RANGITĪKEI
DISTRICT COUNCIL

Rangitīkei District Council

Asset Management Plan

3 Waters – 2024 - 2034

Date Printed

30/01/2024

Document Approval

Action	Name	Position	Signed	Date
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Revision History

Revision Number	Author	Description	Signed	Date

Review Schedule

Action	Last Completed	Frequency	Next Scheduled	Responsibility
Review		Every 3 years	2027	Asset Engineer
External Review		Every 3 years	2027	General Manager - Infrastructure

Contents

Abbreviations

AC	Asbestos Cement	NES	National Environmental Standard
AMP	Asset Management Plant	NPS	National Policy Statement
BOD	Biochemical Oxygen Demand	NRV	Non-Return Valve
BOD_5	5-day Biochemical Oxygen Demand	O&M	Operations & Maintenance
$cBOD_5$	Carbonaceous 5-day Biochemical Oxygen Demand	P&ID	Piping & Instrumentation Diagram
CRA	Catchment Risk Assessment	PE	Polyethylene
CBD	Central Business District	PLC	Programmable Logic Controller
CDEM	Civil Defence Emergency Management	PRV	Pressure-Reducing Valve
CDEMG	Civil Defence Emergency Management Group	PSV	Pressure-Sustaining Valve
COD	Chemical Oxygen Demand	PVC	Polyvinyl Chloride
DO	Dissolved Oxygen	mPVC	Modified Polyvinyl Chloride
DIA	Department of Internal Affairs	oPVC	Orientated Polyvinyl Chloride
DRP	Dissolved Reactive Phosphorus	uPVC	Unmodified Polyvinyl Chloride
DWF	Dry Weather Flow	RDC	Rangitīkei District Council
DWSNZ	Drinking Water Standards for New Zealand	RMA	Resource Management Act
FENZ	Fire and Emergency New Zealand	RRPM	Raised Reinforced Pavement Marker
I&I	Inflow and Infiltration	SCADA	Supervisory Control And Data Acquisition
IQP	Independent Qualified Person	SUIP	Separately Used Inhabited Portion
LAPP	Local Authority Protection Programme	TN	Total Nitrogen
LGA	Local Government Act	TSS	Total Suspended Solids
LIM	Land Information Memorandum	WSP	Water Safety Plan
LOS	Level of Service	WSPS	Water Supply Pump Station
LTP	Long Term Plan	WTP	Water Treatment Plant
MDC	Manawatū District Council	WWF	Wet Weather Flow
MfE	Ministry for the Environment	WWPS	Wastewater Pump Station
MOH	Ministry of Health	WWTP	Wastewater Treatment Plant
NAMS	New Zealand Asset Management Support		

Introduction

Asset Management is important to the Council for a number of reasons. First, many of the services delivered by the Council rely on assets to support their delivery. Secondly, assets represent a significant investment by the Community that needs to be protected. Thirdly, asset failure can have both social and economic effects on the community.

In light of the above, Council has been undertaking Asset Management Planning for over decade. The objective of Asset Management is:

"To meet a required level of service in the most cost effective way (through the creation, operation, maintenance, renewal and disposal of assets) to provide for existing and future customers".

The Asset Management Plan is the tool for combining management, financial, engineering and technical practices to ensure that the level of service required by customers is provided at the lowest long-term cost to the community. The plan is intended to demonstrate that Council is managing the assets responsibly and that customers will be regularly consulted over the price/quality trade-offs resulting from alternative levels of service.

Background

The objectives of the Asset Management Plan are:

- To ensure strategic and operational decisions regarding the activity will be based on "best for asset" principles. Levels of service will be cascaded down through all levels of operational practices to enhance the network performance and ratepayer satisfaction. The management of the assets will be carried out within budget constraints.
- To provide clear linkages to the Annual Plan, Long Term Plan, and all other key planning processes and documents.
- To comply with the Local Government Act 2002 (LGA), specifically in relation to our activities, services and assets.

The purpose of this plan is to improve the stewardship of assets by Council on behalf of its customers and stakeholders and achieve compliance with statutory obligations. This plan specifically does that by:

- Demonstrating responsible stewardship of the assets.
- Identifying minimum lifecycle costs to provide an agreed level of service.
- Improving understanding of service level standards and options.
- Assisting with an integrated approach to Asset Management throughout the organisation.
- Improving customer satisfaction and organisational image.
- Managing the risk of failure to deliver the required level of service.
- Supporting long-term financial planning by the Council.
- Clearly justifying forward works programmes.

- Improving decision-making based on costs and benefits of alternatives.

This Asset Management Plan is intended to set out how Council manages assets in a way that is appropriate for a readership which includes executive management and elected members of the Council, interest groups, stakeholders, and other interested members of general community.

Asset Management Plans are tactical plans for achieving strategies resulting from the organisation's strategic planning process.

Asset Management Plans are a key component of the Council planning process, linking with the following plans and documents:

- Long Term Plan (LTP). A plan required by the Local Government Act 2002 and Amendment Act 2010 to cover a period of at least 10 years. This plan contains key information about the Council's activities, assets, levels of service, and cost of providing services. It sets out the Council's funding and financial policies and also a financial forecast for the years covered by the plan. The LTP is now required to include a 30-year Infrastructure Strategy that includes the water, wastewater and stormwater activities.
- District Plan. Incorporates policies and objectives for land use and road infrastructure. It may include designations for future works that should be reflected in the Asset Management Plan.
- Strategic plans. Strategic plans set out broad strategic direction for the next 20 years. Asset Management Plans are prepared to reflect the strategies outlined in those documents and confirm tactics to achieve strategic goals.

The Asset Management Plan provides the data required to enable future planning for the management of assets, for example asset age, condition and replacement cost. This data is used for forward planning in the LTP.

- Annual Plan. Complements the LTP in the years between updates by reporting on variances. A detailed action plan on Council's projects and finances for each particular year.
- Funding policies. These policies state how future expenditure needs will be funded. Key policies are summarised in the LTP.
- Business/activity plans. The service level policies, processes and budgets defined in Asset Management Plans are incorporated into business plans as activity budgets, management strategies and performance measures.
- Contracts. The service levels, strategies and information requirements contained in Asset Management Plans are translated into contract specifications and reporting requirements.
- Legislation. The Asset Management Plan must comply with all relevant legislation and provide the means of meeting legislative requirements.
- Bylaws, standards and policies. These tools for asset creation and subsequent management are needed to support Asset Management practices.

- Other documentation. There are a number of other documents used on a day-today basis for management of activities. Such documents are referenced in the Asset Management Plan.

This Plan recognises the following key stakeholders:

Table 1: Key Stakeholders

External	Rangitīkei District community Users of services (residents and visitors)
Internal	Councillors
	Utilities Manager and Asset Management staff
	Finance managers
	Information technology managers
	Policy and planning managers

Goals and Objectives

The objectives of the Asset Management Plan are:

- To describe how Council will implement the expectations that the community has about the management of its water, wastewater and stormwater assets through setting and delivering service levels within budget constraints.
- To provide clear linkages to the Annual Plan, Long Term Plan, and all other key planning processes and documents.
- To comply with the Local Government Act (LGA), specifically in relation to our activities, services and assets.

To identify potential opportunities for reductions in asset lifecycle costs.

The purpose of this Plan is to improve the stewardship of assets by Council on behalf of its customers and stakeholders, and achieve compliance with statutory obligations.

The rationale for Council's involvement in each of the 3 Waters activities, and an overall description of them, are described in Section 1.5.

Plan Framework

Rangitīkei District Council (the Council) is the main provider for water, wastewater and stormwater services in the District. To deliver these activities, Council establishes contracts to obtain these services via established procurement strategies.

Rangitīkei District adjoins areas administered by Whanganui, Ruapehu, Napier, Tararua and Manawatū District Councils. Rangitīkei District is within the area administered by Horizons Regional Council.

The strategic objective of Asset Management is to maintain the assets to a high standard. Major maintenance and construction programmes are also to be completed to improve efficiencies and safety across the District.

Maintenance intervention strategies will be based around creating efficiencies within the operational activities. Improving the timing of maintenance activities will reduce the cost per repair and increase of quantity of repairs, while retaining a high quality.

The assumptions used in Council planning that relate to Asset Management are described in Table 2. These are the assumptions adopted by Council for the Long Term Plan.

Table 2: Asset Management Assumptions

Forecasting Assumption	Risk	Level of Uncertainty	Reasons and Financial Effect of Uncertainty
Activities: Council will not exit any of the activities covered by this plan during the term of the Asset Management Plan	Council may choose to exit activities due to constrained finances or due to a change brought about by the National 3 Waters Reform process.	Low	Council has listed the assets covered by this plan as strategic assets, demonstrating its intention to continue with them
Lives of assets: predictions contained in the Asset Management Plans are realistic	Asset lives are over stated and assets fail to deliver levels of service earlier than forecast	Low	Asset lives are reviewed regularly as part of condition assessment process
Levels of service: predictions of demand trends form a sound basis for the upgrading of assets	Council may renew or build new assets which do not meet user needs	Low	Council keeps abreast of National and International transportation trends

Core and Advanced

This Asset Management Plan has been prepared with the criteria of NAMS (New Zealand Asset Management Support) in mind. The NAMS International Infrastructure Management Manual (IIMM) is held up internationally as an example of best practice. This was reflected in the creation of the recent ISO 55000 standard for Asset Management, which specifically mentions the NAMS IIMM.

Asset Management maturity is defined by the International Infrastructure Management Manual (IIMM) produced by NAMS at four levels:

- Minimum.
- Core.
- Intermediate.
- Advanced.

Minimum is considered as the absolute lowest level essential for owning and maintaining a significant quantity of assets. Core represents a basic but sound level of Asset Management practices. “Intermediate” moves towards best practice, and “Advanced” is the highest level of Asset Management maturity.

This hierarchy applies to all aspects of Asset Management practice. There is a cost in moving from the more basic levels of Asset Management to the higher levels in terms of time, expense and effort. It is common practice for organisation to target specific areas where they wish to invest in achieving “Intermediate” or “Advanced”, where this is justified by the criticality, risk or asset value concerned.

Rangitīkei District Council has determined that all its Asset Management practices should be at Core level.

Rangitīkei District

The Rangitīkei was one of the first Counties constituted under the Counties Act 1876 when the provincial system of Government gave place to the county system. The first meeting of Rangitīkei County Council was held in 1877.

Located 2 hours north of Wellington, the Rangitīkei District encompasses a trapezium shaped block of mainly lush, rural land that covers an area of 4,479 km^2 and includes the towns of Taihape, Bulls, Marton, Hunterville, Mangaweka and a number of smaller settlements. Of particular note is the settlement of Rātana – the home of the Rātana movement, a religion and pan-iwi political movement, founded by Tahupōtiki Wiremu Rātana in the early 20th century.

The District takes its name from the Rangitīkei River, one of New Zealand's longest rivers, which flows from the Central Plateau south to the South Taranaki Bight at Scotts Ferry. It

forms the eastern boundary of the District with the Whangaehu River broadly forming the western boundary, the northern section reaching beyond the town of Taihape and extending eastwards towards Napier.

Known as a marvellous place to farm, the growing climate and soil lends itself to many different operations. Rangitīkei boasts anything from game bird production to cut flowers, vineyards, asparagus, nuts, culinary and medicinal herbs, as well as meat productions and grain growing.

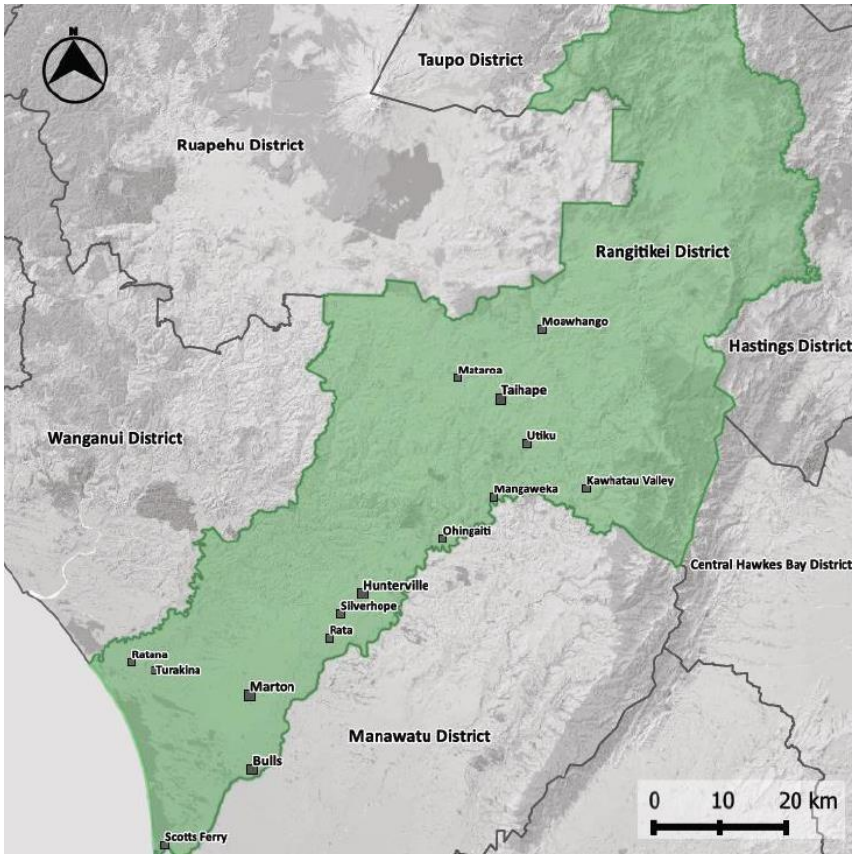


Figure 1: Rangitīkei District

Rangitīkei's climate is temperate and has few extremes compared to many parts of New Zealand. Summers are warm with average temperatures in the low 20s. The most settled weather occurs in summer and early autumn. Winters are mild near the coast and on the plains; it is colder inland and in the hill country, but often frosty, clear and calm. Snowfall occasionally settles in areas 400 m above sea level, such as Taihape. Annual amounts of bright sunshine can average over 2,000 hours.

Strategic Environment

Guiding Documents

A number of strategies, policies and legislation overarch the 3 Waters activities. These are discussed in brief in this section

Legislation

The key legislation relating to the management of our water, wastewater and stormwater assets are listed below.

Table 3: Relevant Legislation

Legislation	Key Points
Building Act 2004	Rules around building compliant structures.
Civil Defence Emergency Management Act 2002	Requirement to continue service provision even in an emergency, and to be prepared for emergencies. Structure of emergency management.
Hazardous Substances and New Organisms Act 1996	Regulation of hazardous substances. Impacts on transportation of hazardous substances along the Roading network.
Health Act 1956	Requires local authorities to provide sanitary works. Requires Water Safety Plans for water supplies.
Health and Safety at Work Act 2015	Health & Safety obligations and liability.
Land Drainage Act 1908	Regulates drains and watercourses.
Local Government Act 2002	Purpose of local government. Structure, governance, planning, decision-making. Regulatory powers.
Local Government (Rating) Act 2002	Provides powers to collect set, assess and rates to fund activities.
Public Works Act 1981	Enables acquisition of land for public works.
Resource Management Act 1991	Responsibility to manage natural resources in a sustainable manner, and engage with tangata whenua. Provides certain regulatory powers.
Utilities Access Act 2010	Requires Utility operators to comply with Code of Practice.

He Whakakaupapa mō Te Hanganga o Aotearoa - The Infrastructure Action Plan – May 2023

The Infrastructure Action Plan (2023) details the Government's view of the challenges and priorities for infrastructure.

A key message of the Strategy is that New Zealand needs to be smarter about the way we plan, deliver and use infrastructure. This will mean getting more from the infrastructure New Zealand does build, reducing costs and prioritising for the greatest impact. Highlighted actions within the plan include;

- The department of Prime Minister and Cabinet (DPMC) is leading work to enhance the resilience of New Zealands critical infrastructure.
- The Treasury is undertaking work to integrate consideration of climate risks and future adaption into the guidance it publishes on investment management and state sector performance.
- The NZ Infrastructure Commission will work with the Treasury to develop an infrastructure priority list.
- The Treasury will review the Better Business Case framework and associated investment planning products.
- The NZ Infrastructure Commission will build a Sate of Play of the ways the government engages with iwi and Māori on infrastructure projects.
- The NZ Infrastructure Commission will work with the Public Service Commission to ensure development of leaders is aligned across the public sector.

Note: This Infrastructure Action Plan was produced under the previous Govt. The Current Govt has indicated that they will be producing Infrastructure Strategy and planning documentation in 2024 that will supersede this document. Current work is being undertaken by the Government to establish a National Infrastructre Agency, along with a wide range of Infrastructre Reform programmes of work, including (Sourced from the 100 Day plan) the repeal of the Three Water Legislation passed by the previous government, of which has a direct impact on this AMP.

National Policy Statements

The National Policy Statement (NPS) for Freshwater Management sets out the objectives and policies for freshwater management under the Resource Management Act 1991. This NPS directs Regional Councils to establish objectives and set limits for freshwater in their regional plans. In the Manawatū-Whanganui region, this is achieved through the Horizons One Plan.

National Environmental Standards

The Ministry for the Environment (MfE) has produced National Environmental Standards (NESs) to protect the New Zealand environment, and work towards a consistent approach to environmental management across the country. These are regulations issued under Sections 43 and 44 of the Resource Management Act 1991 (RMA).

The following NESs are currently in force:

- Air quality.
- Sources of human drinking water.
- National Environmental Standards for Plantation Forestry
- Telecommunications facility.
- Electricity transmission.
- Assessing and managing contaminants in soil to protect human health.

The proposed NES for the measurement of water takes is now instead a set of regulations within the RMA. The proposed NES for on-site wastewater treatment systems has been withdrawn.

The NESs most applicable to Rangitīkei District Council are those on sources of human drinking water and contaminated soil. The regulations are generally applied by Regional Councils in their planning. Horizons Regional Council remains the first point of contact regarding environmental issues in the District. The only NES that Rangitīkei District Council has direct involvement with implementing is that for contaminated soil. Council keeps track of contaminated sites within the District, as this information has implications for Planning and Building consents.

Horizons One Plan

The One Plan is the plan for resource management in the Manawatū-Whanganui Region. It focuses on the big four issues facing resource management in the Region:

- Water quality.
- Increasing water demand.
- Hill country erosion.
- Declining biodiversity.

The following aspects are also covered:

- Infrastructure, energy and waste.
- Te Ao Māori.
- Air quality.
- Natural hazards.
- Landscapes and historic heritage.
- Coastal activities.

This document, and the rules contained within, has a major impact on the water, wastewater and stormwater services that Rangitīkei District Council provides. Horizons determines the quantity of water we can abstract from bores or streams in the Region. They also determine the quality and quantity of wastewater or stormwater that we can discharge to the environment.

Manawatū-Whanganui Civil Defence Emergency Management Group Plan

The CDEM Group Plan defines the risk scape of the region with respect to natural hazards. It also discusses the 4 Rs of Civil Defence: Reduction, Readiness, Response and Recovery. Asset Management Planning plays a vital role in Reduction – reducing the exposure of our assets and the community to risks from natural hazards. Water Supply and Wastewater are considered lifeline utilities, and stormwater networks can prevent flooding, so all three are vital to the successful implementation of the Group Plan.

Internal Documents

A number of key documents underpin Council activities, including 3 Waters. The following table gives a summary of key points within these documents.

Table 4: Key Internal Documents

Document	Key Points
Policy Manual	Identifies 5 key policy intents for Council.
Significance and Engagement Policy	Indicates criteria for determining significance work, and engagement level.
Infrastructure Strategy	Discusses overall trends Council needs to be aware of in planning for sustainable infrastructure in the District.
Operational Guidelines	Explain the operational direction for each activity, and inform levels of service.
Rural Water Supply Policy	Contains specific guidelines for management of Rural Water Supplies.
Document	**Key Points**
Subdivision and Land Development	Council uses NZS4404:2010 as its minimum design standard for work related to land development and subdivision. In addition, there is an addendum that outlines any changes specific to Rangitīkei District.
District Plan	Sets out rules for the use of land within the District, including permitted activities and activities for which resource consent must first be obtained.
Council Bylaws	Contain legislative mechanisms and guidelines for management of the 3 Waters, and other, activities.

Stakeholders

Customer drivers and community expectations are the needs, expectations and satisfaction of customers (whether residents or not), which are primary factors in defining levels of service and reviewing performance.

The identified customers who use the services provided by 3 Waters assets include:

- Residents. These people live in the District.
- Ratepayers. This includes people who own properties in the District but may or may not reside in the District.
- Local users. They are the users of the services provided by this activity on an occasional or regular basis.
- Visitors. These people do not live within the District, but visit the District to carry out business or undertake other activities.
- Businesses. Individuals or organisations that carry out their business in the
- District.
- Other stakeholders. Individuals or organisations that have interest in or are affected by the services undertaken by the Council. They include neighbouring local authorities, Horizons Regional Council, Community Boards and Committees, local iwi and public service providers

Council assesses its complaints/service request records to obtain information on the delivery of levels of service to customers. This research identifies areas that are performing well, as well as those that require improvement or intervention. Also of significant value to Council are regular meetings with various Community Committees and Boards throughout the District which provide wide-ranging information and highlight issues to be addressed. This information complements the regular inspections of assets undertaken by Council and their agents.

The Council database has the facility to record information pertaining to a particular item, request services, and provide Council with a monitoring facility for response times to requests from Customers. The tracking of a type of activity can be monitored against contractor performance or whether a significant issue has occurred within the District.

Community Outcomes

The Local Government Act 2002 required local authorities to identify Community Outcomes for their Districts. For Rangitīkei District, these were a picture of the type of District people want to live in over the next 10-15 years. The whole community owned these outcomes. The Community Outcomes developed for Rangitīkei District are given in the following table. Those which the 3 Waters activities directly contribute to are indicated in **bold**.

Table 5: Community Outcomes

Number	Outcome	Description
1	Good access to health services	Achieving access to health services, whether it be the GP or the hospital is key.
2	A safe and caring community	Through effective partnership with local Police, rescue services, neighbourhood support and local initiatives.
3	Life-long educational opportunities	That meet the lifelong needs of all members of the community.
4	A buoyant District economy	With effective infrastructure and attractive towns that entice growth.
5	A treasured natural environment	With a focus on sustainable use of our land and waterways.
6	Enjoying life in the Rangitīkei	

Levels of Service

Rangitīkei District Council aims to provide sustainable levels of service to the community in all areas. The term 'levels of service' refers to the standard to which a service is delivered to the customer. This may include targets for availability, quality, quantity, responsiveness, and customer satisfaction. The Council ensures that levels of service are customer-focused, technically meaningful, and address the issues that are important to the community. Levels of service for this activity are agreed and established through community consultation.

The process for development and monitoring of levels of service can be summarised as:

- Identify the customers of the service and other parties with an interest (stakeholders).
- Define the current levels of service the organisation delivers.
- Design and carry out consultation to define the desired service level.
- Establish service targets and service achieved over a long period.
- Measure and report to community on level of service achieved.
- Review levels of service with stakeholders at regular intervals to check desirability and affordability of level of service provided.

The Asset Management Plan aims to document each of these steps for the activity, identify any issues such as adequacy of consultation, suitability of standards, or service gaps, and describe plans to address or improve them.

It is common for customers to demand a continual improvement in service, and while the Council will strive to deliver improvements, the level of service is constrained by cost considerations. It is therefore important that when Council consults with the community over levels of service, cost information is provided in order for the price/quality trade-off to be established. The main mechanism for consultation on levels of service is via the Long Term Plan.

The Rangitīkei District Council aims to provide a potable water supply to meet domestic, commercial, and firefighting requirements via a public reticulation through the urban communities of the Rangitīkei comprising Marton, Taihape, Bulls, Mangaweka, Hunterville and Rātana. It also administers Rural Water Supplies on behalf of the appropriate committees in Erewhon, Hunterville, Omatane and Putorino at a level of service sustainable and appropriate to the community.

Erewhon Rural Water and Hunterville Rural Water are constant flow systems and rely on correct operation of each consumer's restrictor. Service levels for Omatane Rural Water and Putorino are determined by the scheme management committee.

Wastewater services are provided by Rangitīkei District Council to protect public health and the environment. The Council owns and maintains reticulated wastewater systems in Marton, Taihape, Bulls, Mangaweka, Hunterville, Rātana and Koitiata. These systems consist of a network of pipes that convey wastewater from residential and commercial properties to

the town's wastewater treatment plant. Council holds resource consents for discharges of treated wastewater to either land or water from these plants.

Council provides a collection and disposal system for surface and, in some instances, subsurface water across the District. This links both private and public reticulation through the urban communities of Marton, Taihape, Bulls, Mangaweka, Hunterville and Rātana. There are also stormwater assets on a lesser scale in Utiku, Koitiata, Rakautaua and Scotts Ferry.

The key drivers of the levels of service for stormwater are community outcomes. The activity contributes equally to the treasured natural environment, buoyant economy and enjoying life in the Rangitīkei.

In line with Council's strategic priorities, the provision of this activity provides the basic infrastructure which enables the District to attract and retain people and businesses. Recent rainfall patterns have called into question historic design parameters and may mean that the capacity and capability of the existing system to provide protection to the levels normally expected by a community is exceeded. It is likely that stormwater management methods will be required to meet increasingly higher standards.

Customer Satisfaction

Customer drivers and community expectations are the needs, expectations and satisfaction of customers (whether residents or not), which are primary factors in defining levels of service and reviewing performance.

The Council undertakes both customer surveys and assessments of the complaints/service request records to obtain information on the delivery of levels of service to customers. This research identifies areas that are performing well, as well as those that require improvement or intervention. Also of significant value to Council are regular meetings with various Community Committees and Boards throughout the District which provide wide-ranging information and highlight issues to be addressed. This information complements the regular inspections of assets undertaken by Council and their agents.

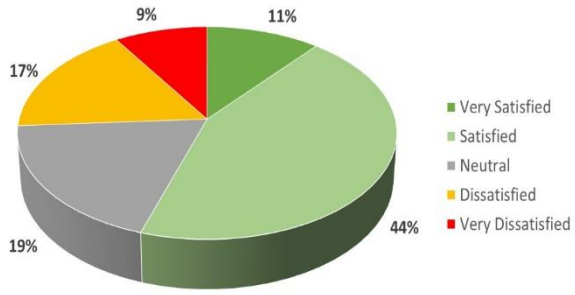


Figure 2: Water Supply – Satisfaction 2020

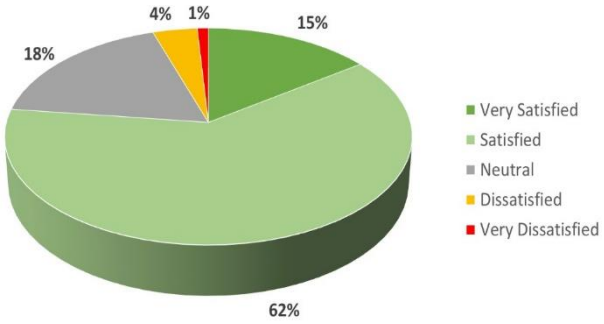


Figure 3: Wastewater – Satisfaction 2020

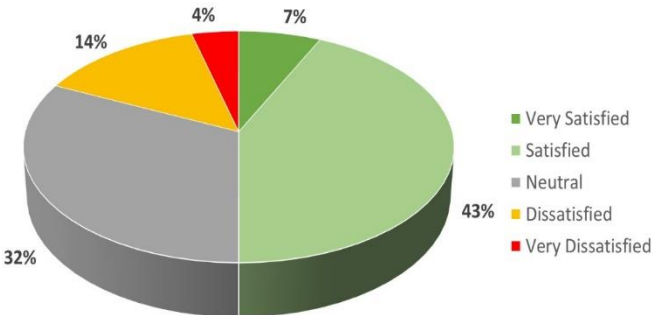


Figure 4: Stormwater - Satisfaction 2020

Council Complaints/Service Request Database

The Council database has the facility to record information pertaining to a particular item, a facility to request services, and it provides Council with a monitoring facility for response times to requests from Customers.

Residents Survey

Historically, each year, Rangitīkei District Council conducted a survey to get feedback on performance from the public. In 2020, questions were included on Water Supply, Wastewater and Stormwater for respondees who make use of these services. Results are shown in figures 2,3 and 4.

On the whole, residents surveyed were satisfied with Water Supply, Wastewater and Stormwater services. The highest level of dissatisfaction was with Water Supply, with 26% either Dissatisfied or Very Dissatisfied (compared with 18% for Stormwater and only 5% for Wastewater).

When asked what Council could do to improve service, several of the comments were around the taste of water, specifically following rainfall events. Ongoing capital expenditure to deal with high turbidity raw water from such events should help to alleviate this.

More recently, Satisfaction has been measured through onsite digital stations (Korero Mai), at which residents and customers are able to register their satisfaction relating to the services. These stations are located at the service centre front desks, libraries and swim centres. In addition to the digital stations, QR Codes are displayed throughout the district which enable people to provide feedback through their own mobile device. Throughout the 2023 Calander year, very few responses were received relating to the Three Waters (two in total) – one positive piece of feedback relating to the service received regarding a blockage, and one negative piece of feedback relating to a price increase for water charges. As the feedback is extremely limited, RDC are not able to make a conclusion regarding satisfaction levels using this data source. It is identified in the Opportunities for Future improvement section of this AMP that a review of how satisfaction data is gathered, as the 2020 data is now outdated, and the current Korero Mai data currently does not provide the needed data.

Performance Measures

The Local Government Amendment Act 2010 provides that the Secretary of Local Government will introduce standard performance measures that are applicable to local authorities so that the public may compare the levels of service provided in relation to a group of activities by different local authorities. The measures apply to the mandatory groups of activities as specified in the Act, namely:

- Water supply.
- Sewerage and the treatment and disposal of sewage.
- Stormwater drainage.
- Flood protection and control works.
- The provision of roads and footpaths.

Section 4 of Schedule 10 of the Amendment Act 2010, specifies the information to be provided in the Long Term Plan as part of the statement of service provision. As well as performance measures for the mandatory Groups of Activities, the Act also requires that each local authority provides information on:

- The performance measures that the Local Authority considers will enable the public to assess the levels of service for major aspects of groups of activities for which performance measures have not been specified as mandatory measures.
- The performance targets set by the local authority for each performance measure.

Performance measures for each 3 Waters activity are given on the following pages, under the relevant level of service.

Performance Measure, Target and Current Actuals.

Water Supply

Performance Measure	Target	Actual - 2022-23 Data
Provide a safe and compliant supply of drinking water		
Safety of drinking water The extent to which the local authority's drinking water supply complies with: (a) part 4 of the drinking-water standards (bacteria compliance criteria), and (b) part 5 of the drinking-water standards (protozoal compliance criteria). *Council is required to report against the Drinking Water Standards for New Zealand (2018). From January 2023 Council is required to comply with the DWQAR (2022) Drinking Water Quality Assurance Rules, but the reporting requirement remains.*	a) No incidents of non-compliance with bacteria b) compliance criteria No incidents of non-compliance with protozoa compliance criteria	**(a)** Achieved Compliant at all plants. **(b)** Not achieved Protozoa compliance was achieved at Mangaweka, and Ratana. Non-compliance is often caused by data collection issues such as spikes in electricity and does not indicate that public health was ever at risk. Hunterville Urban WTP was non-compliant due to cartridge filter differential pressure.

Performance Measure	Target	Actual 2022-23 Data
Provide reliable and efficient urban water supplies		
Maintenance of the reticulation network The percentage of real water loss from the local authority's networked reticulation system (including a description of the methodology used to calculate this).	**< 40%**	**Not Achieved** Average is 42% Due to only a small number of customer consumption being measured by water meters, the annual water loss is calculated using indicative measures such as minimum night flows. There is scope for this to appear elevated if industry is operating at night by increasing night flows. RDC completed a comprehensive leak detection programme in Marton and no large leaks from the network were identified.
Demand management The average consumption of drinking water per day per resident within the territorial authority district.	**600 L/person/day**	**Achieved** 448 L/person/day
Be responsive to faults and complaints		

Fault response times Where the local authority attends a call-out in response to a fault or unplanned interruption to its networked reticulation system, the following median response times measured: (a) attendance for urgent call-outs: from the time that the local authority receives notification to the time that service personnel reach the site, (b) resolution of urgent call-outs: from the time that the local authority receives notification to the time that service personnel confirm resolution of the fault or interruption, (c) attendance for non-urgent call-outs: from the time that the local authority receives notification to the time that service personnel reach the site, and (d) Resolution of non-urgent call-outs: from the time that the local authority receives notification to the time that service personnel confirm resolution of the fault or interruption.	Request for service system Specified standard a. 0.5 hour (attendance - urgent) b. 24 hours (resolution – urgent) c. 24 hours (attendance – non-urgent) d. 96 hours (resolution – non-urgent)	(a) 0.1 Hours (attendance - urgent) – Achieved. (b) 1.6 hours (resolution – urgent) - Achieved. (c) 0.2 Hours (attendance – non-urgent) – Achieved. (d) 4.2 hours (resolution – nonurgent) – Achieved
Performance Measure	**Target**	**Actual 2022-23 Data**
Customer satisfaction The total number of complaints received by the local authority about any of the following: (a) drinking water clarity (b) drinking water taste (c) drinking water pressure or flow (d) continuity of supply, and (e) the local authority's response to any of these issues expressed per 1000 connections to the local authority's networked reticulation system	< 20/1000	**Not Achieved** Total complaints = 71.75/1000 Council often receives a higher number of complaints in January due to water odour and taste problems. Council is aware of ongoing concerns about the water supply, particularly in Marton. Work has commenced on the Marton Water Strategy to improve the odour and taste of the Marton water supply by the end of 2024.

Maintain compliant, reliable and efficient rural water supplies (non-potable)		
Fault response times For Hunterville Rural Water Supply, where the local authority attends a call-out in response to a fault or unplanned interruption to its networked reticulation system, the following median response times measured: (a) attendance for urgent call-outs: from the time that the local authority receives notification to the time that service personnel reach the site, (b) resolution of urgent call-outs: from the time that the local authority receives notification to the time that service personnel confirm resolution of the fault or interruption.	Request for service system Specified standard (a) 48 hours (b) 96 hours	(a) 0.1 hours – Achieved. (b) 6.4 hours – Achieved

Wastewater

Performance Measure	Target	Actual 2022-23 Data
Provide a reliable reticulated disposal system that does not cause harm or create pollution within existing urban areas		
Discharge compliance Compliance with the 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 the Council in relation to those resource consents.	No abatement notices No infringement notices No enforcement orders No convictions	**Not Achieved** An infringement notice was received on 8 December 2022, referring to non-compliance for the Taihape Wastewater Treatment Plant in October of that year. Council approved additional capital works in the 23/24 financial year to improve the performance of the plant.

System adequacy The number of dry weather sewerage overflows from the Council's sewerage system, expressed per 1000 sewerage connections to that sewerage system.	**≤ 3/1,000** There are 4,226 sewerage connections in the District.	**Achieved** 0.22/1000
Be responsive to reported faults and complaints		
Fault response time Where the Council attends to sewerage overflows resulting from a blockage or other fault in the Council's sewerage system, the following median times are measured: **(a)** attendance time: from the time that the Council receives notification to the time that service personnel reach the site, and **(b)** Resolution time: from the time that the Council receives notification to the time that service personnel confirm resolution of the fault of interruption.	Request for service system Specified standard: Attendance **(a)** 0.5 hour - urgent **(b)** 24 hours – non-urgent Resolution **(a)** 24 hours - urgent **(b)** 96 hours – non-urgent	**Achieved** Attendance **(a)** 0.1 hours – Achieved. **(b)** 0.1 hours – Achieved. Resolution (a) 1.4 hours – Achieved. (b) 1.9 hours - Achieved
Performance Measure	**Target**	**Actual 2022-23 Data**
Customer satisfaction The total number of complaints received by the Council about any of the following: sewage odour, sewerage system faults, sewerage system blockages, and the Council's response to issues with its sewerage systems, expressed per 1,000 connections to the Council's sewerage system.	**< 6/1000**	**Not Achieved** 12.92/1000 Under this mandatory DIA measure, all requests for service for wastewater are counted as complaints, including multiple requests for service alerting Council to the same issue.

