



# Waitaki

DISTRICT COUNCIL  
TE KAUNIHERA Ā ROHE O WAITAKI

## WASTEWATER ACTIVITY MANAGEMENT PLAN

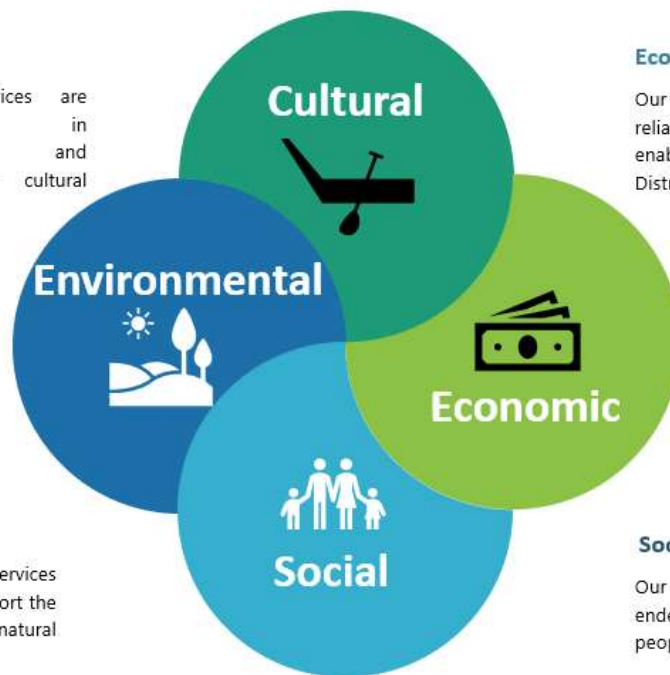
### Water Services contribution to Well-beings

#### Cultural

Our water services are provided in acknowledgement and consideration of cultural values

#### Economic

Our water services are reliable, affordable and enable development in the District



#### Environmental

Our water services considers and support the sustainable use of natural resources

#### Social

Our water services endeavours to keep our people safe and healthy

*PROTECTING PUBLIC HEALTH & THE ENVIRONMENT*

## 2021 - 2031





**Quality Record Sheet**  
**ACTIVITY MANAGEMENT PLAN**  
**FOR WASTEWATER**

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## 1.0 SUMMARY ASSET MANAGEMENT PLAN

### 1.1 What are we doing

Council provides eight wastewater systems that collect, treat and dispose of liquid waste to acceptable environmental standards. These wastewater systems are located at:

- Duntroon (limited service area)
- Kurow
- Lake Ohau
- Moeraki
- Oamaru (including Kakanui & Weston)
- Omarama
- Otematata
- Palmerston.

Council supports this service by:

- Providing, operating and maintaining wastewater infrastructure in compliance with New Zealand legislation, standards and resource consents
- Responding to call outs and service disruptions quickly and efficiently
- Planning for future development and needs.

### 1.2 Why are we doing it?

Council has a legal obligation under the Health Act 1956 to improve, promote, and protect public health within the District. This includes identifying the need for wastewater services and either providing these directly or overseeing the service if it is provided by others. The Council sees the provision of reliable wastewater collection and treatment services to the community as a major contribution to the District's economy and to resident's wellbeing. The Local Government Act 2002 requires ongoing wastewater services unless specific approval is sought to withdraw from this.

Council's wastewater activity contributes primarily to the following community outcomes:



Significant negative effects associated with the wastewater activity include odour and sludge disposal from treatment plants. The wastewater network is operated under the resource consent framework which requires that any adverse environmental effects associated with the discharges be mitigated.

Sludge disposal options will be investigated for treatment plant sludge. The quality of treated effluent is continually monitored and in compliance with environmental compliance conditions. Overflows and spills from the network can also cause a negative effect. The identification and implementation of improvements reduce the risk of such occurrences. A Capacity study including overflow mitigation investigations and implementation of appropriate measures is programmed for the first half of this plan. Council will continue to identify and implement methods of making wastewater collection and treatment services more efficient and sustainable.

### 1.3 Where are we headed?

Council's principal goal for wastewater over the next ten years is:

- To ensure the health of the community where urban housing exists, thereby eliminating the need for individuals to provide their own wastewater system (which carries much higher health risks)
- To provide a cost effective trade waste disposal system for commercial and some industrial users, thereby eliminating the need for individuals to provide their own wastewater system
- To provide acceptable collection, treatment and disposal systems for the use of communities

There are a number of key issues facing Council over the next ten years and beyond:

- Environmental compliance – Council operate the wastewater systems under resource consents granted by two Regional Councils (Otago and Canterbury). These consents apply to wastewater collection and discharge. These consents require significant sampling, monitoring, operation and maintenance methodologies and regular reporting.
  - The Duntroon communal septic tank is no longer a permitted activity. Council applied for a short term consent for the existing system to allow appropriate investigation, consideration of options in meeting regional rules and environmental standards and consultation
  - Increased community involvement through Te Mana o te Wai processes may impact the timely delivery of projects
- Separated wastewater and stormwater systems
  - Inflow – through illegal connections such as roof downpipes, yard drains, or indirect connections with stormwater pipes
  - Infiltration –through joints, cracks and misaligned pipelines
  - Exfiltration - escape of wastewater from the wastewater collection system into the surrounding soil via cracks or malfunctioning pipe joints
- Central Government's 3Waters Review is considering
  - New national standards for the treatment of wastewater and management of wastewater overflows
  - New obligations on wastewater and stormwater network operators to implement a risk management plan
  - Nationally consistent monitoring and reporting requirements for wastewater and stormwater networks
  - Stronger Central Government oversight
  - Network operators to
    - adopt industry good practices and minimising risks to public health and the environment, while meeting local community/iwi values
    - implement a certified risk management plan that specifies how they will: –
      - Operate and maintain networks to meet current and future regulatory requirements; e.g. freshwater objectives and limits
      - Proactively manage risks to public health and environment
      - Address community and Māori cultural expectations for wastewater disposal
    - report on nationally prescribed environmental performance measures, and compliance with national standards

- Sludge management
- Investigating climate change and sea level rise impacts on existing wastewater systems
- Increased focus on ageing and failing infrastructure
- Maintaining appropriate data and monitoring systems
- Ensure adequate in-house staff resource capacity and capability
- Progressively increase resilience of the wastewater service
- Investigating and implementing improved efficiencies
- Ongoing affordability of the wastewater system
- Capital works totalling \$9.5m over the LTP period for the wastewater
- Renewal works totalling \$15.7m over the LTP period for the wastewater

Council intends to continue to operate and maintain its existing wastewater networks over the next ten years. The physical operation and maintenance of wastewater systems is contracted out.

Ongoing maintenance works, and works to improve the capacity and operation of wastewater systems, will also be necessary over the next ten years. Developing a robust renewal plan will also be necessary to ensure that the wastewater network continues to be maintained in an operational state in the future.

Generally, the wastewater system is in a fair state of repair and is maintained and renewed regularly. The service can be expected to last indefinitely, without any significantly unexpected costs having to be incurred.

## 1.4 How will we get there?

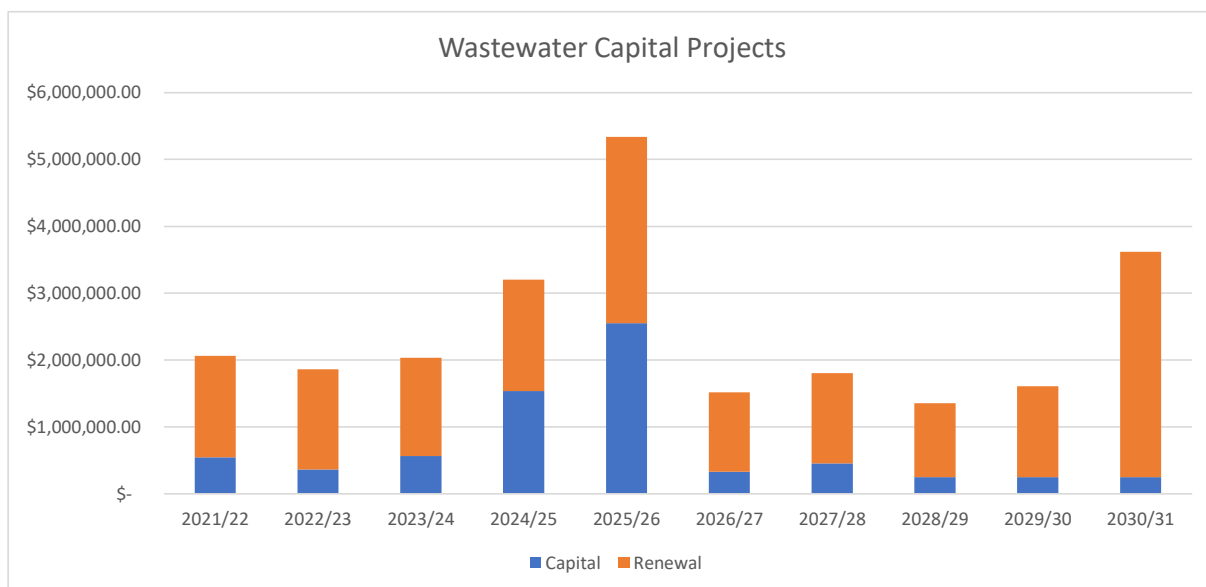
Council plans to maintain current levels of service for the life of this plan, unless legislation, consent conditions, or community expectations change. Over the next ten years Council plans to:

- Continue to collect, treat, and dispose of wastewater
- Comply with Regional Rules and environmental standards
- Plan for future development and needs
- Consult with the community on issues such as health and legislative compliance issues

This vision is supported by a detailed wastewater asset management plan. Significant projects and their funding sources are summarised in the following table and chart:

Project & Description	Year	Amount
<b>New Capital Works</b> – funded from loan, and development contributions and reserves to create new assets or improve service levels		
<b>Overflow mitigation</b>		
Oamaru	2023-26	\$5,537,000
Omarama	2021-23	\$252,960
Palmerston	2027/28	\$402,220
<b>Dunroon Wastewater</b>		
Issues, Options, Resource Consent	2027/28	\$50,740
Treatment upgrade	2025/26	\$2,014,800
<b>Capacity Upgrades</b>		
Kurow	2025-31	\$560,360
Oamaru Monitoring Equipment	2021/22	\$200,000
Hampden Issues and Options	2025/26	\$30,000
<b>Total</b>		<b>\$9,048,080</b>

Project & Description	Year	Amount
<b>Renewals – funded from depreciation reserves to renew assets and maintain current service levels</b>		
Mains Renewals	2021-31	\$11,457,720
Facilities Renewals	2021-31	\$1,220,720
Inspection & Cleaning Programme	2021-31	\$1,000,000
Kurow Resource Consent Renewal	2025/26	\$50,740
Oxidation Ponds Desludging Programme	2030/31	\$2,011,100
<b>Total</b>		<b>\$15,740,280</b>
<b>Asset Management – Funded from Rates Reserves</b>		
Risk Management Plans	2025 31	\$285,740
<b>Total</b>		<b>\$285,740</b>
<b>Operational – Funded from Rates Reserves</b>		
Inflow/Infiltration Programme	2021-31	\$500,000
<b>Total</b>		<b>\$500,000</b>



### Key Projects –

**Overflow mitigation** - reducing the risks of overflows i.e. reducing the risks of potential contamination and public health. Providing increased resilience and capacity in consideration of options to prevent environmental contamination and associated health risks.

**Duntroon Wastewater** - the Duntroon communal septic tank used to operate under a permitted activity rule. Under the Canterbury Land and Water Regional Plan the system is no longer a permitted activity. Council applied for a short term consent to allow appropriate investigation and consideration of options to meet regional rules and environmental standards.

**Capacity Upgrades** - Upgrading the wastewater treatment plants to meet environmental standards and improve capacity.

Renewals - safeguarding the wastewater collection and treatment systems through optimum replacement of assets nearing the end of operational life.



## 1.5 How well are we doing and how well do we measure progress?

Council plans to take all practicable steps to comply with the New Zealand legislation and standards and report on the following performance measures.

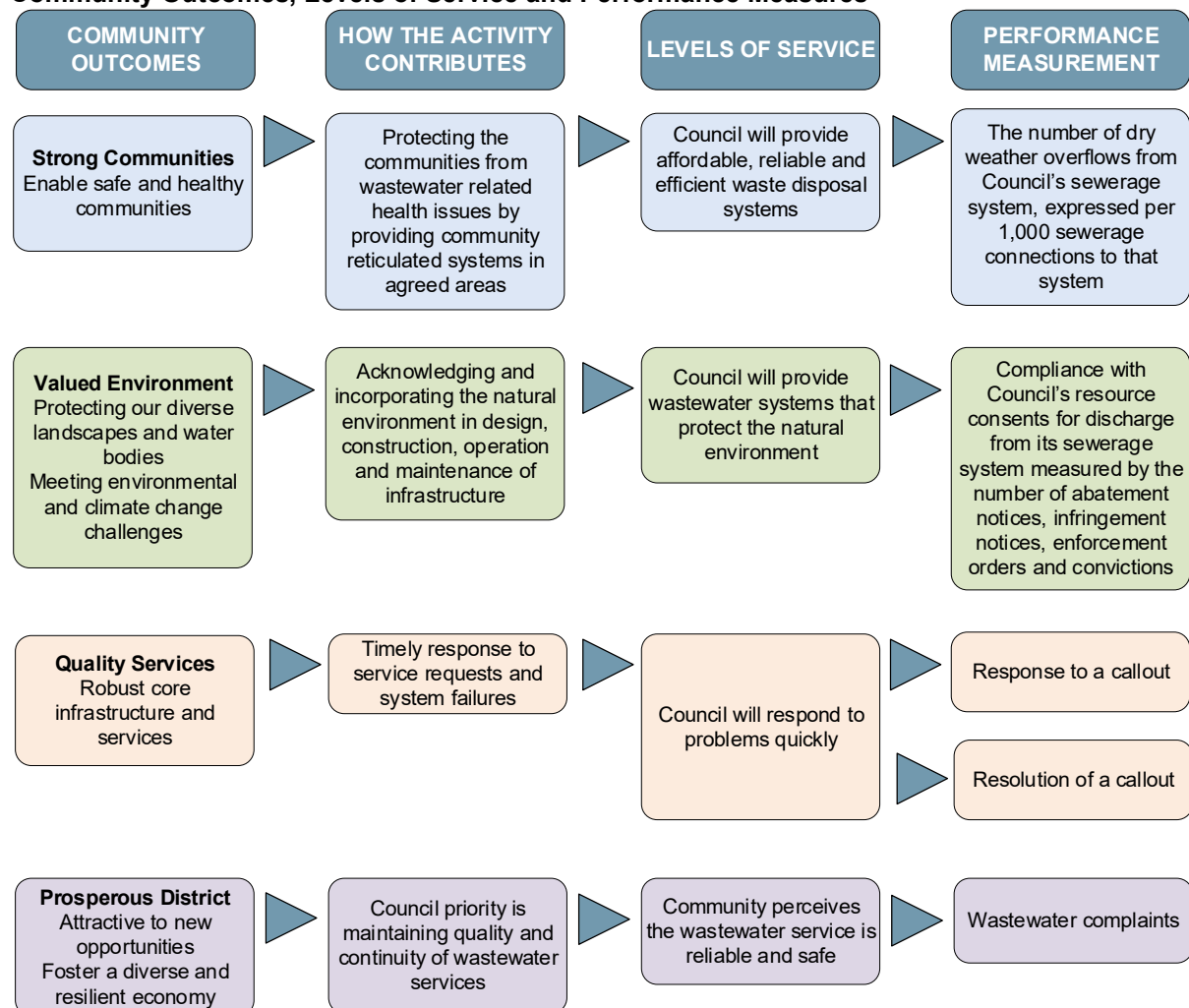
In accordance with 261B of the Local Government Act 2002, Non Financial Performance Measures were adopted on 12 November 2013. These Performance Measures require Local Authorities to report on the performance of the key activities of water supply, wastewater, stormwater, flood protection and roads annually from 2015/16.

Council have developed their own Levels of Service and associated Performance Measures in the past, but in light of the Non-Financial Performance Measures Rules 2013 Council will only use the Levels of Service statements aligned with these new performance measures. Council propose to only report on the mandatory measures as this covers the key expectations in terms of the delivery of the service.

Council is currently reviewing and updating its systems and processes to ensure alignment and compliance with these rules.

The linkage between community outcomes, how the activity contributes, levels of service and performance measurement is shown in the following diagram.

### Community Outcomes, Levels of Service and Performance Measures





Council must report on the following non financial performance measures in its Annual Report from 2015/16.

Council reviewed the customer service requests system to ensure they align with the Mandatory Performance Measures and ensured the Contractor reporting aligns with the Mandatory Performance Measures 'tasks'. As a result systems were altered and processes modified to ensure consistency and accuracy of reporting.

#### Performance Measure 1 – system and adequacy

The number of dry weather sewerage overflows from Council's sewerage system expressed per 1,000 sewerage connections to Council's system.

Measure	Current performance 19/20 (18/19)	Target	
		2021-22	2023-31
Number of dry weather overflows	1.3/1,000 (1/1,000)	<4/1,000 (<20 total)	<4/1,000 (<17 total)

#### Performance Measure 2 – discharge compliance

Compliance with Council's resource consents for discharge from its sewerage system measured by the number of:

- a) Abatement notices
- b) Infringement notices
- c) Enforcement orders, and
- d) convictions

received by Council in relation to those resource consents

Measure	Current performance 19/20 (18/19)	Target	
		2021-22	2023-31
Number of Abatement notices	Nil (Nil)	Nil	Nil
Number of Infringement notices	Nil (Nil)	Nil	Nil
Number of Enforcement orders	Nil (Nil)	Nil	Nil
Number of Convictions	Nil (Nil)	Nil	Nil

#### Performance Measure 3 – fault response times

Where Council attends to sewerage overflows resulting from a blockage or other fault in Council's sewerage system, the following median response times measured:

- a) Attendance time: from the time that Council receives notification to the time that service personnel reach the site, and
- b) Resolution time: from the time that Council receives notification to the time that service personnel confirm resolution of the blockage or other fault

Measure	Current performance 19/20 (18/19) (median)	Target (median) - hours	
		2021-22	2023-31
Attendance time	0.8 (0.4) hrs	1 hr	1 hr
Resolution time	8.5 (36.3) hrs	24 hrs	24 hrs

#### Performance Measure 4 – customer satisfaction

The total number of complaints received by Council about any of the following:

- a) Sewage odour
- b) Sewerage system faults
- c) Sewerage system blockages, and
- d) Council's response to issues with its sewerage system

expressed per 1,000 properties connected to Council's sewerage system

Measure	Current performance 19/20 (18/19)	Target	
		2021-22	2023-31
Total number of complaints about sewerage system	5.5/1,000 (7.2/1,000)	<12/1,000	<12/1,000

### Otago Performance Improvement Framework

The Otago Mayoral and Chief Executive Forums developed a performance improvement framework to:

- Provide communities with better context to assess the performance of their Council across the Region
- Enable better support and collaboration to drive improvement across Otago
- Help to drive standards for future local government reforms
- Provide consistent performance information that allows closer scrutiny of efficiency and effectiveness

This details benchmarking and methodology for data collection and included the following (seven) key performance indicators:

1. Infrastructure Asset Management –
  - a. percentage of budgeted capital works programme, including renewals, completed annually
2. Resident and ratepayer satisfaction –
  - a. percentage of ratepayers who are satisfied with overall Council performance
  - b. percentage of ratepayers who are satisfied with Council communication
  - c. percentage of ratepayers who are satisfied with quantity and quality of community facilities
3. Regulatory
  - a. Percentage of building/resource consents issued with statutory times
  - b. Average building/resource consent processing days
4. Affordability
  - a. Rates per ratepayer as percentage of household income
5. Corporate services
  - a. Cost of administrative and support services as a percentage of organisational running costs

## 1.6 What resources do we have and what resources do we need?

### People –

The Water Services Unit has fourteen full time equivalent staff. The Water Services Unit has traditionally been under-resourced. The 3Waters reform and ever increasing environmental compliance standards will place increased demand on the unit. Internal changes and efforts to attract suitably qualified candidates have been successful.

It is likely that a shortage of technically skilled people to design, construct and manage water assets will continue to have an impact on this activity in future years. This is a global issue which is also affecting other local authorities.

### Physical Assets -

Council manages eight wastewater systems throughout the District made up of collection, treatment and disposal systems. The collection systems consist of pipes, manholes and pump stations.

- Length of sewer mains 198km
- Number of pump stations 29
- Number of manholes 2,091

The latest valuation, June 2018, estimates the replacement value of the Treatment Plants, Pump Stations and Reticulation to be \$89.3 million.

### **1.7 Who pays for it?**

This activity is funded by targeted rates from properties that have access to wastewater systems and user charges for high volume users. Further information is contained within Council's Revenue and Financing Policy.

## 2.0 INTRODUCTION

This section sets out the purpose of this Asset Management Plan (AMP) and shows the plan framework.

Providing an excellent introduction section demonstrates:

- the purpose of the AMP and Asset Management,
- the reason for Council's involvement,
- the focus of the Activity and AMP,
- the linkages

**WHY** – to ensure we know why we are doing it and what our focus should be

### 2.1 Purpose of the Asset Management Plan

The purpose of this AMP is to outline and summarise in a coordinated manner the Council's long-term asset management approach for the provision and intergenerational management of wastewater services throughout the District. This may also be considered the overall objective of Asset Management.

This AMP is intended to be read in conjunction with the Long Term Plan (LTP) and fulfils requirements of the Local Government Act 2002 (and amendments), - Schedule 10.

### 2.2 Rationale for Council involvement

Territorial authorities have numerous responsibilities relating to the provision of wastewater services. One such responsibility is the duty under the Health Act 1956 to improve, promote, and protect public health within their districts. This implies that, in the case of the provision of wastewater services, councils have the obligation to identify where such a service is required, and to either provide it directly, or to maintain an overview of the supply if it is provided by others.

Council's wastewater assets contribute to conserving public health and therefore enhance the quality of life of residents in urban areas of the District.

In terms of the Local Government Act 2002 the ongoing operation of wastewater services is required unless specific approval is sought to withdraw from the activity in whole or part.

### 2.3 AMP Focus and Format

The focus for the 3 Waters activity is to **Protect Public Health and the Environment**. For wastewater this includes an increased focus on current and future capacity, risk management and overflow mitigation.

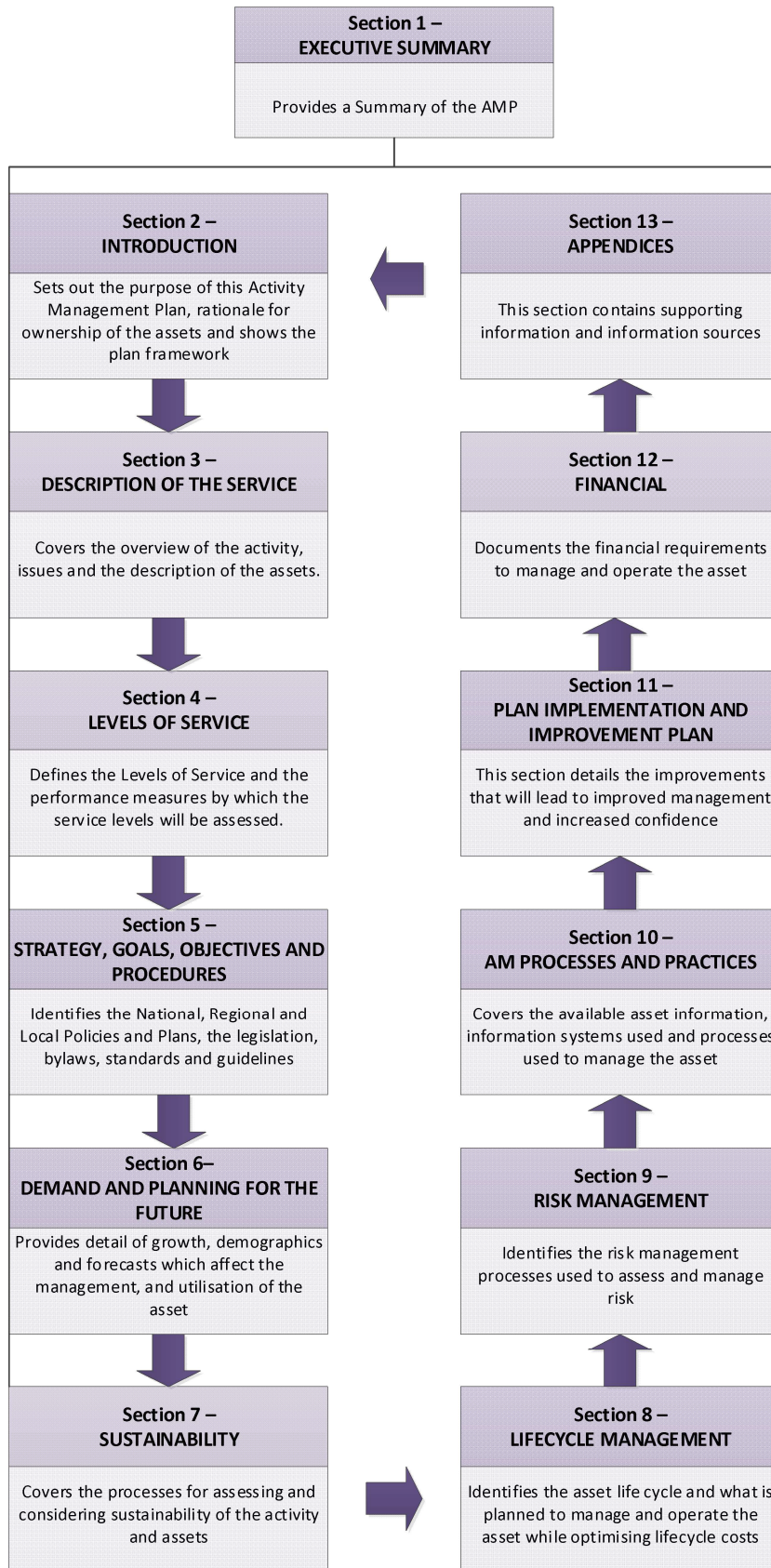
#### 2.3.1 Key AMP Changes

The key AMP changes and additions include:

- Why' statements at the start of each section
- Activity Response to each AMP section
- Duntroon communal septic tank system
- Development of a Wastewater Network Manual
  - Transferring Scheme specific data form the AMP to the Wastewater Network Manual. Refer to Section 2.5.1.

The AMP structure is graphically represented below:

**Figure 2-1: AMP Structure**



## 2.4 Activity Goal and Principle Objectives

The wastewater services activity goal over the next 30 years is stated in the Long Term Plan as being:

- To ensure the health of the community where urban housing exists, thereby eliminating the need for individuals to provide their own
- wastewater system (which carries much higher health risks)
- To provide a cost effective trade waste disposal system for commercial and some industrial users, thereby eliminating the need for
- individuals to provide their own wastewater system
- To provide acceptable collection, treatment and disposal systems for the use of communities.

In providing the wastewater service, the Customer key aspects are:

- Wastewater is removed reliably from my property
- The natural environment is not polluted
- Problems are resolved promptly
- Council manages the wastewater service wisely.

## 2.5 Linkage with other documents

The Waitaki District Council vision for the future is:

- **Growing Waitaki, the Best Place to Be / Waitaki – Whenua taurikura**

The following key objectives (community outcomes) will contribute to achieving this vision:

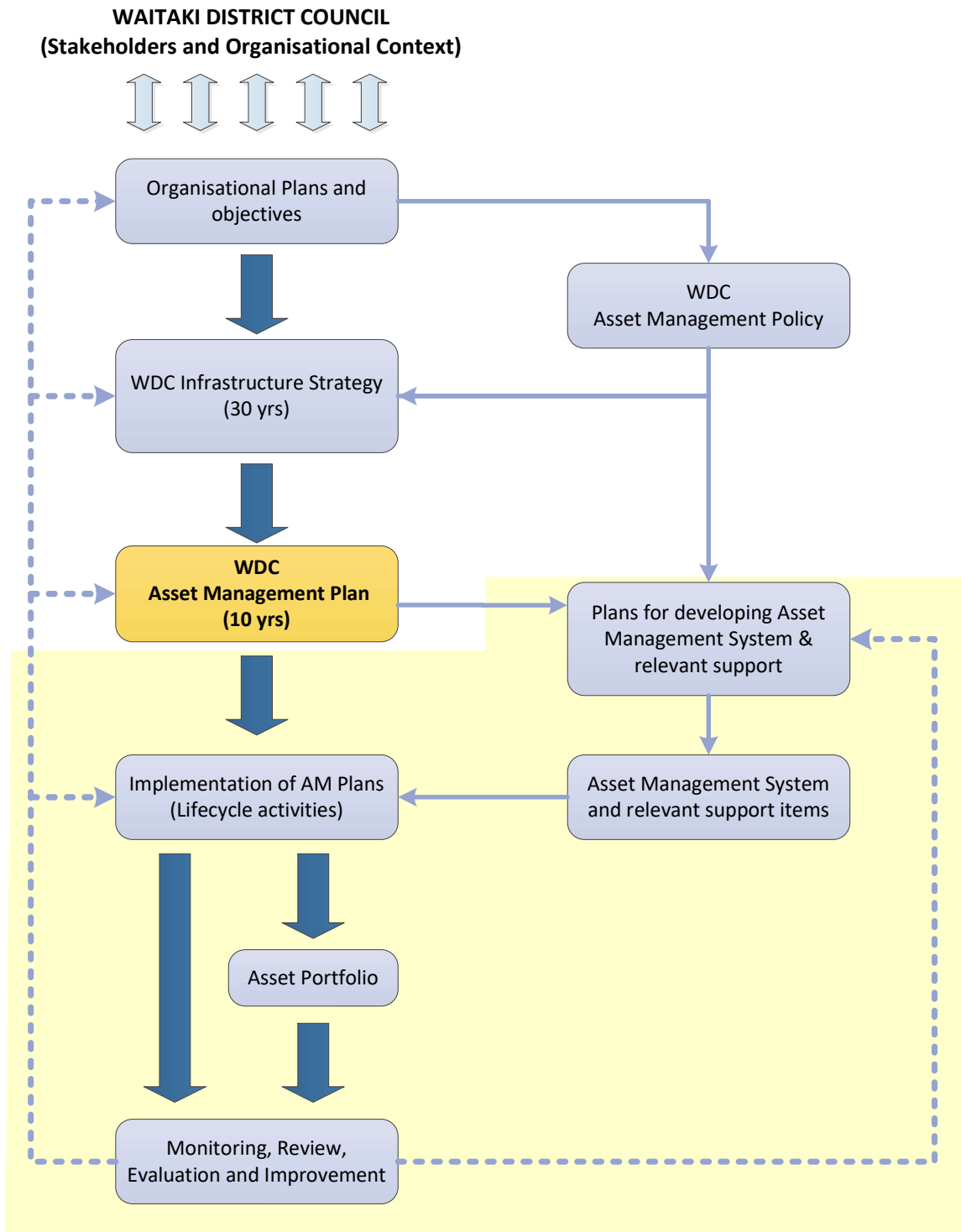
- Enabling opportunities for new and existing businesses to grow
- Providing and enabling services and facilities, so that people want to stay here and people want to move here
- Keeping our District affordable
- To actively maintain our safer community
- To identify the diverse needs of our community

To deliver this vision of “**Growing Waitaki, the Best Place to Be**” there must be a clear ‘line of sight’ of connectivity between the high-level organisation policy, strategic plan and objectives, and the daily activities of managing our assets.

This document forms part of that ‘line of sight’ by setting out the asset management plan in support of our asset management strategy and asset management policy. It informs the more detailed figures contained in the lifecycle, demand and asset management processes.

The diagram below shows this connectivity.

**Figure 2-2: Linkage with other documents**

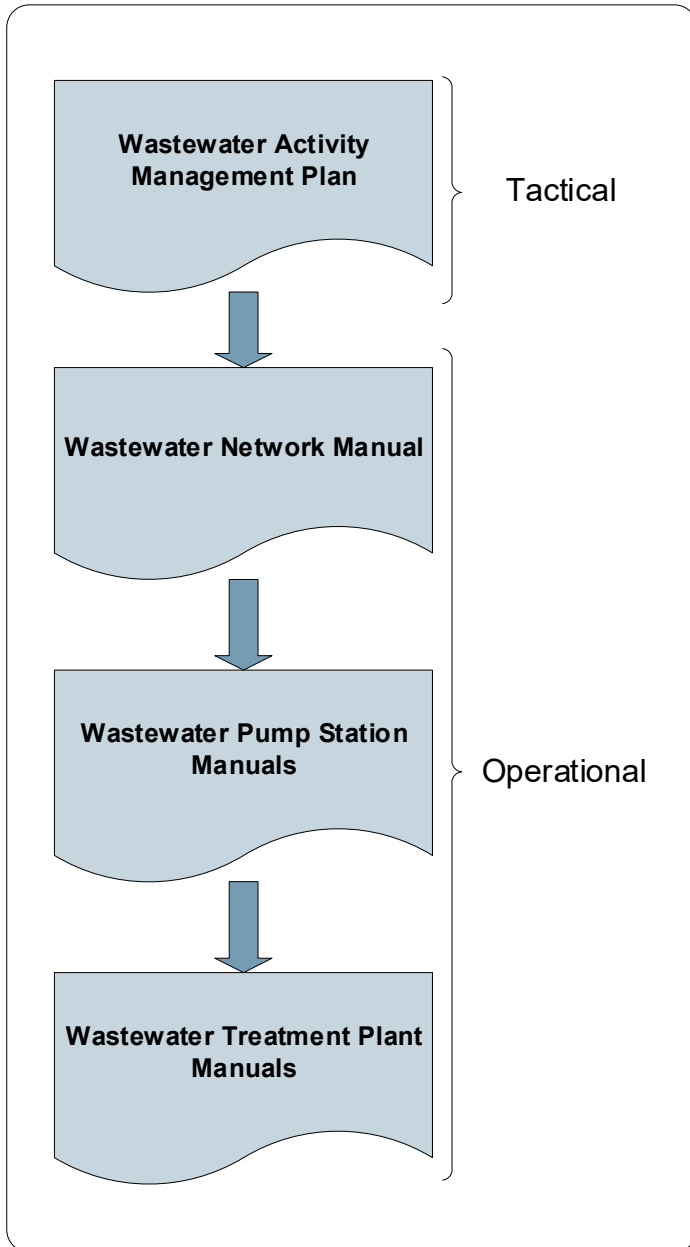


Adapted from ISO55000:2014, Figure B1



### 2.5.1 AMP & Manuals linkage

A significant change from the previous Wastewater AMP 2018-28 is the transfer of the Scheme specific information to the Wastewater Network Manual, currently under development. The previous iterations of AMPs accumulated a significant amount of operational information. This diluted the tactical and strategic nature of the AMP. The Wastewater Network Manual is now a depository for operational information and contains the Scheme specific information. The AMP provides a more tactical and strategic focus. The figure below shows this linkage between the Wastewater AMP and the Wastewater Network Manual.





### 3.0 DESCRIPTION OF THE SERVICE

This section of the Plan covers the overview of the activity and the description of assets covered under it. This section also highlights the critical assets.

Providing an excellent 'description of service and assets' section demonstrates:

- knowledge of the asset set,
- knowledge of the parameters for material, size, age install date, location, data reliability, etc.
- the population served, # of connections and facilities
- the greatest value to assist in indicating where the focus should be
- sufficient information for evidence-based decision making

**WHY** – to ensure we make informed decisions based on real data

### 3.1 Overview of the Activity

The Waitaki District Council (hereafter council) is a local authority situated in the South Island of New Zealand. Council was formed in 1989, as a result of amalgamation driven by central government.

Council is in many ways a typical example of the majority of its namesakes as a provider of “core” activities. Core activities are considered to be delivery of water (urban and rural), wastewater (sewerage), and stormwater services.

How and where water for human, agricultural, cultural and recreational uses is sustainably managed is of considerable importance. Council has consistently regarded the provision of the three Water services as vital to maintaining the community's health and well-being.

The wastewater assets are fundamental to Council's statutory responsibilities and strategies for conserving public health in pursuit of its mission to enhance the quality of life of residents in the District.

Council owns eight separate wastewater systems consisting of Oamaru and seven urban areas. The management and operation of the wastewater service is via Council organisation. The individual details of the supplies are explained separately in Appendix A1 to Appendix A8. Additionally Council owns five camp grounds, which is detailed in a separate Parks Activity Management Plan.

Over the past five years the three Waters activity underwent significant changes as Council took all practicable steps to comply with the Drinking Water Standards New Zealand 2008 in accordance with the requirements of the Health Act 1956 and amendments. This and compliance with the requirements of Resource Consent conditions is still the focus for the three Waters activity with emphasis on capacity assessments to eliminate network overflows and future proof system capacity and capabilities. In time the emphasis will move towards a robust renewal plan, '[Consolidating the Asset Set](#)'.

### 3.2 Description of Assets

Overall there are 198 kilometres of reticulation, 2,091 manholes, 29 pump stations and 8 treatment plants. The reticulation varies from 100mm to 600mm in diameter.

Total operating costs are estimated to be \$3.79m gradually increasing from 2021/22 over the ten years to \$5.32m in 2030/31. Replacement value of treatment plants, pump stations and reticulation is approximately \$89.3m as at June 2018.

The Wastewater Systems are tabled in Table 3-1: Public Wastewater Systems Summary below:

**Table 3-1: Public Wastewater Systems Summary**

Supply	Population	Length of Reticulation (m)	Manholes	Pump Stations	Treatment Facility	Replacement Value
Oamaru	12,228	141,837	1,543	17	Aeration lagoon Multiple oxidation ponds Land disposal	\$66,674,461
Duntroon	90	343	7	-	Septic tank Subsurface disposal	\$138,366
Kurow	312	8,083	42	-	Oxidation pond Wetlands	\$3,013,297
Lake Ohau	20	2,865	35	-	Oxidation pond	\$1,206,989
Moeraki	117	11,591	47	8	Oxidation pond Wetlands Land disposal	\$3,107,117
Omarama	267	7,308	90	2	Oxidation pond Wetlands Subsurface disposal	\$3,289,987
Otematata	186	10,352	164	-	Primary & Secondary Treatment Subsurface disposal	\$5,233,275
Palmerston	795	15,987	163	2	Oxidation pond Land disposal	\$6,602,096
<b>Wastewater Total</b>	<b>14,015</b>	<b>195,441</b>	<b>2,069</b>	<b>29</b>		<b>\$89,265,590</b>

Source – Population – 2013 Census; Assets – IPS & 2018 Asset Valuation

Significant changes over the past 10 years include:

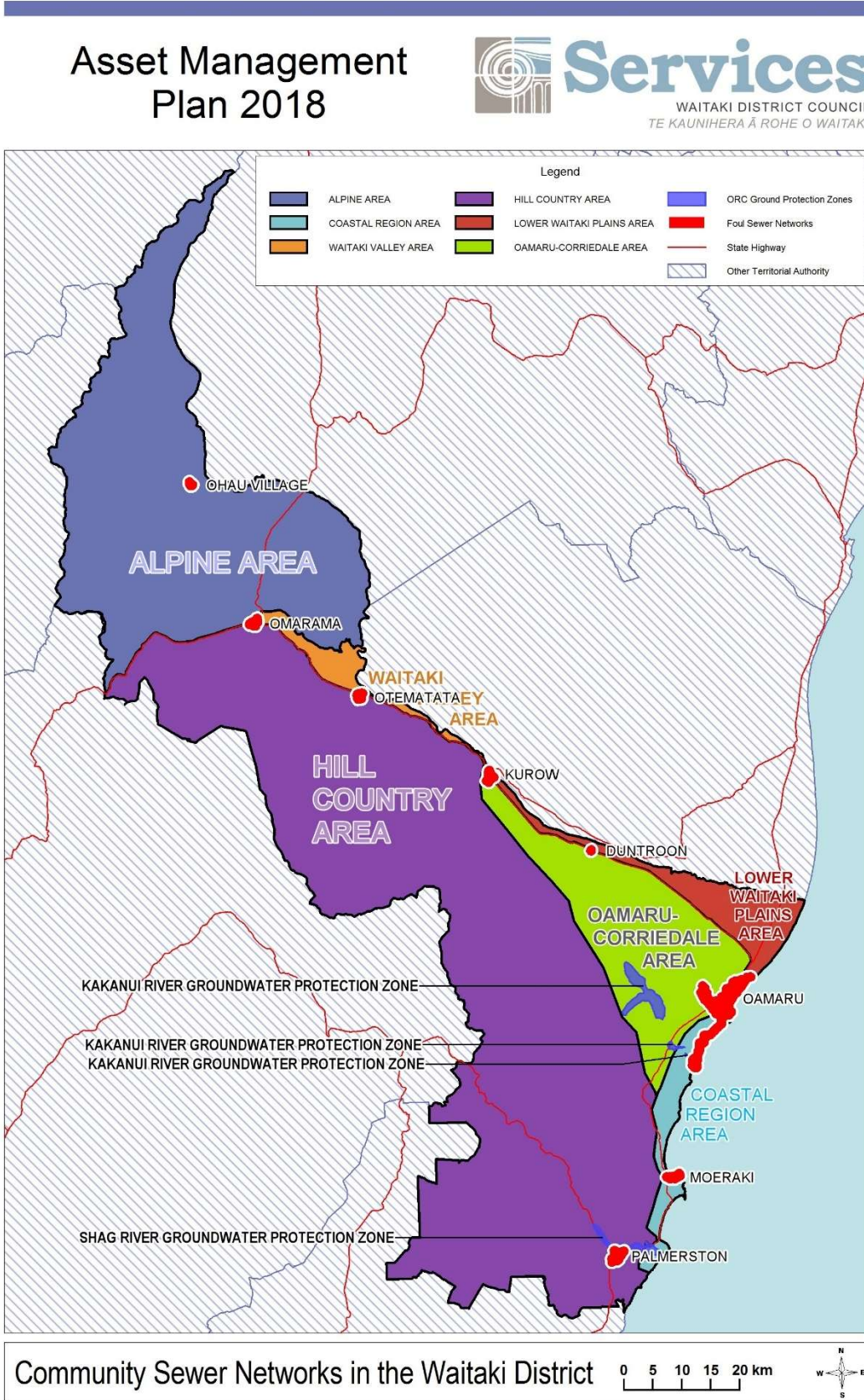
- Kakanui connected to Oamaru (2015)
- Otematata subsurface disposal (2011)
- Omarama subsurface disposal (2019)
- Moeraki land disposal (2019)
- Duntroon system requiring a resource consent (2019).

The new assets at the Omarama and Moeraki wastewater treatment plants were installed after the June 2018 Valuation and therefore not reflected in the replacement values in this AMP.

In addition to those areas that are served by public schemes, private wastewater systems serve some areas. It is estimated that 80% of the Districts population have access to a reticulated wastewater system with the remainder being served by individual septic tanks and associated disposal systems. In accordance with Section 6, Schedule 10 of the LGA, Council is currently reviewing the Water and Sanitary Services Assessment aligned with the three yearly Long Term Plan frequency.

In accordance with Section 6, Schedule 10 of the LGA, Council is currently reviewing the Water and Sanitary Services Assessment aligned with the three yearly Community Plan frequency. A full review of the Water and Sanitary Services Assessment is programmed for 2022 – 24 ([IP 3W12](#)).

Figure 3-1: Community Wastewater Systems



update



Within the 3 Waters services supplied by Council there have been significant changes and improvements to the infrastructure and consequently a reduction in risks for the community.

Within the communities that are not served by Council infrastructure there have been no significant known changes since the 2005 assessment. The private wastewater systems and campgrounds wastewater systems within the Waitaki District are tabled below.

**Table 3-2: Private Wastewater Systems**

Community/Area Name	Community Type	Population		Wastewater Treatment	Management
		Normal	Peak		
Alliance Freezing Works - Pukeuri	Commercial		800	Primary and secondary plant	Private
Danseys Pass Holiday Park	Campground/Park		150	Septic Tank	Private
Falstone Campground	Campground			Septic Tank	Council
Five Forks School	School	50		Raised Bed Effluent Disposal System	Private
Gemmells Crossing Camp	Community	0	70	Septic Tank	Private
Hampden	Township			Septic Tank	Private
Herbert	Township			Septic Tank	Private
Lake Benmore Holiday Park	Campground/Park		100	Septic Tank	Private
Lock Laird Campground	Campground		100	Septic Tank	Council
Macraes Mine (Oceana Gold)	Commercial	100	100	Septic Tank	Private
Maheno	Township	150		Septic Tank	Private
Ohau Lodge	Commercial	80	160	Ponds	Private
Ohau Ski field	Commercial			Septic Tank	Private
Parson Rock Camp Ground	Campground		150	Septic Tank	Council
Reidston	Township	75		Septic Tank	Private
Sailors Cutting Campground	Campground			Septic Tank	Council
Waitaki Bridge Park	Community	10	60	Septic Tank	Private
Waitaki Mouth Kaik Reserve	Community	35	100	Septic Tank	Private
Waitaki Mouth Motor Camp	Campground/Park		200	Septic Tank	Private
Wildlife Reserve Campground	Campground		250	Septic Tank	Council

The Hampden township's wastewater is treated and disposed of through on site systems, predominantly septic tanks and soak holes. Issues with the performance of some systems have been identified in the past and the establishment of a reticulated system was investigated. Regulatory changes and increased environmental standards may require revisiting the options for future management of Hampden wastewater. Options may include a long term contract for continued cleaning and inspection of septic tanks or a Council-owned reticulation, treatment and disposal system (LTP [WW 16](#)). In the short term on-going cyclic cleaning and inspection of septic tanks in Hampden is included as an improvement item ([IP WW6](#)) until a long-term solution is confirmed.

### 3.3 Key Issues

There are a number of key issues facing Council over the next ten years and beyond:

- Environmental compliance – Council operate the wastewater systems under resource consents granted by two Regional Councils (Otago and Canterbury). These consents apply to wastewater collection and discharge. These consents require significant sampling, monitoring, operation and maintenance methodologies and regular reporting.
  - The Duntroon communal septic tank is no longer a permitted activity. Council applied for a short term consent for the existing system to allow appropriate investigation, consideration of options in meeting regional rules and environmental standards and consultation
  - Increased community involvement through Te Mana o te Wai processes may impact the timely delivery of projects
- Separated wastewater and stormwater systems
  - Inflow – through illegal connections such as roof downpipes, yard drains, or indirect connections with stormwater pipes
  - Infiltration –through joints, cracks and misaligned pipelines
  - Exfiltration - escape of wastewater from the wastewater collection system into the surrounding soil via cracks or malfunctioning pipe joints
- Central Government's 3Waters Review is considering
  - New national standards for the treatment of wastewater and management of wastewater overflows
  - New obligations on wastewater and stormwater network operators to implement a risk management plan
  - Nationally consistent monitoring and reporting requirements for wastewater and stormwater networks
  - Stronger Central Government oversight
  - Network operators to
    - adopt industry good practices and minimising risks to public health and the environment, while meeting local community/iwi values
    - implement a certified risk management plan that specifies how they will: –
      - Operate and maintain networks to meet current and future regulatory requirements; e.g. freshwater objectives and limits
      - Proactively manage risks to public health and environment
      - Address community and Māori cultural expectations for wastewater disposal
    - report on nationally prescribed environmental performance measures, and compliance with national standards
- Sludge management
- Investigating climate change and sea level rise impacts on existing wastewater systems
- Increased focus on ageing and failing infrastructure
- Maintaining appropriate data and monitoring systems
- Ensure adequate in-house staff resource capacity and capability
- Progressively increase resilience of the wastewater service
- Investigating and implementing improved efficiencies
- Ongoing affordability of the wastewater system
- Capital works totalling \$9.5m over the LTP period for the 3 Waters
- Renewal works totalling \$15.7m over the LTP period for the 3 Waters

### 3.4 Wastewater Reticulation

The Council owns and maintains the wastewater network from the collector sewer mains to the treatment facility and disposal system. The laterals from the private individual properties to the Council collector

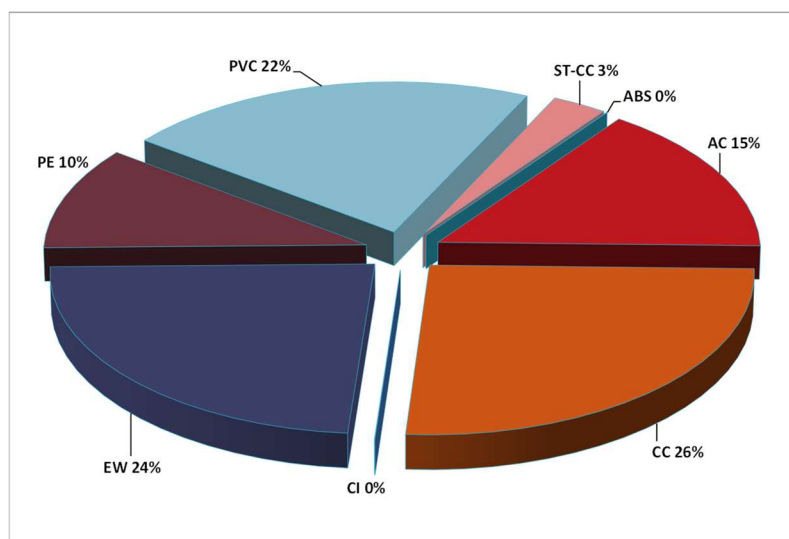
mains are the responsibility of the property owner. Private property owners are advised of their responsibility through the Land Information Memorandum (LIM) process. Council's standard advisory note states "All private drains which service a property are the responsibility of the owner of that property being serviced. Ownership of the private drain will be from the 'Y' junction on the sewer, or any other relevant point of connection to the public scheme, to the dwelling or place of use". Council plans to investigate the implications of taking ownership of these sewer laterals to improve control over works in the road corridor and develop an associated Sewer Lateral Ownership Policy (IP WW4). It is assumed that the lateral condition, location, installation quality and workman standards are aligned with Council standards. Change in ownership will result in an annual operational expense.

Once sewage leaves the private lateral it enters the public wastewater system. Flows are generally via gravity and pipes are normally only part full and have some air present.

The sewer reticulation consists of reticulation sewers, collector sewers and trunk mains, with manholes located throughout the reticulated system.

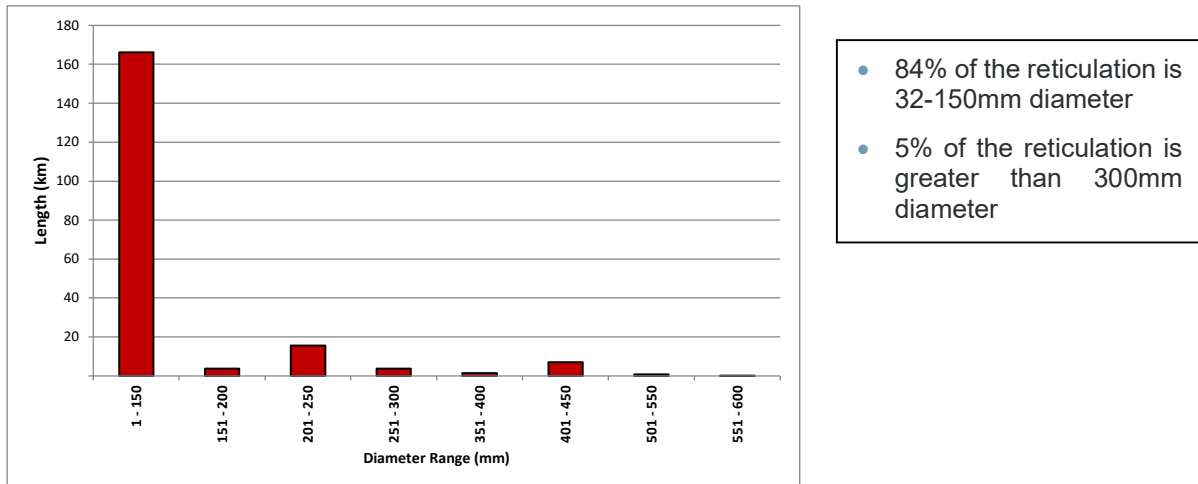
- Reticulation sewers are a network of pipes including property connections that receives wastewater from customer properties. Reticulation sewers are generally Ø100-150mm
- Collector sewers are the network of pipes that connect the reticulation pipes within a reticulation area or a group of reticulation areas.
- Trunk sewers connect to the collector sewers and transport the wastewater to the wastewater treatment plant. Trunk sewers are generally the largest pipes in the network. Property connections are not connected to collector sewers.

**Figure 3-2: District wide wastewater main material distribution**



- 72% of the reticulation consists of three materials – CC 26%; EW 24%; PVC 22%
- The remaining 28% is made up of five materials – AC; PE; St; Abs; CI

**Figure 3-3: District wide wastewater main material distribution**



### 3.4.1 Manholes

A sewer manhole is a sewer access point with a removable cover which allows human and machine access to a (typically buried) sewer.

The manhole provides several functions, such as to:

- conduct inspections
- connect two sewers when there is a change of grade or alignment or size
- provide a junction where two or more sewers meet

Manholes are usually constructed from reinforced concrete, either precast or formed in-situ. There are 2,069 manholes in the Council wastewater systems.

### 3.5 Pump Stations

A wastewater pump station is designed to pump wastewater from one location via a rising main to a remote location at a higher level.

Wastewater pump stations are an integral and vital component of the wastewater network. The integrity of the wastewater system is very dependent on the proper functioning of the wastewater pump stations where these exist. Failure of a pump station can potentially lead to wastewater overflows to land, natural waterways and the ocean.

There are a number of different types of wastewater pump stations, including wet well/dry well pump stations. The exact combination of components will vary from one pump station to another, but they are typically made up of the following basic components:

- Sump
- Intake pipe work
- Pumps
- Pump building/structure
- Discharge manifold & pipework

The rising main is not seen as part of the pump station, but it has a significant effect on the performance of the pump and therefore designed in conjunction with the pump station.

There are 29 pump stations within the Council wastewater systems with the majority (17) in Oamaru.

### **3.6 Wastewater Treatment Plants**

A Wastewater Treatment Plant is a facility for treating wastewater (sewage). The wastewater treatment plants form an integral part and very important function in the wastewater system. Failure to treat the wastewater adequately will result in environmental contamination and associated public health risks.

The Oamaru Wastewater Treatment Plant (Oamaru WWTP) consists of a screen structure, dewatering equipment, an aeration lagoon (out of operation), two facultative oxidation ponds, three maturation ponds, pump station, 21 ha overland flow area, wetlands, control building and outfall structure.

The rural wastewater treatment plants primarily treat domestic wastewater as there are no large industries contributing high contaminant loads to the wastewater system. The rural systems range from basic oxidation ponds to primary and secondary treatment.

Council has continued to maintain its wastewater treatment plants to a high standard and in good conditions with ongoing maintenance. There is a detailed discussion of the treatment system under each system in the Wastewater Network Manual.

#### **3.6.1 Discharge/Disposal**

An important aspect of the wastewater treatment plant is to ensure that the district's natural water sources are managed responsibly. Resource consents are held for the various activities relating to the wastewater activity such as treatment (including odour) and the disposal of treated wastewater at the wastewater treatment plants.

Discharge/disposal is generally to land or to water. Disposal is progressively upgraded from discharge to water to discharge to land in compliance with increased environmental standards. The resource consent conditions sets out the sampling locations and frequency and water quality parameters required.

The Duntroon communal septic tank used to operate under a permitted activity rule. Under the Canterbury Land and Water Regional Plan the system is no longer a permitted activity. Council applied for a short term consent to allow appropriate investigation and consideration of options to meet regional rules and environmental standards (LTP [WW15 & WW26](#)). Council will consult with the community on options and implications.

### **3.7 Buildings**

Buildings are often an intrinsic part of the public perception of its Council. Maintenance of public buildings to a good standard throughout their lifecycle is essential to demonstrating a responsible and acceptable level of service.

Treatment facilities and larger pump stations are contained within above ground buildings. These range from typical killing sheds to Skyline (garage) type buildings. The buildings usually house pumps, control gear, telemetry and treatment equipment.

The buildings are recorded in the Hansen IMS with the building's age and replacement value. Buildings are treated as a component of the facility i.e. similar to a pump at a pump station.

Housekeeping of buildings forms part of the O&M Contract and O&M Manuals where these are available.

### **3.8 Criticality**

Critical assets are considered those assets in which failure would result in a major disruption to the conveyance of wastewater or levels of service. Previously the identification of critical assets was based on pipe diameter or population served.

The challenge for local authorities is to assess the level of detail and complexity required to achieve practical implementation of Asset Management appropriate for the size of the local authority. Best



practice generally raises the bar for a large portion of authorities beyond resourcing, funding and justified cost benefit.

During 2011/12 Council engineers completed a criticality assessment of Water and Wastewater facilities and reticulation assets. This project identified High and Medium criticality assets for further analysis and the criticality was recorded against the asset within the Hansen IMS. However, this has not been updated and needs to be progressed to ensure the criticality assessment is maintained and considered in prioritising inspections, investigations, maintenance and renewal strategies (IP **3W3**).

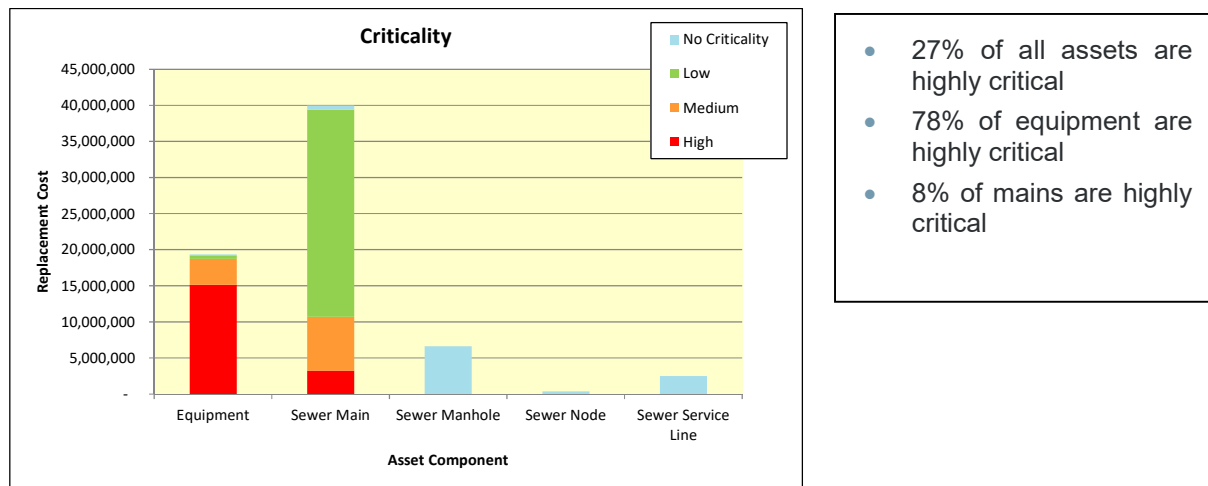
Criticality is best defined as assets which have a high consequence of failure (not necessarily a high probability of failure). The Criticality project assessed the three waters assets enabling compilation of High and Medium criticality assets for further analysis.

Criteria for the three water assets consideration:

- Location of asset, e.g. under railway
- Asset type, e.g. pump station
- Network configuration, e.g. single feed to town
- Customer type, e.g. CBD.

To assess the severity of consequence of failure it measures the failure against the four well beings. Consideration allows for equal importance and equal significance of each of the four well beings. The weighting also aligned with Council objectives, e.g. public health and safety having a greater weighting than public image. This also reflects what is important to Council engineers.

This process provided a robust way of identifying those assets which are most important to Council Engineers in providing the three waters service to agreed Levels of Service in consideration of the four well-beings. This was applied to all facilities, and urban wastewater reticulation mains. The figure below shows the asset components and their replacement value in relation to its criticality.



The above figure (from the 2012 assessment) clearly shows that based on replacement value the highest proportion of critical assets is within the wastewater facilities where wastewater is treated and disposed of. Of all the highly critical assets 82% are equipment and 18% wastewater mains.

Council's approach in the wastewater activity is based on the following methodology:

Criticality Category	Condition Assessments	Renewal
<p><b>Critical Assets</b></p> <p>trunk mains, rising mains and large diameter mains supplying significant areas or key industries or businesses/customers</p>	<p>Condition assessments performed during connections and pipe repairs. Detailed analysis obtained as deemed necessary. Refer to Section</p>	<p>Renewal timing based on conservative base live and actual condition assessments of asset and</p>

Criticality Category	Condition Assessments	Renewal
	<b>Error! Reference source not found.</b>	estimated future deterioration.
<b>Non-Critical Assets</b> – distribution network of smaller diameter mains and property laterals	Sample inspections of material types and age bands during connections and pipe repairs. Greater proportion for assets nearing end of base life. Inspections of assets associated with major roading asset renewals to confirm condition.	Generally “run to failure” with renewals on a reactive basis.

#### Activity Response to Description of Service

- We will continue to collect data to improve our knowledge of our assets and communities to ensure our information is current and we make informed decisions based on real data
- We will continue to collect more detailed information on our critical assets, maintain our criticality assessment and consider criticality in prioritising inspections, investigations, maintenance and renewal strategies



## 4.0 LEVELS OF SERVICE

This Section defines the Levels of Service and Performance Measures by which the service levels will be assessed.

Providing an excellent 'Levels of Service' section demonstrates:

- Levels of Service statements that are meaningful, easily understood, covering:
  - Quality
  - Reliability
  - Customer service
  - Affordability
  - Measurable
  - Achievable
  - Relevant
  - Timebound
- Relationship between current LoS and previous and reasons for change
- A clear split between Customer and Technical LoS
- LoS options provide to the community
- Communication between Council and the community

**WHY** – to ensure we provide the service agreed to by the community

## 4.1 Community Outcomes

### Long Term Plan 2021-31.

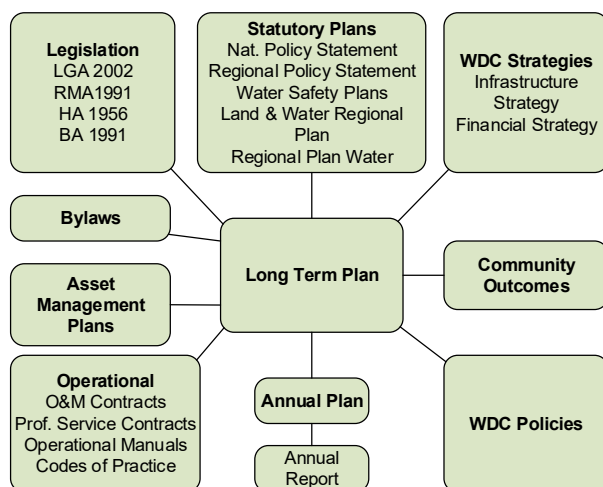
During 2020 Council adopted a new vision and Community Outcomes for Waitaki:

- **Waitaki, the Best Place to Be / Waitaki – Whenua taurikura**



The strategic environment of the Community Outcomes is graphically shown in **Figure 4-1**.

