

Te Kaunihera-ā-Rohe o Ruapehu
Ruapehu District Council



WASTEWATER

ASSET MANAGEMENT PLAN

2021-2031



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1 VISION, COUNCIL FOCUSES AND COMMUNITY OUTCOMES



Drive and support the development of safe, prosperous rural communities that are able to thrive and capitalize on our agriculture, business and tourism sectors while sustaining our beautiful environment

Council Focuses

Improve the well-being and quality of life for our communities by:

Creating and retaining jobs

Growing incomes and opportunities

Increasing the ratepayer base

Providing sustainable infrastructure

Providing value for money in all we do

Ensuring the people who benefit from council spending contribute their fair share of the costs

Working with government and others to gain funding for key projects so as to reduce the financial burden on Ruapehu ratepayers

Creating collaborative partnerships with tangata whenua

Council has stated its core priorities in the form of Community Wellbeing Outcomes. These Outcomes are Council's 'true north' for planning and decision making. Every project that Council undertakes links back to at least one of the wellbeing outcomes. They are a key way we measure success.



Social – Safe, Healthy Communities

- Quality regulation, regulatory services and infrastructure
- Reduce the volume of waste to the landfill
- Core infrastructure endeavours to keep pace with changing demand
- Excellent standards of safety and welfare are promoted and respected
- Preparation, planning and timely responses protect people and property from natural hazards



Cultural – Vibrant and Diverse Living

- Traditions, values and history of all ethnic groups are respected
- Activities, facilities and opportunities for youth are provided and supported
- Excellence and achievement in sport, arts / cultural pursuits, community service and business is supported
- Events and festivals are encouraged and supported
- Working together with tangata whenua to achieve common goals



Environmental – Sustaining Beautiful Environments

- Our environment is accessible, clean and safe and our water, soil and air meets required standards
- The promotion of our District includes focus on our natural rivers, bush and mountains, as well as the built heritage, agriculture and railways



Economic – Thriving Economy

- Regulatory services and reliable infrastructure help the economy prosper
- Our transportation network is reliable, safe and endeavours to meet the needs of users
- Economic diversity and core economic strengths are encouraged in partnership with others
- Planning and regulatory functions balance economic growth and environmental protection



Strong Leadership and Advocacy

- Council advocates strongly for the provision of, and access to, affordable and effective health, welfare, law enforcement and education services
- Council is proactive, transparent and accountable

2 SPATIAL PLAN

THREE MAIN ROLES OF RUAPEHU DISTRICT IN NEW ZEALAND

1. A centre of outdoor adventure, sport, a place to relax in nature and a visitor destination.
2. Rural areas for sustainable food production and diversification of the primary sector.
3. A desirable place to live with a unique offering, providing people with different lifestyle choice

PRINCIPLES

- Fairness
- Affordability
- Resilience
- Long Term benefits- Sustainability
- Community at Heart

TOP THREE DISTRICT SHAPING MOVES

1. Strategic focus on housing, employment, town centres and infrastructure
2. Caring for rural communities and the environment
3. Collaborative partnership with Tangata Whenua

REVITALISATION PLANS & PROJECTS	RURAL COMMUNITIES AND ENVIRONMENTAL PROJECTS	COLLABORATIVE PARTNERSHIPS
<ul style="list-style-type: none"> • Ruapehu District Housing Strategy • Raetihi Integrated Council Service Centre & Community Hub • Raetihi Revitalisation Plan • Ohakune Spatial Plan • Taumarunui Future Housing and Community Plan • National Park Community Plan • Rangataua Community Plan 	<ul style="list-style-type: none"> • Bridge replacement • Create and extend cycle-ways • Advocating on increasing necessary service accessibility (e.g. health services, transport services etc.) for our rural communities • Significant investment in three waters upgrades 	<ul style="list-style-type: none"> • Council to continue strengthening relationship with local Iwi/ Hapu • Council currently developing the Liveability study which will be used as a foundation to create a wellbeing strategy

ENVIRONMENTAL TOURISM

- Tourism Operation locations
- 42 Traverse Cycle Trail
- Forgotten World Highway Adventures
- Proposed Ohura Stratford Cycle Trail
- Timber Trail Bike Track
- Mountains to Sea Cycle Trail
- Sky Waka

- Park & Ride
- District_Gateway
- Lakes
- Whanganui River

- Unique Natural Features
- National Park
 - Stewardship Land

FOOD PRODUCTION & PRIMARY INDUSTRY

- Forestry
- Cropland
- Productive Grassland

PARTNERING WITH IWI ENHANCING THE MAORI ECONOMY

To be mapped subsequently when iwi have confirmed and are ready

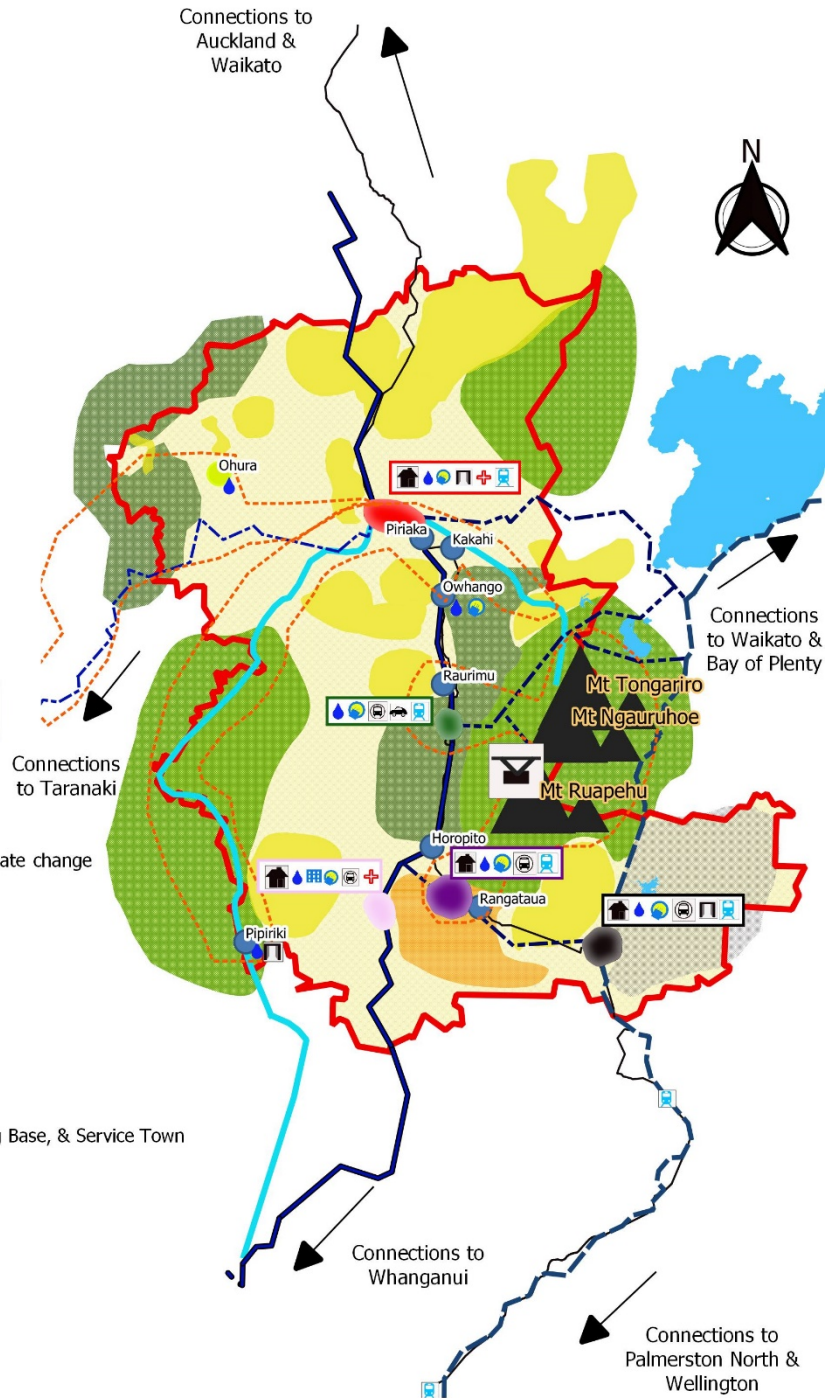
RESPONDING TO CLIMATE CHANGE

Participating in Horizon Regional Council's climate change workstream

INVESTING IN OUR TOWNS & SETTLEMENTS

- Taumarunui: Major Town and CBD hub
- National Park: Tourism Centre
- Raetihi: Revitalisation Hub
- Ohakune: Tourism & Local Centre
- Waiouru: Gateway, NZ Defense Training Base, & Service Town
- Tussock Land & Defence Activity
- Housing Initiatives
- Advocating for Community Health
- Rail Stations
- Advance public transport Initiatives
- Fibre and cell phone network rollout
- District_Gateway
- Park & Ride
- Community Hub for the Raetihi Area
- Existing 3 waters Infrastructure

Central government investigation to transition to new water delivery arrangements



- RDC Boundary
- Rail
- SH1
- Highways 41, 46, 47, 48, 49
- SH4
- SH43

3 THE RUAPEHU DISTRICT

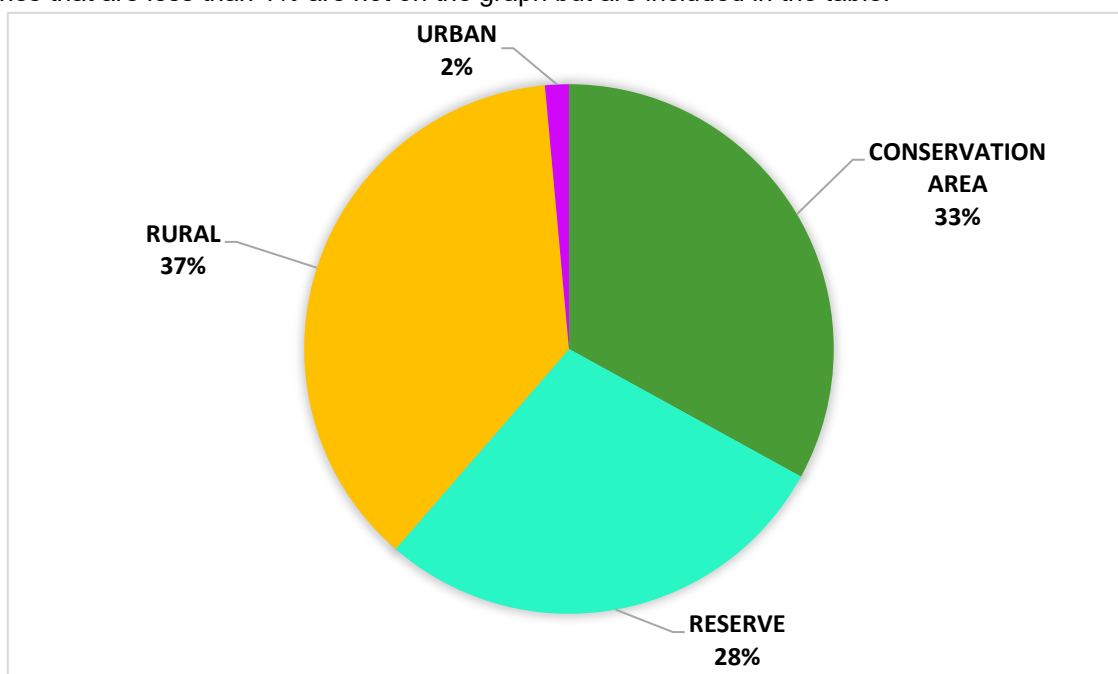
ENVIRONMENTAL

THE PLACE

The Ruapehu District is a land-locked area covering 6,733km², with a usual resident population of 12,309 (Statistics NZ, Census 2018). The projected population of the District in 2021 is expected to increase to 13,328. Ruapehu is one of New Zealand’s largest districts by land area, however has a relatively small and dispersed population base with one of the lowest population densities in the country (0.02 persons per hectare). The Ruapehu District is also a growing tourist destination, and enjoys a significant and steadily increasing number of visitors each year.

There are approximately 11,220km of streams and rivers in the District. For context the total river network of NZ is approx. 425,000km. The district makes up 2.64% of NZ’s rivers and streams.

Below is a breakdown of the land zoning within the District, based on the 2010 Ruapehu District Plan. Zones that are less than 1% are not on the graph but are included in the table.



Row Labels	Sum of Area in HA
Active Reserve	0.01%
Commercial	0.01%
Conservation Area	32.81%
Future Residential	0.01%
Industrial	0.06%
Reserve	28.19%
Residential	1.33%
Rural	36.96%
Urban Settlement	0.02%
Out of District	0.60%
Grand total	100.00%

THE NATURAL ENVIRONMENT

The district's landscape is varied, ranging from rolling pastoral hill country and indigenous forest to the volcanic plateau of the Desert Road and New Zealand Army land at Waiouru. East of the district, features the Tongariro National Park, which includes the mountains Tongariro, Ngauruhoe and Ruapehu. In the West, the Whanganui National Park and the Whanganui River dominate the landscape boasting a rich history and diverse wildlife.

The Ruapehu District borders the Rangitikei and Whanganui Districts in the South, Waitomō District in the North, Taupō District to the East and the Stratford and New Plymouth Districts to the West.

The Ruapehu environment is pristine, with a relatively low number of heavy industries or high intensity residential development. This environment makes the district attractive to tourists who seek to visit natural and unspoiled landscapes. Tourist numbers continue to grow and, with the advent of the cycleway projects under development, this growth is expected to continue.

TONGARIRO NATIONAL PARK

The Tongariro National Park is New Zealand's oldest national park, it is listed as a World Heritage Area and is a significant draw card for tourists both domestic and international. The park includes the Whakapapa and Turoa ski fields as well as important walks such as the Tongariro Alpine Crossing. Visitor numbers at three sites around the Central Plateau (Taranaki Falls, Tongariro Alpine Crossing and Tongariro Northern Circuit) continue to increase year on year.

CLIMATE

According to the Köppen-Geiger climate classification, the climate of the district is listed as "Cfb, warm and temperate".

The elevation of towns in the north of the district range from 187m to 443m above sea level, while the elevation of towns in the south of the district range from 524m 1123m above sea level. The average annual temperature in the north of the district's townships range from 11.6 – 13 Degrees Celsius while the average annual temperature of townships in the south of the district range from 8.1 – 11.1 Degrees Celsius. The average annual rainfall for townships in the north of the district range from 1342mm – 1776mm while the average annual rainfall for townships in the south of the district range from 1103mm – 2775mm.

At an altitude of 199m above sea level, Taumarunui experiences a significant amount of rainfall during the year with seasonal projections showing rain is set to increase by 7% – 16% during winter and decrease up to 5% during Autumn by 2090¹. The average annual temperature for Taumarunui is 12.9 °C, reaching low-mid 30s in the summer and -1 or -2 in the winter. A reduction in the number of snow days experienced annually is projected throughout New Zealand, including the Central Plateau.

Greatest warming in summer / autumn and least in winter and spring. Increase in water temperatures predicted. Amount of warming will depend on river elevation, catchment size and water source (snow melt or not). There is an expected increase in hot days with 50-60 hot days per year between Taumarunui and Whanganui. The district is also expected to have a decrease in frost / cold nights. Larger decreases at higher elevations of Central Plateau are also predicted. Annual average precipitation is predicted to increase 15-20% by 2090. (*Climate Change Implications for the Manawātū – Whanganui Region 2019 NIWA report, pp17-19*).

With Storm surges, flooding and storms predicted to increase over the next 30 years, network resilience is a significant issue, particularly on the Desert Road and Stateway Highway 4 North of Whanganui. Changing weather patterns has increased risk on Councils infrastructure, parts of which are already vulnerable. Improved access to data and information will continue to allow Council to communicate with our communities clearly and consistently (*Waka Kotahi, 2021-31 Regional Summary Version 1.1pg 109 – 113*).

¹ MFE, Climate Change Projections for the Manawatu-Wanganui Region,

CLIMATE CHANGE ACTION

With Central Government declaring a climate change emergency in December 2020, government agencies are expected to be carbon neutral by 2025.

Like other local authorities throughout the country, Council are in the initial phase of developing a climate change strategy. Council is working with Toitū, an enviro-science agency, to measure Councils carbon emissions to establish a baseline understanding of the current risks and opportunities present within the district. Phase two of this work involves using the information collected from phase one to develop a suitable climate change / sustainability strategy. Council aims to complete phase one within the next financial year (2021/22).

As part of this work, Council signed a Memorandum of understanding to work regionally with Horizons Regional Council and other regional territorial authorities. Currently a regional climate change risk assessment (RCCRA) is underway and Tonkin & Taylor are contracted to assist the region with this project, including technical work, report writing and project facilitation. NIWA and Massey University have also been sub-contracted to assist. Council is also in the initial setup phase of recording and monitoring their carbon footprint. Once a data driven understanding of the problem is established, Council plans to assess vulnerabilities and risk against priority values/objectives, identify options and pathways to increasing resilience in these areas, develop a climate change adaptation strategy, implement cross sectorial approach and monitor the effectiveness of these strategies.

Although Council is in the initial planning stage, but it is important to note that some climate related practices have already been incorporated into asset management practices. The purpose of developing a climate change strategy is to develop a framework of how to improve current practices to address potential issues that Ruapehu District is vulnerable to and to give decision making framework for responses and investment outcomes. Balancing the demand for significant infrastructure investment while responding to global issues is challenging for a small district with a low ratepayer database to implement.



MAP OF RUAPEHU DISTRICT

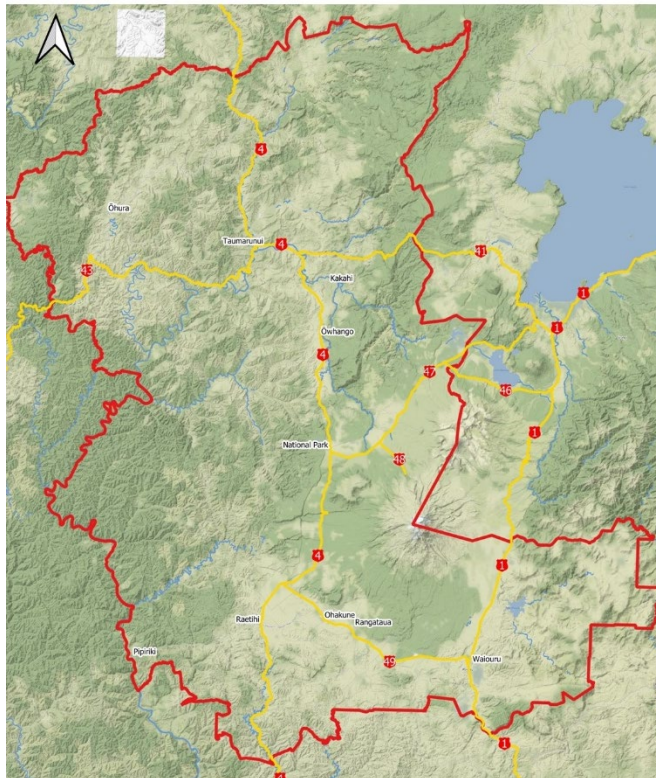
CULTURAL

SETTLEMENT

The remoteness of the area surrounded by its natural resources allowed for Māori to flourish prior to European settling.

The first major European influence came in the 1840s with missionaries settling on the southern reaches of the Whanganui River. Regular steamboat services up and down the Whanganui River commenced in the late 1890s, firstly to Pipiriki then, eventually, to Taumarunui. Its advantage as an access and trading route saw tourism and trade flourish. Due to improved roads the main riverboat trade ceased in the 1920s.

Completed in 1908, the main trunk railway became New Zealand's most significant land route and one of its greatest engineering achievements. Running through the heart of the district, the dense forest, steep inclines and deep gullies prompted ingenious solutions such as the



Raurimu Spiral and the Makatote Viaduct. Passenger services began in 1909. With a high population of Māori still residing in the district today, many are a representation of the large number of iwi and hapū in both a pre and post settlement phase.

SOCIAL

TOWNSHIPS LOCATED THROUGHOUT THE DISTRICT

There are five main towns within the district, they all serve as central service points for neighboring communities.

- Taumarunui is the main service centre for the surrounding settlements and agricultural land (sheep, cattle, deer and dairy) and forestry plantations. Taumarunui is one of the key gateways for tourism into the district and is establishing itself as the centre of cycle tourism within the district.
- National Park is a village style town, located between Tongariro and Whanganui National parks, it's known for its hiking and biking trails and kayaking.
- Ohakune caters for the ski industry and cycle ways, as well as the surrounding horticultural and farming activity. As part of their tourism attraction, Ohakune hosts a number of festivals, one of which is the Mardi Gras.
- Raetihi is a rural township servicing farming, market gardening and forestry. It forms a gateway to the historic Whanganui River settlement of Pipiriki, which is an also an end point for the popular Whanganui River tours.
- Waiouru is situated at the southern end of the district and is home of Waiouru Military camp, one of New Zealand's army bases on state highway 1. The defense area in Waiouru is a landmark in the local community with facilities including the National Army Marae and the National Army Museum, which is a popular visitor destination.

THE POPULATION

The usually resident population of the Ruapehu District is 12,309 according to the 2018 census. It has been estimated that the recent small but steady population growth will continue and that the population is set to reach 13,238 by 2021. The District experienced population decline between 2001 and 2016 and began to show signs of recovery in 2017. Under all population scenarios (high, medium and low) Ruapehu District's population is projected to increase slowly over the next 10 years at predicted rates of between 0.7% (low) to 1.967% (high).

Given the steadily increasing visitor numbers to the district, the increase in Councils investment into economic development, and the support from central government for improving visitor infrastructure, it is anticipated that all peak population components will increase to cater for visitor industry growth (see Planning Assumptions – Population Projections).

Council has undertaken five ratepayer surveys (2008, 2010, 2013, 2016, and 2019) to track the holiday home environment within the District and to attempt to quantify the level of use of these homes. Whilst this survey is an important information source for understanding the holiday home environment; due to its nature and the variance in responses that is likely to occur across the survey timeframes, it should be noted that the results come with a high level of uncertainty. However, given the importance of holiday home visitor numbers to establishing an estimated peak population for the District it is necessary to use this information to estimate future holiday home visitor numbers, whilst recognising its level of uncertainty.

Based on the survey responses, between 2010 and 2019 there was an average annual increase of 1.55% in the number of holiday homes per year (approximately 29 homes per year) across the District. Over this same period the average number of people staying per home ranged from 4.4 – 4.7. Based on the survey, each holiday home was used on average 27 nights per year. See Planning Assumptions – Population Projections for projected holiday home data.

ECONOMY

Gross Domestic Product in Ruapehu measured \$668m in the year up to March 2019, up 1.4% from the year earlier. New Zealand's GDP increased by 3% over the same period. Economic growth in Ruapehu District has averaged 0.9% over the last 10 years compared with an average of 2.19% in the national economy².

In 2019, the most significant component of the Ruapehu economy was 'agriculture, forestry and fishing', these collectively make 34.4% share of business units and 20.3% of GDP. "All others" services contribute to 24.4% of the Districts GDP. The third largest contributed to the Districts GDP is Public Administration and Safety contributing 12.1%.

The fastest growing industries in the District are 'Agriculture, Forestry and Fishing' (annual growth of 10.3% compared to 2018), Rental, Hiring and Real Estate Services (annual growth of 18.3% compared to 2018) and Construction (annual growth of 12.7% compared to 2018). It is important to note that while the latter two industries indicate more growth than the first, their contribution to GDP is 136m, 43m and 45m respectively³.

Strong visitor numbers, emerging tourist opportunities and the growth in holiday homes combine to ensure that tourism continues to be an important sector for the District. The tourism industry contributed \$127m towards District GDP in 2019 (compared to 110m in 2018)⁴. The industry employed approximately 1511 people in in 2019, up 11.3% on 2018. Total tourism expenditure increased to 212m in 2019 up 9% on 2018's 194m⁵.

Of the 212m spent in the district by tourists in 2019, 163m came from domestic tourists while 48.3m was spent by international visitors.

² Infometrics, <https://ecoprofile.infometrics.co.nz/Ruapehu%20District/Gdp/Growth>

³ Infometrics, <https://ecoprofile.infometrics.co.nz/Ruapehu%20District/Gdp/GrowthIndustries>

⁴ Infometrics, <https://ecoprofile.infometrics.co.nz/Ruapehu%20District/Tourism/TourismGdp>

⁵ Infometrics, <https://ecoprofile.infometrics.co.nz/Ruapehu%20District/Tourism/TourismSpend>

VISITOR NUMBERS

Holiday home and commercial accommodation statistics continue to indicate growth in overnight tourism. Over the past 10 years there has been an average annual increase of 2.49% in occupancy rates of commercial accommodation. Both the number of guest nights and number of guest arrivals has increased and, pre COVID-19, this trend was projected to continue. Population Projections have made the assumption that day visitors will mirror commercial accommodation visitor statistics as we do not currently have a reliable source with which to count day visitors to the district. Anecdotally and on consideration of the nature and type of tourist activities in the District, we can state that the District will be receiving a significant number of day visitors.

Cycle Trail The Ruapehu District is developing a reputation as a destination for off-road mountain biking. Two 'Great Rides' are located within the District; the Timber Trail to the North and the Mountains to Sea cycle trail to the South. To capitalize on this opportunity, Council is in the process of developing a cycle trail strategy for the district.

RUAPEHU ALPINE LIFTS

Between 2011 and 2015 there was a 10% decrease in skier numbers on the mountain as a whole. \$100m was invested into Ruapehu Alpine Limits to broaden the appeal of the mountain. The investment was used to develop their state of the art Sky Waka Gondola, and it has successfully managed to increase the number of skiing visitors between 2017 and 2019, with 390,000 guests arriving to the mountain in 2019 alone⁶



⁶ Ruapehu Alpine Lifts Limited 2019 Annual Report, <https://www.mruapehu.com/ral/annual-reports>

4 ASSET MANAGEMENT

INTRODUCTION TO ASSET MANAGEMENT PLANNING AT RUAPEHU DISTRICT COUNCIL

ASSET MANAGEMENT OBJECTIVES AND INDUSTRY STANDARDS

Council has adopted a systematic approach to the long-term management of its assets by preparing this Asset Management Plan.

The key objective of asset management is to “meet a required level of service, in the most cost effective manner, through the management of assets for present and future customers” (IIMM, 2011). Asset Management Plans (AMPs) are a key component of the strategic planning and management of Council, with links to the LTP and service contracts. AMPs underpin the Long Term Plan (LTP) and consultative processes that have been put in place to engage the community.

AMPs aims to deliver a range of benefits to the community as well as to the provider of the services, the main ones being:

- (a) Maintaining, replacing and developing assets over the long term to meet required delivery standards and foreseeable future needs in a cost-effective way.
- (b) Continually improving asset management practices and service delivery to the customers.
- (c) Complying with Statutory Requirements and Regulations.
- (d) Standards Association of New Zealand: provides a range of standards covering required or recommended practice and which may impact directly on assets or management of contracts.
- (e) The Asset Management Plans have been developed in accordance with the National Asset Management Steering (NAMS) Infrastructure Management Manual. They include forecasted population growth, the level of service expected by the customers, the condition of the asset, planned maintenance and replacement which ensures a complete and consistent approach to the long term planning of assets.

RATIONALE AND INFRASTRUCTURE STRATEGY

Infrastructure represents a major investment which, in developed countries, has been built up progressively over the last 100 years or longer. This is reason enough for applying the best asset management skills to ensure that it continues to provide sustainable and economic service.

Compelling reasons for ensuring that best practices are applied to our national infrastructure include:

- (a) Infrastructure networks provide the platform for economic and social development
 - (b) Infrastructure and property assets increasingly meet recreational and other needs of the community
 - (c) Good quality infrastructure is the cornerstone of public health and safety
 - (d) Good quality infrastructure mitigates potential adverse environmental impacts of society
 - (e) Asset management practices advance the sustainability of infrastructure services
 - (f) Benchmarking condition and performance promotes innovation and efficiencies.
- (this is an excerpt from the NZ Asset Management Support website.
<http://www.nams.org.nz/pages/173/infrastructure-asset-management-defined.htm>)

WORK PROGRAMMES

Activity work programmes derive from:

- (a) The priorities that Council identifies during consultation with the community,
- (b) Asset condition surveys,
- (c) Agreed levels of service, and
- (d) Strategic planning documents (eg. Growing Ruapehu, Council’s Economic Development Strategy, adopted 2015, updated 2018 and 2021)

5 LEVELS OF ASSET MANAGEMENT PLANS

CORE AMPs

The development of an AMP is a process of continuous improvement. The entry level AMP is what is commonly referred to as the Core AMP – it reflects a rudimentary knowledge of the asset (such as the asset register and inferred age, condition and performance), associated Levels of Service and the long-term cash flow predictions.

ADVANCED AMPs

At the other end of the spectrum are Advanced AMPs. Movement towards the development of such plans is a continuous process of data collection, verification, higher confidence levels of outputs and a systematic iterative approach to treatment options (renewal and maintenance options), while steadily reducing the number of assumptions historically used.

Advanced AMPs aim to employ predictive modelling, risk management and optimised decision-making (ODM) techniques, in order to evaluate options and to identify optimum long term plans to deliver the Levels of Service agreed with the community to achieve outcomes.

As new condition, performance and risk assessment techniques and systems evolve, or as technologies associated with asset renewal are improved, the level of sophistication of the AMP will improve.

RUAPEHU DISTRICT COUNCIL'S AMPs

RDC's first AMPs were produced in 1996. They were reviewed and updated in 2006, 2009, 2012, 2015 and 2018 and 2021.

The objective of the review and update is to improve the quality of the AMPs and maintain them to at least a core-plus level. RDC's AMPs consist of a mixture of "bottom up" analysis (for asset inventory, age, maintenance history, faults etc.) as well as "top down" analysis (for condition and performance).

Having reached core-plus level means there is still room for improvement and sophistication. How that will be achieved is laid out in the Improvement Plan section of this plan. Continuous improvement will be periodically measured/reviewed/audited by external reviewers, and through revisions of this document.

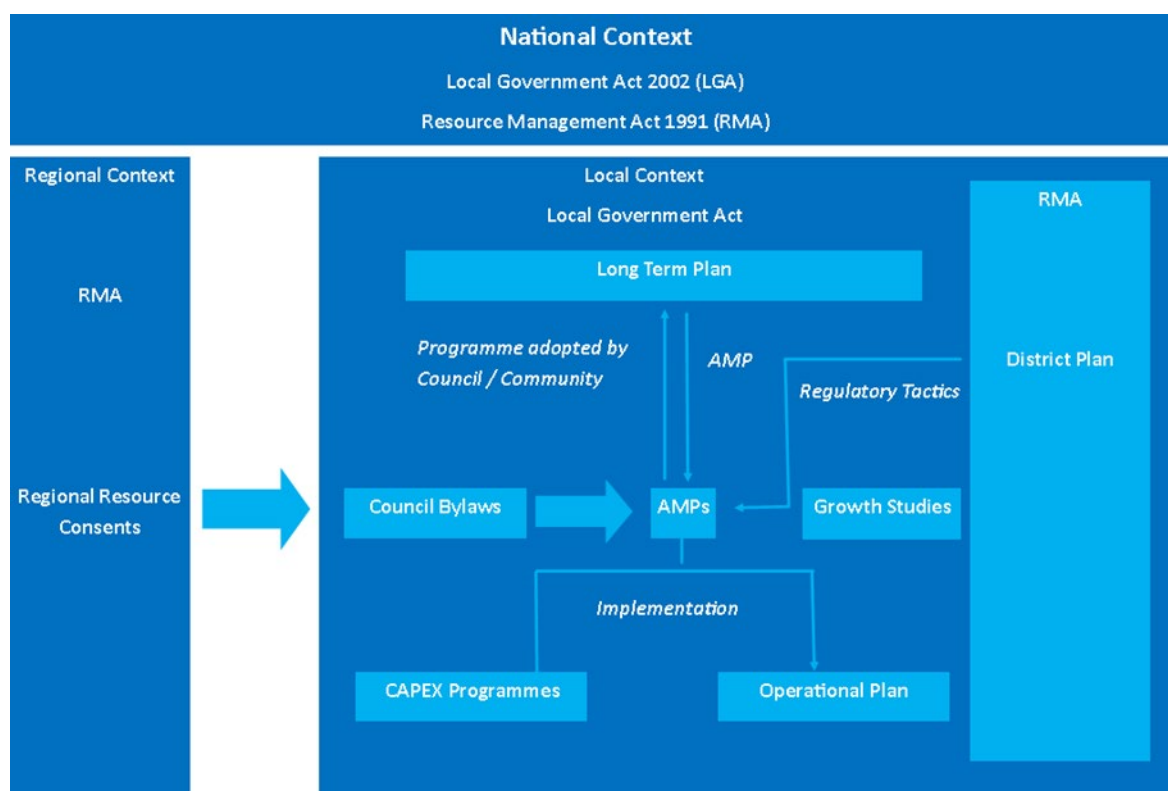
FUTURE IMPROVEMENTS

In 2019 the 2018-28 Asset management plans were peer reviewed. The objective of the assessment was to focus on the overall quality of the AMPs, to identify the strengths and weaknesses of each plan, and to allow RDC to prioritise improvements to the plans. The peer review identified whether progress had been made on maturity level of the AMPs by comparing score to the 2015 peer reviews.

AMPs include an improvement plan that outlines the tasks, resources and deliverables required to achieve the target asset management maturity level that is appropriate to those assets.

6 PLANNING REQUIREMENTS AND LOCAL GOVERNMENT PROCESSES

Integrated asset management is done in the context of the wider environment. The Local Government environment has both expectations and restrictions placed on it through Central Government legislation and Regional Council Plans. Council needs to take into account both the national and regional plans and environment when developing its strategic plans. The following chart shows the relationship with the wider environment.



LEGAL REQUIREMENTS

Section 10 of the Local Government Act 2002 (LGA) states that the purpose of Local Government is;

- (a) To enable democratic local decision-making and action by, and on behalf of, communities; and
- (b) To promote the social, economic, environmental, and cultural well-being of communities in the present and for the future.

Our AMPs demonstrate Council's approach to these ideas as follows:

- (a) Democratic local decision making and accountability - Council seeks community feedback on the strategic direction of Council's AMP as part of the LTP process as well as through consultation on work programmes and individual projects as discussed in Part 3. Outcomes from these consultations are combined with asset knowledge and engineering best practice to produce management plans for Council's assets that are sustainable, appropriate and acceptable to the Ruapehu community.
- (b) Efficient and Effective service delivery - Effective local government relies on information as the basis of good decision-making and accountability. Council is committed to monitoring and

continually improving the information that this Plan is based on and the processes and frameworks which guide decision making.

- (c) Consideration of the needs of present and future generations – Council uses data collected from a number of sources to develop assumptions on future growth (or decline) in demand to underpin planning. AMPs also use other information (e.g. asset conditions reports, inspections, legal compliance checks, research reports, audits etc.) as the basis for forward planning to help ensure that the infrastructural asset renewal and replacement will adequately service both today and tomorrow's communities
- (d) Cost effective service delivery - Council promotes cost effective service delivery through periodic reviews, tendering and contract negotiations and using and promoting shared services.
- (e) Promotes the wellbeing of the District – Council promotes the social, economic, environmental, and cultural well-being of communities by responsibly managing and planning for its assets for the present and future communities.

The LGA requires councils to develop and publish an Infrastructure Strategy. This is a strategic plan for the future community looking forward 30 years.

ASSET MANAGEMENT PLANS AND THE LONG TERM PLAN / ANNUAL PLAN PROCESS

Planning processes tend to be circular with built in reviews. The AMPs and LTP need to have regular review cycles, and monitoring of the Goals, Levels of Service and KPIs. The AMPs are reviewed every three years, in line with the ten year LTP cycle, but work programmes can also change each year, in response to outside pressures, budget constraints and new projects becoming apparent.

The ability to be responsive each year is through the Annual Plan process.

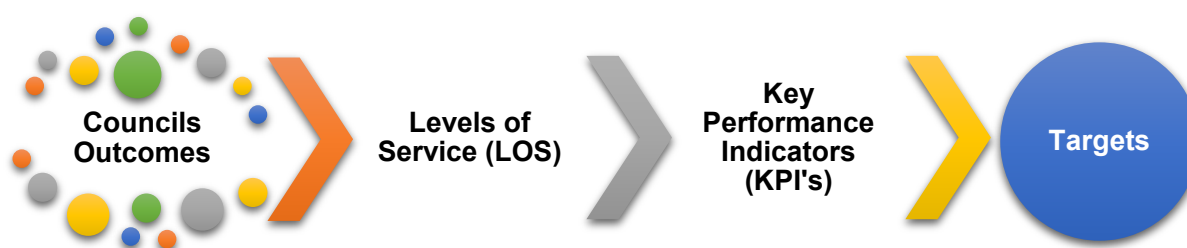
The AMPs detail the Goals, Levels of Service, KPIs and the targets which contribute to the organisation's Vision and Mission. They also identify demand changes and risks.

The review process considers the overall impact of the proposed programmes to deliver the defined Levels of Service to the Ruapehu community. This review moderates competing priorities within the context of community affordability and may result in some projects being deferred, and some reductions to ongoing programmes.

The yearly adopted work programmes and budgets and the implications of any changes made from the proposed AMP are identified in appendix A of each AMP. These changes and implications will then be a key input into subsequent plan reviews.

7 LEVELS OF SERVICE, KEY PERFORMANCE INDICATORS AND TARGETS

The Levels of Service (LoS) for each activity are derived from Council's strategic goals in the context of community affordability. KPIs and targets have been developed to measure whether or not Council is achieving those LoS.



CHANGES IN LEVELS OF SERVICE

A change in LoS will either be reflected as a requirement to increase or decrease the LoS.

Any significant change will need to be consulted on with key stakeholders and the community. The outcomes of that consultation must then be incorporated into the decision making process.

LEVELS OF SERVICE RELATIONSHIP TO ASSET MANAGEMENT PLANNING

One of the basic cornerstones of sound asset management is 'to provide the levels of service that the current and future community want and are prepared to pay for'.

LoS therefore provide the platform for all decisions relating to management of assets. Before developing detailed asset management strategies, Council needs to consult on the LoS with the community with consideration given to the following:

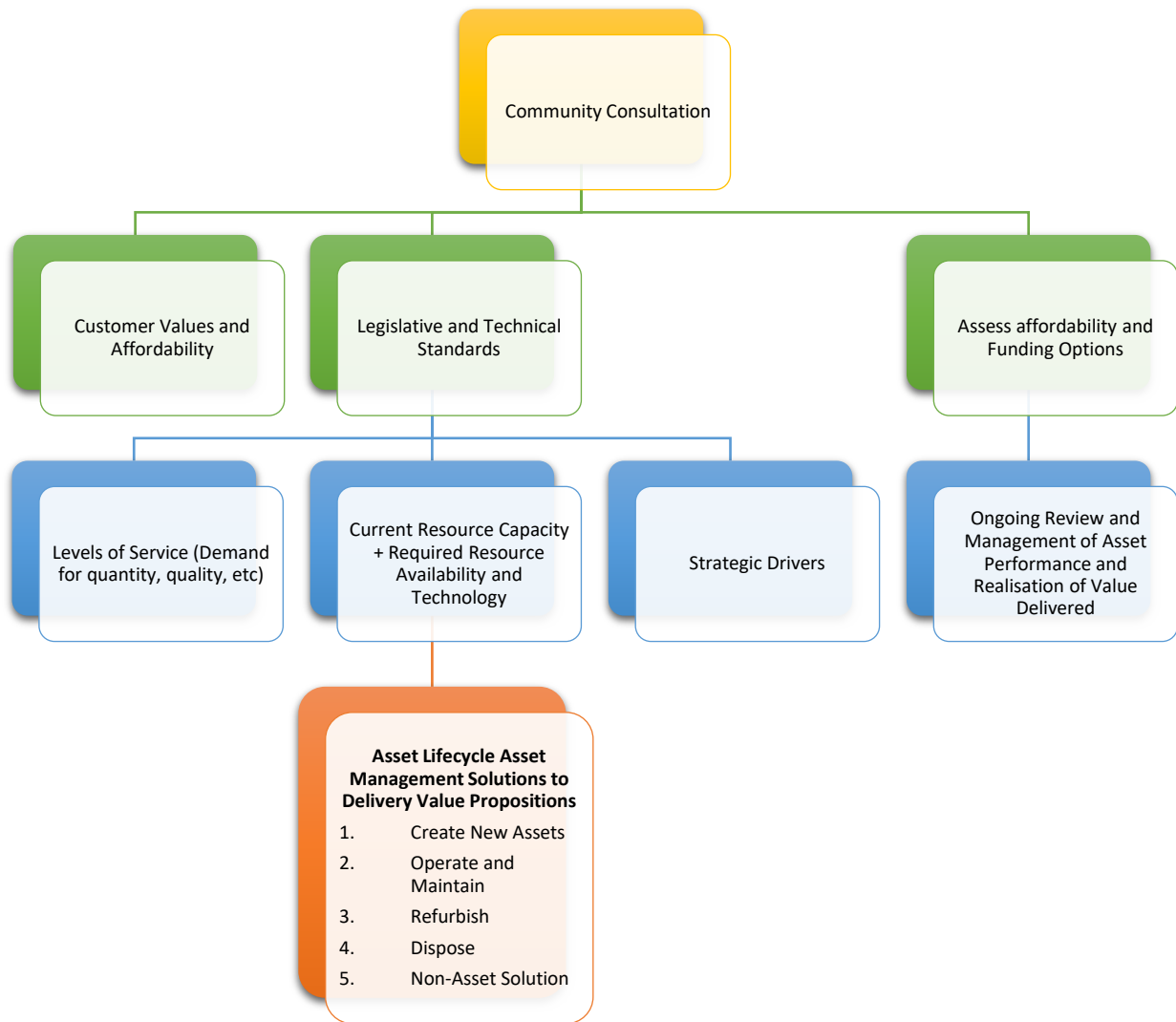
- (a) Planned outcomes
- (b) Legislative requirements
- (c) Technical constraints
- (d) Community affordability

A key objective of the Asset Management Plan is to match the LoS provided by the asset with the expectation of stakeholders and Council's strategic goals and legislative requirements.

Levels of Service:

- (a) describe the type and level of service to be offered, for example, how many times a year public grass is mown, and/or how long the grass should be cut,
- (b) are an outcome of a cost/benefit analysis of the services offered,
- (c) enable stakeholders to assess suitability, affordability, and equity of the services offered.

The following figure shows LOS relationship to Asset Management Planning.



8 COMMUNITY ENGAGEMENT

Ruapehu is demographically and geographically diverse. Therefore Councils 'Community Engagement' approaches, platforms and modes of engagement are multi-faceted to be inclusive of all key stakeholders and communities across the district to ensure their ideas and thinking inform Council's decision making.

RDC's key stakeholders are inclusive of and not limited too;

- Community Groups
- Non-government Organisations
- District Health Boards
- Federated Farmers
- Real estate agencies
- Business Groups

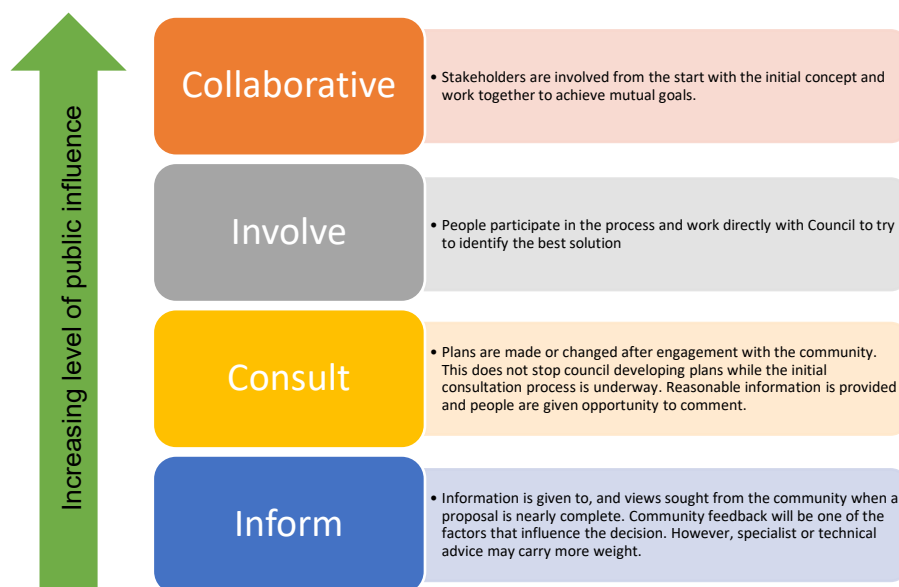
COUNCILS OBLIGATIONS AND ENGAGEMENT APPROACH

All Community Engagement is undertaken in reference to Council's Engagement Strategy 2020, the RDC Significance and Engagement Policy⁷, Council's obligations as outlined in the Local Government Act Section 10 A-E, and in reference to the Treaty of Waitangi.

Active engagement approach will depend on the degree of significance an issue has to a community and will utilise various modes of engagement as necessary to engage successfully with any given issue, community and demographic. The following are Councils key modes of engagement:

- Social Media Channels
- Website
- Information and displays at the information centers, i-Sites and libraries
- Targeted community newsletters & email lists e.g non -resident ratepayer
- Information and displays in local social hubs
- Informational flyers or letters sent through mail
- Mail and phone surveys
- Community hui & meetings
- Council and Community Board meetings
- Stakeholder/target community meetings/workshops
- Operational meetings
- Open chat spaces
- Community working & action groups
- Informal meetings

There are legislative minimums outlined in the Significance and Engagement policy concerning consultation timeframes and public information. However, Council understands that different communities will need additional time and communication.



⁷ (Section 5.1 of the RDC Significance and Engagement Policy outlines the approach Council uses to determine significance, in line with the legislative requirements outlined in the LGA; Section 76AA, 78, 81, 82, 82A and 83 Special Consultative Procedure)

THE LOCAL GOVERNMENT ACT 2002 AND COMMUNITY ENGAGEMENT

The Local Government Act 2002 (LGA) requires Council to consult with affected and interested parties in making decisions. Before implementing LoS changes, options analysis and the selection of the best practicable and preferred options must be done using a coherent and transparent process.

The LGA also requires Council to establish and maintain processes to provide opportunities for Māori to contribute to its decision-making processes and make information available to them (LGA 2002 section 81). Under the RMA, Council has specific obligations in relation to the Treaty of Waitangi and Māori interests. Council works with the Ruapehu District Māori Council as its first reference group for discussions with Iwi and hapu.

Council ensures that all interested stakeholders have an opportunity to influence the LoS decisions through various means. One of these is thorough engagement and consultation during the Long Term Plan process. For the 2021-31 LTP the following engagement took place:

PRE-ENGAGEMENT (AUGUST – NOVEMBER 2020)

Specific Stakeholder pre-engagements were also held through formal and informal meetings, meet and greet situations, township drop-ins and through email outreach. Engagement have occurred with Federated Farmers, Women's refuge, Taumarunui Youth and Community Trust, Waituhi Business centre, Recruitment Ruapehu, Real Estate agencies, Enterprising Taumarunui, phone and internet providers, Waikato District Health Board, Age Concern and businesses across the region.

Over 200 out-reach emails have also been sent to those who have requested contact on key Council engagements at previous community hui. For our Long Term Plan Pre-Engagement process, seven community Hui were held in townships, and villages across the district in Ohakune, Ohura, Raetihi, Taumarunui, National Park, Owhango and Pipiriki. At these community Hui, held over August to November, the CEO, Mayor, various elected members and senior staff updated attendees on our key assets and activities, Covid-19 recovery and targeted community issues in a conversational and flexible model taking questions and being responsive to unique community issues and concerns. Attendees were also made aware of the Long Term Plan, what it is, and how it informs what Council does in detail in for the forthcoming three years and sign posts key goals or desired outcomes over the next decade.

Community members could add issues and concerns to be considered as part of the LTP planning process. With the guidance and support of the Ruapehu Māori District Council, an additional two targeted Māori Community hui engagements were held at Raetihi Marae on November 24 and at Kauriki Marae on November 30. At these Hui a new avenue of engagement was established with host expressing the positive move, highlighted with robust discussions on representation and community issues. These are in the process of being amalgamated into our pre engagement documents.

SOCIAL MEDIA

Throughout the pre engagement process social media channels have been used extensively with over 20 "what's on your mind" posts introducing and familiarising the public with the LTP process and asking for ideas, issues and inputs over May, June and July. An additional 40 posts went out over July to October advertising community hui. Each post had a reach of between 800 and 1000, meaning the specific post appeared and was viewed on the Facebook newsfeed of the aforementioned number and facilitated over 250 engagements through the form of a comment, like or share. Social media comments have been included as appropriate to inform the LTP planning process.

COMMUNITY INTEREST GROUPS

Specific Stakeholder pre-engagements were also held through formal and informal meetings, meet and greet situations, township drop-ins and through email outreach. Engagement have occurred with Federated Farmers, Women’s refuge, Taumarunui Youth and Community Trust, Waituhi Business centre, Recruitment Ruapehu, Real Estate agencies, Enterprising Taumarunui, phone and internet providers, Waikato District Health Board, Age Concern and businesses across the region. Over 200 out-reach emails have also been sent to those who have requested contact on key Council engagements at previous community hui.

CONSULTATION (MARCH – APRIL 2021)

CONSULTATION DOCUMENT

A consultation document was produced, discussing the “big issues” facing Council and the District in the coming decade (and beyond). It outlined the challenges, options for addressing them and the implications of each of those options.

LOCALISED COMMUNITY MEETINGS

Seven LTP community meetings were held in National Park, Ohura, Taumarunui, Owhango, Raetihi, Ohakune and Waiouru - each town with its own aspirations, issues, perspectives and concerns. All of these meetings were live streamed on Facebook to ensure participation and increase outreach to non-resident ratepayers.

In addition to community based meetings, informal community catch ups with opportunities to go through issues raised in consultation documents was undertaken across the district over the first two weeks of the consultation cycle. Consultation documents were also left at key community hubs and with organisations to ensure document reach into the more remote communities in the district.

To ensure outreach to non-resident rate payers and those that could not attend physical meetings, all seven face to face meetings held across the District were live streamed on Facebook. In addition, there was a mail out to non-resident ratepayers which outlined key issues and online sources and avenues to access additional LTP materials and the submission process.

KEY COMMUNITY ISSUES

Location	Public Meeting Attendance	Online Views	Key Community Issues
National park	2	610	<ul style="list-style-type: none"> a) Affordability of National Park plan. b) Timing of non-commercial visitor rate increase
Ohura	8	425	<ul style="list-style-type: none"> a) Concerned about water quality b) Supportive of the proposed Forestry Targeted Rate increase c) Encourage council to Maintain & retain community assets
Waiouru	5	1200	<ul style="list-style-type: none"> a) Safety and parking issues at playground cost of housing winter workers b) Concerned about rate levels
Taumarunui	23	1500	<ul style="list-style-type: none"> a) Rate rises b) Impact of forestry on roading, c) Toilet and playground upgrades in central Taumarunui, d) Housing- agree that housing is an issue and wants to see council do something about it. e) Improving conversation, consultation and collaboration with Maori

Raetihi	14	692	a) Forestry b) Options for three waters c) Housing, d) Need for banking services/ hub in town
Owhango	17	736	a) Climate change b) Council's carbon footprint c) Securing clean drinking water d) Improve communications around water notices e) Fresh water monitoring for swimming
Ohakune	11	390	a) Effect of short term stays properties b) Community poverty c) Water consumption monitoring/ three waters d) Lack of employee housing

FACEBOOK

Community engagement via Facebook has been increasing in the last 2 year, encouraging Council that this is a very effective form of engaging with members of the community who might not otherwise give feedback.

SUMMARIES OF THE “BIG ISSUES”

Around 7000 A4 flyers summarising the LTP issues were distributed to every household including to out-of-District ratepayers and freely throughout the community. As well as the flyer, we had summary pages on the individual consultation issues. These were used widely in all forms of conversation with the community.

NEWSPAPER & RADIO

The consultation was supported by advertising in local papers and local radio stations. The summary pages of the CD were utilised for newspaper advertising alongside key focus articles, and key Council staff spoke on the CD in further detail on the local radio station.

WEBSITE

The website was an important platform for making all the consultation material easily available, as well as the large amount of supporting documentation that goes into the Long term Plan. The online submission form was well utilized by submitters, facilitating a streamlined submission process.

MĀORI ENGAGEMENT

Marae based meeting were valuable in the pre engagement process as this demonstrated the importance of needing to participate alongside the community in the formal process of Long Term Plan consultation. This was reflected in the number of Māori who attended the community meetings.

Council also ensured Māori organisations and their respective representatives had access to the consultation documents, supporting materials and information about the submission process and options.

YOUTH ENGAGEMENT

Youth engagement was conducted through Ruapehu Youth Council, more specifically the Taumarunui – Ohura Youth Ambassadors (TOYA). Unfortunately, the Waimarino – Waiouru Youth Ambassadors did not hold their first meeting until after consultation closed. While staff did not attend high school groups/assemblies as they usually do, Youth Councilors were asked to encourage their friends to submit on the LTP. Council received comprehensive feedback to the consultation document from TOYA that adequately captured the voice of the youth in the district.