Stormwater

Performance Measure	Targets	Actuals - 2022-23 Data
Provide a reliable collection and disposal system to each property during normal rainfall		
System adequacy a) The number of flooding events that occurred in the District. b) For each flooding event, the number of habitable floors affected (expressed per 1,000 properties connected to the Council's stormwater system). This is a District-wide assessment. The rules for the DIA mandatory measures define a 'flooding event' as an overflow from a territorial authority's stormwater system that enters a habitable floor.	< 5/1000	**Achieved** There were no flooding events. The district experience one rain event that caused widespread surface flooding. Fortunately, no habitable floors got inundated in the district.
Discharge compliance Compliance with the Council's resource consents for discharge from its stormwater system measured by the number of: (a) abatement notices (b) infringement notices (c) enforcement orders, and (d) convictions received by the Council in relation to those resource consents	**Not applicable** Council currently has no resource consents for stormwater discharges Horizons Regional Council has indicated that resource consents may be required in the future, but the timeline for this has yet to be confirmed. When this occurs the anticipated benchmark will be no abatement or infringement notices, no enforcement orders and no convictions.	**Not measured** Discharge compliance is a mandatory measure set by the Department of Internal Affairs therefore must be reported on. However, as Council has no stormwater consents the measurement in essence cannot be measured.

Performance Measure	Targets	Actuals - 2022-23 Data
Be responsive to reported faults and complaints		
Customer satisfaction The number of complaints received by the Council about the performance of its stormwater system, expressed per 1,000 properties connected to the Council's stormwater system.	**< 5/1000**	**Not Achieved** 8.01/1000 The high number of complaints reflects the extraordinary rain event that occurred across the district. The Rangitikei District experienced a particularly wet summer and winter during this financial year.
Response time The median response time to attend a flooding event, measured from the time that the Council receives notification to the time that service personnel reach the site.	**≤ 2 hours**	**Not Measured** There were no flooding events during the reporting period within the scope of the measure.

Gap Analysis

This section analyses the results given above against performance measures, to determine where gaps exist and what can be done to close those gaps.

Water Supply

Safety of Drinking Water

Water quality, and compliance with the Drinking Water Standards, is a top priority for Council. The two key parts to the Standards are bacteriological compliance and protozoal compliance. Bacteriological compliance assesses the ability of a water supply to protect against harmful bacteria. Protozoal compliance assesses the ability of a water supply to ensure that protozoa, which are multi-cellular organisms that can include *Giardia* and *Cryptosporidium* species, are absent from drinking water.

During the 2022-2023 year no bacteriological non-compliance were recorded. A review of sampling schedules, and enhanced use of our Water Outlook compliance software, will help to ensure that sufficient numbers of samples are taken for all supplies, at the required intervals in the future.

Protozoal compliance is more difficult to achieve. Council has invested significant amounts of money in recent years to upgrade its water supplies to enable them to achieve compliance. In general, this has involved the installation and commissioning of additional UV disinfection units. These use ultraviolet light to destroy harmful pathogens, including protozoa. The monitoring required to demonstrate that UV units are operating effectively are strict, but Council is focused on reaching compliance through sound operation of its plants and regular analysis of Water Outlook reports.

Several projects are underway to improve drinking water quality in various areas. Further details are available on these projects in Section 7 of this Asset Management Plan.

Water Losses

This measure was assessed as “Not achieved” over the District as a whole with a calculated loss of 42% for the 2022 – 2023 financial year. RDC completed a detailed leak detection programme across the district and did not find any large leaks that could be responsible for the increase in losses. The loss calculations are based on assumptions and indicative measures and could be misleading. Regardless of this, RDC will continue to analyse the asset performance and condition in more detail as the Asset Management strategy work continues.

Demand Management

Council achieved its target, with the actual “consumption” being 448 L/person/day compared with a target of 600 L/person/day. It should be noted that, in line with DIA requirements, this is a coarse measure calculated by the total water into supply divided by the total population. This means that a town such as Marton, with low population but several wet industries, is to an extent penalised because per capita consumption can seem high. For this reason, it’s

worth paying attention to performance against this measure even though it was within target in 2022-2023. Our programme of water reticulation renewals will help to ensure that demand across the District is kept within manageable levels.

Wastewater

Routine Compliance Monitoring of Discharge Consents

Significant issues with discharge flows were experienced in Bulls, Hunterville and Taihape. In each of these networks, work is underway in the reticulation to address areas of inflow and infiltration, and on the treatment side to ensure that compliance can be achieved against future resource consents. Upgrades to treatment plants that include partial or complete irrigation to land is seen as one method by which consent compliance can be achieved going forward. For each consent renewal, background work is also done on quantifying reasonable flows, and applying for consent limits that are achievable, while also minimising environmental impact.

The discharge consent for Rātana expired on 31 Jul 2018. Collaboration with the Ministry for the Environment and Iwi produced a plan to remove the treated discharge from Lake Waipu and rather dispose to land in the area. The end result of this will be a plant that complies with its new consent, and has a significantly reduced impact on the environment as well as cultural values.

System Adequacy

In general, there are no areas where there are consistent problems with dry weather overflows. These can occur when there is a blockage, either on the Council network or on a connection, and it is not cleared before wastewater overflows.

Repeated wastewater overflows due to high rainfall occurred at the Papakai Pump Station in Taihape. As a result Council will invest in the construction of a new pump station at an improved level of service to prevent future overflows from reaching the sensitive Hautapu River.

Inflow and infiltration is a known challenge in Bulls, Marton and Taihape. Actual flow measurement has been completed on all networks and will be used for the creation of calibrated wastewater network models to reduce Inflow and Infiltration in a structured way.

Growth & Demand

Demand Drivers

Population

Infometrics were commissioned by the local and regional councils in Manawatū to Whanganui Region to produce employment, population and household projections to inform long-term planning in the region. A report, 'Manawatū-Whanganui Region Population Projections' and the associated data was produced in May 2023 and informs this section of the Three Waters AMP.

Of particular interest, this report utilises employment forecasts to inform the calculations for net migration projections. Employment in each Territorial Authority, with consideration to historical trends and national industry forecasts are used to calculate anticipated shifts in population and household projections.

Low, medium and high growth scenarios have been supplied as part of this analysis. The Rangitīkei District is expected to witness growth is population, as illustrated in figure 5 across all three scenarios.

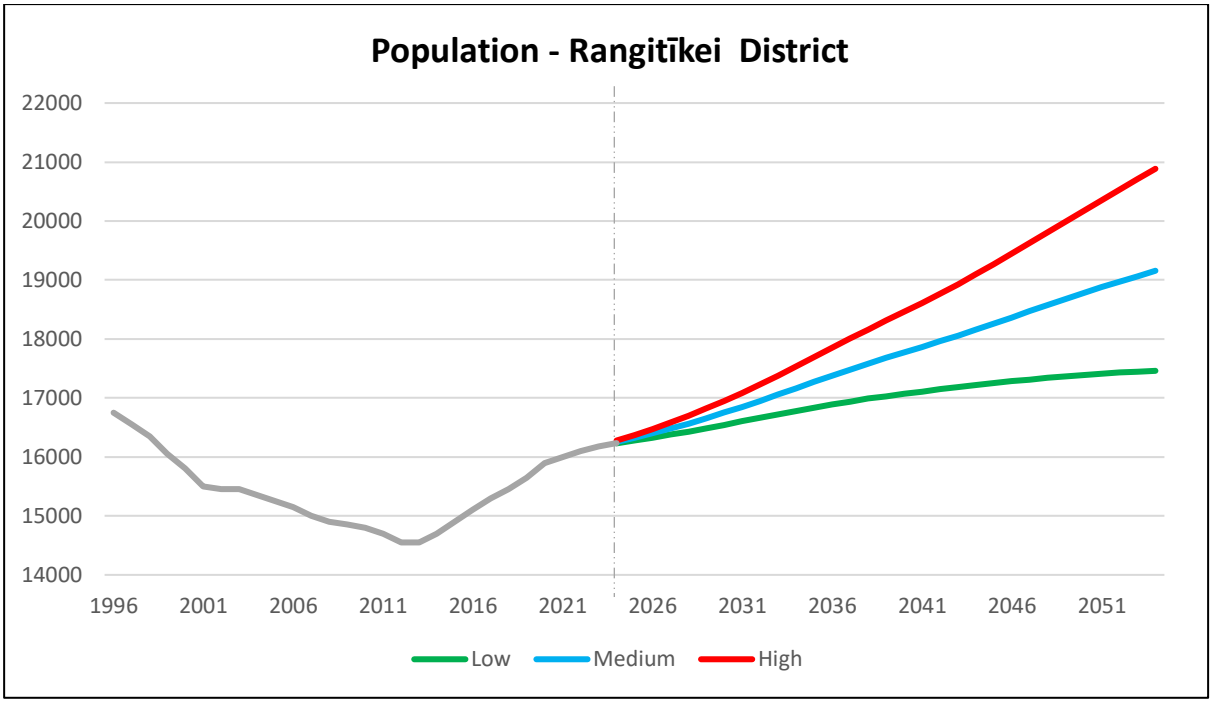


Figure 5: Population – Rangitīkei District

For the high scenario, by 2050 the District's population would have reached 20,172 residents, and would continue to experience rapid growth. This is near 4000 more residents than the Districts 2023 population. For the medium scenario, by 2050 the District's population would have exceeded 18,700 residents, a growth from 2023 of over 2500. Even

based on the Low growth scenario, the population is expected to grow by over 1200 residents.

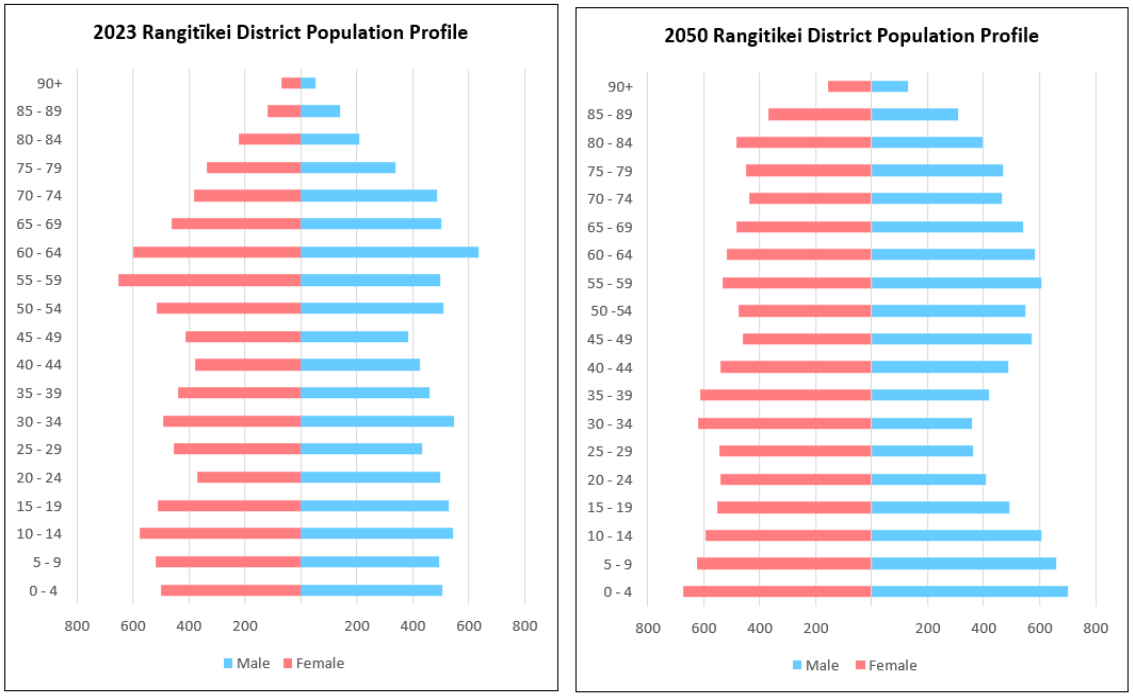
This growth is higher than the previous projections based on the 2018 census data, highlighting that the region is growing at a faster rate than previous expectations. For the remainder of this analysis, the medium growth scenario will be used to analysis the impact of growth and increasing demand on the services that the District Council will be required to support.

Over the period from 2023 through to 2050, the District will experience a significant shift in the demographic profile of the area. As illustrated in the below Population Profile, a significant ageing of the population is expected between 2023 and 2050. This will result in a significant change in the services that the population of the district will require.

The population profiles highlight several shifts in demographics of the area, including:

- An aging population, including significant rise in the number of those in post-retirement age groups
- A reduction in the proportion of those Males within the 25 – 39 age group, but an increase in the proportion of Females in the same age group.
- An ongoing increase in the proportion of children in the district.

Figure 6: Population Profile Expectations – 2023 vs 2050.

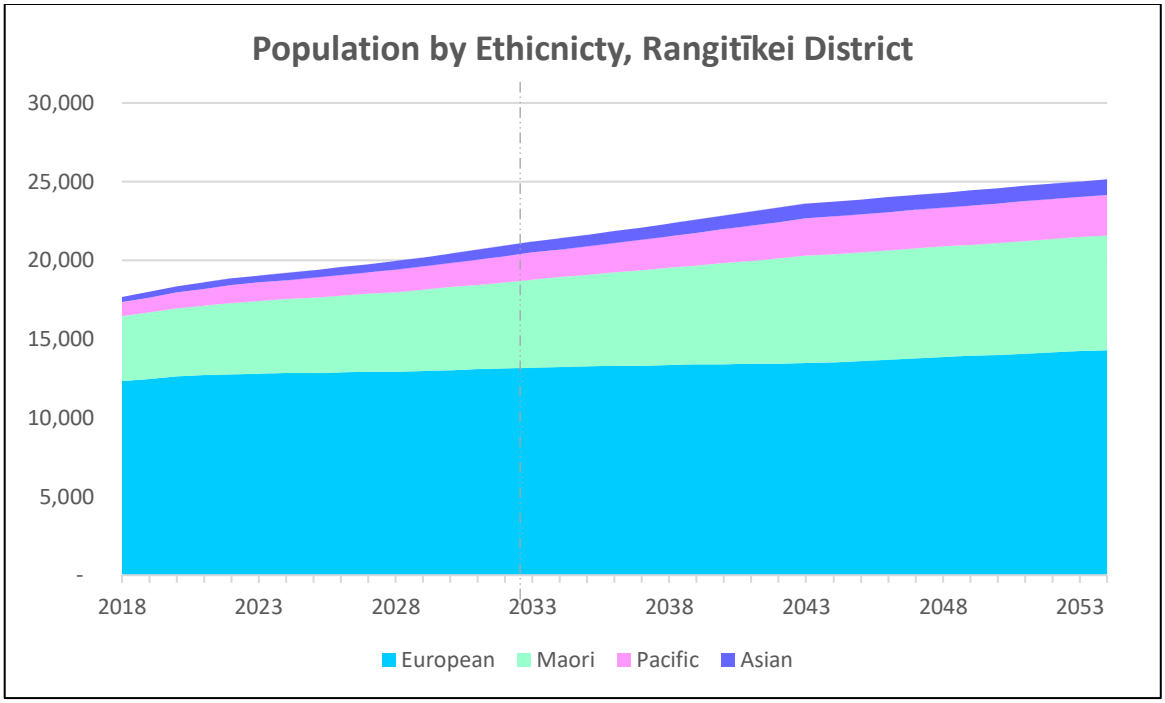


The District is predicted to become increasingly diverse; this increase is largely responsible for the slowing down/reversal of population decline. To maintain this growth it is important that the District supports the successful settlement of new communities.

The Rangitikei District is expected to benefit from the expansion of the Ohakea Airforce base and new developments such as the Marton Rail Hub to attract new industries to the district and in turn create new jobs. All the networks in the district will be able to accommodate the additional flows and loads, but the additional capacity requirements will have to be managed carefully into the future.

By 2050, the anticipated ethnicity profile will have continued to diversify to be approximately 4% Asian, 29% Māori, 10% Pacific, and 57% European. This is a shift from the 2023 dispersion of 3% Asian, 26% Māori, 8% Pacific and 62% European. This continuing diversification of ethnicities will impact the services that are required by local communities and the resident of the District.

Figure 8: Population by Ethnicity



In addition to changes in the populations age and ethnicity make up, household size (the number of those living within a single household) will experience a shift as well, indicating an increase in multi generation households, or an increase in shared living environments. Increasing from an average size of 2.46 in 2024, to an average of 2.61 in 2054, this increase is higher than the average of the Manawatū-Whanganui Region, which is approximately 2.49.

This density of living ratio may also be further increased if Retirement Villages or Age Care Facilities establish in the region, of which will be required based on the demographic profile earlier discussed in this section.

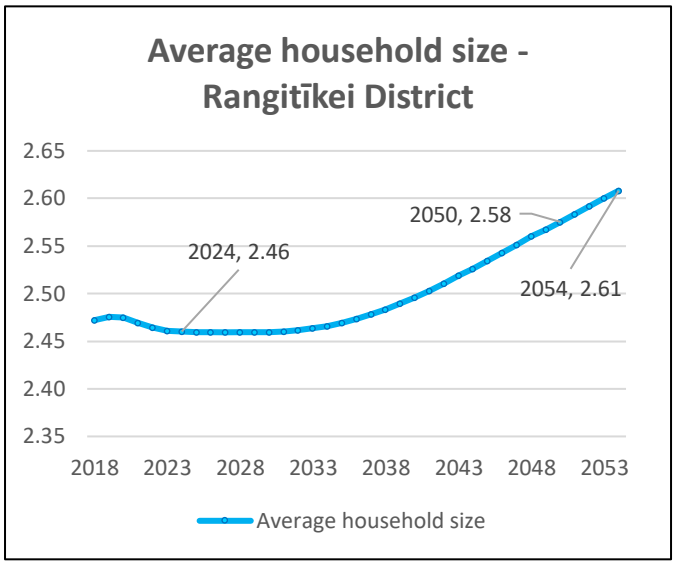


Figure 9: Average Household Size – Rangitīkei District

Employment

As the total population of the District continues to grow, the rate of employment is not predicted to be increasing at the same rate, as illustrated in figure 9. This is impacted by several factors, including:

- An increase in the aging population, and retirement residents
- An increase in the number of school age children
- An increase in those travelling outside the district for employment, as transport infrastructure enables longer commutes.
- An increase in the number of people engaging with remote work, or working from home for a company that is based outside of the immediate region.

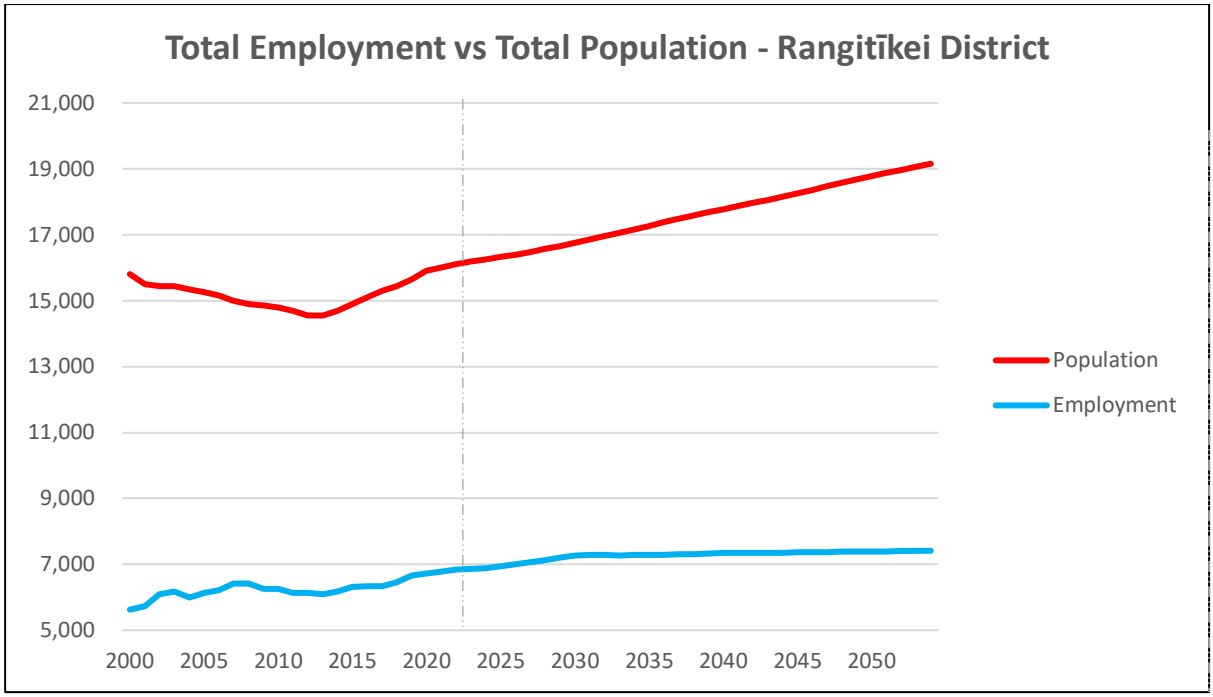


Figure 10: Total Employment vs Total Population – Rangitīkei District

Regional Economy

Agriculture (including: horticulture and fruit growing; sheep, beef and livestock farming; dairy farming; other farming services to agriculture; and hunting and trapping) are the Manawatū-Whanganui (Horizons) Region's most important enterprise. Agriculture, forestry and fishing contribute almost 32% to the District GDP compared to just over 6% nationally. Approximately two thirds of this is sheep and beef cattle farming.

Councils in the Horizons region are collaborating to facilitate economic growth and prosperity. This collaboration has seen central Government invest in a Regional Growth Study for the Horizons Region. This study identified key opportunities for growing our regional economy. Government has highlighted the importance of Councils collaborating with each other, with industry and with iwi to facilitate growth.

Accelerate 25, the action plan associated with the Regional Growth Study, is investigating ways to increase the Horizon region's agribusiness exports from $1.9 billion to $3.8 billion by 2025. The Region comprises around 80% of fertile grassland including 18% of all Class 1 soils and 14% of all Class 2 soils in New Zealand. These are considered to be the most versatile soils for agriculture and horticulture, and there is potential for further growth around the use of these soils.

Sustainable Development

The most widely quoted definition of sustainability and sustainable development, is that of the Brundtland Commission of the United Nations on 20 March 1987:

"sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

At the 2005 World Summit it was noted that this requires the reconciliation of environmental, social and economic demands - the "three pillars" of sustainability. In New Zealand the Local Government Act 2002 also recognizes a fourth pillar, that of cultural wellbeing. The four pillars of sustainability are not mutually exclusive, and can be mutually reinforcing.

Asset Management provides for the delivery of agreed levels of service in the most cost effective manner for present and future generations. Taking a sustainable approach is therefore an underlying principle of Asset Management, rather than a factor only considered when significant decisions are made. The development and implementation of this Asset Management Plan demonstrates the commitment made by Council to the sustainable management of assets.

Demand Forecasts

This section contains information on projected demand for each of the 3 Waters activities. Demand projections have been made based on the generic demand drivers above, as well as factors that are specific to water, wastewater or stormwater.

The major impacts of demand on our water assets, as alluded to above, will be the need to maintain them with less and less funding available, while also catering for any future growth and development that occurs. Increasingly, Council may be forced to set a lower level of service in order to reduce the financial burden on ratepayers. This could mean that in some locations, services become more decentralised, and some infrastructure (e.g. rainwater tanks) is privately owned. This is the case for water, wastewater and stormwater services. Certainly, the trend in stormwater is for decentralising, hydrological neutrality, and the favouring of natural systems such as wetlands and riparian planting over centralised, reticulated systems.

Like other rural Councils, we face significant cost barriers in providing services to meet demand. Larger metropolitan authorities tend to have centralised systems with a large rating base, and the economies of scale that arise from this. Rangitīkei, on the other hand, has a number of small networks, geographically separated, that duplicate services across each of our communities. Per capita, this is a more expensive system to own and operate, but with a large District and small population, there is no practical alternative.

Town redevelopments in Marton, Taihape, Bulls and Hunterville could impact on requirements for water, wastewater and stormwater infrastructure in the CBDs of these towns.

Water Supply

The main potential growth area for water supply is the Marton and Bulls townships, particularly from an industrial point of view for Marton and an increase in residential use in Bulls. Council's water infrastructure needs to support any major industry wishing to locate to the town.

Having said this, there are residential developments occurring around the District, continued growth in the area will continue to push for further subdivision development, and in turn and increased demand for services, including water supply. Redundancy and modular water supplies are being considered in the current upgrade work in progress for District wide water supplies.

The availability of water is closely associated with development. Industrial, agricultural, business and residential development all depend on the availability, quantity and quality of water. Development in one sector ultimately has a flow on effect onto the other sectors.

Therefore, the Rangitīkei District's future development will rely heavily on the availability of water and the responsible management, distribution and protection of water sources.

Climate change has a major impact on water demand. There is an increasing acceptance within the community that a higher frequency of droughts is the reality now, and will continue to be so in the future. The challenges of dealing with these events during summer (and with an increasing frequency of floods in the winter) are a major factor in dealing with demand for water.

It is feasible that the population of Marton could exceed 5,000 within the 30-year planning horizon of this Asset Management Plan. If this occurred, there would be additional monitoring requirements under the Drinking Water Standards, including:

- Sampling for *E. coli* twice a week rather than once.
- Maximum of 5 days between samples rather than 13.
- Minimum 6 days of the week used rather than 5.
- Continuous monitoring of turbidity entering the UV unit.
- Measuring UVT twice a week rather than once.

These changes could be accommodated within existing operational budgets.

Demand Management – Water Supply

We manage water demand and reduce losses with:

- Monitoring demand through Daily and Weekly Water Outlook reports.
- Calculating losses through annual Benchloss calculations.
- Proactive renewal of water mains in poor condition or at increased risk of bursts.
- Reactive renewal of leaking assets.
- Monitoring of water meter readings to detect unusually high consumption.
- Following up with property owners when we become aware of leaks on private property.

Further information on the demand management techniques that can be, or are being, used by Council for the water activity is contained in Table 6:

Table 6: Demand Management - Water

Demand Component	Method	Example
Operation	Pressure demand management	Where very high pressures exist within a network, pressure management devices are installed to return pressures to an acceptable range. For instance, three Pressure-Reducing Valves (PRVs) have been installed in Marton. These will be commissioned in the near future, following determination of the optimal settings to be used. Pressure zones can also be monitored to assess leakage within these smaller areas, rather than simply town-wide. This allows areas of concern to be identified, and issues found more easily.
	Water restrictions	Water restrictions have been used as a measure to manage summer drought times when garden and lawn watering increases demand beyond the capacity of either the reticulation or the water source. These apply to urban supplies only, as rural supplies are already on trickle-feed supply.
Regulation	Council bylaws	Council bylaws provide for the implementation of policies to enforce efficiencies of water use.
Incentives	Water metering and pricing	Council policy is to meter commercial users of water and extraordinary users that are either outside of the water rateable area or have land areas of a large size. Water rates and water meter charge rates are calculated for each water supply to recover the actual cost of operating and managing that system. Universal water metering was historically in place in areas such as Bulls. This has been discontinued in recent years.
Education	Water conservation and public education	Council has a responsibility to promote water conservation and the efficient use of water. It is proposed to implement a public awareness campaign about the importance of saving water.
Demand substitution	Water leakage control detection and repairs	Proactive, acoustic leak detection will be carried out across the District. Work will be done to quantify water losses across each supply. As time goes on, this data will be improved and estimates will become more accurate.

On occasion, staff have found and repaired leaks at troughs on private property to ensure demand is managed. Preferentially, however, Council contacts private property owners and stresses on them the need to find and repair leaks.

All properties in Mangaweka are metered. Meters are read regularly for billing purposes. Information used from the billing process is also used to manage demand. The system used generates alerts if consumption through a given meter increases significantly over the historic average. This enables follow-up with the consumer to advise them to locate and fix leaks, advise them on how best to do so, and save them money as well as helping to manage demand on the network.

Wastewater

Similarly to the comments on water above, wastewater services in Rangitīkei is expected to increase as the townships grow. The expected growth is to be mainly residential effluent, with some minor industrial increases.

Trends in residential growth mean that there will be more houses connected to the existing networks and treatment plants. This means that our wastewater systems need to be able to

accommodate these new connections, and our existing treatment plants will need sufficient treatment capacity to treat all effluent.

The ability to cater for new industry in areas such as Marton is a consideration for wastewater as well as water. New industrial developments could require additional investment in reticulation as well as treatment, depending on their nature, and this must be included in future planning.

The most likely scenario is that some of our wastewater mains would need upsizing, and that the treatment process would need to be enhanced or expanded upon. As investigation work proceeds, funding will be budgeted in future years to deal with these additional requirements.

Demand Management – Wastewater

There are fewer options available to reduce the demand for wastewater services than there are for water. Some of this demand is linked to demand for water, as most water supplied to consumers subsequently enters the wastewater system. Currently identified demand management options for wastewater are given in the following table.

Table 7: Demand Management - Wastewater

Demand Component	Method	Example
I&I	Investigation	CCTV and smoke testing to determine where inflow (of stormwater) and infiltration (of groundwater) to the wastewater system is occurring. Remedial works to address this can then be programmed.

Work started on a structured programme to quantify the I&I into the wastewater networks in the district. This programme includes actual flow measurements of the networks (completed), the production of calibrated network models and the subsequent identification of problem areas. This will be followed by either an I&I investigation and reduction programme targeted at catchments where there is excessive I&I volumes, or to consider alternative more cost effective solutions such as increasing the storage capacity of the networks. Physical works for renewal of wastewater infrastructure where necessary is funded under each network for the towns most affected.

Two intervention levels are set on the flowrate of water into supply. When these intervention levels are exceeded, demand management actions are initiated. These may include, but are not limited to:

- Reactive reading of all water meters to identify excessive consumption.
- Checking for treatment losses.
- Walking the raw water main and checking for leaks.
- Engaging a leak detection contractor.
- Communication with the public to ask them to conserve water.

- Visits to high water users to ask them to conserve.

Treatment and reticulation staff both have roles to play in managing demand, as well as Assets staff who monitor and report on compliance.

Stormwater

The impacts of climate change will be felt strongly by the stormwater activity. In general, predictions from NIWA for New Zealand are that the intensity of storm events will increase, as will the frequency of large events. In other words, an event that may have occurred every 20 years in the past would be expected to occur more often than that under future scenarios.

In addition, community expectations around stormwater management have increased. There is little tolerance for surface flooding, and our stormwater systems need to be adequate to deal with flows without inconveniencing the public or allowing damages to occur.

However, stormwater is just as prone to the effects of a limited rating base as our other activities. For this reason, there will be a need to perform cost-benefit analysis on stormwater projects, on a case-by-case basis. In a world where there is less than unlimited funding to tackle all stormwater issues, the highest priority would be given to those that can achieve the most impact with the least spending.

There is also an increasing trend, again on a case-by-case basis, for Council to require private property owners or developers to deal with stormwater on-site. In previous decades, the philosophy behind stormwater management was to concentrate flows and discharge them to waterways. This is becoming increasingly less acceptable, largely for environmental reasons. Now, if stormwater from a development is unable to be collected and dealt with effectively by the existing Council network, we may require developers to install features such as soak holes or wetlands within property boundaries. This is known as the principle of hydrological neutrality; in other words, dealing with water that falls on a property within that property.

Demand Management – Stormwater

The current demand management techniques used by Council for the stormwater assets are outlined in the following table.

Table 8: Demand Management - Stormwater

Demand Component	Method	Example
Private property runoff	Hydrological neutrality	On a case-by-case basis, Council limits the amount of stormwater entering its system by requiring property owners or developers to contain stormwater from their properties on site.
System failures	Proactive inspections and maintenance	These will be carried out regularly to be aware of any issues with the stormwater system, allowing repair and minimisation of issues during extreme storm events.

Asset Description

This section of the Asset Management Plan contains detailed information on existing Water Supply, Wastewater and Stormwater assets. The information is current as of the last valuation year i.e. 30 June 2023. Information specific to each network is given in specific sections later on in this Asset Management Plan.

Understanding our Assets

UnityManage (Previously known as AssetFinda) empowers Asset intensive organisations like RDC to actively monitor, track and assess the status of their assets in a dynamic manner. Utilising the functionality of the system, asset owners have the capability to track the componentised condition, performance, criticality, risk of their assets, as well as the data confidence or accuracy rating for the assets. Along with this, the system empowers operational proactive and reactive maintenance data management, record capital maintenance events and expenditure, undertake CCTV output management, fully track depreciation and lifecycle events, associate any media files with the assets, and track equipment usage / consumption data against specific assets. The system has a very comprehensive condition inspection module, alongside a full defect inspection module. With the ability to deploy UnityManage as a mobility solution, add unlimited additional data fields, schedule maintenance for the life of an asset, and undertake modelling for forward works and replacement programming,

Figure 10: UnityManage (Previously AssetFinda)

UnityManage is a fit for purpose application for RDC to continue to utilise for the management of their assets and their data.

The following section discusses the current utilisation of the system, the data that has been collected, and the outputs in terms of information about our assets. In a following section, further areas of data collection are identified, to enable the ongoing improvement of our

understanding of our assets, and the way in which the Asset Management system will be utilised to ensure that this is successful.

Condition

The assessment of asset condition is an essential part of Asset Management Planning. The Asset Management system utilised by RDC, UnityManage, has an advanced approach to condition inspections, and the recording of the information against the assets.

The condition inspection module utilises the capability to assess the condition of the components of the asset, weight the importance of each component and then calculate the overall weighted condition index score (out of a possible 100%). The ability to weight components to carry a higher impact means that all components of the asset can be assessed, and the relative impact accounted for. Manholes for example can have assessments undertaken on the Lid, the walls, the steps or ladder, the base and the pipework. Collectively, all these components contribute towards the overall score for that asset.

Each component has an inspection value (score), date, notes and media associated with it for tracking of the deterioration of the asset over its lifecycle. This enables components of assets to be identified as being contributing factors to asset failure or deterioration that is outside of the anticipated lifecyles.

From the calculation of the overarching condition index (out of 100), the Condition 1 to 5 score is generated, this incorporates a condition rating system that aligns with NAMS guidelines, whilst also providing for a high level condition score that is used by reporting authorities. The 1 – 5 scoring ratings and the appropriate description are shown in table 9 below.

Condition Rating		Description
1	Excellent	Excellent condition. Only normal maintenance required.
2	Good	Minor defects only. Minor maintenance required.
3	Average	Significant maintenance required.
4	Poor	Significant renewal/upgrade required.
5	Very Poor	More than 50% of asset requires replacement.
0	Not Assessed	Condition not yet Assessed.

