

Sewer

Asset Management Plan

2025-2035



Richmond
Valley
Council

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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) is custodian of an extensive range of community assets that it provides to facilitate delivery of its services to the community. This includes 231km of sewerage pipelines and connections, a comminutor and 33 pump stations, four treatment plants, and associated infrastructure for which it has responsibility within the Local Government Area (LGA).

The sewer network is valued at \$195,197,997 at 30 June 2024, and detailed in the following table.

Sewer Infrastructure

Asset Group	Asset Type	Quantity of Sewer Assets	Length of Assets (km)	Replacement Cost (\$)
Sewer Connections	Pipeline connections	6,371	24.81	8,095,376
Sewer Maintenance Shafts	Maintenance shafts	19		90,051
Sewer Manholes	Manholes	2,511		22,341,671
Sewer Pipelines	Pipes	3,786	192.45	72,223,481
Sewer Pressure Flushing Pits	Pits	37		235,406
Sewer Pressure Mains	Sewer mains	83	8.56	1,910,032
Sewer Pressure Pod Control Panel	Control panels	230		483,236
Sewer Pressure Pod Pumps	Pumps	232		825,982
Sewer Pressure Pod Tanks	Tanks	220		2,386,247
Sewer Pressure Service Connection	Pipeline connections	304	8.96	1,471,214
Sewer Pressure Valves	Pressure valves	46		81,042
Sewer Pump Stations	Control panels, pumps, pits, tanks etc.	698		22,811,782
Sewer RM Valve Pits	Valve pits	84		512,675
Sewer RM Valves	Rising main valves	168		1,532,022
Sewer Rodding Ends	Rodding ends	11		27,436
Sewer RTU PLC	Dataloggers, PLC	10		41,281
Sewer Treatment Plants	Control panels, pumps, pits, tanks etc.	775		58,511,219
Sewer Vent Stacks	Vent stacks	88		1,577,841
	Total	15,673	234.77	195,197,997



Key Issues

A summary of key issues related to the management of Council's sewer infrastructure are:

Key Issues

- Raw sewage in Casino appears to be heavily influenced by trade waste contributions which may influence the achievement of licence quality and load limits.
- There is a risk that the total phosphorus load limit from Casino STP could be breached based on the current process configuration and reuse quantities.
- The Casino STP sludge handling facilities appear to be overloaded.
- The Casino STP relies heavily on the performance of the wetlands to achieve the effluent licence load and concentration limits.
- Casino STP and sewerage pipelines are ageing.
- Dry weather groundwater infiltration and wet weather stormwater infiltration are significant in Evans Head, Casino and Coraki.
- The performance of Evans Head STP is affected during peak wet weather events and the peak summer holiday period. Augmentation of the STP will be required to cater for catchment growth and peak loadings.
- Coraki STP is ageing.
- Non-compliance with TSS licence limits at Coraki STP is expected to be an ongoing issue until the algal growth is controlled.
- The effects of climate change will have direct and indirect implications for Richmond Valley in relation to sewerage services including damage to infrastructure from flooding, storms and sea level rise, the need to reduce greenhouse emissions and potentially higher cost of energy.
- The location/routes of underground assets in rural areas are not clearly marked and are potentially subject to accidental damage during excavation.
- The cost of provision of sewerage services in the Richmond Valley area is high.
- Typical residential bills are high for sewerage.

Levels of Service - Performance

Service levels of sewer 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 authorities.

Council has identified minimum standard performance targets and 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 quality, compliance, availability and security.

Demand - New Infrastructure

Specific government projects that will impact on the sewer infrastructure include the Regional Jobs Precincts, Growth Management Strategy, and Casino Place Plans. The Growth Management Strategy¹ identified that the floods of 2022 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 Government² 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 sewer supply network.

The Casino Place Plan³ provides planning towards supporting growth for population, employment and housing. It is recognised that an estimated \$14.64 million is required in new sewer infrastructure to service the residential investigation areas identified from the growth strategy.

Demand - Existing Sewer 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 sewerage renewals 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

Sewer network assets on average have a remaining useful life of 50% of their expected lifecycles based on average condition; however more critical infrastructure assets including sewer pump stations and sewer treatment plants are on average 71% of their useful life.

Strategic planning will assist with the forward planning enabling Richmond Valley to meet demand from a growing population and continuing to service the existing community.

Ten Year Financial Forecast

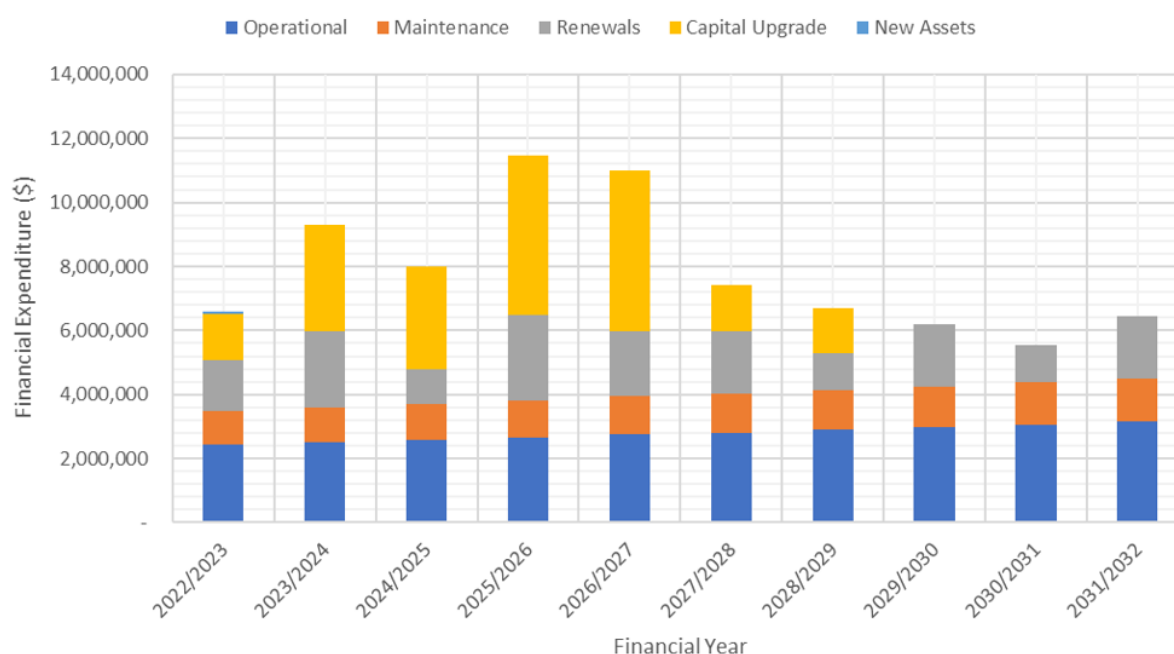
The 10-year financial forecast is detailed within **Appendix F** for Council's sewer infrastructure including new, upgrades and capital works for each asset group. The reasons for the expenditure are identified for each asset group in Lifecycle Management Plans.

¹ https://richmondvalley.nsw.gov.au/wp-content/uploads/2023/04/230412_Growth-Management-Strategy-original.pdf

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

³ https://richmondvalley.nsw.gov.au/wp-content/uploads/2023/04/230412-Final_Casino-Place-Plan-original.pdf

Ten Year Financial Projections



Sewer Pump Stations and Sewer Treatment Plants are on average condition of 71% of their useful life. Council's aging sewer infrastructure requires further long-term planning where major financial investment will be required to replace or major upgrades over the next 30 years.

A major issue concerning sewer 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 funding options considered:

- Rating charges for sewer supply;
- 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 of the LGA. 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 sewer network over a large area and funding the renewal and maintenance of this network into the future will remain key.

Asset Management Improvements

The following list of improvements have 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 sewer 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.
- Complete the identification of the infrastructure risk register for Council's sewer infrastructure and 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.
- Confirm target service levels, monitor and report outcomes.
- 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.
- Identify the critical demands on the assets and use these demands and actions in the strategic plans
- Develop Council reporting templates for whole of life (WOL) costs for future capital works projects.



1. Introduction

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

This Sewer Asset Management Plan (SAMP) has been developed to assist Council to manage sewer systems, taking into consideration the important links provided by the Department of Planning and Environment (DPE).

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, Long-Term Capital Plan and Community Strategic Plan.

Richmond Valley Council (RVC) is custodian of an extensive range of community assets that it provides to facilitate delivery of its services to the community. This includes 231km of sewer pipeline and connections infrastructure, four sewer treatment plants, a comminutor and 33 pump stations, and associated infrastructure for which it has responsibility within the Local Government Area (LGA).

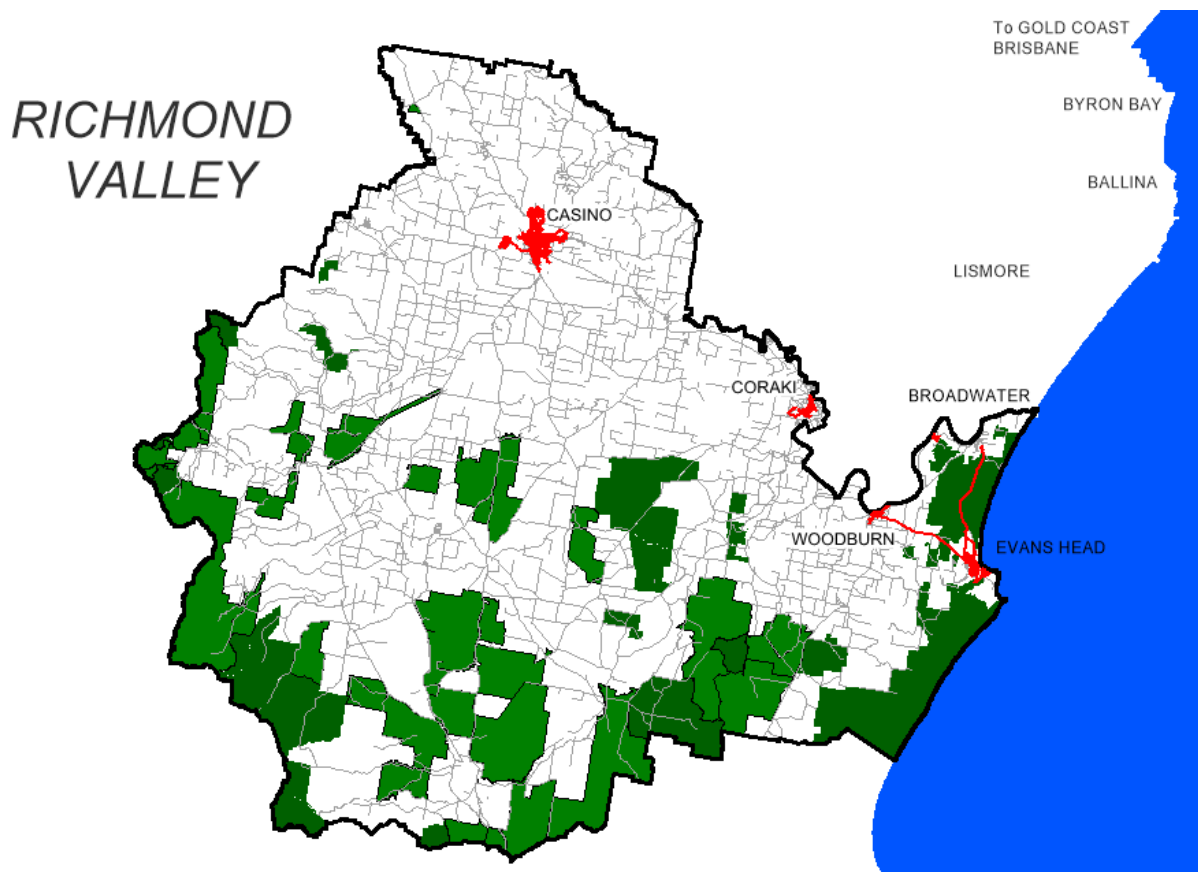


Figure 1-1: Sewer Network for Richmond Valley Council

1.1 Purpose of this Plan

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

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

- Demonstrate responsible stewardship.
- Translate the Council Strategic Goals into sewer 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 sewer 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 level of service 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).

