off-site environmental with no detrimental effects.             |
| <b>Moderate</b> | C3    | Isolated disruption to essential services.<br>Wide disruption to non-essential services. | Financial loss between \$50k and \$200K | Medical treatment required.<br>Moderate exposure to litigation.<br>Regional media coverage.            | On-site environmental impact contained with outside assistance. |
| <b>Minor</b>    | C2    | Isolated disruption to non-essential services.                                           | Financial loss between \$10K and \$50K  | First aid treatment.<br>Acceptable exposure to litigation.<br>Local media coverage.                    | On site environmental impacts immediately contained.            |
| <b>Minimal</b>  | C1    | None or negligible service disruptions.                                                  | Financial Loss < \$10K                  | No injuries.<br>No litigation exposure.<br>No medical interest.                                        | None or negligible environmental impacts.                       |

## 6.3 Risk Management Lifecycle Process

### Planning

Council manages strategic risks by ensuring that its planning functions are fully integrated through the IP&R framework. The Community Strategic Plan (CSP) is Council's highest-level plan and outlines the community's priorities and strategic objectives for the next 10 years. The Delivery Program is the elected Council's commitment to the community to deliver those elements of the CSP that are within Council's responsibility. The Resourcing Strategy ensures that Council can complete its Delivery Program by addressing asset management, financial and human resourcing requirements.

Supporting the IP&R framework are a range of other strategic plans and processes that help to inform decision-making on asset planning and design and ensure risks are adequately addressed. These include:

- Richmond Valley Local Strategic Planning Statement and Development Service Plans;
- Richmond Valley Flood Study;
- Water/Sewer Management Strategy & Business Plan;
- Waste Management Strategy and Business Plan;
- Community Resilience and Preparedness Plan;
- Strategic Water Network Framework; and
- Community Land Plans of Management and supporting Master Plans.

### Design

Risks are managed in the asset design phase by:

- Undertaking community consultation to ensure assets are fit for purpose and reflect community expectations;
- Undertaking risk assessment processes such as Hazop or CHAIR to identify safety issues at the design phase; and
- Reference to appropriate Standards and regulatory requirements.

### Construction

Risks at the construction phase are addressed by:

- Council's procurement policy/procedures and the Local Government Tendering regulations;
- Developing and implementing project management plans, including risk management plans;
- Inspection and monitoring; and
- Council's Contractor Management procedures.

### Commissioning

Council develops and implements Asset Commissioning Plans for major infrastructure to manage risk during the hand-over and commissioning phase.

### Maintenance and monitoring

Risk management methodologies for asset maintenance and monitoring include:

- Critical Asset Register;
- Maintenance schedules;
- Condition assessment;
- Asset inspection programs;
- Risks and issues registers;
- CRM responses; and

- Council's annual budgeting process ensures adequate resources are available for maintenance and monitoring requirements.

### **Upgrade/refurbishment**

Council relies on its strategic planning framework, Critical Assets Register and Asset Management Plans to inform the optimal time for asset upgrade/refurbishment. Risks during this process are addressed as per the asset design, construction and commissioning phases. Council's Long-Term Financial Plan, supported by the Borrowing Program and Strategic Grants Framework ensures that adequate resources are available for asset upgrade/refurbishment. Where an asset upgrade/refurbishment is a high community priority, Council may choose to fast-track the options analysis and design phases to increase the opportunity of obtaining grant funding.

### **Replacement/decommissioning**

Council relies on its strategic planning framework, Critical Assets Register and Asset Management Plans to inform the optimal time for asset replacement. Council's Long-Term Financial Plan, supported by the Borrowing Program and Strategic Grants Framework, ensures that adequate resources are available for asset replacement. Where an asset replacement is a high community priority, Council may choose to fast-track the options analysis and concept design to increase the opportunity of obtaining grant funding.

Risks during the asset replacement process are addressed as per the asset design, construction and commissioning phases.

Risks associated with asset decommissioning are addressed through a decommissioning plan, including stakeholder consultation.

## **6.4 Water Risks<sup>14</sup>**

Council will endeavour to complete a water and related infrastructure risk register which identifies the specific risks related to water infrastructure as well as assess the current controls, further actions required, and funding allocations needed to reduce the risk elements identified.

Current infrastructure risks for water infrastructure include:

- Flooding in rural areas; and
- Water safety issues relevant to industry development.

The identification of issues and risks was undertaken in late July 2020 via a series of management and staff interviews and site inspections of the majority of the water assets.

A high-level risk assessment was undertaken across the assets with individual reports prepared for each site. The high-level findings and recommendations were categorised across the following functions:

1. Work Health and Safety
2. Roles and Responsibilities
3. Levels of Services
4. Asset Management Planning
5. Inflow and Infiltration
6. SCADA / Automation
7. Knowledge Management

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<sup>14</sup> Source: Water & Sewerage Issues and Risks, NixonClarity, 27 June 2020, Draft V2

Generally, it was found that the water & sewerage operations team was hardworking and diligent in their management of the services. The addition of a new water and sewerage coordinator over the past three years appears to have significantly improved communications both within and external to the team.

Through this process:

- 11 recommendations were to be addressed in year 1.
- 9 for year 2; and
- 5 for year 3.

Several reports have been commissioned that suggest substantial capital works are required in the short term. The capital works program has been assessed under the Safe and Secure Water Program with the following being the status of the water risk and upgrade works:

- Casino water security – Risk ID 1022 – Risk Score 5 - Options study.
- Casino Water Treatment Plant – Risk ID 2188 – Risk Score 5 - Priority works underway.

The management team then sought to identify other issues and risks that may exist in the business to ensure a whole of business improvement approach. The high-level risk assessment and status of the actions are identified in **Appendix F**.

## 6.5 High priority assets

The risk assessment criteria can be seen in Water and Sewerage Issues and Risks, NixonClarity, 27 June 2020, – Findings Summary.

**Table 6-4: Results of High Level Risk Assessment**

| Assets                           | Hydraulic Capacity | Environment | Quality Process | Public Health | Structural Integrity | WHS        | Delivery Risk |
|----------------------------------|--------------------|-------------|-----------------|---------------|----------------------|------------|---------------|
| Casino Water Treatment Plant     | Acceptable         | Acceptable  | Extreme         | High          | High                 | Extreme    | High          |
| Casino Raw Water pumping station | Acceptable         | Acceptable  | High            | High          | High                 | High       | High          |
| Casino Water Reservoirs 1        | Acceptable         | Acceptable  | High            | High          | Extreme              | Acceptable | Extreme       |
| Casino South Reservoir           | Acceptable         | Acceptable  | No              | High          | Acceptable           | High       | Acceptable    |
| Casino Booster Pump Station      | Acceptable         | Acceptable  | High            | Acceptable    | No                   | No         | High          |
| Evans Head High Level Reservoir  | Acceptable         | Acceptable  | Acceptable      | Acceptable    | Acceptable           | Acceptable | Acceptable    |
| Evans Head Lower-Level Reservoir | Acceptable         | Acceptable  | Acceptable      | Acceptable    | High                 | Acceptable | Acceptable    |
| Langs Hill Reservoir             | No                 | No          | No              | No            | High                 | Acceptable | Acceptable    |
| Woodburn Pump Station 1          | Acceptable         | Acceptable  | Acceptable      | Acceptable    | Acceptable           | High       | Acceptable    |
| Coraki Reservoir                 | Acceptable         | Acceptable  | Acceptable      | Acceptable    | Acceptable           | High       | Acceptable    |

The rankings are:

- Extreme – Has Failed.
- High Risk – Likely to Fail Within 5 Years.
- Acceptable – Risk Managed by Current Systems.
- No Risk – No Risk of Failure.

## 7. Lifecycle Management Plans

This section presents asset condition and performance information and considers the risk management described in Section 6 to develop the broad strategies and specific work programs required to achieve the goals and standards outlined in Section 3 and 4.

### 7.1 Overview

Council must ensure that it manages all assets on a lifecycle basis, with full knowledge of the social, environmental, and financial costs, benefits and risks associated with the asset.

Water network assets on average have a remaining useful life of 78% of their expected lifecycles based on average condition; however more critical infrastructure assets including water pump stations, water treatment plants and reservoirs are all approaching approximately 60% of their useful life. Larger issues including water security and the long-term holding capacity of Jabour Weir in the township of Casino provide ongoing challenges which necessitate a large commitment to improved LoS and scheme augmentation programs.

The life cycle model must consider each phase of an asset's life from inception through to disposal. This lifecycle model is illustrated in the figure 7-1.

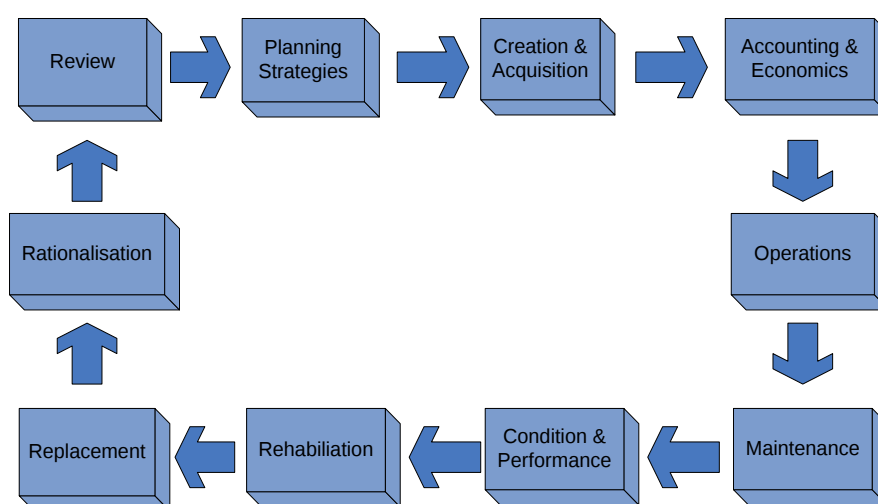


Figure 7-1: Lifecycle for Asset Management

Table 7-1: Asset Treatment Definitions

| TREATMENT  | DEFINITION                                                                                                                                                                                                                                                                                                                   |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operations | <p>An activity that has no direct effect on asset condition, consumes resources and is necessary to keep the asset functioning. The operations expenditure can be distinguished from maintenance expenditure in the Council's financial systems.</p> <p>Typical operational activities include water quality monitoring.</p> |

| TREATMENT              | DEFINITION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Maintenance            | <p>An activity that will retain / maintain the asset's current condition or performance level. Routine maintenance is the day-to-day work required to keep assets operating at required service levels and falls into two broad categories:</p> <ul style="list-style-type: none"> <li>Planned (proactive) Maintenance: Proactive inspection and maintenance works planned to prevent asset failure; and</li> <li>Unplanned (reactive) Maintenance: Reactive action to correct asset malfunctions and failures on an as required basis (e.g. emergency repairs).</li> </ul> <p>Maintenance is defined in each section of the lifecycle plan and includes all repairs and maintenance that are not classified as renewals (see below).</p> <p>A key element of AM planning is determining the most cost-effective blend of planned and unplanned maintenance.</p>                                                                                                                                 |
| Renewal<br>Replacement | <p>An activity that replaces an asset with one that meets contemporary functional requirements. These works are defined as being the:</p> <ul style="list-style-type: none"> <li>Renewal and rehabilitation of existing assets to their original size and capacity or</li> <li>Replacement of the entire component of the asset with the equivalent size or capacity, or</li> <li>Replacement component of the capital works which increase the capacity of the assets (that portion of the work which restores the assets to their original size and capacity).</li> </ul> <p>Examples of renewals expenditure include:</p> <ul style="list-style-type: none"> <li>Water mains replacement.</li> </ul>                                                                                                                                                                                                                                                                                          |
| Upgrades               | <p>Upgrade work is related to the extension or augmentation of an asset in response to growth or an increase in the defined LoS. Upgrades are defined as assets either being:</p> <ul style="list-style-type: none"> <li>Works which improves an asset beyond its original size or capacity; or</li> <li>Works which increase the capacity of an asset; or</li> <li>Works designed to produce an improvement in the standard and operation of the asset beyond its original capacity.</li> </ul> <p>Upgrade activities may include:</p> <ul style="list-style-type: none"> <li>Expansion of the Water Treatment Plant.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                |
| New Works              | <p>Acquisition, purchase, or inheritance of an asset. Projects (including land purchase) for the extension or upgrading of assets required to cater for growth or additional LoS, including:</p> <ul style="list-style-type: none"> <li>Works which create an asset that did not exist in any shape or form; or</li> <li>Works which improves an asset beyond its original size or capacity; or</li> <li>Upgrade works which increase the capacity of an asset; or</li> <li>Works designed to produce an improvement in the standard and operation of the asset beyond its original capacity.</li> </ul> <p>New assets required for growth are distinguished from those required for improvements to levels of service, because of differences in how these assets can be funded. Growth related works can also be separated into those that are Council funded (including those funded by developer contributions), and those that are vested in the Council as a condition of development.</p> |
| Disposal               | <ul style="list-style-type: none"> <li>Sale, removal or decommissioning of an asset.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

### 7.1.1 Whole of Life Costing

Achieving value for money is a key principle in procurement framework and the sustainability of managing Council's assets. Whole of life (WOL) costing is a methodology used to estimate the total costs of services over the whole of their life. It estimates accumulated costs of acquisition, operation, maintenance support and disposal or decommissioning of the supply (less income or revenue).

