

# Infrastructure Asset Management Plan

## Community Wastewater Management System (CWMS)

**Clare & Gilbert Valleys Council**

22 July 2020  
Ref: 20180250DR2C



CLARE & GILBERT  
VALLEYS COUNCIL

**tonkin**   
Building exceptional  
outcomes together



## Document History and Status

Rev	Description	Author	Reviewed	Approved	Date
A	Draft for Client Comment	KJS	RKE	RKE	4 March 2019
B	Plan update	RKE	RKE	RKE	13 May 2020
C	Updates as part of Council adoption of the plan	CF	RKE	RKE	22 July 2020

© 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 | Community Wastewater Management System (CWMS)**  
**Client: Clare & Gilbert Valleys Council**  
**Ref: 20180250DR2C**

<b>1</b>	<b>Executive Summary .....</b>	<b>5</b>
<b>2</b>	<b>Introduction .....</b>	<b>6</b>
2.1	Background.....	6
2.2	Community Wastewater Management Scheme Assets.....	6
2.3	What we will do .....	9
2.4	Managing the Risks .....	9
2.5	The Next Steps .....	9
2.6	Plan Framework.....	9
<b>3</b>	<b>Levels of Service.....</b>	<b>11</b>
3.1	Community Levels of Service .....	11
3.2	Technical Levels of Service .....	13
<b>4</b>	<b>Future Demand .....</b>	<b>15</b>
4.1	Demand Forecast .....	15
4.2	Demand Management Plan .....	16
<b>5</b>	<b>Life Cycle Management .....</b>	<b>17</b>
5.1	Background Data .....	17
5.2	Asset Valuation.....	23
5.3	Risk Management.....	24
5.4	Required Expenditure.....	25
<b>6</b>	<b>Plan Improvement and Monitoring .....</b>	<b>33</b>
<b>7</b>	<b>References .....</b>	<b>34</b>

## Tables

<b>Table 1</b>	<b>CWMS Age Summary .....</b>	<b>7</b>
<b>Table 2</b>	<b>CWMS Asset Quantities .....</b>	<b>8</b>
<b>Table 3</b>	<b>Community Levels of Service.....</b>	<b>12</b>
<b>Table 4</b>	<b>Technical Levels of Service.....</b>	<b>13</b>
<b>Table 5</b>	<b>Demand Factors, Projections and Impact on Services .....</b>	<b>15</b>
<b>Table 6</b>	<b>Demand Management Plan .....</b>	<b>16</b>
<b>Table 7</b>	<b>Wastewater Treatment Schemes Summary .....</b>	<b>18</b>
<b>Table 8</b>	<b>Pumping Stations Summary .....</b>	<b>19</b>



<b>Table 9</b>	<b>Treated Wastewater Reuse Approval Criteria</b>	<b>19</b>
<b>Table 10</b>	<b>Treated Wastewater Reuse Pumping Assets</b>	<b>20</b>
<b>Table 11</b>	<b>Known Service Performance Deficiencies</b>	<b>21</b>
<b>Table 12</b>	<b>Asset Condition Scores</b>	<b>21</b>
<b>Table 13</b>	<b>Asset Condition Monitoring Methodology</b>	<b>22</b>
<b>Table 14</b>	<b>Pump Station Assets Condition Data</b>	<b>23</b>
<b>Table 15</b>	<b>Critical Risks and Treatment Plans</b>	<b>24</b>
<b>Table 16</b>	<b>Operations and Maintenance Costs</b>	<b>26</b>
<b>Table 17</b>	<b>Projected Operations and Maintenance Expenditure</b>	<b>28</b>
<b>Table 18</b>	<b>Critical Assets and Service Level Objectives</b>	<b>29</b>
<b>Table 19</b>	<b>Current CWMS Assets Identified for Renewal</b>	<b>30</b>
<b>Table 20</b>	<b>CWMS Assets Upgrade</b>	<b>31</b>
<b>Table 21</b>	<b>Operating and Capital Expenditure</b>	<b>32</b>
<b>Table 22</b>	<b>Tasks Identified for improving future versions of the plan</b>	<b>33</b>

## Figures

<b>Figure 1</b>	<b>Distribution of CWMS Assets by Replacement Value as at 30 June 2018</b>	<b>6</b>
<b>Figure 2</b>	<b>CWMS Asset Age Profile</b>	<b>17</b>
<b>Figure 3</b>	<b>CWMS Daily Wastewater Treatment Volumes</b>	<b>18</b>
<b>Figure 4</b>	<b>Projected Operations &amp; Maintenance Expenditure</b>	<b>28</b>
<b>Figure 6</b>	<b>Projected Operating and Capital Expenditure over the Medium Term (10 Years)</b>	<b>32</b>

## Appendices

<b>Appendix A</b>	<b>– Township CWMS Network Plans</b>
<b>Appendix B</b>	<b>– Community Waste Water System (CWMS) Overview</b>



# 1 Executive Summary

The Clare and Gilbert Valleys Council has developed this Community Wastewater Management Scheme (CWMS) Infrastructure Asset Management Plan based on the CWMS asset register as at 30 June 2018.

In 2016 Council developed a CWMS Asset Management Plan based on the current asset register. In 2017/18 Council undertook a CWMS asset valuation as of 1 July 2017 and during this valuation assets at the pumping stations, wastewater treatment plants, storage lagoons and reuse sites were componentised. The spatial register for the collection areas were updated to include new collection areas and realignments of gravity pipes and rising mains. This plan is based on the updated asset register and valuation developed for the 1 July 2017 valuation and includes the 2017/18 capital works and 30 June 2018 financial report for Council's CWMS assets. In 2018/19 Council expended \$545,360 in capital works for pump station works in Clare and gravity main works in Saddleworth.

This plan outlines the requirements for Council to continue to plan and deliver wastewater services to the townships of Clare, Riverton and Saddleworth.

The upgrade and asset renewal requirements identified during the development of this plan have been costed at a preliminary level only. In order to better understand the asset renewal patterns and ongoing requirement for replacement of the shorter life assets it is recommended that Council further develop a strategic approach to planning for asset renewal and maintenance. This recommendation is included in the improvement plan.

## 2 Introduction

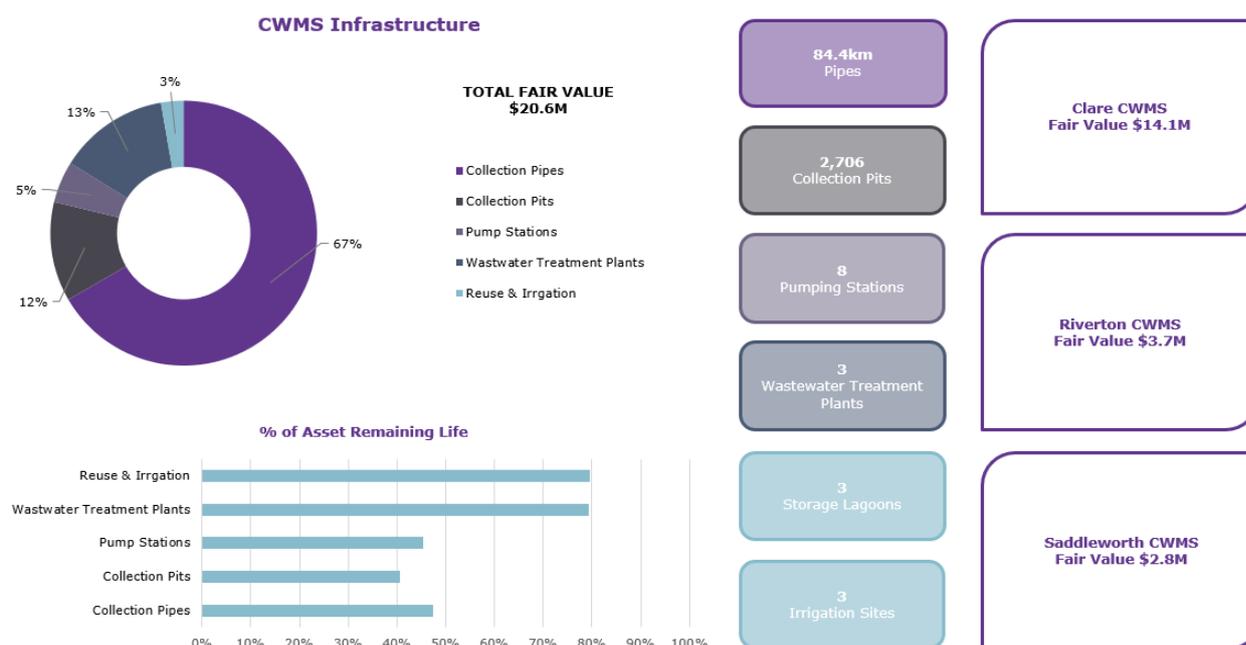
### 2.1 Background

The goal and purpose of this Community Wastewater Management System (CWMS) Asset Management Plan is to improve Council’s long-term strategic management of its CWMS assets in order to cater for the community’s desired levels of service in the future, in accordance with Council’s key strategic documents and demonstrate reasonable management in the context of Council’s available financial and human resources.

The CWMS Plan is maintained and managed in accordance with all regulatory requirements under the South Australian Water Act 2012, the Essential Services Commission of South Australia (ESCOSA) the Office of the Technical Regulator (OTR) and Local government Act 1999.

Council will continue to develop service levels and asset renewal projects to ensure needs for the community are delivered. These service levels have been set in accordance with user needs, regulations, industry practice and legislative codes of practice.

An overview of the CWMS infrastructure assets covered by this asset management plan are shown in .



**Figure 1 Distribution of CWMS Assets by Replacement Value as at 30 June 2018**

68% of CWMS infrastructure by value is located in Clare, 18% in Riverton and 14% in Saddleworth.

### 2.2 Community Wastewater Management Scheme Assets

The basic function of a CWMS network is to convey household and commercial wastewater from sinks, bathrooms and toilets (everything that goes down the drain) to a point of disposal being a lagoon and/or treatment plant, prior to disposing of the wastewater.

This infrastructure asset management plan covers the following infrastructure assets owned by the Clare Gilbert Valleys Council:



- Pipes including gravity mains, rising mains and connections
- Maintenance holes
- CWMS inspection openings and flushing points
- Pump stations (8) and associated assets (including mechanical, civil and electrical assets)
- Wastewater treatment, storage and reuse irrigation systems.

The CWMS described includes septic tank effluent collection networks consisting of gravity mains, pumping stations and rising (pressure) mains which transport wastewater to a treatment plant for treatment, storage and reuse.

The CWMS were designed and constructed to service the various communities and considered population growth as predicted by Australian Bureau of Statistics surveys and forecasts. The three CWMS systems managed by Council were built between 1969 and 2011 as outlined in Table 1 below.

