Cherbourg Aboriginal Shire Council

Asset Management Plan

WATER ASSETS

Resolution Number	Date	Reason/Comment

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1 Executive Summary

1.1 Context

Cherbourg is located 375km north west of Brisbane in the South Burnett region of Queensland. It is located off the Bunya Highway approximately 250 kilometres north-west of Brisbane and 6 kilometres from the town of Murgon. Cherbourg Shire covers 3,130 hectares or 31.7 km2 of land.

The bulk water supply for the Cherbourg community is drawn from the Barambah Creek and pumped to a high-level reservoir. Following treatment, the water is pumped into a reservoir tank and gravity fed to the community through a piped network.

The water assets addressed in this plan include:

- Water mains
- Valves and hydrants
- Water treatment plant infrastructure
- Tanks and reservoirs

1.2 What does it cost?

The projected cost to provide the services covered by this Asset Management Plan which includes operations and maintenance of existing assets over the 10-year planning period is $4.11M. Renewal and upgrade capital expenditure is yet to be identified

Council is wholly reliant on grants to fund the operations of its water services.

1.3 What we will do

Cherbourg Shire Council's goal is to provide a range of services that the community needs and to provide and manage the assets required to meet agreed levels of service for the community, in the most cost-effective manner.

1.4 What we cannot do

Council cannot fund its water services from its own revenues. Council is unable to undertake any upgrade, renewal, or construct new assets without external assistance in the form of grants or contributions of assets.

1.5 Managing the risks

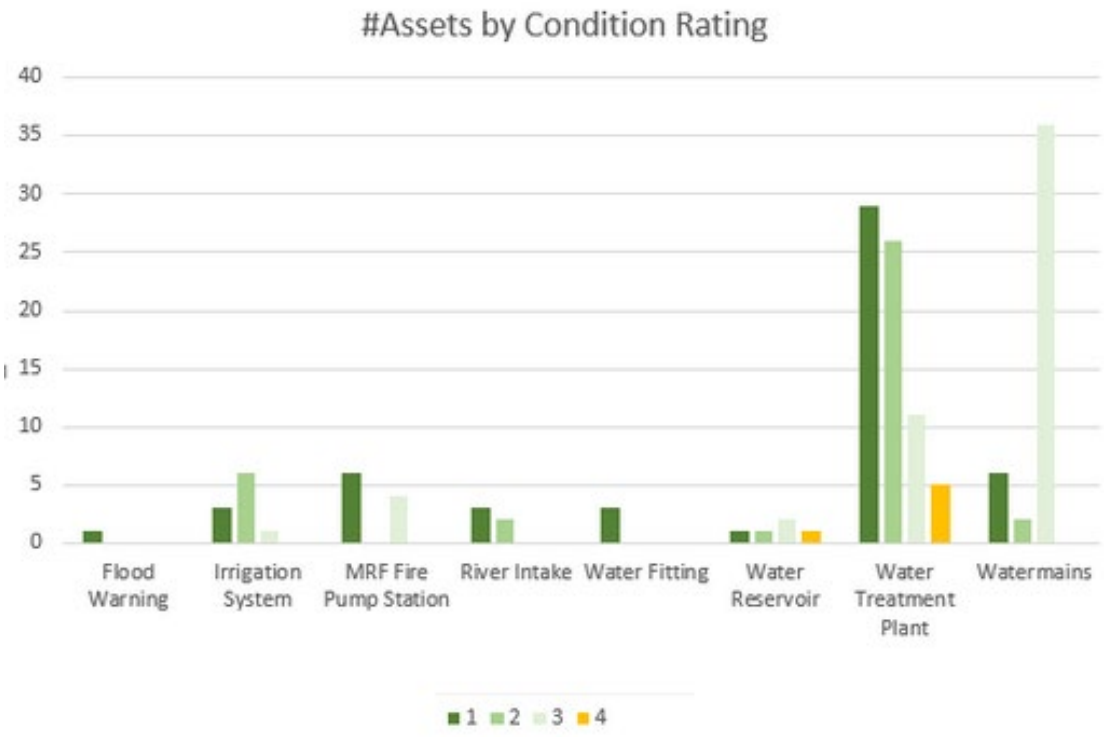
Cherbourg Aboriginal Shire Council although yet to formally undertake a Corporate Risk Plan, has identified four primary risks across all classes of assets and services, namely:

- Funding sustainability to support consistent Levels of Service;
- Loss of key personnel;
- The need for improved skills and the 'whole of organisation' approach to the management of assets and services effectively; and
- Failure of an asset or network due to inappropriate asset management.