The Asset Management Strategy WOL basic principles include:

*Do we need it? Can we afford it? Is it the best value for the community?*

WOL costing enables informed decision making from the outset leading for a more comprehensive assessment of value for money and should commence at the acquisition planning stage. Prior to the acquisition of new assets, a WOL evaluation must be evaluated to ensure long term sustainability.

Calculating WOL should include:

**Acquisition Costs** – This includes the initial costs of obtaining the goods, eg purchase price, design, planning, freight, installation, and training.

**Operating Costs** – The costs incurred during the life of the goods eg energy consumption, quality and safety, condition inspections, valuations, distribution and logistics, supplier staff wages, transport costs, program materials, indexation.

**Maintenance and Support Costs** – The costs incurred in maintaining the dependability of the goods and services during their life eg supplier administration costs, consumables, spare parts, minor repairs, labour, staff refresher training.

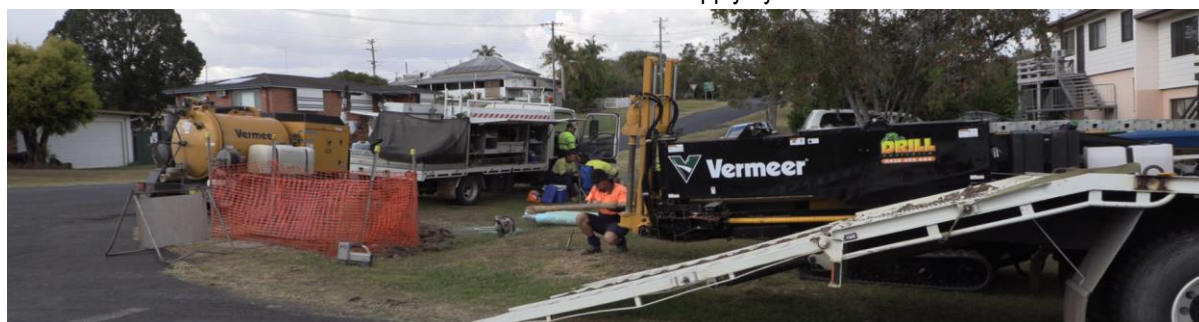
**Disposal Costs** – Costs for removing or disposing of the goods after the economic life has ended, eg costs to transfer ownership, trade-in, re0tender, auction or recycle or transiting/closure of a service.

$$\text{WOL} = \text{Acquisition Costs} + \text{Operating Costs} + \text{Maintenance and Support Costs} + \text{Disposal Costs}$$

**Excluded costs** – Depreciation, corporate overheads, and existing staff members (unless additional staff are engaged to operate goods/service).

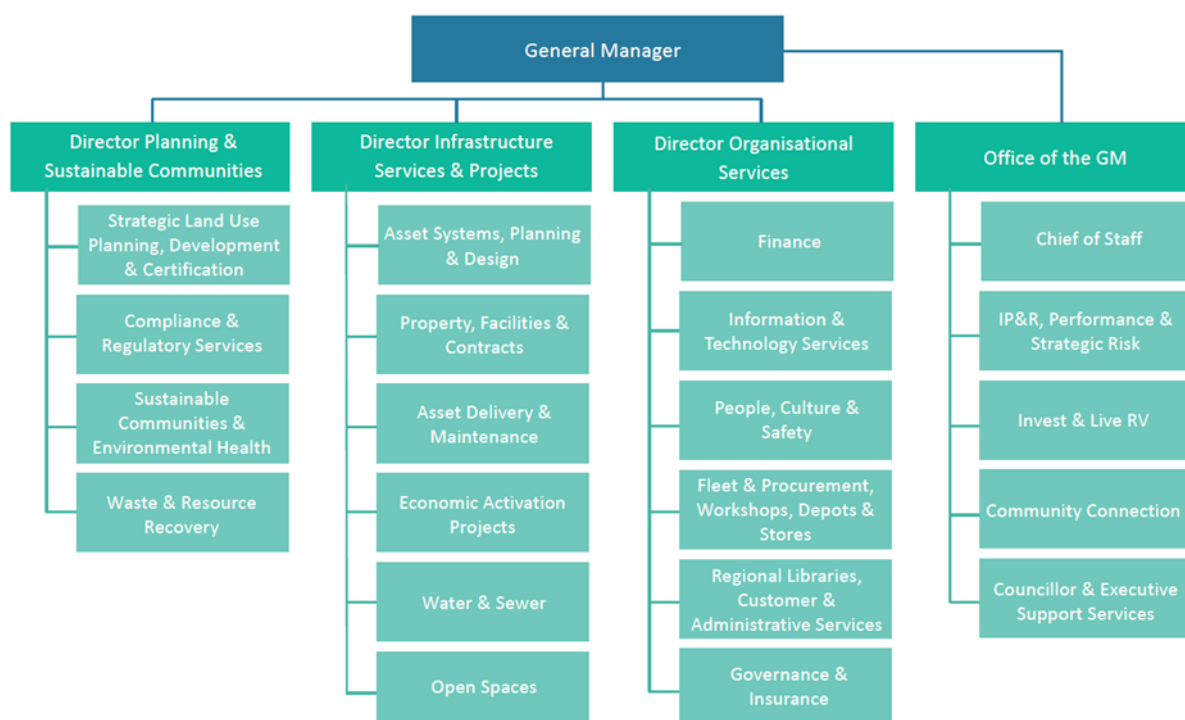
### 7.1.2 Coordination with Other Organisations

Council is required to partner with Rous Water for the service delivery of water to the community. Rous Water supplies bulk water under a Water Supply Agreement (WSA) to four constituent councils in the Northern Rivers (Lismore, Byron Bay, Ballina and Richmond Valley). Rous Water is responsible for the treatment, construction, extension, protection, maintenance, control and management of bulk water supply works. Council is responsible for assets used to distribute water services in the MLRR water supply system.



### 7.1.3 Management Structure

The management structure established by Council for managing the lifecycle of its water infrastructure is identified in Figure 7-2.



**Figure 7-2: Management Structure**

### 7.1.4 Corporate Responsibilities Matrix

The Corporate Asset Management Responsibilities Matrix within Table 7-2 identifies roles of individuals in the organisation against asset management activities and sub activities. This matrix is a powerful tool that defines the responsibilities of the entire organisation with respect to water asset management. This matrix should be the first reference point for all responsibility issues/problems that arise from day-to-day activities. The matrix clearly defines who plays the lead role for any given activity, against any given water asset group. The individuals involved need to understand their role in asset management and appreciate the holistic role it must play across Council. By everyone working together, asset management practices will thrive.



**Table 7-2: Corporate Responsibility Matrix (All Water Assets)**

| ACTIVITY          | SUB-ACTIVITY                               | Lead | Stakeholder        |
|-------------------|--------------------------------------------|------|--------------------|
| SERVICE PLANNING  | Utilisation Management/Strategic Planning  | MIS  | COS /DPABD/WSE/MAP |
|                   | Setting Community Levels of Service        | MAP  | COS /DPABD/WSE/MIS |
|                   | Setting Technical Levels of Service        | MAP  | MIS/MFS/WSE/MIS    |
| ASSET PLANNING    | Strategic Asset Management                 | MAP  | COS/DPABD/WSE/MIS  |
| ASSET CREATION    | Budget Development                         | MFS  | MAP/MIS/WSE/ DPABD |
|                   | Design                                     | MIS  | MAP/MIS/WSE        |
|                   | Construction Management                    | DPM  | MPMO/WSE/OCWS      |
|                   | Commissioning                              | DPM  | MPMO/WSE/OCWS      |
|                   | Asset Handover - Sign Off/As built records | DPM  | MAP/WSE            |
| ASSET OPERATIONS  | Budget Development                         | MIS  | MAP/MFS/WSE        |
|                   | Operations Management                      | MIS  | OCWS               |
| ASSET RENEWAL     | Renewal Works Program                      | MIS  | WSE/MIS/OCWS/CSAPP |
| ASSET MAINTENANCE | Maintenance Budget Development             | MIS  | MFS/OCWS/WSE/CSAPP |
|                   | Maintenance Planning                       | OCWS | WSE                |
|                   | Resource Management                        | OCWS | MIS/ DPABD         |
|                   | Defect Inspections                         | WSE  | MIS/OCWS/MAP       |
| DISPOSAL          | Proposal                                   | MAP  | COS/DPABD/GM       |
|                   | Decommission                               | MAP  | MIS                |

**Legend**

**GM** General Manager

**DPABD** Director Infrastructure Services & Projects

**COS** Chief of Staff

**MAP** Manager Asset System & Planning

**MIS** Manager Infrastructure Services

**MPMO** Manager PMO

**MFS** Manager Finance & Procurement

**OCWS** Operations Coordinator Water and Sewer

**WSE** Water and Sewer Engineer

**DPM** Designated Project Manager

## 7.2 Key Issues

The key management issues related to the management of water infrastructure are identified in table 7-3.

**Table 7-3: Issues related to Water Infrastructure**

| KEY ISSUES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Information provided by Council staff on the performance of the water supply system.</li> <li>Strategic planning and options assessment for Casino water supply.</li> <li>Funding sources for major upgrades</li> <li>Risk Management Strategies.</li> <li>Casino water supply yield investigations and search for an emergency supply e.g., bores</li> <li>Regional strategic planning including the Northern Rivers Regional Bulk Water Supply Strategy</li> <li>Richmond Valley Drinking Water Quality Management Plan (DWQMP)</li> </ul> |

The performance of existing systems and management issues are summarised in Table 7-4.