**Table 1 CWMS Age Summary**

<b>CWMS System</b>	<b>Original Design Year</b> (as constructed drawings)	<b>Additional Areas Design Year</b> (as constructed drawings)	<b>Design Life</b>	<b>Years in Service</b> (original scheme)
Clare	1974	2006	Unknown	44 years
Saddleworth	1969	2011	Unknown	49 years
Riverton	1971	2011	Unknown	47 years

A summary of each of the CWMS systems covered by this plan is provided below.

### Clare CWMS

The Clare CWMS currently has 1,885 active property connections (occupied properties), and an annual flow of approximately 200ML. The system is a septic tank effluent scheme and comprises of a gravity wastewater collection system with a series of pumping stations and rising mains. The wastewater is transported to the Clare wastewater treatment plant (WWTP) for treatment via six pumping stations PS1-Blyth Road, PS2-Main North Rd (Toyota), PS3-Recreation Centre, PS4-WWTP Balance Tank, PS5-Stanley Rd and PS6-Caravan Park.

The WWTP consists of an activated sludge system and chlorine contact tank to disinfect the wastewater. Treated wastewater is supplied to three locations for reuse by irrigation including a storage lagoon situated within the Clare Golf Course, Casella Wines vineyard storage lagoon situated to the east of town and two storage tanks at Clare Town Oval on Main North Rd. Operation and maintenance of the Clare oval irrigation system is the responsibility of community volunteers. Operation and maintenance of other irrigation systems is the responsibility of the respective water users. A water meter records recycled water meter volumes provided to Casella Wines vineyard.

Digitised plans of the town's wastewater collection system are recorded on Exponare' and also on A3 paper sheets held at Council's office.

### Saddleworth CWMS

The Saddleworth CWMS has 235 active property connections (occupied properties). The system is a septic tank effluent scheme and comprises of a gravity wastewater collection system that drains to the Saddleworth PS1 at the south end of town before being pumped into the nearby Saddleworth WWTP for treatment. The WWTP consists of an activated sludge system and a chlorination contact tank to disinfect



the wastewater. Once the wastewater is treated, it is transported to the HDPE lined lagoon utilised to store the discharged treated wastewater. The WWTP and lagoon is located on Girth Street.

The treated wastewater is used to irrigate the Saddleworth Town Oval situated to the north of the WWTP and storage lagoon. Operation and maintenance of the Saddleworth oval irrigation system is the responsibility of community volunteers

Digitised maps of the town's waste water collection system are recorded on 'Exponare' and also on A3 paper sheets held at Council's offices.

### Riverton CWMS

The Riverton CWMS has 443 active property connections (occupied properties). The system is a septic tank effluent scheme and comprises of a gravity wastewater collection system that drains to Riverton PS 1 situated at the southern end of town adjacent to the Barrier Highway. Wastewater is pumped via a rising main to the Riverton WWTP for treatment.

The WWTP consists of an activated sludge system and chlorine contact tank to disinfect the wastewater. Treated wastewater is stored in a HDPE lined lagoon and used to irrigate both the Riverton town oval.

Operation and maintenance of the Riverton oval irrigation system is the responsibility of community volunteers.

Digitised maps of the town's waste water collection system are recorded on 'Exponare' and also on A3 paper sheets held at Council's offices.

A summary of the assets covered by this asset management plan is provided in Table 2 below.

**Table 2 CWMS Asset Quantities**

<b>CWMS Asset Category</b>	<b>Quantity</b>	<b>Fair Value</b>
Collection Pipes	84,366m	\$13,747,293
Collection Pits (MHs, IPs, FPs)	2,706	\$2,508,909
Pump Stations	8	\$1,046,676
Wastewater Treatment Plants and Lagoons	3	\$2,763,083
Irrigation Sites managed by Council	3	\$566,426
<b>Total</b>		<b>\$20,632,387</b>



## 2.3 What we will do

Clare and Gilbert Valleys Council plan to provide CWMS services in accordance with the following:

- Ensure the CWMS network is maintained at a safe and functional standard to Environmental Protection Authority (EPA), Department of Health (DOH), Essential Services Commission of South Australia (ESCOSA) and Office of The Technical Regulator's (OTR) requirements as set out in this Infrastructure and Asset Management Plan
- Recognise and implement monitoring of the useful life and operational efficiency of CWMS infrastructure via effective and regular maintenance
- Implement programmed replacement / upgrade of CWMS infrastructure in accordance with long term infrastructure plans
- Provide community benefits from water resources derived from CWMS operations.

## 2.4 Managing the Risks

There are risks associated with providing the service and being able to complete all identified activities and projects. The following major risks have been identified:

- Not ensuring full cost recovery
- Non-compliance to regulatory bodies
- Power outages
- Stormwater infiltration during flood events
- Environment impact to river and local catchment.

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

- Implementing effective programmed and preventative maintenance
- Continued operation improvements in tasks and activities
- Continued monitoring and condition assessment of the network.

## 2.5 The Next Steps

The actions resulting from this asset management plan are:

- Develop and establish ongoing assessment in relationship to safety and specified maintenance intervention levels
- Audit and review of maintenance response times (to confirm whether maintenance works are delivered on time)
- Review and assess changing Community Wastewater Management System studies, community expectations and customer feedback/contact
- Consultation to ascertain the community's service needs and preferences and confirm performance targets
- Progressing the improvement plan by November 2022 subject to resourcing
- Review of the customer request to determine trends and implement appropriate action.

## 2.6 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 and has been simplified for Clare & Gilbert Valleys Council.



The Clare & Gilbert Valleys Council provides services for the community in part through the provision of infrastructure assets. Council have acquired these assets directly through construction by council staff or contractors and by inheritance from developers and other organisations.

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:

- Levels of service – specifies the services and levels of service to be provided by council
- Future demand - how this will impact on future service delivery and how this is to be met
- Life cycle management – how the organisation will manage its existing and future assets to provide the required services
- Financial summary – what funds are required to provide the required services
- 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:

**“Grow our population while maintaining an engaged, vibrant and attractive community with a shared respect for our natural and built environment and productive economy that fosters innovation and excellence.”**



## 3 Levels of Service

Levels of Service define the asset performance targets, in relation to reliability, quantity, quality, responsiveness, safety, capacity, environmental impacts, comfort, cost/affordability and legislative compliance.

A key objective of this CWMS IAMP has been to match the level of service provided by Council's CWMS network to the expectations of the users (i.e the community) within available resources. This requires a clear understanding of the user needs, expectations and preferences.

To achieve and sustain acceptable standards of service for Council's CWMS asset network requires an annual commitment of funds. These funds provide for regular and responsive maintenance and for timely renewal or replacement of the asset. The provision of adequate financial resources ensures that the CWMS network are appropriately managed and preserved.

Funding below requirement impacts directly on community development and if prolonged will result in the need for "catch up" expenditure imposed on ratepayers in the future. Additionally, deferred renewal results in increased and escalating reactive maintenance as aged assets deteriorate at increasing rates.

No authority can deliver everything all the time. In fact, in line with good practice and affordable service delivery, it may not be practical or cost effective to deliver the same level of service across the entire asset portfolio. Therefore the CGVC has documented a hierarchy that classifies the CWMS asset portfolio / network into appropriate groups.

This CWMS IAMP has different maintenance interventions, inspection frequencies and response times for each asset classification. In accordance with the International Infrastructure Management Manual, Council acknowledges that the primary purpose of an asset hierarchy is to ensure that appropriate management, engineering standards and planning practices are applied to the asset based on its function. It also enables more efficient use of limited resources by allocating funding to those assets that are in greater need and the costs are better justified.

The community generally expect that Council will provide an effective method for 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 3 and Table 4.

### 3.1 Community Levels of Service

Community Levels of Service relate to the service outcomes that the community wants in terms of reliability, responsiveness, amenity, safety and cost.

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

- Quality: How good is the service?
- Function: Does the service meet users' needs?
- Responsiveness: How quickly are problems attended to and resolved?
- Capacity/Utilisation: Is the service over or under used?
- Safety: Does the service achieve appropriate levels of public and environmental safety?



**Table 3 Community Levels of Service**

<b>Service Attribute</b>	<b>Service Objective</b>	<b>Performance Measure Process</b>	<b>Current Performance</b>	<b>Expected position in 10 years based on current LTFP</b>
Community Outcomes				
Provide efficient and affordable collection and disposal of Community Wastewater				
Community Levels of Service				
Quality	Well maintained and suitable wastewater collection and disposal system	No. of customer requests relating to CWMS maintenance	Acceptable compliance to SA Health and EPA requirements	Continuing to meet the service delivery needs of the community.
Function	Meet SA Health Dept & EPA standards	Compliance to approval conditions	All uncontrolled releases from the network stopped within 4 hours of being reported	Continuing to meet community expectations.
Responsiveness	Response time to customer requests & time taken to complete requests	> 80% of all requests adequately responded to and dealt with within 4 hours of being notified	Acceptable Compliance to SA Health and EPA requirements	Continuing to meet capacity requirements.
Safety	Low level of risk to personal and environmental health	Overflows within the pipe network, treatment plant and/or at pump stations	Acceptable Compliance to SA Health and EPA requirements	Continuing to provide a low risk service to the community.



## 3.2 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 4 Technical Levels of Service**

<b>Service Attribute</b>	<b>Service Objective</b>	<b>Activity Measure Process</b>	<b>Current Performance *</b>
Operations Cost Effectiveness	Provide cost effective Community Wastewater Management System to meet DOH & EPA guidelines.	Monitor energy usage	Energy usage maintained to current or below current levels
Maintenance	Periodic visual assessment and servicing of access points	Routine removal and inspection of access lids	Access to all reported blockages available within the 4 hour timeframe
	Periodic visual assessment to determine condition and function of drains	CCTV inspection and drain flushing	Ongoing inspections and flushing at intervals of not more than 6 years
Condition	Network assets in good condition to ensure Community Wastewater Management System has appropriate design capacity	Continuous monitoring of pump stations operating hours	No pump station to operate for more than 12 hours per day as per SA Health guidelines
Renewal	Renewal of existing assets at an optimum time in their lifecycle	CCTV inspection and drain flushing	100% of network inspected at intervals of not more than 6 years
	Planned works that requires replacement identified as part of periodic inspection	Planned Renewal Works	As and where required as identified and planned from periodic visual inspection
Upgrade/New	Targeted Capital works if capacity issue	Planned Capital Works	As and where required as identified and planned from periodic visual inspection
	Targeted Capital works to address WHS issues	Planned Capital Works	As and where required as identified and planned from periodic visual inspection
Function	Odour control from WWTP lagoon storage	Periodic monitoring level of odour near WWTP & lagoon storage	No reported incidents



<b>Service Attribute</b>	<b>Service Objective</b>	<b>Activity Measure Process</b>	<b>Current Performance *</b>
Function	Septic Tank Cleaning	Septic Tank Cleaning Program	100% of Septic Tanks cleaned on a 6 yearly cycle
Safety	Planned renewal if WHS component	Planned Renewal Works	As and where required as identified and planned from periodic visual inspection
	Treated Water Quality	Compliance to Reclaimed Water Guidelines	Number of samples taken meet DOH & EPA guidelines

In addition to these, Council's Licence Agreement conditions in terms of operating the CWMS System require that CGVC contractor provide a monthly monitoring program to ensure that the water quality meets the Health Department and EPA Requirements.