Currently operational risks are adequately managed with day-to-day operations. However, this management is predominantly reactive on an ad hoc basis and done in the absence of formal corporate direction due to the nature and timing of the grants process. Addressing the

corporate and external risks would enable the organisation to devise and enact more appropriate treatments.

1.6 Asset Condition



Council's water assets are in relatively good condition with the majority of assets rated a condition 1 or 2. Water mains will require funding to maintain or improve their condition and should be the focus for this asset class over the next ten years.

1.7 The next steps

The next steps resulting from this Plan are:

- Develop a long-term renewal plan based on condition and remaining life.
- Undertake a review of those assets identified as condition rating 4 and 5.
- Undertake the actions listed in the Improvement Plan at Section 9 below.

2 Introduction

2.1 Background

In the last few years there have been numerous upgrades to Council's water assets including rising main works, the chemical storage facility, the SCADA system, water treatment plant, and reservoirs. These upgrades and renewals have been funded under the Indigenous Councils Critical Infrastructure Program (ICCIP) and other infrastructure grant programs. The Community's supply is drawn from the nearby Barambah Creek. This provides a source of supply with reasonable reliability and availability. The water is treated and pumped to high level tanks and reticulated to the community through PVC gravity mains.

Council's primary goal in managing assets is to meet the required Level of Service in the most cost-effective manner for present and future residents, and visitors.

The water assets addressed in this plan include:

- Water mains
- Valves and hydrants
- Water treatment plant infrastructure
- Tanks and reservoirs

2.2 Plan purpose and framework

Council's primary goal in managing assets is to meet the required Level of Service in the most cost-effective manner for present and future residents, and visitors.

The purpose of this dedicated water plan is to:

- Improve understanding of the water assets and associated services;
- Improve budgeting and forecasting of asset related management options and costs, particularly in understanding the long-term investment in capital renewal;
- Afford a level of confidence in forward works programs, maintenance and provide support for any business cases associated with securing the necessary funding requirements; and
- Provide the guidance for elected members and the organisation in taking positive steps toward advanced asset management planning.

2.3 Operations Plan

Council is yet to finalise its Operational Plan for 2022-23. When adopted, the actions relating to the management of the sewerage system will be listed in Table 2.1 below.

STRATEGIES	ACTIVITIES	Performance Measures
To be developed		

Table 2.1: Performance measures from relevant sections of the Operational Plan 2022-23

2.4 Asset Management Objectives

Cherbourg Shire Council's goal is to provide a range of services that the community needs and to provide and manage the assets required to meet agreed levels of service for the community, in the most cost-effective manner.

3 Strategic Context

3.1 Overview of external factors

As at the 2021 census, the resident population of Cherbourg Aboriginal Shire was 1,194 persons. The average annual growth rate in Cherbourg Aboriginal Shire LGA between 1996 and 2021 was 0.61 per cent, compared with 2.5 per cent for the state. As at 30 June 2041, the population for Cherbourg Aboriginal Shire Local Government Area (LGA) is projected to be between 1,353 and 1,455 persons.

The population for Cherbourg Aboriginal Shire LGA is projected to increase by an average annual growth rate of 0.5 per cent over the 20-year period between 2017 and 2036. At the time of the 2021 Census, there were 1,151 persons in Cherbourg Shire Local Government Area who stated they were of Aboriginal or Torres Strait Islander origin. These persons made up 96.3% of the total population.

Council's obligations under Section 43 of the *Environmental Protection (Water) Policy 1997* include the preparation of an environmental plan for water conservation. Demand management is a core element in Council's water service capital project planning in order to obtain State Government funding and technical acceptance.