OTHER RELATED ISSUES

ROAD WORKS

- There was a community wide support for cycle and trail track to be established in the district, In particular a track that connects Raetihi and Ohakune.
- Sealing of roads in or adjacent to villages where there is a dust hazard in Otapouri road.
- District wide support for the Land Transport Forestry Targeted Rate. There were concerns about the damage done to the district owned roads by heavy vehicles operated by forestry companies.

3 WATERS- WATER SUPPLY/ STORM WATER/ WASTE WATER

- Concern about the three waters scheme currently being proposed by Central Government
- Clarity was sought on public/private water schemes.
- Fresh water management, water quality and allocation is a concern across the district.

TOWN REVITALISATION

- Overwhelming support for the Town revitalisation work supported by Council. Residents see the value of this work on the local economy and are ready to embrace future works.
- There were concerns about allocation of funds, residents of Ohakune advocated for more funding to be allocated to growing their town of their potential to grow the district.
- Residents of Rangataua indicated that they were a growing community and that they would like Council to support their town development projects.

HOUSING

- People are concerned about the lack of housing option in the district.
- Housing is an obstacle to getting people from out of the district.
- Concern around the quality of houses within the district.
- Residents were supportive of the idea of Council partnering up with others organizations to provide affordable houses.
- Supportive of the short term accommodation rate. People felt that these if these houses were available for long-term rent, it would relieve the impending housing crisis.



9 RISK MANAGEMENT

INTRODUCTION

Risk is “the effect of uncertainty on objectives” (AS/NZS ISO 31000:2009). Risk Management is the coordination of activities to direct and control an organization with regard to risk.

Risks will be assessed at one of three levels of risk:

- (a) Corporate (or strategic) risk – considers risk affecting the management of RDC
- (b) Activity (or operating) risk – considers risk affecting the management of RDC activities
- (c) Project (or ad-hoc) risk – considers risk affecting projects, individual assets or functions

Risk management can be applied across an entire organization, to its business unit activities and to specific functions, projects and assets. Risk management may also be applied to specific tasks within any area of the business.

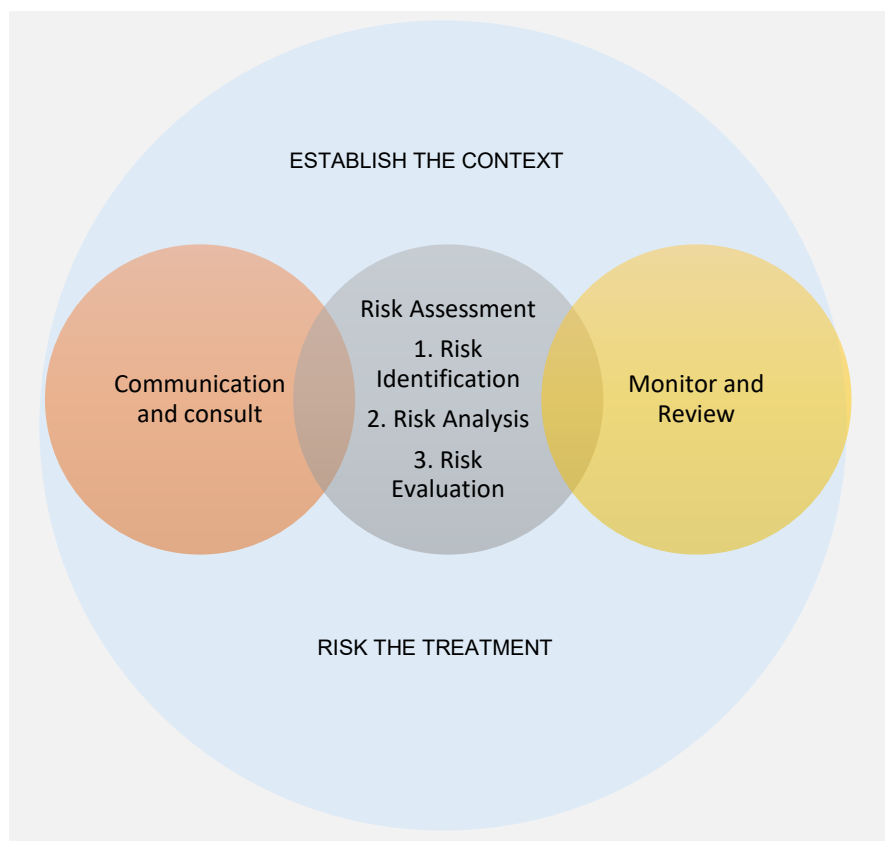
RDC’s risk assessment framework is simplified from the Joint Australian New Zealand International Standard: Risk Management – Principles and Guidelines (AS/NZS ISO 31000:2009).

Activity risk management is the process of identifying and managing risks associated with the ownership and management of activity assets used to achieve activity objectives. The benefits of taking additional measures to further manage risk and the costs of those measures are inputs into a risk action plan.

The purpose of this Activity Risk Management Process (see Figure 1) is to provide guidance on how to identify, assess, and treat risks at the activity level.

The outcome of the risk management process is to:

- (a) Emphasize the importance of continuing to provide the activity’s services and manage risks
- (b) Continually identify improvements required to activity services to avoid risk events, to minimize their impact or to realise identified opportunities.



RISK MANAGEMENT PROCESS

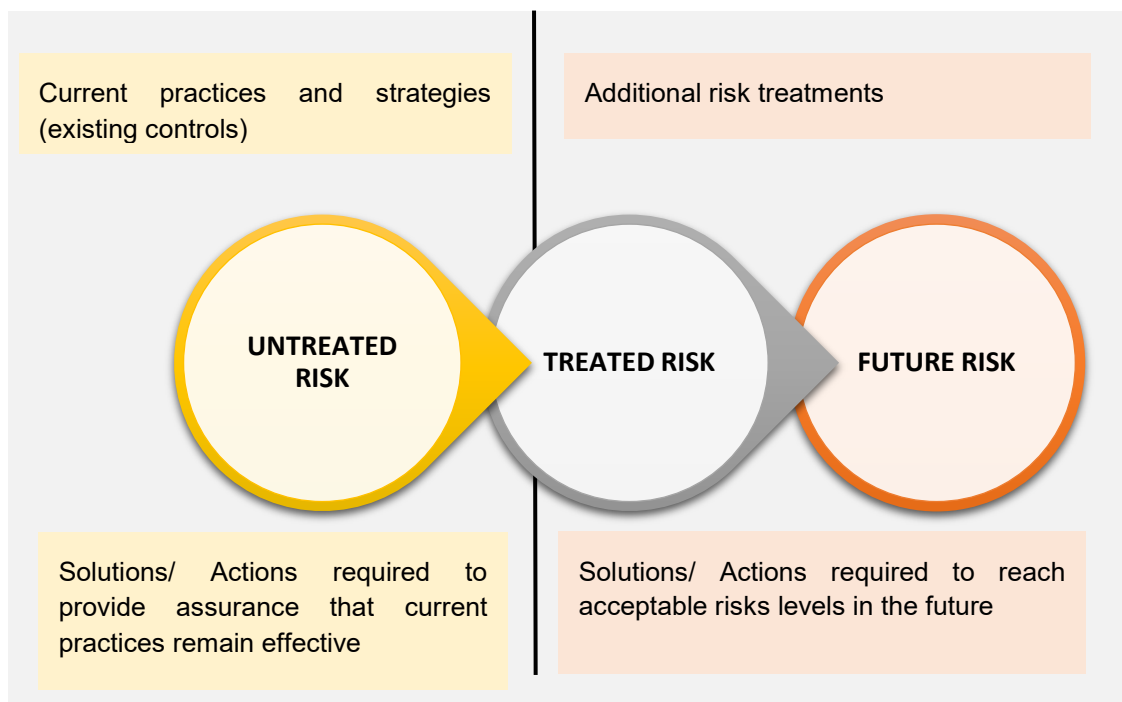
The risk management process is designed to ensure that:

- (a) All significant risks to the community, activity users, the environment and RDC are identified and understood
- (b) The highest risks for the short to medium term are identified
- (c) Risk treatments that best meet business needs are applied
- (d) Responsibilities for managing risk are allocated to specific staff

Risk exists in a raw, untreated or inherent state as well as in the present, treated or residual state. The difference between the two states are the controls/treatments that exist at present. Analysis of controls assists in identifying the more important controls and the risks associated with these controls failing.

The risks recorded in the risk register include analysis of the treated risk.

Gaps between untreated and treated risk indicate the importance of effective current controls to manage untreated risk events. Accordingly, improvement actions should focus on the things that will further assure RDC that current controls are effective.



ESTABLISH THE CONTEXT

The context for risk management is defined by:

- (a) The external context within which RDC operates
- (b) The internal context of the RDC organization
- (c) RDC's strategic and operational objectives

The following steps were undertaken to establish the context:

- (a) The relationship between RDC and the environment has been defined and RDC's strengths, weaknesses, opportunities and threats identified to provide an understanding of the 'big picture' potential risk areas and opportunities to manage these risks
- (b) Internal and external stakeholders were considered and/or consulted to identify the extent of consequence to be included

- (c) RDC's capabilities to meet the LoS were identified
- (d) Broad categories for sources of risk of not achieving the LoS and areas of impact, were identified

EXTERNAL CONTEXT

RDC does not operate in a vacuum. It interacts with and responds to a multi-dimensional context (see Table 1).

Changes, trends or issues in that context may impact on RDC's ability to fulfil its operational or strategic objectives.

Dimension	Description
Political	Changes in government or government policy
Economic	Economic trends, market movements (e.g. foreign exchange, interest rates, monetary policy, labour)
Societal / Cultural	Social or cultural issues, changes in demographics, public opinion.
Technological	Emerging technologies and practices, innovations
Legal/ Regulatory	New or changed regulations, contractual or compliance requirements
Environmental	Changes in natural environment (e.g. climate change)
Industrial / Commercial	Industry trends and pressures

These drivers impact on activity risks as well as corporate risks.

INTERNAL CONTEXT

The risk assessment is oriented by RDC's objectives:

- (a) Risks are things which might impact on the achievement of the objectives, whether positively or negatively.
- (b) Risks are evaluated with respect to the magnitude and likelihood of the potential impact on objectives.

RDC is engaged in a number of activities with respect to the provision of community services and the management of facilities and assets.

RDC targets its activities to help achieve the Community Outcomes described in the LTP. Each activity targets some of the Outcomes and all Outcomes are targeted by one or more activities.

RDC carries out its activities through a number of business processes. On a day-to-day basis, each process fulfils a key operational outcome (see Table 2).

Process Dimension	Business Processes	Process Outcomes
Finance	Financial systems and controls Funding and credit Procurement.	RDC can demonstrate value for money across operational and capital expenditure. Funding is secured and timely, and debt servicing is cost-effective. Procurement appropriately allocates risk, is ethical, and delivers value for money.
Governance, Control & Compliance	Compliance. Internal control. Relationships with community and Elected Members	RDC operates within the requirements of the law. RDC maintains effective relationships with elected members, the community, and other stakeholders. Management maintains effective controls.
Information Management	Systems and technology.	Information and communication services enable RDC activities and are cost-effective, and secure.
Operations and Service Delivery	Service delivery.	Service delivery is efficient, timely, and customer focused.

Process Dimension	Business Processes	Process Outcomes
People	Health and safety. Recruitment & retention. Staff knowledge and skills. Resource planning.	RDC provides safe work environments for all staff. The right people are recruited and retained. Staff have the knowledge, skills, and commitment to deliver competently on roles and responsibilities. Resourcing requirements are effectively planned.
Planning and Strategy	Business improvement planning. Planning to meet future requirements. Emergency Response/Business Continuity Planning.	RDC is committed to continuous improvement. RDC effectively plans for future growth, renewals, and LoS over the short and long term. RDC can effectively respond to a major event or disaster and restore business as usual.
Property and Assets	Maintenance. Project delivery. Asset information. Insurance. Safety and security.	Facilities are fit for purpose and reliable, and are maintained as cost- effectively as possible. New assets and capabilities are delivered on time, on budget, and to specification. RDC has accurate and up-to-date information on all its assets. RDC's insurance cover is consistent with its risk appetite. Facilities and equipment are secured from unauthorized use, theft, or damage.

IDENTIFY THE RISKS

Risk identification needs to consider the level of the risk assessment and both the internal and external sources of risk.

The Activity Level Perspective is concerned with the effectiveness of business processes across an activity or business unit. The activity level risk assessment therefore looks at the business processes across the activity or business unit to identify risks which may impact on the achievement of the activity objectives.

From the Activity perspective, external sources of risk are events, trends, hazards, contractor actions or third-party actions arising outside RDC or within the broader RDC organization external to the activity or business unit. Internal sources of risk include the actions, behaviors and practices of business unit staff, hazards and accidents, and missing, failed, inadequate or inappropriate assets, systems, processes or procedures.

Activity risks arise from the responsibilities of RDC staff, RDC assets and the activities and assets of contractors delivering services to RDC. Contractors have their own risk management practices in place. RDC monitors contractor management of risk.

Risks should be identified by examining impacts on the activity, its associated assets and desired outcomes from different consequences.

PROCESS FOR IDENTIFYING AND DESCRIBING RISKS

Identify and describe specific current risks.

- (a) All possible risks affecting the asset activity need to be identified.
- (b) Consider risks that might arise from different types of sources of risk e.g. the process dimensions in table 2.
- (c) Where risks are identified, they should be clearly described. The proper description of each risk should include the following elements:
 - (i) Event: the specific event or situation of concern.
 - (ii) Cause: the specific factors giving rise to the situation or event.
 - (iii) Impacts: the specific impacts on activity performance or objectives which may result.

ANALYSE RISKS

Each identified risk should be analysed to:

- (a) Understand the source of the risk
- (b) Understand the scope, magnitude and likelihood of the potential impacts on achievement of objectives
- (c) Understand the effectiveness of RDC's current systems and practices with respect to controlling or mitigating the risk

Detailed analysis of individual risks may be warranted or required where there is significant uncertainty about the nature, likelihood or potential impacts of a risk or where there is a need to quantify the risk to reliably justify the business case for treatment.

The level of detail in the analysis should be commensurate with the level of risk and the ultimate purpose for which the information will be used. Reliable quantitative analysis of risk requires accurate information about probability and consequence, and considerable analytical resources. This kind of analysis will generally not be necessary in order to justify management priorities for most risks.

Risks may initially be identified in a workshop setting and evaluated based on the group consensus of the workshop participants. This kind of qualitative, top-down assessment can be an efficient way of establishing a strategic view of the risk profile and identifying key priorities for further investigation.

EVALUATE RISKS

Use the four steps in the Risk Management Framework (see figure 3) to assess and manage the risk.

The evaluation of risks should take into account:

- (a) What is known about the risk including factors influencing consequence and likelihood.
- (b) The effectiveness of RDC's current systems and practices with respect to controlling or mitigating the risk (see figure 5).

Risk evaluation involves evaluating the consequence and likelihood scores for each of the identified risks.

Table 4 defines the scale for evaluating consequence. Table 6 defines the scale for evaluating likelihood. The risk rating is given by the combination of the Consequence and Likelihood scores.



Risk Management Framework

Step 1 Assess the worst credible consequence of the event first						Step 2 Assess the likelihood of that consequence happening					Step 3 Manage the risk - - What are the existing risk controls? - Are those controls effective? - Do we need more controls? - Do it! - Monitor it
Consequence Rating	Consequence					Likelihood					
	Cost	People	Assets (Critical LOS reduced)	Environment		% chance	3% chance	17% chance	67% chance	90% chance	
Insignificant (1)	< \$200		Small number of facilities for a short time			Will occur in most circumstances	Could occur at some time	Should occur at some time	Probably occur in most circumstances		High
Minor (2)	< \$2k	First aid	Localised effects	Minor damage of local importance		High	Med	High	High		High
Significant (3)	< \$200k	Off work injury, inability to recruit	Whole community for > 2 hours	Minor damage of local importance		Med	High	High	EXT		High
Major (4)	< \$1m	Hospital: Long term stress	Isolated areas for > 2 weeks	Major damage of regional importance		High	EXT	EXT	EXT		High
Catastrophic (5)	> \$1m	Death: Pandemic	Whole community for > 1 week	Major damage of national importance		EXT	EXT	EXT	EXT		High

ASSESS THE CONSEQUENCES – STEP 1

Assess the worst, credible consequence of the event before assessing the likelihood.

Use table 4 below as a guide to scoring the consequences.

Consequence Types	Factor	1. Insignificant	2. Minor	3. Significant	4. Major	5. Catastrophic
Financial/Economic	Loss/variance	< \$20	< \$2,000	< \$200,000	< \$1m	> \$1m
	Revenue loss or cost to restore service	Minimal	Some	Significant	Major	Catastrophic

Consequence Types	Factor	1. Insignificant	2. Minor	3. Significant	4. Major	5. Catastrophic
Health Safety &	Health		Negligible injury/health concern	Minor injury/health concern	Serious injury/health concern (including long term stress)	Pandemic or > 30% of staff infected
	Injury	No possibility of physical harm	Can resume work the same or next day	Off work injury of < 1 week	Off work injury of > 1 week	Off work injury of > 6 months or permanent disability or loss of life
	Medical attention needed			Required	Hospitalisation	Widespread long-term hospitalisation required
Human Resources	Staff turnover	< 10%	< 15%	< 20%	< 30%	> 30%
	Relationships			Poor relationships between silos		Breakdown of communication between silos
	Recruitment			Inability to recruit into key skilled positions	Inability to recruit into key positions on an ongoing basis	
Reputation	Adverse media	Once	> once	> 1 week	> 2 weeks or regionally	National publicity, eg, "Fair Go"
	Dis-satisfaction through the media		An individual	1 stakeholder group	> 1 stakeholder groups or > 1 month	Extensive or > 2 months
	Customer complaints		Isolated	Systematic	Relating to > 1 business area	
	Loss of stakeholder confidence		Minor community interest			Major; public agitation for action
	Legal impact		Negligible	Minor technical legal challenge or breach of law or compliance	Some legal constraints imposed, minimal fine	High profile legal challenge or prosecution with heavy fine
Operational External -	Loss of service	Some	Some	Serious	Serious	Serious
	Reduced LoS	Some	Localised	Significant	Major	Serious
	Spread and duration	Small number of customers for the short term	Some areas for < 1 day	A community for > 2 hours or some areas for > 1 day	A community for > 1 day or some areas for > 2 weeks	A community for > 1 week
	Consequential loss in the community	Minimal	Some	Significant	Major	Catastrophic
	Example		Water supply and/or sewage out for several streets for 9 hours	Water supply and/or sewage out for a community for 25 hours	Water supply contaminated	Water supply and/or sewage out for 2 communities for 1 week

Consequence Types	Factor	1. Insignificant	2. Minor	3. Significant	4. Major	5. Catastrophic
Operational Internal	Effect		Specific staff affected for < 2 weeks	Management diverted for < 2 weeks	Management diverted for > 2 weeks	Management diverted for > 2 months
	Organisational changes		Change internal processes	Minor restructure	Restructure a team	Restructure a group
	Distraction		Some but for a short time			Significant and widespread
	Inefficiency			< 1 month	> 1 month	> 6 months
	Staff morale		Minor impact over a short time	Moderate with potential for some resignations	Major with some resignations	Severe with loss of a significant number of key staff
	Decision making process				Delays	Process breaking down
Project Management	Projected project cost overrun	< \$20	< \$2,000	< \$200,000	< \$1m	> \$1m
	Quality		Minor quality issues on a small internal project	Minor quality issues on an external project	Quality issues on an external project affecting usability	Outputs from a major project are unusable
	Timeliness			Delays on an external project > 10% or > 1 month	Delays on an external project > 20% or > 6 months	Project abandoned
Environmental Protection	Impact	Negligible	Material damage of local importance	Serious damage of local importance	Serious damage of regional importance	Serious damage of national importance
	Prosecution		Possible	Expected	Confirmed	Confirmed
	Fully reversible	< 1 week	< 3 months	< 1 year	< 10 years	Not fully reversible
Legal Regulatory Compliance	Sued or fined	< \$20	< \$2,000	< \$200,000	< \$1m	> \$1m
	Legal impact			Prosecution	Decisions are overturned	Rates are invalidated

ASSESS THE EFFECTIVENESS OF EXISTING RISK TREATMENTS / CONTROLS – STEP 3

Identify RDC's existing/current controls.

Assess the effectiveness of current controls.

- (a) Systems and practices can only control risk where they are effectively applied and practiced. Effectiveness refers to:
- i. Reliability: That systems and practices are performed at the appropriate frequencies and times

- ii. Effectiveness: That systems and practices achieve what they were designed to achieve
- iii. Completeness: That systems and practices provide adequate coverage in relation to the risk(s) they are intended to control

The effectiveness of the current systems and practices in controlling risk should be rated by selecting the appropriate rating from Table 4.

Table 5: Rating Effectiveness of Controls

Rating	Description
Excellent	Fulfils requirements thoroughly. Robust, reliable, with positive measurable performance
Good	Generally fulfils requirements. Generally robust, reliable, and measurable but some room for improvement
Fair	Fulfils minimum requirements. Minimum levels of effectiveness and reliability achieved OR effectiveness and reliability has not been measured
Poor	Not fulfilling requirements. Considerable gaps in effectiveness and reliability
Very Poor	Current systems and practices are completely ineffective due to poor design, performance or both

Assessments of the effectiveness of controls may be based on management assertions or the results of internal audits.

Identification and assessment of the existing controls may be recorded in some cases.

ASSESS THE LIKELIHOOD OF THAT CONSEQUENCE – STEP 2

Assess the likelihood of that consequence happening after taking into consideration the effectiveness of RDC's existing/current controls.

Table 6: RDC Risk Likelihood Scale

Level	Dimension	Qualitative Descriptor	Probability Descriptor	Frequency Descriptor
5	Almost Certain	The event or situation is almost certain to occur	> 90%	< 1 year
4	Likely	The event or situation will probably occur	60% – 90%	1 – 2 years
3	Possible	The likelihood of the event or situation occurring is about the same as it not occurring OR The likelihood is not known or cannot be judged with confidence.	40% – 60%	2 – 10 years
2	Unlikely	The event or situation will probably not occur	10% – 40%	10 – 50 years
1	Rare	The event or situation could occur but is considered highly improbable	< 10%	> 50 years

RISK RATING

The evaluation of consequences, controls and likelihood will determine the risk rating for the Treated Risk i.e. the risk as it is today with all the present controls operating as they are today.

The risk rating is determined using Table 7 based on the assessed combination of Consequence and Likelihood. The risk rating assigns a degree of significance to the assessed level of risk and provides guidance on the appropriate management response (see Table 8).

Table 7: Risk Assessment Matrix

Consequence					
Likelihood	Insignificant (1)	Minor (2)	Significant (3)	Major (4)	Catastrophic (5)
Almost Certain (5)	Med	High	Ext	Ext	Ext
Likely (4)	Med	High	High	Ext	Ext
Possible (3)	Low	Med	High	High	Ext
Unlikely (2)	Low	Low	Med	High	High
Rare (1)	Low	Low	Med	Med	High

MANAGE THE RISK – STEP 3

Manage the risk -

- (a) Review the existing risk controls?
- (b) Review whether those controls are effective?
- (c) Do we need more controls?
- (d) Do it!
- (e) Monitor it

RISK TREATMENT – STEP 4

Where any risk is evaluated to be High or Extreme, additional management options should be identified and investigated to treat the risk. The concept of practicability ensures that the value of the proposed treatment actions is assessed against the costs of implementing those proposed treatment actions (new controls), rather than just working from the highest risk down regardless of cost.

RDC has adopted the following broad treatment strategy for the levels of risk:

Table 8: Risk Treatment Strategy

Extreme Risk	Treat risk Risk Manager keeps Management Team informed
High Risk	Treat risk Risk Manager keeps Chief Executive informed
Medium Risk	Risk Manager monitors with annual review
Low Risk	Risk Manager monitors with review every two years

10 LIFECYCLE MANAGEMENT

Asset lifecycle management is an integrated approach to optimising the life cycle of an asset, beginning at planning all the way through to disposal. This includes the integration of operations, maintenance, renewals, and development.

Council undertakes a lifecycle management approach with its assets by applying the following broad strategies:

PLANNING AND PROCUREMENT

The need for a new asset is determined by:

- a) Changes in legislated levels of service
- b) Nearing end of asset life (rising maintenance costs)
- c) Public demand

Planning for the development of a new asset is undertaken in compliance with Council's Procurement Strategy and the Procurement and Termed Contracts (PTC) Policy. The PTC Policy takes into account whole of life costs which informs the significance and sustainability of the projects. The significance of the project may lead to community consultation under the Significance and Engagement Policy.

OPERATIONS

Council manages assets in a manner that minimizes the long term overall total cost in the following ways:

- a) Inspection and monitoring is scheduled and undertaken at a frequency deemed necessary based on the risks inherent in a given asset. Risks may include failure in LoS, costs, public health and safety and Council reputation.
- b) Asset monitoring processes include periodic performance and condition assessments of built assets.
- c) Customer enquiries and complaints are recorded in the "Request for Service (RFS)" database, summarizing data on the date, time, details, responsibility and action taken.
- d) The inspection programme is modified as appropriate in response to unplanned maintenance trends.

Competitive pricing is ensured by following Council's Procurement Strategy and Policy.

MAINTENANCE

Council maintains assets in a manner that minimizes the long term overall total cost.

- (a) Unplanned maintenance: A suitable level of preparedness for prompt and effective response to asset failures will be maintained by ensuring suitably trained and equipped staff to allow prompt repair of critical assets and mitigation of any hazards. Term contracts specify response times.
- (b) Planned maintenance: A programme of planned asset maintenance will be undertaken to minimize the risk of asset failure or, where justified, when considering financial, safety and social impacts. Major maintenance needs will be identified through the scheduled asset condition inspections and those generated from the investigation of customer complaints. Competitive pricing will be ensured by following Council's Procurement Strategy and Policy.

RENEWALS

Council renews assets when justified by:

- (a) Risk: The risk of failure and associated financial and social impact justifies action (eg, probable extent of damage, safety risk, community disruption).
- (b) Asset Performance: When an asset fails to meet the required level of service. Non-performing assets are identified by the monitoring of asset reliability, efficiency and quality during routine inspections and operational activity. Indicators of non-performing assets include repeated and/or premature asset failure, inefficient energy consumption, and inappropriate or obsolete components.
- (c) Economics: When it is no longer economical to continue repairing the asset (ie, the annual cost of repairs exceeds the annualized cost of renewal).
- (d) Efficiency: New technology and management practices relating to increased efficiencies and savings will be actively researched, evaluated and, where applicable, implemented.

Renewal requirements for key asset groups will be identified through the scheduled asset condition inspections, the investigation of customer complaints and a practical knowledge of the network. Renewal works will be prioritised and programmed in accordance with the following criteria or, in urgent cases, undertaken immediately.

- (a) Public safety risk.
- (b) Criticality of assets to accommodate needs.
- (c) Criticality of assets to achieve service standards and Outcomes.
- (d) Financial risk of deferring work.
 - (i) Intensity of usage.
 - (ii) Environmental risk.
 - (iii) Political preference.
- (e) Renewal works identified in accordance with the renewal strategies may be deferred if the cost is beyond the community's ability to fund it. This can occur when higher priority works are required on other infrastructure assets, there are short-term peaks in expenditure or if an inadequate rating base exists.
- (f) When renewal works are deferred, the impact of the deferral on economic efficiencies and the asset's ability to achieve or contribute to the required service standards will be assessed. Although the deferral of some renewal works may not impact significantly on the short-term operation of assets, repeated deferral will create a liability in the longer term.
- (g) Deferred work is recorded in each Asset management plan. Instead of existing sentence

Competitive pricing will be ensured by following Council's Procurement Strategy and Policy.

DEVELOPMENT

Development works will be planned in response to identified service gaps, growth and demand issues, risk issues and economic considerations.

When evaluating significant development proposals, the following issues will be considered:

- (a) The contribution the new or improved assets will make to the current and anticipated future LoS and Outcomes.
- (b) The risks and benefits anticipated to be made from the investment.
- (c) The risks faced by not proceeding with the development works. These could include safety risks, social risks and political risks.
- (d) Ability and willingness of the community to fund the works.
- (e) Future operating and maintenance cost implications.

Significant development works will be prioritised and programmed with contributions from:

- (a) Targeted user groups (eg. tourism operators, industry groups, adjacent residents).
- (b) The general community (through public consultation).
- (c) Council staff and consultants who may be engaged to provide advice to the Council.
- (d) The LTP/EAP process.
- (e) The elected Council. (Significant proposals are subject to Council decision and available funding.)

Competitive pricing will be ensured by following Council's Procurement Strategy and Policy.

DISPOSAL

Disposal is any of the activities associated with the disposal of a decommissioned asset. Assets may become surplus to requirements for any of the following reasons:

- (a) Under utilisation.
- (b) Obsolescence.
- (c) Provision exceeds required LoS.
- (d) Asset no longer provides the service or fulfils the purpose for which it was intended.
- (e) Uneconomic to upgrade or operate.
- (f) Policy change.
- (g) Service provided by other means (eg, private sector involvement).
- (h) Potential risk of ownership (safety, financial, environmental, legal, social, vandalism).

Asset disposal processes will comply with Council's legal obligations under the LGA 2002, or other relevant legislation, eg. Public Works Act 1981, which covers:

- (a) Consultation and/or public notification and offer back procedures prior to sale.
- (b) Restrictions on the minimum value recovered.
- (c) Use of revenue received from asset disposal.

Assets surplus to current or anticipated future needs or requirement will be sold in accordance with relevant legislation and Council policies to minimise future maintenance costs or other liabilities and to obtain a return on underutilised assets. Both the Public Works Act and the LGA refer to these processes.

All relevant costs of disposal will be considered when considering disposal options. These costs may include:

- (a) Evaluation of options.
- (b) Consultation advertising.
- (c) Obtaining resource consents.
- (d) Professional services, including engineering, planning, legal, survey.
- (e) Demolition/site clearing/make safe costs.

The use of revenue arising from the sale of assets, or the source of funds required to dispose of assets, will be decided by Council during consideration of the asset's disposal.

Competitive pricing will be ensured by following Council's Procurement Strategy and Policy.



11 FINANCIAL SUMMARY

INTRODUCTION

Council is facing significant affordability challenges over the next ten years.

With the total capital expenditure proposed across all asset groups reaching almost \$36.5 in year one, Council's debt is forecast to increase to \$56.5m in the first three years of the Plan (2021-24). Longer term capital projects will further increase debt to \$100.3m by year 10 (2031). For context, the end of the 2020/21 financial year, saw Council's debt at \$33.4m.

Council continues to pursue funding support from central government for infrastructure works that relate to increasing statutory compliance requirements and/or pressure on infrastructure from increasing visitor numbers. Any grants or subsidies received from government will reduce the amount of debt funding Council will require.

Council must manage its capital projects within the guidance of Council's Financial Strategy.

EXPENDITURE CATEGORIES

Expenditure and revenue projections within this plan have been classified as capital (new and renewal) or operating, in accordance with generally accepted accounting practice. The capital expenditure categories are detailed below. The capital projects are categorised as growth, renewal or LoS.

Capital Expenditure Categories		
Renewals	Planned	Planned replacement of existing assets using a modern equivalent asset. This can be driven by a number of issues including break history, condition surveys and maintenance renewals.
	Unplanned	Unplanned replacement of assets due to unplanned failures.
LoS	Customer	Unplanned replacement of assets due to unplanned failures.
	Statutory Compliance) (or	Replacement, upgrading or installation of new assets to achieve the customer outcomes defined in the LoS, such as water service reliability.
	Planned (or Capacity)	Replacement, upgrading or installation of new assets to achieve compliance with the statutory obligations defined in the LoS, such as health and safety.
	Network Improvements	Upgrades to existing assets to meet increased capacity requirements.
Growth	Development Pressure	Local upgrades of assets to accommodate incoming population.
	Vested Assets	Purchase of vested assets from new developments.

KEY ASSUMPTIONS

The basis for the financial forecasts is explained in the lifecycle management plans. The following general assumptions have been made in preparing the ten year expenditure forecasts:

- All expenditure is stated in dollar values as at December 2020, with allowances made for inflation over the ten year planning period.
- The rate and pattern of urban growth and development continues as assumed and noted earlier in this Section.

- (c) Maintenance costs are based largely on historical expenditure and assume there are no significant changes in contract rates (above the rate of inflation).
- (d) Maintenance and renewal allocations have been based on preserving current LoS. No significant optimisation works have been allowed for.

The most significant potential changes to the financial projections shown will result from the factors below:

- (a) Changes in the desired LoS, and service standards, from those identified in this AMP.
- (b) Assumptions have been made as to the average useful lives and average remaining lives of the asset groups based on current local knowledge and experience, historical trends, and predictive modelling outputs.
- (c) These are routinely reviewed and the accuracy improved based on real time assessments of asset deterioration.

CONFIDENCE LEVELS

The confidence in data used as a basis for the financial forecasts has been assessed using the grading system from the NZWWA NZ Guidelines for Infrastructure Asset Grading Standards, as summarised below.

Grade	General Meaning	
A	Highly Reliable	Data based on sound records, procedures, investigations and analysis which is properly documented and recognised as the best method of assessment.
B	Reliable	Data based on sound records, procedures, investigations and analysis which is properly documented but has minor shortcomings, eg, the data is old, some documentation is missing and reliance is placed on unconfirmed reports or some extrapolation.
C	Uncertain	Data based on sound records, procedures, investigations or analysis which is incomplete or unsupported, or extrapolation from a limited sample for which Grade A or B data is available.
D	Very Uncertain	Data based on unconfirmed verbal reports and/or cursory inspection and analysis.

Confidence grades for each Activity are provided in Part 3.

12 CONTINUOUS IMPROVEMENT

INTRODUCTION

Council’s vision for the quality of AMPs is to match best practice for comparable local authorities, which are defined as rural authorities with small urban towns (eg. South Taranaki District Council, Waitomo District Council, Rangitikei District Council).

A desktop review was prepared by GHD in 2019 to assess the 2018-28 AMPs. The objective was to focus on the overall quality of the AMP and to highlight the improvements that have been achieved since the previous assessment in 2014. A further review of the 2021-31 AMPs will be undertaken in 2021.

Refer to “Plan Improvements and Monitoring” in Part 3 for more information.
Refer to Asset Management Policy.

APPROACH



Effective asset management practices are demonstrated by Council's ability to meet the following criteria that are the focus of our detailed review. The sophistication to which Council undertakes each of these activities is dependent on our strategic goals and the benefits that can be obtained from improving our practices.

- (a) Asset Knowledge - The appropriateness, reliability and accessibility of data and the processes associated with the use and maintenance of asset data.
- (b) Strategic Planning Processes - The processes used in the implementation of Asset Management activities including failure planning, risk management, service level reviews and long term financial planning.
- (c) Current Asset Management - The processes used in the implementation of Asset Management activities including capital expenditure programmes and operations and maintenance management.
- (d) Asset Management Plans - That identify the optimum lifecycle management tactics and resources.
- (e) Information Systems - To support (and often replicate) Asset Management processes and store/manipulate data.
- (f) Organisational Tactics - Including organisational, contractual and people issues.

The current and appropriate practice levels (for a three-year target) in asset management were assessed using the rating schedule shown below. The size of the "gap" between current and appropriate practice provides an indication of the priority that should be placed on improving in that area.

Quality Level	Score
Best Possible	100
Excellence	85
Competence	70
Systematic Approach	45
Awareness	25
Innocence	0

"Appropriate" practice was assessed with consideration of the guidelines for "basic" and "advanced" AMPs issued by the Officer of the Auditor General (refer <http://www.auditnz.govt.nz/publications/asset-management/asset-management-for-public-entities>), and appropriate practice expectations for a Council our size. The "advanced" requirements for AMPs defined in the guidelines are consistent with the AMP outputs required for the LTP as stated in Schedule 10 of the LGA.

The Audit Office has publicly stated their expectation that organisations should soon be able to demonstrate achievements in advanced asset management practices. Council's primary goal is to achieve legislative compliance, if this has not already been achieved.

13 AMP REVIEW AND MONITORING

AMP REVIEW

To ensure the AMP remains useful and relevant, the following ongoing process of plan monitoring and review will be undertaken:

- (a) Formal adoption of the plan principles and Outcomes by Council.
- (b) Review and formally adopt LoS.
- (c) Revise AMP annually to incorporate and document changes to works programmes, outcome of service level review and new knowledge resulting from the asset management improvement programme.
- (d) Quality assurance audits of asset management information to ensure the integrity and cost-effectiveness of data collected.
- (e) Peer review – three yearly audits will be undertaken to assess the effectiveness with which this plan meets corporate objectives (periodic internal audits will be undertaken to assess the adequacy of asset management processes, systems and data, and external audits will be undertaken to measure performance against desired practice).
- (f) Where appropriate, measuring and updating the levels of service customer and technical measures (KPIs) and comparing them and tracking trends over time against the LOS targets that are listed in AMP. The trigger for revisiting the programme will be if the trends are worsening. The programme will also be revisited to respond to needs that may arise after the Plan has been adopted.

This is summarised below.

Activity	Action	Target Date
AMP Review and Development	External review of AMP information by Audit NZ	Late October-early November 2020
	Adoption of AMP by Council	20 June 2021
	Annual review of Plan context by Asset Management team. Check AMP content for consistency with adopted Council programmes and plans. Compliance with agreed asset management improvement programmes.	Annually by 30 June
	GAP review of the AMP including an assessment of the effectiveness and adequacy of asset management processes, systems and data.	30 June 2022
	Adoption of reviewed AMP by Council.	April 2024
	External review of AMP information by Audit New Zealand.	December 2023
	LoS	Review technical and/or LoS performance measures (including public consultation process) and formally adopt LoS.
Consolidate performance against actual technical and/or LoS performance measures delivered and report in Annual Report.		Annually
Risk	Review of risk framework.	30 June 2023
	Annual review of risk registers by Asset Management team	Annually

AMP MONITORING

The indicators below will be monitored to measure the effectiveness of this AMP.

Indicator	Measure	Source of Information
Compliance with legislative requirements	Unqualified audit opinion relating to AMP outputs	Audit NZ reports
Quality of services delivered	100% compliance with LOS targets	Annual Plan reporting
Quality of risk management	No event occurring outside of risk profile	Audit of Risk Register

APPENDIX 1 – LIST OF ACRONYMS

AADT	Average Annual Daily Traffic
AC	Asbestos Cement (Pipes)
AC	Asphaltic Concrete (Land Transport)
AD	Annual Depreciation
AEE	Assessment of Environmental Effects
AEP	Annual Exceedance Probability (eg, 10% is once in 10 years)
AI	Age Factor Index (Land Transport)
AMP(s)	Asset Management Plan(s)
AMS	Asset Management Systems
Army	NZ Army (based in Waiouru)
AS/NZS	Australian Standard/NZ Standard
AV GAS	Aviation Gas
BCA	Better Case Approach
BCP	Business Continuity Plan
CAA	Civil Aviation Authority
CAM	Commercial Accommodation Monitor
CAPEX	Capital Expenditure
CAA	Civil Aviation Authority
CAR	Civil Aviation Regulations (Taumarunui Airport)
CAR	Corridor Access Request (Land Transport)
CBD	Central Business District
CCTV	Closed Circuit Television
CDEM	Civil Defence Emergency Management

CAS	Crash Analysis System (Land Transport)
CI	Condition Index (Land Transport)
CIMS	Co-ordinated Incident Management System
CLOS	Customer Level(s) of Service (Land Transport)
CMMS	Computer Maintenance Management System
CO(s)	Community Outcome(s)
Council	Ruapehu District Council
CPP	Competitive Pricing Procedures
DC(s)	Development Contribution(s)
DIA	Department of Internal Affairs
DOC	Department of Conservation
EAP	Exceptions Annual Plan
EF	Emissions Factor (Waste)
EOC	Emergency Operations Centre (Civil Defence)
ERP	Emergency Response Plan
ESL	Envirowaste Services Limited
ETI	Enterprising Taumarunui Incorporated
ETS	Emissions Trading Scheme (Waste)
FAR	Financial Assistance Rate
FC(s)	Financial Contribution(s)
FIS	Financial Information Systems
FMC	Financial Management Contractor
FWP	Forward Works Programme (Land Transport)
GIS	Geographical Information System (computer programme)

GPS	Government Policy Statement
GRC	Gross Replacement Cost
HCV	Heavy Commercial Vehicles (Land Transport)
Horizons	Horizons Regional Council
HPMV	High Productivity Motor Vehicle
HR	Human Resources
HSE Act	Health and Safety in Employment Act 1992
HSNO	Hazardous Substances and New Organisms (Act 2004)
I&I	Inflow and Infiltration (water, wastewater)
IAF	Investment Assessment Framework
IAS	International Accounting Standards
IFRS	International Financial Reporting Standards
IIMM	International Infrastructure Management Manual
IQP	Independent Qualified Person
IS	Information Services
IT	Information Technology
KPI(s)	Key Performance Indicator(s)
LCM	Lifecycle Management
LG(R)A 2002	Local Government (Rating) Act 2002
LGA 1974 or 2002	Local Government Act 1974 or 2002
LOS	Level(s) of Service
LR	Local Road
LT Act	Land Transport Act 1998
LTMA	Land Transport Management Act 2003 and Amendment 2008

LTP	Long Term Plan
LTSV	Long Term Strategic View
MAV	Maximum Acceptable Value
MCA	Multi-Criteria Analysis (Waste)
MCTOW	Maximum Certified Take Off Weight (Taumarunui Airport)
MDPE	Medium Density Polyethylene (pipes)
MEA	Modern Equivalent Asset
MFE/MfE	Ministry for the Environment
MOH	Ministry of Health
MOU	Memorandum of Understanding
NAASRA	National Association of Australian State Roading Authority (Land Transport)
NAMS	National Asset Management Steering (Group)
NBS	New Building Standard
NES	National Environmental Standard
NIP	National Infrastructure Plan
NLTP	National Land Transport Programme
NOTAMS	Notice to Air Men (Taumarunui Airport)
NPS	National Policy Statement
NRB	National Research Bureau
NZGAAP	NZ Generally Accepted Accounting Guidelines
NZHPT	NZ Historical Places Trust
NZIAS	NZ Equivalent to International Accounting Standard
NZTA	Waka Kotahi New Zealand Transport Agency
ODM	Optimum Decision Making

ODRC	Optimised Depreciation Replacement Cost
OHA 2000	Ohakune 2000
OMR	Ohakune Mountain Road
ONRC	One Network Road Classification
OPEX	Operational Expenditure
ORC	Optimised Replacement Cost
ORRIS	Owhango Residents and Ratepayers Incorporated Society
PES	Performance Evaluation System
PHRMP(s)	Public Health Risk Management Plan(s) (now called Water Safety Plans)
PMB	Polymer Modified Bitumen
PPFM	Planning, Programming and Funding Manual (Land Transport)
QV	Quotable Value (NZ) Ltd
RAL	Ruapehu Alpine Lifts
RAMM	Road Assessment and Maintenance Management System)
RCA	Road Controlling Authority
RDC	Ruapehu District Council
RDMC	Ruapehu District Māori Council (Te Kaunihera Māori a Rohe o Ruapehu)
REG	Road Efficiency Group
RFS	Request(s) for Service
RISA	Road Infrastructure Safety Assessment
RLTS	Regional Land Transport Strategy
RMA	Resource Management Act 1991
RMTF	(Ministerial) Road Maintenance Task Force
RUL	Remaining Useful Life

SAML	Stress Absorbing Membrane Layer
SCADA	Supervisor Control and Data Acquisition
SCI	Surface Condition Index (Land Transport)
SG(s)	Strategic Goal(s)
SLIM	Street Light database (Land Transport)
SPARC	Sport and Recreation NZ (Grants)
SPR	Special Purpose Road
SWC	Shallow Stormwater Channel (Land Transport)
TA(s)	Territorial Authority(s)
TAC	Tongariro Alpine Crossing
TNZ Act	Transit New Zealand Act 1989 and Amendments Acts 1995 and 1997
TR Act	Traffic Regulations Act 1976
TUAC	Targeted Uniform Annual Charge (Rate)
URP	Usual Resident Population
UV	Ultra Violet
VKT	Vehicle Kilometres Travelled (Land Transport)
VPD	Vehicles Per Day
WK	Waka Kotahi New Zealand Transport Agency
WMA	Waste Minimisation Act 2008
WMAP	Waste Minimisation Action Plan
WDC	Wanganui District Council
WMM(P)	Waste Management and Minimisation (Plan)
WSP(s)	Water Safety Plan(s) (previously Public Health Risk Management Plan(s))
WSSA	Water and Sanitary Services Assessment



**PLANNING ASSUMPTIONS AND
POPULATION PROJECTIONS
2021-2031**

INTRODUCTION

The Local Government Act 2002 requires Council to disclose all significant forecasting assumptions underpinning the Long Term Plan. These planning assumptions reflect the best knowledge and data available at the time of planning and are subject to audit.

PURPOSE

The purpose of this document is to provide realistic, evidence based, well planned and researched forecast assumptions to underpin Council's Long Term Plan 2021 - 2031, and specifically, the Asset Management Plans. These planning assumptions are to be used in the forward planning for the population, infrastructure and economy of the Ruapehu District. Forecasting assumptions are important pieces of information in their own right as population shifts cause change in demand and is therefore a major driver of expenditure. Growth and decline do not always have a linear relationship to changes in levels of demand on a service and it is therefore necessary to analyse at a local level with local knowledge, verified by authentic data.

METHOD AND ASSOCIATED LIMITATIONS

The assumptions in this document have been formulated using the results from a number of sources, most of which are solely reliant on Statistics New Zealand (StatsNZ). Given the lower than expected return rate of the 2018 census (90% in 2018 compared to 94% in 2013)⁸, StatsNZ had to delay the release of many data sets, including population projections.

Given the aforementioned delay, combined with a regional attitude of distrust in the StatsNZ methodology⁹, it was proposed to jointly purchase population and household projections for all territorial authorities and two (of three three) DHBs within the Horizons region (unfortunately, excluding the Waikato District Health Board). Both Berl and Infometrics have been contracted to produce projections for the region with the former utilising building consents as one of the base data sets for its population projections. The later proposed to base its population projections on employment projections for each council in the region, offering an additional data set for future planning. Data sources used to produce these planning assumptions are listed below. A complete list of resources can be found in the reference section of this document.

- (a) Statistics New Zealand
- (b) Infometrics
- (c) Berl
- (d) Profile ID, Community ID
- (e) Ministry of Business, Innovation and Employment
- (f) Department of Conservation
- (g) Treasury
- (h) Multiple local tourism operators
- (i) Visit Ruapehu
- (j) Ruapehu District Council
 - i Out of District Rate Payer Survey
 - ii Rating database
 - iii Building database

LIMITATIONS

All assumptions made in this document contain some inherent uncertainty. The uncertainty has been minimised by utilising and cross referencing as many data sources and reputable opinions as possible.

⁸ <https://www.stats.govt.nz/news/update-on-release-of-2018-census-data>

⁹ Anecdotal

Since February 2020, the level of uncertainty has been increased by the world wide outbreak of the COVID-19 pandemic and the subsequent nationwide lockdown.