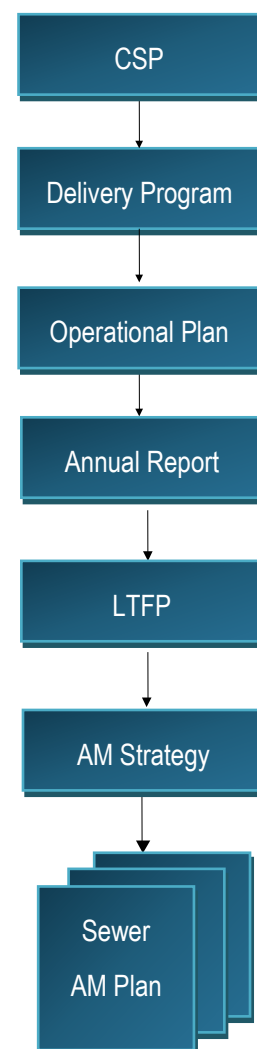
Long-Term Financial Plan: The Long-Term Financial Plan (LTFP) is a 10-year rolling plan that informs decision-making and demonstrates how the objectives of the CSP and commitments of the DP and OP will be resourced and funded. The LTFP captures financial implications of asset management and workforce 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 sewer assets include the Asset Management Policy, Water and Sewer Management Policy, Risk Management Policy and Discharge of Liquid Trade Waste into the Sewerage System Policy.



1.4 Asset Management Plan Format

This SAMP 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 Council's funding strategy.
Improvement and Monitoring	Deals with methods of monitoring performance by detailing AM processes, systems and data. It outlines a 2-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

2.1 Our Sewer Network

The sewerage network consists of 231 km of pipelines and associated infrastructure. Council's major sewer infrastructure assets consist of 4 sewer treatment plant, a comminutor and 33 pump stations, and 2507 manholes over four separate sewer schemes – Casino, Coraki, Rileys Hill and Evans Head. The townships of Woodburn and Broadwater are serviced by connecting pump stations to the Evans Head Sewerage Treatment Plant. The definitions for each of the asset types across the sewer asset network are:

- **Sewer Connections:** consisting of pipes and fittings from the sewer main to the outlet pipe of the distribution serving the abutting property.
- **Sewer Pipelines:** physical pipelines for transporting sewage to the treatment plant from properties.
- **Sewer Manholes:** maintenance holes providing formal access to the sewer pipe network.
- **Sewer Maintenance Shafts:** often known as junction chambers allow for easing inspecting and cleaning sewerage pipelines.
- **Sewer Pump Stations:** infrastructure used to move (lift) sewage wastewater to a higher elevation to transport via a gravity flow.
- **Sewer Treatment Plants:** location to treat and process raw sewerage. Involves breaking down, decomposition and treatment.
- **Sewer Vent Stacks:** regulates airflow to ensure waste flows through the pipe network.
- **Sewer Valves:** designed to limit raw sewage flow in one direction along the pipelines, and air valves for introducing/controlling air release.
- **Sewer 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.
- **Sewer Pressure Systems:** Sewer Pressure systems consist of Pods (control panels, pumps, tanks), mains, flushing pits, valves and service connections. Pressure systems are utilised through the LGA where gravity systems are unable to be implemented. These are predominately located within Broadwater, and North Woodburn.

The sewer infrastructure and quantities for Council's 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 Sewer Asset Network

Asset Group	Asset Type	Quantity of Sewer Assets	Length of Assets (km)
Sewer Connections	Pipeline connections	6,371	24.81
Sewer Maintenance Shafts	Maintenance shafts	19	
Sewer Manholes	Manholes	2,511	
Sewer Pipelines	Pipes	3,786	192.45
Sewer Pressure Flushing Pits	Pits	37	
Sewer Pressure Mains	Sewer mains	83	8.56
Sewer Pressure Pod Control Panel	Control panels	230	
Sewer Pressure Pod Pumps	Pumps	232	
Sewer Pressure Pod Tanks	Tanks	220	
Sewer Pressure Service Connection	Pipeline connections	304	8.96
Sewer Pressure Valves	Pressure valves	46	
Sewer Pump Stations	Control panels, pumps, pits, tanks etc.	698	
Sewer RM Valve Pits	Valve pits	84	
Sewer RM Valves	Rising main valves	168	
Sewer Rodding Ends	Rodding ends	11	
Sewer RTU PLC	Dataloggers, PLC	10	
Sewer Treatment Plants	Control panels, pumps, pits, tanks etc.	775	
Sewer Vent Stacks	Vent stacks	88	
	Total	15,673	234.77

2.1.1 Treatment Plants

There are four sewerage systems serving the urban areas of Casino, Evans Head (including Woodburn and Broadwater), Coraki and Rileys Hill. Sewage treatment processes and effluent management practices are as follows:

- Casino sewage treatment plant (STP) includes three trickling filters and an extended aeration tank (EAT). Treated effluent from Casino STP is reused by Blue Dog Agriculture (BDA), primarily for surface irrigation of various crops and the Casino Golf Course for irrigation of greens. The remaining treated effluent is discharged into a tertiary pond and then into a constructed wetland area within the STP site.
- Evans Head STP was augmented in 2007 with a new intermittently decanted extended aeration (IDEA) treatment plant replacing the old trickling filter plant. Treated effluent is discharged from the STP via an open drain to natural wetlands that drains into Salty Lagoon.
- Coraki STP comprises a trickling filter and two tertiary maturation ponds. Treated effluent is reused for irrigation of Coraki Golf Course. Effluent not reused is discharged via a concrete outfall pipe onto adjacent swampland which drains into the Richmond River; and
- Rileys Hill STP is an activated sludge plant incorporating UV disinfection and phosphorus removal. Treated effluent is discharged directly into the Richmond River.

The rural areas rely on on-site sewerage systems.

2.1.2 Pump Stations

The pump stations range from the below ground sewer pump stations and low-pressure pump stations. The smaller pressure pump located at households form a separate asset group compared to the Broadwater pressure system. The components that make up 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, pump and 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 and 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 at each 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 (building, onsite infrastructure, gantry, ladders, stairs, platforms, and structures supporting tanks, pumps & wells) outweigh any other component type at the pump stations.

2.1.3 Manholes

Richmond Valley has over 2,507 manholes used to access sewer pipelines and connections. In accordance with the asset register and observations within the sewer valuations, 99.5% of the manholes are 1050 mm in diameter making up the 99.37% of the total replacement costs for manholes. The remaining manholes range include 800 mm, 1200 mm and 1500 mm.

For further details and breakdown of the asset quantities refer to **Appendix C**.

2.2 Sewer Functional Hierarchy

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

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

2.3 Asset Performance

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

Performance monitoring of the sewer assets includes:

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

2.3.1 System Performance

The Water Supply & Sewerage Strategic Plan 2018 identified:

- *The volume of sewage collected per property has decreased by 20% since 2008 potentially due to internal household water saving measures and sewer infiltration/inflow reduction measures.*
- *System capacity limitations and required upgrades to achieve adopted levels of service need to be identified through hydraulic modelling of the sewerage systems.*
- *Council has prepared a Raw Water Management Plan and Improvement Plan.*
- *The Casino STP currently has little difficulty in meeting the effluent load (with the exception of total phosphorus) and concentration limits. The ultimate loading on the Casino STP is not expected to exceed the original design capacity.*
- *Treated effluent from Casino STP is currently reused primarily for surface irrigation of various crops. Historically reuse has been approximately 26% of the effluent but this has increased to 37% in the last 4 years. In dry periods, most of the effluent is reused.*
- *Evans Head STP is currently performing to licence requirements. A Stage 2 augmentation of the Evans Head STP has been delayed due to lower-than-expected growth within the catchment.*
- *The Salty Lagoon monitoring program for pre-post closure of the artificial channel indicates that the closure of the channel has been successful. Continued discharge from Evans Head STP is unlikely to adversely affect the overall health of the system.*
- *Full compliance with licence requirements is generally achieved apart from the concentration of total suspended solids (TSS) in effluent discharged from Coraki STP due to the growth of algae in the effluent ponds.*
- *Recycled water is used for irrigation of the Coraki Golf Course fairways (10% of treated effluent).*
- *Performance of the Rileys Hill sewerage system is considered to be adequate.*
- *Best-practice sewerage pricing has been implemented*

Note: New increased population growth projections will exceed of the Casino treatment plant design capacity.

2.3.2 Condition Assessment

Full network condition assessments are conducted every five 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.

The Sewerage Treatment Plants 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 condition ratings were then segregated as per the valuations between civil assets, electrical assets, instrumentation, mechanical assets, and fittings in accordance with the hierarchy.

Council has inspected 163km of sewerage gravity mains over the past nine years using CCTV technology. Council has engaged VAPAR for automated technology to identify defects and condition score using the WSA code standard. The program has a remaining 70km of network for video inspections which is anticipated to be completed over the next 2-3 years.

The sewerage pipeline network condition assessment is currently in progress utilising CCTV and automated technology to condition score and identify defects. It is expected this program will take four years to finalise the inspection of the whole network.

When condition assessments have not been recorded or updated (eg sewer pipelines assets underground and inaccessible including connections, and pressure mains), 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 sewer 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 spread of years for sewer infrastructure is based on condition based remaining life. The condition framework is detailed in **Appendix D**.

