

Infrastructure Asset Management Plan

2022/23 - 2031/32

CWMS



District Council of
Mount Remarkable

Document History and Status

Rev	Description	Author	Reviewed	Approved	Date
A	Draft for Council feedback	NCC/SV	CRW	LJB	22 December 2021

DRAFT



© Tonkin Consulting Pty Ltd

This document is, and shall remain, the property of Tonkin Consulting. The document may only be used for the purposes for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

Contents

Project: Infrastructure Asset Management Plan | CWMS
Client: District Council of Mount Remarkable
Ref: 202341R008RevA

1	Executive Summary	5
2	Introduction	6
2.1	Context.....	6
2.2	Background	6
2.3	Plan Framework.....	9
3	Life Cycle Management	11
3.1	Background Data.....	11
3.2	Risk Management	17
3.3	Required Expenditure.....	18
4	Future Demand	27
4.1	Demand Forecast	27
4.2	Demand Management Plan.....	28
5	Levels of Service	29
5.1	Community Levels of Service	29
5.2	Technical Levels of Service	32
6	Plan Improvement and Monitoring	35
7	References	36

Tables

Table 3.1	Condition Rating Descriptions	11
Table 3.2	Known Service Performance Deficiencies	16
Table 3.3	CWMS Asset Replacement Cost Summary as at 1 July 2021	17
Table 3.4	CWMS Preliminary Risk Register.....	18
Table 3.5	2020/2021 Operations and Maintenance Expenditure	19
Table 3.6	Projected Maintenance and Operational Cost per Activity.....	20
Table 3.7	Forecasted Operations & Maintenance Expenditure	21
Table 3.8	Estimated Capital Renewal Expenditure.....	23
Table 3.9	Operating and Maintenance, Capital Renewal and Capital Upgrade Expenditure.....	25

Table 4.1	Demand Factors, Projections and Impact on Services.....	27
Table 4.2	Demand Management Plan Summary	28
Table 5.1	Community Levels of Service	29
Table 5.2	Technical Level of Service for Gravity Mains, WWTP and Pump Stations.....	32
Table 6.1	Tasks Identified for Improving Future Versions of the Plan	35

Figures

Figure 2.1	Distribution of replacement cost of CWMS asset as of 1 July 2021	8
Figure 3.1	Overall Age Profile of Collection Network Pipes & Nodes	12
Figure 3.2	Collection Network Pump Station Condition Profile	13
Figure 3.3	Overall Condition Profile of Wastewater Treatment Plant Assets.....	14
Figure 3.4	Overall Age Profile of Irrigation Assets.....	14
Figure 3.5	Irrigation Pump Station Condition Profile	15
Figure 3.6	Projected Operational and Maintenance Expenditure.....	22
Figure 3.7	Estimated Capital Renewal Expenditure.....	24
Figure 3.8	Projected Operating and Capital Expenditure	26

1 Executive Summary

The District Council of Mount Remarkable (Council) has worked on the development of this Asset Management Plan as an improvement to the previous Plan endorsed in October 2015. The purpose of this Asset Management Plan (Plan) is to provide a clear strategy in relation to the maintenance, renewal and upgrade of the various Community Wastewater Management Schemes (CWMS) located in the townships of Booleroo Centre, Melrose, Wilmington and Wirrabara respectively.

The CWMS network included within this Plan comprises of the following:

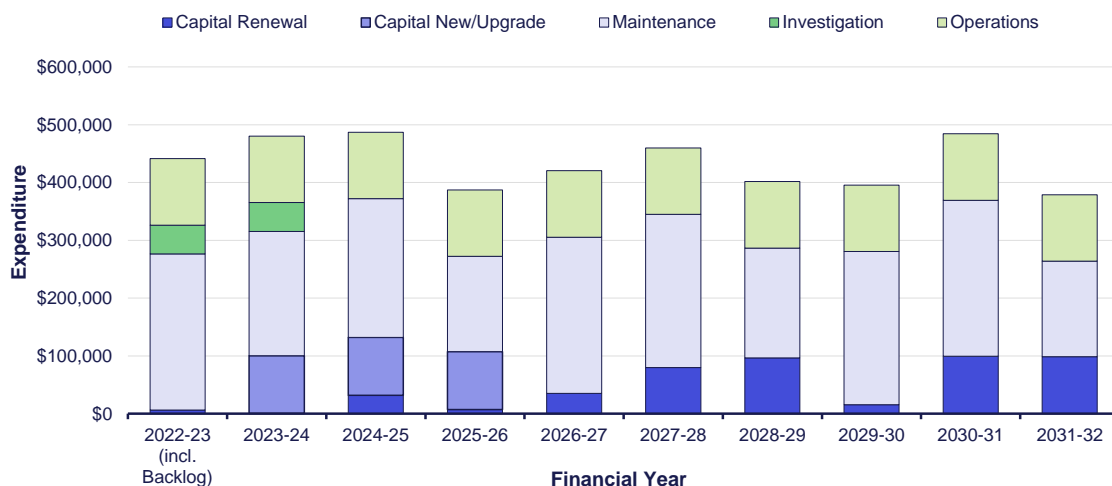
- Booleroo Centre CWMS – Consisting of 6.06km of Pipes, 297 structures (flushing points, manholes, inspection points), 1 pump station, Lagoons and recycled water irrigation
- Melrose CWMS – 8.09km of Pipes, 279 structures, lagoons and recycled water irrigation
- Wilmington CWMS – 12.78km of Pipes, 347 structures, lagoons and recycled water irrigation
- Wirrabara CWMS – Consisting of 10.54km of Pipes, 322 structures, 1 pump station, treatment plant, lagoons and recycled water irrigation.

As of 1 July 2021, Council's CWMS assets within this Plan have an estimated replacement cost of \$10,126,641. As established within this Plan, the overall physical condition of the network is considered serviceable given its age relative to its expected useful life. However, it has been observed within the maintenance and operation that there are deficiencies with the management of wastewater treatment plants. This has been evident with the inconsistent supply of recycled water and the ceasing of operation at several wastewater treatment plants and pump stations respectively. As outlined within this Plan, an increase in maintenance and operational funding is required to improve the overall reliability of the treatment facilities.

This is depicted in the Figure below with \$50,000 allowance for *investigations* between 2022-2023 to 2023-2024 and \$100,000 for *capital upgrade* between 2023-2024 to 2025-2026. Overall, there has also been an increase in the projected maintenance and operational expenditure to address various deficiencies outlined within this Plan.

This Plan is intended to inform the development of the Long-Term Financial Plan to provide an estimated expenditure requirement to achieve the level of service outlined within this Plan. The final budget allocations for Council's Annual Business Plan are subject to further Council decisions.

Projected Capital, Operations & Maintenance Expenditure



2 Introduction

2.1 Context

This CWMS Asset Management Plan has been developed following a comprehensive review of the asset register and as an update to the previous CWMS Plan adopted in October 2015. Under the *Water Industry Act 2012*, Mount Remarkable District Council have been licensed to operate as an intermediate water retailer to provide wastewater services in the form of the Community Wastewater Management System (CWMS) and irrigation water in the form of recycled water. Under this licence, Council is required to comply with the National Water Initiative Pricing Principles when charging for the wastewater management and must report to the Essential Services Commission of South Australia (ECOSA). This Plan will be used to guide the planning, construction, maintenance and operation of the Community Wastewater Management System and to ensure sustainable financial management.

This Plan has been developed following a comprehensive review of the following information:

- Condition Inspection of above ground CWMS assets (pump stations and wastewater treatment plant) by Tonkin and Pump Technology Services in 2021
- Updated asset registers as of 1 July 2021 with inclusion of any additional assets picked up as part of the condition audit
- Updated replacement costs based on industry recognised unit rates. The updated replacement costs are only for planning purposes and a formal valuation has not been undertaken.

2.2 Background

The District Council of Mount Remarkable is the owner and organisation responsible for the management of four Community Wastewater Management Schemes (CWMS) in the townships of Booleroo Centre, Melrose, Wilmington and Wirrabara. This includes the wastewater treatment plants, pump stations and associated filtration and chlorine dosing systems that allows for the reuse of this water to supply local sporting ovals with recycled water for irrigation.