**Table 7-4: Summary of Management Issues**

| Performance                                                                                                                                                                                                                                | Management issues to be addressed                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Council-wide water demand has decreased by approximately 40% since 2005 despite an increase in customer numbers. Current residential water supply demand (150 kL/a) is similar to other local water utility (LWU) customers in the region. | The Casino water supply system relies on a single source of water. The development of an emergency supply source for Casino is required.                                                                                                                                                                                                                                                                                                                                                 |
| System capacity limitations and required upgrades to achieve adopted LoS need to be identified through hydraulic modelling of the water supply systems.                                                                                    | Council has prepared a draft Water Management Strategy and Improvement Plan to identify future service levels and future modelling.                                                                                                                                                                                                                                                                                                                                                      |
| The secure yield of the Casino Water Supply is like current average demand although future growth in demand is predicted to be minimal.                                                                                                    | The effects of climate change will have direct and indirect implications for Council in relation to water supply services including damage to infrastructure from flooding, storms and sea level rise, the need to reduce greenhouse emissions, potentially higher cost of energy, greater competition for existing water sources and changes in customer demand and usage patterns. Analysis of the impacts of climate change on the secure yield of Casino's water supply is required. |
| The Casino WTP capacity will be sufficient for the long term (> 30 years).                                                                                                                                                                 | <p>Much of the asset stock is ageing, particularly the Casino reservoirs and WTP.</p> <p>The location/routes of underground assets in rural areas are not clearly marked and are potentially subject to accidental damage during excavation.</p>                                                                                                                                                                                                                                         |

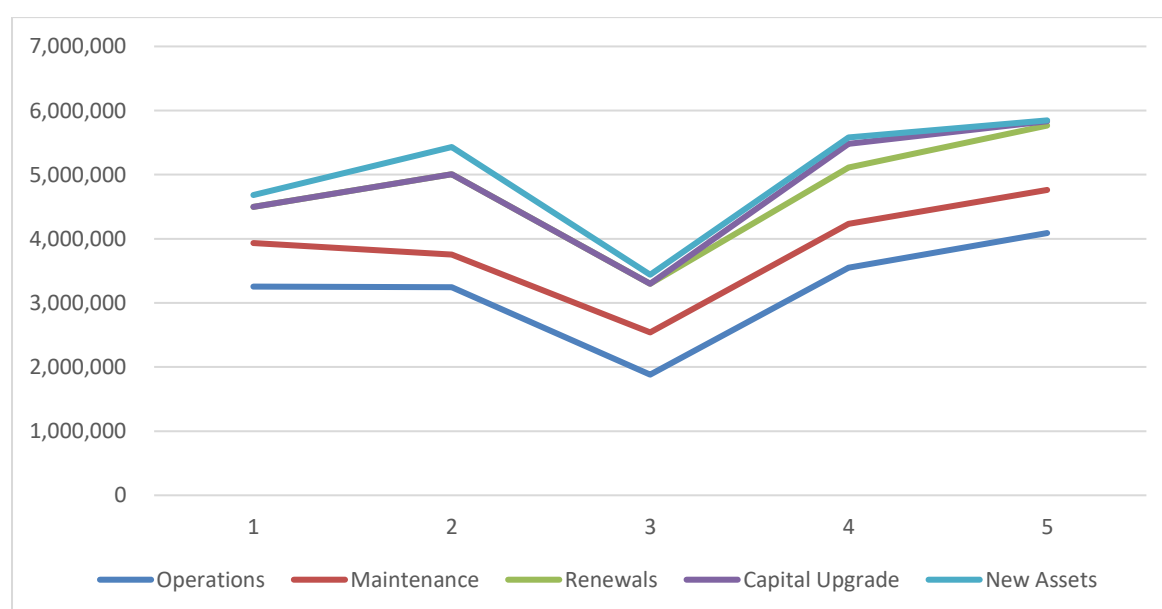
| Performance                                                                                                                                                                                                                              | Management issues to be addressed                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The Regional Drought Management Strategy (Hydrosphere Consulting, 2016) documents a regional restriction regime that applies to all customers served by the Rous County Council regional water supply (including the Mid-Richmond area). | Drought Management Planning for Casino should be consistent with the regional approach (adopted for the Mid-Richmond region) to ensure community acceptance and improve the success of drought management in the region. |
| Water supply pricing in Richmond Valley is significantly lower than other water utilities in the region.                                                                                                                                 | The long-term pricing consultation needs to be undertaken with the community to continue to provide affordable levels of service.                                                                                        |
| Best-practice water supply pricing has been implemented except that the Casino Food Co-op is charged a lower tariff than other customers.                                                                                                | The long-term supply arrangements for the Casino Food Co-op need to be addressed through consultation and agreement on pricing and water supply demand.                                                                  |

### 7.3 Historical Expenditure

Table 7-5 below illustrates the considerable investment Council makes towards its water network. Funding from works from natural disasters such as floods and bushfires, and subdivision dedicated assets are excluded from the totals.

**Table 7-5: Water Historical Expenditure**

| Cost Category   | 2019/2020 (\$) | 2020/2021 (\$) | 2021/2022 (\$) | 2022/2023 (\$) | 2023/2024 (\$) |
|-----------------|----------------|----------------|----------------|----------------|----------------|
| Operations      | 3,254,099      | 3,246,116      | 1,882,048      | 3,551,631      | 4,089,995      |
| Maintenance     | 680,213        | 505,916        | 658,595        | 628,874        | 672,266        |
| Renewals        | 564,000        | 1,253,000      | 758,000        | 878,893        | 1,004,187      |
| Capital Upgrade | -              | -              | -              | 365,630        | 67,068         |
| New Assets      | 186,000        | 427,000        | 141,000        | 100,328        | 13,491         |
| Total           | 4,684,312      | 5,432,033      | 3,439,643      | 5,579,356      | 5,847,006      |



**Figure 7-3: Water Expenditure 2019/20 – 2023/24**

## 7.4 Identification for Prioritisation of Operational and Maintenance Works

Water related works have been identified through review of understanding of the performance of the water system and assets, and a desire to improve the internal asset management capacity and capability which is maintained within an Asset register.

Council aims to program maintenance through an understanding of condition, performance, criticality, and risk. Without this information in a quantitative form, the prioritisation process is at best subjective based on the experience of management. As this information becomes readily available, the greater the confidence in the decision-making.

Criticality on its own is used to develop maintenance plans while risk is used for generating capital works programs. Council has recognised this need and identified actions as part of the current risk register.

In 2020 it was reported that:

*“Current asset management assessment and preventive maintenance processes do not appear to be effective with ongoing asset failures occurring. Many operational areas are suffering due to lack of regular and timely maintenance”<sup>15</sup>.*

The operations and maintenance activities historically have been largely reactive driven by perception with the need to respond to faults and failures. Typical activities for reactive operational and maintenance activities are identified in Table 7-6.

**Table 7-6: Reactive Operations and Maintenance Activities**

| ASSETS                              | OPERATIONS & MAINTENANCE REACTIVE ACTIVITIES                                                                                                                                                            |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reticulation and distribution mains | Broken water mains<br>Broken services<br>Jammed hydrants<br>Out of water<br>Dirty water<br>Water leaks<br>Missing hydrant and valve lids<br>Leaking tapping, ferrules, stop taps<br>Poor water pressure |
| Water Meters                        | Water hammer<br>Faulty or damaged water meters                                                                                                                                                          |
| Reservoirs                          | Leaks in reservoir walls.<br>Seizing of valves<br>Dust ingress                                                                                                                                          |
| Pump Stations                       | Faulty or failing pumps, impellers<br>Pump failures<br>Lost power<br>WHS issues                                                                                                                         |
| Casino Water Treatment Plant        | Manual handling of chemicals<br>Fluoride breaches of drinking water quality<br>WHS issues<br>Filtration issues<br>High level organics from raw water source                                             |

<sup>15</sup> RVC Water & Sewerage Issues & Risks (Draft V2), July 2020, Pg. 3, NixonClarity

In the past few years, maintenance at the Casino Water Treatment Plant has improved, recorded and costs tracked. This process will take a few years to provide quality information. Although if recorded properly reactive maintenance can provide quality information almost immediately. Maintenance standards will be developed for the treatment plant and in time a maintenance plan developed.

Casino Water Treatment Plant is undergoing a process of automation in the plant e.g., converting valves to automated and finalising SCADA implementation which will permit the operations of the plant to be automated as well as tracking when assets fail. This will enable speedier responsiveness to faults, analysis of faults and smoother operations.

## 7.5 Inspections

Inspections are undertaken on a regular basis to ensure that the water assets are being maintained in a safe manner and that adopted intervention levels are being met. Depending on the type of inspection they may be performed by the following:

- Project Managers.
- Overseers.
- Assets Engineers.
- Engineering Assistants; or
- Specialist consultants / Contractors.

Inspections may typically include safety audits, condition assessments, works inspections, water quality sampling, quality audits and reactive investigative inspections are performed in response to customer requests.

Note: In the past, condition assessments had been infrequent, however, the need for regular condition assessments is recognised and will be undertaken in the future.



## 7.6 Renewal Plan

From an initial planning perspective following the condition assessments, Table 7-7 to 7-16 indicate the required funding in the current replacement cost and the timeframe in years to replace the assets. This of course is an initial view of the renewal program. Further investigation is required over time, to supplement condition with maintenance records, criticality and risk.

**Table 7-7: Water Pump Stations Asset Condition Renewals**

|                            | Pump Pit    | Control Cabinets | Vehicular Access |
|----------------------------|-------------|------------------|------------------|
| Age based Condition        | 4           | 4.5              | 4.5              |
| No. Assets                 | 1           | 2                | 1                |
| Rem. Life (Yrs.)           | 34          | 1                | 11               |
| Repl. Cost (\$)            | 74,579      | 17,387           | 7,370            |
| Funding over 10 years (\$) | 7,460       | 1,738            | 737              |
| Timeframe                  | 2059 - 2063 | 2026 - 2027      | 2036 - 2046      |

**Table 7-8: Water Reservoirs Asset Condition Renewals**

|                            | Electrical Mains Power Supply | Fence       | Vehicular Access | Vehicular Access | Reservoir Roof | Telemetry |
|----------------------------|-------------------------------|-------------|------------------|------------------|----------------|-----------|
| Age based Condition        | 4                             | 4           | 4                | 4.5              | 4.5            | 5         |
| No. Assets                 | 1                             | 2           | 2                | 1                | 1              | 1         |
| Rem. Life (Yrs.)           | 3                             | 17          | 17               | 11               | 40             | 0         |
| Repl. Cost (\$)            | 40,798                        | 3,861       | 33,724           | 2,627            | 65,681         | 3,395     |
| Funding over 10 years (\$) | 4,080                         | 386         | 3372             | 262              | 6,568          | 339       |
| Timeframe                  | 2028 - 2030                   | 2025 - 2028 | 2041 - 2051      | 2025 - 2028      | 2031 - 2041    | 2025      |

**Table 7-9: Water Treatment Plant Asset Condition Renewals**

|                       | Pits        | Safety Equipment | Structures | Tanks       | Valves Pipes Fittings | Valves Pipes Fittings | Valves Pipes Fittings |
|-----------------------|-------------|------------------|------------|-------------|-----------------------|-----------------------|-----------------------|
| Age based Condition   | 4.5         | 4                | 4          | 4.5         | 4                     | 4.5                   | 5                     |
| No. Assets            | 1           | 1                | 2          | 1           | 10                    | 2                     | 1                     |
| Rem. Life (Yrs.)      | 13          | 2                | 27         | 11          | 24                    | 15                    | -                     |
| Repl. Cost (\$)       | 26,342      | 3,574            | 230,375    | 10,803      | 204,290               | 15,918                | 1,132                 |
| Funding over 10 years | 2,634       | 357              | 23,037     | 1,080       | 20,429                | 1,592                 | 113                   |
| Timeframe             | 2031 - 2041 | 2025 - 2033      | 2041 -2051 | 2033 - 2043 | 2051 - 2061           | 2041 - 2051           | 2025 - 2027           |

**Table 7-10: Water Valves Asset Condition Renewals**

|                            | Air Valves<br>150 | Stop Valves<br>100 | Stop Valves<br>200 | Stop Valves<br>300 | Stop Valves<br>300 |
|----------------------------|-------------------|--------------------|--------------------|--------------------|--------------------|
| Age based Condition        | 4                 | 4                  | 4                  | 4                  | 5                  |
| No. Valves                 | 1                 | 18                 | 4                  | 3                  | 1                  |
| Rem. Life (Yrs.)           | 29                | 29                 | 29                 | 29                 | -                  |
| Repl. Cost (\$)            | 2,889             | 28,988             | 10,585             | 14,115             | 4,705              |
| Funding over 10 years (\$) | 288               | 2,899              | 1,058              | 1,412              | 470                |
| Timeframe                  | 2043 -2053        | 2043 -2053         | 2043 -2053         | 2043 -2053         | 2025 - 2026        |