Table 9: Condition Rating

In addition to tracking the deterioration of assets, the condition index score (out of 100) is able to be used as the determining factor for the way in which assets are assessed for value as part of the revaluation module in UnityManage. This is an optional setting, but enables the Asset owners to calculate the valuation (Remaining life and written down values) based on the condition of the assets, rather then then age of the assets (as is the default). Where data quality in respect to condition is poor, the user is also able to set a combination of age and condition to determine the remaining life and written down values. Currently RDC utilise Age based calculations for their revaluation, however discussions are underway to transition to a condition based revaluation for those assets in which condition data can be obtained efficiently.

Asset condition breakdown for Water Supply, Wastewater and Stormwater is discussed in the relevant section(s) below.

Performance

The performance of our assets is their ability to perform the function expected of them. A newly installed water main will most likely have excellent performance. The performance of a main that is 50 years old and known to be leaking will be lower. The UnityManage Asset Management System contains a field for each asset where we indicate its performance. The performance ranking uses a 1 to 5 score system and aligns with recommendations made by NAMS / IIMM. This information is largely collected from experience by our operators in the field. The performance grading system used is:

Performance Rating		Description
1	Excellent	Excellent performance. Meets the needs of the network with no capacity or demand issues even under significant demand during extreme events.
2	Good	Good performance. Meets the needs of the network with no capacity or demand issues under typical conditions, but may not meet performance requirements during extreme events
3	Average	Average Performance. Meets the needs of the network most of the time, but requires maintenance more often then scheduled to continue to perform.
4	Poor	Poor Performance. Asset operates under typical conditions but can not operate outside of the typical conditions, with multiple failures recorded against asset.
5	Very Poor	Very Poor Performance. Asset does not meet the requirements of the network with frequent failures requiring ongoing operational attention. Asset has multiple failures registered against it.
0	Not Assessed	Performance not yet Assessed.

Table 10: Performance Rating

Creating consistent methodology for the assessment of performance has been identified as RDC as a future project, across all asset types and classes. Performance grades are included as part of the matrix that calculates the overall risk that the asset carries for the organisation, so as such, clear and concise measurement criteria are needed to be developed to ensure that the assessment inputs are well understood, and parameters are put in place for all the varying types of assets. Understanding the performance of an asset is critical to Asset Management Planning – assets that may be in excellent condition but are performing poorly require more attention then an asset in poor condition but is performing well.

Asset maintenance is closely connected to performance; a pump that is performing poorly may have been overlooked in terms of service requirements, of which, if that service continues to be overlooked, the poor performance may result in a deterioration of condition.

To further enable to collection of performance data, in addition to clarification of the parameters, operational processes have been identified by RDC as a critical area to improve upon, that being, the collection of data from maintenance activities, the scheduling of proactive maintenance and the processing of data from maintenance (scheduled or reactive) into the UnityManage system, with the key differentiator being that the data needs to be received into the system, reviewed and outcomes generated from said data. Currently the

information is being entered into UnityManage, however little analysis, and very little outcomes are driven from the data. The translation of data to information, and from information into actions is a project that RDC has identified for the near future.

Capacity

The capacity of an asset is its ability to meet demand now and in the future. For example, the capacity of a sewer main is its ability to convey the amount of wastewater it is currently required to, as well as its potential ability to convey additional amounts in the future. The capacity of a Water Treatment Plant as a whole is the quantity of water it can treat to the desired standard, usually expressed in cubic metres per day. Utilisation is a related term, and can be expressed as the proportion of an asset that is utilised. For example, if a Water Treatment Plant was capable of treating 10,000 m^3/day but was on average treating only 7,500 m^3/day, its utilisation would be 75%.

To record the Capacity Grade or Score of an asset, UnityManage have recently incorporated Capacity and Demand data fields. These fields enable the user to record the value and a unit of measure.

To enable a relative analysis of Capacity and demand to be undertaken, RDC have added a Capacity scoring grade to UnityManage, on the same scale (1 – 5), inline with Condition and Performance. This can be further informed with specific information about the capacity and the demand of the asset by including notes in the 'capacity and demand' note fields, of which have been included as a RDC unique field within all the Three Water Asset classes within UnityManage (located on the attributes tab of each assets information screens). These fields were added in 2023 and will begin to be used in 2024. A project to develop the use of these fields is included in the OFI section at the end of the AMP.

Council is in the process of creating new updated network models for several water and wastewater networks. These models will be calibrated against real data collected in the field. They allow us to see the overall capacity of a network, and to test the impacts of making changes to it such as adding in new reticulation, or changing the existing reticulation.
Water network models are being created in InfoWorks Water Supply (IWWS) for the water supplys at Bulls, Marton and Taihape.

Updated network models for the smaller supplies such as Hunterville, Mangaweka and Ratana will follow. There could potentially be spare capacity on some of our water supplies and this could create opportunities for growth, whether domestic, agricultural or industrial. Capacity is discussed per supply later in this section of the Asset Management Plan. Future work will involve more accurate forecasting of future demand to gain a better understanding of where spare capacity exists.
As well as modelling capacity, our water and wastewater models can help us to assess the performance of our reticulation, and check on efficiency measures such as water loss or pressure.

IWCS is capable of running stormwater models, but none have been created for Rangitīkei as yet.

Criticality

Criticality indicates the impact of failure on the wider network, of that individual asset. The criticality scores within UnityMange are based on the NAMS/IIMM 1 to 5 rating. Those assets

that have been assigned a criticality rating from 1 to 5 have been assessed based on the known information about the criticality of the asset, including its role in delivering the service to sensitive customers. Whilst this process has commenced, there are still a wide number of assets that still require assessment. The criticality information is used to as part of the matrix that is utilised to calculate the risk that the asset holds to the organisation, of which is utilised when programming renewal or upgrade work. An asset in poor condition with high criticality would have a higher risk assessment score and will be given priority over an asset with low criticality.

Criticality Rating		Description
1	Very High	Asset is highly critical to the operation of the entire system / network, failure would result in widespread outage or catastrophic outcomes
2	High	Asset is critical to the operation of the system / network, failure would result in outage to large portions of the area serviced, or would result in significantly negative outcomes.
3	Medium	Asset failure would result in system / network outage to multiple addresses, or portions of treatment systems, or would result in moderately negative outcomes.
4	Low	Asset failure would result in loss of service to individual properties, but redundancy measures are in place to mitigate loss of operability. Failures would result in outcomes with little negative impacts.
5	Very Low	Asset Failure would result in very localised outcomes, of which are able to be managed through operational practices.
0	Not Assessed	Criticality not yet assessed

Table 11: Criticality Rating

A business practice is required to be developed to ensure that criticality information is maintained on a regular basis. As new subdivisions grow the overall network, and as sensitive customers are either new to the network, or are relocated, the criticality needs to be adjusted to address these changes. In addition to this, as new functionality is developed at treatment plants, or as additional redundancy is developed into the treatment and network assets, the criticality will be impacted. These changes require a robust business process that ensures that regular, but efficient updates are made to the data base. Especially critical when considering the role that the criticality assessment score has in the wider context of the risk matrix.

Data Confidence / Accuracy

Council owns assets that in some cases are more than 100 years old. Rangitīkei District Council as it now stands was formed from the Rangitīkei County, Marton Borough and Taihape Borough Councils; historic asset information has come from a variety of sources.

UnityManage enables the recording of Data Confidence/Accuracy through the Accuracy Grading tool. Currently this tool is not utilised by RDC, and a lot of the data confidence assumptions made is based on knowledge held by individual staff members, and their perceptions of the data. By incorporating the use of the Accuracy grading tool, metrics can developed to record data accuracy, and in turn, evidence based data can be generated that relates to the accuracy of the three waters data.

The Accuracy grading system in UnityManage is reflective of those previously discussed for performance and criticality.

Accuracy Rating		Description
1	Excellent	RDC to develop metrics to measure Accuracy against
2	Good	
3	Average	
4	Poor	
5	Very Poor	
0	Not Assessed	Accuracy not yet assessed

Table 12: Accuracy Rating

Many of our water, wastewater and stormwater assets are buried, meaning they cannot be easily inspected or, in some cases, even found. Historic records are held, and modern asset information systems ensure we are constantly improving the data we have. But there are still gaps in information for certain areas or assets. There still remain cabinets of historic, hard copy plans that have not been digitised to date.

In general, confidence of data on reticulation assets is average. Treatment plant asset information requires some condition and performance assessment work. This is more the case for Water Treatment Plants than Wastewater Treatment Plants.

Data held for Hunterville, Erewhon and Omatane Rural Water Supplies is good with respect to historic assets installed decades ago. Where minor changes have been made to networks in recent years, some of this information has been harder to come by and may not be up to date.

For Mangaweka, the assets with data confidence ranging from “Good” through “Average” to “Poor” are in certain areas of Mangaweka where information is uncertain. These areas of uncertainty have come about as the town has decreased in size and old assets have been left in place without being decommissioned. Road work done for the Mangaweka deviation has left some assets buried. In some cases, they could now be buried up to 5 m deep, making it difficult to obtain reliable information on them.

Some asset information for the Putorino scheme has been collected over the past 5 years. However, in general data for the scheme is not very complete.

For Taihape wastewater, there are some areas of uncertainty, for example underneath the railway lines. There are data gaps involving the piping of wastewater from the western side of town to the eastern. Some laterals are not shown. However, CCTV investigations of the most critical areas has improved the information we hold.

The main area of improvement with respect to data confidence is condition information. We are confident that we have captured all the three waters assets on the Asset Management system, but aim to improve the asset condition information in the system. In an effort to improve asset data confidence, RDC initiated a revised Asset Management Strategy for the potable water, wastewater and storm water assets in 2019. This strategy includes more detailed assessments of asset performance and asset condition for the tree waters networks. The work on collecting more accurate asset data will continue for the next three years and is expected to be completed by 2025. On completion, the new asset management strategy will produce a 30 year prioritised programme of works for renewals, performance upgrades and network growth for the three waters assets. The direct result of poor information and inaccurate data will be poor decision making. RDC completed numerous CCTV inspections, inflow and infiltration studies and flow measurements of the current critical assets to gain a level of confidence on the existing critical assets.

Service	Total asset value as at 2022 Valuation ($)	Critical asset value ($) Based on 2022 Valuation (determined by previous percentage calculation).	% of total Asset Base.
Water supply asset value	$137,551,000	$60,522,440	44%
Wastewater asset value	$85,439,000	$29,903,650	35%
Storm water asset value	$39,558,000	$25,317,120	64%

Table 12: Asset Values

A substantial amount of CCTV work and follow up relining programmes has been completed on the wastewater networks in the District in previous years to address some of the asset condition questions. A detailed Inflow and Infiltration (I&I) programme for all towns in the District has also been completed by using techniques such as smoke testing and dye testing.

Service	Confidence Rating		
	Completeness of data inventory	Condition assessments	Age
Water Supply	High	Average	High
Wastewater	High	Average	High
Stormwater	High	Average	High

Table 13: Confidence Ratings

Due to the work completed on the critical assets and the confidence ratings for the completeness of the asset data held as well as the confidence in the age of the assets, a

traditional age based asset renewal approach will be followed for the next three years to limit the exposure to poor decision making until such time as the new asset management strategy work has been completed.

Condition information is most complete for Wastewater, due to the number of CCTV inspections carried out in recent years. There is however works identified that relate to the pending migration of this information from data source (supplied data) to the Asset information management system.

Storm Water Network

Information on Council's stormwater assets in Bulls is reasonably complete. There is, however, an extensive network of open drains on private property for which information is not known. Where these open drains are within the urban boundary and form part of the urban storm water network, they are owned and maintained by Council. The knowledge of storm water reticulation in Bulls is good. In-house surveys, GPS surveys and field inspections have been incorporated into the GIS database. Reticulation pipes are generally of concrete construction. Lead-ins and sumps from kerbside channels to manholes are documented, and confidence of the pipe sizes, materials and condition has improved.

The knowledge of the stormwater layout in Hunterville is poor. In-house surveys have incorporated GPS and aerial surveys, but field surveys and inspections are needed to improve asset confidence in the GIS. Reticulation pipes are predominately Asbestos Cement, with PVC lead-ins. Invert levels are undocumented and a comprehensive survey is required to give more value to the asset register.

The knowledge of the storm water layout in Mangaweka is average. In-house surveys have incorporated employee knowledge, GPS and aerial surveys, and field inspections into the GIS. Reticulation pipes are predominately concrete, with small lengths of asbestos, PVC and earthenware. Lead-ins and sumps from kerbside channels to manholes need better documentation, and invert levels and gradients are not recorded. There is only a small number of storm water assets in Mangaweka. Most of these are open drains adjacent to roads. The majority of storm water pipes on the Council system are culverts crossing roads

In general, the knowledge of the storm water layout in Marton is good. In-house surveys have incorporated employee knowledge and field inspections into GIS. Some previously unknown storm water pipes have been discovered by staff in the streets around Wilson Park. Some of this pipe may only be 20 years old and may have been constructed by road contractors during area wide pavement rehabilitation work.

In general, the knowledge of the storm water layout in Taihape is good. In-house surveys have incorporated employee knowledge and field inspections into GIS. Some of the older areas of the town, and some renewals work carried out before Council amalgamation are of variable accuracy. Where the age of an asset is in question, a note has been included in the database declaring this to be an estimate only. Research of archived drawings has improved the detail of the electronic database, with discovery of previously unknown pipes. More than 25 manholes have been discovered either through use of archives or CCTV inspections. Because of the age of the town, there is a significant quantity of older assets that we do not hold current information on. As these assets are renewed, the overall quality of information held is improving.

Water Supply

The total assets for water supply are given in the following table, along with replacement cost and written down value as per the 2022 Revaluation completed by WSP in October 2022. (Source WSP 2022 Financial valuation of 3 Waters and Solid Waste Assets).

Table 14: RDC Water Supply Assets Replacement Cost, Depreciated Value and Annual Depreciation as per the 2022 WSP Revaluation

Location	Replacement Cost ($)	Depreciated Value ($)	Annual Depreciation ($/yr)
Facilities			
Marton	$31,212,000	$24,369,000	$400,000
Taihape	$5,775,000	$1,504,000	$121,000
Bulls	$3,075,000	$1,335,000	$85,000
Hunterville	$1,506,000	$1,086,000	$29,000
Mangaweka	$1,613,000	$472,000	$46,000
Ratana	$4,463,000	$3,085,000	$107,000
Erewhon Rural Water	$815,000	$261,000	$16,000
Hunterville Rural Water	$2,596,000	$888,000	$62,000
Omatane Rural Water	$14,000	$4,000	$1,000
Putorino Rural Water	$0	$0	$0
Stores Inventory	$13,000	$4,000	$1,000
SUBTOTAL	**$51,082,000**	**$33,008,000**	**$868,000**
Reticulation			
Marton	$32,795,000	$13,043,000	$468,000
Taihape	$13,322,000	$7,063,000	$175,000
Bulls	$10,387,000	$3,121,000	$162,000
Hunterville	$3,603,000	$2,383,000	$48,000
Mangaweka	$2,011,000	$984,000	$28,000
Ratana	$1,723,000	$771,000	$27,000
Erewhon Rural Water	$8,764,000	$4,349,000	$138,000
Hunterville Rural Water	$11,371,000	$6,838,000	$129,000
Omatane Rural Water	$1,402,000	$722,000	$16,000
Putorino Rural Water	$1,091,000	$825,000	$26,000
SUBTOTAL	**$86,469,000**	**$40,099,000**	**$1,217,000**
TOTAL	**$137,551,000**	**$73,107,000**	**$2,085,000**

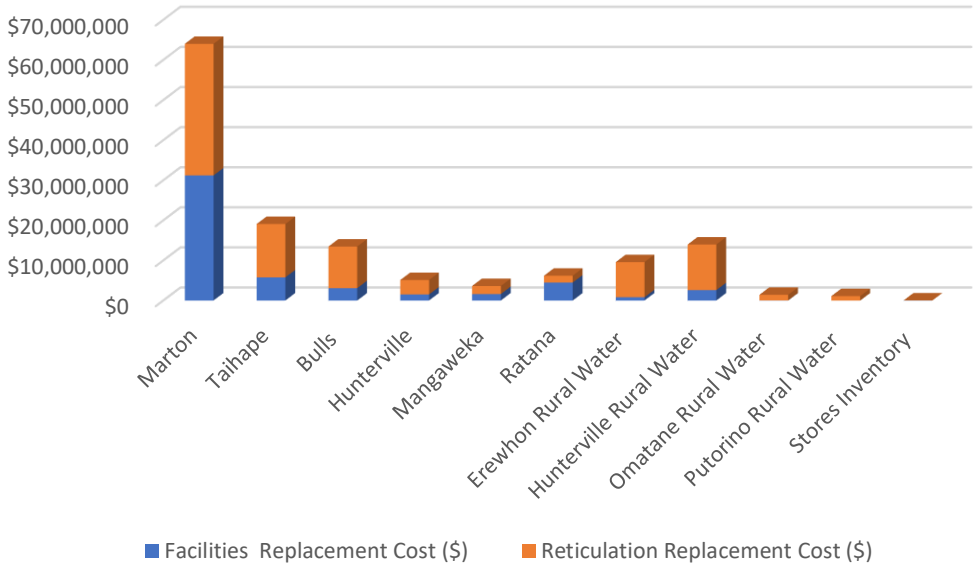


Figure 11: Replacement Value of RDC Water Supply Reticulation and Facilities Assets per community.

The length of water mains as of the 2022 Revaluation in each supply is indicated below, as an indication of the extent of each supply (Table 15 and Figure 12). (Source, UnityManage Asset Management System)

Water Supply	Length of Mains (km)	Hydrants (each)
Bulls	31.6	108
Erewhon Rural	89.3	0
Hunterville Rural	141.2	0
Hunterville Urban	12.8	31
Mangaweka	9.0	26
Marton	83.5	401
Omatane Rural	23.3	0
Putorino Rural	3.9	0
Rātana	6.6	18
Taihape	40.6	178
TOTAL	**441.7**	**762**

Table 15: Water Main Lengths Per Supply

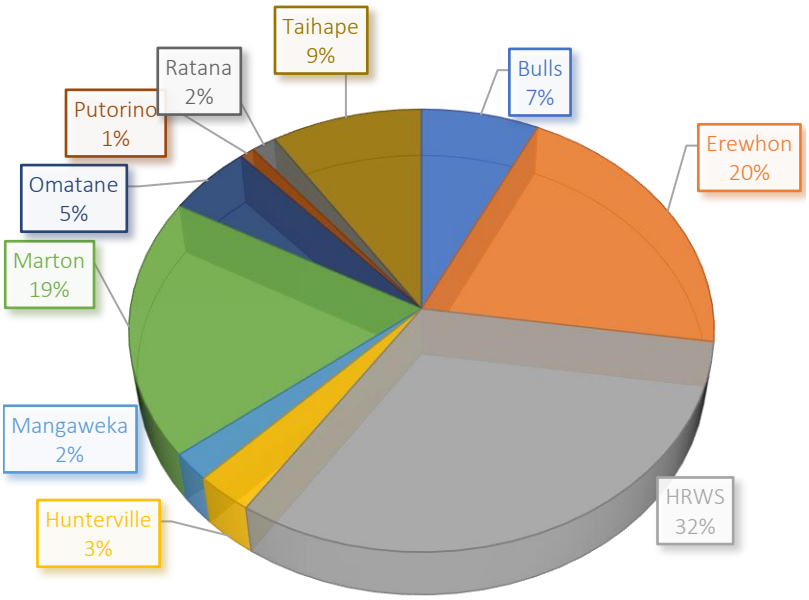


Figure 12: Water Supply Mains Length distribution across RDC Networks.

As highlighted in Figure (12), the Hunterville Rural Water Supply and the Erewhon Rural Water Supply schemes contribute significantly to the overall length of the total network. These networks are rural water supplies, with extensive lengths of pipe with minimal connections supplied in contrast to the urban water supplies. This leads to operational and maintenance challenges that are unique to the rural water scheme.

When considering the value of the assets and the distribution of the networks, is also important to consider the age of the network and the subsequent decline in value from Replacement Value to Depreciated Value. The loss of value is a good indicator of the overall age, and in turn, condition of the network. The larger the loss of value, the higher the risk to the organisation the assets typically carry, as older assets in poorer condition are more likely to fail, requiring operational, maintenance or capital investment from council to ensure that the networks continue to meet the required level of service for the community.

As illustrated in Table (16) the retained value percentage averages approximately 53%. This indicates that on average, the overarching network is sitting around halfway through the life cycle of its assets. As new assets are contributed towards the network, be that through vesting assets from developments, renewal of assets through capital expenditure, or through the renewal of assets through operational and maintenance activities, the average life of the assets, and the consequential retained value percentage will adjust, however, assets of course will continue to age and depreciate. The balance of whether this average retained value percentage increases or declines depends on the rate of renewal and growth vs the rate of the depreciation. If the investment (incoming new assets) is equal to the rate of depreciation, then this value will remain stable. If the rate of investment is less then that of depreciation the retained value will decline, and the represent a higher risk to the organisation. If the investment exceeds the rate of depreciation, then the residual value will increase, representing a lesser risk to the organisation.

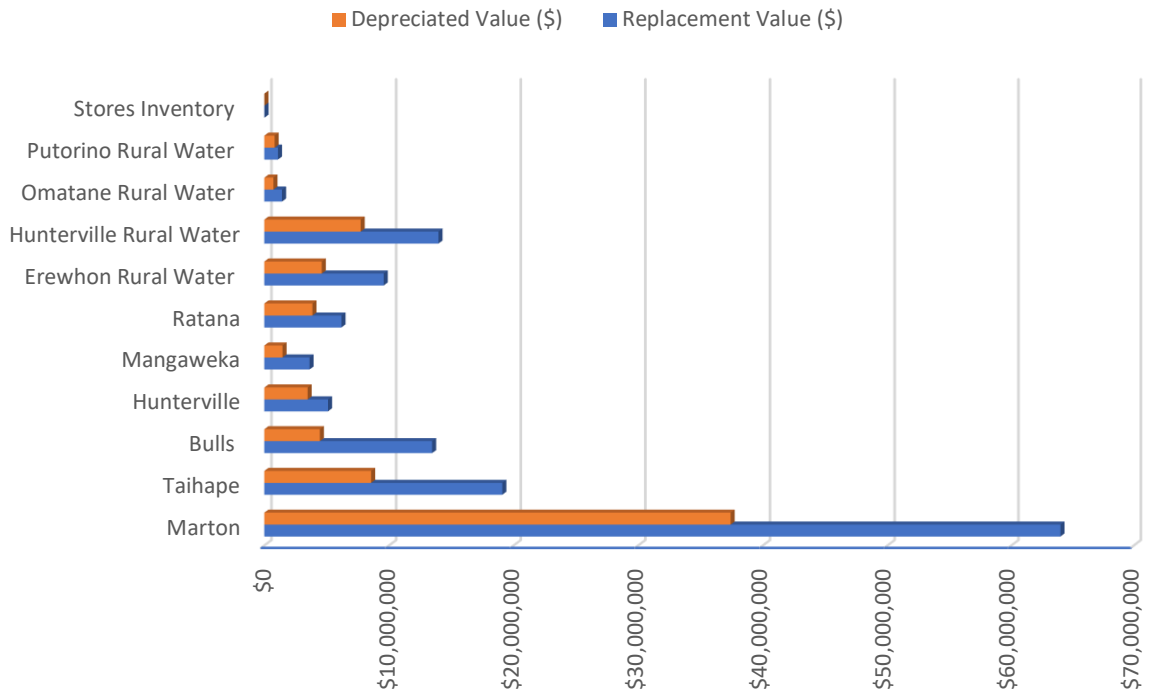


Figure 13: RDC Water Supply Assets Replacement Value vs Depreciated Value.

Table 16: Water Supply Assets Replacement Value vs Depreciated Value and the resulting Retained Value Percentage.

Location	Replacement Value ($)	Depreciated Value ($)	Retained Value Percentage
Marton	$64,007,000	$37,412,000	58.45%
Taihape	$19,097,000	$8,567,000	44.86%
Bulls	$13,462,000	$4,456,000	33.10%
Hunterville	$5,109,000	$3,469,000	67.90%
Mangaweka	$3,624,000	$1,456,000	40.18%
Ratana	$6,186,000	$3,856,000	62.33%
Erewhon Rural Water	$9,579,000	$4,610,000	48.13%
Hunterville Rural Water	$13,967,000	$7,726,000	55.32%
Omatane Rural Water	$1,416,000	$726,000	51.27%
Putorino Rural Water	$1,091,000	$825,000	75.62%
Stores Inventory	$13,000	$4,000	30.77%
TOTAL	**$137,551,000**	**$73,107,000**	**53.15%**

Previous examinations of age profiles have typically illustrated the age of the asset; however, this does not reflect the risk of the asset as age profiles do not take into account the anticipated life of the asset. Infrastructure has a significant variance in the anticipated life, with underground assets such as pipe networks expected to have an anticipated life in excess of 80 years. For example, in 2017 Opus undertook extensive research in asbestos cement pipe deterioration and found that some of these assets could provide service in excess of 100 years with satisfactory levels of service (dependent on wall thickness and Class of pipe). Therefore, it is not useful to plot these assets into an age profile that includes short life assets such as telemetry units and pumps.

Whilst there are extensive opportunities to collect Condition data relating to the water supply networks, particularly through maintenance and operational activities, currently, there is a lack of business processes for converting that observational data into information within UnityManage. This has been included as an Opportunity for Improvement later in this AMP.

Compounding the lack of information, is a historical issue that the asset registers experienced. In the past, the UnityManage software defaulted all assets to having a condition score/rating of excellent. This has since changes with the ability to reassign data to being Not Assessed. Currently within the system however, much of the data still sits within the Excellent grading, where it does require shifting to not assessed. This is included as an action within the opportunity for improvement register and is scheduled to form part of the data improvement projects for 2024.

The following section provides an overview of the water supply schemes operated by RDC.

Bulls

Figure 14: New Bulls Reservoir near the old water tower.

Bulls is located beside the Rangitīkei River on two old river flats. Water is abstracted from several shallow bores. From there it is treated before being pumped to a new water reservoir in town on Taumaihi Street. The new reservoir has a total capacity of 1450m^3. An on-demand pump station will supply the network with the required volume at a predetermined pressure to supply all Bulls customers. A 227 m^3 water tower located in Taumaihi Street previously supplied the RNZAF zone but is no longer in use.

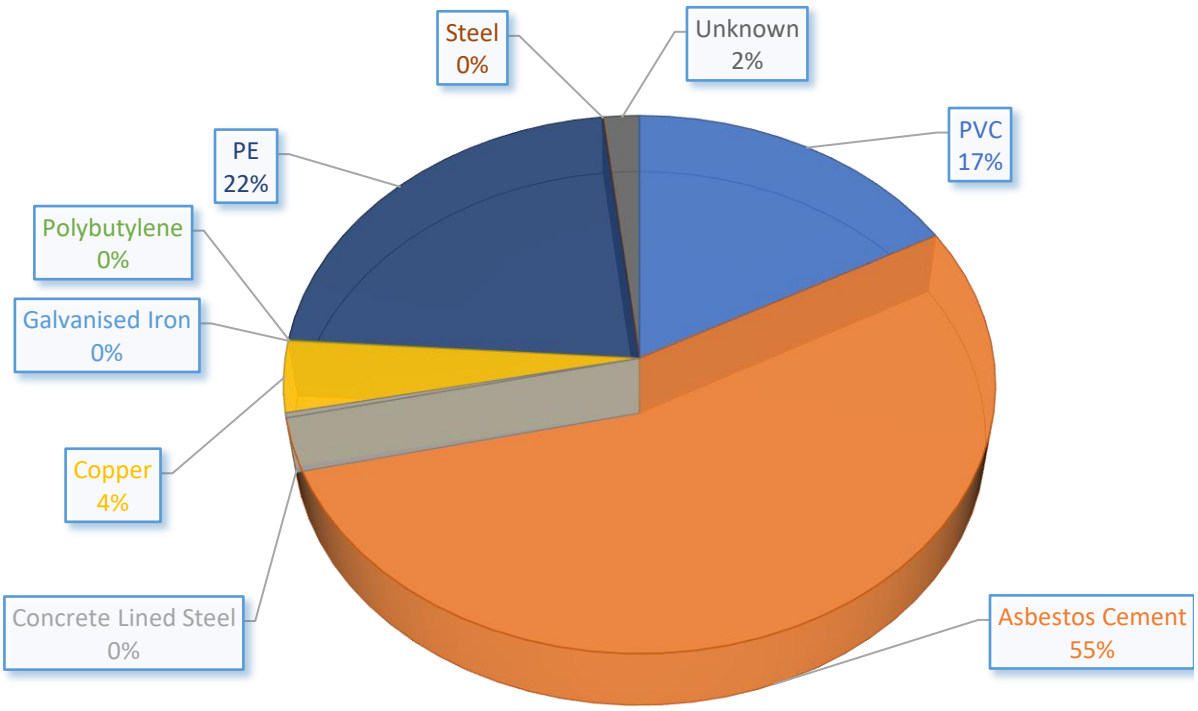
The Bulls water network is depicted in Figure 15.

Figure 15: Bulls Water Supply

The Bulls water network comprises pressure mains ranging up to 200 mm diameter. Approximately two-thirds of all the pipes are Asbestos Cement pipes laid in the late 1960s and 1970s. This material was superseded in the late 1970s by MDPE and PVC, which now account for 30% of the network. There is a small portion of the network built from copper which is known to be in poor condition.

The various pipe materials used for water supply in Bulls are described in Figure 16. Predominantly, the pipes are made from Asbestos Cement. There is a significant amount of plastic pipe within the network as well.

Figure 16: Pipe Material – Bulls Water



Condition

The pipe work is in average to good condition. The rising main from the pump station to Tricker's Hill use to be a critical asset, but with the construction of the new rising main from the pump station to the new water reservoir, this critical classification no longer applies. Alternative network supply options are being considered for the remaining rising main that is currently in the SH1 corridor through the CBD of Bulls. Making use of alternative supply routes will avoid this extremely busy portion of SH1 and improve accessibility and network resilience into the future.

Most service connections were installed with the original contract and this has been taken as the age of all connections for this plan. Many of the copper services have been replaced due to the aggressive nature of the water.

A high proportion of service lines in Bulls are copper or galvanised iron. These materials have deteriorated and contribute to leakage.

Capacity

The plant can copes with present and future demand; however the expected growth due to developments at Ohkea Airforce Base highlighted the need for further water supply capacity. This requirement has been included in the capital investment programme with allowing for the development of two additional bores to improve supply capacity. The new water reservoir has been sized to allow for the expected growth, and the network supply pump station design is modular to allow for expected future growth.

Data on capacity for the Bulls water supply are given in Table 17.

Parameter	Comments	Data
Population connected	2018 Census, Stats NZ	1935 persons
Parameter	**Comments**	**Data**
Consent Limit	Bore 5 (32 m depth)	1,125 m^3/day
	Bore 1 (10 m depth) Bore 2 (15 m depth) Bore 3 (14 m depth) Bore 4 (11 m depth)	1,700 m^3/day (combined)
	Total	**2,825 m^3/day**
Consumption (2022-2023)	Average daily demand	930 m^3/day
	Peak daily demand	1,572 m^3/day
Treatment Plant	Maximum production	2,400 m^3/day
Storage	New Reservoir in Bulls	1450 m^3
	Total storage	1450 m^3

Table 17: Bulls Water Supply Capacity

There are no capacity issues in Bulls when considering the total consented amount of water available. However, there are quality issues with Bore 5 as it is high in iron and manganese. By preference, Bores 1, 2, 3 and 4 are used instead. From time to time, however, demand is higher than the consented limit for these sources and Bore 5 must be run. This could be considered a capacity issue or a performance issue. See below.

Performance

The following treatment process are in place at Bulls:

Treatment Type	Processes
Iron and manganese removal	Aeration
Secondary	Filtration
Tertiary	Chlorination UV disinfection

The slight acidity of the water is causing some problems with corrosion of metal fittings. Consumers across the District are advised annually about plumbosolvency – the advice to flush taps before consuming water. Doing so should alleviate any taste or health concerns arising from this.

As mentioned earlier, there are issues with iron and manganese in Bore 5. Bores 1, 2, 3 and 4 contain iron and manganese, but Bore 5 is deeper and the concentrations from it are higher. Bore 5 is plumbed to run through the Maxwell filter, whereas all others go through Filters 1 and 2. A potential solution to the issue with Bore 5 is to alter the pipework so that Bore 5 water is treated by Filters 1 and 2. There is already chemical dosing to deal with iron and manganese prior to these filters; the additional treatment requirement of including Bore 5 would be slightly higher chemical costs.

Hunterville Urban

The Hunterville Urban water supply purchases water from the Hunterville Rural Water Supply. The water is already chlorinated by the Hunterville Rural Water Supply and receives further treatment at the water treatment plant.

There is no all-weather road to the treatment plant so access for maintenance purposes is a problem. The absence of lights is also a safety issue.

As well as this, the land on which the plant is located is not by Council, and there is no formal easement or agreement in place. The site is, however, designated for water supply purposes in the District Plan.

Figure 17 shows the extent of the Hunterville Urban water supply.

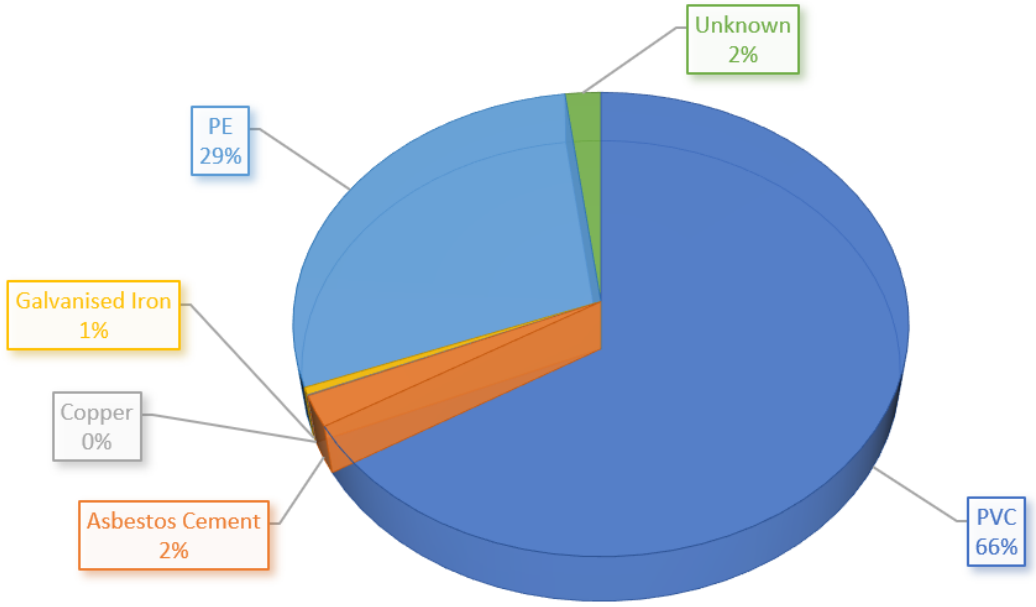
Figure 17: Hunterville Urban Water Supply

The Hunterville Water Network comprises pressure mains ranging up to 150 mm diameter. The network is relatively new, with no pipes listed as being older than 30 years, and 30% being less than 10 years old.

All known connections are currently metered, although it is suspected there may still be a handful of unmetered connections on the border of the community.

Pipe materials in use for Hunterville Urban water are shown in Figure 18. The predominant materials are plastic (PVC or PE), which corresponds to the fact that most pipes were installed in the last 30 years as shown above.

Figure 18: Pipe Material - Hunterville Urban Water



Condition

There are still a number of early LDPE pipes that cause problems, owing to the poor methods adopted when installing them, and the age of the material.