**Figure 4-1: Strategic environment**



## 4.2 Consultation & Expectations

Waitaki District Council has determined customer expectations through formal and informal consultation with the community over many years.

The Waitaki District Council recognises that community participation in the Council's decision-making is desirable. It can enhance the quality of decision-making and strengthen the notion of democracy in the district. The Council is committed to the principle of consultation with or without the specific legislative requirements.

During November 2014 Council adopted the WDC Significance and Engagement Policy, which provides a procedure to determine significance and establishes a community engagement guide.

The 3 Waters activity also takes guidance from documents such as "Creating Customer Value from Community Assets" produced by the National Asset Management Steering Group.

A review of existing service level statements and engagement with the community to determine new and amended service levels in programmed for 2021-23 (IP 3W14).

### 4.2.1 Consultation Process

Council has engaged with the community to develop the 2018-28 Long Term Plan in a variety of ways. This has included:

- A one month consultation period through our Consultation Document identifying Council's proposals about how the Waitaki District progresses over the period 2018-28;
- A targeted social media campaign;
- Drop in sessions at supermarkets across the district and at the Oamaru Farmer's Market.

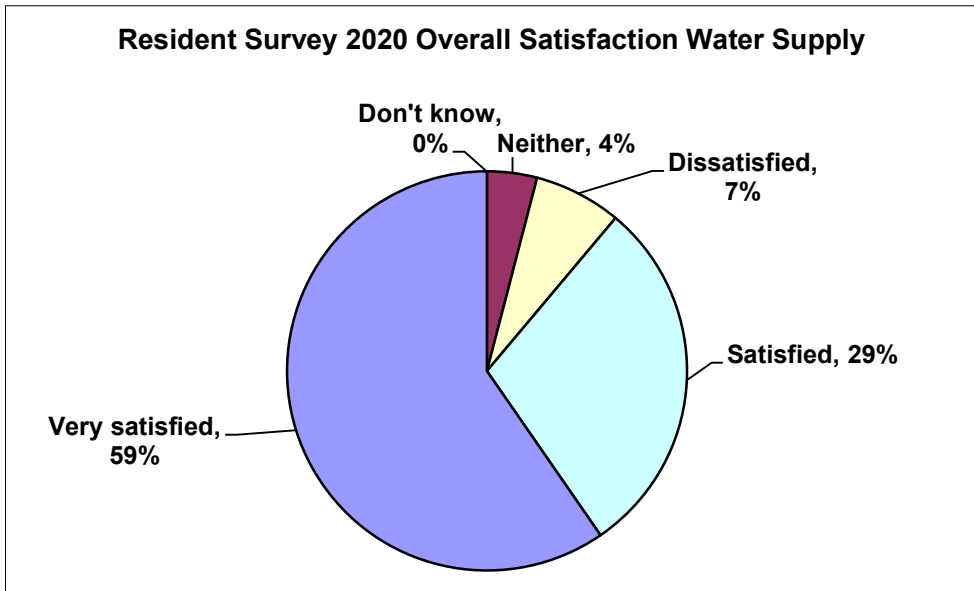
Council received 158 submissions on the 2018-28 Long Term Plan, and a number of facebook comments. The 10 most commented on topics were: Roads, Recreation, Growing the economy, Tourism and places, Heritage, Tourism, Indoor Recreation Centre, Natural environment and regulatory, Cultural, and Community. After receiving the feedback and Council deliberating on that feedback during May 2018 the 2018-28 LTP was adopted.

Council consults with community during every three yearly LTP process.

### 4.2.2 Resident Survey

The 2020 Residents' Survey provides a useful commentary on issues that concern residents. However, it should be noted that comments raised are restricted to the water supply services as residents were not surveyed on wastewater and stormwater services. **The results of the survey in relation to water services are included for completeness.**

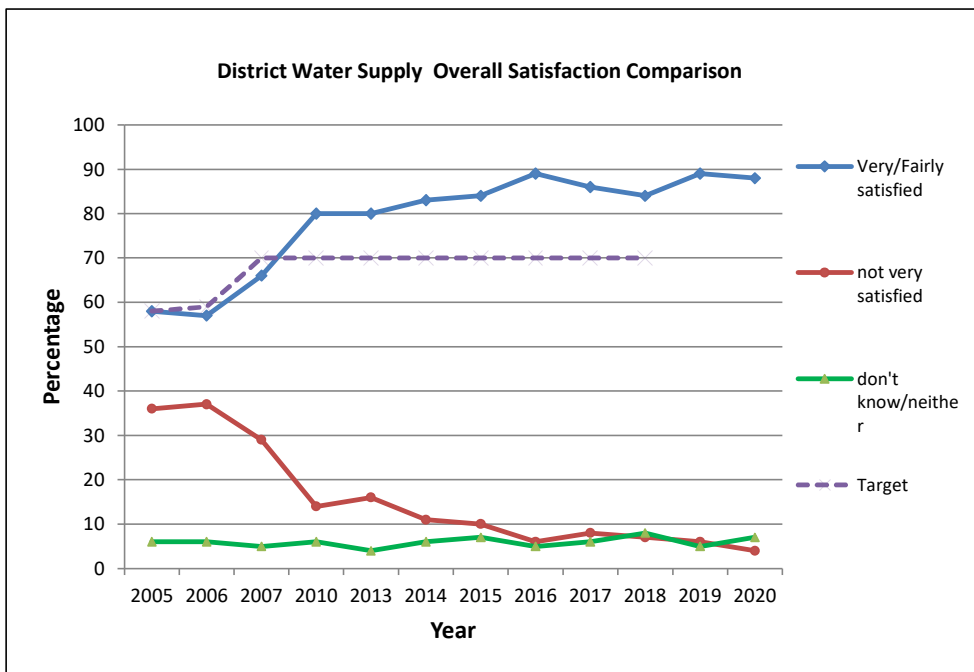
**Figure 4-2: Resident Survey 2020**



Two thirds (66%) of residents are connected to the Oamaru Water Supply and 8% are connected to the Waihemo Water Supply. As a result the resident satisfaction survey is conducted among these consumers. The Oamaru survey identified that 88% of the respondents are very/fairly satisfied with the overall water supply activity and in the Waihemo Water Supply 73% is very/fairly satisfied.

The results of the past twelve surveys, 2005 to 2020, is graphically represented below.

**Figure 4-3: 2005 – 2020 Increase/decrease in Satisfaction Levels**



It is clear that there was a significant increase in satisfaction with the overall water supply activity and Council managed to maintain that high level of satisfaction. It also shows how Council is continually raising the bar with respect to targets and maintaining high satisfaction levels.

### **4.3 Monitoring and Reporting**

Measurement and reporting of Customer Levels of Service shall be achieved through the customer satisfaction survey. With the use of everyday language in the Customer Levels of Service residents can fairly gauge their opinion on each issue.

The customer satisfaction survey is undertaken annually and this can be used as a benchmark for the next year, and the trend across the results of each year's survey provides a long term view of Council's performance.

Reporting on the achievement of Customer Levels of Service can be compared across different activity groups to provide internal benchmarking within Council, and combined to provide an indication of the contribution towards community outcomes and well-beings.

Measurement and reporting of Technical Service Standards is essential for the prudent management of the wastewater activity. With regard to wastewater discharge/disposal in particular, frequent monitoring and reporting is integral to meeting resource consent conditions.

### **4.4 Current and Target Levels of Service**

Levels of Service:

- Define explicitly the standards required from the wastewater system
- Are an expansion of the corporate objective, as previously stated
- Will largely shape Council's detailed planning

In providing wastewater services to the community Council must balance the standard of service desired with the cost of providing the service. The Levels of Service are designed by Council to represent the best level of service possible for a cost that the community can afford and is willing to pay.

The current Levels of Service and target Levels of Service that Council is aiming to achieve in the future are shown on the following page. As Council and its customers are generally satisfied with the current Levels of Service provided, the majority of the target Levels of Service remain unchanged.

- It should be noted that the target Levels of Service are not intended as a formal customer contract. Rather Council's responsibility is initially to aim to achieve these levels and then to achieve them more cost effectively through a process of continual improvement

In 2010 the LGA 2002 was amended, requiring local authorities to use non-financial performance measures when reporting to their communities. The aim is to encourage greater public participation in decision-making processes. The performance measures will do this through providing better information about the levels of service. The non-financial performance measures came into force on 30 July 2014. Local authorities are now required to incorporate the performance measures in the development of their long-term plans. The performance measures are reported against in the annual reports.

Figure 4-4 provides the linkages between the Outcome areas, Community outcomes, Levels of Service and Performance Measurement.

### **4.5 Changes to Levels of Service**

In accordance with 261B of the Local Government Act 2002, Non-Financial Performance Measures were adopted on 12 November 2013 and came into force on 30 July 2014. These Performance Measures required Local Authorities to report on the performance of the key activities of water supply, wastewater, stormwater, flood protection and roads annually from 2015/16.

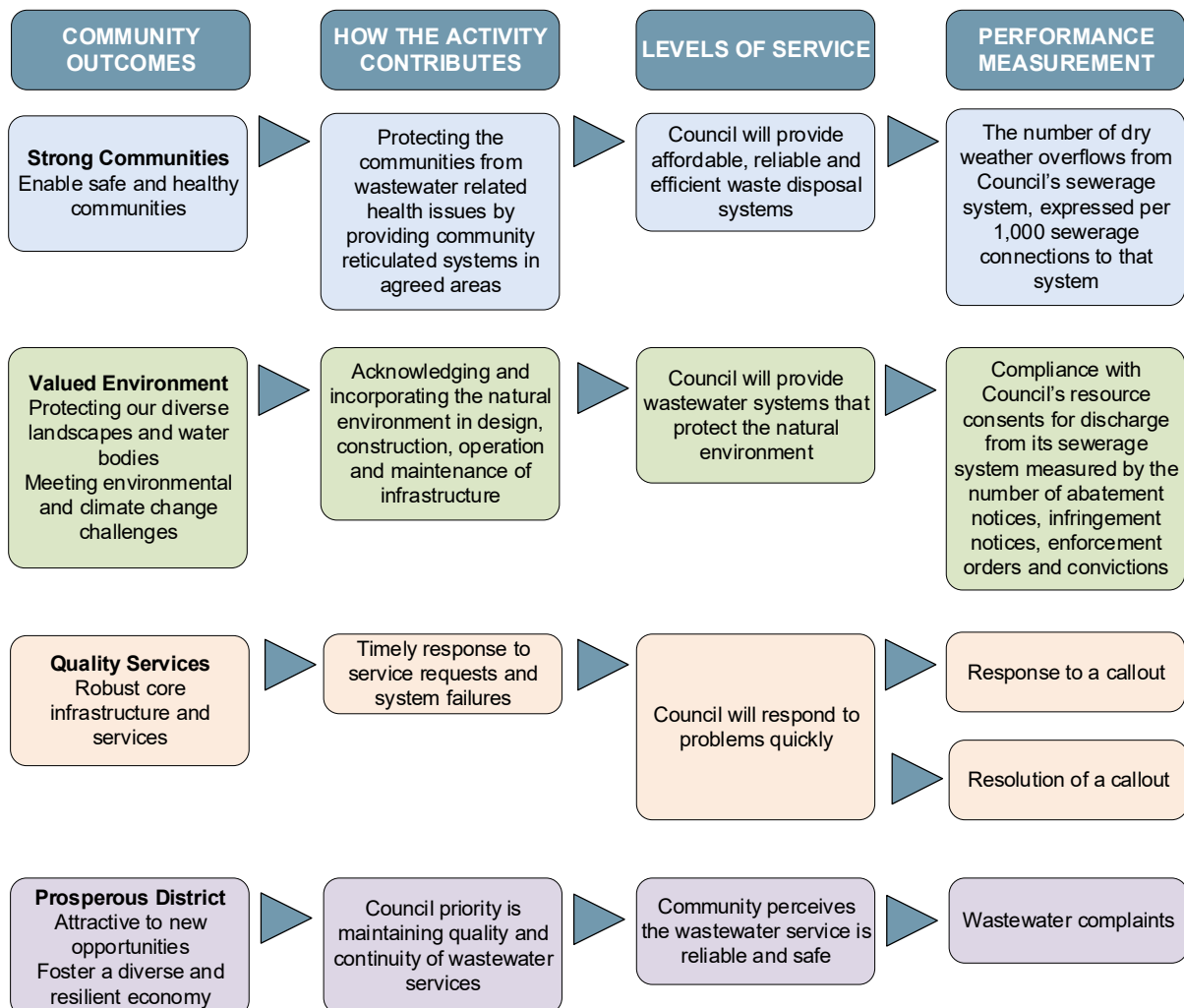
Council have developed their own Levels of Service and associated Performance Measures in the past, but in light of the Non-Financial Performance Measures Rules 2013 Council will only use the Levels of Service statements aligned with these new performance measures.

Since 2015/16 Council only report on the mandatory measures as this covers the key expectations in terms of the delivery of the service.

Council reviewed the customer service requests system to ensure they align with the Mandatory Performance Measures and ensured the Contractor reporting aligns with the Mandatory Performance Measures 'tasks'. Council's AIMS (Hansen) and CRM database have been programmed to allow reporting aligned with the NFPM and to ensure consistency and accuracy of reporting.

Review of the existing service level statements and engagement with the community to determine new and amended service levels is included as an improvement item ([IP 3W14](#)).

**Figure 4-4: Community Outcomes, Levels of Service and Performance Measures linkage**

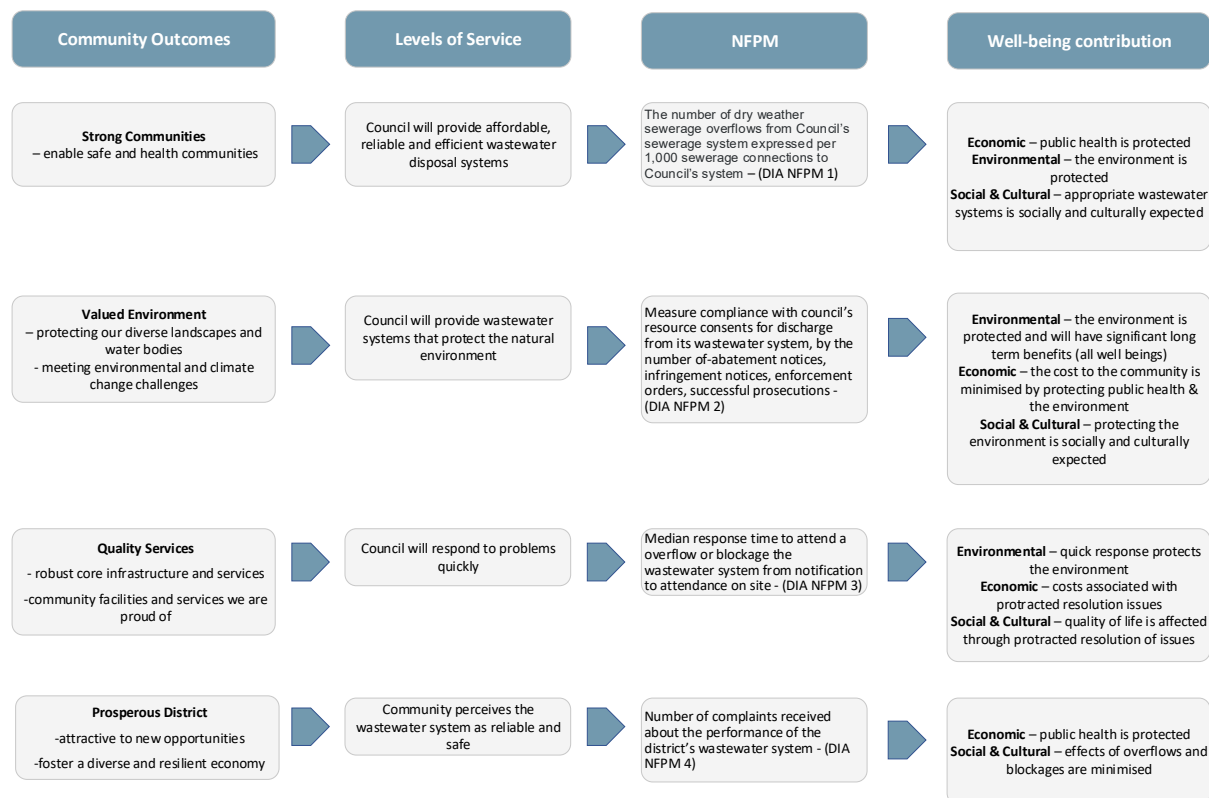


Section 10 of the Local Government Act restores the four aspects of community well-being by requiring local authorities to promote the social, economic, environmental, and cultural well-being of communities in the present and for the future. The reinstatement of the four well-beings acknowledges that the



Council has a broader role in looking after our communities, than simply providing core services. The wastewater activity levels of service contribution to the four well-beings are tabled below.

**Figure 4-5: Levels of Service Contribution to the Four Well-beings**



## 4.6 Mandatory Non-Financial Performance Measures and Targets

Council has been reporting on the following non-financial performance measures in its Annual Report since 2015/16.

Council reviewed the customer service requests system to ensure they align with the Mandatory Performance Measures and ensured the Contractor reporting aligns with the Mandatory Performance Measures 'tasks'. As a result systems were altered and processes modified to ensure consistency and accuracy of reporting.

### 4.6.1 Performance Measure 1 – system and adequacy

The number of dry weather sewerage overflows from Council's sewerage system expressed per 1,000 sewerage connections to Council's system.

Measure	Current performance 19/20 (18/19)	Target	
		2021-22	2023-31
Number of dry weather overflows	1.3/1,000 (1/1,000)	<4/1,000 (<20 total)	<4/1,000 (<17 total)

#### 4.6.2 Performance Measure 2 – discharge compliance

Compliance with Council's resource consents for discharge from its sewerage system measured by the number of:

- e) Abatement notices
- f) Infringement notices
- g) Enforcement orders, and
- h) convictions

received by Council in relation to those resource consents

Measure	Current performance 19/20 (18/19)	Target	
		2021-22	2023-31
Number of Abatement notices	Nil (Nil)	Nil	Nil
Number of Infringement notices	Nil (Nil)	Nil	Nil
Number of Enforcement orders	Nil (Nil)	Nil	Nil
Number of Convictions	Nil (Nil)	Nil	Nil

#### 4.6.3 Performance Measure 3 – fault response times

Where Council attends to sewerage overflows resulting from a blockage or other fault in Council's sewerage system, the following median response times measured:

- c) Attendance time: from the time that Council receives notification to the time that service personnel reach the site, and
- d) Resolution time: from the time that Council receives notification to the time that service personnel confirm resolution of the blockage or other fault

Measure	Current performance 19/20 (18/19) (median)	Target (median) - hours	
		2021-22	2023-31
Attendance time	0.8 (0.4) hrs	1 hr	1 hr
Resolution time	8.5 (36.3) hrs	24 hrs	24 hrs

#### 4.6.4 Performance Measure 4 – customer satisfaction

The total number of complaints received by Council about any of the following:

- e) Sewage odour
- f) Sewerage system faults
- g) Sewerage system blockages, and
- h) Council's response to issues with its sewerage system

expressed per 1,000 properties connected to Council's sewerage system

Measure	Current performance 19/20 (18/19)	Target	
		2021-22	2023-31
Total number of complaints about sewerage system	5.5/1,000 (7.2/1,000)	<12/1,000	<12/1,000

#### 4.6.5 Otago Performance Improvement Framework

The Otago Mayoral and Chief Executive Forums developed a performance improvement framework to:

- Provide communities with better context to assess the performance of their Council across the Region
- Enable better support and collaboration to drive improvement across Otago
- Help to drive standards for future local government reforms
- Provide consistent performance information that allows closer scrutiny of efficiency and effectiveness

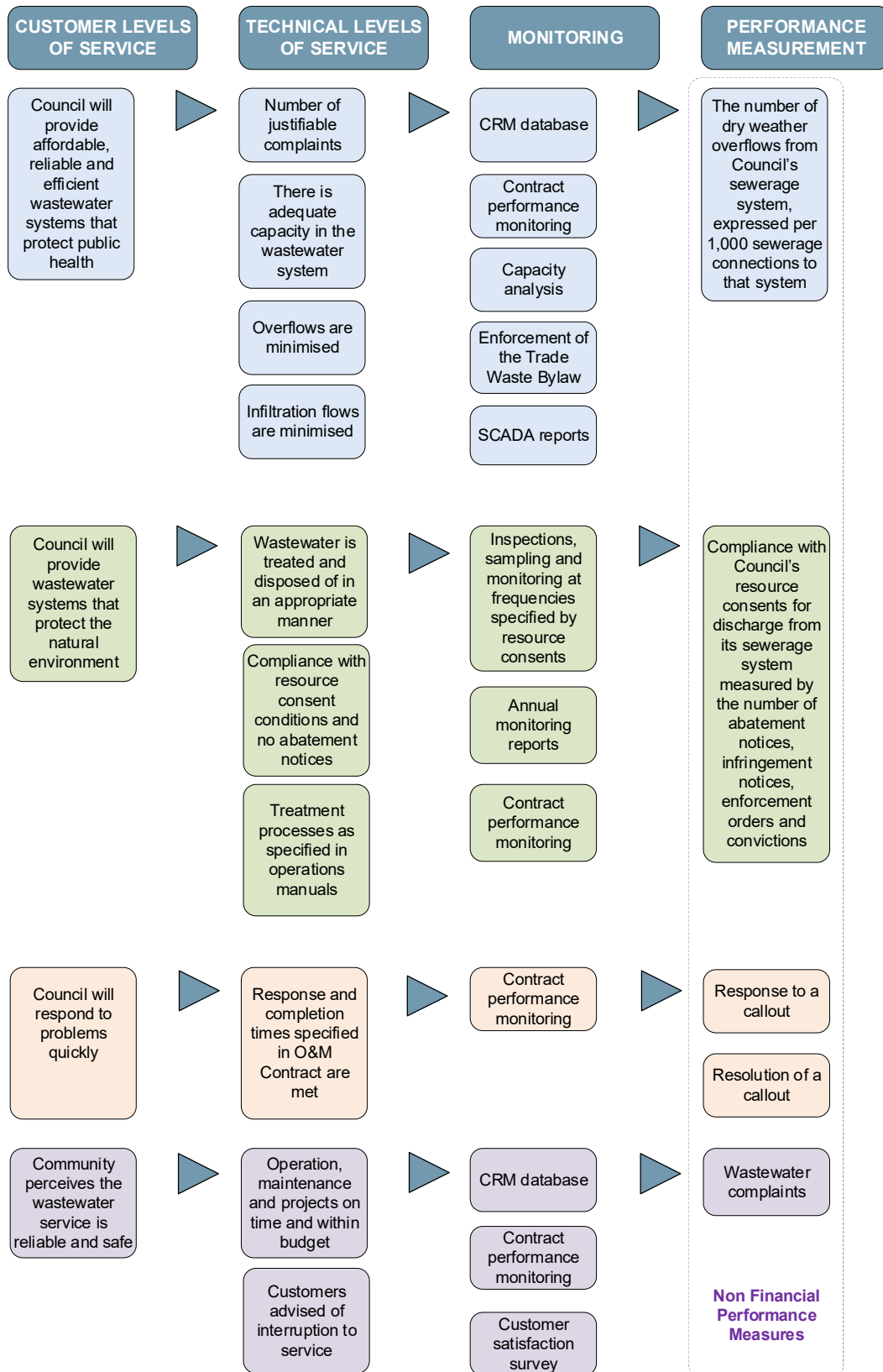
This details benchmarking and methodology for data collection and included the following (seven) key performance indicators:

1. Infrastructure Asset Management –
  - a. percentage of budgeted capital works programme, including renewals, completed annually
2. Resident and ratepayer satisfaction –
  - a. percentage of ratepayers who are satisfied with overall Council performance
  - b. percentage of ratepayers who are satisfied with Council communication
  - c. percentage of ratepayers who are satisfied with quantity and quality of community facilities
3. Regulatory
  - a. Percentage of building/resource consents issued with statutory times
  - b. Average building/resource consent processing days
4. Affordability
  - a. Rates per ratepayer as percentage of household income
5. Corporate services
  - a. Cost of administrative and support services as a percentage of organisational running costs

#### **4.7 Customer and Technical Levels of Service**

The Technical Service Standards for each Customer Levels of Service, along with linkages to the monitoring and Performance Measurements is described below.

**Figure 4-6: Customer & Technical Levels of Service**



## 4.8 Service Delivery Options

While Council has a good understanding of the community's needs through consultation processes, it has not formally explored service level options with its community and the community's willingness to pay for improved levels of service or vice versa, the community's desire for reduced rates and a willingness to accept reduced levels of service.

## 4.9 Special Consultative Procedure

There are a number of instances where Council will undertake consultation at a District wide or comprehensive level. This generally occurs when there is a requirement to use the Special Consultative Procedure as prescribed in the LGA2002. This occurs in the following situations:

- Adopting or amending the Long Term Plan (LTP). The LTP is reviewed every three years with the Annual Plan giving effect to that Plan in the intervening years. The Council must consult on community outcomes at least every six years.
- Adopting the Annual Budget.
- Adopting, amending or reviewing a Bylaw
- Proposing a change in the way a significant activity is undertaken
- Significant decisions not already provided for in the LTP
- Termination of a service

The Council will decide that some decisions are significant and will therefore require a more rigorous assessment of options and a more robust consultative process. Those decisions are treated as amendments to the LTP and can be dealt with either separately or as part of the Annual Plan process.

## 4.10 Planning Framework

The service life of the planning documents are compared with the service life of the assets in the table below.

**Table 4-1: Service Life - Documents and Assets**

Planning Document	Period						
LTP – detail budgets	3 years						
LTP		10 years					
AMP		10 years					
Infrastructure Strategy				30 years			
Assets							
Resource Consents				35 years			
Facilities				20 to	50 years		
Reticulation						70 to	100 years

## 4.11 Key Stakeholders

Waitaki District Council already has a history of actively communicating with the public via:

- Extensive public consultation
- Annual Plan Submissions
- Customer surveys
- Project teams for specific significant community projects
- Waitaki Link – Council's quarterly newspaper
- Media releases, Council website and Facebook

This Plan recognises the following key stakeholders:

Key Stakeholders	Main Interests
<b>External</b>	
Residents and ratepayers	Public health and safety, service reliability, environment, cost
Industrial and commercial users	Public health and safety, service reliability, environment, cost
Regional Councils	Environment
Other TLAs	Collaboration, environment
Government Agencies	Public health and safety, service reliability, environment, cost
Tangata Whenua and Maori	Environment, cultural, heritage
Suppliers	Procurement, technical, payment
<b>Internal</b>	
Councillors and Sub-committees	Public health and safety, service reliability, environment, cost
Community Boards	Public health and safety, service reliability, environment, cost
Executive	Public health and safety, service reliability, environment, cost
Environmental Health	Public health and safety, environment
Planning Services	Public health and safety, service reliability, environment, cost
Customer Services	Public health and safety, service reliability, environment
Information Services	Public health and safety, service reliability, environment
Property Management	Procurement, disposal and covenant of property
Financial Planning	Financial accounting of assets
Human Resources	Good employer

#### 4.11.1 Fostering Maori Contribution to Council's Decision making Process

Council is committed to engaging in genuine and appropriate consultation with Maori. Council currently has protocols for ensuring Tangata Whenua are consulted in regard to decisions made under the Resource Management Act 1991 and is preparing to meet the broader requirements of the Local Government Act 2002.

These requirements are broader in that:

- They refer to decision-making processes of the local authority, not simply decisions under the Resource Management Act
- They refer to Maori rather than to Tangata Whenua, thus including mana whenua and taura here
- They refer not only to enabling contribution to decision-making but also to fostering Maori capacity to contribute

#### 4.11.2 Communication with stakeholders

In operating and maintaining the wastewater service Council consults and communicates with the community in various ways. As an example the communication during a large scale mains cleaning project in Oamaru is summarised below:

- The project was notified in the printed media by means of a formal media release in the local papers
- For the duration of the project a weekly advertisement was placed in the local papers. This included a short update on progress, a map showing the area identified for the next weeks cleaning and advice on how to mitigate any discolouration consumers might experience

- all consumers associated with the shutdown and flushing was notified through a letter drop at least 24 hours prior to performing the flush
- critical and key customers were identified and notified 72 hours prior to the flush to ensure open communication and ensure flushing will not affect their business in a negative manner
- the Oamaru Fire Service was notified weekly of planned flushing

#### **Activity Response to Levels of Service**

- We will continue to:
  - consider Levels of Service that are meaningful, measurable and easily understood
  - communicate with the community on Levels of Service and proposed changes
  - measure our performance against our Levels of Service

## 5.0 STRATEGY, GOALS, OBJECTIVES AND PROCEDURES

This Section details:

- Government and Industry Direction
- National Strategies and Plans
- Key Legislation
- Standards, Codes of Practice and Guidelines
- Regional Strategies and Plans
- Council Strategies, Plans, Bylaws and Policies.

Providing an excellent 'strategy, goals, objectives, procedures' section demonstrates:

- knowledge of the legislative framework
- knowledge of the government and industry direction,
- Council policies and plans

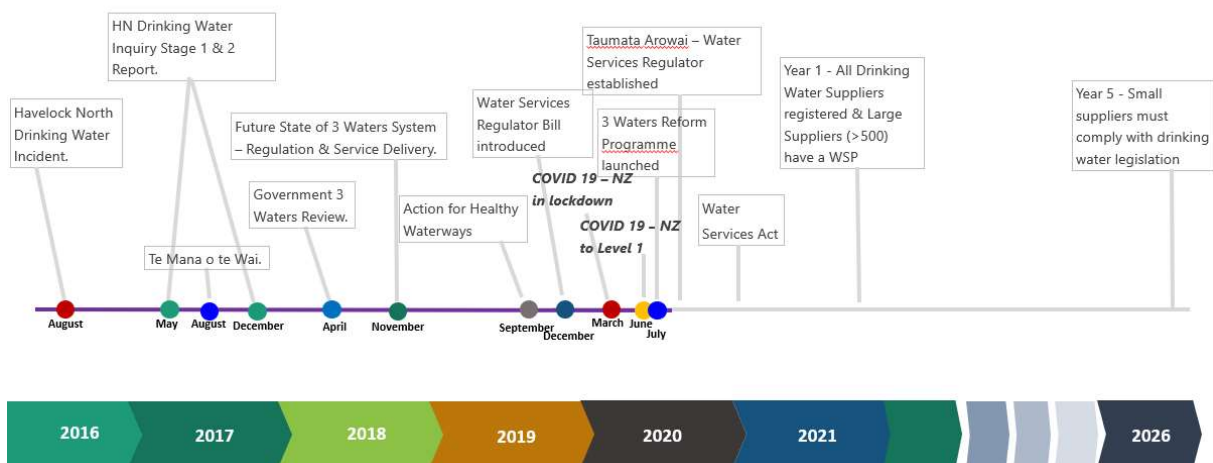
**WHY** – to ensure we provide the service agreed to by the community in compliance with the regulatory framework that exists and aligned with Council policies and plans

### 5.1 Government and Industry Direction

In providing the 3 Waters Services the Waitaki District Council keep a weather eye on the Central Government and Industry direction for the national infrastructure assets and public service provision. This is done through attending conferences and seminars, studying reports released by Central Government agencies and membership of industry organisations e.g. IPWEA, Water NZ, etc.



### 3 Waters - Government & Industry Direction



The August 2016 Havelock North Water incident and subsequent Inquiry has renewed the focus on the very high standard of care and diligence required to supply drinking water.



During 2017 the Minister for Local Government initiated the Government 3Waters Review to assess whether current local government practices and the system oversight are ‘fit for purpose’. This review ran in parallel to the latter stages of the Havelock North Inquiry and raised a range of questions around the effectiveness, capability and sustainability of the current water service model.

During 2017 the Government announced changes to the National Policy Statement for Freshwater Management – Te Mana o te Wai. Te Mana o te Wai is a concept for fresh water, which when given effect, the water body will sustain the full range of environmental, social, cultural and economic values held by iwi and the community. This requires councils to involve iwi/hapū in the management of freshwater, work with them to identify their values and interests, and reflect those values and interests in decision-making.

The MfE discussion document ‘Action for Healthy Waterways’ released September 2019 signals the direction for urban development, rural land and water management including Risk Management Plans for wastewater systems and stormwater systems ([LTP WW17 - 24](#)).

Towards the end of 2019, the Government agreed to establish a new drinking water regulator as an independent Crown entity. Associated legislation is expected to be passed in 2020/21 and the establishment and roll out of the new Regulator will follow and is expected to take a number of years (Refer to Section 5.3.12).

Following the global outbreak of the Corona Virus the Government announced New Zealand's four-level COVID-19 Alert System specifying public health and social measures to be taken against COVID-19. New Zealand went into Level 4 on Thursday 26 March 2020. Level 4 requirements included the general public to stay at home, educational facilities closed, only essential services & lifeline utilities remain open & operational, severe travel limitations, major reprioritisation of healthcare services, etc. NZ progressively reduced the alert levels from 27 April and returned to Level 1 on 10 June 2020.

The response to COVID 19 will have a significant impact on the economy and the ability to implement and progress the abovementioned Government initiatives. Several Councils already signalled no rates rises for the 2020/21 year.

July 2020 saw the Government announce the 3 Waters Reform Programme consisting of a \$761m funding package over the next three years to provide immediate post COVID 19 stimulus to local authorities to maintain and improve three waters infrastructure. Initial funding will only be made available to councils that sign up to the Memorandum of Understanding. Waitaki District Council signed up to the Memorandum of Understanding.

Below is an indicative timetable for the full reform programme. While this is subject to change as the reform progresses, this provides an overview of the longer-term reform pathway.



The following themes are also signalled:

**Table 5-1: Government and Industry Direction**

Theme	Source
<p><b>Common challenges</b></p> <ul style="list-style-type: none"> <li>• Working with iwi</li> <li>• Completeness and reliability of data</li> <li>• Staff capability and capacity</li> <li>• Under-delivery of planned capital spending</li> </ul>	<p>Managing the supply of and demand for drinking water OAG Sept 2018</p>
<p><b>Recommendations</b></p> <p>To better manage their stormwater systems to protect people and their property from the risks of flooding, we recommend that councils:</p> <ol style="list-style-type: none"> <li>1. understand the current and likely future flood risks in their district or city sufficiently to take a proactive approach to reduce the risk and effects of flooding;</li> <li>2. provide elected members with the necessary information and options, including about local flood risks and their stormwater systems, to make well-informed and deliberate decisions about investment in their stormwater systems;</li> <li>3. improve the information they make available to their communities so that people can understand:             <ul style="list-style-type: none"> <li>• the potential risk of flooding;</li> <li>• what the council is doing to manage that risk, including how it is managing the stormwater system and at what cost; and</li> <li>• what the remaining risk is to the community;</li> </ul> </li> <li>4. improve their understanding of their stormwater systems, which will entail ensuring the adequacy of their stormwater asset data, including condition data and information on the performance and capacity of the stormwater systems; and</li> <li>5. identify and use opportunities to work together with relevant organisations to more effectively manage their stormwater systems.</li> </ol>	<p>Managing stormwater systems to reduce the risk of flooding OAG Dec 2018</p>
<p>A more strategic and integrated approach to water management is needed</p> <ul style="list-style-type: none"> <li>• The Government is responding to the need for a more strategic and integrated approach to water management</li> <li>• A strategic and integrated approach would support targeting of investment decisions</li> <li>• A stronger focus on implementation is needed when setting strategy</li> <li>• Long-term thinking is needed when setting a strategic and integrated approach</li> </ul> <p>Understanding of water resources needs to improve</p> <ul style="list-style-type: none"> <li>• A national picture of the state of freshwater quality would support a more strategic and integrated approach</li> <li>• Information gaps can limit the ability to make well-informed decisions</li> <li>• Information needs to be understandable both to decision-makers and to those holding them to account</li> <li>• Good information depends on collecting quality data</li> <li>• There will always be some uncertainty</li> </ul> <p>Water management challenges require adaptive ways of working</p> <ul style="list-style-type: none"> <li>• Balancing different views and values requires flexible frameworks</li> <li>• Collaboration needs to translate into action</li> <li>• More can be done to involve Māori in water management</li> <li>• Water management challenges require both central and local government response</li> </ul>	<p>Reflecting on our work about water management OAG Feb 2020</p>

Theme	Source
<p><b>Recommendations</b></p> <ul style="list-style-type: none"> <li>• that councils prioritise collecting condition and performance information of critical assets and, in the meantime, take a precautionary approach for significant services where the condition information of critical assets is unknown;</li> <li>• that the Department of Internal Affairs and the local government sector review the required content for long-term plans to ensure that they remain fit for purpose, particularly: – the current suite of mandatory performance measures; – the disclosure requirements for financial and infrastructure strategies; – disclosures required under the Local Government (Financial Reporting and Prudence) Regulations 2014; and – how assumptions are disclosed in long-term plans;</li> <li>• that the Productivity Commission, in its review into the adequacy and efficiency of the existing funding and financing options for councils, consider the trends arising in the 2018-28 long-term plans, particularly the trends and concerns we have raised about increasing debt; and</li> <li>• that central government and local government continue to consider how increased leadership can be provided for climate change matters, particularly: – what data is needed and who collects this; – the quality of this data; and – how councils should consider this in future accountability documents, including the long-term plan.</li> </ul>	<p>Matters arising from our audits of the 2018-28 long-term plans OAG Feb 2019</p>
<p>LGNZ are working on four significant projects with the sector at present: Water 2050; Climate Change; Housing 2030 and the Localism Project.</p> <p><b>Water 2050</b> - The Water 2050 project promotes discussion and contribute to policy development by central and local government, particularly in regards to the Government's Three Waters Review, across five key areas:</p> <ul style="list-style-type: none"> <li>• Allocation</li> <li>• Water Quality</li> <li>• Infrastructure</li> <li>• Cost and funding</li> <li>• Governance</li> </ul> <p><b>Climate change</b> - leading and championing policy to deal with the impacts of climate change is a key policy priority for LGNZ. Climate change poses an unprecedented level of risk and adapting to and mitigating the impacts of climate change is a new priority focus for councils.</p> <p><b>Housing</b> is a significant issue for our communities' social and economic futures. Unaffordable housing is having a negative impact on local economies, discretionary household expenditure and social well-being. This means addressing matters of supply, how social and community housing needs are met and the importance of healthy homes. Underpinning the issue is the need for appropriate funding and financing. LGNZ efforts are focussed in three general areas:</p> <ul style="list-style-type: none"> <li>• Supply;</li> <li>• Social and community housing; and</li> <li>• Healthy homes.</li> </ul> <p><b>Localism</b> - Local government is calling for a shift in the way public decisions are made by advocating for greater self-government at the local and an active programme of devolution and decentralisation.</p>	<p>Local Government NZ</p>

Theme	Source
<p>This document provides councils with guidance to</p> <ul style="list-style-type: none"> <li>Assist with understanding and managing climate risk to the essential infrastructure that they own – particularly in relation to sea level rise, coastal hazards (such as storm inundation and erosion), and inland (pluvial) flooding;</li> <li>Assist councils with addressing the issues that completion of the previous survey, which fed into the Vulnerable report, identified; and</li> <li>Help our community leaders prime and test council staff, constituents and stakeholders to engage in the most effective long-term planning for infrastructure investment, and make sensible investment decisions now, which don't preclude future options for infrastructure provision.</li> </ul>	<p>Exposed: Climate change and infrastructure Local Government NZ Aug 2019</p>
<p>This project has two intended outputs.</p> <ul style="list-style-type: none"> <li>The first is to research the current quantity and value of infrastructure (roads, 3Waters and buildings) exposed to sea level rise at four increments; 0.5, 1.0, 1.5 and 3.0 metres, and to quantify replacement value.</li> <li>The second and more important output of this research is to provide responses to rising sea levels. This study intentionally avoids specific and local costs, and targets discussion at a regional and national level in order to highlight trends and general areas of high and low priority. It raises questions about how to improve procurement, appropriately share management of risk, and communicate with stakeholders about priorities.</li> </ul>	<p>Vulnerable: the quantum of local government infrastructure exposed to sea level rise Local Government NZ January 2019</p>
<p>This document explores the workforce skills and capabilities for an effective, efficient, accountable and resilient three waters sector in New Zealand. It describes what people should be able to do and what they need to know to competently undertake their work. It is a work in progress and includes the following roles.</p> <ul style="list-style-type: none"> <li>Drinking Water Treatment Operators</li> <li>Wastewater Treatment Operators</li> <li>Drinking Water Distribution Operators (to be developed)</li> <li>Wastewater Network Operator (to be developed)</li> </ul>	<p>Water NZ Competency Framework Water NZ</p>

## 5.2 National Strategies and Plans

National policy statements are issued by the government to provide direction to regional and local government about matters of national significance which contribute to meeting the purposes of the Resource Management Act 1991.

### 5.2.1 Infrastructure Commission, Te Waihangā

The New Zealand Infrastructure Commission – Te Waihangā – was established in 2019 as an Autonomous Crown Entity to carry out two broad functions – strategy and planning and procurement and delivery support on infrastructure investment.

InfraCom - Te Waihangā will work with central and local government, the private sector, iwi and other stakeholders, to develop a 30-year infrastructure strategy to replace the National Infrastructure Plan.

The first plan will be reported to government by the end of 2021 and thereafter at least every 5 years. The strategy will cover the ability of existing infrastructure to meet community expectations; current and future infrastructure needs and priorities; as well as any barriers which could impede the delivery of infrastructure or services arising from it.

### 5.2.2 National Policy Statement for Freshwater

The National Policy Statement for Freshwater Management (NPSFM) 2020 came into force on 3 September 2020 and documents the objective to ensure that natural and physical resources are managed in a way that prioritises:

- a) first, the health and well-being of water bodies and freshwater ecosystems
- b) second, the health needs of people (such as drinking water)
- c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

The NPSFM includes a requirement to manage freshwater in a way that 'gives effect' to Te Mana o te Wai, including by actively involving tangata whenua in freshwater management, working with tangata whenua and communities to set out a 'long-term vision' in the regional policy statement, and through a new 'hierarchy of obligations' which prioritises the health and wellbeing of water bodies, then the essential needs of people (e.g. drinking water), followed by other uses.

Te Mana o te Wai is a concept that refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai. Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community.

'Action for Healthy Waterways' (Ministry for the Environment) signals the direction for urban development, rural land and water management including Risk Management Plans for wastewater systems and stormwater systems ([LTP WW17 – 24](#)).

These initiatives will flow through respective Regional Councils Policy Statements & Regional Plans.

During 2019 Council made a submission to Ministry for the Environment on their 'Essential Freshwater Programme'. Council raised its concerns regarding:

- Implied greater importance on environmental than public health
- a blanket approach across waterways that are distinctive in their ecology and context
- wastewater treatment plants would be unable to achieve the proposed bottoms lines and would need further upgrading at significant additional cost to our ratepayers
- industry capacity and capability to undertake the required upgrade design and construction

### 5.2.3 National Policy Statement for Urban Development Capacity

The National Policy Statement on Urban Development Capacity 2016 (NPS-UDC) sets out the objectives and policies for providing development capacity under the Resource Management Act 1991. The NPS-UDC came into effect on 1 December 2016 and has been described by the government as "the core issue of increasing land supply".

The NPS-UDC contains objectives and policies that local authorities must give effect to in their resource management decisions that provide direction on:

1. the outcomes that urban planning decisions should achieve
2. the evidence underpinning those decisions
3. responsive planning approaches
4. coordination between local authorities and providers of infrastructure.

Local authorities that have a high-growth urban area within their jurisdiction are expected to meet all of the requirements of policies in this national policy statement, while local authorities with medium-growth urban areas in their jurisdiction, and all other local authorities, have lesser requirements, as per the table below.

	All local authorities	Local authorities with a medium growth area	Local authorities with a HIGH growth area
Objectives that apply	All	All	All
Policies that apply	PA1-PA4	PA1-PA4	PA1-PA4
		PB1-PB7	PB1-PB7
		PC1-PC4	PC1-PC4
		PD1-PD2	PD1-PD2
			PC5-PC14
			PD3-PD4

The NPS-UDC sets out a policy compliance timetable:

Urban Areas	Local Authorities	Policies	Deadlines
<b>High growth</b>			
Auckland	Auckland Council	PB6	1 June 2017
Hamilton	Waikato Region, Hamilton City, Waikato District, Waipa District	PB7	31 December 2017
Tauranga	Bay of Plenty Region, Tauranga City, Western Bay of Plenty District	PB1-PB5	31 December 2017
Christchurch	Canterbury Region, Christchurch City, Selwyn District, Waimakariri District		
Queenstown	Otago Region, Queenstown-Lakes District		
Potentially newly defined as <b>high growth</b> area		PB6	1 June 2017
New Plymouth	Taranaki Region, New Plymouth District	PB7	31 December 2017
Nelson	Nelson City, Tasman District	PB1-PB5	30 June 2018
<b>Medium growth</b>			
New Plymouth	Taranaki Region, New Plymouth District	PB7	31 December 2017
Nelson	Nelson City, Tasman District		
Wellington	Greater Wellington Region, Wellington City, Porirua City, Lower Hutt City, Upper Hutt City	PB7	31 December 2017
Kapiti	Greater Wellington Region, Kapiti Coast District		
Palmerston North	Horizons Region, Palmerston North City	PB1-PB5	31 December 2018
Potentially newly defined as <b>medium growth</b> area			
Whangarei	Northland Region, Whangarei District	PB6	31 March 2018
Napier - Hastings	Hawkes Bay Region, Napier City, Hastings District		
Rotorua	Bay of Plenty Region, Rotorua District	PB7	31 March 2018
Blenheim	Marlborough District		
Gisborne	Gisborne District		
Dunedin	Otago Region, Dunedin City	PB1-PB5	31 December 2018
Invercargill	Southland Region, Invercargill City		

#### 5.2.4 Productivity Commission

The New Zealand Productivity Commission (NZPC) is an independent Crown entity that provides advice to the Government on improving productivity in New Zealand. The NZPC conduct inquiries and productivity research to expand knowledge about productivity and identify areas for improvement.



In their Local Government Insights report (February 2020) the NZPC identified the following significant and challenging work facing local government.

- Councils will need to do better in advancing Māori interests,
- protecting the natural environment,
- tackling housing affordability
- lifting the performance of essential infrastructure such as three-waters services.
- adapting to climate change is a major new challenge facing councils.

### 5.3 Key Legislation and Regulation – Implications for Asset Management

Council must comply with any relevant legislation enacted by Parliament. Significant legislation and regulations affecting the three Waters activities are provided in **Table 5-2** below.

**Table 5-2: Key Legislation and Regulation affecting wastewater**

Legislation (including all amendments)
Biosecurity Act 1993
Building Act 2004
Civil Defence Emergency Management Act 2002
Climate Change Response Act 2002
Energy Efficiency and Conservation Act 2000
Environmental Protection Authority Act 2011
Epidemic Preparedness Act 2006
Government Rounding Powers Act 1989
Greater Christchurch Regeneration Act 2016
Hazardous Substances and New Organisms Act 1996
Health Act 1956
Health and Safety at Work Act 2015
Heritage New Zealand Pouhere Taonga Act 2014
Infrastructure (Amendments Relating to Utilities Access) Act 2010
Land Drainage Act 1908
Land Transport Act 1998
Land Transport Management Act 2003
Local Government Act 2002
Local Government Act 1974
Local Government Rating Act 2002
Local Government Rating Act 1979
Local Government (Financial Reporting) Regulations 2011. Renamed to Local Government (Financial Reporting and Prudence) Regulations 2014
Marine and Coastal Area Act 2011
National Water Conservation (Rakaia River) Order 1998
Ngai Tahu Claims Settlement Act 1998
Public Works Act 1981
Reserves Act 1977
Resource Management Act 1991

Legislation (including all amendments)
Telecommunications Act 1987
Utilities Access Act 2010
WorkSafe New Zealand Act 2013

The legislation that has or is expected to have the most effect is described below:

### 5.3.1 Building Act 2004

Provides a regulatory framework for building work, establishes a licensing regime and sets performance standards to ensure buildings have attributes that contribute to the health, safety, physical independence and well-being of people. All Council buildings have to meet the requirements of the Building Act.

### 5.3.2 Civil Defence Emergency Management Act 2002

Under the CDEM Act 2002 there is an expectation that Council's services will function at the best possible level and extent during and after an emergency, including no change from normal operation. Council has established planning and operational relationships with regional CDEM groups to deliver emergency management within Waitaki district boundaries.

Water supply and wastewater are regarded as critical services requiring attention during adverse events and are given special consideration within Council emergency management procedures. Every effort will be given to restore services immediately after an event to at least provide adequate water for sanitation and health needs. Supply quantity and quality may be limited.

### 5.3.3 Environmental Protection Authority Act 2011

The Environmental Protection Authority Act establish the Environmental Protection Authority and provide for its functions and operation. The objective of the EPA is to undertake its functions in a way that contributes to the efficient, effective, and transparent management of New Zealand's environment and natural and physical resources; and enables New Zealand to meet its international obligations.

### 5.3.4 Health Act 1956

Places an obligation on Council to improve, promote and protect public health within the District. The provision of three waters services conserves public health and helps to protect land and waterways from contamination.

The Health Act requires Council to provide the Medical Officer of Health with reports on the level, rate and mitigation measures of diseases, and quality of water.

### 5.3.5 Health and Safety at Work Act 2015

The Health and Safety at Work Act 2015 (HSWA) was enacted on 4 April 2016 and is part of "Working Safer: a blueprint for health and safety at work" and reforms New Zealand's health and safety system following the recommendations of the Independent Taskforce on Workplace Health and Safety. Working Safer is aimed at reducing New Zealand's workplace injury and death toll by 25 per cent by 2020.

The HSWA:

- reinforces proportionality – what a business needs to do depends on its level of risk and what it can control
- shifts from hazard spotting to managing critical risks – actions that reduce workplace harm rather than trivial hazards



- introduces the “reasonably practicable” concept – focusing attention on what’s reasonable for a business to do
- changes the focus from the physical workplace to the conduct of work – what the business actually does and so what it can control
- supports more effective worker engagement and participation – promoting flexibility to suit business size and need.

A guiding principle of the HSWA is that workers and other persons should be given the highest level of protection against harm to their health, safety, and welfare from work risks as is reasonably practicable. The HSWA shifts the focus from monitoring and recording health and safety incidents to proactively identifying and managing risks so everyone is safe and healthy.

The HSWA identifies four duty holders:

persons conducting a business or undertaking (PCBUs) – these may be individuals or organisations	have the primary responsibility for the health and safety of their workers and any other workers they influence or direct. They are also responsible for the health and safety of people at risk from the work of their business
officers	(company directors, partners, board members, chief executives) must do due diligence to make sure the business understands and is meeting its health and safety responsibilities
workers	must take reasonable care for their own health and safety and that their actions don't adversely affect the health and safety of others. They must also follow any reasonable health and safety instruction given to them by the business and cooperate with any reasonable business policy or procedure relating to health and safety in the workplace
other persons at workplaces	who come into the workplace, such as visitors or customers, also have some health and safety duties to ensure that their actions don't adversely affect the health and safety of others

A range of regulations will be developed as part of this HSWA. The HSWA requires identifying the risks associated with hazards and associated mitigation to reduce those risks.

### 5.3.6 WorkSafe New Zealand Act 2013

The WorkSafe New Zealand Act came into force on 16 December 2013 and established WorkSafe New Zealand as a Crown entity. The main objective of WorkSafe New Zealand is to promote and contribute to a balanced framework for securing the health and safety of workers and workplaces. WorkSafe is New Zealand's primary workplace health and safety regulator.

### 5.3.7 Heritage New Zealand Pouhere Taonga Act 2014

Describes an archaeological site as “Any place in New Zealand that:

- Was associated with human activity that occurred before 1900
- Is the site of the wreck of any vessel where that wreck occurred before 1900
- Is or may be able through investigation by archaeological methods to provide evidence relating to the history of New Zealand”

It is unlawful to modify, damage or destroy any archaeological site – recorded or not – without an authority from Heritage NZ.

### 5.3.8 Local Government Act 2002

Defines the purpose of local authorities as enabling local decision-making by and on behalf of the community, and allows local authorities the power of general competence. This Act specifically requires Councils to continue to provide water and wastewater services if they do so already.

In addition to the general requirements of the Local Government Act there are some specific clauses that apply to water services.

**Table 5-3: Water Services LGA 2002 Clauses**

Section	Details	Applies to
S 10	Restores the four aspects of community well-being by requiring local authorities to promote the social, economic, environmental, and cultural well-being of communities in the present and for the future	Water and Waste Services
S 17A	Requires that Councils review the cost effectiveness of the way they deliver their services to ensure they meet the needs of communities	All services
S 101B	Requires a 30 Year Infrastructure Strategy	Core Services
S 125	Places a requirement to assess water and other sanitary services from time to time	Water and Sanitary Services Assessment
S 130	Imposes an obligation to maintain water services and places limitations on the transfer or selling of assets	Divestment of services
S 136	Empowers Councils to enter into Contracts relating to provision of water services for periods not exceeding 35 years whilst maintaining control over the pricing of the service, retain legal responsibility for the service and being responsible for the development of policy related to the water services	Utilities Contract
S 137	Empowers Councils to enter joint local government arrangements and joint arrangements with other entities for the provision of water services, with the same constraints as S136	Utilities and Professional Services provision and procurement
Pt 1 -2 Pt 3 - 23	Council provides groups of activities for financial, performance and negative effects reporting purposes. The Water and Waste unit will provide Group summaries for water (urban & rural), sewerage and stormwater	Water and Waste Services

### 5.3.9 Local Government Act 1974

A significant part of the Local Government Act 1974 has been repealed, with specific sections still in force.

Part 26 Sewerage and Stormwater, sections 440-469 applies to sewerage and stormwater drainage by territorial authorities.

### 5.3.10 Local Government Rating Act 2002

Provides Council with flexible powers to set, assess, and collect rates to fund Council activities while ensuring that rates are set in accordance with decisions that are made in a transparent and consultative manner and providing for processes and information to enable ratepayers to identify and understand their liability for rates.

### 5.3.11 Resource Management Act 1991

Governs all water takes and discharges. Water takes and discharges to waterways and land occur through the extraction of water from waterways and land. Resource consents obtained for water takes and discharge activities require parameters such as volume and quality to be monitored as well as taking steps to mitigate any adverse effects that may occur through the activity.

There have been numerous amendments to the Resource Management Act over the years with reform a key priority. During 2019 the Government appointed the Resource Management Review Panel to undertake a comprehensive review of the RMA. The Review Panel recommended:

- The RMA to be repealed and replaced with two new pieces of legislation
  - The Natural and Built Environments Act to strengthen the current system by not only seeking to protect the environment, but improve it.
  - The Strategic Planning Act to give statutory weight to strategic spatial plans and, critically, force reconciliation and alignment across central and local government to ensure implementation.

### **5.3.12 Taumata Arowai—the Water Services Regulator Bill**

Taumata Arowai – the Water Services Regulator Bill received Royal Assent on 6 August 2020. The Bill will establish Taumata Arowai—the Water Services Regulator and provide for its objectives, functions, and governance arrangements.

Taumata Arowai – the Water Services Regulator Bill will create a new regulatory body to oversee, administer and enforce a new and strengthened drinking water regulatory system. It will also have a national oversight role to improve the environmental performance of storm water and wastewater networks.

It is anticipated this Bill will be enacted during 2021.

A separate Bill, the Water Services Bill, to be introduced in early 2020, will give effect to decisions to implement system-wide reforms to the regulation of drinking water and source water, and targeted reforms to improve the regulation and performance of wastewater and stormwater networks. The Regulator’s detailed functions and powers are located in that Bill.

### **5.3.13 Utilities Access Act 2010**

The Act establishes a framework for the National Code of Practice to govern how corridor managers and utility operators coordinate their activities within transport corridors.

The purpose of the Code is to:

- Maximise the benefit to the Public while ensuring that all Utility Operators are treated fairly;
- Ensures that disruptions to Roads, Motorways, and railways caused by Work by Utility Operators are kept to a minimum, while maintaining safety; and
- Provides a nationally consistent approach to managing access to Transport Corridors.

During 2012 Council engineers investigated the Utilities Access Act 2010 and associated National Code of Practice for Utility Operators’ Access to Transport Corridors to consider and document:

- Implications of the Code
- The context of the Waitaki district:
  - Overview
  - Roles
  - Systems
  - Business processes
  - Implementation

This project identified actions necessary to implement the Code.

The Code is a mandatory requirement for all road and rail controlling authorities and utility network operators under the Utilities Access Act 2010, and came into effect on the 1st January 2012. The Code was reviewed during 2016.

## **5.4 Standards, Codes of Practice and Guidelines**

National environmental standards, design standards (AS/NZS ISO), Codes of Practice and Guidelines provide technical direction. National Standards must be complied with under the direction of relevant legislation.

### **5.4.1 National Environmental Standards**

National environmental standards are regulations issued under the Resource Management Act 1991 (RMA). They prescribe technical standards, methods and other requirements for environmental matters. Region and local councils must enforce these standards (or they can enforce stricter standards where

the standard provides for this). In this way, national environmental standards ensure consistent minimum standards are maintained throughout all New Zealand's regions and districts.

#### 5.4.2 National Environmental Standard for Sources of Human Drinking Water (2008)

The National Environmental Standard for Sources of Human Drinking Water came into effect on 20 June 2008 and is intended to reduce the risk of contaminating drinking water sources such as rivers and groundwater. It does this by requiring regional councils to consider the effects of activities on drinking water sources in their decision making. Specifically the NES require Councils to:

- Decline discharge or water permits that are likely to result in community drinking water becoming unsafe for human consumption following existing treatment
- Be satisfied that permitted activities in regional plans will not result in community drinking water supplies being unsafe for human consumption following existing treatment
- Place conditions on relevant resource consents requiring notification of drinking water suppliers if significant unintended events occur (e.g. spills) that may adversely affect sources of human drinking water
- work with Regional Council (Otago & Canterbury) to place conditions on applicable new consents for the protection of its public supply sources

#### 5.4.3 AS/NZ Standards

Where possible, relevant AS/NZS standards are used as the basis for determining standards of design and construction. The Code for Subdivision and Development AS/NZS: 4404 is the principal document defining design requirements. New works within the urban areas are constructed in general accordance with NZS4404 Land Development and Subdivision Infrastructure which sets minimum standards for reticulation construction.

A summary of key Asset Management standards and manuals are tabled below:

**Table 5-4: Asset Management Standards & Manuals**

Asset Management Standards
NAMS International Infrastructure Management Manual 2006
NAMS International Infrastructure Management Manual 2011
NAMS International Infrastructure Management Manual 2015
NAMS International Infrastructure Management Manual 2020
ISO 55000 International Standards for Asset Management 2014
PAS 55-1:2008 Asset Management (British Standards)
NAMS Developing Levels of Service and Performance Measures Guidelines 2007
NAMS Optimised Decision Making Guidelines 2004
NAMS Infrastructure Asset Valuation and Depreciation Guidelines 2006
NZWWA New Zealand Pipe Inspection Manual 2006
Water NZ New Zealand Gravity Pipe Inspection Manual 2019
NZWWA The New Zealand Infrastructural Asset Grading Guidelines 1999
New Zealand Metadata Standards

### 5.5 Regional Strategies and Plans

Under Section 30 of the Resource Management Act of 1991 Regional Councils are required to provide policies and methods to achieve integrated and sustainable management of the regions natural and

physical resources. The Regional Plans of Otago and Canterbury provides a framework for the sustainable management of the regions water resources. These resources include groundwater, rivers, lakes and wetlands.

### 5.5.1 Canterbury Land and Water Regional Plan

The Land & Water Regional Plan is the planning framework for Canterbury and aims to provide clear direction on how land and water are to be managed and help deliver community aspirations for water quality in both urban and rural areas.

The Canterbury Land and Water Regional Plan (LWRP) identifies the resource management objectives for managing land and water resources in Canterbury to achieve the purpose of the Resource Management Act 1991. It identifies the policies and rules needed to achieve the objectives, and provides direction in terms of the processing of resource consent applications.

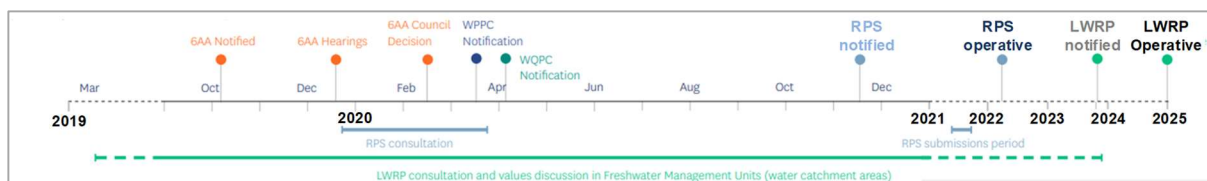
This LWRP is made up of 16 sections and a map volume:

- the first describes Canterbury's land and water resources, interrelated issues that need to be managed, the key partnerships, relationships and processes already underway, including the Canterbury Water Management Strategy (CWMS).
- The second section describes how the Plan works and contains the definitions used in the Plan.
- The subsequent three sections cover the region-wide objectives, policies, and rules.
- Sections 6 to 15 inclusive contain sub-region catchment specific policies and rules, and
- Section 16 contains the schedules.
- The maps referred to in the rules are in a separate map volume.

### 5.5.2 Otago

Otago Regional Council has Regional Plan - Water, which provides a framework for the integrated and sustainable management of Otago's water resources including lakes, rivers groundwater and wetlands. It sets out the issues relating to protection and enhancement of the region's water resources. Chapter 6 Water Quantity and Chapter 7 Water Quality provides the Otago Regional Council approach to water quantity and quality management in the Otago Region.