A detailed analysis of the water quality monitoring program and sampling requirements are stored in Council's Electronic Document Management System.



## 4 Future Demand

### 4.1 Demand Forecast

Drivers affecting demand include population change, changes in demographics, seasonal factors, consumer preferences and expectations, technological changes, economic factors, agricultural practices and environmental awareness.

The impact of these trends are regularly examined and demand management strategies are recommended as a technique to modify demand without compromising customer expectation.

The Population Projections by Local Government Area predicts the Estimated Resident Population will increase as follows:

- There is predicted to be stronger growth in Clare Township, with a probable population of up to 5,000 people by 2030
- There is also potential scope for stronger growth with available land at Riverton.

In forecasting on the future integration of land use and Community Wastewater Management System (CWMS) planning, the following are reviewed:

- Land use effluent disposal demand
- Effluent reuse
- Irrigation
- Urban Boundary Growth
- Opportunities for provision of reuse water to Council open space and recreation parks.

Demand factor trends and impacts on service delivery are summarised in Table 5.

**Table 5 Demand Factors, Projections and Impact on Services**

Demand drivers	Present position	Projection	Impact on services
Population	9,023 (2016 Census Data)	9,585 by 2027 (CGVC Strategic Plan 2020)	A review needs to be undertaken to confidently determine capacity currently exists to accommodate potential future demand from zoned residential land.
Demographics	Average growth rate of 2.6% per year between 2011-2027. (CGVC Strategic Plan 2020)	Future growth rate will depend on timing of rezoning and servicing of additional land located in existing townships not connected to be investigated.	It is anticipated a future growth rate of around 2.6% per year (within existing towns) will have negligible impact on existing services (within the 10 year planning timeframe for this IAMP) primarily because this growth is based on infill aligned with existing infrastructure.  The additional revenue from this growth could offset renewal and rehabilitation costs for existing infrastructure across the Council area.



## 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 systems to manage increased requirements. Opportunities identified to date for demand management are shown in Table 6. Further opportunities will be developed in future revisions of this asset management plan.

Council will undertake modelling in respect to future population projections and future housing demand. A lot yield analysis will be undertaken to project the ultimate number of lots within areas and applied 15 years of dwelling approvals (how long the supply might last in each town). Naturally there are many unknowns – e.g. when supply is exhausted where will that unmet demand 'go'; would it 'transfer' to other towns requiring new CWMS service.

**Table 6 Demand Management Plan**

Service Activity	Demand Management Plan
Wastewater Collection	<p>Investigate Capacity assessment of each pump station</p> <p>Evaluation of impact of new allotments on existing infrastructure.</p> <p>Assess Developer contributions per Council policy.</p> <p>Negotiated developer system augmentations where required.</p>
Wastewater Treatment, Storage and Reuse	<p>Review capacity assessment of wastewater harvesting facilities</p> <p>Capacity assessment of wastewater treatment processes, transfer and storage of treated wastewater.</p> <p>Evaluation of impact of new irrigation areas</p> <p>Plan to incorporate any identified growth of treated effluent demand for irrigation.</p>
Trade Waste Discharge	<p>Increased stormwater inflow into the wastewater network.</p> <p>These impacts will be minimised by applying strict water quality discharge limits on all trade waste connections to the system.</p>
Stormwater inflow	<p>Focused flow monitoring of system and smoke testing targeted areas.</p> <p>Public education plays a significant role in the minimisation of rainwater inflow into the wastewater network. Increasing community awareness on the effects of the excessive inflow rates will help in reducing the number of faulty private drains and illegal stormwater connections.</p>

The new assets required to meet growth will be acquired free of cost from land developments and constructed/acquired by the organisation.

## 5 Life Cycle Management

Initial capital cost constitutes a significant up-front cost and often dominates the decision-making process when acquiring new assets. However, the ongoing recurrent expenditures (including depreciation) usually represent a high portion of the total life-cycle costs of many assets. It is important that they be included in the financial analysis undertaken to evaluate asset investment options.

The life cycle management plan details how Council plans to manage and operate the assets at the agreed levels of service (defined in Section 2) while optimising life cycle costs.

Asset maintenance “levels of service” provide for the day-to-day maintenance programs to ensure that the asset operations are safe within practical constraints, maintain to perform targets for day-to-day use and is managed and maintained to minimise environmental risk and protection of residents.

To minimise environmental impacts the following actions are identified:

- Reducing hydraulic loading on the collection system and treatment plant
- Continuation of asset augmentation
- Better knowledge of the wastewater collection system, its condition and performance
- Reduced energy costs.

### 5.1 Background Data

Clare & Gilbert Valleys Council operates three CWMS systems in the townships of Clare, Riverton and Saddleworth. The Clare system was originally constructed in 1974, the Riverton system was constructed in 1971 and the Saddleworth system was constructed in 1969. All three systems have been extended and upgraded since original construction. The assets covered by this asset management plan are shown in Table 1.

The age profile of the assets shown by Current Replacement Cost (CRC) included in this plan is shown in Figure 2.

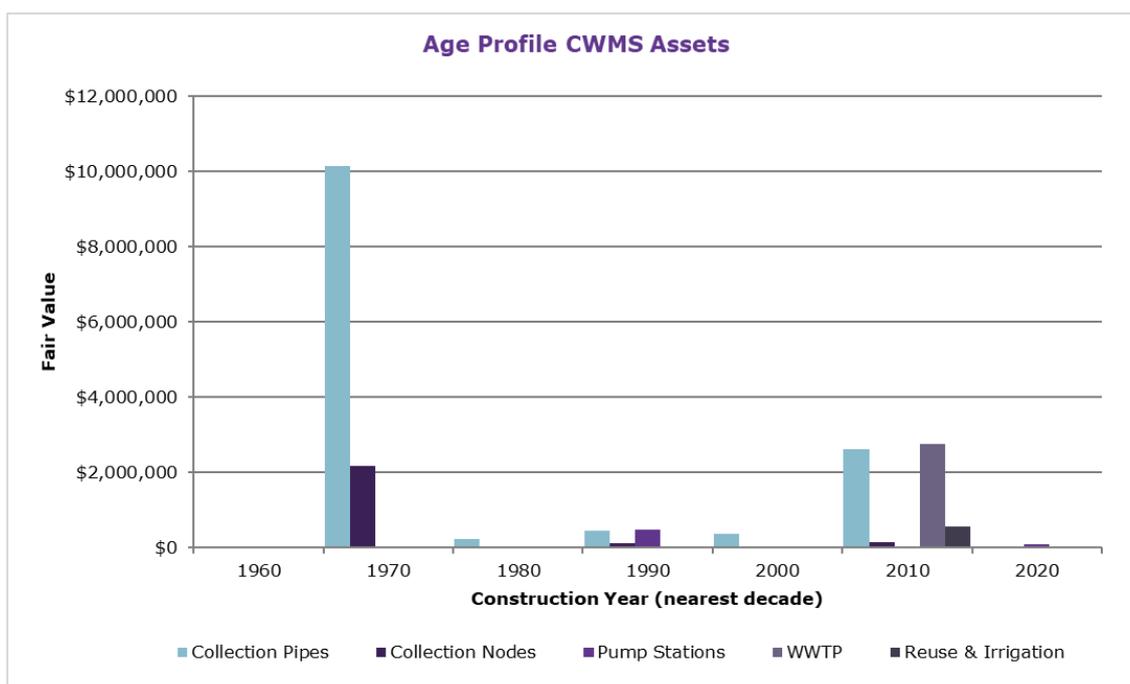


Figure 2 CWMS Asset Age Profile

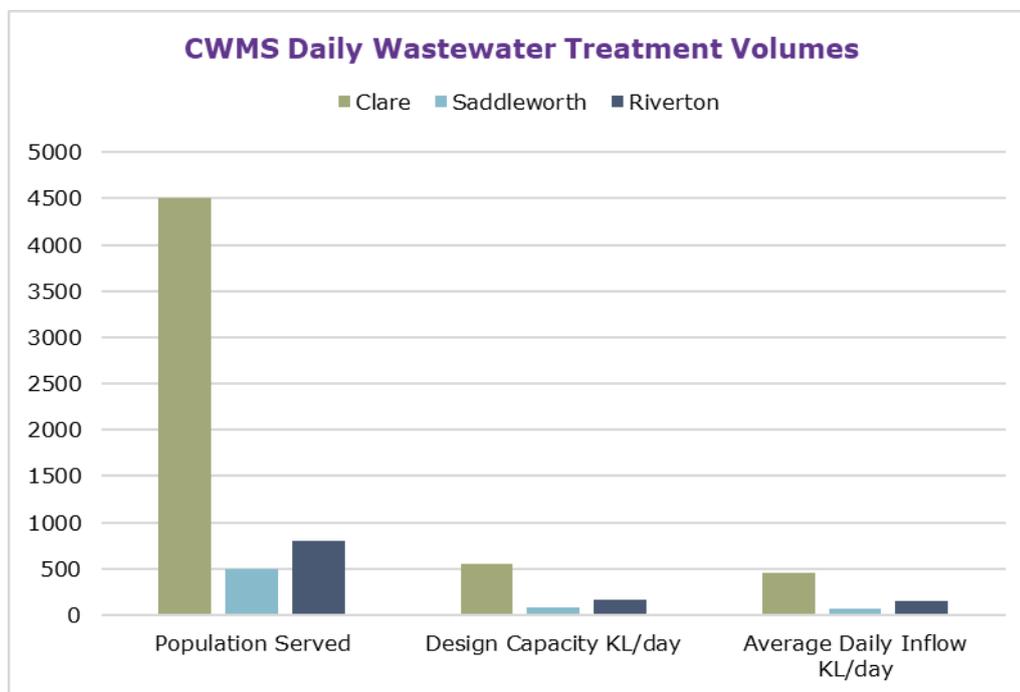


### 5.1.1 Wastewater Treatment Assets

A summary of the wastewater treatment assets in each system is provided in Table 7.