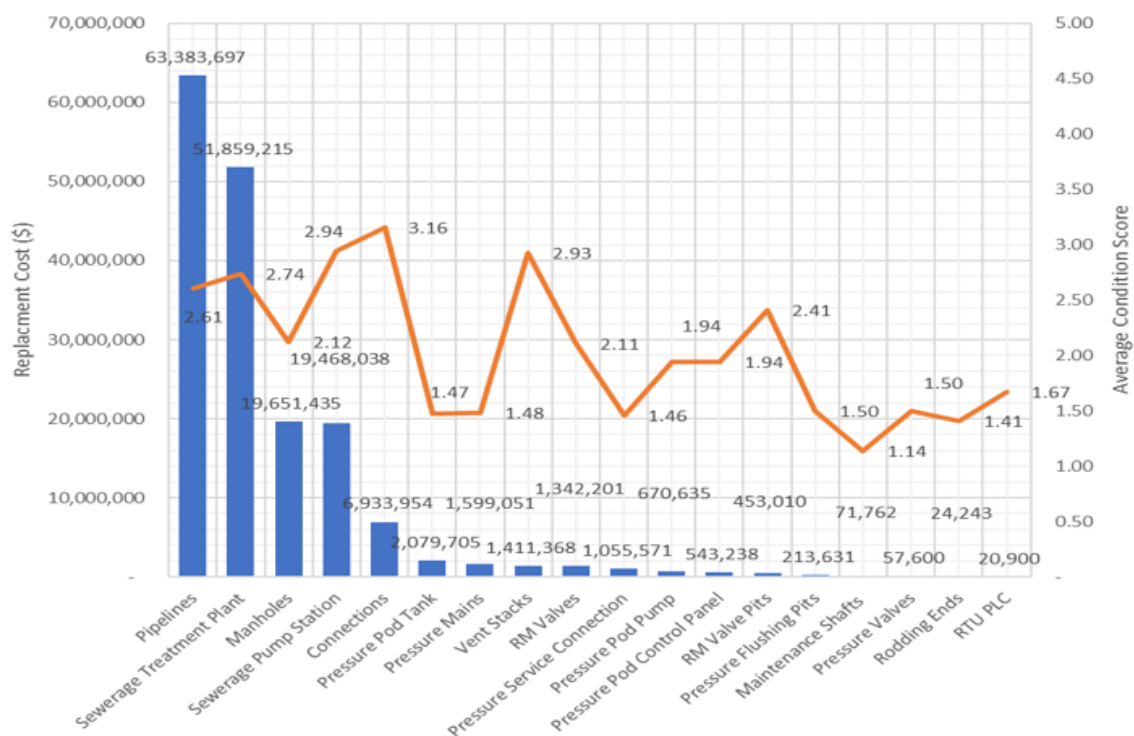


Figure 2-1: Total Replacement Value and Average Condition Score by Asset Type

Sewer Pump Stations Components

The sewerage pump stations components are individually condition rated which assists in maintenance, renewals, financial reporting, and overall asset management.

2.3.3 Customer Requests

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

Table 2-2: Sewer Infrastructure Related Customer Requests

ASSET TYPES	2020/2021	2021/2022	2022/2023	2023/2024	TOTAL	TRENDS
Blockage - Council Reticulation	116	30	65	85	296	↗
Maintenance - Council Reticulation	121	28	130	82	361	↗
Maintenance - Pump Station	4	4	0	2	10	↘
Odour	9	1	13	12	35	↔
Overflow	46	30	43	42	161	↔
TOTAL	296	93	251	223	863	↔

Trend Legend:

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

Observations

It can be observed from Table 2-2 requests and investigations into root causes that requests have increased specifically within the areas:

- Blockages in the sewer reticulation; Blockages caused by flooding (based on hydraulic capacity issues); and Sewer overflows.

The maintenance requests are presumed to be a high reactive response to the issues identified above in the sewer reticulation.



3. Strategic Environment

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:

- 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 are to 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 fulfill 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)
- 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 Sewer 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

The Objectives of relevance to this AM plan include:

- Provide a defined level of service and monitoring performance;
- Managing the impact of growth through demand management and infrastructure investment;
- Taking a lifecycle approach to developing cost-effective management strategies for the long-term that meet a defined level of service;
- 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 sewer infrastructure and assets; and
- Advocate for additional sewer funding from all levels of government.

Progress against these objectives will be measured by community satisfaction sewer 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
Projects and performance	Specification, tendering and delivery of major capital works projects.
Infrastructure services	Survey, design and specification for capital and renewal projects. Works prioritisation for renewals, disposal, and capital additions. Operations, maintenance of the sewer network and developing the operations budget.
Asset planning	Asset information compilation, database management, mapping, works prioritisation and programming, financial reporting, valuations.
Projects and performance	Specification, tendering and delivery of major capital works projects.

Key initiatives associated with the sewer network include:

- Further develop an integrated approach to asset management that is consistent with National Asset Management frameworks.
- Deliver the Richmond Valley Recovery Plan (Delivery Program).
- Deliver the 2025-2026 Operational Plan.
- Deliver the sewer renewal program; 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 service delivery for sewer infrastructure.

The 2021-2022 Capital Works Program achieved completion of 68%, however Council achieved 106% accomplishment of capital works including flood repair works of an additional \$896,677 expenditure.

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 level of service to meet the communities 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, Finance System, and Document Management System, integrating Asset Management with all of Council's operations.

3.2.3 Water for life 2050 ⁴

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 sewer renewals and upgrades.

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.



⁴ 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 RVC community, including residents, sewer users and ratepayers	Councillors
Government agencies	Executives
Developers	Managers
Contractors/suppliers	Personnel
Utility providers	Field workers
Insurers	Assets Department
Special Interest groups	Finance Department
Tourists and visitors	Operations Department
Emergency services	Customer Service

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



4. Levels of Service

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

The levels of service 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 level of service 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;
- To enable customers to assess suitability, affordability and equity of the services offered.

The adopted LoS for sewer 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 0 - Strategic Environment).
- **Statutory Requirements:** Environmental standards, Regulations, Acts and Council Policies that impact on the way assets are managed (e.g., sewer regulations, sewer 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 state-wide authorities.

Council has identified minimum standard performance targets, 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.

In 2021 Council engaged Micromex to conduct the RVC Community Research. The random survey of 403 residents in surveyed revealed their attitudes and perceptions towards current and future services and facilities provided by council. Customer survey results are represented in Table 4-1

Table 4-1: Community Survey Results

PERFORMANCE MEASURES	Customer Survey Results	Customer Survey Results	Customer Survey Results
	2016	2021	2025
Overall satisfaction with performance	94%	86%	74%
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.

The Micromex Customer Survey report provides some comparisons against the regional benchmark which has been developed across 39 Regional Councils throughout NSW. Unfortunately, however there are no specific

questions on the satisfaction with the wastewater management. A recommendation regarding satisfaction of wastewater services has been added to the improvement program of this plan.

Regarding level of investment, there is little regard for cost cutting based on the following results:

- More investment: 37%
- Priority for future planning 76%

There were no major issues related to sewer infrastructure that were identified by the community.

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 sewer

Community LOS	Community Expectation
Safety	Sewerage network is maintained and managed to prevent a public health risk and protects the natural environment.
Quality	Odour is minimised and Council ensures safe disposal of wastewater.
Quantity	Planning is being undertaken to ensure quantity and reliability of sewer supply is available both short and long term.
Reliability	Reliability standards are delivered including minimal loss of supply or reduced restrictions. Sewer spills and blockages are managed efficiently should they occur.
Service Cost	Lifecycle costs are managed to deliver services within budget constraints.
Legislative Compliance	Compliance with all relevant applicable legislation and EPA licence conditions for sewerage treatment plants.

4.2 State-wide Indicators

NSW Department of Planning and Environment uses a regulatory and assurance framework to performance monitor local sewer utilities within regional NSW under the National Water and Sewerage Initiative. Performance reports are provided on the basis of social, environmental and economic performance indicators. The regulatory and assurance framework focuses on ensuring safe, secure, efficient, sustainable and affordable services 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
Sewer Service Complaints	No. of complaints per 1000 properties	0.49	0.49	n/a	0.65	1.79
Odour Complaints	No. of complaints per 1000 properties	0	0	n/a	0	0.81

Table 4-4: Environmental State-wide Indicators⁵

Performance Indicator	2019-20	2020-21	2022 -23	2023-24	Trend	Council State-wide ranking
Total Mains Length (km)	197	196	197	200	↔	27
No. of Sewer Treatment Works	4	4	4	4	↔	23
Sewer Overflows (per 100 km)	0	1.02	0	0.5	↔	n/a
Breaks and Chokes (per 100 Km)	5.58	3.58	0	5	↘	74
Chokes and Breaks (No. Retic + Rising Main)	11	7	0	10	↔	68
Rehabilitation of mains (% of total length)	2	0	0	2	↔	8
Rehabilitation of service connections (%)	1	1	0	0	↘	8
No. of Pump Stations	31	31	31	33	↔	24
No. of Pump Stations per 100 km	15.74	15.86	15.74	16.50	↔	41
No. of non-residential assessments	633	629	636	647	↑	33
No. of residential assessments	6413	6419	6482	6499	↑	31
Total no. of assessments	7046	7048	7118	7146	↑	31

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

Council currently has a target LoS of 30 dry weather sewer overflows per 100km. As per Table 4-4, Council is performing well with a reported 1.02 sewer overflow per 100km of main in the previous reporting period. The number of breaks and chokes reported have also reduced, which may be a result of targeted cleaning and maintenance programs.

⁵ Source: NSW Department of Planning and Environment, <<https://www.industry.nsw.gov.au/water/water-utilities/lwu-performance-monitoring-data>>

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: Sewer Supply Minimum Operational Performance Indicators

Performance Indicator	Target LoS
System Performance	
Availability of service within residential areas	All urban residential and industrial areas are serviced where practical.
Frequency of system failure	
Dry weather overflows (per 100km p.a.)	30
Customer Complaints	
Service complaint (per 1000 properties)	9 p/a
Odour complaint (per 1000 properties)	5 p/a
Treatment Plant (events per year per plant)	3
Other (events per year per scheme)	10
Effluent Discharge Compliance	
Compliance with EPA licence conditions	100%



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>
Priority 1: A complete failure to contain sewerage within the Sewer System or any problem affecting many users resulting in one or more of the following occurring.		
Possible Issue: Blockage overflowing sewer system, manhole overflowing, broken gravity/rising main, pump station failure, missing manhole lid Typical Effects: Personal injury or significant risk to health, Surcharge inside/outside a building, Property damage - subsidence of critical asset, roadway, buildings, railway etc, Environmental impact - Trade waste spill, subsidence causing danger	Within 1 hour	Within 1 hour
Priority 2: Minor failure within the Sewer System or any problem affecting users resulting in one or more of the following effects occurring.		
Possible Issue: Cracked sewer pipe, Odour Complaint, Partial sewer blockage, Noisy manhole, Noisy Pump Station. Typical Effects: Slow moving toilet flush	Within 1 working day	Within 3 days
Priority 3: Non urgent fault but significant in the belief of the customer.		
Possible Issue: Minor subsidence, Restoration, Locations Typical Effects: No impact on the environment, Seepage investigation	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 customer request system 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 sewer infrastructure.