The Otago Water Plan is under review to align with the NPSFM (also under review – refer to Section 5.2.2). The Otago Water Plan review is programmed to be completed and notified by December 2025.



Other Otago Regional Council plans affecting the water service include:

- Regional Plan – Waste
- Regional Plan – Air
- Regional Plan – Coast
- ORC Regional Policy Statement

The Otago Urban Water Strategy sets out an integrated and co-ordinated approach to managing Otago's urban water quality. It indicates how collaboration between local government, communities and individuals can play a part in water quality, particularly in urban areas.

## 5.6 Council Strategies, Plans, Bylaws and Policies

### 5.6.1 Waitaki Long Term Plan

The Local Government Act 2002 requires local authorities in New Zealand to prepare a Long Term Plan that sets out Council's intentions over a ten-year period. The Act is very clear on how Councils should prepare their plans and what should be included in the final document. Consultation with the community is a very important part of this process. This is to ensure the people who effectively pay for the services delivered in the plan have the opportunity to feedback on what they want to see and how much they are prepared to pay. **Wastewater is considered to be a significant/core activity.**

The Long Term Plan sets out the direction for Waitaki District Council over the following ten years. The LTP is reviewed by Council every three years and provides information on all Council activities, how these will be delivered, how much they will cost and how they will be paid for. The first year of the Long Term Plan is also the Annual Plan for the first year of the ten year LTP period and as a result there is no separate Annual Plan process for that year.

### 5.6.2 Annual Plan

In accordance with the Local Government Act 2002 local authorities in New Zealand must prepare and adopt an Annual Plan for each financial year. The Annual Plan must support the long-term plan in providing integrated decision-making and co-ordination of the resources of the local authority; and contribute to the accountability of the local authority to the community. The Annual Plan process provides an opportunity to adjust the direction of Council and the community for the twelve months following. It also provides an opportunity for Council to highlight the key issues it faces and update the community on achievements and plans for the following year.

### 5.6.3 Waitaki District Plan

Section 73 of the Resource Management Act 1991 requires the Waitaki District Council to have at all times a District Plan for its District.

The District Plan sets out in a systematic way the manner in which the Council intends to deal with its functions under the Act. In doing this, the District Plan specifies objectives, policies and methods, in relation to resource management issues in the District, to achieve the integrated and sustainable management of the District's resources.

The District Plan must reflect and provide for the principle resource management issues pertaining to the District. The District Plan identifies and discusses the issues that have been identified by the Council and sets out the objectives and policies of the District Plan in regard to those issues. The District Plan also specifies the environmental results anticipated to be achieved by the implementation of the objectives and policies.

To achieve the objectives and policies of the Plan, rules are included which prohibit, regulate or allow activities.

The Council has adopted the principle of zoning. This technique recognises that different areas of the District will have different resources, character and levels of amenity and that the community will seek different environmental results for these areas. The zones provide opportunities for future development in keeping with the character and amenity sought for these different areas. Any particular activity must comply with the rules applicable to the zone in which it is situated, as well as general district rules covering a range of matters such as subdivision, heritage values and transportation.

### 5.6.4 30 Year Infrastructure Strategy

Changes to the Local Government Act 2002 during 2014 requires that a local authority must prepare and adopt, as part of its long term plan, an Infrastructure Strategy for a period of at least 30 consecutive financial years.



The task of building, operating and maintaining infrastructure assets in an affordable manner is becoming increasingly difficult in view of:

- Demographic changes
- Environmental impacts
- New technologies
- Continually changing legislative environment (Central & Regional Government)
- Infrastructure resilience
- Aging of infrastructure

Council considered these impacts and developed a strategy to guide decision-making for the next 30 years.

### 5.6.5 Delivery of Services Review

Section 17A of the Local Government Amendment Act 2014 requires that a local authority must review the cost-effectiveness of current arrangements for meeting the needs of communities within its district or region for good-quality local infrastructure, local public services, and performance of regulatory functions.

The Otago Mayoral Forum and Chief Executive Forums resolved to conduct a collaborative Section 17A review process and convened a project team to scope this work. The Project Team employed a two stage work programme consisting of:

- Stage 1 – a high level review of all activities (completed), and
- Stage 2 – a detailed review of those activities which represent the best opportunities in Otago for more cost-effective service provision.

It was also recommended that the detailed reviews be conducted using an adapted Better Business Case (BBC) five-case methodology.

In terms of Stage 2, draft project plans have been developed for: solid waste, regulatory, harbourmaster and waterways, three waters and land transport. At the time of writing this AMP, Stage 2 is still to be completed.

During 2015 Council reviewed the delivery of operations and maintenance of the 3 Waters reticulation service prior to going to the open market with a competitive tender process for the Utilities Operation and Maintenance Contract. The same has occurred for both water and wastewater facilities operation and management also.

### 5.6.6 Asset Management Plans

Asset Management has been described as applied common sense. Therefore, documenting applied common sense results in an Asset Management Plan (AMP). In essence there is limited funding and competing priorities. The Asset Management Plan helps staff/Council decide where and how to spend the limited funds to achieve the desired results.

Changes to the Local Government Act 2002 further emphasised the need for asset management planning and the development of Asset Management Plans.

AMPs are a key component of Council's planning process. They are prepared within the context and framework of the LTP, District Plan, Annual Plan and Funding Policy. **Figure 5-1: Corporate links to AMPs** depicts the links and information flows with the Asset Management Plan, other corporate plans and public consultation.

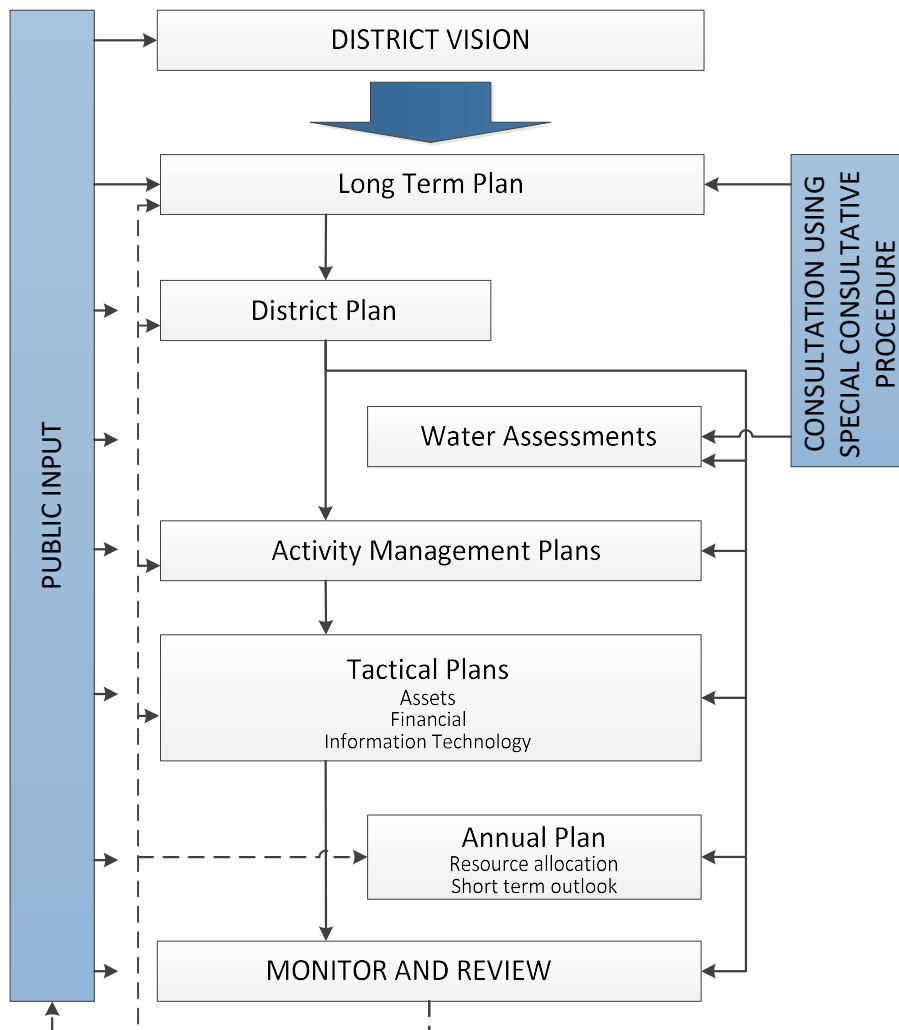
As part of the Local Government Act 2002 requirements (Schedule 10) the LTP must, for the ten years of the Plan, identify for each group of assets the costs for any additional asset capacity required and the maintenance, renewal, and replacement costs for the assets.



This statement of cost for the 10-year period includes the accounting for asset depreciation in accordance with The New Zealand Equivalents to International Financial Reporting Standards, and the recording of all significant assumptions in preparing the financials.

This AMP will provide the basis for identifying service potential and any losses, and determining the long-term financial strategies for Council's wastewater network assets. This AMP is part of a suite of AMPs and forms part of Council's LTP for the period 2018-2028.

**Figure 5-1: Corporate links to AMPs**



This AMP is intended to be read in conjunction with the Long Term Plan (LTP) and fulfils requirements of the Local Government Act 2002 (and amendments) – Schedule 10, which states:

- 1) The purpose of local government is—
  - a. to enable democratic local decision-making and action by, and on behalf of, communities; and
  - b. to meet the current and future needs of communities for good-quality local infrastructure, local public services, and performance of regulatory functions in a way that is most cost-effective for households and businesses.
- 2) In this Act, good-quality, in relation to local infrastructure, local public services, and performance of regulatory functions, means infrastructure, services, and performance that are—
  - a. efficient; and
  - b. effective; and
  - c. appropriate to present and anticipated future circumstances.

In order to demonstrate that the delivery of services are efficient, effective and appropriate; Waitaki District Council has developed a suite of Activity Management Plans (AMP) for its Core Infrastructural Services as part of this Long Term Plan process. These AMPs provide comprehensive account of the efficiency, effectiveness and appropriateness of Council's Core Infrastructural Assets, asset management practices and knowledge.

Council engineers have considered the tests of Section 10 of the Local Government Act 2002 against the framework of the Better Business Case 5 case model as follows:

Activity: Stormwater	Good Quality Local Infrastructure			Cost Effective
	Appropriate	Efficient	Effective	
<b>Strategic</b> What it does (LOS) What it means (\$)	LOS developed over many years LOS meet minimum legal requirements Low cost of service delivery	Service delivered by Contractor Output based delivery model used – core internal staff, external resources as required	Required and agreed level of service consistently delivered. Growth planned. Composite population growth model used (population, household size, holiday home demand)	
<b>Economic</b> (Value for money)	High value for money. Removal of wastewater and quality treatment and disposal.	Network configuration is efficient. Robust network renewal plan programmed	Risks held by Council with service delivery model. Careful management of risk minimises total delivery cost	Low cost of service delivery in NZ terms
<b>Commercial</b> (viable)	Natural monopoly service. Legal requirement for Council to provide. No viable private duplicate alternative	Community wide network is an efficient method of delivering this service	Current service delivery meets legal and community requirements well. Public Health requirements consistently met	Core service LGA Low cost with all operating and renewal costs accounted for
<b>Financial</b> (affordable)	Cost effective method of meeting all legal requirements and providing the public health benefits of a reticulated wastewater disposal network and treatment	High quality service provided at low cost. Proactive management	Public satisfaction with service delivery for cost is consistently high	<i>Average of \$193 per Pan</i> low cost in NZ terms
<b>Management</b> (achievable)	Low risk strategy for delivery of service,	Specialist resources only	Waitaki District Council 3 Waters staff is suitably	Well qualified and experienced internal staff

Activity: Stormwater	Good Quality Local Infrastructure			Cost Effective
	Appropriate	Efficient	Effective	
	experienced staff used. Training and mentoring programmes in place	engaged as required	experienced in asset management, engineering and service delivery	External specialists used as required

### 5.6.7 Bylaws

Bylaws are Council rules to regulate its own affairs and an enforcement tool and policies to guide decision making. Council requires a number of Bylaws and Policies to enable staff to perform their functions to the best of their ability across the full range of Councils responsibilities.

The only bylaw related to a portion of the wastewater service is the Waitaki Trade Waste Bylaw 2009. This bylaw regulates the discharge of trade waste to a sewerage system operated by the Waitaki District Council and came into force on 6 July 2008.

Development of a Wastewater Bylaw (**IP WW1**), Trade Waste Policy (**IP 3W9**) and review of the Trade Waste Bylaw (**IP 3W17**) are included as projects. The Trade Waste Policy will feed into the Trade Waste Bylaw, which require information relating to Oamaru WWTP's future treatment capacity. The Trade Waste Bylaw will include new processes for billing of trade waste customers to ensure it is fair and fit for purpose.

### 5.6.8 Policies

#### Significance and Engagement Policy

During November 2014 Council adopted the WDC Significance and Engagement Policy:

- To enable Council and its communities to identify the degree of significance attached to proposals relating to issues, assets, and other matters
- To provide clarity about how and when communities can expect to be engaged in decisions made by Council
- To inform Council from the beginning of a decision-making process about the appropriate extent, form and type of engagement that may be required

This Policy identifies the following Strategic assets:

- the Roding network
- Water collection, treatment and distribution systems (including water rights and resource consents)
- **Wastewater collection, treatment and disposal systems (including resource consents)**
- Stormwater collection and disposal systems
- Oamaru and Palmerston Landfills
- Oamaru Airport
- Oamaru Harbour Breakwater
- Community housing

The Significance and Engagement Policy provides a procedure to determine significance and a community engagement guide.

#### Asset Management Policy

The **2010 Asset Management Policy** sets the appropriate level of asset management practice for Council's Water and Wastewater Activity as 'Core Plus' practice.

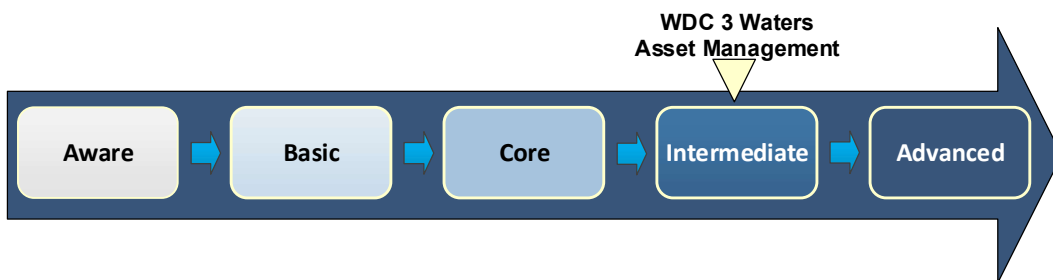
**Definition:** 'Core Plus' asset management practice is undertaken at a level between 'Core' and 'Comprehensive' practice. The focus is to build on the basic technical asset management planning of 'Core' practice by introducing improved maintenance management and more advanced asset management techniques (as appropriate). Further use is made of risk management, asset lifecycle management, and service standard optimisation techniques.

The latest appropriate practice asset management levels consist of:

- Aware
- Basic
- Core
- Intermediate
- Advanced

This expansion of the appropriate practice levels result in ‘Core Plus’ aligning with some Core criteria, some Intermediate criteria and some Advanced criteria. As a proxy ‘Core Plus’ is linked with Intermediate level. To ensure the appropriate practice level aligns with the latest appropriate practice asset management levels the AM Policy is programmed for review ([IP 3W1](#)).

**Figure 5-2: WDC 3 Waters Appropriate AM Level**



**Other Policies**

The Councils Policy Manual has a number of policies relating to the 3 Waters area, these are detailed in the following table.

**Table 5-5: WDC Wastewater Related Policies**

Assets/Corporate	Date Instigated	Wastewater	Date Instigated
Tendering	December 2002	Oamaru Trade Waste Bylaw	June 2008
Purchasing “NZ Made”	June 1991	Sewerage – Lateral connections	March 1999
Insurance – Reticulated Services	September 1993	Moeraki Sewerage Scheme Financing Options	September 1994
Development contributions	2009		
Asset Management Policy	2010		
Risk Management Policy			
Procurement Policy			

As policies are a way of indicating strategy (or the principles), it is considered that additional policies are required covering a wider range of functions. This would give additional clarity of the functions and rules of the wastewater system. Policies could include but are not limited to the following:

- Wastewater Treatment Policy
- Wastewater Disposal Policy
- Backflow Prevention Policy
- Asset Ownership Policy
  - Sewer Lateral Ownership

Policies should be reviewed on a three yearly basis to ensure that they remain relevant.

The laterals from the private individual properties to the Council collector mains are the responsibility of the property owner. Development of a Sewer Lateral Ownership Policy ([IP WW4](#)) to improve control over works in the road corridor is programmed.

## Earthquake Prone Buildings

In accordance with Section 131 of the Building Act 2004 Council is required to adopt a policy on earthquake prone, dangerous and insanitary buildings. The Waitaki District Council Dangerous, Insanitary and Earthquake prone Buildings Policy 2006 was consulted on and adopted during 2006. This Policy reflects Council's determination to reduce risk over time in a way that is acceptable in social and economic terms to the community. Council adopted a reactive approach to regarding this policy so that:

- Assessments of dangerous or insanitary buildings will be triggered if they come to Council's attention (through complaints or otherwise). The assessment will indicate what, if any further action is required
- Assessments and improvements to the structural performance of buildings that are or could be earthquake prone, will be triggered by an application under the Building Act for building alteration, change of use, extension of life or subdivision

Council's 3 Waters buildings are located at sites such as treatment plants, pump stations and storage facilities. Generally, the existing 3 Waters facility buildings will not trigger any of the above assessments.

- Buildings are usually located on the edge or outside of urban boundaries
- Buildings are mainly timber framed buildings
- Equipment (pumps etc.) are usually fixed to the floor where possible
- Reservoir & storage structures are usually reinforced concrete materials
- Most were constructed post 1976, when unreinforced masonry buildings were prohibited.
- Buildings are only visited for short periods at a time

In view of the above, seismic assessments are not deemed necessary for any of the 3 Waters buildings.

### 5.6.9 Procedures

Procedures include legislation, regulation, standards and guidelines. There are numerous standards and guidelines which Council refers to. These include Standard Operating Procedures and Operation and Maintenance/Management Manuals/Plans. The following details the Key Standards and Guidelines that are used in the management and operation of the Waitaki District Council 3 Waters Systems.

**Table 5-6: Key Standards and Guidelines**

Standard		Details
Legislative Standards		Building Act 2004
		Health Act 1956
		Health (Drinking Water) Amendment Act 2007
		Health and Safety at Work Act 2015
		Land Drainage Act 1908
		Local Government Act 1974
		Public Works Act 1981
		Resource Management Act 1991
		Soil Conservation and Rivers Control Act 1941
		Council Policies
		Local Government Act 2002
		Civil Defence Emergency Management 2002
		Local Government (Rating Act) 2002
		Climate Change Response Act 2002
		Drinking-water Standards for New Zealand 2005 (2008)
	Utilities Access Act 2010	
Technical Standards	Design	NZS / AS3725: 2007 – Loads on Buried Pipes
		NZS 7643: 1979 – Code of Practice for the installation of unplasticised PVC pipe systems

Standard	Details
Materials	The New Zealand Building Code
	New Zealand Fire Service Fire Fighting Water Supplies Code of Practice – SNZ PAS 4509:2008
	NZS 4442 – “Welded Steel Pipes and Fittings for Water, Sewerage and Medium Pressure Gas”
	TNZ M/1: 1995 – Asphaltic Bitumens
	TNZ M4/AP40: 1985 – Crushed Basecourse Aggregate
	TNZ M/10: 1975 – Asphaltic Concrete
	NZS 1477 7602, 7643 – PVC Pipes
	NZS 4765:2007 m PVC pipes
	NZS 4441: 2017 o PVC pipes
	BS 5163 – Cast iron fittings (valves)
Construction and Maintenance	NZS 3910: 2013 – “Conditions of Contract for Building and Civil Engineering Construction”
	NZS 3917: 2013 – “Conditions of Contract for Building and Civil Engineering – Fixed Term”
	NZS 4404: 2010 - Land development and subdivision infrastructure
	WorkSafe – Good Practice Guidelines – Excavation safety
	WorkSafe – Good Practice Guidelines – Working at height
	WorkSafe – Good Practice Guidelines – Safe use of safety nets
	WorkSafe – Good Practice Guidelines – Management and removal of Asbestos
	WorkSafe – Good Practice Guidelines – Conducting asbestos surveys
	WorkSafe – Good Practice Guidelines – Scaffolding in New Zealand
	WorkSafe – Good Practice Guidelines – Electrical Safety on small construction sites
Asset Management	WorkSafe – Good Practice Guidelines – Working on roofs
	“International Infrastructure Management Manual” – 2020
	“Creating Customer Value from Community Assets Manual” – 2002
	“New Zealand Pipe Inspection Manual “– 2006
	“New Zealand Infrastructural Asset Grading Guidelines” – 1999
	New Zealand Infrastructure Asset Valuation and Depreciation Guidelines 2001

### Activity Response to Regulatory Frameworks, Government and Industry direction

- We will continue to:
  - maintain a close watching brief on the Government’s intentions and be open to finding optimum solutions that meet new Government requirements
  - anticipate future directions signalled and plan changes accordingly
  - communicate with Otago Regional Council and Environment Canterbury on Regional Plan changes





## 6.0 DEMAND & PLANNING FOR THE FUTURE

This section provides details of growth forecasts, which affect the management and utilisation of all wastewater assets and details demand management strategies.

Providing an excellent 'demand and planning for the future' section demonstrates:

- knowledge of the number of people and demographic we serve
  - historical
  - future projections
- knowledge of the drivers for demand,
- consideration of the impact the population and demographic will have on the service we provide now and in future
- the projects needed to ensure we provide the service as agreed to in consideration of over or under investment

**WHY** – to ensure we provide the service agreed to by the community where it is required in consideration of the potential growth or decline in population and demographic

### 6.1 Overview

The future demand for services will change over time in response to a wide range of influences, including:

- Local population trends
- Accuracy of predicted future populations
- Local economic trends
- Changing technology
- Changing legislation requirements
- Land use changes
- Resource issues
- Climate change

### 6.2 Demand Drivers

The future demand for reticulated wastewater services in the Waitaki District will be driven by:

- Growth in the District
- Water consumption
- Most water supplied for domestic, commercial and industrial purposes is subsequently discharged into the wastewater system. Significant exceptions are:
  - Water supplied for irrigation purposes
  - Unaccounted for water (leakage and firefighting)
- Wastewater originating from private water supplies (bores) may also be discharged into the wastewater system
- Wastewater from other sources such as tanker discharges
- The extent of stormwater entry to the wastewater system (inflow/infiltration)
- Extensions to the wastewater system to service currently un-reticulated areas
- Technology changes

The following table indicates how these factors are expected to be reflected in changes in domestic and non-domestic water usage.

Water Demand Drivers	Domestic	Commercial	Industrial
<b>Growth</b>	Population change in reticulated areas Change in per dwelling population	Expansion of commercial areas	Expansion of industrial areas
<b>Water Usage (excluding irrigation)</b>	Changes in Domestic water usage	Changes in Commercial water usage	Changes in Industrial water usage Extent of “wet” industries
<b>Wastewater from other sources</b>	Tanker discharges		
<b>Infiltration &amp; Inflow</b>	Infiltration & Inflow – all reticulated areas		
<b>Extensions to service un-reticulated areas</b>	All areas		
<b>Technology changes</b>	All areas		

Increasing demand for a service may generate a requirement for the development of additional infrastructure. Expenditure programmes need to be planned to fund the capital works and associated on-going operational expenditure. Alternately, it may be possible to manage demand within the existing system capacity.

Where a reduced demand is forecast it may be appropriate to renew assets with a lesser capacity, operation expenses may decrease, or an asset may become surplus to requirements.

Refer to Section 6.8.4 Basis for Capacity Studies.

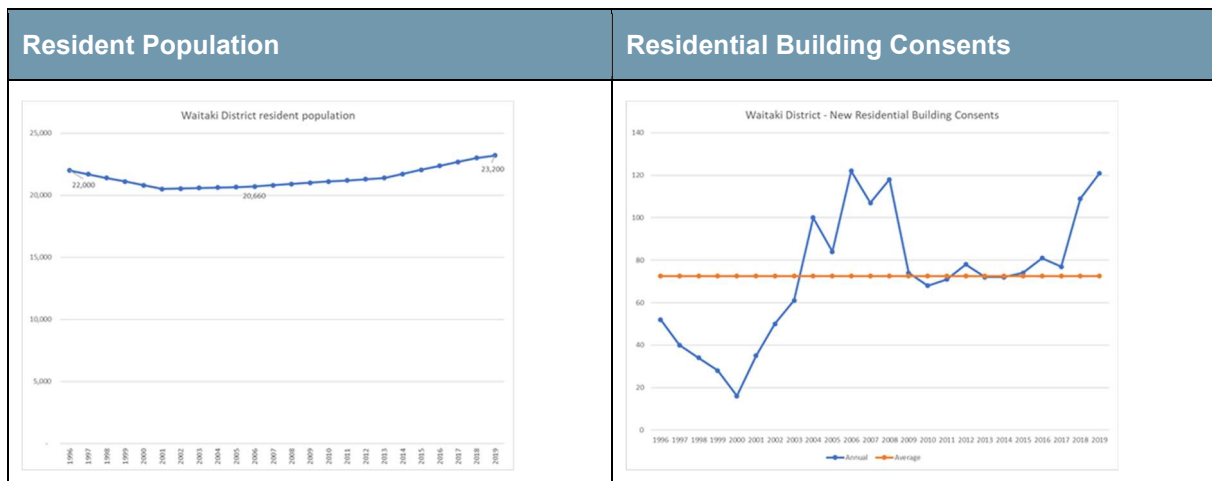
### 6.3 Demographic Projections

The Waitaki District –2020 Growth Projections Review briefing paper (Utility) provides an updated projection of population growth in the Waitaki District.

The last few years have seen positive growth in Waitaki district’s population and building activity. Both variables have increased over the past seven years. In the case of the resident population, this increase comes after periods of much lower growth.

The graphs also highlight the cyclical, or boom/bust trends associated with growth in all areas of New Zealand.

The figures below show the increase in residents and the number of building consents (new residential builds) approved per year in the Waitaki district.



Comparing the 2018 census actual with the 2014 projections show that population growth and growth in houses over the last number of years were higher than projected in 2014.

**Table 6-1: Project vs Actual Growth**

Variable	2013 Stats NZ	Projection 2018	Actual 2018	Comment
Resident population	21,400	21,450	23,000	The actual population growth (1,600) was much higher than estimated (170) – this is due to the change in migration trends discussed below. The 2013 SNZ population estimate was not available at the time of the 2014 projections (21,280 was used as the 2013 figure).  The population growth between 2013 and 2018 was very close to the increase projected under the SNZ High series (1,400).
Houses	10,850	11,170	11,440	The increase in total houses (590) was higher than projected (320) due to higher than projected population growth. The number of holiday houses decreased due to a higher proportion of the housing stock being used by the resident population, instead of as holiday houses.
Resident houses	9,240	9,490	10,330	
Holiday homes	1,620	1,690	1,110	

{Source - *Waitaki District –2020 Growth Projections Review briefing paper (Utility)*}

The majority of areas had an increase in population, with most of the population growth occurring in Oamaru, some townships (Duntroon, Hampden, Kakanui, Kurow, Omarama, Palmerston) and the surrounding rural areas.

The largest increases in houses were in Oamaru and the surrounding rural areas, specifically Lower Waitaki, Maheno and Ngapara. The townships predominately all had positive growth in houses, noticeably Hampden, Kurow, Moeraki, Omarama and Otematata.

A tool (developed by Utility)tool presents the results and includes a comparison tool to allow comparison of a variable between the different scenarios. Four scenarios were modelled and are as follows:

1. Baseline – where the district was heading prior to COVID-19 and its impact on the economy, international travel, and other relevant factors
2. Medium – a possible path of growth in the district based a on series of assumptions around migration, household size, visitor recovery, and other factors
3. High –a more optimistic view of the medium scenario
4. Low – a more pessimistic view of the medium scenario

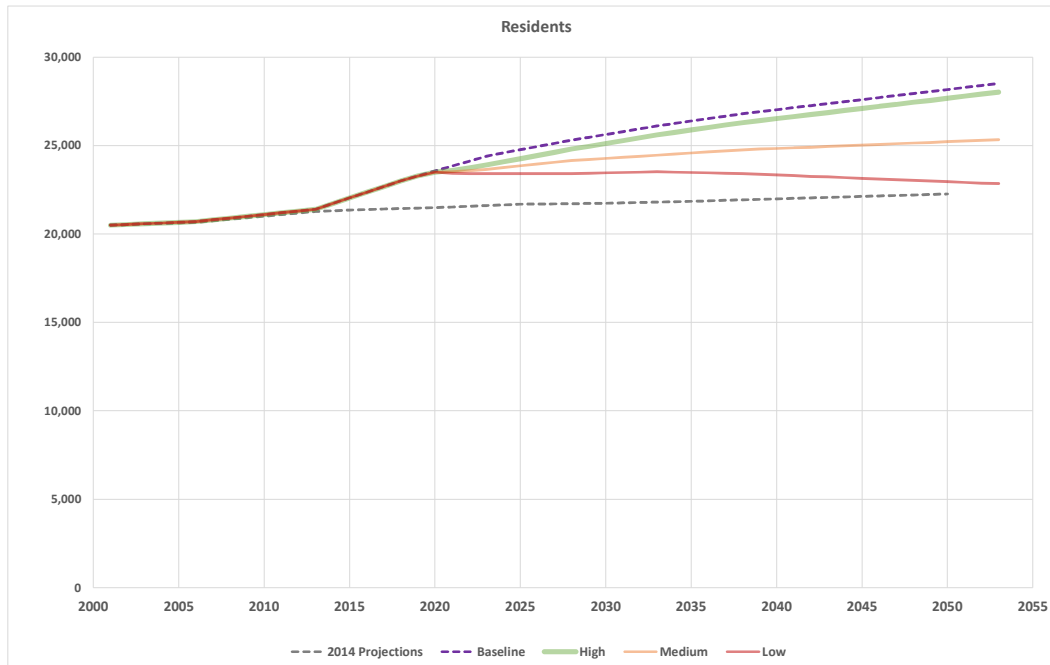
Due to the impact of COVID 19 the baseline scenario is not considered a possible growth path, but it used to inform the high, medium, and low scenarios. The high growth series is recommended for long term strategic planning. The short term impact of COVID-19 is likely to have a saw-tooth effect and difficult to project. The low, medium and high scenarios all allow for a qualitative economic slowdown over the next few years. Assuming the world returns to some sort of normal the underlying trends evident in Waitaki are then likely to continue. An alternative option is to use the medium scenario in the short term – more conservative, and then a High scenario over the long term.

### 6.3.1 Resident Population

The most significant and variable factor for the district's population growth is migration – people choosing to come and live in the district from other parts of New Zealand and around the world. Up until 2001, residents were leaving the district at a greater rate than new people were arriving. However, for the past 17 years net migration into the district has been positive with a significant increase in the past six years. This recent increase is likely to be linked to several inter-dependant factors including a busy construction

sector, an increase in visitors, technology improvements (e.g. broadband), and the district promoting itself as a desirable place to live.

**Figure 6-1: Resident Population Projections**



The natural change (births less deaths) has to date resulted in a small decrease in the population, averaging out at slightly more than one person per year. Understanding migration and natural change is a key component of predicting how the district will grow in the future.

**Table 6-2: Resident Population projections**

	2020	2030	2040	2050
2014 Projections	21,491	21,737	21,987	22,263
Baseline	23,560	25,630	27,030	28,170
High	23,500	25,120	26,530	27,680
Medium	23,500	24,280	24,840	25,220
Low	23,500	23,460	23,340	22,960

{Source - Waitaki District –2020 Growth Projections Review briefing paper (Utility)}

The Waitaki 2013 Age Pyramid shows that the district has a large proportion of older people. The number of people aged 65+ is forecast to increase to over 35% by 2030 and the proportion of the population under 15 years of age is projected to decline to between 15% and 17% by 2030.

The population projections provide useful insight into the future demand and may have a significant effect on how we deliver water services. It is also important to note that people are generally healthier than 40 years ago and with the predicted wave of baby boomers only starting to retire, they are more active and likely to travel. This may place further demand and changes on how we deliver water services.

An ageing population may result in demand for additional smaller properties (units)/retirement villages and an increase in single person households. As a result the demand for individual connections is likely to increase. Single person households also have a higher per capita water consumption as economies of scale are lost. As a result demand (volume) is likely to increase. Ageing populations are also more susceptible to disease and require better water quality.

The majority of the district is farmland continually changing from traditional sheep farming to dairy farming. This has a significant impact on the local economy and the provision of services. Large numbers of dairy tankers are increasing on our roads and there is a change in water use within the rural restricted water schemes. Hydroelectric generation and mineral extraction are also key activities within the district.

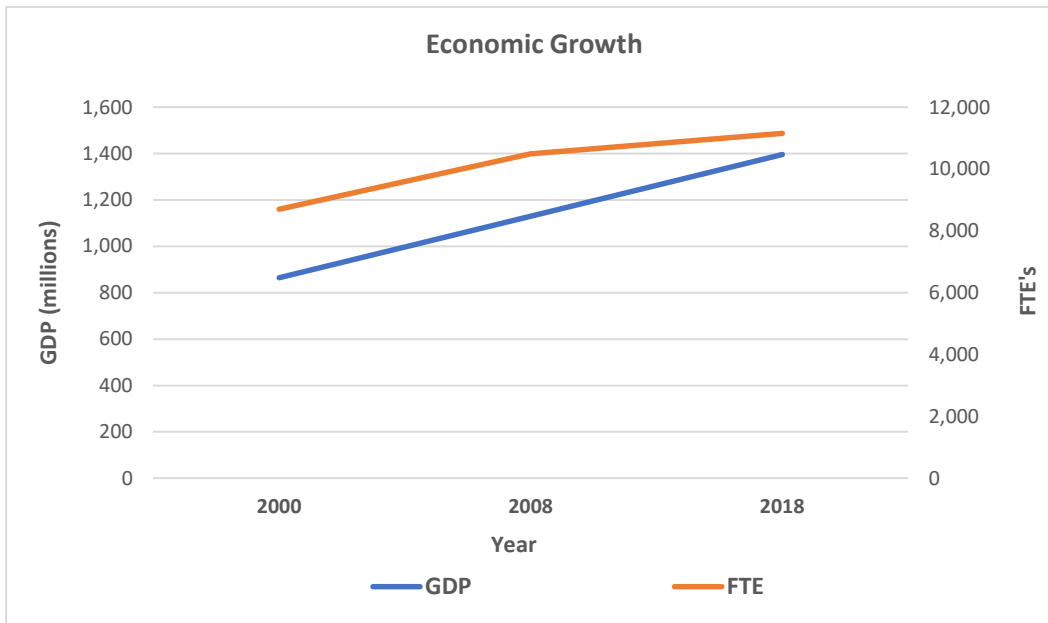
The demand for lifestyle development increases but, unlike its traditional form of hobby farms and relative self-sufficiency, the modern form has been for large executive housing set in expansive grounds set around the fringes of the main urban centres, mainly Oamaru. The result is customers expecting a level of service equal to urban standards in a rural environment.

## 6.4 Economic Growth

The Waitaki District Economic Profile Update briefing paper (Utility) shows that the mining, tourism and agriculture sectors have all increased significantly between 2000 and 2018. The mining sector contributes over a quarter of the district's GDP, however, the jobs into the sector are much lower at less than 5%. The growth can be linked in some way to enabling projects that Council have been involved in; the NOIC irrigation scheme, Steampunk and Alps to Ocean tourism initiatives, and supporting Oceania Gold and other business in key sectors.

Other sectors have also grown in GDP and/or jobs with the most significant growth in the construction and health sectors.

**Figure 6-2: Economic Growth**



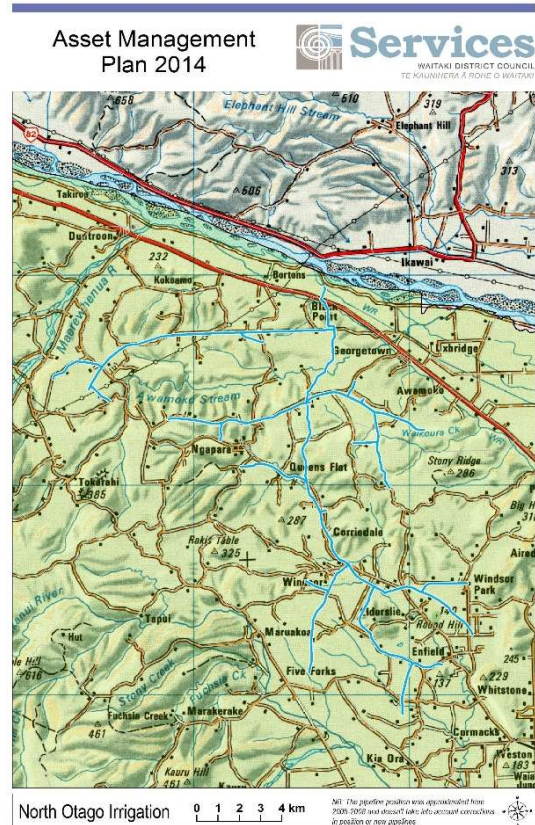
The 2019–20 coronavirus pandemic is ongoing at the time of writing of this Plan. The impacts will be wide ranging and likely include a significant and protracted recession. At the time of writing this Plan the assumption is that the Waitaki district will be able to weather the storm as the districts' primary industries, mining and agriculture (41% of GDP), are less affected than for example tourism (6% of GDP). The Department of Internal Affairs 'Local Government Sector COVID-19 Financial Implications Report 2 – Alert Level Scenarios, Assumptions and Updated Analysis' report projects "The agriculture sector is expected to perform relatively well in the short- and long-term".

## 6.5 Projects impacting on the District

### 6.5.1 North Otago Irrigation

The North Otago Irrigation Company (NOIC) originated in 1982 with 27 local farmers funding water investigations. This grew over time into the NOIC and in early 2003 the necessary water take and water use consents were granted. The Scheme pumps water from the Lower Waitaki Irrigation Company intake pond at Black's Point via a pipeline and canal to a header pond at Ngapara. Through a combination of gravity and pumping, water is distributed from the header pond at Ngapara to farm boundaries. Water is delivered to the farm boundary at a minimum pressure of 50 metres and at 0.4 litre/second/hectare, which equates to approximately 24mm/hectare/week. Farmers use either spray or trickle type irrigation. The scheme has six pump stations, two main and four supplementary pump stations. The Stage 1 of the scheme supplied water to approximately 10,000 hectares. It is estimated that stage one increased farm output by almost \$44M a year and had created an extra 76 jobs (AgriBusiness Group report). Over and above the cost of the scheme farmers had spent approximately \$62M in land conversion costs. At the time of writing this Plan the Stage two expansion of approximately 114km of network and associated infrastructure were nearing completion of testing and commissioning. Upon completion of Stage two the company will irrigate about 25,000ha for nearly 200 shareholders south of the Waitaki River.

The further development of the NOIC scheme has a significant influence on development within the District. The NOIC encompasses a number of existing smaller rural supplies and may ultimately free up water in these supplies or result in a significant increase in demand due to changes in farming activities. However, to date there has been no handing back of water as a result of NOIC or irrigation development.





### 6.5.2 Kurow Duntroon Irrigation Company

The Kurow Duntroon Irrigation Scheme was developed by the Ministry of Works during 1965.

The original system consisted of a siphon drawing water from the Waitaki Dam into a 35 kilometres long open water race delivering water via a gravity fed system of manually operated gates.

This system was replaced during 2018/19 by installing 76 kilometres of pipelines from Waitaki Dam to Duntroon on the west bank of the Maerewhenua River. The system will ultimately enable irrigation of 5,500 hectares.

The Kurow Duntroon Irrigation Company (KDIC) is a community owned irrigation scheme, and holds a resource consent (CRC163429) from Ecan that expires in 2048, for an annual water take of 26.3 million litres.



### 6.5.3 Holcim Cement

During June 2014 Holcim Cement announced that PrimePort Timaru will become the new South Island terminal for Holcim’s imported bulk cement. This included building a 30,000 tonne import terminal, at the Port of Timaru. The import terminal at Timaru is also consistent with the option of eventually building a new cement plant at Weston.

Building the cement plant at Weston would add to the local economy by providing a boost for the construction sector and providing employment opportunities further down the line.

### 6.5.4 Alps to Ocean Cycle trail

The Alps to Ocean Cycle trail is a joint initiative of Waitaki District Council, Mackenzie District Council, the Mackenzie Tourism and Development Trust and the New Zealand Cycle Trail project. Starting at Aoraki/Mt Cook the 314km Alps 2 Ocean Cycle Trail travels through the McKenzie Basin and Waitaki Valley to Oamaru.

The trail provides tourism opportunities and is increasing visitor numbers to the district. The Ministry Business, Innovation and Employment documents in the NZ Cycle Trail Evaluation Report 2016 estimated trail user numbers and estimated revenue from domestic and international spending for the Alps to Ocean trail during 2015 as follows:

Domestic spending	International spending	# of visits
\$1,705,990	\$450,038	18,163

It is expected that the above numbers will increase as the trail becomes more established and as a result will place greater demand on the 3 Waters utilities i.e. more water needed by tourists, more wastewater to be treated, etc.

### 6.5.5 Barque Field Development

During October 2017 New Zealand Oil & Gas released the Barque Field Development Economic Impact Assessment. This explored the economic impact analysis of two possible scenarios for the development of the Barque field, which is a promising undrilled (gas & oil) exploration prospect in the Canterbury Basin east of Oamaru.

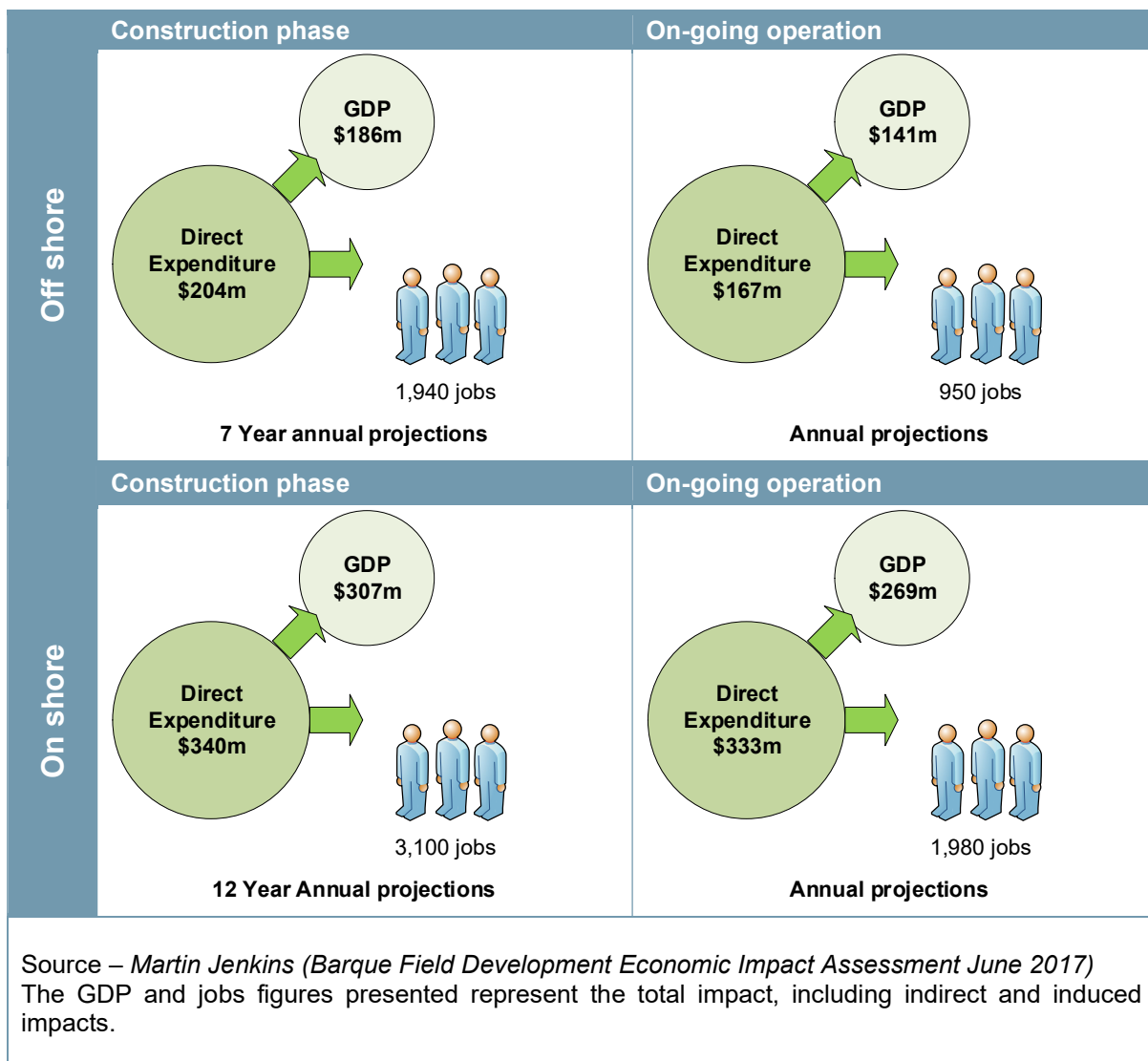
Two field development options are considered:



1. Off shore – start in 2025
  - a. extraction and processing through an off-shore vessel.
  - b. Exported directly to markets.
  - c. Onshore activity is limited to servicing and maintenance
2. On shore –start in 2025
  - a. Off shore extraction then piped to shore
  - b. Port development required for storage and shipping to markets
  - c. Development of methanol and fertiliser plants

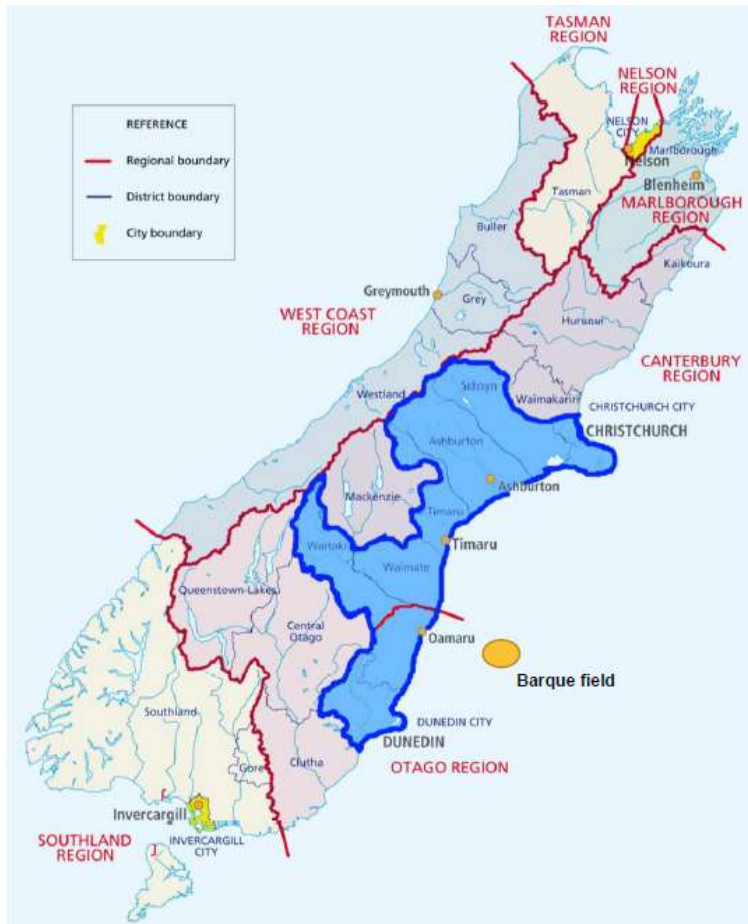
The economic impact is significant and wide ranging at national and regional level. The regional economic impacts are illustrated below:

**Table 6-3: Barque Field – Potential Regional Economic Impact**



The study area for the regional analysis is made up of the South Island districts of Dunedin City, Waitaki, Waimate, Timaru, Ashburton, Selwyn and Christchurch City.

**Figure 6-3: Barque Field – Regional Study Area**



Source - Martin Jenkins (Barque Field Development Economic Impact Assessment June 2017)

PrimePort Timaru and Port Otago (at Port Chalmers) are both possible service hubs under both development scenarios. For the scenarios assessed in the report, PrimePort Timaru is used.

During April 2019 the New Zealand Oil and Gas (NZOG) stated that the deadline for a decision about whether to drill an exploration well 60km east of Oamaru will be extended by three years to April 2022. NZOG also signed a memorandum of understanding with Aoraki Development formalising it as the lead agency representing local stakeholders and the wider community in the region. The Minister of Energy and Resources extended the work obligations in the permit.

There may be significant flow on effects for the Waitaki District. Council will keep a keen eye on developments in this area to ensure we cater for any viable opportunities that may result from the potential Barque field development.

### 6.5.6 Neighbouring Projects

The following projects, if and when approved may have an impact on the district at the time when they commence development.

#### North Bank Hydro

The scheme, estimated to cost more than \$1 billion, would use tunnels and a canal between the Waitaki Dam and Stonewall in the Waimate district in Canterbury to deliver water to two power stations, which will generate between 1100GWh and 1400GWh of electricity a year. The latest proposal includes a

12km tunnel from the Waitaki Dam, then a 13km canal along the foothills north of State Highway 82, re-entering an end tunnel before discharging the water back into the river.

This project, once it commences, will require a significant labour force to construct and it is estimated at this stage that the labour force will be split between Waimate Urban (25%) and Timaru, Kurow and Oamaru (75%) in the neighbouring districts. The operation of the power stations in the North Bank Tunnel project is not expected to contribute to any population increase as the power stations will be mainly automated and serviced from out of district service centres (Benmore and Twizel). Plans for the North Bank Hydro project have been suspended due to flat demand for electricity.

### Hunter Downs Irrigation

The Hunter Downs Irrigation Scheme is a community irrigation proposal developed by the South Canterbury Irrigation Trust (SCIT) and Meridian. The SCIT was convened by the mayors of Waimate, Timaru and McKenzie Districts.

The scheme would potentially irrigate up to 40,000 hectares of land from the Waitaki River stretching as far north as Otipua. It would provide opportunities for land use diversification, including horticulture, sheep, beef and dairy farming.

The scheme would involve diverting water from the Waitaki River into an irrigation intake near Stonewall at the existing site of the Morven Glenavy Ikawai irrigation scheme intake, 35km downstream of the Waitaki Dam. From there the water would be pumped about 140km for delivery to farms using a pumping station, canal and pipe system.

Once the Hunter Downs project commences it will require significant resources to construct, affecting population numbers. However, once the scheme is complete a significant increase in population is expected as a result of the change in land use from dry land farming to irrigated land. The scheme will increase activity in the rural service industries (on farm contractors and farm supplies) and processing companies (milk companies and vegetable processing). It is estimated that this may lead to the creation of approximately 1,800 on and off farm jobs.

Although the Hunter Downs Irrigation Scheme is within neighbouring South Canterbury there may well be flow on effects for the Waitaki District.

### Waihao Downs Irrigation

The Morven Glenavy Ikawai ("MGI") Irrigation Company incorporates the Redcliffs irrigation scheme, built in the 1930s, and the Morven Glenavy scheme built in the 1970s, the Waihao Downs Irrigation Scheme commissioned in 2016. MGI is responsible for supplying water to over 28,000 hectares of farm area.

Although the above projects are within neighbouring South Canterbury there may well be flow on effects for the Waitaki District e.g. employment opportunities for local residents, opportunities for the construction, retail and business sector.

## 6.6 Future Development and Strategy

The Hampden township's wastewater is treated and disposed of through on site systems, predominantly septic tanks and soak holes. This is not a public system, but private in its entirety. Issues with the performance of some systems have been identified in the past and mitigation options considered included:

Option	Description
Status quo	The landowner is responsible for maintaining the private onsite system. Council's involvement is primarily reactive, and focussed on consenting, enforcement and education. This approach is not meeting community

Option	Description
	needs, especially where individual landowners lack the resources or expertise to exercise sufficient care
Managed onsite wastewater systems	This acknowledges that the onsite systems require a greater degree of management than what individual landowners can provide. This will be through a Council managed inspection and cleaning contract of onsite wastewater systems
Reticulated wastewater system	This requires the establishment of a reticulated wastewater system for Hampden township. Cost estimates range from \$5.7m to \$5.9m, excluding ongoing maintenance costs

The cost of a reticulated system was significant and it was resolved to address the issues through a Council managed inspection and cleaning programme of onsite wastewater systems. This programme ensures 5 yearly monitoring and reporting of systems to identify non-compliant systems to protect public health and maintain environmental quality. Regulatory changes and increased environmental standards may require revisiting the options for future management of Hampden wastewater. Options may include a long term contract for continued cleaning and inspection of septic tanks or a Council-owned reticulation, treatment and disposal system (LTP [WW 16](#)). In the short term on-going cyclic cleaning and inspection of septic tanks in Hampden is included as an improvement item ([IP WW6](#)) until a long-term solution is confirmed.

The Duntroon communal septic tank system was installed by the Ministry of Works and Development during the 1970's. The system collect wastewater from ten houses. The Waitaki District Council came into possession of the septic tank in the 1980's when the Ministry of Works sold the site, and has since been responsible for the treated sewage collection and disposal system. This was a permitted activity under the previous Regional Plan. Once the Canterbury Land and Water Regional Plan became operative the activity was no longer permitted but a discretionary activity requiring a resource consent.

During February 2021 Council was granted a five year consent to enable appropriate investigation and consideration of options to meet regional rules and environmental standards (LTP [WW15 & WW26](#)). Council will consult with the community on options and implications.

Upgrading of the wastewater treatment plants will continue during the term of this Plan at Kurow, Palmerston and Duntroon, to meet resource consent conditions and improve capacity (LTP [WW9 WW14, WW15](#)).

Oxidation ponds (Waste Stabilisation Ponds) in the district have been in operation for more than 30 years and have accumulated significant amount of wastewater sludge. These ponds are now nearing a period where the capacity of the facility is affected by the volume of sludge build up and require removal of the sludge. This is an issue faced by many councils across New Zealand. Options will be investigated for removing, dewatering and disposing of the sludge (LTP [WW1](#)).

Investigations will continue into the design capacities of treatment plants, pump stations and trunk mains to allow planning for growth and mitigate overflows during wet weather events. This will include consideration of options to prevent environmental contamination and associated health risks i.e. emergency storage or increased pump capacity increase or duplication of rising main, etc. Overflow mitigation projects are programmed for Oamaru, Palmerston and Omarama (LTP [WW5; WW8 & WW10](#))

## 6.7 Demand Overview

Efficiency of service is monitored through resource consent compliance, BOD monitoring, discharge volumes, pump hours, customer service records and NFPM reporting.

### 6.7.1 Water Consumption

The following schemes have a public water supply and public wastewater collection system:

Duntroon	Kurow	Lake Ohau
Moeraki	Oamaru (Kakanui & Weston)	Omarama

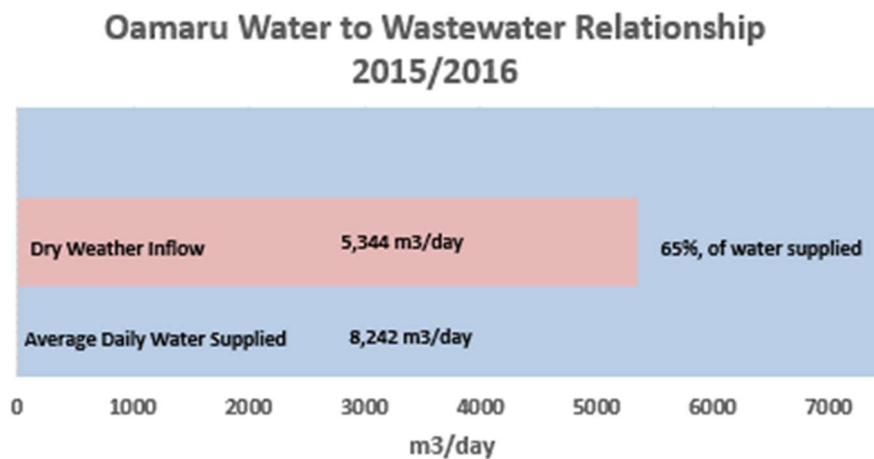
Otematata	Palmerston
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With the exception of water supplied for irrigation and unaccounted for water most water supplied by the Waitaki District public water supply systems tabled above is subsequently discharged into the wastewater reticulation. Changes in water consumption patterns are therefore likely to be largely reflected in corresponding changes in discharges to the wastewater system. An increase in water consumption is expected to generally follow population increase trends.

Long-term water usage data from the individual supplies. Council will use SCADA and data loggers where possible to calculate and monitor demand flows for long term water usage data.

Industry standard guidelines indicate that wastewater flows are usually in the order of 70% to 80% of water demand flows. Water demand flows can be used for guidance on the extent of inflow/infiltration and or capacity requirements.

**Figure 6-4: Water and Wastewater Relationship**



The above graph shows the average daily water demand (8,242m<sup>3</sup>/day) as the blue block. The dry weather inflow to the Oamaru WWTP is shown in red. This demonstrates the relationship between water demand flows and wastewater flows. The inflow into the Oamaru WWTP is 65% of the corresponding water demand.

### 6.7.2 Wastewater from other sources

Septic tankers are only allowed to discharge to the Oamaru WWTP. The volume of their discharge is not high but it is more concentrated than domestic waste. The existing septage ponds consist of two ponds next to each other at the Oamaru WWTP and contractors discharge septage from domestic tanks into the septage ponds. The ponds are filling up and capacity is limited and alternative options for handling at the Oamaru WWTP should be investigated. There is a further option of installing a disposal point at Orwell Street or Regina Lane Pump Stations. This could include a collection tank and controlled discharge into the network which will provide adequate dilution of septage and no further requirement of sludge disposal. This should be investigated as a future option ([IP WW2 & 3](#)).

### 6.7.3 Stormwater entry to the wastewater system – Inflow/Infiltration

The rate of inflow and infiltration (I/I) of rainwater into the wastewater network is a key factor in future wastewater demands. Most urban systems across New Zealand experience inflow/infiltration with stormwater making up between 20% to 40% of wastewater volumes.

However, the I/I will continue to contribute to the future wastewater volumes as the system continues to deteriorate with age. The I/I rate will depend on the changes in climate conditions, which are expected to produce more intensive and frequent rainfalls.

The Ministry for the Environment has released a report on the impacts of the changing climate in New Zealand which concludes:

- Temperatures in New Zealand are likely to increase faster in the North Island than in the South Island, but generally less than global average temperatures
- Rainfall is projected to increase in the west of the country and decrease in many eastern regions. But dry periods will increase in some regions
- Many climate models indicate a greater future variability of rainfall with an increased risk of droughts (quantitative predictions are not possible at this stage)
- Other expected changes in climate extremes are, on average, fewer frost days during winter and more hot days during summer

Most of the impacts characterised in this report are expected to occur over the next 20 to 100 years.

The longer dry spells and higher temperatures may lead to a decrease in infiltration and inflow into the wastewater system. However higher intensity rainfall events can increase inflow into the sewer as flooding around gully traps and manholes can occur. The actual effect of climate change on flows in the wastewater system cannot be quantified at this point.

Although infiltration/inflow strategies are expected to progressively reduce the entry of stormwater into the wastewater reticulation it has been assumed for the purposes of estimating the future demand for wastewater.

The Waitaki District Council employ the following strategies to minimise inflow and infiltration:

- Determine an acceptable point of infiltration/inflow to which we will design and develop programmes to reduce the volume of stormwater into the wastewater system in private properties over that point (infiltration/inflow programmes)
- Repair or renewal of pipelines where there is excessive entry of stormwater and or groundwater through defects in the pipes
- Providing additional capacity in parts of the wastewater system

During 2010 Council investigated cross connections between Council wastewater and stormwater assets. This consisted of a variety of methods to identify any potential cross connections allowing stormwater into the wastewater network. This survey identified some locations where the potential exists, but no examples where significant inflow may occur were found. Options will be reconsidered and may be extended to survey private properties.

Inflow/infiltration into the wastewater system reduces capacity, increase potential for overflows, increase power consumption at facilities and treatment costs. A district wide inflow/infiltration programme to ensure the collection system is maintained to operate at optimum capacity is included as a project (LTP [WW3](#)).

#### **6.7.4 Extension of wastewater reticulation to unserved areas**

Several townships in Waitaki District currently dispose of wastewater by means of individual septic tanks and effluent disposal fields. These areas include:

- Maheno
- Reidston
- Herbert
- Hampden

The Hampden wastewater system is operated through a Council managed inspection and cleaning programme of onsite wastewater systems. Discussions and investigations are on-going into the suitability and drivers to consider options to resolve wastewater treatment and disposal in these towns.



**Duntroon** - The existing septic tank system is a communal system installed by the Ministry of Works and Development in Duntroon during the 1970's. The system collect wastewater from ten houses. The Waitaki District Council came into possession of the septic tank in the 1980's when the Ministry of Works sold the site, and has since been responsible for the treated sewage collection and disposal system. This was a permitted activity under the previous Regional Plan. Once the Canterbury Land and Water Regional Plan became operative the activity was no longer permitted but a discretionary activity requiring a resource consent. Council have applied for a short term consent to allow appropriate investigations, consideration of options and consultation before applying for a long term consent (LTP [WW15 & WW26](#)). This application is in process at the time of writing this Plan.

### 6.7.5 Technology Changes

Technology is constantly changing and improving. It can have significant effects especially in terms of processes and techniques leading to efficient provision of services. For example composting or waterless toilets can decrease both water usage and discharges to the wastewater system. Insinkerators can also increase solid loadings at the treatment plants.

The rate of adoption of alternative technologies such as composting toilets by the community has not been high. This is not anticipated to change. The adoption of insinkerators has been more widespread although there is no evidence to indicate that the extent of the resulting increase in solids loading has been significant. This will be monitored on an on-going basis. For the purposes of estimating the future demand for wastewater services it has been assumed that the impact of new technologies will not be significant over the next 20 years.