**Table 7 Wastewater Treatment Schemes Summary**

CWMS System	Commission Date	Population Served	Hydraulic Design Capacity (kL/day)	Pollutant design capacity (kg/day)	Average daily BOD load (kg/day)	Average Daily Inflow (KL/d)	Storage lagoon volume (ML)
Clare	1974 (upgraded 2011)	4500	550	130	106	450	25ML + 120ML
Saddleworth	1969 (upgraded 2011)	500	80	20	15	70	Approx. 25ML
Riverton	1971 (upgraded 2011)	800	170	39	20	150	29.4ML



**Figure 3 CWMS Daily Wastewater Treatment Volumes**



### 5.1.2 Pumping Station Assets

A summary of the pumping station assets in each system is provided in Table 8.

**Table 8 Pumping Stations Summary**

<b>CWMS Pump Station</b>	<b>Pumping Units</b>	<b>Pump Power/ Capacity</b>	<b>Pump Head</b>	<b>Average Daily Inflow (ML/day)</b>	<b>Average Daily Flow (ML/day)</b>
Clare PS1 Blyth Rd	2 x Asea above ground.	2.2kW each pump.	not measured	not metered	not metered
Clare PS2 Toyota Main Rd	2 x Asea above ground	2.2kW each pump.	not measured	not metered	not metered
Clare PS3 Recreation Centre	Dreno AT80/2/173.C257	8.7kW each pump.	20L/sec@ 22mH	not metered	not metered
Clare PS4 WWTP Balance Tank	2 x submersible	Unknown large	not measured	not metered	not metered
Clare PS5 Stanley St	2 x submersible	Unknown	not measured	not metered	not metered
Clare PS6 Caravan Park	2 x Asea above ground.	2.2kW each pump.	not measured	not metered	not metered
Riverton PS1 End of Town	2 x above ground.	6.3kW each pump.	not measured	not metered	not metered
Saddleworth PS1 at WWTP	2 x submersible	Unknown	not measured	not metered	not metered

### 5.1.3 Wastewater Reuse Summary

Treated wastewater from the three CWMS systems is approved for reuse according to the criteria outlined in Table 9.

**Table 9 Treated Wastewater Reuse Approval Criteria**

<b>CWMS System</b>	<b>Irrigation Area</b>	<b>System Description</b>	<b>BOD<sub>5</sub> Mean Value</b>	<b>Suspended Solids (SS) (Mean)</b>	<b>Thermo-tolerant Coliform (e-coli) Count</b>	<b>Sodium Adsorption Ratio</b>
Clare	Clare Golf Club	Spray Irrigation	< 20 mg/L	< 30 mg/L	< 100/100 mL	not measured



CWMS System	Irrigation Area	System Description	BOD <sub>5</sub> Mean Value	Suspended Solids (SS) (Mean)	Thermo-tolerant Coliform (e-coli) Count	Sodium Adsorption Ratio
Clare	Clare Oval	Spray Irrigation	< 20 mg/L	< 30 mg/L	< 100/100 mL	not measured
Clare	Casella Wines vineyard	Drip Irrigation	< 20 mg/L	< 30 mg/L	< 100/100 mL	not measured
Saddleworth	Town Oval	Sub Surface Irrigation	< 20 mg/L	< 30 mg/L	< 100/100 mL	not measured
Riverton	Town Oval	Sub Surface Irrigation	< 20 mg/L	< 30 mg/L	< 100/100 mL	not measured

Treated wastewater reuse pump details are provided in Table 10 below.

**Table 10 Treated Wastewater Reuse Pumping Assets**

CWMS System	Pump Details	Pump Location	Pump power / Capacity (kW, 3Ph)	Pump Head
Clare	Lowara SV1604	WWTP	4kW	3.5L/sec @ 38.5mH
Clare	Lowara SV4606	WWTP	22kW	10L/sec @ 117.5mH
Saddleworth	Lowara SV1604	WWTP	4kW	5L/sec @ 42mH
Riverton	Lowara SV6005	WWTP	15kW	13L/sec @ 65mH

### 5.1.4 CWMS System Asset Capacity

Council's services are generally provided to meet design standards where these are available. Council's performance in the delivery of treated wastewater services is monitored through key performance indicators.

Level of Service (LoS) statements provide measurable performance indicators, describing the means of delivering treated wastewater services to achieve the desired outcomes. The key service areas are:

- Capability of service
- Service sustainability
- Quality of service (responsiveness)
- Cost effectiveness
- Customer service/customer satisfaction.



One of the most important service sustainability indicators is the likely occurrence of high rainfall inflows into the wastewater network. Other significant service sustainability measures are the numbers of blockages and dry weather discharges from the wastewater network.

Locations where deficiencies in service performance are known are detailed in Table 11. These deficiencies have been identified by Council Works Officers.

**Table 11 Known Service Performance Deficiencies**

Location	Service Deficiency
Township Earthenware Gravity Pipes	Earthenware gravity lines in sections of Clare, Riverton and Saddleworth require regular camera inspections to monitor condition, with some faulty drains replaced or repaired.
Gravity Pipes	<p>Effluent infiltration/inflow involves the entry of surface water and groundwater into a wastewater collection system, causing hydraulic overloading of the system. This can result in:</p> <ul style="list-style-type: none"> <li>Surging of manholes and house connections, causing effluent to flow over properties, with potential public health impacts</li> <li>Overflow of effluent from wet wells and bypassing of treatment plants, causing environmental and public health problems</li> <li>Overloading of the treatment processes, causing a deterioration in effluent quality</li> <li>Excessive pumping costs and increased pump wear; and premature and expensive system augmentations.</li> </ul>

### 5.1.5 Condition Monitoring of CWMS Assets

Limited asset condition information is available. CCTV data of gravity pipes will determine the condition of the existing network and assist with determining replacement priorities. Pump station condition is indicated below.

The remaining life of all CWMS assets is currently measured from the date of construction and the estimated useful life of each asset type. As further asset condition information becomes available this will be included. Condition will be measured using a 0-100 rating system as detailed in Table 12.

**Table 12 Asset Condition Scores**

Condition Rating	Description
0	Very good: <5 years old, no sign of deterioration
25	Good: >5 years old, no sign of deterioration
50	Poor: > 5 years old, signs of deterioration
75	Due for recondition/replacement
100	Immediate recondition/replacement required



The condition of the CWMS assets is monitored in accordance with the methodology outlined in Table 13.

**Table 13** Asset Condition Monitoring Methodology

<b>Service Objective</b>	<b>Activity Measure Process</b>	<b>Current Performance</b>	<b>Methodology</b>
Periodic visual assessment and servicing of access points	Routine removal and inspection of access lids	Access to all reported blockages available within the 4 hour timeframe	Undertaken by specialist pipeline maintenance and inspection contractor in addition to Council staff on a cyclical program
Periodic visual assessment to determine condition and function of drains	CCTV inspection and drain flushing	85% of network inspected at intervals of not more than 6 years	Undertaken by specialist pipeline maintenance and inspection contractor in addition to Council staff on a cyclical program
Targeted Maintenance identified as part of periodic inspection	Targeted Maintenance	As and where required	Undertaken by specialist pipeline maintenance and inspection contractor in addition to Council staff

### 5.1.6 Pump Station Condition Assessment

The following general comments about Clare & Gilbert Valleys CWMS pump station assets are provided taking into account compliance assessment. All major pump station assets were inspected and evaluated with a condition rating from 1 to 5 strictly in accordance with the assessment criteria below to ensure uniformity. The condition grades of 1 to 5 are summarised as:

1. Excellent Condition: Only planned maintenance required
2. Good Condition: Minor maintenance plus planned maintenance required
3. Fair Condition: Significant maintenance required
4. Poor Condition: Significant renewal/rehabilitation required
5. Very Poor Condition: Asset has failed or is beyond rehabilitation, immediate replacement or major overhaul required

The pump station asset condition assessment is summarised in Table 14.

**Table 14 Pump Station Assets Condition Data**

CWMS Pump Station	Cabinet & Stn Exterior	Wet Well/Tank	Valves & Manifold	Guide Rails & Chains	Pump 1	Pump 2	Pump 3	Level Control	Overall Condition
Clare-PS1 Blyth Rd	3	3	4	NA	2	2		2	1
Clare-PS2 Main North Rd (Toyota)	2	3	4	NA	5	4		2	1
Clare-PS3 Recreation Centre	4	2	2	1	2	2		2	2
Clare-PS4 WWTP Balance Tank	2	3	3	4	2	2	3	2	1
Clare-PS5 Stanley Rd	4	2	4	2	2	2		2	1
Clare-PS6 Caravan Park	2	3	2	NA	4	5		2	1
Riverton-PS1 End of Town	4	3	2	NA	3	3		3	3
Saddleworth-PS1 WWTP	3	2	2	2	2	2		2	2

Quarterly visual inspections of the condition of the sludge blanket within each pump station will be programmed with mandatory biannual pump-outs to be conducted to minimise the accumulation of septic solids.

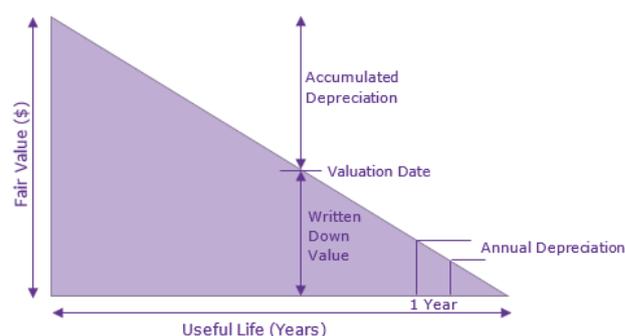
## 5.2 Asset Valuation

The value of the CWMS assets recorded in the asset register as at 30 June 2018 and addressed in this asset management plan is summarised below. Assets were last revalued at 1 July 2017.

	30/06/2018	30/9/2019
• Fair Value	\$20,632,387	\$20,759,287
• Carrying Amount (WDV)	\$10,651,987	\$10,722,120
Annual Depreciation Expense	\$352,942	\$348,585

*Depreciation expense is based on the actual depreciation reported 2017/2018 and 2018/2019.*

The current rate of consumption (annual depreciation/depreciable amount) for CWMS assets is 1.7 %. This indicates that on average, over the life of an asset, 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 and asset condition.





### 5.3 Risk Management

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

Risks that are assessed as 'Extreme' and 'High' and those risks where there is an estimated residual risk after the selected treatment plan is operational are identified in the Infrastructure Risk Management Plan. These risks are reported to management and Council.