For the purpose of this report, the CWMS assets have been categorised into the following:

- CWMS collection network which consists of gravity mains, rising mains, pump stations and nodes such as manholes, flushing points and inspection points
- Wastewater Treatment which consists of all constituents of the wastewater treatment plants such as civil, mechanical, valve, pipes and fittings (VPF), pumps and electrical and instruments. For the purpose of this Plan, the Wastewater Treatment also includes chlorine dosing stations, lagoons and all pump stations.
- Irrigation which consists of the pipework and valves

Wilmington CWMS

The Wilmington CWMS network was first commissioned in 1993 and consists of approximately 11km of gravity wastewater collection system. The effluent is treated at a facultative lagoon for re-use at adjacent town ovals for irrigation. There is also a Wastewater Treatment Plant (WWTP) located at Wilmington which the effluent currently bypasses and is currently under investigation by Council for decommissioning.

Booleroo Centre CWMS

The Booleroo Centre CWMS network was first commissioned in 2004 and consists of approximately 5.4km of gravity wastewater collection system which is treated at facultative lagoons north west of the township.

The treated effluent is then further treated through filtration and chlorine dosing to be used for irrigation purposes at the adjacent golf course.

Melrose CWMS

The Melrose CWMS network was first commissioned in 2001 and consists of approximately 8km of gravity wastewater collection system. The effluent from the system is treated at a facultative lagoon north east of the township for re-use at adjacent Melrose Showground for irrigation.

Wirrabara CWMS

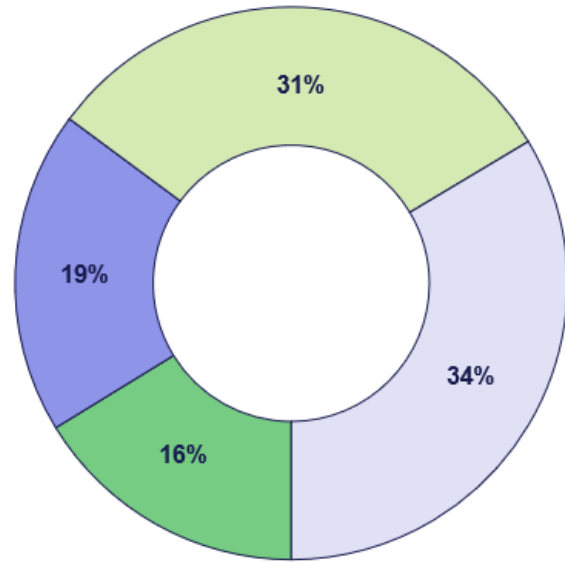
The Wirrabara CWMS network was first commissioned in 2017 and consists of approximately 6.5km of gravity wastewater collection system. The effluent from the system is treated at the Wirrabara Wastewater Treatment Plant and delivered to adjacent storage lagoons. The treated effluent is then transferred from the storage lagoons to the township for irrigation purposes at the town ovals.

A summary of each CWMS scheme and its associated replacement cost is provided in Figure 2.1. It must be outlined that this is not based on a formal valuation and is based on an estimated replacement cost.

DRAFT

Figure 2.1 Distribution of replacement cost of CWMS asset as of 1 July 2021

CWMS Infrastructure Summary



TOTAL ESTIMATED VALUE
\$10.1M

- Booleroo Centre
- Melrose
- Wilmington
- Wirrabara

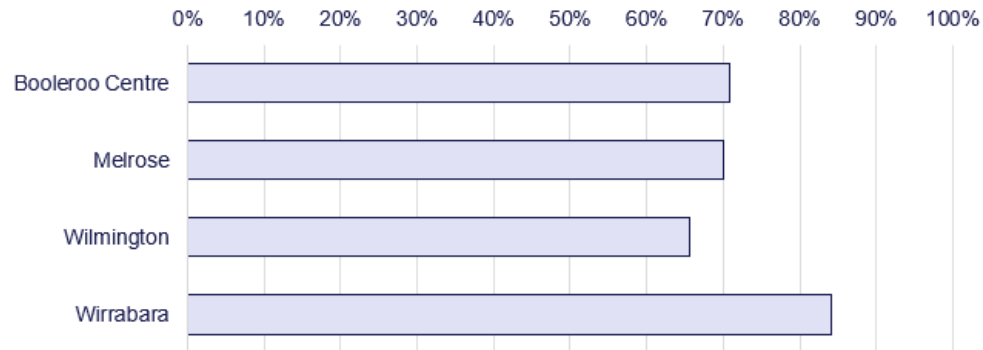
Booleroo Centre
6.06km Pipes
297 Nodes
1 Pump Station
Lagoons & Reuse Irrigation

Melrose
8.09km Pipes
279 Nodes
Lagoons & Reuse Irrigation

Wilmington
12.78km Pipes
347 Nodes
1 Pump Station
Lagoons & Reuse Irrigation

Wirrabara
10.54km Pipes
322 Nodes
1 Pump Station
Treatment plant, Lagoons & Reuse Irrigation

% of Asset Remaining Value



2.3 Plan Framework

This CWMS infrastructure asset management plan is based on the fundamental structure of the IPWEA NAMS 3 Asset Management for Small, Rural or Remote Communities template.

Council provides services for the community through the provision of infrastructure assets. Council have acquired these assets directly through construction by council staff or contractors and by donation of assets constructed by developers and others over time.

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

- Taking a life cycle approach
- Developing cost-effective management strategies for the long term
- Providing a defined level of service and monitoring performance
- Managing risks associated with asset failures
- Sustainable use of physical resources.

Key elements of the plan are:

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

This asset management plan is prepared under the direction of Council’s vision which is:

This is a remarkable community to be a part of; a remarkable place to live, and a remarkable place to work or be in business. We’re a ‘can do’ Council and what we do, we strive to do remarkably well.

Our Mission

- To enhance a sense of community.
- To develop vibrant, sustainable townships that our people feel proud of and connected to and that visitors want to explore.
- To provide quality services across all of our community.
- To advocate for the protection of our environment and heritage.
- To facilitate opportunities for the economic, social and cultural benefit of our community.
- To perform regulatory functions with diligence, care and consideration.

- To demonstrate sound leadership and work with our community to meet their expectations whilst operating in a financially responsible manner.

Our Values

Be Remarkable

Unique doesn't cut it. Remarkable is in our name, in our hearts and in our destiny.

Take Others on the Journey

It takes a collective effort; we know we can't do it alone. We work with our stakeholders to build prosperity.

Engage, Listen, Act

Within the boundaries of good public governance we 'have a go'.

Innovate

Forward-thinking, we balance aspiration with responsibility in our considerations, priorities and decision making.

Adapt

Change is behind us, upon us and ahead of us. We are receptive and adaptable.

Be Open and Transparent

Through good governance and transparency, we hold the trust of our community.

Take Pride and Be Proud

We take pride in what we do. We are proud of our past and optimistic about our future

DRAFT

3 Life Cycle Management

The life cycle management plan details how Council plans to manage and operate the assets at the agreed levels of service (defined in Section 5) while optimising life cycle costs.

3.1 Background Data

Mount Remarkable District Council's (MRDC) CWMS assets are located in the four townships of Booleroo Centre, Melrose, Wilmington and Wirrabara. The assets covered in this Plan are summarised in Figure 2.1.

3.1.1.1 Asset Condition

The condition of Mount Remarkable District Council's CWMS assets shown in this Plan have been ascertained through a combination of on-site condition assessment data where available and age-based for assets where no condition inspection data is available. The condition rating description for assets with condition data is shown in Table 3.1.

The CWMS assets have been categorised into the following:

- Collection Network – gravity mains, rising mains, structures (flushing points, manholes, inspection points) and its associated pump stations
- Wastewater Treatment Plants (WWTP)
- Irrigation Assets – subsurface irrigation and its associated pump stations

Table 3.1 Condition Rating Descriptions

Condition Range	Description
0	As New
1-20	Very Good
21-40	Good
41-60	Fair
61-80	Poor
81-100	Very Poor

3.1.1.2 Collection Network

As of this Plan, Council have not undertaken a formal condition assessment of their gravity collection network which consist of the gravity pipes, rising mains and structures (nodes). It is expected that the overall condition of the gravity network would not have deteriorated below the serviceable standard based on the current age of the network. As shown in Figure 3.1, the oldest infrastructure within the network was constructed in 1992 and does not exceed 30 years of age as of 2022. The typical useful life of CWMS collection networks ranges from 50 to 60 years such that the CWMS collection network is largely less than halfway through its useful life. However, it is recommended that Council undertake a formal condition assessment of the collection network to provide confidence that the assumed age-based condition is reflective of the actual condition of the network. This has been identified as an operational and maintenance

shortfall which will be discussed later in this Plan. The overall age profile of the CWMS collection network is shown in Figure 3.1 with the Estimated Replacement Cost and the Year Constructed.