5. Demand

Council's fundamental role is to provide services to the community and its assets are a means to support this. Consequently, future demand for sewer and associated urban sewer 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.

Population is expected to increase modestly over the next 25 years, therefore not influencing demand for new assets as much as other drivers. A general issue with infrastructure delivery is the increasing costs of doing business. Rising costs are a factor of increased resourcing costs (labour and materials).

In the 2022 sewerage re-valuation, it was noted material costs associated with infrastructure had increased between 15% and 19% with an overall cost for materials, plant and labour of approximately 10%. Due to the destabilisation of the world markets, and the threat of a global recession, increased energy costs are sure to continue, leading to increased construction and operating costs of Council's assets.

5.1 Demand Drivers

Demographic factors that may influence the need for new or improved sewer infrastructure include things such as population, changes to regulations, changes in demographics, seasonal factors, consumer expectations, technology changes, economic factors, agriculture practices, environmental factors, and future development.

Specific government projects that will impact on Council's sewer network infrastructure in the future include activities such as the Regional Jobs Precincts and the Growth 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.



Figure 5-1: Population Statistical Areas

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 sewage network, to meet the demands of increase housing supply.

Table 5-1: Population Change 2021– 2031⁶

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%
TOTAL	23,550	25,400	27,650	0.81%

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.



⁶ Source: Growth Management Strategy, GYDE Consulting, November 2022.

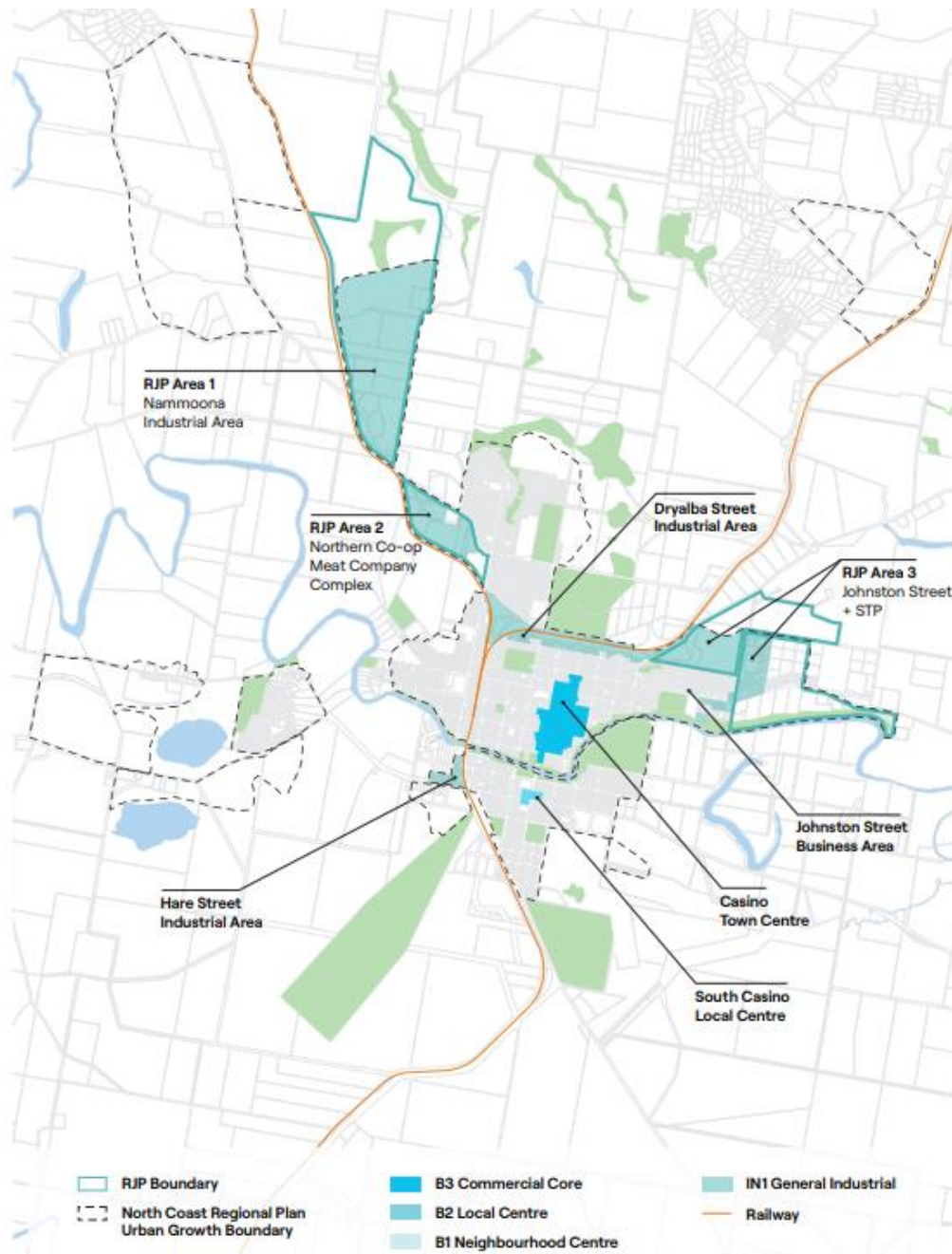


Figure 5-2: Regional Jobs Precinct and Draft Growth Strategy Areas.

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, 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
Fairy Hill	1644 lots	Scoping phase of rezoning

5.3 Demand Impact on Assets

Demand will be placed on existing sewer infrastructure to cope with the increasing sewerage from developments. This impact will be arising from both increase in flows within existing network pipes, capacity at the treatment plants and demand on pump stations downstream of development. The consequence of which is capacity and projected deterioration of existing infrastructure to cope with the increased loads. Based on growth the network may require:

- Additional sewer mains as the network grows in the outer fringes.
- New infrastructure at the treatment plant as the plant is upgraded.
- Additional rising mains, trunk mains and pump stations to service development.

Council 'Water is Life 2050' Water and Sewer Strategy will assist in the planning of sewer upgrades relevant to changing land use conditions, such as industrial complexes and subdivision developments. In addition to sewer mains, the four sewer treatment plants will require upgrading in the long term.

5.4 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 is needed to make significant repairs to the sewer supply within the Casino and the Mid-Richmond villages.

Council has completed remedial works to raise the switchboards and control panels for the sewer pump stations above the recognised flood water levels to build resilience in the sewage network.

5.5 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 are shown in Table 5-5.

Table 5-5: 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 effects in Australia including droughts and extensive flooding causing more severe droughts and floods which is affecting water access for people around the world. Richmond Valley is continually exposed to natural disasters including floods which impact on our services and network.

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.
- 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.

5.6 Casino STP Flow Analysis

The Casino STP has two treatment streams. The first includes a trickling filter process, followed by an intermittently decanted extended aeration (IDEA) system, alternatively flow can be sent directly to the IDEA tank without treatment in the trickling filter process. The facility was originally constructed in 1933, with modifications made in the 1950's and again in the 1990's.

The primary sedimentation and trickling filter system has remained essentially unchanged with the exception that one additional Primary Sedimentation Tank (PST), tricking filter and humus tank were added as a part of an intermediate facility expansion in the 1950's. The IDEA treatment stream was added as a part of the 1990's expansion along with storm ponds, sludge lagoons and additional sludge drying beds. The facility treats residential and commercial flow with some contributions from industrial food processing facilities.

5.6.1 Casino STP Modelling

STP flow enters the facility via two sewage pump stations (SPS), numbers SPS601 and SPS607. Flow is directed into a balance tank prior to flow measurement and then split between treatment tanks.

The following has been observed regarding the daily flow data:

- Base flows at the facility have stayed constant over the 5-year historic period evaluated, indicating there has been little growth in the area over the past few years.
- Minor seasonal variations seem to occur every year in the Autumn typically around March through May. This is consistent with increased precipitation during these times.

- Casino STP's average dry weather flow rate of 2.7 ML/d (211 L/d/EP) is less than the typical flow rates per EP values of 260 L/d/EP as estimated by Hunter Water Australia (HWA).
- STP process capacity modelling developed by GHD summarises flow projections for both evaluations as a basis for future augmentation strategies.

Future flows and populations have been determined based on projected population growth and historical flow data. Table 5-6 summarises future flows expected at Casino STP for current conditions through to 2042 future flow conditions. A wet weather peaking factor of 11.6 and peak dry weather peaking factor of 2.7 were determined from historical data and used for these evaluations.

Table 5-6: Future estimated flows, based on 1.0% growth rate and 260 L/EP/d⁷

Year	Adopted (HWA, 2013, growth rate 1.0% / year)	ADWF (Flow per capita = 260 L/EP/d)	PDWF (2.7 x ADWF)	PWWF (11.6 x ADWF)	PWWF (11.6 x ADWF)
	kL/d	kL/d	kL/d	kL/d	L/s
2014	10,411	2,700	7,400	31,400	363
2022	11,500	3,000	8,200	34,900	404
2032	12,703	3,300	9,000	38,400	444
2037	13,351	3,500	9,600	40,700	471
2042	14,032	3,600	9,900	41,900	485

5.7 Treatment Plant Improvements

Specific projects that will impact on Council's Sewer infrastructure in the future include:

- Completion of the SCADA system implementation.
- Secure funding and complete flood damage repairs to sewer assets.
- Implement key projects as identified in the 'Water is Life 2050' Water and Sewer Management Strategy.

5.7.1 Casino STP

Over the next 25 years, Casino's population is expected to grow significantly, with an additional 4000 people by 2040, and a further 2000 by 2050, taking our total population to around 18,000. To support this growth major investment is required to upgrade essential public infrastructure with the replacement of the Casino STP being the top priority to be completed in the next five years.

The new treatment plant will be funded from a number of sources, including Council, loan borrowings and government grants. Council is currently pursuing funding from the NSW and Federal Governments to support the design phase, prepare a business case and bring the project to shovel-ready stage. Council is also advocating strongly for the additional money it needs to complete the construction phase to ensure we can deliver this once-in-a-generation project for Casino.

⁷ Source: Odysseus-imc predictor modelling on 1% growth.

5.7.2 Evans Head STP

Council constructed a new STP facility in 2007 to service Evans Head and Woodburn. Stage 1 provided capacity for 5,500 equivalent persons (e.p.). Previous modelling scenarios expected this threshold to be reached in 2015 necessitating Stage 2 development with expanded capacity for 11,000 e.p. However actual populations have been lower than expectations, postponing the need for augmentation works in previous planning documents. Stage 2 is currently under development and will double the capacity of the plant catering for total population of 11,000. Council is partnering with the NSW Government to deliver this project, with part funding from the Safe and Secure Water Program. The remaining funds will come from Council's reserves.