Limited assessment of the risks associated with the service delivery of the Clare & Gilbert Valleys Council CWMS systems including wastewater collection, treatment, storage and reuse has been undertaken by Council. This plan does not include a formal risk assessment however the following risks have been identified for further consideration in future iterations of this plan.

**Table 15 Critical Risks and Treatment Plans**

<b>Service or Asset at Risk</b>	<b>What Can Happen</b>	<b>Risk Rating (EX, H)</b>	<b>Risk Treatment Plan</b>	<b>Residual Risk *</b>
Treatment Plant	Discharge to environment from inadequacy capacity	High	Upgrade plant capacity / emergency flow storages	Low
Effluent Lines	Blockage	High	Program regular flushing of line and inspections	Low
Pump Station	Collapse of septic pits	High	Program regular inspections and replacement where required	Low
Effluent lines	Infrastructure damaged by excavation	High	Add GIS CWMS data to Dial Before You Dig service	Low
Pump Station	Pump failure	High	Upgrade telemetry monitoring, emergency response plan, determine requirement for emergency generator, emergency portable pump	High
Program Effluent Lines	Broken lines	High	Emergency response plan for clean-up, Emergency Line Shutdown as required	Low
Effluent Lines	Deterioration of existing pipes	High	Systematic cleaning and inspection of drain and replace or repair when required	High



## 5.4 Required Expenditure

This asset management plan identifies the projected operations, maintenance and capital renewal expenditures required to provide an agreed level of service to the community over a 10 year 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.

### 5.4.1 Routine Operations and Maintenance

Operations include regular activities to provide services such as public health, safety and amenity, e.g. pipe cleansing and monitoring and water testing. Operations activities affect service levels including quality and function through frequency of pipe inspections, water quality testing and provision of reuse water to irrigators.

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 all actions necessary for retaining an asset as near as practicable to an appropriate service condition including regular ongoing day-to-day work necessary to keep assets operating, e.g. Lagoon repair, but excluding rehabilitation or renewal. Maintenance may be classified into reactive, planned and specific maintenance work activities.

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

Planned maintenance is repair work that is identified and listed to be implemented subject to funding allocation and recorded. Activities include inspection, assessing the condition against failure/breakdown experience, prioritising, scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.

Specific maintenance is replacement of higher value components/sub-components of assets that is undertaken on a regular cycle including manhole and inspection point replacement, etc. This work falls below the capital/maintenance threshold but may require a specific budget allocation.

The actual operating and maintenance costs for the past few years is provided in Table 16 below.



**Table 16 Operations and Maintenance Costs**

<b>CWMS Operations &amp; Maintenance Annual Costs</b>	<b>2016-17 Actuals</b>	<b>2017-18 Actuals</b>	<b>2018-19 Actuals</b>	<b>2019-20 Actuals</b>	<b>2020-21 Budget</b>
Clare - Plant Maintenance Contract	\$37,984	\$38,584	\$36,306	\$49,064	\$49,000
Clare - Other Plant Maintenance	\$170,762	\$95,044	\$94,935	\$123,175	\$80,000
Clare - Council Other Maintenance	\$54,514	\$47,411	\$25,375	\$30,356	\$54,000
Clare - Network Flushing (Budget Transferred from Capital)	\$120,600	\$0	\$0	\$0	\$0
Clare - Electricity	\$58,018	\$58,185	\$56,502	\$58,855	\$58,000
Clare - Other Operating Costs*	\$54,104	\$80,370	\$85,818	\$89,167	\$93,730
Riverton - Plant Maintenance Contract	\$18,992	\$19,292	\$18,153	\$24,645	\$24,500
Riverton - Other Plant Maintenance	\$29,241	\$23,675	\$20,722	\$26,174	\$25,000
Riverton - Council Other Maintenance	\$17,191	\$45,976	\$5,489	\$51,917	\$21,000
Riverton - Network Flushing	\$32,500	\$0	\$0	\$0	\$0
Riverton - Electricity	\$6,586	\$14,484	\$15,507	\$15,645	\$15,000
Riverton - Other Operating Costs*	\$36,612	\$45,790	\$49,644	\$49,916	\$49,433
Saddleworth - Plant Maintenance Contract	\$18,992	\$19,292	\$18,153	\$24,532	\$24,500
Saddleworth - Other Plant Maintenance	\$34,203	\$21,284	\$9,189	\$41,834	\$25,000
Saddleworth - Council Other Maintenance	\$24,649	\$11,406	\$10,747	\$3,896	\$18,000
Saddleworth - Network Flushing	\$19,700	\$0	\$0	\$0	\$0
Saddleworth - Electricity	\$8,561	\$10,433	\$12,196	\$13,417	\$10,000
Saddleworth - Other Operating Costs*	\$47,872	\$55,491	\$58,772	\$58,072	\$57,751
<b>Total Operations</b>	<b>\$211,753</b>	<b>\$264,753</b>	<b>\$278,439</b>	<b>\$285,072</b>	<b>\$283,914</b>
<b>Total Maintenance</b>	<b>\$579,328</b>	<b>\$321,964</b>	<b>\$239,069</b>	<b>\$375,593</b>	<b>\$321,000</b>



Maintenance expenditure levels are considered to be adequate to meet projected service levels. Where maintenance expenditure levels are such that will result in a lesser level of service, the service consequences and service risks have been identified and service consequences highlighted in this Asset Management Plan and service risks considered in the Infrastructure Risk Management Plan.

Assessment and prioritisation of reactive maintenance is undertaken by Council staff and contractors and reported to Council as required.

#### **5.4.2 Operations and Maintenance Strategies**

Council will operate and maintain assets to provide the defined level of service to approved budgets in the most cost-efficient manner. The operation and maintenance activities include:

- Scheduling operations activities to deliver the defined level of service in the most efficient manner
- Undertaking maintenance activities through a planned maintenance system to reduce maintenance costs and improve maintenance outcomes
- Undertaking cost-benefit analysis to determine the most cost-effective split between planned and unplanned maintenance activities (50 – 70% planned desirable as measured by cost)
- Maintaining a current infrastructure risk register for assets and present service risks associated with providing services from infrastructure assets and reporting Very High and High risks and residual risks after treatment to management and Council
- Reviewing current and required skills base and implementing workforce training and development to meet required operations and maintenance needs
- Reviewing asset utilisation to identify underutilised assets and appropriate remedies, and over utilised assets and customer demand management options
- Maintaining a current hierarchy of critical assets and required operations and maintenance activities
- Developing and regularly review appropriate emergency response capability
- Review management of operations and maintenance activities to ensure Council is obtaining best value for resources used.

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.

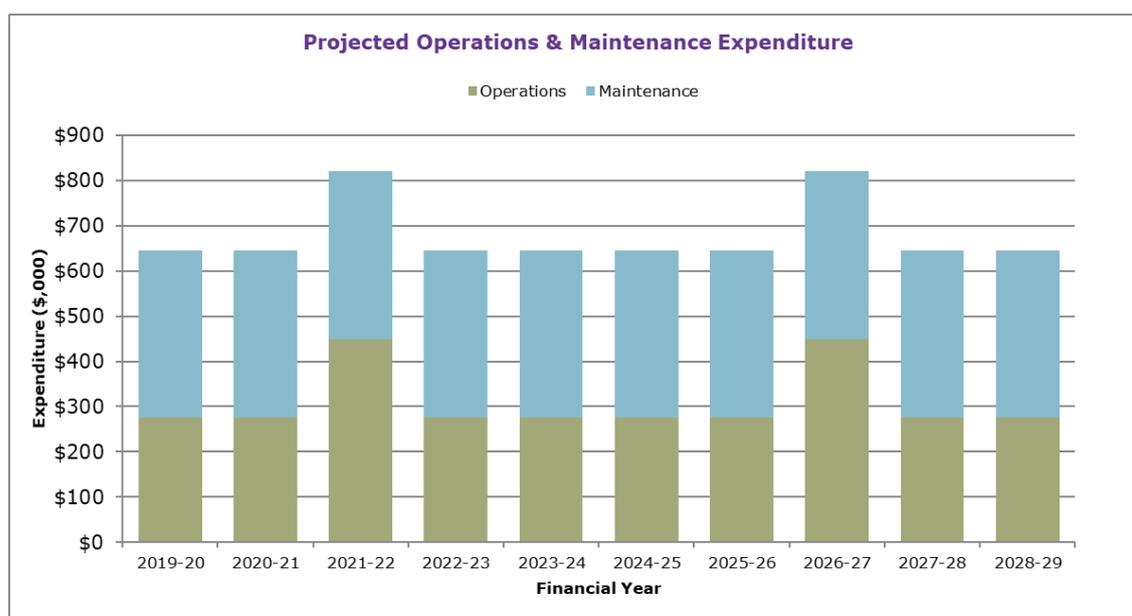
The current operation expenditure has been based on the 2018-19 budget for Council operating costs and electricity costs for each CWMS system. The projected operation expenditure is based on the current 2018-19 operation budget and an additional operation cost of \$172,800 in the 2021-22 and 2026-27 financial years on the basis that network flushing will be undertaken once every five years.

The current maintenance expenditure is based on the 2018-19 budget for maintenance works. The projected maintenance expenditure is also based on the 2018-19 maintenance budget.



**Table 17** Projected Operations and Maintenance Expenditure

Financial Year	Operations	Maintenance	Operations & Maintenance
2019-20	\$275,000	\$370,000	\$645,000
2020-21	\$275,000	\$370,000	\$645,000
2021-22	\$450,000	\$370,000	\$820,000
2022-23	\$275,000	\$370,000	\$645,000
2023-24	\$275,000	\$370,000	\$645,000
2024-25	\$275,000	\$370,000	\$645,000
2025-26	\$275,000	\$370,000	\$645,000
2026-27	\$450,000	\$370,000	\$820,000
2027-28	\$275,000	\$370,000	\$645,000
2028-29	\$275,000	\$370,000	\$645,000
<b>Total</b>	<b>\$3,100,000</b>	<b>\$3,700,000</b>	<b>\$6,800,000</b>



**Figure 4** Projected Operations & Maintenance Expenditure

The current and future operation and maintenance expenditure has been grouped across the three towns and has been grouped across the collection network, the wastewater treatment and the reuse systems. All expenses are shown in 2018/19 financial year dollar values.



### 5.4.3 Critical Assets

Critical assets are those assets which have a high consequence of failure but not necessarily a high likelihood of failure. By identifying critical assets and critical failure modes, Council can target and refine investigative activities, maintenance plans and capital expenditure plans at the appropriate time.

Operations and maintenances activities may be targeted to mitigate critical assets failure and maintain service levels. These activities may include increased inspection frequency, higher maintenance intervention levels, etc. Critical assets failure modes and required operations and maintenance activities are detailed in Table 18.