TO NOTE

As at 1 January 2018, the *area unit* classification was replaced by the *statistical area 2 (SA2)* classification. Additionally, the boundaries of many area units/statistical areas were altered. The 13 area units of 2013 (and previous census) have been replaced with 10 statistical areas. The amalgamation of areas and boundary changes have been listed below. For a visual representation of the following changes, visit <https://datafinder.stats.govt.nz/> or <https://profile.idnz.co.nz/ruapehu/census-2018>

2013 AREA UNIT SIZE (SQ KM)	2018 SA2 SIZE (SQ KM)
Otagiwai – Heao: 345.67 SQ KM	Otagiwai – Ohura: 2011.70 SQ KM
Ohura: 3.25 SQ KM	
Ngapuke: 1285.11 SQ KM	Ngapuke: 621.83 SQ KM
Tarrangower: 3.17 SQ KM	Taumarunui North: 3.595 SQ KM
Taumarunui Central: 6.88 SQ KM	Taumarunui Central: 5.54 SQ KM
Sunshine – Hospital Hill: 5.15 SQ KM	
Manunui: 5.04 SQ KM	Taumarunui East: 4.52 SQ KM
Raurimu: 1366.36 SQ KM	National Park: 1375.28 SQ KM
203 National Park: 0.89 SQ KM	
Owhango: 0.93 SQ KM	
Tangiwai: 2693.58 SQ KM	Tangiwai: 2696.63 SQ KM
Raetihi: 3.89 SQ KM	Raetihi: 3.86 SQ KM
Ohakune: 8.47 SQ KM	Ohakune: 6.44 SQ KM
Waiouru: 5.79 SQ KM	Waiouru: 5.01 SQ KM

Change from Area Unit to SA2

PART TWO

SUMMARY OF SIGNIFICANT PLANNING ASSUMPTIONS

ASSUMPTION AREA	DETAILS OF POTENTIAL RISK + REASON	LEVEL OF CERTANTY	POTENTIAL FINANCIAL CONSEQUENCE
1. LEGISLATIVE / CENTRAL GOVT			
The proposed Local Government (Rating of Whenua Maori) Amendment Bill is passed	There is potential risk that upwards of \$465,000 in rates arrears is wiped. This will have a potentially significant impact on Council's need to plan for development and an eventual change in land use and potential increase in rating base.	Neutral	Moderate
	The assumption has been made that writing off arrears will not affect rates as it will be an accounting book entry only	Likely	Low
Taumata Arowai—the Water Services Regulator Act 2020 is passed	The assumption has been made that there will be a complete restructure and implementation of system-wide reforms to regulate drinking water and source water, and targeted reforms to improve the regulation and performance of wastewater and stormwater networks. The second Bill will outline the exact effect this new legislation will have on territorial authorities. There is a significant risk that this will alter Water Services LoS, challenge current infrastructure and staffing levels.	Very likely	Significant
Infrastructure Funding and Financing Act 2020 is passed	This Act provides a funding and financing model for the provision of infrastructure for housing and urban development and will reduce the impact of local authority financing and funding constraints. While the assumption has been made that it is unlikely that RDC will utilise these provisions during the next planning period, it is however important to note.	Unlikely	Low
Potential Resource Management Act Amendments	It is assumed that amendments will be made to the RMA however, these changes will more likely target large development projects in high density areas therefore have little effect on the Ruapehu District.	Likely	Moderate
Declaration of Climate Emergency	The assumption has been made that due to the recent declaration of a Climate Emergency by Central Government, and the ongoing effects that Climate Change will have on Ruapehu's infrastructure and economy, resourcing will need to be made available in order to develop an appropriate Climate Emergency response.	Very likely	Moderate

ASSUMPTION AREA	DETAILS OF POTENTIAL RISK + REASON	LEVEL OF CERTANTY	POTENTIAL FINANCIAL CONSEQUENCE
Climate Change Response (Zero Carbon) Amendment Act 2019	Climate change response continues to dominate legislative reform and in turn, expectations and responsibilities of Local Authorities are shifting. The amendments made to the Act provide a framework and commission through which New Zealand can develop and implement "clear and stable climate change policies" that contribute to the global effort under the Paris Agreement. The Act itself identifies Council as a Reporting Organisation which means that Council may be called upon by the Minister or Commission to provide information on Climate Change Adaptation. The assumption has been made that resourcing will need to be made available in order to meet these expectations.	Very likely	Moderate
COVID-19			
New Zealand borders will remain closed to international tourists and visitors until at least 2021	There is a risk that there will be no international tourists or visitors to the area until at least June 2021, and potentially longer. Until this time, foreign tourist spending the District will remain nil.	Very Likely	Significant
Another outbreak of COVID will usher in another level 3 - 4 lock down	There is a risk that a level 3 or 4 lock down will be imposed on Ruapehu communities.	Likely	Significant
Levels of Service	The assumption has been made that there will be no changes to levels of service.	Likely	Low
2. POPULATION / GROWTH			
Increase in Usually Resident Population (URP) in all townships (SA2's) within the District	The assumption has been made that all identified communities (SA2's) within the District will experience an increase in Usually Resident Population (URP) over the next 10 years, experiencing a mixture of low, medium and high growth levels. - The URP of townships within the District will experience yearly growth ranging from 0.7% - 1.967% per year. - The total District URP is expected to increase 15% between 2021 - 2031.	Likely	Moderate
Proportion of under 5's and over 70's set to increase	The assumption has been made that, District wide, under a medium growth scenario, the proportion of under 5's and over 75's is set to increase 57% and 45% respectively.	Likely	Low

ASSUMPTION AREA	DETAILS OF POTENTIAL RISK + REASON	LEVEL OF CERTANTY	POTENTIAL FINANCIAL CONSEQUENCE
Increase in Peak Population in all townships within the District	<p>The assumption has been made that the Peak Population (combination of URP, Holiday Homes, Commercial Accommodation, and Day Visitors) will increase in all identified communities (SA2's) within the District.</p> <ul style="list-style-type: none"> - The Peak Population of all townships will experience yearly growth ranging from 0.77% - 2.2% per year. - The total District Peak Population is set to increase 12% between 2021 - 2031. 	Likely	Moderate
3. INFRASTRUCTURE			
Assets and asset lives (replacement, revaluation, depreciation)	The assumption has been made that low quality asset condition assessments will lead to poor infrastructure capital decision making.	Highly Likely	Moderate – Significant
	The assumption has been made that excepting water infrastructure, all other assets will deliver the required level of service over their documented useful life as reflected in the Revenue And Financing Policy.	Likely	Moderate
	Revaluation of fixed assets is done annually for property. It includes an assessment of the useful (economic) life of the asset. This is in accordance with the Council's accounting policies detailed under "Property, Plant and Equipment and Infrastructural Assets" which includes further detail of revaluation policies and the estimated useful life of various assets. The revaluations are based on the BERL inflation rates. The revaluation impact is broadly equivalent to the increase in the Local Government Cost Index.	Likely	Moderate
	Depreciation rates on planned asset acquisitions are based on an average percentage of their components and the estimated useful life of the various assets.	Likely	Moderate
State highway 4 (Whanganui-Raetihi Road)	There is a risk that compromised access to and through SH4 could lead to economic impacts resulting from short term interruption and loss of economic opportunity.	Unlikely	Low
Ohakune Water Treatment Plant	The assumption has been made that the Capital work programme estimates and MBIE funding are not sufficient to complete all elements of proposed works and ratepayers will need to part fund this	Likely	Significant

ASSUMPTION AREA	DETAILS OF POTENTIAL RISK + REASON	LEVEL OF CERTANTY	POTENTIAL FINANCIAL CONSEQUENCE
Subdivisions and Land Use	The assumption has been made that ongoing subdivisions in Ohakune will cause additional pressures on 3 waters infrastructure resulting in Council not being able to consent buildings.	Likely	Significant
Resource Consents	It has been assumed that all resource consents will be renewed but in many cases, with increasing environmental standards. The expected time to obtain resource consents is factored into project timelines and the increased standards.	Likely	Significant
Rateable Assessments	The assumption has been made that the number of rateable assessments will continue to experience small scale growth of approximately 0.16%	Likely	Neutral
4. ECONOMY			
Tourism and visitor numbers continue to rely on domestic tourism	The assumption has been made that International borders will remain closed, international tourist numbers remain nil into the near future. Local tourism operators rely solely on domestic tourism for the foreseeable future.	Extremely Likely	Significant
The number of holiday homes will continue to increase in each of the three major urban areas	The assumption has been made that pre-COVID, holiday home numbers were set to increase approx. 1.21% on average per year. Throughout COVID this is unlikely, however, this trend is expected to return with the recommencement of a fully functioning tourism economy.	Likely	Moderate
5. NATURAL ENVIRONMENT			
Occurrence of Natural Disasters	Small natural disasters can be funded out of budgetary provisions. Council will require financial and other assistance from Central Government for large-scale events or disasters.	Likely	Significant
Increase in rainfall	Seasonal projections show winter rainfall increasing by 7-16% in Taumarunui by 2090. It is unclear what this increase looks like out to 2031. There is not enough data to plan for increase/decrease in rainfall in other areas. This in itself is a risk.	Neutral	Moderate
Increase in average annual temperature	Temperatures are likely to be 0.7°C to 1.1°C warmer by 2040 effecting evapotranspiration of soil and dams as well as snow days.	Neutral	Moderate
Decrease in snowfall	A reduction in the number of snow days experienced annually is projected; potentially effecting local economies reliant on snow seeking visitors.	Likely	Moderate – Significant

ASSUMPTION AREA	DETAILS OF POTENTIAL RISK + REASON	LEVEL OF CERTANTY	POTENTIAL FINANCIAL CONSEQUENCE
6. FINANCIAL			
Rates Receivables (Debtors)	It has been assumed that rates receivable as a percentage of rates will remain at current levels. There is a risk that rates receivables are significantly higher than that forecast due to a number of reasons, such as the effect of COVID 19 and economic issues. This would impact on cash flow requirements, increasing borrowing for operational costs.	Neutral	Moderate
External Funding For Roads	<p>The forecast financial statements are based on the assumption that Council will be able to claim 74% of all maintenance and renewal costs for district roads in line with currently known NZTA work categories and classifications.</p> <p>Forecast co-investment from Waka Kotahi NZTA may be reduced due to impact from COVID-19. Council's financial assistance rate will increase to 75% in 2021/22 for local roads and 100% for Special purpose roads, with local roads reducing to 74% thereafter.</p> <p>Should the outcome result in less roading expenditure items being covered by the subsidy, the work programme for roading could be impacted.</p> <p>Any decrease in funding would require modification to planned projects and work programmes and may result in delays to both. Where it is not possible to decrease funding, there is the potential to impact on borrowing and rates.</p>	Likely	Significant
Vested Assets	The assumption has been made that no Vested Assets have been budgeted over the next ten years	Neutral	Low
Government subsidies	While it is expected that Council will receive some Government funding for Land Transport, Housing, Cycle Trails and Three Waters and possibly other capital projects over the next ten years, the lack of certainty around this means that (and the assumption has been made) no subsidies have been factored into the budgets	Low	Moderate

ASSUMPTION AREA	DETAILS OF POTENTIAL RISK + REASON	LEVEL OF CERTANTY	POTENTIAL FINANCIAL CONSEQUENCE
Inflation	The preparation of the budget has included inflation assumptions based on BERL forecasting for the Local Government Sector. There is a high level of uncertainty associated with these inflation assumptions. If the impact of inflation on Council's budgets turns out to be higher than forecast and Council does not wish to generate additional revenue by increasing rates, then either additional operational efficiencies or reduction in service levels or planned capital expenditure would need to be considered. Should the impact of inflation be lower than forecast, there will be a favourable impact on Council's operating and capital expenditure budgets.	Likely	Moderate
CAPEX Feasibility - Three Waters	There is a strong chance that additional funding support from Central Government will be available to fast track drinking water reform changes. However, this LTP cannot include this possibility with key assumptions due to timing of any such announcements. As affordability has been removed from Local Government as a defence, RDC has forecast considerable debt impacts to Council as full compliance is an absolute non-negotiable now. The assumption has been made that practical delivery against the very ambitious LTP works forecast will face the challenges of supply chain constraints, and active monitoring will be required to minimise the risk of non compliance by due dates.	Likely	Significant
CAPEX Feasibility - Other Works	With regards to Land Transport, there is a well established supply chain, and committed funding. There is potential that some bridge work not covered by NZTA will require RDC to fund which it would do through debt. These are one off items in what is otherwise a very stable work program. A number of Township Revitalization outcomes that are to be debt funded to account for inter-generational equity. These would go ahead in consultation with community regardless of external funding, but Council is very open to using proposed budgets as 'seed funding' with other partners to deliver further value than forecast. However, 3rd party investment can not be assumed in this LTP, and as such counts as 100% RDC investment. Practical delivery will have strong political and community support, and supply chain issues are somewhat lessened in this activity due to lower competition for resources from out of district or competing priorities. The assumption has been made that these the capital works costs will not vary significantly from those budgeted	Likely	Moderate

ASSUMPTION AREA	DETAILS OF POTENTIAL RISK + REASON	LEVEL OF CERTANTY	POTENTIAL FINANCIAL CONSEQUENCE
Interest rates	The interest rates used are based on an estimate of what will occur in the future combined with known rates that are currently fixed under current borrowings with the LGFA which Council joined in 2018. The assumption has been made that all borrowings will be renewed under similar terms and conditions except that interest rates applied to replacement and new borrowings annually will range from 1.7% to 3.4% in year ten of the LTP 2021-31. There is a high degree of uncertainty around borrowing costs due to the fluctuations of interest rates. Interest costs and debt repayment have been estimated in accordance with the Treasury Investment and Liability Management Policy.	Likely	Moderate - Significant

Overview of Planning Assumptions

LEVEL OF CERTAINTY	POTENTIAL FINANCIAL CONSEQUENCE
5 – Very likely	Significant
4 – Likely	Moderate
3 – Neutral	Low
2 – Unlikely	
1 – Very unlikely	

PART THREE: BASE INFORMATION FOR PLANNING ASSUMPTIONS

LEGISLATIVE / CENTRAL GOVERNMENT

Over the past decade there has been a substantial increase in the level of delegation from central government to local government through legislative reforms. In almost all cases there has been little funding provided to develop the policy and/or deliver these new services. This has meant that the services have had to be funded from efficiency gains, local user charges, and an increase in rates, or a combination of all these mechanisms. In some instances there has been a need to increase resources, such as staff, consultants and contractors.

The following legislative changes have been identified as possible risks to RDC and therefore considered in the planning assumptions.

LOCAL GOVERNMENT (RATING) ACT 2002

Proposed changes to the Local Government (Rating) Act 2002 will reduce rating barriers for owners of Māori land who want to use and develop their whenua (land). Currently, unpaid rates arrears prevent the development of Māori land. Under the proposal, local authority Chief Executives will have the power to write off rates arrears on all land (including general land) if they consider the rates are unrecoverable, including rates arrears inherited from deceased owners of Māori land. Most of the rates arrears on Māori freehold land are on unused land and the majority of this is from non-payment of penalties rather than the original rates bills. For example, in the Ruapehu District, there is a 4000sq m parcel with annual rates of \$823.05 and rates arrears of \$56,623.18. Of that overdue amount, only \$5,863.66 is made up of rates charges and \$50,553.78 is made up of penalties. As at June 2020:

- There are 755 Māori Freehold rating units in the district making up 8% of all rating units.
- There are 9,134 General rating units (9889 total rateable units). These 755 Māori Freehold rating units comprise 111,000ha, 16% of all total land in the Ruapehu District (673,315ha total).
- Of these 755 Māori Freehold rating units, 318 are non-rateable or receive a full rates remission under Councils current Category A Maori Land Rates Remission Policy.
- Of the 9,134 General rating units 535 are non-rateable, (22 of these being 50% non-rateable).
- Of the 437 rateable Māori Freehold units, 54 (12%) are in rate arrears, totalling \$465,000. ā
- Of the 8,598 rateable General rating units, 252 (3%) are in rates arrears, totalling \$1,387,000. It is important to note that an unknown number of General rating units may have been at some stage, Māori Freehold land.

Area of Impact: *Urban, commercial and rural development, Māori Economic Development, Environmental Planning*

Forecasted Assumption(s):

There is potential risk that upwards of \$465,000 in rates arrears is wiped. This will have a potentially significant impact on Council's need to plan for development and an eventual change in land use and potential increase in rating base.

The assumption has been made that writing off arrears will not affect rates as it will be an accounting book entry only.

Level of certainty: *Likely*

Potential Financial Consequence: *Low - Moderate*

TAUMATA AROWAI – THE WATER SERVICES REGULATOR BILL AND SUBSEQUENT BILLS

The Taumata Arowai – Water Services Regulator Bill implements the Government's decision to create a new regulatory body to oversee, administer, and enforce the drinking water regulatory system. This bill will establish Taumata Arowai, the Water Services Regulator, as a new Crown agent and provides for its objectives, functions, operating principles, and governance arrangements¹⁰. It is expected that Taumata Arowai will 'go live' on or before July 2021. **This Bill will be complemented by a separate Bill** that will give effect to decisions to implement system-wide reforms to the regulation of drinking water and source water, and targeted reforms to improve the regulation and performance of wastewater

¹⁰ <http://www.legislation.govt.nz/bill/government/2019/0202/latest/LMS294345.html>

and stormwater networks. The second Bill will outline the exact effect this new legislation will have on territorial authorities.

- Expectations (financial and otherwise) of RDC not entirely clear as yet.
- Shared service model likely to be most common option for small Territorial Authorities such as RDC.

Area of Impact: Water Services, Finance, Environmental Planning, Human Resources

Forecasted Assumption(s): The assumption has been made that there will be a complete restructure and implementation of system-wide reforms to regulate drinking water and source water, and targeted reforms to improve the regulation and performance of wastewater and stormwater networks. The second Bill will outline the exact effect this new legislation will have on territorial authorities. Significant risk that this will alter Water Services LoS, challenge current infrastructure and staffing levels.

Level of certainty: Very Likely

Potential Financial Consequence: Significant

INFRASTRUCTURE FUNDING AND FINANCING BILL

This bill would establish a new funding and financing model to support the provision of infrastructure for housing and urban development. The new model intends to address the challenges local authorities face in relation to financing housing-related infrastructure and supply serviced urban land¹¹. It sets up a flexible, legislative framework that will enable councils and developers to overcome one of the key constraints they face and provides them with a new tool to fund and finance infrastructure without being hindered by financing constraints, or high upfront infrastructure costs; it does this by allowing a third party, other than a council, to finance the construction of infrastructure¹².

The funding and financing model proposed is the Special Purpose Vehicle (SPV). A SPV is a separate legal entity created by an organisation with its own assets. The bill enables SPVs, which are companies, limited partnerships, Crown entities, or other persons to:

- Be responsible for both financing and construction of the infrastructure assets.
- Service the finance raised to cover the costs of the infrastructure via the levy.

Area of Impact: Three Waters, Roading, Environmental Planning

Forecasted Assumption: The assumption has been made that it is unlikely that RDC will utilise these provisions during the next planning period, it is however important to note that they are available to Council.

Level of certainty: Neutral

Potential Financial Consequence: Low

POTENTIAL RESOURCE MANAGEMENT ACT AMENDMENTS

It is assumed that amendments will be made to the RMA however, these changes will more likely target large development projects in high density areas therefore have little effect on the Ruapehu District.

Area of Impact: All Council operations

Forecasted Assumption: The assumption has been made that due to the recent declaration of a Climate Emergency by Central Government, and the ongoing effects that Climate Change will have on Ruapehu's infrastructure and economy, resourcing will need to be made available in order to develop an appropriate Climate Emergency response.

Level of certainty: Very Likely

Potential Financial Consequence: Moderate

¹¹ https://www.parliament.nz/en/pb/sc/make-a-submission/document/52SCTI_SCF_BILL_93461/infrastructure-funding-and-financing-bill

¹² https://www.parliament.nz/en/pb/hansard-debates/rhr/combined/HansDeb_20191217_20191217_48

DECLARATION OF CLIMATE EMERGENCY

Following the warmest winter on record and 1,800 jurisdictions in 32 countries world-wide, New Zealand's government declared a Climate Emergency and committed to a carbon-neutral government by 2025.

Area of Impact: *Policy and Planning*

Forecasted Assumption: *The assumption has been made that resourcing will need to be made available in order to meet these expectations.*

Level of certainty: *Very Likely*

Potential Financial Consequence: *Moderate*

CLIMATE CHANGE RESPONSE (ZERO CARBON) AMENDMENT ACT 2019

Climate change response continues to dominate legislative reform and in turn, expectations and responsibilities of Local Authorities are shifting. The amendments made to the Act provide a framework and commission through which New Zealand can develop and implement "clear and stable climate change policies" that contribute to the global effort under the Paris Agreement. The Act itself identifies Council as a Reporting Organisation which means that Council may be called upon by the Minister or Commission to provide information on Climate Change Adaptation.

Area of Impact: *Policy and Planning*

Forecasted Assumption: *The assumption has been made that resourcing will need to be made available in order to meet these expectations.*

Level of certainty: *Very Likely*

Potential Financial Consequence: *Moderate*

COVID-19

The worldwide outbreak of COVID-19 has added to the unpredictability of the planning environment. There is a risk for another level 3 – 4 lock down to occur in New Zealand which will significantly affect Ruapehu communities and also that international tourists will not return to NZ until 2021/22.

Area of Impact: *All Council Activities*

Forecasted Assumption: *The assumption has been made that New Zealand borders will remain closed to international tourists and visitors until at least 2021/22.*

Level of certainty: *Likely*

Potential Financial Consequence: *Significant*

POPULATION

Identifying shifts in populations amongst town and village centres, including the demographics of said populations, is an important mechanism with which to measure projected dependency on vital assets. *Peak population* is the fundamental tool used to plan for the usage of key infrastructure and assets within the District. The peak population of the Ruapehu District has been calculated by combining Usually Resident Population (URP), Holiday Home visitor numbers (HH), Commercial Accommodation visitor numbers (CAM) and Day Visitor numbers (DV). Each of these measurements are important in their own right and are therefore discussed and explored both separately and collectively. This subsection briefly analyses past population and demographic shifts in addition to providing population projections at a District and SA2 level.

Forecasted Assumption(s):

1. The assumption has been made that all identified communities (SA2's) within the District will experience an increase in Usually Resident Population (URP) over the next 10 years, experiencing a mixture of low, medium and high growth levels.
The URP of townships within the District will experience yearly growth ranging from 0.7% - 1.967% per year.
- The total District URP is expected to increase 15% between 2021 – 2031
2. The assumption has been made that the Peak Population (combination of URP, Holiday Homes, Commercial Accommodation, and Day Visitors) will increase in all identified communities (SA2's) within the District.
- The Peak Population of all townships will experience yearly growth ranging from 0.77% - 2.2% per year.
- The total District Peak Population is set to increase 12% between 2021 – 2031
3. The assumption has been made that, District wide, under a medium growth scenario, the proportion of under 5's and over 75's is set to increase 57% and 45% respectively.

Level of certainty: Likely

Potential Financial Consequence: Moderate

USUALLY RESIDENT POPULATION: DEMOGRAPHICS PAST AND PRESENT

The first component of peak population that is explored is that of Usually Resident Population (URP); those who permanently reside in the Ruapehu District. This section explores past and present URP demographics and is then followed by URP projections.

AT A GLANCE:

	RUAPEHU DISTRICT	MANAWATU-WANGANUI	NEW ZEALAND
Number of people	12,309	238,797	4,699,755
Median age	39.0 years	39.4 years	37.4 years
Males	6,288	117,123	2,319,558
Females	6,021	121,671	2,380,197
Number of Māori	5,337	54,570	775,836
Māori median age	27.0 years	25.0 years	25.4 years

Overview of District Demographics

Statistics New Zealand, InfoShare¹³, have estimated that the population of the Ruapehu District decreased from 15,550 in 2000 to 13,150 in 2010. Shifting focus to the past decade, the District's population continued to decline until 2013 where it seems to have plateaued. We are now expecting to experience small scale growth similar to that experienced 2013 – 2020.

¹³ <http://infoshare.stats.govt.nz/ViewTable.aspx?pxID=11a49800-c875-49a8-844d-18e0ae71d282>

AGE AND SEX

An integral part, however not the sole focus, of projecting the demographic makeup of our communities lies in understanding our past. The following tables compare results of the past three census (2006, 2013, and 2018) via 'service age groups'. Service age groups are one of many groupings that can be used to compare shifts in population and are particularly useful when taking into account services that each age group are more/less prone to utilising. Please note that when comparing the below, not all service age groups are dispersed evenly in terms of years.

Age structure - Service age groups ¹⁴				2006			2013			2018		
Service age group (years)	No.#	RDC %	NZ %	No.#	RDC %	NZ %	No.#	RDC %	NZ %			
Babies and Pre-schoolers (0 to 4)	1,026	7.6	6.8	1,002	8.5	6.9	900	7.3	6.3			
Primary Schoolers (5 to 11)	1,653	12.2	10.1	1,251	10.6	9.4	1,389	11.3	9.6			
Secondary Schoolers (12 to 17)	1,389	10.2	9.2	1,014	8.6	8.3	870	7.1	7.7			
Tertiary education and independence (18 to 24)	1,149	8.5	9.6	1,005	8.5	9.6	918	7.5	9.3			
Young workforce (25 to 34)	1,593	11.7	12.9	1,296	10.9	12.1	1,557	12.6	14.1			
Parents and homebuilders (35 to 49)	2,997	22.1	22.6	2,205	18.6	20.6	2,079	16.9	19.3			
Older workers and pre-retirees (50 to 59)	1,734	12.8	12.1	1,767	14.9	13.2	1,761	14.3	13.0			
Empty nesters and retirees (60 to 69)	1,062	7.8	8.1	1,290	10.9	10.1	1,647	13.4	10.4			
Seniors (70 to 84)	837	6.2	7.2	852	7.2	8.0	1,023	8.3	8.5			
Elderly aged (85 and over)	132	1.0	1.4	165	1.4	1.7	165	1.3	1.8			
Total population	13,572	100.0	100.0	11,847	100.0	100.0	12,309	100.0	100.0			

Summary of Past Service Age Groups

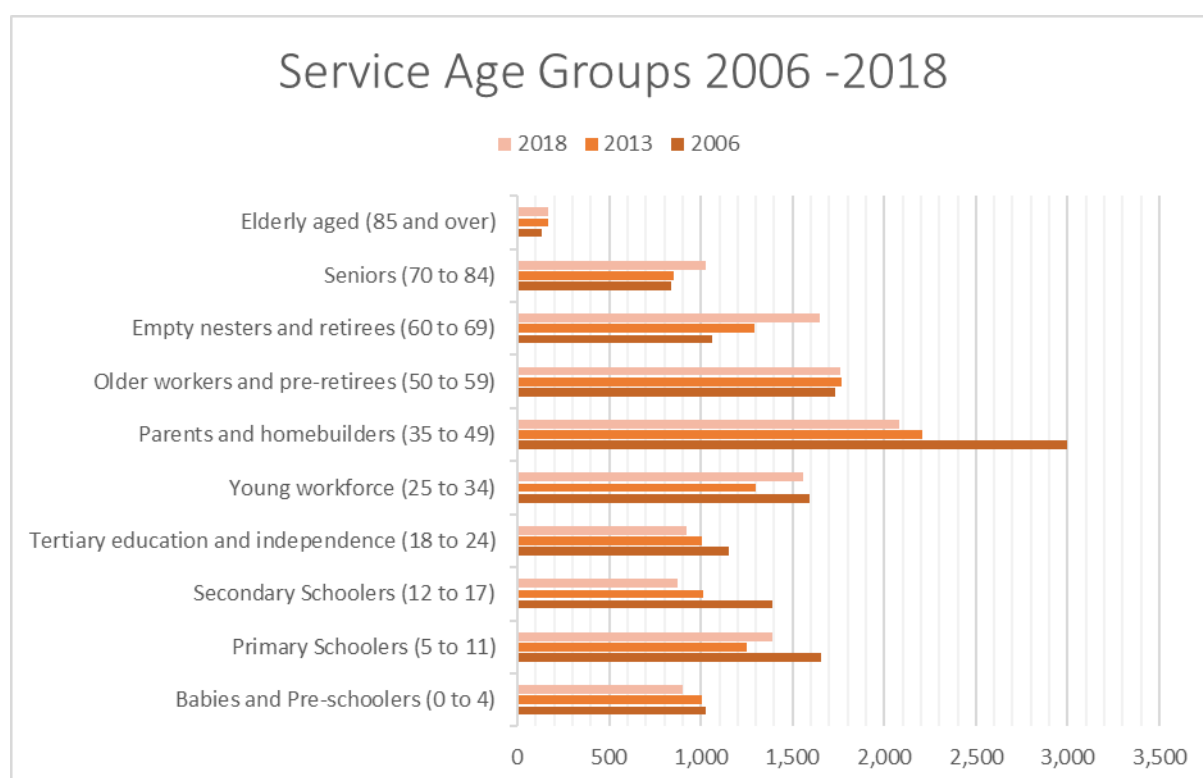
The above table in summary:

SERVICE AGE GROUP (YEARS) ¹⁵	2006	2013	2018
Babies and Pre-schoolers (0 to 4)	1,026	1,002	900
Primary Schoolers (5 to 11)	1,653	1,251	1,389
Secondary Schoolers (12 to 17)	1,389	1,014	870
Tertiary education and independence (18 to 24)	1,149	1,005	918
Young workforce (25 to 34)	1,593	1,296	1,557
Parents and homebuilders (35 to 49)	2,997	2,205	2,079
Older workers and pre-retirees (50 to 59)	1,734	1,767	1,761
Empty nesters and retirees (60 to 69)	1,062	1,290	1,647
Seniors (70 to 84)	837	852	1,023
Elderly aged (85 and over)	132	165	165
Total population	13,572	11,847	12,309

¹⁴ Profile ID

¹⁵ Profile ID

Summary of Past Service Age Groups Simplified



The tables above illustrate that;

- Of the population shift between 2006 and 2018, a significant proportion of departures from the District were aged 5 – 17 and 35 – 49.
- The proportion of those aged 60 – 84 grew significantly.
- Between 2006 – 2018, there was little change in the proportional make up of those aged 50 – 59. This information suggests that most remained in the District and then moved into the next service age group (60 - 69) which saw the largest proportional growth of all of the service age groups.

COMPONENT 1: ESTIMATED PROJECTED POPULATION – USUALLY RESIDENT POPULATION (URP)

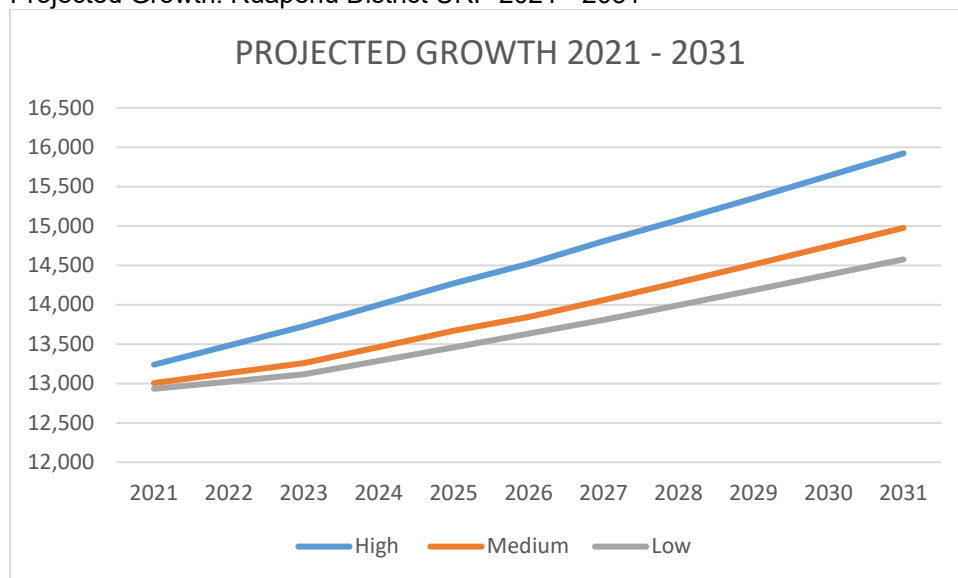
Council engaged with Infometrics to provide the projected population for the Ruapehu District out to 2053. Staff utilised this information in order to prepare projected population at SA2 levels out to 2031. Due to COVID, Infometrics have since provided three sets of possible projections all of which offer low, medium and high growth level scenarios. Utilising the second set of projections, the projected growth of the District has been prepared assuming a mixture of low, medium and high levels of growth across the District.

Under all three projected scenarios, the URP is set to steadily increase overall between 2021 and 2031

- Under the high growth scenario, annual increases range between 1.739% and 1.967%
- Under the medium growth scenario, there is an annual increase of between 0.969% and 1.592%
- Under the low growth scenario, there is an annual increase of between 0.700% and 1.361%

PROJECTED GROWTH: RUAPEHU DISTRICT URP 2021 - 2031											
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	13,238	13,483	13,727	13,997	14,272	14,520	14,806	15,077	15,354	15,635	15,922
Med	13,004	13,132	13,259	13,463	13,671	13,845	14,058	14,282	14,510	14,741	14,975
Low	12,932	13,024	13,115	13,285	13,458	13,631	13,808	13,996	14,187	14,380	14,575

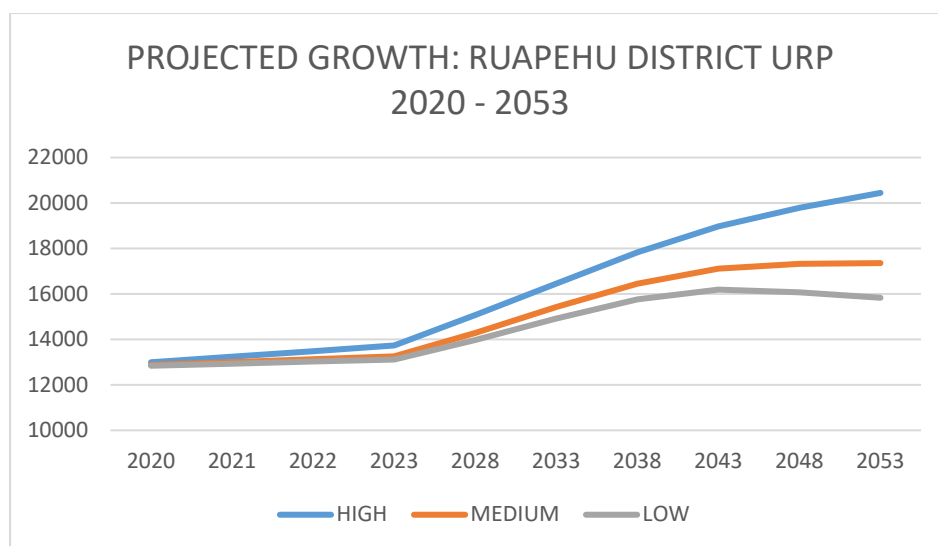
Projected Growth: Ruapehu District URP 2021 - 2031



Forecasting further ahead, the trend of slow but steady growth lessens and under the low growth scenario, small scale decline begins to feature from 2043 at a rate of -0.144% and from 2048 at a rate of 0.299%.

PROJECTED GROWTH: RUAPEHU DISTRICT URP 2020 - 2053										
	2020	2021	2022	2023	2028	2033	2038	2043	2048	2053
HIGH	12,994	13,238	13,483	13,727	15,077	16,458	17,827	18,975	19,783	20,445
MEDIUM	12,877	13,004	13,132	13,259	14,282	15,418	16,454	17,120	17,319	17,357
LOW	12,841	12,932	13,024	13,115	13,966	14,917	15,766	16,190	16,074	15,834

Projected Growth: Ruapehu District URP 2021 – 2053



% INCREASE BASED ON ABOVE ASSUMPTIONS (RDC 2020 - 2053)										
	19-20	20-21	21-22	22-23	23-28	28-33	33-38	38-43	43-48	48-53
HIGH	1.915	1.879	1.845	1.811	1.967	1.833	1.663	1.288	0.852	0.669
MEDIUM	0.998	0.988	0.978	0.969	1.543	1.592	1.343	0.810	0.233	0.043
LOW	0.715	0.710	0.705	0.700	1.298	1.361	1.139	0.538	-0.144	-0.299

USUALLY RESIDENT POPULATION: PROJECTED GROWTH BY SA2

As of November 2020, recommended growth levels to determine peak population have been revised to reflect the potential effects of COVID-19.

OVERVIEW OF SUGGESTED GROWTH LEVELS FOR URP:

SA2	RECOMMENDED GROWTH LEVEL
National Park	Medium
Ohakune	High
Otangiwai-Ohura	Low
Raetihi	Low
Tangiwai	Low
Taumarunui (Central, East + North)	Medium
Waiouru	Low
Ngapuke	Low

Recommended Growth Levels per SA2

COMPONENT 2: ESTIMATED PROJECTED POPULATION – HOLIDAY HOMES

The second component of Peak Population that is explored is that of Holiday Home Population. In order to monitor and record the holiday home environment within the District and to attempt to quantify the use of holiday homes, Council has undertaken five *Non-Resident Ratepayer Surveys (NRR)* since 2008.

Whilst this survey is an important source for understanding the holiday home environment, due to its nature and the low return rate, it should be noted that the results come with a very high level of uncertainty.

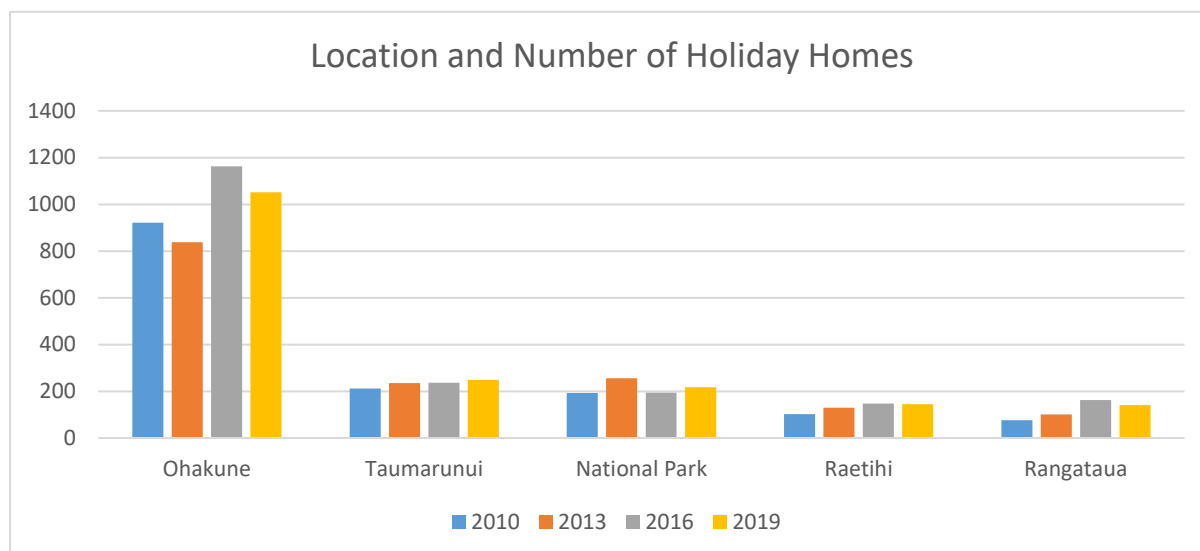
LOCATION AND NUMBER OF HOLIDAY HOMES

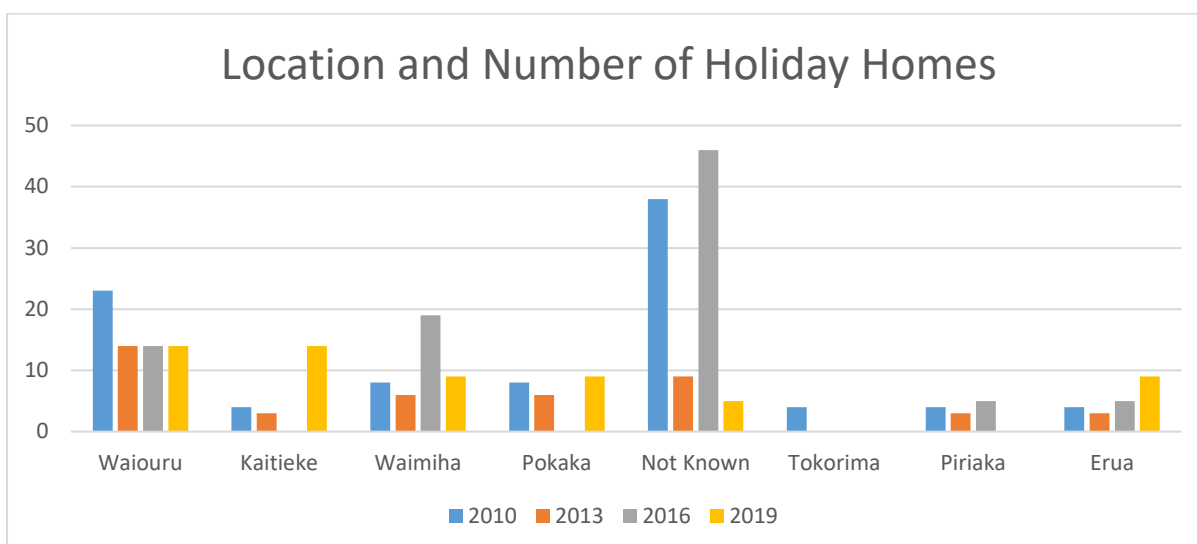
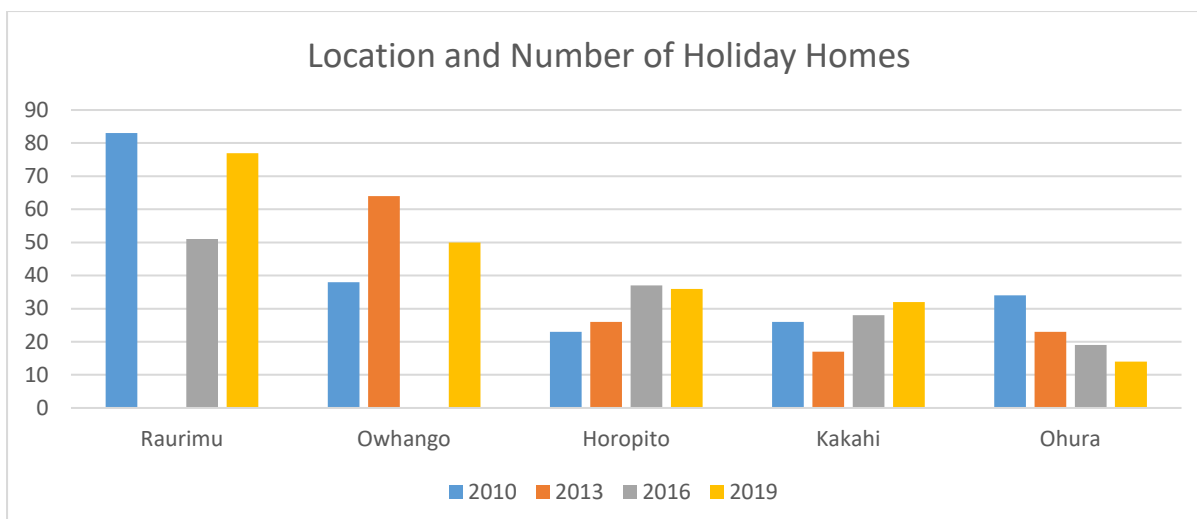
The table below reports the estimated number of holiday homes owned by non-resident rate payers in 2010, 2013, 2016 and 2019. It does not include rental homes owned by non-resident rate payers nor does it include holiday homes owned by residents living within the district. As stated above, this information is drawn directly from the NRR survey, 'not known' locations come from incomplete surveys that did not fill out their location.

AREA	2010	2013	2016	2019
Ohakune	922	838	1162	1051
Taumarunui	212	235	236	249
National Park	193	255	194	217
Raetihi	102	130	148	145
Rangataua	76	101	162	140
Raurimu	83	-	51	77
Owhango	38	64	-	50
Horopito	23	26	37	36
Kakahi	26	17	28	32
Ohura	34	23	19	14
Waiouru	23	14	14	14
Kaitieke	4	3	-	14
Waimiha	8	6	19	9
Pokaka	8	6	-	9
Not Known	38	9	46	5
Tokorima	4	-	-	-
Piriaka	4	3	5	-
Erua	4	3	5	9
TOTAL	1802	1733	2126	2071
Return Rate	21.30%	27.90%	20.40%	22%

Location and Estimated Number of Holiday Homes by year, past and present.

Please note the variation in Y-axis increments when comparing the following graphs.





ESTIMATED DISTRIBUTION OF HOLIDAY HOMES (%)

Based on the information above, the table below shows the estimated distribution of holiday homes and the 9 year average which is used later in this document for projection purposes.

	2010	2013	2016	2019	9 Year Average
Ohakune	51.165%	48.355%	54.657%	50.748%	51.12%
Taumarunui	11.765%	13.560%	11.101%	12.023%	12.00%
National Park	10.710%	14.714%	9.125%	10.478%	11.14%
Raetihi	5.660%	7.501%	6.961%	7.001%	6.67%
Rangataua	4.218%	5.828%	7.620%	6.760%	5.99%
Raurimu	4.606%		2.399%	3.718%	3.46%
Owhango	2.109%	3.693%		2.414%	2.63%
Horopito	1.276%	1.500%	1.740%	1.738%	1.45%
Kakahi	1.443%	0.981%	1.317%	1.545%	1.21%
Ohura	1.887%	1.327%	0.894%	0.676%	1.08%

Waiouru	1.276%	0.808%	0.659%	0.676%	0.74%
Kaitieke	0.222%	0.173%		0.676%	0.24%
Waimiha	0.444%	0.346%	0.894%	0.435%	0.42%
Pokaka	0.444%	0.346%		0.435%	0.29%
Not Known	2.109%	0.519%	2.164%	0.241%	1.15%
Tokorima	0.222%				0.11%
Piriaka	0.222%	0.173%	0.235%		0.10%
Erua	0.222%	0.173%	0.235%	0.435%	0.16%

Estimated Distribution of Holiday Homes

HOLIDAY HOME OCCUPANCY

The NRR survey also gathers information to ascertain the average number of people that stay in holiday homes and the average number of holiday homes in use each day. As aforementioned, the quality of this data is low and we therefore believe that this estimate is on the low side

	2010	2013	2016	2019
Estimated average # of people per home per stay	4.4	4.4	4.7	4.6
Average # of Holiday Homes in use each day	(N.A)	(N.A)	28	27
Estimated total number of Holiday Homes	1802	1733	2126	2071

Table twenty: Holiday Home Occupancy

The above estimated figures suggest that during 2016, there was an average of 131 (4.7 x 28) people utilising holiday homes in the district each day and that during 2019, there was an average of 124 (4.6 x 27) people in the district utilising holiday homes each day.

Using the estimated number of holiday homes and the estimated number of people per home, the District's **absolute peak** holiday home population for 2016 was 9,992 people per day, and for 2019 was 9,526 people per day.

Acknowledging the percentage of holiday homes in each urban area, we can estimate that the **absolute peak holiday home** population possible in each urban area could be distributed as the table below suggests.

URBAN AREA	2013	2016	2019
Ohakune	3687.1	5461.3	4834.3
Taumarunui	1034.0	1109.2	1145.3
National Park	1122.0	911.8	998.1
Raetihi	572.0	695.6	667.0
Rangataua	444.4	761.4	644.0
Raurimu	0.0	239.7	354.2
Owhango	281.6	0.0	230.0
Horopito	114.4	173.9	165.6
Kakahi	74.8	131.6	147.2
Ohura	101.2	89.3	64.4

Waiouru	61.6	65.8	64.4
Kaitieke	13.2	0.0	64.4
Waimiha	26.4	89.3	41.4
Pokaka	26.4	0.0	41.4
Not Known	39.6	216.2	23.0
Tokorima	0.0	0.0	0.0
Piriaka	13.2	23.5	0.0
Erua	13.2	23.5	41.4
TOTAL	7625	9992	9526

Table twenty-one: Peak Holiday Home Population per Urban Area

HOLIDAY HOME – PROJECTED GROWTH BY AREA

As noted earlier, the NRR survey is an important source of information however due to the variance in responses and low level return rate, it comes with a very high level of uncertainty. Nevertheless, given the importance of holiday home visitor numbers in establishing an estimated peak population, it is necessary to use this information in order to estimate future holiday home visitor numbers as well as the projected absolute peak population.

Based on the survey responses between 2010 and 2019 the total number of holiday homes increased by 269, or approximately 27 homes per year, from 1,802 (in 2010) to 2,071 (in 2019). Over this same time period, the average number of people staying per home ranged from 4.4 – 4.7.

The following projections have been calculated assuming growth of 27 holiday homes per year at an estimated occupancy rate of 4.6 persons.

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Projected number of holiday homes	2125	2152	2179	2206	2233	2260	2287	2314	2341	2368	2395
Projected population peak	9775	9899	10025	10148	10272	10396	10520	10644	10769	10893	11017

Table twenty-two: Projected Holiday Home Number and Population

The 9 year average (percentage) of the distribution of holiday homes has been used to determine future holiday home projections because there were no obvious trends emerging from this set of data (due to its dubious nature). The 9 year average can be found on page 28 table 19.

PROJECTED HOLIDAY HOME POPULATION											
URBAN AREA	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Ohakune	4,997	5,060	5,124	5,188	5,251	5,314	5,378	5,441	5,505	5,569	5,632
Taumarunui	1,173	1,188	1,203	1,218	1,233	1,248	1,262	1,277	1,292	1,307	1,322
National Park	1,089	1,103	1,117	1,130	1,144	1,158	1,172	1,186	1,200	1,213	1,227
Raetihi	652	660	669	677	685	693	702	710	718	727	735
Rangataua	586	593	600	608	615	623	630	638	645	652	660
Raurimu	338	343	347	351	355	360	364	368	373	377	381
Owhango	257	260	264	267	270	273	277	280	283	286	290

Horopito	142	144	145	147	149	151	153	154	156	158	160
Kakahi	118	120	121	123	124	126	127	129	130	132	133
Ohura	106	107	108	110	111	112	114	115	116	118	119
Waiouru	72	73	74	75	76	77	78	79	80	81	82
Kaitieke	23	24	24	24	25	25	25	26	26	26	26
Waimiha	41	42	42	43	43	44	44	45	45	46	46
Pokaka	28	29	29	29	30	30	31	31	31	32	32
Not Known	112	114	115	117	118	120	121	122	124	125	127
Tokorima	11	11	11	11	11	11	12	12	12	12	12
Piriaka	10	10	10	10	10	10	11	11	11	11	11
Erua	16	16	16	16	16	17	17	17	17	17	18
TOTAL	9,771	9,895	10,019	10,144	10,268	10,392	10,516	10,640	10,765	10,889	11,013

Projected Holiday Home Population

In order to inform peak population each of these townships have been attributed to their respective SA2

COMPONENT 3: ESTIMATED PROJECTED POPULATION - COMMERCIAL ACCOMMODATION

The third component of Peak Population that is explored is that of the Commercial Accommodation Monitor Survey (CAM Stats) which provides information about short-term commercial accommodation activity in hotels, motels, backpackers and holiday parks (excluding Bed + Breakfast type arrangements – see Holiday Homes) at territorial authority level¹⁶. Unfortunately, the survey was discontinued in August 2019. There is however, still adequate information with which to model projections for the time being. The data for the months of September 2019 through to December 2019 has been conservatively modelled from the emerging trends of the same months of the previous five years.

It is important to note that the CAM Stat data is reliant on commercial accommodation operators willingly and honestly providing their information. Not all commercial accommodation providers in the District provided data to CAM Stats and not all operators provided data consistently. Anecdotal feedback from Council's Economic Development Manager is that approximately a dozen commercial accommodation providers never provided information to CAM Stats.

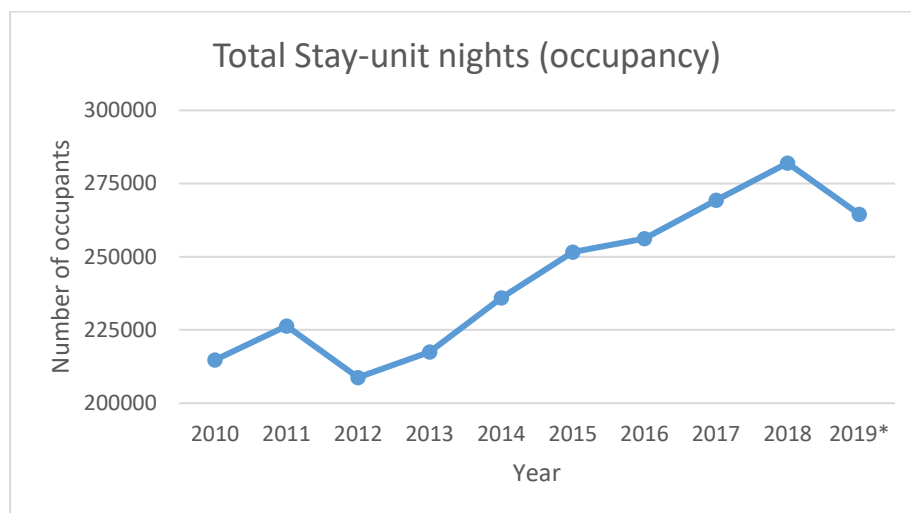
Over the past 10 years between 47 and 54 commercial accommodation providers have submitted data to CAM Stats. On average, there was a 0.294% increase in occupancy per year, a 2.46% increase in guest nights and a 2.8% increase in guest arrivals

	Average # of accom. units	Average Daily Capacity (stay units)	Average Occupancy Rate (%)	Total Stay unit nights (occupancy)	Average length of stay (days)	Average # Guests per stay-unit night
2010	50	2,503	23.5	214,754	1.76	1.77
2011	51	2,402	25.81	226,393	1.69	1.71
2012	51	2,476	23.07	208,789	1.62	1.79
2013	52	2,442	24.37	217,558	1.62	1.81
2014	52	2,426	26.63	236,036	1.67	1.79

¹⁶ <https://www.stats.govt.nz/information-releases/accommodation-survey-august-2019>

2015	51	2,419	28.41	251,663	1.69	1.72
2016	51	2,305	30.27	256,223	1.70	1.72
2017	52	2,227	33.06	269,311	1.73	1.78
2018	52	2,195	35.2	282,007	1.73	1.75
2019*¹⁷	51	2,219	32.57	264,485	1.73	1.80

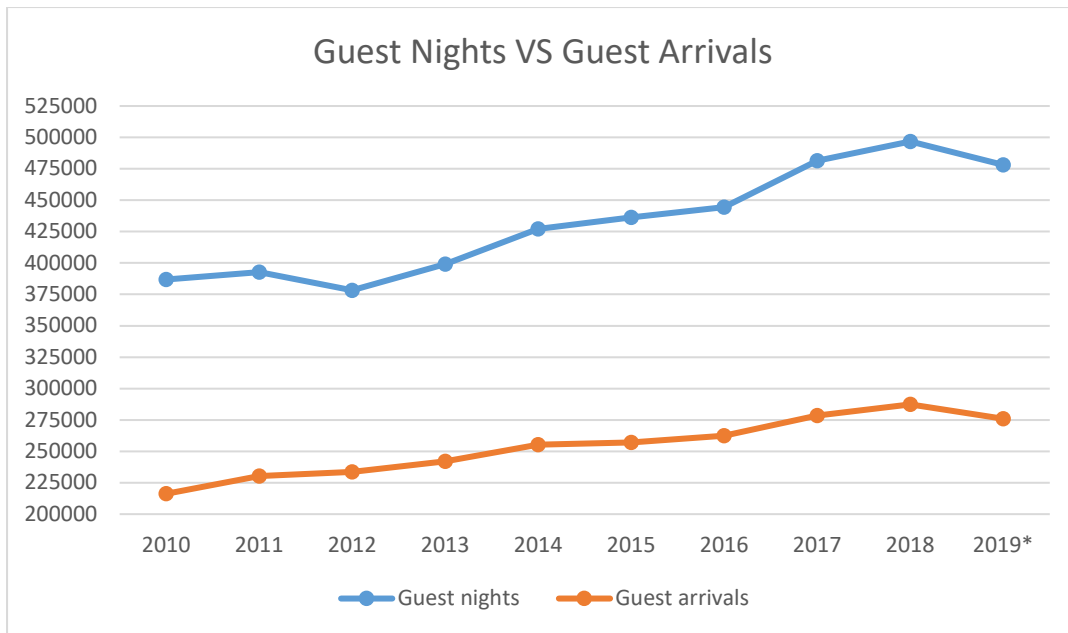
Commercial Accommodation Averages



Percentage change in occupancy		
2010	214,754	5.42%
2011	226,393	-7.78%
2012	208,789	4.20%
2013	217,558	8.49%
2014	236,036	6.62%
2015	251,663	1.81%
2016	256,223	5.11%
2017	269,311	4.71%
2018	282,007	-6.21%
2019*	264,485	
Average increase per year 2.49%		

CAM Percentage Change in Occupancy

¹⁷ 2019 statistics are skewed and most likely very conservative. The last four months of the calendar year have been modelled from the same months of the previous 5 years trends due to the survey being discontinued in August 2019.



Percentage Change in Guest nights		
2010	386,869	1.49%
2011	392,636	-3.66%
2012	378,280	5.51%
2013	399,123	7.01%
2014	427,107	2.18%
2015	436,404	1.87%
2016	444,570	8.30%
2017	481,460	3.18%
2018	496,772	-3.74%
2019*	478,181	
Average increase per year 2.46%		

CAM Percentage Change in Guest Nights

Percentage Change in Guest arrivals		
2010	216,202	6.54%
2011	230,345	1.43%
2012	233,649	3.56%
2013	241,966	5.52%
2014	255,314	0.70%
2015	257,092	2.13%
2016	262,574	6.05%
2017	278,464	3.20%
2018	287,380	-3.93%
2019*	276,082	
Average increase per year 2.8%		

CAM Percentage Change in Guest Arrivals

COMMERCIAL ACCOMODATION – PROJECTED GROWTH BY SA2

The following table assumes that there are 60 commercial accommodation providers operating within the District distributed as follows:

NUMBER OF COMMERCIAL ACCCOMIDATION PROVIDERS							
National Park	Ngapuke	Ohakune	Otangiwai – Ohura	Raetihi	Tangiwai	Taumarunui	Waiouru
16	0	30	1	2	2	8	1

Number of Commercial Accommodation Providers

Another assumption made is that a commercial accommodation provider will be established in the Ngapuke SA2 over the next 10 years. If this is not the case, this allowance will most likely be absorbed by another SA2.