**Table 7-11: Hydrants Asset Condition Renewals**

|                            |       | Hydrants   |            |             |
|----------------------------|-------|------------|------------|-------------|
| Diameter (mm)              | 75    | 100        | 150        | 100         |
| Age based Condition        | 4     | 4          | 4          | 5           |
| No. Hydrants               | 1     | 7          | 4          | 2           |
| Rem. Life (Yrs.)           | 29    | 29         | 29         | -           |
| Repl. Cost (\$)            | 2,166 | 19,081     | 11,796     | 5,452       |
| Funding over 10 years (\$) | 217   | 1,908      | 1,180      | 545         |
| Timeframe                  | 2051  | 2043 -2053 | 2043 -2053 | 2025 - 2026 |

**Table 7-12: Water Connections Asset Condition Renewals**

| Water Connections          |            |            |            |            |            |            |      |        |
|----------------------------|------------|------------|------------|------------|------------|------------|------|--------|
|                            | Copper     |            |            |            |            |            | Poly |        |
| Diameter (mm)              | 20         | 25         | 32         | 40         | 50         | 100        | 25   | 63     |
| Age based Condition        | 4          | 4          | 4          | 4          | 4          | 4          | 4    | 4      |
| No. Connections            | 179        | 11         | 4          | 2          | 5          | 1          | 1    | 1      |
| Rem. Life (Yrs.)           | 29         | 29         | 29         | 29         | 29         | 29         | 34   | 34     |
| Repl. Cost (\$)            | 215,863    | 22,295     | 2,462      | 1,748      | 7,580      | 8,381      | 316  | 19,144 |
| Funding over 10 years (\$) | 21,586     | 2,230      | 246        | 175        | 758        | 838        | 31   | 1,914  |
| Timeframe                  | 2043 -2053 | 2042 -2051 | 2043 -2051 | 2044 -2051 | 2045 -2051 | 2046 -2051 | 2056 | 2056   |

**Table 7-13: Pipelines Asset Condition Renewals**

| Water Pipelines            |             |             |             |             |             |             |             |
|----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Diameter (mm)              | 75          | 100         | 150         | 200         | 225         | 250         | 300         |
| Age based Condition        | 4           | 4           | 4           | 4           | 4           | 4           | 4           |
| No. Pipelines              | 3           | 95          | 22          | 13          | 7           | 2           | 9           |
| Rem. Life (Yrs.)           | 26          | 26          | 26          | 26          | 26          | 26          | 26          |
| Repl. Cost (\$)            | 1,890       | 580,998     | 208,132     | 68,895      | 194,004     | 17,742      | 184,450     |
| Funding over 10 years (\$) | 189         | 58,600      | 20,813      | 6,890       | 19,400      | 1,774       | 18,445      |
| Timeframe                  | 2041 - 2051 | 2041 - 2051 | 2041 - 2051 | 2041 - 2051 | 2041 - 2051 | 2041 - 2051 | 2041 - 2051 |

**Table 7-14: Water Meters Asset Condition Renewals (Condition 4)**

| Diameter (mm)              | 20                 | 25          | 32          | 40          | 50          | 100         |
|----------------------------|--------------------|-------------|-------------|-------------|-------------|-------------|
|                            | <b>Condition 4</b> |             |             |             |             |             |
| Age based Condition        | 4                  | 4           | 4           | 4           | 4           | 4           |
| No. Meters                 | 2004               | 49          | 17          | 25          | 8           | 1           |
| Rem. Life (Yrs.)           | 1.5                | 1.5         | 1.5         | 1.5         | 1.5         | 1.5         |
| Repl. Cost (\$)            | 730,055            | 18,427      | 16,602      | 34,332      | 16,160      | 2,973       |
| Funding over 10 years (\$) | 73,005             | 1,843       | 1,660       | 3,433       | 1,616       | 297         |
| Timeframe                  | 2025 - 2035        | 2025 - 2026 | 2025 - 2026 | 2025 - 2026 | 2025 - 2026 | 2025 - 2026 |

**Table 7-15: Water Meters Asset Condition Renewals (Condition 4.5)**

| Diameter (mm)              | 20                   | 25          | 32          | 40          | 50          | 100         |
|----------------------------|----------------------|-------------|-------------|-------------|-------------|-------------|
|                            | <b>Condition 4.5</b> |             |             |             |             |             |
| Age based Condition        | 4.5                  | 4.5         | 4.5         | 4.5         | 4.5         | 4.5         |
| No. Meters                 | 205                  | 8           | 4           | 4           | 4           | 2           |
| Rem. Life (Yrs.)           | 1                    | 1           | 1           | 1           | 1           | 1           |
| Repl. Cost (\$)            | 74,681               | 3,009       | 3,906       | 5,493       | 8,080       | 5,947       |
| Funding over 10 years (\$) | 7,468                | 301         | 391         | 549         | 808         | 595         |
| Timeframe                  | 2025 - 2026          | 2025 - 2026 | 2025 - 2026 | 2025 - 2026 | 2025 - 2026 | 2025 - 2026 |

**Table 7-16: Water Meters Asset Condition Renewals (Condition 5)**

| Diameter (mm)              | 20                 | 25          | 32          | 40          | 50          | 80          | 100         |
|----------------------------|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                            | <b>Condition 5</b> |             |             |             |             |             |             |
| Age based Condition        | 5                  | 5           | 5           | 5           | 5           | 5           | 5           |
| No. Meters                 | 409                | 26          | 7           | 15          | 11          | 1           | 1           |
| Rem. Life (Yrs.)           | -                  | -           | -           | -           | -           | -           | -           |
| Repl. Cost (\$)            | 148,998            | 9,778       | 6,836       | 20,599      | 22,220      | 2,390       | 2,973       |
| Funding over 10 years (\$) | 14,900             | 978         | 684         | 2,060       | 2,222       | 239         | 297         |
| Timeframe                  | 2025 - 2026        | 2025 - 2026 | 2025 - 2026 | 2025 - 2026 | 2025 - 2026 | 2025 - 2026 | 2025 - 2026 |

## 7.7 Upgrade Plan

The upgrade works planned at a cost of \$225,000 to be undertaken in 2025/2026 include the flow meter renewals, and the refurbishment of the second life upgrade, reservoir bypass to booster pump station and the water softener replacement. There are no further allowances for upgrades in the Long-Term Financial Plan.

Councils 'Water for Life' strategy identifies \$20M in the first stage of water security and quality improvements including the Casino Water Treatment Plant upgrade. This project is currently unfunded.

## 7.8 New Works Plan

New water assets are commonly identified in response to Growth (demand), Risk, Safety Audits; and recommendations identified in planning and strategy documents.

An allowance of \$2.735 million has been budgeted in the Long-Term Financial Plan. This includes:

- Implementation of smart meters (Casino, Broadwater, Woodburn and Coraki);
- Filter to Waste functionality design Casino WTP and
- CWT to Reservoir supply main duplication

Councils 'Water for Life' strategy identifies within stage 2 projects between 2025-2029 for the Regional Job Precinct expansion for extending the water network to Fairy Hill. Preliminary design works are due to commence, however this project is currently unfunded.

## 7.9 Disposal Plan

There is currently no plan to dispose of existing water assets. Councils 'Water for Life' strategy identifies \$20M in the first stage of water security and quality improvements including the Casino Water Treatment Plant upgrade. Existing assets will be disposed and replaced as part of this project which is currently unfunded.



*Richmond Valley awarded the best tasking drinking water IXOM 2021 & 2025.*

## 8. Financial Summary

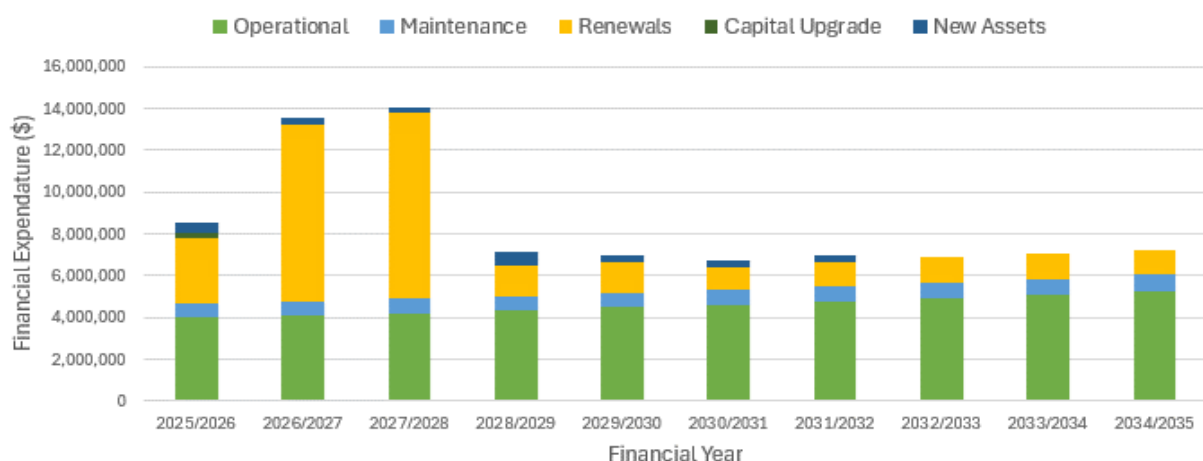
This section outlines the long-term financial requirements for the operation, maintenance, renewal and development of water assets based on the long-term strategies outlined earlier in the plan. Funding issues are discussed, and key assumptions made in preparing financial forecasts. These forecasts are an indication of funding requirements over the next 10 years and are recommended for inclusion in Council's Long-Term Financial Strategy (LTFS).

### 8.1 10 Year Financial Forecast

**Appendix G** summarises the 10-year financial forecast for water. The reasons for the expenditure are identified for each asset group in Lifecycle Management Plans. Projections are shown in dollar values current as of 1 July 2025 including Operations, Maintenance (Programmed and Reactive), Renewals (Rehabilitation and Replacement Works), Upgrade / Expansion works and New Works by Developers. Table 8-1 summarises the 10-year financial projection.

**Table 8-1: 10-Year Financial Projection**

| COST CATEGORY | TOTAL FINANCIAL PROJECTIONS |                   |
|---------------|-----------------------------|-------------------|
|               | 1-5 Years (\$)              | 1-10 years (\$)   |
| Operations    | 21,186,200                  | 45,768,342        |
| Maintenance   | 3,368,493                   | 7,234,395         |
| Renewals      | 23,378,950                  | 29,228,950        |
| Upgrades      | 225,000                     | 225,000           |
| New           | 2,135,000                   | 2,735,000         |
| <b>TOTAL</b>  | <b>50,293,643</b>           | <b>85,191,687</b> |



**Figure 8-1: 10-Year Financial Projections**

Expenditure identified within the financial forecasts was obtained from the following sources:

- Long-Term Financial Plan.

- Water Supply budget.
- Annual budget for Operational and Maintenance Budgets; and
- Demand Forecasting refer Section 5 of this plan.

## 8.2 Financial Forecast Assumptions

The basis for the financial forecasts is explained in the lifecycle management plan. The following general assumptions have been made in preparing the 10-year expenditure forecasts:

1. All expenditure is stated in dollar values as at 30 June 2025 with an allowance made for inflation of 2.5% over the 10-year planning period;
2. CPI increase of 2.5% for operations and maintenance costs;
3. Greenfield unit rate for water infrastructure have been applied for infrastructure constructed by developers; and
4. Ongoing operations and maintenance costs for new works is assumed to be 0.78% of original capital costs (included under the operations and maintenance cost categories for sake of simplicity).

## 8.3 Asset Valuation 2024

The accounting asset register for water infrastructure assets has a current written down replacement value of \$123.9M.