Little is known about the service connections. The service connections and meters are not critical to the operation of the reticulation, are of low value and will be replaced on an operational maintenance basis.

Capacity

Water from the Rural Water Supply is restricted to a maximum of 370 m^3/day. Analysis of domestic consumption meters shows an average of 130 m^3/day. Information on the capacity of the network is given in the following table.

Parameter	Comments	Data
Population connected	Prior to 2013 Census	400 persons
Water availability	This is the volume paid for from HRWS	370 m^3/day
Consumption (2022-2023)	Average daily demand	139 m^3/day
	Peak daily demand	325 m^3/day
Treatment Plant	Maximum production	432 m^3/day
Storage	2 timber reservoirs	150 m^3 each (300 m^3 total)

Performance

The processes in place at the Hunterville Urban Water Treatment Plant are listed below.

Treatment Type	Processes
Primary	Pressure media filtration Cartridge filtration
Tertiary	UV disinfection Chlorination

Mangaweka

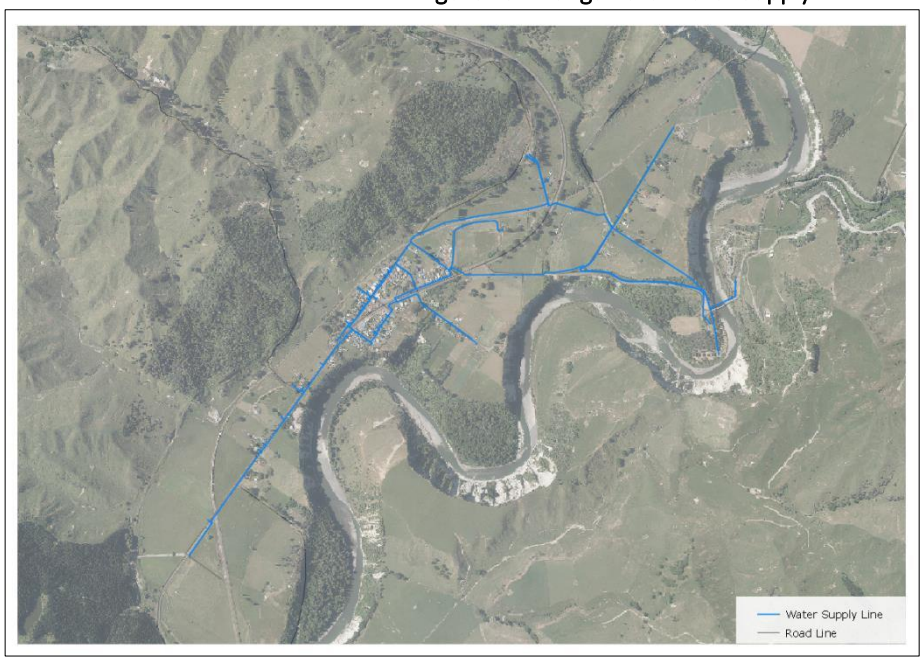
Mangaweka is situated on an elevated river flat approximately 60 m above the Rangitīkei River. Water for the town is abstracted from a shallow well alongside the river and then lifted vertically 100 m to the treatment plant. Filtration and chlorination occurs and the water is stored in a large roofed reservoir. Gravity feeds from the reservoir service two distinct sections of the community. The primary feed services the town itself to the south, while a smaller feed services an area of pastoral farms and the camping ground to the east.

The intake for the Mangaweka water supply consists of a concrete chamber containing a 150 mm riparian bore surrounded with a 600 mm steel casing. Water is pumped from the bore to a holding tank located at the intake. This feeds the water treatment plant by way of a rising main with a 100 m lift. Treated water is stored in one of two unreinforced concrete reservoirs operated in parallel but connected via a pipe, with total storage capacity of 630 m^3.

The two reservoirs are partly buried. Usually the intake flow is matched to the outflow from the holding tank on site. The riparian bore level can go down in a very dry summer. In this case, the rate of take can be reduced below the holding tank outflow. Telemetry from the intake is via a radio link bounced off the cliff opposite, to the Mangaweka WWTP, and then from here to the Mangaweka WTP (where the reservoirs are located).

The layout of the Mangaweka water supply is shown in Figure 19.

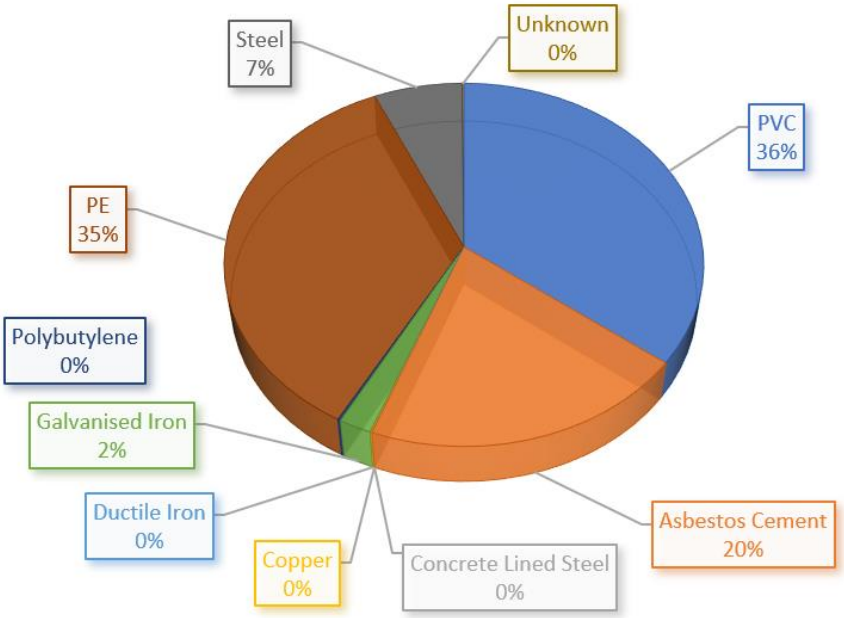
Figure 19: Mangaweka Water Supply



The Mangaweka water network comprises pressure mains ranging up to 200 mm diameter. Approximately half of the network was replaced during the 1990s and many service connections renewed as part of the consumption meters installed in the 2000s. Asbestos pipes from the 1960s and original steel pipes from the 1910s make up the remainder of the

network. Water pipe materials used in Mangaweka are shown in Figure 20. As can be seen, most of the pipes in use are plastic (either PVC or PE). Asbestos Cement pipes are the next most common.

Figure 20: Pipe Material – Mangaweka Water



Condition

The original rising main has now been replaced except for 55 m remaining in 125 mm steel pipe. The only other concern in this main is the existence of galvanised iron where the pipe passes through the railway corridor. It would be desirable to replace this with a more acceptable material.

The reservoir building is old. The replacement of the roof has extended the useful life until 2033, and the main structure is expected to last until 2020.

Capacity

Capacity information for the Mangaweka water supply is given in Table 18.

Parameter	Comments	Data
Population connected	Prior to 2013 Census	180 persons
Consent Limit	Infiltration gallery at Mangaweka Campground.	170 m^3/day
Consumption (2022-2023)	Average daily demand	119 m^3/day
	Peak daily demand	231 m^3/day
Treatment Plant	Maximum production	432 m^3/day
Storage	Concrete reservoir	630 m^3

Performance

Treatment processes in use at Mangaweka water follow:

Table 19: Treatment Processes – Mangaweka Water

Treatment Type	Processes
Primary	Pressure media filtration Cartridge filtration
Tertiary	UV disinfection Chlorination

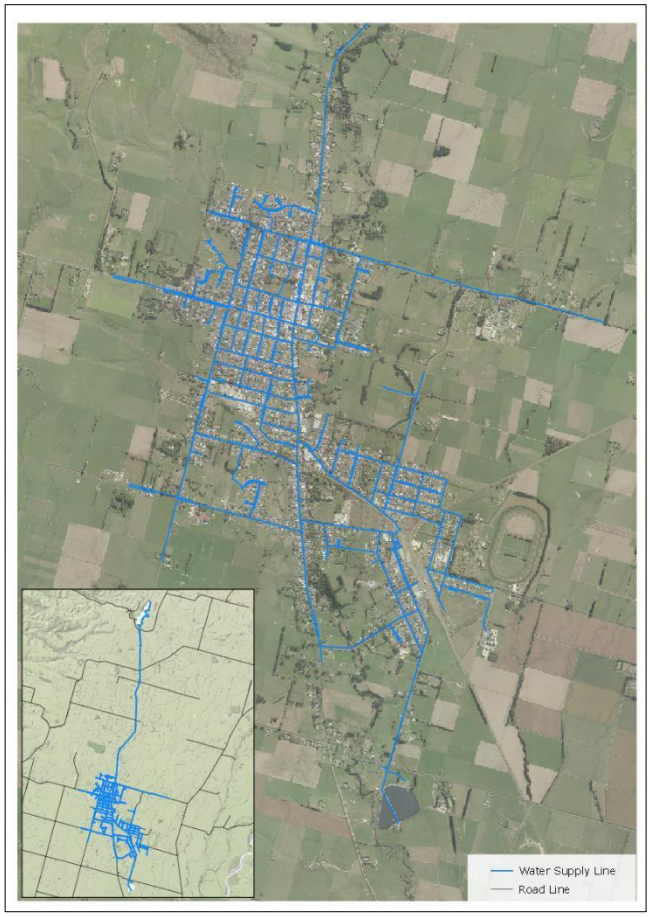
Marton

Marton is situated on mildly rolling terrain, which gradually slopes away from the source water, impoundment dams and treatment plant towards the urban area. Currently the primary water source is a 14.5 km^2 catchment area that includes pastoral farmland runoff, feeding two impoundment dams. This water is treated before entering a 5.3 km bulk main to the town boundary.

RDC initiated the Marton Water Strategy in 2019 to investigate alternative raw water sources and associated treatment processes. By December 2024 the raw water source for the Marton urban supply will be from two secure bores, treated by a new water treatment plant to supply the Marton township with high quality drinking water.

Network supply augmentation is provided by bore water from a site at Calico Line. This is pumped into the system to supplement flows during peak demand. Treatment at the source is restricted to disinfection by chlorine. Adverse water chemicals and hardness are not treated. There is also a bore on Tutaenui Rd, which is piped to the Tutaenui Dams for blending. This bore is currently not required to augment supply.

Figure 21: Marton Water Supply



The Marton water network comprises pressure mains ranging up to 375 mm diameter. Approximately a third of all the pipes are Asbestos Cement pipes laid in the late 1960s and 1970s. This was superseded in the late 1970s by MDPE and PVC which account for 40% of the network. There are no records of any substantial quantities of pipes older than 60 years in the Marton reticulation.

Figure 22 shows the pipe materials used for water supply in Marton. There is a fairly even distribution of materials, with the largest proportion being Asbestos Cement. The next largest proportion of pipes are plastic (PVC or PE).

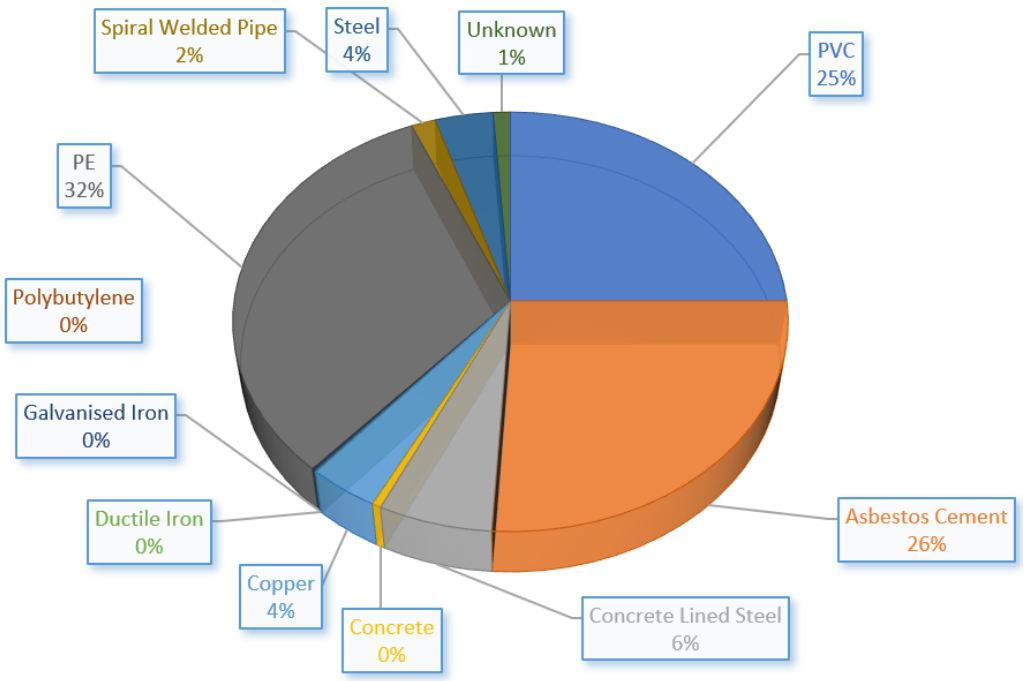


Figure 22: Marton Water Supply – Pipe Materials

Condition

C Dam is a relatively modern structure built in the 1950s, with the intake system having been modified in 2009 to optimize the level at which water is drawn from and provide for easy maintenance and water quality sampling. This asset is performing well with no significant defects. The trunk main from the junction of B and C Dam supply lines to the treatment plant is operating well. The only recorded problems with this main are with movement of the lead joints and compression of the natural rubber joining rings. These problems would appear to be a result of age. Both joint types are being repaired as they fail, but due to the high criticality of this pipe, it will be inspected annually and replaced.

The treatment plant was initially constructed in the early 1920s. All that remains of this original plant in use today are one of the old reservoirs (now used as a contact tank) and a portion of the building.

A large portion of the reticulation is Asbestos Cement. This material was first used in the early 1950s. As the age of these pipes is now approaching their life expectancy we would

expect the failure rate to increase. Replacement of pipes is based on repair history where available.

Capacity

Data on capacity in the Marton system is given below.

Table 20: Asset Capacity – Marton Water

Parameter		Comments	Data
Population connected		Prior to 2013 Census	3,750 persons
Consent Limit		Tutaenui Dams	6,500 m^3/day
		Calico Line Bore (240 m depth)	2,200 m^3/day
		Tutaenui Rd Bore	3,500 m^3/day
		Discharge	140 m^3/day
Consumption (2022-2023)		Average daily demand	2,452 m^3/day
		Peak daily demand	4,054 m^3/day
Treatment Plant		Maximum production – current	4,080 m^3/day
		Maximum production – future, after upsizing clarifier inlet pipes	6,000 m^3/day
Storage		Newer concrete reservoir	6,000 m^3
		Older reservoir	750 m^3

It is important to note that the new bores and treatment plant will increase the water supply capacity to Marton to 5000 m^3/day to allow for Industrial and residential growth in the future.

Performance

Details of the treatment processes in use on the Marton Water Supply are given in the table below.

Treatment Type	Processes
Marton WTP	
Primary	Coagulation Clarification
Secondary	Filtration
Tertiary	UV disinfection Chlorination
Calico Line Bore	
Tertiary	Chlorination

Rātana

Rātana is situated on mildly rolling terrain, which gradually slopes away from the treated water storage tanks, resulting in a fairly static head throughout the village. Source water is abstracted from shallow (80 m) bores and treated before being lifted a further 20 m to a tank farm. The tanks then release on demand down to the village reticulation.

When the system was installed it was not intended for human consumption, except as a supplementary supply to the individual household rainwater systems. In 1972 an upgrade was carried out with chlorination equipment, a large pump, new reservoirs, bore relining, and a fire main being installed. This upgrade was carried out with the intention of providing a fire fighting supply in the town. It is still considered a supplementary supply with only six residents and the school totally relying on the supply for drinking water.

The treatment plant is beyond its useful life and does not meet the current Drinking Water Standards. A major upgrade to the Rātana Water Treatment Plant is underway. Funding has been obtained from the Ministry of Health through the CAP programme to assist with this work. As well as improving the quality of water for Rātana, this upgrade will provide enough water for the town, as well as the proposed 60-lot Waipu Trust subdivision. The treatment plant will be designed in such a way that it can expanded should the Waipu Trust subdivision eventually reach its maximum of 120 lots. The water supply should cater for both normal demand periods, and increased demand during the annual Rātana festival.

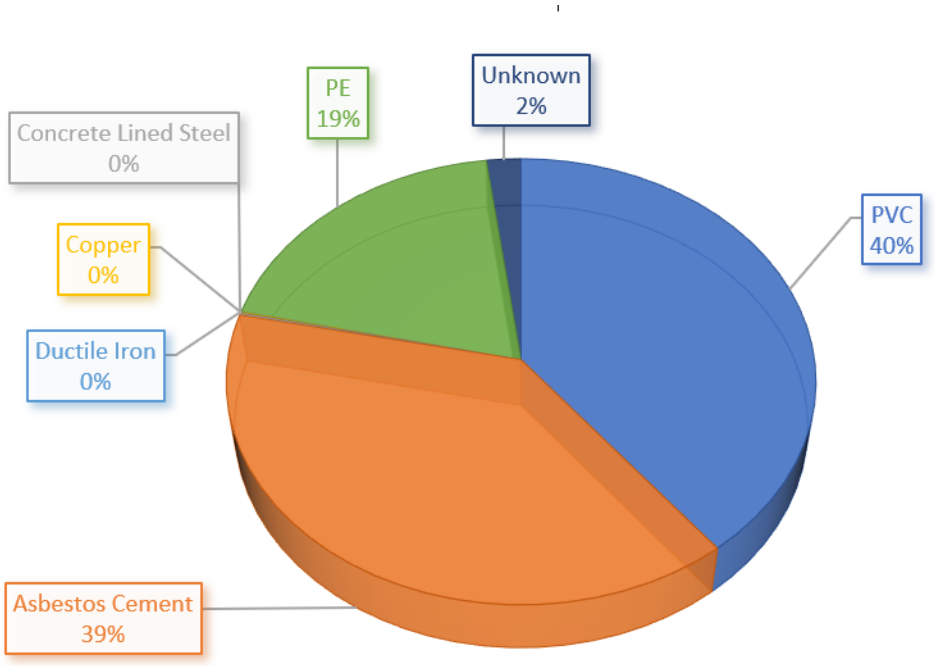
The Rātana water supply is shown in Figure 23.

Figure 23: Rātana Water Supply

The Rātana water network comprises pressure mains ranging up to 150 mm diameter. More than half of all the pipes are Asbestos Cement pipes laid in the late 1970s. The network was progressively extended in the 1980s-1990s with MDPE and PVC, accounting for 43% of the network.

Much of the water reticulation in Rātana consists of Asbestos Cement pipes, as shown in Figure 24. There is also a substantial amount of plastic pipe, whether it is PVC or PE.

Figure 24: Pipe Material - Rātana Water



Condition

The existing treatment plant is old and beyond its useful life. Most items of plant need replacing. The storage facilities are in poor to average condition and inadequate in capacity. The pipe work is generally in good condition.

Capacity

The system struggles to meet daily demands and cannot cope with the additional demand created during the annual Rātana festival. This places a strain on the treatment plant.

The capacity of the Rātana water system is shown in Table 21.

Parameter	Comments		Data
Population connected	Prior to 2013 Census		450 persons
Consent Limit	Existing bore (80 m depth)	Outside Festival	130 m^3/day
		During Festival	300 m^3/day
	New bore (180 m depth)	Outside Festival	307 m^3/day
		During Festival	613 m^3/day
Consumption (2022-2023)	Average daily demand		157 m^3/day
	Peak daily demand		256 m^3/day
Treatment Plant	Maximum production		260 m^3/day
Storage	9 concrete reservoirs		18-25 m^3 each (total 225 m^3)

Performance

The current Rātana Water Treatment Plant uses the water treatment processes described below.

Treatment Type	Processes
Iron and manganese removal	Aeration
Secondary	Sand filtration
Tertiary	Chlorination

The water is very difficult to treat owing to high quantities of manganese, iron and hardness. The iron and manganese is not fully removed during the treatment process and this is still settling out during the storage period. The reservoirs act as a sedimentation stage, which is acceptable, provided regular cleaning is carried out. This process also continues to a lesser degree in the reticulation and regular scouring is essential to maintain an acceptable standard.

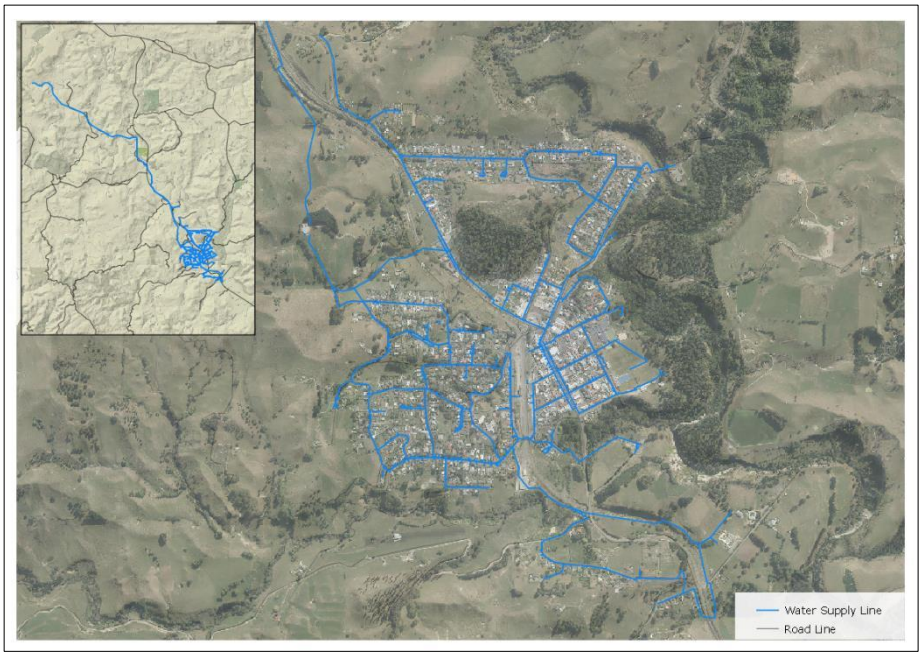
Taihape

Taihape is nestled on the slopes of the District's hill country, straddling State Highway 1 and the North Island Main Trunk railway. Water is sourced 11.5 km away from the Hautapu River. From there it is piped to the treatment station under gravity. Post-treatment it is delivered to two main zones located on alternate sides of the highway.

Due to the terrain there are pressure control valves to moderate the high pressures that can occur in some parts of the reticulation. The pressure ranges are significant and additional pressure management is required to minimise the loss of water from storage and associated property damage should a mains break occur.

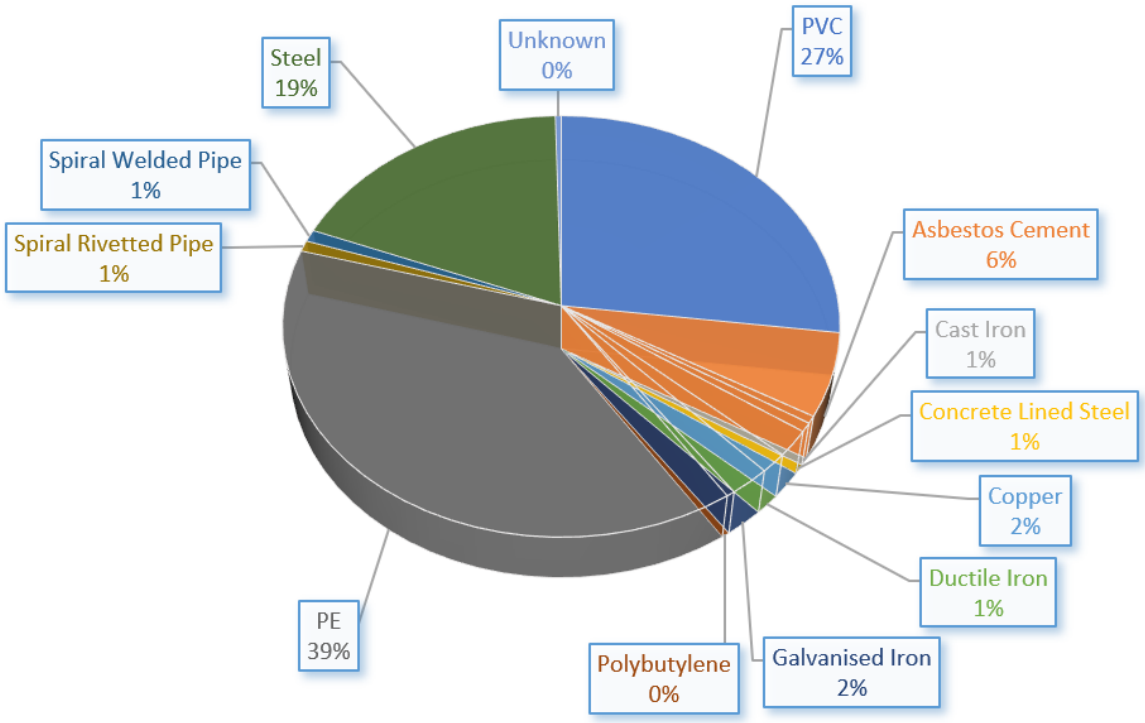
The extent of the system for Taihape water is shown in Figure 25.

Figure 25: Taihape Water Supply



The Taihape water network comprises 21.9 km of pressure mains ranging up to 375 mm diameter. Approximately half of all pipes are the original steel mains laid from 1910 to 1960. Figure 25 shows the distribution of pipe materials in the Taihape water network. A large amount of the pipes are constructed from steel, which is consistent with the age profile.

Figure 26: Pipe Material – Taihape Water



Condition

A large portion of the town reticulation is aged steel nearing the end of its economic life. This is starting to show with the incidence of failures increasing in recent years resulting in an increased maintenance budget. Some of the original pipe work (which dates back to 1911) is still in place. This pipe work is in very poor condition and difficult to repair. Replacements of sections are more economic to undertake than spot repairs.

The range of reticulation pressures is excessive varying from nearly atmospheric to in excess of 100 m head. This is a contributing factor in mains failures. Currently the reticulation has two pressure zones (west and east of the railway line respectively). The reticulation would benefit from the implementation of pressure management.

Capacity

The raw water supply pipeline is laid in an area that possess significant hydraulic challenges. This pipeline is designed as a constant flow line with any surplus water not required by the treatment plant being bypassed to the adjacent valley and returned to the Hautapu River via the urban stormwater system. Ground contours along the line affect the pressures in the pipe. These range from atmospheric on the high points to greater than 120 m head in low points. Should the supply valve be closed at the treatment plant, 2.5 km of pipeline would be subject to pressure in excess of 160 m head. The intake pipeline is a high risk component of the supply and regular inspections and proactive renewals are required to minimize this.

In general the Taihape supply has high pressures associated with the steep elevation in the supply area.

The reservoir has capacity for more than 3 days storage. See Table 22 for more information.

Parameter	Comments	Data
Population connected	Prior to 2013 Census	2,200 persons
Consent Limit	When Hautapu River flow at Alabasters > 0.69 m^3/s	2,900 m^3/day
	When Hautapu River flow at Alabasters ≤ 0.69 m^3/s	2,225 m^3/day
Consumption (2022-2023)	Average daily demand	1,084 m^3/day
	Peak daily demand	1,374 m^3/day
Treatment Plant	Maximum production	2,160 m^3/day
Storage	Reinforced concrete reservoir	4,500 m^3

There are currently issues with over-abstraction at the Taihape intake, owing to the hydraulic grade line of the raw water main. To alleviate this, in agreement with Horizons Regional Council, a bypass has been installed which delivers untreated water back into the Hautapu River. This is metered, to ensure that overall abstraction is within consent limits.

Performance

Treatment at the Taihape plant consists of:

Treatment Type	Processes
Primary	Coagulation Clarification
Secondary	Filtration
Tertiary	UV disinfection Chlorination

Raw water quality is consistent with abstraction from a natural river source. However, there is the potential of contamination from road spills from State Highway 1 in the Hihitahi Bluffs area. Potential mitigation for this could be installing instrumentation at the plant on the incoming raw water. There are systems available that could shut down inflows to treatment if contamination was detected. Water could be purged until contamination cleared.

Erewhon Rural

Oversight of this Rural Water Supply is by a Sub-Committee of Council, with representatives from the farmers on the scheme. Erewhon was established in 1980. The financial and strategic planning oversight is handled by Council staff at the committee's direction. All aspects of the scheme from revenue setting, maintenance and renewal expenditure are directed by the committee.

The Rural Water Supply is designed to deliver supply to each property at a constant flow rate 24 hours a day. To achieve this, the supply is delivered through a Marrick restrictor, which is sized to maintain the required constant flow over a range of water pressures.

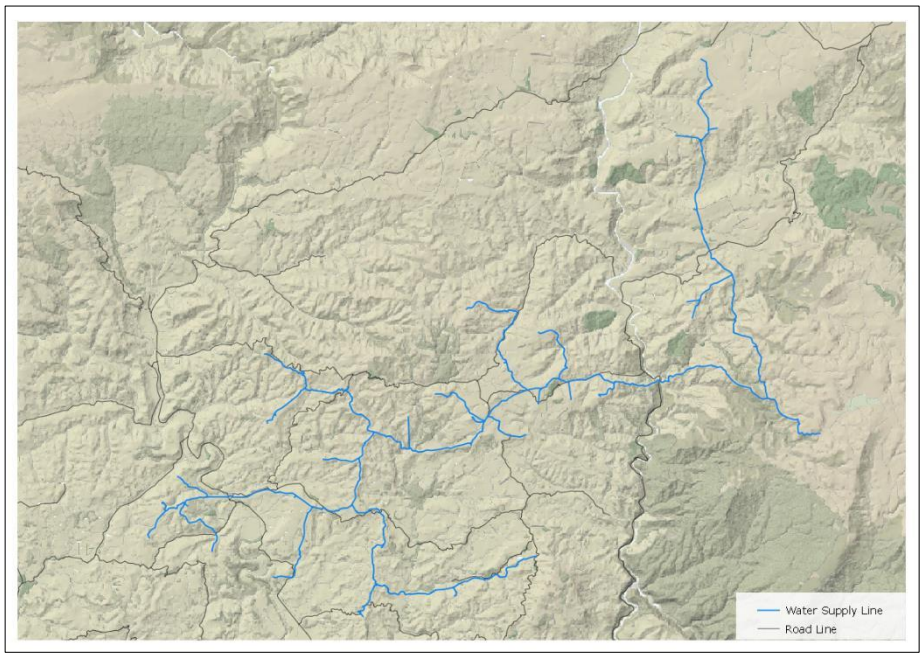
Erewhon is a gravity system. Working pressures in sections of pipe network are high (up to 600 m head) due to changes in elevation. This necessitates the use of a significant quantity of steel pipe where the working pressures are typically in the range of 200-300 m. Pipes and fittings need to be appropriately rated for pressure, and maintained in good condition, for reliable operation. The scheme traverses steep variable terrain.

Most of the reticulation is laid in rural farm land, although sections do run alongside rail or road corridors. Renewals in these corridors should be programmed in conjunction with other works to reduce costs.

The Erewhon rural water network and treatment facilities are managed day to day by contractors based in Taihape. Contractors perform routine maintenance and monitoring, attending to customer requests for service. Major repairs or capital work is undertaken by the contractors.

Maintenance on the Erewhon Rural Water Supply is contracted privately. The tank service connections are checked regularly to ensure correct operation and condition.

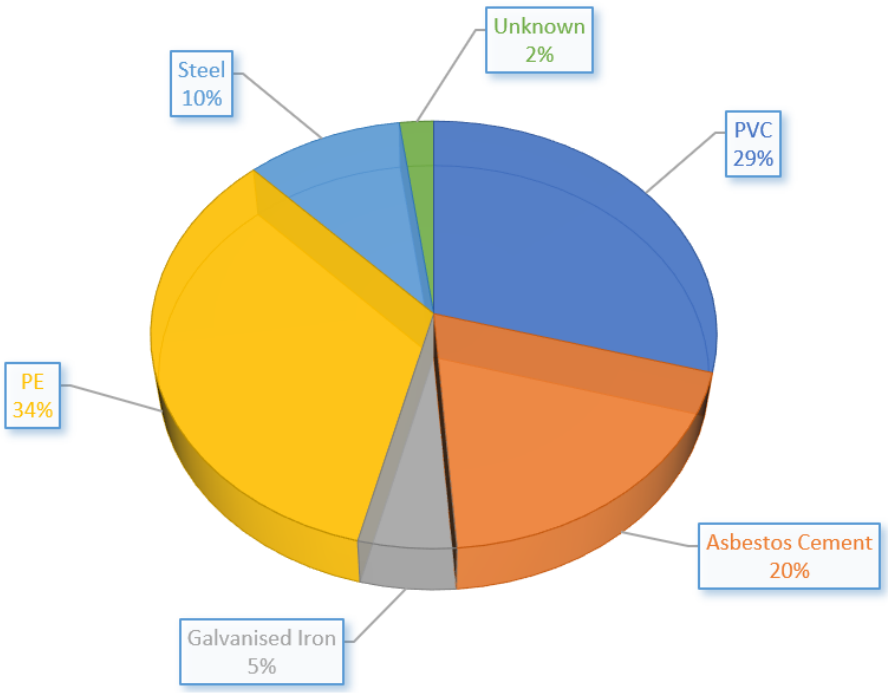
The extent of the scheme is shown in Figure 27.



The Erewhon rural water network comprises constant flow pressure mains ranging up to 200 mm diameter. It was originally constructed with Asbestos Cement and steel pipes, with PVC used in the smaller diameters in the 1980s. The original steel pipe has shown over the years that it is susceptible to corrosion. An investment to replace this material with suitable pressure rated plastic alternatives means there is only 16% steel remaining.

Most of the water pipes on the Erewhon scheme are made from plastic (PVC or PE), as seen in Figure 27. There are a number of Asbestos Cement pipes and steel pipes as well.

Figure 28: Pipe Material – Erewhon Rural Water



Condition

Headworks are generally in good condition, but need to be regularly inspected and cleaned, as they are open to the elements and accessible by a track.

Mangaohane A Tank is in very good structural condition, however the inlet, outlet and overflow pipes and overflow channels need to be modified to reduce exposure to damage. Mangaohane B Tank is in good structural condition at present.

High maintenance costs are being incurred for the repair of leaks mainly within the lengths of buried steel pipe. The proactive renewal programme is addressing these issues.

There are ongoing maintenance needs associated with protecting pipelines from cattle damage and erosion at a number of locations. There is a planned renewal programme in place.

The stream crossings are currently in a satisfactory condition but require regular monitoring.

The pipe bridge crossing the Rangitīkei River Gorge is generally in sound structural condition with paintwork in good condition.

Capacity

The capacity of the Erewhon Rural Water Supply is described in Table 23.

Parameter	Comments	Data
Population connected	Population not yet confirmed	54 supply tanks 28 farms
Consent Limit	Reporoa Bog	1,800 m^3/day
Consumption (2022-2023)	Average daily demand	1,176 m^3/day
	Peak daily demand	1,323 m^3/day
Storage	A Reservoir –concrete	23 m^3
	B Dam - concrete	28 m^3
	Total	51 m^3

Performance

Water supplied is not suitable for domestic supply without the installation of treatment and filtration processes. The capital and operating costs of doing this are beyond the scheme's ability to fund and there is no intention to upgrade to provide a domestic supply.