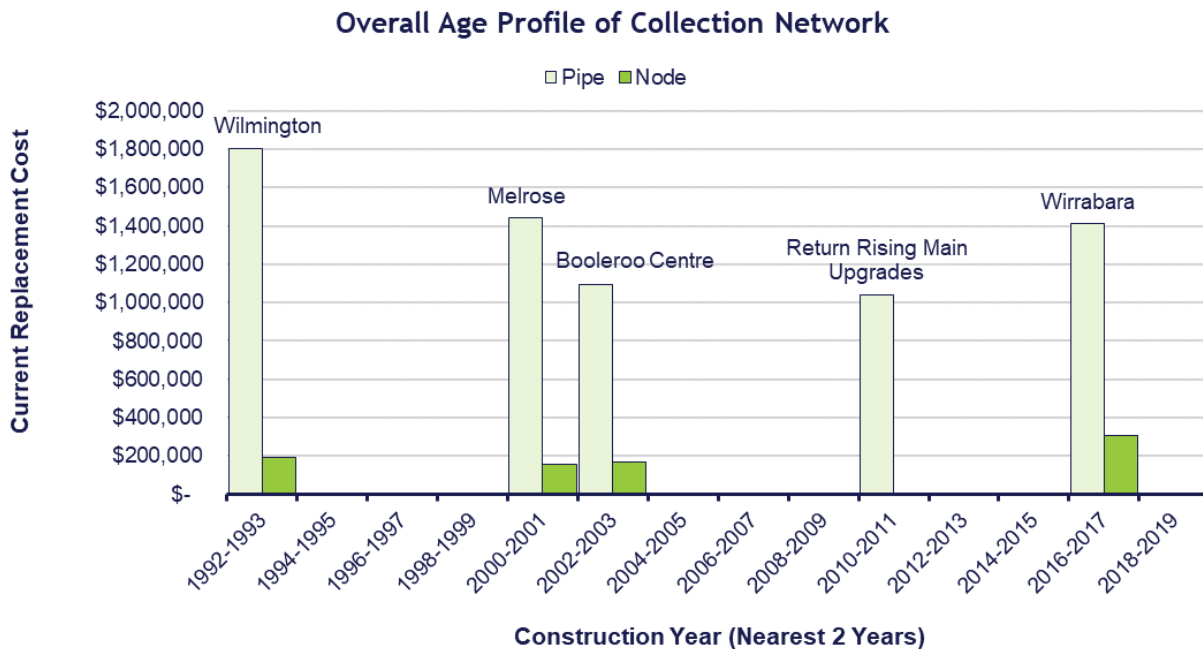


Figure 3.1 Overall Age Profile of Collection Network Pipes & Nodes

As shown in Figure 3.1, the CWMS collection network was constructed in specific periods to represent the commissioning of the various CWMS networks at each township. The construction of pipes and nodes in 1992 to 1993 represents the Wilmington CWMS network, 2000 to 2001 represents the Melrose CWMS network, 2002 to 2003 represents the Booleroo Centre CWMS network and 2016 to 2018 represents the Wirrabara CWMS network respectively. In 2010 to 2011 there were additional upgrades undertaken in Wirrabara and Wilmington with the construction of rising mains.

The collection network also contains several pump stations that aid in the transfer of effluent from the gravity network to the various treatment facilities. In 2021, Tonkin and Pump Technology Services undertook a condition assessment of all CWMS pump assets and WWTP for each of the asset categories. The condition profile of the collection network pump stations is shown in Figure 3.2.

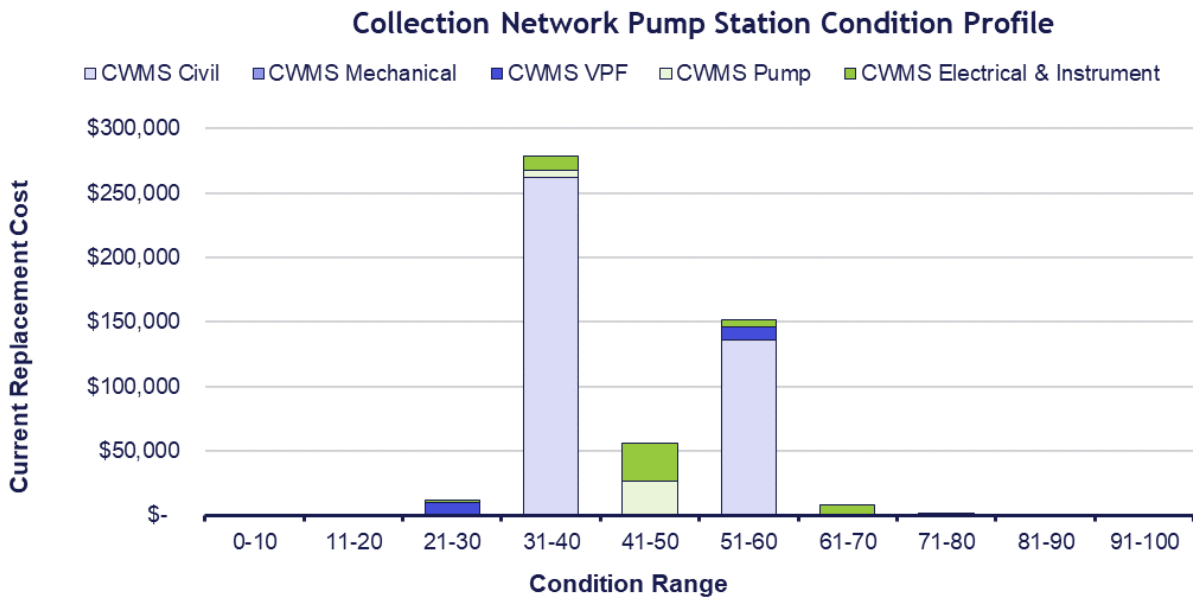


Figure 3.2 Collection Network Pump Station Condition Profile

3.1.1.3 Wastewater Treatment Plants

As described in 3.1.1.2 Collection Network, a condition assessment of all WWTP assets was undertaken in 2021 by Tonkin and Pump Technology Services. The WWTP assets were assessed based on the physical state and assigned a condition rating between 0 to 100. It should be noted that the condition assessment did not take into consideration the performance of the assets and its ability to achieve its customer and technical level of service which is outlined in 5.1 Community Levels of Service and 5.2 Technical Levels of Service respectively.

It was observed during the condition assessment that the upkeep and maintenance of the treatment facilities could be improved with numerous minor components requiring replacement or overhauling to ensure continued operation. An improved standard of upkeep would increase the reliability of the treatment plants and improve continuous operation.

The condition profiles for the WWTP were further categorised into the following constituents:

- Civil Assets (sheds, concrete tanks, fences etc.)
- Pump Assets at WWTP
- Valves, Pipes and Fittings (VPF)
- Electrical and Instrumentation
- Mechanical Assets

An overall condition profile for all WWTP assets is shown in Figure 3.3. As depicted in the overall condition profile, the majority of assets have a condition rating less than 60 which indicates it is in *fair* condition. It must be noted that this refers to the physical state of the asset and as per the above, does not take into consideration the performance relative to its ability to achieve the level of service. Furthermore, the condition profile also does not take into consideration the condition end of life such that different assets may require renewal prior to reaching a condition score of 100 to ensure sufficient performance. An example is pipes, where a condition 100 (*very poor*) would result in significant leakage and hence it must be renewed prior.