In valuing the water infrastructure assets, the following approach was adopted in accordance with the Australian Accounting Standards for financial reporting purposes. All assets were rated at the appropriate life for the material and assessed in terms of their quantity applying the 'Fair Value' principle:

- Asset values have been based on asset data currently held in Council's asset register;
- Replacement values have been determined from applying first principles to the assets, Rawlinson's 2022, a variety of websites with current day prices for assets and unit rate tables and charts based on the cost of replacing the asset with similar assets that provide the equivalent service;
- Where the useful life of the asset was extended or reduced, the resultant impact was on the future depreciation rates and charges and were not retrospective in accordance with appropriate accounting standards; and
- All valuations and asset counts have been fully documented to provide a clear audit trail that is evident through to the accounting entries in the general Ledger.

Table 8-2 below identifies the 30 June 2024 financial valuation for the water network.

**Table 8-2: Asset Network Valuation June 2024**

| Asset Group            | Asset Type                                             | Quantity of Water Assets | Length of Assets (km) | 2024 Gross Replacement Cost (\$) | Accumulated Depreciation (\$) | Fair Value (WDV) (\$) |
|------------------------|--------------------------------------------------------|--------------------------|-----------------------|----------------------------------|-------------------------------|-----------------------|
| Water connections      | Service connection pipes                               | 7776                     | 96.54                 | 7,145,549                        | 1,084,577                     | 6,060,972             |
| Water filling stations | Filling stations, batteries, card readers, signs       | 14                       |                       | 102,090                          | 15,839                        | 86,251                |
| Water hydrants         | Fire hydrants                                          | 2249                     |                       | 6,492,665                        | 1,434,796                     | 5,057,869             |
| Water meters           | Water meters                                           | 7165                     |                       | 3,025,476                        | 2,431,317                     | 594,159               |
| Water pipelines        | Pipes main, encasement, fire service                   | 5397                     | 200.91                | 53,704,675                       | 9,536,861                     | 44,167,814            |
| Water pump stations    | Pits, control cabinets, pumps, pipes etc.              | 162                      |                       | 6,040,259                        | 2,786,279                     | 3,253,979             |
| Water reservoirs       | Pits, control cabinets, pumps, pipes etc.              | 305                      |                       | 22,594,279                       | 10,973,491                    | 11,620,788            |
| Water RTU PLC          | PLC                                                    | 8                        |                       | 40,350                           | 21,185                        | 19,165                |
| Water swabbing pits    | Tee and elbow pipes,                                   | 39                       |                       | 74,660                           | 6,636                         | 68,024                |
| Water treatment plants | Pits, air conditioners, flow meters, pumps, pipes etc. | 409                      |                       | 21,872,795                       | 9,972,453                     | 11,900,342            |
| Water valves           | Stop valves, scour valves etc.                         | 1404                     |                       | 2,863,806                        | 619,977                       | 2,243,828             |
|                        | <b>Total</b>                                           | <b>24,928</b>            | <b>297.45</b>         | <b>123,956,604</b>               | <b>38,883,413</b>             | <b>85,073,191</b>     |

## 8.4 Asset Sustainability

The Asset Renewal Funding Ratio is a critical indicator of the water programs long term stability. An ideal indicator is 1.0; therefore, Council's indicator of 0.96 needs to be addressed. Asset planning is progressive, driven by LoS agreements and ultimately the communities' willingness to pay for the service. The following Local Water Utility (LWU) facts provide perspective:

$$\text{Renewal Ratio} = \text{Renewal Expenditure} / \text{Annual Depreciation} = \$1,686,000 / \$1,754,911 = 0.96$$

- Renewals Ratio (RR) 0.96 average.
- Assets reaching the end of their design lives this Long-Term Financial Plan (LTFP) \$0.2 million.
- Capital works programmed this LTFP \$32 million.
- Technical LoS for assets in a backlog condition (either condition 4, 4.5 or 5), average value for LTFP \$491,451.
- Therefore, Bring to Satisfactory (BTS) average measure equals 0.06 (greater than benchmark value of 0.02).

## 8.5 Funding Strategy

A major issue concerning water infrastructure management is the question of who pays for needed works e.g.:

- The community through special rates.
- The developer through development contributions, or

- The consumer through recurrent charges.

To overcome this problem there should be available a range of funding options including:

- Water and sewer rating charges.
- Special rates or charges schemes.
- Development contributions; and
- Available grants, e.g., special purpose State Government grants.

Council relies on grant income for delivering a range of services to the community. Richmond Valley has a relatively small population, with a low socio-economic element which makes deriving funds from rates, fees and charges a challenge. Council has a substantial water network over a large area and funding the renewal and maintenance of this network into the future will remain key.

Water is generally run on a full cost recovery basis however some things are outside of Council's control where opportunities for additional funding sources are provided e.g., grants.

## 9. Plan Improvement and Monitoring

This section provides AM improvement tasks that will be carried out over the next 4 years that will improve the level of confidence in this AM plan. Included is a program includes revising this AM plan.

### 9.1 Water Supply and Sewerage Strategic Plan

In 2018, Council adopted the Water and Sewer Strategic Plan which consolidated previous plans, reports and findings and objectives. From this consolidation process, a direction regarding the water supply was developed and implemented using a risk-based approach. In summary, the improvement actions are identified in Table 9-1.

**Table 9-1: Status of Recommendations from the Strategic Plan**

| No. | Recommendation                                                                                                                                                                                       | Status                                                                |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| 1.  | A WHS audit of all key assets (WTP, STP's & Res) should be undertaken.                                                                                                                               | Completed                                                             |
| 2.  | A review of the roles and responsibilities across W&S should be undertaken to address the GAPS                                                                                                       | Completed                                                             |
| 3.  | Identify key Executive / Policy / Corporate issues to give guidance for engineering decisions/reports including population growth, infrastructure buffer capacity; approach to EPA & Health Licenses | Completed restructure<br>In progress identifying future growth areas. |
| 4.  | Determine the preferred visit frequency or all key assets to inform remote access requirements and resourcing requirements.                                                                          | Not Started                                                           |
| 5.  | Develop a Strategic Action Plan for inflow and infiltration to address the high storm flows across the sewerage network                                                                              | In Progress                                                           |
| 6.  | Establish a more robust risk management system for RVC including structure for Corporate and Operational Risks, as well as the monitoring of mitigations and previously agreed initiatives.          | In Progress                                                           |
| 7.  | Undertake an Asset Criticality Assessment (preferably Council Wide) to identify key assets including normal, abnormal, and emergency Ops.                                                            | In Progress                                                           |

| No. | Recommendation                                                                                                                                                                                               | Status                                                                                         |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 8.  | Review approach to condition assessment and renewal planning to include ongoing, periodic and revaluation                                                                                                    | Not Started                                                                                    |
| 9.  | Establish an issues management system either in the current CRM, the asset system or alternative.                                                                                                            | Completed                                                                                      |
| 10. | Undertake an Audit of SCADA, remote Ops, and Automation                                                                                                                                                      | Completed                                                                                      |
| 11. | Develop a Strategic Action Plan for SCADA, remote Ops, and Automation                                                                                                                                        | In Progress                                                                                    |
| 12. | A regular (every 3-6 months) WHS inspection of all key sites should be undertaken. These issues should be raised in the CRM system.                                                                          | Process in Place<br>do inspections of sites throughout the year                                |
| 13. | The WHS team should work with the W&S team to identify and source appropriate signage and PPE for use across all W&S assets                                                                                  | In Progress                                                                                    |
| 14. | The Executive and Management should undertake periodic site inspections and include identifying WHS issues and raising CARs to increase WHS awareness/culture.                                               | Process in Place                                                                               |
| 15. | Review the key contact “zippering” (who talks to who and how often) with Rous Water and insure it is a proactive relationship.                                                                               | Process in Place                                                                               |
| 16. | Review the external and internal supplier / provider relationships for all maintenance activities.                                                                                                           | Completed                                                                                      |
| 17. | Determine the approach to the standardization of key and high use assets e.g., Valves, PLC's, RTU's etc.                                                                                                     | Process in Place                                                                               |
| 18. | Review Water & Sewerage Asset Management Plans with a focus on the identification of purpose, inspection, operations, optimization, maintenance, and renewal to inform resourcing plans and forward budgets. | In Progress                                                                                    |
| 19. | Develop an optimization approach to all treatment plants (4). E.g., three-monthly optimization deep dive                                                                                                     | SCADA upgrade in progress                                                                      |
| 20. | Develop maintenance management standards including return periods for all key items to drive automation.                                                                                                     | Not Started                                                                                    |
| 21. | Digital induction, signing-in and recording of site access by staff and contractors should be investigated.                                                                                                  | Not Started                                                                                    |
| 22. | Develop a Strategic Action Plan for electronic field data collection, management, and reporting                                                                                                              | In Progress                                                                                    |
| 23. | Develop a change management requirement for all new builds, upgrades, and asset alterations                                                                                                                  | Process in Place for Revised operational procedures submitted as part of the WAE documentation |
| 24. | Implement operational skills improvement program by sending staff to other utilities to learn different skills and approaches                                                                                | Process in Place                                                                               |

#### Legend

Completed



In Progress,  
Process in Place \*



Not Started



**Note:** “Process in place” has been used for some recommendations where there has been insufficient time to test the process. Once tested through an audit process to the satisfaction of management, the recommendation should be regarded as complete.

## 9.2 Asset Management Improvement Program

The AM tasks identified in the summary program below are the most important to enable Council to meet its asset management objectives. The program reflects the overall aim of improving asset management practices,

which is to deliver the right LoS at lowest long-term cost to customers. The following table identifies the primary improvements identified for asset management processes, systems and data.

**Table 9-2: Improvement Program and Action Plan**

| AM PROCESS         | IMPROVEMENT ACTIVITIES                                                                                                                                                                                                                          | TIMEFRAME<br>(over 4 Years) |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| Data Management    | Continue the capture of data for all water assets and monitor condition. The data capture can be updated as part of normal operations or when servicing/inspecting assets. Link assets data to the GIS.                                         | 2025/27                     |
| Risk Register      | Complete the identification of the infrastructure risk register for Council's water infrastructure and assets considering current controls, actions and funding required to decrease risk levels.                                               | 2025/27                     |
| Asset Performance  | Undertake ongoing analysis of future renewal requirements using the condition data collected during the period of the second Water AM Plan.                                                                                                     | 2025 and ongoing            |
| Asset Performance  | Analyse the customer request results to address problem areas and maintain performance.                                                                                                                                                         | 2025 and ongoing            |
| Asset Performance  | Collect and monitor defect histories to identify trends in performance of asset types.                                                                                                                                                          | 2025 and ongoing            |
| Levels of Service  | Confirm target service levels, monitor and report outcomes.                                                                                                                                                                                     | Annually                    |
| Levels of Service  | Enhance the analyse of customer request data by asset or asset type and failure type to identify assets or asset types of concern. Identify trends for failures, cause of failures to establish future strategy and maintenance programs.       | 2025 and ongoing            |
| Asset Planning     | Use demand projections coupled with other knowledge e.g., risk to develop 10-year forecast projections of upgrade works and new works. Use predictive models to identify appropriate levels of funding and the impacts of future condition.     | 2025/27                     |
| Demand Management  | There is a lot of noise impacting on demand in the Demand Section of this plan. Identify the critical demands on the assets and use these demands and actions in the Strategic Plans                                                            | 2025/27                     |
| Financial Planning | Develop Council reporting templates for WOL costs for future capital works projects.                                                                                                                                                            | 2025/27                     |
| Financial Planning | Data improvements plan to improve clarity on ownership, definitions and naming conventions.                                                                                                                                                     | 2025 and ongoing            |
| Financial Planning | Operations Manuals should be updated to ensure the data is current and accurate or at least reference the asset register.<br><br>Establish service standards and technical service levels to support the quantity and quality of data captured. | 2025/27                     |

### 9.3 Monitoring and Review Procedures

The AM plan is a living document which is relevant and integral to daily AM activity. To ensure the plan remains useful and relevant the following on-going process of AM plan monitoring, and review activity will be undertaken:

- Formal adoption of the plan by Council.
- Identify and formally adopt LoS.
- Revise AM planning every four years to incorporate outcome of service level review and new knowledge resulting from the AM improvement program.
- Audits of AM information to ensure the integrity and cost effectiveness of data collected; and
- Peer review: Annual internal audits to be undertaken to assess the effectiveness with which the AM plan meets corporate objectives. Periodic internal audits to be undertaken to assess the adequacy of AM processes, systems, data and external audits to be undertaken to measure AM performance against 'best practice' e.g., gap analysis.