Although the Reporoa Stream generally runs clear, in periods of heavy rainfall the water can be discoloured due to a fine sediment loam. The entry of fine sediments into the pipe reticulation affects water quality, as does the entry of organic matter that grows in the streambed.

There are the following issues with reliability:

- The flow meters and restrictor valves regularly become blocked or jammed with organic material, which needs to be cleared.
- The weir is in a very remote location and difficult to access. Any problems that may arise would be difficult to fix immediately.

Hunterville Rural

The Hunterville Rural Water Supply (HRWS) was built in the 1980s to provide farms in the region with a reliable stock water system. The biggest consumer on the scheme is the township of Hunterville, which takes about 14% of the demand. There are more than 160 farms connected as well as supply to Rata, Otairi and Ohingaiti.

Water is abstracted from the Rangitīkei River and pumped a height of 330 m in three lifts to the main reservoir.

The water is chlorinated as it is intended as a stock water supply. Consumers are regularly reminded that this is considered a non-potable supply and additional treatment is required for residential consumers.

This scheme is administered by Council for the scheme committee. All aspects of the scheme from revenue setting, maintenance and renewal expenditure are directed by the committee.

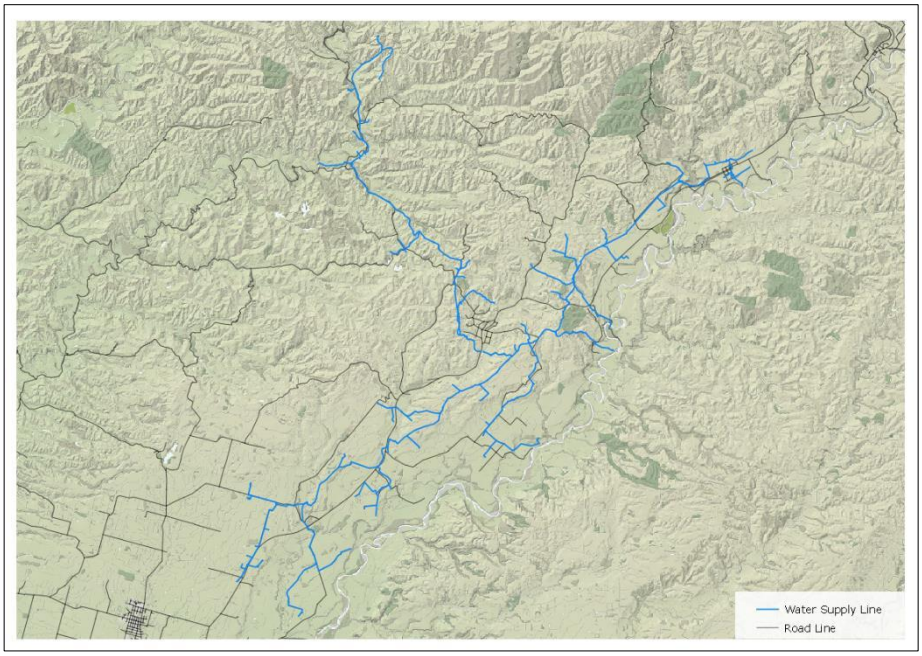
Rangitīkei District Council staff perform maintenance on the Hunterville Rural Water Supply. This is charged back to the scheme on a cost-recovery basis.

The responsibility of Council ends at the Marrick valve (flow restrictor) on each connection, after which it is the responsibility of the property owner to maintain.

There is a requirement for each user on the scheme to provide 24 hours storage on-site.

The scheme administration includes responsibility for the pipework up to and including ball cocks in farm tanks. These are replaced as needed.

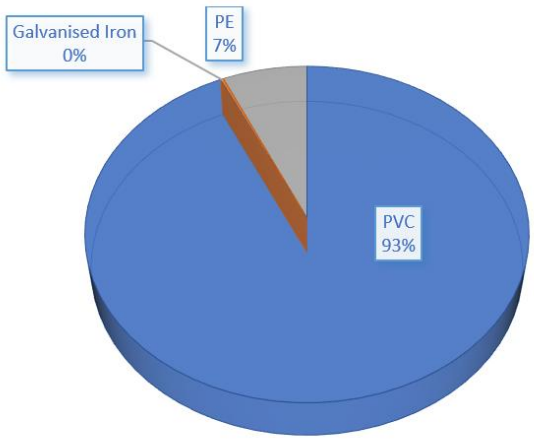
The extent of the Hunterville Rural Water Supply is shown by Figure 29.



The water network comprises pressure mains ranging up to 150 mm diameter. Nearly the entire scheme was constructed in 1985 from PVC pressure pipe. Some growth of the system occurred in early 2000. Replacement of pipelines has been initiated by mains breaks or land slippage. Extent of replacement has been minimized to only that required to resolve the issue.

Pipes on the Hunterville Rural Water Supply are almost entirely PVC, as shown in Figure 30.

Figure 30: Pipe Material - Hunterville Rural Water



Condition

Some Asbestos Cement pipe was used in the construction, and lengths in slip-prone areas have failed. These lengths have been replaced with more flexible HDPE materials.

Capacity

The infiltration gallery has been the cause of problems over several years. The course of the river naturally bypasses the gallery and may change course with each fresh. The channel needs to be reopened frequently to restore the water supply. The alarm systems in place ensure a rapid response in case of problems. The lack of storage capacity of the main reservoir means water shortage risks are medium-high however this is mitigated by the requirement of consumers to maintain 48 hours on-site storage.

During periods most summers, auxiliary pumping is required as the intake cannot cope with demand.

Information on the capacity of the Hunterville Rural Water Supply is given in Table 24.

Parameter	Comments	Data
Population connected	Population not yet confirmed	160 connections
Consent Limit	Riparian take (infiltration gallery)	2,500 m^3/day
Consumption (2022-2023)	Average daily demand	1,382 m^3/day
	Peak daily demand	1,556 m^3/day
Treatment Plant	Maximum production	2,100 m^3/day
Storage	Main Reservoir (Top Reservoir)	360 m^3
	Middle Pump Station	150 m^3
	Top Pump Station	150 m^3

Performance

Only basic treatment is provided for this stock water supply, as indicated below:

Treatment Type	Processes
Tertiary	Chlorination

Rangitīkei District Council and the Ministry for Primary Industries jointly funded a strategic water assessment for the District. This assessment included the Hunterville Scheme Review with the purpose of:

- Identifying opportunities to improve the effectiveness and efficiency of the scheme.
- Assessing what potential exists to increase the area serviced by the scheme, and/or to utilise the scheme for irrigation purposes.

The review found that in general the scheme is realising its purpose. However, the review also confirmed the following weaknesses:

- The intake structure in the Rangitīkei River.
- Costs associated with lifting water from the Rangitīkei River to the scheme's high point.
- A considerable operating deficit, and the costs of future programmed new and replacement capital works.
- Other issues - the rural/Hunterville pricing differential, infrastructure replacement, landowner awareness of assets, unit allocation.

Recommendations were made to address these. Investigations are currently underway into the opportunities that could be presented by decentralising the scheme by introducing additional water sources.

Key issues for the Hunterville Rural Water Supply are:

- The water collection needs augmentation from surface pumping during summer and periods of low-river flow. This augmentation increases silt and algae loadings and a stilling and separation tank has been installed prior to the wet well.
- Power costs are a significant part of the budget. Reliability of power supply is also a concern with frequent interruptions resulting in callouts and higher than normal maintenance costs.
- More proactive maintenance is needed on flow restrictors, valves and storage tanks.
- The water is stock water only and consumers are now required to have a minimum of 48 hour storage capacity on site.
- Faulty or tampering of flow restrictors to individual consumers are increasing the system demand and restricting flow to downstream consumers. This is more evident during dry periods.

Omatane Rural

Omatane is a Rural Water Supply in remote rural hill country. The scheme is limited to a set number of water units, and as such does not allow for growth. It gathers water from a tributary of the Makino River by means of a weir and flow diversion pipe. This scheme was constructed in the 1980s. The water is intended for stock consumption and is not treated in any way. It supplies a small rural community of six farms by way of pipes of undetermined sized and length.

Omatane is a private supply. As such, Council has nothing to do with the maintenance of the water assets within the scheme.

The extent of the Omatane scheme is shown in Figure 31.

Figure 31: Omatane Rural Water

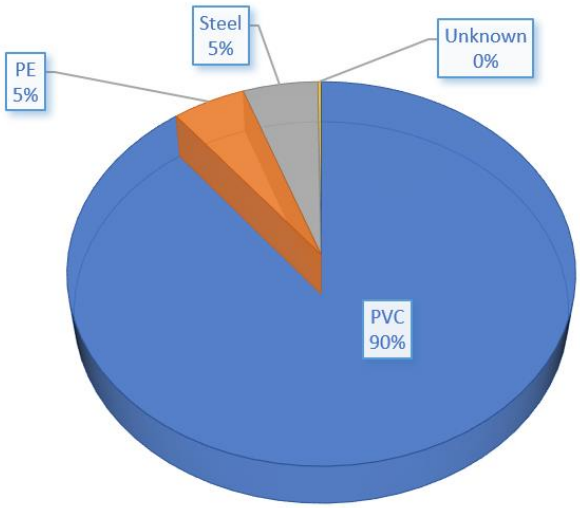
The Omatane water network is managed by the farm owners it supplies. Council staff provide a management role only; this includes performing monitoring compliance for resource consents, and advising the farmers as required.

Water charges on the Omatane scheme are related to the area of each property, which differs from the water unit system used on the Hunterville Rural Water Supply.

The Omatane water network comprises pressure mains ranging up to 80 mm diameter. Construction of the scheme was in the 1980s and consisted entirely of PVC, with some service connections being made of steel.

Pipe material used on the Omatane scheme is 95% PVC, as seen in Figure 32. The remainder is either steel or PE.

Figure 32: Pipe Material - Omatane Rural Water



Capacity

Information on capacity for Omatane is given below.

Parameter	Comments	Data
Population connected	Population not yet confirmed	11 properties
Consent Limit	Unnamed tributary of Makino Stream at Makino Rd	300 m^3/day
Consumption (2022-2023)	Average daily demand	Unavailable
	Peak daily demand	Unavailable
Storage	Concrete reservoir at intake	20 m^3

Putorino Rural

The Putorino Rural Water Supply gathers water from a tributary of the Rangitīkei River by means of a weir and flow diversion pipe. This scheme was constructed in the 1910s. The water is gravity fed to the dam about 1,100 m away. The water is intended for stock consumption and is not treated in any way. It supplies a small rural community of six farms by way of pipes of undetermined sized and length.

The scheme is managed by the Putorino Farm Settlement Water Supply Committee, which is not a Sub-committee of Council like the other Rural Water Supply Committees. Council has no involvement with this scheme, other than assistance with rating of properties.

There are currently no plans for the Putorino scheme held at the council offices, and the data contained herein is based on staff knowledge only. It is expected that more information can be obtained from the farm managers and this should be a priority for this scheme.

The scheme is now more than 90 years old, but is working adequately.

The water is diverted at the headworks by a weir from a small stream, which eventually joins the Rangitīkei River south of Putorino.

The primary dam is estimated to hold 5,600 m^3 (from aerial photo measurements).

The falling main is 100 mm Asbestos Cement. All other reticulation is of unknown material and size.

Six farms are connected to this scheme, of which three are believed to also hold connections to the Hunterville Rural Water Supply.

The scheme was established in the 1910s and is managed by the farm owners. There is a small maintenance fund for breakages and repairs. There is no depreciation charged on the system, and there are no plans to renew it in the future. All farms using the scheme can connect to the Hunterville Rural Water Supply, or in some cases have already done so.

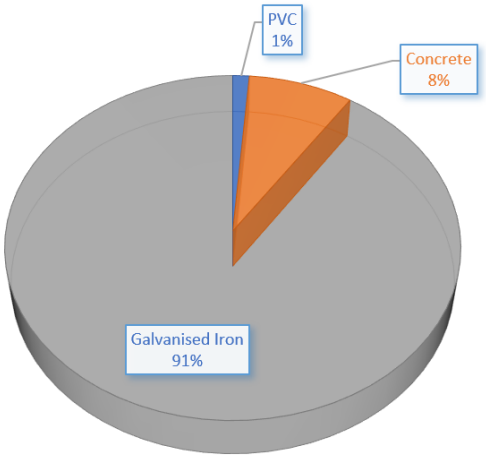
Putorino, like Omatane, is a private scheme which Council is not involved in maintaining. The

location of the Putorino scheme can be seen in the following map.

Figure 33: Putorino Rural Water

Pipe material in Putorino is mostly galvanized iron, since the mains are of small diameter (see Table 25). This is distinct from all other water supplies mentioned, in which the mains are larger and constructed from different materials.

Table 25: Pipe Material – Putorino Water



Information on the consent held by the Putorino Farm Settlement Water Supply Committee for this supply is given in the following table.

Parameter	Comments	Data
Consent Limit	Unnamed tributary of Rangitīkei River off Rangatira Rd. Consent held by Putorino Farm Settlement Water Supply Committee.	80 m^3/day

Wastewater

A summary of Council's wastewater assets is given in the following table (Source: WSP 2022 Revaluation of Three Water and Solid Waste Assets).

Location	Replacement Cost ($)	Depreciated Value ($)	Annual Depreciation ($/yr)
Facilities			
Marton	$8,950,000	$5,584,000	$153,000
Taihape	$4,128,000	$2,693,000	$117,000
Bulls	$2,510,000	$1,689,000	$43,000
Hunterville	$2,171,000	$1,488,000	$58,000
Mangaweka	$1,169,000	$622,000	$32,000
Ratana	$1,503,000	$854,000	$45,000
Koitata	$161,000	$73,000	$6,000
SUBTOTAL	**$20,592,000**	**$13,003,000**	**$454,000**
Pumping Stations			
Marton	$161,000	$50,000	$9,000
Taihape	$2,432,000	$1,658,000	$70,000
Bulls	$122,000	$59,000	$4,000
Hunterville	$0.00	$0.00	$0.00
Mangaweka	$0.00	$0.00	$0.00
Ratana	$0.00	$0.00	$0.00
Koitata	$41,000	$9,000	$1,000
SUBTOTAL	**$2,756,000**	**$1,776,000**	**$84,000**
Reticulation			
Marton	$31,156,000	$13,971,000	$376,000
Taihape	$14,443,000	$3,804,000	$149,000
Bulls	$10,243,000	$4,026,000	$136,000
Hunterville	$3,466,000	$1,494,000	$38,000
Mangaweka	$904,000	$95,000	$9,000
Ratana	$1,614,000	$926,000	$18,000
Koitata	$265,000	$160,000	$3,000
SUBTOTAL	**$62,091,000**	**$24,476,000**	**$729,000**
TOTAL	**$85,439,000**	**$39,255,000**	**$1,267,000**

Table 26: Wastewater Asset Summary

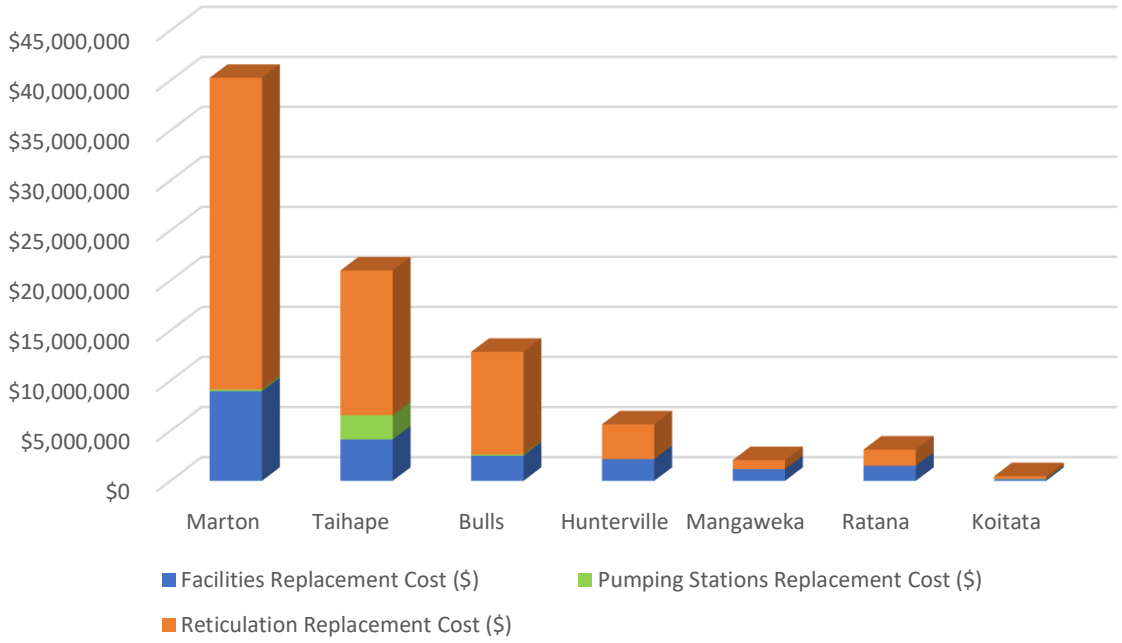


Figure 34: Water Asset Summary

A breakdown of wastewater mains by network is given in the following table and chart. (Source, UnityManage Asset Management System)

Network	Length of Mains (km)
Bulls	16.5
Hunterville	5.9
Koitiata	0.9
Mangaweka	1.6
Marton	49.5
Rātana	3.7
Taihape	22.2
TOTAL	**100.3**

Table 27: Wastewater Mains by Network

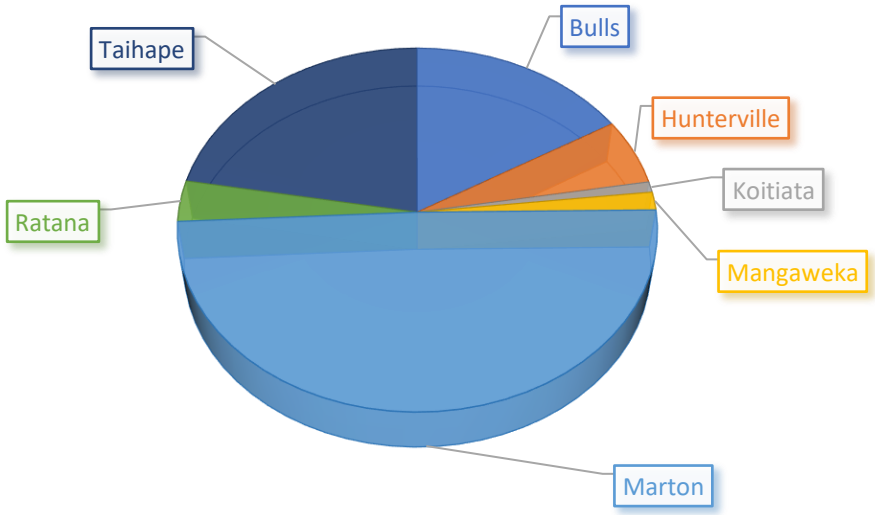


Figure 35: Wastewater Mains by Network

As discussed in the Water Supply summary, rather than graphing the age profile of the asset base for Wastewater, it is more useful to consider the remaining retained value percentage of these assets. As of the 2022 WSP Revaluation, the Wastewater assets held 45.95% of their replacement value. This indicates that the Wastewater network, facilities and pumping stations on a whole are further through their anticipated life cycle then their Water Supply counterparts (of which held 53.15%).

Location	Replacement Cost ($)	Depreciated Value ($)	Retained Value Percentage
Marton	$40,267,000	$19,605,000	48.69%
Taihape	$21,003,000	$8,155,000	38.83%
Bulls	$12,875,000	$5,774,000	44.85%
Hunterville	$5,637,000	$2,982,000	52.90%
Mangaweka	$2,073,000	$717,000	34.59%
Ratana	$3,117,000	$1,780,000	57.11%
Koitiata	$467,000	$242,000	51.82%
TOTAL	**$85,439,000**	**$39,255,000**	**45.95%**

Table 28: Depreciation

As can be seen in Figure 36, the variance between communities in respect to the depreciation life cycle is notable. Ratana assets hold 57.11% of their value, in comparison to Taihape of which carries 38.83% and Mangaweka of which carries 34.59%.
This indicates that investment is needed in Taihape and Mangaweka, to reduce the risk carried by the organisation currently. Alternatively, investment into understanding the condition of these assets, and adjusting the remaining life of these assets is a viable option. Adjusting the remaining life, prior to the next revaluation will adjust the retained value percentage to be reflective of the assets positioning along their lifecycle, and in turn, their depreciated value.

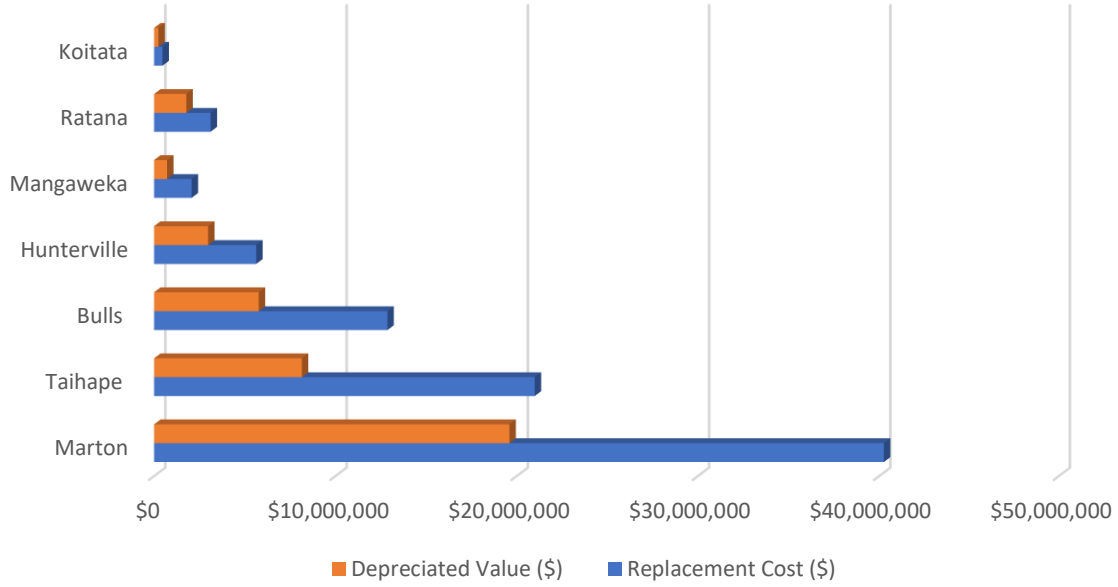


Figure 36: Depreciation

The Bulls wastewater network was mostly constructed in the 1970s when the town moved from individual septic tanks on private properties to a reticulated wastewater system. When this network was created, property owners had to connect their septic tanks to the reticulation. Records were sent to the Council by plumbers showing the locations of these connections, and dimensions. These have since been scanned, and the information contained within them uploaded to our asset register.

The Mangaweka network in general is very old, much of it dating from the 1890s. Relatively speaking, there have been few maintenance issues with the system. For this reason, the assets have not been inspected as frequently as assets on our other wastewater networks, and information is lacking. The system has, however, had CCTV work done on its entirety, and these records have been captured.

Much of the wastewater reticulation in Marton was installed in the 1970s when the new treatment plant was constructed, so data is fairly reliable. There are extensive hard copy plans for Marton, and Council has had access to field books containing invert levels. Where the installation years of older pipes have been in doubt, they have been assigned a nominal installation year of 1910. This is the reason why a large proportion of Marton's wastewater assets are recorded as being more than 100 years old.

The wastewater network in Rātana was installed fairly recently, and there are few issues with lack of asset information. The reticulation is predominantly PVC and was laid in the 1980s.

Similar to that discussed in the Water Supply Summary in respect to condition, information held by UnityManage for Wastewater assets is poor, and has failed to capture information relating to the condition of assets during operational and maintenance activities. However, a significant amount of CCTV footage is available for analysis and processing, and it has been identified as a project in the opportunities for improvement section to utilise the information

from these CCTV events, and add this to the UnityManage system to build the understanding of the condition of the network. UnityManage has a dedicated CCTV module, that utilises the data from CCTV events and can provide the user the opportunity to enter the defects registered as part of the inspection. Utilising this data is a financially efficient use of resources, being that the CCTV events have already been undertaken, and will continue to occur. A business process will be developed in 2024 to ensure that this information is captured within the asset management system at the time of the data being collected and submitted to RDC.

In addition to the CCTV for the reticulation, there is opportunity to collect condition data for treatment plants and pumping station assets, at time of staff engagement with these assets, however this is currently not being undertaken. Insufficient data is held on condition for treatment plant or pump station, and this represents a risk since pumping stations and treatment plants are considered to be key assets in the ongoing operation of the network, and the treatment and discharge of the sewerage.

Like Water Supply, focussing on the collection and understanding of the condition of the Wastewater Asset Base is a focus for the 2024 and 2025 period.

The following sections outline the Wastewater Networks within the communities and areas serviced by RDC.

Bulls

The Bulls wastewater network was installed in three stages from 1974 to overcome concerns about groundwater pollution caused by septic tank discharges. The Council has also inherited sewer drains installed by the Ministry of Defence for an Air Force housing block. The network operates primarily by gravity with one small lift pump station required on a lower river terrace.

The entire community is serviced including a small industrial area including food processing. The town's abattoir runs and maintains its own oxidation pond system.

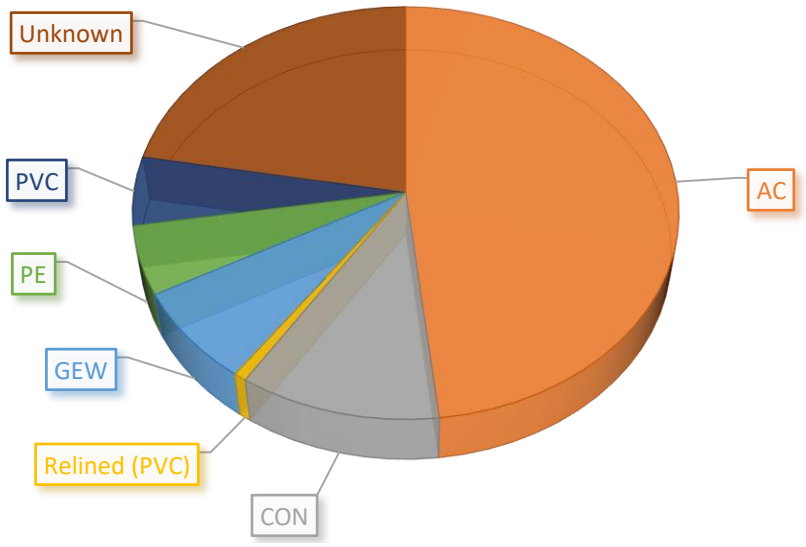
The extent of the Bulls network can be seen in Figure 37.

Figure 37: Bulls Wastewater

The Bulls wastewater network comprises pipelines ranging from 100 to 375 mm in diameter. The network is relatively young with an age of less than 40 years. The majority pipe material is Asbestos Cement, which has exhibited accelerated deterioration in other communities. However, there is very little industrial waste in the township and the expected remaining life for this material is expected to be longer than elsewhere.

The predominant wastewater pipe material in use in Bulls is Asbestos Cement. There is, however, around a quarter of pipes for which the material is unrecorded (Figure 38).

Figure 38: Pipe Material – Bulls Wastewater



The large amount of "unknown" pipe material can be shown to be the lateral connections from private property to the main. It is assumed these would be GEW pipes if they are part of the original construction. (Service connections account for 5207.16m out of a total of 5243.88m of Unknown material).

Condition

The embankment around the wastewater ponds has been damaged by the failure of the concrete waveband in several locations. The quality of the original concrete waveband is poor and in places the slope of the embankment is such that concrete has moved allowing subsequent erosion of the material behind the band. Some areas have been repaired by filling the voids behind the concrete band with mass concrete. In some of these locations the repair work has not been particularly successful with continuing damage occurring. These observations indicate that the deterioration of the waveband and embankment will continue and in the long term failure of part of the embankment could occur.

The mechanical screen is well maintained and in good condition.

The pump structure is in reasonable condition. The power/control cabinet has been renewed recently to alleviate heat build-up and reliability issues. Telemetry systems have a redundant system which can be switched on when the older system fails.

The reticulation is generally in good condition. The only known problem is the build-up of fats in the Air Force housing area. The surface condition of some larger concrete pipes near the treatment plant shows exposed aggregate material suggesting chemical attack.

The bulk of the reticulation was installed in the 1970s. The condition profile requires further work to establish a true reflection of the condition of the network, however Level of Service information / works requests indicate that the network if performing at the expected level. Processing of CCTV information into the UnityManage system will enable an improved understanding of the current status of the network.

Capacity

The ponds are considered to be oversized for the community and this provides an extra level of security for any possible growth or infiltration.

Council has identified the need to control the quantity of infiltration and inflows to reticulated systems, including Bulls. This is extremely important in terms of the capacity of the sewerage system. Heavy rainfall flows, far in excess of the normal flows, have been and will be experienced in the sewerage networks from time to time. While the sewerage system has been designed to carry some extra water during storm flow conditions, flows far in excess to non-peak flow will lead to low lying access chambers and gully traps in some areas of the sewerage network to overflow. Smoke testing has been found to be more effective that visual inspections alone. I&I investigations have been carried out, and findings will be used to improve network performance.

The performance grading for the pipe network is largely determined by the occurrence of infiltration of ground water, tree roots or other sources of restricted flow. Approximately 4% of the network is considered to have poor or very poor performance. Despite much of the reticulation being laid in private property, tree roots are not a major issue.

Capacity information relating to Bulls Wastewater is given in the table below. The Riverlands plant has its own wastewater system, and is not included in these figures.

Parameter	Comments	Data
Population connected	2018 Census, Stats NZ	1935 persons
Pump Stations	Domain Road Water Treatment Plant	2
Consent Limit	Discharge from Bulls oxidation pond to Rangitīkei River	515 m^3/day
Discharge (2022-2023)	Average daily	520 m^3/day
	Peak daily	2,359 m^3/day
Treatment Efficiency	Maximum throughput	1,000 m^3/day

Performance

The treatment processes in use at the plant are indicated below:

Treatment Type	Processes
Primary	Mechanical screen
Secondary	Primary pond (1.978 ha) - aerated Secondary pond (1.648 ha)

The form of upgrading of the Bulls oxidation ponds likely to be required needs to be able to reduce the suspended solids concentration, bacteria concentration, ammonia concentration, phosphorus concentration and preferably the soluble inorganic nitrogen (SIN) concentration.

Key issues include:

- The ponds are oversized for the current population. There is an opportunity for a trade waste agreement with Riverlands Meat Processors to accept pre-treated effluent from their adjacent oxidation ponds in the future.
- Large portions of the network are laid across private property causing issues around maintenance access and property subdivision development.
- Bulls will be included in the future Marton to Bulls combined wastewater treatment and disposal scheme.
- The Bulls ponds experience significant algae growth over certain summer months.

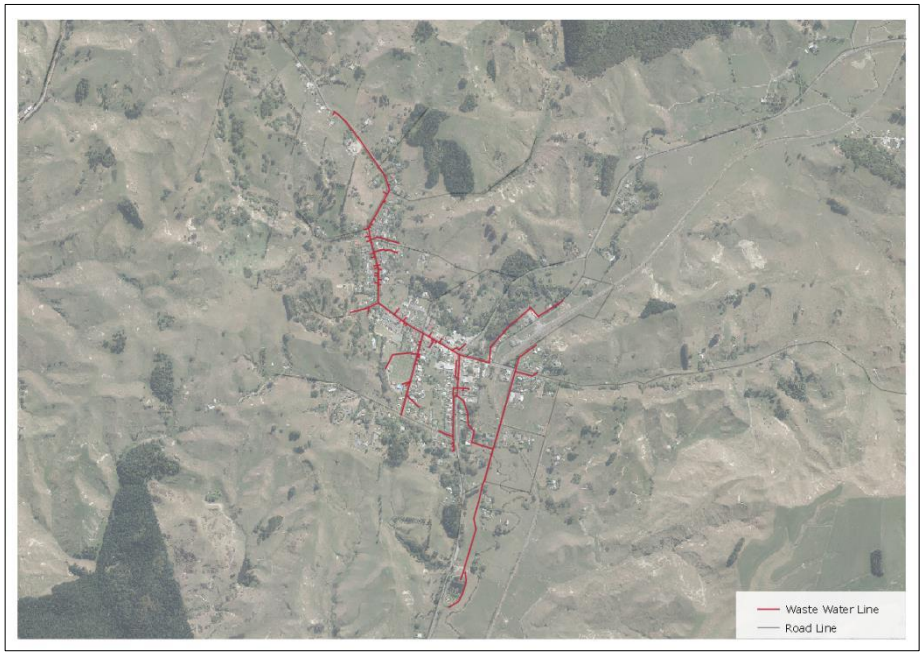
Hunterville

Hunterville is a small town in the Rangitīkei District and located on State Highway 1 about 40 kilometres north of Bulls. The town has a population of approximately 450 people and is mainly a support town for the rural community in the area. The wastewater network comprises largely earthenware pipes that were installed around 1910. The reticulation operates exclusively by gravity flow.

Wastewater from Hunterville is treated in primary and secondary oxidation ponds that are located between State Highway 1 and the Porewa Stream, approximately 500 m south of Hunterville. Treated effluent is discharged via an open drain to the Porewa Stream under conditions set by resource consent.

The extent of the area served by the Hunterville wastewater network can be seen in Figure 39.

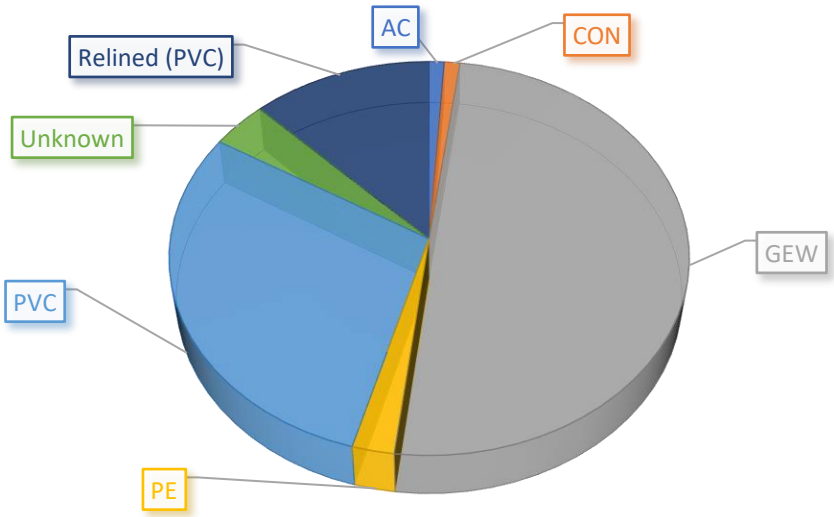
Figure 39: Hunterville Wastewater



Graphs of pipe age and material for the wastewater system in Hunterville follow. 50% of the reticulation was installed in the 1910s, and is now around 100 years old.

Because of the age of the infrastructure, most pipes on the Hunterville wastewater network are constructed from glazed earthenware. There is a substantial amount of newer, plastic pipe however (as seen in Figure 40).

Figure 40: Pipe Material – Hunterville Wastewater



Condition

A large proportion of the network is still the original earthenware pipe laid in the 1910-1930 period and portions of it is generally in very poor condition. It is nearing the end of its service life. There is a considerable infiltration problem due to the poor condition of the older pipes in the system. This has been recognised in previous AMPs, and as such a renewals programme was established to replace the old GEW with PVC. As these renewals occur, the condition of our wastewater assets in Hunterville is progressively improving. Further work to analyse the CCTV information and migrate this data into UnityManage is important to validate the need for upgrade projects and to establish those areas that are needing to be progressed earlier than others.