Projected commercial accommodation visitors have been prepared at low, medium and high growth levels. It is recommended that when preparing the peak population, the same growth levels are used as those for the URP projections.

NATIONAL PARK	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	873	873	873	873	873	912	912	912	912	953	953	953
Medium	770	770	770	770	770	793	793	793	793	817	817	817
Low	667	667	667	667	667	670	670	670	670	674	674	674

NGAPUKE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	0	0	0	0	0	8	8	8	8	8	8	8
Medium	0	0	0	0	0	4	4	4	4	4	4	4
Low	0	0	0	0	0	0	0	0	0	0	0	0

OHAKUNE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	1637	1637	1637	1637	1637	1719	1719	1719	1719	1805	1805	1805
Medium	1444	1444	1444	1444	1444	1487	1487	1487	1487	1532	1532	1532
Low	1252	1252	1252	1252	1252	1265	1265	1265	1265	1277	1277	1277

OTANGIWAI - OHURA	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	55	55	55	55	55	55	55	55	55	55	55	55
Medium	48	48	48	48	48	48	48	48	48	48	48	48
Low	42	42	42	42	42	42	42	42	42	42	42	42

RAETIHI	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	109	109	109	109	109	109	109	109	109	109	109	109
Medium	96	96	96	96	96	96	96	96	96	96	96	96
Low	83	83	83	83	83	83	83	83	83	83	83	83

TANGIWAI	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	109	109	109	109	109	109	109	109	109	109	109	109
Medium	96	96	96	96	96	96	96	96	96	96	96	96
Low	83	83	83	83	83	83	83	83	83	83	83	83

TAUMARUNUI	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	436	436	436	436	436	449	449	449	449	463	463	463
Medium	385	385	385	385	385	385	385	385	385	385	385	385
Low	334	334	334	334	334	327	327	327	327	321	321	321

WAIOURU	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	55	55	55	55	55	55	55	55	55	55	55	55
Medium	48	48	48	48	48	48	48	47	47	47	47	47
Low	42	42	42	42	42	42	42	41	41	41	41	41

COMPONENT 4: ESTIMATED PROJECTED POPULATION - DAY VISITORS

The fourth and final component of Peak Population is Day Visitors. There is no solid data that can currently be relied upon to identify day visitors to the District and as such the assumption has been made that day visitors to the District will reflect commercial accommodation visitors. The same growth level is also to be used when preparing the peak population.

PEAK POPULATION

Peak population is a vital tool with which to plan for the absolute peak usage of services and infrastructure that Council could experience on any given day. Peak population comprises of four components; usually resident population, holiday home population, commercial accommodation population and day visitors.

NATIONAL PARK												
URP	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	1114	1135	1156	1177	1200	1224	1245	1269	1293	1316	1341	1365
Medium	1104	1115	1126	1137	1154	1172	1187	1205	1224	1244	1264	1284
Low	1101	1109	1116	1124	1139	1154	1169	1184	1200	1216	1233	1249
Holiday Homes	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Medium	1686	1708	1729	1751	1773	1795	1816	1838	1860	1881	1903	1925
CAM	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	873	873	873	873	873	912	912	912	912	953	953	953
Medium	770	770	770	770	770	793	793	793	793	817	817	817
Low	667	667	667	667	667	670	670	670	670	674	674	674
Day Visitors	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	873	873	873	873	873	912	912	912	912	953	953	953
Medium	770	770	770	770	770	793	793	793	793	817	817	817
Low	667	667	667	667	667	670	670	670	670	674	674	674
Total	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	4546	4589	4631	4674	4719	4843	4886	4932	4977	5104	5150	5196
Medium	4330	4363	4395	4428	4467	4553	4589	4629	4670	4759	4800	4842
Low	4121	4150	4180	4209	4246	4289	4325	4362	4400	4445	4483	4521

Peak Population: National Park

NGAPUKE												
URP	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	1333	1358	1383	1408	1436	1464	1489	1519	1546	1575	1604	1633
Medium	1321	1334	1347	1360	1381	1402	1420	1442	1465	1488	1512	1536
Low	1317	1326	1336	1345	1363	1380	1398	1416	1436	1455	1475	1495
Holiday Homes	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Medium	126	128	130	131	133	135	136	138	139	141	143	144
CAM	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	0	0	0	0	0	8	8	8	8	8	8	8
Medium	0	0	0	0	0	4	4	4	4	4	4	4
Low	0	0	0	0	0	0	0	0	0	0	0	0
Day Visitors	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	126	128	130	131	133	135	136	138	139	141	143	144
Medium	95	97	100	103	106	109	112	115	118	122	125	128
Low	71	73	75	77	79	82	84	86	89	91	94	96
Total	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	1586	1614	1642	1671	1702	1741	1770	1802	1833	1865	1897	1930
Medium	1542	1559	1577	1594	1620	1650	1672	1699	1727	1755	1784	1813
Low	1515	1528	1541	1554	1575	1597	1618	1640	1664	1687	1711	1736

Peak Population: Ngapuke

OHAKUNE												
URP	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	1250	1273	1297	1320	1346	1373	1396	1424	1450	1477	1504	1531
Medium	1238	1250	1263	1275	1295	1315	1331	1352	1373	1395	1417	1440
Low	1235	1244	1252	1261	1277	1294	1311	1328	1346	1364	1383	1401
Holiday Homes	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Medium	4934	4997	5060	5124	5188	5251	5314	5378	5441	5505	5569	5632
CAM	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	1637	1637	1637	1637	1637	1719	1719	1719	1719	1805	1805	1805
Medium	1444	1444	1444	1444	1444	1487	1487	1487	1487	1532	1532	1532
Low	1252	1252	1252	1252	1252	1265	1265	1265	1265	1277	1277	1277
Day Visitors	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	1637	1637	1637	1637	1637	1719	1719	1719	1719	1805	1805	1805
Medium	1444	1444	1444	1444	1444	1487	1487	1487	1487	1532	1532	1532
Low	1252	1252	1252	1252	1252	1265	1265	1265	1265	1277	1277	1277
Total	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	9457	9544	9631	9718	9808	10061	10149	10239	10329	10591	10682	10773
Medium	9060	9135	9211	9287	9370	9540	9620	9704	9789	9964	10050	10136
Low	8672	8745	8817	8889	8969	9074	9154	9235	9316	9424	9506	9588

Peak Population: Ohakune

OTANGIWAI - OHURA												
URP	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	1083	1104	1124	1144	1167	1190	1211	1234	1257	1280	1303	1327
Medium	1074	1084	1095	1105	1122	1140	1154	1172	1191	1210	1229	1249
Low	1071	1078	1086	1093	1108	1122	1136	1151	1167	1183	1199	1215
Holiday Homes	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Medium	155	157	159	161	163	165	167	169	171	173	175	177
CAM	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	55	55	55	55	55	55	55	55	55	55	55	55
Medium	48	48	48	48	48	48	48	48	48	48	48	48
Low	42	42	42	42	42	42	42	42	42	42	42	42
Day Visitors	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	55	55	55	55	55	55	56	56	56	56	56	57
Medium	48	48	48	48	48	48	48	48	48	48	48	48
Low	42	42	42	42	42	42	41	41	41	41	41	42
Total	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	1349	1371	1393	1416	1440	1465	1489	1515	1539	1564	1590	1616
Medium	1325	1338	1350	1363	1382	1401	1418	1437	1458	1479	1500	1522
	1310	1320	1329	1339	1355	1371	1387	1404	1422	1439	1458	1477

Peak Population: Otangiwai-Ohura

RAETIHI												
URP	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	1102	1122	1143	1164	1187	1210	1231	1255	1278	1302	1326	1350
Medium	1092	1103	1113	1124	1141	1159	1174	1192	1211	1230	1250	1270
Low	1089	1096	1104	1112	1126	1141	1156	1171	1187	1203	1219	1236
Holiday Homes	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Medium	644	652	660	669	677	685	693	702	710	718	727	735
CAM	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	109	109	109	109	109	109	109	109	109	109	109	109
Medium	96	96	96	96	96	96	96	96	96	96	96	96
Low	83	83	83	83	83	83	83	83	83	83	83	83
Day Visitors	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	109	109	109	109	109	111	111	111	111	111	111	113
Medium	83	83	83	83	83	83	83	83	83	83	83	83
Low	63	63	63	63	63	63	63	63	63	63	63	63
Total	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	1963	1992	2021	2050	2082	2115	2145	2177	2209	2240	2272	2307
Medium	1915	1934	1953	1972	1997	2023	2046	2073	2100	2127	2155	2184
Low	1878	1894	1910	1926	1949	1972	1995	2018	2043	2067	2092	2117

Peak Population: Raetihi

TANGIWAI												
URP	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	1351	1377	1402	1427	1456	1484	1510	1540	1568	1597	1626	1656
Medium	1339	1352	1366	1379	1400	1422	1440	1462	1485	1509	1533	1557
Low	1335	1345	1354	1364	1382	1400	1418	1436	1456	1475	1495	1516
Holiday Homes	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Medium	761	771	781	791	801	810	820	830	840	850	859	869
CAM	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	109	109	109	109	109	109	109	109	109	109	109	109
Medium	96	96	96	96	96	96	96	96	96	96	96	96
Low	83	83	83	83	83	83	83	83	83	83	83	83
Day Visitors	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	109	109	109	109	109	109	110	110	110	110	110	110
Medium	96	96	96	96	96	96	96	96	96	96	96	96
Low	83	83	83	83	83	83	83	83	83	83	83	82
Total	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	2331	2366	2401	2436	2474	2513	2549	2588	2626	2665	2704	2744
Medium	2293	2316	2339	2362	2393	2424	2452	2484	2517	2551	2584	2619
Low	2263	2282	2301	2321	2348	2376	2403	2432	2461	2491	2520	2550

Peak Population: Tangiwai

TAUMARUNUI (CENTRAL, EAST AND NORTH - THREE SA2'S COMBINED)												
URP	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	4941	5034	5127	5220	5322	5427	5521	5630	5733	5838	5945	6054
Medium	4896	4945	4993	5042	5119	5198	5264	5346	5431	5517	5605	5694
Low	4883	4917	4952	4987	5051	5117	5183	5250	5322	5394	5468	5542
Holiday Homes	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Medium	1158	1173	1188	1203	1218	1233	1248	1262	1277	1292	1307	1322
CAM	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	436	436	436	436	436	449	449	449	449	463	463	463
Medium	385	385	385	385	385	385	385	385	385	385	385	385
Low	334	334	334	334	334	327	327	327	327	321	321	321
Day Visitors	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	436	436	436	436	436	449	449	449	449	463	463	463
Medium	385	385	385	385	385	385	385	385	385	385	385	385
Low	334	334	334	334	334	327	327	327	327	321	321	321
Total	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	6971	7079	7187	7294	7412	7558	7667	7790	7909	8056	8177	8301
Medium	6825	6888	6951	7014	7107	7201	7282	7378	7478	7579	7682	7786
Low	6709	6758	6808	6857	6937	7004	7085	7167	7254	7328	7416	7506

Peak Population: Taumarunui, Central East and North

WAIOURU												
URP	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	821	837	852	868	885	902	918	936	953	971	988	1007
Medium	814	822	830	838	851	864	875	889	903	917	932	947
Low	812	818	823	829	840	851	862	873	885	897	909	921
Holiday Homes	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Medium	71	72	73	74	75	76	77	78	79	80	81	82
CAM	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	55	55	55	55	55	55	55	55	55	55	55	55
Medium	48	48	48	48	48	48	48	47	47	47	47	47
Low	42	42	42	42	42	42	42	41	41	41	41	41
Day Visitors	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	55	55	55	55	55	55	55	55	55	55	55	55
Medium	48	48	48	48	48	48	48	47	47	47	47	47
Low	42	42	42	42	42	42	42	41	41	41	41	41
Total	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
High	1003	1019	1036	1052	1070	1088	1105	1124	1142	1160	1179	1198
Medium	969	978	987	996	1010	1024	1036	1048	1063	1078	1094	1110
Low	967	974	981	987	999	1011	1023	1032	1045	1058	1071	1084

Peak Population: Waiburu

It is recommended that the following growth levels be used to indicate the absolute peak population:

SA2	RECOMMENDED GROWTH LEVEL
National Park	Medium
Ohakune	High
Otangiwai-Ohura	Low
Raetihi	Low
Tangiwai	Low
Taumarunui (Central, East + North)	Medium
Waiouru	Low
Ngapuke	Low

The following table depicts the total projected Peak Population when taking into consideration each SA2's recommended growth level.

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
NATIONAL PARK												
Medium	4330	4363	4395	4428	4467	4553	4589	4629	4670	4759	4800	4842
NGAPUKE												
Low	1515	1528	1541	1554	1575	1597	1618	1640	1664	1687	1711	1736
OHAKUNE												
High	9457	9544	9631	9718	9808	10061	10149	10239	10329	10591	10682	10773
OTANGIWAI - OHURA												
Low	1310	1320	1329	1339	1355	1371	1387	1404	1422	1439	1458	1477
RAETIHI												
Low	1878	1894	1910	1926	1949	1972	1995	2018	2043	2067	2092	2117
TANGIWAI												
Low	2263	2282	2301	2321	2348	2376	2403	2432	2461	2491	2520	2550
TAUMARUNUI (CENTRAL, EAST AND NORTH - THREE SA2'S COMBINED)												
Medium	6825	6888	6951	7014	7107	7201	7282	7378	7478	7579	7682	7786

WAIOURU												
Low	967	974	981	987	999	1011	1023	1032	1045	1058	1071	1084
RUAPEHU DISTRICT												
Total Peak POP	28545	28792	29039	29287	29608	30142	30446	30773	31111	31672	32016	32364

Table thirty-eight: Projected Peak Population by SA2 at Recommended Growth Levels

3. INFRASTRUCTURE

Indicators of growth and expansion in the built environment include;

1. Resource Consents
2. Building Consents
3. Rateable Assessments

Forecasted Assumption(s):

1. *The assumption has been made that low quality asset condition assessments will lead to poor infrastructure capital decision making.*
Level of Certainty: *Highly Likely*
Potential Financial Consequence: *Moderate*
2. *The assumption has been made that, excepting water infrastructure, all other assets will deliver the required level of service over their documented useful life as reflected in the Revenue and Financing Policy.*
Level of Certainty: *Likely*
Potential Financial Consequence: *Moderate*
3. *Revaluation of fixed assets is done annually for property. It includes an assessment of the useful (economic) life of the asset. This is in accordance with the Council's accounting policies detailed under "Property, Plant and Equipment and Infrastructural Assets" which includes further detail of revaluation policies and the estimated useful life of various assets. The revaluations are based on the BERL inflation rates. The revaluation impact is broadly equivalent to the increase in the Local Government Cost Index.*
Level of Certainty: *Likely*
Potential Financial Consequence: *Moderate*
4. *Depreciation rates on planned asset acquisitions are based on an average percentage of their components and the estimated useful life of the various assets.*
Level of Certainty: *Likely*
Potential Financial Consequence: *Moderate*
5. *There is a risk that compromised access to and through SH4 could lead to economic impacts resulting from short term interruption and loss of economic opportunity.*
Level of Certainty: *Unlikely*
Potential Financial Consequence: *Low*
6. *The assumption has been made that the Capital work programme estimates and MBIE funding are not sufficient to complete all elements of proposed works and ratepayers will need to part fund this*
Level of Certainty: *Likely*
Potential Financial Consequence: *Significant*
7. *The assumption has been made that ongoing subdivisions in Ohakune will cause additional pressures on 3 waters infrastructure resulting in Council not being able to consent buildings.*
Level of Certainty: *Likely*
Potential Financial Consequence: *Significant*
8. *It has been assumed that all resource consents will be renewed but in many cases, with increasing environmental standards. The expected time to obtain resource consents is factored into project timelines and the increased standards.*
Level of Certainty: *Likely*
Potential Financial Consequence: *Significant*
9. *The assumption has been made that the number of rateable assessments will continue to experience small scale growth of approximately 0.16%*
Level of Certainty: *Likely*
Potential Financial Consequence: *Neutral*

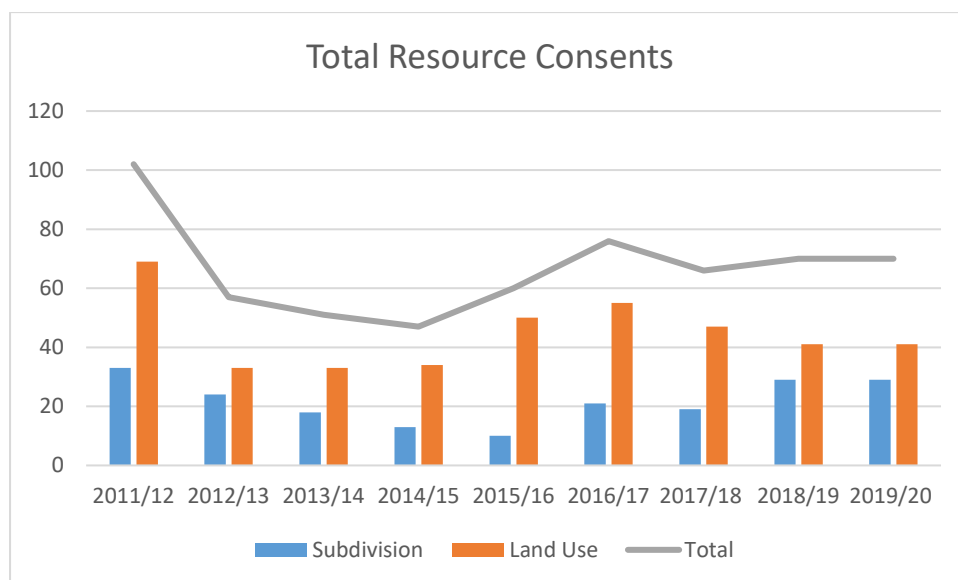
RESOURCE CONSENTS

In the past six months, a number of subdivisions have been progressed from granted consents to completion of conditions and the final process to issue of title. The year 2019/20 saw 54 development contributions paid, while during the current financial year (2020/21 to date), there have been 62 lots paid, indicating that owners are experiencing positive responses from potential and actual purchasers of these new lots.

This surge in urban residential subdivision activity is only occurring in Ohakune but does include a number of lifestyle blocks being developed all over the District including an increasing number of two – three lot subdivisions.

Year	Subdivision	Land Use
2011/12	33 (1 refused)	69
2012/13	24 (2 refused)	33
2013/14	18	33
2014/15	13	34
2015/16	10	50
2016/17	21	55
2017/18	19	47 (2 returned)
2018/19	29 (4 returned)	41 (4 returned)
2019/20	29 (1 returned; 1 withdrawn)	41 (1 returned)
2020/21* as at 18/01/21	17*	11*

2010 – 2020 Resource Consents

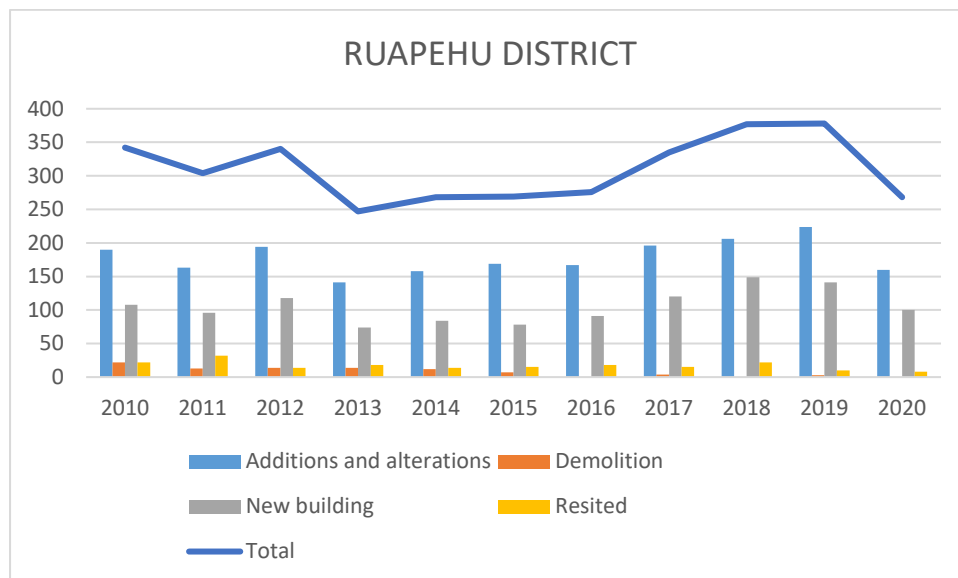


BUILDING CONSENTS

At a District level, the number of building consents issued has continued to rise since the 2012/13 decline. 2020 saw the first overall decline in building consents issued since 2012; this could be attributed to COVID-19 induced behaviour. Interestingly, Taumarunui was the only ward that saw an increase, albeit slight, in building consents issued in 2020.

RUAPEHU DISTRICT												
CONSENT TYPE	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Additions + alterations	190	163	194	141	158	169	167	196	206	224	160	1968
Demolition	22	13	14	14	12	7	0	4	0	3	0	89
New building	108	96	118	74	84	78	91	120	149	141	100	1159
Re-sited	22	32	14	18	14	15	18	15	22	10	8	188
Total	342	304	340	247	268	269	276	335	377	378	268	3404

Ruapehu District: Building Consents

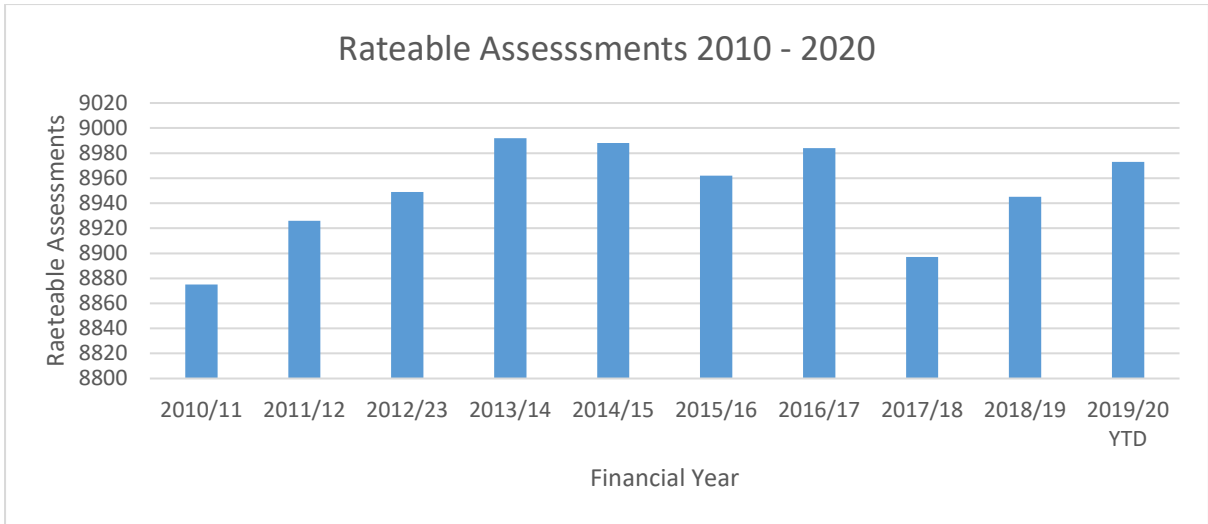


RATEABLE ASSESSMENTS

The number of rateable units is also an important measure of growth however it must be acknowledged that the number of rateable units fluctuates year-on-year for reasons such as subdivisions, part-sales, or amalgamations. Over the past 10 years, the number of rateable assessments has increased on average 0.123% (or 11 units per year). Building on this trend, confidently assuming small scale growth, the assumed rate of growth has been set at 0.16% (or 15 units per year).

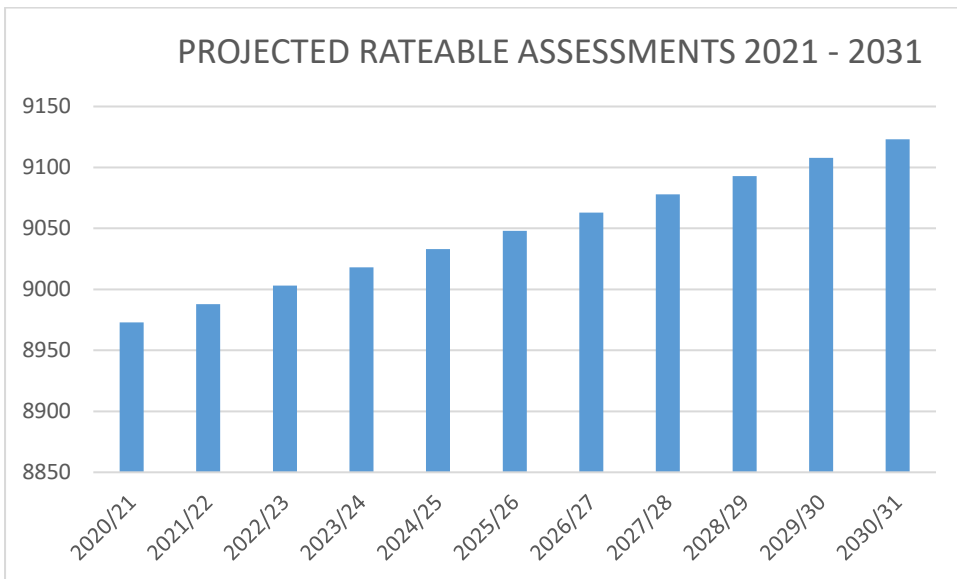
YEAR	RATEABLE ASSESSMENTS
2010/11	8875
2011/12	8926
2012/23	8949
2013/14	8992
2014/15	8988
2015/16	8962
2016/17	8984
2017/18	8897
2018/19	8945
2019/20 YTD	8973

Rateable Assessments



YEAR	PROJECTED RATEABLE ASSESSMENTS
2020/21	8973
2021/22	8988
2022/23	9003
2023/24	9018
2024/25	9033
2025/26	9048
2026/27	9063
2027/28	9078
2028/29	9093
2029/30	9108
2030/31	9123

A: Projected Rateable Assessments



4. ECONOMY

There are many measures with which to gauge economic trends and outputs of households, communities and countries. A small insight into the Ruapehu economy is explored below featuring GDP, filled jobs and number of business units all of which are compared to the country as a whole. Further information regarding Ruapehu's economy in response to COVID-19 can be provided by staff (as prepared by Horizon's Region Council) which references the following data sets; weekly retail, MSD benefits, overseas trade, job vacancies, jobs filled, job seekers, COVID income relief, property value, rent, and tourism.

The Herfindahl–Hirschman Index (HHI) measures the level of diversification of an economy, the higher the score the more concentrated a region or district's economic activity is within a few industries, meaning the more vulnerable it is to adverse effects, such as those arising from climatic conditions or commodity price fluctuations. The Ruapehu HHI score has continually decreased since 2000 (52.6) to where it sits today at 45.7 indicating that the Ruapehu economy continues to diversify.

Forecasted Assumption(s):

1. *The assumption has been made that International borders will remain closed, international tourist numbers remain nil into the near future. Local tourism operators rely solely on domestic tourism for the foreseeable future.*

Level of Certainty: *Very Likely*

Potential Financial Consequence: *Significant*

2. *The assumption has been made that pre-COVID, holiday home numbers were set to increase approx. 1.21% on average per year. Throughout COVID this is unlikely, however, this trend is expected to return with the recommencement of a fully functioning tourism economy.*

Level of Certainty: *Likely*

Potential Financial Consequence: *Moderate*

Both domestic and international tourism has grown rapidly since 2000 and as a result, tourism's contribution to the Ruapehu's GDP has increased from \$28 Million in 2000 to \$102 million in 2020 making it one of the largest contributors to economic growth.

According to Infometrics the top 10 industries contributing to the Ruapehu's GDP in 2020 were as follows:

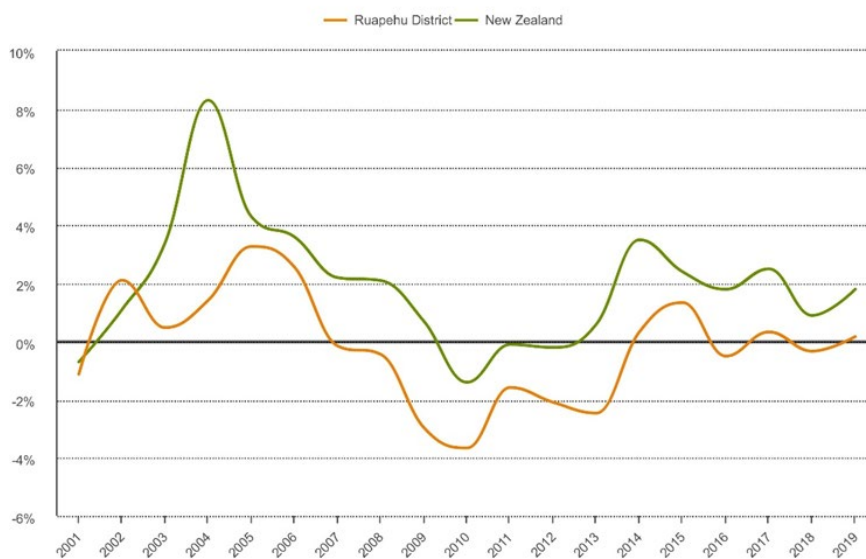
Ruapehu GDP contribution by Industry		
Industry	\$million	Share of total
Central Gov Admin, Defence & Safety	91	12.50%
Sheep, Beef Cattle & Grain Farming	78.8	10.80%
Property Operators & Real Estate Services	44.3	6.10%
Arts & Recreation Services	36.5	5.00%
Accommodation & Food Services	33	4.50%
Education & Training	29.9	4.10%
Pulp & Paper Product Manufacturing	27.6	3.80%
Heavy & Civil Engineering Construction	25.2	3.50%
Health Care & Social Assistance	22	3.00%
Electricity & Gas Supply	20.3	2.80%

A:GDP contribution by industry

NUMBER OF BUSINESS UNITS

The number of businesses in an area is an indicator of the health of the economy. For example, growth in the number of businesses in an area reflects increased entrepreneurial activity and economic activity as entrepreneurs are prepared to take risks and start new ventures.¹⁸

Ruapehu District			New Zealand	
Year	# of units	Change		Change
2000	1,872			
2001	1,851	-1.10%		-0.70%
2002	1,890	2.10%		1.10%
2003	1,899	0.50%		3.40%
2004	1,926	1.40%		8.30%
2005	1,989	3.30%		4.30%
2006	2,040	2.60%		3.60%
2007	2,037	-0.10%		2.20%
2008	2,028	-0.40%		2.10%
2009	1,968	-3.00%		0.70%
2010	1,896	-3.70%		-1.40%
2011	1,866	-1.60%		-0.10%
2012	1,827	-2.10%		-0.20%
2013	1,782	-2.50%		0.60%
2014	1,788	0.30%		3.50%
2015	1,812	1.30%		2.40%
2016	1,803	-0.50%		1.80%
2017	1,809	0.30%		2.50%
2018	1,803	-0.30%		0.90%
2019	1,806	0.20%		1.80%



¹⁸ Infometrics, <https://ecoprofile.infometrics.co.nz/Ruapehu%20District/Businesses/Growth>

5. NATURAL ENVIRONMENT

NATURAL DISASTERS

Small natural disasters can be funded out of budgetary provisions. Council will require financial and other assistance from Central Government for large-scale events or disasters.

Forecasted Assumption(s):

1. *Small natural disasters can be funded out of budgetary provisions. Council will require financial and other assistance from Central Government for large-scale events or disasters.*
Level of Certainty: Likely
Potential Financial Consequence: Significant
2. *Seasonal projections show winter rainfall increasing by 7-16% in Taumarunui by 2090. It is unclear what this increase looks like out to 2031. There is not enough data to plan for increase/decrease in rainfall in other areas. This in itself is a risk.*
Level of Certainty: Neutral
Potential Financial Consequence: Moderate
3. *Temperatures are likely to be 0.7°C to 1.1°C warmer by 2040 effecting evapotranspiration of soil and dams as well as snow days.*
Level of Certainty: Neutral
Potential Financial Consequence: Moderate
4. *A reduction in the number of snow days experienced annually is projected; potentially effecting local economies reliant on snow seeking visitors.*
Level of Certainty: Likely
Potential Financial Consequence: Moderate - Significant

CLIMATE CHANGE

Guidance for territorial authorities on preparing for climate change was reviewed in June 2018.

The 'Climate Change Projections for New Zealand' report¹⁹ addresses expected changes in New Zealand's climate (temperature and many other climate variables) out to 2120, and draws heavily on climate model simulations from the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report. Projections of climate change depend on future greenhouse gas emissions, which are uncertain. There are four main global emissions scenarios ranging from low to high greenhouse gas concentrations. This new set of four scenarios known as *representative concentration pathways* (RCPs), are used in this report. These pathways are identified by their approximate total **radiative forcing** at 2100 relative to 1750.

- (a) RCP 2.6 = removal of some CO₂ presently in our atmosphere (low emissions)
- (b) RCP 4.5 and RCP 6.0 = stabilisation of current CO₂ levels
- (c) RCP 8.5 = high concentration of CO₂ (high emissions)

Projected changes in rainfall show a marked seasonality and variability across regions. For summer it is likely that there will be drier conditions in the central North Island. **(see MfE CCP)** The temperature projections generally increase with time and with the strength of the radiative forcing.

Taumarunui was (one of 5 towns) specifically singled out in this report as being *very likely* to have increased precipitation under the highest **radiative forcing** (RCP 8.5) during winter by the end of the century. **(see MfE CCP)**

¹⁹ Ministry for the Environment 2018. Climate Change Projections for New Zealand: Atmosphere Projections Based on Simulations from the IPCC Fifth Assessment, 2nd Edition. Wellington: Ministry for the Environment.

Climate change projections for the Manawatu-Whanganui region were reviewed by the Ministry for the Environment in May 2018²⁰. The following changes are projected for the Manawatu-Wanganui region.²¹

TEMPERATURE

Compared to 1995, temperatures are likely to be 0.7°C to 1.1°C warmer by 2040 and 0.7°C to 3.1°C warmer by 2090.

By the end of the century, the Region is projected to have from 7 to 47 extra days per year where maximum temperatures exceed 25°C. The number of frosts could decrease by around 6 to 17 per year by 2090.

RAINFALL

The largest changes will be for particular seasons rather than annually.

Seasonal projections show winter rainfall increasing by 6 to 10 per cent in Whanganui and 7 to 16 per cent in Taumarunui by 2090.

According to the most recent projections, the Manawatu-Whanganui region is not expected to experience a significant change in the frequency of extreme rainy days as a result of climate change.

SNOWFALL

A reduction in the number of snow days experienced annually is projected throughout New Zealand, including the Central Plateau.

The duration of snow cover is also likely to decrease, particularly at lower elevations. Less winter snowfall and an earlier spring melt may cause marked changes in the annual cycle of river flow in the regions. Places that currently receive snow are likely to see increasing rainfall as snowlines rise to higher elevations due to rising temperatures.

It is possible snow amount could increase with rising temperatures in special circumstances; a warmer atmosphere can hold more moisture, and on a day where the temperatures are higher but still below freezing, there is the potential for increased heavy snowfalls. No analysis of snow extremes has been carried out at this point, however. Page 120 CC projections.

WIND

The frequency of extremely windy days in the Manawatu-Whanganui region is not likely to change significantly by 2090. There may be an increase in westerly wind flow during winter and north-easterly wind flow during summer.

STORMS

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

IMPACTS BY SEASON

BY 2090, THE REGION COULD EXPECT ²² :	
Spring	0.6°C to 2.7°C temperature rise 1 per cent less to 3 per cent more rainfall in Whanganui No change to 5 per cent more rainfall in Taumarunui

²⁰ <https://www.mfe.govt.nz/climate-change/likely-impacts-of-climate-change/how-could-climate-change-affect-my-region/manawatu>

²¹ NOTE: Overview of regional projections shown as a range of values from a low emissions to a high emissions future. The projected changes are calculated for 2031–2050 (referred to as 2040) and 2081–2100 (2090) compared to the climate of 1986–2005 (1995).

²² Projected changes are relative to 1995 levels. The values provided capture the range across all scenarios. They are based on scenario estimates and should not be taken as definitive

Summer	0.7°C to 3.3°C temperature rise No change to 3 per cent more rainfall in Whanganui 2 per cent more rainfall in Taumarunui across the range of scenarios
Autumn	0.7°C to 3.2°C temperature rise 5 per cent less to 2 per cent more rainfall in Whanganui and Taumarunui
Winter	0.7°C to 3.2°C temperature rise 6 to 11 per cent more rainfall in Whanganui 7 to 16 per cent more rainfall in Taumarunui

Climate Change Possible Impacts by Season

Note:

Likelihood estimates IPCC terminology (see Introduction chapter or Technical Summary) for indicating the assessed likelihood of an outcome or result:

Virtually certain: More than 99 per cent probability of occurrence

Extremely likely: More than 95 per cent

Probability very likely: More than 90 per cent

Probability likely: More than 66 per cent probability

More likely than not: More than 50 per cent probability

Very unlikely: Less than 10 per cent probability

Extremely unlikely: Less than 5 per cent probability.

6. FINANCIAL ASSUMPTIONS

Refer to Part 3 of the Long term Plan, Significant Financial Assumptions, for further information regarding significant financial assumptions.

6. FINANCIAL			
Rates Receivables (Debtors)	It has been assumed that rates receivable as a percentage of rates will remain at current levels. There is a risk that rates receivables are significantly higher than that forecast due to a number of reasons, such as the effect of COVID 19 and economic issues. This would impact on cash flow requirements, increasing borrowing for operational costs.	Neutral	Moderate
External Funding For Roads	<p>The forecast financial statements are based on the assumption that Council will be able to claim 74% of all maintenance and renewal costs for district roads in line with currently known NZTA work categories and classifications.</p> <p>Forecast co-investment from Waka Kotahi NZTA may be reduced due to impact from COVID-19. Council's financial assistance rate will increase to 75% in 2021/22 for local roads and 100% for Special purpose roads, with local roads reducing to 74% thereafter.</p> <p>Should the outcome result in less roading expenditure items being covered by the subsidy, the work programme for roading could be impacted.</p> <p>Any decrease in funding would require modification to planned projects and work programmes and may result in delays to both. Where it is not possible to decrease funding, there is the potential to impact on borrowing and rates.</p>	Likely	Significant
Vested Assets	The assumption has been made that no Vested Assets have been budgeted over the next ten years	Neutral	Low
Government subsidies	While it is expected that Council will receive some Government funding for Land Transport, Housing, Cycle Trails and Three Waters and possibly other capital projects over the next ten years, the lack of certainty around this means that (and the assumption has been made) no subsidies have been factored into the budgets	Low	Moderate

Inflation	The preparation of the budget has included inflation assumptions based on BERL forecasting for the Local Government Sector. There is a high level of uncertainty associated with these inflation assumptions. If the impact of inflation on Council's budgets turns out to be higher than forecast and Council does not wish to generate additional revenue by increasing rates, then either additional operational efficiencies or reduction in service levels or planned capital expenditure would need to be considered. Should the impact of inflation be lower than forecast, there will be a favourable impact on Council's operating and capital expenditure budgets.	Likely	Moderate
CAPEX Feasibility - Three Waters	There is a strong chance that additional funding support from Central Government will be available to fast track drinking water reform changes. However, this LTP can not include this possibility with key assumptions due to timing of any such announcements. As affordability has been removed from Local Government as a defence, RDC has forecast considerable debt impacts to Council as full compliance is an absolute non-negotiable now. The assumption has been made that practical delivery against the very ambitious LTP works forecast will face the challenges of supply chain constraints, and active monitoring will be required to minimise the risk of non compliance by due dates.	Likely	Significant
CAPEX Feasibility - Other Works	With regards to Land Transport, there is a well established supply chain, and committed funding. There is potential that some bridge work not covered by NZTA will require RDC to fund which it would do through debt. These are one off items in what is otherwise a very stable work program. A number of Township Revitalisation outcomes that are to be debt funded to account for inter-generational equity. These would go ahead in consultation with community regardless of external funding, but Council is very open to using proposed budgets as 'seed funding' with other partners to deliver further value than forecast. However, 3rd party investment can not be assumed in this LTP, and as such counts as 100% RDC investment. Practical delivery will have strong political and community support, and supply chain issues are somewhat lessened in this activity due to lower competition for resources from out of district or competing priorities. The assumption has been made that these the capital works costs will not vary significantly from those budgeted	Likely	Moderate
Interest rates	The interest rates used are based on an estimate of what will occur in the future combined with known rates that are currently fixed under current borrowings with the LGFA which Council joined in 2018. The assumption has been made that all borrowings will be renewed under similar terms and conditions except that interest rates applied to replacement and new borrowings annually will range from 1.7% to 3.4% in year ten of the LTP 2021-31. There is a high degree of uncertainty around borrowing costs due to the fluctuations of interest rates. Interest costs and debt repayment have been estimated in accordance with the Treasury Investment and Liability Management Policy.	Likely	Moderate - Significant

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Horizon's Regional Council

Wastewater

Asset Management Plan 2021-31

Part 3 – Wastewater Activity

Quality Information

Document Ref	Wastewater Asset Management Plan 2021-31
Date	June 2021
Prepared by	Stuart Watson, Acting Environmental Manager Environmental Services, Ruapehu District Council Anne-Marie Westcott, Ruapehu District Council Cushla Anich, Director, Morrison Low Consultants Veolia team
Peer review of 2018 AMP Reviewed by	GHD Consultants, September 2019 Margaret Hawthorne, Group Manager Community Services, Ruapehu District Council
Approved by	Clive Manley, Chief Executive, Ruapehu District Council

Revision History

Version 1 (Draft for Audit) – March 2021

Prepared by:		Group Manager/Reviewed by:		Chief Executive/Approved	
Name	Anne-Marie Westcott Cushla Anich	Name		Name	Clive Manley
Signature		Signature		Signature	

Version for Consultation – June 2021

Prepared by:		Group Manager/Reviewed by:		Chief Executive/Approved	
Name	Anne-Marie Westcott Cushla Anich	Name		Name	Clive Manley
Signature		Signature		Signature	

1 EXECUTIVE SUMMARY

1.1 INTRODUCTION

The Wastewater Asset Management Plan provides the evidence and financial background to the long-term management and maintenance of Ruapehu District Council's wastewater network.

The purpose of the wastewater activity is to provide efficient and safe wastewater collection and disposal in an effective and environmentally acceptable manner. A safe and efficient wastewater network is essential as the basis for maintaining public health in the communities and protecting the environment.

Through the wastewater activity, Council aims to:

- Provide affordable, well designed and maintained wastewater infrastructure to secure the economic future of Ruapehu; and to ensure service continuity for commerce and industry in the District
- Maintain safe and efficient wastewater network to provide for public health in communities and protecting the environment
- Manage potential negative environmental effects associated with the wastewater activity, which includes managing concentrations of wastewater, culturally acceptance and environmental damage from overflows.

There is a relationship between this Asset Management Plan with other Council planning documents. The levels of service provided through asset management have a connection with Council's Vision, Focus Areas, Outcomes and Key Result Areas. Council recognises, and is managing increasing stakeholder expectations, meeting legislative requirements and localised areas of increased demand. The plan also links to Horizon Regional Council's One Plan and Council's 30 Year Infrastructure Strategy.

The wastewater assets had a gross replacement cost of \$53.1 million as at 1 July 2020. The wastewater network includes six wastewater treatment plants, 18 pump stations, 104 km of pipes, 1,434 manholes, and 4,778 rateable properties connected.

Council collects wastewater from its Waiouru customers and sends it to the New Zealand Defence Force who provides treatment and disposal. Council also manages the wastewater services for Whakapapa village on behalf of Department of Conservation since 2015 but does not own the assets. The Department of Conservation have indicated they wish to take the operational and maintenance back inhouse. The handover is scheduled for 1 July 2021.

1.2 PROBLEM STATEMENTS

A workshop with key stakeholders in 2018 identified the District's key wastewater issues and problems using investment logic mapping framework. The Problem Statements were revised as part of the 2021 AMP update to reflect the latest national, regional, and local influences, and summarised in Table 1.

Table 1: Revised Problem Statements

Problem Statement	Description
1. Changing legislation and regulations	The Government is implementing three waters reform including creating standalone Crown entity Taumata Arowai to regulate Drinking Water and Water Services Bill. This structural reform will have a significant impact on local government with three water services likely to be regionalised. There is also a suite of legislative and regulation changes to improve the current management of freshwater.
2. Growth of wastewater demand	Illegal connections and damaged connections coupled with rain events result in overflows of wastewater into the environment.
3. Network is impacted by aging infrastructure and geology	Growth in the volume of waste needing treated will result in upgrades or changes to processes.
4. Community affordability	The wastewater infrastructure needs to meet legislative requirements including freshwater standards, resource consent conditions and provide for current and future demand. These factors will drive upgrades but with only a small rating base to spread the financial burden.

1.3 KEY ISSUES

There are significant challenges and interrelated complex issues for the wastewater activity including the new water regulator and changes to legislation, cultural expectations for suitable treatment processes and the levels of land passage. The strategic issues for the wastewater activity are:

- Taumata Arowai - The water reforms will be the most significant issue Council will need to consider with the 2021 Long Term Plan. The Taumata Arowai Water Services Regulator Act has been passed and the complementary Water Services Bill is expected to be passed in mid-2021. The standalone Crown entity Taumata Arowai is being created to regulate drinking water. The Government's Three Waters Reform Programme is strongly encouraging councils to consider changes to their delivery methods with the preferred outcome being semi regional / regional / multi-regional or national suppliers.
- Freshwater legislation changes - The freshwater legislation changes will result in higher environmental standards to be achieved, centralised plants with culturally acceptable land passage, which will be a journey of change over the next generation. Plants will move from low capital and operational cost to significantly high cost to achieve nutrient treatment, will generate sludge at much higher volumes which must also be handled. Plants potentially will have high carbon footprint than current systems.
- Cultural expectations for suitable treatment processes - The future consent conditions for the wastewater treatment plants and discharge is the main driver for the wastewater activity and a significant challenge. There are cultural expectations for suitable treatment processes and the levels of land passage required to meet mana whenua values. The fundamental position is that the direct discharge of wastewater to surface water is culturally unacceptable. A challenge is finding the balance between treatment provision, movement through Papatuanuku and discharge in an environment with extreme weather events, geological constraints for discharge to land.

1.4 LEVELS OF SERVICE

Levels of service have been reviewed and modified combining the expectations and requirements of legislation, industry standards, users, stakeholders, and the Council. They cover:

- The safety of public health and the natural environment.
- Maintenance of the wastewater collection network effectively.
- Responsiveness to problems with the wastewater network and treatment system
- Customer satisfaction.
- Demand management.

The levels of service for the wastewater activity are:

Table 2: Service level summary for wastewater activity

Community Outcomes		Key Attribute	Levels of Service
Safe, Healthy Communities		Safety – public health	Provide public safety through continuous of wastewater collection system
		Quality – reliability	To provide reliable wastewater networks and treatment
		Responsiveness	To provide prompt responses for service
Thriving, Natural Economy		Sustainable - environmental performance	Environmental impacts are managed and resource consents complied with

Overall, we did achieve the mandatory performance measures for 2018/19 and 2019/20 covering dry weather overflows, responsiveness to faults, customer complaints for odour, system faults and blockage issues, and full compliance with the consent requirements.

There is new monitoring and stringent enforcement of the existing resource consents. This means Council will expect an increase in the number of non-compliances issued by Horizon Regional Council until new / upgraded plants are completed.

1.5 KEY RISKS

The critical risks identified in the Risk Action Plan (refer to Section 5) that have a significant, major or catastrophic impact for the wastewater activity are:

- Failure of critical pipeline
- Overloading pipelines, pump stations and treatment plants
- Hazard event, planning and response (flooding, geological event)
- Discharge of contaminants affecting the biological treatment process
- Asset failure of treatment plant
- High inflow and ingress into the network.

These risks are managed with existing controls including condition monitoring, maintenance history analysis, targeted renewal programmes, response planning, SCADA monitoring for wastewater pump stations, and inflow and infiltration programme.

Climate change directly impacts the wastewater activity. Council has undertaken the following measures to improve the resilience of the activity in disruption events:

- Building our knowledge based on latest thinking nationally and participating in forums where appropriate
- Specify more resilient design and materials for replacement programmes
- Enhanced collaboration with Veolia to have robust communication protocols and procedures for keeping the network resilient
- Most of our wastewater pump stations are able to be serviced by portable back up generators in a rolling process, with permanent generator at the highest risk sites to ensure service continuity during power outages and minimise environmental risk
- Strengthening our infrastructure resilience in our townships with more built infrastructure such as Raetihi, Ohakune and Taumarunui.
- Low carbon footprint design decisions for modern nutrient treatment plants.

1.6 FINANCIAL SUMMARY

The total amount of expenditure for operations, maintenance and capital for the wastewater activity over the next ten years is \$53.9 million, as shown in the figure and table below. This shows that the total operational annual costs are about \$3 million and makes up about half of the total forecast at 57%.

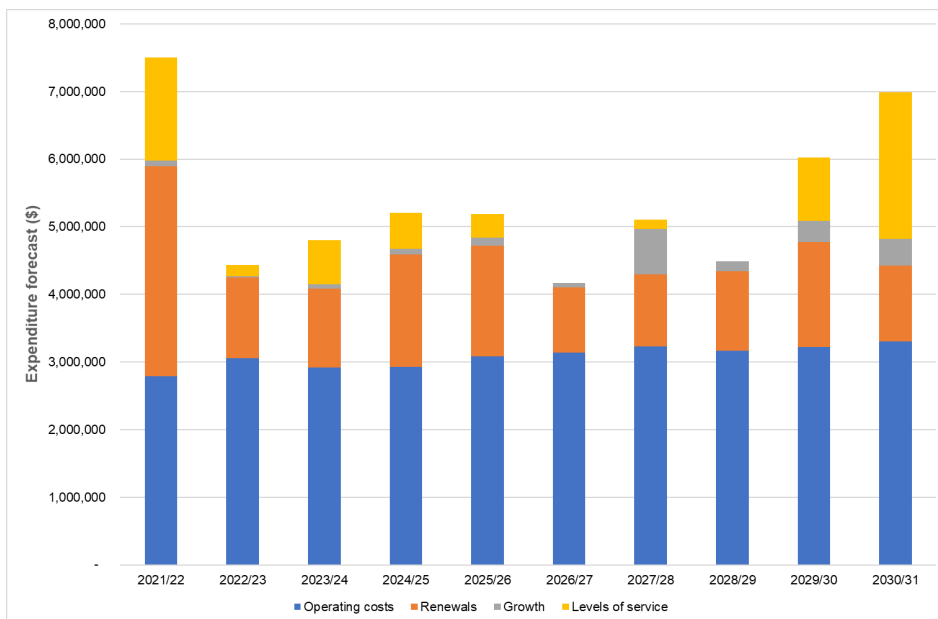


Figure 1: Summary of wastewater ten year expenditure forecast
Source: Council final LTP budgets (as at June 2021)

Table 3: Summary of wastewater ten year expenditure forecast

Wastewater Expenditure	2021/22	2022/23	2023/24	10 yr Total
Opex	2,793,235	3,055,998	2,915,269	30,844,878
Renewals	3,099,109	1,192,694	1,173,158	14,630,381
Growth	87,390	19,590	58,212	1,960,023
Levels of Service	1,527,100	169,800	657,844	6,485,645
Total	7,506,833	4,438,082	4,804,483	53,920,927

Capex (renewals and new works) expenditure across the 10 year expenditure period is forecast at \$23 million. Renewals makes up 63% of the ten year capex expenditure followed by levels of service at 28%.

1.7 IMPROVEMENT PROGRAMME

Key improvement programmes and associated projects have been developed through a review of the gaps identified during the development of this draft AMP and the issues identified. The main improvement objectives to be achieved in the next three years due to their priority and importance for the wastewater activity include:

- Iwi partnership development - Establish Iwi Liaison /co-governance partners treaty settlement delivery as they reach settlement.
- Critical assets - Refining the categorisation of critical wastewater assets at component level to support better decision making.
- Asset data - Improve the data collection and reporting for performance data required for mandatory reporting. Improve the integration between Facilities Management Contractor Veolia and Council's systems.
- Prepare for growth - Monitor the population growth Ohakune on regular basis so that core infrastructure investment is made at the right time and at the right location. Undertake hydraulic modelling of Ohakune township for water supply and wastewater services.
- Asset performance – Better understand the existing network deficiencies to enable sound decision making for any future improvements. This includes implementing the inflow and infiltration rolling programme to target the highest leaky sub catchments, and undertaking hydraulic modelling to understand the existing networks
- Strengthening resilience - Improving the resilience of the network in relation to climate change impacts.
- Regional Partnership - Continue with regional collaboration for 3 Waters Service Delivery in preparation for three waters reforms, seeking efficiencies to deliver the best outcomes for Ruapehu's community.
- Service Delivery – Complete a Section 17A review of the Three Waters Contract to ensure that the current delivery arrangements are the most efficient, effective and appropriate means. Update of the Three Waters Contract.