The Department of Environment, Resources and Mines (DERM) is the industry regulator of Council's primary water source providers under the *Water Supply (Safety and Reliability) Act 2008 which* contains additional requirements for the supply of water which council is required to comply with.

3.2 Overview of internal factors

Currently, the Cherbourg Shire Council is managing assets with a replacement value of $278 million (including, housing, land, roads, plant, equipment, infrastructure water/sewerage and council buildings). In common with many other Aboriginal Shire Councils, Cherbourg is a rural community with limited economic opportunities available, virtually no rate base, but at the same time, is responsible for a wide range of services and infrastructure. The Council therefore relies to a large extent on Federal and state funding to provide the necessary services and infrastructure to the community.

A significant proportion of the Cherbourg Aboriginal Shire Council infrastructure assets have been in existence for many years. The assets generally originated from a combination of State and Commonwealth construction and development grants. Due to the uncertainty of ongoing funding, Council will need to ensure asset management plans are cognisant of increasing maintenance costs given some assets are likely to be maintained well after their economic life.

3.3 Summary of key issues

The primary issues for the water assets and services are the fundamentals of:

- Good data – dimensional and condition data stored in an Asset Inventory that can be uploaded to the Asset Register;
- Increasing the strategic and tactical management of the assets and services – understanding the renewal and maintenance needs for the network and actively managing those needs, both operationally and financially;
- Documentation of the Levels of Service for the building assets and services, expressed as Service Standards and Service Targets;
- An appreciation of the cost of provision of the services;

- The future demand for the assets and services, understanding the growth and change factors that influence the management regime;
- Forecasting the renewal and maintenance costs for the next 10+ years, and understanding the affordability and sustainability of the assets and services to the current levels.

4 Key Assumptions

Significant Assumption	Level of Assumption (low = small risk)	Likely Impact if Assumption is not Realised
Reliability of data – assumes that the information on the underground assets obtained is representative of the network	High	Condition data is incorrect and renewal requirements need significant review
No major adverse natural event – while an event may occur at any time, this plan focuses on business-as-usual operations	Medium	Any response to a disaster cannot be funded from Council's existing budgets. Support will be required from the Commonwealth and State Governments
Assets are replaced at the end of their useful lives	Low	If lives are shorter or longer than expected, the timing and amount of funds available may be inadequate

5 Lifecycle Management

Life Cycle Management is primarily about using the data and processes to effectively provide, manage, maintain, renew, (and upgrade), existing transport assets and services.

Lifecycle asset management means considering all management options and strategies as part of the asset lifecycle, from planning to disposal, (whole of life analysis). The objective of managing the assets in this manner is to look at long-term cost impacts, (or savings), when making asset and services management decisions.

Lifecycle management planning for water assets and services needs to contend with a range of life spans for the groups, types and components of assets as described in Table 5.1 below.

Facility	Asset Type	Average of Useful Life	Average of 2022 Condition	Average of Adopted Remaining Life
Flood Warning		**80**	**1**	**73**
	Civil	80	1	73
Irrigation System		**39**	**2**	**28**
	Civil	30	1	24
	Electrical	40	3	26
	Mechanical	40	2	28
	P&V	40	2	29
	Farm System	40	1	36

Facility	Asset Type	Average of Useful Life	Average of 2022 Condition	Average of Adopted Remaining Life
MRF Fire Pump Station		**47**	**2**	**34**
	Civil	55	2	33
	Electrical	40	1	34
	Mechanical	40	3	25
	P&V	40	1	34
	Water Fitting	80	1	74
River Intake		**52**	**1**	**40**
	Civil	100	1	85
	Electrical	40	1	32
	Instrumentation	40	2	26
	Mechanical	40	2	29
Water Fitting		**80**	**1**	**75**
	Water Fitting	80	1	75
Water Reservoir		**68**	**3**	**44**
	Civil	100	2	78
	Mechanical	40	3	18
	P&V	40	4	13
	Site Services	60	3	33
Water Treatment Plant		**54**	**2**	**40**
	Civil	76	2	58
	Electrical	40	1	33
	Instrumentation	40	1	34
	Mechanical	40	2	28
	P&V	40	3	21
	Site Services	60	3	43
Watermains		**80**	**3**	**50**
	Standard	80	3	49
Grand Total		**61**	**2**	**43**

Table 5.1 Water Supply Asset Life spans

6 Levels of Service

Levels of service has only been determined for the water assets as a whole.