Reclaimed water from the STP is presently released via a circuitous route into the Salty Lagoon coastal lake within the Broadwater National Park. Upgrading the Evans Head STP has achieved a scale improvement in the quality of water released, with significant reductions in gross nutrients of nitrogen and phosphorous. This combined with the trial closure of the artificial channel is restoring ecosystem vitality. The closing of the channel at Salty Lagoon has significantly improved the hydrological regime within, including stabilising water levels and salinity regimes and removing environmental triggers for large scale fish kills.

5.7.3 Coraki STP

The Coraki STP was constructed in the 1960s and relies on the old trickling filter treatment process. The plant has reached the stage where it needs an upgrade to improve performance, and Council has completed preliminary investigation work into future upgrade options.

Council is currently completing the Coraki Place Plan, which will provide guidance on where future residential development will be located and the expected growth rate of the village. Once the plan is completed, Council will reassess the capacity of the plant and develop more detailed options for improvement.

5.7.4 Rileys Hill STP

Rileys Hill STP is an activated sludge plant incorporating UV disinfection and phosphorus removal. Treated effluent is discharged directly into the Richmond River. No recommendations are made regarding the Rileys Hill STP process capacity and performance.

5.7.5 Rappville STP

The village of Rappville was impacted by the 2019 bushfires and Council has been working with the village to rebuild. These works include the construction of a small community sewerage scheme. This will be operated as a pressure system with oxidation pond treatment process. Council is currently finalising the designs to begin construction in 2025.



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 Framework 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 RVC 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 sewer and sewer 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 25	Extreme 20	High 15	High 10	Medium 5
	P4 Likely	Extreme 20	Extreme 16	High 12	Medium 9	Low 4
	P3 Possible	High 15	High 12	Medium 9	Medium 6	Low 3
	P2 Unlikely	High 10	Medium 8	Medium 6	Low 4	Low 2
	P1 Very unlikely	Medium 5	Low 4	Low 3	Low 2	Low 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 sewer 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 sewer pump stations or sewer treatment plants that would cause the facilities to fail through the pumping or treatment process.

- 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
Major	C5	Essential and non-essential services unavailable	Financial loss > \$1M	Loss of life Extensive state/national media coverage Unacceptable exposure to litigation	Toxic release off site
Serious	C4	Wide disruption to essential services Some non-essential services unavailable	Financial loss between \$200K and \$1M	Extensive (multiple injuries) Some state/national media coverage Major exposure to litigation	Off-site environmental with no detrimental effects
Moderate	C3	Isolated disruption to essential services Wide disruption to non-essential services	Financial loss between \$50k and \$200K	Medical treatment required Moderate exposure to litigation Regional media coverage	On site environmental impact contained with outside assistance
Minor	C2	Isolated disruption to non-essential services	Financial loss between \$10K and \$50K	First aid treatment Acceptable exposure to litigation Local media coverage	On site environmental impacts immediately contained
Minimal	C1	None or negligible service disruptions	Financial Loss < \$10K	No injuries No litigation exposure 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 and Business Plan.
- Waste Management Strategy and Business Plan.
- Community Resilience and Preparedness Plan.
- Community Land Plans of Management & 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.
- 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.
- 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
- 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 Sewer Risks⁸

Council will endeavour to complete a sewer and related infrastructure risk register which identifies the specific risks related to sewer 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 sewer infrastructure include:

- Flooding.
- Overloading of the sludge handling facilities.
- Sewer 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 Council's Sewer Assets.

A high-level risk assessment was undertaken across the assets with individual reports prepared for each site from NixonClarity, 27 June 2020. The high-level findings and recommendations were categorised across the following functions:

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

⁸ Source: Water & Sewerage Issues and Risks, NixonClarity, 27 June 2020, Draft V2

Key outcomes of the sewerage risk assessment were⁹:

- Key sewerage risks related to poorly documented asset management and operation procedures, inadequate quality control procedures, climate change, urban water reform, non-compliance with regulatory requirements and overflows from the sewerage system;
- Factors contributing to the identified risks include uncertainty regarding urban water reform and climate change and how these will influence sewerage services, asset condition and high wet weather flows which contribute to the potential risk of overflows and reliance on the knowledge of individual staff members combined with operations activities that are undertaken intuitively rather than following documented systems and procedures;
- Existing risk mitigation measures include ongoing strategic planning and investigations, the Business Improvement Program, progressive development of operation and maintenance procedures, multi-skilling of operations staff, experienced staff members and conventional sewerage system design and treatment processes; and
- The causes of some key risks (e.g., climate change and urban water reform), cannot be directly addressed by the RVC water group and therefore alternative mitigation measures need to be developed. In some cases, mitigation is expensive which means that Council may choose to accept a relatively high level of risk. Improved management systems and emergency response procedures can assist improved response to these risks.



⁹ Water Supply and Sewerage Strategic Plan, 2018 Pg. 40

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

Asset	Hydraulic Capacity	Environment	Process (Quality)	Public Health	Structural Integrity	WHS	Delivery Risk
Casino Sewerage Treatment Plant	Acceptable	High	High	Acceptable	Extreme	Extreme	High
Casino Pump Station 1	Acceptable	Acceptable	No	Acceptable	Acceptable	High	Acceptable
Casino Commutator Pump Station	High	High	Acceptable	High	Acceptable	High	High
Evans Head Sewerage Treatment Plant	High	High	High	Acceptable	No	Acceptable	Acceptable
Evans Head Pump Station 4	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable
Riley's Hill Sewerage Treatment Plant	High	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable
Woodburn Pump Station 1	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	High	Acceptable
Coraki Sewerage Treatment Plant	Acceptable	High	High	High	Acceptable	Extreme	High

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.

Sewer assets on average have a remaining useful life of 50% of their expected lifecycles based on average condition; however more critical infrastructure assets including Sewer Pump Stations and Sewer Treatment Plants on average are approaching 71% of their useful life.

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

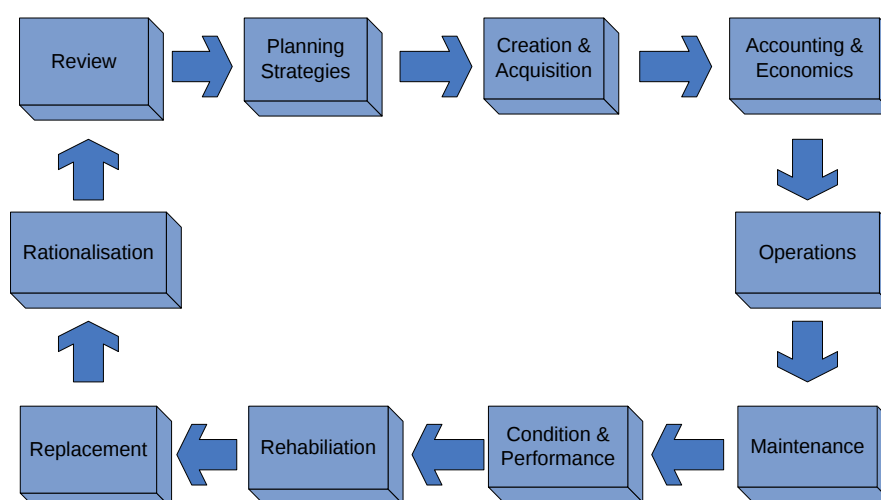


Figure 7-1: Lifecycle for Asset Management

Table 7-1: Asset Treatment Definitions

TREATMENT	DEFINITION
Operations	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. Typical operational activities include: • CCTV Inspection of sewerage mains. • Mains Cleaning (noting that however cleaning can deteriorate condition of pipe walls). • Processing monitoring and testing.

TREATMENT	DEFINITION
Maintenance	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: - Planned (proactive) Maintenance: Proactive inspection and maintenance works planned to prevent asset failure; and - Unplanned (reactive) Maintenance: Reactive action to correct asset malfunctions and failures on an as required basis (i.e. emergency repairs). Maintenance is defined in each section of the lifecycle plan and includes all repairs and maintenance that are not classified as renewals (see below). A key element of AM planning is determining the most cost-effective blend of planned and unplanned maintenance.
Renewal Replacement	An activity that replaces an asset with one that meets contemporary functional requirements. These works are defined as being the: - Renewal and rehabilitation of existing assets to their original size and capacity, or, - Replacement of the entire component of the asset with the equivalent size or capacity, or, - 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). Examples of renewals expenditure include: - Sewer main relining
Upgrades	Upgrade work is related to the extension or augmentation of an asset in response to growth or an increase in the defined levels of service. Upgrades are defined as assets either being: - Works which improves an asset beyond its original size or capacity; or - Works which increase the capacity of an asset; or - Works designed to produce an improvement in the standard and operation of the asset beyond its original capacity. Upgrade activities may include: - Expansion of the Sewerage Treatment Plant.
New Works	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 levels of service, including: - Works which create an asset that did not exist in any shape or form, or - Works which improves an asset beyond its original size or capacity, or - Upgrade works which increase the capacity of an asset, or - Works designed to produce an improvement in the standard and operation of the asset beyond its original capacity. 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.
Disposal	Sale, removal or decommissioning of an asset.

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 an asset 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,

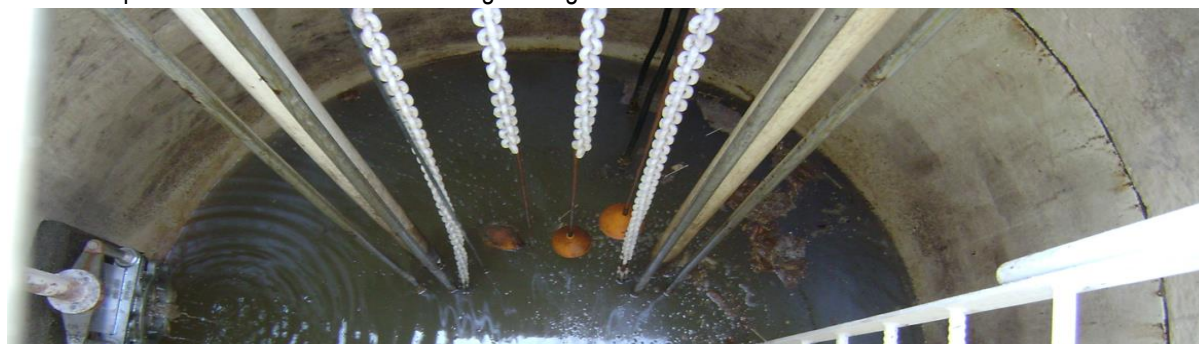
Disposal Costs – costs for removing or disposing of the goods after the economic life has ended, eg costs to transfer ownership, trade-in, retender, auction or recycle or transiting/closure of a service.

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

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

Richmond Valley operates and maintains sewer infrastructure at North Woodburn which is owned by adjoining Lismore City Council. The systems operate on a pressure pump system with localised onsite tank storage. The assets are recorded within Council's asset register for maintenance purposes being an non-owned asset. Council conducts operational and maintenance through an Agreement. The Assets are not included within this Plan.