**Table 18 Critical Assets and Service Level Objectives**

<b>Critical Assets</b>	<b>Critical Failure Mode</b>	<b>Operations &amp; Maintenance Activities</b>
Lagoon	Loss of treatment capacity	Continuous lagoon monitoring for operational performance including corrective maintenance as required and within budget allocations
Reticulation Network	Uncontrolled discharge to environment	Continuous network monitoring for operational performance including corrective maintenance as required and within budget allocations
Pump Station	Uncontrolled discharge to environment	Continuous pump station monitoring for operational performance including corrective maintenance as required and within budget allocations
Waste Water Treatment Plant	Release of non-compliant treated effluent	Continuous treatment plant monitoring for operational performance including corrective maintenance as required and within budget allocations
Reuse water distribution network	Inability to dispose of treated effluent	Continuous reuse network monitoring for operational performance including corrective maintenance as required and within budget allocations

### 5.4.4 Capital Renewal

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.

Generally the method used to develop the renewal plan uses the asset register data to project the renewal costs for renewal years using acquisition year and useful life, this equates to the expiry date generated from Council's asset management system.

In this case, Council have reviewed the asset register and considered the asset renewal requirements for the CWMS systems and developed cost estimates for capital renewal works required in the next 10 years. These cost estimates are summarised in Table 19 below.

Ongoing review of system performance may generate additional renewal requirements.



**Table 19** Current CWMS Assets Identified for Renewal

<b>CWMS System</b>	<b>Asset Group</b>	<b>Renewal Cost Estimate</b>	<b>Estimated Renewal Year</b>
Riverton	Riverton Pump Station	\$80,000	2019-20
Clare	Pump Station Civil Assets	\$20,000	2023-24
Riverton	Replacement of pumping/mechanical assets	\$50,000	2024-25
Saddleworth	Replacement of pumping/mechanical assets	\$50,000	2025-26
Clare	Replacement of pumping/mechanical assets	\$100,000	2026-27
<b>Total</b>		<b>\$300,000</b>	

### 5.4.5 Capital New/Upgrade and Acquisition

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.

Council have undertaken a review of the CWMS systems and have developed cost estimates for the projected capital upgrade works. The required upgrade works include:

- design and construction of emergency storage tanks at the pump stations in Clare
- investigation and correction of the treatment process at Clare to improve the quality of the treated wastewater for reuse
- investigation of treated wastewater options at Riverton
- conversion of subsurface irrigation to above ground irrigation at Saddleworth.

The cost estimates for identified capital upgrade requirements are summarised in Table 20 below. During the annual budget process requests for capital upgrade will be reviewed in line with Council policies, annual budget capacity and any long term financial impact of the proposed upgrade such as increases in depreciation, maintenance and renewal cost impacts to the Long Term Financial Plan.

Potential future upgrade works identified for consideration include a future CWMS Scheme for Auburn Township and upgrade of the mains line Clare South from the Clare Caravan Park and will be considered as part of the next scheduled update of the AMP in Q4 2022.



**Table 20** CWMS Assets Upgrade

<b>CWMS System</b>	<b>Asset Group</b>	<b>Upgrade Cost Estimate</b>	<b>Estimated Year</b>
Clare	Clare Treatment Plant Water Reuse Quality Correction (renewal underway)	\$35,000	2019-20
Clare	Preliminary emergency storage design and approval for five pump stations (underway)	\$50,000	2019-20
Clare	Emergency storage at pump station	\$50,000	2020-21
Clare	Emergency storage at pump station x2	\$110,000	2021-22
Clare	Emergency storage at pump station x2	\$110,000	2022-23
Saddleworth	Convert subsurface irrigation to above ground irrigation	\$85,000	2022-23
<b>Total</b>		<b>\$440,000</b>	

### 5.4.6 Disposal Plan

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relocation. Council has not identified any CWMS infrastructure assets to be disposed in the 10 year planning period (medium term).

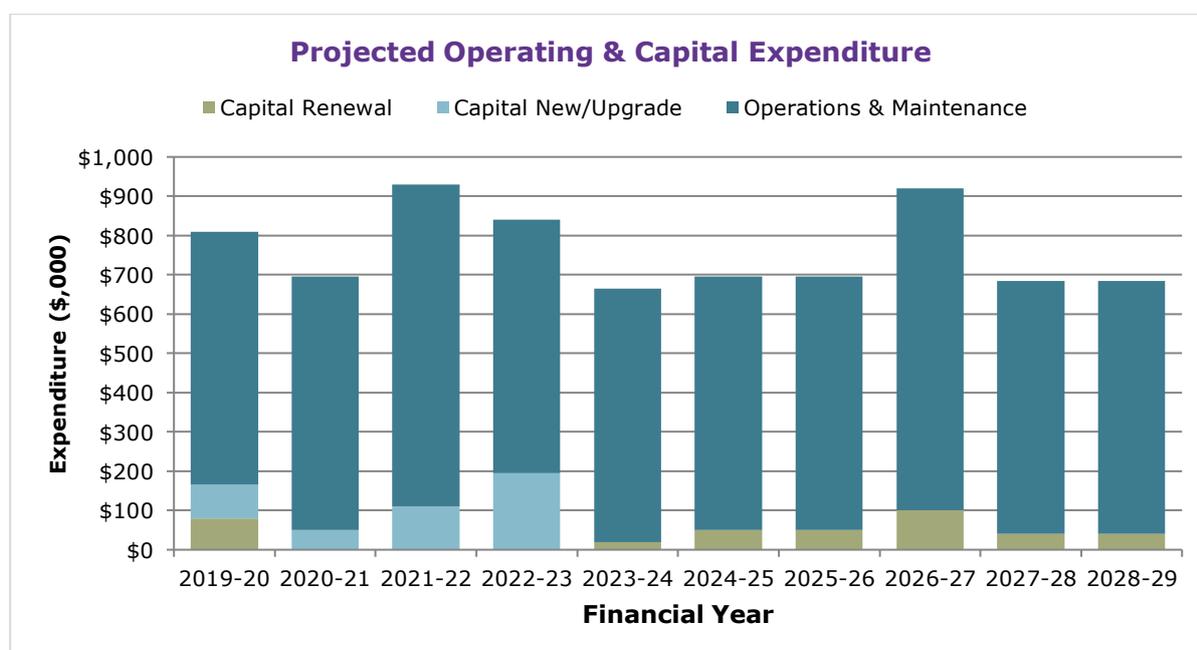
### 5.4.7 Financial Projections

The financial projections for projected operating (operations and maintenance), capital renewal, and capital upgrade and estimated budget funding are shown in Table 21 and Figure 5.



**Table 21**      **Operating and Capital Expenditure**

<b>Financial Year</b>	<b>Operations &amp; Maintenance</b>	<b>Capital Renewal</b>	<b>Capital Upgrade</b>	<b>Estimated Total Expenditure</b>
2019-20	\$645,000	\$80,000	\$85,000	\$810,000
2020-21	\$645,000	\$0	\$50,000	\$695,000
2021-22	\$820,000	\$0	\$110,000	\$930,000
2022-23	\$645,000	\$0	\$195,000	\$840,000
2023-24	\$645,000	\$20,000	\$0	\$665,000
2024-25	\$645,000	\$50,000	\$0	\$695,000
2025-26	\$645,000	\$50,000	\$0	\$695,000
2026-27	\$820,000	\$100,000	\$0	\$920,000
2027-28	\$645,000	\$40,000	\$0	\$685,000
2028-29	\$645,000	\$40,000	\$0	\$685,000
<b>Total</b>	<b>\$6,800,000</b>	<b>\$380,000</b>	<b>\$440,000</b>	<b>\$7,620,000</b>



**Figure 5**      **Projected Operating and Capital Expenditure over the Medium Term (10 Years)**

The average projected operations, maintenance and capital expenditure required over the 10 year planning period is \$762,000 per year.



## 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 22** Tasks Identified for improving future versions of the plan

Task No.	Task	Responsibility
1	Undertake a risk assessment workshop to develop a risk register and identify critical risks and a treatment plan for inclusion in future iterations of the plan.	Council Administration
2	Complete the CCTV condition review of a selection of the collection pipe and node network at Riverton. Review CCTV condition data and undertake an assessment of the end of life of the collection systems for Clare and Saddleworth. Plan for future CCTV investigations every 3-5 years, scope out works from data and complete repairs and/or maintenance.	Council Administration
3	Investigate stand alone pump station emergency capacity during prolonged power outages.	Council Administration
4	Review irrigation agreements including performance outputs.	Council Administration
5	For the treatment plant and pump stations develop a strategic approach to planning and budgeting for asset renewal and maintenance linked to performance requirements. As part of this review current asset upgrade, renewal and maintenance practices and costs.	Council Administration

This plan has a life of 4 years and is due for revision and updating within 18 months of each Council election.

It is not intended that the content of the plan is updated annually. However the financial data from the annual budget allocations and completed works will be captured and tracked.

The next full update of the plan is schedule for the 4<sup>th</sup> quarter of 2022 following the next full asset revaluation.



## 7 References

IPWEA, 2006, *NAMS.PLUS3 Asset Management*, Institute of Public Works Engineering Australia, Sydney, [www.ipwea.org](http://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](http://www.ipwea.org)