## 6.8 Demand Projection and Capacity

### 6.8.1 Demand Projection data

Demand projection data for all schemes are limited by the following factors:

#### Long term flow data

Long-term flow data from the individual systems and pump stations - Without reliable historical data it is difficult to ascertain the spare capacity at any given time and therefore predict when additional capacities are required.

Daily and weekly flows are monitored through SCADA and pump hour analysis. Resource consent compliance provide further confirmation of current performance.

Acquisition and replacement of flow meters to validate actual flow data and design data is included as an improvement item ([IP WW27](#)).

#### Population predictions

Long term population predictions ([IP H3](#)) were addressed in the WDC Projections for Resident Population, Dwellings and Rating Units to 2045. The population predictions are discussed in Section 6.3 above.

#### Infiltration rates

Infiltration rates cannot be ascertained in the majority of systems. When the infiltration rate is controlled to an agreed level, this can assist in possessing additional capacity that may normally be wasted. Council engineers believe that the wastewater mains are mainly above the water table. Soil conditions are such that there is not a significant amount of infiltration. CCTV records also show very little infiltration at pipe joints or cracked pipes. Up to 30 % of the wastewater reticulation has had CCTV inspections carried out.



Inflow enters the wastewater system very soon after rain begins and stops soon after the rain stops. This is believed to be the most significant contributor to increased flows within the wastewater collection system in Oamaru. Inflow/infiltration into the wastewater system reduces capacity, increase potential for overflows, increase power consumption at facilities and treatment costs. A district wide inflow/infiltration programme to ensure the collection system is maintained to operate at optimum capacity is included as a project (LTP [WW3](#)).

### Design Capacity

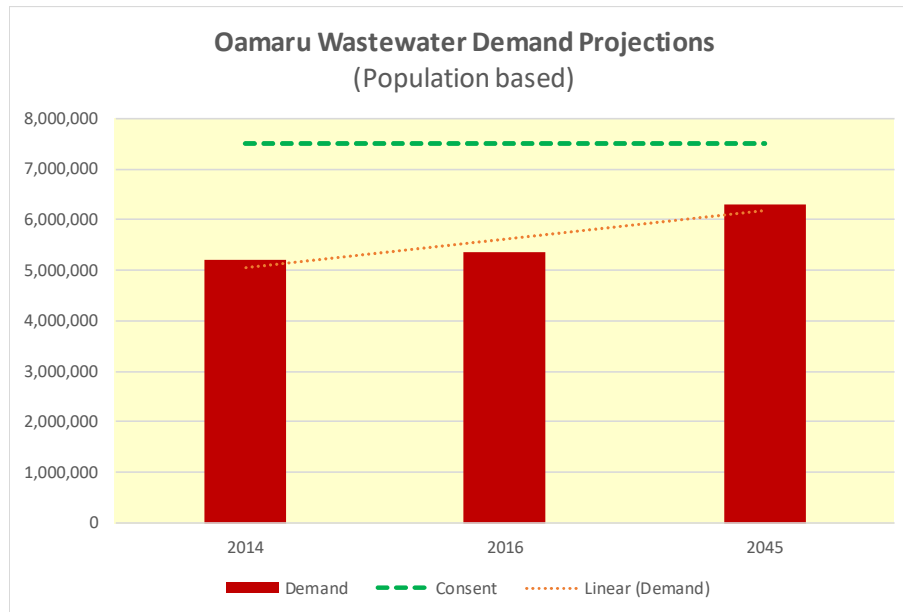
The design capacities for the individual systems are required to allow ongoing assessments of spare capacity. This includes the capacities of pumping stations, treatment and disposal systems. This information can then be readily used to clearly show any spare or over capacity in all areas of the systems ([IP 16](#)).

### 6.8.2 Projected Demand

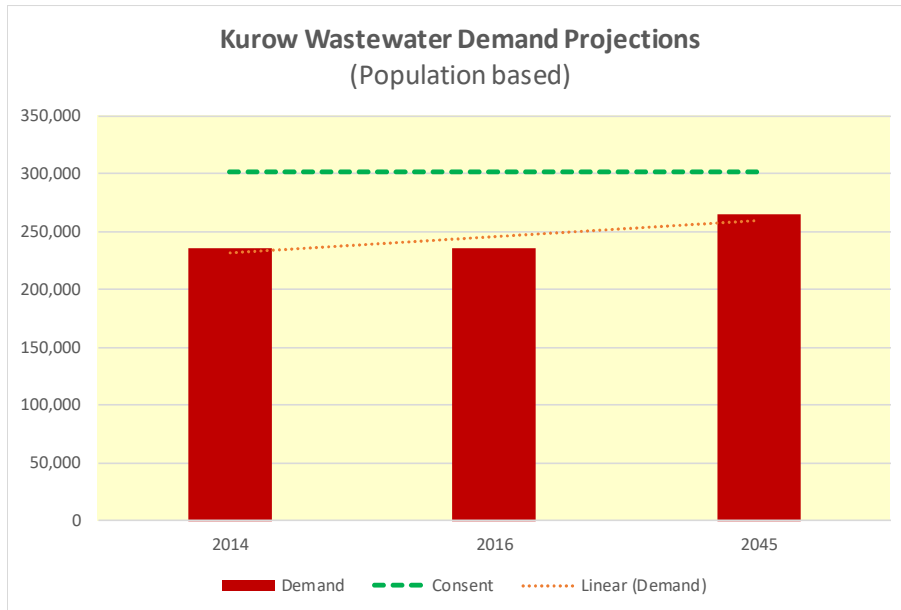
The following graphical representation of projected demand is based on:

- Using the annual average daily inflow and dividing that with the population figures provides a volume (litres/person/day) which is then multiplied with the projected population figure for year 2045.
- This is not refined and the total inflow into the WWTP.

**Figure 6-5: Demand – Oamaru Population Based Projection**



The above graph shows that the projected Oamaru wastewater inflow is well within the consented limits for the next 30 years, but there are issues around BOD5 loading. The projected demand includes the Weston and Kakanui systems.

**Figure 6-6: Demand – Kurow Population Based Projection**


The above graph shows that the projected Kurow wastewater inflow is well within the consented limits for the next 30 years.

The projected demand for Omarama, Otematata, Moeraki and Palmerston are similar and within consented limits.

### 6.8.3 Future Use and Spare Capacity

The spare capacity and constraints of the ten wastewater systems are detailed in Table 6-4: Public Systems Spare Capacity below. The results of investigations and data obtained from design capacity investigations (**LTP W2**) will be included in future revisions of this Activity Plan.

**Table 6-4: Public Systems Spare Capacity**

System	Population		ADWF (m <sup>3</sup> /day)		PDWF (m <sup>3</sup> /day)		BOD loading (kg/day)		Comments
	Design	Actual	Design	Actual	Design	Actual	Design	Actual	
Duntroon									
Moeraki									
Kakanui									
Weston									
Kurow									
Lake Ohau									
Oamaru									
Omarama									
Otematata									
Palmerston									

During 2017 Council engaged Fluent Infrastructure Solutions Ltd to investigate and report on the performance of the Oamaru wastewater system with particular focus on wet weather overflows. This investigation considered flow monitoring, pump records, pump capacities, rainfall data and water supply

data. Existing emergency storage at wastewater pump stations were included in this investigation. The report documented a number of conclusions and recommendations mainly focussed on increasing pump capacity and emergency storage at existing pump stations. Council engineers note these, but investigations are ongoing to find the optimum solution with least risk and least costs to the benefit of the community now and into the future while protecting public health and the environment. Overflow mitigation projects are programmed for Oamaru, Palmerston and Omarama ([LTP WW5](#); [WW8](#) & [WW10](#))

Running parallel to this is an audit of wastewater treatment plants to improve operational conditions and ensure optimum capacity identified several improvement items. These have been recorded, considered and appropriate actions assigned to the relevant parties i.e. internal staff and council contractor. These include but are not limited to:

- Compliance
  - Sampling and reporting
  - Sludge depth monitoring
  - Odour plan review
- Reactive
  - Replace valves
  - OWWTP screenings discharge performance
  - Overland flow harvesting
  - Determine purpose and form of O&M Manuals
  - David St WWPS Door replacement
- Planned
  - Develop process plan, key parameters and appropriate intervention
  - Review data collection and analysis to inform decision making

#### 6.8.4 Basis for Capacity Studies

During 2018 Council started a new project which will provide a considered basis for the future analysis of development and renewal scenarios for the Oamaru Water Supply and Wastewater systems including conceptualised, indicatively costed solutions aligned with predicted stakeholder and community needs. The project is staged with Stage One considering:

- why systems are needed
- projection period
- who are we serving?
- Where will we serve?
- When is it needed?

Stage 2 of the Capacity Study seeks to identify areas where the existing networks cannot meet the "needs" identified in Stage 1 and develop conceptual solutions for improvement ([LTP W2](#)).

### 6.9 Demand Management Plan

The Demand Management Plan involves implementing strategies to reduce effluent flows and promote more efficient network operations. These strategies involve altering or repairing the asset to achieve the target. The effluent flow reduction strategies proposed to be used by Council are outlined in the table below:

**Table 6-5: Effluent Flow Reduction Strategies**

Strategy	Description
Stormwater Separation	Removal of stormwater ingress into the wastewater system through upgrading of the stormwater system

Strategy	Description
Response Time	Prompt response and rectification of reported leaks
Replacement/ Rehabilitation Programme	A Renewal Programme to ensure assets are not utilised beyond their useful life when the risk of unidentified failure is greatly increased
Codes of Practice	Enforcement of appropriate Engineering Codes of Practice to ensure all maintenance is carried out to the relevant standard
Infiltration Reduction	Developing an on-going infiltration reduction programme ( <a href="#">IP 3W9</a> )
Technical Standards	Ensuring new assets are constructed to the correct standards and tested appropriately before being commissioned
Standard Materials	The use of standard (high quality) materials
Quality Audits	To ensure all standards are being met

The Demand Management Plan also involves implementing non-asset strategies to manage the demand for a service. Non-asset solutions for proposed current and future use by Waitaki District Council are outlined in the table below.

**Table 6-6: Demand Management – Non Asset Strategies**

Strategy	Description
Water Conservation/ Public Education	Encouraging water conservation (within the household) and understanding the issues concerning the wastewater system through public education and advertising campaigns
Property Inspections	Encouraging property owners to comply with Council's Bylaws and stormwater discharge requirements
New Domestic Technology	Encouraging the adoption of new technologies in the home such as low-flow showerheads and dual flush toilets

The Council's future demand management approach will be a continuation of the effluent flow reduction strategies as noted in the table above. This will be further strengthened by the hydraulic modelling where necessary. This will enable the infiltration reduction to be quantified and improved upon. The reporting requirements in the Levels of Service (NFPM) will allow management of the mechanisms to ensure the strategies are effective and improved upon where required. An increase in overall flow monitoring to ascertain the domestic usage will enable changes in use patterns to be reported/acted on if required.

## 6.10 Future Capital Programme

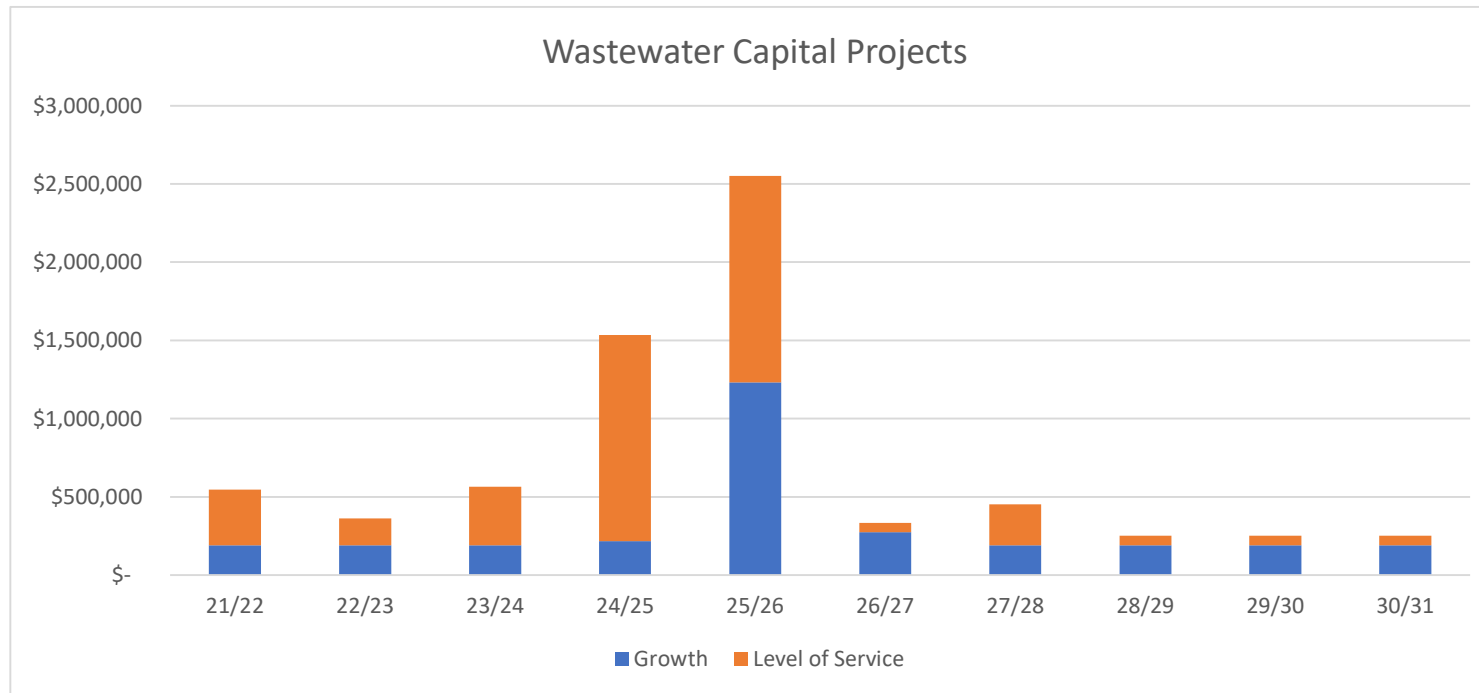
The following table details proposed capital requirements for the period 2021/22 to 2030/31. It can be seen that the new capital is primarily driven by the need to upgrade wastewater treatment plants, and overflow mitigation.

**Table 6-7: Future Capital Programme**

LTP #	Project Name	Funding Type	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
			21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
<b>WW5</b>	Wastewater Overflow Mitigation - Oamaru	Capital			254	1,257	1,257					
<b>WW8</b>	Waste Overflow Mitigation - Omarama	Capital	76	51								
<b>WW10</b>	Wastewater Overflow Mitigation - Palmerston	Capital							201			
<b>WW27</b>	Oamaru Wastewater New Monitoring Equipment	Capital	200									
<b>WW15</b>	Duntroon WWTP Upgrade	Capital					1,007					
<b>WW12</b>	Moeraki wastewater mains renewals/upgrades			41	41	41	41	41	41	41	41	41
<b>WW7</b>	Oamaru wastewater mains renewals/upgrades		191	191	191	191	191	191	191	191	191	191
<b>WW11</b>	Palmerston wastewater mains renewals/upgrades		61	61	61							
<b>WW22</b>	Risk Management Plan – Duntroon							13				
<b>WW21</b>	Risk Management Plan – Kurow							18				
<b>WW18</b>	Risk Management Plan – Lake Ohau							18				
<b>WW23</b>	Risk Management Plan – Moeraki						18					
<b>WW17</b>	Risk Management Plan – Oamaru				25							
<b>WW19</b>	Risk Management Plan – Omarama							18				
<b>WW20</b>	Risk Management Plan – Otematata							18				
<b>WW24</b>	Risk Management Plan - Palmerston							18				
<b>WW13</b>	Urban wastewater mains renewals/upgrades		20	20	20	20	20	20	20	20	20	20
<b>Total</b>			<b>548</b>	<b>363</b>	<b>566</b>	<b>1,534</b>	<b>2,551</b>	<b>334</b>	<b>453</b>	<b>251</b>	<b>251</b>	<b>251</b>

*Values are shown in thousands*

**Figure 6-7: Future Capital Programme**



## 6.11 Water and Sanitary Assessment

The Water and Sanitary Services Assessment (WSSA) is an assessment of all services (public and private) relating to:

- Water
- Wastewater
- Stormwater
- Rubbish and Recycling
- Public Toilets
- Cemeteries

The aim is to assess the adequacy of these services both now and in the future. It considers the risks that these services, or lack of these services, may pose to health and wellbeing of the community. This is a summary of the information on Council's water and waste services. It is based on the information in the most recent Assessment of Sanitary Services, (which was completed in 2005) and has been updated for significant changes since that date.

Council is required to carry out the WSSA under the Local Government Act 2002. This legislation states that the Council has an obligation to assess water and sanitary services and it gives specific details as to the scope of the assessments and processes by which they must be done. The Local Government Act 2002 (LGA 2002) requires Council to include this information in the Long Term Plan 2021-31.

Section 6, Schedule 10 of the LGA requires Council to identify any variations between the WSSA and the Long Term Plan 2021-31, thus requiring a review of the WSSA ([IP W20](#)) aligned with the three yearly LTP frequency. The most recent review was performed during 2020 for the 2021-31 LTP cycle.

Council regards this summary to be a fair representation of the information contained in the full assessments for each water and waste service. The full assessment document can be obtained from Council.

A full review of the Water and Sanitary Services Assessment is programmed for 2022 – 24 ([IP 3W12](#)).



**Table 6-8: WSSA Review 2020**

Item #	2005 Report Heading	Has anything changed since June 2005	What has changed	Level of Significance	Comment
<b>2 OVERVIEW</b>					
2.1	Background	No		Not Relevant	
2.2	Requirements in LGA 2002	Yes	Identifies purpose of assessments (Section 126)	High	
2.3	Linkages to Other Plans	No	LTCCP changed to LTP. Development of Infrastructure Strategy & Financial Strategy in compliance with changes to LGA 2002.		
2.4	Water and Sanitary Services Assessment Model	No			
2.5	Assessment of Communities	No			
2.6	Districts History - Stock water	No	Conversion from sheep to dairy farming continues (North Otago Irrigation Company; Kurow and Duntroon Irrigation Company Ltd)	Low	No known issue with water quality
<b>3 WATER AND SANITARY ASSESSMENTS</b>					
3.1	The Communities	Yes	Water - Reduced number of public supplies through amalgamation (i.e. Weston, Enfield & Kakanui connect to Oamaru; Dunback, Goodwood connect to Palmerston). Hampden/Moeraki & Herbert/Waianakarua also connecting to Oamaru Water Supply. Supplying high quality water to previously rural restricted supplies. Minor changes to population numbers. Increased water quality standards. Otekaieke WS name change to Bushy Creek WS. Privatisation of Dunrobin.	Medium	Reduced risks and increased level of service

Item #	2005 Report Heading	Has anything changed since June 2005	What has changed	Level of Significance	Comment
			Water –operational management change - Corriedale Water Management Ltd (Awamoko, Kauru Hill, Tokarahi, Windsor)	High	Operation and management are now performed by the community. Council monitors performance to ensure risks are managed appropriately
			Wastewater - increased resource consent requirements. Council is planning to manage an inspection and cleaning contract of onsite wastewater systems in Hampden. Connecting Kakanui to Oamaru WW System. <b>2020</b> -Omarama WWTP - from discharge to water to discharge to land (dispersal fields). Moeraki WWTP - from discharge to water to discharge to land (irrigation system). Duntroon communal septic tank - resource consent application in process	High	Reduced risks and increased level of service
			Stormwater - SW services in Moeraki. <b>2020</b> - Canterbury area - Canterbury Land and Water Regional Plan - resource consent obtained for stormwater discharges from urban drainage systems (Lake Ohau, Omarama, Otematata, Kurow, Duntroon) including a Stormwater Management Plan.	Medium	Reduced risks and increased level of service
3.2	The Risks for Non Reticulated Communities	No	Changes unknown		This may require WDC staff to enquire from these communities if there has been changes in risks. Consultation with the MOH may provide guidance in relation to associated risks. Reduce risk in Hampden through Council managed inspection and cleaning contract of onsite wastewater systems

Item #	2005 Report Heading	Has anything changed since June 2005	What has changed	Level of Significance	Comment
3.3	The Assessments in Summary	Yes	Water quality testing results for each community (2005 to now). Health Act & DWSNZ compliance legislative requirement. Change in farming practices & large scale irrigation. Increased focus on climate change & impacts. Population predictions. <b>2020</b> - Wastewater resource consent requirements i.e. changes in disposal for Moeraki and Omarama. Changes to Canterbury LWRP – Duntroon	Low	
3.4	The Options and their Suitability	Yes	Demand Management is becoming a resource consent condition. Canterbury LWRP requires Stormwater Management Plans for reticulated systems in Canterbury area	Low	
3.5	The Role of the Territorial Authority	Yes	Activity Management Plans completed in 2006, reviewed in 2009, 2012, 2015, and 2017. Water Safety Plans developed for Oamaru, Waihemo, Kurow, Omarama, Lower Waitaki, Hampden/Moeraki, Herbert/Waianakarua, Duntroon	Medium	
3.6	Completeness of the Assessment	No			
3.7	Population Predictions	Yes	<b>2020</b> Growth Projections Review	Low	Majority of areas had an increase in population, with most of the population growth occurring in Oamaru, some townships (Duntroon, Hampden, Kakanui, Kurow, Omarama, Palmerston) and the surrounding rural areas
3.8	Consultants Comments	Yes	<b>2020</b> -Havelock North Inquiry and the Government 3 Waters Review. Te Mana o te Wai - the	High	The August 2016 Havelock North water incident provided the catalyst for the Government Three

Item #	2005 Report Heading	Has anything changed since June 2005	What has changed	Level of Significance	Comment
			<p>integrated and holistic well-being of the water as defined by the Statement of National Significance in the Freshwater NPS.</p> <p>Establishment of a Water Regulator (Taumata Arowai) and a Water Services Act, expected to be enacted and operational by mid-2021. Regulatory coverage will extend to all water suppliers, except individual household self-suppliers. It will also include a multi-barrier approach to drinking water safety, including mandatory disinfection of water supplies, stronger obligations on water suppliers and local authorities to manage risks to sources of drinking water; and strengthened compliance, monitoring and enforcement of drinking water regulation.</p>		<p>Waters Review. The current Central Government trajectory signals improved stewardship of wastewater and stormwater services. This has renewed the focus on the very high standard of care and diligence required to supply drinking water and collect, treat and discharge wastewater and stormwater. A significantly more holistic approach to Three Waters management is dawning.</p>
<b>4</b>	<b>SOLID WASTE ASSESSMENT</b>				
4.1	History	Yes	<b>2020</b> -Waste Management & Minimisation Plan 2018-2024.	Medium	
4.2	Quantity of Waste	Yes	2008 & 2011 SWAP survey	Low	Reduction in residual waste to landfill
4.3	Waste Composition	Yes	2008 & 2011 SWAP survey	Low	Changes in waste composition
4.4	Council Services	Yes	Public kerbside collection service ceased during 2009.	Medium	Kerbside collection provided by private contractors. Council changed its role as provider to facilitator
			Reduced number of transfer stations and reduced operating hours	Low	Private waste contractors continue to expand their services reducing the need for Council provided service

Item #	2005 Report Heading	Has anything changed since June 2005	What has changed	Level of Significance	Comment
			Closure of the Oamaru landfill. New transfer station for Oamaru opened on 22 April 2017	High	Signing of a memorandum of understanding between the Waitaki District Council, the Waitaki Resource Recovery Trust and Waste Management NZ Ltd. to ensure a range of quality, accessible waste management and minimisation services are available once the landfill closed. Monitoring at a number of closed landfills reduced from sampling to visual inspections. Hampden closed landfill is subject to land movement and is being monitored. Two previously unknown closed landfills discovered along Beach Road. Council monitor these two sites through regular visual inspections
4.5	Forecasted Demands	Yes	Expected life of operational landfills	High	The Oamaru landfill consent expired in November 2017 and the Palmerston landfill consent in 2027
4.6	Options to Meet Forecasted Demands	Yes	Residual waste disposal options	High	Oamaru will continue to have private transfer stations and dispose elsewhere. Palmerston will follow suit when the landfill will be replaced by a transfer station
4.7	Council's Role	Yes	Council changed its role as provider to facilitator. Strategic direction - waste minimisation is seen as a joint responsibility of Council, private providers, the individual and the community	Medium	

Item #	2005 Report Heading	Has anything changed since June 2005	What has changed	Level of Significance	Comment
4.8	Protect Public Health	Yes	Through Council's role as facilitator Council will also monitor waste services provided to ensure the community have access to a sustainable, reliable, high-quality refuse collection service	High	
<b>5 PUBLIC TOILET ASSESSMENT</b>					
5.1	Description of Sanitary Services Provided	Yes	<p>2018 - New toilets in Oamaru Public Gardens, Oamaru Harbour and Hampden. Refurbishment of the Roberts Park toilet. New dump station in Omarama.</p> <p><b>2020</b> -New toilets at Kaitiki Straight North. Replacement toilets at All Day Bay, Kaitiki Straight South, Omarama and Weston. New dump stations in Omarama and Palmerston. New toilets in Kurow, Oamaru Harbour and Hampden. Refurbishment of the Roberts Park toilet. New dump station in Omarama</p>	High	<p>There has been changes in how sites are defined and reported on. 16 public toilets as individual entities and 4 as part of Council public facilities. A further 2 public toilets in townships provided by others (Macraes &amp; Heritage precinct)</p> <p>23 public toilets provided in reserves/sportsgrounds/camps primarily for users but available to public. A further 2 toilets provided by sports clubs with support from Council</p> <p>3 town dump stations and 4 provided by Council in reserves/sportsgrounds/camps. A further 7 are provided by private operators throughout the district</p>
5.2	Forecast of Future Demand for Sanitary Services	Yes	<p>Alps to Ocean Cycle trail will increase demand for existing and additional locations. Tourist numbers are expected to increase with 33% by 2025. Uncertainties exist around freedom camper behaviour and the responsiveness of social media can rapidly change demand in areas &amp; locations</p> <p><b>2020</b> - Respond to demand as it occurs - change in existing demand/new location/community expectation/style etc. District is well serviced and</p>	Medium	COVID 19 global pandemic will have a significant impact on tourism numbers and demand for services

Item #	2005 Report Heading	Has anything changed since June 2005	What has changed	Level of Significance	Comment
			existing toilets have sufficient capacity. Change in cleaning regime to reflect demand/use.		
5.3	Options Available to Meet Forecast Demands	Yes	<b>2020</b> - Levels of Service are continually under review to ensure safe and hygienic facilities. Options include refurbish and enhancement of existing facilities, single sex to unisex toilets, consideration for additional facilities, and use of relocatable units, portable units etc.	Medium	Options include refurbish and enhancement of existing facilities, consideration for additional facilities, and use of relocatable units, etc.
5.4	Assessment of Options	Yes	Privy type (long drop) toilets can not be phased out as there is a need for facilities in locations where Council cannot obtain discharge consent or are unable to connect to reticulated systems	High	Vault toilets are serviced regularly to prevent any environmental risks
5.5	Council's Role in Meeting Forecast Demand	No			
5.6	Proposals for Meeting Forecast Demand and for New/Replacement Infrastructure	No	<b>2020</b> - as set out in Recreation Activity Management Plan	Low	Renewal of facilities at All Day Bay, Kaitiki Straight South, Omarama and Weston. New facilities at Kaitiki Straight North. New dump stations in Omarama and Palmerston
5.7	Proposals will Ensure Public Health is Protected	No			

## 6 CEMETERIES ASSESSMENT



Item #	2005 Report Heading	Has anything changed since June 2005	What has changed	Level of Significance	Comment
6.1	Description of Sanitary Services Provided	Yes	2005 assessment states 10 cemeteries. <b>2020</b> - The Council operates 13 cemeteries (11 open), with a total land area of 38.44 hectares (26.27 Ha actively in use). Oamaru Cemetery area extended	Low	2003 Cemetery Policy replaced with 2014 Reserve Management Plan and the 2016 Cemetery Manual
6.2	Forecast of Future Demand for Sanitary Services	Yes	<b>2020</b> - Forecast demand mainly static. Minor increases expected due to aging population, but this is tempered by increased preference for ash interments. Consideration of potential demand for natural burials or different requirements for multicultural or religious reasons	Low	Waitaki Growth projections to 2045 shows that 65+ age group is forecast to increase to over 35% by 2030
6.3	Options Available to Meet Forecast Demands	Yes	<b>2020</b> - Available space and natural burial considered for Oamaru. Other options include different plot orientations in major cemeteries and in cemeteries with low demand areas will be left undeveloped to cater for special circumstances	Low	
6.4	Assessment of Options	No			
6.5	Council's Role in Meeting Forecast Demand	No			
6.6	Proposals for Meeting Forecast Demand and for New/Replacement Infrastructure	Yes	Oamaru Cemetery Extension completed in 2015/16	Medium	
6.7	Proposals will Ensure Public Health is Protected	Yes	New operating procedures completed as part of the 2016 Cemetery Manual	Low	

## 7 RISK ASSESSMENT

Item #	2005 Report Heading	Has anything changed since June 2005	What has changed	Level of Significance	Comment
7.1	Explanation of Risk Criteria	Yes	The Havelock North water contamination event <b>2020</b> - Water Regulator (Taumata Arowai) and Water Services Act.	High	Water Regulator and Waters Services Act may impact on the risk assessment and response
7.2	Consultation	No			Consulted with affected Water Supply committees on amalgamation and operational management change
7.3	Water Quality Results	Yes	Water quality testing done in accordance with DWSNZ 2008	Low	The Havelock North Inquiry may impact on the response to water quality results
<b>8</b>	<b>MAPS</b>				
8.1	Water Schemes and Areas	Yes	Reduction in number Public Water Schemes through amalgamation & divestment of management	Low	
8.2	Wastewater Schemes and Areas	Yes	Reduction in number of Public Wastewater Systems as Kakanui is connected to Oamaru <b>2020</b> - Extensions and changes to discharges at Omarama & Moeraki, but not to maps as shown in WSSA 2005	Low	Minor change will occur during implementation of onsite wastewater system inspection and cleaning contract (Hampden)
8.3	Stormwater Schemes and Areas	Yes	Extension of Public Stormwater Systems	Low	Installation of stormwater pipe in Moeraki
8.4	Cemeteries within Waitaki District Council	No			
8.5	Toilet Locations within Waitaki District Council	Yes	New toilets at Oamaru Harbour & Hampden <b>2020</b> - New toilets at Kaitiki Straight North.	Low	
8.6	Deprivation Index	Yes	Newly included variable 'lack of access to the Internet at home for those less than 65'. Slight changes in scores in some areas	Low	



## 6.12 Climate Change

Climate change is an important consideration in the Council's long-term planning. Guidance from the New Zealand government based on the best available climate science is used to support the planning. The Ministry for the Environment information on <https://www.mfe.govt.nz/climate-change/likely-impacts-of-climate-change/how-could-climate-change-affect-my-region/otago> provides a summary of projected climate changes over the periods 2031–2050 (referred to as 2040) and 2081–2100 (2090) compared to the climate of 1986–2005 (1995).

**Temperature** - Compared to 1995, temperatures are likely to be 0.6°C to 0.9°C warmer by 2040 and 0.6°C to 2.8°C warmer by 2090. By 2090, Otago is projected to have from 4 to 25 extra days per year where maximum temperatures exceed 25°C, with around 13 to 45 fewer frosts per year.

**Rainfall** - will vary locally within the region. The largest changes will be for particular seasons rather than annually. Otago is expected to become wetter, particularly in winter and spring.

According to the most recent projections, extreme rainy days are likely to become more frequent in Otago by 2090 under the highest emissions scenario.

**Snowfall** - the Otago region is likely to experience significant decreases in seasonal snow. By the end of the century, the number of snow days experienced annually could decrease by as much as 30-40 days in some parts of the region. The duration of snow cover is also likely to decrease, particularly at lower elevations.

Less winter snowfall and an earlier spring melt may cause marked changes in the annual cycle of river flow in the region. Places that currently receive snow are likely to see increasing rainfall as snowlines rise to higher elevations due to rising temperatures. So for rivers where the winter precipitation currently falls mainly as snow and is stored until the snowmelt season, there is the possibility for larger winter floods.

**Wind** – the frequency of extremely windy days in Otago by 2090 is likely to increase by between 2 and 5 per cent. Changes in wind direction may lead to an increase in the frequency of westerly winds over the South Island, particularly in winter and spring.

**Storms** - future changes in the frequency of storms are likely to be small compared to natural inter-annual variability. Some increase in storm intensity, local wind extremes and thunderstorms is likely to occur.

**Sea level rise** - New Zealand tide records show an average rise in relative mean sea level of 1.7 mm per year over the 20th century. Globally, the rate of rise has increased and further rise is expected in the future.

For Otago this means

**Flooding** – More heavy rainfall will increase the risk of flooding and landslides, particularly in western Otago.

**Drought** – By 2090, the time spent in drought ranges from minimal change through to more than double depending on the climate model and emissions scenario considered. More frequent droughts are likely to lead to water shortages, increased demand for irrigation and increased risk of wild fires. Reduced snowfalls may affect water availability since snow acts as a storage mechanism until the water is required in summer.

**Coastal hazards** – There may be increased risks to coastal roads and infrastructure from coastal erosion and inundation, increased storminess and sea-level rise. Rising sea levels and storm surge will increase the risk of salt-water intrusion in low-lying coastal areas.

**Lakes** – Higher temperatures and changes in rainfall are likely to result in higher lake levels on average in western and central parts of Otago and lower levels in some eastern areas. Warmer water temperatures could lead to more algal blooms, a reduced range of trout species and the spread of pest species like carp.

**Biosecurity** – Warmer temperatures, particularly with milder winters, could increase the spread of pests and weeds.

**Agriculture** – Warmer temperatures, a longer growing season and fewer frosts could provide opportunities to grow new crops, but with reduced winter chilling some crops may not remain viable.

The National Climate Change Risk Assessment (MfE August 2020) identifies 43 priority risks across five value domains (natural environment, human, economy, built environment and governance) and highlights 10 risks considered to be the most significant. This MfE report highlights, among others, the following two domains (particularly applicable to Council infrastructure) as extreme risks:



Domain	Risk	Consequence
Economy	Risks to governments from economic costs associated with lost productivity, disaster relief expenditure and unfunded contingent liabilities due to extreme events and ongoing, gradual changes.	Extreme
Built environment	Risk to potable water supplies (availability and quality) due to changes in rainfall, temperature, drought, extreme weather events and ongoing sea-level rise.	Extreme
	Risks to buildings due to extreme weather events, drought, increased fire weather and ongoing sea-level rise.	

### 6.12.1 Climate change and wastewater

Climate change has the potential to impact existing wastewater systems and demand patterns. Sea level rise and coastal hazards may impact wastewater treatment plants located near the coast, while storms and floods may impact wastewater treatment plants located near rivers and streams.

Climate change is predicted to result in more frequent and higher intensity storms. This predicted increase can be expected to increase incidences of stormwater inflow to the sewerage system and surcharging of the network during storm events. It is expected that generally with lower rainfall the groundwater table will be lower, reducing the amount of groundwater infiltration to the wastewater network. The increased intensity of rainfall will however mean more surface water and greater chance of increased inflow to the wastewater system.

The magnitude climate change cannot be reliably quantified given the current state of knowledge.

No formal climate change impact study have been undertaken, but Council engineers consider the following overall impacts for the 3 Waters utilities

- Water
  - Increased demand due to prolonged drier periods
  - Increased severity and frequency of storm events may affect some water sources
- Wastewater
  - Increased severity and frequency of storm events may result in more inflow/infiltration and potential for more sewer overflows
- Stormwater
  - Increased severity and frequency of storm events may result in more overland flow and potential for more flooding. The need for additional capacity may increase

Water may become scarcer in quantity and quality due to changes in climate and rainfall patterns, resulting in increased frequency of flooding and droughts. Many factors contribute towards the scarcity of drinking water: consumption and run-off; an increase in water-intensive industrial activities; a lack of adequate pre-treatment arrangements; leaks and losses from inefficient water distribution; and inadequate wastewater collection systems.

It is assumed that climate change will impact on the district in ways similar to that noted in the Ministry for the Environment guidance. Climate change has been acknowledged within our Infrastructure Strategy explicitly and as part of the discussion on resilience. We will take account of the impact of climate change in a number of ways, but predominantly through design and construction standards, identification of hazards, redundancy and mitigation (such as insurance) over the life of the Long Term Plan and Infrastructure Strategy. Currently, we do not consider any planned change in levels of service arising from climate change.

#### **Activity Response to Climate Change**

Our strategic response to the external factors of climate change and resilience are:

- Preventing adverse effects of climate change and natural hazards through careful planning of future development areas i.e. we do not locate new communities and supporting infrastructure in areas at significant risk from hazards.
- Most of the wastewater service networks are located in each township and therefore decentralised. Oamaru serves multiple urban areas.
- Work with neighbouring Councils on 3Waters initiatives where there are mutual benefits.
- Factor climate change (such as flooding and droughts) and adverse events into long term, civil defence planning and infrastructure requirements (particularly transport and water).
- Continue to investigate and implement measures to minimise wastewater discharge through reduction of inflow & infiltration
- Encouraging a more holistic approach to 3 Waters management, operation and maintenance

## 7.0 SUSTAINABILITY

This section looks at the processes for assessing and managing sustainability for the three waters activity and its integration with Council’s other activities.

Providing an excellent ‘sustainability’ section demonstrates:

- Consideration for sustainable practices including
  - Social, economic, cultural, and environmental well being of the people
  - Reasonable foreseeable needs of future generations

**WHY** – to ensure we provide the service agreed to by the community at a level that is affordable, socially acceptable, culturally considerate, environmentally friendly now and in future

### 7.1 Overview

Sustainability can be defined as meeting the needs of the current generation without compromising the ability of future generations to meet their own needs.

#### 7.1.1 International Context

The 17 Sustainable Development Goals (SDGs), part of the 2030 Agenda for Sustainable Development and adopted by all United Nations Member States in 2015, recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests. The diagram below summarises the SDG goals:

**Figure 7-1: United Nations Sustainable Development Goals**



#### 7.1.2 National Context

New Zealand will contribute to achievement of the SDG goals through a combination of domestic action, international leadership on global policy issues, and supporting countries through the New Zealand Aid Programme.



Achieving the SDGs will require a cross-government effort. New Zealand government agencies are reviewing the goals and their alignment with Government priorities. This analysis will inform a discussion on how New Zealand focuses its efforts. The private sector and communities can also help and are engaging with government agencies on the SDGs.

**Table 7-1: Sustainable Development Goals, Objectives & Response**

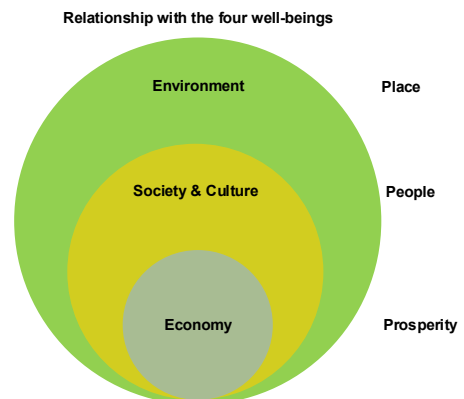
SDG	Objective	Organisational Response
 <p><b>3</b> GOOD HEALTH AND WELL-BEING</p>	 <p>Ensure healthy lives and promote well-being for all at all ages</p>	<p>Provision of core services that underpin and promote community well-being: 3Waters, Transportation, Parks and reserves (Open Spaces), Regulatory services</p>
 <p><b>6</b> CLEAN WATER AND SANITATION</p>	 <p>Ensure availability and sustainable management of water and sanitation for all</p>	<p>Provision of 3Waters Services</p>
 <p><b>7</b> AFFORDABLE AND CLEAN ENERGY</p>	 <p>Ensure access to affordable, reliable, sustainable and modern energy for all</p>	<p>Promote energy efficiency and clean energy use with the organisation.</p>
 <p><b>8</b> DECENT WORK AND ECONOMIC GROWTH</p>	 <p>Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</p>	<p>Provision of services and core infrastructure to promote and support local economic development</p>
 <p><b>9</b> INDUSTRY, INNOVATION AND INFRASTRUCTURE</p>	 <p>Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation</p>	<p>Provision of services and core infrastructure to promote and support local economic development. Resilience and sustainability aspects considered in design standards and project planning and design.</p>
 <p><b>11</b> SUSTAINABLE CITIES AND COMMUNITIES</p>	 <p>Make cities and human settlements inclusive, safe, resilient and sustainable</p>	<p>Promote resilience, safety and sustainability through the District Plan, urban growth and planning regulations and guidelines</p>

SDG	Objective	Organisational Response
 <p><b>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</b></p>	 <p>Ensure sustainable consumption and production patterns</p>	Promote and implement waste minimisation initiatives within the organisation
 <p><b>13 CLIMATE ACTION</b></p>	 <p>Take urgent action to combat climate change and its impacts*</p>	<p>Set and monitor climate change goals and trends. Particularly in relation to sea level rise and coastal inundation.</p> <p>Long term planning of Wastewater treatment processes and plant location</p>
 <p><b>14 LIFE BELOW WATER</b></p>	 <p>Conserve and sustainably use the oceans, seas and marine resources for sustainable development</p>	<p>Ensure water, wastewater and stormwater impacts on rivers waterways and the ocean are minimised through implementing good management and monitoring procedures.</p> <p>Ensure resource consent conditions are always met.</p>
 <p><b>15 LIFE ON LAND</b></p>	 <p>Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt</p>	<p>Ensure the promotion of sustainable planning and land development procedures in the District Plan.</p> <p>Ensure sustainable planning and design principles in 3Waters and Transportation project implementation</p>
 <p><b>16 PEACE, JUSTICE AND STRONG INSTITUTIONS</b></p>	 <p>Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels</p>	Good organisational local governance.

There are increasing signals from Central Government that the focus on more efficient use of water, including better management of its demand, will intensify. Regional Councils are increasing water take consent conditions to encompass sustainable use of water. Increasing demand will lead to a need for investment in additional infrastructure.

The LGA 2002 requires Local Authorities to take a sustainable development approach while conducting its business. In doing this Council is required to take into account the following:

- The social, economic, and cultural well-being of people and communities



- The need to maintain and enhance the quality of the environment
- The reasonable foreseeable needs of future generations

## 7.2 Sustainability and Lifecycle

Asset management is designed to improve decision-making about assets to enable the better management of existing and future assets. Effective asset management ensures that agreed levels of service are met and risks, including public health, financial and environmental are minimised, while costs are optimised. Improved decision-making is crucial to achieve asset management and sustainability goals. Therefore, having the correct asset information available is important to support the decision-making process. It is thus clear that lifecycle costs is part of and supports asset management and sustainability.

Asset management practices include action that recognise the need for environmental, economic, social and cultural sustainability, that is –

- The natural environment needs to be preserved for future generations and not degraded as a result of Council's asset management operations and development projects
- Financially, there is a limit to what ratepayers, developers, and therefore Council, can afford. Expenditure needs to remain within this limit and the costs need to fall equitably on the generations which derive the benefits
- Social relationships between individuals, interest groups and local government are valuable, and Council needs to facilitate and encourage this by providing infrastructure
- Our history, customs and creativity are valuable to us. Their preservation and enhancement over time is facilitated by providing venues where they can be practiced, preserved and displayed

As demonstrated in Sections 8.3.3 Performance, 8.4.2 Condition and 10.5 Data Confidence it is evident that Council has a significant amount of real data with a high level of confidence. This and other information is used continually to guide decision-making to ensure new capital and renewal projects are identified based on real and current data. It is acknowledged that renewal decision making can be refined and this is included as a Renewal Plan ([IP 3W16](#))

## 7.3 Sustainability and Waitaki District Council

Sustainability forms part of everything Council does. It is considered in all tasks performed by Council. In managing, operating and maintaining 3Waters systems Council would like to do this to a level of excellence. However, this is not sustainable and all systems are managed, operated and maintained to an optimum level appropriate for that specific system and task. Council endeavours to always act in the best interest of the community and as a result sustainability is at the forefront of any design that Council undertakes in relation to the facilities and distribution/collection networks.

### Activity Response to Sustainability

We will continue to:

- Protect the environment
  - Water takes are consented
  - Discharges are consented
  - Improving effluent quality and/or improved disposal methods
- Provide reliable and safe wastewater collection and disposal systems

- Compliant with the legislation and appropriate standards
- Optimal decisions based on least capital and lifecycle cost solution satisfying the requirements of the environmental standards
- Pipe size and materials – appropriate for now and the future
- Increase efficiency at facilities
  - Use of VFDs
  - Night pumping to take advantage of lower electricity rates
  - Duty/assist pump arrangements
  - More efficient aeration
  - Pump selection
- Within Council (refer Section 7.10):
  - Staffing levels
  - Skills
  - Training
  - Succession planning
- Collaboration with other Councils

#### **7.4 Significant Negative Effects – 10 Year View**

The negative effects for the Waitaki Community that the wastewater service may have on the social, economic, environmental or cultural well-being of the community is tabled below. It indicates how the existing approach or proposed action to address these in the future. There are no significant negative effects shown to occur for the wastewater service.

**Table 7-2: Negative Effects**

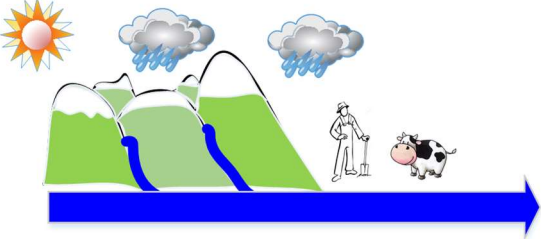
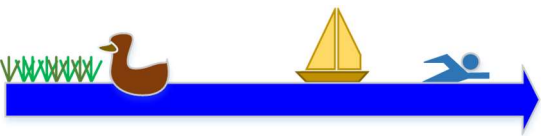

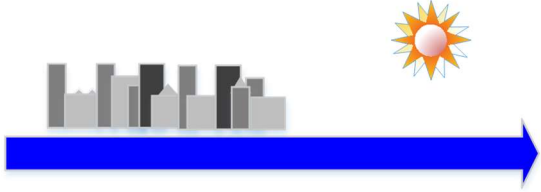
Negative Effect	Impact on well-being				Comment
	Economic	Social	Environmental	Cultural	
<b>Wastewater Treatment Plants</b>					
Discharge of treated wastewater to water/land	Minor	Moderate	Moderate	Moderate	Ensure ongoing compliance with resource consents through maintenance and operation of wastewater treatment plants and upgrade where required to meet increased consent conditions
Noise	None	None	None	None	Plants are generally outside or on the boundary of urban areas and generally don't have noise producing plant
Discharge of odour	None	None	None	None	A high degree of odour control is provided.
<b>Pump Stations</b>					
Noise	Minor	None	Minor	None	All pumps are contained within structures with appropriate sound proofing where required
Discharge of odour	None	Minor	Minor	Minor	Where reported, it is resolved within specific contract timeframes
Overflows	Moderate	Moderate	Moderate	Moderate	Pump station overflows are rare and resolved within specific contract timeframes. Overflow mitigation is included as a future project and Improvement item
<b>Reticulation</b>					
Overflows	Moderate	Moderate	Moderate	Moderate	Overflows from mains are resolved within specific contract timeframes
Discharge of odour	None	Minor	Minor	Minor	Where reported, it is resolved within specific contract timeframes

## 7.5 Future Direction

Section 5.1 Government and Industry Direction documents the signals from Central Government and the Water Industry of the areas of importance and future direction. Council engineers keep a keen eye on developments in these areas and directives. Themes signalled include but are not limited to:

- Risk management<sup>5.1</sup>
- Resilience
- Data –
  - correct information
  - how we use it
- Holistic approach to 3 Waters

The table below attempts to demonstrate in simple terms how we use water and how water means different things to different people/industries. Water connects all of us and we need to consider how our activity impacts on water and others.

Area	Influence
	<p>Rainfall – climate change effects may result in more extreme events i.e. floods and droughts</p> <p>Land use and ground cover affect surface and ground water</p>
	<p>Wetlands and water bodies - provide storage during dry periods provide ecosystems provide recreational values provide cultural values (food gathering) provide energy</p>
	<p>Water takes – Used for drinking water, stock water, industry and irrigation need increasing demand</p> <p>Discharge - From points sources (pipes) and diffuse ((land use) need volume to dilute contaminants</p>
	<p>Domestic and Industrial demand - Population increase and increased demand</p> <p>Climate change – Increased frequency and intensity of weather events will increase demand</p>

## 7.6 Future Initiatives for 30 Year Delivery of 3 Waters (Growth/Decline)

Different demands are experienced on the three waters services during periods of population growth and decline. We must be mindful that decline can have a significant impact on the provision of services.

The following general approaches will be applied where appropriate.

- Monitor growth and demand – with just in time provision of infrastructural assets (reticulation and facilities)
- Develop and maintain a robust asset condition profile with renewals profile and ensuring funding in place to replace
- Monitor disposal of waste (stormwater, wastewater) to ensure good health
- Secure resources e.g. water for growth expectations, with strong focus on wise use of water
- Monitor condition and quality of water, with trigger levels set against standards. Develop and maintain Risk Management Plans ([LTP WW17 - 24](#))

## 7.7 Integration of Wastewater Systems

In conjunction with the Water Treatment Plant Upgrades to comply with the Health Act and DWSNZ 2008, Council engineers have also considered the best options for Wastewater Treatment Plant upgrades to meet increased consent conditions required during resource consent renewals.

Upgrading the Kakanui WTP and WWTP coincided and Council engineers considered all possible options to ensure compliance with the Health Act (WTP) and increased resource consent conditions (WWTP). Several options were considered and these are tabled below showing cost estimates:

Water				Wastewater			
Option	Description	Costs		Option	Description	Costs	
		Capital	Lifecycle			Capital	Lifecycle
1	Treat existing source	\$445,000	\$1,576,000	1	Ocean discharge	\$439,000	\$797,000
2	<b>Connect to Oamaru</b>	<b>\$359,000</b>	<b>\$469,000</b>	2	Subsurface discharge	\$481,000	\$765,000
				3	Land disposal	\$762,000	\$1,436,000
				4	<b>Connect to Oamaru</b>	<b>\$228,000</b>	<b>\$446,000</b>

As shown above the least capital and lifecycle costs option was to connect Kakanui to Oamaru's wastewater and drinking water networks. Connecting to Oamaru was also the least risk option and this also allowed for future growth. Council engineers liaised with a Kakanui group as the different options were developed. In addition Council conducted a survey among residents of Kakanui and nearly 90% of residents supported connecting the two networks to Oamaru.

Integration of the water supplies and wastewater systems resulted in numerous benefits:

- Reduced compliance costs (water & wastewater)
- Reduced consent costs (water & wastewater)
- Cost savings (water & wastewater)



## 7.8 Impact of Other Activities

The wastewater activity does not function in isolation and as such it is important to acknowledge and consider the interactions with other services. The table below shows the interconnectivity between the 3 Water utilities and other service providers and Council units.

Service	Interaction
Transportation	Use of a common corridor for services
Social	Response during emergency events
Corporate	Impose contributions, fees and charges
Planning/Building	Availability of service
Telecom	Communications and monitoring
Power	Energy for facilities

## 7.9 Procurement & Options

In managing eight public wastewater systems the Waitaki District Council utilises the skills of a combination of in-house staff, contractors, and consultants.

### 7.9.1 Current Delivery

Council's wastewater services are currently operated and maintained by two different groups.

- Major contractor
- Minor contractor

The association of each group are discussed below.

Group	Association
Major contractor	Council contracts the operation and maintenance of reticulation (Contract 613) and facilities (Contract (633) to SouthRoads Ltd for wastewater systems
Minor contractor	Council use minor contractors for electrical work and telemetry equipment at facilities

Council's Assets Group, and in particular the Water Services team, undertake all management of the wastewater systems. This includes:

- Receiving customer enquiries and requests for servicing
- Issuing instructions to Contractors
- Contract management and supervision
- Asset management
- Management of new capital projects and renewal programmes
- Engagement and management of Consultants

Following an open tender process, Council awarded the 3 Waters Reticulation Operations and Maintenance contract (Contract 613) to SouthRoads commencing 1 July 2016. The contract is a measure and value contract with a term of 5 years with the ability to extend a further 2 years.

Contract 669 for the operation and maintenance of Council's wastewater facilities was added to Contract 613 as a variation in February 2017 following negotiation with SouthRoads. Contract 669 is managed

by direct engagement (Council officers carry out the management of the wastewater facility operators) on a time and materials basis.

The contract follows a collaborative approach with high value placed on quality over price. Council engineers and the contractor are working together towards a common goal of keeping the community safe and healthy. There is an on-going performance measurement process with the operation and maintenance contractor with monthly focus areas identified by the claim process and annual focus areas identified by a formal review. The contract centralised operations with work performed from a single depot in Oamaru. As performance is managed through collaboration between Council and Contractor, with quality of work of high importance, there has been noticeable improvement in materials and workmanship.

An assessment of service delivery models to determine the most appropriate model for reticulation and facilities is required (IP **3W4**). This will be followed by the implementation of the agreed models which may involve bringing facilities operation in-house and development of a new contract for reticulation.

Construction contracts are let on a project basis for new construction and renewal projects. Typically, consultants are engaged to provide design, documentation and contract supervision for these projects.

Specialised assistance and additional resources are provided by a variety of consultants. There is currently no professional services contract in place, but Council engages consultants on a case-by-case basis as required. Consultants are sourced locally (Oamaru and Timaru) as well as from Dunedin and Christchurch.

### 7.9.2 Delivery Options

Operations and Maintenance are likely to remain as contracted services. The terms of these contracts are generally for short-medium term and this is currently considered appropriate. Longer terms could be considered if it was determined that a longer term contract would provide certainty and assist with human resourcing, training and staff retention issues for both Council and the Contractor. The composition of the contract and involvement of the contractor in contract management and self-auditing could be varied if this is consistent with Council's business goals and would be mutually beneficial. A move to a performance-based style of Contract could also be considered with this option.

The current Procurement Policy resulted in less negotiation and more tendering of works, with a minimum of three quotes for minor works (excluding specialist work).

Construction and renewal work is undertaken by contractors on a project-by-project basis. If difficulties are experienced in attracting contractors to tender for work, or there are not sufficient contractors available to undertake the work, alternative approaches should be considered. Small projects could be undertaken in association with the Operations and Maintenance Contract, or work could be bundled to provide an attractive package. Council may also consider a preferred supplier approach where an alliance is formed with one or several contractors and prices are negotiated for project (e.g. target price method).

As stated above there is currently no Professional Service contract or alliance in place. Council may wish to form an agreement (contract, partnership or alliance) with one or more consultants to supplement Council's own resources.

#### **Activity Response to Procurement & Options**

We will continue to:

- commit to open, transparent and competitive procurement
- consider options that deliver best value for money (not necessarily the cheapest option)
- support the local economy
- meet legislative requirements and standards
- think about the nature of the goods, services or works needed, and assess the best way to approach the market
- base decisions on a clear understanding of Council's needs and an appropriate level of market research

## 7.10 Human Resource Management – Skills, Staffing, Training and Succession Planning

### 7.10.1 Skills

Assessment of staffing levels needs to consider the skill requirements to meet the demands of the infrastructure that Council does and will own and operate.

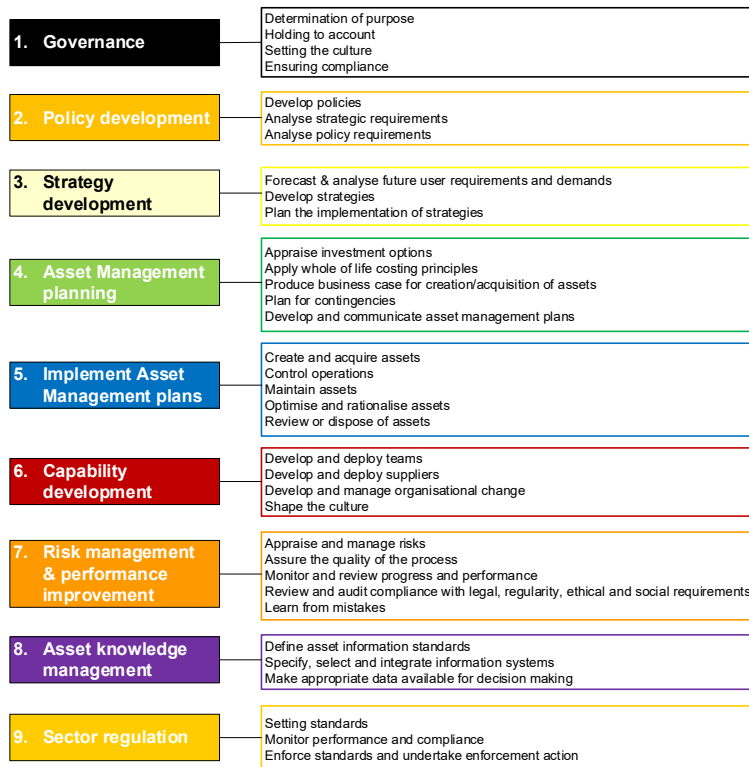
Increases in the complexity of water and wastewater treatment plants will occur as drinking water and environmental standards increase. The complexity of these plants and their associated resource consent compliance will require skilled and trained engineers for their operation, maintenance and supervision. Council needs to stay abreast of any resource requirements and qualifications to ensure the most appropriate method for delivery of the required levels of service.

During 2020 Water New Zealand released its draft Competency Framework which describes what people should be able to do and what they need to know to competently undertake their work. The Competency Framework use treatment operator roles, the people who operate, monitor and maintain water and wastewater services, as a starting point. Network/Distribution operators are still to be developed.

The Water Industry Professionals Association (WIPA) was jointly established by the Water Industry Operations Group and Water New Zealand to provide a system of recording the professional development of people working in the water and wastewater industry to ensure a high level of competency within the industry was maintained. At the time of writing this Plan registration is voluntary but may become compulsory under the new regulatory framework.

The Competency Framework identifies nine areas as shown below.

**Figure 7-2: New Zealand three waters industry areas of work**



(Source: *Water NZ – Competency Framework*)

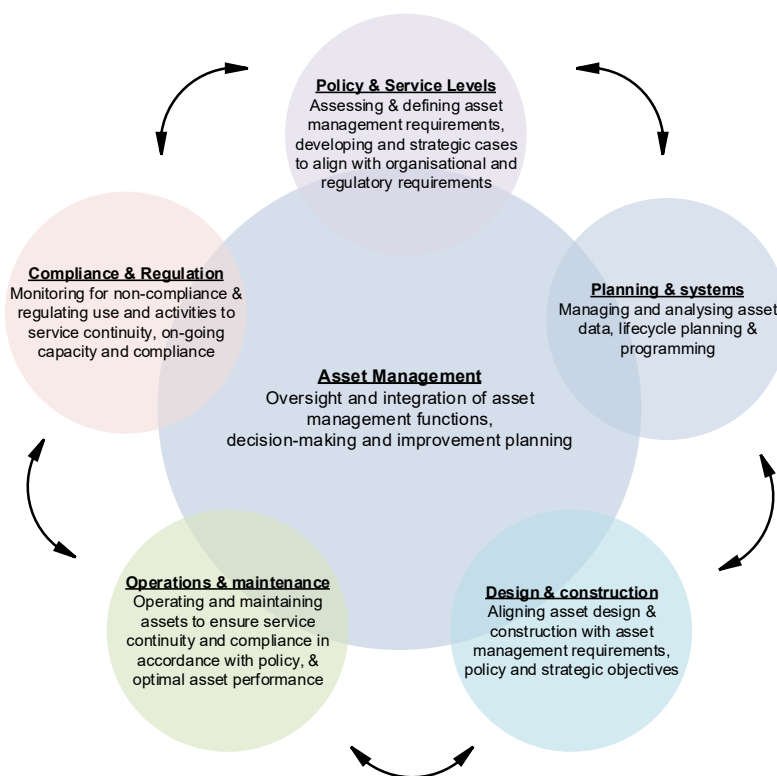
### 7.10.2 Staffing

Staffing is influenced by the external and internal environments. The external environment is the educational, socio-cultural, legal-political, and economic constraints and opportunities at local and national level. Many of these factors are beyond the control of the Waitaki District Council. However, the internal environment being the internal policies regarding promotion from within, open competition, responsibility for staffing and top-management support is able to be improved or degraded by management decisions within a Council. The Waitaki District Council is committed to improving the internal environment for staff.

The 'Navigating 3 Waters 2020-2025' proposal put to Council options for developing the 3Waters team. This compared the current Full Time Equivalents (37 FTE including internal staff, contracting staff and consultant staff) to the FTE required for the other options. The proposed structure for the team, comprising 5 key portfolio areas, is based on the core asset management functions identified in the International Infrastructure Management Manual (which defines industry best practice for 3 Waters asset management).

This structure enables better alignment of activities; the development of specific portfolio strategies to address current challenges and risks (with clear objectives and KPIs); and more targeted staff resourcing.

**Figure 7-3: 3 Waters Portfolio areas**



The portfolio areas align well with the areas of work identified within the Competency Framework (Refer **Figure 7-2**). This confirms the significant amount of responsibility and work that the Water & Wastes Unit is required to shoulder.

Add to that the strategic drivers under which the Water & Wastes unit operates including:

- Cost & affordability
- Community engagement and service levels
- Monitoring and regulation
- Public health and environmental responsibilities
- Asset resilience and capacity
- Planning and best practice

- Risk management and business continuity

**Cost & affordability** - The 3 Waters activities are relatively low-cost and affordable for current users when compared to other councils and privately-funded services (e.g. Network Waitaki), however, keeping costs down is unsustainable and continuing to focus on low rates is increasing risk and liability for Council. There are also issues around inequity that need to be addressed – e.g. trade waste, water metering, water supply upgrades funding, etc.

**Community engagement and service levels** - Service levels defined in the LTP and AMPs are generally met, although these are at risk of decline due to ageing infrastructure and difficulty maintaining compliance. The team is doing relatively well with community engagement (engagement on projects such as the HamNak pipeline), although it tends to be reactive, project-based and resource-intensive – taking engineers away from day-to-day business, and currently requires contractor support. It is anticipated that need for greater engagement will intensify over the next few years as drinking water compliance, asset management requirements, and the need for demand management come further into focus.