Service Factors	Customer Service Standards	Technical Service Standards
	Function	
High Quality Drinking Water	Consistently clean, safe drinking water	Water quality matches NHMRC Drinking Water Guidelines for colour, turbidity and microbiology – 98% water test compliance

Service Factors	Customer Service Standards	Technical Service Standards
		Maintenance criteria contribute to elimination of dirty water in supply mains
Design		
Continuity of Supply	Minimal interruptions to supply	Network design enables optimum supply standards to all connections System water losses are minimized
Adequacy of Supply	Water pressure is adequate for all applications, including emergency services	Network design maintains consistent pressure / supply standards to all connections Network layout and connections ensures high standard service to all properties
Environmental Compliance	Water treatment and supply meets relevant environmental guidelines	System operation and treatment matches Strategic Asset Management Plan specifications Comply with Department of Natural Resources and Water planning guidelines for water supply System and treatment options include techniques for minimising greenhouse gases and carbon footprint
Affordability and Whole of Life Management	Water supply remains affordable	Strategic Asset Management Plan accounts for improved whole of life asset management Chemical usage is monitored and contained as far as is practicable Planning strategies include demand management options for review Pressure reduction strategies are examined for application and benefit
New Technologies	New technologies are engaged to optimise water treatment and supply provisions	Maintain awareness of application and benefits of new technologies for water treatment and supply
Energy Consumption	Minimised energy consumption	Treatment and supply regularly reviewed for improved energy / power usage / reductions Understand power supply alternatives and competition available Provide emergency power source for safety and continual water supply

Table 6.1: Service Standards for the Water Supply Network

6.1 Maintenance

At this stage there are no significant operations and maintenance plans developed for major water network assets. Activities are mostly reactive although there are compliance driven maintenance inspections for WTP plant.

Service Targets	Response Time	
	Priority 1	**Priority 2**
Emergency Call Out	Immediate	ASAP
Emergency Maintenance Repairs	4 - 6 hours	12 - 24 hours

Table 6.2: Service Targets - Water

6.2 Capital

6.2.1 Asset Renewal

Replacement and rehabilitation of existing infrastructure is primarily driven by asset condition and performance. Given the relatively small network, council staff carry out regular subjective condition and performance appraisal of assets nearing their final lifecycle age or producing poor performance.

The asset renewals program will be based on the following considerations:

- A condition rating applied to each asset;
- An assumed economic life applied to each asset group;
- A replacement date for each asset;
- Asset replacement cost; and
- Availability of funding.

Following the recent major upgrade of the CASC rising main, SCADA, chemical storage, and water treatment system, an opportunity now exists to develop a long-term renewal plan with particular focus on shorter life asset components.

As the assets are in relatively good condition overall, it is unlikely that significant renewals will be required in the short term. A renewal plan will assist with capital forecasting and budgeting and is an important part of the long-term financial forecast.

6.2.2 New and Upgrade

As mentioned above, with the completion of the major upgrades, it will be important for CASC to use this opportunity to capture the new asset data as well develop longer term operation and maintenance planning/financial projections so that they can be included in future long term financial planning.

6.2.3 Disposal of Assets

It is not likely that water assets will be disposed of in the life of this plan.

6.3 Condition Assessment

The condition of the assets has been assessed during the comprehensive revaluation of assets undertaken in 2022. The condition assessment uses a five-point scale:

Rating	Description
1	Near New
2	Good
3	Fair to Poor
4	Very Poor
5	Failed
N/A	Not applicable (Formation components)

Assets that are identified as condition 4 or 5 require assessment to determine the treatment options to either return them to adequate service or to dispose of them.

7 Financial Summary

Initial capital cost for assets constitutes a significant up-front cost and often dominates the decision making process when acquiring new assets, however ongoing recurrent expenses, (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. There may also be substantial costs associated with disposal at the end of the assets useful life (e.g. demolition costs).