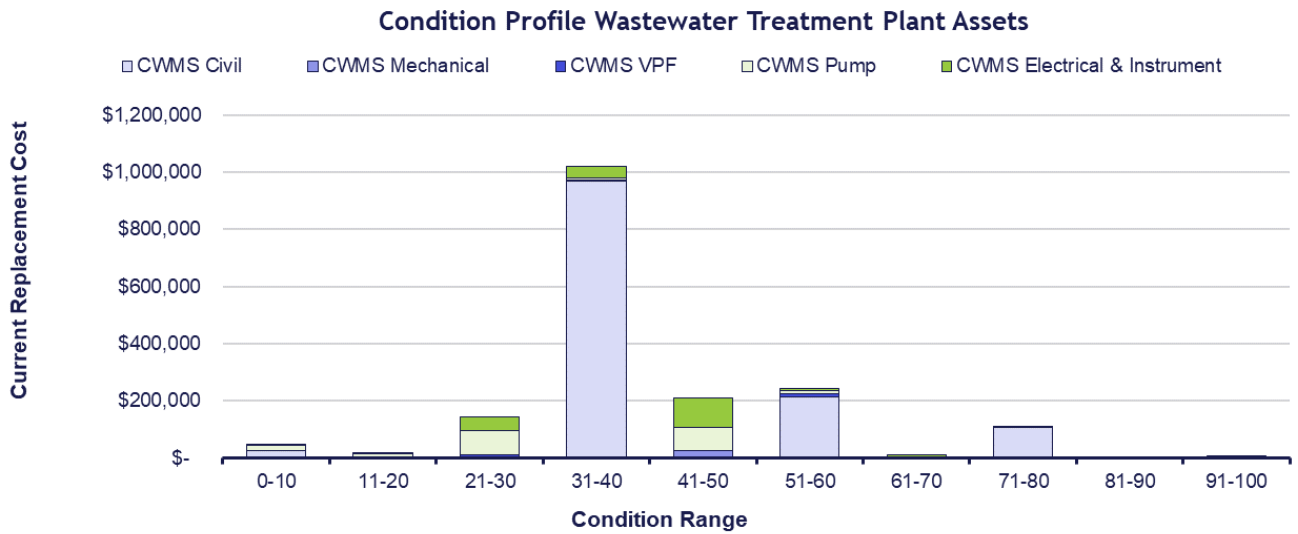


Figure 3.3 Overall Condition Profile of Wastewater Treatment Plant Assets

3.1.1.4 Irrigation

As of this Plan, Council have not undertaken a formal condition assessment of their sub-surface irrigation network. The age profile of the sub-surface irrigation is shown in Figure 3.4 with the Construction Year and the Replacement Cost. It is recommended with future iterations of this Plan that a formal condition assessment is undertaken to confirm the condition of the sub-surface irrigation assets.

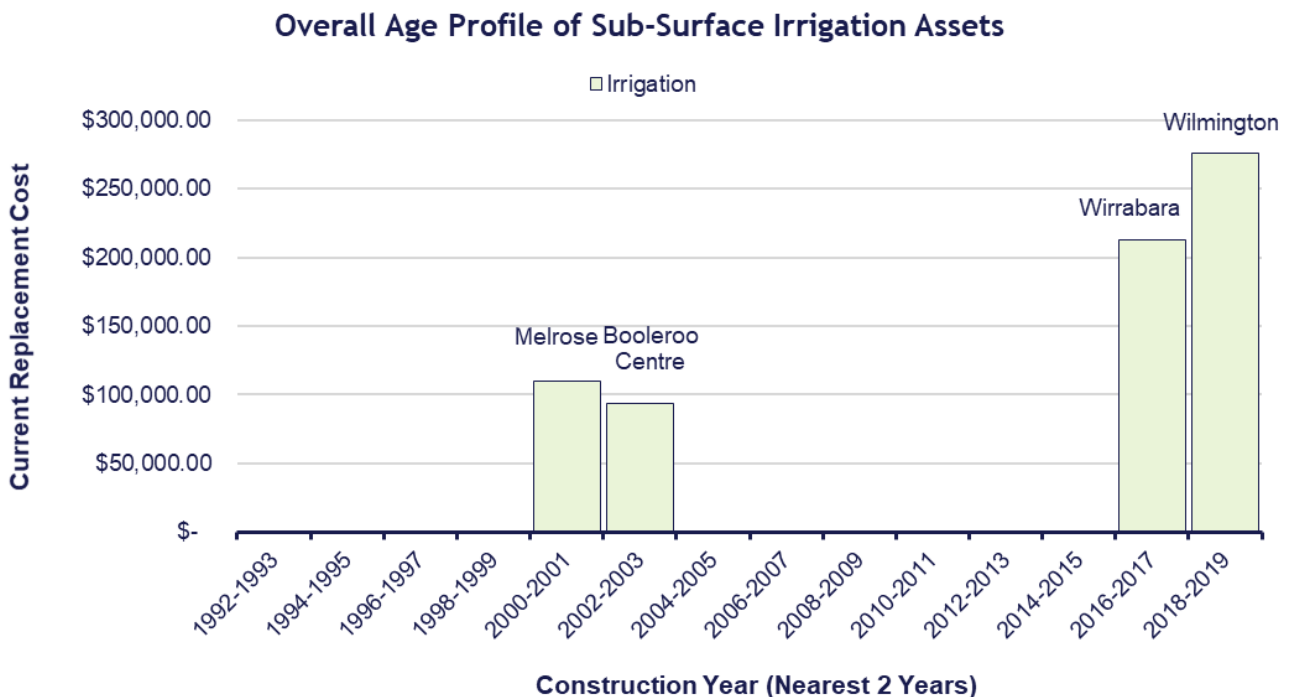


Figure 3.4 Overall Age Profile of Irrigation Assets

As part of the condition assessment undertaken in 2021 for WWTP assets and pump stations, the irrigation pump stations were also collected. The overall condition profile for irrigation pump stations is shown in Figure 3.5.

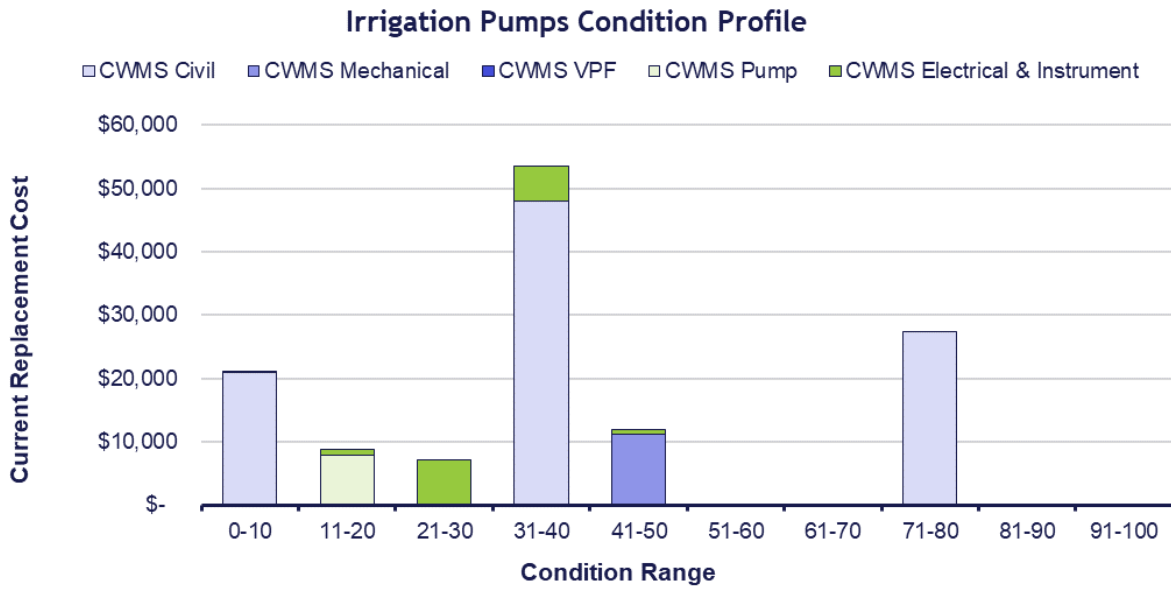


Figure 3.5 Irrigation Pump Station Condition Profile

3.1.2 Asset Capacity and Performance

Council's services are generally provided to meet design standards where these are available. In preparation of this Plan, various deficiencies were identified through the review of historic Council documents and the expertise of Council staff. These deficiencies have been outlined in Table 3.2.