7.1.3 Management Structure

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

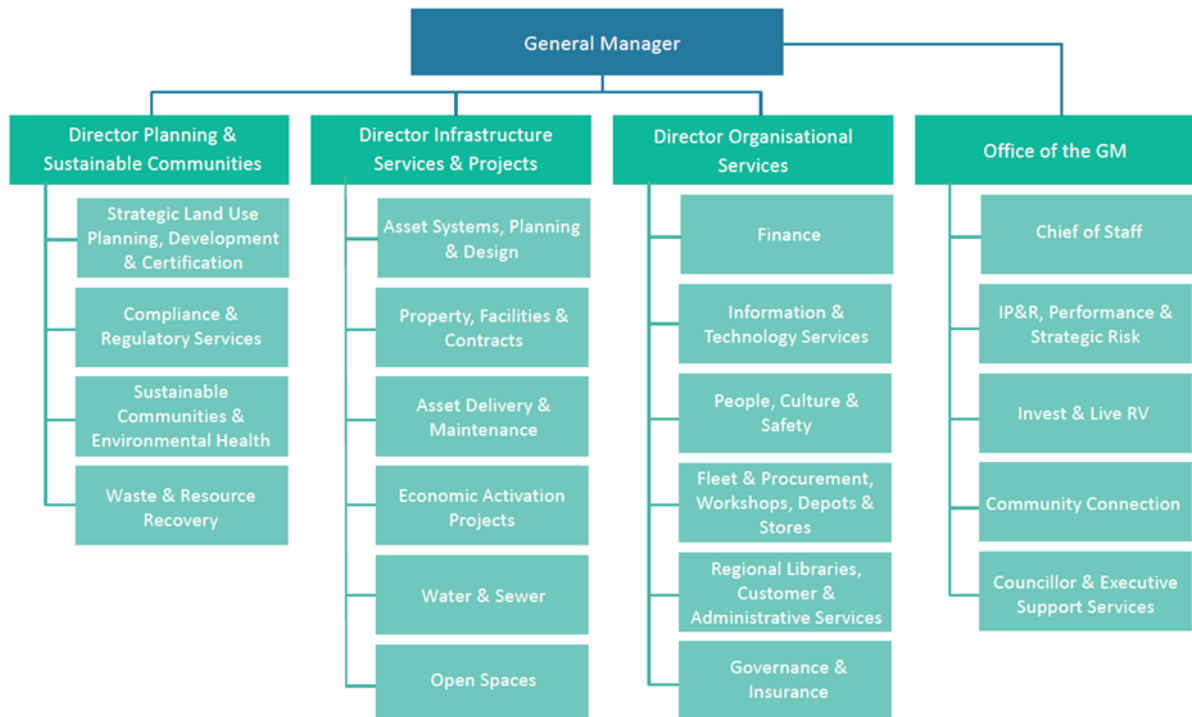


Figure 7-2: Management Structure

7.1.4 Corporate Responsibilities Matrix

The Corporate Asset Management Responsibilities Matrix 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 sewer 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 sewer 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 Sewer 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	MPMO	Manager PMO
DPABD	Director Infrastructure Services & Projects	MFS	Manager Finance & Procurement
COS	Chief of Staff	OCWS	Operations Coordinator Water and Sewer
MAP	Manager Asset System & Planning	WSE	Water and Sewer Engineer
MIS	Manager Infrastructure Services	DPM	Designated Project Manager

7.2 Key Issues

The key management issues related to the management of sewer infrastructure were identified in the Water Supply and Sewerage Strategic Plan, March 2018, Hydrosphere Consulting are identified in the following list:

- Raw sewage in Casino appears to be heavily influenced by trade waste contributions which may influence the achievement of licence quality and load limits.
- There is a risk that the total phosphorus load limit from Casino STP could be breached based on the current process configuration and reuse quantities.
- The current Casino STP sludge handling facilities appear to be overloaded.

- The Casino STP relies heavily on the performance of the wetlands to achieve the effluent licence load and concentration limits.
- Casino STP and sewerage pipelines are ageing.
- Dry weather groundwater infiltration and wet weather stormwater infiltration are significant in Evans Head, Casino and Coraki.
- The performance of Evans Head STP is affected during peak wet weather events and the peak summer holiday period. Augmentation of the STP will be required to cater for catchment growth and peak loadings.
- Coraki STP is ageing.
- Non-compliance with TSS licence limits at Coraki STP is expected to be an ongoing issue until the algal growth is controlled.
- The effects of climate change will have direct and indirect implications for Richmond Valley in relation to sewerage services including damage to infrastructure from flooding, storms and sea level rise, the need to reduce greenhouse emissions and potentially higher cost of energy.
- The location/routes of underground assets in rural areas are not clearly marked and are potentially subject to accidental damage during excavation.
- The cost of provision of sewerage services in the Richmond Valley area is high.
- Typical residential bills are high for sewerage.

7.3 Historical Expenditure

Historical expenditure for the sewer network is detailed below. The table illustrates the considerable investment Council makes towards its local sewer network.

Table 7-3: Sewer Historical Expenditure

Cost Category	2019/2020 (\$)	2020/2021 (\$)	2021/2022 (\$)	2022/2023 (\$)	2023/2024 (\$)
Operations	2,688,551	2,677,889	2,101,088	2,222,956	2,748,051
Maintenance	883,827	904,229	833,334	910,080	934,528
Capital Renewal	1,622,000	742,000	1,169,000	1,131,080	2,216,513
Capital Upgrade	-	-	-	1,015,378	535,635
New Assets	182,000	430,000	117,000	150,099	1,949,993
Total	5,376,378	4,754,118	4,220,423	5,429,503	8,384,720

It should be noted that works from natural disasters such as floods and bushfires are excluded from the above summary. Table 7-3 also excludes subdivision dedicated assets.



7.4 Identification for Prioritisation of Operational and Maintenance Works

Sewer related works have been identified through review of understanding of the performance of the sewer system and assets, 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.

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”¹⁰.

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 7-5.

Table 7-4: Reactive Operations and Maintenance Activities

ASSETS	OPERATIONS & MAINTENANCE REACTIVE ACTIVITIES
Reticulation & Distribution Mains	• Broken sewer mains • Broken services • Sewer leaks • Blocked mains
Manholes	• Missing or broken manhole lids • Resealing and relining manholes
Pump Stations	• Faulty or failing pumps, impellers • Pump failures • Lost power • Sewer odours • WHS issues
Sewer Treatment Plant	• Manual handling of chemicals • WHS issues • Filtration issues

As part of the revaluation process in 2022 the asset condition was collected and is therefore current and reflected in this plan. This data provides the basis of identifying asset renewals and annual funding. The prioritisation process would best be supplemented by quantified maintenance records, and asset risk which would significantly increase 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.

¹⁰ RVC Water & Sewerage Issues & Risks, July 2020, Pg. 3, NixonClarity

In the past few years, maintenance at the four treatment plants 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 Sewer Treatment Plant is undergoing a process of automation in the plant e.g., converting valves to automated valves and finalising SCADA implementation which will permit the operations of the plant to be automated and tracked when assets fail. This will enable speedier responsiveness to faults, analysis of faults and smoother operations.

An electronic maintenance and work order system has been identified as priority within the adopted Community Strategic plan which will support planning for preventative maintenance and improve decision making on renewals and upgrades.

7.5 Inspections

Inspections are undertaken to ensure that the sewer 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, quality sampling, quality audits; and reactive investigative inspections are performed in response to customer requests. It has been identified for the need for a dedicated Water & Sewer asset inspector whom will be responsible for the ongoing inspections. This will improve the currently methodology which includes ad-hock, reactive inspections, or inspections focused around revaluation for condition inspections which are currently being undertaken on the sewage infrastructure assets.

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, Table 7-6 to Table 7-8 indicate the current replacement cost of condition 5 assets. These have been derived following condition assessments undertaken as part of the 2022 revaluation which indicate the required funding in the current replacement cost and the timeframe in years to replace the assets. The replacement costs are reflective as of 30 June 2024. Further investigation is required over time, to supplement condition with maintenance records, criticality and risk.

Assets identified as requiring renewals based on condition rating of 5 (Very Poor – Unserviceable). These assets are identified as is no longer providing an acceptable level of service. If action is not taken, asset will need to be closed or decommissioned.

Table 7-5: Summary of renewal assets

Condition Rating	Asset Description	Replacement Cost (\$)	% Of Total Replacement Costs
5	Sewer connections	1,577,887	19.49
5	Manholes	16,950	0.08
5	Pipelines	3,487,991	4.83
5	Sewer pump stations	129,442	0.57
5	Sewer treatment plant	66,529	0.11
	Total	5,278,799	25.08

Table 7-6: Sewer Pump Stations Components

Condition Rating	Asset ID	Asset Description	Replacement Cost (\$)	% Of Total Replacement Costs
5	94111	Control cabinet	19,013	0.010
5	101287	Gantry	24,893	0.014
5	93989	Ladders & landings	2,274	0.001
5	94108	Pump	10,390	0.006
5	111660	Pump	28,570	0.016
5	94109	Tank	26,227	0.014
5	93999	Valve pit	18,075	0.010
		Total	129,442	

Table 7-7: Sewer Treatment Plant Components

Condition Rating	Asset ID	Asset Description	Replacement Cost (\$)	% Of Total Replacement Costs
5	94587	Electric winches	16,632	0.009
5	94588	Electric winches	16,632	0.009
5	94589	Electric winches	16,632	0.009
5	94590	Electric winches	16,632	0.009
		Total	66,529	

7.7 Upgrade Plan

The upgrade works planned at a cost of \$5.85M to be undertaken in 2025/2026 include the design and construction of Evans Head STP, sewerage pump station switchboard upgrades (SP603, & SP611).

The Long-Term Financial Plan has budget allocation for an additional \$12.14M in upgrades which are allocated to completing the Evans Head STP, and design and construction for the Casino STP.

These are priorities identified in Councils 'Water for Life' strategy which has identified significant infrastructure improvements across both water and sewerage assets. Council will be seeking additional funding sources to be able to complete these major upgrades.

7.8 New Works Plan

New sewer assets are commonly identified in response to growth (demand), risk, safety audits; and recommendations identified in planning and strategy documents.

An allowance of \$67.95M has been budgeted within the Long-Term Financial Plan for new works for the Casino STP.

The new Rappville Sewerage Scheme is currently being programmed for construction in 2025 at a cost of \$6.585M funded by grant funding and includes a co-contribution of \$600,000 by Council.

7.9 Disposal Plan

There is currently no plan to dispose of existing sewerage assets. During the upgrades to the Sewerage Treatment Plant, it is proposed that various components will be disposed as part of the renewal, upgrade works.