Capacity

Much of the original pipework from 1910-1930 is subject to infiltration. During wet weather this overwhelms the ability of the oxidation ponds to provide proper treatment. Heavy rainfall flows, far in excess of the normal flows, have been and will be experienced in the sewerage networks from time to time. While the sewerage system has been designed to carry some extra water during storm flow conditions, flows far in excess to non-peak flow will lead to low lying access chambers and gully traps in some areas of the sewerage network to overflow. Council has identified the need to control the quantity of infiltration and inflows (I&I) to reticulated systems, including Hunterville. This is extremely important in terms of the capacity of the sewerage system. These I&I issues can lead to emergency discharges of wastewater occurring from the treatment plant during winter. Upgrade work to the plant is planned to prevent this occurring, and ongoing I&I investigations will contribute to solving this problem.

Information on capacity is given below.

Parameter	Comments	Data
Population connected	Prior to 2013 Census	444 persons
Pump Stations	None	0
Consent Limit	Discharge to land that enters Porewa Stream	250 m^3/day
Discharge (2022-2023)	Average daily	191 m^3/day
	Peak daily	804 m^3/day
Treatment Efficiency	Maximum throughput	1,152 m^3/day

Performance

Hunterville's Wastewater Treatment Plant utilises the processes below:

Treatment Type	Processes
Primary	Bar screen
Secondary	Primary pond - aerated Secondary pond (total area 0.853 ha) Wetlands
Phosphorus removal	Alum dosing
Primary	Clarifier
Tertiary	UV disinfection

Koitiata

Koitiata is a small beachside community with a mainly seasonal population. The wastewater network is small and usually operates well below design capacity. The Koitiata sewer network serves a limited population with 17 connections. The community has a total seasonal population of between 100 and 250 people.

The Koitiata wastewater network was installed in 1986 when the Council built a new subdivision. The network serves only this subdivision and the camping grounds ablution block. The wastewater drains by gravity to a pump station outside the camping grounds and is then pumped to the oxidation pond. Effluent from the pond is discharged to land within the surrounding natural wetland in a disposal area consisting of six rows of 200 mm slotted pipe into the sand.

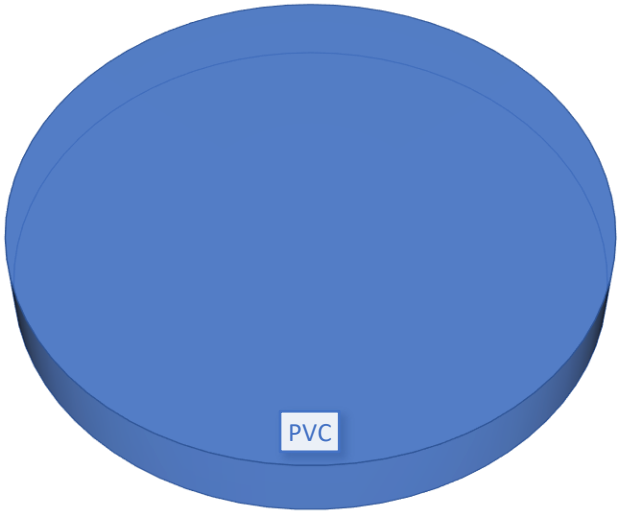
Figure 41 shows the extent of the Koitiata wastewater network.

Figure 41: Koitiata Wastewater

A key issue is the compliance issues of the majority of the septic tanks in Koitiata. Regardless of the material of construction, a septic tank must be watertight and structurally sound to protect the environment and function properly. A survey of septic tank systems, and sampling of groundwater, has been carried out by Council. This has revealed that there is no contamination of groundwater by septic tank effluent. The results have been communicated to Horizons Regional Council, which is the governing authority for septic tank discharges.

Council will consider investigating the provision of a reticulated wastewater system at Koitiata, in consultation with the community.

The Koitiata wastewater network is only 37 years old, and has an expected life of 90 years. Being relatively new reticulation, all Koitiata wastewater pipes are constructed from PVC (see Figure 42).



Condition

The pond is in good condition and shows no condition-related problems. The butenyl liner, however, is deteriorating and in need of replacement. The intention is to replace it with a similar liner of modern material (most likely PE). Plans will need to be developed as to how this is carried out while leaving the system operational. The pump station operates some three times each day, providing inflows to the plant. The solution may be to install a bypass or a holding tank. The pond will be de-sludged prior to liner replacement. One potential option will be to carry out liner replacement in summer, and to tanker out effluent during the period in which the pond is not operational.

There are no problems experienced with the pipe network or the rising main, as could be expected of a system of this age and materials. No CCTV surveys have been carried out in this area due to the low probability of such a recent network needing work.

The overall condition of wastewater assets is still considered to be at or above average, with 90% of assets recorded as being in average condition, and 10% of assets being recorded as being in good condition. No assets have a recorded condition of poor or very poor. Because of the age of this network, undertaking CCTV and processing the subsequent data into UnityManage has a low priority, and only reactive CCTV events will be undertaken and processed into UnityManage at this stage.

The pumping line is buried in sand country and may be exposed to vehicular damage as it is laid adjacent to a forestry track.

Capacity

Capacity data for Koitiata are given below.

Parameter	Comments	Data
Population connected	Prior to 2013 Census	58 persons
Pump Stations	Prior to WWTP	1
Consent Limit	Discharge from oxidation pond to land	16.2 m3/day (based on inflow)
Discharge (2022-2023).	Average daily	3.1 m3/day
	Peak daily	7.0 m3/day
Treatment Efficiency	Maximum throughput	25.9 m3/day

The plant is designed to only cope with the original 17 properties in the subdivision. Maximum loading for the pond is 58 persons. The census data indicates a usually resident population of 93 and a total of 125 properties. This would rise seasonally to well over 250 people. There is pressure from other residents to connect to the system to satisfy infill housing or new subdivisions. It is suspected that some non-approved connections have been installed by local residents.

Performance

Treatment at Koitiata is briefly described below.

Table 29: Treatment Processes – Koitiata Wastewater

Treatment Type	Processes
Primary	Septic tanks at individual properties (except campground)
Secondary	Primary pond (625 m[1])

The pond has a butenyl liner, but as mentioned above its condition is deteriorating and it is in need of replacement.

[1] Based on WWPS outflow of 0.0003 m^3/s, running for 24 hours.

Mangaweka

The Mangaweka wastewater network was established in 1910 as reticulated pipe network directing effluent to a community septic tank. The effluent from this tank discharged directly into the Rangitīkei River. In 2006 a new treatment plant was commissioned for the community after public consultation. This provides a much higher quality effluent to meet the new resource consent conditions.

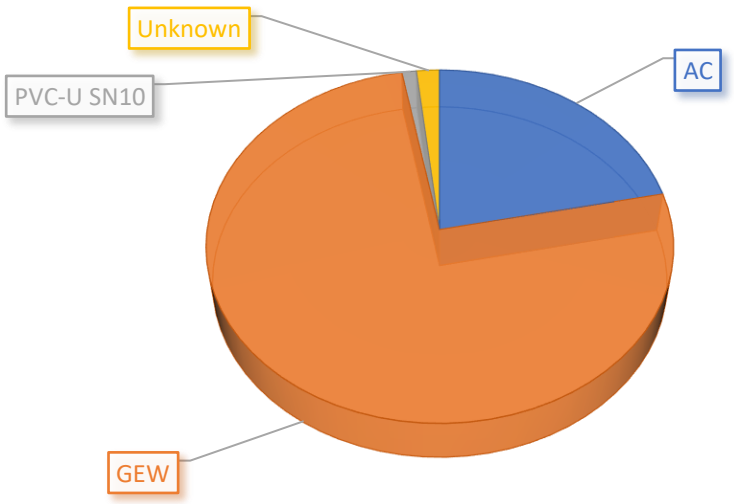
The reticulation does not service all properties within the town: properties on Raumaewa Road, Cage Road, Weka Street and the south end of Mangawhahariki Road (SH1) are not serviced. A separate waste disposal system operates at the Mangaweka Campground but is not evaluated in this Asset Management Plan.

Following treatment, disposal of effluent is via a rock bed and a discharge over the adjacent cliff to the Rangitīkei River below.

The extent of the Mangaweka wastewater system is shown in Figure 43.

There are mostly two materials found in wastewater pipe assets in Mangaweka: glazed earthenware and Asbestos Cement (Figure 44).

Figure 45: Pipe Material – Mangaweka Wastewater



Condition

The condition of Mangaweka wastewater assets, like other communities previously discussed, needs to be understood through the analysis of previously undertaken CCTV events, with the resulting data processed into UnityManage. Currently over 53% of the assets (by replacement value) exceed 100 years in age, with the expected life of the GEW being 100 years, and the AC being 60. This would suggest that a significant percentage of the network will need attention through maintenance or renewals over the next 10 years.

Capacity

Information on population connected and plant capacity are given in the following table.

Table 30: Asset Capacity – Mangaweka Wastewater

Parameter	Comments	Data
Population connected	Prior to 2013 Census	Approx. 60% of resident population of 250
Pump Stations	None	0
Consent Limit	Discharge to Mangatera Stream	90 m^3/day
Discharge (2022-2023)	Average daily	Unavailable
	Peak daily	Unavailable
Treatment Efficiency	Maximum throughput	360 m^3/day

There are I&I issues in Mangaweka which have yet to be addressed. The focus on I&I in the District in recent times has been on Bulls, Huntervillle and Taihape; and historically on Marton.

Performance

The Mangaweka wastewater treatment system is described in the following table.

Table 31: Treatment Processes – Mangaweka Wastewater

Treatment Type	Processes
Primary	Septic tanks at individual properties 2 x 70 m^3 community septic tanks in series
Secondary	Fixed film bio-filters
Nutrient removal	Recirculating bio-filter
Tertiary	UV disinfection

The Mangaweka wastewater treatment plant is almost 20 years old and is nearing the end of its expected design life. The plant will be upgraded and renewed to extend the expected life by an additional 20 years.

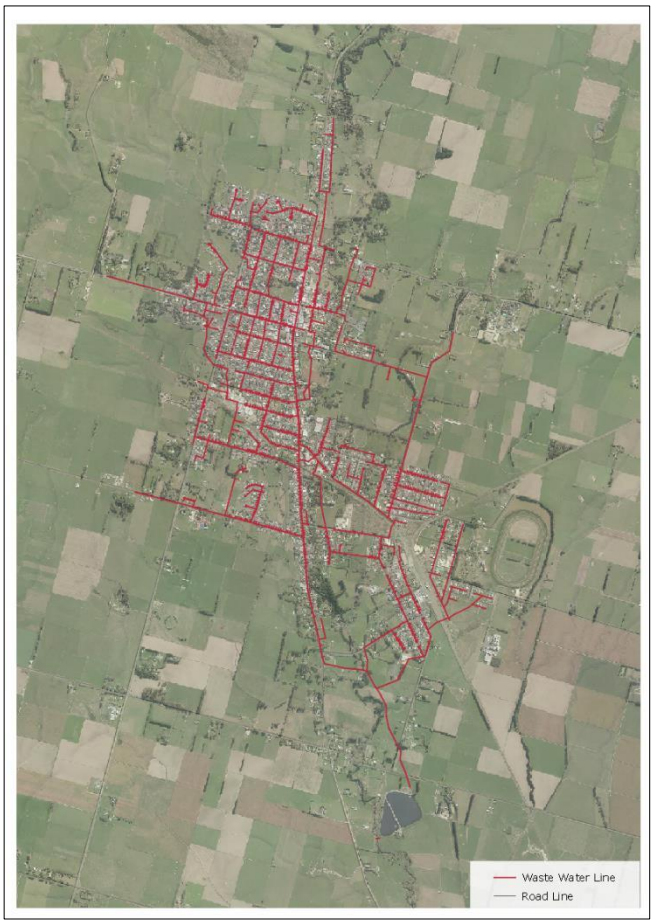
Marton

Marton is situated on mildly rolling terrain, which gradually slopes to the oxidation ponds at the south of the town. The reticulation relies entirely on gravity flow to service the properties connected.

As well as residential and commercial sewer connections, there are a handful of food processing industries. Two major inputs to the Marton WWTP are Speirs Foods and Malteurop. Both industries contribute to create imbalanced waste as sulphur, hydrogen and COD levels are higher than municipal waste, therefore the inherent odours that are produced are going to be an ongoing issue. The most significant industrial discharge, however, is Bonny Glen landfill. In recent years, leachate from the landfill has been trucked to alternative wastewater treatment plants in the region, and no further discharge of Bonny Glen leachate is accepted at the Marton WWTP.

Septage from tanker trucks is received at the King St dump station, where it is fed directly into the reticulation. The dump station in King Street (which serves both septage tanker trucks and caravans) is maintained by Council wastewater staff.

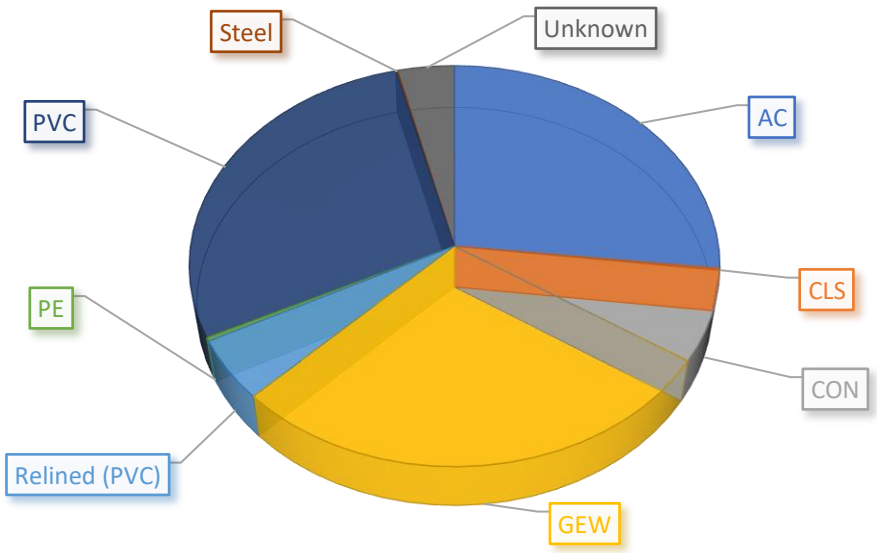
The extent of the Marton wastewater network can be seen in Figure 45.



The Marton wastewater network comprises pipelines ranging from 100 to 500 mm in diameter.

The most common wastewater pipe materials for Marton are Asbestos Cement, PVC and glazed earthenware. See Figure 46 for more details.

Figure 46: Pipe Material – Marton Wastewater



Condition

The initial two-stage oxidation ponds were built in the 1970s with the demolition of the original septic tanks, and have been progressively developed to improve the quality of effluent discharge. An aeration pond was added shortly afterward. This pond has since been upgraded to an anaerobic pond to overcome significant load and flow variations. This pond will provide a buffer and preliminary treatment for slugs of strong organic waste. Its objective is to partially stabilize the incoming wastewater. Another objective is to considerably reduce the organic loading to the secondary treatment units i.e. the secondary and tertiary oxidation ponds, before passing through to the filtration plant and UV disinfection system. The recirculation sand filter plant was built in 1997 but is no longer in use.

The original sewer reticulation dates back to 1910, built from glazed earthenware. Development work in the 1970s saw the addition of asbestos concrete or concrete pipes, replacing 40% of the reticulation. The original earthenware pipes are generally in poor condition and are now causing infiltration and overflow problems due to root intrusion, collapsed pipes, offset joints and poor quality laying. Recent renewals of critical areas of the network especially in Wellington Road and Grey Street have alleviated the surcharging and overflows of recent years.

Asset condition confidence is generally good for these older pipes, and condition monitoring will target these areas with updated information added to the asset register on a regular

programmed basis. Areas with overflow problems are recorded and will be assessed in prioritising-planned renewals.

Approximately 12% of the network is in poor or very poor. The age of these pipes are between 60 and 100 years old. The Asbestos Cement pipes laid in the 1970s are on average in worse condition than other pipe materials of similar age. Asbestos Cement pipe has suffered in some areas of town due to the aggressive acidic attack by industrial wastes suggesting poor material choices in the past. Overall most pipes in the network are in good condition.

Capacity

Under the conditions of the current resource consent, the change in water quality of the Tutaenui Stream must lie within required levels rather than a specified quality of effluent. The effluent has met resource conditions except for ammonia levels.

The Marton population is expected to grow over the next 10 years, and work on network models started to be in a position to upgrade the correct portions of the network to accommodate this growth. These models will also be used to accurately determine development contributions for the new residential and industrial expansion when needed. Periodic flow monitoring at the ponds indicates a high level of infiltration/inflow corresponding with winter rainfalls. This poses a risk to the quality and quantity conditions of the resource consent as the biological treatment processes are slowed down with cooler temperatures, and the extra flow reduces detention time.

Significant wet weather volume infiltration is over represented in the older catchment areas and deeper sewers. Although the oxidation ponds are currently designed to cope with current inflow, it places unnecessary loading on the treatment facilities and increases the potential for overflows in the network. Sewer systems tend to failover time through infiltration, joint displacements and build-up of debris. Occasional blockages are generally cleared within the stated level of service. A couple of areas have sluggish flow and would benefit from an annual jetting operation to remove deposits. These lines are either on a shallow gradient and unable to self-clean, or receive discharges from properties without grease traps.

The following table gives an indication of the capacity at Marton WWTP.

Parameter	Comments	Data
Population connected		2,200 properties connected
Pump Stations	None	0
Consent Limit	Discharge to Tutaenui Stream	No volume limit; only pollutant concentration/loading limits

Inflow (2022-2023)	Average daily	2,191 m^3/day
	Peak daily	5,263 m^3/day
Treatment Efficiency	Maximum throughput	3,000 m^3/day

In some areas of the network, the system capacity is exceeded during wet weather. Some areas have experienced overflows from manholes. A hydraulic model of the network has identified these areas requiring larger capacity pipes and these upgrades will be undertaken subject to the renewal plans.

Capacity is not an issue at the plant itself. The issues at Marton WWTP are around performance and compliance (below).

Performance

The treatment plant at Marton uses the following processes:

Table 32: Treatment Processes – Marton Wastewater

Treatment Type	Processes
Primary	Grit trap Mechanical screen (auger)
Secondary	Anaerobic pond Primary pond (5.421 ha) - aerated Secondary pond (2.670 ha) Continuous moving bed filtration system
Tertiary	UV disinfection (not in use)
Sludge handling	Holding tanks Recirculation to plant inflow Sludge disposal system

As mentioned earlier, the acceptance of leachate from Bonny Glen leachate has stopped. Further work is required in order to make the plant consistently compliant with consent conditions. Marton will form part of the Marton to Bulls Centralisation project to pipe wastewater to Bulls for treatment and discharge to land. This would relieve pressure on the Tutaenui Stream, which at some times of the year has no natural flow.

Rātana

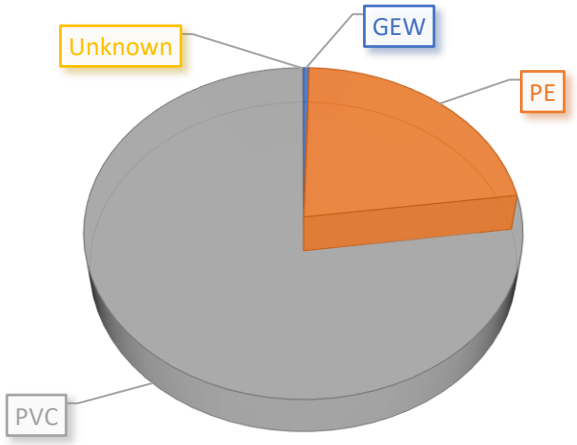
The Rātana wastewater network was installed in 1979. The Rātana oxidation ponds (a two-pond system) are located off Rangatahi Road, to the west of Rātana Township. They provide treatment for effluent from Rātana's reticulated sewerage system. The final effluent is discharged into an unnamed tributary of Lake Waipu. The network operates entirely by gravity. The pipelines are laid predominantly on private property.

The extent of the Rātana network is shown in Figure 47.

Figure 47: Rātana Wastewater

Charts showing the age and material of the sewer pipes in Rātana follow. Pipes make up the bulk of the value of a wastewater system, so it is important to know this crucial data.

Wastewater pipes in Rātana, due to their fairly recent installation, are entirely PVC plastic. This is shown in Figure 48.



Condition

Given the young age of the network, the assets forming the Ratana network are considered to be in good to average condition, however, further analysis of CCTV and samples is required to validate this understanding.

Capacity

While the treatment plant can meet current consent conditions, there are occasions on which it is non-compliant, particularly with respect to nitrogen. This is a concern because of the nature of the ultimate receiving environment (Lake Waipu), particularly given its significance to the people of Rātana. As part of an application for a new discharge consent, consideration was given to the treatment process used and also the receiving environment, in order to facilitate the construction of an upgraded plant that will meet the aspirations of the community as well as any consent conditions. RDC in partnership with the Ratana community, Horizons Regional Council and the Ministry for the Environment are working on a land disposal scheme that will remove all treated wastewater from Lake Waipu in the future. This work is expected to be completed by the end of 2024.

The performance of the wastewater reticulation system is adequate for all current needs, although it is at full capacity during the annual Rātana festival. The only problems encountered with the reticulation involve fat deposits. These are cleared promptly and the cause is investigated and rectified where possible. As mentioned in Section 4.2.2, the proposed 60-lot subdivision at Rātana will have the effect of increasing wastewater flows. The current treatment plant for Rātana was sized for the existing township. The increases in wastewater flows that would come about from such a substantial development mean that investigation will be required into the ability of the current system to cope. The most likely scenario is that the treatment process would need to be enhanced or expanded upon. These upgrades will be included in the new disposal to land scheme that will be completed by 2024. Provision for further expansion of the Ratana community will also be included in the new design. The ultimate size of this subdivision is currently projected to be 120 lots, with the second group of 60 lots coming on line in 5-10 years' time.

There have been no significant failures of the network or treatment plant.

Indications are given below of the capacity of the Rātana wastewater system.

Parameter	Comments	Data
Population connected	Prior to 2013 Census	366 persons
Pump Stations	None	0
Consent Limit	Discharge to unnamed tributary of Waipu Stream	136 m^3/day
Discharge (2022-2023)	Average daily	Unavailable
	Peak daily	Unavailable
Treatment Efficiency	Maximum throughput	240 m^3/day

Analysis of flow data has revealed that I&I issues exist at Rātana. Investigation and resolution of these will be programmed. Reference to this work will be made in the application for a new discharge consent.

Performance

Treatment processes currently used at Rātana Wastewater Treatment Plant are described below. These will change to some extent through discharge consent renewal.

Treatment Type	Processes
Primary	Auger
Secondary	Primary pond - aerated Secondary pond (total area 0.853 ha)
Solids removal	Rock filter
Tertiary	UV disinfection (not in use)
Nutrient removal	Recirculating bio-filter

Performance issues at Rātana are generally related to ammonia levels in the discharge, and are only periodic. As part of applying for a renewal of the discharge consent, a process will be selected that will future-proof the plant in terms of effluent quality as well as capacity. One strong possibility will be discharge of treated effluent to productive land, in which case high levels of nutrients would be an advantage rather than a concern.

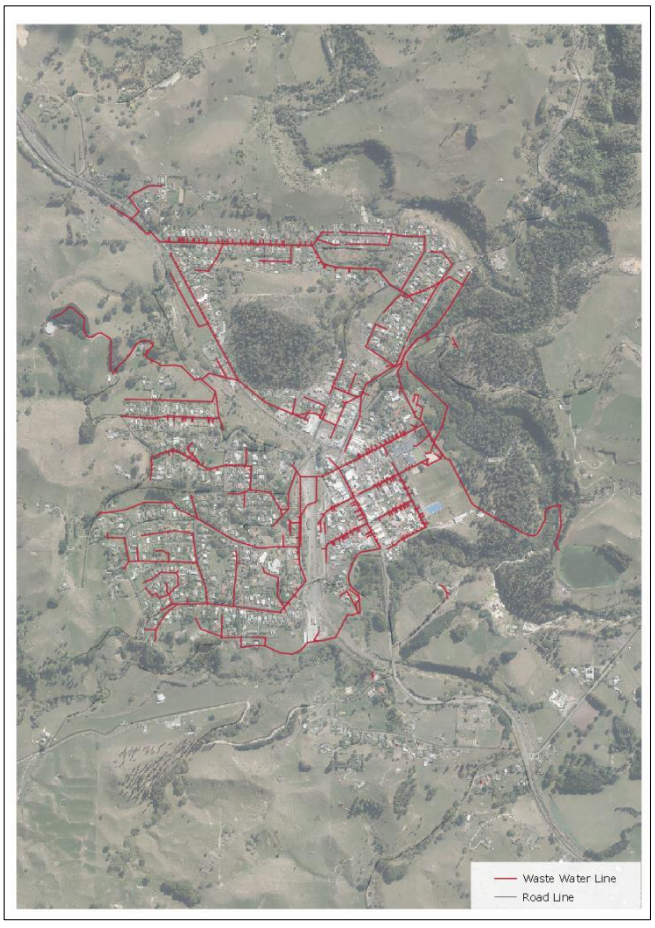
Taihape

Taihape is situated on moderately steep hill country and is bounded on the east side by the Hautapu River. The system has three pump stations to forward flows onto the oxidation pond situated on the east side of the Hautapu River. The pump station at Hautapu river has been upgraded to supply a much higher level of service to minimise the risk of future wastewater spills into the Hautapo River. The construction of this new pump station will be completed by the end of 2024. The Taihape sewer network excludes the satellite catchments of Dixon Way and Mangaone Valley.

The system is very old and originally was built as a combined stormwater/effluent system until the 1940s when a stormwater network was constructed.

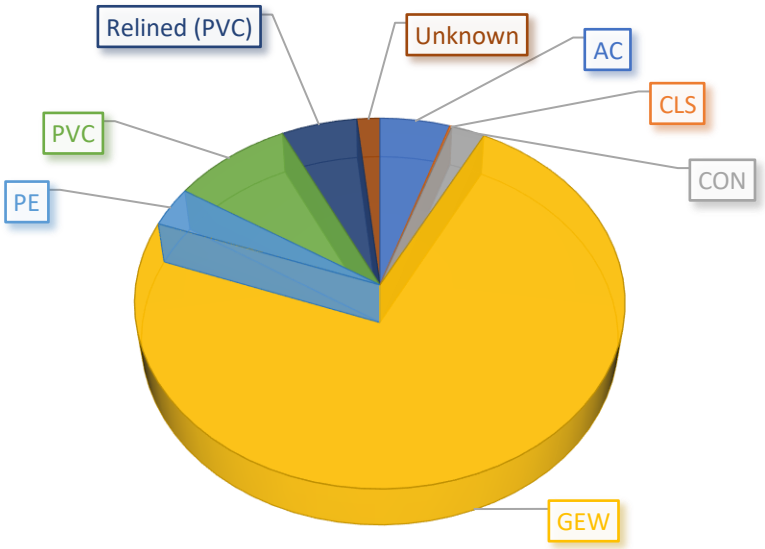
The oxidation pond was constructed well over 25 years ago. It was initially designed to provide for the treatment of sewage (for a population of 6,000), stormwater and other wastewater from the community of Taihape.

Figure 49 shows the extent of the Taihape wastewater network.



The Taihape wastewater network comprises pipelines ranging from 100 to 375 mm in diameter. Approximately 70% of the network is thought to be glazed earthenware pipes over 90 years old.

Due to the age of the reticulation (see above), most of the wastewater pipes are found to be glazed earthenware. The remaining pipes are made up of a range of material types (Figure 50).



Condition

The oxidation pond is generally in good condition. There is minor seepage occurring through the pond embankment, but this is not significant enough to warrant repair. All the structures controlling the pond flow are in good condition. The pond is unlined, but does include a waveband.

The bulk of the reticulation was installed between 1910 and 1920. This age data is considered accurate and from this we have estimated that 70% of today's reticulation was constructed during this period from 150 mm diameter glazed earthenware pipe.

Approximately 22% of the network is in poor or very poor condition. Much of the network (70%) is recorded as being glazed earthenware pipe. Poor grading scores are caused by joint displacements. This is supported both from CCTV and the infiltration studies showing high groundwater inflow.

An assessment of the capacity of the reticulation network (modelling of the network) has now been undertaken to be able to upgrade the capacity of the network to prevent overflows.

Capacity

Capacity information for Taihape is given in Table 33.

Parameter	Comments	Data
Population connected	Prior to 2013 Census	2,200 persons
Pump Stations	Huia St	3
	Papakai Rd	
	Achilles Drive	
Consent Limit	Discharge onto land that enters Hautapu River when flow > 2.8 m^3/s at Alabasters.	1,200 m^3/day
	Discharge onto land that enters Hautapu River when flow ≤ 2.8 m^3/s at Alabasters.	500 m^3/day
Discharge (2022-2023)	Average daily	1,355 m^3/day
	Peak daily	3,013 m^3/day
Treatment Efficiency	Maximum throughput	3,000 m^3/day

The pond is actually over-sized for the current community, having been designed at construction for a population of 6,000 persons.

There is currently no reticulated wastewater system for Dixon Way in Taihape. The provision of wastewater services to this area in some form will be investigated by Council, to determine the best approach.

Taihape was originally built with a combined stormwater/wastewater network, which is gradually being separated. Sewer systems tend to fail over time through infiltration, joint displacements and build-up of debris. Occasional blockages are generally cleared within the stated level of service. A couple of areas through private property have sluggish flow and would benefit from an annual jetting operation to remove deposits.

It is believed that there are a high number of reticulation failures that continue unobserved underground due to the terrain of the network. These failures could be one of the causes of the infiltration problems of the network and will be identified with the condition-rating programme.

Performance

The performance grading for the pipe network is largely determined by the occurrence of infiltration of ground water, tree roots or other sources of restricted flow. Approximately 10% of the network is considered to have poor or very poor performance. Root intrusion

does not seem to be as prevalent as in other communities, but there is evidence of substantial infiltration.

Treatment in use at Taihape WWTP is shown below. All wastewater for Taihape passes through the Huia St WWPS, where it is screened and then pumped across the river to the treatment plant.

Treatment Type	Processes
Huia St WWPS	
Primary	Auger
Taihape WWTP	
Secondary	Primary pond (3.438 ha) - aerated
Primary	Clarifier Membrane filtration
Phosphorus removal	Alum dosing

The key performance, and compliance, issue at Taihape WWTP is flow. While the plant is capable of treating wastewater to the required quality, the amount of I&I in the system means that it periodically breaches consent limits for discharge flow. Work underway in the reticulation on renewal of mains, and resolution of I&I issues, will alleviate these issues. See "Capacity" above.

Another issue that is problematic from time to time is the growth of algae on the pond. The clarifier and membranes at the plant has been replaced and upgraded to improve treatment performance. RDC is considering the addition of additional treatment processes to achieve consistent compliance with the existing consent conditions.

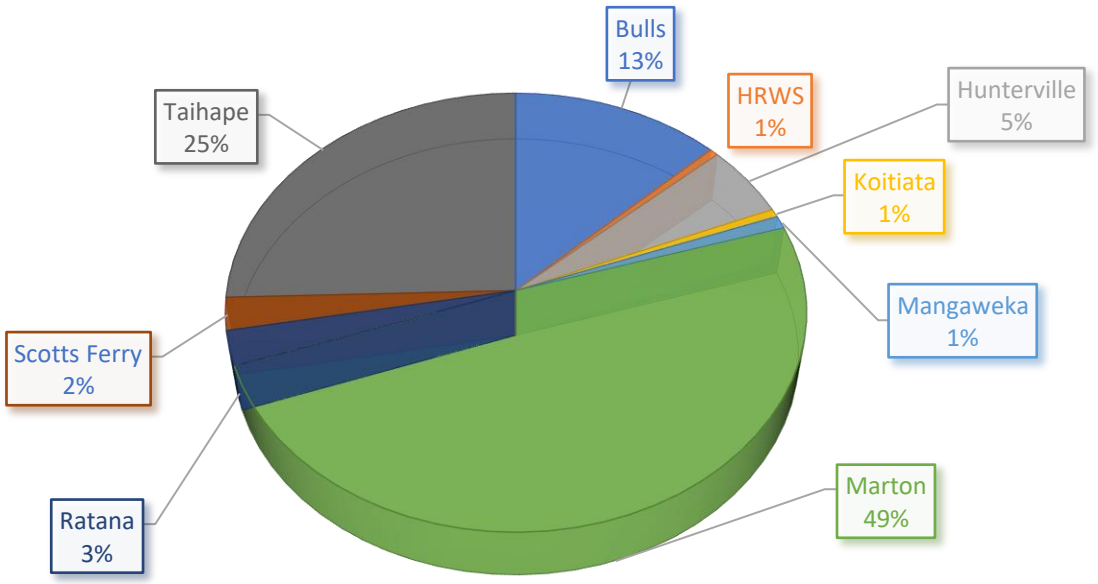
Stormwater

The stormwater assets owned by Council are summarised in the below table, with values sourced from the WSP 2022 Three Waters Revaluation.

Location	Replacement Cost ($)	Depreciated Value ($)	Annual Depreciation ($/yr)
Urban Stormwater			
Marton	$19,461,000	$11,874,000	$243,000
Taihape	$11,064,000	$4,319,000	$146,000
Bulls	$4,548,000	$2,170,000	$89,000
Hunterville	$2,490,000	$1,710,000	$35,000
Mangaweka	$532,000	$243,000	$11,000
Ratana	$788,000	$364,000	$9,000
Koitata	$112,000	$97,000	$2,000
Scotts Ferry	$429,000	$239,000	$9,000
SUBTOTAL	**$39,424,000**	**$21,016,000**	**$544,000**
Rural Stomwater			
Rakataua	$70,000	$70,000	$70,000
HRWS	$67,000	$25,000	$1,000
SUBTOTAL	**$137,000**	**$95,000**	**$71,000**
TOTAL	**$39,561,000**	**$21,111,000**	**$615,000**

Council's stormwater networks are described, in terms of network length, in Table 34 and Figure 51 below.

Network	Length of Mains (km)
Bulls	6.9
Hunterville	2.9
HRWS	0.3
Koitiata	0.3
Mangaweka	0.5
Marton	26.6
Rātana	1.4
Scotts Ferry	1.3
Taihape	13.7
TOTAL	**53.9**



As discussed in the Water Supply and Wastewater summaries, rather than graphing the age profile of the asset base for Stormwater, it is more useful to consider the remaining retained value percentage of these assets. As of the 2022 WSP Revaluation, the Stormwater assets hold 53.36% of their replacement value. This indicates that the Stormwater networks, across the entire asset base hold a higher retained value percentage then both the Wastewater and Water Supply networks (marginally), indicating that both the Water Supply and Wastewater networks are, on a whole, further through their lifecycle then the Stormwater Networks.

Location	Replacement Cost ($)	Depreciated Value ($)	Retained Value Percentage
Marton	$19,461,000	$11,874,000	61.01%
Taihape	$11,064,000	$4,319,000	39.04%
Bulls	$4,548,000	$2,170,000	47.71%
Hunterville	$2,490,000	$1,710,000	68.67%
Mangaweka	$532,000	$243,000	45.68%
Ratana	$788,000	$364,000	46.19%
Koitata	$112,000	$97,000	86.61%
Scotts Ferry	$429,000	$239,000	55.71%
Rakataua	$70,000	$70,000	100.00%
HRWS	$67,000	$25,000	37.31%
TOTAL	**$39,561,000**	**$21,111,000**	**53.36%**

As well as holding information on our own stormwater assets, Council also keeps some information on stormwater systems located on private property, as well as assets owned by Horizons Regional Council. This is partly because these privately or regionally owned systems can impact on our own stormwater network, and partly to keep track of ownership in case this is not clear. The Asset Management Plan does not contain details on those assets which are outside Council ownership.