Table 3.2 Known Service Performance Deficiencies

Assets	Service Deficiency
Gravity Collection Networks	<p>No condition assessment undertaken for collection network such as CCTV (Closed-Circuit Television Video) inspection for pipes and condition assessment for structures (nodes)</p> <p>No capacity monitoring undertaken within gravity collection network</p>
Pump Stations	<p>Minor maintenance required for several assets</p> <p>Operation and Maintenance manuals such as SWMS (Safe Work Method Statements) and JSA (Job Safety Analysis) requiring routine updating in accordance with industry practices and legislative requirements</p> <p>No monitoring or alarm signals for pump station failures</p> <p>High risk of prolonged repair timeframes for major asset failures due to limited resource availability within rural regions (contractors, materials) resulting in a risk of overflow</p>
Wastewater Treatment Plant & Lagoons	<p>Minor maintenance required for several assets</p> <p>Several WWTP have prolonged shutdown periods due to poor maintenance and operation – further investigation required</p> <p>Low confidence in water quality compliance and inconsistent supply of treated effluent from WWTPs for irrigation purposes</p> <p>Unaddressed worksite hazards such as slip hazards at lagoons</p> <p>No maintenance undertaken at lagoons</p>
	<p>Booleroo Centre</p> <ul style="list-style-type: none"> ▪ Worksite hazards present such as minor slip failures around lagoons
	<p>Melrose</p> <ul style="list-style-type: none"> ▪ Worksite hazards present such as minor slip failures around lagoons ▪ Storage Lagoon has seepage resulting in loss of treated effluent for recycled water usage
	<p>Wilmington</p> <ul style="list-style-type: none"> ▪ Surging water occurring between pump station and lagoons, to be investigated as causing increased deterioration of pipework ▪ Wilmington WWTP is non-operational
	<p>Wirrabara</p> <ul style="list-style-type: none"> ▪ Differential settlement (ground movement) at WWTP resulting in potential risk to Council for asset failure

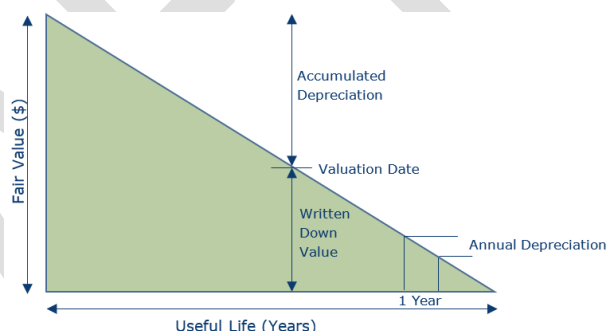
3.1.3 Asset Replacement Cost

The estimated replacement cost of all CWMS assets covered within this Plan as of 1 July 2021 is shown in Table 3.3. It must be noted that this is an estimated replacement cost and is not based on a formal valuation of assets.

Table 3.3 CWMS Asset Replacement Cost Summary as at 1 July 2021

CWMS System	Estimated Replacement Cost	Estimated Carrying Amount	Estimated Annual Depreciation
Booleroo Centre CWMS	\$1,651,397	\$1,167,777	\$27,736
Melrose CWMS	\$1,925,253	\$1,346,447	\$29,538
Wilmington CWMS	\$3,166,730	\$2,077,025	\$53,703
Wirrabara CWMS	\$3,399,521	\$2,860,040	\$63,802
Total	\$10,142,901	\$7,451,289	\$174,779

The estimated current rate of consumption (annual depreciation / depreciable amount) for CWMS assets is 1.7%. This indicates on average over the life of the asset that 1.7% of the depreciable amount is consumed annually. The translation of this consumption rate into renewals is subject to a decision on funding, service level determination, timing of renewal and condition.



3.2 Risk Management

Risks to the CWMS systems are addressed in Council's corporate risk register which is reviewed annually.

The risk assessment process identifies credible risks, considers the likelihood of an event occurring and assesses the impact or consequence that would be caused by an event occurring. A risk rating system using a risk matrix of likelihood versus impact is developed and a risk treatment plan to address non-acceptable risk is developed.

This Plan does not include a formal risk assessment however the following general comments regarding risks to the CWMS systems is provided.

Table 3.4 CWMS Preliminary Risk Register

Risk	Mitigation Measure Comments
CWMS schemes exceeding capacity	The forecast for inflows for the existing CWMS schemes is heavily dependent on population and Council does not forecast major infill development with subdivisions or extensions to the current systems. As per Council's 2030 vision, Council will undertake capacity assessments prior to approval of additional connections.
Pump station exceeding capacity and managing inflow	Council to undertake an assessment and monitoring pump station inflow rates. Pump station sumps contain additional storage to cater for several hours inflow in emergency situations, e.g. pump failures
Increased capacity requirements within WWTP and lagoons.	There is currently additional capacity in the majority of treatment systems. Should additional connections be added to a catchment, Council will undertake an assessment to ensure treatment facilities are within its operating capacity.
Poor water quality used for irrigation presenting health hazard to public and the environment	Council undertakes periodic 3-month water quality testing in accordance with legislation and current licence requirements. Council have undertaken a hazard identification and risk assessment procedure specific to human health with specific protocols in place to cease operation and mitigate risk to public and environmental health. This includes monitoring and evaluation, emergency response management and operations manuals.
Wastewater Treatment Plant failure	Council are required to respond to faults at the WWTP within 8 hours of notification. Storage lagoons contain additional volume to cater for several hours of inflow during failure. Council to cease supply of recycled water for irrigation purposes during WWTP failure to minimise risk to public health.
Failure to Comply with Approvals and Licenses	Failure to comply with relevant Department for Health and Wellbeing (DHW) and Environmental Protection Authority (EPA) approval requirements could represent a risk to human health and cause environmental harm. Adherence to compliance requirements to be confirmed by water quality testing and reporting. There is a further risk that capital upgrades to treatment facilities may be required if current infrastructure is shown to be unable to achieve compliance.
Unsafe worksite	Council is required to ensure that all sites provide a safe working environment for all personnel's such that all operating and maintenance procedures (i.e Job Safety Analysis, Safe Work Method Statements etc.) must be updated in accordance with industry practices.
Failure to supply recycled water for irrigation	Recycled Water agreements with users include a clause stating no guarantee of supply of water for irrigation

3.3 Required Expenditure

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

3.3.1 Operations and Maintenance

Routine maintenance is the regular on-going work that is necessary to keep assets operating, including instances where portions of the asset fail and need immediate repair to make the asset operational again. Maintenance includes reactive (unplanned), planned and specific maintenance work activities. Assessment and prioritisation of reactive maintenance is undertaken by operational staff using experience and judgement. The operations and maintenance expenditure as of 2020/2021 financial year for the four CWMS schemes is shown in Table 3.5.

Table 3.5 2020/2021 Operations and Maintenance Expenditure

Township	2020/21 Maintenance Expenditure
Booleroo Centre	\$68,000
Melrose	\$53,000
Wilmington	\$53,000
Wirrabara	\$73,000
Total	\$247,000

Future operations and maintenance expenditure are forecasted to exceed the current expenditure. The projected operations and maintenance expenditure has been developed through consideration of legislative compliance. The projected expenditure for future operations and maintenance is shown in Table 3.6.

Table 3.6 Projected Maintenance and Operational Cost per Activity

Activity	Projected Cost
Gravity Network	
Reactive Pipe Blockage and Clearance	\$25,000
Pipe Condition Assessment Inspection (CCTV) – 2km of network per annum	\$30,000
General Inspections	\$15,000
Nodes	
Septic Tank Pump Out Program	\$80,000 Large Tanks – Every 4 Years \$25,000 Small Tanks – Every 2 Years
General Asset Condition Inspection (Nodes, Pump Stations, Lagoons, WWTP)	\$15,000
Pump Stations	
Inspection and Testing – 2 times per annum	\$10,000
Fault Management (Effluent Pump Out, Minor Repairs, Clean Up)	\$20,000
Wastewater Treatment Plant	
Water Quality Testing & Chlorine Dosing	\$20,000
Lagoon Management	\$100,000 – As required basis
Monitoring (SCADA, General)	\$10,000
Irrigation	
Fault Management (Minor Repairs, Testing, Inspections)	\$10,000
General Maintenance	\$10,000

The projected expenditure has been developed based on the activities shown in Table 3.6. An allowance has been included for 1.5 full-time employees to undertake and manage works outlined (\$115,000). The projected expenditure takes into consideration the existing activities and improvement required to address network deficiencies. Improvements to the current maintenance and operational expenditure include the following:

- Condition assessment of assets
- Increased water quality testing
- Improved monitoring (SCADA) with additional funding for maintenance repair and fault management
- Lagoon management

Overall, the base maintenance expenditure per an annum is projected to be \$165,000 with the exclusion of lagoon management and septic tank pump outs which are periodic activities. The septic tank pump outs are shown in Table 3.7, such that the expenditure alternates based on \$105,000 for pump out of large and small

and \$25,000 for small tanks. Lagoon management has also been included in maintenance on an as-need basis, such that \$100,000 have been included within Year 2027-2028 and 2029-2030.