7.1 Current Financial Position

The current financial position of Council's water assets is shown in Table 7.1 below.

Facility	Asset Type	Number of Assets	Replacement Cost	Accumulated Depn	Written Down Values	Annual Depreciation
Flood Warning		**1**	**54,162**	**4,719**	**49,443**	**677**
	Civil	1	54,162	4,719	49,443	677
Irrigation System		**10**	**709,189**	**92,691**	**616,498**	**18,281**
	Civil	1	66,078	12,647	53,431	2,203
	Electrical	2	23,424	8,752	14,672	586
	Mechanical	3	30,542	8,633	21,909	764
	P&V	3	482,381	52,675	429,706	12,060
	Farm System	1	106,764	9,982	96,782	2,669
MRF Fire Pump Station		**10**	**268,776**	**69,376**	**199,399**	**6,699**
	Civil	2	65,596	18,989	46,608	1,712
	Electrical	1	14,049	2,016	12,033	351
	Mechanical	4	133,321	40,891	92,430	3,333
	P&V	2	48,458	6,954	41,504	1,211
	Water Fitting	1	7,351	527	6,824	92
		5	**155,100**	**38,078**	**117,022**	**3,797**

Facility	Asset Type	Number of Assets	Replacement Cost	Accumulated Depn	Written Down Values	Annual Depreciation
River Intake						
	Civil	1	5,400	795	4,605	54
	Electrical	1	70,000	13,878	56,122	1,750
	Instrumentation	1	9,700	3,499	6,201	243
	Mechanical	2	70,000	19,906	50,094	1,750
Water Fitting		**3**	**163,800**	**9,768**	**154,032**	**2,048**
	Water Fitting	3	163,800	9,768	154,032	2,048
Water Reservoir		**5**	**730,902**	**161,950**	**568,952**	**7,429**
	Civil	2	722,791	157,057	565,734	7,228
	Mechanical	1	4,282	2,383	1,899	107
	P&V	1	3,678	2,443	1,235	92
	Site Services	1	150	66	84	3
Water Treatment Plant		**71**	**4,865,173**	**596,840**	**4,268,333**	**76,286**
	Civil	27	3,624,784	267,697	3,357,087	45,313
	Electrical	7	160,762	24,017	136,745	4,019
	Instrumentation	8	289,465	25,406	264,059	7,237
	Mechanical	17	466,045	141,904	324,141	11,651
	P&V	10	301,701	122,331	179,369	7,543
	Site Services	2	22,416	15,484	6,932	525
Watermains		**44**	**4,855,740**	**1,770,152**	**3,085,588**	**60,649**
	Standard	44	4,855,740	1,770,152	3,085,588	60,649
Grand Total		**149**	**11,802,841**	**2,743,574**	**9,059,267**	**175,866**

Table 7.1: Water supply assets valuation 2022.

7.2 Funding Options and Strategy

Operational expenditure is mainly funded through allocations from the Federal Assistance and State Government Financial Aid grants. Council charges a service fee which is used to cover some of the operational costs.

Given that Council primarily relies on capital grants for significant renewals works etc, development of 10-year expenditure projections will be important to understand the full funding impacts into the future. Further analysis of the required renewals will be used in applying for funding or deciding on the allocation of existing funding.