8. Financial Summary

This section outlines the long-term financial requirements for the operation, maintenance, renewal, and development of sewer 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 sewer. 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 2024 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	16,307,971	35,413,760
Maintenance	6,345,143	13,362,431
Renewals	10,036,909	19,900,634
Upgrades	14,668,000	17,993,000
New	67,950,000	67,950,000
TOTAL	115,308,023	154,619,825

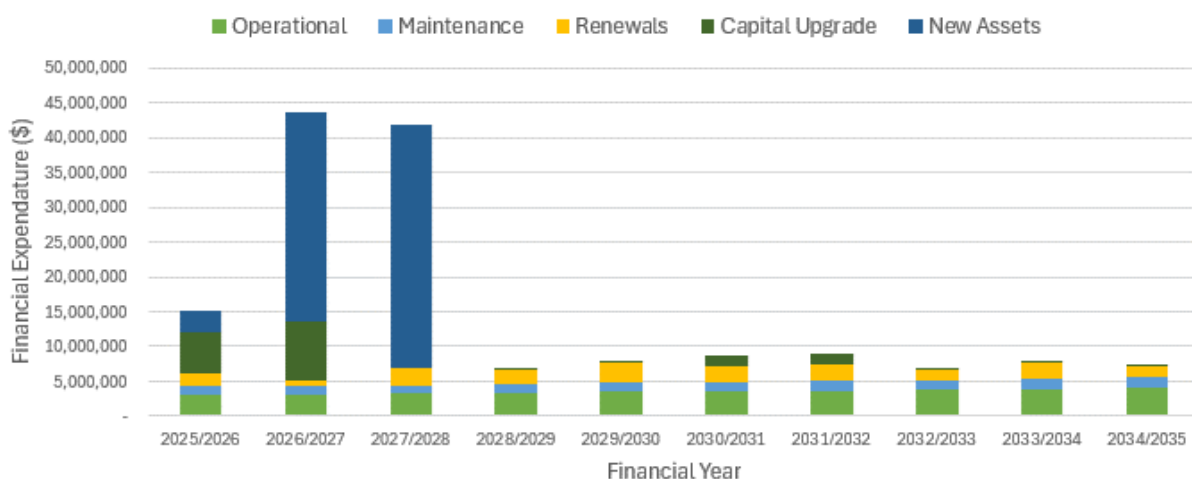


Figure 8-1: 10 Year Financial Projections

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

- Long-Term Financial Plan.
- 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 2024 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 sewer 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 sewer indicates a current written down replacement value of \$195M.

In valuing the sewer 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 valuation inventory.
- 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.

The Table 8-2 identifies the 30 June 2024 financial valuation for the sewer network.

Table 8-2: Asset Network Valuation 30 June 2024

Asset Group	Asset Type	Quantity of Sewer Assets	Length of Assets (km)	2024 Gross Replacement Cost (\$)	Accumulated Depreciation (\$)	Fair Value (WDV) (\$)
Sewer Connections	Pipeline connections	6,371	24.81	8,095,376	4,335,979	3,759,397
Sewer Maintenance Shafts	Maintenance shafts	19		90,051	11,225	78,826
Sewer Manholes	Manholes	2,511		22,341,671	6,664,145	15,677,527
Sewer Pipelines	Pipes	3,786	192.45	72,223,481	23,425,060	48,798,421
Sewer Pressure Flushing Pits	Pits	37		235,406	39,554	195,852
Sewer Pressure Mains	Sewer mains	83	8.56	1,910,032	303,530	1,606,502
Sewer Pressure Pod Control Panel	Control panels	230		483,236	133,161	350,076
Sewer Pressure Pod Pumps	Pumps	232		825,982	193,749	632,232
Sewer Pressure Pod Tanks	Tanks	220		2,386,247	406,542	1,979,706
Sewer Pressure Service Connection	Pipeline connections	304	8.96	1,471,214	213,567	1,257,648
Sewer Pressure Valves	Pressure valves	46		81,042	11,307	69,736
Sewer Pump Stations	Control panels, pumps, pits, tanks etc.	698		22,811,782	11,333,447	11,478,335
Sewer RM Valve Pits	Valve pits	84		512,675	181,299	331,376
Sewer RM Valves	Rising main valves	168		1,532,022	475,519	1,056,503
Sewer Rodding Ends	Rodding ends	11		27,436	4,336	23,101
Sewer RTU PLC	Dataloggers, PLC	10		41,281	14,929	26,352
Sewer Treatment Plants	Control panels, pumps, pits, tanks etc.	775		58,551,219	29,888,273	28,662,945
Sewer Vent Stacks	Vent stacks	88		1,577,841	754,169	823,673
	Total	15,673	234.77	195,197,997	78,389,791	116,808,206

8.4 Asset Sustainability

The Asset Renewal Funding Ratio is a critical indicator of the sewer programs long term stability. An ideal indicator is 1.0; therefore, Council's indicator of 0.83 needs to be addressed. Asset planning is progressive, driven by Level of Service (LOS) agreements and ultimately the communities' willingness to pay for the service. The following Local Sewer Utility (LWU) facts provide perspective:

$$\text{Renewal Ratio} = \text{Renewal Expenditure} / \text{Annual Depreciation} = 83.5$$

- Assets reaching the end of their design life this Long-Term Financial Plan (LTFP) \$0.2 million.
- Capital works programmed this LTFP \$20 million (average \$2.0 million).

- Technical level of service 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 sewer 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:

- Rating Water and Sewer 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 sewer network over a large area and funding the renewal and maintenance of this network into the future will remain key.

Sewer 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. Also included is a program for 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.	In Progress
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 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
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 as CARs through the CRM system.	Process in Place 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 standardisation of key and high use assets e.g., Valves, PLC's, RTU's etc.	Process in Place

No.	Recommendation	Status
18.	Review Water and 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 optimisation approach to all treatment plants (4). E.g., three-monthly optimisation 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	Not Started
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 programme reflects the overall aim of improving asset management practices, which is to deliver the right level of service 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

AM PROCESS	IMPROVEMENT ACTIVITIES	TIMEFRAME (over 4 Years)
Data Management	Continue the capture of data for all sewer 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 sewer 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.	2025/29
Asset Performance	Analyse the customer request results to address problem areas and maintain performance.	Annually

AM PROCESS	IMPROVEMENT ACTIVITIES	TIMEFRAME (over 4 Years)
Asset Performance	Collect and monitor defect histories to identify trends in performance of asset types.	2025/26 and ongoing
Levels of Service	Confirm target service levels, monitor and report outcomes.	Annually
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	Identify the critical demands on the assets and use these demands and actions in the Strategic Plans,	2025/27
Community Surveys	Add questions related to the wastewater system regarding satisfaction, odour levels, overflows etc.	ongoing
Financial Planning	Develop Council reporting templates for WOL costs for future capital works projects.	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 levels of service.
- 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' i.e., 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 level of service 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 level of service. 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 level of service. 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 level of service 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: (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. (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.

Operation	The active process of utilising an asset that will consume resources such as manpower, energy, cleaning products and materials. Operation costs are part of the lifecycle costs of an asset.
Optimised Renewal Decision Making (ORDM)	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 level of service (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, so as to provide a similar or agreed alternative, level of service.
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 a risk in order 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.
Sewer System	A system carrying wastewater and waste matter through a series of pipes, pump stations and treatment plants for re-use through irrigation on crops, trees, public use.
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 Sewer.
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

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 Governments 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 resources¹¹.

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 is 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.

Reference	Details
Local Government Act 1993	Sets out role, purpose, responsibilities, and powers of local governments including the preparation of a long-term financial plan supported by asset management plans for sustainable service delivery. The purposes of this Act are as follows: (a) to provide the legal framework for an effective, efficient, environmentally responsible, and open system of local government in New South Wales, (b) to regulate the relationships between the people and bodies comprising the system of local government in New South Wales, (c) to encourage and assist the effective participation of local communities in the affairs of local government, (d) to give council's:

¹¹ Source: EPA, 2012, NSW State of the Environment.

Reference	Details
	• 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 • the responsibility for administering some regulatory systems under this Act • a role in the management, improvement, and development of the resources of their areas, (e) To require council's, councillors, and council employees to have regard to the principles of ecologically sustainable development in carrying out their responsibilities. Provides guiding principles for Council: • Provide strong and effective representation, leadership, planning and decision making • Carry out functions in a way that provides the best possible value for residents and ratepayers • Plan strategically, using the integrated planning and reporting framework, for the provision of effective and efficient services and regulation to meet the diverse needs of the local community.
Public Works and Procurement Act 1912	Sets out the role of Council in the planning and construction of new assets.
Work Health and Safety Act 2011	Legal requirements for employers/employees in relation to workplace safety. Requirements on those who design, manufacture, import or supply any plant for use in the workplace.
Environmental Planning and Assessment Act 1979	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. This legislation outlines requirements for environmental assessment in NSW. Council's have a responsibility to undertake due diligence in relation to managing environmental values, including threatened species, usually by way of an assessment called a Review of Environmental Factors (REF), and are their own consent authority in this regard.
Public Health Act 2010	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.
Work Health and Safety Act 2011 and Workers Compensation Act 1987	Sets out roles and responsibilities to secure the health, safety, and welfare of persons at work and 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.
Independent Pricing and Regulatory Tribunal Act 1992	The Act empowers the Independent Pricing and Regulatory Tribunal (IPART) which sets principles and guidelines related to charging for water supply.
Competition Policy including Competition Policy Reform Act 1995	Council is subject to prohibition on anti-competitive behaviour, according to the Trade Practices Act.
Threatened Species Conservation Act 1995	An Act to conserve threatened species, populations and ecological communities of animals and plants.

Reference	Details
Protection of the Environment Operations Act 1997	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 minimize pollution.
NSW Framework for the Regulation of Sewerage and Liquid Trade Waste, 2022	Council is responsible for approving liquid trade waste discharges to their sewerage systems under section 68 of the Local Government Act. However, section 90(1) of the Act and clause 28 of the Local Government (General) Regulation 2021 require them to obtain concurrence to council approval from the Secretary, Department of Planning and Environment. The department's Water Utilities branch provides concurrence as nominated by the Secretary.