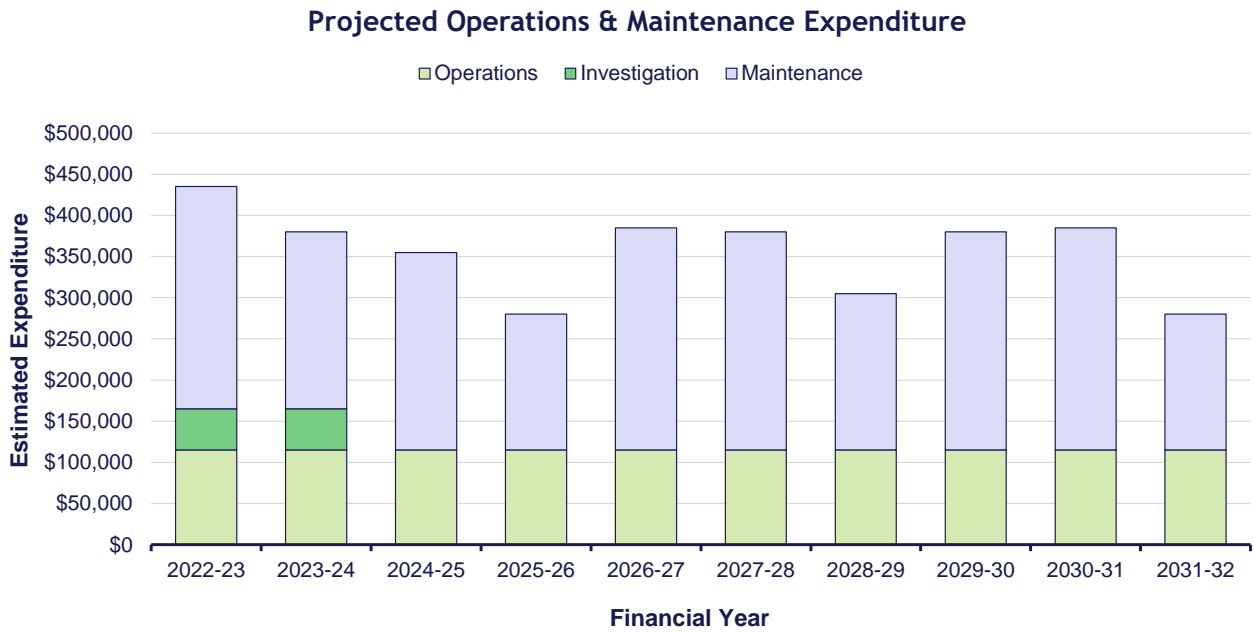
Furthermore, an allowance of \$50,000 per annum has been included between 2022-2023 and 2023-2024 for further investigation into improving reliability, compliance and water quality from Wastewater Treatment Plants. It is expected that the investigations will result in various changes in operational requirements and hence an additional \$50,000 per annum have been included between 2023-2024 and 2024-2025 to undertake changes.

As outlined above, these are estimated costs and actual required expenditure is subject to further refinement. The overall forecasted operations and maintenance expenditure is shown in Table 3.7 and Figure 3.6.

Table 3.7 Forecasted Operations & Maintenance Expenditure

Financial Year	Operations	Investigation	Maintenance	Septic Tank Pump Out
2022-23	\$115,000	\$50,000	\$165,000	\$105,000
2023-24	\$115,000	\$50,000	\$215,000	\$0
2024-25	\$115,000	\$0	\$215,000	\$25,000
2025-26	\$115,000	\$0	\$165,000	\$0
2026-27	\$115,000	\$0	\$165,000	\$105,000
2027-28	\$115,000	\$0	\$265,000	\$0
2028-29	\$115,000	\$0	\$165,000	\$25,000
2029-30	\$115,000	\$0	\$265,000	\$0
2030-31	\$115,000	\$0	\$165,000	\$105,000
2031-32	\$115,000	\$0	\$165,000	\$0
Total (10-year)	\$1,150,000	\$100,000	\$1,950,000	\$365,000

Figure 3.6 Projected Operational and Maintenance Expenditure



3.3.2 Capital Renewal

Capital renewal expenditure is major work which does not increase the asset's design capacity but restores, rehabilitates, replaces or renews an existing asset to its original service potential. Work over and above restoring an asset to original service potential is considered upgrade expenditure.

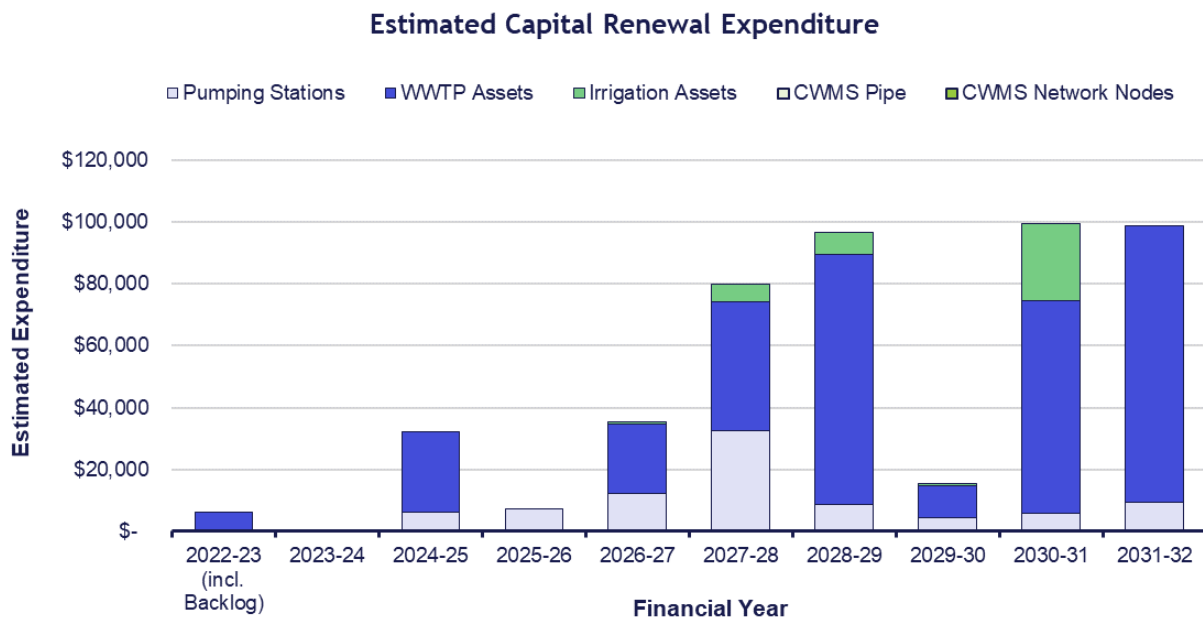
The method used to determine the renewal expenditure utilises the asset register and an age-based model such that the useful life and year created is used to determine the renewal year. As shown in Table 3.8, the renewal within the 10-year plan is primarily focused on pump stations, lagoon assets, wastewater treatment plant and irrigation assets due to their constituent assets generally having shorter useful lives in comparison to CWMS pipes and nodes.

The cost associated with the renewals have been aggregated for each financial year over a 10-year planning period (medium term) and shown in Table 3.8 and Figure 3.7. The average annual capital renewal cost over the 10-year medium term is \$47,203.

Table 3.8 Estimated Capital Renewal Expenditure

Financial Year	Pumping Stations	WWTP Assets	Irrigation Assets	CWMS Pipe	CWMS Network Nodes
2022-23 (incl. Backlog)	\$0	\$6,354	\$0	\$0	\$0
2023-24	\$450	\$0	\$0	\$0	\$0
2024-25	\$6,300	\$25,752	\$0	\$0	\$0
2025-26	\$7,317	\$0	\$0	\$0	\$0
2026-27	\$12,450	\$22,178	\$800	\$0	\$0
2027-28	\$32,516	\$41,884	\$5,500	\$0	\$0
2028-29	\$8,569	\$81,032	\$7,100	\$0	\$0
2029-30	\$4,474	\$10,325	\$800	\$0	\$0
2030-31	\$6,039	\$68,602	\$24,704	\$0	\$0
2031-32	\$9,497	\$89,386	\$0	\$0	\$0
Total	\$87,611	\$345,513	\$38,904	\$0	\$0

Figure 3.7 Estimated Capital Renewal Expenditure



3.3.3 Capital New/Upgrade and Acquisition

Capital new/upgrade expenditure is major work that creates a new asset that did not previously exist or works which upgrade or improve an existing asset beyond its existing capacity. They may result from growth, social or environmental needs. Assets may also be acquired at no cost to the Council from land development.