2 INTRODUCTION

2.1 OVERVIEW

The purpose of the wastewater activity is to provide efficient and safe wastewater collection and disposal in the Ruapehu District (District) in an effective and environmentally acceptable manner. A safe and efficient wastewater network is essential as the basis for maintaining public health in our communities and protecting the environment. Council is committed to providing a wastewater service that meets the needs of the community.

To achieve this purpose, Council manages a wastewater network which includes six wastewater treatment plants, 18 pump stations, 104 km of pipes, 1,434 manholes, and 4,778 rateable properties connected. The peak population on any given day in the District is expected to increase from an estimate of 27,438 in 2020 to 30,614 in 2031 (based on low projection). The wastewater assets had a gross replacement cost of \$53.1 million (as at 1 July 2020).

Council collects wastewater from the Waiouru township customers and pays New Zealand Defence Force for treatment and disposal. Council has also managed the water services for Whakapapa Village on behalf of Department of Conservation (DOC) since 2015 (but does not own the assets). DOC have indicated they wish to take the operational and maintenance back inhouse. The handover is scheduled for 1 July 2021.

As well as maintaining public health that meets regulatory requirements such as the Health Act 1956, Council is committed to managing potential negative environmental effects associated with the wastewater activity. This includes managing concentrations of wastewater and environmental damage from overflows.

There are significant challenges and interrelated complex issues for the wastewater activity including the new water regulator and changes to legislation, cultural expectations for suitable treatment processes and the levels of land passage. The strategic issues for the wastewater activity are (refer to Section 2.5 for further details):

- Taumata Arowai - The water reforms will be the most significant issue Council will need to consider with the 2021 Long Term Plan (LTP) (refer to Section 2.4 for further discussion). The Taumata Arowai Water Services Regulator Act has been passed and the complementary Water Services Bill is expected to be passed in mid-2021. The standalone Crown entity Taumata Arowai is being created to regulate drinking water. The Government's Three Waters Reform Programme is strongly encouraging councils to consider changes to their delivery methods with the preferred outcome being semi regional / regional / multi-regional or national suppliers.
- Freshwater legislation changes - The freshwater legislation changes will result in higher environmental standards to be achieved, centralised plants with culturally acceptable land passage, which will be a journey of change over the next generation. Plants will move from low capital and operational cost to significantly high cost to achieve nutrient treatment, will generate sludge at much higher volumes which must also be handled. Plants potentially will have high carbon footprint than current systems.
- Cultural expectations for suitable treatment processes - The future consent conditions for the wastewater treatment plants and discharge is the main driver for the wastewater activity and a significant challenge. There are cultural expectations for suitable treatment processes and the levels of land passage required to meet mana whenua values. The fundamental position is that the direct discharge of wastewater to surface water is culturally unacceptable. A challenge is finding the balance between treatment provision, movement through Papatuanuku and discharge in an environment with extreme weather events, geological constraints for discharge to land.

2.2 PURPOSE OF THIS PLAN

The key objective of asset management (AM) is to provide levels of service (LOS) in the most cost-effective manner while demonstrating responsible stewardship of resources for present and future customers. Asset Management Plans (AMP) are a significant component of the strategic planning and management of Council, with links to the LTP, 30 Year Infrastructure Strategy and service delivery plans including service contracts.

The AMP underpins the LTP and consultative processes that have been put in place to engage the community. In addition, the AMP demonstrates to our stakeholders, including our customers, the effectiveness of our AM decision-making processes.

The AMP delivers a range of benefits to the community as well as to the provider of the services, the main ones being:

- Maintain, replace and develop assets over the long term to meet required delivery standards and foreseeable future needs at minimal cost.
- Continually improve AM practices and service delivery to the customers.
- Comply with Statutory Requirements.
- Provide a sustainable healthy environment.

This plan has been written to provide the information required for good AM planning as set out in:

- Council's legal obligations under the LGA 2002
- Good asset management planning requirements as set out in LGA 2002 Schedule 10
- Office of the Auditor General (OAG) industry advice notes and reports
- International Infrastructure Management Manual (IIMM), published by the New Zealand Asset Management Support (NAMS).

The plan covers a period from 1 July 2021 to 30 June 2031, with a focus on the work programmes planned for the next three to five years. It reflects Council's focus on achieving an optimal balance between the key elements of AM, which are service levels, cost and risk. As it is a working document, the AMP also describes the areas where we believe our asset management processes, systems and data can be improved.

New Zealand Infrastructure Commission - Te Waihanga strategy and plans, National Policy Statement (NPS) for Freshwater Management 2020, Taumata Arowai Water Services Regulator Act and Horizons One Plan for resource management will influence planning decisions. Information in these documents and others has been used in the development of this Plan. Horizons Regional Council (HRC) is currently reviewing One Plan with potential implications for how Council operates with regard to land use changes, resource consents and implementation of freshwater legislation.

Four of the six wastewater plants are under the resource consent renewal process during this AMP period. Council recognises and is managing increasing stakeholder expectations, localised areas of increased demand and provincial commercial limitations. The timing to obtain resource consents and build new infrastructure, influences planning for developments which is not certain.

Council's application to the Tourism Infrastructure Fund to investigate wastewater land passage for Ohakune and Raetihi has been completed with the Wai group. To achieve land passage treatment (nitrification) by wetlands in the Ruapehu cold climate is not considered the most reliable method, the whole of life cost of wetlands is significant outlay and ongoing operational cost also need to be considered. The freshwater programme will require a high level of nutrient treatment, which is something oxidation lagoons were not designed to deliver. This all suggests a centralised treatment plant would be a better option. Council has a second grant to undertake a feasibility study for a centralised plant and will be completed during this LTP period.

The Wastewater AMP has been reviewed by Council alongside AMPs for the other Council activities including land transport, water supply and stormwater networks, as part of the 2021 LTP process. This review considers the overall impact of the proposed plans and their cost to the Ruapehu community. Enabling priorities to be established considering the community's ability to pay, particularly with the impact of the economic recession due to the global pandemic event or additional funding being provided to stimulate the local economy. The process can result in some projects being deferred or reductions to ongoing programmes and / or may result in acceleration of other projects.

Council has provided input into a separate AMP covering the Whakapapa village wastewater assets (owned by DOC). This will not be required in future once the management of the wastewater assets are handed back. Council has not held the responsibility to achieve resource consents for this plant, however, has participated in options considered by DOC.

2.3 ASSETS AT A GLANCE

Council is responsible for the provision and management of six wastewater treatment schemes at National Park, Ohakune, Rangataua, Raetihi, Pipiriki, and Taumarunui. In Waiouru, Council own and operate the wastewater network (collection and two pump stations only) outside the military base and purchases the treatment and disposal services from the New Zealand Defence Force.

The wastewater network is made up of a mix of assets:

- A network of pipes including manholes and service connections
- Pump stations
- Treatment plants including screens, lagoons, disinfection units, aeration equipment, rock filters and wetlands.

The wastewater assets had a gross replacement cost of \$53.1 million as at 1 July 2020. A summary of wastewater assets is presented in Table 4 by township (refer to Section 6.2 for detail). This shows that Taumarunui and Ohakune are the main reticulated townships.

Table 4: Summary of wastewater assets

Township	Rateable properties connected	Wastewater pipeline length (km)	Manholes	Wastewater Pump Stations	Wastewater Treatment Plants
National Park	317	6.12	89	0	1
Ohakune	1,514	26.87	422	1	1
Pipiriki	19	2.01	16	1	1
Raetihi	508	12.74	151	3	1
Rangataua	199	4.09	33	1	1
Taumarunui	2,140	49.22	700	10	1
Waiouru	81	2.44	23	2	1 ²
Total	4,778	103.5	1,434	18	6

Source: AssetFinda (as at 30 June 2019)

Customer / Council ownership

Council is responsible for maintenance of the wastewater system from the property boundary. All pipes and drains beyond the property boundary are owned by, and are entirely the responsibility of, the property owner.

2.4 STRATEGIC CONTEXT

2.4.1 Strategic overview

The strategic context of the strategic and planning processes for the wastewater activity is conceptualised in Figure 2 and Part 1. It shows the relationship between legislative requirements and regional policies and standards driving local government planning processes. The AMP informs the 30 Year Infrastructure Strategy of the asset issues and provides the technical information and evidence for the long-term investment programmes. The AM Policy provides the broad framework for undertaking AM in a structured and consistent way.

It is influenced by a range of factors including:

- Global trends such as climate change, economic recession and economic stimulation packages
- National drivers and legislation changes such as the three water reforms, Taumata Arowai, freshwater management and Zero Carbon Act
- External requirements such as Audit New Zealand and OAG capability guidance
- Internal requirements such as levels of service, community affordability and demographic changes.

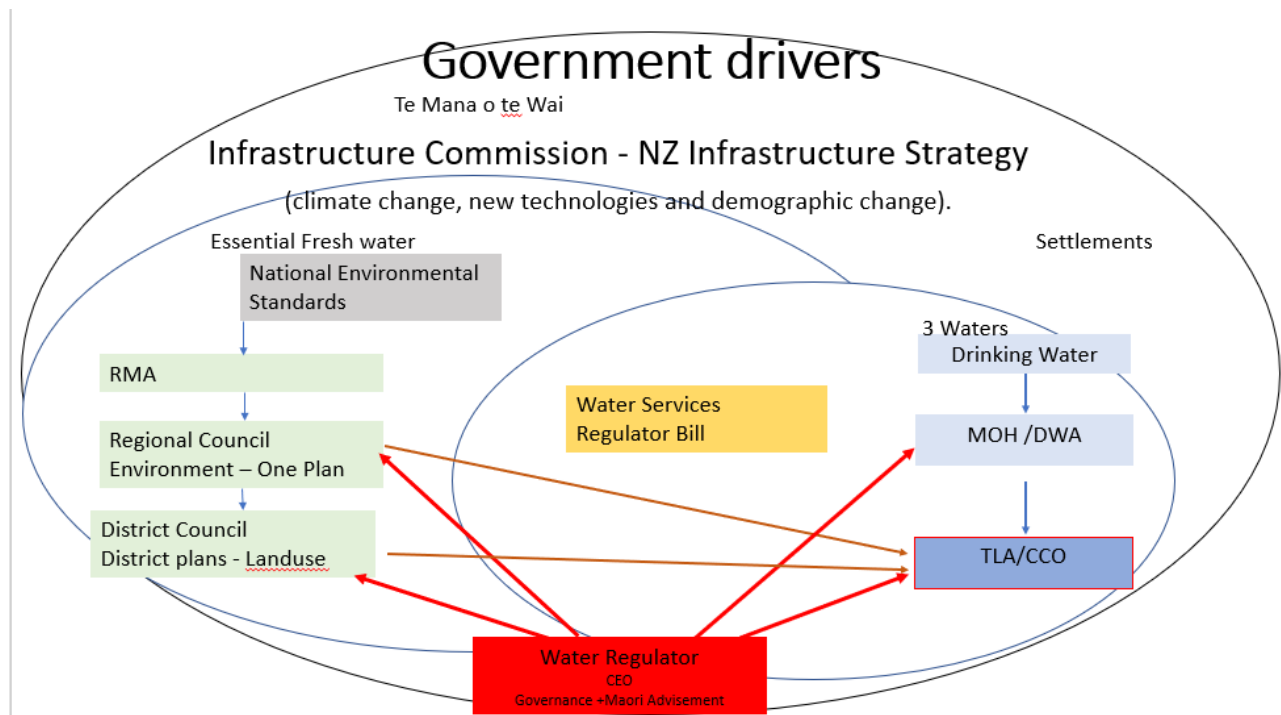
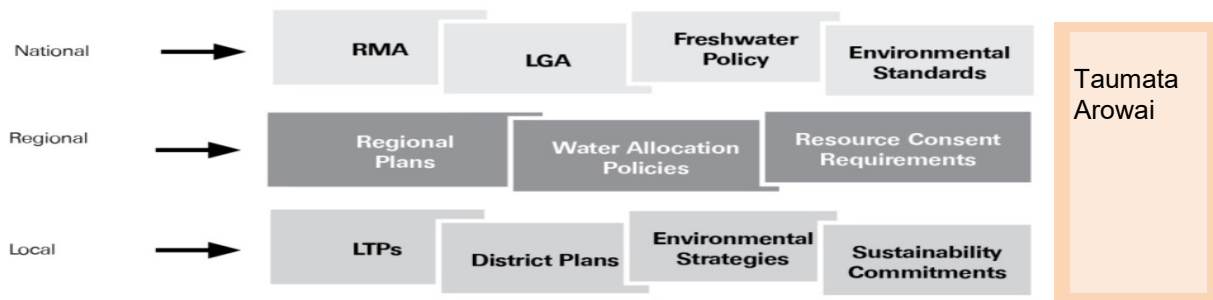


Figure 2: Key strategic planning framework

2.4.2 National context

This section set out the strategic objectives at a national level that directs the wastewater activity and this AMP. These key strategic documents are summarised in Table 7.

There are significant legislation and policy changes that will impact the wastewater activity including the three waters reforms, freshwater management, Zero Carbon, Treaty Settlements, economic impact due to COVID 19. Water reforms and changes to legislation are significant as it has signalled major structural changes to the service delivery model. This will be the most significant issue for Council to consider in the 2021 LTP process.

Three water reforms:

The New Zealand Government announced its packages of three waters reforms in 2019 in response to the Havelock North water contamination outbreak. Key features include a dedicated water regulator, Water Services Bill, extending regulatory coverage to all water suppliers (except individual households), strengthening the stewardship of wastewater and stormwater with Regional Councils remaining primary regulators, and transitional arrangements of up to five years.

The Taumata Arowai Water Services Regulator Act has been passed and the complementary Water Services Bill is expected to be passed in 2021. Taumata Arowai is being created to regulate drinking water.

The objectives and general functions include:

- Protect and promote drinking water safety and related public health outcomes
- Effectively administer the drinking water regulatory system
- Build and maintain capability among drinking water suppliers and across the wider industry
- Give effect to Te Mana o te Wai, to the extent that Te Mana o te Wai applies to the functions and duties of Taumata Arowai
- Provide oversight of, and advice on, the regulation, management, and environmental performance of wastewater and storm water networks
- Promote public understanding of the environmental performance of wastewater and stormwater networks.

A Water Service Bill will provide the regulatory system that Taumata Arowai will administer. Regional councils will continue to be the regulator for wastewater and stormwater systems. The intent is that Taumata Arowai's oversight of wastewater and stormwater functions will not commence until 2023. The initial focus will be weighted to wastewater.

In February 2020, the Government signalled that water suppliers must consider changes to their delivery methods with the preferred outcome being semi-regional / regional / multi-regional or national suppliers. The specific objectives that are important with the new service arrangements are:

- Significantly improving the safety and quality of drinking water services, and the environmental performance of wastewater and stormwater systems
- Ensuring that all New Zealanders have equitable access to affordable three waters services
- Improving the coordination of resources and unlocking strategic opportunities to consider New Zealand's infrastructure needs at a larger scale
- Increasing the resilience of three waters service provision to both short and long-term risks and events, particularly climate change and natural hazards
- Moving the supply of three waters services to a more financially sustainable footing, and addressing the affordability and capability challenges faced by small suppliers and councils
- Improving transparency about, and accountability for, the delivery and costs of three waters services, including the ability to benchmark the performance of service providers.

Wastewater treatment centralisation is likely to mirror drinking water supplies. Centralisation is likely to include the extension of collection pipes, and treatment into the communities supplied drinking water over time.

Freshwater management:

The Government's Action for Healthy Waterways package sets higher standards around the cleanliness of swimming spots, includes a new bottom line for nitrogen toxicity, sets controls for farming practices like winter grazing and how much synthetic fertiliser is used, and requires mandatory and enforceable farm environment plans. There are new requirements with the National Policy Statement for Freshwater Management 2020 including giving effect to Te Mana o te Wai, improving degraded water bodies, and maintaining or improving all others using bottom lines, and an expanded national objectives framework.

Zero Carbon - The new Zero Carbon Act means Council will need to consider opportunities for reducing the carbon emissions it generates.

Economic impact – The impact of the global pandemic event and flow on effects of the lockdown will have major changes to the national and local economies. It is expected to have smaller impact on Ruapehu District than others as its heavily rely on primary production as well as domestic tourism. The loss of international tourism should not be under-estimated for longer term impacts. Local government will play critical role in the recovery with the construction sector.

Council's response is to develop Recovery Programme including rethinking the shape of future tourism, assessing projects for immediate action and supporting others in the district with their application and employment strategies. Council has applied for \$5.6 million from the Government's three waters stimulus grant. The application is mainly for water upgrades but also includes preparation for three water reform covering wastewater. The primary spend will be focused on improvements to drinking water supply, wastewater treatment and then stormwater.

The Government funding once approved is for use outside of the Annual Plan budget 2019 to 2022. Funding will enable some projects to be brought forward delivering upgrades earlier and generating more employment. Refer to Section 9.3 Funding Strategy for further details.

The predicted number of people employed with the water upgrade projects is 21 full time equivalent (FTE) based on the \$5.6 million application. This is based on the ratio of every \$2 million water upgrades invested generally employs 7.5 FTE from Council's experience.

Treaty Settlements – The Government is actively engaged in treaty settlement with Maori. However, the mechanism of delivering settlement and governance has been left to regional and local government to consider delivery, which are being progressed alongside other changes.

The direct discharge of wastewater into the awa is culturally offensive. With treatment plant improvements and upgrades, an appropriate land passage must be incorporated.

2.4.3 Regional context

Council collaborates in the Manawatu-Whangau Region with the following initiatives in response to the legislative and policy changes:

- **Regional Three Waters Service Delivery Study** – The councils located in the Region undertook a collaborative study in 2018 to identify a preferred three waters management option. The study participants include Manawatu District Council, Palmerston North City Council, Tararua District Council, Horowhenua District Council, Whanganui District Council, Ruapehu District Council, Rangitikei District Council, and Horizons Regional Council. The study involved an asset stocktake, analysis of resources and funding, and engagement with Council local representatives.

A regional agreement has been formed for a staged approach to increasing regional coordination to build a strong alliance and maximise benefits for the region's communities. This regional study will provide useful information into the Government reform irrelevant of the final structure to be implemented.

- **One Plan** - This is the single resource management planning document for the Horizons Region. It combines the Regional Policy Statement, Regional Plan and Coastal Plan. The One Plan addresses most of the National Policy Statement (NPS) for Freshwater Management 2020 requirements. It identifies community values and numerical objectives and takes an integrated approach to improving water quality.

The main requirement of the NPS for Freshwater Management 2020 that the One Plan does not address is catchment limits, which link instream outcomes with actions on land. Catchment by catchment approach to freshwater management is proposed. Proposed Plan Change 2 is focused on the One Plan's provisions that manage nutrient loss from existing intensive farming land uses (dairy farming, commercial vegetable growing, cropping, and intensive sheep and beef) in target water management sub-zones. The plan will also need align with Taumata Arowai Water Services Regulator Act and incorporate Te Mana o te Wai into the One Plan.

The proposed roles under the Water Services Bill for wastewater and stormwater systems are:

- **Regulator** - Regional councils will continue to regulate wastewater and stormwater systems under the Resource Management Act.
- **Oversight** - Taumata Arowai will have a national oversight / transparency role for stormwater and wastewater. It will publish an annual report on environmental performance of wastewater and stormwater systems owned by territorial authorities and the Crown, and their compliance with requirements like resource consents. It will also highlight poor practice and recommend action.
- **Policy** - The Ministry for the Environment is developing a National Environmental Standard on Wastewater, setting new requirements for wastewater systems and discharge.

2.4.4 Local context

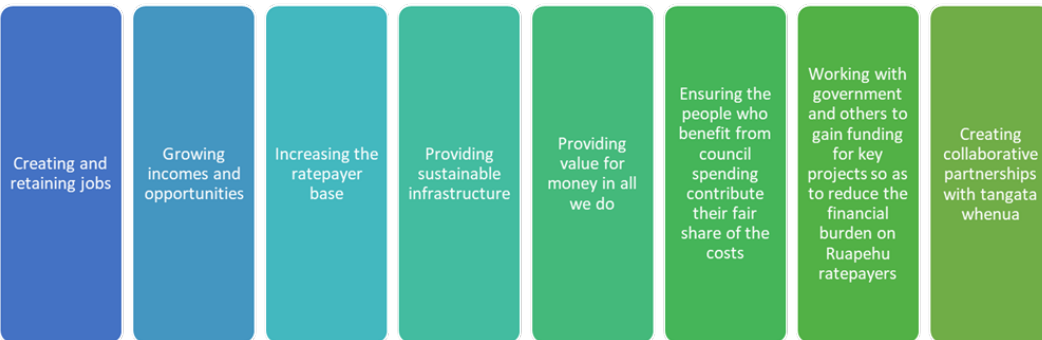
This AMP support's Council's Vision, Focus Areas and Outcomes. Council's Future Vision is to:



Drive and support the development of safe, prosperous rural communities that are able to thrive and capitalise on our agriculture, business and tourism sectors while sustaining our beautiful environment

Council Focuses

Improve the well-being and quality of life for our communities by:



Council's Focus Areas, and Outcomes it desires, are inspired by and support the Vision. Council has stated its core priorities in the form of Community Wellbeing Outcomes. These Outcomes are Council's true north for planning and decision-making. Every project that Council undertakes links back to at least one of the wellbeing outcomes. These are a key way we measure success.

The specific ways that infrastructure contributes to the Vision, Mission and Community Outcomes are best thought about by noting the following Outcomes:



Social – Safe, Healthy Communities

- Quality regulation, regulatory services and infrastructure
- Reduce the volume of waste to the landfill
- Core infrastructure endeavours to keep pace with changing demand
- Excellent standards of safety and welfare are promoted and respected
- Preparation, planning and timely responses protect people and property from natural hazards



Cultural – Vibrant and Diverse Living

- Traditions, values and history of all ethnic groups are respected
- Activities, facilities and opportunities for youth are provided and supported
- Excellence and achievement in sport, arts / cultural pursuits, community service and business is supported
- Events and festivals are encouraged and supported
- Working together with tangata whenua to achieve common goals



Environmental – Sustaining Beautiful Environments

- Our environment is accessible, clean and safe and our water, soil and air meets required standards
- The promotion of our District includes focus on our natural rivers, bush and mountains, as well as the built heritage, agriculture and railways



Economic – Thriving Economy

- Regulatory services and reliable infrastructure help the economy prosper
- Our transportation network is reliable, safe and endeavours to meet the needs of users
- Economic diversity and core economic strengths are encouraged in partnership with others
- Planning and regulatory functions balance economic growth and environmental protection



Strong Leadership and Advocacy

- Council advocates strongly for the provision of, and access to, affordable and effective health, welfare, law enforcement and education services
- Council is proactive, transparent and accountable

Council's strategic objectives for the wastewater activity are:

- To operate and maintain the wastewater assets efficiently to keep pace with changing demand
- To maintain continuity of the wastewater networks and provide treatment to protect public health and the natural environment
- Enhance the sustainability of environment, social, cultural and economic wellbeing of the communities.

Outcomes are the community's overall aspirations for the District's future. They drive all of Council's strategic and corporate goals and activities. Council carried out extensive community consultation in 2005 to develop community outcomes for the LTP 2012-22. This process identified desired Outcomes, from which a vision for the District was developed. Ongoing community engagement is outlined in Part 1, section 7 for 2021 LTP. Extensive consultation is undertaken as part of the LTP process including localised community meetings, iwi, youth engagement, and Facebook.

Council activities works and programmes are derived from the priorities that Council identified during the development of its Strategic Plans with its community. From the Outcomes, the management of the wastewater activity was determined to be driven by the following themes:

(a) *Safe, Healthy Communities*

Quality regulation, regulatory services and infrastructure

Core infrastructure endeavours to keep pace with changing demand

(b) *Thriving Economy and Lifestyles:*

Regulatory services and reliable infrastructure help the economy prosper

(c) Thriving Natural Environment:

Our environment is accessible, clean and safe and our water, soil and air meet required standards.

The linkages between the Community Outcomes and wastewater objectives and where these are addressed in the AMP are summarised in the following table.

Table 5: Strategic linkages

Community Outcomes	Outcomes	Wastewater Objectives	Addressed in AMP Sections
Strong Leadership and Advocacy	<ul style="list-style-type: none"> Council advocates strongly for the provision of, access to affordable and effective health, welfare, law enforcement and education services. Council is proactive, transparent and accountable. 	Encouraging community and stakeholder participation through informed changes or initiations for three waters service delivery. Actively participating in treaty settlement and co governance of waterways.	Levels of Service Community Consultation Lifecycle Management Stakeholder meetings
Safe, Healthy Communities	<ul style="list-style-type: none"> Quality regulation, regulatory services and infrastructure. Core infrastructure endeavours to keep pace with changing demand Excellent standards of safety and welfare are promoted and respected. Preparation, planning and timely responses protect people and property from natural hazards. 	Managing the network with a strong focus on safety, adaptation and resilience to avoid or mitigate significant hazards and increase the resilience of the network.	Growth and Demand Levels of Service Community Consultation Lifecycle Management
Thriving Natural Environment	<ul style="list-style-type: none"> Our environment is accessible, clean and safe and our water, soil and air meets required standards. The promotion of our District includes focus on our natural rivers, bush and mountains, as well as the built heritage, agriculture and railways. 	Respect and enhance the mauri of the Rivers. Regenerate native biodiversity. Invest in infrastructure that serves to protect, enhance, and preserve the environment.	Levels of Service Lifecycle Management

Table 6 shows outcomes Council seeks to achieve, levels of service, how progress towards achieving targets is monitored and the supporting practices and information that enable Council to plan and monitor activities. There is more detail on the KPIs in Section 3.

Table 6: Strategic linkages with levels of service

Community Outcome	LOS	KPIs	Performance	Supporting practices
Safe, Healthy Communities	Quality wastewater	Compliance with resource consents measured by number of: (i) abatement notices (ii) Infringement notices (iii) Enforcement orders (iv) Convictions	<ul style="list-style-type: none"> Perception Compliance Customer satisfaction 	<ul style="list-style-type: none"> WSSA Treatment Plant Operational Management Management with Consent Conditions
	1. Infrastructural stewardship	Dry weather overflows	<ul style="list-style-type: none"> Pipe chokes and breaks Dry weather overflows Wet weather overflows 	<ul style="list-style-type: none"> AMP / LTP Flushing Programme Risk Management Emergency Action Plan Pressure Management Manholes rehaunching replacement Planned Capital programme Lifecycle management

Community Outcome	LOS	KPIs	Performance	Supporting practices
	2. Responsiveness	Attendance time: from time that the territorial authority receives notification to the time the service personnel reaches the site. Resolution time: from the time that the territorial authority receives notification to the time that service personnel confirm resolution of the blockages or other fault.	<ul style="list-style-type: none"> • Changes as per LTP • Service restored • Customer Satisfaction • Complaints • Fair price • Continuous collection • Customer Service 	<ul style="list-style-type: none"> • Management of Operations and Maintenance Contract • Competitive Contract Tendering • Development Contribution Process • Benchmarking • Annual Customer Survey • Pump station flow/meter/rainfall • Resource/Building Consent Management • Customer information/Advice/Asset Database • AMP/LTP Public Consultation – LoS • Energy Efficiency
Thriving Natural Environment	Environmental Sustainability	<ul style="list-style-type: none"> • Growth Planning • Infrastructure Strategy 	<ul style="list-style-type: none"> • Demand Management • Supply Management • Consent Compliance • GIS and network damage 	<ul style="list-style-type: none"> • AMP/LTP • Strategy Water Supply (reduce volume into the wastewater system) • Sustainable Policies and Bylaws • Energy Efficiency Reviews • Environment clean up responses • Wetland planting • Capital Works Programme • Project Database/Evaluation

Community affordability:

Community affordability is a significant issue facing our District. Ruapehu District continues to experience higher levels of deprivation compared to other parts of the country. The potential impacts of the legislative and policy changes with the three waters reforms and freshwater management requirements may not be affordable for our community. The Financial Strategy will become more transparent as the three water reforms are implemented.

The changes to address the high standard required for wastewater treatment are complex, challenging to resolve and very costly. Ruapehu District has a small rating base to share these significant costs. We need to make cost effective decisions to meet the various compliance requirements as well as being affordable for our community as well as improved environmental outcomes.

To partially address the costly wastewater infrastructure upgrades to meet legislative requirements and service levels, Council has been partially successful in gaining external Government funding. This is important for a rural district council with a small rating base. Refer to Section 9.3 Funding Strategy for further details.

Council wishes to make a step change in investment in core infrastructure, particularly for water supply and wastewater activities. The 2021 LTP signals that we cannot keep the capital investment and debt levels so it is affordable for our community. We must undertake these works in order to provide safe drinking water and public health to our community and the environment. Refer to Financial Strategy for further detail.

Council has undertaken the Ruapehu Liveability and Wellbeing Study to better understand community affordability at a local level. Council is working with community partners to provide data on local trends. Community partners include Waikato District Health Board; Whanganui District Health Board; Women’s Refuge; Kokiri Trust; Ngāti Rangī; Taumarunui Sustainable Land Management Group; the Taumarunui Ministry Social Development branch; King Country REAP; St John; The Lines Company and Age Concern. There will also be community focus groups in the townships. The study framework covers housing, health, education, employment, environment, accessibility and social wellbeing areas. The study will help inform a District Wellbeing Strategy which will be used to assist Asset Management Planning, LTP and all other strategic plans where appropriate in the future.

Local Government Excellence programme:

The CouncilMARK programme is designed to improve the public's knowledge of the work councils are doing in their communities and to support individual councils to further improve the service and value they provide. It is administered by under the Local Government NZ (LGNZ) excellence programme.

Council received an inaugural rating of BB in 2017. This rating indicates that Council is performing well given the challenges of being a small organisation which services a geographically large district with challenging social demographics. Its management of infrastructure and community engagement are particular strengths. Of the four priority areas finance was identified as an area needing improvement.

Since the review, Council's finance department has been implementing a rebuilding programme to improve and develop its capabilities which has included investing in new people, training and information technology.

2.4.5 Key planning documents

AMPs are a key component of the strategic planning and management of Council with strong links to other Council strategies and policies, external agency strategies and policies, and to legislation and other regulatory instruments (refer to Figure 2).

The key planning documents linked with the AMP are shown in the following table. Additional standards are covered in Table 13 and Table 14.

Table 7: Key planning documents

Document	Summary	Frequency
National Context		
NPS for Freshwater Management 2020	The Government is proposing wide-ranging, staggered and long-term improvements to how freshwater is managed in New Zealand. The reforms would create a water management system that allows more transparent, better targeted and informed decisions on freshwater. Businesses and water users would have more certainty so they can plan and invest.	Ongoing
New Zealand Infrastructure Commission (Infracom) – Te Waihangā	National Infrastructure Plan 2010, 2011 and 2015, 2013, National Infrastructure report to Treasury has been replaced with Legislation on 25 September 2019 with this autonomous independent board. Infracom seeks to lift infrastructure planning and delivery to a more strategic level and by doing so, improve New Zealanders' long-term economic performance and social wellbeing. The 30 Year Infrastructure Strategy will assess the fitness for purpose of New Zealand's infrastructure system as a whole, determining how well it's working, identifying priorities, barriers to good outcomes and publishing a long-term capital intentions plan. The Treasury also provides AM guidance which needs to be considered.	Three yearly work programmes
Audit New Zealand, Office of the Auditor General Guidance Notes and findings	Stocktake of how physical assets that deliver services to the public are managed. Good planning, managing according to the plan and understanding of asset condition are integral to good management of public assets. Various guidance notes and findings from auditing the LTP process.	Three yearly
Non-Financial Performance Measures Rules 2013, under section 216B of LGA 2002	Department of Internal Affairs set out mandatory performance measures that all local authorities must use when reporting to communities. This provides consistent information about the levels of service locally and across the country for core services including three waters.	Ongoing
Regional Context		
The One Plan – Horizons Regional Council	This is the regional plan for resource management over the next 10 years and became operative in April 2013. The One Plan can be described as a 'one-stop-shop' regional planning document that defines how the natural and physical resources of the Region (including fresh air, clean water, productive land and natural ecosystems) will be cared for and managed by the Regional Council in partnership with territorial authorities and the community. The four keystone issues identified in the Plan are surface water quality degradation, increasing water demand, unsustainable hill country land use and threatened indigenous biological diversity. The guiding document for the One Plan is the RMA and national policies and regulations such as the NPS for Freshwater Management. The One Plan will be amended to reflect the 2020 NPS through their regional plans as required.	Being reviewed by chapter
Local Context		
District Plan	The District Plan is the guiding document, which directs how we change, develop and use our environment, as well as our obligations for protecting and safeguarding it for future generations. The District Plan is under review by chapter with focus on the housing development and industrial land zones.	Reviewed by chapter
Community Concept / town Plans	Towns and communities have been encouraged to produce their own vision for their community, including township revitalisation. These plans inform the individuality of the community and enable decisions to be considered that are mindful of that community across all other plan and strategic considerations.	As the Community presents these to Council
Bylaws, Standards and Polices	Provide specific guidance and management tools to deliver asset management strategies and tactics.	Ongoing
Annual Plan	A document that updates information reported on within the LTP including its objectives, intended activities, performance, income and expenditure. The AP shows how that year of the LTP will be funded and will provide detailed financial forecasts for the first three years, with summary forecasts provided for years 4 to 10.	Produced in the intervening years

Document	Summary	Frequency
		between LTP
Ruapehu Economic Development Strategy 2018-2028	This is a refresh of the 2014 Economic Development Strategy to better unlock potential opportunities. It also reflects the stronger role of Central Government in regional economic development. A document that gives direction and a framework for making decisions, undertaking actions and building change that drive economic outcomes.	Three yearly
Growth assumptions	A document that gives direction and a framework for making decisions, undertaking actions and building change that drive economic outcomes. Summarised in Part 3, Section 4 of this AMP. This has been reviewed with the impact of COVID-19 particularly for tourist demand domestically and internationally.	Three yearly
Network studies	These studies provide the master plans for managing the wastewater networks and pumping stations now and in the future, identify issues and takes into account network capacity and performance. These are supported by hydraulic modelling.	As required
Condition assessments	Assess the condition and performance of wastewater infrastructure assets to assist with the operation of the wastewater system and inform AMPs.	Yearly rolling programme
Infrastructure Asset Valuations	Provides valuations of infrastructure assets using industry accepted methods of valuation as found in the NZ Infrastructure Asset Valuation and Depreciation Guidelines.	Yearly
Resource consents and compliance audit reports	Establish the limits for, and monitor compliance with, operations of wastewater treatment and discharges. Assets must be maintained and renewed to ensure ongoing compliance with consents and enable consent renewal.	Annual compliance reports
Industry context		
The development of the AMP	The International Standard ISO 55000, IIMM and Office of the Auditor General industry advice notes and reports.	As published
National Performance Reviews (NPR)	Water New Zealand's NPR is an annual benchmarking exercise of New Zealand's drinking water, wastewater and stormwater services. Participation is voluntary. Council has participated in the last five years.	Annually
AMPs	All other AMPs which provide information around Land Transport, Water Supply, Stormwater, Waste Management and Minimisation, Recreational and Community Property Assets, their issues and work plans. These are used to identify points of overlap and efficiency options.	Three Yearly
AMP Peer Review	GHD Desktop Review of the Wastewater Asset Management Plan in 2014 and 2019. These reviews were used to formulate improvements to this AMP.	Three yearly (as good practice)

2.5 KEY ISSUES

There are significant challenges and interrelated complex issues for the wastewater activity including the Taumata Arowai and changes to legislation, cultural expectations for suitable treatment processes and the levels of land passage.

Key issues were identified for the 2021 AMP development through Council's knowledge and asset planning, and formally in a workshop using the investment logic framework. The key issues Council is managing as part of the wastewater activity are summarised in Table 8.

Table 8: Key wastewater issue summary

Key Issues	Potential Impacts	Refer to AMP Section
Implications of the Government's Three Waters Reform on service delivery models	The most significant emerging issue is the Government's three waters reform programme. This will change how water services are delivered, potentially with aggregated water entities. Council's management response to the change in legislation has been to collaborate with the other councils in the Region to identify a preferred three waters management option. A regional agreement has been formed for a staged approach to increasing regional coordination to build a strong alliance. This AMP provides transparency on the current state of the District's wastewater assets and identifies the required upgrades to assist in the regional discussions. HRC, Taumata Arowai, iwi and the community will increase pressure to reduce the pollution of the natural waterways downstream of wastewater treatment facilities. The impact is that higher standards may be required in a short timeframe. Technology that is affordable for small councils does not appear to treat waste to desired low levels.	Section 2.4 Strategic Context and Section 3.3 Legislative Requirements
Understanding climate change impacts and land use	We are preparing for the impacts of climate change on the infrastructure assets as we are already experiencing impacts such as flooding. Ruapehu District is influenced by the Mountain and subject to intense weather events which may be short with a peak within two hours. Strengthening our infrastructure resilience is a key focus, particularly for our townships with more built infrastructure as Raetihi, Ohakune and Taumarunui (less impact for National Park village). The natural health of rivers is influenced by land use and climate change effects. With more warm weather and stable river flows creating more natural biological growths (algae and diatoms) in the water, there is less capacity of the river to naturally assimilate wastewater.	Section 5 Managing Risk

Key Issues	Potential Impacts	Refer to AMP Section
Community affordability	The potential impacts of the legislative and policy changes with the three waters reforms and freshwater management requirements may not be affordable for our community. There are many schemes serving small resident populations which will require upgrades to meet higher environmental standards as consents expire.	Section 3.3 Legislative Requirements, Section 6.3 Asset Performance and Section 9.3 Funding Strategy
Network resilience versus economies of scale	Having six treatment plants at significant distances from one another does not provide for economies of scale. Joining plants may provide economies of scale but they reduce the resilience from additional treatment point should one system not perform well. The Waimarino networks (Ohakune and Raetihi) townships growth may see network collection systems join which will make a single treatment system viable in the future.	Section 6 Programme Case
Plant upgrades and discharge methods	Treatment plants are being upgraded to meet new resource consent conditions which are more stringent. These may require significant capital works to meet new environmental water quality and cultural concerns, which may not be sustainable for the community to afford. Council plants are lagoon based technology and will require a step change to extended treatment systems to deliver nutrient removal.	Section 6.4 Asset Performance
Resource consents for plants and lengthy consent process	Resource consent renewals for Rangataua, Raetihi, Ohakune and National Park wastewater treatment plants have been lodged. Consents are on hold while more information is gathered, and discussions continue with HRC and iwi.	Section 6.4 Asset Performance
Discharge through the land and cultural expectations	HRC have indicated Council will not achieve consent without land disposal. Land disposal treatment system is not feasible over the year due to climatic influences on land systems. Council have been successful in securing Tourism Infrastructure Funding to undertake a Feasibility study around land passage. There are cultural expectations for suitable treatment processes and the levels of land passage required to meet mana whenua values. The fundamental position is that the direct discharge of wastewater to surface water is culturally unacceptable. A challenge is finding the balance between treatment provision, movement through Papatuanuku and discharge in an environment with extreme weather events, geological constraints for discharge to land.	Section 6.4 Asset Performance
Future Growth	Currently Ohakune Wastewater Treatment Plant largely meets the One Plan. Future growth will produce a tipping point where the treatment technology will need to change. RAL and greater Waimarino septage servicing needs to be accounted for at this plant.	Section 4.4 Meeting Growth
Sludge management	Future plant changes will generate greater volumes of sludge which will require increased management, handling and disposal processes. While this is not currently a major pressure, it will be in the future and needs to be considered across plants. The new / upgraded plants will have large carbon footprints and will generate greater volumes of sludge. This will potentially generate increased greenhouse gases. There will also be ongoing operational costs.	Section 6.4 Asset Performance
Limited catchment planning	There is limited catchment management planning across the District to understand network performance and capacity. The impact is that there is not enough capacity in critical points of the networks potentially causing overflows when the system is overloaded in dry and wet weather.	Section 6.4 Asset Performance

A workshop with key stakeholders in 2018 identified the District's key wastewater issues and problems using investment logic mapping framework. The Problem Statements were revised as part of the 2021 AMP update to reflect the latest national, regional, and local influences, as summarised below.

Table 9: Wastewater Problem Statements

Revised Problem Statements	Evidence of the Problem
<p>1. Changing legislation and regulations Government is implementing three waters reform including creating standalone Crown entity Taumata Arowai to regulate the Water Services Bill. This structural reform will have a significant impact on local government with three water service likely to be regionalised. There is also a suite of legislative and regulation changes to improve the current management of freshwater.</p>	<ul style="list-style-type: none"> • Cabinet papers on standards or Acts: • Water Services Bill with five year transition period • Zero Carbon Act • Freshwater Standards • Natural and Built • Responsive civil service (CD) • Regional Council's One Plan review
<p>2. Growth of wastewater demand Illegal private connections, damaged pipe connections coupled with rain events results in overflows of sewage/untreated water into the environment and also increased volumes requiring wastewater treatment.</p>	<ul style="list-style-type: none"> • Storm events resulting in more infiltration and ingress into the wastewater system • Third party damage to pipes more difficult to detect with trenchless solutions being used • Increased reactive maintenance and emergency response costs and activities associated with storm events and land slips. • Low economies of scale with low number of people in town sites causes high per unit costs • High peak demand at tourist hotspots

Revised Problem Statements	Evidence of the Problem
<p>3. Network is impacted by aging infrastructure and geology The aging and failing pipe network for wastewater will result in increased levels of renewals and / or decreased levels of service and reactive investment</p>	<ul style="list-style-type: none"> • High number of AC pipes nearing the end of their useful life will require increased investment or intervention technology • More pipe breaks, chokes or blockages which may result in more overflows from sewerage systems into the environment • Increased reactive maintenance, deterioration of pipes and lower levels of service
<p>4. Community affordability Growth in the volume of waste treated (from population and industry) will result in upgrades or changes to processes and associated activities. The wastewater infrastructure needs to meet legislative requirements including freshwater standards, resource consent conditions and provide for current and future demand. These factors will drive upgrades but only a small rating base to spread the financial burden.</p>	<ul style="list-style-type: none"> • Capacity of wastewater collection system, and treatment issues with more growth • Step change in treatment technologies required to meet new resource consents for each plant • Stock trucks and other industries discharging into the infrastructure

The Key Performance Indicators are used as trackers to indicate if the problem areas are being resolved, maintained or continue to deteriorate. DIA have set of benchmarks with are used to assess the key performance targets (refer to Section 3.6 Service Level Summary).

2.6 SUSTAINABILITY OUTCOMES

2.6.1 What is Sustainability?

A sustainable approach to operating practices is about considering the inter-relationships between economic, social, environmental and cultural well-being when making short and long term decisions. From an AM perspective, sustainability is vital as many assets have a long lifespan and the asset itself must be future proofed in order to meet the needs and expectations of future generations.

Local government functions are guided by the LGA 2002 and the RMA 1991. Both of these statutes require councils to address economic, environmental, social and cultural sustainability in decision making and activities.

The concept of sustainability is important for government organisations, whether they be central, regional or local, due to the responsibility to manage society's resources in a manner that is in the best interest of all. For local government this means it is about planning and providing for the needs of individuals and communities, protecting ecosystems and their services and creating prosperity when delivering services, including reticulated water supplies. These various and sometime competing interests need to be weighed when making decisions about goals, objectives, priorities and investment.

A sustainable wastewater system should operate within resource consent limits, not deplete or exhaust water resources or generate unacceptable waste or cause pollution.

Sustainability is also encouraged through regulations such as Council's Trade Waste and Stormwater Bylaw 2019 which regulates the discharge of trade waste to the wastewater system, and discharges to the stormwater system, operated by Council or its agents. This bylaw helps control the quantity and composition of industrial sewage flows. Water conservation programmes also help reduce the waste produced.

Technological enhancement such as SCADA has enabled Council to receive alarms and allow intervention early to alleviate losses to service. Sustainability is not limited to operation of the system. It can include, for example, extending the projected life of current wastewater treatment by increasing the life of current wastewater collection systems by lining the pipes, and greenfield development having greywater cycling systems. Sustainability is integrated into the planning and operational processes.

The One Plan and National Environmental Standards set targets / standards and parameters to protect the environment. Treatment plant technologies which deliver to the resource consent will be designed to achieve these results. Council has been analysing its current wastewater treatment plant performance and effects on the environment for each plant to understand and improve the plant sustainability.

There is an opportunity to take leadership in climate resilience and adaptation to reduce the environmental impact. The future demand is dependent on how well it is planned for now. Understanding our community needs, introducing resilient technologies and providing consumer education will reduce our environmental impacts. Wastewater treatment technologies can produce a significant amount of greenhouse emissions through power consumption. Climate change mitigation will be a driver of technology choice in the future for our wastewater plants.

Council's Facilities Management Contractor Veolia operate under a Quality Management Plan for the delivery of three waters, operations and maintenance. They also have policies in quality, environment, governance, risk and compliance, work health and safety and learning and development which support sustainable outcomes.

2.6.2 Sustainability Frameworks

It is good practice for entities to have a sustainability framework to ensure performance is aligned with recognised standards to drive long term change, support sound decision making and for transparent reporting. Council's mayor has signed up to the United Nations' Sustainable Development Goals (developed by the 193 member states).

It is important to recognise that incorporating sustainability into planning and then into the provision of services is a long term process. At this point in time, the Sustainable Development Goals still need to be integrated into Council's decision-making frameworks. Council still needs to develop its own sustainability framework considering the Sustainability Development Goals (for example Goal 6: clean water and sanitation) and The Treasury Living Standards Framework. This considers the impact on intergenerational well-being across the four wellbeings.

2.7 POTENTIAL EFFECTS

There is recognition of the potential effects both positive and negative resulting from the wastewater activity which Council manages as outlined in Table 10.

Table 10: Summary of effects

Potential Positive Impact	Potential Negative Impacts	Mitigation
Environmental		
Centralised public wastewater services collect and discharges wastewater limiting the environmental impact.	The potential for emissions to affect climate, and especially 'global warming', including the effect of certain substances on the ozone layer.	Council is committed to understanding the impacts of climate change on public infrastructure and mitigates this through advice from central government agencies.
	Environmental damage during construction of new works.	Environmental damage is mitigated through resource consent conditions which are specified in the contract document and monitored closely during the implementation of physical works.
	Environmental degradation of receiving water from wastewater overflows.	Council continues to monitor watercourse water quality in conjunction with Horizons Regional Council.
Economic		
Infrastructure provides for township growth	The cost of investment in infrastructure.	Council is committed to implementing cost-effective solutions as part of successful asset management. Levels of service have been set with consideration to community affordability and efficiencies are sought on an ongoing basis.
	Significant costs and time to implement the upgrade and overflow reduction improvement projects.	Council is committed to improving the natural environment but acknowledges that it takes time to make significant improvements.
	Significant compliance costs for developers and businesses and individual households.	Council is transparent with its compliance costs with the development community as practicable.
Social		
Safe environment for the community.	Disruption to individual property owners during new works construction.	Construction is undertaken in such a way as to minimise effects to property owners and to keep them fully informed of the proposed work.
The public wastewater service reduces the risk of waterborne diseases spreading through the community.	Property damage resulting from mains failure or sustained leakage overtime.	The development of the AMP to plan for replacement and upgrades in a timely manner.
Culture		

Potential Positive Impact	Potential Negative Impacts	Mitigation
<p>Our environment is protected and our waterways are safe places for our community to enjoy.</p> <p>Provide support to the iwi principle</p> <p>“E rere Kau mai ana te Awa nui mai I te Kahui Maunga Ki Tangaroa. Ko au te awa, ko te awa ko au”</p> <p>“The mighty river flows from the mountain to the sea. I am the river and the river is me.”</p>	<p>Te Mana o te Wai. Contamination of the rivers is unacceptable to Iwi.</p>	<p>Council is committed to improving the receiving environment through regular communication with Iwi and capital works programmes to reduce overflows.</p> <p>Council has consulted extensively with iwi on the renewal of resource consents for Raetihi, Ohakune and National Park wastewater schemes. While the only acceptable option for discharge of treated wastewater for iwi remains to land, iwi have worked with Council toward an affordable and acceptable compromise.</p>

2.8 PLAN STRUCTURE

The Wastewater AMP has been structured into three key parts to communicate the infrastructure requirements in the business case approach as shown in the following table, as well as the traditional AMP sections recommended by the IIMM.

Table 11: Plan structure

Business Case	Description	AMP Sections
Strategic Case	This part outlines the key issues and problems that Council faces and the benefits to stakeholders and customers of addressing these.	<ul style="list-style-type: none"> • Introduction • Provision of Services • Managing Growth and Demand • Managing Risk
Programme Case	This part provides evidence to support the investment proposed, clearly linking the investment back to the key issues we are facing and Customer Levels of Service.	<ul style="list-style-type: none"> • Programme Case • AM Practices • Financial Summary • Appendices – references.
Detailed Case	Part 4 provides the detailed evidence to support the investment proposed. This is the traditional lifecycle management plans for the wastewater schemes and by townships.	<p>Part 4 contains the appendices covering:</p> <ul style="list-style-type: none"> • Physical parameters for the schemes • Asset capacity / performance • Asset condition • Asset information by township • Risk register.

3 PROVISION OF SERVICES

3.1 INTRODUCTION

Council aims to provide safe and affordable water services to deliver the levels of service (LOS) in a sustainable manner over the long term. This section defines the LOS or the qualities of the service that the Council intends to deliver, and the measures used for monitoring. The adopted LOS supports the Council's strategic goals and is based on user expectations and statutory requirements as well as integration with national and regional strategies. Council's LTP is the primary document for determining and agreeing LOS and costs with the community and stakeholders.

3.2 CUSTOMERS AND STAKEHOLDERS

Council recognises there is a wide range of customers and stakeholders with an interest in how the wastewater activity is managed, including landowners, the resident community, visitors, specific interest groups within the community, iwi and other regional and central government agencies. Table 12 lists the key customers and the main stakeholders involved in the wastewater activity.

Table 12: Key customers and stakeholders

Customers	External Stakeholders	Internal Stakeholders	Co-Governance Partners
<ul style="list-style-type: none"> Residential, industrial and commercial wastewater users The community – citizens and ratepayers, businesses and industry, local Iwi Visitors to the District Manu Whenua 	Government agencies, including: <ul style="list-style-type: none"> Local Government NZ Office of the Auditor General Civil Defence and Emergency Management Ministry for the Environment DOC MBIE Waka Kotahi NZ Transport Agency Horizons Manawatu-Wanganui Regional Council Iwi Ruapehu District Maori Council Department of Internal Affairs Taumata Arowai Service Utilities Providers Environmental groups Consultants and contractors Developers Community Groups Neighbouring District Councils New Zealand Defence Force Federated Farmers and other Agriculture and Horticulture groups NZ Fish and Game Council 	<ul style="list-style-type: none"> Mayor, Councillors and Management Team Community Boards Corporate, Finance and Planning Team Transport, Water and Stormwater, Solid Waste, Activity Teams Community Development Team Recreation and Community Facilities Team IT Team Customers Services Team Building and Regulation Team 	<ul style="list-style-type: none"> Treaty Settlements. Current Iwi settlements are Te Awa Tupua (Whanganui River Claims), Ngāti Rangī and Ngāti Tūwharetoa. Maniapoto

3.3 LEGISLATIVE REQUIREMENTS

Statutory requirements have an impact on how Council operates to meet its stakeholder obligations. Key legislation affecting the wastewater activity are summarised in Table 13.