**Monitoring and regulation** - Monitoring and regulation has been an increased focus in recent years, There are currently minimal resources available for actively monitoring and enforcing non-compliance with Council policies and bylaws – including trade waste and water theft. Monitoring and regulation will become more of an issue and focus as the new Regulator ramps up.

**Public health and environmental responsibilities** - Council has made this a priority over the past ten years (at the expense of asset management planning) and most Waitakians now receive water that meets the DWS, however, there are some outstanding high-risk supplies (including Corriedale supplies and Stoneburn). The establishment of the new regulator will mean getting these supplies upgraded and ensuring ongoing compliance of all our supplies will be an ongoing priority and challenge. There are some emerging issues with non-compliance around wastewater and stormwater. Greater focus on and regulation around environmental compliance will add further pressure. Both of these areas are high risk and high impact for Council if not managed.

**Asset resilience and capacity** - Waitaki has historic and emerging issues with ageing infrastructure that need to be addressed. Recent infrastructure and business continuity failures here and elsewhere (eg Wellington wastewater) and capacity issues (eg Auckland water) have highlighted the need for better planning, preparedness and investment across the whole 3 Waters industry and is a Government focus.

**Planning and best practice** - Due to Council's 2009 decision to focus on meeting the DWS, the approach to asset renewals over the past ten years has been reactive. Minimal resources were dedicated to asset management. This, if left to continue, will have significant implications longer term for asset resilience, capacity, service continuity and overall cost to ratepayers. There are also current and emerging factors within the wider context that require a more integrated and professional approach to strategy and policy development for our 3 water activities to get better long-term outcomes for our communities and to meet legislative requirements.

**Risk management and business continuity** - A risk management framework and adverse event management plans for 3 Waters are lacking and a significant reliance on what's in the heads of long-term, experienced staff.

It is expected that the changes signalled by Central Government will include less tolerance for unmanaged risk/non-compliance within water supply and wastewater/stormwater collection and discharge. Council will need greater emphasis on managing ongoing compliance within the 3 Waters area i.e. an upgrade is only the start.

More resource will be needed to cover the five asset management functions listed above ([IP 3W7](#)). In managing and operating the 3 Waters activities Council need to move from a reactive approach to a pro-active approach.

This is a highly competitive market as there is a shortage of technically skilled people and Council will compete with other Councils and companies for a limited pool of suitably skilled and experienced engineers.

Increasing capacity and capability within the team is necessary to ensure:

- more work can be done including more construction and maintenance projects
- our asset capacity and resilience are improved
- risk is managed appropriately

It is essential that current and future workloads are balanced through a prudent mix of internal and external resources as conditions/workload dictates.

### 7.10.3 Training

Training of staff is presently on an ad-hoc basis with no structured long term development plans for the individual staff members in the asset management field. There is a clear link between asset life, and the ability to deliver levels of service with the skills of the people who plan, design, install, operate and maintain the assets. It is crucial that the skill gaps of staff, contractors and service providers are identified. There are structured training programmes to close these gaps.

In view of the above sections (S 7.10.1 Skills and S 7.10.2 Staffing) it is important to develop appropriate training plans and assessments for facility operators (**IP W15**). This will be extended to network operators as guidance become available.

### 7.10.4 Succession Planning

Succession planning within any business is considered necessary to reduce the risk associated with staff leaving the organisation. Succession planning allows institutional knowledge to be passed on, and assists in ensuring continuity of organisational culture.

Local Authorities have traditionally not been particularly successful at implementing succession planning techniques and practices. In previous decades the pool of experienced local authority and ex-public service engineers available meant that the negative effects of poor succession planning were not experienced. With a shrinking pool of experienced engineers, and near full employment these effects are now being experienced by more local authorities. Whilst there is always potential for staff in key positions to move on to further their careers, succession planning can help to mitigate the effects of this.

Succession planning techniques can include:

- Sourcing replacement staff from within the organisation wherever possible
- Comprehensive personal career development plans in place for all relevant staff. This can include identifying weaknesses in training and experience and attempting to address those weaknesses by use of mentoring, relevant projects and continuing professional development programmes etc.
- Identifying likely staff retirements, promotions, resignations or position changes on an annual basis. Identifying potential internal staff to fill those positions, providing those staff with projects that extend them, and giving them relevant experience for filling the positions

No formal succession planning is implemented at present by Waitaki District Council.

#### **Activity Response to Human Resource Management**

We will continue to:

- Assess what staff should be able to do and what they need to know to competently undertake their work
- Investigate, consider and provide appropriate training
- balance workloads through a prudent mix of internal and external resources



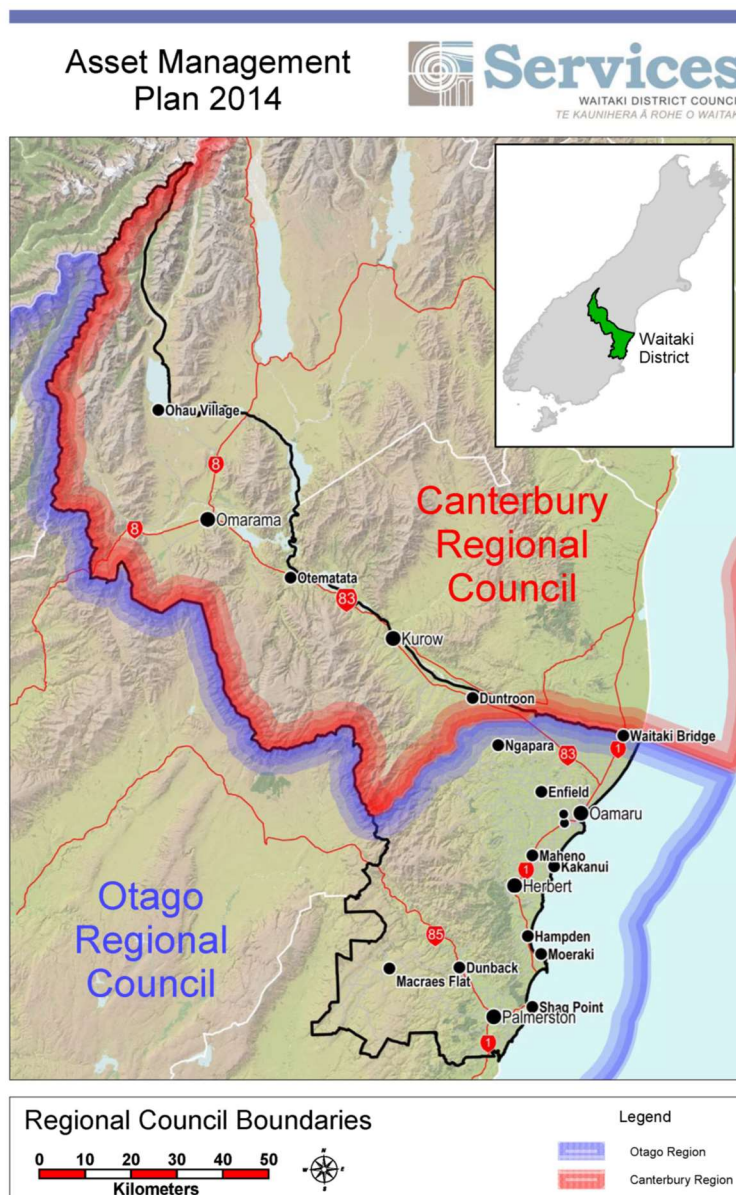
## 7.11 Environmental Management

A very important aspect of the 3Waters function is to ensure that the District’s natural water sources are managed responsibly. Resource consents are held for various activities relating to the wastewater activity such as treatment (including odour) and the disposal of treated wastewater at the wastewater treatment plants.

There are two Regional Councils that have authorisation within the Waitaki District. The north west of the district (including all of the Waitaki River) is under the authorisation of Environment Canterbury, with all of the area to the south under the authorisation of Otago Regional Council. This mixture of Regional Authorities results in two different rules and multitude of plans which impacts on staff time.

The boundaries of the two Regional Councils are graphically represented in the figure below.

**Figure 7-4: Regional Council Boundaries**



### 7.11.1 Schedule of Resource Consents

The following table lists the wastewater discharge permits that are presently held:



**Table 7-3: Resource Consents presently held for wastewater**

Location	Consent No.	Expiry Date	Allowable Discharge	Comments
Duntroon	CRC001035	None	77 m <sup>3</sup> /week	Discharge septic tank effluent onto land via soakage trench – Historically a permitted activity. Duntroon community septic tank system requires a consent as a result of Canterbury LWRP change and will likely result in an upgrade requirement
Kurow	CRC 062249	31 May 2030	15 l/s maximum	Discharge contaminants to land
Moeraki	RM 16.008.01	20 January 2053		To discharge contaminants to air
	RM 16.008.02	20 January 2053	25 l/s 225 m <sup>3</sup> /day	To discharge contaminants to land
Oamaru	ORC 2002.656	30-Apr-2038	Not applicable	Discharge to air, odours and aerosols from the Oamaru Treatment Plant
	ORC 2002.655	30-Apr-2038	7500m <sup>3</sup> /day	Discharge of 7500m <sup>3</sup> /day of treated effluent to Landon Creek
	ORC 2002.704	30-Apr-2038	7500m <sup>3</sup> /day	Discharge of 7500m <sup>3</sup> /day of treated effluent to Land
	ORC 2004.163	1 Apr 2028	Not applicable	Discharge to air odours resulting from the removal of sludge
Ohau	CRC 000426	1-Nov-2034	160m <sup>3</sup> /day	Discharge 160m <sup>3</sup> /day of oxidation pond effluent to ground via soakage trench
Omarama	CRC 082708	4 Dec 2019	750 m <sup>3</sup> /day	Discharge contaminants into water and to land
	CRC 082826	2019 to 2044	Future consent if inflow volume exceeds consented volume of CRC082708	
Otematata	CRC 012181	19-Dec-2038	22 l/s	Discharge contaminants into water during extreme rainfall events
	CRC 094041	1 June 2038		Discharge contaminants to land
Palmerston	RM11.096.01.V1	23 March 2046	350 m <sup>3</sup> /day	Discharge treated wastewater to land from the Palmerston wastewater treatment plant
Otago Region	ORC 98255	1-June-2018	Not applicable	Discharge chemically inert, non-toxic, non-radioactive tracer dye to natural water

Discharge permits are required for the discharge of treated effluent to land or water, and the discharge of gas and odours associated with wastewater treatment plants.

The Duntroon communal septic tank system was installed by the Ministry of Works and Development during the 1970's. The system collect wastewater from only ten houses, with more than half being holiday homes. Under the previous Regional Plan this was a permitted activity. The Canterbury Land and Water Regional Plan changed this to a discretionary activity requiring a resource consent. Council have applied for a 10 year consent to allow appropriate investigations, consideration of options and consultation before applying for a long term consent ([LTP WW15 & WW26](#)). This application is in process at the time of writing this Plan.

Future options to consider include but are not limited to:

- Maintaining the existing system - optimising as necessary to serve the existing service area only
- Optimising the existing system - allow connections to system within allowable design parameters
- Reticulated wastewater system - considers the establishment of a reticulated wastewater system for Duntroon township. This will be a significant capital and lifecycle costs
- Managed on-site systems - considers a Council managed inspection and cleaning contract of onsite wastewater systems.

Council engineers are working with ECan during the current consent application process. ECan have signalled that groundwater level monitoring and ceasing subsurface discharge if the groundwater level rise above a specified level as likely interim consent conditions. Long term resolution will potentially require upgrade of the existing system.

### 7.11.2 Resource Consents expired and being renewed

There is only one consent that will expire within the term of this Plan. The table below list the consent about to expire and the preliminary plans for the consents:

Location	Consent No.	Expiry Date	Preliminary plans
Kurow	CRC 062249	31 May 2030	Renew

The Kurow resource consent expires during 2030. The consent renewal will include an assessment of the system ability to meet future regulatory (and growth) requirements following discussions with the Regional Council. The existing discharge is to water while current environmental standards prefers discharge to land. The existing system is not expected to meet increased environmental standards. Council will work with ECan and local iwi to find appropriate long term solutions for wastewater discharge that meet National Freshwater Policy and Te Mana o te Wai principles. The development of conceptual solutions and constructing confirmed solutions e.g. disposal system upgrade is programmed for 2029 - 31 ([LTP WW14 & WW25](#)).

### 7.11.3 Consent monitoring and reporting

Consent monitoring and reporting within WDC for Water and Wastewater is the responsibility of the Compliance Analyst. Information for consent compliance is drawn from various databases (SCADA, Hansen, Eurofins) and forwarded to Environment Canterbury and Otago Regional Council.

Water, wastewater and stormwater resource consents, and associated monitoring and records are now held in an electronic database. The data contains all consents, conditions, associated information and includes triggers for renewal, monitoring and associated maintenance. This provides:

- The ability to demonstrate environmental compliance with confidence,
- Ease of reporting to Regional Council
- Transparency in actions required to achieve compliance

However, due to the various consents, associated conditions and number of information sources reporting is a lengthy and confusing process and needs streamlining to improve reporting compliance. It is also important to bring operational performance issues front of mind through dashboard display. This will eliminate delayed response and increase system performance. There are numerous proprietary systems that can be procured or an inhouse system can be developed. Further investigation is required to confirm the requirements of a compliance tool or hub which displays compliance information from multiple sources and development of an RFP for consideration of existing market products ([IP 3W8 & IP 3W15](#)).

The resource consent compliance for wastewater disposal is considered to be good. There have been no abatement notices, however improvements could be made in relation to timely reporting and general condition compliance for some sites.

An ORC audit conducted during 2020 found the following:

- WDC operates three WWTP with a total of six resource consents. Overall, WDC treatment plants are being adequately managed and maintained with no significant non compliances noted, however, corrective actions have been identified.
- Oamaru WWTP was assessed as having moderate non-compliance due to process issues relating to reporting to ORC and a number of minor maintenance issues such as ponding in disposal fields.

- Palmerston WWTP was also assessed as having moderate non-compliance due to minor exceedances of consented levels and failure to report as required by the resource consent.
- Moeraki WWTP has recently commissioned a new discharge to land facility which has resulted in full compliance for this plant.

Council will continue to seek and identify areas for improvement to ensure facilities are managed in an appropriate manner and comply with regional rules and environmental standards.

#### **7.11.4 3Waters Review**

Central Government has signalled through its 3 Waters review process that it is considering:

- new obligations on wastewater and stormwater network operators to implement a risk management plan ([LTP WW17 – 24](#))
- nationally consistent monitoring and reporting requirements for wastewater and stormwater networks
- stronger Central Government oversight
- network operators to
  - adopt industry good practices and minimising risks to public health and the environment, while meeting local community/iwi values
  - implement a certified risk management plan that specifies how they will: –
    - Operate and maintain networks to meet current and future regulatory requirements; e.g. freshwater objectives and limits
    - Proactively manage risks to public health and environment
    - Address community and Māori cultural expectations for wastewater disposal

Council will keep a keen eye on the development of this review, but at this stage are unable to quantify the impact this may have on the 3 Waters Service delivery and associated risks.

### **7.12 Property Designations**

The Council's District Plan contains a schedule of designated sites. Facilities not noted in this schedule are there by right and either meets the rules of the District Plan, or plans/rules that were in force at the time of installation. Major new asset sites are considered for designation as they are acquired.

These designations refer to land designated as sites where existing or proposed public work occurs, and the Waitaki District Council has financial responsibility for the project; or work in respect of any land, water, subsoil, or airspace where a restriction is necessary for the safe or efficient functioning or operation of a public work; or the sites require authority approved under section 167 of the Resource Management Act 1991; or in respect of any land, water, subsoil, or airspace where a restriction is necessary for the safe or efficient functioning or operation of a public work. These designations exist in perpetuity or until such time that the property owner no longer requires the designation.

### **7.13 Utilities on Private Property**

Access to Council's infrastructure is primarily controlled by the LGA 2002 (section 181). Council may enter private land to inspect, alter, renew, repair or clean any work provided that the infrastructure was constructed with the land owner's permission.

Council's engineers consider the protection provided under the LGA 2002 as appropriate where public utilities travel through or across private land. Private property owners are made aware of the presence of public utilities on private properties during the request for a Project Information Memorandum and/or a Land Information Memorandum.

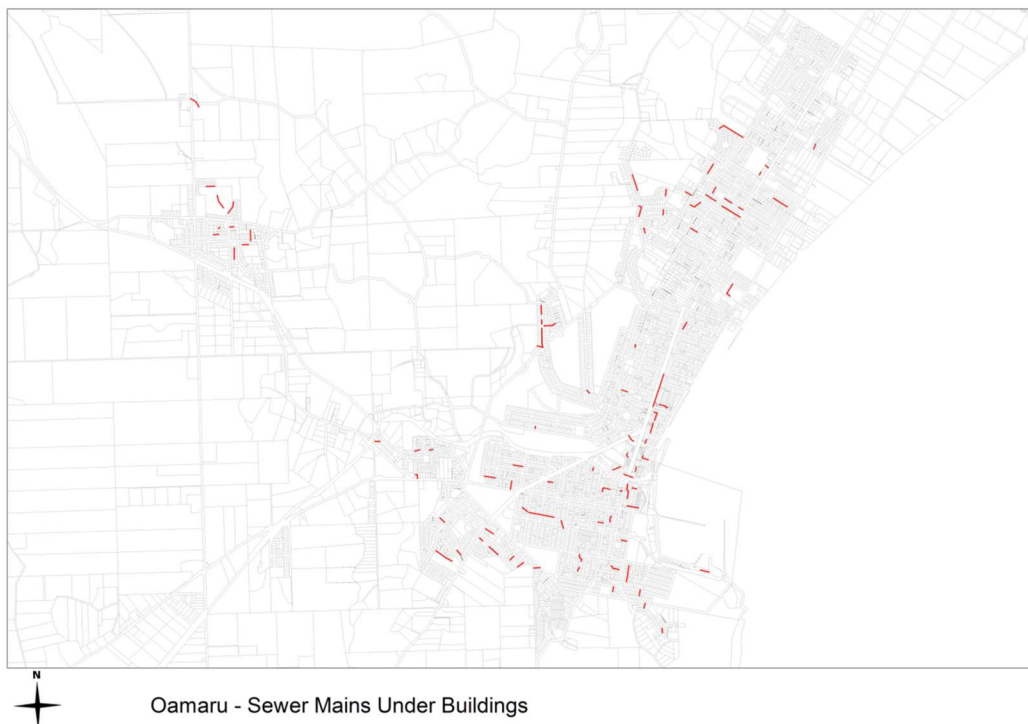
Public wastewater mains encroached by structures (buildings & swimming pools) were identified during the Criticality project. This entailed identifying those mains where a structure's roofline was within half a metre of the centre of the pipe. The lengths of mains affected in part by structures are tabled below:

**Table 7-4: Mains on private properties affected by structures**

Scheme	Total Length of Pipe (m)	% of Total Length
Duntroon	47	16%
Kakanui	200	2%
Kurow	197	2%
Lake Ohau	284	10%
Moeraki	951	10%
Oamaru	7,386	6%
Omarama	1,019	15%
Otematata	6,011	58%
Palmerston	360	2%

It should be noted that it is not an accurate reflection of the actual sections of mains affected e.g. if a 20 metres section of main travels through a property and 10 metres of this is very close to or under a building, the system counts the full 20 metres length.

**Figure 7-5: Utilities on private property - Oamaru**



However, this still shows that there is a significant portion of wastewater mains that are encroached by structures and any maintenance work on these sections will be significantly influenced by limited access, potential for damage to structures during maintenance work and unnecessary external loadings on trenches and wastewater mains. This is the result of historical approvals of building work, however now Council Engineers do not allow any building work/structures near public utilities infrastructure as this

has the potential to seriously compromise the integrity of the asset and the ability to efficiently maintain the asset.

Under the Electricity Act 1992 all connecting power supply lines to facilities vested by Network Waitaki, installed pre- 1993, are protected. Power lines outside this criterion requires easements to protect the infrastructure.

## **7.14 Regional Plans**

Under Section 30 of the Resource Management Act of 1991 Regional Councils are required to provide policies and methods to achieve integrated and sustainable management of the regions natural and physical resources. The Regional Plans of Otago and Canterbury provide a framework for the sustainable management of the regions water resources. These resources include groundwater, rivers, lakes and wetlands.

Catchment Management Plans is expected to be a requirement under increased Regional Council rules and will be prepared, once the regional rules come into effect.

### **7.14.1 Otago Regional Plan – Water**

Otago Regional Council has a Regional Plan - Water, which provides a framework for the integrated and sustainable management of Otago's water resources including lakes, rivers groundwater and wetlands. It sets out the issues relating to protection and enhancement of the region's water resources.

### **7.14.2 Otago Regional Council – Urban Water Quality Strategy**

The Urban Water Quality Strategy sets out the management approach and principles for dealing with the specifically urban water quality issues, especially the management of stormwater and wastewater, to achieve the vision for water quality in Otago. It is consistent with what has been put into place for rural areas. The Urban Water Strategy identifies nine key issues and the strategy and methods to address the key issues.

### **7.14.3 Environment Canterbury –Land and Water Regional Plan**

The Canterbury Land and Water Regional Plan (LWRP) identifies the resource management objectives for managing land and water resources in Canterbury to achieve the purpose of the Resource Management Act 1991. It identifies the policies and rules needed to achieve the objectives, and provides direction in terms of the processing of resource consent applications.

This LWRP is made up of 16 sections and a map volume:

- the first describes Canterbury's land and water resources, interrelated issues that need to be managed, the key partnerships, relationships and processes already underway, including the Canterbury Water Management Strategy (CWMS).
- The second section describes how the Plan works and contains the definitions used in the Plan.
- The subsequent three sections cover the region-wide objectives, policies, and rules.
- Sections 6 to 15 inclusive contain sub-region catchment specific policies and rules, and
- Section 16 contains the schedules.
- The maps referred to in the rules are in a separate map volume.

Rule 5.7 to 5.9 address on-site wastewater. The existing discharges for Kurow, Lake Ohau, Omarama and Otematata are discretionary activities and operated under current consents. The Duntroon system was a permitted activity, but as a result of increased environmental standards under the Canterbury LWRP it is no longer a permitted activity. Council have applied for a 10 year resource consent to allow appropriate investigation of options and consultation ([LTP WW15 & WW26](#)). Discussions with ECan have identified groundwater level monitoring and ceasing subsurface discharge if the groundwater level

rise above a specified level as likely interim consent conditions. Long term resolution will potentially require upgrade of the existing system.

The Omarama disposal was upgraded during 2019 from disposal to water to disposal to land.

The Kurow wastewater treatment plant resource consent expires in 2030. Expected regulatory changes and stronger obligations on local authorities to manage risks from wastewater; strengthened compliance, monitoring and enforcement of wastewater treatment and disposal regulation will require improved treatment and disposal methods. This presents the opportunity to meet future projected demand and regulatory and environmental standards. Council will perform an assessment of the system ability to meet future regulatory (and growth) requirements following discussions with the Regional Council, then develop conceptual solutions prior to constructing confirmed solutions e.g. disposal system upgrade ([LTP WW14 & WW25](#)).

## 7.15 Energy

The 3 Waters activity is energy intensive, accounting for a significant portion of Council's total electricity consumption. The major power demands are from water and wastewater pumping stations and treatment facilities. The direct use of fossil fuels are generally limited to emergency power generation equipment, but the indirect use of transportation fuels for operation and maintenance activities should also be considered when planning changes to energy management. Energy, in varying forms, is used during the construction and renewal of assets and the manufacture of materials used in construction, operation and maintenance of assets.

Carbon emissions for many current energy sources contribute to climate change.

Energy prices have increased significantly over recent years, impacting on operational costs for the water service. This trend is expected to continue.

### 7.15.1 Alternative Energy Sources

No formal study has been conducted, but solar energy is used to power telemetry at remote rural reservoir sites.

Small solar/wind energy systems are not suitable for higher power demand sites such as UV water treatment plants and water/wastewater pumping stations.

The Waitaki District Council is committed to implementing environmental best practices. This includes being more energy efficient. Where technologies exist that allow Council to operate in a more energy efficient manner it will be investigated and if there is a significant cost and environmental benefit it will be considered for implementation.

### 7.15.2 Remote Monitoring

The Council operates a SCADA system that allows remote monitoring of the facilities (WWTP and majority of wastewater pump stations) increasing efficiency and reducing the frequency of site visits, which reduce the facility's carbon footprint. Refer to Section 10.1.5 SCADA and Telemetry.

## 7.16 Greenhouse Gas Emissions

The Waitaki District Council Greenhouse Gas emissions report for 2018/19 shows Council at significantly negative net emissions, with the Council removing more greenhouse gases than it emits. The report found the total gross carbon dioxide equivalents for Waitaki District Council are 2,876 tonnes. The report found wastewater treatment (36% of all emissions), electricity consumption (30%), and the Palmerston landfill emissions (13%) as the main contributors to the council's carbon footprint.

Waitaki District Council has a total of 165 hectares of forest. Emissions under the Land Use and Land use Forestry sector total -4,902 tonnes. Taking into account Waitaki District Council's gross emissions of 2,876 tonnes and removals of -4,902 tonnes results in net emissions of -2,026 tonnes. This means that the Council is making a positive contribution overall towards climate change



Report recommendations include:

- Encourage staff to use alternative, low carbon, transport options for travelling to work and for work journeys, where appropriate. This may include cycling, walking and public transport, pool cars, installation of bike racks, route optimisation, teleconferencing, and wherever possible moving away from single occupancy vehicle journeys.
- Develop a strategy for transitioning the fleet to small engine vehicles, electric cars and hybrids.
- Introduce electric bikes/ scooters for staff members to use for appropriate local journeys.
- Undertake energy audits across different parts of the Council's operations.
- Determine which energy providers have the least Green House Gas intensive sources of electricity.
- Develop awareness raising initiatives to make staff and the public more energy aware, including training, communication and general encouragement.
- Supporting energy efficiency in community housing, including the installation of insulation and ensuring that boilers are energy efficient, and raising awareness amongst tenants.
- Develop a strategy for lowering energy requirements from buildings, street lighting, and other facilities that are within the Council's control/ ownership.
- Use video conferencing as an alternative to face-to-face meetings whenever possible.
- Evaluate and where possible reduce the number of staff that need to travel to meetings in other parts of the country.
- Ensure that staff members coordinate travel and share taxis whenever possible.

#### **Activity Response to Environmental Management**

We will continue to:

- Comply with regional rules and environmental standards
- Investigate, consider and implement appropriate alternative and new technologies to minimise adverse effects on the environment
- recognise the importance of social and cultural values in relation water activities



## 8.0 LIFECYCLE MANAGEMENT

This Section identifies the asset life cycle and what is planned to manage and operate the asset while optimising lifecycle costs.

Providing an excellent 'lifecycle' section demonstrates:

- Consideration for the asset lifecycle categories
  - Management
  - Operations & maintenance
  - Renewal/Replacement
  - Development
  - Disposal
- Consideration of options and the associated issues and risks in relation to development, operation, maintaining, renewal and disposal (decision making techniques)
- Lifecycle strategies employed
- Current asset condition and performance

**WHY** – to ensure we optimise lifecycle costs and there is evidenced based decision making

### 8.1 Overview

Lifecycle asset management focuses on management options and strategies from initial planning through to disposal, while considering all relevant economic and physical consequences. The effective application of asset management principles will ensure the reliable delivery of service and reduce the long-term cost of ownership and in this way reduce service costs. A well-structured lifecycle management plan will reduce the long term costs of ownership and in so doing reduce the service cost.

The Lifecycle Management Programme covers five key categories of work necessary to achieve the required outcomes. These key categories and goals are:

**Table 8-1: Lifecycle Categories**

Key Lifecycle Categories		Goal
<b>Management Plan</b>		To maintain the service potential of the assets and ensure that the assets achieve that potential
	Management functions required to support the other Programmes	
<b>Operations and Maintenance Plan</b>		
	To ensure efficient operation and serviceability of the assets so that they achieve their service potential over their useful lives. This includes the day-to-day work to keep the assets operating	
<b>Renewal Plan</b>		
	To provide for the progressive replacement of individual assets that have reached the end of their useful lives (restores the original capacity)	
<b>Development Plan</b>		Meeting future demand
	To improve parts of the system currently performing below target service standards and to allow development to meet future demand requirements	Closing service gaps
<b>Disposal Plan</b>		Appropriate disposal of assets
	To better plan for disposal of assets through rationalisation of asset stock or when assets become uneconomic to own and operate	

## 8.2 Management

Management and monitoring strategies set out the activities required to support the maintenance, operations, cyclic renewal and asset development programmes. These activities include:

- Strategic planning
- Data management and evaluation
- Business processes
- Monitoring
- Financial management.

The following management activities are used to achieve the desired outcomes.

**Table 8-2: Management activities**

Activity	Objective
<b>Strategic Planning</b>	
Strategic alignment	This AMP supports the achievement of the relevant Waitaki Community Outcomes
Service Levels	To develop Levels of Service aligned with Community Outcomes for community consultation
Human Resources	To develop the professional skills of the staff through adequate training and experiences
<b>Data Management</b>	
Asset Management	To optimise Asset Management Systems and develop functionality in line with business needs
Data Collection	Data collection programmes (condition, performance, asset registers) closely aligned with business needs and metadata standards implemented in accordance with documented quality processes
Quality Assurance	To ensure the GIS & AMS data subject of defined quality assurance processes
Network Modelling	Development of computer-based hydraulic models of the water, and wastewater systems
<b>Business Processes</b>	
AMP Updates	To ensure the AMP is a strategic 'living' document through regular updating and 3 yearly reviews
Risk Management	Risk Management is an essential part of Asset Management and will be managed by the implementation of risk mitigation measures to maintain risk exposure at acceptable levels including but not limited to maintaining appropriate insurance cover, emergency response planning, condition monitoring of critical assets, preventative maintenance, use of telemetry, implementation of Water Safety Plans (WSP) and operations manuals and implementation of councils standards
Asset Valuation	To lay the foundation for several key asset management processes including asset renewal modelling and financial risk assessments
Statutory compliance	To identify legal obligations and ensure compliance
Quality Assurance	To document, review and implement quality processes
<b>Monitoring</b>	
Performance Measures	To ensure monitoring of the Levels of Service and reporting on mandatory performance measures
Compliance	To ensure discharges are within consent limits
<b>Financial</b>	
Budgeting	To ensure all expenditure programmes are in accordance with Council funding and budget preparation policies and procedures
Sustainable funding	To ensure the systems are managed in a financially sustainable manner over the long term

## 8.3 Operations and Maintenance

The objective of maintenance and operational strategies is to maintain existing assets economically to:

- Achieve their service potential through efficient operation
- Achieve customer levels of service

- Achieve health and safety standards
- Reduce Council's exposure to risk due to unforeseen failure of assets

The operations and maintenance expenditure for assets is a significant proportion of the total lifecycle cost. Therefore, efficiencies in these day-to-day activities must be identified and implemented to lower the overall lifecycle cost. Waitaki District Council is committed to optimising the operation, maintenance and management of these assets.

Strategies have been adopted which are classed as "Non Asset Strategies" that involve:

- Assessment of Operation & Maintenance vs Replacement
- Review of service where it is in excess of the agreed Level of Service
- Demand management
- Policy
- Quality Assurance
- Supervision
- Specifications
- Holding records

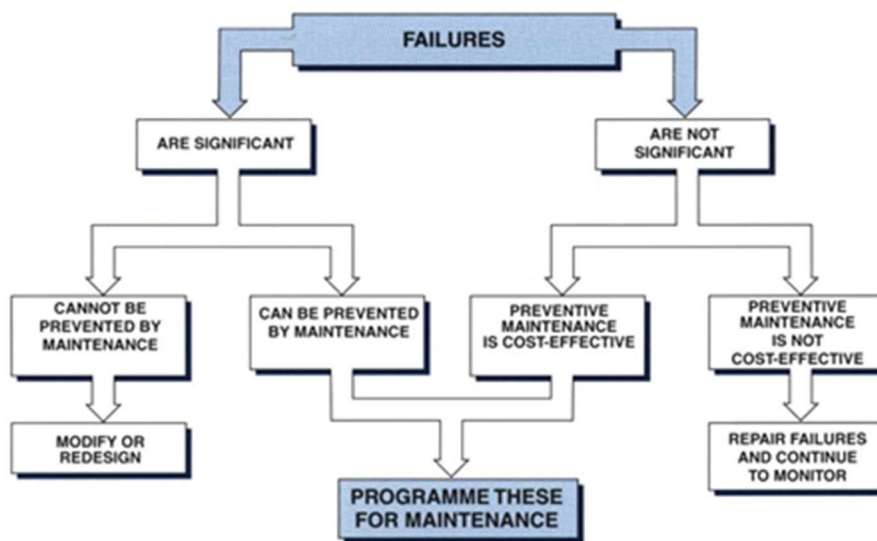
Maintenance work is defined as "All actions necessary for retaining an asset as near as practicable to its original condition, but excluding rehabilitation or renewal". Maintenance strategies which apply to Council owned assets are classed as "Asset Strategies" and are divided into:

- Unplanned maintenance strategies
- Planned maintenance strategies

Unplanned Maintenance includes all reactive maintenance such as repairs and modifications usually following a reported fault or failure by the public or is obvious through a water leak (in the instance of a water supply network).

Planned Maintenance includes Preventive Maintenance, Servicing and Condition Monitoring. Planned Maintenance is usually carried out at a given frequency either at fixed intervals or 'on condition' to preserve the required levels of service at a minimum cost. On Condition means that once an asset has degraded to a certain condition (detected through condition monitoring) a decision as to the most appropriate maintenance must be made. This does not mean once an asset has failed.

The process for the identification of whether planned maintenance strategies will be effective for an individual asset is as per the chart below (extracted from IIMM):

**Figure 8-1: Maintenance Engineering Analysis Process**


A recent development in maintenance planning is the Reliability Centred Maintenance approach which can be very effective for plant/equipment assets but not so for reticulation assets. Waitaki District Council is aware of this trend in maintenance planning and has applied this approach occasionally for facilities (reservoirs, treatment facilities, pump stations, SCADA).

### 8.3.1 Management and Maintenance History

The day to day management of the Council wastewater systems is carried out by the Assets Group. The performance of the Group, and the wastewater systems is monitored by Waitaki District Council and audited by Audit NZ. Operations and maintenance is carried out by Waitaki District Council appointed Contractor..

**Table 8-3: Management Responsibilities**

System Component	Operation & Maintenance	Management
Reticulation	Council	Council
Pump Stations	Council	Council
Treatment Plants	Council	Council

All maintenance data is recorded in the Hansen IMS database.

### 8.3.2 Maintenance and Operational Strategies

**Table 8-4: Non Asset Strategies**

Strategy	Description
Alternative Technologies	Alternative technologies are considered as appropriate
Approved Materials	Only approved materials shall be used in the wastewater network to ensure the quality and longevity of the asset
Energy Efficiency	Energy savings and management carried out in a logical manner for the facilities
Health and Safety Audits	Audits undertaken randomly to ensure all work completed by Council and Contractor staff complies with the Health and Safety in Employment Act and Traffic Management Regulations

Strategy	Description
Monitoring Planned vs Unplanned Maintenance	The mix of Planned vs Unplanned Maintenance will be analysed periodically to allow optimising of the activities
Supervision of Facilities	Supervision of Facilities to ensure these buildings and critical assets are maintained appropriately
Telemetry System	The telemetry system will be utilised to assist in monitoring the wastewater demand profile, controlling operations and increase the knowledge of the asset operation therefore enabling efficiencies to be introduced
Wastewater Meters	Wastewater meters are installed at several pump stations and treatment plants to provide accurate pump and flow records but not at all locations
Effluent Quality	Routine sampling of effluent quality to comply with Resource Consent requirements
Sludge monitoring	Annual sampling of sludge depth to monitor operational performance of ponds

**Table 8-5: Asset Strategies**

Asset	Activity	Frequency	Comment
<b>Facilities</b>			
Treatment	Inspection	Daily	
Pump Stations	Inspection	Weekly	
Pumps	Tested	Monthly	
SCADA	Inspection	Yearly	
Safe Working Load on Lifting Gear	Certification/Inspection	Yearly	
Switchboards	Inspection by Electrician	Yearly	
<b>Wastewater Mains</b>			
Critical Mains	Inspection	Annually	TY Duncan and Moeraki Trunk Main into Treatment Plant <b>IP 3W17</b> Current
Selected Mains	Condition Assessment by Pipe Sampling	As required	<b>IP 3W17</b> Current
Mains	To proactively inspect, detect and repair wastewater reticulation pipes	Annual programme	Existing programme in budget
Siphons	Inspection		This is covered under the O & M Contract – Strategic Mains Inspection.
Pipe Bridges	Inspection		
Low Grade, Base of Hills	Cleaning		
Cathodic Protection	Inspection	Annually	
<b>Manholes</b>			
Critical Manholes	Condition Inspection		No existing programme for this. ( <b>IP 3W17</b> ). Criticality assessment current
Vents	Inspections		
<b>Connections</b>			

Asset	Activity	Frequency	Comment
Connections	Infiltration Inspection		No existing programme for this. (IP 3W9). I/I investigation done on WW/SW cross connections
<b>UNPLANNED MAINTENANCE</b>			
All	When a defect has been identified, remedial work is programmed before the risk and consequence of failure become unacceptable		
All	Priority is given to defects which are a safety hazard, likely to cause premature failure or severe economic deterioration		
All	Remain alert and prepared for emergency situations		
All	Respond to and repair failures by the most economic method available, making temporary repairs if major repairs or renewals are required		

### 8.3.3 Current Performance

Performance data includes but is not limited to:

- service quality (e.g. continuity, discharge quality)
- maintenance required

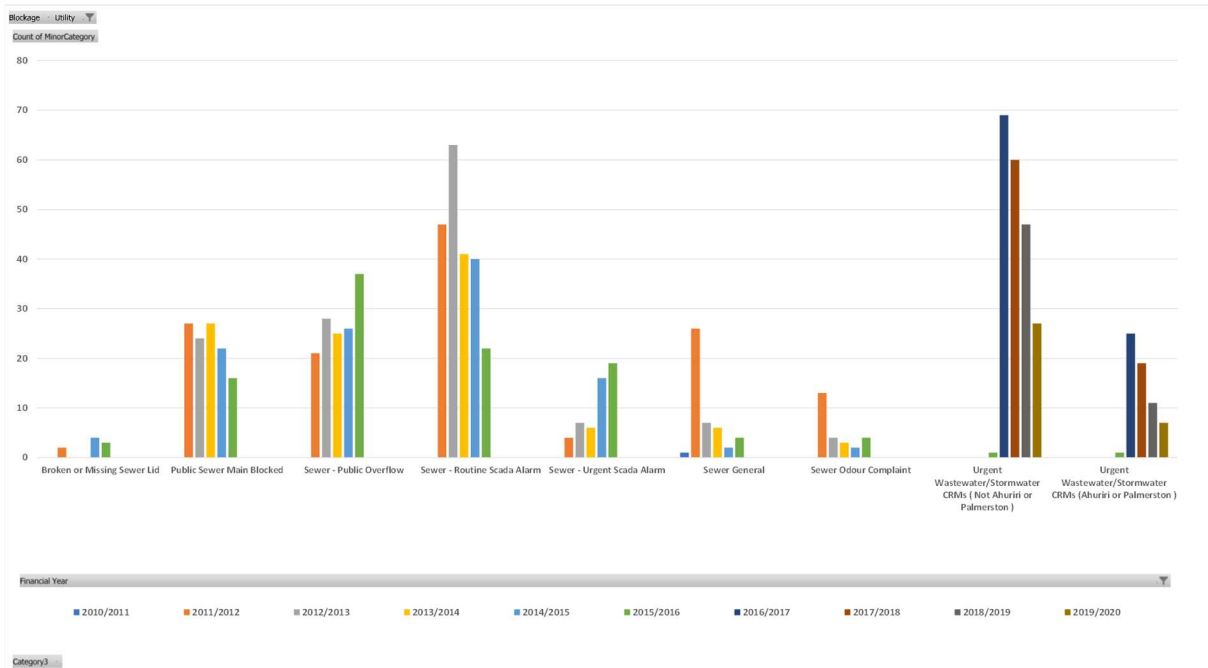
The maintenance performed is captured through the work order process. The service quality is captured through a range of methods

- discharge quality – monitoring as per resource consent requirements
- continuity – customer complaints and SCADA

This information is continually monitored and recorded and provides the basis for evidence based decision making. Facility performance can be linked to resource consents and effluent quality results. Section 7.11 discusses the resource consent monitoring and reporting indicating the facility operation is good.

Following are graphs trending the current performance of the Waitaki District Council for the wastewater systems. This data has only been recorded since 1 March 2005. The Maintenance data trends are graphically represented in Figure 8-2: Faults Reported (Authority) 2010/11 to Figure 8-4: Maintenance by Activity (Hansen WO) .

**Figure 8-2: Faults Reported (Authority) 2010/11 to 2019/20**

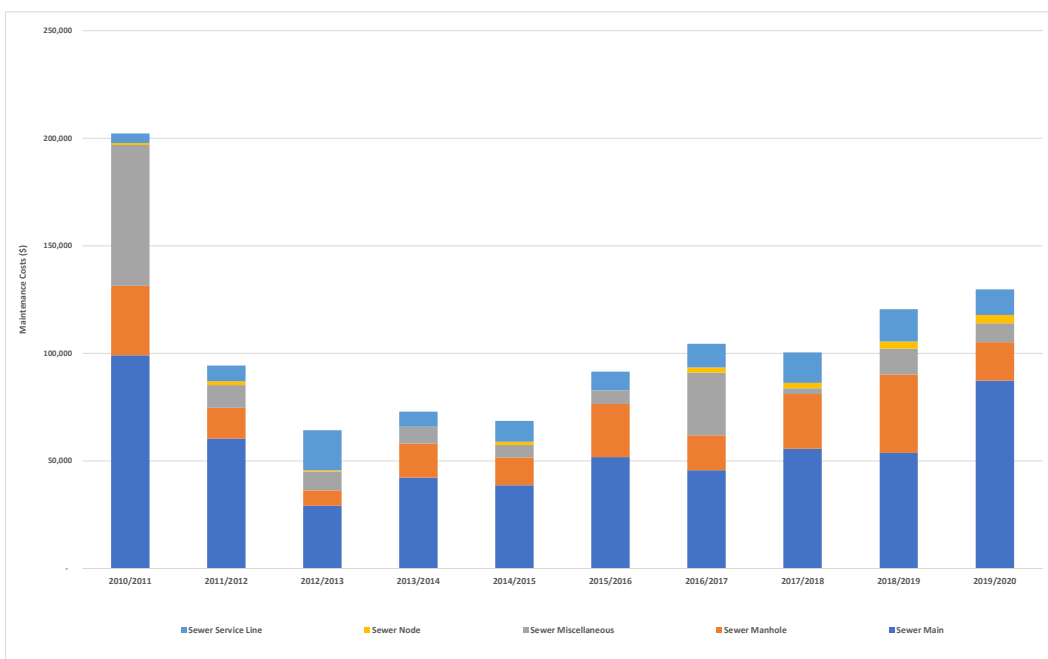


The CRM categories were changed during 2016/17 to Urgent (Ahuriri or Palmerston) and Urgent (Not Ahuriri or Palmerston). Up to the change the main CRMs reported were:

- Routine SCADA alarms
- Public sewer mains – blocked
- Public sewer mains – overflow

It is evident that there is a general downward trend over the past three to four years in most of the CRM requests reported.

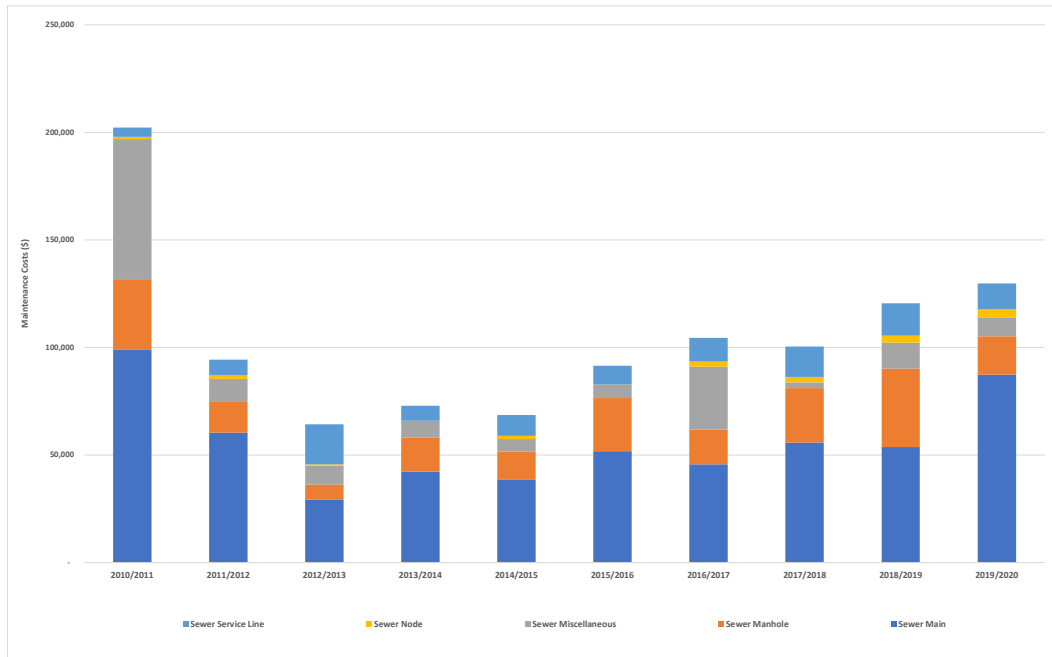
**Figure 8-3: Maintenance by Asset (Hansen WO) 201/11 to 2019/20**





The graph above shows the cost associated with each asset (excluding facilities) and was taken from the Hansen work orders. It clearly shows that the main network maintenance costs are associated with sewer mains. It shows that there was a significant spike in the maintenance costs during 2010/11, but since then there has been a general downward trend until 2014/15. Since 2015/16 there has been a slight increase in reticulation maintenance costs.

**Figure 8-4: Maintenance by Activity (Hansen WO) 2010/11 to 2019/20**



Further analysis and trending of data will provide confirmation of prudent management of wastewater assets.

### 8.3.4 Maintenance and Operations Manuals and Procedures

Formal procedure manuals for headworks, treatment, and pump stations exist, but are at various levels of completeness. Updated manuals are required to provide Council's Engineers and Contractors with appropriate documented emergency, operations and maintenance procedures for Council's wastewater assets (IP W10).

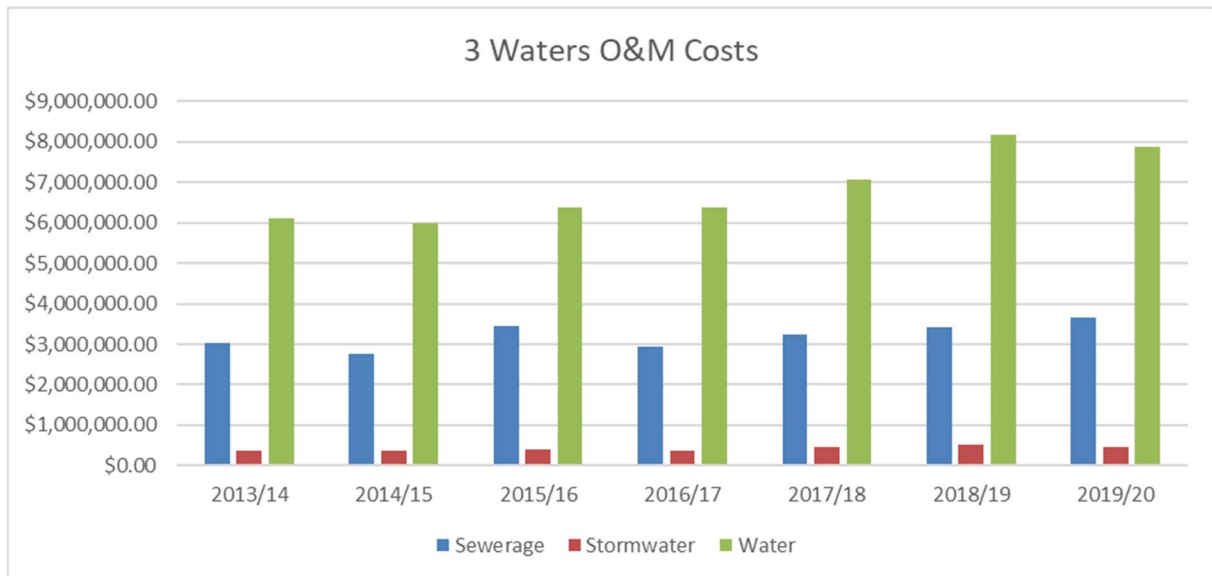
To support Council's operational strategies, levels of service and assist with Council's succession planning by capturing institutional knowledge a Network Operation Manual (for the networks) will be produced for the wastewater systems (IP 3W10).

### 8.3.5 Operation and Maintenance Costs

The operation and maintenance of 3 waters is currently delivered through Contract 613, 3 waters reticulation and Contract 669 Sewer facilities.

Historical costs for the 3Waters is shown below. This includes Contracts and Operational costs for each utility.

**Figure 8-5: Historical O & M Contract Costs**



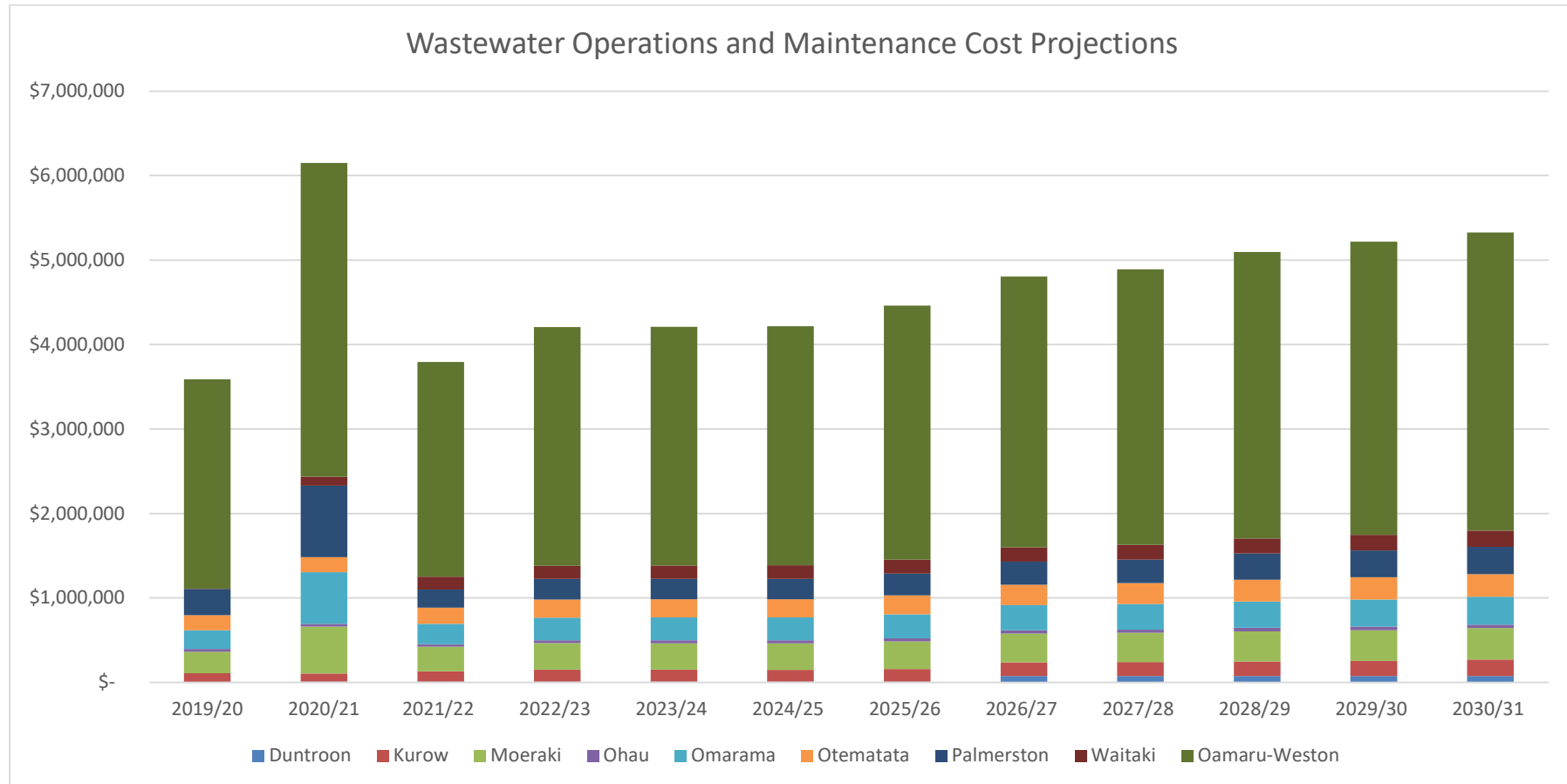
This shows that there has been a 26% increase in 3Waters O&M costs over the past 5 years. This is due to increased operational activities associated with the WTP upgrades and new contract and contractor.

### 8.3.6 Wastewater Operation and Maintenance Cost Projections (000's)

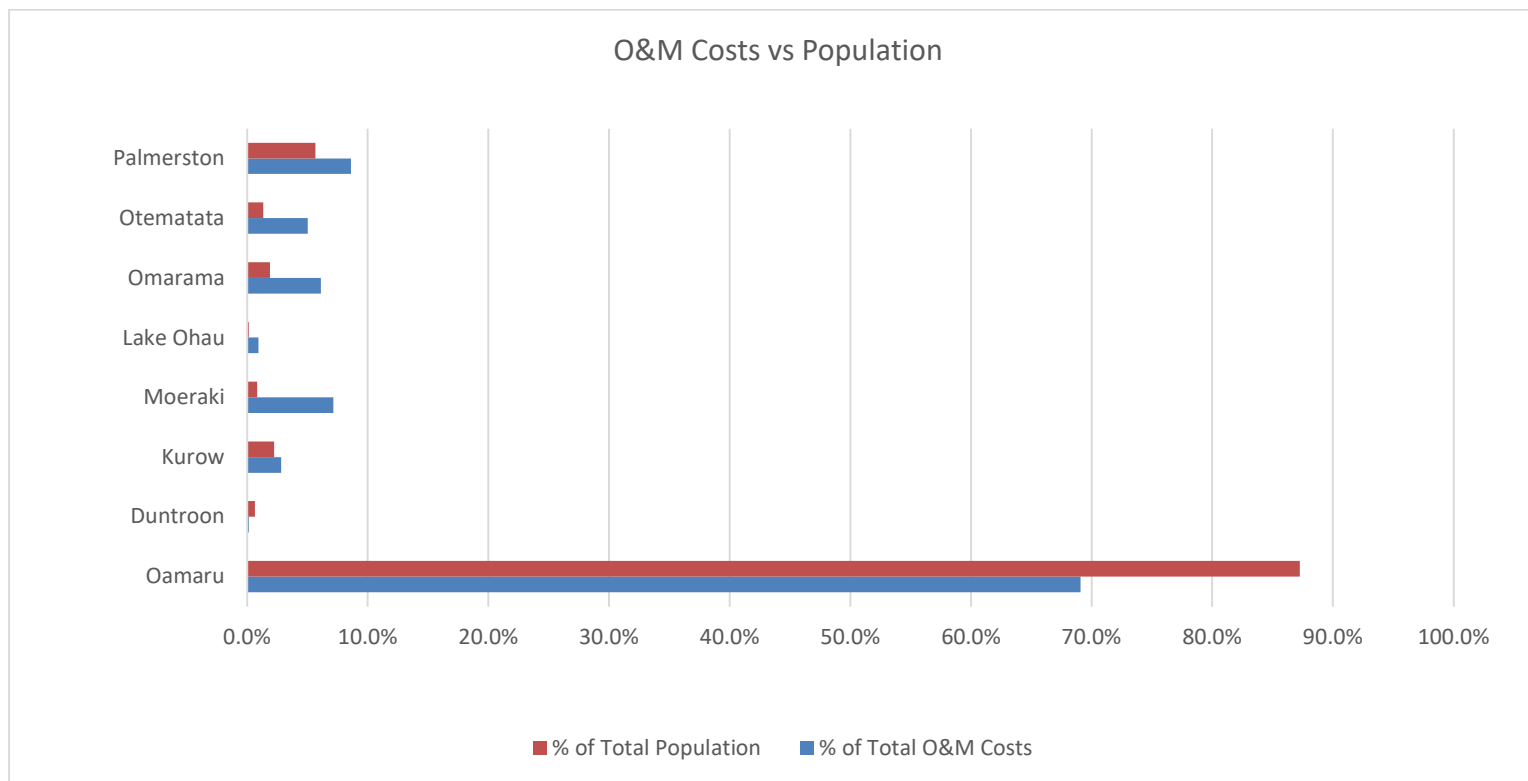
Financial projections for the operations and maintenance of the Wastewater Systems are shown in the following table. These costs include depreciation and inflation (Business and Economic Price Level Adjusters). **\*\*\* to be updated at EOFY with actuals**

Wastewater System	Actuals (000's)		LTP 2021 -2031 (000's)									
	2019/20	2020/21***	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	20230/31
Oamaru Sewerage	\$2,479	\$3,717	\$2,541	\$2,825	\$2,824	\$2,830	\$3,007	\$3,205	\$3,264	\$3,389	\$3,469	\$3,531
Dunroon Sewerage	\$5	\$8	\$8	\$10	\$10	\$9	\$10	\$76	\$75	\$75	\$75	\$76
Kurow Sewerage	\$101	\$95	\$124	\$140	\$140	\$139	\$147	\$162	\$166	\$171	\$177	\$196
Moeraki Sewerage	\$256	\$555	\$291	\$314	\$313	\$314	\$329	\$341	\$345	\$359	\$365	\$371
Lake Ohau Sewerage	\$34	\$36	\$30	\$34	\$34	\$34	\$36	\$38	\$39	\$41	\$42	\$43
Omarama Sewerage	\$219	\$611	\$240	\$267	\$271	\$272	\$283	\$298	\$304	\$312	\$321	\$328
Otematata Sewerage	\$181	\$178	\$191	\$216	\$215	\$214	\$226	\$242	\$247	\$257	\$264	\$269
Palmerston Sewerage	\$309	\$847	\$217	\$244	\$243	\$242	\$255	\$271	\$277	\$309	\$317	\$323
Waitaki District Wide	\$4	\$104	\$150	\$155	\$158	\$162	\$166	\$170	\$175	\$181	\$187	\$192
<b>TOTAL</b>	<b>\$3,589</b>	<b>\$6,151</b>	<b>\$3,792</b>	<b>\$4,205</b>	<b>\$4,209</b>	<b>\$4,217</b>	<b>\$4,460</b>	<b>\$4,804</b>	<b>\$4,892</b>	<b>\$5,094</b>	<b>\$5,217</b>	<b>\$5,327</b>

**Figure 8-6: O & M Costs**



**Figure 8-7: O & M Costs vs Population**



The graph above compares the % of population of each wastewater disposal system with the % of the total wastewater O&M costs. It shows the economies of scale with Oamaru having 87% of the population while only contributing 69% of the total wastewater operation and maintenance costs. Otematata has 1.3% of the population while contributing 5% of the total wastewater operation & maintenance costs.

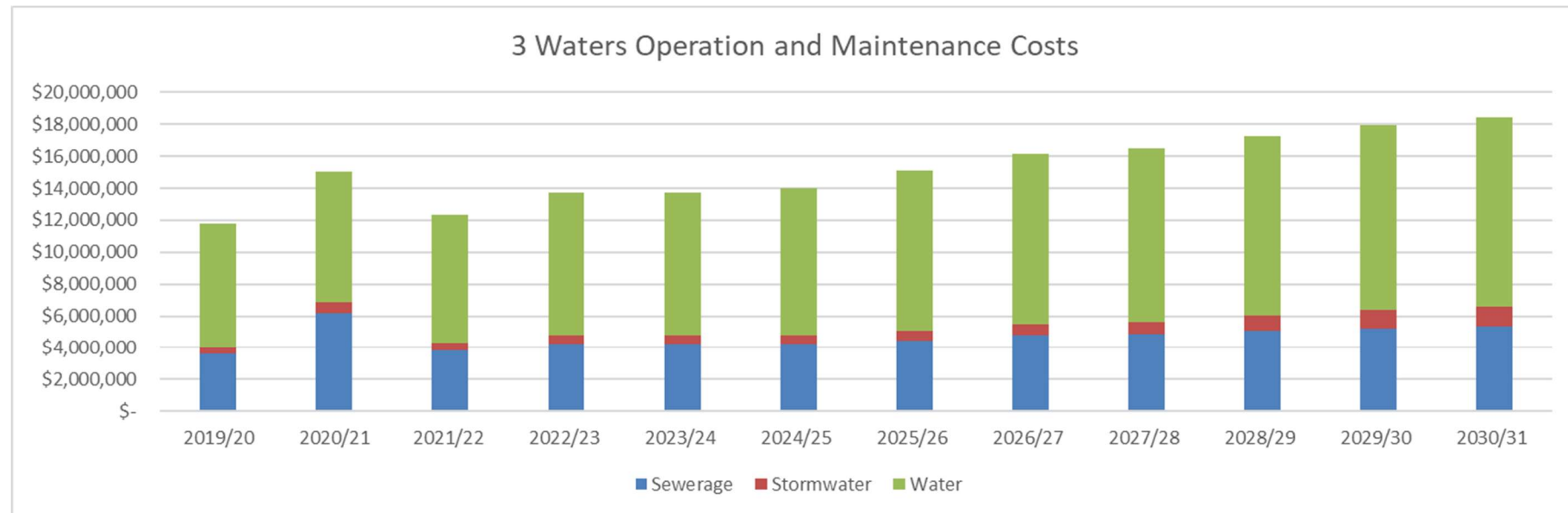
### 8.3.7 3 Waters Operation and Maintenance Cost Projections

Financial projections for the operations and maintenance of the 3 Waters systems (Water, Wastewater & Stormwater) are shown in the following table.