At present, the focus is to maintain and improve the existing CWMS assets through targeted renewal.

However, there are opportunities for Council to upgrade and complement existing infrastructure. Upgrades to be considered include:

- SCADA Monitoring Infrastructure – The implementation of a remote monitoring system that has the ability to inform operators of treatment operations in real-time would benefit the Council to allow quick response to issues and reduce risk of health or environmental hazards.

As outlined in 3.3.1 Operations and Maintenance, Council will be undertaking investigation into the improvement and compliance of existing wastewater treatment plants in 2022/2023 and 2023/2024 financial year. It is expected that the investigations will result in recommendations for several upgrades and hence an allowance of \$100,000 each year has been included for capital upgrade between 2023/2024 to 2025/2026 financial years. The required expenditure for renewal will be refined following the results of the investigation, such that it will be included in future iterations of this Plan.

3.3.4 Disposal Plan

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relocation. Council have not identified any CWMS infrastructure to be confirmed disposed of within the 10-year planning period (medium-term). However, consideration for the feasibility of the Wilmington WWTP has been identified for further investigation such that the outcome may result in the decommissioning of the plant.

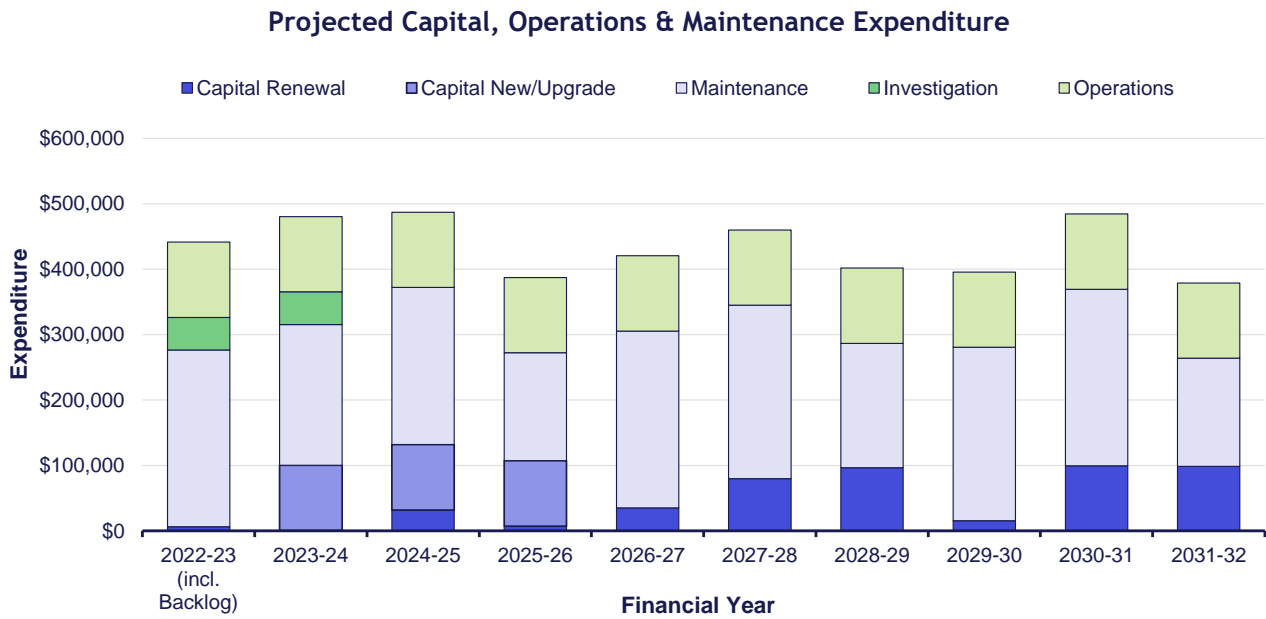
3.3.5 Financial Projections

The financial projections are shown in Table 3.9 and Figure 3.8 for projected operating (operations and maintenance), capital renewal, capital new/upgrade and estimated budget funding.

Table 3.9 Operating and Maintenance, Capital Renewal and Capital Upgrade Expenditure

Financial Year	Operations & Maintenance	Capital Renewal	Capital New/Upgrade	Projected Total Expenditure
2022-23 (incl. Backlog)	\$435,000	\$6,354	\$0	\$441,354
2023-24	\$380,000	\$450	\$0	\$480,450
2024-25	\$355,000	\$32,052	\$100,000	\$487,052
2025-26	\$280,000	\$7,317	\$100,000	\$387,317
2026-27	\$385,000	\$35,428	\$100,000	\$420,428
2027-28	\$380,000	\$79,900	\$0	\$459,900
2028-29	\$305,000	\$96,701	\$0	\$401,701
2029-30	\$380,000	\$15,598	\$0	\$395,598
2030-31	\$385,000	\$99,345	\$0	\$484,345
2031-32	\$280,000	\$98,882	\$0	\$378,882
Total	\$3,565,000	\$472,027	\$300,000	\$4,337,027

Figure 3.8 Projected Operating and Capital Expenditure



The projected average operations, maintenance and capital expenditure required over the 10-year planning period is \$433,703 per year.

DRAFT

4 Future Demand

4.1 Demand Forecast

Factors affecting demand include population change, changes in demographics, seasonal factors, consumer preferences and expectations, economic factors, agricultural practices, environmental awareness, etc. Future demand and demand forecasting considers Council's visions and missions for the Mount Remarkable Community and the intent is to align with strategic objectives for the region.

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

Table 4.1 Demand Factors, Projections and Impact on Services

Demand Driver	Present Position	Projection	Impact on Services
New connections into existing CWMS network from developments and population growth	No significant population changes in Mount Remarkable District Council Population of 2873 as of Census Statistics 2011 and 2864 as of Census Statistics 2016	No major growth in population or development within Mount Remarkable District Council	No impact on capacity of network due to development or population growth
Stormwater Infiltration and Cross Connection into CWMS network	No investigation into cross connection and infiltration	Increase stormwater infiltration and cross connection with age of infrastructure	Reduced capacity of network and treatment facilities from additional connections due to increase peak flow rates from stormwater infiltration
Irrigation of Community Ovals through recycled water	Council has agreements in all townships to irrigate multiple sites (i.e., Wirrabara Golf Course, Sporting Ovals) Council does not have capacity to increase supply of recycled water to additional sites	No additional sites to be irrigated	No increase in capacity for recycled water
Climate Change – increase high intensity rainfall events, drought periods	No Action	Increased peak flow within CWMS schemes, WWTP and lagoons due to infiltration. Increase in demand for recycled water during drought periods.	Reduced capacity

4.2 Demand Management Plan

Demand for new services will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management. Council will determine the ability of the existing assets to manage increased requirements. Opportunities identified to date for demand management are shown in Table 4.2. Further opportunities will be developed in future revisions of this Plan.

Table 4.2 Demand Management Plan Summary

Service Activity	Demand Management Plan
Wastewater Collection	<ul style="list-style-type: none"> ▪ Capacity assessment of each pump station ▪ Evaluation of impact of new allotments on existing infrastructure ▪ Developer contributions per Council policy ▪ Negotiated developer system augmentations where required ▪ Planning to incorporate any identified growth over asset life ▪ Incorporate in future iterations of the Asset Management Plan as requirements are known
Wastewater Treatment, Storage and Reuse	<ul style="list-style-type: none"> ▪ Capacity assessment of wastewater treatment processes, transfer and storage of treated wastewater ▪ Evaluation of impact of new irrigation areas ▪ Evaluation of impact of seasonal changes ▪ Planning to incorporate any identified growth of recycled water demand for irrigation ▪ Incorporate in future iterations of the Asset Management Plan as requirements are known

5 Levels of Service

The community generally expect that Council will provide an effective method of collection and disposal of wastewater which meets the required Australian and State legislative regulations applicable to CWMS assets. Council has defined service levels in two terms and provides the level of service objective, performance measure process and service target in Table 5.1 and Table 5.2.