Table 13: Main legislation influencing wastewater activity

Legislation	Requirement
LGA 2002 Amendment Act 2010	<p>The LGA 2002 is based on a sustainable, effective, responsible, responsive and accountable local government being fundamental to achieving the long term wellbeing of communities. The LGA 2002 outlines the responsibilities of local government and the decision making process for activities undertaken on behalf of the community, primarily through the adoption of the Long Term Plan (LTP). The LTP identifies all Council activities, including land transport (as a key issue) and prioritises projects for future development based on the expected outcomes of the community.</p> <p>A key purpose of the LGA is the role of local authorities in meeting the current and future needs of communities for good-quality local infrastructure, local public services, and performance of regulatory functions in a way that is most cost-effective for households and businesses.</p> <p>AMPs are the main method of demonstrating Schedule 10 requirements.</p> <p>The legislation sets out a range of obligations, restrictions and powers, including requiring local authorities to assess their communities' needs for water, and wastewater and sanitary services, and placing an obligation on local authorities to provide water services to ensure continued public ownership of water services (Parts 7-9 and 11).</p> <p>The Water and Sanitary Services Assessment (WSSA) is a key input into planning. It was completed for the District in 2005 as required under Section 125 of the LGA 2002. The focus for the assessment was to determine the impact these services have on the public health of the community. The WSSA was updated in January 2020 to reflect the status of reticulated supplies, community halls and maraes in the district.</p> <p>Section 17A requires that Councils review the cost effectiveness of the way they deliver their services to ensure they meet the needs of communities. This service delivery review looks at the governance, funding and delivery of infrastructure, services or regulatory functions, and requires consideration of alternative delivery models including (but not limited to) in-house by council, by another local authority, by a council-controlled organisation, or by another person or agency. These reviews are an ongoing requirement and must be undertaken at least every six years.</p> <p>Council completed an in-house / outsourcing review in 2012 and the preferred option was to continue with outsourcing to Veolia. A Section 17A review of the water supply, wastewater and stormwater activities will be undertaken in 2020/21 to time with the contract review.</p> <p>The 30-year Infrastructure Strategy is a requirement of section 101B of the LGA. This strategy requires Council to take a long term look at the delivery of its services to assess where there are hidden investment gaps or affordability issues beyond the ten-year horizon. This strategy provides the strategic direction and context for the AMP. The AMP informs the Infrastructure Strategy of the asset issues and provides the technical information and evidence for the long-term investment programmes.</p>
Health Act 1956	<p>The Health Act focuses on improving, promoting, and protecting public health. The Health Act 1956 supports the RMA in effects caused by the inadequate management and operation of on-site wastewater systems.</p>
Health and Safety at Work Act 2015	<p>The Health and Safety at Work Act 2015 (HSWA) is New Zealand's workplace health and safety law. The Act sets out the principles, duties and rights in relation to workplace health and safety.</p> <p>Under HSWA, a person conducting a business or undertaking (PCBU) must look after the health and safety of its workers and any other workers it influences or directs. The business or undertaking is also responsible for the health and safety of other people at risk from its work including customers, visitors, or the general public. This is called the 'primary duty of care'. Two regulations of particular importance are the (Hazardous Substances) Regulations 2017 and (Asbestos) Amendment Regulations 2017.</p>
Resource Management Act (RMA) 1991	<p>The RMA is an established planning framework covering land designation processes and resource consents for activities that affect the environment. Horizons is responsible for monitoring compliance with the environmental provisions of this Act that relate to earthworks, sediment control, work within watercourses etc. This Act ensures compliance with Resource Consents issued for water taken from natural water resources.</p> <p>The Action for Healthy Waterways package sets higher standards around the cleanliness of swimming spots, includes a new bottom line for nitrogen toxicity, sets controls for farming practices like winter grazing and how much synthetic fertiliser is used, and requires mandatory and enforceable farm environment plans.</p> <p>The Government is proposing amendments to the RMA, an updated NPS for Freshwater Management, an updated National Environmental Standard (NES) for Sources of Human Drinking Water, and new NES for Freshwater and Wastewater.</p> <p>There are new requirements with the NPS for Freshwater Management 2020 including giving effect to Te Mana o to Wai, improving degraded water bodies, and maintaining or improving all others using bottom lines, and an expanded national objectives framework.</p>

Legislation	Requirement
<p>Taumata Arowai Water Services Regulator Act (2020) and Water Services Bill</p>	<p>The Taumata Arowai Water Services Regulator Act has been passed and the complementary Water Services Bill is expected to be passed in mid-2021. The standalone Crown entity Taumata Arowai is being created to regulate drinking water.</p> <p>Taumata Arowai must ensure that its performance and delivery of its objectives, functions and duties are guided and informed by the following operating principles:</p> <ul style="list-style-type: none"> • building and maintaining credibility and integrity, so that Taumata Arowai is trusted by consumers, drinking water suppliers, wastewater network operators, stormwater network operators, Māori and government • ensuring that Taumata Arowai has suitable expertise to build and maintain confidence in its capability as a regulator • developing sector capability, by promoting collaboration, education and training • partnering and engaging meaningfully with other people and organisations • partnering and engaging early and meaningfully with Māori, including to inform how Taumata Arowai can: <ul style="list-style-type: none"> (i) give effect to Te Mana o te Wai (ii) understand, support and enable the exercise of mātauranga Māori, tikanga Māori and kaitiakitanga. <p>A Water Service Bill will provide the regulatory system that Taumata Arowai will administer.</p> <p>Taumata Arowai will have a national oversight / transparency role for stormwater and wastewater. It will publish an annual report on environmental performance of wastewater and stormwater systems owned by territorial authorities and the Crown, and their compliance with requirements like resource consents. It will also highlight poor practice and recommend action.</p> <p>Regional councils will continue to regulate wastewater and stormwater systems under the Resource Management Act –Taumata Arowai will be the watchdog. The Ministry for the Environment is developing a National Environmental Standard on Wastewater –setting new requirements for wastewater systems and discharge.</p>
<p>Climate Change Response (Zero Carbon) Amendment Act</p>	<p>The Climate Change Response (Zero Carbon) Amendment Act includes a target of reducing methane emissions by 24 to 74% below 2017 levels by 2050, and an interim target of 10% by 2030. It also has a target of reducing net emissions of all other greenhouse gases to zero by 2050.</p>
<p>Civil Defence Emergency Management Act 2002 (CDEM)</p>	<p>Requires lifeline utilities (such as a wastewater) to function at the fullest possible extent during and after an emergency and to have plans for such functioning. The CDEM Act 2002 requires that a risk management approach be taken when dealing with hazards. In considering the risks associated with a particular hazard, both the likelihood of the event and the consequence must be considered (refer to Section 6 Managing Risk).</p>
<p>Hazardous Substances and New Organisms Act 1996 (HSNO)</p>	<p>The purpose of the HSNO Act is to protect the environment and health and safety of people and communities by preventing or managing the adverse effects of hazardous substances and new organisms.</p> <p>The HSNO legislation takes a life-cycle approach to the management of hazardous substances, including their disposal, when such substances are no longer wanted and become waste. The disposal of waste hazardous substances is controlled through the Hazardous Substances (Disposal) Regulations 2001. These regulations provide for the treatment of the different classes of hazardous waste substances before disposal so that the substances are no longer hazardous.</p>
<p>Building Act 2004</p>	<p>Sets out minimum standards for buildings and facilities and services. Requires Councils to produce Project Information Memoranda (PIMs) and building Warrants of Fitness.</p>
<p>Utilities Access Act 2010</p>	<p>The Utilities Access Act 2010 requires utility operators and corridor managers to comply with a national code of practice that regulates access to transport corridors. This impacts the wastewater network as these assets can be located in the road corridor. This is complimented by the NZTA Guidelines “Code of Practice for Temporary Traffic Management” and the “Local Road Supplement” are the recognised standards for maintenance and construction works on legal road.</p>
<p>Public Works Act 1981</p>	<p>Prescribes processes to enable the acquisition of land for the completion of construction works by Council.</p>

3.4 STANDARDS AND GUIDELINES

The primary documents that guide service standards for the wastewater activity are summarised in Table 14.

Table 14: Key wastewater standards and guidelines

Standard / Guideline	Description
Trade Waste and Stormwater Bylaw 2019	Regulates the discharge of trade waste to sewerage system and discharges to the stormwater system in Ruapehu District.
The Ruapehu Bylaw (2018)	The Ruapehu Bylaw consolidates three old bylaws: <ul style="list-style-type: none"> • Public Places Bylaw • Public Health and Safety Bylaw • Animal Control Bylaw. The new bylaw covers a diverse range of activities including seeking to protect from nuisance and promote public health and safety within the District.
Asset Management Policy (2020)	This policy gives guidance and direction on the development AMPs. The policy sets out eight objectives for AM planning and practices.
Water New Zealand Best Practice Guidelines and Technical Documents	Water New Zealand is a national not-for-profit sector organisation that provides best practice guidelines in the provision of wastewater. The guidelines include (but are not limited to) modelling, standards for treatment plants and water loss calculations, guides for occupational health and safety and underground utilities-seismic assessment and design guidelines. They also coordinate national performance benchmarking on an annual basis. Council participates in the annual benchmarking to allow it to compare its performance with other small District Councils in its peer group.
Standards Association of New Zealand	The Standards Association of New Zealand provides a range of standards covering required or recommended practice and which may impact directly on assets or management of contracts, e.g., The NZS4404 Code of Practice for Urban Subdivision provides a range of water standards. Council has produced a policy on the Standards required for subdivisions to further clarify information.

3.5 ENGAGING CUSTOMERS AND STAKEHOLDERS

Community and key stakeholder engagement on developing levels of service for water services used the following main consultation initiatives:

- Resident satisfaction surveys (refer below)
- Consultation with community groups for Annual Plan and LTP
- Service request response levels (refer below)
- Joint governance catchment groups for shared values related to water including Whangaehu River Catchment project.
- Treaty settlement co-governance groups Te Awa Tupua (Wanganui River).

Ongoing community engagement is outlined in Part 1, Section 7 for 2021 LTP. Extensive consultation is undertaken as part of the LTP process including localised community meetings, iwi, youth engagement, and Facebook. This covers levels of service as well as understanding local issues.

3.5.1 Customer Satisfaction Surveys

The National Research Bureau has been surveying Ruapehu residents periodically since 1999. The survey gives a snapshot of people's satisfaction with the wastewater Ruapehu District survey results are compared with the performance of Local Authorities across New Zealand as well as a peer group.

Figure 3 shows that residents' satisfaction with the quality of the wastewater service since 2005. This shows that residents' satisfaction has historically been higher than the national average and the peer group. There has been a slight trend downwards recently that needs to be monitored.

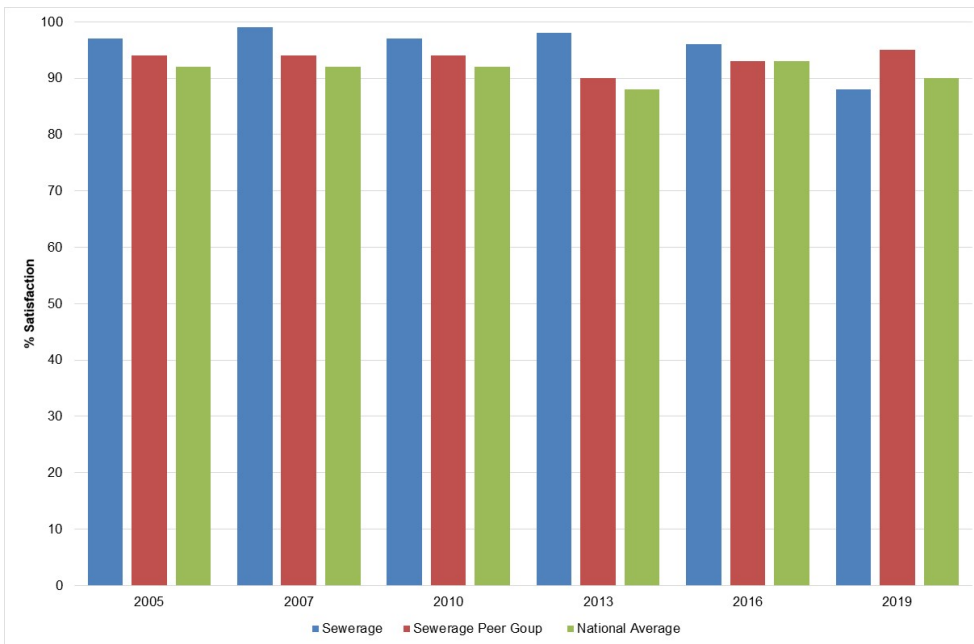


Figure 3: Wastewater customer satisfaction results
Source: National Research Bureau Customer Service Surveys

3.5.2 Customer service data

There are about 8 to 18 jobs per month for wastewater service calls as shown in the following figure.

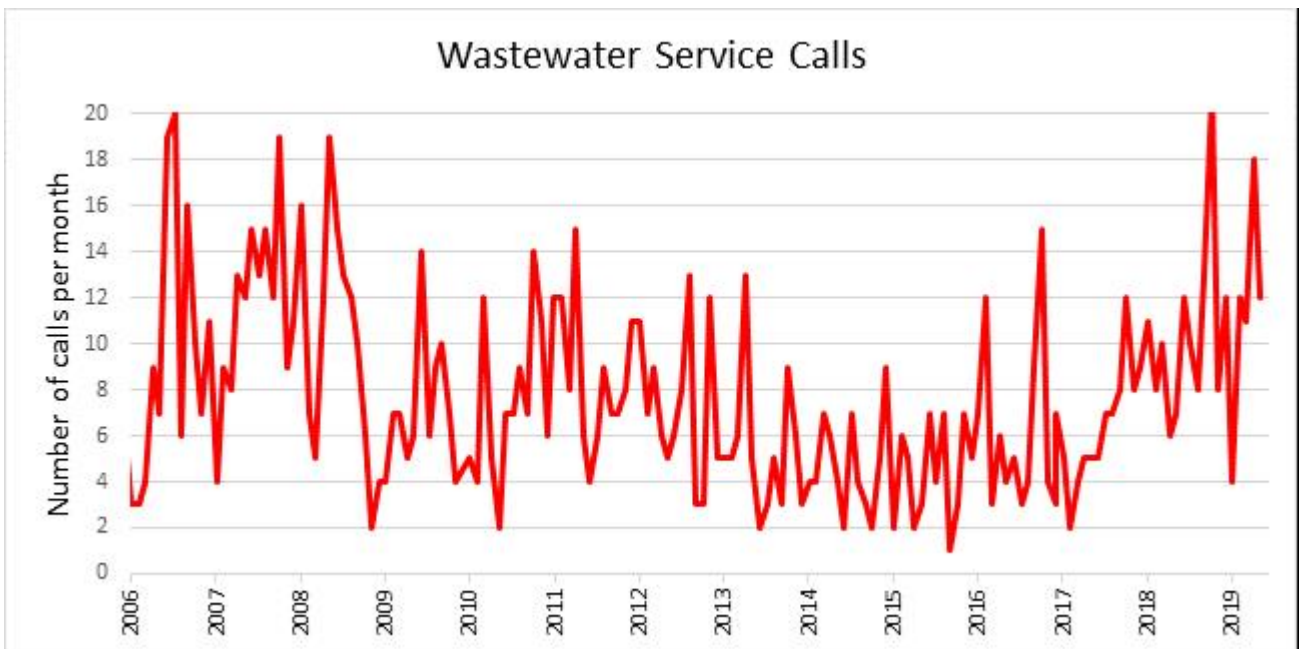


Figure 4: Number of wastewater service call per month
Source: Council's RFS

3.5.3 Contractor surveys

The Facilities Management Contractor, Veolia, undertakes regular customer satisfaction. Customers are surveyed for their perception of the water service provided and their perception of the contractor's customer service and maintenance activities.

Figure 5 shows customer satisfaction with the Contactor's service since 2008. The survey results indicate high level of satisfaction for wastewater with a 98% average. These surveys are reviewed and considered in the improvement plan and monthly contractor report discussions.

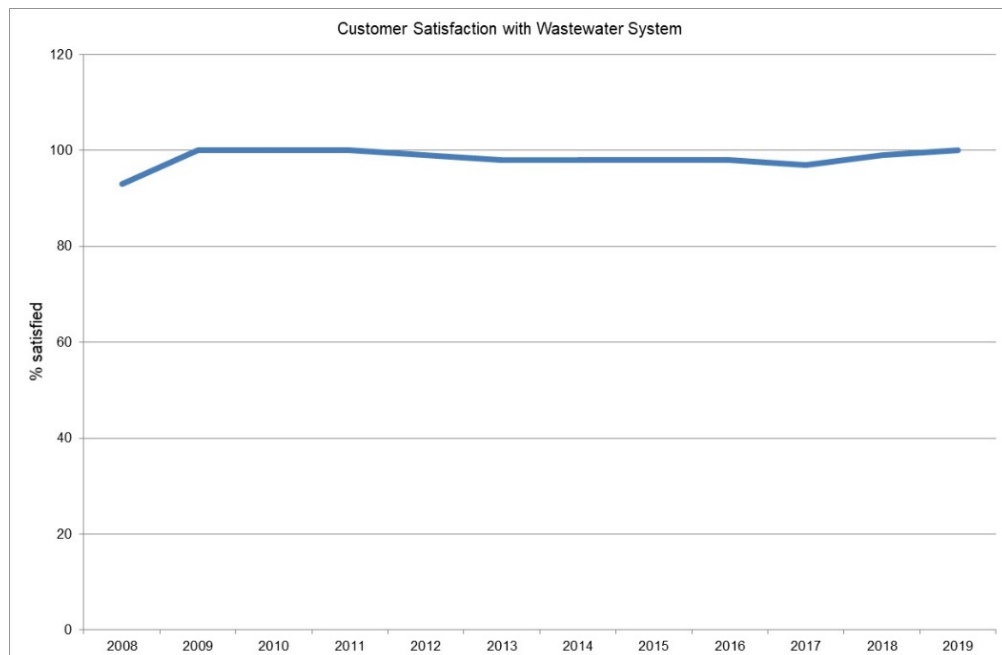


Figure 5: Veolia's customer satisfaction survey results

3.6 SERVICE LEVEL SUMMARY

LOS have been reviewed and modified combining the expectations and requirements of legislation, industry good practice, users, key stakeholders, and Council. Council reports against both the new standard and existing measures. All measures are reported on a District wide basis except compliance with resource consents which are by wastewater scheme.

The LOS and performance measures for the wastewater activity is summarised in Table 15. A full description of LOS targets, measures and metadata over the next ten years is included in Section 10 Appendix.

Table 15: Wastewater service level summary

Community Outcomes	Key service attribute	LOS	How we will measure our performance	Performance measure type	Current Performance 2018/19	Current Performance 2019/20	Current Year 2020/21 Target	2021/22 Target (year 1)	
Safe, Healthy Communities	Safety-public health	Provide public safety through continuous of wastewater collection system	The number of dry weather wastewater overflows from the Council's wastewater system, expressed per 1,000 wastewater connections to that wastewater system	Mandatory	0.84	1.9	< 7 per 1,000 connections	< 7 per 1,000 connections	
									Quality reliability –
	Mandatory	a) Wastewater odour	0.64 Achieved	0.63 Achieved	a) <15	a) <15			
		b) Wastewater system faults	1.48 Achieved	0.84 Achieved	(b) <5	(b) <5			
		c) Wastewater system blockages	3.18 Achieved	2.74 Achieved	(c) < 25	(c) < 25			
		d) Council's response to issues with its wastewater system	0 Achieved	0 Achieved	(d) <25 per 1,000 connections	(d) <25 per 1,000 connections			
	Technical	Number of reported wastewater pipeline blockages per 100km of pipeline per year	19		<30 per 100km	<30 per 100km			
	Technical	Percentage of wastewater assets in satisfactory condition (condition grades 1,2, 3 or 4)	Achieved (all townships graded as 2)		80%	80%			
	Customer	Customers are satisfied with the wastewater services provided	100%		>85% (using Veolia annual customer satisfaction survey, Or NBR survey 3 yearly)	>85%			
	Responsiveness	To provide prompt responses for service	Where Council attends a call-out in response to a blockage or fault in the Council networked system, the following median response times are measured:						
Mandatory			a) Attendance in hours from the time that Council receives notification to the time that service personnel reach the site; and	0.2 Achieved	0.58 Achieved	Mean response times ≤2hours	Mean response times ≤2hours		
			b) Resolution in hours from the time that the Council receives notification to the time that service personnel confirm resolution of the blockage or other fault."	2.3 Achieved	3.07 Achieved	Mean response times ≤6 hours	Mean response times ≤6 hours		
Thriving, Natural Environment	Sustainable Environmental performance -	Environmental impacts are managed and resource consents complied with	Compliance with Council's resource consents for discharges from the wastewater system as measured by number of:						
			Mandatory	a) abatement notices;	Zero- Achieved	Zero- Achieved	≤2	≤2	
				b) infringement notices;	Zero- Achieved	Zero- Achieved	<2	<2	
				c) enforcement orders;	Zero- Achieved	Zero- Achieved	<1	<1	
				d) Convictions	Zero- Achieved	Zero- Achieved	0	0	

Notes:

1. The times shown for “attendance” and “resolution” are reported by the service provider, Veolia as part of their contracted responsibilities. This includes travel time. The accuracy of these has not been verified by Council.
2. The number of connections is calculated from the number of customers charged in their rates for use of Council wastewater services (calculated at 4,720 as at 12 July 2018).
3. There are occasions where there is more than one complaint per event. In such a situation, each complaint is counted separately, not each event or occurrence.
4. The median time presented is based on calls that have been raised directly with Council and not Council’s contractor Veolia.

3.7 SERVICE GAPS

Overall, we did achieve the mandatory performance measures for 2018/19 and 2019/20 covering dry weather overflows, responsiveness to faults, customer complaints for odour, system faults and blockage issues, and full compliance with the consent requirements.

There is new monitoring and stringent enforcement of the existing resource consents. This means Council will expect an increase in the number of non-compliances issued by HRC until new / upgraded plants are completed. There is a long-standing issue non-compliance at the Ohakune WWTP related to ammonia and suspended solids. There is a significant capital project planned for a new WWTP is proposed servicing Ohakune and Raetihi (refer to Section 6.11) but this will take time to investigate and build. In the short term, Council will install baffles in the pond to slow the flow (allowed in the original consent but has never been installed). It is also intended to move the outlet to ensure maximum utilisation of the ponds.

The main drivers will be:

- Wastewater treatment plant upgrades to meet nutrient removal, culture concerns, and NPS Freshwater Management
- Sludge disposal options analysis for district
- Culture impact reports and culture monitoring
- New standards expected from the water regulator.

Planned expenditure to close the service gaps over the next ten years is summarised in Section 6.11.

4 MANAGING GROWTH AND DEMAND

4.1 INTRODUCTION

With the change in District growth and peak populations comes an increase in wastewater treatment demands. Water supply consumption, inflow and infiltration, demand management initiatives, changes in weather patterns and industrial and trade waste discharges are the main parameters impacting future wastewater volumes. The impact of the seasonal peak demand on infrastructure is a challenge for the District with peak being experienced in winter when treatment is most difficult to achieve.

This section describes how Ruapehu District is developing and the approach Council will take to manage the effects of demand and growth for the wastewater activity. This section also presents Council's response and recovery programme to manage the COVID-19 impact.

This section also discusses the significant growth occurring in Ohakune as well as the provision to provide suitable housing to support the influx of people into the District. The timing and investment in core infrastructure including wastewater needs to be planned to support this growth.

4.2 DISTRICT GROWTH AND GLOBAL DISRUPTION

The two main drivers for Ruapehu District's growth are usually resident and peak population. The usually resident population is set to steadily increase overall between 2021 and 2031 under low, medium and high growth scenarios (refer to Part 2 for details). Peak population is the key tool to plan for core infrastructure including wastewater (refer below).

The global pandemic event has disrupted the national and local economies with the national lockdown and closing of international borders. It is expected to have smaller impact on Ruapehu District than others as heavily rely on primary production and domestic tourism. This will mainly impact on the demand for wastewater infrastructure and the community's ability to pay in an economic recession. The Informetric assessment suggest that growth will be slower than initial predictions.

Council's response is to develop the Recovery Programme including rethinking the shape of future tourism. Ruapehu Economic Development Strategy 2018-2028 and Ruapehu Recovery Thought Leaders Group will provide strategic direction for the District's recovery. This will help rebuild tourist demand domestically and internationally (with trans-Tasman).

4.3 GROWTH AND DEMAND TRENDS

Growth in the District and peak demand can result in an increase in the demand for wastewater treatment as discussed below. Changes in weather patterns, inflow and infiltration, and consent conditions are also factors impacting future wastewater demands and are discussed in Sections 5.3 Climate Change and 6.4 Asset Performance.

4.3.1 *Changes in Demographic Patterns*

Peak population is the key tool to plan for core infrastructure including wastewater. Peak population is used to plan for the absolute peak population the District might experience on any given day. It is calculated by combining usually resident population, holiday home visitor numbers, commercial accommodation visitor numbers and day visitor numbers.

Pre-COVID-19 projections saw small but steady increase in all components of peak population except net migration. Demographics are expected to remain similar and change proportionately alongside population growth, except for Ohakune. For wastewater planning purposes, peak population needs to be considered at township level as it will differ throughout the District. The recommended growth projection scenarios to be used for AM purposes adopted for this plan are summarised in the following table.

Table 16: Growth projection scenario for peak population by township

Township	Growth projection scenario adopted for peak population
National Park	High growth
Ohakune	High growth
Otangiwai-Ohura	Low growth
Raetihi	Medium growth
Tangiwai	Medium growth
Taumarunui	Medium growth
Waiouru	Medium growth

Source: Council's 2021 LTP briefing paper Planning Assumptions, Infrastructure and Financial Strategies (as at 27 May 2020)

Ohakune is experiencing significant population growth (estimated internally at 30% in the 2021 LTP period) based on the large number of building consents received for new subdivisions. The main drivers for the rapid growth in Ohakune are:

- Popular cycleway track round the mountains creating all year round tourist demand
- Commercial growth such as new industry and Turoa gondola
- Affordable housing required for workers to meet the tourist demand and new industries (mainly short term rental accommodation)
- Continuing to be a popular holiday house destination.

Taumarunui is also experiencing growth but not as rapid as Ohakune. The main drivers for the growth in Taumarunui are:

- Internal migration out of the large cities to the regions
- High demand for quality and affordable houses
- Centrally located town in the North Island for different industries including forestry and RAL
- Potential social housing development (refer to Section 4.4.2 below)
- New wet industry being established (new pet food factory).

Pipiriki is a village on the east bank of the Whanganui River, due west of the town of Raetihi. It is at the exit point of the Whanganui River National Park and is expected to become part of a holy pilgrim route in future years. There may be pressure on Council in future to provide public water services to meet day visitors.

4.3.2 Demand for Wastewater Services

The current demand for each scheme and comparison against design capacity is detailed in Appendix C, Part 4 at township level based on SCADA monitoring and operational knowledge.

Demand on wastewater infrastructure, particularly in the Waimarino region (inclusive of Ohakune and Raetihi) is expected to be moderate. The number of households remains relatively static but the actual occupation of homes is moving from usual residents to holiday homes, which tends to drive peak usages, and influences wastewater disposal. Further details are provided in Section 6 Programme Case.

Housing development may be stimulated with the economic recovery programme (refer below).

4.3.3 Trade Waste

Council does not have any significant industrial discharges which drive wastewater treatment processes, with the exception of septage treatment facilities in the North (Taumarunui) and South (Ohakune) which support the surrounding District onsite disposal systems. Ruapehu Alpine Lifts (RAL) also dispose of wastewater from septage holding tanks at Turoa Ski area on Mount Ruapehu. Waiouru WWTP also accepts septage material into their treatment plant for processing.

The only significant industrial process discharging into the wastewater network in the north is stock truck wash supernatant in Taumarunui. However, this will change shortly as a pet food factory is currently being established in Taumarunui.

Council currently does not receive significant industrial wastewater streams. Any new industry effects are assessed on a case-by-case basis and managed under the Trade Waste and Stormwater Bylaw 2019 to manage impacts on the treatment systems.

Council does not currently have a trade waste monitoring programme as not significant and managed on a case by case basis. At this point in time, this is appropriate for Council's size.

4.4 MEETING GROWTH AND CHANGING DEMAND NEEDS

4.4.1 Wastewater capacity

All treatment plants have adequate hydraulic capacity for the dry weather flows received. All treatment plants are connected to SCADA providing real time monitoring, alarming, and remote operational management. Refer to Section 6.4 Asset performance for details at plant level and Part 4 at township level.

Modelled capacity:

The development of hydraulic models of the wastewater network for each township is recognised as a future improvement. This will enable sound decision making for any future improvements and understanding existing deficiencies. There are so many interrelated issues (i.e. growth, I&I, condition, consent requirements) that need to be considered for managing wastewater which can be tested with hydraulic models.

Taumarunui capacity:

A capacity analysis was undertaken in 2017 for the Taumarunui wastewater networks to understand whether there is spare capacity in the scheme for future development. The analysis was completed for the Taumarunui WWTP and network using a high level theoretical hydraulic capacity model.

The report documents the hydraulic capacity of the existing WWTP as well as the current hydraulic capacity of the network within the wastewater zones. Generally, the report was not conclusive for networks, at a high level it suggested that:

- Pump stations had no or limited spare capacity but required more data to validate the conclusion.
- The gravity main servicing the plant had space capacity of 816 household unit equivalents.
- The lagoons and wetland space capacity of 523 household unit equivalent
- The suspended solids and Faecal Coliforms (FC) treatment appears at its limit to be treated.

The results suggesting suspended solids and FC are at capacity is likely to be related to Council unable to desludge over the last few years and work to resolve this issue. Further analysis is required around capacity constraints for quality and quantity, with nutrients being close to the load capacity of the river. The use of UV treatment requires low colour to be effective, which will put constants to the type of trade waste that is accepted at the plant. More pre-treatment at plants will be required.

Demand projections are being developed to better understand current demand and the quantification of the proposed future demand through the following planning initiatives:

- The assessment of demand versus design capacity is being undertaken as part of the wastewater management strategy by Veolia
- Using the peak population forecasts at township level with any planned upgrades.

Ohakune future growth:

Ohakune is experiencing significant population growth as noted above. Wastewater demand is changing due to various factors including population growth, proposed improvements in freshwater management, and climate change impacts. Key future wastewater demand changes for our District expected is mainly the future growth in Ohakune, and in the wider Waimarino area (National Park, Ohakune and Raetihi). This is mainly driven by the ski season and tourists using the cycle trails:

- RAL has indicated that Mountain skier numbers are unlikely to increase significantly. RAL's focus is to increase the use of the lifts in the summer period. The renewal / upgrade of lifts on the mountain is about increasing the experience and being more appealing or accessible to a wider section of the population for more of the year. It is predicted that numbers will be similar to the winter numbers of the early 1990's (7,000 people).

- Also expected is an increase in visitor numbers due to the cycle trails that start and finish in the Ruapehu District. Overall growth is expected to increase steadily, including outside of the ski season thereby reducing seasonal peaks with steadier numbers throughout the year. With the impact of the global pandemic and closure of international borders, many rural districts have experienced steady increase in domestic tourists. Cycle trails are becoming increasingly popular and expected to remain steady.

These projects are subject to Tongariro National Park Plan Change to allow for the activities. Council will keep a watching brief on developments on the Mountain.

Servicing small communities:

Demand is the desire for small communities to grow and to see the development of new treatment plants, such as at Owango and Raurimu townships. The District Plan now limits the density of rural development into sustainable unit clusters allowing rural lifestyle but keeping the character of the rural environment and land more intact. This should see fewer rural blocks and infilling driving the demand to extend infrastructure. Legislation changes may drive the treatment of more rural communities in the future, this will be reassessed with the next AMP.

4.4.2 Economic stimulus

Council's Economic Development Strategy (2018), gives direction and a framework for making decisions, undertaking actions, and building change that will drive economic outcomes. This includes growing visitor numbers in summer and shoulder months to help with year round employment opportunities. Rebuilding domestic tourist demand is a key focus for Council as noted above (refer to Part 1).

As part of the Government's response to help offset the economic and social impacts of COVID-19, Council has been granted about \$1.4 million for a small pilot build (Moore Street, Ohakune) as part of the Social and Affordable Housing project (subject to negotiation between Council and Crown Infrastructure Partners). This grant has been a catalyst for Council to reconsider the scope of its role in helping to address Ruapehu's growing housing issues. Currently this is limited to a small number of social housing units.

The rate of new housing provision will be determined by the available external capital and suitable land for reconfiguration. The housing provision may trigger services upgrades including water services. It is expected that there will be an agreement in place to share upgrade costs attributed to each new development. The Social and Affordable Housing project is still in the early stage, so any upgrade costs have not been allowed for in this AMP. The focus is on providing quality and affordable houses in Taumarunui as noted above.

4.4.3 Demand Management Plan

Managing Council's wastewater demand is not only about managing increasing future needs and expectations but is also about changes in behaviours and philosophy. Through this multifaceted approach, we can reduce environmental impacts. Council's current wastewater demand management programme is summarised in the following table.

Table 17: Current wastewater demand management programme

Programme	Description
I&I	<p>Inflow and infiltration (I&I) contribute to demand on the network and Council's operating expenses. Reduction of I&I through regular maintenance is part of Council's on-going operational programme.</p> <p>Increasing extreme weather patterns with high intensive storms and frequency will also increase the potential for I&I volumes. This scenario is made worse with aging pipes becoming more porous and joints losing their seal. This is a significant driver of capacity or demand curves in the collection and treatment system. Inversely, increasing dry periods (droughts) are reducing the recharge zones in the river so they have much lower flows; lower groundwater tables can extend for longer periods of time, driving plants and trees to seek out water in our collection pipes. This is a risk which Council needs to monitor with chocks and blockages and I&I programmes.</p> <p>Council with Veolia has adopted a targeted approach for managing I&I to acceptable levels. The I&I rolling programme will be implemented including investigations and remedial works over a ten year period.</p> <p>The priority has been for the Raetihi wastewater network. The Raetihi wastewater network previously suffered from wet weather overflows due to significant I&I and insufficient capacity to convey peak wet weather flows. The ongoing relining of the poor condition mains has been effective in reducing wet weather flows and will remain an active tool to address the issue.</p> <p>No overflows were recorded during the 2019/20 period as a result of the network capacity being exceeded. This reduction in overflows indicates that the relining of the poor condition mains has been effective in reducing infiltration in the network. A smoke testing programme is planned for the 2020/21 period to reduce wet weather inflows to the WWTP. Refer to Section 6, Programme Case for further details.</p>
Public education and awareness	<p>Education and awareness encourage wastewater reduction and compliance behaviour. Council's web site provides information on the District's wastewater treatment facilities. It also contains the following information so that users can help make the wastewater network safe and not adversely impact the environment:</p> <ul style="list-style-type: none"> • Ongoing campaign to reduce phosphorus detergents in our townships • Responsible disposal of wet wipes • Property owner responsibilities for gully traps.
Planning activities	<p>Various planning activities are undertaken to understand the changes in demand as well as growth forecasts. Current initiatives include:</p> <ul style="list-style-type: none"> • Ongoing condition assessments of the wastewater assets through condition surveys and investigations into problematic materials where required, with the appropriate solution • Renewal of poor condition assets identified through condition surveys or routine maintenance activities • Capacity analysis of the wastewater treatment plants and pump stations to determine available hydraulic capacity and ability to meet future needs.
Climate change planning	<p>Our response to climate change includes building our knowledge based on latest thinking nationally and participating in forums where appropriate. We are developing our own adaptation approach to climate change in collaboration with Regional Council. Refer to Section 5.3 Climate Change, Resilience and Zero Carbon for further details. Daily operational decisions around building wastewater pump stations above flood levels and increasing pipe sizes during replacement all work towards achieving climate resilience.</p>

Future initiatives that Council may consider are:

- Public education to encourage the use of water efficient appliances. This may include financial incentives to encourage consumers to convert to efficient appliances such as dual flush toilets.
- Public education to encourage the minimisation of rainwater into the wastewater network through faulty private drains and illegal stormwater connections.
- District Plan change for greenfield development to reuse greywater.
- Development of hydraulic models of the wastewater network for each township (as noted above).
- Tariff magnitude and structure (such as volumetric user charging, wastewater charging and stepped tariff structure) can also influence demand through the pricing signal it sends to water users. Council has not yet explored this option as it generally would follow district wide metering implementation. Septage is however charged.

4.4.4 Capital development

Asset creation is the process driven by consumer growth or LOS. This involves the design and construction of new assets which increase the capacity or performance of the system. Asset creation is necessary to accommodate growth, changes in LOS or customer demand.

Council will continue to invest in wastewater infrastructure with the main drivers being:

- The growth driven capital projects for wastewater will be in Ohakune in the future and is dependent on changes in growth trends detailed in Part 2. This new planning information now needs to be considered with future network management planning. This may generate more growth driven capital projects in other areas of the District.
- Growth will have effects on the extent of wastewater treatment plant upgrades or changes in technology within the next ten years for Ohakune and Raetihi.
- The desire to have land passage disposal of wastewater is a strong driver for iwi but there is a level of acceptance that climatic conditions makes year round disposal impractical. The question is around what middle ground can be achieved rather than direct discharges to rivers. A feasibility study for Ohakune and Raetihi Wastewater Treatment Plants land passage is being investigated with Tourism Infrastructure Funding. To deliver land passage a series of wetlands were considered appropriate, but with a modern treatment plant to deliver nutrient removal. Council has a second grant to undertake a feasibility study for a centralised plant and will be completed during this LTP period.
- To manage risk, increase infrastructure resilience and plan for climate change
- To meet the LOS with respect to safe and effective collection and treatment of wastewater in main townships where applicable
- To meet legislative compliance.

The cost of upgrading the wastewater infrastructure to meet growth over the next three years is detailed in Section 6.11 Asset Creation.

4.5 CHANGES IN TECHNOLOGY AND DESIGN

New technology and design needs to be considered in most AMPs. These are discussed in this section in relation to wastewater activity, technology and education. In many situations, technology is a source of future cost savings, increased service and wastewater treatment.

Technology used in Council's mechanical and electrical plants, instrumentation and treatment processes and their mode of operation have historically been fairly basic. Council has been implementing a programme to update technology with the use of modern computer and electronic technology such as PLCs, SCADA systems, remote control and telemetry. These are continuously researched and improved for efficiency gains, mainly with the upgrade or development of new switch boards at pump stations and some plant upgrades. This has been a major focus to upgrade the above ground assets over the last 10 years. This focus will remain with plant upgrades in the future.

Examples of wastewater system technology and design improvements that Council is using or is considering include:

- Pipe thrusting systems which enable pipes to be laid without deep trenching and have made it easier for councils to avoid cutting, digging and laying pipes, hitting existing services with costly reinstatement costs for renewals.
- Continuous monitoring of known hotspots in the system.
- Pipe relining systems which essentially result in a new PVC pipe installed within the wall of the old pipe.
- Computer modelling of pipelines to highlight upgrading requirements and achieve a consistent level of service across the District.
- CCTV assessments of pipe to establish the condition and best method of repair or replacement required within the collection system.
- New pipe materials and fittings.

- Changing treatment technology for example moving from lagoon based to mixed liquor treatments which provide better nitrogen species removal, or adding membrane treatments and/or land passage systems (wetlands).

4.6 DEMAND ASSUMPTIONS

The key growth and demand assumptions are as follows:

- Projections have been based on Council's 2021 LTP briefing paper Planning Assumptions, Infrastructure and Financial Strategies (as at 27 May 2020)
- Impacts from COVID-19 will impact the District's economy
- Future wastewater consent conditions will be more restrictive and may cost more to comply with, implement and monitor
- Food production and tourist demand will continue in the District
- Ohakune will continue to experience significant population growth.

5 MANAGING RISK

5.1 OVERVIEW

This section covers the risk management implemented by Council and how it applies to current and future wastewater activities. Council's corporate risks are covered in Part 1 of the AMP and this section looks at activity specific risks.

The Ruapehu risk context has been developed from Council examining each of the elements that define the context for risk management applicable to the wastewater activity. The activity has been examined and results summarised in Part 4, Schedule 1, Appendix H.

5.1.1 The Risk Register

Risks associated with the wastewater activity have been identified, described, classified, analysed, evaluated and rated, and results are recorded in the Risk Register (Part 4, Schedule 2, Appendix H).

An input into this was a review of the highest risks and associated risk treatments in the 2018 AMP.

All risks have been examined for treated risk. Not all untreated risks and risk controls have been examined. This area has been identified as an opportunity for improvement in the Improvement Plan.

The resulting risk matrix below shows three risks identified as high treated risk and no extreme risks.

Table 18: Risk Matrix

Likelihood	Consequence				
	Insignificant (1)	Minor (2)	Significant (3)	Major (4)	Catastrophic (5)
Almost Certain (5)	Med	High	Ext	Ext	Ext
Likely (4)	Med	High	High	Ext	Ext
Possible (3)	Low	Med	High	High	Ext
Unlikely (2)	Low	Low	Med	High	High
Rare (1)	Low	Low	Med	Med	High

5.1.2 Risk Action Plan

Additional management options have been identified for specific risks rated as Medium, High or Extreme to treat the present risk. These are recorded in the Risk Action Plan (Part 4, Schedule 3, Appendix H).

The main risks are listed in order of severity as assigned in consultation with key Council officers.

Actions that are required to achieve the desired improvements are indicated along with how progress on these actions will be monitored and reported. Where applicable, action tasks will detail timeframes for achievement, and responsibility for these actions.

5.1.3 Critical Wastewater Activity Risks

Of those specific risks listed in the Risk Action Plan the following are the most critical and are worthy of particular note:

- Failure of critical pipelines
- Overloading pipelines, pump stations and treatment plants

- Damage to critical pipelines or treatment plants due to earthquakes – Natural hazard planning
- Discharge of contaminants affecting the biological treatment process
- High I&I into the network.

These risks are managed with the following existing controls:

- Condition monitoring, maintenance history analysis, targeted renewal programmes,
- Response planning.
- SCADA monitoring for Wastewater pump station for flow levels and alarming at all treatment facilities to alert the operator to network failure or risk of failure.
- Overflow monitoring and response planning.
- Freshwater quality monitoring to assess risk of impacts.
- Inflow and infiltration programme.

Trade waste could potentially have significant affect on the biological balance required to provide good treatment at the plants. Currently the industrial and commercial trade waste is a small component of our wastewater volumes. Should this situation change a sampling programme will be considered.

SCADA has been installed at all wastewater plants and pump stations, except Matai WWPS, which is programmed for 2022/23 (refer to map below). More parameters will be monitored online through SCADA as the plants are upgraded.

A formal criticality assessment has commenced on the networks, pipeline pump stations and pipeline to treatment plant. It is recognised that controls need to continue to be developed including CCTV of critical pipelines, and network models and across the District.

Ruapehu Risk Management System relies on input from its many contractors and service providers and this is appropriate for a small district council. Further to Council’s Risk management framework, Veolia is required to manage risk and produce their own risk management procedures to describe the responsibilities, authorities and processes across their international business. Their system uses slightly different descriptors to assess risk but overall the assessment method obtains similar outcomes. Their assessment method is utilised as part of their daily services to deliver their operations, maintenance and capital works programmes. It is utilised in the method statements for new works or high-risk situations.

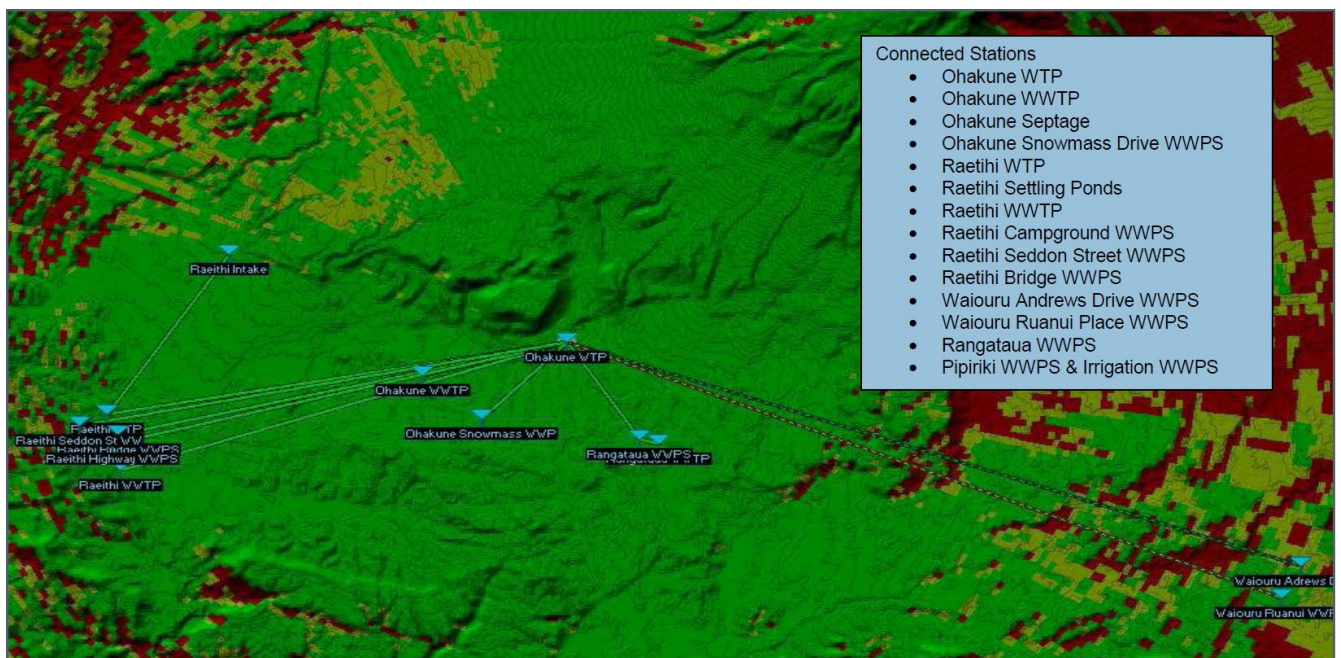


Figure 6 Map of SCADA installation in the south

5.1.4 Veolia Risk Management Process

Veolia operates a standard risk management process to identify, control, act upon and review all risks arising in the operations and within the business in accordance with ISO 31000, PAS55, ISO14001, ISO22000, AS4801 and OHSAS 18001. The procedures are documented in PR-ANZ-13-444.

Risk Management is used to assist in infrastructure recommendations and is applied across the company. The framework has been developed under Australian and New Zealand AS/NZS 4360:2004 Risk Management Process. The key risk management processes through which risks are managed are outlined below.

Veolia Risk analysis:

- i. Risk severity analysis is undertaken, with the risk severity assessed as the sum of consequences and likelihood. This is calculated based on the consequence impact rating and likelihood rating defined in the Veolia Risk (Table 19).
- ii. The Veolia Risk Analysis Matrix categorises each risk into one of four risk rating categories, as shown in Table 19. The risk rating category determines the response to the risk. Risks with a 'red' risk rating are considered totally unacceptable and risk reduction is required to be investigated immediately. Veolia's risk management framework is aimed at reducing residual risks to rating 5 or less (or until deemed a mitigated risk by the appropriate senior manager).
- iii. Risk analysis application:
 Risk analysis is undertaken by Veolia where there are sources of potential harm or situations that have the potential to cause a negative impact. Examples of scenarios where a risk assessment will be triggered under VW-18 include:
 - The preparation of method statements.
 - Prior to significant changes to operating conditions/protocol.
 - The development of ERP contingency plans.
 - Capital works briefs and capital works handovers scenarios determined by function/senior management.

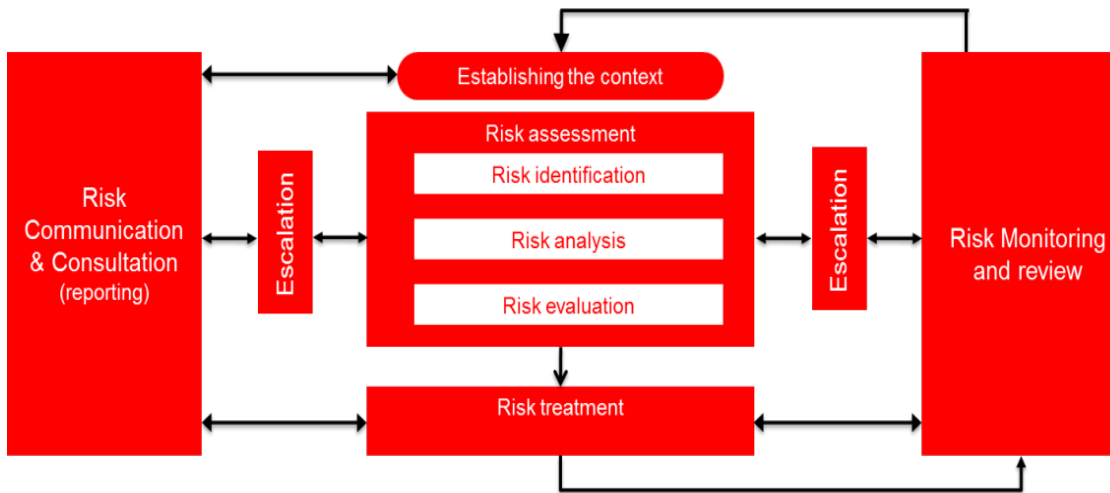


Figure 7 Veolia-ANZ Risk Management Processes

Table 19: Veolia Risk Matrix Score

		Likelihood				
		1	2	3	4	5
Consequence	5	6	7	8	9	10
	4	5	6	7	8	9
	3	4	5	6	7	8
	2	3	4	5	6	7
	1	2	3	4	5	6

Table 20 Veolia Risk Matrix Score Action

Risk Rating	Acceptance/Completion Approved by	Action Through	Reviewed and Accepted Within
2 – 5	Supervisor	Local Management (if Required)	2 Weeks (if required)
6	Function Manager	PIR System	1 Week
7	Senior Manager	PIR System	72 Hours
8 – 10	Managing Director	PIR System	24 Hours

Council and their partner contractor Emergency Response Planning:

- LOS relating to emergency response planning are governed principally by the requirements of the CDEM Act 2002. This necessitates that Veolia, as a lifeline utility (entity providing water and wastewater infrastructure services to the community), has responsibilities to plan and co-ordinate to enable the continuation of its services in an emergency.
- In an emergency, Veolia has an Emergency Response Plan (ERP), modelled on the New Zealand Coordinated Incident Management System (CIMS). This meets the emergency preparedness and response requirements of ISO14001. Further refinement of Veolia emergency response and recovery within the District is provided through a Disaster Recovery Plan.
- This Disaster Recovery Plan and business continuity planning will develop from the regional level down to township level for all disasters. Council has mapped the critical lines from plants to welfare centres. Council has now produced its Business Continuity Plan to complement Veolia's.

5.2 MITIGATING RISKS

5.2.1 Extreme and High Risks

The risk analysis matrix developed by Council has been described in Part 2 of this AMP. From the risk evaluation matrix completed as Appendix H the levels of risk are assessed into extreme, high, moderate and low. The risk treatment options are considered to reduce the causes, probability or impact of failure and are:

- Do nothing - accept the risk.
- Management strategies - implement enhanced strategies for demand management, contingency planning, quality processes, staff training, data analysis and reporting, reduce the target service standard, etc.
- Operational strategies - actions to reduce peak demand or stresses on the asset, operator training, documentation of operational procedures, etc.
- Maintenance strategies - modify the maintenance regime to make the asset more reliable or to extend its life.
- Asset renewal strategies - rehabilitate or replace assets to maintain service levels.
- Development strategies - investment to create a new asset or augment an existing asset:
- Asset Disposal/Rationalisation - divestment of assets surplus to needs because a service is determined to be a non-core activity or assets can be reconfigured to better meet business needs.

Further risk analysis is provided in Appendix H (Part 4).

5.2.2 High Consequence Events

Table 21 lists all the identified risks with a significant to catastrophic impact should it occur. Response planning has been undertaken for each of these risks.

Table 21: High Consequence Events

Core Outcome	Value/Strategic	LoS Failure Indicator	Asset Group	Asset Sub-Group	Caused By
Safety To maintain public health		Wastewater overflows, contamination of adjacent properties, receiving waters, illnesses, near misses, injury	Piped network	Pipe Network – critical pipes	Failure of critical pipe
Quality To provide and maintain an appropriate level of infrastructure.		Loss of wastewater service	Treatment plants		Extensive damage

Core Outcome	Value/Strategic	LoS Failure Indicator	Asset Group	Asset Sub-Group	Caused By
Sustainability Enhance the sustainability of social, environment, cultural and economic well beings of our communities		Pollution incidents, breaches of discharge consent conditions, illnesses, and environmental damage	Piped network	Pipe Network – critical pipes	Volcanic eruption

5.3 CLIMATE CHANGE, RESILIENCE AND ZERO CARBON

5.3.1 Changes in weather patterns

The climate is changing, and further changes will result from increasing amounts of greenhouse gases in the atmosphere. The major changes expected to be as a result of climate change are:

Affected Assets or Activities	Key Climate Influences	Possible Effects
Wastewater infrastructure	Reduced rainfall, extreme rainfall events, and increased temperature	Reduced receiving water quantity (depending on water source). Contamination of water. Increased pressure on water use for longer periods of time. Fewer flushing flow events.

Source: MfE released Climate Change Impacts on New Zealand by Regional Authority

The MfE table of climate change projections for the Manawatu-Whanganui region is by 2090, seasonally the region could expect:

Spring	0.6°C to 2.7°C temperature rise 1 per cent less to 3 per cent more rainfall in Whanganui No change to 5 per cent more rainfall in Taumarunui
Summer	0.7°C to 3.3°C temperature rise No change to 3 per cent more rainfall in Whanganui 2 per cent more rainfall in Taumarunui across the range of scenarios
Autumn	0.7°C to 3.2°C temperature rise 5 per cent less to 2 per cent more rainfall in Whanganui and Taumarunui
Winter	0.7°C to 3.2°C temperature rise 6 to 11 per cent more rainfall in Whanganui 7 to 16 per cent more rainfall in Taumarunui

*Projected changes are relative to 1995 levels. The values provided capture the range across all scenarios. They are based on scenario estimates and should not be taken as definitive.