## Appendix A - Glossary of Terms

The following terms and acronyms are used in this AM plan.

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Activity                        | An activity is the work undertaken on an asset or group of assets to achieve a desired outcome.                                                                                                                                                                                                                                                                                                                                                         |
| Advanced Asset Management       | Asset management which employs predictive modelling, risk management and optimised renewal decision-making techniques to establish asset lifecycle treatment options and related long term cashflow predictions. (See Basic Asset Management).                                                                                                                                                                                                          |
| Asset                           | A physical component of a facility which has value, enables services to be provided and has an economic life of greater than 12 months.                                                                                                                                                                                                                                                                                                                 |
| Asset Management (AM)           | The combination of management, financial, economic, engineering, and other practices applied to physical assets with the objective of providing the required LoS in the most cost-effective manner.                                                                                                                                                                                                                                                     |
| Asset Management Plan (AM Plan) | A plan developed for the management of one or more infrastructure assets that combines multi-disciplinary management techniques (including technical and financial) over the lifecycle of the asset in the most cost-effective manner to provide a specified LoS. A significant component of the plan is a long term cashflow projection for the activities.                                                                                            |
| Asset Management Policy         | Provides an overall policy framework to guide the strategic management of Council's infrastructure assets.                                                                                                                                                                                                                                                                                                                                              |
| Asset Management System (AMS)   | A system (usually computerised) for collecting analysing and reporting data on the utilisation, performance, lifecycle management and funding of existing assets.                                                                                                                                                                                                                                                                                       |
| Asset Register                  | A record of asset information considered worthy of separate identification including inventory, historical, financial, condition, construction, technical and financial information about each.                                                                                                                                                                                                                                                         |
| Basic Asset Management          | Asset management which relies primarily on the use of an asset register, maintenance management systems, job/resource management, inventory control, condition assessment and defined levels of service, to establish alternative treatment options and long term cashflow predictions. Priorities are usually established based on financial return gained by carrying out the work (rather than risk analysis and optimised renewal decision making). |
| Capital Expenditure (CAPEX)     | Expenditure used to create new assets or to increase the capacity of existing assets beyond their original design capacity or service potential. CAPEX increases the value of an asset.                                                                                                                                                                                                                                                                 |
| Cash Flow                       | The stream of costs and/or benefits over time resulting from a project investment or ownership of an asset.                                                                                                                                                                                                                                                                                                                                             |
| Components                      | 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.                                                                                                                                                                                                                                                               |
| Condition Monitoring            | Continuous or periodic inspection, assessment, measurement and interpretation of resulting data, to indicate the condition of a specific component to determine the need for some preventive or remedial action                                                                                                                                                                                                                                         |
| Critical Assets                 | Assets for which the financial, business or service level consequences of failure are sufficiently severe to justify proactive inspection and rehabilitation. Critical assets have a lower threshold for action than non-critical assets.                                                                                                                                                                                                               |
| Current Replacement Cost        | The cost of replacing the service potential of an existing asset, by reference to some measure of capacity, with an appropriate modern equivalent asset.                                                                                                                                                                                                                                                                                                |

|                                     |                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Deferred Maintenance                | The shortfall in rehabilitation work required to maintain the service potential of an asset.                                                                                                                                                                                                                                                                                                 |
| Demand Management                   | The active intervention in the market to influence demand for services and assets with forecast consequences, usually to avoid or defer CAPEX expenditure. Demand management is based on the notion that as needs are satisfied expectations rise automatically and almost every action taken to satisfy demand will stimulate further demand.                                               |
| Depreciated Replacement Cost (DRC)  | The replacement cost of an existing asset after deducting an allowance for wear or consumption to reflect the remaining economic life of the existing asset.                                                                                                                                                                                                                                 |
| Depreciation                        | The wearing out, consumption or other loss of value of an asset whether arising from use, passing of time or obsolescence through technological and market changes. It is accounted for by the allocation of the historical cost (or revalued amount) of the asset less its residual value over its useful life.                                                                             |
| Design Life                         | The theoretical life of an asset assumed in its design.                                                                                                                                                                                                                                                                                                                                      |
| Disposal                            | Activities necessary to dispose of decommissioned assets.                                                                                                                                                                                                                                                                                                                                    |
| Economic Life                       | The period from the acquisition of the asset to the time when the asset, while physically able to provide a service, ceases to be the lowest cost alternative to satisfy a particular LoS. The economic life is at the maximum when equal to the physical life however obsolescence will often ensure that the economic life is less than the physical life.                                 |
| Geographic Information System (GIS) | Software that provides a means of spatially viewing, searching, manipulating, and analysing an electronic database.                                                                                                                                                                                                                                                                          |
| Infrastructure Assets               | Stationary systems forming a network and serving whole communities, where the system is intended to be maintained indefinitely at a particular LoS potential by the continued replacement and refurbishment of its components. The network may include normally recognised 'ordinary' assets as components.                                                                                  |
| Level Of Service (LoS)              | The defined service quality for a particular activity or service area (i.e., interior) against which service performance may be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, regulatory & environmental acceptability and cost.                                                                                                                |
| Life                                | A measure of the anticipated life of an asset or component, such as time, number of cycles, distance intervals etc.                                                                                                                                                                                                                                                                          |
| Lifecycle                           | Lifecycle has two meanings:<br>(a) The cycle of activities that an asset (or facility) goes through while it retains an identity as a particular asset, i.e., from planning and design to decommissioning or disposal.<br>(b) The period between a selected date and the last year over which the criteria (e.g., costs) relating to a decision or alternative under study will be assessed. |
| Lifecycle Cost                      | The total cost of an asset throughout its life including planning, design, construction, acquisition, operation, maintenance, rehabilitation and disposal costs.                                                                                                                                                                                                                             |
| Maintenance                         | All actions necessary for retaining an asset as near as practicable to its original condition but excluding rehabilitation or renewal.                                                                                                                                                                                                                                                       |
| Objective                           | An objective is a general statement of intention relating to a specific output or activity. They are generally longer-term aims and are not necessarily outcomes that managers can control.                                                                                                                                                                                                  |
| Operations                          | The active process of utilising an asset that will consume resources such as manpower, energy, chemicals, cleaning products and materials. Operation costs are part of the life cycle costs of an asset.                                                                                                                                                                                     |

|                                 |                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Optimised Decision Making (ODM) | An optimisation process for considering and prioritising all options to rectify performance failures of assets. The process encompasses net present value analysis and risk assessment.                                                                                                                                                                                                     |
| Performance Measure             | A qualitative or quantitative measure of a service or activity used to compare actual performance against a standard or other target. Performance indicators commonly relate to statutory limits, safety, responsiveness, cost, comfort, asset performance, reliability, efficiency, environmental protection and customer satisfaction.                                                    |
| Performance Monitoring          | Continuous or periodic quantitative and qualitative assessments of the actual performance compared with specific objectives, targets, or standards.                                                                                                                                                                                                                                         |
| Physical Life                   | The actual life of an asset.                                                                                                                                                                                                                                                                                                                                                                |
| Rehabilitation                  | Works to rebuild or replace parts or components of an asset, to restore it to a required functional condition and extend its life, which may incorporate some modification. Generally, involves repairing the asset using available techniques and standards to deliver its original LoS (i.e. Re-roofing, replacing doors etc.) without resorting to significant upgrading or replacement. |
| Renewal                         | Works to upgrade, refurbish, rehabilitate or replace existing facilities with facilities of equivalent capacity or performance capability.                                                                                                                                                                                                                                                  |
| Repair                          | Action to restore an item to its previous condition after failure or damage.                                                                                                                                                                                                                                                                                                                |
| Replacement                     | The complete replacement of an asset that has reached the end of its life, to provide a similar or agreed alternative, LoS.                                                                                                                                                                                                                                                                 |
| Replacement Value               | The prevailing market cost of supply and installation of an asset delivering an equivalent service, making no allowance for depreciation of the asset.                                                                                                                                                                                                                                      |
| Risk Management                 | The application of a formal process to the range of possible values relating to key factors associated with risk to determine the resultant ranges of outcomes and their probability of occurrence.                                                                                                                                                                                         |
| 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.                                                                                                                                                                                                                                              |
| Strategic Plan                  | Strategic planning involves making decisions about the long-term goals and strategies of an organisation. Strategic plans have a strong external focus, cover major portions of the organisation, and identify major targets, actions and resource allocations relating to the long-term survival, value and growth of the organisation.                                                    |
| Scheduled Maintenance           | Work carried out to a predetermined schedule e.g., air cooler service or programmed because of identified needs e.g., repairing a cracked wall.                                                                                                                                                                                                                                             |
| Unscheduled Maintenance         | Work carried out in response to reported problems of defects e.g., cleaning up vandalism.                                                                                                                                                                                                                                                                                                   |
| Upgrading                       | The replacement of an asset or addition/ replacement of an asset component which materially improves the original service potential of the asset.                                                                                                                                                                                                                                           |
| User Cost                       | Cost borne by the public when using the water.                                                                                                                                                                                                                                                                                                                                              |
| Valuation                       | Estimated asset value which may depend on the purpose for which the valuation is required, i.e., replacement value for determining lifecycle costing or insurance valuation.                                                                                                                                                                                                                |

## Appendix B – Legislative Framework

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### Legislative Requirements and Local Laws

As a local government owned business, Local Water Utility's (LWUs) are subject to several legislative obligations and requirements. The Local Government Act establishes the conformance criteria which enables sustainable performance achievements. Through the NSW Government's Country Towns Water Supply and Sewerage Program, Sections 283 to 322 of the Water Management Act 2000, and Sections 56 to 66 of the Local Government Act 1993, the Minister for Water is responsible for overseeing the performance of LWUs.

Goal 22 under the NSW Government's 10-year plan is to protect our natural environment and improve the health of wetlands and catchments through actively managing water. Water reforms in NSW included the implementation of the Water Management Act 2000, the development of 63 water sharing plans (improving the management of water resources) and a National Water Initiative (NWI) that commits NSW to achieving sustainability in the use of its water resources<sup>16</sup>.

The NSW Best-Practice Management (BPM) of Water Supply and Sewerage Framework encourages the effective and efficient delivery of LWUs water supply and sewerage services. This framework promotes continuing improvement in sustainable water conservation practices, water demand management and appropriate, affordable and cost-effective water supply.

National requirements include Australian Drinking Water Guidelines, 2011; National Water Initiative (reforms and pricing principles); National Urban Water Planning Principles; and the COAG Strategic Framework for Water Reform.

Council's are subject to several legislative obligations and requirements. The Local Government Act establishes the conformance criteria which enables sustainable performance achievements. The framework for Water includes various Water Acts, Public Health and Safety and Environmental Guidelines.