Condition information for stormwater is reasonably complete, but a large number of assets are only listed as “Excellent” since that is the default value. This is due to historical default values within the Asset Management System, and not a reflection of assessments. The condition rating of “N/A” is used for assets where no condition information is available, as part of the condition data improvement programme identified in the OFI section of this AMP would incorporate identification of those assets that should be N/A that are currently classified as Excellent.

Bulls

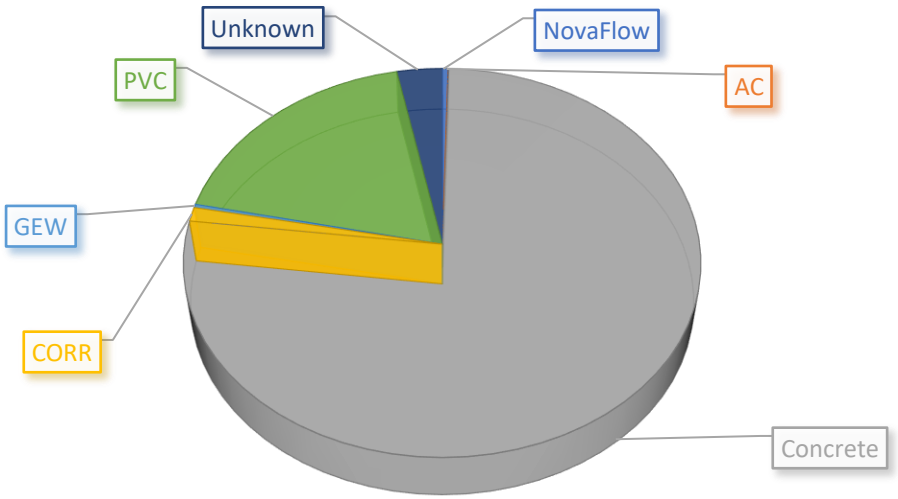
The Bulls urban stormwater network is characterised by a flat river plain on two distinct levels, serviced by public and private drains feeding into key catchments serviced by open unlined drains. These drains feed into the Rangitīkei River and the Tutaenui Stream. The Bulls stormwater network is a mixture of mainly open drains with some short sections of piped reticulation.

The extent of the stormwater system for Bulls is shown in Figure 52.

Figure 52: Bulls Stormwater

A breakdown of pipe materials used for Bulls stormwater is given in Figure 53. Predominantly, the pipes are made of concrete. But at least 17% of the pipe network is plastic. Material is unknown for approximately 3% of stormwater pipes in Bulls.

Figure 53: Pipe Material - Bulls Stormwater



Condition

The condition of the Bulls Stormwater network has been assessed via selective CCTV activity. The results from this CCTV have been analysed by staff, however the results have not been processed into the UnityManage Asset management system. Migrating this data to the AMS is included as part of the condition data improvement programme identified in the OFI section of this AMP.

Capacity/Performance

Background data for Bulls stormwater are given in Table 35.

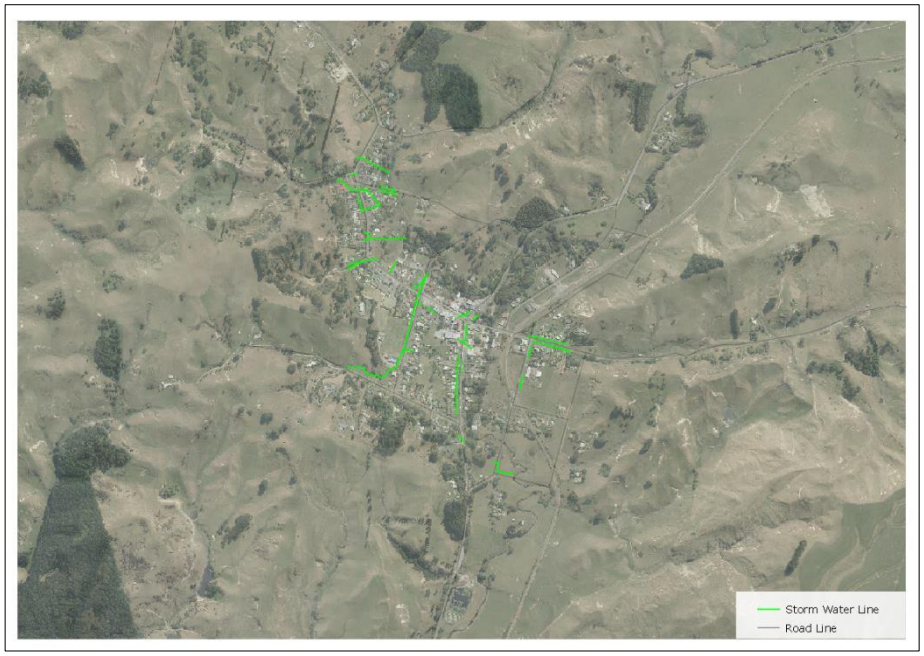
Parameter	Data
Population served	1,649
Total urban catchment area	1.52 km^2
Number of catchments	4

Hunterville

Hunterville is situated at the confluence of several valleys. The natural grades are steep and significant runoff can occur quickly. The natural grade throughout the township varies, but is generally rolling to steep. The Hunterville urban stormwater network receives stormwater runoff from the surrounding rural area, conveys it through the town collecting runoff from the urban environment on the way and discharges to the Porewa Stream catchment.

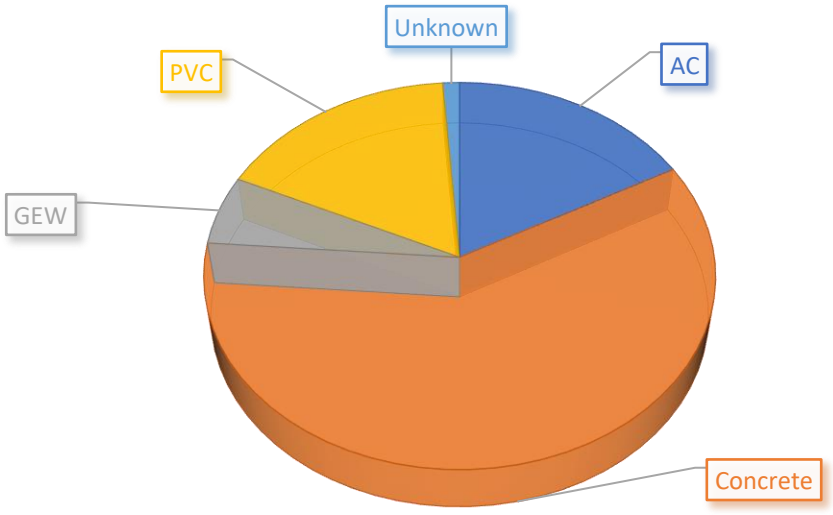
The area served by the Hunterville stormwater network is displayed in Figure 54.

Figure 54: Hunterville Stormwater



Most stormwater pipes in Hunterville are concrete, as indicated in Figure 55. There is a reasonable amount of Asbestos Cement pipe on the network as well.

Figure 55: Pipe Material - Hunterville Stormwater



Condition

CCTV work has been undertaken for this network, however, there are some gaps in information for this network, and this information has not been loaded into the UnityManage AMS. Condition grading following CCTV inspections and more accurate dates of installation will allow the Council to improve our asset information, and forms part of the Condition Data OFI identified later in this AMP.

Capacity/Performance

General information on the network is shown in Table 36.

Table 36: Background Data - Hunterville Stormwater

Parameter	Data
Population served	438
Total urban catchment area	0.69 km^2
Number of catchments	11

Mangaweka

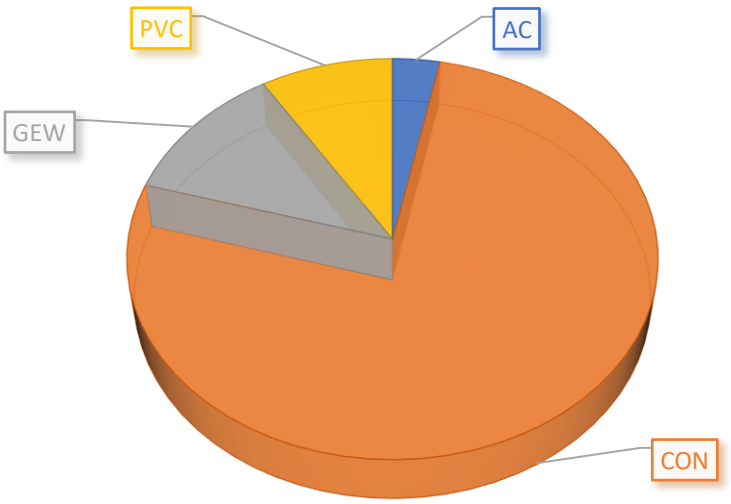
Mangaweka's urban drainage is predominately made of concrete culvert pipes laid around about 1945 connecting roadside drains. It is considered a relatively simple network. The town is situated on a river terrace and the three main drains on Bank St, Kawakawa St and Raumaewa St all drain towards the Rangitīkei River. All three drains run underneath the State Highway. There are other culverts outside the town boundary which are maintained as road assets either by the local authority or by NZTA.

The extent of the stormwater network for Mangaweka is shown by Figure 56.

Figure 56: Mangaweka Stormwater

Figure 57 shows the breakdown of pipe materials used in Mangaweka stormwater. The pipes themselves are mostly concrete, but a significant amount of the assets are open drains.

Figure 57: Pipe Material – Mangaweka Stormwater



Condition

Reticulation condition data is poor with no assessments being undertaken in the last ten years. Data confidence will be improved upon with planned CCTV inspections throughout the District in the next five years. Similarly condition data for the manholes, sumps and headworks can also be verified at this time.

Capacity/Performance

A summary of background data for the Mangaweka network is given in Table 37.

Table 37: Background Data – Mangaweka Stormwater

Parameter	Data
Population served	168
Total urban catchment area	2.545 km^2
Number of catchments	3

Marton

The Marton urban stormwater network receives stormwater runoff from the surrounding rural area, conveys it through the town collecting runoff from the urban environment on the way and discharges to the Tutaenui Stream catchments. Marton is situated on mildly rolling terrain, which gradually slopes toward the Tutaenui Stream. The natural grade varies, but is generally mild.

The Marton stormwater system catchment is shown in Figure 58.

Figure 58: Marton Stormwater

The potential need for a stormwater discharge consent is being worked through with Horizons. This involves the collection of baseline data to determine the significance of any effects on the natural environment. Following a successful application for such a consent to cover Marton, other urban areas would be looked at with the same intent (particularly Bulls and Hunterville).

The construction materials for Marton stormwater pipes are shown in the following chart. Predominantly, the material used has been concrete.

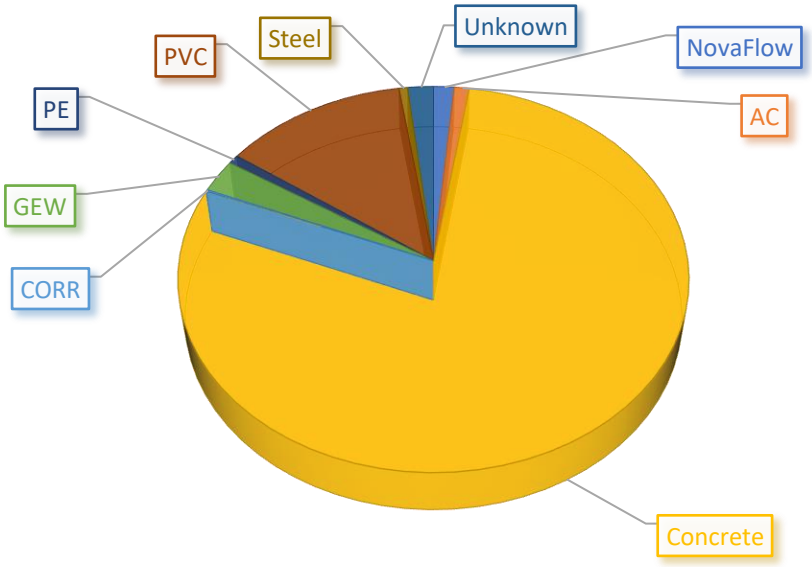


Figure 59: Marton Stormwater Pipes Construction Materials

Condition

CCTV inspections have been undertaken throughout the network, however this data has not been migrated to the UnityManage AMS. As part of the condition improvement programme identified in the OFI section of this AMP, this data will be migrated from the CCTV data to the AMS to enable quantification of the condition of the network.

Capacity/Performance

Background data for the Marton stormwater network are given in Table 39.

Parameter	Data
Population served	4,637
Total urban catchment area	5.754 km^2
Number of catchments	19

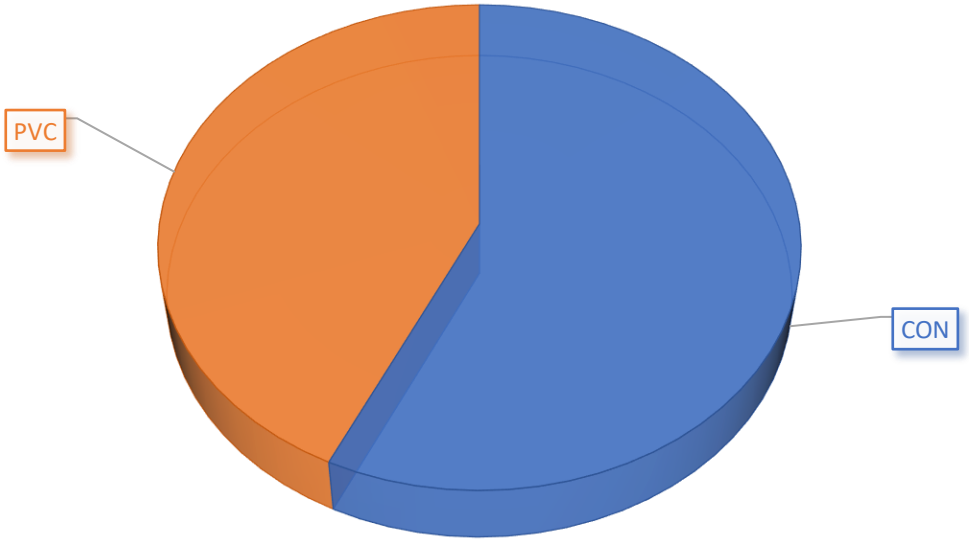
Rātana

The Rātana urban stormwater network collects stormwater runoff primarily from the urban area with only a small rural catchment, conveys it through the town and discharges to the Waipu Stream. Rātana is situated on mildly rolling terrain, which gradually slopes toward the Waipu Stream.

The Rātana stormwater system is shown in Figure 60.

Stormwater pipes in Rātana are either concrete or uPVC. See below.

Figure 61: Pipe Material - Rātana Stormwater



Condition

CCTV inspections have been undertaken throughout the network, however this data has not been migrated to the UnityManage AMS. As part of the condition improvement programme identified in the OFI section of this AMP, this data will be migrated from the CCTV data to the AMS to enable quantification of the condition of the network.

Capacity/Performance

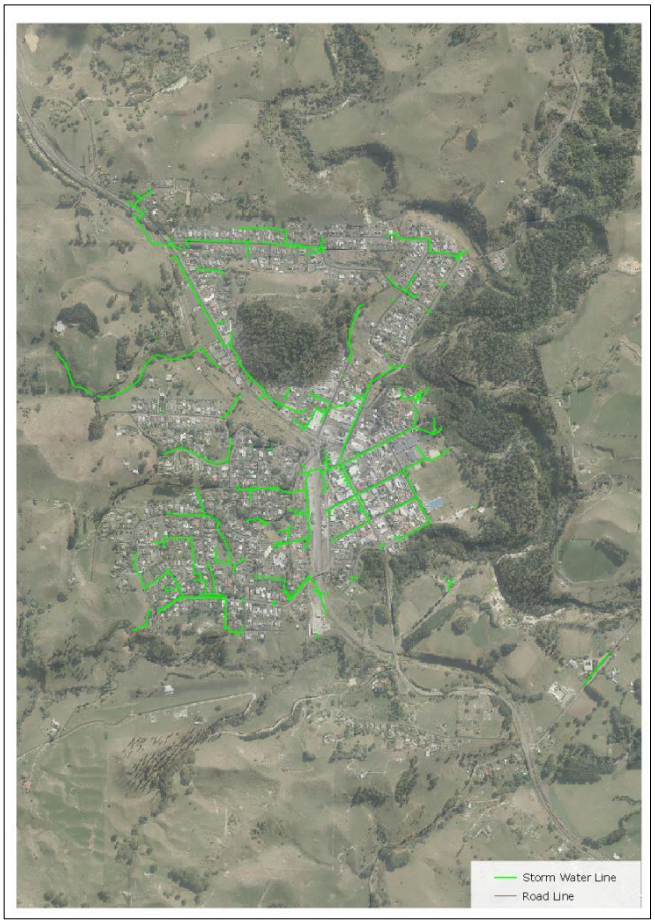
Key data for the network is given in Table 40.

Parameter	Data
Population served	347
Total urban catchment area	2.2 km^2
Number of catchments	3

Taihape

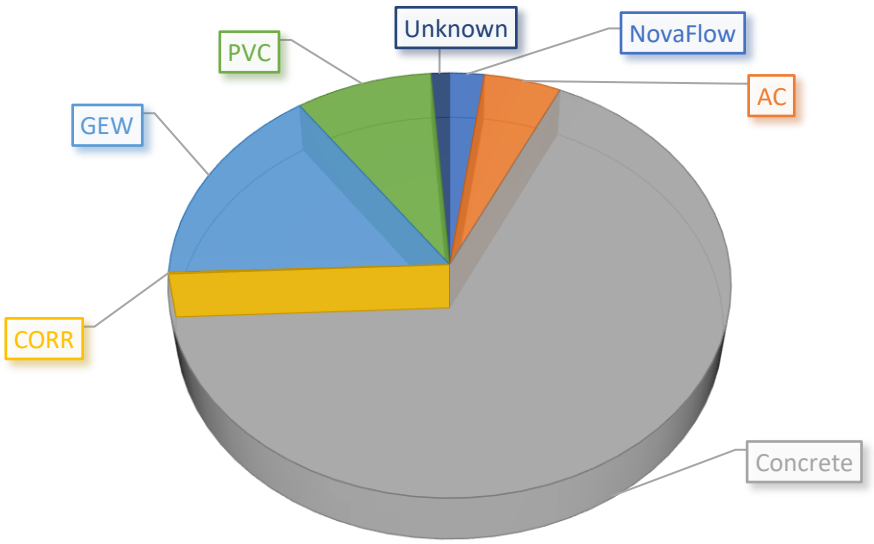
The Taihape urban stormwater network receives stormwater runoff from a relatively small surrounding rural area, conveys it through the town collecting runoff from the urban environment on the way and discharges to the Hautapu River and its tributary catchments. The topography is steep with pipe and drain gradients having significant slopes and high flow velocities. As a result, Taihape has a greater density of reticulated stormwater pipes.

The extent of the network is shown in Figure 62.



The most commonly found stormwater pipe material in Taihape is concrete (see Figure 63). There are also significant amounts of glazed earthenware and uPVC.

Figure 63: Pipe Material – Taihape Stormwater



Condition

CCTV inspections have been undertaken throughout the network, however this data has not been migrated to the UnityManage AMS. As part of the condition improvement programme identified in the OFI section of this AMP, this data will be migrated from the CCTV data to the AMS to enable quantification of the condition of the network.

Capacity/Performance

Background data on the network are given in Table 41.

Table 41: Background Data – Taihape Stormwater

Parameter	Data
Population served	1,759
Total urban catchment area	0.5 km^2
Number of catchments	3

The Taihape West zone, although showing fewer signs of land movement is an area which requires more regular and intensive inspections and prompt follow up of reticulation faults, either condition or performance.

Rural Stormwater

There is a budget for rural stormwater systems, which includes small systems in areas such as Utiku, Koitiata, Rakautaua and Scotts Ferry. These are not considered to be fully reticulated systems, but there are Council stormwater assets in these locations that need to be maintained, and have associated records kept.

Scotts Ferry has a network of 1.3 km of gravity mains, while Koitiata has some 300 meters of piped stormwater collection, and Rakautaua has 4.6 km of open drains downstream from Whangaehu. However, the extent of these systems, and the level of expenditure on them, does not warrant their being considered as separate networks to the extent that systems in larger towns are.

Maps of some of these networks are shown below.

Figure 64: Koitiata Stormwater

Figure 65: Scotts Ferry Stormwater

Dudding's Lake is another locality where there is a small stormwater system. The infrastructure here, which includes a wastewater system as well, is managed by a community trust. Currently, Rangitīkei District Council has no involvement with the infrastructure in this locality.

Resource Consents

Council holds a large number of resource consents for its water supply, wastewater and stormwater activities. There is a significant cost to obtain consents, and each Resource Consent is issued a lifespan. This significant investment, and the life of the resource consent enables the Resource Consent to be considered an asset, contributing towards the operation of the network that they are associated with. As such, Resource Consents are considered Non-Tangible Assets and as such, they are recorded as assets in our Asset Register. The Asset Register for Resource Consents requires updating, including the scheduling of work against each Resource Consent of which can be used to schedule:

- Annual or Periodic Reporting
- Planning for Renewal Actions to be scheduled
- Expiration dates

As part of the Asset Data improvement programme of works in 2024, the resource consent asset register will be reviewed, updated and improved to add value to the organisation. Improving the Asset Register for resource consents will also enable a centralised portal for information relating to the resource consents and any issues that occur that relate to the compliance of the consent. This will improve the efficient of reporting relating to the Resource Consents.

The following tables summarise the key information for the critical resource consents RDC holds in regards to the three water networks and their operation.

Water Supply

Water Supply	Consent	Consent Number	Expiry Date	Description	Renewal Actions / Status
Bulls	Abstraction – Bore	103868	16 Jan 2022	Bore 5, adjacent to Bulls WTP.	Renewal in Progress for both Consents, aiming to merge the two separate consents for the bores into one.
	Abstraction – Bore	6903	16 Jan 2022	Four bores adjacent to Rangitīkei River (Bores 1, 2, 3 and 4).	
Mangaweka	Abstraction – Rangitīkei River	APP-2004010818.01	1 Jul 2037	Infiltration gallery at Mangaweka Campground.	Current, and Expiry Post 2034 – No Action Required.
Marton	Abstraction - Calico Line Bore	106300	1 Jul 2027	Supplementary supply for Marton.	Renewal Planning to commence circa 2025
	Abstraction – Tutaenui Stream	6929	11 Jul 2032	From C Dam and B Dam.	Renewal Planning to commence circa 2030

Water Supply	Consent	Consent Number	Expiry Date	Description	Renewal Actions / Status
	Abstraction – Well 303029 (Tutaenui Bore)	106125	1 Jul 2027	Located within road reserve on Tutaenui Rd.	Renewal Planning to commence circa 2025
	Discharge	1996004039.01	11 Jul 2032	Discharge alum sludge and filter backwash to B Dam.	Renewal Planning to commence circa 2030
Rātana	Abstraction – Bore (New Supply)	APP-2014200014.00	1 Jul 2034	Bore on Rātana Rd.	Renewal Planning to commence circa 2032
Taihape	Abstraction – Hautapu River	101722	31 May 2020	Limits dependent on flow in Hautapu Stream.	An application for Abstration Consent was submitted to Horizons Regional Council in Jan 2020. Horizons placed on hold awaiting information. In progress.
Erewhon Rural	Abstraction – Reporoa Stream	103986	1 Jul 2027	East of Matawhero Rd	Renewal Planning to commence circa 2025
	Abstraction - Dam	103987		Consent to dam stream using weir	
Hunterville Rural	Abstraction – Rangitīkei River	103989	1 Jul 2037	Riparian take (infiltration gallery)	Current, and Expiry Post 2034 – No Action Required.
	Dam	RTK800737	6 Jan 2026	Consent to dam unnamed tributary of Porewa Stream	Renewal Planning to commence circa mid – late 2024
	Disturb and Divert	106903, 106904	1 Jul 2037	Disturb bed and divert water for maintenance of infiltration gallery	Current, and Expiry Post 2034 – No Action Required.
Omatane Rural	Abstraction	103988	1 Jul 2027	Unnamed tributary of Makino Stream at Makino Rd	Renewal Planning to commence circa 2025
Putorino Rural	Abstraction	105370	1 Jul 2027	Unnamed tributary of Rangitīkei River off Rangatira Rd. Consent held by Putorino Farm Settlement Water Supply Committee.	Renewal Planning to commence circa 2025

Wastewater

Wastewater	Consent	Consent Number	Expiry Date	Description	Renewal Actions / Status
Bulls	Discharge	6406	7 Oct 2006	Discharge from Bulls oxidation pond to Rangitīkei River. Existing use rights has been obtained to allow for the development of disposal to land alternatives.	Existing Use Protection Applies (s124)
Hunterville	Discharge to Water	105833	1 Jul 2037	Discharge to land that enters Porewa Stream. Application for variation underway.	Application for Variation currently progressing
	Discharge to Land	105834	1 Jul 2037	Discharge to land via pond seepage.	Current, and Expiry Post 2034 – No Action Required.
	Land Use	105835	1 Jul 2037	Construction of rock outfall within Porewa Stream bed; no instream works between 1 May and 31 December of any year.	Current, and Expiry Post 2034 – No Action Required.
Koitiata	Discharge to Land	105079	1 Jul 2024	Discharge from oxidation pond to land.	In progress. Working towards application lodge date of 1 March 2024.
	Land Use	106028	1 Jul 2024	Construction of land disposal area.	
Mangaweka	Discharge to Water	101726	19 Mar 2024	Discharge to Mangatera Stream.	Application submitted December 2023. Has been accepted and now being processed.
Marton	Discharge to Water	7312	31 Mar 2019	Shall not give rise to negative effects on receiving environment as detailed in consent.	Existing use rights applies (s124)
	Discharge to Air	7313	31 Mar 2019	As above	
Rātana	Discharge to Water	7400	31 Jul 2018	Discharge to unnamed tributary of Waipu Stream. Existing use rights has been obtained to allow for the development of disposal to land alternatives.	Existing use rights applies (s124)
Taihape	Discharge	105518	1 Jul 2027	Discharge onto land that enters Hautapu River. Preparations started for a new discharge consent application.	Preparations started for a new discharge

Stormwater

Stormwater	Consent	Consent Number	Expiry Date	Description	Renewal Actions / Status
Taihape	Discharge to Water	ATH-1998007414.00	30 June 2033	Discharge Stormwater And Land Drainage Water Into The Hautapu River	Renewal Planning to commence circa 2031
Marton	Discharge to Water	ATH-1995002982.00	23 June 2030	To Divert Stormwater Through A 900 Mm Pipe In A Watercourse On Calico Line	Renewal Planning to commence circa 2028
Bredins Line, Marton	Discharge to Water	ATH-2022205114.00	10 June 2027	Discharge Permit, Water, Stormwater	Renewal Planning to commence circa 2025

Risk Management

Framework

The Council faces a range of business risks inherent in the functions of being a local authority. The Council's objective is to integrate risk management practices and procedures that are targeted to (and appropriate for) Council's strategic and operational goals, and also appropriate for Council's business functions. The Council evaluates risk at the corporate and at an activity level. Once the risk cost is known, the organisation can then evaluate the risk reduction opportunities available. Risk treatments are the management practices and processes to eliminate the probability and/or lessen the consequences of the risk event.

New risks identified in the Local Government sector includes the rapidly changing legislative environment in respect to the Central Government three Waters Reform programme, and the upcoming repeal process of the previously established legislation returning the assets to council ownership following the previous governments establishment of the transfer to central. This repeal will result in LTP budget reviews and significant works required to ensure maintenance, operation and capital budgets meet not only the current level of service, but also the new requirements that Government have indicated will form part of the repeal and reform process. At the time of writing this AMP, there was still significant unknowns in relation to this process. As part of the OFI section of this AMP, a programme of works has been identified to review the new KPI and DIA measures that the Government have indicated will form part of the Three Waters reform, including changes to the reporting and funding process. This programme of works will be able to be established once Central Government release further information.

The international Covid 19 pandemic caused significant disruption and uncertainty for the past 3 years, with significant disruption to the local economy. COVID-19 and its impacts will be continued to be felt for many years yet. The pandemic highlighted the risk that continued globalisation has, as more people and product is transported internationally, the risk of future pandemics is no longer trivialised, and is considered to be a very real risk across the globe. As part of the Councils ongoing risk assessment process, pandemics and their subsequent lockdowns, staff sickness, and economic impacts will continue to be included.

An addition risk to RDC is the rate of infrastructure improvements and upgrades due in the near future, and the associated resourcing and costs that this will require. Aside from the risk of funding, infrastructure projects require specialised skills and resources, of which the industry is facing a shortage. The industry is facing challenging times in respect to staffing and resources, and the affordability of such. As a district, we are experiencing growth, and this growth requires additional resources, infrastructure and services.

Council adopts risk treatments on the basis of cost/benefit, where a reduction in risk exposure is seen as an organisational benefit. In some cases Council may choose to accept the risk, whereas in other cases it will choose to do all it can to reduce the risk cost.

Council is committed to the identification, evaluation, prioritisation and management of these risks, in order to:

- Reduce, mitigate, transfer or eliminate threats.
- Allow for the most effective use of resources.
- Protect Council's corporate image and reputation as a responsible and ethical organisation.
- Capitalise on opportunities.

The risk management process is designed to ensure that:

- All significant operational and organisational risks are understood and identified.
- The highest risks that should be addressed in the short to medium term are identified.
- Risk reduction treatments that best meet business needs are applied.
- Responsibilities for managing risk are allocated to specific staff.

This section looks at the risk management framework set up by the Council for assessing and managing risk.

The framework for successfully identifying, analysing, evaluating and managing risk was established based on the joint Australian Standard AS 4360. This standard has since been replaced by the Joint Australian New Zealand International Standard – Risk management – Principles and guidelines (AS/NZS ISO 31000-2009)

The overall process framework for records management is unchanged:

- Establish the context (i.e. the external and internal parameters to be taken into account when managing risk);
- Assess the risk – identification, analysis (in terms of consequence and likelihood) and evaluation; and
- Treat the risk.

These are in the context of ensuring communication and consultation and undertaking monitoring and review.

The new standard offers a list of attributes of enhanced risk management to assist organisations measure their own progress. These derive from 11 principles, most of which are general management principles – creates and protects value, an integral part of all organisational processes, part of decision-making, systematic, structured and timely, based on the best available information, transparent and inclusive etc. This is intended to embed risk management as part of an organisation's management. The unique principle is that risk management explicitly addresses uncertainty, the nature of that uncertainty, and how it can be addressed.

The major elements of the risk management process are:

- Risk management context: establishes criteria against which risk can be evaluated.
- Risk identification: identifies the risks the Council may encounter and helps explain the impact of those risks on the business.
- Risk assessment: establishes a risk rating for all assets or asset groups, and describes which assets represent the greatest risk to the business.
- Risk treatment: identifies what actions are available to reduce risk at asset or asset group level to an acceptable level, and identifies the most cost effective treatment option.
- Monitor and review: the ongoing process to ensure risk levels remain acceptable even if risks change.

Risk Types

There are a number of different risk types considered in determining overall risks. These risk types represent the major groups of risks that could be present and must be considered in our risk management practices. Council has used the following risk types:

- Compliance (including legal).
- Operational.
- Environmental.
- Financial.
- Health & Safety.
- Reputation.

Risk Score

For each risk event identified, the consequence of failure and the likelihood of failure is assessed using the tables below. The risk cost is evaluated for each risk event identified using the following formula:

Risk cost = probability of event occurring x consequence of event

The likelihood of a given risk occurring is assessed using the following ratings:

Likelihood	Rating	Description	Frequency
Rare	1	May occur in exceptional circumstances	1 in 100 years
Unlikely	2	Could occur very occasionally	1 in 10 years
Moderate	3	Might occur from time to time	1 in 5 years
Likely	4	Will probably occur often	1 in 2 years
Almost Certain	5	Is expected to occur in almost all circumstances	Every year

The consequences of a given risk, assessed against each of the risk types from Section 6.1.1, are given in the table below:

Factor	Insignificant	Minor	Moderate	Major	Catastrophic
	1	2	3	4	5
Compliance	Minor exceedance, not recorded as noncompliance	Non-compliance occurs, without abatement notice	Abatement notice issued to Council	Council fined	Council or individual convicted
Operational	No loss of operational capability or negative disruption to service levels	Loss of operational capability in some areas and some disruption to service levels	Serious loss of operational capability for over 1 week and disruption to service levels	Serious loss of operational capability for over 2 weeks and major disruption to service levels	Serious loss of operational capability for over 4 weeks and serious disruption to service levels
Environmental	Localised short term reversible damage to aquatic and/or terrestrial ecosystems. No noticeable species reduction	Localised minor reversible damage to aquatic and/ or terrestrial ecosystems. Temporary reduction in one species	Localised, medium term reversible damage to aquatic and/ or terrestrial ecosystems. Moderate reduction in one or more species	Widespread, long-term reversible damage to aquatic and/ or terrestrial ecosystems. Significant reduction in one or more species	Widespread, irreversible damage to aquatic and/ or terrestrial ecosystems. Permanent loss of one or more species
Financial	Total loss less than $20,000	Total loss between $20,000 to $250,000	Total loss between $250,000 and $1 million	Total loss between $1 million and $10 million	Total loss of $10 million or greater
Health & Safety	Near miss	Injury not requiring treatment	Injury requiring treatment	Loss of life or permanent disability	Multiple loss of life
Reputation	Negative feedback from individuals or small groups in the community Negative regional multimedia coverage for up to 2 days	Loss of confidence among sections of the community Negative multimedia nationwide coverage for 2 days	Manageable loss in community confidence Negative multimedia nationwide coverage for several days	Large loss in community confidence that will take significant time to remedy Negative multimedia nationwide coverage for up to 2 weeks	Insurmountable loss in community confidence Negative multimedia nationwide coverage for 2 weeks +

The matrix below is used to assess the level of risk, depending on both the likelihood of that risk occurring and its consequences.

Likelihood	Consequence				
	1	2	3	4	5
1	L	L	L	M	M
2	L	L	M	M	H
3	L	M	M	H	H
4	M	M	H	H	E
5	M	H	H	E	E

The risk levels indicated are defined below:

Abbreviation	Risk Level	Description
L	Low Risk	Manage by routine procedures
M	Moderate Risk	Management responsibility must be specified
H	High Risk	Risk and management strategy identified in AM Plan Failure management plans available
E	Extreme Risk	Risk and management strategy identified in AM Plan Failure management plans specifically addressing event in place

Risk Register

The following risk registers contain a detailed breakdown of risks identified for each activity, as well as existing or proposed mitigations.