Natural resources that could be affected by climate change and which will have an impact on wastewater:

Natural Resource	Key Climate Influences	Impacts of Climate Change
Rivers	Rainfall	<ul style="list-style-type: none"> River flows likely to, on average, increase in the west and decrease in the east of New Zealand. More intense precipitation events would increase flooding (by 2070 this could range from no change, up to a fourfold increase in the frequency of heavy rainfall events). Winter will see more rainfall in winter with less snow in the Alpine areas. Less water for irrigation in northern and eastern areas. Increased problems with water quality.
Water Quality	Temperature and rainfall	<ul style="list-style-type: none"> Reduced rainfall and increased temperatures combine to increase the potential for erosion which could have significant impacts on the quality of surface water resources in northern and eastern New Zealand. Lower stream flows in summer will raise water temperatures and aggravate water quality problems.
Water Availability	Rainfall	<ul style="list-style-type: none"> Water demand will be heightened during hot, dry summers. Decreases in rainfall, which are most likely in the north and east of New Zealand.

5.3.2 Planning for climate change

At national level:

A National Climate Change Risk Assessment (August 2020) has recently been released by MfE. The setting of the framework for effective adaptation is required by the Climate Change Response (Zero Carbon) Act. The risk assessment is a national overview of how New Zealand may be affected by climate change related hazards.

New Zealand's ten most significant climate change risks based on consequence and urgency were identified. The other most significant risks included risks to wastewater and stormwater systems due to extreme weather events and ongoing sea-level rise. At a local level, we need to understand what this means on our wastewater activity.

At regional level:

HRC has provided the regional impact of climate change, see part 1 and are partnering with district councils in community engagement.

They have developed a greenhouse gas footprint for the region and each territorial authority in the Region for 2018/19.

Ruapehu emitted gross 1,203,611 and net 191,684 tonnes of Carbon Dioxide Equivalent emissions in 2018/19. The population in 2019 was approximately 12,700 people, resulting in per capita gross emissions of 94.8 tonnes of Carbon Dioxide Equivalent per person. Agricultural emissions were the largest contributor to the inventory for Ruapehu, followed by transport as shown in Figure 8.

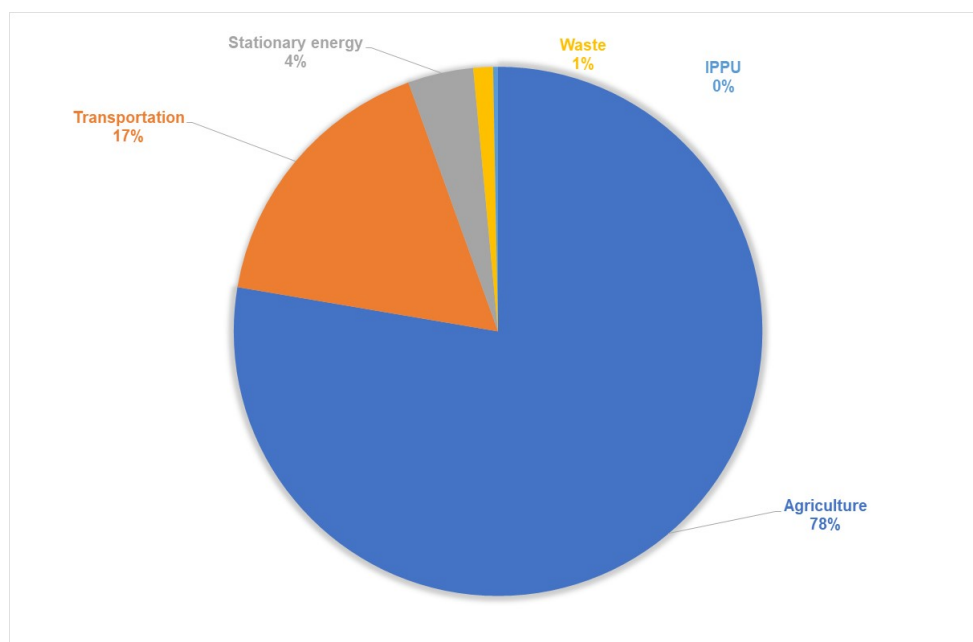


Figure 8: Ruapehu's greenhouse gas emission (gross) by sector for 2018/19
Source: HRC Ruapehu Community Carbon Footprint 2019 (AECOM August 2020)

The stationary energy sector covers the consumption of electricity and natural gas. The Industrial Processes and Product Use (IPPU) sector covers emissions associated with the consumption of greenhouse gas for refrigerants, foam blowing, fire extinguishers, aerosols, metered dose inhalers and Sulphur Hexafluoride for electrical insulation and equipment production.

Ruapehu contributed to 14% of the Horizons Region's total gross emissions for the 2018/19 reporting year. Ruapehu had the fourth highest emissions in the region, predominantly due to particularly large agricultural emissions. With a small population and high gross emissions, Ruapehu has extremely high per capita gross emissions (over nine times higher than Palmerston North).

The greenhouse inventory provides information for decision-making and action by Council, our stakeholders and the wider community. Sector-level data allows the council to target and work with those sectors which contribute the most emissions to the footprint.

At local and activity levels:

These likely climate change impacts on Ruapehu's wastewater network will need to be considered with any long-term planning. Wet weather overflows may increase with more intense and frequent storms. Prolonged droughts may result in restrictive consent conditions for discharging to streams. There may be increased electricity costs to pump highly diluted wastewater due to higher volume of I&I. Pump stations and some treatment plants may be vulnerable due to flooding inundation.

Weather patterns and global climate change (variations in air temperatures) influence the demand for wastewater treatment within the Ruapehu District. The variation in monthly water demand is largely due to natural cyclical seasonal variations and impacts on the river flows which, in turn, impact on the streams' ability to assimilate the wastewater. Long term cyclical variations, such as the El Nino and Interdecadal Pacific oscillations, along with enhanced human influenced global climate change, can influence air temperatures and have the potential to influence the resulting long term future demand for wastewater reticulation and treatment.

Council currently utilise the lowest cost technology to treat wastewater, largely using gravity to collect the wastewater from the community and delivering it to the treatment plant. The treatment plant has also utilised low carbon treatment technologies with enhanced oxidation lagoons systems. The step change to treat nutrients will involve high carbon technology. Council will consider the carbon footprint with any new / upgraded treatment plants in its decision making.

5.3.3 Building resilience and adaptation

Council's overall approach to resilience and adaptation to manage the risks where vulnerabilities and hazards are identified. Investment is identified when required to reduce the risks and vulnerabilities of infrastructure such as the strengthening of the existing assets. Preventing adverse effects of climate change and natural hazards through careful planning of future development areas is significantly more cost effective than trying to retrofit / mitigate later.

Resilience is important for all wastewater operators and is essential for remote communities like Ruapehu. Infrastructure resilience is tested further in Ruapehu as it is influenced by the Mountain and subject to intense weather events. It is also exposed to a variety of natural hazards including earthquakes and volcanic eruptions.

Climate change directly impacts the wastewater activity. Council has undertaken the following measures to improve the resilience of the activity in disruption events:

- Building our knowledge based on latest thinking nationally and participating in forums where appropriate
- Specify more resilient design and materials for replacement programmes
- Enhanced collaboration with Veolia to have robust communication protocols and procedures for keeping the network resilient
- Most of our wastewater pump stations have back up generators to ensure service continuity during power outages and minimise environmental risk
- Strengthening our infrastructure resilience in our townships with more built infrastructure such as Raetihi, Ohakune and Taumarunui.

Council's future actions in response to climate change and strengthen resilience for the activity are:

- Linking reticulation networks where possible (new Ohakune and Raetihi Treatment Plant) and build centralised plant out of flood plains
- Identify wastewater pump stations at risk due to flooding inundation
- Continue with implementing the I&I programme
- Assess pipe sizes to provide for future capacity
- Consider the carbon footprint with any new / upgraded treatment plants in its decision making
- Consider gravity routed collection over pump systems.

5.3.4 Zero Carbon

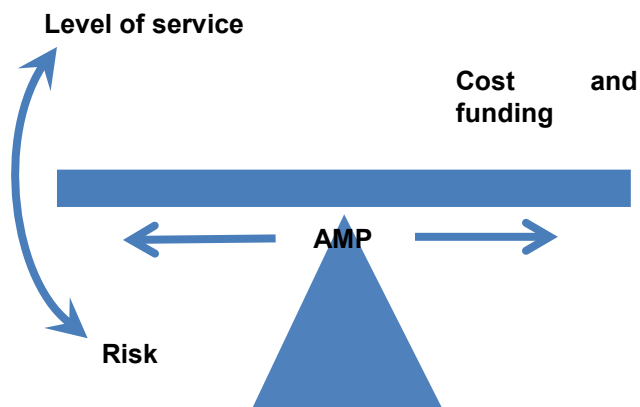
The Zero Carbon Act and recent Council direction mean that Council will be considering opportunities for reducing the carbon emissions it generates. Preliminary opportunities identified include:

- We will continue to seek new technology and opportunities to reduce our carbon footprint where appropriate for our District size, learning from other water utilities in New Zealand and internationally
- Improve the efficiency of pumps as this will reduce power consumption costs as well as prolonging the asset component lives
- Undertake an energy management assessment for the wastewater treatment plants including aerations systems and pump stations
- Continue to measure carbon footprint as part of the Climate Change Regional Group.
- PLC plant replacement programme provides an opportunity to assess equipment efficiency, resilience and carbon footprint.

6 PROGRAMME CASE

6.1 OVERVIEW

The objective of lifecycle management is the management of assets from conception to disposal whilst meeting levels of service, minimising risk and whole of life costs. Council delivers water services to deliver the LOS defined in Table 15 in the most cost effective way over the life of the asset. Council's AM approach is the appropriate balance between LOS, risk and cost as illustrated below.



6.2 ASSET INFORMATION SUMMARY

Council provides wastewater reticulation services to approximately 4,778 rateable properties connected within the Ruapehu District via the following Council owned wastewater systems:

- National Park
- Ohakune
- Pipiriki
- Raetihi
- Rangataua
- Taumarunui
- Waiouru (network only).

Except for Waiouru, each of these wastewater networks comprises an integrated series of wastewater connections, pipelines, manholes and lampholes, pump stations, and treatment plant assets. Waiouru wastewater system assets owned by Council consist of network assets only, with wastewater treatment being undertaken by the New Zealand Defence Force (Waiouru Military Camp).

District-wide overview information on Council's wastewater systems and assets is provided in Table 22, with township specific information provided in Part 4 Appendix B and C. Additional detailed information on each individual asset with respect to type, location, size, material, installation year, is stored in Council's GIS and AssetFinda).

Table 22: Wastewater asset summary

Township	Rateable properties connected	Wastewater pipeline length (km)	Manholes	Lampholes	Wastewater Pump Stations	Wastewater Treatment Plants
National Park	317	6.12	89	0	0	1
Ohakune	1,514	26.87	422	0	1	1
Pipiriki	19	2.01	16	9	1	1
Raetihi	508	12.74	151	0	3	1
Rangataua	199	4.09	33	0	1	1
Taumarunui	2,140	49.22	700	33	10	1
Waiouru	81	2.44	23	0	2	1 ²
Total	4,778	103.5	1,434	42	18	6

Source: AssetFinda (as at 30 June 2019)

¹ – Rateable properties served are the total number of connections including all residential dwellings, commercial pans and properties charged for wastewater (provided by Council as at July 2020 as recorded in the financial system).

² – Wastewater is transported through to the New Zealand Defence Force reticulation network where responsibility for its treatment and disposal is transferred to the Army Training Group.

The wastewater assets had a gross replacement cost of \$53.1 million as at 1 July 2020. The value of the network by the major asset classes are summarised in Section 9.5 with the full valuation in Appendix E, Part 4.

The rateable properties connected as recorded in the financial system is different to the number of connections recorded in Council's GIS. These two datasets need to be reconciled prior to the next valuation.

6.2.1 Private supplies

There are several small towns in the Ruapehu District that are currently unserved with a public wastewater system for larger communities, is summarised in Table 23. These townships are serviced by generally basic to advanced onsite wastewater treatment facilities (private septic tanks and effluent beds). As these townships grow, pressure will likely grow for a Council reticulated wastewater system. Council must balance the ability of the District to fund such a reticulated scheme with the social good and environmental benefits which arise from a public reticulated scheme. Other communities have been assessed in the Water and Sanitary Survey 2020.

Table 23: Unserved townships

Township	Comments
Horopito	Ongoing development of Horopito occurring, on larger sections. Plan development was for self-sufficient buildings.
Kakahi	Ground is largely pumice with large sections. Onsite disposal is seen as sustainable with no significant growth forecasted.
Mahoe	May be reticulated in future to Taumarunui (potentially through the old meat works effluent line).
Ohura	No significant growth is forecasted.
Ongarue	No significant growth is forecasted.
Owhango	Development is occurring now which may trigger the need for a public wastewater collection and treatment system but currently unaffordable.
Pipiriki	Investigation underway for providing public water supply and wastewater services
Piriaka	No significant growth is forecasted.
Raurimu	Development is occurring now which may trigger the need for a public wastewater collection and treatment system.

Council, however, does accept septage at Taumarunui and Ohakune WWTPs for private septic wastewater treatment disposal. RAL septage from the Turoa side of Mount Ruapehu is treated at the Ohakune WWTP.

6.2.2 Wastewater network

Wastewater is collected from customers with the District via a network of pipes of various sizes and materials. The wastewater pipeline is designated as the public system. The customers' (private pipework) responsibility is from the house wastewater connection pipework up to the point of connection to the public wastewater main.

Plans of each of the reticulation networks for Council's wastewater networks are contained within Part 4 Appendix B.

6.2.3 Wastewater pipelines

Network:

Wastewater collected from customers via 103.5 km of network pipes of various sizes and materials. The wastewater pipelines and manholes represent over 68% of the wastewater network assets by value. Consolidated details of these wastewater mains are provided in Table 24, and the following figures.

Most of the District's wastewater network is 150mm diameter (70.5%). mPVC/uPVC and AC/ACS materials are the most common (81.2%). Most of the network (69%) was laid after 1970, with a further 6% was constructed during the 1950-59 period, 15% during 1960-69 and 9% earlier than 1950.

Table 24: Summary of wastewater network assets

Diameter (mm)	Length (km)	%	Material	Length (km)	%	Date Laid	Length (km)	%
<= 100mm	7.6	7.4	AC	42.1	40.7	Pre 1950	9.4	9.0
150mm	73.1	70.5	mPVC/uPVC	42.0	40.5	1950-59	6.4	6.2
200-225mm	13.8	13.3	GEW	12.8	12.4	1960-69	16.0	15.5
250-300mm	7.0	6.8	HDPE/MDPE	2.6	2.5	1970-79	26.5	25.6
>=300mm	1.5	1.5	CI/DICL/CLS/Steel	0.4	0.4	1980-89	27.0	26.1
Unknown	0.5	0.5	CONC	3.4	3.3	1990-99	6.0	5.8
			Unknown	0.2	0.2	2000-09	8.5	8.2
						2010-19	3.7	3.6
Total	103.5	100.0%	Total	103.5	100.0%	Total	103.5	100.0%

Source: AssetFinda (as at 30 June 2019)

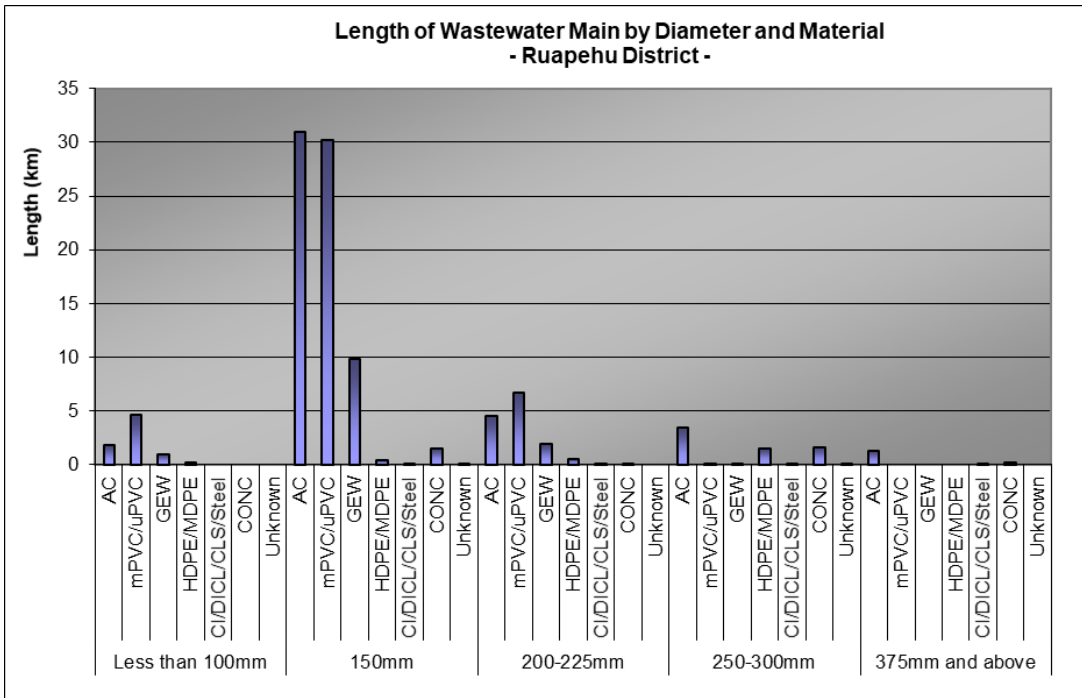


Figure 9: Wastewater pipeline material and diameter
Source: AssetFinda (as at 1 July 2019)

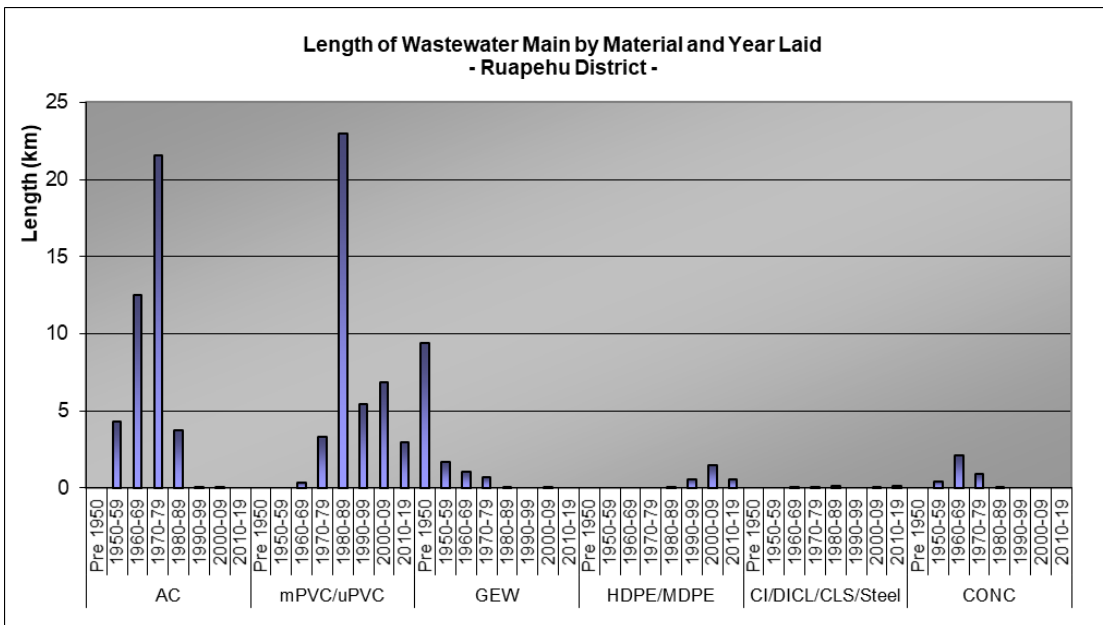


Figure 10: Wastewater pipeline material and diameter
Source: AssetFinda (as at 1 July 2019)

Manholes:

The 1,434 manholes across the wastewater network provide access for inspection and maintenance. Manholes which receive external wastewater from camper vans (known as dump stations) are restricted to designated areas.

Lampholes:

There are 42 lampholes for ventilation purposes in the wastewater network. Taumarunui has five historic lampholes registered with Heritage New Zealand.

6.2.4 Wastewater pump stations

Wastewater pump stations:

Pump stations owned by Council that provide for the transfer of wastewater to elevated points within the collection networks or to the wastewater treatment plant.

Raetihi has 3 network pump stations which provide elevation before wastewater is gravity feed to the treatment plant. Taumarunui has ten network pump stations, with 8 stations conveying waste to the main station at Victory Bridge which then pumps to the treatment plant. Rangataua has one pump station which collects the gravity waste and pumps it to the treatment plant. Ohakune has one pump station which transfers wastewater from a developed catchment to the Ohakune gravity network. Pipiriki has one pump station which collects the liquid from the septic tanks and pumps it to the sand filter for treatment, then across the bridge to the land disposal as subservice irrigation.

These pump stations consist of mechanical assets (pumps, sumps, valves, pipework), electrical assets (switchboards and controls), and civil assets (buildings).

SCADA has been installed in 16 of the 18 wastewater pump station switch boards providing monitoring data of pump station performance: operational hours, number pumps, alarms (refer to Figure 6). Maitai #1 and #2 pump stations currently do not have SCADA installed. SCADA installation is planned for 2022/23.

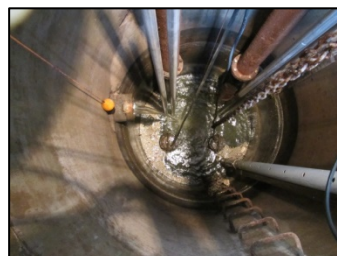


Figure 11: Pump station examples

6.2.5 Wastewater treatment

Council operates six consented WWTP. Wastewater treatment facilities consists of civil (buildings, filters, oxidation lagoons, pipework), mechanical (intake step and drum screens, aerators, UV disinfection units) and electrical (switchboards, controls, instrumentation) assets. Wastewater treatment facilities are progressively being connected via SCADA enabling real time monitoring and alarming and providing remote operation management capabilities.

A summary of Council owned and operated WWTPs is provided in Table 25.

Table 25: Wastewater treatment plant summary

Township	Plant components
National Park	Primary treatment oxidation lagoon + Secondary treatment oxidation lagoon + Tertiary treatment wetlands
Ohakune	Inlet screen + grit removal + primary oxidation lagoon + secondary oxidation lagoon + tertiary stone media lagoon + UV disinfection (+ septage disposal unit)
Pipiriki	2 x sand filters in parallel (rotation) + land treatment
Raetihi	Primary lagoon + secondary lagoon + tertiary stone media lagoon
Rangataua	Primary lagoon + secondary lagoon + tertiary wetlands
Taumarunui	Inlet screens + primary oxidation pond + secondary oxidation pond + tertiary wetland treatment + UV disinfection

A summary of Council WWTP disposal methods, volumes and receiving environment is provided in Table 26.

Table 26: Wastewater treatment plant disposal method

Township	Consented discharge m ³ /day	Consent No.	Discharge method	Discharge Stream/River
National Park	700	103403	Gravity	Makaretu Stream
Ohakune	3,900	101701	Gravity	Mangawhero Stream
Pipiriki	15	106225	Pumped	Sub-surface Irrigation
Raetihi	820	102379	Gravity	Makotuku River
Rangataua	29	4926	Gravity	Mangahuehue Stream
Taumarunui	3,300	102426	Gravity	Whanganui River



Figure 12: Treatment plant examples

6.3 ASSET CRITICALITY

The criticality of the asset is an indicator of the consequence of asset failure with respect to how its failure will impact overall operational performance, operator and customer safety, and the environment.

Council officers, along with engineers and operators from Veolia are aware of the critical assets within the wastewater network. These include items such as raw wastewater pipelines, trunk mains and control equipment. Systematic and documented criticality assessment of Council assets has, however, not been completed for either the above or below ground asset components (criticality assessment was incorporated into the 2013 Asset Condition Assessments for Ohakune wastewater above ground assets).

The criticality of assets is assessed using the criteria in the following table. Critical asset identification is currently used in decision making with renewals, condition assessments and operational activities. Refining the categorisation of critical wastewater assets at component level to support better decision making has been identified as an improvement action. The categorisation of critical above ground wastewater assets at component level has been completed as part of the condition assessments but not recorded in Council's AssetFinda. This needs to be completed in AssetFinda so will take time to complete (and identified as an improvement action).

This AMP provides for the undertaking of asset criticality assessments as part of ongoing performance and condition assessment and as part of the Asset Management Improvement Programme Section 8. Preliminary criticality criteria for the wastewater activity is shown in Table 27.

Table 27: Asset criticality assessment criteria

Criticality Index	Criticality	Criteria
1	Non-critical	Failure will not have an adverse impact on safety, performance or the environment, e.g., sample valve.
2	Low criticality	Failure would have an adverse impact, but protection such as redundancy protects against it, e.g., pumps in duty-standby.
3	Critical	Failure will have an adverse impact on safety, performance or the environment, e.g., pump with no standby.

Although a formal criticality assessment has not been completed, the following assets have been identified as critical at each township. A greater level of management is applied to them.

- Taumarunui township critical risk assessment has identified, based on operational knowledge:
 - Victory Bridge rising main to the WWTP - have renewed rising main across bridge which exposed infrastructure and was deteriorating more rapidly than the buried asset has been completed.
 - Huia WWPS switch board has allowance for a third pump.
 - Analysis of the need for a Standby Pump for Matai Street WWPS has been completed and is a low priority, however, to be prudent a pump is added to critical spares.
 - Tubby Woods WWPS - SCADA has now been installed at the isolated Tubby Woods WWPS in Taumarunui. This upgrade allows offsite monitoring and alarming for the pump station and reduces the risks of overflows at this site.
- Raetihi township:
 - Raetihi truck main has locked manholes to the WWTP, and at the discharge point into the Makotuku stream.
 - Standby pump for Bridge Street WWPS assessed and pump placed in critical spares.
- Waiouru township the aging Andrews Drive Pump Station was upgraded.

A critical spares list has been developed across the assets. Most spares are now standardised, and one critical spare is now held in stock at Veolia's yard.

6.4 ASSET PERFORMANCE

6.4.1 Consent conditions

The future consent conditions for the WWTPs is main driver for the wastewater activity and a significant challenge as discussed below.

The majority of wastewater treatment plants in the District discharge to streams or rivers via submerged or surface wetlands and rock filters, except Pipiriki which discharges to land. They all have specific consent conditions which set the quality of discharge allowed. These conditions include discharge limits and some nutrient levels.

The resource consent discharge limits for each scheme are summarised below. All wastewater treatment plants resource consents except Pipiriki and Taumarunui have expired. New applications for Rangatua, Ohakune, Raetihi and National Park were lodged in August 2015. All facilities continue to legally operate under provision of s124 of the RMA (1991). This means the previous consents remain current until new consents have been granted.

Discussions with both HRC and iwi have continued with a variety of reasons for the consents to have been on hold while more information has been gathered. Including information around ammonia effects on periphyton growth, what land passage is culturally acceptable. Moving to load based conditions rather than absolute values to provide more environmental certainty and allows for growth and system changes.

It was expected that National Park Village and Rangatua WWTPs would have secured resource consents after signoff by parties. Crown negotiations have absorbed the capacity of iwi over this period to achieve these projects. Iwi time has been invested in land passage assessments. Without securing resource consents, Council has not been able to invest in the upgrade of the National Park WWTP.

Table 28: Status of resource consents

Township WWTP	Receiving environment	Expiry date	Consent status	Application lodgement date	Notes
National Park	Makaretu Stream	17 Nov 2015	Operate under existing consent	15 August 2015	Application lodged with HRC 17 August 2015. This consent has been on hold with HRC as final attempts to obtain iwi formal sign off. In this time there has been a variation to seek load conditions rather than maximum volumes.
Ohakune	Mangawhero River	17 Nov 2015	Operate under existing consent	15 August 2015	Application lodged with HRC 17 August 2015. Council has requested that this consent be put on hold to allow for an outcome of a request to the Government Tourism Infrastructure Funding. Council achieved funding for a study of what would be acceptable "land passage" for iwi.
Pipiriki	Sub-surface irrigation to land	1 July 2035	Current	Current consent	This consent may need to be varied and plant upgraded depending on the outcome of a new water supply being established for the community.
Raetihi	Makotuku River	17 Nov 2015	Operate under existing consent	15 August 2015	Application lodged with HRC 17 August 2015. Council has requested that this consent be put on hold to allow for an outcome of a request to the Government Tourism Infrastructure Fund to be notified. A successful application for funding will potentially affect the upgrades undertaken at the Raetihi WWTP.
Rangataua	Wetland by the Mangahuehue Stream	20 Dec 2005	Operate under existing consent	30 June 2014	Application lodged with HRC 30 June 2014. Council has responded to a s92 request for further information from HRC. In addition, iwi consultation has been taken further in assessing this system against their goals of land passage treatment as expressed in Ohakune and Raetihi resource consents.
Taumarunui	Whanganui River	1 July 2023	Current	Current consent	HRC and Council to sort a lawyer's opinion on the status of the consent. The consent is deemed to be current, however it expires soon.
Waiouru			Current	Current until	Consent held by New Zealand Defence Force – Waiouru Army Camp.

There is increasing pressure on the catchments from competing uses of water from the rivers. There is heightened focus from the community around protection of the freshwater resource. The NPS for Freshwater Management 2020 (clean rivers) and Horizons One Plan will see higher standards of treatment required to obtain consents.

Iwi consultation has also been given more emphasis and more are choosing to engage in the process. Until mandates and settlements with the Crown is complete, this will be a changing landscape. Council's challenge is to provide information in a manner which is informative to allow all iwi to participate in the process while managing potential conflicting desires when offering up resource consents. Council need to consider the NPS for Freshwater Management 2020 in addition to the One Plan in its consultation. While Council has managed to develop an award-winning methodology for engagement "The Wai Group Process" to consent lodgement, there are still many steps on the journey and new groups continue to join the process. As iwi also change there is a desire on their part to relitigate the process reached which is a high risk for the Council. Council continues to demonstrate to Horizons as the resource consent processor that there is good community consultation.

Traditional consents have been granted on maximum volumes which allowed from some rain events but not major storms. The Hearing Commissions decision for New Zealand Defence Force Waiouru Wastewater directed Horizons to include an allowance for all storm events.

Assessments are made on worse possible scenario, that is the ecological impacts of each parameter are assessed on the maximum volume possible to discharge and the receiving environment being in low flows. This scenario false represents receiving environment need to achieve elevated treatment levels. Council's new consent will be using load concentrations, while much tighter, it will allow for more certainty around discharge affects in the river. This should allow some flexibility around the length a resource consent can be granted for and growth impacts triggering changes to treatment plants. It also removes the risk of breaching volume conditions during high flows or having to build an over-sized plant which would not perform optimal during low flows.

An additional demand driver is from cultural expectation of treatment processes and the levels of land passage required to meet mana whenua values. The fundamental position is that the direct discharge of wastewater to surface water is culturally unacceptable. A challenge is finding the balance between treatment provision, movement through Papatuanuku and discharge. All water is connected and even with discharge into Papatuanuku it will enter underground water sources. This cultural paradigm is summarised by the following maxim:

“E rere kau mai ana te Awa nui mai i te Kāhui Maunga ki Tangaroa. Ko au te awa, ko te awa ko au”

This translates as:

“The mighty river flows from the mountain to the sea. I am the river and the river is me”.

Further to this:

“Water is a fundamental element of all facets of life and is essential to our health and wellbeing. Our waterways provide us with a constant supply of mauri to replenish and revitalise our iwi”.

Legislation changes such as the Water Services Bill continue to add more complexity with new organisation being formed, the potential abolishment of the RMA and new replacing legislation make getting these consents across granted a challenge.

6.4.2 Capacity/performance by asset class

The overall performance of the wastewater assets is summarised in Table 29. Specific information on asset capacity / performance for each of the individual wastewater systems is provided in Appendix C, Part 4.

Table 29: Capacity performance results

Asset class	Asset Capacity/ Performance Grading	Confidence Grade	Comment/Substantiation
Network			
Wastewater Pipelines	2	B	Wastewater mains for all wastewater schemes are of sufficient capacity to accommodate dry weather flows. The wastewater mains provide overall good performance with generally low instances of chokes and overflows. Odour complaints associated with the wastewater network are low. The Raetihi wastewater network previously suffered from wet weather overflows as a result of significant inflow and infiltration and insufficient capacity to convey peak wet weather flows. Relining of the poor condition mains over the last few years, with a significant amount in 2018/19 which has been effective in reducing wet weather flows. However: Ohakune, Raetihi and Taumarunui contain significant quantities of AC and GEW pipework installed prior to 1970. This pipework is progressively deteriorating and contributes to infiltration and wet weather flows. A CCTV programme has been implemented at Ohakune in 2020.
Manholes	2	B	Manholes in the Ruapehu district are typically free from foreign rubbish. Wastewater blockages and overflows as a result of manholes or content within them are rare. Manholes are generally locatable without undue difficulty, with the exception of Ohakune where a large number of manholes could not be

Asset class	Asset Capacity/ Performance Grading	Confidence Grade	Comment/Substantiation
			<p>accessed as they were sealed over or overgrown making them unlocatable.</p> <p>However: System information (lid levels and invert levels) is still being gathered for many townships, Ohakune, Raetihi and Rangataua networks have comprehensive information. The GIS plans showing the location of the wastewater manholes are reported to contain areas of inaccuracy, with improvements being made by RDC when reported.</p>
Pump Stations			
Wastewater Pump Stations	3	B	<p>WWPS are typically operationally reliable and of sufficient hydraulic capacity. The pumps at the WWPS's are inspected and serviced on an annual basis, and any improvement works are identified for future action. Odour complaints associated with wastewater pumping stations are rare. The majority of WWPS have duty and standby pumps and SCADA. The majority of WWPS in Taumarunui (excluding Matai Street #1 & 2 WWPS) are connected to SCADA and provide real time monitoring, alarming and operational management. Victory Bridge WWPS and Huia Street WWPS have on-site automated generators providing continuity of operation in the event of a mains power outage. However: Bridge Street WWPS (Raetihi) and Matai Street #2 WWPS (Taumarunui) do not have standby pumps and hence have no redundancy in the event of pump failure.</p>
Treatment and Disposal			
Wastewater Treatment Plant	3	B	<p>Resource consents exist for the discharge of wastewater from each of the six Council operated WWTP's. All treatment plants have adequate hydraulic capacity for the dry weather flows received. All treatment plants are connected to SCADA providing real time monitoring, alarming, and remote operational management. However: The resource consent for National Park, Ohakune and Raetihi expired on the 17 November 2015. New consent applications for these plants were lodged on the 15 August 2015. Rangataua expired on 20 December 2005. While an application has been lodged for a replacement consent, a new consent has not yet been obtained. Ohakune is repeatedly non-compliant with the discharge quality limits for suspended solids specified within the resource consents (refer to Section 3.7 for further discussion). National Park, Raetihi and Rangataua WWTP have no screening prior to discharge of raw wastewater into the primary oxidation lagoon. All WWTPs (excluding Ohakune) have exceeded their consented daily discharge limits. Investigation into the discharge exceedances at National Park are believed to be due to ground water infiltrating the lagoons. At Raetihi wet weather flows are considered responsible for exceeding the 820m³/day discharge limit. Relining of poor condition mains at Raetihi has reduced the wet weather flows and a smoke testing programme is planned for 2020/21 period. Trade waste discharge is not actively controlled or managed. Effluent flow meters have been replaced at Taumarunui and Raetihi and connected to the SCADA system to provide an accurate record of daily effluent volume. Sludge depth surveys were completed at the Ohakune and Raetihi WWTP ponds in 2019. The survey determined that sludge occupies less than 25% of the volume of each pond. Sludge depth surveys have also been completed for Rangataua and National Park WWTP ponds in the past.</p>

Performance Grading Scale: 1 = Very Good; 2 = Good 3= Moderate 4= Poor 5 = Very Poor

This AMP provides for the ongoing formal collection, review and update of asset capacity/performance information. Primary deficiencies with respect to asset capacity / performance for Council's wastewater systems are in relation to:

- Discharge (resource consent) compliance
- Wet weather performance (I & I).

Resource consent discharge compliance:

All wastewater treatment facilities have at some time over the last three years been non-compliant with particular resource consent conditions, as summarised in Table 30. The primary deficiencies are for discharge volume exceedance or discharge quality non-compliance. There is new monitoring and stringent enforcement of the existing resource consents. This means Council will expect increase in the number of non-compliances issued by HRC.

Table 30: Resource Consent Compliance for 2018/19

WWTP	Parameter Measured						
	Flow	BOD5	Total Suspended Solids	Total Nitrogen	Total Phosphorous	Ammonia	E.coli
National Park	N	n/a	n/a	n/a	n/a	Y	Y
Ohakune	Y	Y	N	n/a	n/a	N	Y
Pipiriki	N	Y	Y	N	Y	n/a	n/a
Raetihi	N	Y	Y	n/a	n/a	Y	Y
Taumarunui	N	n/a	n/a	n/a	n/a	N	N

Note that wastewater collected in the Rangataua network is transported through the network to the Taumarunui WWTP, where it is treated prior to discharge.

Wet weather performance (I & I):

In an ideal world, a wastewater network would collect and convey all wastewater flows to a treatment facility for processing before discharging an effluent of suitable quality to the environment. In practice, intermittent discharge of dilute, untreated wastewater to waterways or onto private properties will occur due to wet weather capacity constraints. A completely leak free system where no rainfall enters a wastewater network is not a practical outcome given the age of the pipes and human activity.

These increases occur in Raetihi, some Ohakune wastewater networks, and discrete catchments within the Taumarunui wastewater network. The ageing and progressive deterioration of AC and GEW pipework also presents the potential for increases in wet weather flows.

The effluent flow meter was replaced at Raetihi WWTP in 2019 with a new Magflow meter.

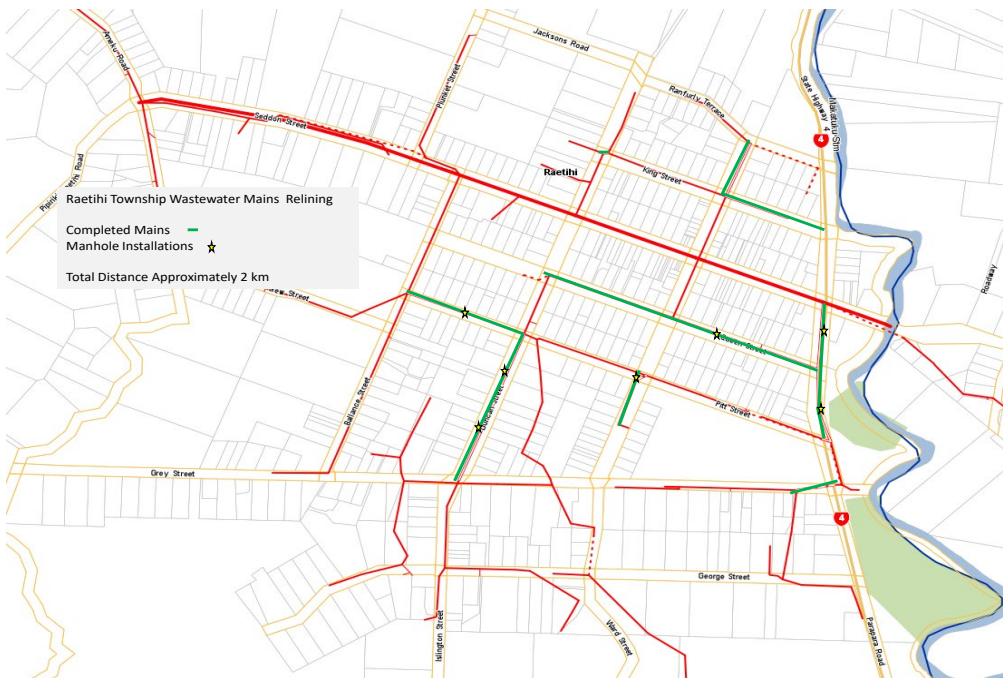


Figure 13: Completed mains relining in Raetithi

Significant wet weather flow increases at Raetithi WWTP result in regular wet weather flow discharge exceedance. CCTV survey of the wastewater network and subsequent relining of poor condition mains has been completed in the last few years throughout the township wastewater network as shown in Figure 13.

No overflows were recorded during the 2019/20 period due to the network capacity being exceeded. This reduction in overflows indicates that the relining of the poor condition mains has been effective in reducing infiltration in the network. A smoke testing programme is planned for the 2020/21 period to reduce wet weather inflows to the WWTP.

Wastewater blockages:

The figure below shows the wastewater main breaks and provides an indication of the performance of assets over time. This shows that the network performance is still within an acceptable industry level (about <70 per 100km) and the technical performance measure (<30 per 100km). It has been trending upwards for the last three years so will need to be monitored.

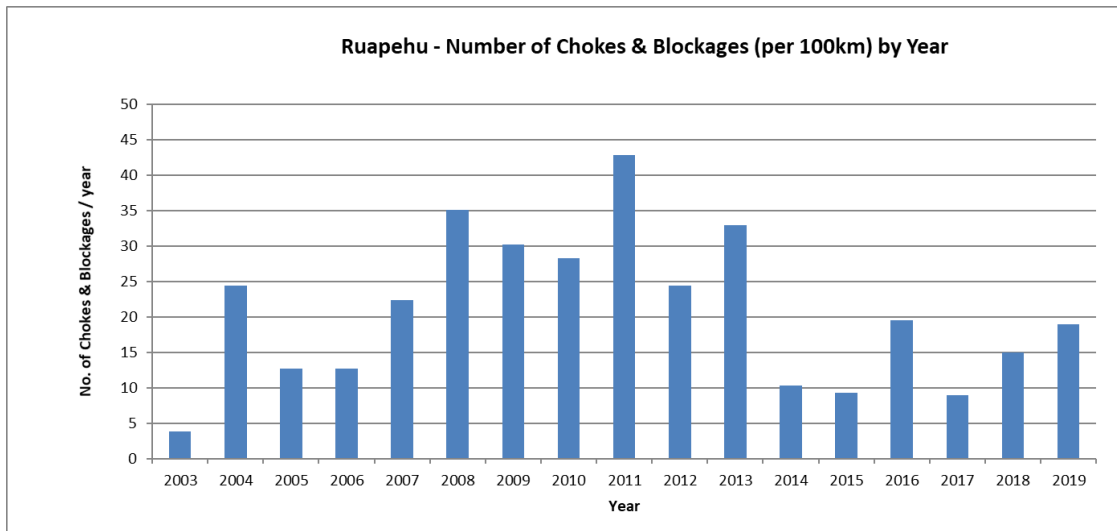


Figure 14: Wastewater main chokes and blockages (2003 to 2019)

Source: Veolia (as at September 2020)

6.4.3 Individual township wastewater system asset capacity / performance

Overall performance grades by township are provided in Table 31. Specific information on asset capacity / performance with respect to individual schemes is provided in Part 4, Appendix C.

Table 31: Wastewater performance summary

Wastewater system	Asset Capacity/Performance Grading
National Park	2
Ohakune	3
Pipiriki	2
Raetihi	3
Rangataua	3
Taumarunui	2
Waiouru	3

Source: Veolia (as at September 2020)

The current asset capacity / performance is similar to that reported in the 2018 AMP. Details of asset capacity / performance improvements are detailed for each of the individual wastewater systems within Part 4, Appendix C.

Council undertook significant CCTV investigations in Raetihi and subsequently completed a wastewater main relining programme in 2018/19 (as noted above). This relining has been effective in reducing overflows resulting from I & I issues. A CCTV programme has commenced at Ohakune and is scheduled to be completed by the end of 2020 to identify problem areas in the wastewater network. This AMP provides for an ongoing programme of wastewater main refurbishment to ensure asset integrity and service continuity.

6.5 ASSET CONDITION

6.5.1 Condition by asset class

Asset condition is formally assessed by Veolia to industry guidelines on a rolling programme by each township. The latest assessments are:

- 2018 - National Park and Rangataua wastewater assets
- 2019 - Ohakune wastewater assets.

The overall asset condition of Council's wastewater asset classes is summarised below by major asset class. This shows that all asset classes are considered in good condition. Specific information on asset condition for each of the individual wastewater networks is provided in Part 4, Appendix D.

Table 32: Asset condition results at asset class level

Asset classes	Asset Condition Grading	Confidence Grade	Comment/Substantiation
Wastewater mains	2	B	The majority of the reticulation mains (69.3 %) were laid after 1970. 40.5% of the wastewater mains are of mPVC/uPVC material. National Park, Pipiriki and Rangataua wastewater networks were all installed no later than the 1980's and are all in good condition. Overall, operators report the wastewater mains to be in good condition. However: 40.7% of the total wastewater network mains are of AC material. High failure rates for the Raetihi wastewater network are indicative of a generally poor condition of mains, noting that relining works has been effective in reducing influent flows to the WWTP. Ohakune and Taumarunui wastewater networks also contain significant AC main which is progressively deteriorating. Based on faults identified through CCTV of the Taumarunui network in 2013, relining work was completed in 2015. Relining of the poor condition mains at Raetihi during 2018/19 has been effective in reducing wet weather flows.
Manholes	2	B	Overall, the integrity of the manholes in the Ruapehu District is good with manhole chambers and benching in good condition. Occasional manholes require re-haunching. The average age of manholes in the Ruapehu District is 50 years.

Asset classes	Asset Condition Grading	Confidence Grade	Comment/Substantiation
Wastewater pump stations	2	B	Overall, WWPS condition is good. New switchboards have been installed at 6 WWPS over the last few years. At Pipiriki WWPS and Bridge St WWPS (Raetihi), reflux valves and isolating valves are located within the pump sump. Corrosion of the valves is commencing as a result of their direct exposure to the corrosive WWPS environment. The upgrade of the Victory Bridge WWPS High Lift pumps was completed in 2015. New pumps have been installed at the Seddon Street WWPS in 2019.
Wastewater treatment plant	2	B	WWTP condition is generally good. Except for Ohakune and Taumarunui, the remaining WWTP are primarily civil structures with long useful lives. A new Rotating Drum Screen and Grit Trap were installed at Ohakune in 2016 to replace the previously existing step screen A major overhaul of the inlet step screen at Hikumutu WWTP was completed in 2018. At the time of writing this AMP, an investigation into replacement aerators was in progress. New effluent flow meters were installed at Raetihi and Hikumutu WWTP's in 2019.

Source: Veolia (as at September 2020)

Condition Grading Scale: 1 = Very Good; 2 = Good 3= Moderate 4= Poor 5 = Very Poor

6.5.2 Individual township wastewater system condition

Overall asset condition grades by township are provided in Table 33. This shows that all townships are in reasonable condition. Specific information on asset condition with respect to individual schemes is provided in Part 4, Appendix B.

Table 33: Wastewater condition grading summary by township

Wastewater System	Condition Grading
National Park	2
Ohakune	2
Pipiriki	2
Raetihi	2
Rangataua	2
Taumarunui	2
Waiouru	2

Source: Veolia (as at September 2020)

Condition Grading Scale: 1 = Very Good; 2 = Good 3= Moderate 4= Poor 5 = Very Poor

6.6 ONGOING ASSESSMENTS

Asset condition and performance monitoring is undertaken to identify under-performing assets and those about to fail. Ongoing asset capacity / performance assessment and asset condition assessment is undertaken by Council on a rolling basis (refer to table below).

Table 34: Rolling asset performance and condition assessment schedule

Year	Wastewater systems
1	Raetihi and Pipiriki
2	Waiouru
3	Taumarunui
4	National Park
5	Rangataua
6	Ohakune

The formal asset condition monitoring utilises asset capacity/performance information and asset condition information collected during routine system operation and maintenance. This includes:

- Physical condition inspection assessments.
- Resource consent discharge compliance.
- Request for service numbers.
- Customer interruptions – blockage and overflow numbers.
- Customer satisfaction.
- Asset failure work order records.

6.7 LIFECYCLE MANAGEMENT DECISION MAKING

Council categorise lifecycle management activities into broad expenditure and activity categories as shown in Table 35. Currently Council's financial system is unable to distinguish the operations and maintenance as separate items within the system. This is an ongoing improvement.

Table 35: Lifecycle management activities

Expenditure category	Related AMP lifecycle management plan	Activity category	Description
Operations	Routine maintenance plan	Operations	Operations incorporate all expenditure necessary for day to day operation and also includes for asset management planning activities.
		Maintenance	Maintenance incorporates all expenditure necessary to ensure ongoing operability of the asset, but which does not extend the overall asset life. Includes planned maintenance (preventative and corrective) and unplanned maintenance (breakdown).
Capital	Renewals / replacement plan	Renewals	Renewals incorporates all expenditure necessary to overhaul / rehabilitate an asset where this expenditure extends the overall asset life or completely renew / replace the overall asset.
	Creation / acquisition / augmentation plan	Growth	Growth incorporates all expenditure to add infrastructure / infrastructure capacity in order to expand services (provide service to future customers).
		LOS	LOS incorporates all expenditure to improve performance/achieve (existing customer) LOS.

The decision making process for the determination between maintenance, renewal / replacement and creation / acquisition / augmentation for this AMP in Figure 15. This tree is used by the contractor in their daily operation activities.

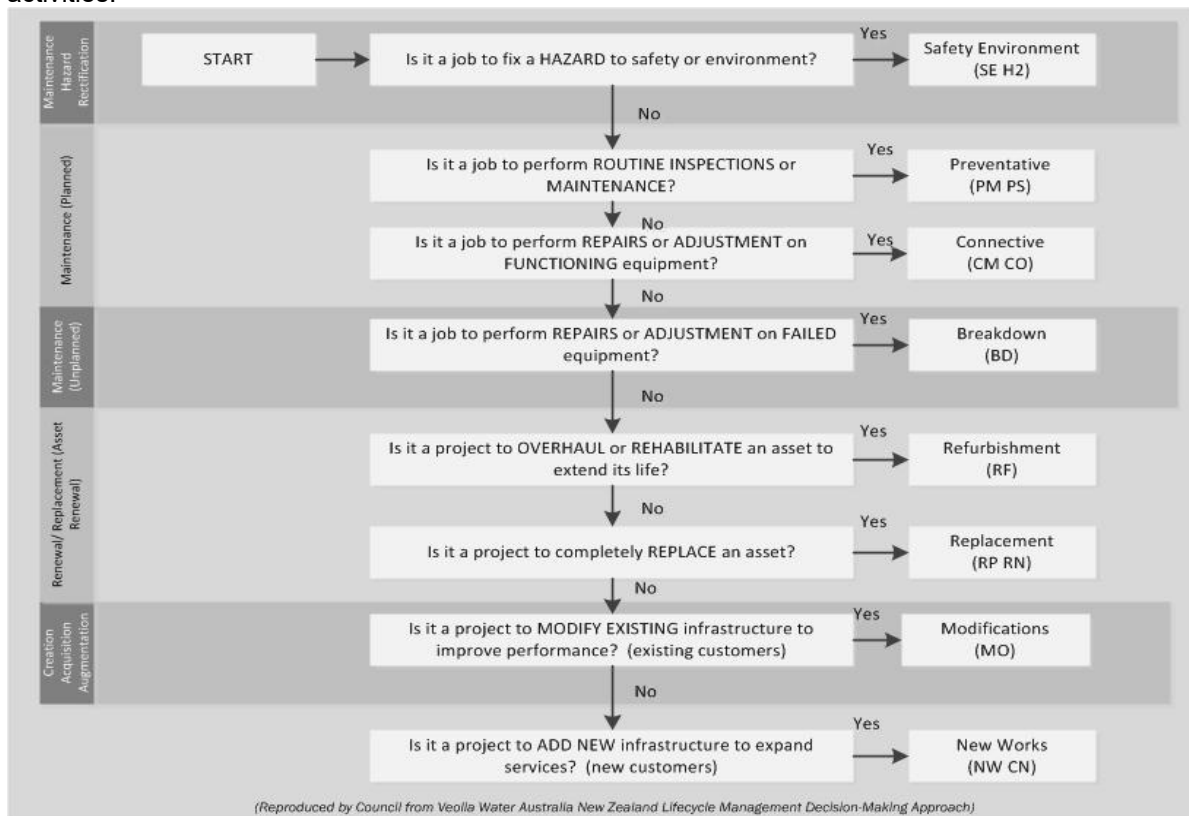


Figure 15: Asset maintenance, renewals and creation decision making

6.8 SERVICE DELIVERY ARRANGEMENTS

Council maintains ownership and responsibility for managing the wastewater assets and undertaking the necessary planning and works to meet LOS. Council has engaged a Facilities Management Contractor (Veolia) to undertake day to day operation and maintenance works and, in a partnering arrangement, assists Council with asset renewals, upgrades and improvements and long term asset management planning activities.

Planned maintenance is scheduled by Veolia within its CMMS according to contract specified requirements and Veolia established maintenance schedules. Planned maintenance schedules are driven by factors such as legislative requirements and historical failure frequencies (preventative maintenance) and SCADA trends (corrective maintenance).

Unplanned maintenance relating to the wastewater networks within the District is typically generated by customer notification to the Council customer service centre. The work request is entered into the Council RFS system and forwarded to the facilities management contractor for action within the KPI timeframes existing under the Facilities Management Contract.

KPIs within the Facilities Management Contract between Council and Veolia ensure that the contractor's work meets the LOS requirements and is undertaken according to relevant standards and specifications.