Appendix C – Asset Quantities

Asset Quantities (at 30 June 2024)

ASSET GROUP	ASSET TYPE	DESIGN LIFE	QUANTITY	Sum of Length (km)	REPLACEMENT COST (\$)
Sewer Connections	Asbestos cement	100	2056	8.59	2,762,245
Sewer Connections	Concrete	100	1486	6.80	2,300,111
Sewer Connections	uPVC	100	1426	4.92	1,557,121
Sewer Connections	Vitreous clay	100	1403	4.50	1,475,900

ASSET GROUP	ASSET TYPE	DESIGN LIFE	QUANTITY	Sum of Length (km)	REPLACEMENT COST (\$)
Sewer Maintenance Shafts	uPVC	100	19		90,051

ASSET GROUP	ASSET TYPE	DESIGN LIFE	QUANTITY	Sum of Length (km)	REPLACEMENT COST (\$)
Sewer Pipelines	Asbestos cement	100	944	34.69	8,522,467
Sewer Pipelines	Cast iron	100	9	.31	95,581
Sewer Pipelines	Concrete	100	364	12.65	6,105,660
Sewer Pipelines	Ductile iron concrete lined	100	69	18.76	14,794,763
Sewer Pipelines	Hobas	100	42	2.75	4,191,887
Sewer Pipelines	oPVC	100	26	9.96	4,181,413
Sewer Pipelines	Poly	100	11	1.53	366,271
Sewer Pipelines	PPE	100	1	.05	40,989
Sewer Pipelines	PVC	100	4	0.13	22,544
Sewer Pipelines	Relined	100	843	44.82	18,525,074
Sewer Pipelines	Steel	100	3	.09	151,436
Sewer Pipelines	uPVC	100	1198	55.65	12,020,767
Sewer Pipelines	Vitreous clay	100	272	11.03	3,204,629

ASSET GROUP	ASSET TYPE	DESIGN LIFE	QUANTITY	REPLACEMENT COST (\$)
Sewer Manholes	Concrete	100	2440	21,499,786
Sewer Manholes	Relined	100	71	841,885

ASSET GROUP	ASSET TYPE	DESIGN LIFE	QUANTITY	REPLACEMENT COST (\$)
Sewer Pressure Flushing Pits		70	37	235,406

ASSET GROUP	ASSET TYPE	DESIGN LIFE	QUANTITY	REPLACEMENT COST (\$)
Sewer Pressure Mains		70	83	1,910,032

ASSET GROUP	ASSET TYPE	DESIGN LIFE	QUANTITY	REPLACEMENT COST (\$)
Sewer Pressure Pod Control Panel		25	230	483,236

ASSET GROUP	ASSET TYPE	DESIGN LIFE	QUANTITY	REPLACEMENT COST (\$)
Sewer Pressure Pod Pumps		25	232	825,982

ASSET GROUP	ASSET TYPE	DESIGN LIFE	QUANTITY	REPLACEMENT COST (\$)
Sewer Pressure Pod Tanks		70	220	2,386,247

ASSET GROUP	ASSET TYPE	DESIGN LIFE	QUANTITY	REPLACEMENT COST (\$)
Sewer Pressure Service Connection		70	304	1,471,214

ASSET GROUP	ASSET TYPE	DESIGN LIFE	QUANTITY	REPLACEMENT COST (\$)
Sewer Pressure Valves		70	46	81,042

ASSET GROUP	ASSET TYPE	DESIGN LIFE	QUANTITY	REPLACEMENT COST (\$)
Sewer RM Valves		50	168	1,532,022

ASSET GROUP	ASSET TYPE	DESIGN LIFE	QUANTITY	REPLACEMENT COST (\$)
Sewer RM Valve Pits		100	84	512,675

ASSET GROUP	ASSET TYPE	DESIGN LIFE	QUANTITY	REPLACEMENT COST (\$)
Sewer Pump Stations	Bunding	60	1	88,461
Sewer Pump Stations	Electrical	100	127	6,508,384
Sewer Pump Stations	Gantry	50	6	69,976
Sewer Pump Stations	Ladders, platforms, handrails	50	15	790,222
Sewer Pump Stations	Mechanical device (pump, motor, gear box etc)	50	86	2,430,644
Sewer Pump Stations	Pit	60	35	1,267,329
Sewer Pump Stations	Safety equipment	15	3	22,901
Sewer Pump Stations	Site infrastructure	100	56	599,893
Sewer Pump Stations	Structure	80	37	462,620
Sewer Pump Stations	Tank	50	7	491,353
Sewer Pump Stations	Valves, pipes, fittings	100	255	1,355,946
Sewer Pump Stations	Vent stack	50	33	826,311
Sewer Pump Stations	Well	60	37	7,897,743

ASSET GROUP	ASSET TYPE	DESIGN LIFE	QUANTITY	REPLACEMENT COST (\$)
Sewer Treatment Plants	Bunding	100	4	1,627,902
Sewer Treatment Plants	Earthworks	200	20	8,007,347
Sewer Treatment Plants	Electrical	50	110	5,192,383
Sewer Treatment Plants	Gantry	50	12	133,801
Sewer Treatment Plants	Ladders, platforms, handrails	50	36	897,719
Sewer Treatment Plants	Mechanical device (pump, motor, gear box etc)	50	125	4,579,747
Sewer Treatment Plants	Pit	60	51	1,404,493
Sewer Treatment Plants	Safety Equipment	15	19	25,506
Sewer Treatment Plants	Site Infrastructure	60	38	1,851,774
Sewer Treatment Plants	Structure	100	60	8,782,033
Sewer Treatment Plants	Tank	50	35	17,351,410
Sewer Treatment Plants	Valves, Pipes, Fittings	50	254	6,775,540
Sewer Treatment Plants	Vent Stack	70	1	23,308

Sewer Treatment Plants	Well	60	10	1,898,257
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ASSET GROUP	ASSET TYPE	DESIGN LIFE	QUANTITY	REPLACEMENT COST (\$)
Sewer Rodding Ends		100	11	27,436

ASSET GROUP	ASSET TYPE	DESIGN LIFE	QUANTITY	REPLACEMENT COST (\$)
Sewer RTU / PLC		10	10	41,281

ASSET GROUP	ASSET TYPE	DESIGN LIFE	QUANTITY	REPLACEMENT COST (\$)
Sewer Vent Stacks	Concrete	80	77	1,459,226
Sewer Vent Stacks	Concrete / PVC	80	1	19,417
Sewer Vent Stacks	PVC	80	3	33,641
Sewer Vent Stacks	Steel	80	4	29,326
Sewer Vent Stacks	Steel / PVC	80	3	36,232

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	Very Good	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	Very Good	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	Satisfactory	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	Satisfactory	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 be 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 level of service. 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.

Appendix E – Relevant Council Documents

- 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 2022
- Nixon Clarity Water & Sewerage Issues and Risks – 27 July 2020 V2
- Nixon Clarity Strategic Output Plan Draft AL - W&S AMP – Draft
- Operational-Plan-including-Financial-Estimates-2022-2026-presented-to-Council-28-June-2022_1
- Report Richmond Valley Community Research 2016-09-26
- Revised Delivery Program 2017-2022 Adopted by Council 22 June 2021
- Richmond-Valley-Made-2030-Community-Strategic-Plan-Adopted-by-Council-on-27-June-2017.3
- Richmond Valley Annual Reports
- RVC DSP Sewer Standard of Service
- RVC Safety Hazard-Risk Register 3.0
- RVC Resourcing Strategy 2015-2025
- RVC Water and Sewer Strategic Plan 2018_FINAL
- 1731-1351-Salty-Lagoon-EHMP-WQ-Report-2022_04_v1
- Sewerage Assets Revaluation Final
- Sewer 1 July 2017 to 30 June 2021 Customer Requests
- Sewer Asset Management Plan Adopted by Council on 27 June 2017

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	3,050,583	3,187,439	3,249,645	3,355,421	3,464,883	3,578,198	3,695,491	3,816,954	3,942,715	4,072,431	16,307,971	35,413,760
Maintenance	1,379,268	1,191,349	1,224,148	1,257,861	1,292,517	1,328,139	1,364,754	1,402,404	1,441,104	1,480,887	6,345,143	13,362,431
Renewal	1,787,727	674,000	2,451,000	2,159,182	2,965,000	2,195,000	2,325,200	1,495,000	2,343,525	1,505,000	10,036,909	19,900,634
Capital Upgrade	5,850,000	8,453,000	-	100,000	265,000	1,565,000	1,565,000	650,00	65,000	65,000	14,668,000	17,993,000
New	2,950,000	30,000,0000	35,000,000	-	-	-	-	-	-	-	67,950,000	67,950,000
Total	15,017,578	43,505,788	41,924,793	6,872,464	7,987,400	8,666,337	8,950,445	7,364,358	7,792,344	7,123,318	115,308,023	154,619,825

Appendix G – 10 Year Capital Improvement Program

Project	Description	Budget 2025/2026 (\$) Budget	Budget 2026/2027 (\$) Budget	Budget 2027/2028 (\$) Budget	Budget 2028/2029 (\$) Budget	Budget 2029/2030 (\$) Budget	Budget 2030/2031 (\$) Budget	Budget 2031/2032 (\$) Budget	Budget 2032/2033 (\$) Budget	Budget 2033/2034 (\$) Budget	Budget 2034/2035 (\$) Budget
	Casino STP Upgrade	2,950,000	30,000,000	35,000,000							
850732	Evans Head Stage 2 Design & Construction	5,250,000	8,053,000								
850100	Mains Repairs to be allocated	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
850101	Junction Repairs to be allocated	175,000	150,000	150,000	100,000	100,000	80,000	80,000	80,000	80,000	80,000
850102	Manhole Repairs to be allocated	200,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000
850751	Broadwater Sewer Scheme Supply e-One Unit - to be allocated	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
850110	Relining Program	800,000		800,000		800,000		800,000		800,000	
850950	Future Sewer Renewals	70,000	100,000	100,000	100,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
	Airforce beach toilet block sewer renewal	80,000									
	Duplicate Rising Main from WWPS1 to WWPS8 150 dia			400,000							
	Replace Rising Main 4 to WWPS 200 dia			500,000							
	PS14 Upgrade		250,000								
	SPS603 Switchboard, MHL Automation & RTU upgrade	250,000									
	SPS605 Switchboard upgrade		150,000								
	SPS611 Switchboard, MHL Automation & RTU upgrade	250,000									
850350	Sewer System Improvements	100,000									
	SPS Switchboard upgrades to be allocated					65,000	65,000	65,000	65,000	65,000	65,000
	PS1 Replace Pump Impellers		59,000								
	RTU Upgrade	45,000									
	PS5 Replace Pumps			24,000							

Project	Description	Budget 2025/2026 (\$) Budget	Budget 2026/2027 (\$) Budget	Budget 2027/2028 (\$) Budget	Budget 2028/2029 (\$) Budget	Budget 2029/2030 (\$) Budget	Budget 2030/2031 (\$) Budget	Budget 2031/2032 (\$) Budget	Budget 2032/2033 (\$) Budget	Budget 2033/2034 (\$) Budget	Budget 2034/2035 (\$) Budget
850550	PS6 Replace Pumps			38,000							
	PS7 Replace Pumps			24,000							
	PS8 Upgrade				796,000						
	SPS401 Construct Gravity Overflow	20,000									
	Level sensor upgrade to Radar	100,000									
	Renewals to be allocated										
	Sew STP Cas - Diffuser blade replacement	60,000									
	Sewerage System Improvements				200,000		50,000	50,000	50,000	50,000	50,000
	Stage 1 Upgrade - Design				100,000	200,000					
	Stage 1 Upgrade - Construction						1,500,000	1,500,000			
850800	Reuse effluent water scheme			50,000	500,000	700,000	700,000				
	Generator	50,000									
	Pipe Replacement - EAT to Clarifier	50,000									
	Plant & Equipment	92,727	20,000	20,000	118,182	20,000	20,000	50,200	20,000	68,525	30,000

Appendix I – Capital Works Evaluation Module

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, funding 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.