5.1 Community Levels of Service

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

Table 5.1 Community Levels of Service

Key Performance Measure	Level of Service Objective	Current Level of Service	Performance Measure Process	Service Target
Quality	Minimise interruption to service provision	Minimal interruption to service delivery	Reported service interruptions due to CWMS infrastructure failure	Minimal interruption to service delivery
	Collection system operation without blockage or overflow	Minimal interruption to service delivery	Reported or identified blockages or overflows	Minimal interruption to service delivery
	Maintenance of service during power outage	Sufficient capacity within pump station chambers to manage 8-12 hours following service outage Emergency Management Plan has been undertaken however, not implemented	Number of overflow events from pump station chambers or lagoons	Management overflow events in accordance with legislative requirements and minimise impact to public health and environment
	Response to blockages and alarms within set timeframe	Response time to investigate blockages between 12-24 hours (external contractor) Response time to investigate chlorine leak within 3 hours (internal staff)	Number of incidents resulting in shutdown of services or hazard to public	Response time to minimise impact to services, public health and ensure compliance with legislative requirements

Key Performance Measure	Level of Service Objective	Current Level of Service	Performance Measure Process	Service Target
		Response time to investigate level sensors within 8 hours (internal staff)		
Function	Maintain visual amenity of CWMS infrastructure	Limited to weed spraying by Council in conjunction with footpath spraying program	Maintain equipment and land clear from weeds and debris	Ongoing maintenance of all equipment and infrastructure on site in a safe, fit-for-purpose condition Weed spraying of CWMS sites in conjunction with footpath spraying program >5 per year
	Available connections to CWMS for new customers	No network has exceeded design capacity	New connections including sewer main connections are assessed by Council to ensure sufficient network capacity	Responsible management of CWMS network to not exceed capacity
	Control odour generation from pump stations, treatment plants and storage lagoons	Not defined	Reported odour complaints	Nil complaints recorded each month
	Availability of recycled water for irrigation of ovals	Council provides irrigation for various ovals across all four CWMS schemes	Acceptable quantity and quality of water to meet irrigation requirements in accordance with licencing requirements	Increase availability of recycled water to promote water re-use and ensure sufficient capacity for irrigation
Safety	Ensure public safety around high-risk system components including pump stations, manholes, treatment plant and storage lagoons	No unauthorised access to CWMS infrastructure	All lockable infrastructure secured from public access	No unauthorised access to CWMS infrastructure

Key Performance Measure	Level of Service Objective	Current Level of Service	Performance Measure Process	Service Target
	Ensure clean-up of sewer overflows are undertaken to minimise impact to public and environment	Council to investigate reported sewer overflows within 12-24 hours Council to clean and disinfect affected areas	Number of complaints and health implications to residents Number of fines from statutory authorities (0 fines)	Reduction in number of complaints or health implications to residents. Compliance with relevant statutory authority (Environmental Protection Agency, Department of Health & Well Being)
	Manage public access to sites irrigated with reclaimed water	Minimise risk to public health from public irrigation	Irrigation operation in conformance with the Irrigation Management Plan for the specified irrigation site	Minimise risk to public health from public area irrigation in accordance with the Irrigation Management Plans in place for each of the irrigation sites Compliance with DHW approval in accordance with the Monitoring Programme and Contingency plan
Financing	Ensure annual services charges meet requirements for compliant operations of scheme and planned asset renewals within relevant legislative requirement	Not defined	Adequate recording and reporting on costs and charges	Charges cover operations, maintenance and renewal

5.2 Technical Levels of Service

Technical levels of service support the community service levels and are operational or technical measures of performance. These technical measures relate to the allocation of resources to service activities that the Council undertakes to best achieve the desired community outcomes.

Table 5.2 Technical Level of Service for Gravity Mains, WWTP and Pump Stations

Key Performance Measure	Level of Service Objective	Current Level of Service	Performance Measure Process	Service Target
Maintenance	To confirm asset integrity to ensure appropriate management of assets and responsible financial planning	No Closed-Circuit Television (CCTV) assessments undertaken No condition assessment audits undertaken for CWMS nodes	Percentage of network with condition scores	Council will undertake at least 2km of Closed-Circuit Television (CCTV) assessments of underground pipe network in accordance with WSA 05 – 2013 Conduit Inspection Reporting Code of Australia 3.1 Undertake routine condition inspection audits of CWMS nodes such as manholes
	Reduced blockages within household	On-going septic tank de-sludging program between 2 and 4 years dependent on size of septic tank	Number of customer request blockages from septic tank	Maintain on-going septic tank de-sludging program such that maximum timeframe between each desludging does not exceed 5 years
	Minimise disruptions to services and public impact	Response time of less than 3-6 hours for reported blockages Repair Time 12-24 hours depending on severity of blockage	Average response time to reported blockages	To ensure network blockages are attended to within 24 hours of report
Operations	Periodic water quality auditing in accordance with Council's <i>Water Utility</i> licensing requirements	No recorded sanctions from external audits	Audits from Statutory Authorities (EPA, DHW, ESCOSA, OTR)	Compliance with all Statutory Authorities and confidence with outflow to reduce public and environmental health risks

Key Performance Measure	Level of Service Objective	Current Level of Service	Performance Measure Process	Service Target
		Water quality testing undertaken by accredited National Association of Testing Authorities (NATA) laboratory		
	Minimise downtime for Wastewater Treatment Plants and Pump Stations	No sanctions from statutory authorities for compliance Several pump stations and WWTP are non-operational	Number of public health or environment impact sanctions from statutory authorities	Minimise and manage overflow to environment and impact to public health
	Adequate capacity for future growth forecast for existing networks	System catchment component plans completed and aligned to growth forecasts and development planning	System planning based on growth forecasts and development planning	Compliance with relevant DHW and EPA approvals and licences System catchment component plans completed and aligned to growth forecasts and development planning
	Availability of recycled water for irrigation	Supply of recycled water to ovals inconsistent and dependent on water quality	Number of compliance sanctions Reliability of recycled water supply	Recycled water supplied to is safe for irrigation use, with applicable controls in place, and in accordance with legislative requirements Improve consistency for supply for irrigation
	Periodic review of operational and maintenance manuals, work safety procedures and on-going operational record keeping	Records maintained for all system maintenance	Reporting	Ensure safe working environment and availability of information in the event of any external audits from statutory authorities Record keeping to inform future continuous improvement of operation

Key Performance Measure	Level of Service Objective	Current Level of Service	Performance Measure Process	Service Target
Renewal	Planned asset renewal and upgrade undertaken to maintain system in compliant operational condition	Updated previous plans adopted for budgeting and reviewed annually	Asset Management Plan integrated with Long Term Financial Plan and annual budget process	Updated current plans adopted for budgeting and reviewed annually

DRAFT

6 Plan Improvement and Monitoring

The following tasks have been identified for improving future versions of the Plan. Council should assign responsibilities and resources to these tasks as part of the endorsement of the Plan.

Table 6.1 Tasks Identified for Improving Future Versions of the Plan

Task No.	Task	Responsibility
1.	Undertake compliance review for each of the sites in conjunction with the Operations and Maintenance to confirm performance. Performance is assessed as adherence to DHW and EPA approval and licence requirements.	Council Administration
2.	Review of asset register to ensure all assets are accounted for and for the continued maintenance of register (update capital additions, renewal, disposals)	Council Administration
3.	Undertake CCTV condition assessment of network in accordance with WSA05 – 2020 Conduit Inspection Reporting Code of Australia to determine overall condition of network	Council Administration
4.	Investigation into each of the wastewater treatment plants to determine works plan required to improve compliance	Council Administration
5.	Investigate the impacts of differential settlement occurring at Wirrabara Wastewater Treatment Plant	Council Administration
6.	Investigate and monitor the environmental impacts of the leaking storage lagoon at Melrose	Council Administration
7.	Update the Asset Management Plan based on the investigations to allow for a more detailed and accurate estimate of future budgeting costs.	Council Administration
8.	Undertake routine valuation of CWMS register in accordance with industry practice and Australian Accounting Standards.	Council Administration
9.	Review and Update SRMTMP as required (Safety Reliability Maintenance Technical Management Plan) Plan – CWMS, Potable Water, Recycled Water	Council Administration
10.	Review and Update Risk and Irrigation Management Plans for each of the irrigation sites as required (Water Quality Requirement, Frequency Testing)	Council Administration
11.	Undertake reliability assessment of critical assets to improve operational consistency	Council Administration

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

7 References

IPWEA, 2006, NAMS.PLUS3 Asset Management, Institute of Public Works Engineering Australia, Sydney, www.ipwea.org

IPWEA, 2011, Asset Management for Small, Rural or Remote Communities Practice Note, Institute of Public Works Engineering Australia, Sydney, www.ipwea.org

DRAFT