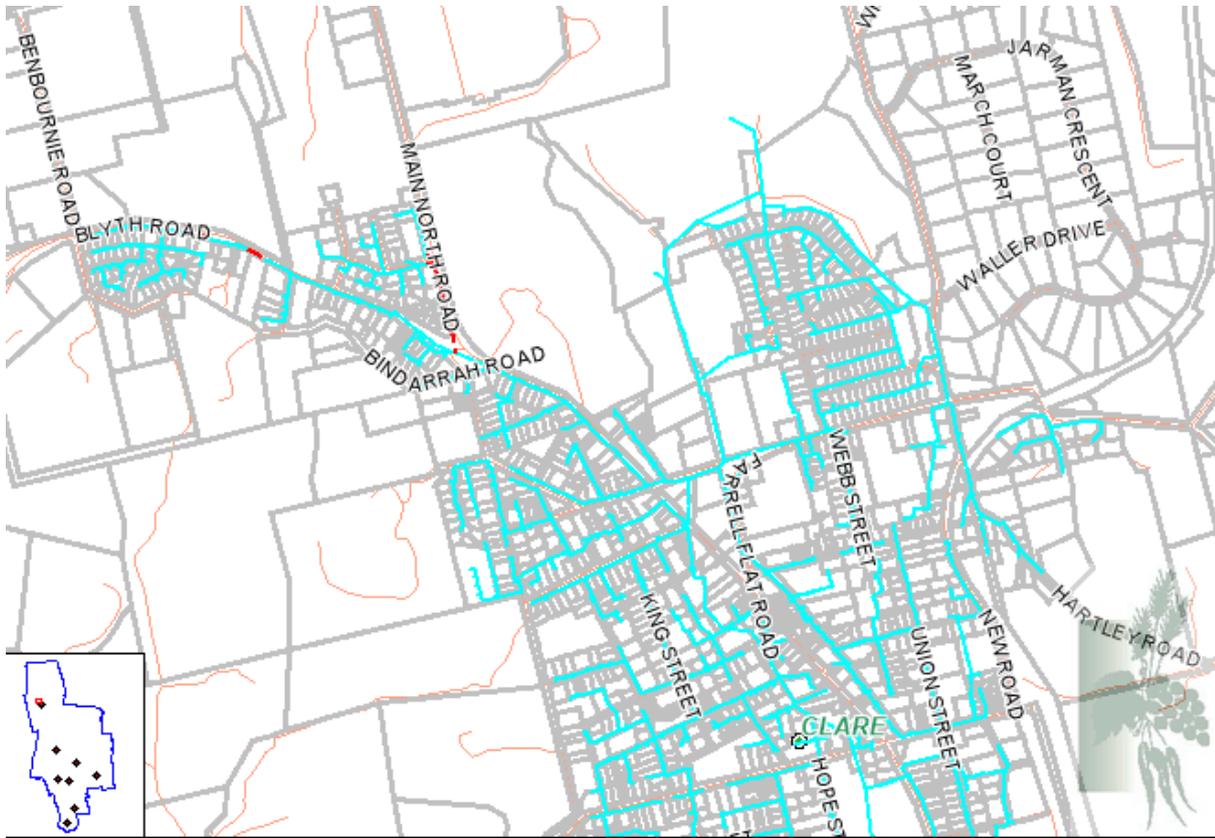
Clare Gilbert Valleys Council Condition & Compliance Report (Pump Station) 2016



## **Appendix A – Township CWMS Network Plans**

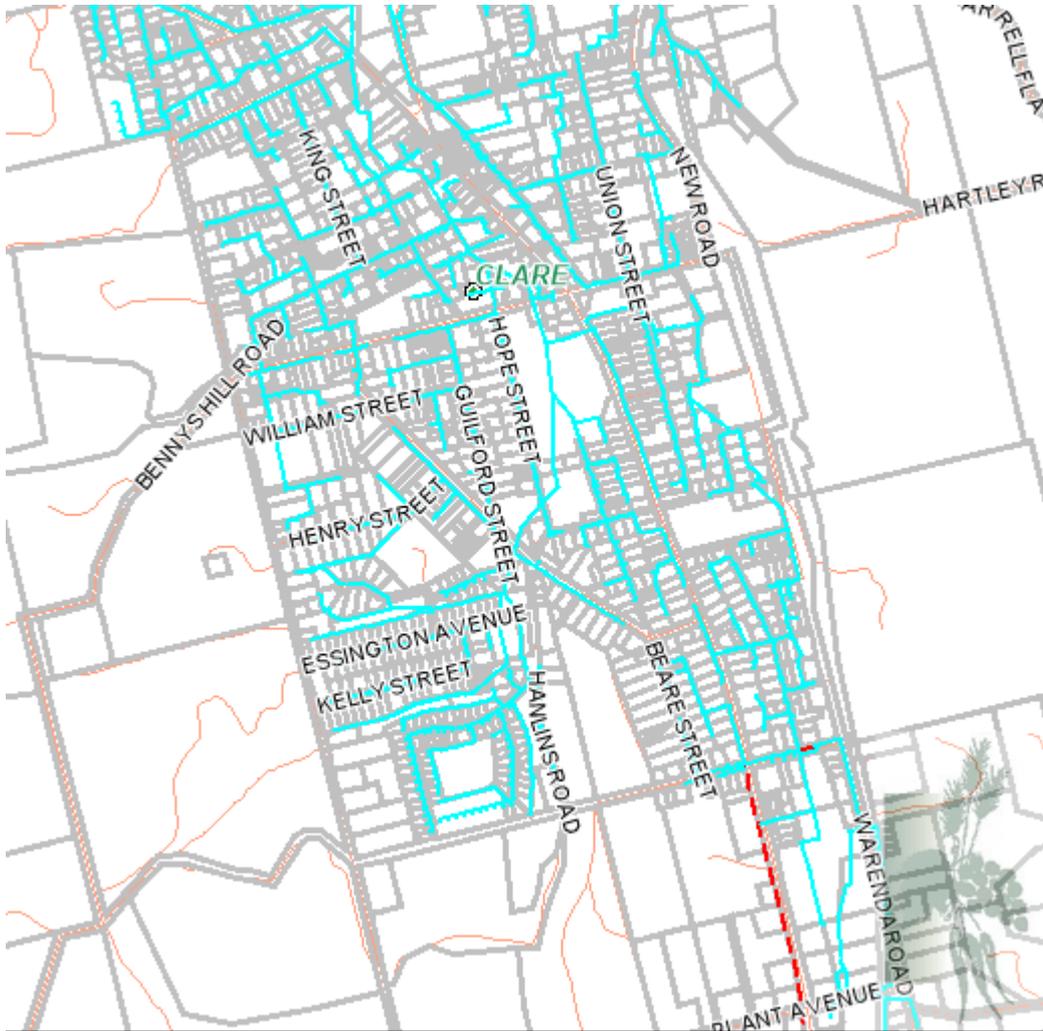
## Clare North

(Note: Red lines indicate rising mains, Blue lines indicate gravity mains)



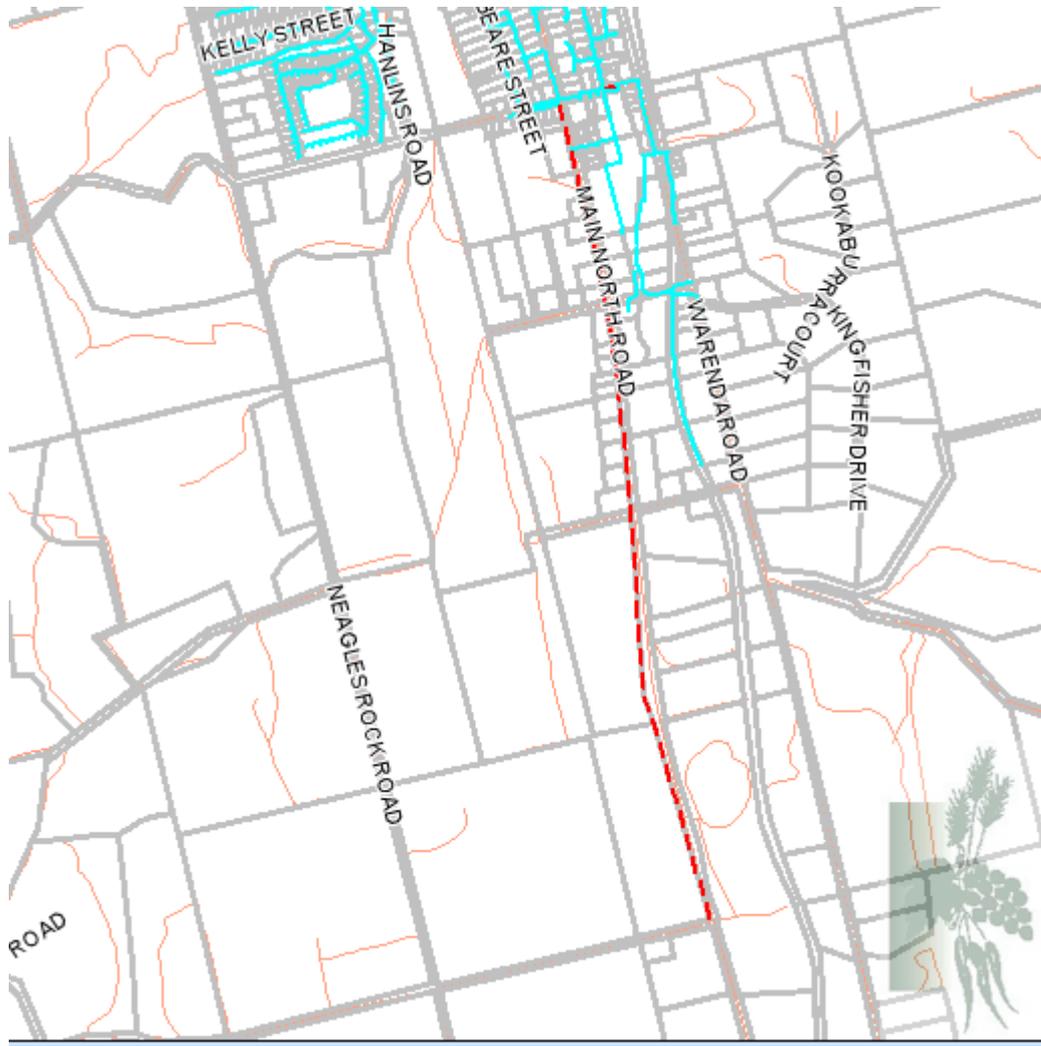
## Clare Central

(Note: Red lines indicate rising mains, Blue lines indicate gravity mains)