\*\*\*to be updated at EOFY with actuals

	Actual (000's)		LTP 2021 – 2031 (000's)									
	2019/20	2020/21***	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
All Water Supply	\$7,750.90	\$8,164.20	\$6,514	\$6,649	\$6,837	\$7,010	\$7,159	\$7,362	\$7,646	\$7,689	\$7,805	\$8,169
All Sewerage	\$3,589.12	\$6,150.66	\$2,972	\$3,220	\$3,139	\$3,301	\$3,317	\$3,394	\$3,588	\$3,574	\$3,629	\$3,850
All Stormwater Disposal	\$428.82	\$737.42	\$644	\$650	\$670	\$696	\$704	\$724	\$765	\$770	\$787	\$831
<b>TOTAL</b>	<b>\$9,481</b>	<b>\$9,286</b>	<b>\$10,130</b>	<b>\$10,520</b>	<b>\$10,646</b>	<b>\$11,008</b>	<b>\$11,179</b>	<b>\$11,481</b>	<b>\$11,999</b>	<b>\$12,033</b>	<b>\$12,221</b>	<b>\$12,851</b>

Figure 8-8: 3 Waters O & M Costs



## 8.4 Renewal/Replacement

Renewal is defined as the group of activities which renew, restore, rehabilitate or replace an existing asset to extend its economic life or service potential and which does not increase the design capacity of the asset. Work which increases the design capacity of the asset is upgrade/development work.

### 8.4.1 Renewal Strategy

Criticality and protection of public health drives the renewal decision making process. Criticality or the consequence of failure is a practical assessment of the economic, social, cultural and environmental drivers related to asset components. Section 3.8 details the process that Council applied for assessing criticality.

The renewals approach has been refined to incorporate consideration of criticality in decision making and utilise asset maintenance history, condition and performance knowledge for key asset classes.

Selection Criteria for Asset Renewal will use a combination of condition assessment, hydraulic modelling results, Optimised Decision Making and Capacity/Criticality assessment. This information will then be used for prioritising the replacements in accordance with the priority ranking table and then programmed or, in urgent cases, undertaken immediately. The table below details possible selection criteria for asset renewal.

**Table 8-6: Selection Criteria for Asset Renewal**

Priority	Renewal Criteria
1 (high)	Asset failure has occurred and renewal is the most cost effective option Asset failure of a critical system or component is imminent Does not meet level of service Does not meet legislative requirement Fault has, or is liable to become a public health risk
2	Failure of non-critical asset is imminent and renewal is the most efficient life cycle cost alternative Fault causes repeated problems Road upgrading scheduled for the current financial year Requests, re-leaks, water shortages, dirty water
3	Reticulation maintenance is high Difficult to repair, due to fragile nature of material, or obsolescence
4	Existing assets have a low level of flexibility and efficiency compared with replacement alternative
5 (Low)	Existing asset materials or types are such that known problems will develop in time

### 8.4.2 Pipe Network Condition

Apart from CCTV inspections, condition assessments are performed on an ad-hoc basis. Repair and renewal planning are mainly reactive, follows failure patterns and are based on cyclic investigation of way point information. Unlike many Councils in NZ the AC pipe in Waitaki district is not subject to aggressive soil conditions and therefore no failures are related to external pipe deterioration. Development of a condition assessment strategy is identified as an Improvement item (**IP 3W16**).

The condition of assets is ascertained when carrying out repairs or renewals. This local knowledge of the assets by Council's engineers is significant and has been incorporated into the economic lives adopted.

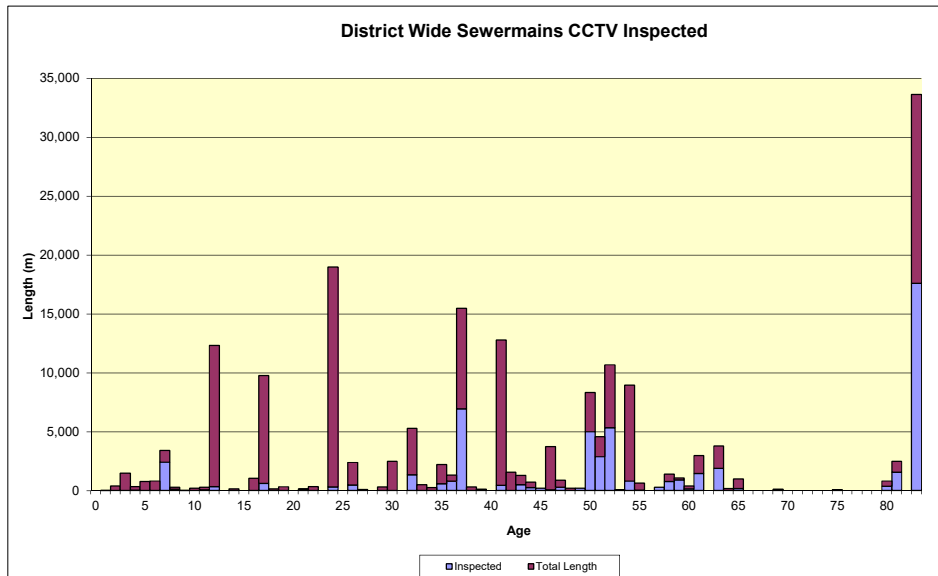
Information on the condition of the pipe networks has been based on:

- CCTV Records
- Councils engineering staff knowledge
- Maintenance contractors staff knowledge



Up to 30 % of the wastewater reticulation has had CCTV inspections carried out. The results of all CCTV have been entered into Hansen as a Work Order (detailing condition). Trending and an overview can be instigated using Crystal Reports. The majority of mains inspected in the “historic CCTV” have a condition rating of 5 out of max 5.7 (0 good - 5.7 bad). This confirms Councils staff perception that there are a high proportion of mains requiring replacement. The graph below shows the amount and age of mains inspected by CCTV.

**Figure 8-9: CCTV Inspections – Mains Age**



The general results were:

**Table 8-7: CCTV Results**

Result		% of total inspected
Score	Explanation	
1	Very good	22
2	Good	9.3
3	Average	16.6
4	Poor	18
5	Very poor	33.8

The CCTV inspection programme was previously based on the roading renewal plan so as to ensure that sufficient information was available to ascertain if replacement was required prior to road reconstruction. This inspection programme did not take into consideration the criticality of the mains. This necessitated the “CCTV tool”. The results from the Criticality project will guide future prioritisation of CCTV inspections (LTP [WW2](#)).

#### 8.4.2.1 CCTV Tool

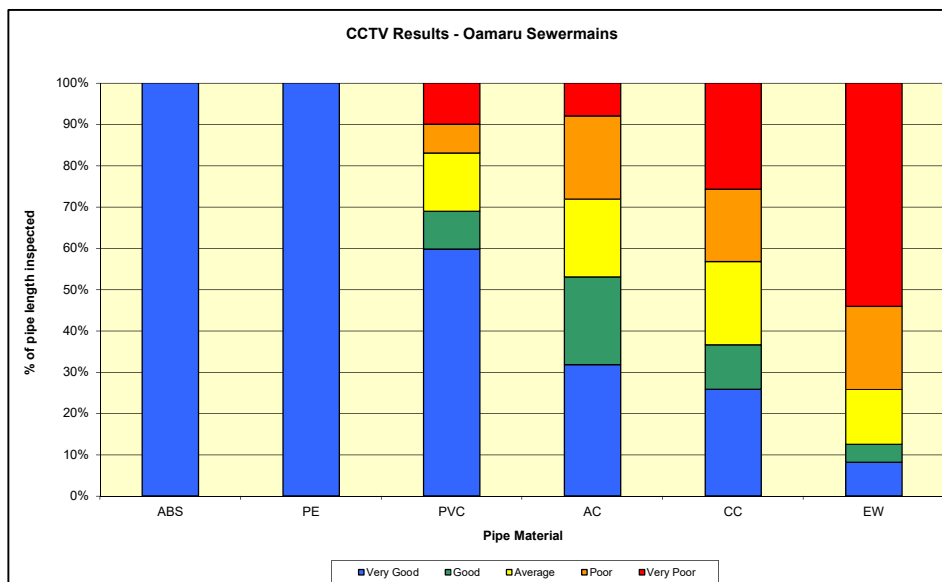
The CCTV Tool allows Council Engineers to set a target grade which measures the condition of the pipe against the criticality and cost of replacement. This provides the ability to identify those sewer mains

where repairs (replacement of a section of main) will raise the overall condition score of the main to an acceptable standard.

The results of the CCTV inspection per pipe type for Oamaru is graphically represented below. The graphs shows:

Pipe Material	Inspection length	Result
PVC	4.2 km	10% Very poor & 60% Very good
AC	7.1 km	8% Very poor & 32% Very good
CC	20.6 km	26% Very poor & 26% Very good
EW	22.6 km	54% Very poor & 8.2% Very good

**Figure 8-10: CCTV Results – Oamaru**



During 2013 Council engineers initiated a project of implementing the CCTV Tool to document the process of the CCTV Tool, calibration of the CCTV Tool and identify:

- Procedure for CCTV Inspection data i.e. process, numbering, auditing
- Renewal Plan
- Repair Plan
- CCTV Plan
- Asset Lives

The CCTV fault types were re-scored and the CCTV Analysis Tool run to provide Modified Condition Gradings and also to provide a list of pipes that fall into the categories of:

- Do Nothing (i.e. all targets for condition and criticality are met)
- Repair Even though Target Met (i.e. there are large singular fault types on this pipe such as large broken pipe that must be repaired even though the overall condition grade is acceptable)
- Repair to Meet Target (i.e. if you repair the singular faults the condition of the pipe will be improved to an acceptable level)
- Not Able to be Repaired (i.e. The condition of the pipe cannot be improved through repairs, or is uneconomic to repair and the pipe is critical and therefore can't be allowed to remain in a poor condition)

However, a process of iteration was necessary to ensure that Council Engineers identify those structural faults which seriously undermine the integrity of the pipe and pose a significant issue for Council in relation to operating and maintaining the service.

This required selecting inspections and verifying the data. From a purist point of view all the mains in the video inspections should be replaced. However, from a view of “does the pipe transport sewage from point A to B?”, then the mains are not in a bad condition. There are significant faults undermining the structural integrity of the mains. But these faults may have and probably were there from the installation date.

It should be noted that the CCTV Tool is not refined enough to produce a list of the mains to be replaced or repaired. In its current form the CCTV Tool only serves as a method to filter and group the CCTV data. This enables us to focus on the selected mains and then viewing the footage to ascertain whether the main should be repaired or replaced. The reasons are:

- The pipe inspection data is not perfect.
- There are numerous variables affecting the scoring
- To ensure the correct and appropriate remedial action is taken i.e. replace/repair/cctv again

The results of the original scores based on the Pipe Inspection Manual and the fourth iteration of running the CCTV tool is tabled below:

**Table 8-8: CCTV tool iteration comparison**

			Iteration			
			PIM		4	
	Code	#	Distance	% of total	Distance	% of total
Mains Okay	Do nothing target met	1	19,278	43%	38,293	85%
Repair programme	Repair even target met	2			4,723	11%
	Repair to meet target	3			1,206	3%
Replacement programme	Uneconomic to repair	4			521	1%
	Not able to be repaired	5	25,521	57%	56	0%
<b>Total</b>			44,799		44,799	

The above table shows that based only on the Pipe Inspection Manual scores (PIM), there are only two groups i.e. ‘Do nothing- target met’ and ‘Not able to be repaired’. Iteration 4 is deemed to provide the best results to focus further investigation and remedial action. Iteration 4 identifies Pipe Broken, Pipe Holed, Pipe Collapsed and Tomo faults (Severity Large) as most important.

This may seem a harsh approach to only identify those mains where Pipe Broken, Pipe Holed, Pipe Collapsed and Tomo faults (Severity Large) are recorded. However, this identifies where the need is most. The results from this report will guide future renewals and future CCTV inspections ([WW RP8](#)).

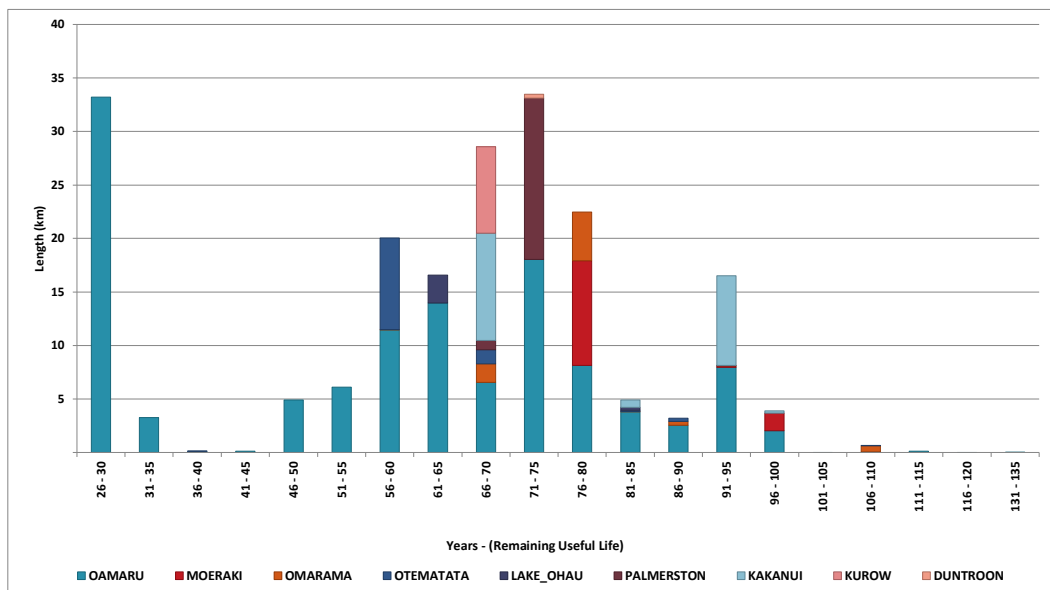
A cyclic CCTV inspection programme to assess pipe condition, identify faults, initiate repairs, and determine rehabilitation requirements is included as a project (LTP [WW2](#)).

### 8.4.2.2 Expected Lives

The following graphs details the predicted economic life of pipes for Oamaru and Urban wastewater systems.

The graph below shows that there are no mains which will reach the end of it expected life within the term of this Plan. It shows that Oamaru mains (mainly earthenware) will reach the end of expected lives in 26-30 years time. This is the result of an adjustment of expected lives during the 2012 Asset Valuation. The 2012 Asset Valuation states that the lives for all materials except earthenware could be extended. The review of asset lives are discussed in detail in the 2012 Asset Valuation.

**Figure 8-11: All Systems Wastewater pipes expected remaining life**



The CCTV programme will be targeted to support the renewal programme to ensure all money is spent prudently and to gather further representative data for validating trends.

Further inspections & investigations will be required over the life of the pipes to ascertain the most effective and economically viable replacement time (IP 3W17).

### 8.4.2.3 GIS Tools

Traditionally performance of the pipe network was generally based on council staff knowledge with low performance areas highlighted from operational difficulties and customer requests. Recently the Council GIS unit developed the 'main repair hotspots' and 'Reticulation Workbench' to show repairs completed and repair costs compared to replacement costs. These GIS features can be extended to wastewater (e.g. blockages, etc.).

### 8.4.3 Pipe Network Performance

Condition assessments are performed on an ad-hoc basis. Repair and renewal planning are mainly reactive, follows failure patterns and are based on cyclic investigation of way point information. Unlike many Councils in NZ the AC pipe in Waitaki district is not subject to aggressive soil conditions and therefore no failures are related to external pipe deterioration. Development of a condition assessment strategy is identified as an Improvement item (IP 3W16)

The condition of assets is ascertained when carrying out repairs or renewals. This local knowledge of the assets by Council's engineers is significant and has been incorporated into the economic lives adopted.

Hydraulic modelling of reticulation has only been carried out as required and no integrated and calibrated model of the complete systems has been undertaken until 2017 when a model for Oamaru was built as part of Oamaru wastewater overflow investigations. This will also be used for the Oamaru capacity study (Section 6.8.4 Basis of Capacity Studies). A hydraulic analysis including calibration of the reticulation is considered essential to allow robust conclusions and aid the prioritisation of the renewal programme ([IP 3W16](#)). Hydraulic analysis will aid in identifying the capacity of the pipe network. Currently capacity issues are identified when problems arise. Investigation is required into the need for hydraulic models for wastewater systems.

#### **8.4.4 Facilities Condition**

A condition assessment of all facilities is required to ensure that the renewal programme is:

- at an appropriate industry standard and
- complies with Audit requirements.

An acoustic and electrical survey was carried out by a specialist contractor on all pumps and motors in 2005. This survey gives an early indication of wear and failure of bearings, motor winding and balance and becomes more relevant when the survey is done on an annual basis as trending of the results becomes a very useful maintenance and renewal tool.

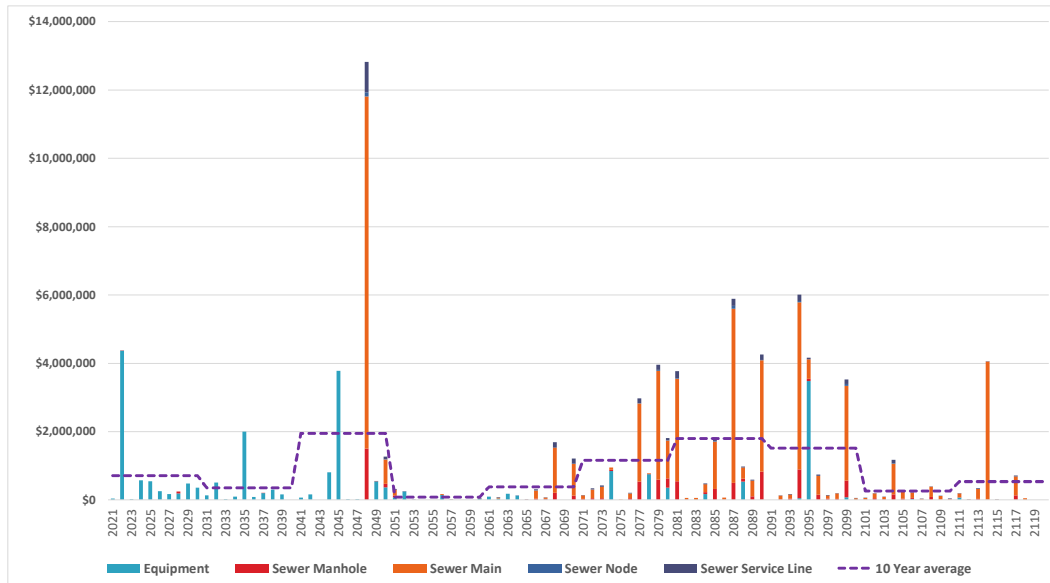
At times equipment is replaced as part of system upgrade to meet increased resource consent conditions. In some cases, assets may fail and potentially not perform as required, but this will be addressed as part of the capacity studies

The upgrade or replacement of facilities assets nearing the end of operational life (is included as [LTP WW6](#)).

#### **8.4.5 Projected Renewal Requirements**

Currently the primary driver for replacement of an asset is the remaining economic life of the asset. It is intended to develop a more robust and repeatable method for the identification of assets due for renewal based on Optimised Decision Making (ODM). This will be developed for future revisions of this Activity Plan. Renewal of mains nearing the end of operational life is included as follows – Oamaru ([LTP WW7](#)), Palmerston ([LTP WW11](#)) Moeraki ([LTP WW12](#)), and other urban ([LTP WW13](#)).

Figure 8-12: Yearly Renewal Requirements and 10 Year Average below shows the district wide expenditure required per year based on asset age and consequential theoretical replacement year. There are no assets which have reached the end of their useful lives (year 0), but from year 2 there are assets which will reach the end of their expected lives. These asset's residual life will be re-assessed during the next valuation (2018). A run to failure strategy is applied to most of these assets as the consequence of failure is not major and the costs of ongoing condition monitoring may outweigh the costs of failure. This strategy is applied to all low criticality assets. A risk and condition based strategy is applied where there is a significant implication due to failure, such as a major health and safety risk, significant reliability of supply consequence or significant expense in repair. This risk and condition based strategy will be refined with the information from the Criticality project and will guide the future Mains Renewal Programme ([IP 3W16](#)).

**Figure 8-12: Yearly Renewal Requirements and 10 Year Average**


This graph shows that based on asset age and expected useful lives the average 10 year projected renewal requirements equals \$0.7m/year for the first ten years, then it decreases to \$0.35m for the next ten years, it then increases to \$1.95m for the 20 to 30 year period.

#### 8.4.6 Deferred Renewals

There are no significant deferred renewals associated with reticulation and facilities. Minor deferrals were caused in the majority of cases by insufficient resources within the Engineering group and the focus on drinking water upgrades.

#### 8.4.7 Planned Renewals

Renewal projects planned for the next 10 year period are mainly associated with mains and equipment renewals, sludge disposal and geotechnical conditions (Moeraki). The following table shows the Renewals projects planned for the next 10 years.

**Table 8-9: Planned Renewals**

LTP #	Project Name	Funding Type	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
			21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
WW1	Oxidation Pond Desludging Programme	Depreciation										2,011
WW2	Sewer Main Inspection and Cleaning Programme	Depreciation	100	100	100	100	100	100	100	100	100	100
WW6	Oamaru Wastewater Facilities Renewals/Upgrades	Depreciation	204	204	101	101	101	101	101	101	101	101
WW7	Oamaru Wastewater Main Renewals/Upgrades	Depreciation	763	763	763	763	763	763	763	763	763	763
WW11	Palmerston Wastewater Main Upgrades/Renewals	Depreciation	244	244	244							
WW12	Moeraki Wastewater Main Upgrades/Renewals	Depreciation		10	10	10	10	10	10	10	10	10
WW13	Urban Wastewater Main Upgrades/Renewals	Depreciation	81	81	81	81	81	81	81	81	81	81
WW15	Dunroon WWTP Upgrade	Depreciation					1,007					
WW14	Kurow WWTP Capacity Study & Upgrade	Depreciation					57				251	251
WW5	Oamaru Wastewater Overflow Mitigation	Depreciation			119	537	537					
WW8	Omarama Wastewater Overflow Mitigation	Depreciation	76	51								
WW10	Palmerston Wastewater Overflow Mitigation	Depreciation							201			
WW15	Resource Consent – Dunroon WWTP	Depreciation							45			
WW14	Resource Consent – Kurow WWTP	Depreciation					45					
WW22	Risk Management Plan – Dunroon	Depreciation						13				
WW21	Risk Management Plan – Kurow	Depreciation						18				
WW18	Risk Management Plan – Lake Ohau	Depreciation						18				
WW23	Risk Management Plan – Moeraki	Depreciation					18					
WW17	Risk Management Plan – Oamaru	Depreciation				25						
WW19	Risk Management Plan – Omarama	Depreciation						18				
WW20	Risk Management Plan – Otematata	Depreciation						18				



## Wastewater Activity Management Plan 2021-2031

LTP #	Project Name	Funding Type	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
			21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
<b>WW24</b>	Risk Management Plan - Palmerston	Depreciation					18					
<b>WW3</b>	Wastewater Inflow & Infiltration Programme	Depreciation	50	50	50	50	50	50	50	50	50	50
			<b>1,517</b>	<b>1,502</b>	<b>1,467</b>	<b>1,668</b>	<b>2,787</b>	<b>1,188</b>	<b>1,351</b>	<b>1,105</b>	<b>1,357</b>	<b>3,368</b>

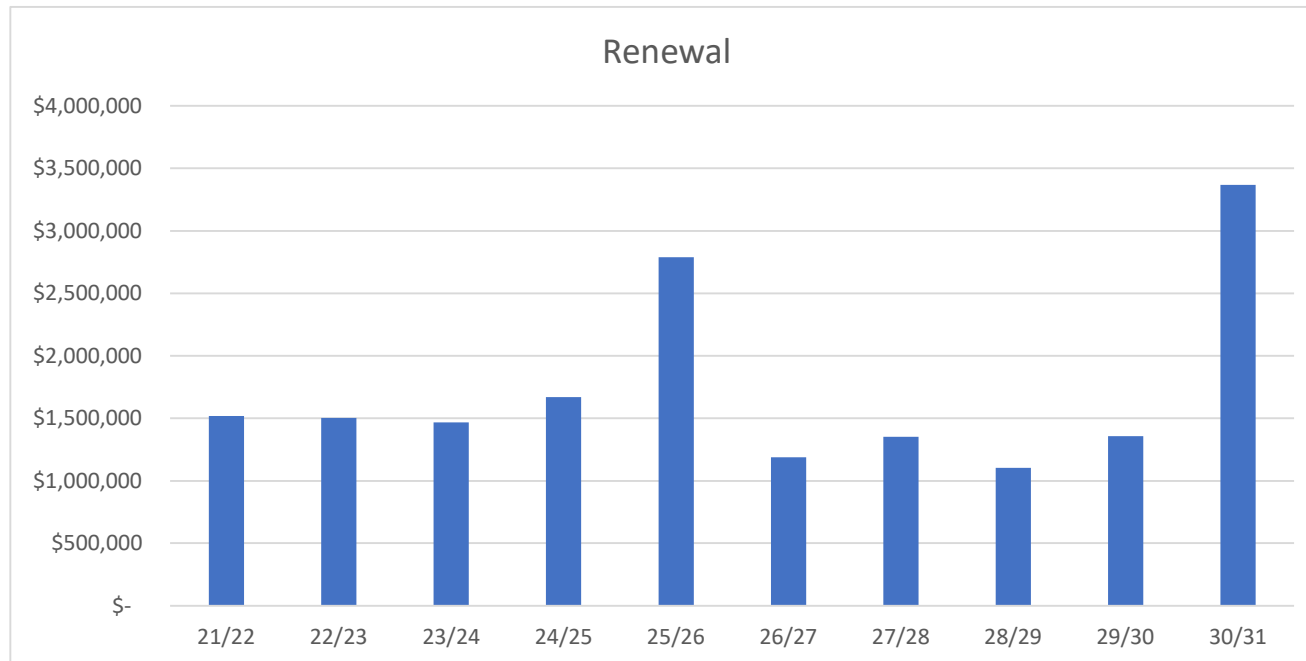
*Values are shown in thousands (\$)*

**WW1** - Over time solids in wastewater settle within ponds reducing the capacity and affecting the effluent quality. Sludge build up in wastewater ponds requires removal, dewatering and disposal to reinstate pond capacity and maintain optimum effluent quality.

**WW2** - A cyclic CCTV inspection programme to assess pipe condition, identify faults, initiate repairs, and determine rehabilitation requirements.

**WW6; 7; 11; 12; 13** – Facility and reticulation assets reaching the end of their operational lives need to be replaced to maintain continuity of service. Safeguarding the wastewater system through optimum replacement of facilities and reticulation assets nearing the end of operational life. Not replacing assets increase the potential for service interruptions posing a risk to public health and not providing agreed levels of service.

**Figure 8-13: Planned Renewals**



Over the past number of years legislative compliance was and still is the main driver for the Water Services unit. There is an increasing focus on development of a robust Renewal Plan and Programme, Risk Management and Efficiencies. The current renewal project (LTP [WW6-13](#)) will include programmed renewals of water mains totalling \$13.3m over the next 10 years. The Renewal Plan will include developing and implementing a tool for reticulation assets to enable development of a robust renewal programme. The Renewal Plan will include a Strategy which will consider plant replacement. Work around renewals will be driven around growth, maintenance records, asset age, LoS, etc.

## 8.5 Asset Development

Asset creation means the provision of or improvement to an asset where the outlay can reasonably be expected to provide benefits beyond the year of outlay. The main reason for creating an asset is to satisfy or improve the level of service, provide for new demand or to provide a commercial return.

While the creation of assets through subdivision development is paid for by the developer, works associated with the creation of Council assets is funded via loans or rates and is subject to the LTP and Annual Plan process

The Council receives assets that are vested in it, but there has been no direct exchange of funds. In the case of infrastructural assets, the value of exchange is deemed to be at the current valuation at time of issue of the 224 Certificate. For all donated and subsidised assets, the initial value recorded is the current valuation value at the date of acquisition.

The wastewater assets vested over the past 9 years (2012 to 2020) amount to \$1,072,165.64 (3Waters = \$2,125,893.78).

The vested asset procedure is graphically represented in Appendix D.

Significant acquisitions are included under vested assets and capital projects recently completed, which are recent water treatment plant upgrades. Asset disposals are discussed in the following Section 8.5.

## 8.6 Asset Disposal

All pipeline renewals have a corresponding disposal either through the pipes being removed and disposed of at the landfill, or being left in the ground and capped if the water services are renewed using 'no-dig' techniques or the asset is replaced in a new location. A work order report records each disposal and the details put in the Hansen database. Similarly, replacement of components at treatment plans and pumping stations usually involves disposal of those items being renewed/upgraded.

Buried assets remain in the ground unless economic to remove or they pose a potential hazard.

In all cases asset disposal processes must comply with Council's legal obligations under the Local Government Act 2002, which covers:

- Public notification procedures required prior to sale
- Restrictions on the minimum value recovered
- Use of revenue received from asset disposal

Under the 3Water Activity no assets for disposal are considered to be eligible to be for sale.

When considering disposal options all relevant costs of disposal will be considered, including:

- Evaluation of options
- Consultation/advertising
- Obtaining resource consents
- Professional service, including engineering, planning and legal survey
- Demolition/making safe
- Site clearing, decontamination, and beautification

### 8.6.1 Actual Disposals

The following table lists the wastewater assets abandoned between 2017 and 2020 and shows the detail for 2020.

Disposal	2017	2018	2019	2020
Wastewater assets	\$70,137	\$144,790	\$63,958	\$150,002
Asset	2020 (\$)		% of total	
Consent	\$0		0	
Equipment	\$72,472		48.3	
Sewer main	\$48,893		32.6	
Manhole	\$7,212		4.8	
Sewer node	\$851		0.6	
Service line	\$4,359		2.9	
Plant miscellaneous	\$16,212		10.8	
<b>Total</b>	<b>\$150,002</b>		<b>100%</b>	

The above assets are actual disposals as a result of renewals/replacements and not due to changes within the GIS or valuation data. This information was extracted from the Hansen IMS database.

### 8.7 Lifecycle Funding

It is critical that equity of funding for renewals between current and future (intergenerational) users occurs. While it is possible that some original supply members will stay for 20 or more years having contributed to both the original capital costs and 20 year renewals, this will only account for the lower cost, high wear and tear item renewals. Pipes, reservoirs, wells and the like have comparatively higher costs and would be renewal funded intergenerational e.g.50-100 years away.

The closer a supply gets to large infrastructure renewals the more it should focus on confirming the remaining useful life. Criticality (renewal strategy) assessment is the cornerstone of this programme. The renewal value charged is reviewed on a 3 yearly basis at the time of asset revaluation ([IP 3W13](#)).

## 9.0 RISK MANAGEMENT

This section identifies the risk management processes used to assess and manage risk. Local Government Risk Management can be termed as the systematic application of management policies, procedures and practices to the tasks of identifying, analysing, evaluating, treating and monitoring those risks that could prevent a Council from achieving its strategic or operational objectives or plans, or from complying with its legal obligations.

Providing an excellent 'risk management' section demonstrates:

- Consideration for the risk types
  - Planning risks
  - Management Risks
  - Delivery Risks
  - Physical Asset Risks
- Current risk management approach
- Significant assumptions and associated risks
- Identification of critical assets and associated risks
- Consideration of resilience of the asset set
- risk management processes are an integral part of core business processes and planning

**WHY** – to ensure we have identified, analysed, evaluated, treated and are monitoring those risks that could prevent Council from achieving its strategic or operational objectives or plans, or from complying with its legal obligations in delivering the service agreed to by the community

### 9.1 Introduction

A systematic and consistent approach to risk assessment improves Council's ability to manage its assets within resource limitations and to prioritise expenditure and actions that can avoid or mitigate the effects of an identified event. Risks can be grouped into financial, operational, or organisational categories. Their negative consequences can seriously impact public health and safety, incur financial loss or adversely affect public image. The risks identified might be relevant to many activities and be of concern at corporate level, or they might be localised, at an asset specific level.

This section describes the risk management processes used for the water service. Assessment and management of risk within the Assets Group provides defensible tools for the communities and Council to develop prudent work programmes that support sustainable development.

### 9.2 Corporate Risk Management

During 2016 Council adopted its first corporate Risk Management Policy with the purpose to provide Waitaki District Council with a risk management framework in order to effectively and efficiently manage risks inherent to Council's operations that can affect the achievement of its goals and objectives. It will do this by:

- Ensuring risk-based information is available to support good decision-making
- Providing assurance that risks are being appropriately addressed and managed, and
- Ensuring compliance with applicable legislation and regulation.

The Risk Management Policy describes Council's approach to risk management, defines the roles and responsibilities, outlines the key aspects of the risk management process, and provides methods to revise and continually improve the way the organisation manages risk. This approach to risk management is based on the International Standard AS/NZS ISO 31000:2009.

The Policy assigns the following responsibilities to Activity Managers:

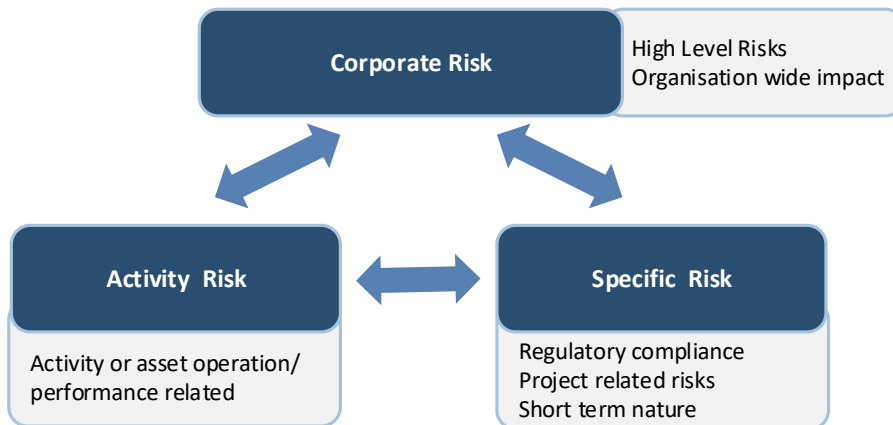
- Maintain Activity and Specific Risk registers (IP W12)
- Monitor, review, manage and report on Activity and Specific Risk assessment and treatment plans relevant to their area of operation
- Periodically report the status and immediately report any change in status of risks and treatment plans to Executive
- Lead and promote risk management culture within their areas

The Policy assigns the following responsibilities to staff and contractors:

- Be aware of risk management and follow associated policies, processes and guidelines
- Everyday identification and management of risks and treatment plans
- Carry out action plans and reporting

The Policy identifies the following risk hierarchy:

**Figure 9-1: Corporate Risk Hierarchy**



### 9.3 Risk Events

The risk events that might impact on assets include but are not limited to:

- Natural events, where there is no control over the timing or the extent of the event
- External impacts, for example other organisations not providing services, such as material supply failures or power supply failures
- Physical failures, where condition or performance of the asset could lead to failure
- Operational risks, where the management or operational activities might impact adversely on an asset

### 9.4 Current Approach

The risk management processes described here were developed in the absence of a common adopted Council risk management framework (pre- 2016).

Various asset risk management tools and techniques, based on practical experience and the skilled application of its staff and service providers, have been used over a number of years at Council. This approach has generally been sufficient. As the value of the built asset increases, levels of service expectations rise, and threshold limits for cultural and environmental impacts tighten, the need for more formal risk management practices increases. Mitigation strategies need to be put in place and reviewed continuously to achieve improvement to levels of service. A new Risk Management Schedule as identified by WDC Risk Management Policy will be developed as part of project/improvement item (IP 3W6). This will ensure risk assessments are formalised and documented and available for regular monitoring, review and update. This Risk Schedule will include and consider the various mitigation

Plans including but not limited to Emergency Management Plan, Contingency Plan, Pandemic Plan, Operational Risk Plan, Business Continuity Plan, etc.

If the levels of service are achieved, in tandem with legislative compliance, prudent investment and good financial management, then minimisation of exposure to public and general liability and risks derived from operation of assets, should also occur.

Risks are considered to arise from many areas of the water service management. They can be derived from the use of physical assets (e.g. a pump or a pipe failure) and management of the services provided (e.g. failure to formalise procedures and reporting of incidents).

It is important to note that risk management is not simply about the downside of events such as financial loss or legal proceedings. It also refers to the upside and opportunities that exist for the Council to do things more innovatively, sustainably, and effectively.

#### **9.4.1 Risk Assessment**

Although risk management strategy and risk management processes essentially follow AS/NZS ISO31000:2009 “Risk Management Principles and Guidelines”, the detail within evaluation methods may vary significantly between utilities. The Procurement Policy and Guidelines further ensures procedures and staff are accountable, fair, lawful, open and act with integrity

Currently Council Engineers apply a risk assessment to any planned projects during the investigation phase (Issues and Options Report). This considers the sum of the consequences over the 5 areas of impact (Health & Safety, Asset Performance, Environment and Legal Compliance, Financial, Customer Perception), multiplied by the likelihood to determine the least risk option.

In addition to the aforementioned risk management processes employed by Council risk management is also integrated with other processes. Often these are driven by legislative requirements. However, they are all integrated with the risk management approach that has been outlined above and can be used as sources for the definition of risk events.

A further process developed by Council with a risk assessment component is the Spine Assessment. This was developed to improve the process for identifying and undertaking projects in order to increase the likelihood of projects being successful. This is further discussed in Section 11.5.1 Spine Assessments.

#### **9.4.2 Criticality**

The criticality of an asset reflects the consequence of the asset failing (not the probability). High criticality assets are best defined as assets which have a high consequence of failure (not necessarily a high probability of failure).

Criticality of assets is employed within the water service to allow the assets to be clearly identified and then the asset can be managed more proactively in order to mitigate the risk associated with their failure. This proactive management includes:

- Prioritising condition assessments
- Adjusting economic lives with respect to renewal profiles
- Prioritising/deferring renewals
- Prioritising expenditure
- Operation and maintenance planning
- Priorities for collecting asset information to the required level of confidence

Condition assessments have been performed on an ad-hoc basis. In house -condition assessments have been done on the Oamaru trunk main. E.g. The TY Duncan rising main has had hydraulic assessments performed and cathodic protection monitoring performed. Critical trunk mains are walked annually.



The 2011/12 criticality assessment needs to be reviewed to ensure the criticality is maintained and considered in prioritising inspections, investigations, maintenance and renewal strategies (IP 3W3).

### 9.4.3 Operation and Maintenance Contract

The 3Waters Operation and Maintenance Contract (#613) records numerous risk management procedures including but not limited to:

- Prevention of contamination of treated water
  - Minimum requirements for disinfection of existing water mains and fittings during planned and reactive maintenance
  - Separate work crews for water and wastewater/stormwater
  - Best appropriate practices for staff including contractors and materials
  - Illegal connections
  - Appropriate use of backflow preventers
- Critical consumers
- Shutdowns
- Health and Safety
- Asbestos handling
- Civil Defence Emergency expectations
  - Provide sufficient plant and personnel on site to enable the emergency work to be undertaken
  - Advise the Engineer immediately if unable to either commission sufficient resources or undertake the emergency work
  - Co-operate with the appropriate authorities i.e. Police, Civil Defence
  - Carry out emergency work immediately if such work is essential to ensure the health and safety of the community or to protect the environment
  - Prioritise emergency work to reduce the risk to the community and environment to acceptable levels
  - Advise the Engineer immediately of any situation where the emergency is likely to continue and affect the health and safety of the community and the environment
- Traffic control and management
- Overflows and Clean up

Whitestone Contracting Limited (WCL) is entirely owned by the Waitaki District Council and operates as a Council Controlled Organisation. There is a statement of intent between Council and WCL for WCL to provide assistance to Council during emergency events.

### 9.4.4 Pandemic Response

The 2019–20 coronavirus pandemic is ongoing at the time of writing of this Plan. The timeline of events are as follows:

**Table 9-1: COVID 19 Timeline**

Date	Event	Response	
		NZ Government	WDC
2/02/2020	NZ first reported case		
11/02/2020	World Health Organisation declares an official pandemic		
18/03/2020			
21/03/2020		Alert Levels (1-4) announced	
23/03/2020			
24/03/2020		Move to Alert Level 3	

Date	Event	Response	
		NZ Government	WDC
26/03/2020		Move to Alert Level 4	Working from home. Organised the closure of construction sites following the Government guidelines. Applications prepared and submitted for the Shovel Ready Category for 3Waters projects
1/04/2020			
25/04/2020			
27/04/2020		Move to Alert Level 3	Following the NZ Government criteria identified the physical works & professional services contractors eligible to return to work under Alert level 3.
14/05/2020		Move to Alert Level 2	No changes to the way we work during this period except encouraging external service providers to have 'online' meetings and not 'face to face' meetings
10/06/2020		Move to Alert Level 1	
12/08/202	Community transmission	Auckland – Alert level 3 Remainder of NZ – Alert Level 2	
30/08/2020		Auckland region moves to Alert level 2. Rest of NZ at Alert level 2	
21/09/2020		All regions except Auckland move to Alert level 1	
7/10/2020		Auckland moves to Alert level 1. Rest of NZ at Alert level 1	

The impacts will be wide ranging and likely include a significant and protracted recession. This presents an opportunity for Council to collaborate with Central Government to invest and progress infrastructure projects giving the economy the injection it will desperately need.

As an initial response Central Government decided to fast track eligible development and infrastructure through amendments to the Resource Management Act. This will aid in getting much-needed infrastructure programmes underway as soon as possible.

Further response includes the establishment of the Infrastructure Industry Reference Group (IIRG) to seek out infrastructure projects that are ready to start as soon as the construction industry returns to normal to reduce the economic impact of the COVID-19 pandemic. These 'shovel ready' projects include water, transport, clean energy and buildings. They would also have a public or regional benefit, create jobs and be able to get underway in short order.

There is a preference for larger projects with a value of over \$10 million, which would have an immediate stimulatory effect on the construction industry, its workforce and the economy.

Smaller projects will be considered if they demonstrate a direct and immediate benefit to the regional economies and communities in which they are based.

Council has applied for Government funding for five shovel-ready work packages, with a combined value of more than \$58.4million.

The COVID 19 pandemic created a very dynamic environment where circumstances can change on a daily basis. At the time of writing this Plan the assumption is that the Waitaki district will be able to weather the storm as the districts' primary industries, mining, agriculture and food and beverage manufacturing, are less affected than for example tourism. The Department of Internal Affairs 'Local Government Sector COVID-19 Financial Implications Report 2 – Alert Level Scenarios, Assumptions and Updated Analysis' report projects "The agriculture sector is expected to perform relatively well in the short- and long-term".

Council will first attempt to reduce spending in ways that do not require reductions to service levels. Higher levels of reduction in spending would be more likely to require deferral of larger capital projects which may impact on Council's ability to comply with legislation and environmental standards in the 3Waters area.

Council could defer the replacement of assets for a period and potentially reduce the priority of capital expenditure so they can sustain service levels. The deferral of asset replacement may increase infrastructure resilience risks and increase long term costs.

The response to COVID 19 provided a snapshot of how quickly our environment can change and how quickly we can adapt. People working from home. The uptake of technology. Change in transportation patterns. Online sales and deliveries. Outdoor activities. Socio economic impacts and response.

#### 9.4.5 Government Review of 3 Waters Services

During 2017 the Minister for Local Government initiated a review of 3Waters services to assess whether current local government practices and the system oversight are 'fit for purpose'. This acknowledges that effective 3 Waters services are essential for communities as:

- **Health and safety** - depends on safe drinking water, safe disposal of waste water and effective stormwater drainage
- **Prosperity** - depends on adequate supply of cost effective three waters services for housing, businesses and community services
- **Environment** - depends on well managed extraction of drinking water, and careful disposal of waste water and stormwater

A series of events indicated there are system-wide performance challenges and supported the perception that service failure is the only indicator that service delivery is not in accordance with the expected outcomes.

On 8 July 2020 the Government announced a funding package of \$761m to provide immediate post COVID 19 stimulus to local authorities to maintain and improve 3Waters infrastructure, support reform of local government water services delivery arrangements, and support the operation of Taumata Arowai.

On 27 July 2020, the Water Services Bill was introduced to Parliament. The Bill contains all of the details of the new drinking water regulatory system, and provisions relating to source water protection and Taumata Arowai's **wastewater** and stormwater functions.

A second, complementary Bill, the Taumata Arowai – Water Services Regulator Bill, sets out Taumata Arowai's objectives, general functions, and operating principles, and establishes Taumata Arowai as a Crown agent.

#### 9.4.6 Te Mana o Te Wai

Te Mana o te Wai is a concept that refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. Te Mana o te Wai is relevant to all freshwater management and not just to the specific aspects of freshwater management referred to in this National Policy Statement.

It provides for the three healths of Te Mana o te Wai –

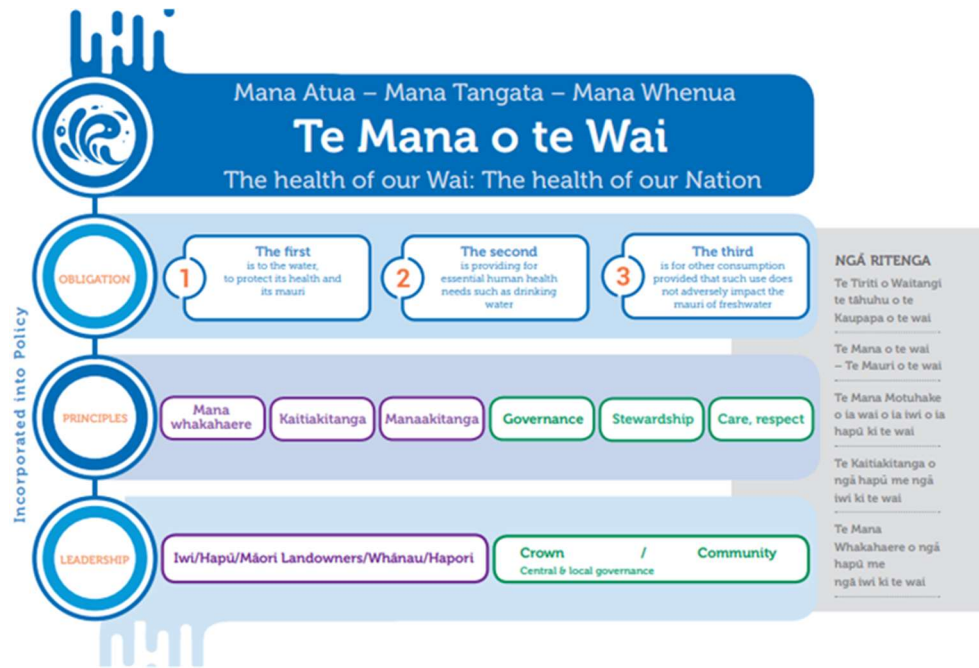
- Te Hauora o te Wai (the health and well-being of the water),
- Te Hauora o te Tangata (the health and well-being of people), and
- Te Hauora o te Taiao (the health and well-being of the environment)

Te Mana o Te Wai is given effect through the National Policy Statement for Freshwater Management.

During September 2019 the Ministry for the Environment (MfE) released the discussion document 'Action for Healthy Waterways' which highlighted the Government's objectives to:

- Stop further degradation of New Zealand freshwater resources
- Reverse past damage
- Address water allocation issues

This strengthens and upholds Te Mana o te Wai and signals the direction for urban development, rural land and water management including Risk Management Plans (LTP [WW17-24](#)) for wastewater systems and stormwater systems, likely regulatory requirements under a new 3 Waters regulatory framework.



(Source – *Te Mana o te Wai - Kāhui Wai Māori Report to Hon Minister David Parker - April 2019*)

Add to this expected regulatory changes and stronger obligations on local authorities to manage risks from wastewater; strengthened compliance, monitoring and enforcement of wastewater treatment and disposal regulation will require improved treatment and disposal methods and plans to manage risks. Development of Risk Management Plans is included as a project (LTP [WW17-24](#)).

## 9.5 Business Continuity

### 9.5.1 Business Continuity Plan

No business, financial & operational continuity plan has been developed for the water activity within the Waitaki District.

### 9.5.2 Lifelines Management Plan

The Civil Defence Emergency Management (CDEM) Act 2002 requires local authorities to coordinate Plans, Programmes and Activities related to CDEM across the areas of Reduction, Readiness, Response and Recovery, and encourages cooperation and joint action with regional groups. Activities required are Risk Reduction, Readiness, Response and Recovery.

The following table indicates the required activities for the Water Operations in the areas of Risk Reduction, Readiness, Response and Recovery.

**Table 9-2: Risk Reduction, Readiness, Response and Recovery**

Activities required	Description	Include
Risk Reduction	Identifying hazards, describing risks, and taking actions to reduce the probability or consequences of potential events	Identify hazards
		Describe risks
		Reduction or Consequences
Readiness	Planning and preparation required to equip agencies and communities to respond and recover	Planning
		Preparation
Response	Address immediate problems after an emergency	Address immediate problems
Recovery	Addressing the long term rehabilitation of the community	Addressing long term rehabilitation of community

Asset Management Planning and contractual arrangements are in place to provide some measure of Risk reduction, Readiness, Response and Recovery.

The Water Services and Waste Manager meets with the Otago Lifelines Group monthly. The following organisations are represented on the Lifelines Group i.e. Otago Regional Council, Local Authorities, utility providers, fuel providers, etc.

### 9.5.3 Waitaki Civil Defence Emergency Management

Council is part of the Otago CDEM Group, a joint standing committee with membership comprising the Mayors from the Central Otago District, Clutha District, Dunedin City, Queenstown Lakes District and Waitaki District Councils and the Chairperson of the Otago Regional Council.

The broad purpose of the Waitaki CDEM Plan 2012 is to enable the effective and efficient management of those district and possibly regionally significant hazards and risks for which a coordinated district approach will be required. The Plan sets out a strategic direction, district objectives and a framework for continuous improvement.

The CDEM Vision of the Waitaki District is:

**Resilient Waitaki** – “Communities understanding and managing their hazards “

The Waitaki CDEM Plan encompasses the 4R’s principle of Reduction, Readiness, Response and Recovery.

The Waitaki CDEM Plan 2012 under **The Waitaki Context** states:

*The first step to building resilient communities is to understand these communities. The Waitaki district covers a large area of approximately 7,152 square kilometres, but has a relatively dispersed population of 20,223 people. This, plus the nature of the Waitaki economy and infrastructure, has a number of implications for CDEM:*

1. *Limited access to major population areas making them vulnerable to on-going support and maintenance of supply chains*
2. *The high numbers of tourists and holiday home owners in the Upper Waitaki Valley create particular issues especially during the Christmas-New Year period. They cannot be informed and advised regarding preparedness in the same way as the resident population, and they can have very different needs during and after an event.*
3. *The tourism industry also means that the region is susceptible to economic impacts if a major disaster deters tourists from coming to the region.*
4. *An aging population in Waitaki will create increased issues for CDEM capacity in this area.*
5. *The Upper Waitaki electricity generation facilities and the HVDC link are nationally important.*
6. *The importance of primary production and processing to the region means that it is vulnerable to events that disrupt these sectors such as drought, flooding and snowfall.*

7. *The relative importance of key sectors (e.g. tourism, agriculture, education) varies considerably between different parts of the district, meaning that the CDEM issues and appropriate responses also vary considerably around the region.*

*The second step to building resilient communities is to understand the hazards and risks. The high priority hazards are; earthquakes, dam break, human pandemic, landslide, river and lake floods, severe storms (snow, wind and rain), electricity failure, fuel supply disruption, and tsunami. Of those, the natural hazards and human pandemic have already been the focus of some CDEM planning activity, but dam break affecting communities, fuel and electricity disruption have not. In terms of priorities for future work, earthquake, local tsunami and dam break are considered to be the top priorities due to the potential severity of consequences, lack of warning for earthquake and local tsunami, and lack of recent CDEM planning for dam break throughout the Waitaki Valley.*

The Waitaki CDEM Plan undertakes to develop annual work programmes to support the objectives of the CDEM Plan.

Quarterly reports to council are provided on progress against the Annual Work Programme. This provides Executive oversight and ensures public accountability through the elected representatives.

The Plan is also subject to external review through comment by the Ministry and any interested organisation.

The Waitaki CDEM Plan also provides a summary of the North Otago Natural Hazards including river flooding, earthquake, tsunami and storm surge. This considers the likelihood, consequence (social, built, economic, environmental) of each while identifying management of the risk and the future risk.

#### **9.5.4 Infrastructure Resilience**

Council customers have a high expectation of continuing functionality and service delivery. Resilience is based on a design philosophy which acknowledges that failure will occur. Resilience requires early detection and recovery, but not necessarily through re-establishing the failed system.

The Waitaki CDEM office has identified public education as the foundation for improving levels of community resilience. Some collaborative work has already occurred locally, but lacks an overall strategy in conjunction with the Group. Recent high profile natural disasters have raised public awareness, but there is still a significant need to increase actual preparedness – both in general (e.g. household plans and emergency supplies) and for specific circumstances (e.g. tsunami preparedness in coastal communities).

However, resilience is not only applicable to natural hazards, but also needs consideration at an operational level where an asset failure is not necessarily a service failure.

Redundancy (duplication) does not provide Resilience. Resilience requires early detection and recovery, but not necessarily through re-establishing the failed system. Robust systems are designed to prevent failure. Resilience is about the ability to plan and prepare for adverse events, the ability to absorb the impact and recover quickly, and the ability as a community to adapt to a new environment.

We have to consider managing and mitigating the risks to, and the resilience of, our infrastructure assets from natural disasters. Council acknowledge that resilience is not only about physical assets, it is about the people. It includes but are not limited to:

- connecting people and communities (neighbour to neighbour; educate; access to household resilience items, etc.);
- supporting community organisations
- the built environment and asset systems which are robust

Adverse events/natural disasters/climate change and the related impacts cannot be avoided and as a result Council has to factor this into long term planning, civil defence planning and determining the infrastructure requirements moving forward to ensure the community's expectations are met with regard to safe and reliable services and general wellbeing.

In order to improve resilience Councils approach will be to:



- Actively participate in CDEM planning and activities, at both regional and local levels
- Investigate options for alternative service provision and system redundancy
- Identify critical assets and ensure mitigation methods are developed
- Obtain insurance where this is deemed to be the most cost effective approach

Council will take guidance from the 100Resilient Cities website <http://www.100resilientcities.org/> . This includes the strategies of Greater Christchurch and Wellington.

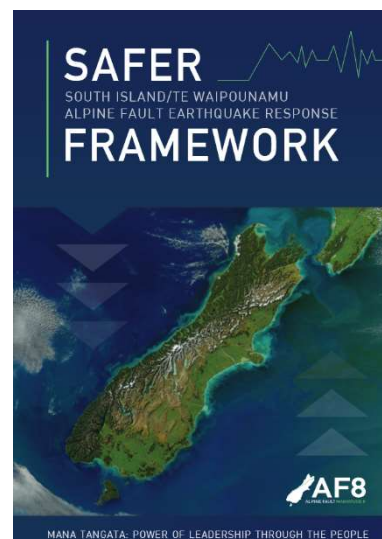
As part of Council’s approach to improved resilience an assessment of emergency spares (**IP WW5**) is programmed for 2021/22 to ensure appropriate spares are available during emergencies to quickly and efficiently restore service interruptions.

### 9.5.5 Project AF 8

Project AF8 is a cutting edge risk scenario-based earthquake response planning project, informed by thorough earthquake source, expression, and consequences science. The focus of the project is New Zealand’s South Island Alpine Fault. Project AF8 commenced in July 2016, with funding from the Ministry of Civil Defence & Emergency Management’s Resilience Fund, and is managed by Emergency Management Southland on behalf of all South Island CDEM Groups.

Project AF8 has been initiated to introduce outline planning for response actions, resources, and overall coordination within and between CDEM Groups across the South Island.

The South Island Alpine Fault Earthquake Response (SAFER) Framework provides a concept of coordination of response and priority setting across all six South Island Civil Defence Emergency Management (CDEM) Groups and their partner organisations in the first seven days of response. It is not intended to replace existing plans within agencies but to provide a coordinated picture of response across the South Island.



The SAFER framework includes:

- Scenarios
- Response assumptions
- Secondary and compounding risks such as:
  - Aftershocks
  - Ongoing structural failure
  - Cascading landscape effects
  - Tsunami
  - Sever weather
  - Communicable human diseases
  - Impacts on response operations
- Consolidated response framework

Council will keep a keen eye on the response actions and resources from the AF8 project and work with CDEM Groups.

## 9.6 Insurance

Council’s Insurance Policy covers the following Water Infrastructural Assets:

- Buildings
- Reservoirs and storage facilities
- Intakes and bores



Policy exclusions include:

- Underground services i.e. reticulation and associated fittings
- Property located on or in ponds

All contractors undertaking work, including professional services or advice, for Council or on behalf of Council are required to produce evidence that they hold as a minimum adequate insurance covering:

- Public liability
- Professional indemnity
- Contract works

### **9.6.1 Local Authority Protection Programme Disaster Fund**

The Local Authority Protection Programme Disaster Fund (LAPP) is a cash accumulation mutual pool. Civic Assurance is the Fund's Administration Manager. The LAPP Fund was established in 1993, to help its New Zealand local authority members pay their share of infrastructure replacement costs for water, sewage and other uninsurable essential services damaged by natural disaster.

Since 1991, central and local government have shared responsibility for these costs. Beyond a threshold, central government will pay 60% of the restoration costs, leaving local authorities 40%.

Of the 78 local authorities in New Zealand, 33 are currently Fund members. Since the Canterbury earthquakes the Fund has rebuilt to more than \$17m in reserves (2014) and provides protection (combined with Central Government funds) which caters for a \$125m event. The number of members reduced resulting in less contributors, but it also means a lower reinsurance cost and the value of the Fund per member is higher.

The central government's Disaster Recovery Plan states that beyond a threshold, central government will only pay 60% of restoration costs. Local government is responsible for the remaining 40% thus effectively moving part of the onus from the tax payer to the ratepayer. Central government will only provide their 60% following a major catastrophe provided that the local authority can demonstrate it can meet the remaining 40% through:

- Proper maintenance
- The provision of reserve funds
- Effective insurance, or
- Participation in a mutual assistance scheme with other local authorities

The Fund is designed to cover local authority owned infrastructural assets which are considered generally uninsurable. These include:

- Water reticulation, treatment and storage;
- Sewage reticulation and treatment;
- Storm water drainage;
- Dams and canals;
- Flood protection schemes including stopbanks, and
- Floodgates, seawalls and harbour risks such as buoys, beacons and uninsurable foreshore lighthouses

Roads and bridges are not covered by the Fund as local authorities have access to Transfund subsidies.

The Fund is designed as catastrophe protection only, covering serious disruptive loss or damage caused by sudden events or situations which may or may not involve the declaration of a Civil Defence Emergency. Perils include but are not necessarily limited to earthquake, storms, floods, cyclones, tornados, volcanic eruption, tsunami and other disasters of a catastrophic nature such as a major gas explosion.

### 9.6.2 Insurance Summary

Council's insurance summary is tabled below:

**Table 9-3: Insurance Summary**

Components / Items	Risk Pool		LAPP	AON Insurance (Agent)	
	Public Liability	Professional Indemnity		Buildings & Contents	General Insurance
Reticulation			✓		
Treatment Plants and Pump Stations					
Electrical					✓
Mechanical					✓
Structural					✓
Staff	✓	✓			
Council Vehicles				✓	✓
Private property damage related to Wastewater damage	✓				

**LAPP** - Council is part of the Local Authority Protection Programme Disaster Fund (LAPP) which is a cash accumulation mutual pool with Civic Assurance as the Fund's Administration Manager.

The Fund was established in 1993 by Local Authorities to meet Government legislation brought out in 1991 and covers local authority owned infrastructural assets which are considered generally uninsurable. These include:

- Water reticulation, treatment and storage
- Wastewater reticulation and treatment
- Stormwater drainage
- Dams and canals
- Flood protection schemes including stop banks
- Flood gates, seawalls and harbour risks such as buoys, beacons and uninsurable foreshore lighthouses

**Risk Pool** - is a mutual fund created by New Zealand Local Authorities to provide long term, affordable legal and professional liability protection. The Fund was founded on the premise that historically the insurance industry has demonstrated inconsistency with the scope of cover, pricing, claims handling and capacity. Risk Pool commenced in 1997 and currently has 78 local authority members. Membership of Risk Pool is open to all local authorities. Contributions are levied according to each member's actual risk profile, claims experience

#### Activity Response to Risk Management

We will continue to:

- Apply a consistent and systematic approach to risk management based on AS/NZS ISO 31000:2009
- Develop and maintain activity specific risk registers
- Apply risk management tools and techniques including practical experience and skilled staff and contractors

- Maintain critical asset assessments to guide future prioritisation of maintenance and renewal planning
- Continue adequate insurance cover for infrastructural assets
- Continue to factor adverse events/natural disasters/climate change and the related impacts into long term planning, civil defence planning and future infrastructure requirements

## **9.7 Assumptions and Uncertainties**

The LGA 2002 - Schedule 10, Part 1 (11) requires the Council to clearly define all the significant forecasting assumptions and risks that underlie the financial estimates, assumptions concerning the useful life of significant assets and an estimate of the potential effects of the uncertainty on the financial estimates provided.

Forecasting assumptions and uncertainties are essential in the operation of Council's assets to indicate the levels of risks associated with those assumptions. Where necessary, additional strategies can be implemented to reduce the risk.