The primary legislation that impacts on how water assets are managed or used is briefly described below. You can find further information regarding these acts at [www.legislation.nsw.gov.au](http://www.legislation.nsw.gov.au).

| Reference                        | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Local Government Act 1993</i> | <p>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.</p> <p>The purposes of this Act are as follows:</p> <ul style="list-style-type: none"><li>(a) to provide the legal framework for an effective, efficient, environmentally responsible, and open system of local government in New South Wales,</li><li>(b) to regulate the relationships between the people and bodies comprising the system of local government in New South Wales,</li><li>(c) to encourage and assist the effective participation of local communities in the affairs of local government,</li><li>(d) to give council's:</li></ul> |

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<sup>16</sup> Source: EPA, 2012, NSW State of the Environment.

| Reference                                                                | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                          | <ul style="list-style-type: none"> <li>• the ability to provide goods, services, and facilities, and to carry out activities, appropriate to the current and future needs of local communities and of the wider public</li> <li>• the responsibility for administering some regulatory systems under this Act</li> <li>• a role in the management, improvement, and development of the resources of their areas, <ul style="list-style-type: none"> <li>• (e) To require council's, councillors, and council employees to have regard to the principles of ecologically sustainable development in carrying out their responsibilities.</li> </ul> </li> </ul> |
| <i>Public Works and Procurement Act 1912</i>                             | Sets out the role of Council in the planning and construction of new assets.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <i>Environmental Planning and Assessment Act 1979</i>                    | An Act to institute a system of environmental planning and assessment for the State of New South Wales. Among other requirements the Act outlines the requirement for the preparation of Local Environmental Plans (LEP), Development Control Plans (DCP), Environmental Impact Assessments (EIA) and Environmental Impact Statements (EIS).                                                                                                                                                                                                                                                                                                                   |
| <i>Work Health and Safety Act 2011 and Workers Compensation Act 1987</i> | Sets out roles and responsibilities to secure the health, safety, and welfare of persons at work, covering injury management, emphasising rehabilitation of workers particularly for return to work. Council is to provide a safe working environment and supply equipment to ensure safety.                                                                                                                                                                                                                                                                                                                                                                   |
| <i>Public Health Act 2010</i>                                            | An Act relating to the maintenance of proper standards of health for the public. Council operations need to be carried out in a manner that protects public health.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <i>Soil Conservation Act 1938</i>                                        | An Act to make provision for the conservation of soil resources and farm water resources and for the mitigation of erosion. It addresses preservation of watercourse environments.                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <i>Independent Pricing and Regulatory Tribunal Act 1992</i>              | The Act empowers the Independent Pricing and Regulatory Tribunal (IPART) which sets principles and guidelines related to charging for water supply.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <i>Competition Policy including Competition Policy Reform Act 1995</i>   | Council is subject to prohibition on anti-competitive behaviour, according to the Trade Practices Act.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <i>Protection of the Environment Operations Act 1997</i>                 | Council is required to exercise due diligence to avoid environmental impact and among others are required to develop operations emergency plans and due diligence plans to ensure that procedures are in place to prevent or minimise pollution.                                                                                                                                                                                                                                                                                                                                                                                                               |
| <i>Water Management Act 2000</i>                                         | An Act to provide for the protection, conservation, and ecologically sustainable development of the water sources of NSW, and for other purposes. Allows Council to levy developer charges and addresses water sharing and environmental flows.                                                                                                                                                                                                                                                                                                                                                                                                                |
| <i>Dams Safety Act 2011</i>                                              | Act that provides regulation for the safety and risk minimisation for management relating to dams.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

## Appendix C – Asset Quantities

### Asset Quantities (at 30 June 2022)

| ASSET GROUP       | ASSET TYPE | DESIGN LIFE | QUANTITY | REPLACEMENT COST (\$) |
|-------------------|------------|-------------|----------|-----------------------|
| Water Connections | Copper     | 85          | 63.43 km | 5,471,353             |
| Water Connections | Poly       | 100         | 32.02 km | 1,560,188             |
| Water Connections | uPVC       | 100         | 1.08 km  | 113,645               |
| Water Connections | Cast Iron  | 85          | 0.00km   | 364                   |

| ASSET GROUP    | ASSET TYPE     | DESIGN LIFE | QUANTITY | REPLACEMENT COST (\$) |
|----------------|----------------|-------------|----------|-----------------------|
| Water Hydrants | Water Hydrants | 85          | 2,249    | 6,492,665             |

| ASSET GROUP  | ASSET TYPE   | DESIGN LIFE | QUANTITY | REPLACEMENT COST (\$) |
|--------------|--------------|-------------|----------|-----------------------|
| Water Meters | Water Meters | 15          | 7,165    | 3,025,476             |

| ASSET GROUP     | ASSET TYPE                | DESIGN LIFE | QUANTITY | REPLACEMENT COST (\$) |
|-----------------|---------------------------|-------------|----------|-----------------------|
| Water Pipelines | Asbestos Cement           | 70          | 41.15 km | 13,915,839            |
| Water Pipelines | Cast Iron                 | 85          | 1.2 km   | 505,332               |
| Water Pipelines | Ductile Iron Cement Lined | 80          | 2.59 km  | 2,220,499             |
| Water Pipelines | Fibrous Cement            | 75          | 2.45 km  | 478,760               |
| Water Pipelines | Poly                      | 100         | 2.5 km   | 409,426               |
| Water Pipelines | Steel                     | 80          | 0.3 km   | 212,118               |
| Water Pipelines | uPVC                      | 100         | 150.7 km | 35,962,701            |

| ASSET GROUP         | ASSET TYPE          | DESIGN LIFE | QUANTITY | REPLACEMENT COST (\$) |
|---------------------|---------------------|-------------|----------|-----------------------|
| Water Swabbing Pits | Water Swabbing Pits | 85          | 39       | 74,660                |

| ASSET GROUP  | ASSET TYPE   | DESIGN LIFE | QUANTITY | REPLACEMENT COST (\$) |
|--------------|--------------|-------------|----------|-----------------------|
| Water Valves | Water Valves | 85          | 1,404    | 2,863,806             |

| ASSET GROUP   | ASSET TYPE    | DESIGN LIFE | QUANTITY | REPLACEMENT COST (\$) |
|---------------|---------------|-------------|----------|-----------------------|
| Water RTU-PLC | Water RTU-PLC | 10          | 8        | 40,350                |

| ASSET GROUP           | ASSET TYPE              | DESIGN LIFE | QUANTITY | REPLACEMENT COST (\$) |
|-----------------------|-------------------------|-------------|----------|-----------------------|
| Water Filling Station | Electrical              | 10 - 20     | 6        | 85,033                |
| Water Filling Station | Mechanical Device       | 15          | 2        | 2,726                 |
| Water Filling Station | Site Infrastructure     | 10          | 2        | 2,028                 |
| Water Filling Station | Structure               | 50          | 2        | 4,949                 |
| Water Filling Station | Valves, Pipes, Fittings | 85          | 2        | 7,354                 |

| ASSET GROUP         | ASSET TYPE                                    | DESIGN LIFE | QUANTITY | REPLACEMENT COST (\$) |
|---------------------|-----------------------------------------------|-------------|----------|-----------------------|
| Water Pump Stations | Bunding                                       | 100         | 1        | 4,464                 |
| Water Pump Stations | Electrical                                    | 20 – 100    | 26       | 742,547               |
| Water Pump Stations | Gantry                                        | 50          | 2        | 95,862                |
| Water Pump Stations | Ladders, Platforms, Handrails                 | 30          | 2        | 194,576               |
| Water Pump Stations | Mechanical Device (pump, motor, gear box etc) | 20 - 50     | 29       | 1,199,929             |
| Water Pump Stations | Pit                                           | 100         | 3        | 88,377                |
| Water Pump Stations | Safety Equipment                              | 15          | 5        | 14,632                |
| Water Pump Stations | Site Infrastructure                           | 50          | 8        | 149,191               |
| Water Pump Stations | Structure                                     | 50          | 8        | 2,414,938             |
| Water Pump Stations | Tank                                          | 65          | 5        | 37,256                |
| Water Pump Stations | Valves, Pipes, Fittings                       | 50          | 73       | 1,098,487             |

| ASSET GROUP           | ASSET TYPE | DESIGN LIFE | QUANTITY | REPLACEMENT COST (\$) |
|-----------------------|------------|-------------|----------|-----------------------|
| Water Treatment Plant | Bunding    | 100         | 1        | 87,528                |
| Water Treatment Plant | Earthworks | 100         | 2        | 526,941               |
| Water Treatment Plant | Electrical | 10 – 100    | 102      | 3,842,689             |
| Water Treatment Plant | Gantry     | 50          | 8        | 170,257               |

| ASSET GROUP           | ASSET TYPE                    | DESIGN LIFE | QUANTITY | REPLACEMENT COST (\$) |
|-----------------------|-------------------------------|-------------|----------|-----------------------|
| Water Treatment Plant | Ladders, Platforms, Handrails | 50          | 20       | 192,915               |
| Water Treatment Plant | Mechanical Device             | 10 - 60     | 82       | 2,355,348             |
| Water Treatment Plant | Pit                           | 60 - 85     | 17       | 496,882               |
| Water Treatment Plant | Safety Equipment              | 15          | 9        | 56,781                |
| Water Treatment Plant | Site Infrastructure           | 25 - 100    | 12       | 330,315               |
| Water Treatment Plant | Structure                     | 10 - 100    | 11       | 3,343,383             |
| Water Treatment Plant | Tank                          | 10 - 50     | 28       | 6,000,392             |
| Water Treatment Plant | Valves, Pipes, Fittings       | 50 - 100    | 117      | 4,469,363             |

| ASSET GROUP      | ASSET TYPE                    | DESIGN LIFE     | QUANTITY | REPLACEMENT COST (\$) |
|------------------|-------------------------------|-----------------|----------|-----------------------|
| Water Reservoirs | Earthworks                    | Non Depreciable | 1        | 6,408                 |
| Water Reservoirs | Electrical                    | 10 - 85         | 75       | 1,538,750             |
| Water Reservoirs | Gantry                        | 50              | 8        | 253,503               |
| Water Reservoirs | Ladders, Platforms, Handrails | 50 - 100        | 31       | 1,007,625             |
| Water Reservoirs | Mechanical Device             | 10 - 50         | 12       | 78,846                |
| Water Reservoirs | Pit                           | 60 - 120        | 29       | 818,788               |
| Water Reservoirs | Site Infrastructure           | 25 - 120        | 34       | 791,139               |
| Water Reservoirs | Structure                     | 50 - 100        | 39       | 16,913,813            |
| Water Reservoirs | Tank                          | 50              | 1        | 2,331                 |
| Water Reservoirs | Valves, Pipes, Fittings       | 10 - 100        | 75       | 1,183,076             |

## Appendix D – Asset Condition

The following table identifies the type of assessment undertaken for each asset type. Financial condition classification is simplified into a 1-5 scoring.

| Condition Rating | Condition Type                      | Condition Rating Description                                                                                                                                                                                                |
|------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0                | Excellent                           | A new asset or an asset recently rehabilitated back to new condition                                                                                                                                                        |
| 0.5              | Excellent                           | A near new asset with no visible signs of deterioration often moved to condition 0.5 based upon the time since construction rather than observed condition decline.                                                         |
| 1                | Excellent                           | An asset in excellent overall condition. There would be only very slight condition decline, but it would be obvious that the asset was no longer in new condition.                                                          |
| 1.5              | Excellent                           | An asset in very good overall condition but with some early stages of deterioration evident, but the deterioration still minor in nature and causing no serviceability problems.                                            |
| 2                | Good                                | An asset in good overall condition but with some obvious deterioration evident, serviceability would be impaired very slightly.                                                                                             |
| 2.5              | Good                                | An asset in fair overall condition. Deterioration in condition would be obvious and there would be some serviceability loss.                                                                                                |
| 3                | Average                             | An asset in fair to average overall condition. The condition deterioration would be obvious. Asset serviceability would now be affected, and maintenance cost would be rising.                                              |
| 3.5              | Average                             | An asset in average to poor overall condition. Deterioration would be quite moderate and would be starting to limit the serviceability of the asset. Maintenance cost would be high.                                        |
| 4                | Poor -Significant Renewal           | An asset in very poor overall condition with serviceability now being heavily impacted upon by the poor condition. Maintenance cost would be very high, and the asset would at a point where it needed to be rehabilitated. |
| 4.5              | Poor - Significant Renewal          | An asset in extremely poor condition with severe serviceability problems and needing rehabilitation. Could also be a risk to remain in service.                                                                             |
| 5                | Very Poor - Unserviceable           | An asset that is no longer providing an acceptable LoS. If action is not taken, asset will need to be closed or decommissioned.                                                                                             |
| 99               | Not Maintained/Not Owned by Council | Condition of the asset is unknown. This is an asset that is not maintained by Council.                                                                                                                                      |