7.3 Maintenance Backlog

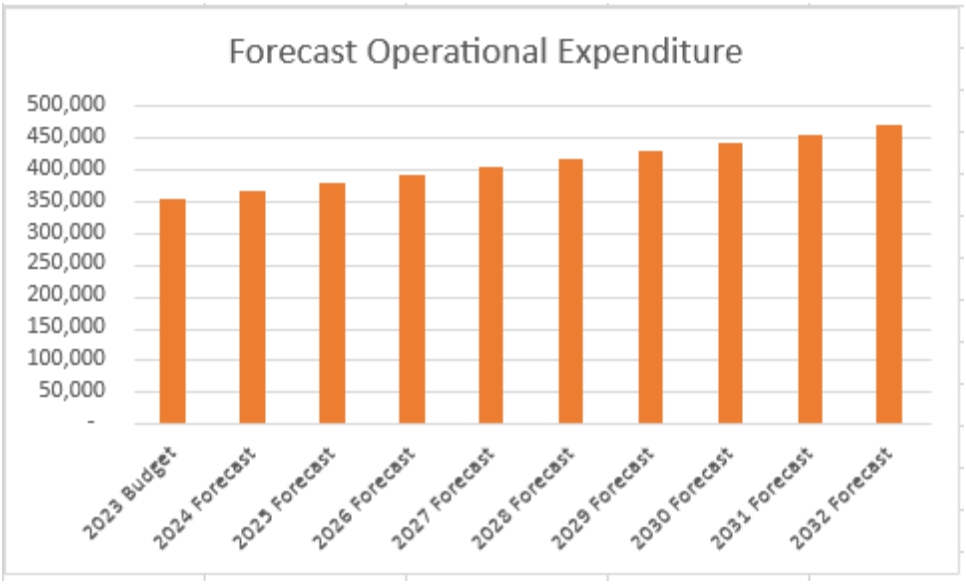
A small number of water assets have been rated at lower than condition 3 and are listed in section 10.2. These assets need to be assessed for priority maintenance, replacement or disposal.

7.4 Renewal Gap

The Renewal Gap measures the difference between the current 'capital' expenditure on asset renewal and the 'required' level of expenditure to sustain the assets and the Levels of Service. The data provides a useful support tool for the determination of 'gaps' in the management of assets and services for the individual asset classes. An analysis of the renewal gap will be undertaken in the revision of this plan once the new maintenance requirements are identified and budgeted.

7.5 Forecast Operational and Capital Expenditure

Council's operational expenditure forecast over the next ten years totals $4.12 million excluding depreciation.



Depreciation is an additional $0.18 million per year and remains unfunded as Council relies on capital grants to cover the cost of renewing its assets.

No specific capital expenditure has been identified, however Council's long term financial plan includes an amount of $1.20 million per year which is to be split across its infrastructure assets according to identified need and availability of funding.

8 Key Risks Identified

There are four primary likely risks across all classes of assets and services, namely:

- Funding sustainability to support consistent Levels of Service;
- Loss of key personnel;
- The need for improved skills and the 'whole of organisation' approach to the management of assets and services effectively; and
- Failure of an asset or network due to inappropriate asset management.

The risks to the water supply network through natural events, physical failure and operational risk. Failures in the water supply network will result in loss of water supply to the community and are likely to occur due to power outages at pump stations, flooding or excessive water in the treatment plant, or a break in the rising main. The monitoring of these risks is the responsibility of the Works Manager and are undertaken on an ongoing basis.

More detailed information on management of risk will be contained in Council's Risk Management Plan.

Currently the operational risks are adequately managed with day-to-day operations. However, this management is predominantly reactive on an ad hoc basis and done in the absence of formal corporate direction due to the nature and timing of the grants process. Addressing the corporate and external risks would enable the organisation to devise and enact more appropriate treatments.

9 Future Actions

9.1 Improvement Plan

Cherbourg Aboriginal Shire Council is only beginning the journey of asset management. Numerous opportunities for improvement have been identified. These are listed in Table 9.1 following. Most of these improvements fall within the ambit of existing Council programs. Some specialist areas will require external assistance.

Issue	Tasks/Process	Timeframe	Responsibility	Status
Data Collection	Defect logging to record asset and services defects for risk management and maintenance management and to contribute to Asset Inventory data confidence	2023	Works Manager	Not yet started
Levels of Service Framework	Complete Levels of Service Framework to record current Service Standards and Service Targets and review and adjust as appropriate	2023	Works Manager	Not yet started
	Enhanced relationships with Key Stakeholders	2023	Works Manager	Ongoing
Asset Register	Regular data validation process to ensure completeness of Asset Register	Annually	Accountant	Ongoing
Financial Management	Complete Renewal analysis to support long term financial planning	2023	Accountant	Not yet started
	Review valuations and revaluation cycles and record in Asset Accounting Policy	2023	Accountant	Not yet started

Table 9.1 Asset and Services Management Plan – Water Supply Improvement Plan

10 Asset Information

The asset hierarchy follows the corporate model and the financial management practices described in the Asset Register and Asset Accounting Policy. The hierarchy records all associated major infrastructure assets in the water class.