**Table 9-4: Significant Forecasting Assumptions**

(To be updated)

Assumption Grouping	Forecasting Assumption	Risk	Level of uncertainty (green - low, orange - moderate, red - high)	Potential effects and mitigation measures (on Council financial estimates)
<b>Strategic Direction</b>	<p>A vision of sustaining and enhancing a vibrant Waitaki District and its associated strategic priorities will influence the way Council delivers services and infrastructure to Waitaki's residents.</p> <p>The four strategic goals are:</p> <ul style="list-style-type: none"> <li>• Improved economic sustainability and resilience</li> <li>• A more vibrant District offering a high quality of life for its residents</li> <li>• Increased value for money for Waitaki District ratepayers</li> <li>• A more connected and engaged community</li> </ul>	<p>The geo-political environment and relationship of New Zealand to events within that environment will influence results achieved against a vision. For example future levels of immigration (national &amp; international policy) influence new resident numbers and international visitor numbers to the District.</p> <p>Private business investment is equally a matter that the Council does not have direct and substantive influence over. It supports private business investment indirectly through the services, regulation and district leadership it provides. CCO's make up a very small portion of the Waitaki GDP.</p>	Low	<p>Council has the ability to change direction at any point and invest in an activity focused on attracting residents, business, and/or visitors. There would be a short term cost associated with staff redundancies and this expense would need to be included in future financial estimates.</p>
<b>Demographics</b>	<p>Population profile – will change gradually over the life of this Plan. It is projected that the population will continue to age. It is also likely that the proportion of Pacific Islanders and other migrant groups living in our community is underestimated, and we assume that this population will continue to rise slowly.</p>	<p>The population profile, particularly over 65, may be higher than projected. The number of Pacific Islanders living in the District is likely to be higher than official statistics records note.</p>	Moderate	<p>The population of Waitaki is older than the national average, and the percentage of people aged over 65 is growing. The increase in the percentage of people aged over 65 also requires a focus on ensuring there are appropriate facilities and services for older people. In this sector of the population many are on fixed incomes, and management of rates affordability impacts on this group is important to Council.</p> <p>Changes to projected population may place increasing pressure on some Council services due to increased demand over time. An underestimated Pacific population in the official</p>

Assumption Grouping	Forecasting Assumption	Risk	Level of uncertainty (green - low, orange - moderate, red - high)	Potential effects and mitigation measures (on Council financial estimates)																																																		
	<p>Population is projected to be static, which is in keeping with recent historical trends</p> <table border="1"> <thead> <tr> <th>Population</th> <th colspan="7">Population at 30 June 2013</th> <th colspan="2">Change</th> </tr> <tr> <td></td> <th>2013</th> <th>2018</th> <th>2023</th> <th>2028</th> <th>2033</th> <th>2038</th> <th>2043</th> <th>#</th> <th>Average annual %</th> </tr> </thead> <tbody> <tr> <td>High</td> <td></td> <td>22,600</td> <td>23,800</td> <td>24,800</td> <td>25,800</td> <td>26,700</td> <td>27,600</td> <td>6,200</td> <td>0.8</td> </tr> <tr> <td>Medium</td> <td>21,400</td> <td>22,300</td> <td>22,800</td> <td>23,300</td> <td>23,600</td> <td>23,900</td> <td>24,100</td> <td>2,600</td> <td>0.4</td> </tr> <tr> <td>Low</td> <td></td> <td>21,800</td> <td>21,800</td> <td>21,600</td> <td>21,400</td> <td>21,000</td> <td>20,600</td> <td>-800</td> <td>-0.1</td> </tr> </tbody> </table> <p>This Plan is assuming no significant growth and provides organisational capacity and infrastructure to advance this scenario. The District Plan is currently being reviewed and can potentially influence this assumption. While the age profile of the district's residents is changing (ie ageing), by 2043, 29% of the population of Waitaki District is projected to be aged 65 years or over. Council is not anticipating major changes in the type of services it provides over the life of this Plan.</p>	Population	Population at 30 June 2013							Change			2013	2018	2023	2028	2033	2038	2043	#	Average annual %	High		22,600	23,800	24,800	25,800	26,700	27,600	6,200	0.8	Medium	21,400	22,300	22,800	23,300	23,600	23,900	24,100	2,600	0.4	Low		21,800	21,800	21,600	21,400	21,000	20,600	-800	-0.1	<p>The LTP has been prepared on the basis that population will not grow significantly, using population projections from the 2013 census as a base.</p> <p>The population may change at rates different to those projected e.g. increasing due to investment being made by Council to attract people and jobs into the district. A reduction in population will impact the rating base and the ability of communities to fund services. Either scenario could result in Council's planned services not matching community requirements.</p>	<p>Low</p>	<p>statistics records may also misrepresent the make-up of the district's population, and their needs may not be met.</p> <p>Council will continue to monitor demographic change and adapt or redirect activities to meet needs where possible within reasonable costs.</p> <p>Slower or faster population growth may impact service levels, infrastructure expansion, renewal programmes, and costs (where there is an increased or decreased rates requirements).</p> <p>Where growth requires additional infrastructure (e.g. through subdivisions), Council can require development and financial contributions. Waitaki District Council has been taking a proactive position on catering for an ageing population eg. Its involvement through Waitaki District Health Services in the Observatory Retirement Village.</p> <p>Over or under estimating the demand for services based on planned growth (positive or negative) can have a significant effect on financial estimates.</p> <p>The potential effects include:</p> <ul style="list-style-type: none"> <li>The availability of funding to sustain services</li> <li>Changes in estimates to reconfigure service levels, eg there can be an additional cost, albeit short-term, to scale back service.</li> <li>Underestimated demand for service results in a 'catch-up' scenario where a Council and community face a reactive situation. Financial estimates are likely to be more</li> </ul>
Population	Population at 30 June 2013							Change																																														
	2013	2018	2023	2028	2033	2038	2043	#	Average annual %																																													
High		22,600	23,800	24,800	25,800	26,700	27,600	6,200	0.8																																													
Medium	21,400	22,300	22,800	23,300	23,600	23,900	24,100	2,600	0.4																																													
Low		21,800	21,800	21,600	21,400	21,000	20,600	-800	-0.1																																													

Assumption Grouping	Forecasting Assumption	Risk	Level of uncertainty (green - low, orange - moderate, red - high)	Potential effects and mitigation measures (on Council financial estimates)
				<p>robust and reliable in a planned approach</p> <ul style="list-style-type: none"> <li>A growth scenario is likely to have a positive impact on the rating base.</li> </ul> <p>Council's rating base is reviewed annually.</p>
<b>Affordability</b>	Average household income will remain static, and the district share of national GDP over previous 30 years will continue to decrease. The median personal income in Waitaki in 2013 is \$25,300, lower than the national average. Economic affluence will not be a key driver of demand for increased Council services from the majority of the community.	Economic pressures lead to more residents defaulting on rates payments than expected.	Moderate	Council is mindful of the high number of fixed income households in the District, particularly as the population is projected to continue to age. The issue of affordability of services is relevant when setting fees and charges and rates. Council is taking a cautious approach to prospects for the district's economy, noting that the ageing demographic will mean more older residents who are no longer in employment and potentially less able to afford increasing rates.
<b>Organisation</b>	Levels of service - will be maintained unless otherwise stated for the duration of the 2018-2028 Long Term Plan.	Service levels may need adjusting in response to issues identified by the community or other external factors	Low	Council and its management team review its budget annually through the LTP/Annual Plan process and have the ability to adjust work programmes/budgets as necessary.
	Costs - are anticipated to be stable over the lifetime of the Plan based on historical trends. Capital expenditure estimates are based on Council's best estimates and known planned expenditure	Costs are higher or lower than expected eg. Contracting costs, resource costs	Low	Council and its management team review its budget annually through the LTP/Annual Plan process and have the ability to adjust work programmes/budgets as necessary.
	Debt levels – there is no significant level of debt at the start of the plan, however, some projects will require loan funding through internal sources.	Higher debt levels may require Council to borrow externally to meet cash flow requirements.	Low	Refer Liability and Management Policy.
	Return on investments - returns from bank deposits and other investments will increase slowly over the term of the LTP from their current historic low levels. Rates projected in this LTP range from 3.65% to 5.05% over the life of the plan. Over the same period, dividends from CCO's are expected to remain steady.	Forecast returns are higher or lower than forecast.	Low	Investment portfolio breakdown

Assumption Grouping	Forecasting Assumption	Risk	Level of uncertainty (green - low, orange - moderate, red - high)	Potential effects and mitigation measures (on Council financial estimates)
	<p>No returns from forestry harvesting have been included in this LTP following significant logging activities in the 2015 – 2018 years. Instead, the focus of the forestry activity over the term of the LTP will be on re-establishing Council's forestry holdings for future harvesting.</p>			
	<p>Credit availability – Council assumes credit will be available if required on competitive terms and conditions</p>	<p>Credit cannot be obtained when required and funding is required from another source.</p>	Low	<p>Council will continue to maintain prudent debt levels.</p>
	<p>Borrowing costs - Council does not expect to externally borrow money over the life of the Plan. Council does utilise internal debt, and charges interest at rates that range from 3.8% to 5.0% over the life of this long term plan.</p>	<p>Council may need to borrow externally for unanticipated events e.g. sudden and material service level failure and/or rates of borrowing are higher than forecast. Council would first consider internal loan funding using reserve funds or using overdraft facilities.</p>	Low	<p>Refer Liability Management Policy.</p>
	<p>Insurance costs - insurance premiums will rise slightly above current levels plus inflation to take into account the effects of previous earthquake and weather events on the insurance industry nationally. Council will continue to be able to obtain 100% cover. The Local Authority Protection Programme Disaster Fund will continue; and the scope of asset insurance will not extend beyond the current scope of activities and insurance cover. Council adjusted its approach post the Canterbury earthquakes.</p>	<p>Premiums increasing above inflation and/or Council cannot get 100% cover</p>	Moderate	<p>Any increase in premiums above the level assumed will have an impact on rates. Council may need to make decisions about cover levels during the life of the Plan.</p>
<b>External Factors</b>	<p>Climate change – changes in the rate and impacts of climate change will impact Council decisions around land use, regulation and investments in infrastructure. Council assumes that the key service requirement relates to protection of Council owned assets vulnerable to coastal erosion eg. the local roading network and Council's stormwater infrastructure. It is assumed that rates of coastal erosion will remain in line with the rates currently being experienced.</p>	<p>There is risk that negative effects associated with climate change occur at a faster rate and with more detrimental effects. If projections are not taken into account in Council planning, this could impact on the development of capital expenditure projects.</p>	Moderate	<p>Council will monitor and consider the impacts of climate change and respond to changes required to Council's infrastructure (including mitigation and adaptation). Council will utilise guidance from central government and LGNZ based on the best available climate science to underpin our planning.</p> <p>Financial estimates include provision for Council assets and sites that may be affected. Planning for key infrastructure located on the coastal fringe and vulnerable to coastal erosion is considered in the 30 to 50 year infrastructure planning horizon.</p>



Assumption Grouping	Forecasting Assumption	Risk	Level of uncertainty (green - low, orange - moderate, red - high)	Potential effects and mitigation measures (on Council financial estimates)
				Council will implement the Civil Defence regional model, introduced in 2017, to best effect.
	Adverse weather events – there will be no catastrophic natural or weather events eg. major earthquake or tsunami, over the lifetime of this Plan. Council is assuming that the need for Civil Defence is critical. Council has increased its disaster fund capacity and has the ability to deal with adverse weather events.	Service disruption due to catastrophic weather events pose some risks to property and life. Council may need to reprioritise resources to respond to the implications of such events including community safety and repairs to infrastructure.	Moderate	Council has a Business Continuity Plan in place. If an event were to occur, Council will focus its operational resource on response and recovery
	Emissions trading scheme – The Emissions Trading Scheme is retained in its present form	Changes could occur to the scheme via government policy. Council financial forecasts that embody carbon pricing would be affected.	Low	Forestry assets are maintained with a long term view and programmes are regularly reviewed. Council will replant harvested forests to negate any liability. Council will monitor waste volumes on an ongoing basis.
	Tourism numbers and composition – domestic and overseas visitor numbers are projected to increase. Council assumes this growth will continue and influence the demand for, and type of services required e.g. transport infrastructure, communications, regulation & enforcement, sanitation services, and Council's funding policy.	Tourism numbers are linked to geo-political, global and national economic trends.	Moderate	A radical decrease in visitor numbers would impact on the local hospitality industry. A decrease in the district's GDP would heavily influence Council decisions on current and future service levels. Council, in conjunction with Tourism Waitaki, monitor and report tourism trends.
	Legislative changes - Council assumes that there will be no sudden (ie. un-signalled) significant change to legislation and that central Government will maintain its current and core service commitments and continue to legislate for increased service levels relating to core services provided by Council eg. health and safety, regulation, monitoring and enforcement; RMA, potable water quality. Council must also continue to meet regional council obligations including higher environmental standards for air and water.	Legislative change is usually signalled over a reasonable time period. The risk is usually associated with uncertainty about implementation.	Moderate	Council may be required to change expenditure or income (for instance rates or user charges). An example could be a sudden and un-signalled change to superannuation
	Inflation – Inflation rates used for periods beyond 2018/19 have been based on data sourced from Forecasts of Price Level Change Adjustors – 2017 Update, prepared by BERL, as detailed below.	Inflation rates vary from those forecast resulting in changed revenue and expenditure	Low	Council and its management team review budgets annually through the LTP/Annual Plan

Assumption Grouping	Forecasting Assumption	Risk	Level of uncertainty (green - low, orange - moderate, red - high)	Potential effects and mitigation measures (on Council financial estimates)																																																																						
	<table border="1"> <thead> <tr> <th>Category</th> <th>2020</th> <th>2021</th> <th>2022</th> <th>2023</th> <th>2024</th> <th>2025</th> <th>2026</th> <th>2027</th> <th>2028</th> </tr> </thead> <tbody> <tr> <td>Water, sewer, drainage &amp; waste</td> <td>2.7%</td> <td>2.5%</td> <td>2.4%</td> <td>2.4%</td> <td>2.4%</td> <td>2.4%</td> <td>2.4%</td> <td>2.4%</td> <td>2.4%</td> </tr> <tr> <td>Planning &amp; regulation</td> <td>2.1%</td> <td>2.1%</td> <td>2.1%</td> <td>2.2%</td> <td>2.3%</td> <td>2.3%</td> <td>2.4%</td> <td>2.4%</td> <td>2.5%</td> </tr> <tr> <td>Roading</td> <td>2.2%</td> <td>2.2%</td> <td>2.3%</td> <td>2.4%</td> <td>2.4%</td> <td>2.5%</td> <td>2.6%</td> <td>2.7%</td> <td>2.8%</td> </tr> <tr> <td>LG Admin</td> <td>2.0%</td> <td>2.0%</td> <td>2.1%</td> <td>2.2%</td> <td>2.3%</td> <td>2.3%</td> <td>2.4%</td> <td>2.5%</td> <td>2.6%</td> </tr> <tr> <td>Transport</td> <td>2.0%</td> <td>2.1%</td> <td>2.2%</td> <td>2.2%</td> <td>2.3%</td> <td>2.4%</td> <td>2.5%</td> <td>2.5%</td> <td>2.7%</td> </tr> <tr> <td>Salary &amp; wage rates (LG)</td> <td>1.6%</td> <td>1.7%</td> <td>1.8%</td> <td>1.8%</td> <td>1.9%</td> <td>1.9%</td> <td>2.0%</td> <td>2.0%</td> <td>2.1%</td> </tr> </tbody> </table>	Category	2020	2021	2022	2023	2024	2025	2026	2027	2028	Water, sewer, drainage & waste	2.7%	2.5%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	Planning & regulation	2.1%	2.1%	2.1%	2.2%	2.3%	2.3%	2.4%	2.4%	2.5%	Roading	2.2%	2.2%	2.3%	2.4%	2.4%	2.5%	2.6%	2.7%	2.8%	LG Admin	2.0%	2.0%	2.1%	2.2%	2.3%	2.3%	2.4%	2.5%	2.6%	Transport	2.0%	2.1%	2.2%	2.2%	2.3%	2.4%	2.5%	2.5%	2.7%	Salary & wage rates (LG)	1.6%	1.7%	1.8%	1.8%	1.9%	1.9%	2.0%	2.0%	2.1%			process and have the ability to adjust work programmes/budgets as necessary.
Category	2020	2021	2022	2023	2024	2025	2026	2027	2028																																																																	
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	Interest rates on borrowing - Interest rates are assumed to be between 3.8 – 5.0% over the period of the LTP	Forecast interest rates on borrowing are higher or lower than forecast. Council costs could increase or decrease as interest rates fluctuate up and down.	Low	Council hedges interest rate exposures as per the Liability Management Policy																																																																						
	Technology – Advances in technology over the life of the plan could change the way activities are carried out, the forecasts are based on known technology as currently applied within Council.	Assumed economic lives of network assets (particularly waste water) may change due to future technologies that remove the need for a reticulation network. New technology could change the way an activity is carried out, affecting both financial estimates and levels of service.	Low	The impact of changing technology is unknown but is reviewed on an ongoing basis and would be taken into account in the next Long Term Plan. The effects in the interim would be considered in Annual Plans and provided for where necessary																																																																						
<b>Significant Assets</b>	Raw water – Raw water for treatment is not expected to constrain future requirements based on current levels of residential and industrial growth	Raw water – risk of constraints over the long term	Moderate	Water is essential to urban settlement and business activity. Ongoing constraints for whatever reason, would be significant. While																																																																						

Assumption Grouping	Forecasting Assumption	Risk	Level of uncertainty (green - low, orange - moderate, red - high)	Potential effects and mitigation measures (on Council financial estimates)
	<p>projections across the Waitaki District, and based on assumptions for climate change.</p> <p>The Oamaru service has capacity to meet a level of growth in excess of Stats NZ projections. Services across the wards (Waihemo, Corriedale, Ahuriri) are also in the same position as Oamaru regarding ability to meet a low to moderate growth scenario. Residential/lifestyle growth, above the historical average, in the Ahuriri ward is possibly linked to Central Otago property market activity.</p>			constraints are not anticipated, a pattern of low winter snow fall would be serious. Impact on financial estimates in this scenario are unknown. This risk can create uncertainty around financial estimates.
	Roading – There is need for increased funding to maintain the current levels of service for roading in the district plus extra investment to response to adverse weather effects and heavy vehicles.		Moderate	The Council remains of the view that the roading network is vital infrastructure and that it is important to maintain the current levels of service
	Asset depreciation rates - No changes assumed.	Additional work on planned capital works may change depreciation expense	Low	Asset life is regularly reviewed through asset monitoring and testing
	Asset revaluations – occur three yearly and are line with price level adjustments	Periods of high inflation or changes in technology may affect the value of assets (and therefore depreciation and rates) so as to require revaluations outside of the normal cycle.	Low	Revaluations take place regularly
	<p>Asset replacement and useful life – Council infrastructure is aging and will require ongoing renewal and upgrades. Assets will be replaced at the end of their economic life. Assessments of asset condition are undertaken in accordance with accounting policy including estimated asset lives.</p> <p>Asset information is reliable and reflects the condition and performance of the assets. Useful lives of significant assets are detailed in Asset Management Plans (AMPs) which provide information to support the replacement and renewal of Council infrastructure.</p>	<p>Council's renewal profiles are inaccurate.</p> <p>Asset lives may be shorter than expected. There may be inadequate replacement reserves.</p> <p>Significant assets may fail earlier than estimated.</p>	Low	<p>AMPs and data are regularly reviewed and updated. Assumptions on asset lives are independently reviewed as part of the revaluation process. If assets require replacement more quickly, capital expenditure projects may need to be brought forward.</p> <p>Asset life is reviewed regularly through asset monitoring and testing. Council has the ability to bring capital projects forward if assets wear out earlier than projected. Mitigation may involve reprioritising the capital expenditure programme.</p>

Assumption Grouping	Forecasting Assumption	Risk	Level of uncertainty (green - low, orange - moderate, red - high)	Potential effects and mitigation measures (on Council financial estimates)
	<p>Sources of funds for future replacement of significant assets - Council will 'cash-fund' depreciation of assets, particularly those with significant intergenerational equity, including:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Water Sewer and Stormwater infrastructure</li> <li><input type="checkbox"/> Roading network</li> <li><input type="checkbox"/> Council operational properties</li> <li><input type="checkbox"/> Computer and other key Council systems</li> </ul> <p>In other cases depreciation will not be cash funded, for example, on community buildings and harbour structures. Council will maintain various reserve funds for cash funded assets. These include bequests, depreciation or asset renewal reserves, financial contribution reserves, and development contribution reserves. These will be used when projects meet specific criteria. Council will borrow if there is a shortfall in the total funding required.</p>	<p>The risk that the cost of replacing significant assets materially exceeds the level of deprecation and forecast borrowing. If the asset replacement proves more expensive than forecast further borrowing will be required. Risk associated with borrowing includes exposure to future interest rates, access to funding, and the rating base servicing depreciation funds</p>	Moderate	<p>Council's assets base is relatively small which has enabled it to develop models showing renewal requirements and associated expenditure.</p>
	<p>Resource consents – resource consents held by Council will not be significantly altered and any due for renewal during the life of the plan can be renewed accordingly.</p>	<p>Conditions of resource consents altered and significant new compliance costs imposed or consents cannot be renewed as expected.</p>	Moderate	<p>Budgets are in place for renewal of resource consents and there is no expectation of significant departure from requirements over the next 10 years.</p>
Funding Sources	<p>New Zealand Transport Agency (NZTA) financial assistance – Council currently undertakes its roading programme based on a contribution from our ratepayers and a contribution from government through the NZTA. Council assumes that NZTA revenue is locked in for the next three years and will remain relatively unchanged from the 18/19 rate.</p>	<p>Changes in central government funding for roading could impact on Council's contribution to its roading programme.</p>	Low	<p>Council and its management team review its budget annually through the LTP/Annual Plan process and have the ability to adjust work programmes/budgets as necessary.</p>
	<p>External funding opportunities – Council will tap in to external funding opportunities where applicable to top up the ratepayer base.</p>	<p>Significant changes in funding or funding sources may result in a revised capital work programme or changes in levels of service</p>	Low	<p>Refer Revenue and Financing Policy</p>
	<p>Revenue – Council will continue to generate revenue from the key areas of rates, regulatory, grants, subsidies, interest, dividends, investments</p>	<p>The level of revenue is not received or budgeted and debt levels, interest costs and rates requirements will be higher than planned.</p>	Low	<p>Refer Revenue and Financing Policy</p>

Assumption Grouping	Forecasting Assumption	Risk	Level of uncertainty (green - low, orange - moderate, red - high)	Potential effects and mitigation measures (on Council financial estimates)
	Co-funding arrangements - It is assumed that for projects where other partners are contributing part of the funding, this funding will still be available	Partners will no longer be in a position to provide funding which will result in an increased level of input from Council, or the termination of a project.	Moderate	Council will continue to monitor and consider its ongoing funding commitments as the need arises.
	Development and financial contributions – Assumptions on development contributions are included in the updated Development and Financial Contributions Policy. Development contribution income is included in financial forecast statements for all asset groups. From 2021, Council will no longer be able to generate income from financial contributions for open spaces and reserves via developments and subdivisions (Resource Management Act 1991).	The level of development contributions collected could be insufficient to cover the costs of required growth infrastructure.	Low	Costs for infrastructure may need to be met from other allocations. Council will continue to refine cost estimates through the implementation of an updated Infrastructure Strategy.  Council and its management team review its budget annually through the LTP/Annual Plan process and have the ability to adjust work programmes/budgets as necessary.
	Return on investments - It is assumed that the return on investments and retained earnings on subsidiaries will continue at current levels plus inflation	Returns lower than expected would impact on Council's ability to fund services and infrastructure and would likely require an increase in rates.	Low	There is an expectation when agreeing on annual performance that higher returns will be generated



## 10.0 ASSET MANAGEMENT PROCESS AND PRACTICES

This Section covers the available asset information, information systems used and processes used to manage the asset.

Providing an excellent 'asset management process and practices' section demonstrates:

- Asset information systems used
- What and how information is collected, maintained, audited
- Confidence in asset data
- AMP development process
- Quality assurance

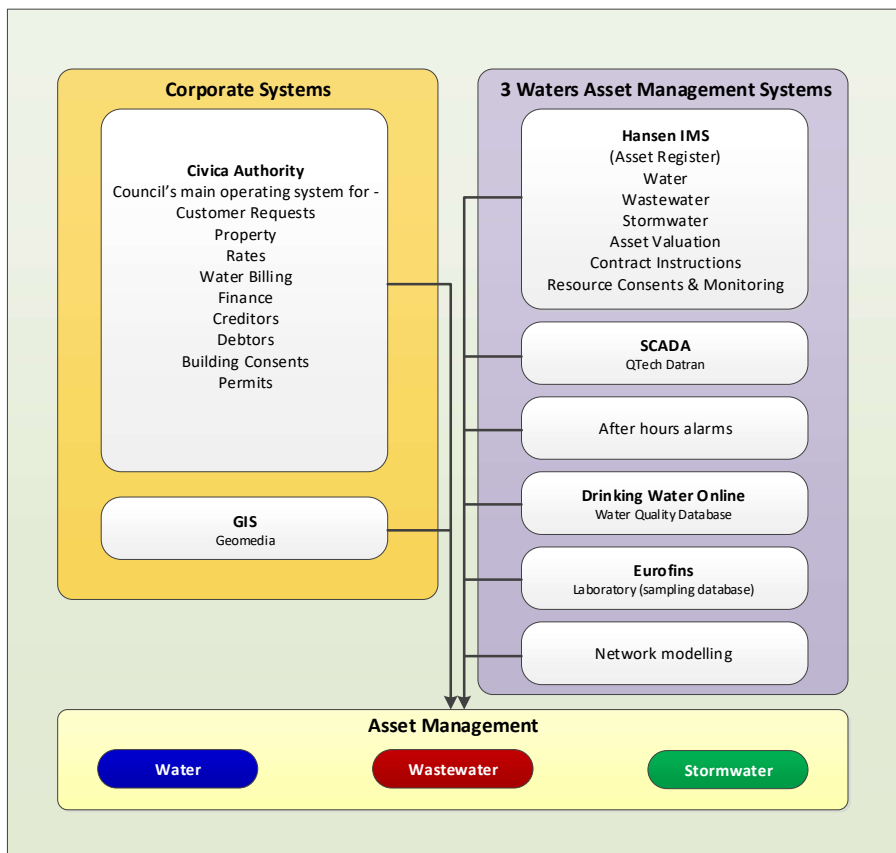
**WHY** – to ensure we have a physical inventory of all assets that are managed to Councils data needs with sufficient information

- for evidenced based decision making and
- to complete asset valuations to required data confidence

### 10.1 Information and Data Systems

Information and Data Systems provide Council staff with the ability to obtain, store, analyse and report on the significant quantities of data that is associated with the 3 Waters. The information and data systems available to WDC staff are shown below and discussed within this section.

**Figure 10-1: Existing Information and Data Systems**





### 10.1.1 Hansen Infrastructure Management System

The Hansen system is the asset information system and includes modules for wastewater, stormwater, water, plant, customer service, parks and work management.

The system records:

- Maintenance records
- Service failures, type of failure
- Cost to repair
- Operating data
- Rehabilitation & renewal works
- Condition data
- Performance data
- CCTV data
- Resource Consents and their supporting compliance information and results
- Asset valuation and depreciation
- Hierarchy of assets, - parent/child configuration (where necessary)

All maintenance data is recorded within the Hansen IMS. This includes systematic collection of asset attributes, location, etc through completing all relevant information on the appropriate work orders and then capturing this into the Hansen system.

The Hansen system allows manipulation of historical and current maintenance data, recording and analysis of information including pipe size, material, and grading of faults. The system produces work orders i.e. fault repair, routine work, programmed and cyclic work and can confirm work completed (time and cost).

Maintenance and operational activities can be reviewed and compared with the associated costs. Council has componentised the assets within Hansen. Work orders are applied at an asset component level, but aggregated for Asset Management reporting.

The assets in Hansen are integrated with the GIS system to allow for spatial analysis of assets and their performance such as condition, - and failures.

### 10.1.2 Geographic Information System

The Geographic Information System (GIS) holds and displays the water; wastewater and stormwater asset information in relation to each other and referenced to earth: Council use Geomedia as its GIS system. The GIS supports Hansen Infrastructure Management System by providing spatial representation of the water; wastewater and stormwater assets. The GIS system is available to all Council Staff (at all Service Centres) and used extensively through all Councils activities.

### 10.1.3 Civica Authority

Council uses Civica Authority as its corporate operating system for:

- Customer requests
- Property
- Rates
- Water Billing
- Finance
- Creditors/Debtors
- Consents/Permits

This system is available to all Council Staff (at all Service Centres) and used extensively through all Councils activities.

#### **10.1.4 Network Modelling**

Network modelling is an effective tool to enable hydrological modelling of the urban water cycle. Network modelling software will allow Council staff to effectively manage the wastewater systems and treatment works through simulation of the existing and future networks.

Investigation is required into the need for more hydraulic models for wastewater systems ([IP 3W9](#)).

#### **10.1.5 SCADA and Telemetry**

Council uses SCADA, a supervisory control and data acquisition software, to control the functions of treatment plant items and pump stations. The Kakanui, Moeraki, Oamaru, Otematata and Palmerston facilities have SCADA systems that allow operation and alarm functions to be monitored. Omarama has SMS lite at the pump stations.

District wide SCADA installation should be investigated and considered to provide more effective and efficient monitoring of operation and alarm functions ([LTP W12](#)). This project includes an overview being developed to identify existing and potential SCADA sites including current SCADA operations. The server at Council has been upgraded and the base station will stay at Council. Future work will include consideration of reliability, safety, security and changing from personal computers to servers as servers allows for better emergency recovery. Cellular communications will be trialled with Spark while considering dedicated band width and locally boosted reception. This project is ongoing.

SCHEME	FACILITY	METER	SCADA REPORT												ALARMING	
			Accumulator reset	Pump Start/Stop	Pump hours	kW	Current	Power failure	Actuated Valves	Level (high/low)	Flow	Aerator	UV system	Intruder/ Operator	Outgoing alarms	Flashing Light
Kakanui	Pump Station 1		✓	✓	✓			✓		✓				✓	✓	
	Pump Station 2			✓	✓			✓		✓				✓	✓	
	Pump Station 3	✓		✓	✓			✓		✓	✓			✓	✓	
	Treatment Plant															
Kurow	Treatment Plant															
Lake Ohau	Treatment Plant															
Moeraki	Wharf PS			✓	✓			✓		✓				✓		
	Camp Ground PS			✓	✓			✓		✓				✓		
	Motel PS			✓	✓			✓		✓				✓		
	Lighthouse PS			✓	✓			✓		✓				✓		
	David Street PS			✓	✓			✓		✓				✓		
	Hall PS			✓	✓			✓		✓				✓		
	Coronation Street PS													✓		
	Beach PS		✓	✓	✓			✓		✓				✓		
	Treatment Plant	✓	✓	✓	✓			✓			✓	✓				

SCHEME	FACILITY	METER	SCADA REPORT												ALARMING	
			Accumulator reset	Pump Start/Stop	Pump hours	kW	Current	Power failure	Actuated Valves	Level (high/low)	Flow	Aerator	UV system	Intruder/ Operator	Outgoing alarms	Flashing Light
Oamaru	Weston Pond	✓	✓	✓	✓			✓			✓	✓			✓	
	Memorial Gardens PS			✓	✓			✓		✓				✓	✓	
	Kelk Road PS			✓	✓			✓		✓				✓	✓	
	North Otago Vets PS			✓	✓			✓		✓				✓	✓	
	Maudes Road PS			✓	✓			✓		✓				✓	✓	
	Waireka Industries PS			✓	✓			✓		✓				✓	✓	
	Beach Road PS			✓	✓			✓		✓				✓	✓	
	Harbour PS			✓	✓			✓		✓				✓	✓	
	Humber Street PS	✓	✓	✓	✓			✓		✓	✓			✓	✓	
	Orwell Street PS			✓	✓	✓	✓	✓		✓				✓	✓	
	Regina Lane PS	✓	✓	✓	✓	✓	✓	✓		✓	✓			✓	✓	
	Treatment Plant	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓			✓	
	Omarama	Camp Ground PS														✓*
Ahuriri Drive PS															✓*	
Treatment Plant																

## Wastewater Activity Management Plan 2021-2031

SCHEME	FACILITY	METER	SCADA REPORT												ALARMING	
			Accumulator reset	Pump Start/Stop	Pump hours	kW	Current	Power failure	Actuated Valves	Level (high/low)	Flow	Aerator	UV system	Intruder/ Operator	Outgoing alarms	Flashing Light
Otematata	Treatment Plant	✓	✓	✓	✓		✓	✓		✓	✓		✓		✓	
Palmerston	EDS Pump Station	✓ <sup>4</sup>														
	Stour Street PS	✓	✓	✓	✓			✓		✓	✓				✓	
	Treatment Plant	✓	✓	✓	✓			✓		✓	✓	✓			✓	

\* - SMS Lite - high level alarm only

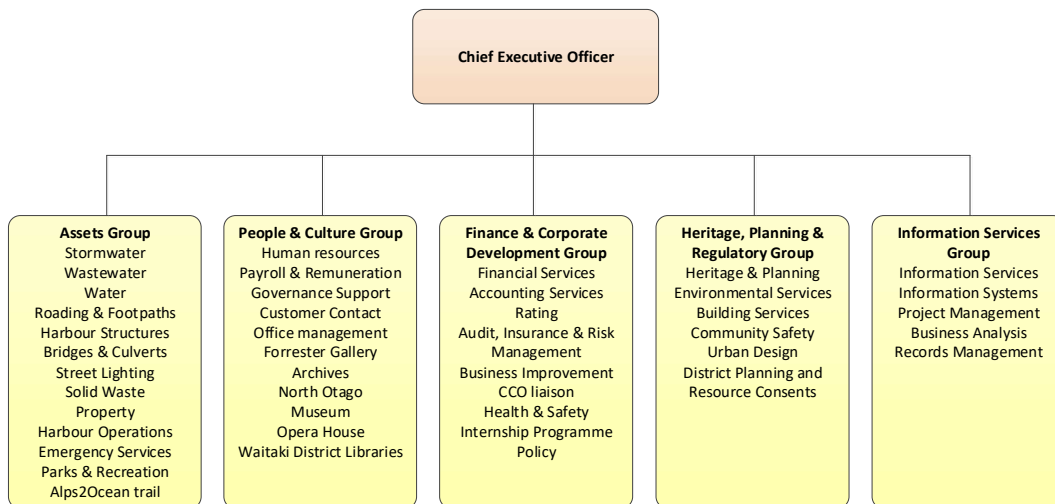
### 10.1.6 Compliance HUB

In monitoring and reporting on the delivery of safe drinking water against Drinking Water Standards and wastewater discharges against environmental standards a significant amount of information are held and sourced from various data databases such as:

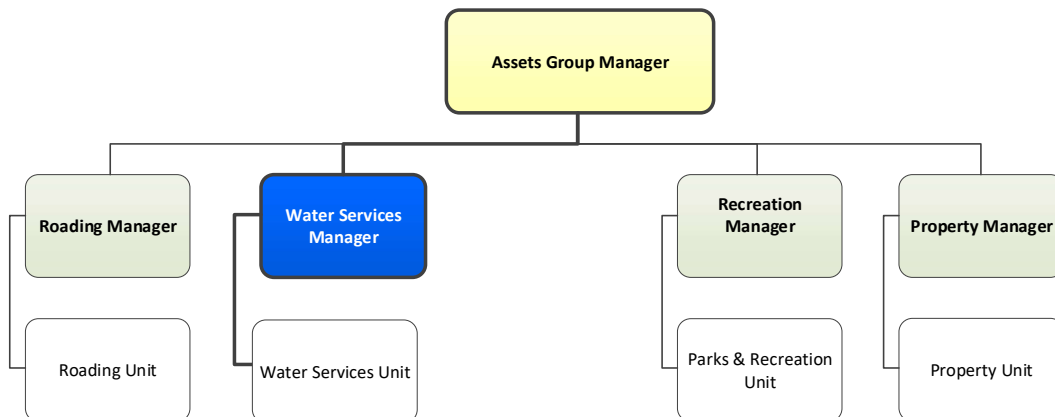
- Authority
- Hansen
- SCADA
- Eurofins
- Drinking water online

Reporting is a lengthy and confusing process and needs streamlining to improve reporting compliance. It is also important to bring operational performance issues front of mind through dashboard display. This will eliminate delayed response and increase system performance. There are numerous proprietary systems that can be procured or an inhouse system can be developed. Further investigation is required to confirm the requirements of a compliance tool or hub which displays compliance information from multiple sources and development of an RFP for consideration of existing market products ([IP 3W8](#) & [IP 3W15](#)).

## 10.2 Organisation Structure



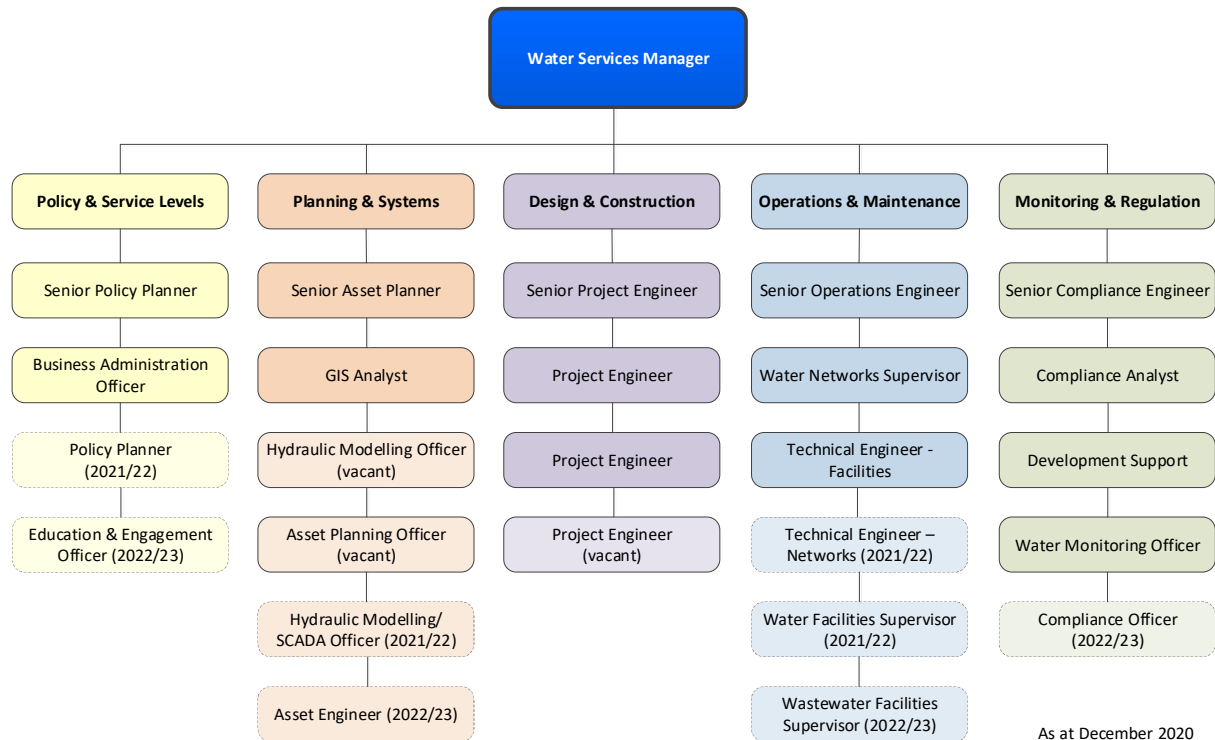
## 10.3 Assets Group Structure



The Water Services Unit has five distinctive streams i.e. Policy & Service Levels, Planning & Systems, Design & Construction, Operation & Maintenance, and Monitoring & Regulation. Asset management is

dispersed across all five streams, with Policy and Service levels stream, and Planning and Systems stream mainly providing lead responsibility across asset management functions and the other streams providing support.

**Figure 10-2: Water Services Unit Structure**



Refer to Section 7.10.2 Staffing for details around the human resource requirement needed to cover the five asset management functions.

## 10.4 Data Management

Key information comes into the Assets Group through work reports, as-builts, SCADA, consumers and contractors. Other information comes into the Unit via emails, journals, Government publications and the media.

Upgrades such as the WWTP upgrades is followed up with site visits capturing all new asset information and configurations. From this the asset register is updated (new assets added and old assets retired) and schematics developed. Schematics document the asset id's and at facilities this ensures any maintenance performed is recorded against the correct asset.

Decisions on activity management, renewals and acquisitions are made in consultation with staff, council and the public as appropriate. Staff meetings are held regularly to discuss current and future plans and decisions.

Asset data integrity audits is an ongoing process and data is checked on a continual basis by the various groups within Council i.e. GIS unit, Assets Group and the contractor. As work orders are completed and submitted to be captured within the asset register the data recorded on site is compared with the asset register data. This is an ongoing process of ensuring a high level of data integrity. Monthly auditing of work orders against as-built data is performed by the Water Services and Waste Unit. Due to the change in contractor there needs to be a renewed focus on data collection (IP WW20).

## 10.5 Data Confidence and Accuracy (Quality)

Data confidence grades are held against each individual asset within the Hansen asset register. These grades indicate the type of data source and the confidence in the specific data source. A summary of



the confidence levels in the attributes of the assets within the wastewater utility are detailed in the following table.

**Table 10-1: Data Confidence**

Asset Group	Component	Quantity	Attributes	Cost	Life	Condition	Performance
Reticulation	Mains	A-B	B	A-B	C	C	C
Treatment Plants	Ponds & wetlands	A	B-C	C	B	B	B
	Pumps	A	B-C	B	B	B	B
	Electrical	A	A-B	B	B	B	B
	Valves & Fittings	A	A-B	C	B	B	B
Pump Stations	Pumps	A	A-B	B	B	B	B
	Electrical	A	A-B	B	B	B	B
	Valves & Fittings	A	AB	C	B	B	B

**Table 10-2: Data Confidence Score Descriptors**

Confidence Grade	Description
A – Highly reliable	Data based on sound records, procedures, investigations and analysis, documented properly and recognised as the best method of assessment. Dataset is complete and estimated to be accurate $\pm 2\%$
B – Reliable	Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings for example some data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation. Dataset is complete and estimated to be accurate $\pm 10\%$
C - Uncertain	Data based on sound records, procedures, investigations and analysis, which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available. Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated $\pm 25\%$
D – Very Uncertain	Data based on unconfirmed verbal reports and/or cursory inspection and analysis. Dataset may not be fully complete and most data is estimated or extrapolated. Accuracy $\pm 40\%$
E - Unknown	None or very little data held

The confidence in data is greater for high criticality assets. The 2011/12 criticality assessment identified High and Medium criticality assets for further analysis and the criticality was recorded against the asset within the Hansen IMS. However, this has not been updated and needs to be progressed to ensure the criticality assessment is considered in prioritising inspections, investigations, maintenance and renewal strategies ([IP 3W3](#))

### 10.5.1 Metadata Standards

A Central Government funded project is the 'Metadata Standards' which sets national metadata standards for the 3-waters (potable, waste and storm) network, and for residential and light commercial buildings. This is to ensure the correct asset data is collected and in the correct manner. The roll out of these data standards is expected to start mid 2017.

Going forward Council will align its data collection and recording with the Metadata Standards. However, the existing data will be held and only aligned with the standards over time as more current information is captured.

## 10.6 IT

The responsibility for asset information security rests with the IT department administrators. The data is backed up daily and backup files are stored in a secure place. Data manuals are available that explain the various procedures.

It is important to ensure data collection are performed consistently and to set standards and as a result the development of Asset Management Information Guidelines to ensure consistency in asset data collection is included as an improvement item (IP 3W2).

## 10.7 AMP Preparation

Council engaged Waugh Infrastructure Management Ltd (WIML) to review and update the AMPs. A process has been established over several LTP periods whereby a review of the AMPs is conducted. This review focus on improvements to existing AMP's without attempting to acknowledge good features or accentuate any positives. Refer to Section 10.8.4 AMP Reviews.

Following the review Council engineers consider review recommendations and use these as guidance where appropriate. The AMPs are then updated through a process of regular meetings between Council engineers and WIML staff to identify:

- Status and changes, including but not limited to:
  - Legislation
  - Levels of Service
  - Assets
  - Processes & Systems
  - Population
  - Demand
  - Organisation
  - Asset Values
  - Projects
  - Council direction
- Self-assessment of the current AMP

This information is then used to ensure the AMP demonstrates:

- all asset based activities of Council are supported through the AMP
- 3 Waters AMPs are easy to read, and follow the same agreed format
- the underlying asset management planning processes occurring for each activity, including improvements made as a result of the review
- levels of service, and show linkages to other Council planning documents
- a robust reflection of the future intentions of Council with respect to 3 Waters activities
- the financials arising from the plans reliably forecast the lowest lifecycle cost to deliver agreed levels of service for a period of no less than 10 years.

## 10.8 Quality Assurance

### 10.8.1 Audits

To establish and ensure the ongoing improvement of the quality of this Plan a series of audits are planned and includes Financial, Systems, Technician and Performance Audits.

**Financial Audits** - the Local Government Act requires that independent annual financial audits be undertaken on the operations of Council; such audits may include all significant activities such as asset management planning. The auditor's opinions will be included in the Annual Report.

**System Audits** - are continuous and ongoing and incorporated in operational practices (IP WW4). However, as part of the LTP process, systems are discussed and reviewed every 3 years. This audit identifies the current status of asset management processes, systems and data and produces targets for Asset Management practices to be achieved in following years. A programme of recommended actions will be developed for Asset Management processes, systems and data. Future regular system audits will measure progress against targets and the development programme.

**Technical Audits** - peer reviews will be undertaken at regular intervals to assess and identify compliance with statutory accounting requirements.

- The quality of the Plan in terms of completeness, objectivity, logic, technical content and presentation
- Perceived strengths and weaknesses for Plan improvement
- Recommended specific areas for Plan improvement
- Technical Audits may be undertaken using external or internal reviewers

**Performance Audits** - will establish whether the stated objectives for the operation of the asset have been achieved. Measurement of the success of the operation of the asset will be assessed using the results of:

- Customer satisfaction surveys
- Key Service Criteria objectives compliance
- Benchmarking surveys.

These measurements will determine the public view of how well the levels of service have been achieved, an objective measure against stated Key Service Criteria and national measures of relative performance. The performance audits will also be used in ongoing customer consultation regarding future standards and requirements of the customers in the provision of the service.

### 10.8.2 As-built information

Clear, defined documented procedures exist for as-builts and associated data transfer into information systems.

A Capital work order request is issued upon approval of a capital project. The capital work order request records:

- Utility type
- Initiated date and due date
- Project type (new contract, operation and maintenance contract, quoted works, etc.)
- Description
- Budget number
- Contractor name
- Estimated costs

Status of capital work orders are tracked during monthly meetings. Upon completion of the project and the capital work order request the data is captured into Hansen. Hansen contains additional fields to be

completed ie as-built and GIS. This requires acknowledgement whether the as-built information has been received and entered into Hansen and GIS.

Contract 613 (*Section 5.4 Knowledge Creation*) acknowledges the importance of each party i.e. the Principal, the Engineer, and the Contractor in asset data (knowledge creation). How each party's role compliments and increases the value of the other party's efforts is tabled below:

System	What	Who	How
Records	AMIS & GIS records, hard copy records, files and report forms of accumulated knowledge	Principal	Owns current and learnt knowledge
		Engineer	Collects, stores, maintains and reference
		Contractor	Collects and reference
Planning documents	Annual & Long Term Plans AMPs Infrastructure Strategy	Principal	Sets service provision requirements in consultation with the community
		Engineer	Develop & maintain
		Contractor	Implement
Operational documents	O&M Manuals Codes of Practice	Principal	Owns current and learnt knowledge
		Engineer	Develop & maintain
		Contractor	Implement & reference
CRM	Customer Request Management system (CRM) records service performance	Principal	Monitors and reports to on performance achievement to elected members and Audit
		Engineer	Analyses compliance with performance objectives
		Contractor	Completes and updates CRM to capture the action undertaken to provide the service
AMIS (Hansen)	Holds asset data and maintenance records (work orders)	Principal	Owns current and learnt knowledge
		Engineer	Undertakes quality auditing of provided information
			Undertakes assessment and reporting on quality of completed works and reporting
Contractor	Determines and approves work completed, performance achieved and certified payment due		
Audit	Provides independent verification that actions are consistent and appropriate for the sought outcome	Engineer	Engineer initiated and undertaken audits of works, processes, documentation, actions and the like undertaken by the Contractor
	Provides confidence that actions are consistent and appropriate for the sought outcome	Contractor	Contractor initiated and undertaken audits of technical and management performance

Major capital works have an as-built process specification within the formal contract documents. Operation and maintenance works, small asset renewals and quoted works need a formal documented process and specification (**IP 3W2 & IP W6**). This needs to include closing the loop from design to final GIS record i.e. auditing of GIS data capture.

Upon completion and receipt of as-built data the assets are captured within the Hansen IMS. This process needs to be reviewed and improvement implemented (**IP W6**) to ensure consistency in naming convention, level of detail and assigned maintenance frequencies.

### 10.8.3 Suitably Qualified and Trained Persons

An important measure of this Plan's quality is the ability, experience and qualifications of the individuals and companies involved in its preparation. The Waitaki District Council employs staff appropriately qualified to carry out the asset management function. Formal qualifications range from New Zealand Certificate in Engineering to Registered Engineer. Specialised external support is available as the need arises.

On-going training is available for staff involved in infrastructure asset management and includes attendance of:

- IPWEA sponsored workshops on Asset Management
- NAMS seminars
- Annual WaterNZ conference
- Asset Management conferences
- Water Managers (NZ wide) quarterly meeting.

Council staff have a reasonable record of attendance at these seminars, conferences and workshops.

### 10.8.4 AMP Reviews

The following table lists the past AMP Reviews:

**Table 10-3: AMP Reviews**

Date	LTP	Description
2008	2009 - 19	Review 2006 AMPs including GAP analysis based on the Core and Advanced Asset Management criteria used by the Office of the Auditor General
2011	2012 - 22	Review 2009 AMPs including a formal review for "Selecting the Appropriate AM Level" which is fundamentally based on the IIMM Section 2.2.4. and built on the previous review and the OAG AMP criteria for core and advanced Asset Management. The outcome of this was that Water and Wastewater section of Council has been assessed as Core Plus.
2013	2015 - 25	To reflect on the recommendations from the Office of the Auditor General, previous AMP review items and developing a 30 year Infrastructure Strategy a new direction was implemented for the 2015-25 Utilities Asset Management Plans. This included a change to the document structure used since 2006. The new template incorporates the seven areas of asset management i.e. Description of Assets, Levels of Service, Growth/Demand, Sustainability, Lifecycle, Risk, and Financials

**2017 AMP Review** –Wagh Infrastructure Management was engaged to perform a formal documented assessment of the Water and Wastewater AMPs.

The AMP shows the traditional seven areas of asset management (Description of the asset, Levels of Service, Growth, Risk Management, Lifecycle, Sustainability and Financials) well laid out, easily accessible, clear and concise.

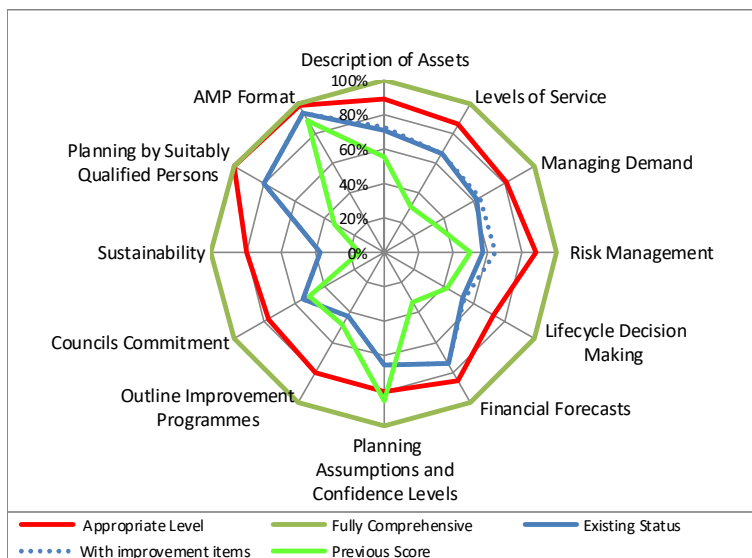
Overall, the assessment indicates the AMPs assessed are improving over time and moving closer to the target appropriate practice level. It is expected that many of the remaining gaps identified will be closed during subsequent reviews and updates. A consistent and project based approach has been evidenced in the approach taken to develop the AMPs.

The result of this self-assessment is tabled and graphically represented below:

**Table 10-4: 2017 Assessment**

AMP Content Area	Percentage		
	Assessment Scores	Appropriate AMP Level	Gaps
Description of Assets	70	89	19

AMP Content Area	Percentage		
	Assessment Scores	Appropriate AMP Level	Gaps
Levels of Service	66	86	20
Managing Growth	62	82	20
Risk Management	57	88	31
Lifecycle Decision making	53	73	20
Financial forecasts	75	86	13
Planning Assumptions and Confidence Levels	65	80	15
Outline Improvement Programmes	42	80	38
Councils Commitment	54	78	24
Sustainability	37	80	43
Planning by qualified Persons	80	93	13
AMP format	93	98	5

**Figure 10-3: 2017 AMP Assessment**


In general, the AMPs are complete documents with minor areas for improvement. The identified gaps will form the basis of discussion for a prioritised improvement programme.

**2020** – No formal review was undertaken and AMP development built on previous AMP reviews. The 2017 AMP Assessment provided valuable guidance for continuous improvement to achieve appropriate practice. It is expected that the remaining gaps identified will be closed during subsequent reviews and updates. A consistent and project based approach has been evidenced in the approach taken to develop the AMPs.

#### Activity Response to AM Processes

We will continue to:

- Investigate, consider and implement processes and systems to improve
  - our data
  - confidence in our data
  - the way we manage, operate and monitor
  - quality assurance
  - our knowledge base





## 11.0 PLAN IMPLEMENTATION & IMPROVEMENT PLAN

An important component of this Activity Management Plan is the recognition that it is a “live” document in need of monitoring, change and improvement over time. This Section details the improvements that will lead to improved management and increased confidence.

Providing an excellent ‘improvement plan’ section demonstrates:

- a strategic plan that provides for monitoring and control of the improvement items
- a monitoring and control mechanism to ensure the overall process stays on track
- the improvements are verified and quantified
- the improvements are assigned and have an associated timetable
- commitment to improvements

**WHY** – to ensure the improvements identified throughout the AMP development process is captured, assigned, prioritised and progressed.

### 11.1 Asset Management Development

Objective of the Councils Asset Management Policy: is to ensure that Council’s service delivery is optimised to deliver agreed community outcomes and levels of service, manage related risks, and optimise expenditure over the entire life cycle of the service delivery, using appropriate assets as required.

The Asset Management Policy requires that the management of assets be in a systematic process to guide planning, acquisition, operation and maintenance, renewal and disposal of the required assets. Delivery of service is required to be sustainable in the long term and deliver on Council’s economic, environmental, social, and cultural objectives.

The Asset Management Policy sets the appropriate level of asset management practice for Council’s Water, Wastewater, Roading, Rubbish and Recycling, Aquatic Centre, Gardens, Recreation and Community services.

Council has undertaken a structured assessment of the appropriate level of asset management practice for the Water services. This structured assessment follows the guidance provided in Section 2.2.4 of the 2006 International Infrastructure Management Manual (IIMM).

The 2010 Asset Management Policy sets the appropriate level of asset management practice for Council’s Water and Wastewater Activity as ‘Core Plus’ practice.

**Definition:** ‘Core Plus’ asset management practice is undertaken at a level between ‘Core’ and ‘Comprehensive’ practice. The focus is to build on the basic technical asset management planning of ‘Core’ practice by introducing improved maintenance management and more advanced asset management techniques (as appropriate). Further use is made of risk management, asset lifecycle management, and service standard optimisation techniques.

Current appropriate practice levels have been expanded and as a proxy ‘Core Plus’ is linked with Intermediate level (Refer to Section 5.6.8 Policies). To ensure the appropriate practice level aligns with the latest appropriate practice asset management levels the AM Policy will be reviewed ([IP 3W1](#)).

The WDC AM Policy is programmed for review and the need for an AM Strategy is identified to provide the road map between the AM Policy setting the appropriate level of asset management and the AMP demonstrating the current level of asset management.

### 11.2 Improvement Plan Focus

The Waitaki District Council Water Services Asset Management Improvement Plan will be focused on the following key areas:

- System knowledge update
- Renewals
- Human Resources/Customer Services
- Enhanced Maintenance
- Asset Management

### **11.3 Previous Improvement Programme Achievements**

Many of the Improvement Plan Tasks identified in the 2018 Activity Management Plan have been achieved by the time of this review in 2020/21. Tables 11-1 to 11-2 details improvements proposed in the 2018 AMP and the achievement or otherwise. This provides a reference of achievement for Asset Management within the Waitaki District Council for the period 2017 – 2020.

**Table 11-1: 2017 - 20Achievements**

AM Category	Project Description	Status	Date	Comments
Understanding requirements	Duntroon Resource Consent	Current	Dec 20	Application for resource consent (CRC201709) submitted July 2019. In process
Lifecycle Planning	Omarama WWTP upgrade	Completed	Dec 20	Completed new disposal to land for Omarama WWTP in 2019
Lifecycle Planning	Moeraki WWTP upgrade	Completed	Dec 20	Completed new disposal to land for Moeraki WWTP in 2020
Lifecycle Planning	Palmerston WWTP – Sludge disposal	Completed	Dec 20	Completed desludging of the Palmerston ponds in 2020
Lifecycle Planning	O&M Manuals for WWTPs	Current	Dec 20	Started with development of manuals – Lake Ohau, Omarama, Otematata, Kurow
Understanding Requirements	AMP Update	Current	Dec 20	Review and update AMP in line with whole of Council LTP delivery plans
Lifecycle Planning	Review and update Water Assessments	Current	Dec 20	Review of assessment aligned with LTP frequency. Full review planned 2022/23

## 11.4 Current Improvement Plan

The following table lists the improvement items over the LTP period (in thousands).

**Table 11-2: Current Improvement Plan**

#	Description	Funding	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
IP WW1	Wastewater Bylaw (New)	AM			60					30		
	Development of a new Wastewater Bylaw.											
IP WW2	Trade waste Policy (New)	AM					60					
	Development of a new Trade waste Policy to feed into the Trade waste Bylaw. Requires information relating to Oamaru WWTP's future treatment capacity.											
IP WW3	Trade waste Bylaw (Review)	AM					30					30
	Review of the existing Trade waste Bylaw. This will include new processes for billing of trade waste customers to ensure it is fair and fit for purpose.											
IP WW4	Sewer Lateral Ownership Policy (New)	AM	60									
	Development of a new Sewer Lateral Ownership Policy to resolve the long-standing issues regarding private ownership of sewer laterals in public roads.											
IP 3W1	Asset Management Policy (Review)	AM										
	Review of the existing Asset Management Policy. This policy is currently an Assets Group policy and we may wish to develop a standalone 3 Waters policy. The current policy sets the asset management maturity level we should be aiming for.				30							
IP 3W2	Asset Management Information Guidelines	AM	30									
	Development of guidelines to ensure consistency in asset data collection.											

## Wastewater Activity Management Plan 2021-2031

#	Description	Funding	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
IP 3W3	Critical Asset Criteria	AM	30									
	Review existing criteria for classification of critical assets.											
IP 3W4	3 Waters Operations and Maintenance Future Service Delivery	AM	20	100								
	Assessment of service delivery models to determine the most appropriate for reticulation and facilities going forward, followed by the implementation of the agreed models (this may involve bringing facilities operation in-house and development of a new contract for reticulation).											
IP 3W5	3 Waters Funding Issues and Options	AM										
	Assessment of the current funding models and consideration of alternative funding options such as district wide rating.											
IP 3W6	Integrated 3 Waters Risk Management Framework	AM	20									
	Development of a framework to guide future risk assessment. The framework will consider existing risk management approaches being used within Council and nationally. The development of registers will follow.											
IP 3W7	3 Waters Team Development (Extra costs also included in projects)	Operational	600	400	100	100						
	Implementation of the approved "Navigating 3 Waters" team development plan including staff recruitment and other resource requirements.											
IP 3W8	3 Waters Compliance Hub Issues and Options	AM	30									

#	Description	Funding	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
	To confirm the requirements of a compliance tool or hub which displays compliance information from multiple sources and development of an RFP for consideration of existing market products.											
IP W6	Facility Operations Asset Data Collection	AM	50									
	To review current data collection and implement improvements.											
IP 3W9	Assets Efficiency and Optimisation Study	AM		50	50							
	An assessment of existing sites to determine opportunities for efficiency and asset optimisation											
IP W10	Facility O and M manuals	AM		50	50	50	50					
	Development of facility specific Operations and Management manuals.											
IP 3W10	Network O and M manuals	AM		50	50	50	50					
	Development of network specific Operations and Management manuals.											
IP 3W11	Asset Management Plan Reviews	AM			30	30						
	3 yearly review of the Water, Wastewater and Stormwater Asset Management Plans including adoption by Council.											
IP 3W12	Water and Sanitary Services Assessment	AM		30	30							
	Full review of the Water and Sanitary Services Assessment.											
IP 3W13	Asset Revaluation	AM			40			40			40	
	3 yearly revaluation of assets including peer review.											
IP 3W14	Service Level Review and Community Engagement	AM	30	30								
	Review of existing service level statements and engagement with the community to determine new and amended service levels.											
IP 3W15	3 Waters Compliance Hub Development	AM	150	150	20	20	20	20	20	20	20	20

## Wastewater Activity Management Plan 2021-2031

#	Description	Funding	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
	Development of the 3 Waters Compliance Hub following the above RFP process.											
IP 3W16	Renewal Planning Tools and Systems Development	AM		20								
	Develop new or update existing tools and systems used for forward renewal planning.											
IP 3W17	Condition Assessment Tools and Systems Development	AM	20									
	Develop new or update existing tools and systems used for asset condition assessment.											
IP 3W18	Strategic Planning Tools and Systems Development	AM	20									
	Develop new or update existing tools and systems used for strategic planning such as business cases and project prioritisation											
IP WW5	Wastewater Facility Operational Resilience Improvements	Operational	100									
	Assess requirements and purchase and store necessary spares.											
IP W15	Operator Training Competency	Operational	20									
	Development of training plans and assessments for facility operators.											
IP WW6	Hampden Septic Tank Cleaning and Inspection	Operational		15	15	15	15	15	15	15	15	15
	Interim on-going cyclic cleaning and inspection of septic tanks in Hampden until long-term solution confirmed.											
IP 3W19	Field Equipment Renewal	Depreciation	20	20	20	20	20	5	5	5	5	5
	Replacement of field equipment used by 3 Waters Officers such as dataloggers, drones and other monitoring equipment).											