| Asset Type             | Condition Assessment Type                                                                                | Description                                                                                                                                                                                                                                         |
|------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Water Connections      | Condition is rated via age and material due to inaccessibility to infrastructure.                        | Material of the pipelines has an expected useful life which is used to predict condition rating.                                                                                                                                                    |
| Water Filling Stations | Asset condition is collected for all water filling stations via a visual inspection.                     | The water filling stations condition is calculated using a series of parameters as identified below: <ul style="list-style-type: none"> <li>• Base station</li> <li>• Surface defects</li> <li>• Deterioration</li> <li>• Public safety.</li> </ul> |
| Water Hydrants         | Asset condition is collected for all water hydrants via visual inspection and age-based information.     | The water hydrants condition is calculated using a series of parameters as identified below: <ul style="list-style-type: none"> <li>• Operational (opened/closed)</li> <li>• Surrounding condition</li> </ul>                                       |
| Water Meters           | Condition is age-based information.                                                                      | Material of the pipelines has an expected useful life which is used to predict condition rating. Readings identify non-functional meters. CRM identify replacement via reported leaks.                                                              |
| Water Pipelines        | Condition is rated via age and material due to inaccessibility to infrastructure.                        | Material of the pipelines has an expected useful life which is used to predict condition rating.                                                                                                                                                    |
| Water Pump Stations    | Asset condition is collected for all water pump stations via visual inspection                           | All elements within the pump station are condition rated via an external valuer which is conducted every five years.                                                                                                                                |
| Water Reservoirs       | Asset condition is collected for all water reservoirs via a visual inspection.                           | All elements within the pump station are condition rated via an external valuer which is conducted every five years.                                                                                                                                |
| Water RTU PLC          | Condition is age-based information.                                                                      | Structure/material of the RTU PLC has an expected useful life which is used to predict condition rating.                                                                                                                                            |
| Water Swabbing Pits    | Condition is age-based information.                                                                      | Structure/material of the RTU PLC has an expected useful life which is used to predict condition rating.                                                                                                                                            |
| Water Treatment Plant  | Asset condition is collected for all elements within the treatment plant are done via visual inspection. | All elements within the treatment plant are condition rated via an external valuer which is conducted every five years.                                                                                                                             |

## Appendix E – Relevant Council Documents

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- Asset Management Policy
- Asset Management Strategy 2025-2035
- Richmond Valley Community Strategic Plan
- Resourcing Strategy
- Operational Plan and Delivery Plan
- Long Term Financial Plan
- 2050 Water For Life Strategy
- Integrated Water Cycle Management Strategy
- CSP Community Engagement Strategy
- Richmond Valley Topline
- Nixon Clarity Strategic Output Plan Draft AL - W&S AMP - Draft (1)
- Operations Manual - Casino WTP
- PUB22-498-Regulatory-and-assurance-framework-for-local-water-utilities
- Report - Richmond Valley Community Research 2013
- RVC 2010 Development Servicing Plan - Water Supply Services
- RVC DSP Sewer Standard of Service
- RVC Safety Hazard-Risk Register 3.0
- RVC Annual Report
- RVC-End-Of-Term-Report-Web
- RVC Water and Sewer Strategic Plan 2018

## Appendix F – 10 Year Financial Forecast

| Cost Category | Budget 2025/2026 (\$) | Budget 2026/2027 (\$) | Budget 2027/2028 (\$) | Budget 2028/2029 (\$) | Budget 2029/2030 (\$) | Budget 2030/2031 (\$) | Budget 2031/2032 (\$) | Budget 2032/2033 (\$) | Budget 2033/2034 (\$) | Budget 2034/2035 (\$) | 1-5 Years (\$)    | 1-10 Years (\$)   |
|---------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-------------------|-------------------|
| Operations    | 4,005,590             | 4,139,113             | 4,220,540             | 4,345,835             | 4,475,122             | 4,608,551             | 4,774,582             | 4,917,429             | 5,064,878             | 5,216,702             | 21,186,200        | 45,768,342        |
| Maintenance   | 637,070               | 654,931               | 673,200               | 691,987               | 711,305               | 731,169               | 751,595               | 772,589               | 794,179               | 816,370               | 3,368,493         | 7,235,395         |
| Renewal       | 3,171,000             | 8,424,450             | 8,873,500             | 1,410,000             | 1,500,000             | 1,055,000             | 1,155,000             | 1,205,000             | 1,210,000             | 1,225,000             | 23,378,950        | 29,228,950        |
| Upgrade       | 225,000               | -                     | -                     | -                     | -                     | -                     | -                     | -                     | -                     | -                     | 225,000           | 225,000           |
| New           | 485,000               | 350,000               | 300,000               | 700,000               | 300,000               | 300,000               | 300,000               | -                     | -                     | -                     | 2,135,000         | 2,735,000         |
| <b>Total</b>  | <b>8,523,660</b>      | <b>13,568,494</b>     | <b>14,067,240</b>     | <b>7,147,822</b>      | <b>6,986,427</b>      | <b>6,694,720</b>      | <b>6,981,177</b>      | <b>6,895,018</b>      | <b>7,069,057</b>      | <b>7,258,072</b>      | <b>50,293,643</b> | <b>85,192,687</b> |

## Appendix G - 10 Year Capital Improvement Program

| Project | Description                                | Budget<br>2025/2026<br>(\$) | Budget<br>2026/2027<br>(\$) | Budget<br>2027/2028<br>(\$) | Budget<br>2028/2029<br>(\$) | Budget<br>2029/2030<br>(\$) | Budget<br>2030/2031<br>(\$) | Budget<br>2031/2032<br>(\$) | Budget<br>2032/2033<br>(\$) | Budget<br>2033/2034<br>(\$) | Budget<br>2034/2035<br>(\$) |
|---------|--------------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
|         | Jabour Weir Fishway Construction           |                             | 2,300,000                   | 2,900,000                   |                             |                             |                             |                             |                             |                             |                             |
| 849100  | Mains to be allocated                      |                             |                             |                             | 500,000                     | 500,000                     | 550,000                     | 550,000                     | 600,000                     | 600,000                     | 600,000                     |
| 849350  | Valve Renewals - to be allocated           | 40,000                      | 40,000                      | 40,000                      | 25,000                      | 25,000                      | 30,000                      | 30,000                      | 30,000                      | 35,000                      | 50,000                      |
| 849178  | Colches St; Railway Bridge                 | 1,200,000                   |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| 849182  | Centre St; Richmond St to Lot C DP342092   | 480,000                     |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|         | Sandilands St; Colches St Nth to Hotham St | 100,000                     |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|         | Cassia Ave; Hotham St east                 | 74,000                      |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|         | Dyraaba St; Hotham St east                 | 73,000                      |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|         | East St; Sharon Ct to Dyraaba St           | 146,000                     |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|         | Gillette St; Fergusson St to Canterbury St | 71,000                      |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|         | Kyogle St; Hotham St east                  | 73,000                      |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|         | Lennox St; West St to Centre St            | 176,000                     |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|         | Hill Crest Lane to 150mm PVC               | 48,000                      |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|         | High St; Apsley St to PVC @ 30 High St     |                             | 90,000                      |                             |                             |                             |                             |                             |                             |                             |                             |
|         | Arthur St; Canterbury St to Gitana St      |                             | 119,700                     |                             |                             |                             |                             |                             |                             |                             |                             |
|         | North St; Hotham St to Railway             |                             | 52,750                      |                             |                             |                             |                             |                             |                             |                             |                             |

| Project | Description                                                                       | Budget<br>2025/2026<br>(\$) | Budget<br>2026/2027<br>(\$) | Budget<br>2027/2028<br>(\$) | Budget<br>2028/2029<br>(\$) | Budget<br>2029/2030<br>(\$) | Budget<br>2030/2031<br>(\$) | Budget<br>2031/2032<br>(\$) | Budget<br>2032/2033<br>(\$) | Budget<br>2033/2034<br>(\$) | Budget<br>2034/2035<br>(\$) |
|---------|-----------------------------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
|         | Park Ln; North St to Riverside Ln                                                 |                             | 63,000                      |                             |                             |                             |                             |                             |                             |                             |                             |
|         | West St; McElroy St to Division St                                                |                             | 54,000                      |                             |                             |                             |                             |                             |                             |                             |                             |
|         | Centre St, Canterbury St to Barker St                                             |                             | 500,000                     |                             |                             |                             |                             |                             |                             |                             |                             |
|         | Short St; Johnston St to Cumberland St                                            |                             |                             | 103,500                     |                             |                             |                             |                             |                             |                             |                             |
|         | Casino High School                                                                |                             |                             | 150,000                     |                             |                             |                             |                             |                             |                             |                             |
|         | Swanson Lane, Lot 2 DP589417 to Diary St                                          |                             |                             | 40,000                      |                             |                             |                             |                             |                             |                             |                             |
|         | W Main Cas - Bruxner Hwy; Colches St to Bruxner Hwy; Colches St to Sextonville Rd |                             |                             | 250,000                     | 250,000                     | 230,000                     |                             |                             |                             |                             |                             |
| 849200  | Mains to be allocated                                                             |                             |                             | 45,000                      | 90,000                      |                             |                             |                             |                             |                             |                             |
|         | Queen Elizabeth Dr; Yabsley north to Lagoon Rd                                    |                             | 80,000                      |                             |                             |                             |                             |                             |                             |                             |                             |
| 849250  | Mains to be allocated                                                             |                             |                             | 70,000                      | 70,000                      | 70,000                      |                             |                             |                             |                             |                             |
| 849400  | Planned Renewals                                                                  | 50,000                      | 50,000                      | 50,000                      | 50,000                      | 50,000                      | 50,000                      | 50,000                      | 50,000                      | 50,000                      | 50,000                      |
| 849401  | Meter and Service Installations                                                   | 15,000                      | 15,000                      | 15,000                      | 15,000                      | 15,000                      | 15,000                      | 15,000                      | 15,000                      | 15,000                      | 15,000                      |
|         | Smart Metering - Mid Richmond (Casino)                                            |                             | 0                           | 300,000                     | 300,000                     | 300,000                     | 300,000                     | 300,000                     |                             |                             |                             |
|         | Smart Metering - Mid Richmond (Coraki)                                            |                             | 350,000                     |                             |                             |                             |                             |                             |                             |                             |                             |
| 849407  | Smart Metering - Mid Richmond (Broadwater)                                        | 200,000                     |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| 849409  | Smart Metering - Mid Richmond (Woodburn)                                          | 250,000                     |                             |                             |                             |                             |                             |                             |                             |                             |                             |
| 849465  | Flow Meter Renewals                                                               | 40,000                      |                             |                             |                             |                             |                             |                             |                             |                             |                             |
|         |                                                                                   |                             |                             |                             |                             |                             |                             |                             |                             |                             |                             |

## Appendix H – Capital Works Evaluation Module

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Council is reviewing a Capital Works Evaluation Module which involves the following workflow:

**Initial Concept:** The first review is an overarching assessment to determine if the capital works conforms with current management plans and corporate policies. This considers the community current and future needs and identification or corporate supporting criteria.

**Justification:** The justification phase assesses against Asset Management Plans, Council Strategies, Plans of Management and any financial and timing criteria.

**Consequence evaluation:** This phase determines a consequence rating associated with not undertaking the project. This scoring is used with the justification ranking with a matrix assessment applied.

**Financial Analysis:** This stage determines the financial impacts of a project on Council. For any new assets the WOL evaluation module should be applied. A minimum level analysis on all assessments should include project expenditure and cash flow, finding sources and the project revenue.

**Cost Benefit Analysis:** Identification of benefits undertaking the project, justifiable expenditure, economic, social and environmental factors.

**Project Ranking:** The final stages determine an overall project ranking. This is calculated through the justification score x consequence score. Project ranking/weighting scores to identify/compares projects of level of importance.