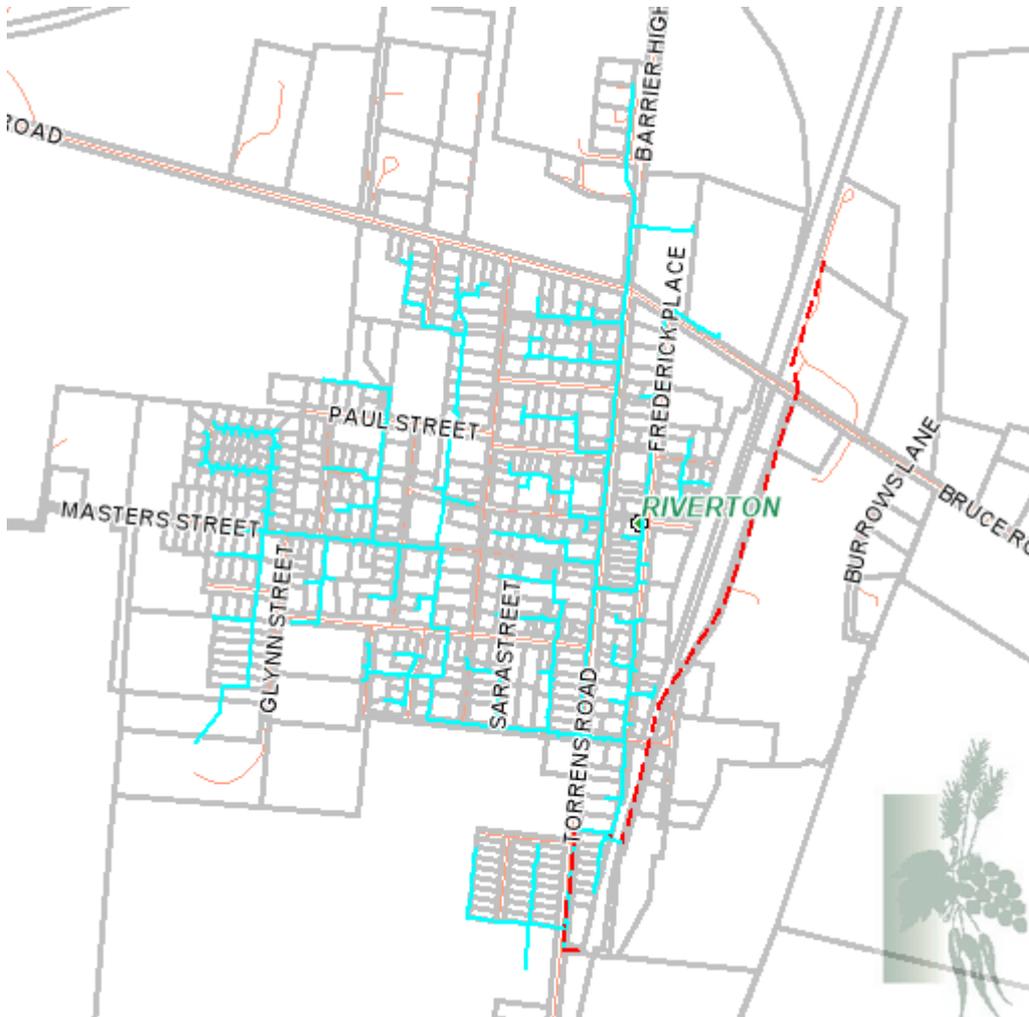
## Clare South

(Note: Red lines indicate rising mains, Blue lines indicate gravity mains)



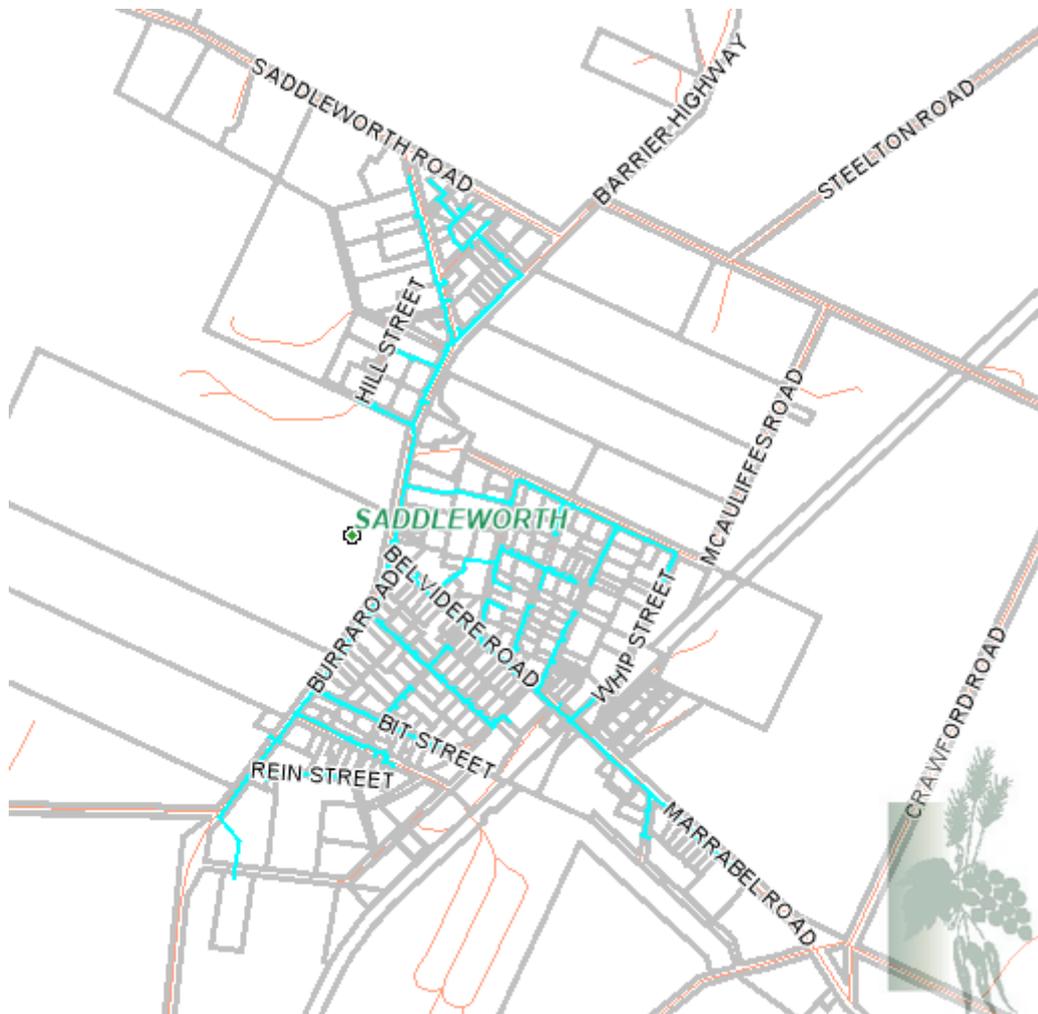
## Riverton

(Note: Red lines indicate rising mains, Blue lines indicate gravity mains)



## Saddleworth

(Note: Blues lines indicate gravity lines)



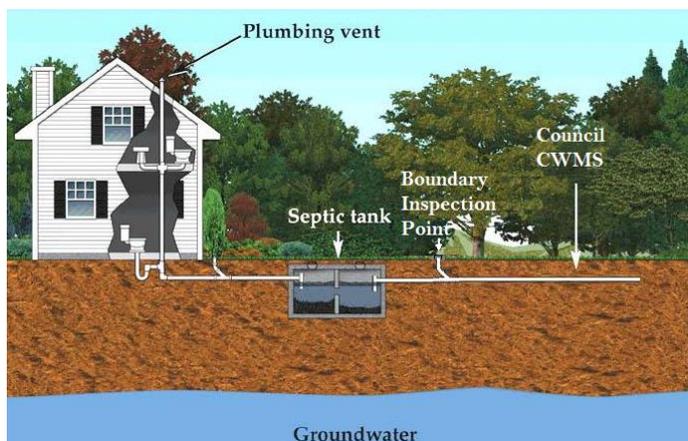
## Appendix B – Community Waste Water System (CWMS) Overview

What is

Household Connection

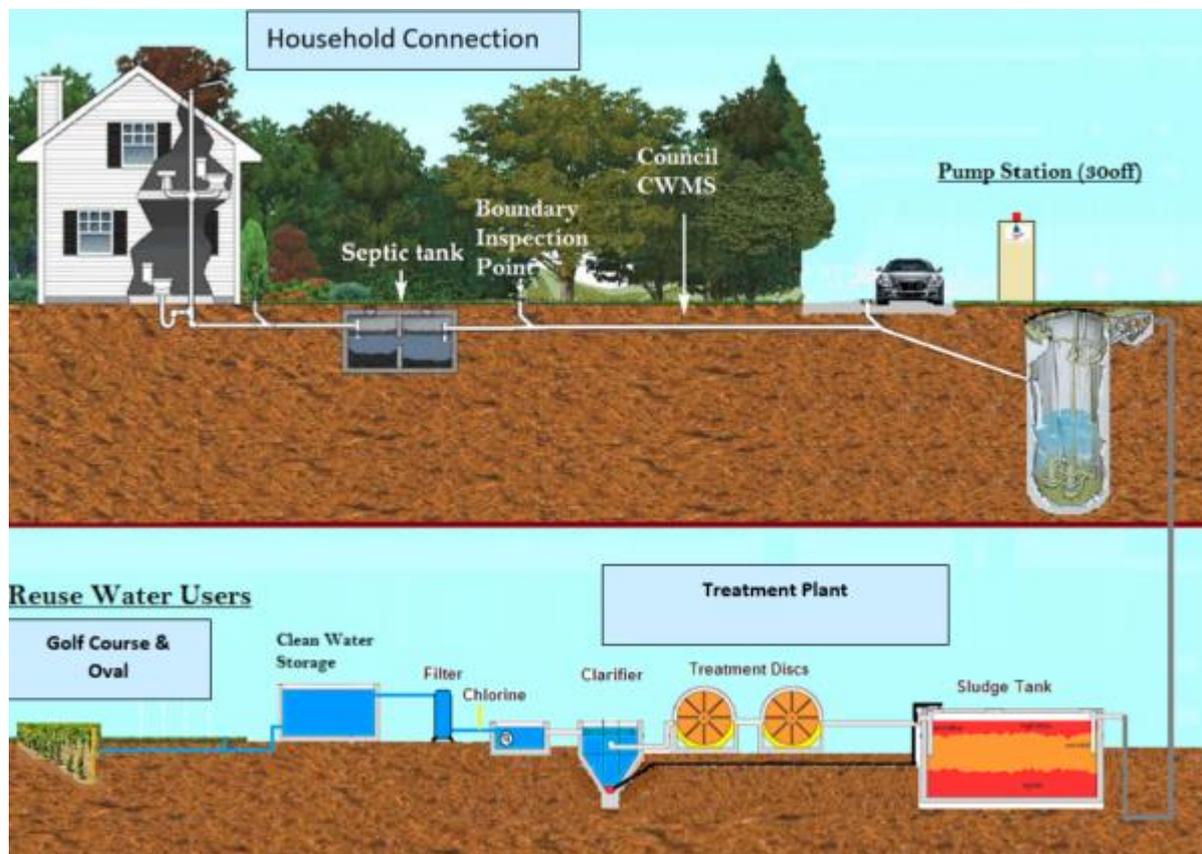


Typical Onsite Septic  
Relies on Effluent Soaking into ground ( Not connected to CWMS)



CWMS Septic  
Effluent Flows out of the tank into the CWMS network via boundary Inspection Point

## The Treatment Process



- Collection and treatment of all effluent from Septic Tanks.
- Desludging of Septic Tanks on regular basics approximately every 5 years.

## Treatment Plants

### Clare Treatment Plant



## Saddleworth Treatment Plant



## Riverton Treatment Plant



### Clare Pump Station Locations



## Clare Treatment & Irrigation Process



### Saddleworth Treatment & Irrigation Process



## Riverton Treatment & Irrigation Process