#	Description	Funding	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
	<b>Total Capital</b>		x	x	x	x	x	x	x	x	x	x
	<b>Total Depreciation</b>		20	20	20	20	20	5	5	5	5	5
	<b>Total Operational</b>		720	415	115	115	15	15	15	15	15	15
	<b>Total Asset Management</b>		460	510	330	150	210	60	20	50	60	50
	<b>Grand Total</b>		1,200	945	465	285	245	80	40	70	80	70
	<b>Wastewater Only</b>		<b>160</b>	<b>15</b>	<b>75</b>	<b>15</b>	<b>105</b>	<b>15</b>	<b>15</b>	<b>45</b>	<b>15</b>	<b>45</b>
<p>Note that there are a significant number of improvement items across all Three Waters activities and these are included in each of the Activity Management Plans for completeness</p>												

## 11.5 Project Identification and Assignment

Projects are identified through various processes including but not limited to:

- Legislative Compliance
- Levels of Service
- Growth
- Renewal
- Operation & Maintenance

Projects are then assigned to the individual staff to complete depending on their association or main project category e.g. Policy & Service Levels; Planning & Systems; Design & Construction; Operations & Maintenance; Monitoring & Regulation. Most projects sit within multiple categories and responsibility will be assigned based on the primary category and individual workloads.

While projects in year 1 of the updated LTP are considered to be highly relevant, over the following two years some become less or totally inappropriate. This is generally due to:

- a) changes in legislation which remove the need for the work
- b) better understanding of methods, costs and timing to deliver the project outcomes. This may be via other council business units, external agencies or through other projects
- c) The community and council no longer supporting the work

It is vital that the projects database is updated periodically reflecting the changes for that period. Through this update process, the impact on working towards sustainable development may be followed.

Each capital project is subject to an 'Issues and Options' report. Refer to Appendix B Scenarios. Development of new or updating existing tools and systems used for strategic planning such as business cases and project prioritisation is included as an improvement item ([IP 3W18](#)).

All projects including asset management projects are the responsibility of the associated team leader.

### 11.5.1 Spine Assessments

Council developed the Spine process to improve their process for identifying and undertaking projects in order to increase the likelihood of these projects being successful. This applies to both large and small projects and to all types of projects whether they involve creation of assets, change of process or change of service.

The Spine assessment follows the following process:

- Why should we do it?
- What will make it successful?
- How can it be done?
- How is it to be managed?
- How do we continue to manage it?
- Prove and celebrate success

The Spine does not simply create a step by step guide to be followed without thinking, but encourage a culture change in staff to desire to do the job to the best possible outcome.

## 11.6 Reporting of Improvement Plan Progress

Currently all projects in the Long Term Plan 2021-31 and Annual Plan are recorded in Authority and reported quarterly. It is proposed that this frequency of reporting continue. It is acknowledged that the management and completion of improvement items will contribute to the achievement of Community Outcomes, and regular reporting on activity items will assist to ensure that achievement towards each outcome.

## 11.7 AMP Review and Monitoring

This AMP will continue to be developed over time to incorporate further advanced asset management techniques, make use of improved data collection and management systems, respond to legislative and policy changes, and address evolving issues. It is anticipated that the sustainability themes introduced in this Plan will be further tested and developed with ongoing focus on legislative compliance, planning for climate change, environmental management, and improving efficiency. A future review of charging mechanisms may be warranted to ensure inter- and intra-generational equity.

This Plan will be reviewed periodically as circumstances change, and will be comprehensively reviewed (**IP 3W11**) at intervals of not less than three years via the Special Consultative Procedure. Each review will be completed in line with whole of Council LTP delivery plans.

This AMP is the responsibility of the Senior Policy Planner.

### Activity Response to Improvement Planning

We will continue to:

- Employ a systematic approach to development of improvement items
- Prioritise improvements
- Assign improvement items
- Develop appropriate timelines
- Monitor progress
- commit to continued improvement of assets, processes, systems and services

## 12.0 FINANCIAL

This Section documents the financial requirements to manage and operate the asset.

Providing an excellent 'financial' section demonstrates:

- a 10 year financial plan to enable a good understanding of the financial, operational, renewal and capital costs associated with all asset groups
- a clear split between operations, capital renewals, new capital (Demand/LoS)
- the extent of annual depreciation
- asset valuation data

**WHY** – to ensure

- All of the AMP sections are summarised in monetary terms,
- funding requirements and programme is adequately described, and
- financial forecasts are based on sound asset information and analysis.

### 12.1 Funding Details

#### 12.1.1 Financial Strategy

The 2018 Financial Strategy is the third iteration of the Waitaki District Council Financial Strategy. Having reviewed this strategy, and the success to date with its implementation, Council has decided to continue with this strategic direction.

The financial strategy is summarized in the phrase **“The future we want at the price we can afford”**. This underlines the ongoing balancing act Council faces when wanting to do more to improve the district for the community, while also recognising the financial impact rates and other charges have.

The financial strategy in a sentence - “To continue to deliver high quality services that meet the needs of the community while improving rates affordability by focusing on efficiency and effectiveness, maximizing value and repaying debt”.

This will be achieved by a variety of measures with the heart of the strategy being:

- Deciding on new or increased services in a very selective way. Council will seek change where there is either a strong community demand or a change in circumstances that must be responded to (e.g. a change in law.) The preferred options to fund these changes will be from new sources or transfers from another Council activity. These will be pursued before increases are made to the total rates required.
- Reviewing what is required to deliver existing services with the aim of achieving better value, particularly from the assets involved. Disposing of assets that do not contribute to efficient and effective service delivery is part of this approach. Also ensuring replacement assets represent the most efficient
- and effective way of meeting community and customer needs.
- Using assets for their maximum possible life but also appreciating that community needs and stakeholder requirements are not compromised.

This strategy continues to focus on maintaining core services and infrastructure. However, there is greater recognition of the need to respond to changes in the environment, and that maintaining what we have may not always be appropriate.

A key refinement relates to the emphasis Council has placed on achieving affordability over the last six years. Success has been achieved with improving affordability.

### 12.1.2 Rating

The general approach to funding of the annual costs of the 3 Waters schemes starts from the premise that those who benefit (either directly or indirectly) should pay. – termed targeted rating.

The current approach is that costs for the service are recovered directly from the households served by the individual schemes

Council set targeted rates for sewerage treatment and disposal based on a fixed amount per water closet. A rating unit used primarily as a residence for one household is not treated as having more than one water closet or urinal.

Some uniform targeted rates will be differentiated based on the following differential categories:

- Connected – all urinals or water closets connected to the sewerage reticulation, provided that the maximum number of charges made for rating units comprising a household used exclusively for residential purposes shall be one
- Serviceable – all rating units within 30 metres of the sewerage reticulation and all rating units with buildings within 60 metres of the sewerage reticulation. No rating units at Duntroon are considered serviceable. Serviceable charges are 50% of the connected charge.

The uniform targeted sewerage rates are charged in the following areas. The charging of a serviceable rate does not require us to make a connection available to the rating unit. The charge confirms the rating unit is within 30 meters of the public sewer. The rating maps are indicative only. Any information regarding a particular rating unit may require a site inspection.

Duntroon	Kakanui	Kurow
Lake Ohau Village	Moeraki	Oamaru
Omarama	Otematata	Palmerston

### 12.1.3 Harmonisation

Council is aware that upgrading and maintaining the infrastructure assets will come at a significant cost. There are concerns that people relying on fixed incomes, such as pension, might not be able to afford the spikes in rates that may happen in future, especially those serviced by smaller systems. One way of addressing this is to spread the cost of each utility across all the systems so that all users pay the same for each utility service. Thus every town will have the same level of service and rate for that service. This will spread the costs smoothly over time and insulate the towns from sudden costly rate increases when capital work is needed. It also ensures the sustainability of the district in the future. Further investigation is required into harmonising of rates and is included as an Improvement item (**IP 3W5**).

### 12.1.4 Price level changes & Forecast Financial Statements

Accounting rules require that Council adjust its forecast financial information to take account of the impact of inflation. This should more fairly indicate rates movements, particularly in the first three years of the Plan. Council, through the Society of Local Government Managers has contracted Business and Economic Research Ltd (BERL) to construct forecast price level changes for key categories of expenditure as they affect local government. Council has considered this advice and considers it appropriate to apply it to our circumstances.

These price level adjustments have been applied to all core budgets and projects. In order to take account of the impact of revaluation movements these have also been applied to depreciation expenses.

The price level adjusters are shown in **Table 9-4: Significant Forecasting Assumptions**.

The forecast financial statements have been prepared in accordance with the Local Government Act 2002. In accordance with the Act the first 3 years have been prepared in detail and the following 7 years in outline.

Accounting rules require that Council adjust its forecast financial information to take account of the impact of inflation. This should more fairly indicate rates movements, particularly in the first three years of the Plan. These price level adjustments have been applied to all core budgets and projects. In order to take account of the impact of revaluation movements these have also been applied to depreciation expenses.

The LTP is based on current Council policies.

The forecast financial statements are prospective information. Actual results are likely to vary from the information presented, and the variations may be material.

## 12.2 Financial Forecasting

Council holds actual and budget figures for a number of years. These historical figures provide a robust basis for calculation and estimating future costs.

### 12.2.1 Renewals

Renewal costs are funded through targeted rates (depreciation component), which provides for the upkeep of the asset.

### 12.2.2 Capital Projects

Capital projects are funded from:

- Loans (internal or external)
- Depreciation
- Financial contributions (development)
- Government subsidies (where appropriate)

### 12.2.3 Sensitivity

A sensitivity analysis is done with every capital project by the Finance unit to determine the rates impact. The sensitivity analysis tests the robustness of the results while considering the uncertainties. This provides improved understanding of the inputs and outputs while identifying potential errors.

Internal analysis is performed by the Water Services unit during facility equipment renewals e.g. pumps, etc. Pipe renewals are depreciation funded and therefore no direct rates impact.

### 12.2.4 Development Contributions

Development Contributions are collected by Council to ensure roads, water supply and wastewater disposal infrastructure is able to continue to support the needs of the community as it grows, and that it is paid for by those that generate the additional demand.

Development contributions are used to fund new or additional infrastructure, or to increase the capacity of existing infrastructure.

The current policy was adopted on 24 June 2015 and is included with Council's Funding and Financial Policies.

Development Contributions are reviewed regularly and subject to change on 1 July each year. The current policy allows Council to require contributions of money when applicants are granted resource consents or building consents, or when service connections are approved.

Development Contributions required by geographic area - within All District Plan Zones (incl. GST)				
Water Supply		Wastewater		Stormwater
On demand	Per HEU		Per HEU	

Development Contributions required by geographic area - within All District Plan Zones (incl. GST)				
Water Supply		Wastewater		Stormwater
Kurow	\$2,265	Kakanui	\$3795	<b>No development contributions. Council has no capital expenditure programme</b>
Oamaru (includes Kakanui, Weston/Enfield, Herbert/Waianakarua & Hampden/Moeraki Zone)	\$6,440	Kurow	\$609.50	
Omarama	\$5,117.50	Lake Ohau	\$11.50	
Otematata	\$5,416.50	Moeraki	\$5,462.50	
Waihemo	\$5,198	Oamaru	\$3,795	
		Omarama	\$1,575.50	
<b>Restricted</b>	<b>Per 1m<sup>3</sup>/day</b>	Otematata	\$2,173.50	
Awamoko	\$1,667.50	Palmerston	\$2,449.50	
Duntroun	\$414			
Kauru Hill	\$1,782.50			
Lake Ohau	\$11,799			
Lower Waitaki	\$1127			
Oamaru, including Kakanui, Weston/Enfield, Herbert, Waianakarua & Hampden/Moeraki Zones	\$3,577.78			
Bushey Creek	Closed for new applications			
Waihemo, including Palmerston, Dunbacl & Goodwood	\$2,887.78			
Stoneburn	\$1,207.50			
Tokarahi	\$1,587			
Windsor	\$943			

**Notes:**

Development Contributions are contributions defined by the provisions of Part 8 Subpart 5 and Schedule 13 of LGA 2002. Contributions are assessed based on the fiscal implications of growth.

As the sequence of development is not always consistent, development contributions shall be required at the first available opportunity. At each and every subsequent opportunity the development will be reviewed and additional contributions required if the units of demand assessed for the development exceed those previously paid for.

Development contributions are triggered on the granting of:

- A resource consent
- A building consent
- An authorisation for a service connection for sewer or stormwater
- An authorisation for a service connection for water, including additional units of water by volume supplied to existing consumers

The development contributions for the amalgamated water schemes are based on a weighted average approach, and on the premise that 1 HEU is equivalent to 1 Unit (1 point), except where otherwise stated

Council applies a differential system to ensure that different types of development, such as rural residential, commercial, accommodation, primary industry/dairy contribute fairly to capital expenditure for growth.

Connection costs and annual rates charges also apply. Remissions apply in some cases.

Note that Development Contributions differ from Financial Contributions. Financial Contributions can be charged as a condition of a resource consent under Section 108 of the Resource Management Act 1991. They contribute towards the expansion of the District's reserves, community facilities and other infrastructure where additional demand is created and Development Contributions don't apply.



Financial contributions		
Water Supply	Wastewater	Stormwater
Financial contributions where appropriate. Environmental effects – Chapter 14 District Plan. Environmental Considerations	Financial contributions where appropriate. Environmental effects – Chapter 14 District Plan. Environmental Considerations	Financial contributions where appropriate. Environmental effects – Chapter 14 District Plan. Environmental Considerations

**Notes:**

Financial Contributions are defined by Section 108 of the Resource Management Act (RMA) 1991 and collected using the provisions of the District Plan. Contributions are assessed based on the environmental effects of growth. These are defined in Chapter 14 of the Waitaki District Plan. Chapter 14 of the District Plan is particularly relevant for contributions of a non-fiscal nature. These will generally be of an environmental nature, including public access, provision of parking and protection of environmentally sensitive sites

### 12.3 Vested Assets

The Council receives assets that are vested in it, but there has been no direct exchange of funds. In the case of infrastructural assets, the value of exchange is deemed to be at the current valuation at time of issue of the 224 Certificate. For all donated and subsidised assets, the initial value recorded is the current valuation value at the date of acquisition.

### 12.4 Asset Valuations

In 1991 following local body amalgamation, all Councils in New Zealand recorded assets and began depreciating them for the first time. The assets recorded included land and buildings, water and waste reticulation networks, treatment plants and pumping stations, and roading assets. Subsequently WDC carried out their utilities valuation and based it on the best information available – in many cases this was minimal, resulting in “global best guess” estimates being made. Since then, much more accurate, detailed and reliable information on assets has been collected, meaning that regular and more reliable valuations took place.

Councils are required to value and depreciate their assets regularly. The most recent full valuation of the treatment facilities and reticulation systems for the 3 Waters was carried out for 1 July 2018. A detailed valuation report is available, which describes the valuation methodology and results of the valuation process. The valuation procedures for the 2018 valuation are summarised below:

**Table 12-1: Valuation Explanation**

Description	Details
Date Completed	June 2018
Undertaken by	Waitaki District Council Staff and Waugh Consultants
Review	WSP OPUS International Consultants Ltd
Standard Compliant with	accepted New Zealand accounting practices (IFRS)
Valuation Approach	Replacement Cost Basis
Confidence Levels	Highly/Reliable for ORC (Quantity, Cost & Value)
	Highly/Reliable for ODRC (Quantity, Cost & Value)
Method of Depreciation	Straight line depreciation, with some adjustment for auto extension of asset lives. Residual value = 0%
Date of next Valuation	June 2021 (IP 3W13)

### 12.4.1 Valuation Comparison

There has been a significant change in the unit rates since 2015 and this combined with the review of base lives for AC water mains and a streamlining of some of the facilities unit rates has resulted in approximately 20% increase in all areas of the revaluation.

The specific changes that have contributed to this are discussed below:

- The reticulation unit rates that provide 80% of the value of the network were repriced by Contractors, reviewed against past contracts and CPIs and then an overall increase of 20% was adopted. Section 5.2 provides further details on this.
- Almost \$1,000,000 of assets have been vested in Council since 2015
- The unit rates for SCADA and Solar Panels were reviewed based on recent information from the supplier which resulted in solar panels increasing from \$4000 to \$13,000 and a simplification of the unit rates based on the number of expansion units at the site
- Switchboard unit rates were also reviewed and simplified to be applied consistently across sites based on the capacity of the switchboard
- Other items of equipment also appear in the report with a replacement cost of \$1 where multiple assets have been consolidated onto one asset, and the unit rate of the replacement asset adjusted appropriately. An example of this is chlorine which used to be comprised of multiple parts but has now been simplified. These \$1 assets will be disposed in the new financial year.
- A standard two pump sewer pump station was repriced by Fluent Solutions which indicated an increase of approximately 12% in the unit rates which was applied to all other equipment unit rates that weren't otherwise repriced
- Some plant facilities have been all but abandoned (no longer operational) due to plant upgrades and supply consolidations (e.g. Hampden/Moeraki and Herbert water supplies) but not yet disposed of financially. These have been revalued to \$1 to reflect that they now have no replacement value and will be disposed in the new financial year. The disposal of these assets involves handing the assets over to the landowners who are taking over the resource consents. Any expense occurred during this handover will be operational.
- The Kakanui Sewer Scheme was combined with the Oamaru Sewer Scheme in 2016 (physically connected in 2014 but project completion in 2016) and the comparison tables for values and quantities have been updated to reflect this including, the 2015 figures have been updated to show as if they were combined in 2015 to allow for showing a more accurate movement of the actual asset base.

**Table 12-2: Summary of Wastewater Valuation Comparison (2009 – 2018)**

Item	2009 (\$)	2012 (\$)	2015 (\$)	2018 (\$)	% change (15 -18)
Replacement costs	72,195,307	69,685,895	74,559,922	89,265,590	20%
Depreciated Replacement Costs	33,860,700	40,602,710	41,377,354	47,802,510	16%
Annual Depreciation	1,185,877	902,076	997,708	1,168,518	17%
% DRC of RC (i.e. % life of remaining work)	47%	58%	55%	54%	

### 12.4.2 Asset Lives and Assumptions

#### Wastewater & Stormwater –

Sewer mains were also analysed in 2012 but utilising CCTV data (approximately 30% of the network has been inspected). The data that is captured as per the New Zealand Pipe Inspection Manual was

reviewed and the fault types that would trigger renewal were identified (e.g. numerous dipped pipes would not trigger renewal but a large broken pipe may trigger renewal).

The renewal strategy for wastewater and stormwater differs from water as it is possible for a wastewater asset to be in poor condition but still provide the necessary service to the community (i.e. they flush the toilet and it goes away). Therefore, the condition of the wastewater and stormwater assets, which is easy to assess via CCTV is utilised to drive renewal decision making.

The condition score provided by the CCTV faults was analysed to show the current bell curve of distribution of the average condition and how wide the standard deviations were, taking into account the age of the asset at the time of inspection. This data was then extrapolated forward to calculate at what age the average condition of the whole asset stock for that material would be a condition score of 3.1. The condition scores are given as 1 is very good, 3 is average, 5 is very poor and therefore 3.1 was adopted as being tipped more towards the downward side of the condition curve.

The analysis showed that the lives for all the materials except earthenware could be extended.

PVC and PE pipes were identified as performing better than the previously adopted 80 year life and therefore these were extended to 100 years.

The failures types observed on asbestos cement pipe were largely due to installation issues such as faulty joints and dips, these failure types would not trigger a renewal of a main. Again, due to the absence of ground water it is believed that asbestos cement pipe is performing better than in other areas of New Zealand therefore slowing the rate of external material deterioration.

The analysis showed that the life of asbestos cement pipes could be extended to 120 years at which point the majority of the asset would be trending from average to poor condition. However, again reinforcing that the life is to be set to reflect the crest of the wave and not the early failure scenarios, this life is believed to be acceptable. Although the increase in expected life from 60 years to 120 years is a significant increase it is now demonstrated that 60 years was in fact extremely conservative as the assets are approaching this age and not showing signs of the majority of the assets requiring renewal.

Concrete pipe was also identified as having previously been extremely conservative. Concrete pipe was installed between 1949 and 1979 putting the older mains at 60 years old now and not showing signs of requiring renewal. The faults type observed in concrete did include surface damage as is to be expected with concrete material but also significant joint faults that would not trigger a renewal of the pipe. It is anticipated that the external material of the pipe will be in sound condition due the absence of ground water.

The analysis showed that the life of concrete pipe could be extended to 120 years at which point the majority of the asset would be trending from average to poor condition.

The CCTV programme has been budgeted to continue into the future which will allow for further data to validate trends and allow for future refinement of expected lives. The CCTV programme will be targeted to support the renewal programme to ensure all money is spent prudently and to gather further representative data for validating trends.

The renewal strategy for the renewal of sewer service lines (which is only the Y or saddle for the connection to the main as the actual lateral is owned by the property owner) is that all of these are replaced at the time of replacing the main. Any reactive renewals that occur outside of the planned renewal of the main are generally treated as maintenance costs.

Manholes are also replaced at the time of renewing the main as the opportunity is taken to replace the existing significant structures which are cast in situ with modern pre-cast manholes which are more compact in their design, whilst the trench is open and it is economic to do so.

All lives adopted for Wastewater have also been applied to Stormwater as this is believed to be comparable, or in fact, that Stormwater assets may actually last even longer as they are utilised less

and not subject to such corrosive effluent.

The significant changes to asset lives are tabled below:

**Table 12-3: Adjusted Base Lives**

Pipe material	Water	Wastewater	Stormwater
PVC	100	100	100
PE	80	100	100
AC (<100mm)	70	120	120
AC (100-200)	80 (100)	-	-
AC (250-375mm)	100	-	-
AC (450mm)	140 (100)	-	-
CC	60	120	120

The review process and assumptions are detailed within the 2018 Asset Valuation.

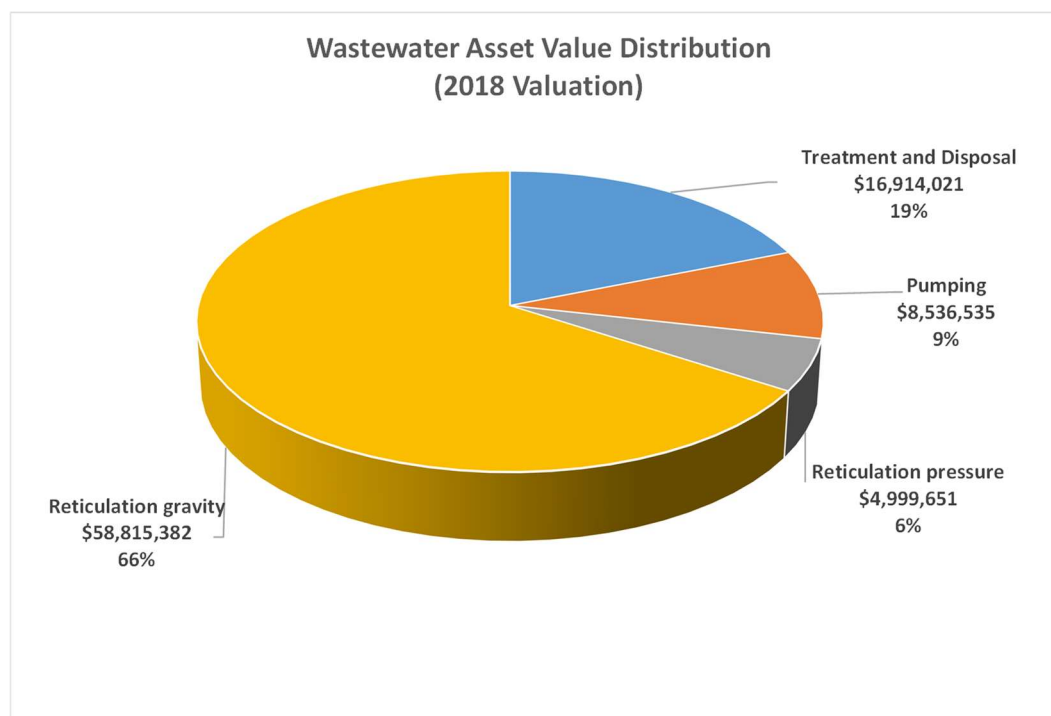
#### 12.4.3 Asset Valuation 2018

The following table reflects the adopted General Ledger Component hierarchy that is utilised for managing the assets. Historically it was split to a reticulation and network/facilities level.

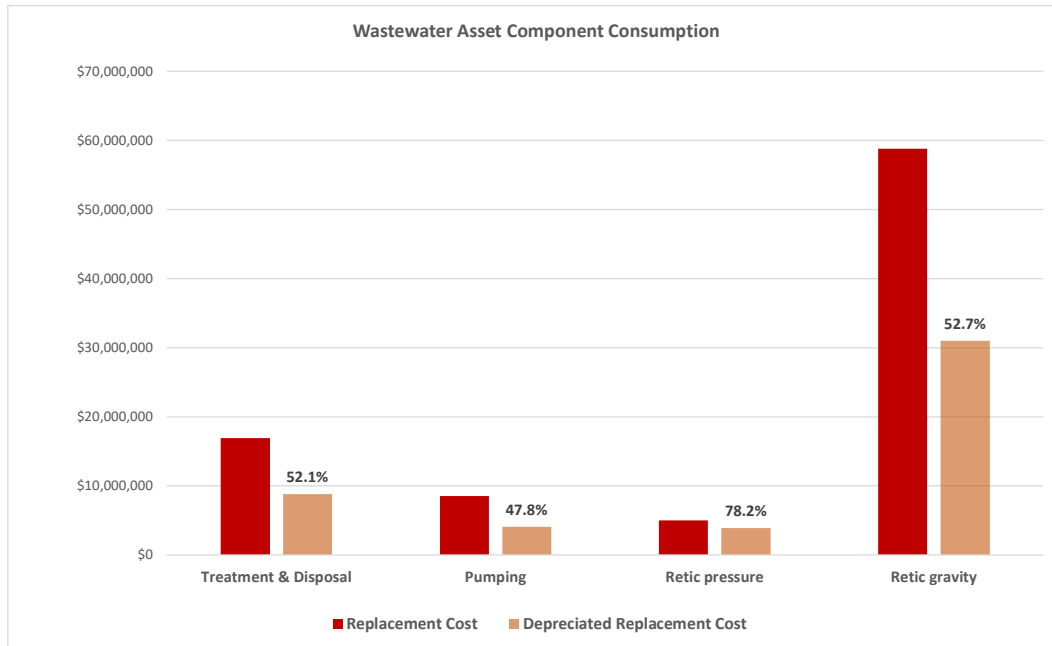
**Table 12-4: Asset Values (2018)**

Wastewater Network	Asset Category	Annual Depreciation	Replacement Costs
Oamaru	Treatment and Disposal	\$241,717	\$11,832,444
	Pumping	\$196,310	\$6,771,415
	Reticulation pressure	\$40,362	\$4,586,969
	Reticulation gravity	\$376,270	\$43,483,633
<b>OAMARU TOTAL</b>		<b>\$854,659</b>	<b>\$66,674,461</b>
Dunroon	Treatment and Disposal	\$675	\$33,736
	Reticulation gravity	\$872	\$104,630
<b>DUNTRROON TOTAL</b>		<b>\$1,547</b>	<b>\$138,366</b>
Kurow	Treatment and Disposal	\$7,774	\$387,658
	Reticulation gravity	\$28,256	\$2,625,639
<b>KUROW TOTAL</b>		<b>\$36,030</b>	<b>\$3,013,297</b>
Lake Ohau	Treatment and Disposal	\$5,367	\$319,555
	Pumping	\$-	\$-
	Reticulation gravity	\$8,874	\$887,435
<b>LAKE OHAU TOTAL</b>		<b>\$14,241</b>	<b>\$1,206,990</b>
Moeraki	Treatment and Disposal	\$29,354	\$736,511
	Pumping	\$38,343	\$1,114,208
	Reticulation pressure	\$1,110	\$111,012
	Reticulation gravity	\$11,479	\$1,145,386

Wastewater Network	Asset Category	Annual Depreciation	Replacement Costs
<b>MOERAKI TOTAL</b>		<b>\$80,286</b>	<b>\$3,107,117</b>
Omarama	Treatment and Disposal	\$15,525	\$612,838
	Pumping	\$6,343	\$248,219
	Reticulation pressure	\$320	\$37,648
	Reticulation gravity	\$21,010	\$2,391,282
<b>OMARAMA TOTAL</b>		<b>\$43,198</b>	<b>\$3,289,987</b>
Otematata	Treatment and Disposal	\$35,620	\$1,671,712
	Reticulation gravity	\$29,962	\$3,561,563
<b>OTEMATATA TOTAL</b>		<b>\$65,582</b>	<b>\$5,233,275</b>
Palmerston	Treatment and Disposal	\$22,761	\$1,319,567
	Pumping	\$11,311	\$402,693
	Reticulation pressure	\$2,309	\$264,022
	Reticulation gravity	\$38,592	\$4,615,814
<b>PALMERSTON TOTAL</b>		<b>\$74,973</b>	<b>\$6,602,096</b>
Total	Treatment and Disposal	\$358,793	\$16,914,021
Total	Pumping	\$252,307	\$8,536,535
Total	Reticulation pressure	\$44,101	\$4,999,651
Total	Reticulation gravity	\$515,315	\$58,815,382
<b>GRAND TOTAL</b>		<b>\$1,170,516</b>	<b>\$89,265,589</b>

**Figure 12-1: Wastewater Asset Value Distribution**


**Figure 12-2: Wastewater Asset Component Consumption**



## 12.5 Depreciation

### 12.5.1 Background

Section 100 subsection 1 of the LGA 2002 states: “A local authority must ensure that each year’s projected operating revenues are set at a level sufficient to meet that year’s projected operating expenses.”

This requirement to set operating revenues at a level sufficient to meet operating expenses includes depreciation as Section 111 obliges councils to follow generally accepted accounting practice (GAAP) which includes a definition of “operating expenses.” As depreciation is defined as an operational expense it must be included with other operational costs, including interest, when a council sets its operating revenue.

GAAP defines depreciation as follows:

*Depreciation is the systematic allocation of the depreciable amount of an asset over its useful life.<sup>1</sup>*

Therefore, depreciation measures the annual consumption of an asset so that the reduction in its value is accounted for as it is consumed. The purpose of depreciation is not to provide for the replacement of the asset, although this is a consequence of depreciation. Depreciation ensures that each year’s ratepayers pay their way for the consumption of the assets. For example, if an asset will last for 10 years, the annual depreciation charge is 1/10th of the value of the asset.

The basic value of an asset reduces in accordance with the wearing out or consumption of benefits over the assets life arising from use, the passage of time, or obsolescence. This reduced value is called the depreciated value. It is accounted for by the allocation of the cost (or revalue amount) of the asset less its residual value over its useful life.

<sup>1</sup> Source: Depreciation in the local government context, July 2011. Local Government New Zealand

The decline in service potential is thus provided on a straight line basis on all fixed assets. Therefore Council complies with the requirements of FRS3 and NZIAS 16 and funds asset depreciation.

### 12.5.2 Asset Lives

Asset expected lives are tabled in the Asset Valuation. Assets are installed and maintained to Council standards and specifications. These standards are relevant New Zealand and Australian Standards and included in Construction, Operation and Maintenance Contracts e.g. NZS4404 Land Development and Subdivision Infrastructure. This ensures the relevance of industry standard expected lives. Depending on the criticality of the asset, when an asset is nearing its expected useful life the asset is assessed and its remaining useful life determined. A run to failure strategy is applied to low criticality assets as the consequence of failure is not major and the costs of ongoing condition monitoring may outweigh the costs of failure. A risk and condition based strategy is applied where there is a significant implication due to failure, such as a major health and safety risk, significant reliability of supply consequence or significant expense in repair. This risk and condition based strategy will be refined upon completion of the Criticality project currently under development and will guide the future.

Council engineers know the consequences of their decisions and acknowledge that there is a potential for decline in service, although it is not permanent and neither significant. Where an asset needs replacement it is done to the appropriate Council standards and specifications, prioritised on criticality and funding available from depreciation funds.

In the 2003 and 2006 valuations the annual depreciation was calculated by:

- Replacement Cost / Expected Life

However, this has been changed in the 2009 valuation to:

- Replacement Cost / (Age + Residual Life)

This allows for the impact of the auto extension of asset lives when they have reached the end of their economic life. For example an asset has a life of 50 years but is in fact 55 years old. This would be calculated to have a remaining useful life of 5 years (10%)

Under the 2006 calculation of annual depreciation, with a replacement cost of \$10,000 this would have annual depreciation of

- 2006 Annual Depreciation =  $\$10,000 / 50 = \$200$

But now equals

- 2009 Annual Depreciation =  $\$10,000 / 55 + 5 = \$166$

All assets have zero residual value, therefore, this is not allowed for in the calculations above.

Further to this, in 2015 it was identified that adding 10% onto short life assets (typically Plant Equipment), did not always achieve a remaining useful life of greater than 3 years. And therefore, the asset would depreciate to zero value before the next revaluation even though it was still in service. Therefore, the policy was altered for assets past their base life and these now have an additional 3.5 years added onto their current age to ensure they do not depreciate to zero.

In this scenario, the calculation would now be:

$$2015 \text{ Annual Depreciation} = 10,000 / (55 + 5 + 3.5) = \$157.48$$

The total annual depreciation figure for all Wastewater asset components amount to \$1.0m. The valuation schedules itemised the assets to such a level that the calculated depreciation is unlikely to be materially different from actual loss of value.

### 12.5.3 Depreciation Projections

The intention of depreciation is therefore to maintain the wastewater infrastructural assets as a whole in a serviceable condition for the future and to achieve this individual components need to be replaced from time to time.



**Figure 12-3: Depreciation versus Renewals**

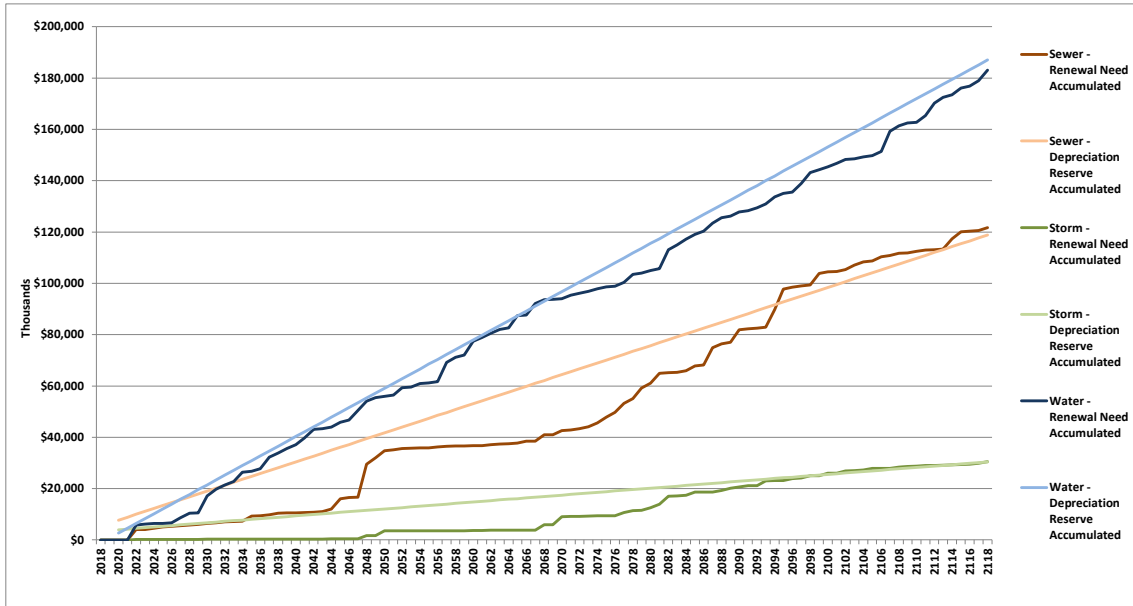
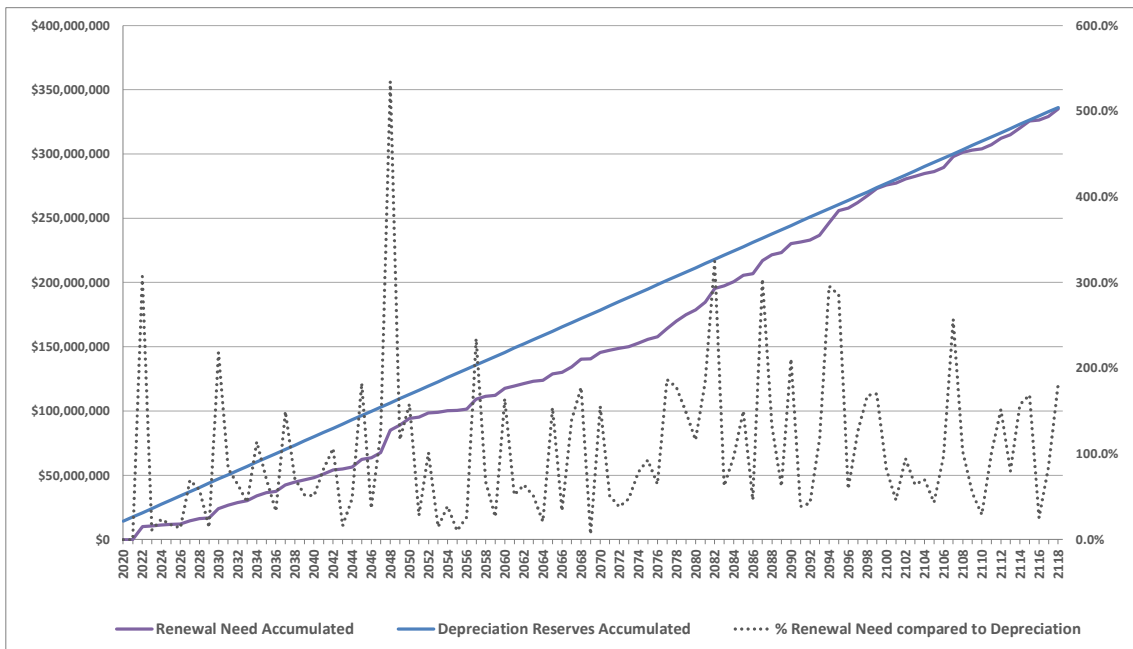


Figure 12-3: Depreciation versus Renewals above compares the projected accumulated renewal need versus the accumulated depreciation reserves. This represents:

- The projected renewal need based on the replacement value required as assets reach the end of their expected lives over the next 100 years
- The current available depreciation reserves plus the current annual depreciation charge accumulating over the next 100 years

This clearly shows that due to the fact that depreciation has only been funded over the last 24 years that depreciation funds are more than the current renewal need. However, as more assets reach the end of their expected lives the renewal need will match the available depreciation funds.

**Figure 12-4: 3 Waters Depreciation versus Renewals**



The dotted line represents the percentage of forecast annual renewal expenditure related to the annual depreciation. It can be seen that there are numerous spikes e.g. in 2020 the forecasted renewal

requirement is 306% of the annual depreciation and in 2048 the forecasted renewal requirement is 534% of the annual depreciation. Annual accumulation of depreciation smooths these spikes to achieve affordable funding over extended periods.

The focus for the 3 Waters activity is to **Protect Public Health and the Environment**. For wastewater this includes an increased focus on current and future capacity, risk management and overflow mitigation.

Over time the focus will shift from 'new capital projects' to maintaining the existing asset set from available depreciation funds. Thus building on the existing asset base by provision of focussed renewal and development plans ensuring the needs of the community are well catered for into the future with ongoing affordability in mind.

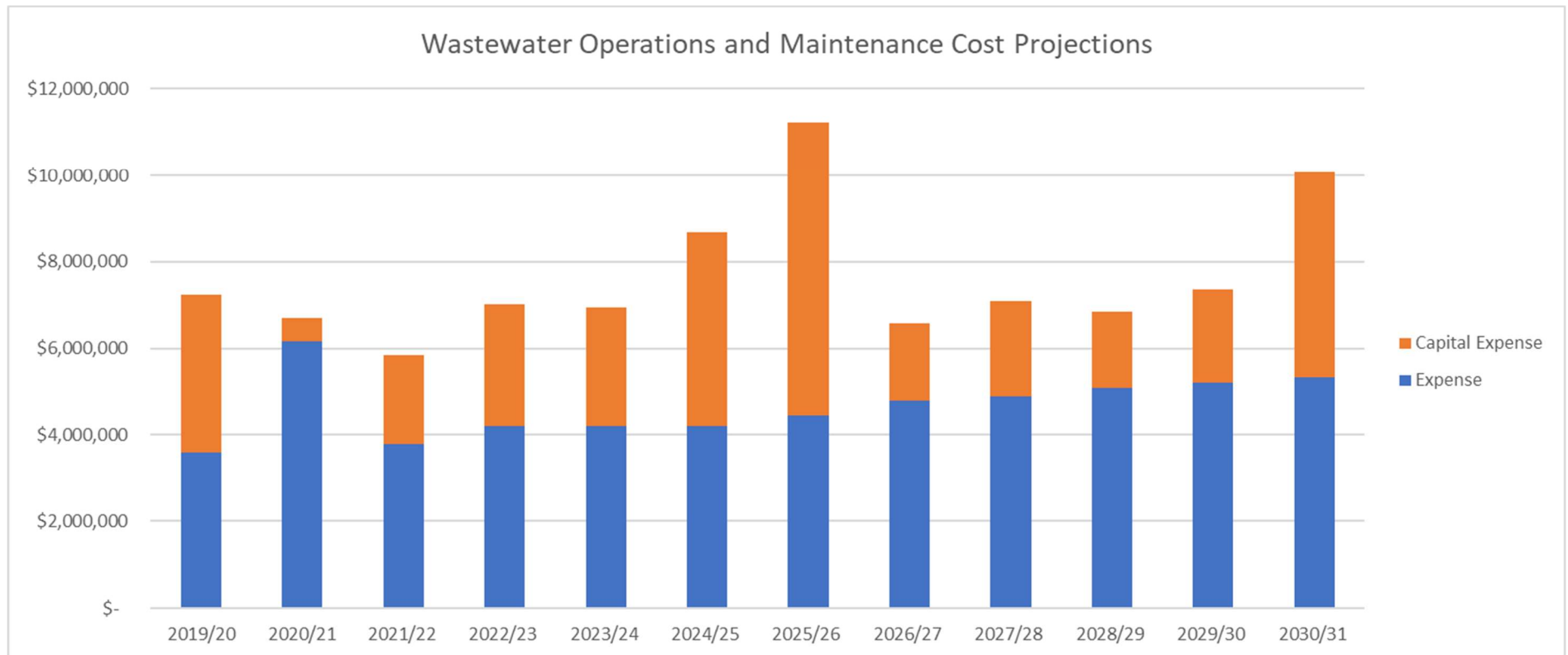
Council will continually review the information that supports this graph through regular asset valuations, auditing of asset registers and prudent asset management.

## 12.6 All Wastewater Systems Expenditure (Mtce, Renewals & Capital) (000's)

\*\*\* to be updated at EOFY with actuals

Wastewater System	Actuals (000's)		LTP 2021 -2031 (000's)									
	2019/20	2020/21***	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
Dunroon Sewerage	5.30	5.30	8.08	10.15	9.73	9.39	10.12	76.06	75.41	74.92	75.36	75.86
Dunroon Capital/Renewal	1.11	1.11	0.00	0.00	0.00	0.00	2232.55	74.95	107.16	49.11	50.22	51.30
Kurow Sewerage	101.39	101.39	123.62	140.10	139.86	139.33	147.07	161.56	165.51	171.40	176.81	195.71
Kurow Capital/Renewal	1.13	1.13	0.00	0.00	0.00	0.00	119.83	41.98	2.37	2.43	340.66	364.89
Moeraki Sewerage	256.45	256.45	291.23	313.99	313.42	314.44	328.76	340.71	344.98	358.66	365.24	370.52
Moeraki Capital/Renewal	1545.99	1545.99	50.17	233.58	172.89	142.76	150.24	114.10	117.48	121.02	124.59	127.89
Lake Ohau Sewerage	33.56	33.56	30.17	34.36	34.22	34.00	36.12	38.49	39.17	41.05	41.99	42.71
Lake Ohau Capital/Renewal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Omarama Sewerage	219.22	219.22	239.52	266.83	270.75	271.67	282.88	297.92	303.72	312.47	320.90	327.52
Omarama Capital/Renewal	1015.56	1015.56	178.88	275.18	104.96	73.35	40.32	80.98	42.51	43.65	44.76	45.90
Otematata Sewerage	180.66	180.66	191.20	216.14	215.24	214.23	226.33	242.44	247.45	256.83	263.97	269.42
Otematata Capital/Renewal	1.41	1.41	0.00	129.25	65.98	33.75	0.00	39.68	0.00	0.00	0.00	0.00
Palmerston Sewerage	309.01	309.01	217.38	243.53	242.75	242.00	255.15	271.44	276.69	309.17	316.72	322.65
Palmerston Capital/Renewal	16.45	16.45	312.20	477.90	408.82	48.92	47.41	8.87	478.77	26.21	26.83	27.44
Waitaki District Sewerage	4.20	4.20	150.00	155.10	158.36	162.00	166.21	170.03	175.14	180.92	186.89	191.93
Waitaki District Capital/Renewal	0.00	0.00	100.74	104.17	106.35	108.80	111.63	114.20	117.62	121.50	125.51	128.90
Oamaru Sewerage	2479.34	2479.34	2540.66	2825.03	2824.38	2829.69	3006.88	3205.11	3263.56	3388.71	3468.65	3530.97
Oamaru Capital/Renewal	1066.18	1066.18	1409.95	1587.04	1876.07	4054.28	4063.30	1306.33	1345.60	1389.95	1435.83	4006.76
<b>TOTAL</b>	<b>7236.95</b>	<b>6690.24</b>	<b>5843.81</b>	<b>7012.34</b>	<b>6943.77</b>	<b>8678.60</b>	<b>11224.81</b>	<b>6584.84</b>	<b>7103.13</b>	<b>6847.98</b>	<b>7364.92</b>	<b>10080.38</b>
<b>All Sewerage</b>	<b>3589.12</b>	<b>6150.66</b>	<b>3791.86</b>	<b>4205.23</b>	<b>4208.70</b>	<b>4216.75</b>	<b>4459.54</b>	<b>4803.76</b>	<b>4891.62</b>	<b>5094.12</b>	<b>5216.52</b>	<b>5327.29</b>
<b>All Sewerage Capital/Renewal</b>	<b>3647.83</b>	<b>539.58</b>	<b>2051.95</b>	<b>2807.11</b>	<b>2735.07</b>	<b>4461.86</b>	<b>6765.27</b>	<b>1781.08</b>	<b>2211.51</b>	<b>1753.87</b>	<b>2148.40</b>	<b>4753.09</b>
<b>TOTAL</b>	<b>7236.95</b>	<b>6690.24</b>	<b>5843.81</b>	<b>7012.34</b>	<b>6943.77</b>	<b>8678.60</b>	<b>11224.81</b>	<b>6584.84</b>	<b>7103.13</b>	<b>6847.98</b>	<b>7364.92</b>	<b>10080.38</b>

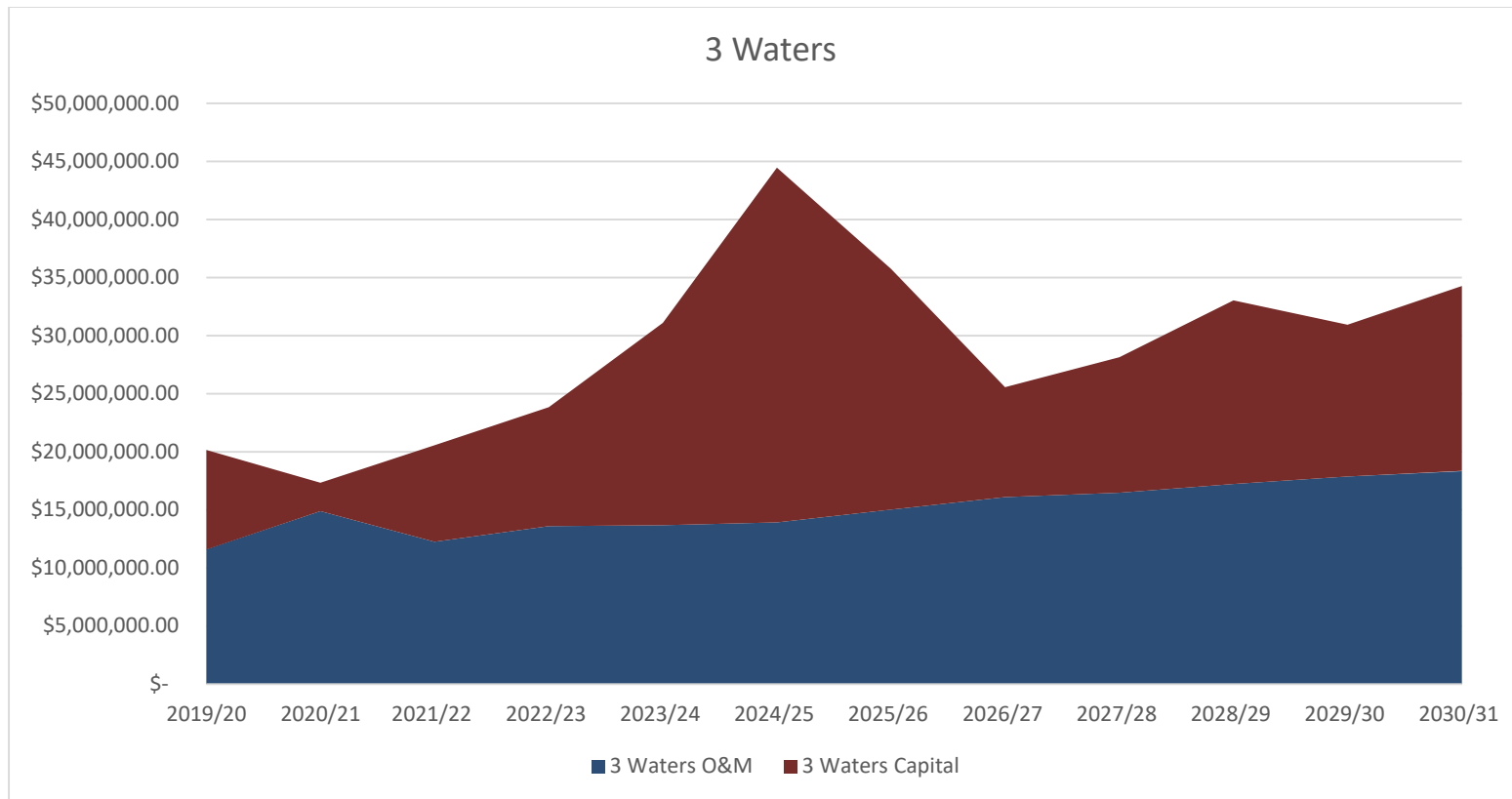
**Figure 12-5: All Wastewater Systems Projected Expenditure**



## 12.7 3Waters Expenditure (Mtce & Renewals & Capital) (000's)

	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
<b>All WaterCapital/Renewal</b>	\$4,847.54	\$1,807.95	\$6,244.21	\$7,424.69	\$14,706.57	\$26,084.78	\$13,784.99	\$5,242.27	\$3,487.23	\$7,784.54	\$8,096.68	\$8,229.77
<b>All Water Supply</b>	\$7,576.89	\$8,004.31	\$7,953.22	\$8,811.38	\$8,873.30	\$9,115.34	\$9,943.37	\$10,617.96	\$10,829.72	\$11,167.31	\$11,494.89	\$11,770.39
All Sewerage	\$3,589.12	\$6,150.66	\$3,791.86	\$4,205.23	\$4,208.70	\$4,216.75	\$4,459.54	\$4,803.76	\$4,891.62	\$5,094.12	\$5,216.52	\$5,327.29
All Sewerage Capital/Renewal	\$3,647.83	\$539.58	\$2,051.95	\$2,807.11	\$2,735.07	\$4,461.86	\$6,765.27	\$1,781.08	\$2,211.51	\$1,753.87	\$2,148.40	\$4,753.09
All Stormwater Disposal	\$428.82	\$737.42	\$503.07	\$581.68	\$579.50	\$574.62	\$614.03	\$659.13	\$737.92	\$945.81	\$1,146.90	\$1,242.29
All Stormwater Capital/Renewal	\$48.77	\$75.58	\$-	\$-	\$-	\$-	\$168.67	\$2,456.45	\$5,972.86	\$6,274.45	\$2,830.07	\$2,947.03
3 Waters Capital/Renewal	\$8,544.15	\$2,423.11	\$8,296.16	\$10,231.80	\$17,441.64	\$30,546.64	\$20,718.93	\$9,479.80	\$11,671.60	\$15,812.86	\$13,075.15	\$15,929.90
3 Waters	\$11,594.82	\$14,892.39	\$12,248.15	\$13,598.30	\$13,661.50	\$13,906.71	\$15,016.94	\$16,080.84	\$16,459.25	\$17,207.23	\$17,858.31	\$18,339.96
<b>TOTAL</b>	<b>\$20,138.97</b>	<b>\$17,315.49</b>	<b>\$20,544.31</b>	<b>\$23,830.09</b>	<b>\$31,103.14</b>	<b>\$44,453.35</b>	<b>\$35,735.88</b>	<b>\$25,560.64</b>	<b>\$28,130.85</b>	<b>\$33,020.09</b>	<b>\$30,933.46</b>	<b>\$34,269.86</b>

**Figure 12-6: 3Waters Projected Expenditure**







### **Activity Response to Financial Forecasting**

We will continue to:

- Develop a financial plan (minimum of 10 year)
- Complete regular asset valuations
- Identify information about the elements making up the cost of assets and services
- Summarise the activity in monetary terms
- Provide transparent accountability of asset financial stewardship

## **APPENDICES**

This section contains individual supply details and supporting information.

Providing an excellent 'individual description and overview' demonstrates:

- knowledge of our communities
- knowledge of our different systems and its intricacies
- knowledge of the specific asset set
- knowledge of the environmental controls and demand
- knowledge of the parameters for material, size, age install date, location, data reliability, etc.
- the population served, # of connections and facilities
- the greatest value to assist in indicating where the focus should be
- sufficient information for evidence based decision making

**WHY** – to provide the supporting information for the front part of the AMP and to ensure we make informed decisions based on real data



## **A            INDIVIDUAL SYSTEMS DESCRIPTION AND OVERVIEW**

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Individual system descriptions are recorded within the Wastewater Network Manual.



## B SCENARIOS

### B1 Issues and Options

Projects are identified through various processes including but not limited to:

- Legislative Compliance
- Levels of Service
- Growth
- Renewal
- Operation & Maintenance

For all capital projects Council engineers develop an 'Issues and Options' Report. This report identifies the need and discuss the background, issues, considerations, options, lifecycle costs, risks, and recommendations. This ensures each capital project has gone through a comprehensive cost/benefit analysis in consideration of scenarios and associated risks providing an informed and optimal decision.

Summaries of some of the Issues and Options Reports are shown below:

#### B1.1 Kakanui Water and Wastewater – Issues and Options

Item	Description
Kakanui Water Supply	Health Act 1956 – compliance. WTP upgrade required.
Kakanui Wastewater	Resource consent renewal and projected capacity issues
Options/Scenarios	Water <ul style="list-style-type: none"> <li>• WTP Upgrade</li> <li>• Connect to Oamaru Water Supply</li> </ul> Wastewater <ul style="list-style-type: none"> <li>• Continue existing upgrade)</li> <li>• Land disposal</li> <li>• Subsurface disposal</li> <li>• Connect to Oamaru Wastewater System</li> </ul> The combination of Water and Wastewater allowed a further option of Water and Wastewater partially sharing a trench, reducing costs
Costs	Each option is considered against capital costs, lifecycle costs and resultant annual rates charges.
Risks	A risk assessment of each option, both Water and Wastewater, considered areas of vulnerability across defined impact areas. This considered parameters and assessed likelihood and consequence across 5 areas of impact: <ul style="list-style-type: none"> <li>• Health &amp; Safety</li> <li>• Asset Performance</li> <li>• Environmental and Legal Compliance</li> <li>• Financial</li> <li>• Customer Perception</li> </ul>

Item	Description
Recommendation	<ol style="list-style-type: none"> <li>1. The construction of pipelines to supply water and wastewater services to Kakanui is the least capital and lifecycle cost solution to satisfying the requirements of the Drinking Water Standards and Wastewater RMA discharge requirements</li> <li>2. The construction of pipelines provides for the growth of both supplies</li> <li>3. Combining the supplies such that Kakanui becomes a zone of the Oamaru Water Supply and a catchment of the Oamaru Wastewater System spreads the rate requirement across a larger ratepayer base and benefits the large majority of ratepayers</li> <li>4. The Community has signalled its support of the option via the survey feedback.</li> </ol>

## B1.2 Oamaru Water Treatment Plant Air Compressor Renewal – Issues and Options

Item	Description
Air Compressor Renewal	The OWTP utilises on-site generated ozone to treat micro filtered water to remove earthy taste and odour. The compressor producing the air for oxygen (and thence ozone) production is some 5,000 hours past its accepted overhaul or replacement life.
Options/Scenarios	<ol style="list-style-type: none"> <li>1. Single Large Compressor to achieve design flow</li> <li>2. The existing compressor plus               <ol style="list-style-type: none"> <li>a. An additional smaller compressor to achieve the design flow</li> <li>b. An additional large compressor (similar sized as the existing) to achieve the design flow</li> </ol> </li> <li>3. Dual compressors to achieve design flow only when both running</li> <li>4. A combination of 2 (a) and 2(b) providing flexibility</li> </ol>
Costs	Each option is considered against capital costs and lifecycle costs
Risks	<p>A risk assessment of each option considered areas of vulnerability across defined impact areas.</p> <p>This considered parameters and assessed likelihood and consequence across 5 areas of impact:</p> <ul style="list-style-type: none"> <li>• Health &amp; Safety</li> <li>• Asset Performance</li> <li>• Environmental and Legal Compliance</li> <li>• Financial</li> <li>• Customer Perception</li> </ul>
Recommendation	<p>The recommended option:</p> <ol style="list-style-type: none"> <li>1. Keep &amp; refurbish the existing compressor</li> <li>2. Supplement it with a suitable smaller compressor</li> <li>3. As demand projections eventuate           <ol style="list-style-type: none"> <li>a. Sell the small compressor</li> <li>b. Replace with a larger (similar size to existing) compressor</li> </ol> </li> <li>4. Apply this same principle to the oxygen generator</li> <li>5. Engage appropriate specialists to design           <ol style="list-style-type: none"> <li>a. The Air compressor</li> <li>b. The Oxygen generator</li> </ol> </li> </ol>

### B1.3 Lower Waitaki Supply Upgrade – Issues and Options

Item	Description
Lower Waitaki WTP	Health Act 1956 – compliance. WTP upgrade required
Options/Scenarios	<ol style="list-style-type: none"> <li>1. The upgrading of the water treatment plant using suitable treatment technologies               <ol style="list-style-type: none"> <li>a. Coagulation, upgrade existing filter, cartridge filtration, activated carbon filter</li> <li>b. Coagulation, pressure filters, cartridge filtration, activated carbon filter</li> <li>c. Coagulation, pressure filters, UV disinfection, activated carbon filter</li> <li>d. Flocculation, coagulation, sedimentation and filtration in upgraded existing filter, activated carbon filter</li> <li>e. Slow sand filter, UV disinfection, activated carbon filter</li> <li>f. Membrane filtration, activated carbon filter</li> </ol> </li> <li>2. An evaluation into supplying and treating water taken from the Lower Waitaki aquifer               <ol style="list-style-type: none"> <li>a. UV disinfection, activated carbon filter</li> </ol> </li> <li>3. Consideration of various pipeline and pumping options to convey water from the newly built Oamaru WTP to the system.               <ol style="list-style-type: none"> <li>a. Route A– Main roads                   <ol style="list-style-type: none"> <li>i. to LWRWS low reservoir by a combination of gravity and pumped along Route A</li> <li>ii. to LWRWS treatment plant by gravity only along Route A</li> </ol> </li> <li>b. Route B – Base of foothills                   <ol style="list-style-type: none"> <li>i. to LWRWS low reservoir by a combination of gravity and pumped along Route B</li> <li>ii. to LWRWS treatment plant by gravity only along Route B</li> </ol> </li> <li>c. Route C                   <ol style="list-style-type: none"> <li>i. Via a direct overland route from the Oamaru WTP site to the LWRWS Low Reservoirs</li> </ol> </li> </ol> </li> </ol>
Costs	Each option is considered against capital costs and lifecycle costs and resultant annual rates charges.
Recommendation	The most cost effective of the upgrade options is to pump water out of the Lower Waitaki aquifer, treat it with UV disinfection and remove any residual taste and odour with activated carbon filters (Option 2)





## C GLOSSARY OF TERMS

Term	Definition
Reactive Maintenance	Unplanned work carried out in response to reported or observed problems or defects to enable functioning of the Scheme
Programmed Maintenance	Planned work carried out as a preventative measure to improve asset reliability for achieving expected levels of service.
Demand Management	The active intervention in the market to influence demand for services and assets with forecast consequences, usually to avoid or defer CAPEX expenditure. Demand management is based on the notion that as needs are satisfied expectations rise automatically and almost every action taken to satisfy demand will stimulate further demand
AC	Asbestos Cement
AIS	Asset Information Systems
CI	Cast Iron
ECAN	Environment Canterbury
GALV	Galvanised Steel
GIS	Geographic Information System
LOS	Levels of Service
LTP	Long Term Plan
NRRP	Natural Resources Regional Plan
OAG	Office of the Auditor General
ORC	Otago Regional Council
PE	Polyethylene
PHRMP	Public Health Risk Management Plan now called a WSP
PVC	Polyvinylchloride
ST	Steel
SCADA	Supervisory Control And Data Acquisition
WDC	Waitaki District Council
WSP	Water Safety Plan



## D REFERENCES AND ACKNOWLEDGEMENTS

### References and Acknowledgements

Office of the Controller and Auditor General

Institute of Public Works Engineering Australasia (IPWEA)

Department of Internal Affairs

Ministry for the Environment

Ministry of Health

Waitaki District Council

The New Zealand Utilities Advisory Group

Standards New Zealand

Water NZ

Legislation and Regulation

Civil Defence Emergency Management Act 2003

Land Transport Management Act 2003

Local Government Act 1974

Local Government Act 2002

Ngai Tahu Settlement Claims Act 1998

New Zealand Bill of Rights Act 1990

Reserves Act 1977

Resource Management Act 1991

Financial Reporting Standards (FRS3)

New Zealand Standard SNZHB 4360-2000 'Risk Management for Local Government'