10.1 Water Treatment

10.1.1 Asset Holdings

Facility	Asset Type	Number of Assets	Replacement Cost
Flood Warning		**1**	**54,162**
	Civil	1	54,162
Irrigation System		**10**	**709,189**
	Civil	1	66,078
	Electrical	2	23,424
	Mechanical	3	30,542
	P&V	3	482,381
	Farm System	1	106,764
MRF Fire Pump Station		**10**	**268,776**
	Civil	2	65,596
	Electrical	1	14,049
	Mechanical	4	133,321
	P&V	2	48,458
	Water Fitting	1	7,351
River Intake		**5**	**155,100**
	Civil	1	5,400
	Electrical	1	70,000
	Instrumentation	1	9,700
	Mechanical	2	70,000
Water Fitting		**3**	**163,800**
	Water Fitting	3	163,800
Water Reservoir		**5**	**730,902**
	Civil	2	722,791
	Mechanical	1	4,282
	P&V	1	3,678
	Site Services	1	150
Water Treatment Plant		**71**	**4,865,173**
	Civil	27	3,624,784
	Electrical	7	160,762
	Instrumentation	8	289,465
	Mechanical	17	466,045
	P&V	10	301,701
	Site Services	2	22,416
Watermains		**44**	**4,855,740**
	Standard	44	4,855,740
Grand Total		**149**	**11,802,841**

10.1.2 Available Data

Asset data is stored in the asset register within Council's finance system and is reconciled to the valuation report spreadsheet annually. Location and dimensional data is held in Council's GIS system.

10.1.3 Last Condition Survey

A condition survey was conducted during the comprehensive revaluation in April 2022.

10.1.4 General Condition Assessment

Facility	2022 AssetVal Condition	Number of Assets	Replacement Cost
Flood Warning		**0.67%**	**54,162**
	1	0.67%	54,162
Irrigation System		**6.71%**	**709,189**
	1	2.01%	594,676
	2	4.03%	100,458
	3	0.67%	14,054
MRF Fire Pump Station		**6.71%**	**268,776**
	1	4.03%	169,394
	3	2.68%	99,382
River Intake		**3.36%**	**155,100**
	1	2.01%	110,400
	2	1.34%	44,700
Water Fitting		**2.01%**	**163,800**
	1	2.01%	163,800
Water Reservoir		**3.36%**	**730,902**
	1	0.67%	375,688
	2	0.67%	347,103
	3	1.34%	4,432
	4	0.67%	3,678
Water Treatment Plant		**47.65%**	**4,865,173**
	1	19.46%	3,544,344
	2	17.45%	975,924
	3	7.38%	246,196
	4	3.36%	98,709
Watermains		**29.53%**	**4,855,740**
	1	4.03%	930,770
	2	1.34%	419,700
	3	24.16%	3,505,270
Grand Total		**100.00%**	**11,802,841**

The assets are in relatively good condition with only 6 assets being rated below condition 3. A review of the assets rated below condition 3 will be required to prioritise their refurbishment in order to maintain them in good working order, replacement or disposal. Assets rated below condition 3 are listed in section 10.2.

10.2 Summary of Water Assets with Condition Rating 4 or 5

Asset Code	Asset Description	Facility	Condition Rating	Useful Life	Adopted Remaining Life	WDV
WATCHE0025	Fences - Water	Water Treatment Plant	4	40	8	$ 4,058
WE003	Dosing Pit 2 Pipe work	Water Treatment Plant	4	40	13	$ 2,559
WE013	Tank Clarifer	Water Treatment Plant	4	40	8	$ 5,929
WE015	Aerator	Water Treatment Plant	4	40	13	$ 506
WE019	WTP - Pipe work	Water Treatment Plant	4	40	13	$ 14,060
WE069	Pipe Work	Water Reservoir	4	40	13	$ 1,235