Water Supply

A summary of risks assessed

Location	Risk	Risk Types	Gross Risk			Management and Mitigation	Net Risk		
			Consequence	Likelihood	Risk Level		Consequence	Likelihood	Risk Level
District	Loss of water supply for more than 8 hours to multiple properties	• Operational • Financial • Health & Safety • Reputation	3	5	H	• Maintain register of key consumers e.g. dialysis patients, major industries, schools, medical, dental, rest homes, relevant commercial premises • Minimum 1 day storage in reservoirs • Council and contractors hold spares of key components. • Rural water supplies require consumers have on-site storage	2	3	M
	Poor water quality	• Compliance • Operational • Financial • Health & Safety • Reputation	4	3	H	• Maintain register of key consumers e.g. dialysis patients, major industries, schools, medical, dental, rest homes, relevant commercial premises	4	1	M
	Consent conditions not met	• Compliance • Environmental • Financial • Reputation	5	5	E	• Monitoring of performance; maintenance; capital works	3	2	M
	Leaks in roads	• Operational • Financial • Reputation • Compliance	2	5	H	• Proactive leak detection; prioritisation of renewals in roads	2	4	M
	Loss of electricity supply	• Operational	3	4	H	• Use existing 60 kVA generator and triage assets to run • Source 100 kVA generator that will run entire plant plus all other plants	2	4	M
	Failure of rising mains • State Highway • AC and steel	• Operational • Financial • Compliance • Reputation	5	2	H	• Proactive leak detection and asset renewals	5	1	M

Location	Risk	Risk Types	Gross Risk			Management and Mitigation	Net Risk		
			Consequence	Likelihood	Risk Level		Consequence	Likelihood	Risk Level
Bulls	Bulls reservoir failure • Seismic event	• Operational • Financial	5	2	H	• Feed reticulation directly • Assess seismic strength	4	1	M
Hunterville Urban	Loss of dam for backwash water • Private farmer's dam	• Compliance • Operational • Environmental	3	2	M	• Send to sewer • Formalise agreement	2	2	L
	Plant failure • Landslide	• Compliance • Operational • Financial • Health & Safety	5	1	M	• Observe potential for landslides affecting plant and mitigate as required	5	1	M
	Supply from Hunterville Rural Water Supply affected • Physical damage • Break down in relationship between Council and HRWS Committee	• Operational • Financial	5	5	E	• Set up pump from tanker in town • Mitigations on Hunterville Rural • Water Supply	4	4	H
	Loss of plant access	• Operational • Health & Safety	5	2	H	• Use alternate track suitable for quad bikes	4	2	M
	Rising main failure	• Operational • Compliance • Financial	5	2	H	• Proactive leak detection and asset renewals	5	1	M
	Trunk main failure	• Operational • Compliance • Financial	5	2	H	• Proactive leak detection and asset renewals	5	1	M
	Failure of mains under State Highway 1	• Compliance • Operational • Financial • Health & Safety • Reputation	3	2	M	• Proactive condition assessment and asset renewal • Relocate assets off highway where feasible • Work with NZTA to minimise risk of breakage	3	1	L

Location	Risk	Risk Types	Gross Risk			Management and Mitigation	Net Risk		
			Consequence	Likelihood	Risk Level		Consequence	Likelihood	Risk Level
Mangaweka	Intake damaged • Flooding • Liquefaction	• Operational • Financial	5	2	H	• Inspect regularly and communicate with Horizons about condition of river, particularly aggradation	5	1	M
	Rising main failure	• Operational • Compliance • Financial	5	2	H	• Proactive leak detection and asset renewals	5	1	M
	Trunk main failure	• Operational • Compliance • Financial	5	2	H	• Proactive leak detection and asset renewals	5	1	M
	Mains failure under railway line	• Operational • Compliance • Financial	3	2	M	• Use directional drilling	2	1	L
	Scheme becomes uneconomic to operate • Decline in demand	• Financial • Health & Safety • Reputation	5	1	M	• Manage costs, Harmonise rates across District	5	1	M
	Poor water quality at dead ends in reticulation	• Compliance • Operational • Health & Safety • Reputation	4	4	H	Flushing programme • Loop mains • Backflow prevention	3	3	M
Marton	Dam burst • Seismic event • Structural failure	• Operational • Financial • Health & Safety	5	1	M	• Dam has been assessed • For continuity of supply, Calico Line bore would be used and flow from Tutaenui Rd bore would be redirected to WTP • Repeat inspections by engineer every 3 years	3	1	L
	Raw water main failure □ Catastrophic burst	• Operational • Compliance • Financial	5	2	H	• Hold key spares • Source other spares in 2-3 days • Renewals programme • Use of Calico Line and Tutaenui Rd bores	5	1	M
	Loss of electricity supply	• □ Operational	3	4	H	• Use on-site standby generator	2	4	M

Location	Risk	Risk Types	Gross Risk			Management and Mitigation	Net Risk		
			Consequence	Likelihood	Risk Level		Consequence	Likelihood	Risk Level
	Mains failure under railway line	• Operational • Compliance • Financial	3	2	M	• Use directional drilling	2	1	L
	Flood damage. Damage to or destruction of plants, pumps, pipelines and reservoirs could lead to loss of supply	• Compliance • Operational • Environmental • Financial • Health & Safety • Reputation	5	2	H	• Provide enhanced flood protection of key assets Ensure alternative options available, located out of flood zone	2	2	L
Rātana	Poor water quality at dead ends in reticulation	• Compliance • Operational • Health & Safety • Reputation	4	4	H	Flushing programme • Loop mains • Backflow prevention	3	3	M
	Demand exceeds supply Annual Rātana religious festival	• Operational • Financial • Reputation	5		H	• Tanker water in • Construct new water supply	3	2	M
	Poor quality electricity supply	• Operational	4	4	H	• Provide standby generator for new WTP	2	4	M
Taihape	Intake failure	• Operational • Financial	5	2	H	• Run WTP to deal with higher raw water turbidities	5	1	M
	Falling main failure • Seismic event • Over-pressure	• □ Operational	5	2	H	• 1-2 days storage available	5	1	M
	Clarifier failure • Seismic event • Structural failure	• Compliance • Operational • Financial • Health & Safety	5	2	H	• Get clarifier inspected • Programme renewal • Install spare lamella plate separator if required	4	1	M
	Reservoir failure • Seismic event	• Operational • Financial	5	2	H	• Perform seismic assessments as necessary and programme upgrade works as required	4	1	M

Location	Risk	Risk Types	Gross Risk			Management and Mitigation	Net Risk		
			Consequence	Likelihood	Risk Level		Consequence	Likelihood	Risk Level
	• Structural failure	• Health & Safety				• Operate reservoir at lower level to improve seismic resistance			
	Steel pipe bursts • Fittings unavailable	• Operational • Financial • Compliance	3	3	M	• Renewal programme	3	2	M
	PRV failure • High pressure	• Operational • Financial • Health & Safety	4	4	H	• Ensure relief valves operational • Maintain relief valves to high standards	4	2	M
	High industrial demand • Hautapu Pine • Hospital • Rest home • Cafés and other businesses	• Compliance • Operational • Reputation	4	4	H	• Encourage on-site storage	3	3	M
	Slips • Slip zone in west of town	• Operational • Financial • Health & Safety	4	3	H	• Proactive leak detection and renewal of water mains	4	2	M
	Loss of electricity supply	• Operational	3	4	H	• Use on-site standby generator	2	4	M
	Mains failure under railway line	• Operational • Financial • Compliance	3	2	M	• Use directional drilling • Proactive leak detection and renewals	2	1	L
Erewhon Rural	Landslides	• Operational • Financial • Compliance	5	2	H	• Land management • practices to reduce likelihood and impact	4	2	M
	Loss of electricity supply	• Operational	3	4	H	• Investigate potential of using diesel or other generation	2	3	M
	Intake failure	• Operational • Reputation	5	2	H	• Inspect regularly and maintain as necessary	5	1	M
	Break down in relationship between Council and Committee	• Operational • Compliance • Reputation	5	3	H	• Regular attendance at meetings, good customer service and prompt resolution of issues	4	2	M

Location	Risk	Risk Types	Gross Risk			Management and Mitigation	Net Risk		
			Consequence	Likelihood	Risk Level		Consequence	Likelihood	Risk Level
	Reticulation failure • High pressure	• Operational • Financial • Compliance	3	5	H	• Proactive leak detection and asset renewals	2	4	M
Hunterville Rural	Landslides	• Operational • Financial • Compliance	5	2	H	• Land management practices to reduce likelihood and impact	4	2	M
	Loss of electricity supply	• Operational	3	4	H	• Investigate potential of using diesel or other generation	2	3	M
	Intake failure	• Operational • Reputation	5	2	H	• Inspect regularly and communicate with Horizons about condition of river, particularly aggradation	5	1	M
	Break down in relationship between Council and Committee	• Operational • Compliance • Reputation	5	3	H	• Regular attendance at meetings, good customer service and prompt resolution of issues	4	2	M
	Reticulation failure • High pressure	• Operational • Financial • Compliance	3	5	H	• Proactive leak detection and asset renewals	2	4	M
	Loss of water supply on farm	• Operational • Reputation	2	5	H	• Ensure all consumers have required amount of on-site storage	2	4	M
Omatane Rural	Landslides	• Operational • Financial • Compliance	5	2	H	• Land management practices to reduce likelihood and impact	4	2	M
	Loss of electricity supply	• Operational	3	4	H	• Investigate potential of using diesel or other generation	2	3	M
	Intake failure	• Operational • Reputation	5	2	H	• Inspect regularly and communicate with Horizons about condition of river, particularly aggradation	5	1	M
	Break down in relationship between Council and Committee	• Operational • Compliance • Reputation	5	3	H	• Regular attendance at meetings, good customer service and prompt resolution of issues	4	2	M
	Reticulation failure • High pressure	• Operational	3	5	H	• Proactive leak detection and asset renewals	2	4	M

Location	Risk	Risk Types	Gross Risk			Management and Mitigation	Net Risk		
			Consequence	Likelihood	Risk Level		Consequence	Likelihood	Risk Level
		• Financial • Compliance							
Putorino Rural	Landslides	• Operational • Financial • Compliance	5	2	H	• Land management practices to reduce likelihood and impact	4	2	M
	Loss of electricity supply	• Operational	3	4	H	• Investigate potential of using diesel or other generation	2	3	M
	Intake failure	• Operational • Reputation	5	2	H	• Inspect regularly and communicate with Horizons about condition of river, particularly aggradation	5	1	M
	Break down in relationship between Council and Committee	• Operational • Compliance • Reputation	2	3	M	• Supply managed by committee; ensure good service with • respect to financial management	2	1	L
	Reticulation failure • High pressure	• Operational • Financial • Compliance	3	5	H	• Proactive leak detection and asset renewals	2	4	M Table caption need

The Building Act 2004 (Sub Part 7 Sections 133 to 162) places numerous obligations on dam owners in relation to dam safety. Rangitīkei District Council has conducted a Comprehensive Safety Review of the earth dams that form part of the Marton water supply in 2020. This Review classified the two dams as a High Potential Impact Category (PIC). PIC is a function of the Population at Risk (PAR), as well as the impact upon residential houses, critical or major infrastructure, the natural environment and the community recovery time. Due to the dam locations in relation to the center of Marton, the consequences of a potential dam break is significant. The PIC defines the necessary standards to be adopted for the dam investigation studies, design, construction, commissioning and operational phases. In accordance with Section 139 of the Building Act 2004 the dam classification requires review every 5 years.

Wastewater

The current risk register for Wastewater is given below.

Location	Risk	Risk Types	Gross Risk			Management and Mitigation	Net Risk		
			Consequence	Likelihood	Risk Level		Consequence	Likelihood	Risk Level
District	Consent conditions not met	• Compliance • Environmental • Financial • Reputation	5	5	E	• Monitoring of performance; maintenance; capital works	3	2	M
	Lack of easements causing access issues	• Operational	3	3	M	• Proactively ensure key easements in place • Use Public Works Act if necessary	3	2	M
	Failure to deliver renewals programme • Insufficient funds • Insufficient resources	• Operational • Financial • Compliance • Health & Safety	4	5	E	• Ensure qualified and experienced staff are hired; maintain sufficient staffing levels; propose realistic programme	4	3	H
	Failure to deliver upgrade programme • Insufficient funds • Insufficient resources	• Operational • Financial • Compliance • Health & Safety	4	5	E	• Ensure qualified and experienced staff are hired; maintain sufficient staffing levels; propose realistic programme	4	3	H
	• Volcanic ashfall. Potential damage to intakes, pipelines, pumps, plant equipment and vehicles could lead to loss of service. Potential impacts on treatment, especially microbiological.	• Compliance • Operational • Environmental • Financial • Health & Safety • Reputation	4	1	M	• Ensure all water surfaces covered • Shield sensitive equipment • Shut down exposed equipment in event of ashfall	2	1	L
	Failure of mains on private property	• Compliance • Operational • Environmental • Financial • Health & Safety	3	2	M	• Proactive condition assessment and asset renewal • Relocate assets off private property where feasible • Enforce building and bylaw controls	3	1	L

Location	Risk	Risk Types	Gross Risk			Management and Mitigation	Net Risk		
			Consequence	Likelihood	Risk Level		Consequence	Likelihood	Risk Level
		• Reputation							
Bulls	Pump station overflows • Domain	• Compliance • Operational • Environmental • Financial • Health & Safety • Reputation	2	3	M	• Reduce I&I • Maintain and replace assets as required • Monitor flows • Improve SCADA control and alarm system	2	2	L
	Failure of mains under State Highway 1	• Compliance • Operational • Financial • Health & Safety • Reputation	3	2	M	• Proactive condition assessment and asset renewal • Relocate assets off highway where feasible • Work with NZTA to minimise risk of breakage	3	1	L
	Liquefaction from seismic event	• Compliance • Operational • Environmental • Financial • Health & Safety • Reputation	4	1	M	• Locate assets out of high-risk areas where possible • Ensure adequate foundations for structures in highrisk areas	4	1	M
	Damage caused by flooding from Rangitīkei River	• Compliance • Operational • Environmental • Financial • Health & Safety • Reputation	4	2	M	• Build resilience into assets to reduce likelihood of damage being caused	4	1	M
Hunterville	Failure of trunk main river crossing	• Compliance • Operational • Environmental • Financial • Health & Safety • Reputation	3	2	M	• Proactive assessment, maintenance and renewal • Liaison with Horizons and landowners to keep debris clear	3	1	L

Location	Risk	Risk Types	Gross Risk			Management and Mitigation	Net Risk		
			Consequence	Likelihood	Risk Level		Consequence	Likelihood	Risk Level
	Failure of mains under State Highway 1	• Compliance • Operational • Financial • Health & Safety • Reputation	3	2	M	• Proactive condition assessment and asset renewal • Relocate assets off highway where feasible • Work with NZTA to minimise risk of breakage	3	1	L
Koitiata	Liquefaction from seismic event	• Compliance • Operational • Environmental • Financial • Health & Safety • Reputation	4	1	M	• Locate assets out of high-risk areas where possible • Ensure adequate foundations for structures in highrisk areas	4	1	M
	Damage/destruction from tsunami	• Compliance • Operational • Environmental • Financial • Health & Safety • Reputation	4	1	M	• Build resilience into assets to reduce likelihood of damage being caused • Ensure warnings are followed and personnel evacuate	3	1	L
	Damage caused by flooding from Turakina River	• Compliance • Operational • Environmental • Financial • Health & Safety • Reputation	4	2	M	• Build resilience into assets to reduce likelihood of damage being caused • Ensure warnings are followed and personnel evacuate	3	2	M
Mangaweka	Erosion of cliff face caused by outfall	• Environmental • Financial • Health & Safety • Reputation	2	1	L	• Build scour protection into outfall	2	1	L
Marton	Damage caused by flooding from Tutaenui Stream	• Compliance • Operational • Environmental	5	2	H	• Provide enhanced flood protection of key assets • Ensure alternative options available, located out of flood zone	2	2	L

Location	Risk	Risk Types	Gross Risk			Management and Mitigation	Net Risk		
			Consequence	Likelihood	Risk Level		Consequence	Likelihood	Risk Level
		• Financial • Health & Safety • Reputation							
	Odour issues detected outside site boundary	• Reputation	4	2	M	• Manage trade wastes • Install and maintain appropriate treatment, or find alternative	4	1	M
Rātana	Environmental degradation of Lake Waipu	• Compliance • Environmental • Reputation	4	5	E	• Renew existing system with one having additional treatment or discharge to land	2	2	L
Taihape	Slips causing mains failures • Slip zone in west of town	• Operational • Financial • Health & Safety	4	3	H	• Proactive condition assessments	4	2	M
	Loss of electricity supply	• Operational	3	4	H	• Use on-site standby generator	2	4	M
	Mains failure under railway line	• Operational • Financial • Compliance	3	2	M	• Use directional drilling • Proactive condition assessments and renewals	2	1	L
	Pump station overflows • Papakai Rd • Huia St Railway	• Compliance • Operational • Environmental • Financial • Health & Safety • Reputation	2	3	M	• Reduce I&I • Maintain and replace assets as required • Monitor flows • Improve SCADA • controls and alarm systems	2	2	L
	Failure of rising main over Hautapu Stream	• Compliance • Operational • Environmental • Financial • Health & Safety • Reputation	3	2	M	• Proactive assessment, maintenance and renewal	3	1	L

Stormwater

The risk register for Stormwater is detailed in the following table.

Location	Risk	Risk Types	Gross Risk			Management and Mitigation	Net Risk		
			Consequence	Likelihood	Risk Level		Consequence	Likelihood	Risk Level
District	Damage to roads from mains failures	• Operational • Financial • Reputation • Compliance	2	5	H	• Proactive condition assessment; prioritisation of renewals in roads	2	4	M
	Lack of easements causing access issues	• Operational	3	3	M	• Proactively ensure key easements in place • Use Public Works Act if necessary	3	2	M
	Failure to deliver renewals programme • Insufficient funds • Insufficient resources	• Operational • Financial • Compliance • Health & Safety	4	5	E	• Ensure qualified and experienced staff are hired; maintain sufficient staffing levels; propose realistic programme	4	3	H
	Failure to deliver upgrade programme • Insufficient funds • Insufficient resources	• Operational • Financial • Compliance • Health & Safety	4	5	E	• Ensure qualified and experienced staff are hired; maintain sufficient staffing levels; propose realistic programme	4	3	H
	Volcanic ashfall. Potential loss of capacity and flow.	• Compliance • Operational • Environmental • Financial • Health & Safety • Reputational	3	1	L	• Cover key inlets • Educate community on proper ash removal	3	1	L
	Failure of mains on private property	• Compliance • Operational • Environmental	3	2	M	• Proactive condition assessment and asset renewal • Relocate assets off private property where feasible • Enforce building and bylaw controls	3	1	L

Location	Risk	Risk Types	Gross Risk			Management and Mitigation	Net Risk		
			Consequence	Likelihood	Risk Level		Consequence	Likelihood	Risk Level
		• Financial • Health & Safety • Reputation							
Bulls	Failure of mains under State Highway 1	• Compliance • Operational • Financial • Health & Safety • Reputation	3	2	M	• Proactive condition assessment and asset renewal • Relocate assets off highway where feasible • Work with NZTA to minimise risk of breakage	3	1	L
Hunterville	Failure of mains under State Highway 1	• Compliance • Operational • Financial • Health & Safety • Reputation	3	2	M	• Proactive condition assessment and asset renewal • Relocate assets off highway where feasible • Work with NZTA to minimise risk of breakage	3	1	L
Mangaweka	Failure of mains under State Highway 1	• Compliance • Operational • Financial • Health & Safety • Reputation	3	2	M	• Proactive condition assessment and asset renewal • Relocate assets off highway where feasible • Work with NZTA to minimise risk of breakage	3	1	L
Marton	Mains failure under railway line	• Operational • Compliance • Financial	3	2	M	• Use directional drilling • Relocate where possible	2	1	L
Taihape	Slips • Slip zone in west of town	• Operational • Financial • Health & Safety	4	3	H	• Proactive leak detection and renewal of water mains • Proactive	4	2	M
	Mains failure under railway line	• Operational • Financial • Compliance	3	2	M	• Use directional drilling • Relocate where possible	2	1	L

Lifelines Vulnerability Study

In 2016, the Manawatū-Whanganui CDEMG Lifelines Advisory Group completed an updated study on the vulnerability of lifeline utilities in the region.

This project incorporated asset information from all participating agencies, with updated hazard maps overlaid. Critical assets were identified as those being either locally, regionally or nationally significant. Where these assets were exposed to risk from the assessed natural hazards, mitigation actions were recorded.

The lifeline utilities included were:

- Electricity.
- Fuel.
- Gas.
- Telecommunications and broadcasting.
- Transport.
- Water supply.
- Wastewater.
- Flood management (not including stormwater networks).

The natural hazards covered in this study were:

- Seismic hazards.
  - Faults.
  - Peak Ground Acceleration
  - Liquefaction.
- Landslides.
- Tsunami.
- Volcanic hazards.
  - Ashfall.
- Severe weather.
  - Flooding.

Interdependencies between utilities were also covered, so that for example the electricity distribution companies were made aware of critical customers they had in terms of significant water or wastewater treatment plants.

Findings from this study have been incorporated into the risk register above, and asset management planning for the Water Supply and Wastewater activities. Aside from this, findings of the study including the hazardscape are not repeated here as they are covered in the report. It is intended that the report will be a living document, and be updated on an ongoing basis by the Lifelines Advisory Group.

Specific commitments from Rangitīkei District Council as a result of this study, to improve the resilience of lifeline utilities, include:

1. Seismic assessments on key assets at Water Treatment Plants, followed by upgrading or renewals.
2. Ongoing renewals programme for water supply and wastewater reticulation and treatment assets. This includes key assets such as reservoirs and raw water intakes.
3. Investigations into additional backup electricity generation at Water Treatment Plants and Wastewater Treatment Plants.
4. Continuing focus on risk management through asset management planning, including prioritisation of work programmes based on criticality and risk exposure.
5. Appropriate materials to be used in high-risk areas e.g. PE pipe for water supply and wastewater in Taihape slip zone.
6. Continuation of upgrades to Water Treatment Plants to achieve compliance with Drinking Water Standards for bacteria and protozoa.
7. Condition assessments on key assets.

Capital Projects

This section of the Asset Management Plan proposes a programme of works to deliver 3 Waters services and meet performances measures discussed in previous sections.

The high-level issues facing 3 Waters infrastructure in the District are given below, with the key issues in **bold**:

- **Ageing infrastructure.**
- **Improving the quality and extend of knowledge held by focusing on asset condition assessments and asset performance assessments to create a works programme for the renewal and upgrade of networks base on accurate data.**
- **Compliance with the Drinking Water Standards, resource consent conditions, and our internal targets for DIA mandatory performance measures.**
- The need to renew, and in some cases upsize, infrastructure to comply with the above.
- Future upgrades to comply with the above and future requirements.
- **Improve redundancy of raw water supply and quality to all communities in the district**
- Dealing with risk exposure arising from providing non-potable water for rural water supplies.
- **Increased severity and frequency of storm events, with increased risk exposure from flooding.**
- Increased frequency of droughts, with impacts on security of water supply.
- Providing a consistent level of service across the District, particularly considering small communities such as Scotts Ferry and Koitiata.
- Allowing for sustainable growth in communities where relevant, for example Bulls and Marton.

To address these issues, and to meet the growing demand, significant investment is required across the three water networks. This investment is outlined in the following table. (Table 42)

Network	Name of Project / System	Year 1 2024/25	Year 2 2025/26	Year 3 2026/27	Year 4 2027/28	Year 5 2028/29	Year 6 2029/30	Year 7 2030/31	Year 8 2031/32	Year 9 2032/33	Year 10 2033/24	Total
Water Supply - Reticulation	Network renewal	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	**$5,000,000**
Water Supply – Treatment and Source	Bulls WTP	$36,000	$331,000									**$367,000**
	Taihape WTP	$150,000		$53,000	$125,000			$210,000	$45,000			**$583,000**
	Mangaweka WTP			$70,000		$83,000	$405,000					**$558,000**
	Hunterville WTP		$60,000	$150,000	$230,000			$63,000	$70,000			**$573,000**
	Marton WTP	$100,000										**$100,000**
	Calico Line Bore			$150,000		$90,000						**$240,000**
	New Bulls Bore					$200,000	$200,000					**$400,000**
TOTAL		**$786,00**	**$891,000**	**$923,000**	**$855,000**	**$873,000**	**$1,105,000**	**$773,000**	**$615,000**	**$500,000**	**$500,000**	**$7,821,000**
Network	**Name of Project / System**	**Year 1 2024/25**	**Year 2 2025/26**	**Year 3 2026/27**	**Year 4 2027/28**	**Year 5 2028/29**	**Year 6 2029/30**	**Year 7 2030/31**	**Year 8 2031/32**	**Year 9 2032/33**	**Year 10 2033/24**	**Total**
Wastewater Reticulation	Network Renewal	$750,000	$750,000	$750,000	$750,000	$750,000	$750,000	$750,000	$750,000	$750,000	$750,000	**$7,500,000**
	Marton To Bulls Reticulation / Scheme	$250,000	$250,000	$250,000	$250,000	$5,000,000	$5,000,000			$30,000,000	$30,000,000	**$71,000,000**
Wastewater – Treatment and Pumping	Taihape Pumping Stations		$75,000	$60,000	$60,000	$60,000						**$255,000**
	Taihape WWTP						$15,000,000	$15,000,000				**$30,000,000**
	Hunterville WWTP	$300,000	$200,000	$500,000	$500,000							**$1,500,000**
	Marton WWTP	$100,000	$200,000									**$300,000**
	Mangaweka WWTP			$1,500,000								**$1,500,000**
	Bulls WWTP	$50,000	$300,000									**$350,000**
TOTAL		**$1,450,000**	**$1,775,000**	**$3,060,000**	**$1,560,000**	**$5,810,000**	**$20,750,000**	**$15,750,000**	**$750,000**	**$30,750,000**	**$30,750,000**	**$112,405,000**
Network	**Name of Project / System**	**Year 1 2024/25**	**Year 2 2025/26**	**Year 3 2026/27**	**Year 4 2027/28**	**Year 5 2028/29**	**Year 6 2029/30**	**Year 7 2030/31**	**Year 8 2031/32**	**Year 9 2032/33**	**Year 10 2033/24**	**Total**
Stormwater Reticulation	Network Renewal	$110,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	**$1,461,000**
	Marton SW Upgrades	$500,000	$900,000			$4,500,000		$2,000,000				**$7,900,000**
	Bulls SW Upgrades	$100,000										**$100,000**
	Ratana SW Upgrades			$650,000								**$650,000**
	Hunterville SW Upgrades		$500,000									**$500,000**
TOTAL		**$711,000**	**$1,550,00**	**$800,000**	**$150,000**	**$4,650,000**	**$150,000**	**$2,150,000**	**$150,000**	**$150,000**	**$150,000**	**$10,611,000**
Three Waters Total		**$2,947,000**	**$4,216,000**	**$4,783,000**	**$2,565,000**	**$11,333,000**	**$22,005,000**	**$18,673,000**	**$1,515,000**	**$31,400,000**	**$31,400,000**	**$130,837,000**

Operations and Maintenance

This section identifies a number of operational and maintenance activities that will be used to maintain and enhance 3 Waters services, in the context of the levels of service that need to be delivered. This includes both planned and unplanned maintenance.

Water Supply

Firefighting

Each fire hydrant must be tested at least five-yearly in order to comply with the Firefighting Water Supplies Code of Practice. In the Rangitīkei District, this will be done in a concerted effort with FENZ.

In addition to hydrant testing, checks will be performed on the condition of hydrants, and reactive requests for maintenance are followed up on.

The above should help to achieve against the performance measure which Council has set for firefighting water supply (see Section 3.1).

Flow and pressure testing will also be carried out. This should identify areas where improvements would need to be made to the reticulation to meet the Code of Practice.

Road markings for hydrants (yellow lid, yellow triangle and blue RRPM) are maintained so that they are visible both day and night. This occurs either proactively, or reactively when advised that attention is required.

Reticulation found to be deficient in providing fire flow or pressure should be upgraded as required. Full compliance with the Code of Practice would, at this stage, only be endorsed if the Code became mandatory.

Valve Testing

There is a programme of valve testing, which ensures that valves are in good condition and are operable if required.

Lateral Replacements

There are a number of connections throughout the District made from outdated materials such as galvanised iron and copper. These can cause large amounts of leakage when considered all together, and cause service issues. Bulls is of note, as there is a significant number of copper laterals.

When service requests are raised to deal with issues on galvanised iron or copper laterals, the laterals are being replaced rather than repaired, for efficiencies. This is done through maintenance budgets, as it is reactive work.

Whilst this work is undertaken by the Operations and Maintenance Teams, these new lateral assets are capitalised within the UnityManage Asset Management System. A project has been

identified as part of the Capitalisation process in the OFI section of this AMP to ensure that the funding for these new assets is capitalised through the correct process.

Source Protection

Removal of overgrown and inappropriate vegetation from the banks of both dams combined with selective removal of the mature plantation trees is enhancing the water quality. This is an ongoing project and combined with suitable riparian replanting will continue to raise the quality of the water as well as the immediate environment.

Currently, an investigation is taking place into opening up public access to the Marton Dam. If this proceeds, measures will need to be taken at the dam and surrounds to protect public health.

Algae has been an issue at the dam from time to time, causing taste and odour complaints. There is a cyanobacteria protocol in place, which is used in such events.

The dams have been inspected in 2020, and a report produced on their condition and compliance. The report make recommendations on follow-up actions that should be taken. RDC initiated a Marton Water Strategy in 2019 to investigate long term solutions for the continuous taste and odour problems in the Marton water supply. The work completed to date recommended making use of alternative water sources to avoid the challenges associated with the Dams being used as a raw water source. The work and actions to be completed at the dams will be dependent on Council's decision on the long term conclusions of the Marton Water Strategy. A final decision on the strategy is expected in 2021. Capital budget has been included in the 2021/31 LTP for the design and construction of a new water treatment plant for Marton.

Taihape have a single raw water supply pipe line that convers farm land over a distance of more than 10 Km. The pipe line is subject to high pressure and access is limited due to the challenging terrain. The supply of drinking water to the Taihape community is entirely dependent on this pipe line. Alternative water sources to supplement the existing arrangement should be investigated, but has not been included in the 2021/31 LTP. An alternative raw water source could also be used as a back-up raw water source in the event of an emergency.

Substantial growth in Marton and Bulls might start having an impact on the current water supply. Supplementary raw water supply for Marton forms part of the Marton Water Strategy, and an additional bore might be required for the Bulls water supply before 2025

DWS Compliance for Rural Water Supplies

There will be increasing pressure from the Ministry of Health for rural water supplies to comply with the Drinking Water Standards. This could be achieved under the Rural Agricultural Guidelines 2015, with the production of Water Safety Plans and the implementation of monitoring.

This will need to be given serious consideration by both Council and the relevant Committees.

Wastewater

CCTV Condition Assessments

Through regular inspections, identification of significant deterioration can be identified and proactive measures taken to reduce the number of issues relating to the WW network throughout the district. The condition data is critical to understanding the state of the network and will continue to play a critical role in the operation of the WW network. Business process improvements are needed to ensure that this data gathered through the CCTV is migrated to the UnityManage Asset Management System.

Dry Weather Overflows

In Section 3.3.2.2 the number of dry weather overflows in the District was discussed. This was not considered to be excessive. It is not felt that there is an additional programme of work needed to address dry weather overflows on top of existing operational and maintenance activities.

Trade Waste

There is a need to work with commercial premises in the District that discharge to our wastewater systems. Regulation in this area could improve. The benefits would be reduced impacts on Wastewater Treatment Plants, better results for consent compliance, and a more equitable distribution of the costs involved in treating waste from these premises.

Stormwater

Stormwater Bylaw

Previously there was an extensive network of open drains recorded as being in private ownership. Council resolved to take ownership of open drains within the urban boundaries and forms part of the urban storm water network. An open drain becomes a Council owned asset once any constructed part of the storm water networks contributes to the drain in the urban area. The storm water budgets for the 2021/31 LTP now includes ongoing costs for the maintenance and upgrade of these open drains to provide the agreed Level of Service to the communities in the District

CCTV Condition Assessments

Through regular inspections, identification of significant deterioration can be identified and proactive measures taken to reduce the number of issues relating to the WW network throughout the district. The condition data is critical to understanding the state of the network and will continue to play a critical role in the operation of the WW network. Business process improvements are needed to ensure that this data gathered through the CCTV is migrated to the UnityManage Asset Management System.

Capacity/Performance

Work is in progress to determine the capacity and performance of our stormwater networks. Following this, recommendations can be made for where assets may need to be upsized or added.

Unfunded Networks

Council is considering the inclusion of currently unfunded networks such as Scotts Ferry and Koitiata. Rating for stormwater in these locations would allow maintenance and improvement works to be carried out.

Opportunities for Improvement – Register

Throughout this AMP, opportunities for improvement have been identified, both in relation to this AMP, but also to the asset information and asset management operations at RDC. This table summarises these opportunities for improvement (OFI) and indicates actions that will address these OFI over the following three years to aid in the ongoing growth and improvement in maturity of RDCs Asset Management practices. A significant number of these OFI relate to the utilisation of the UnityManage System, of which provides a critical foundation for the asset management at RDC. Investment has been made in improving this asset management system in the year leading up to the update of this AMP in this system, and it is prudent that RDC continues with this AM system improvement programme, whilst also reviewing and undertaking other systematic and business process changes and improvements to enable asset management practices to mature and embed into the 'way of doing things' at RDC.

OFI Name	Description	Effort Required (1 – 5 Scale where 1 is the least amount of effort and 5 is the most amount of effort)	Benefit Realisation (1 – 5 Scale where 1 is the least amount of Benefit and 5 is the most amount of Benefit)	Dependencies
Satisfaction Data Source	In the calendar year of 2023, Korero Mai only received 2 data responses for the Three Waters Service. Consideration to how satisfaction data is generated and gathered is required to assess the level of satisfaction across the district is needed prior to the 2027 review of this AMP	2	3	
Capacity and Demand data	In late 2023 UnityManage released the inclusion of capacity and demand fields. A project will be needed to be undertaken by RDC to populate this data. This will enhance the asset information held within UnityManage and help inform future growth and demand assessments RDC have also developed a scoring system in UnityManage for Capacity/Demand, and added a notes field for commentary.	4	4	
Accuracy Data	RDC currently do not use the Accuracy grading system (Accuracy of Data) available within the Asset Information form. This information would provide RDC with data relating to the confidence that they have in the quality of their three waters data, of which will help identify future data improvement programmes of work.	3	3	
Condition Data	Currently, RDC undertakes several tasks in which Condition information is gathered relating to the three water assets. However, business processes are lacking to take that information and enter it into UnityManage against assets – this includes CCTV, observations, sampling etc. Developing these processes will capitalise on operational investment that is already occurring. This condition data is vital for the ongoing management of the three water systems and networks, and is a critical component of maturing the Asset Management Practices at RDC.	4	5	
Capitalisation Processes	The current processes are not well documented and lead to poor processing of capital assets. Capital assets can be generated through major work, maintenance and operation activities and through vesting to council. All these new, replaced or upgraded assets need to be entered into UnityManage, and financially accounted for.	2	5	

	Currently, there is very little structure / business process to ensure that this is accurate and consistent. Business processes need to be developed, implemented and monitored to ensure that this data is being received, and processed into the asset register, and the financial outcomes are appropriately reported to ensure that capital assets are registered, and then form part of the valuation processes.			
Central Government Repeal / Reform – enhanced reporting and changes to funding	At the time of writing this AMP, it was not clear what the new reform of Three Waters would include in respect to reporting and changes to funding. This OFI programme of works addresses the need to comprehensively understand the new reporting requirement, new level of service implication from Central Government, and changes to the way in which Three Water Infrastructure is funded.			Central Government Legislative Change and Documentation provided to LG.