The current contract has been in place for approximately 25 years and is generally seen as successful arrangement for a small district council in a remote community. A rollover rather than developing a new contract is preferred, based upon the fact that Central Government may be establishing water entities which will take over these services in the next few years. This rollover will be subject to the conditions of contract being achieved and Section 17A review provided by an independent auditor.

A S17A review is underway with the focus on the service requirements (or obligations) of both Council and Veolia. It is acknowledged that the future service delivery model will most likely be impacted by the pending three waters reform.

6.9 OPERATIONS AND MAINTENANCE PLAN

Asset operations and maintenance tasks relate to the day-to-day running and upkeep of assets and their associated costs.

The objective of the operation and maintenance activities is to maintain and operate the system such that the performance and reliability targets within the wastewater LOS are met. Council keeps the wastewater facilities suitable, accessible, safe and well maintained by carrying out planned and reactive maintenance. A breakdown of Council's operation and maintenance activities is included in Table 36.

Council aims to optimise its maintenance activities to minimise the total maintenance cost. The optimal maintenance mix is a balance of planned and reactive maintenance. Maintenance includes minor repairs that cannot be capitalised, consistent with Council's capitalisation process.

Table 36: Operation and maintenance activities

Plan Component	Description	Specific Items
Operations	Work conducted for the operation of Council wastewater systems to ensure optimal performance and quality control to meet regulatory and level of service requirements. Includes for Council corporate overhead costs, day to day operational costs and long term planning and asset management costs.	<ul style="list-style-type: none"> • Council labour, corporate systems and overhead costs providing for the following services required to deliver efficient and effective water services to the District: • Operations services. • Customer service and billing. • Operations (facilities management contractor). • Operator labour for WWTP operation and reticulation operation. • Chemicals. • Facilities management contractor depot, vehicle and overhead costs. • Insurance. • Electric power to operate the WWTPs and water pump stations. • Consultants/testing/software/other services.

Plan Component	Description	Specific items
Hazard management	Work undertaken by Veolia to fix a hazard which is affecting safety or the environment.	<ul style="list-style-type: none"> Replacement of manholes, Replacement switch boards Appropriate disposal of asbestos pipes.
Preventive maintenance	Periodically scheduled inspections and maintenance scheduled by Veolia according to established maintenance schedules within the contractor's CMMS.	Facilities management contractor costs associated with undertaking ongoing planned maintenance items including: <ul style="list-style-type: none"> Inspections of all WWTPs. Wastewater pump station routine inspections. Six monthly inspections of raw water mains and intakes. Electrical planned maintenance on WWTP and WWPS.
Corrective maintenance	Planned maintenance, typically identified from preventative maintenance tasks, scheduled by Veolia, to return an asset to its required level of service.	Facilities management contractor costs associated with: <ul style="list-style-type: none"> Pump repair of WWTP and WWPS pumps.
Breakdowns maintenance	Reactive maintenance, typically as a result of a RFS call to Council's call centre, required to be undertaken by Veolia to return a failed asset to its required level of service.	Facilities management contractor costs associated with undertaking reactive maintenance items including: <ul style="list-style-type: none"> Repair of burst main/leaking mains. Repair/replacement of broken laterals/leaking laterals. Wastewater main flushing to remove chokes and blockages.

6.10 RENEWALS PLAN

Asset renewals do not increase the asset's design capacity but restore, rehabilitate, replace or renew existing assets to their original capacity.

Council strategy with respect to asset renewal is that they will rehabilitate or replace assets when justified by the factors in Table 37.

Table 37: Asset renewal factors

Factor	Description
Risk	The risk of failure and associated financial and social impact justifies action (eg, probable extent of damage, safety risk, community disruption).
Asset performance	Renewal of an asset when it fails to meet the required level of service. Non-performing assets are identified by the monitoring of asset reliability, efficiency and quality during routine inspections and operational activity and through performance and condition assessments. Indicators of non-performing assets include repeated and/or premature asset failure, inefficient energy consumption, and inappropriate or obsolete components.
Economics	When it is no longer economic to continue repairing the asset (ie, the annual cost of repairs exceeds the annualised cost of renewal).
Efficiency	New technology and management practices relating to increased efficiencies and savings will be actively researched, evaluated and where practical, implemented.

Renewals are prioritised and programmed in accordance with the following criteria, or in urgent cases undertaken with shortened timeframes:

- Public safety risk
- Criticality of asset to operation
- Criticality of asset to achievement of service standards and outcomes
- Financial risk of deferring work
- Intensity of usage
- Environmental risk
- Political preference.

Renewal identification process:

The renewals programme is predicted from the assets nearing the end of their useful life. This is then validated against the actual pipeline condition / performance etc. before its actually renewed. Council has evaluated its end of useful life ages and found it was very conservative around its pipe lives. This plan signals Council move for useful life to the New Zealand Wastewater Authority “Average” useful life with adjustments for RDC ground conditions.

The comparison between useful lives is summarised in the following table including justification where there are differences. The revised useful lives are used in the asset valuation. It is intended that the useful lives are peer reviewed again to ensure meeting industry good practice.

Table 38: Useful life

Wastewater material	main	Council revised useful life	New Zealand wastewater authority “average” useful life adjusted	NZ Infrastructure Asset Valuation and Depreciation Guidelines typical useful lives (years)	Justification
AC		71	71	50-150	Increase in useful life based on consideration against North Island Average Useful Life (2015) data and supporting condition information (CCTV inspections)
mPVC/uPVC		100	90		Increase in useful life based on alignment with industry recommended minimum life expectancy
GEW		100	87		Increase in useful life based on alignment with industry recommended minimum life expectancy. An increase in useful life is supported by both RDC condition information (CCTV inspections) and North Island Average Useful Life (2015) data.
CONC		82	82		Same as AC justification

Source: Veolia Review (2018)

Comparison with annual depreciation, historical and forecast expenditure at major asset class level is shown below. This shows that historical expenditure has been much less than annual depreciation for all asset classes. Reflective of Council underspend was the limited deterioration of the asset against the theoretical useful life.

Table 39: Renewal expenditure versus annual depreciation comparison

Asset class	Annual depreciation (2020)	2017/18 Actual renewals	2018/19 Actual renewals	2019/20 Actual renewals	Ten year renewal forecast (average per year)
Network	438,192	88,000	45,000	107,000	779,438
Pump stations	142,039	177,000	131,000	23,000	74,096
Treatment and disposal	249,557	164,000	0	83,000	609,504
Total	829,788	429,000	176,000	213,000	1,463,038

Key renewal projects:

Key wastewater network renewal expenditure projects for the Ruapehu District are indicated below. These exclude rolling renewal programmes. *The renewal projects are indicative and will be reconfirmed prior to finalising the AMP.*

Table 40: Key wastewater renewal projects

Township	Renewal project	Justification
National Park	National Park Wastewater Above Ground Assets: Renewals	Structured scheduled replacement programme for the National Park wastewater treatment plant (average \$18.5k per annum over ten years)
	National Park WWTP: Wastewater Main Refurbishment	To repair the mains break and disjointed pipe at the WWTP inlet swamp (estimated at \$25k in total).
Ohakune	Ohakune Wastewater Above Ground Assets: Renewals	Structured scheduled replacement programme for the Ohakune wastewater treatment plant (average \$123k per annum over ten years)

Township	Renewal project	Justification
	Ohakune Wastewater Network: Sewer Rehabilitation	Estimated at \$100k in 2021/22
	Ohakune Wastewater Networks: Wastewater Main Refurbishment	Structured scheduled relining and renewal programme for the Ohakune wastewater mains (includes for upsizing where required to accommodate growth). Estimated at \$170k per annum for ten years.
Pipiriki	Pipiriki WWTP: Renewal of Sand filter	Replace sand filter lining and rebuild the media within the sand filter (estimated at \$60k in total)
Raetihi	Raetihi Wastewater Networks: Wastewater Main Relining (stage 2)	Perform Stage Two of a structured rolling programme of sewer lining for the existing Raetihi Wastewater Reticulation mains (estimated at \$572k in total over nine years).
	Raetihi Wastewater Above Ground Assets: Renewals	Structured scheduled replacement programme for the Raetihi wastewater treatment plant (estimated at \$39k per annum over ten years).
	Raetihi Wastewater Networks: Seddon WWPS: Asset Renewal	Renewal (replacement and refurbishment) of assets (estimated at \$30k in total).
Taumarunui	Taumarunui (Hikumutu) WWTP renewal	Estimated at \$1 million in 2021/22
	Taumarunui (Hikumutu) Wastewater Above Ground Assets: Renewals	Structured scheduled replacement programme for the Taumarunui wastewater treatment plant (estimated at \$256k per annum over ten years).
	Taumarunui (Hikumutu) WWTP: Asset Renewal	Renewal (replacement and refurbishment) of assets (estimated at \$257k per annum for 10 years).
	Taumarunui Wastewater Networks: Campground WWPS: Asset Renewal	Renewal (replacement and refurbishment) of assets. (Estimated at \$48k in total).
	Taumarunui Wastewater Networks: Golf Road WWPS: Asset Renewal	Renewal (replacement and refurbishment) of assets. (Estimated at \$108k in total).
Waiouru	Waiouru Wastewater Networks: Andrews Drive WWPS: Asset Renewal	Renewal (replacement and refurbishment) of assets. (Estimated at \$27k in total).
	Waiouru Wastewater Networks: SCADA Upgrade	SCADA Upgrade (estimated at \$41k in total)

6.11 ASSET CREATION PLAN

Asset creation is the process driven by consumer growth or LOS. This involves the design and construction of new assets which increase the capacity or performance of the system. Asset creation is necessary to accommodate growth, changes in LOS or customer demand.

Council will continue to invest in wastewater infrastructure with the main drivers being:

- To meet legislative compliance including resource consent conditions and NPS for Freshwater Management 2020
- To meet the levels of service with respect to safe wastewater discharge in every town where applicable (i.e. environmental improvements)
- To strengthen resilience and prepare for climate change impacts
- To meet the demands of growth by providing wastewater infrastructure to Council's customers.

Council growth and LOS activity categories are shown in Table 41.

Table 41: Asset creation sub-activities

Creation Plan Activity category	Creation Plan Sub-Activity Category	Description
Growth	Network	Growth expenditure on wastewater network (pipework) assets
	Pump station/storage	Growth expenditure on wastewater pump station/storage assets
	Headworks and treatment	Growth expenditure on wastewater treatment and disposal assets

Creation Activity category	Plan Sub-Activity Category	Description
	Vested assets	Accounting related category for vested wastewater assets from new developments
Levels of Service	Compliance	Replacement, upgrading or installation of new wastewater assets to achieve compliance with statutory obligations including those related to resource consent compliance and H&S compliance
	Customer	Replacement, upgrading or installation expenditure to achieve (existing) customer Levels of Service (LoS). Also includes expenditure to improve asset operability and reliability so as to seek to ensure LoS are achieved
	Service extensions	Expenditure on new assets to provide wastewater servicing to existing ratepayers who do not receive reticulated services
	System information	Expenditure on activities acquiring system information to enable informed investment decisions and support asset operations and the provision of wastewater services

Key wastewater creation (growth and LOS) projects for the Ruapehu District are indicated in Table 42, and are mainly for treatment plant upgrades. The upgrade projects are dependent on securing resource consents and agreeing suitable treatment processes and disposal methods with iwi and agreement with HRC. Iwi time has been invested in land passage assessments.

Without securing resource consents, Council has not been able to invest in upgrades such as National Park Village wastewater treatment system. This makes it difficult for planning the delivery of treatment plant upgrades as there is so much uncertainty with the upfront planning.

Project specific details by township and project relating to renewal plan works are shown in Part 4, Appendix F.

Table 42: Key wastewater asset creation projects

Township	Work and Expenditure Item	Justification
National Park	National Park WWTP Upgrade	Concept Proposal preliminary works and construction (estimated at \$1.4 million on total)
	National Park Wastewater Network: Growth Extension	Extension of the wastewater network for growth (estimated at \$180k in total)
Ohakune	Ohakune WWTP upgrade	Upgrade of Ohakune WWTP to meet resource consent requirements. A new WWTP is proposed to service Ohakune and Raetihi townships. Both existing WWTPs have a history of non-compliance and the high numbers of visitors using the wastewater systems will put further pressure on the WWTPs. Initial study required in first 10 years, estimated at \$473k. New WWTP is proposed servicing Ohakune and Raetihi starting in year 10 (2030/31 at \$1.9 million in total)
	Ohakune Wastewater Network: Network extensions	Extension of the wastewater network to accommodate growth in the Ruapehu Road area (estimated at \$600k).
Raetihi	Raetihi WWTP Upgrade	New WWTP to service Ohakune and Raetihi townships as noted above. (Estimated at \$782k).
	Raetihi WWTP: Inlet Screening	Install inlet screening system at the Raetihi WWTP (estimated at \$300k).
Rangataua	Rangataua WWTP: Modification investigation	Investigate the following possible additions/modifications to the WWTP process for an improvement in discharge compliance (estimated at \$18k).
	Rangataua WWTP: Modification Construction	Upgrade the WWTP in accordance with the recommendations from the Rangataua WWTP: Modification Investigation Project (estimated at \$120k).
	Rangataua WWTP - Pond Desludging	Pond Desludging at \$500k in total
Taumarunui	Taumarunui (Hikumutu) WWTP: Upgrades	Plant upgrades (estimated at \$537k in 2021/22)
	Taumarunui Wastewater Networks: Hakiha Street Main Upgrade	Hakiha Street Main Upgrade (estimated at \$470k in 2021/22)
	Taumarunui Wastewater Networks: Matai No 1 WWPS	Install SCADA onsite for data acquisition and alarming capability (estimated at \$54k).
	Taumarunui Wastewater Networks: Matai No 2 WWPS	Install SCADA onsite for data acquisition and alarming capability (estimated at \$54k).
	Taumarunui Wastewater Networks: Huia Street WWPS	Modification to Wetwell entry to allow pumps to be lifted out (estimated at \$75k in total).
Waiouru	Waiouru Wastewater Reticulation: Ruanui Street WWPS	Investigate station upgrade. Install second pump as a standby unit, upgrade existing switchboard for two pump operation, install additional

Township	Work and Expenditure Item	Justification
		guide rails, riser and valving for two pump configuration. SCADA to included in this as well. (Estimated at \$38k in total).

6.12 ASSET DISPOSAL PLAN

Asset disposal occurs when an asset is no longer required or becomes uneconomical to maintain or rehabilitate. Asset disposal involves activities associated with disposal of decommissioned wastewater assets, including their sale, demolition or relocation.

Assets may become surplus to requirements for reasons such as:

- Under-utilisation.
- Obsolescence.
- Provision exceeds required LOS.
- Asset no longer provides the service or fulfils the purpose for which it was intended.
- Uneconomic to upgrade or operate.
- Policy change.
- Service provided by other means.

For assets such as wastewater mains, where asset renewal involves installation of a new asset, the existing asset is typically decommissioned and abandoned in place.

There are no identified wastewater assets of significant value that have been identified for decommission, however future treatment plants have not been designed yet.

There is a small sum reconciled each year against the financial system.

7 ASSET MANAGEMENT PRACTICES

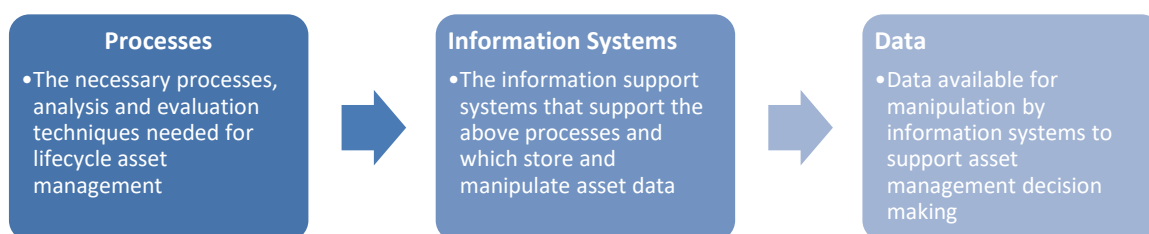
7.1 INTRODUCTION

Council is committed to continue with good practice AM as a sustainable standard for its wastewater activity. A key feature in Council's AM framework is to continue to improve practices, processes and tools. This is essential to ensure the asset system and services are effectively managed.

Through the initiatives presented in this section, Council is committed to appropriate AM practices. This practice is being developed in keeping with the NAMS practice as presented in their suite of AM publications including the IIMM. Council is committed to delivering the most appropriate levels of service balanced with affordability and good industry practice.

7.2 AM PRACTICES

This section discusses the status of Council's current AM practices and identifies practices Council wishes to use. The key AM practices can be grouped into the following three broad areas.



7.2.1 Current Practices

As part of Council's continuous improvement, independent reviews of the AMPs are undertaken periodically. GHD Consultants completed a desktop review in 2014 to assess the 2012 AMP.

The 2018 Water Supply, Wastewater and Stormwater AMPs were peer review by GHD Consultants in 2019. The peer review identified key improvements that needed to be addressed as part of the preparations for the 2021 LTP. The key improvements have been addressed through the update of this AMP. The improvement tasks and where this is addressed in this AMP are summarised in Section 10.2 Appendix.

7.2.2 AM Capability

Providing adequate capability and capacity is a challenge for Ruapehu District Council as a remote community. The approach taken to ensure adequate resources for managing the critical wastewater activity is a mixture of in house resources, long term service provider Veolia and external specialists as required.

7.3 DATA

Data quality is important for end users so that they can have confidence in making an analysis using that data. Ongoing data collection and validation, in terms of the physical attribute accuracy and spatial data, are part of Council's ongoing improvement programme. The inventory completeness and accuracy of wastewater asset classes is shown in the following table.

Table 43: Wastewater inventory completeness and accuracy

Asset Class	Inventory Data Completeness (%)			Inventory Data Accuracy (confidence)		
	Measure	Age	Condition	Measure	Age	Condition
Treatment and Disposal						
Wastewater treatment plants	100%	100%	100%	Reliable	Mostly reliable	Reliable
Pump Stations						
Pump stations	100%	100%	100%	Reliable	Mostly reliable	Reliable
Network						
Wastewater mains	100%	100%	100%	Reliable	Mostly reliable	Reliable
Manholes	100%	100%	100%	Reliable	Mostly reliable	Reliable

Source: AssetFinda (as at June 2019)

7.4 PROCESSES

The key asset management processes are summarised in Table 44.

Through the auditing process, Council became aware that the mandatory performance measures have not been reported on consistently for the three waters activities. The inconsistent reporting was also identified within the audit of the 2019/20 Annual Report by Audit NZ. There is a need to review the end to end process to ensure data is collected properly, that analysis is accurately undertaken and reported, and the internal business process is streamlined, determine what systems are used to record and report on, and what level of system integration is required.

Council commissioned an independent review of the service request process which provides the underlying data for this performance measure. The recommendations from this review are currently being implemented and identified as an improvement project until bedded in as business as usual process.

Table 44: Asset management processes

AM Process Area	Purpose	Status/enhancements
Asset data collection (including condition)	Asset data including inventory measure, material type and condition is collected to ensure the asset inventory is complete and accurate for AM decision making.	Asset registers were developed for the above ground assets using asset inventory information from the RDC asset database, cross referenced against the Facilities Management Contractors systems (VAMs), process and instrumentation diagrams P&IDs (where applicable) and validated as part of asset inspections. Veolia also visually verify pipes in the field and provide feedback on any inaccurate data to Council who updates both AssetFinda and the GIS information. This data is then used for future analysis of asset deterioration, reliability and operations and maintenance characteristics across different plants and networks. Used in forwards works programme. All Council assets have been assessed on three occasions 2003, 2008, and then as a rolling programme township by township. Council has completed one round of this programme and is on the second round.
Asset valuations	Asset valuations are coordinated by Council Finance Department.	Asset valuations are completed every year with the last asset valuation being completed in 2020. Data cleansing needs to be undertaken in relation to buildings for a consistent approach. Currently some buildings used for wastewater purposes only in this activity as well as community property activity.
Risk management framework	Enterprise wide approach to ensure a comprehensive review of all potential risks across the whole Council.	Council's new risk manager has indicated a review of the risk framework. Council uses its own system described in Part 1 for corporate risks but used Veolia for the operation and maintenance items.
Mandatory performance data and reporting	Providing data and reporting to meet the requirements of the Department of Internal Affairs mandatory performance measures for three waters. Reports are generally a summary of performance against conditions and spreadsheet data	Implement any improvements identified by Audit NZ. We are currently reviewing our process for collecting and reporting our performance data, including the end to end job management process as noted above.

AM Process Area	Purpose	Status/enhancements
Compliance and quality management requirements	Requirements for resource consent compliance reporting to HRC.	Council meets the annual compliance reporting requirements and undertakes any improvements as part of the formal approval process.
Standard Operating Procedures	Wastewater SOPs provide guidance on the requirements for the management and monitoring of the water assets, in particular treatment plants and pump stations.	RDC's Facilities Management Contractor (Veolia) operate and maintain the water assets under there SOPs in accordance with their ISO 9001 certified Quality Management System. Council has purchased Pro-maps to make process across council uniform.

7.5 SYSTEMS

Information systems are essential for storing and analysing asset information to make good asset management decisions. The main asset management information systems are summarised in Table 45.

Table 45: Asset management systems

Data Collection (and Software)	Use	Details	Status / enhancements
GIS (Intramaps and MapInfo)	Storage and analysis	MapInfo GIS is used to store inventory information for all water and wastewater below ground assets. Information is displayed graphically on a geospatially accurate map and available to RDC users and VPN link to Veolia. Staff via Intramaps).	Council will explore the opportunities of linking GIS mapping and Infornet in the future. Consideration needs to be given to intellectual property and data access along with the future for 3 waters integrated system.
AssetFinda VAMS	Storage and analysis	AssetFinda (previously called BizeAsset) is used to track assets, data, costing and valuation data used by Council. VAMS is Veolia Asset Management System.	There is an opportunity to improve the data capture into a single system between the organisations. This will be investigated giving consideration to intellectual property rights, resilience and audit opinion.
Ozone model called Request for Service (RFS)	Storage and analysis	Customer Request for Service (RFS) System used to record requests, request to contract and record completion of the request.	Council will add a module to RFS which will store Health and Safety data. Improve the integration between Veolia's VAM and Council's Ozone systems for reporting on mandatory performance measures.
Ozone Processing	Financial Package	Ozone is used to produce specialised accounting and financial management reports, and help derive expert financial decisions.	Council is working on the implementation of IBIS for financial planning, reporting and billing with Ozone remaining as the process model. The existing financial system is unable to provide data at suitable work programme levels for decision making. It can only categorise between operations and capital. Any system enhancement needs to also provide this breakdown.
Fleetmatrix	Tracking, Storage and Analysis	Provides a view of the RFS its allocation to staff member and response times. In addition, this software collects the type of job, materials to repair and pipe assessment information. This information goes into VAMS.	Specific personal can within Council view Fleetmatrix to assess where the contracts are and the status of the RFS. Enhancement will be to roll this out to Customer Service staff.
CCTV	Storage and analysis	Stored on CD, Veolia Database	None identified at this stage.

Data Collection (and Software)	Use	Details	Status / enhancements
Paper processes	Filing on property file	The application and receipting of request for connections, as-builts, etc, are stored on the property file.	Council is moving into Digital WorkSpaces storage of files.
SCADA (link provided by Veolia) Software licensed to Council	Control, storage and analysis	SCADA allows monitoring and control of, WWPSs and WWTPs. The backup digital storage of SCADA information is owned by Council but held in the Veolia Computer Stack.	None identified at this stage.
Monthly Report	View and analysis	Each month a summary of the contract operations and maintenance works, capital works is provided. Along with a spreadsheet of results and compliance with consent conditions.	This report is provided by electronic transfer through a shared drive and logged into DWS.
As built documents	Data collection	Reconciled against RFS and Monthly reports. Provided by Veolia or via external surveyors. CCTV, CD, Drawings, Intramaps, Verbal.	DWS is used to capture and store this information. CD and drawings are still a work in progress.
Consent information collated in spreadsheets and folders (previously CSVue)	Storage and Control	Stores the resource consent data and provide for compliance monitoring with Horizons Resource Consents. Also holds consent compliance and abstraction reports. Veolia provides consent compliance information to Council for issue to HRC.	Review the need for a dedicated consent system for holding consent compliance information.
Veolia Extract	Storage and Control	Allows Veolia and Council to share information in a controlled manner. Veolia provides a link to store working and completed works between the parties, reducing risk of multiple copies being developed.	None identified at this stage.
InfoWorks Analysis Being implemented	InfoWorks Analysis	InfoWorks WS and InfoWorks CS are used for hydraulic modelling, capacity assessment, planning and scenario evaluation with respect to the water supply and wastewater collection networks.	Complete the implementation.
InfoNet – to be implemented		Display information geographically from Veolia	Still to be implemented
Quantate	Storage and Analysis	Provides a database of corporate and operational for legislative compliance.	None identified at this stage.
Promapp	Process Capture	Promapps is used to create, navigate, share and change business processes, enabling quality assurance and risk management and business continuity.	This continues to be a work in progress

8 PLAN IMPROVEMENT AND MONITORING

8.1 THREE YEAR IMPROVEMENT PROGRAMME

Key improvement programmes and associated projects have been developed through a review of the gaps identified during the development of this draft AMP and the issues identified. The three year improvement programme plus ongoing improvements is summarised in Table 46.

The main improvement objectives to be achieved in the next three years due to their priority and importance for the wastewater activity include:

- Iwi partnership development - Establish Iwi Liaison /co-governance partners treaty settlement delivery as they reach settlement.
- Critical assets - Refining the categorisation of critical wastewater assets at component level to support better decision making.
- Asset data - Improve the data collection and reporting for performance data required for mandatory reporting. Improve the integration between Veolia's VAM and Council's Ozone systems.
- Prepare for growth - Monitor the population growth Ohakune on regular basis so that core infrastructure investment is made at the right time and at the right location. Undertake hydraulic modelling of Ohakune township for water supply and wastewater services.
- Asset performance – Better understand the existing network deficiencies to enable sound decision making for any future improvements. This includes implementing the I & I rolling programme to target the highest leaky sub catchments, and undertaking hydraulic modelling to understand the existing networks
- Strengthening resilience - Improving the resilience of the network in relation to climate change impacts.
- Regional Partnership - Continue with regional collaboration for 3 Waters Service Delivery in preparation for three waters reforms, seeking efficiencies to deliver the best outcomes for Ruapehu's community.
- Service Delivery – Complete a Section 17A review of the Three Waters Contract to ensure that the current delivery arrangements are the most efficient, effective and appropriate means. Update of the Three Waters Contract.

Table 46: Three year improvement programme activities

No.	AM Improvement Area	Project no	Action	Responsibility	Priority (High / Medium / Low)	Status	Indicative Timeframe			
							2020/21	2021/22	2022/23	2023/24
1	AM Policy and Strategy	1.1	Regional Partnership: Continue with collaborative 3 Waters Service Delivery in preparation for three waters reforms.	Environmental Manager	High	Ongoing	GHD second report			
		1.2	One Plan changes as presented by Regional Council.	Environmental Manager	Medium	Ongoing	Plan Change 2 Land use			
2	Levels of Service and Performance Management	2.1	Iwi partnership development: Establish Iwi Liaison /co-governance partners treaty settlement delivery as they reach settlement.	Leadership Team	High	Ongoing	Te awa Tupua Ngati Rangī	Maniapoto	Uenuku	
		2.2	Undertake Water New Zealand Benchmarking Performance.	Environmental Manager	Medium	Ongoing				
		2.3	Undertake customer satisfaction surveys.	Environmental Manager	Medium	In progress				
		2.4	Measure the carbon footprint of water services, and target and work with those sectors which contribute the most emissions to the footprint. Progress to date - The greenhouse gas footprint for the region and each territorial authority in the Region for 2018/19 has been completed as an initial baseline.	Environmental Manager	Medium	In progress	Regional Strategy established. Stakeholder engagement	Target sectors		
3	Forecasting Demand	3.1	Develop hydraulic models of the wastewater network for each township to enable sound decision making for any future improvements and understanding existing deficiencies.	Environmental Manager	High	To start	Ohakune	Taumarunui	Raetihi	National Park
		3.2	Monitor the population growth Ohakune on regular basis so that core infrastructure investment (including wastewater) is made at the right time and at the right location.	Risk and Project Controls Manager, Environmental Manager	High	To start				
		3.3	Undertake hydraulic modelling of water supply and wastewater for Ohakune township to understand and plan for the rapid population growth.	Environmental Manager	High	Underway				
4	Asset Register Data	4.1	Audit of AssetFinda categories and system delivery.	Environmental Manager	Medium	To start				
		4.2	Improve the data collection and reporting for performance data required for mandatory reporting. Improve the integration between Veolia's VAM and Council's Ozone systems.	Environmental Manager, IT Manager	High	To start				

5	Asset Performance and Condition	5.1	Continue to implement the I & I rolling programme to target the highest leaky sub catchments.	Environmental Manager	High	Underway	Raetihi			
		5.2	Undertake the cyclical asset condition assessment programme.	Environmental Manager	High	Ongoing				
6	Decision Making	6.1	Undertake Quarterly Reporting (CEO report to Council).	Environmental Manager	Medium	Deferred	Using CEO report – Finance system upgrade			
		6.2	Integrate the UN Sustainable Development Goals into Council's decision-making frameworks including water services.	Environmental Manager	Medium	To start				
		6.3	Investigate and develop sludge management and disposal systems with the decision making of future wastewater upgrades, considering the carbon footprint.	Environmental Manager	High	To start				
7	Managing Risk	7.1	Review the 2018 Wastewater Activity Risk Register in collaboration with Veolia.	Environmental Manager	High	To start				
		7.2	Refine the categorisation of critical wastewater assets at component level to support better decision making. The categorisation of critical above ground wastewater assets was completed as part of the condition assessments.	Environmental Manager	High	To start				
		7.3	Undertake actions to improve the resilience of the network in relation to climate change impacts. This includes: <ul style="list-style-type: none"> • Undertake the feasibility of centralised plant (Ohakune and Raetihi Treatment Plants) • Identify wastewater pump stations at risk due to flooding inundation • Consider the carbon footprint with any new / upgraded treatment plants in its decision making • Continue to implement the I & I programme. 	Environmental Manager	High	To start				
8	Operational Planning	8.1	Undertake an energy management assessment for the wastewater treatment plants and pump stations.	Environmental Manager	Medium	To start				
		8.2	Undertake efficiency audits (PLC, carbon, water use).	Environmental Manager	Medium	To start				
		8.3	Review emergency response information and continuity plan.	Environmental Manager	High	Underway	Continuity Plan	Township recovery		
		8.4	Undertake resource consent planning for timely renewals.	Environmental Manager	High	Started				

9	Capital Works Planning	9.1	Review of capital works plan to ensure adequate resources and processes to delivery against plan.	Environmental Manager	High	Ongoing				
		9.2	Review generator future requirements and installation programme to ensure resilience for the townships.	Environmental Manager	Medium	Ongoing		Raetihi Ohakune	National Park	
10	Financial Planning	10.1	Complete the data cleansing of buildings prior to the next valuation for a consistent approach across Council.	Environmental Manager	Medium	To start				
		10.2	Reconcile the two datasets for wastewater connections prior to the next valuation. The rateable properties connected as recorded in the financial system is different to the number of connections recorded in Council's GIS.	Environmental Manager	Medium	To start				
		10.3	Set up cashflow reporting for water services to ensure costs and revenue are managed efficiently, particularly with the potential increased capital programme and external Government funding.	Environmental Manager	Medium	Trialling				
		10.4	Review the existing project management process to ensure fit for purpose for Council's capital works programmes, covers risk adequately and meets industry good practice.	Risk and Projects Controls Officer	Medium	To start				
		10.5	Undertake strategic financial planning review to ensure investment decisions made are affordable for the District's community, and does not burden future generations.	Finance Team and Strategic Planning	High	To start				Review
11	Asset Management Leadership and Teams	11.1	Undertake Asset Management Team Meetings and reporting to ensure LTP and strategic alignment.	Policy Manager	Medium	Underway	Alignment with LTP			
		11.2	Set up Teams Page (or similar such as an application) for topical conversations across teams and with Veolia including new legislation requirements.	Policy Manager	Medium	Underway	Alignment with LTP			
		11.3	Undertake regular utilities work programme alignment meetings.	Land Transport Team Leader	High	Ongoing				
		11.4	Undertake Audit Risk and Project Assessment.	Risk and Projects Controls Officer	Low	To start			Review alignment	
12	Asset Management Plans	12.1	Gain formal Council adoption of the plan by June 2021.	Environmental Manager	High	Underway				
		12.2	Undertake debrief of the 2021 AMP process.	Environmental Manager	Medium	To start				

13	Management Systems	13.1	Investigate options to improve asset system, GIS including uniformed three waters metadata considering the three water reforms.	Environmental Manager	Low	To start				
		13.2	Develop business process maps using Promap for AMP system.	Environmental Manager	Low	To start				
		13.3	Implement the categorisation of critical water assets at component level in Council's AssetFinda.	GIS Officer	Medium	To start				
14	Asset Management Information Systems	14.1	Investigate merging systems between Veolia and Council.	Environmental Manager	Low	To start				
		14.2	Explore giving Council's customer service access to Veolia for RFS real time processing.	Environmental Manager	Medium	To start				
		14.3	Set up the financial system so can categorise at suitable work programme levels for decision making (operations, maintenance (including planned versus reactive maintenance), renewals and capital).	Finance Team	Medium	To start				
15	Service Delivery Mechanisms	15.1	Update the SLA with NZDF for the provision of public wastewater treatment in Waiouru. Progress to date - Several meetings completed to agree on the basis of service.	Environmental Manager	Medium	Underway				
		15.2	Undertake a Section 17A review of the water supply, wastewater and stormwater activities in 2020/21 to time for contract review.	Environmental Manager	High	Started				
		15.3	Undertake the review of Three Waters O & M Contract.	Environmental Manager	High	Underway	Review works	Contract decision		
16	Audit Improvement and	16.1	Undertake external peer review of 2021 AMP prior to the 2024 LTP.	Environmental Manager (external consultants)	Medium	To start				
		16.2	Review OAG reports of 2021 LTP to inform the 2024 AMPs.	Environmental Manager	Medium	To start		Items to implement		
		16.3	Undertake a peer review of the 2018 useful life memo to ensure meeting industry good practice.	Environmental Manager	Medium	To start	Incorporated into AMP			

8.2 IMPROVEMENT MONITORING

The AMP is a living document and needs to be kept current and relevant. It is recognised that priorities will change which makes review activities even more important to ensure this plan is a live document. The following review activities will be undertaken:

Table 47: Improvement monitoring activities

Frequency	Review Task	Action	KPI	Report Name	Audience
Three yearly	AMP Development	Formal adoption of the plan by Council.	100% Achievement	Council AMP Report	Council and Audit New Zealand
Annually	AMP Review (internal)	Revise plan annually to incorporate new knowledge from the AM improvement programme.	100% Achievement	Internal Report	Environmental Management
Three Yearly	AMP Peer Review	The plan will be formally reviewed three yearly to assess adequacy and effectiveness.	100% Achievement	External Consultant Report	Environmental Management, LTP team, and Audit New Zealand
Annually	Monitoring and Reporting	The KPIs identified in this table will be monitored and reported on annually through Business Plans.	100% Achievement	Business Plan Report	Environmental Management and LTP team
Annual	Implementation of the Improvement Programme	Tracking the progress of implementing the improvement programme annually particularly of projects in the short term improvement programme.	100% Achievement	Quarterly Reports	Environmental Management and LTP team

9 FINANCIAL SUMMARY

9.1 INTRODUCTION

This section summarises the financial requirements in order to achieve the defined levels of service and provide for future demand needs. The financial forecasts within this section are for the 10 year forecast period from 2021/22 to 2030/31 (subject to adoption of the LTP by Council). The financial forecasts are considered draft and will be finalised as part of the LTP process.

Summary financial forecasts are provided in graphical format and provide a breakdown of overall water expenditure by expenditure category and by township. Summary financial forecasts also provide a breakdown of expenditure category by expenditure sub-categories using valuation numbers for 1 July 2020.

Detailed financial tables are also provided which indicate by township the forecast expenditure within each category and subcategory for each year in the 10 year forecast period. Detailed tables linking individual projects with associated financials are shown in Part 4, Appendix F.

9.2 FINANCIAL PROJECTIONS

The total amount of expenditure for operations, maintenance and capital for the wastewater activity over the next ten years is \$53.9 million, as shown in the figure and table below. This shows that the total operational annual costs are about \$3 million and makes up about half of the total forecast at 57%. The chart is only showing for the next 10 years; refer to Part 4, Appendix G for 30 year forecasts.

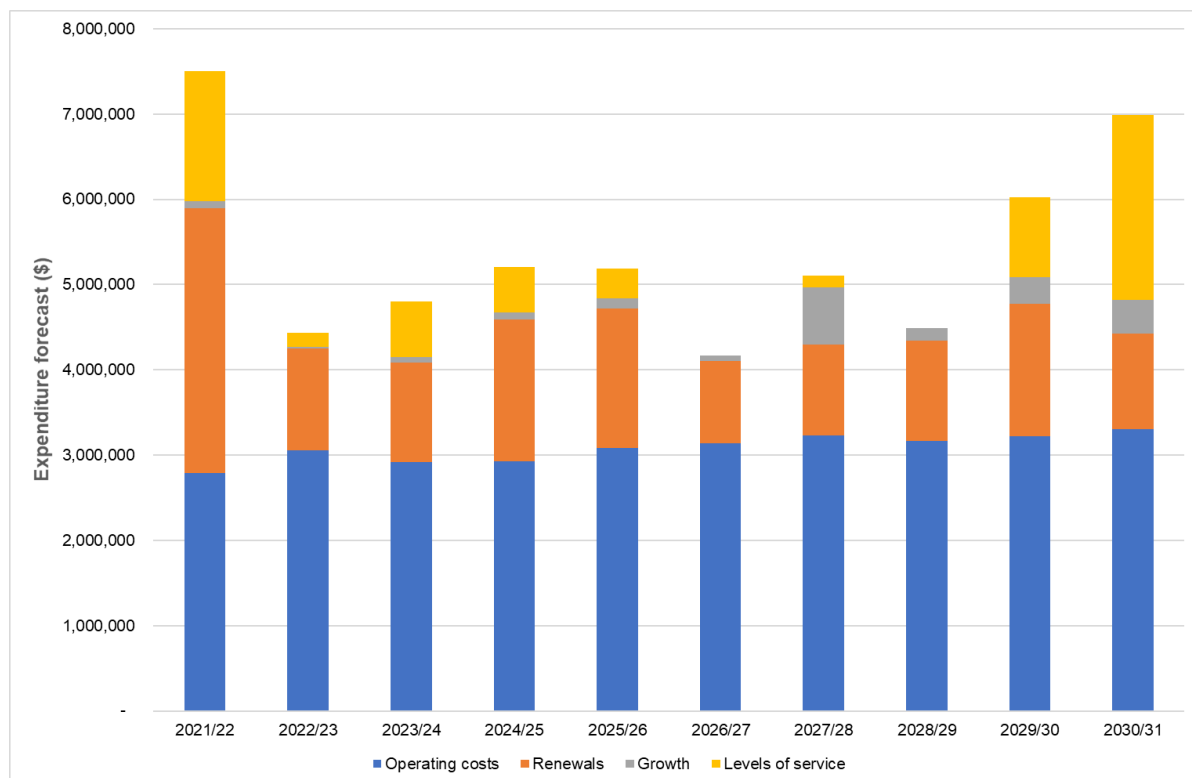


Figure 16: Summary of wastewater ten year expenditure forecast
 Source: Council's final LTP budgets (as at June 2021)

Table 48: Summary of wastewater ten year expenditure forecast

Wastewater Expenditure	2021/22	2022/23	2023/24	10 yr Total
Opex	2,793,235	3,055,998	2,915,269	30,844,878
Renewals	3,099,109	1,192,694	1,173,158	14,630,381
Growth	87,390	19,590	58,212	1,960,023
Levels of Service	1,527,100	169,800	657,844	6,485,645
Total	7,506,833	4,438,082	4,804,483	53,920,927

Capex (renewals and new works) expenditure across the 10 year expenditure period is forecast at \$23 million. Renewals makes up 63% of the ten year capex expenditure followed by levels of service at 28%.

Operational expenditure consists of direct (such as staff and contractor costs) and indirect costs (such as overheads, depreciation and finance costs). Other expenses (contractor and utility costs) make up 42% of the ten year opex expenditure followed by depreciation at 32%.

Detailed analysis by capital driver was undertaken by Veolia with developing this AMP. This was based on draft financial forecasts as at September 2020 that have now been revised as part of the LTP process and capital prioritisation across all activities. They are provided for completeness in Appendix 10.3.

9.3 FUNDING STRATEGY

The wastewater activity will be funded in accordance with the financial policies of Council as indicated below.

Table 49: Funding strategy for wastewater activity

Programme	Funding mechanism
Operational	Funded through general and targeted rates and fees and charges
Renewal	Provided through rates
LOS	Loan funded and external Government funding
Growth	Loan funding, development contributions, and external Government funding

Council has been successful in gaining external Government funding for upgrading water services infrastructure, although mainly for water supply treatment plant upgrades. This is important for a rural district council with a small rating base. Recent external funding includes:

- Raetihi and Ohakune – Partially successful with grant from MBIE for Tourist Infrastructure Fund (TIF allocation \$155,000). Funding has been provided for the feasibility and design of land passage disposal system. Council has since sought funding for a land passage feasibility study (\$240,000) of a centralised wastewater plant (\$231,655).
- Three waters reform preparation - About \$5.6 million for Three Water Stimulus Grant from DIA and Crown Infrastructure Partners (awaiting formal approval). This is mostly for increased water treatment capacity and storage, and water reticulation enhancement but also covers preparation for three water reforms.
- Provision of public services for Pipiriki - The scope of the study is to investigate improving the capacity of the water and wastewater infrastructure. MBIE approved funding for a feasibility study for the settlement of Pipiriki.

There is high level of uncertainty with successfully gaining the full amount from the Government's three waters stimulus grant applied for upgrading water standards and wastewater assets across the District. We are planning to undertake these upgrades regardless if Government funding is successful. It is unacceptable

for Council not to comply with the Drinking Water Standards. This will mean that the debt projections will be unaffordable for our community. Council will be exploring alternative funding options to reduce this risk.

Council wishes to make a step change in investment in core infrastructure, particularly for water supply and wastewater activities. The 2021 LTP signals that we cannot keep the capital investment and debt levels so it is affordable for our community. We must undertake these works in order to provide safe drinking water and public health to our community and the environment.

9.4 FINANCIAL PERFORMANCE

The actual achievements against the LTP budgets for the wastewater capital programme for 2017/18, 2018/19 and 2019/20 are presented in figure below. This shows that was under achievement in delivering the capital programme for all three years at less than 20%. Failures to deliver capital programme has mainly been due to the time to get projects procured and approved to start. This is being addressed with a S17A review, update of the Contract with Veolia and setting up of a streamlined process for procuring capital projects (refer to Section 6.8 Service Delivery Arrangements).

Council wishes to accelerate the three waters capital programmes. This acceleration requires a step change in programme delivery. External specialist consultants will also be used to deliver a proposed larger capital programme, particularly the upfront planning and bedding in programme management disciplines. Our discussions with potential suppliers have indicated that there is sufficient market capacity to respond to our current and future delivery programme.

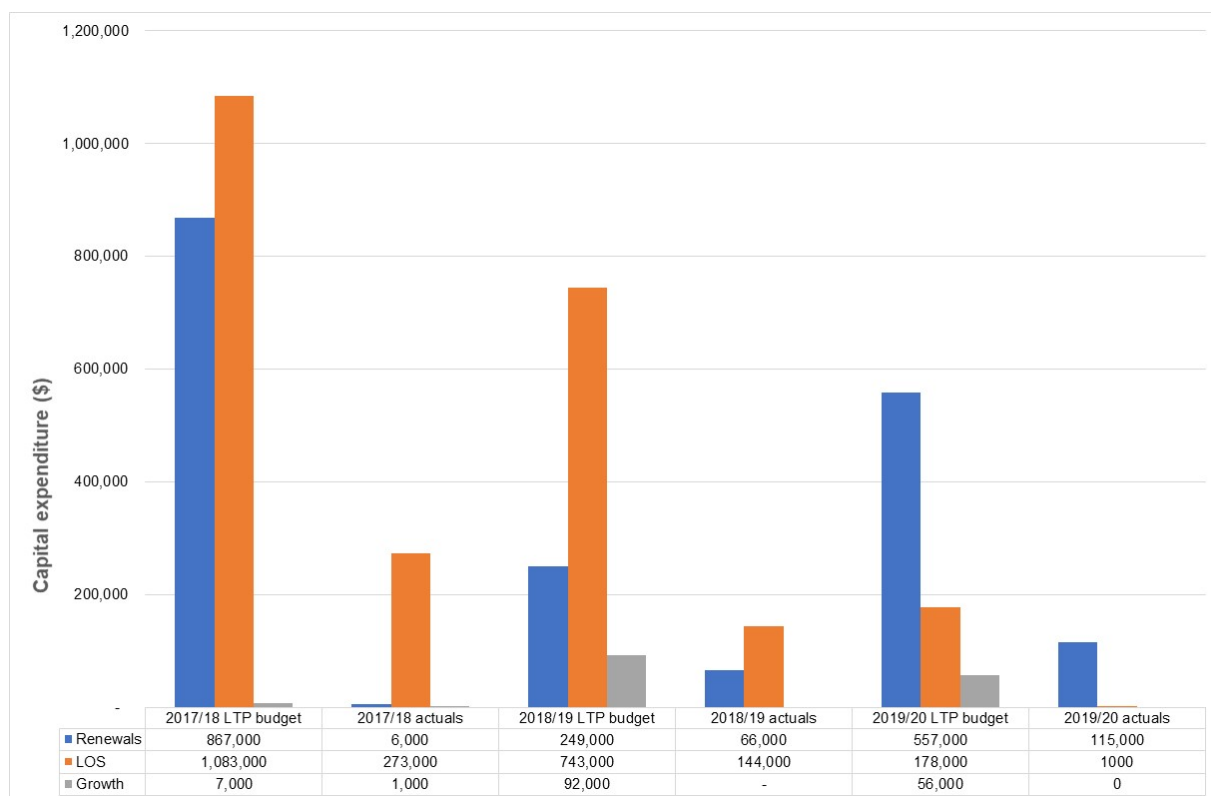


Figure 17: Capital expenditure performance
Source: Council's Annual Reports

9.5 ASSET VALUATIONS

Replacement cost, depreciated replacement cost and annual depreciation figures from Council's 2020 asset valuation are shown below. This is based on Council's asset lives and current equivalent asset replacement, calculated as per the asset data in Section 6. A percentage breakdown of replacement cost by asset class is shown below. A full breakdown of replacement cost, depreciated replacement cost and annual depreciation for each of Council's wastewater schemes is contained within Part 4, Appendix E.

Table 50: Asset valuation by township

Wastewater Asset Group	Replacement Cost (\$)	Depreciated Replacement Cost (\$)	Accumulated Depreciation (\$)	Annual Depreciation (\$)
Network	36,284,283	16,531,792	19,752,490	438,192
Pump stations	3,552,137	1,763,419	1,788,718	142,039
Treatment and disposal	13,237,642	8,939,100	4,298,542	249,557
Total	53,074,062	27,234,312	25,839,750	829,788

Source: Veolia (as at 1 July 2020)

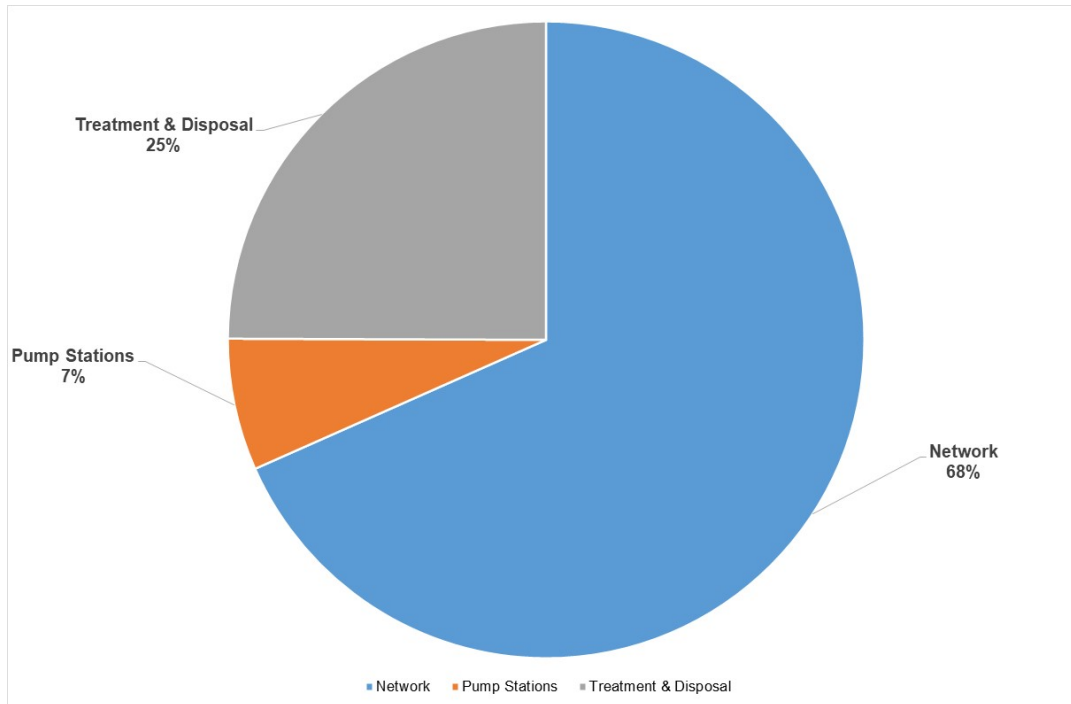


Figure 18: Valuation breakdown by major asset class

Asset valuations are undertaken on an annual basis including reviewing useful lives and updating unit rates. Currently the wastewater asset dataset recorded in AssetFinda includes some buildings. It is common practice to value all Council buildings together and not to value buildings in the infrastructure activity.

The asset inventory needs to be cleansed prior to the next valuation for a consistent approach across Council and identified as a future improvement action. This may include consolidating all buildings (including buildings in the infrastructure activity) in the community property activity.

9.6 KEY ASSUMPTIONS MADE IN FINANCIAL FORECASTS

The Lifecycle Management Plan (Section 6), which is prepared on the basis of the LOS (Section 3) and Future Demand Data (Section 4) provides the basis for the financial forecasts.

General information relating to the financial forecasts is:

- All expenditure is stated in dollar values as at June 2021 with no allowance made for inflation over the 10 year planning period.
- All expenditure values exclude Goods and Service Tax (GST).

Key assumptions with respect to these financial forecasts are:

- The rate of growth for the District occurs as predicted by the growth projections in Section 4 and in Part 1 including the economic impact of COVID-19

- Useful lives for wastewater assets reflect actual condition deterioration, for which improved knowledge and confidence will be determined by ongoing condition assessment as shown in Section 6.
- Based on existing legislation and service levels
- Water services remain as Ruapehu District Council assets and management
- Climate change predictions as forecast remain accurate
- Financial funding will be made available to deliver on AMP requirement or other funding source will be available.

9.6.1 Confidence Levels

The assessed confidence of data inputs into the financial forecasts is shown below. Confidence grades are assessed in accordance with the New Zealand Infrastructure Asset Grading Guidelines – Water Assets (1999). Confidence levels provide a measure of confidence in relation to the accuracy of information.

Table 51: Confidence levels

Data input	Very uncertain	Uncertain	Reliable	Highly reliable	Comments
Future demand					Detailed growth analysis completed provides a sound basis for forecasts. Demand forecasts contain inherent uncertainty, especially with respect to long term progression and timing of development. The forecast will be impacted by the global pandemic. It is expected to have smaller impact on Ruapehu District than others as heavily rely on primary production and domestic tourism.
Asset inventory (diameter, material.)					Reliable data obtained from reasonably well defined information within AssetFinda information management system. Refer to Section 7.3 for details.
Asset age					Some asset age information available within AssetFinda.
Asset condition/remaining useful life					Information will improve with the ongoing rolling condition assessment as per Section 6.
Unit replacement costs					Unit rate costs based upon contract unit rates within Facilities Management Contract and based upon actual project cost rates.
Depreciation					Depreciation based upon 2020 Valuation undertaken by Veolia (refer to Part 4).
Maintenance Plan works and costs					Information determined from Ruapehu District Council costs and Facilities Management Contract costs.
Renewal Plan works and costs					Developed based upon performance and condition information from Section 6 and Part 4.
Creation Plan works and costs					Developed based upon performance and condition information from Section 6 and Part 4.

Confidence of data inputs within this AMP will be improved as part of the ongoing improvement programme detailed Section 8.

10 APPENDICES

10.1 FULL LOS TABLE

Community Outcomes	Key service attribute	LOS	How we will measure our performance	Performance measure type	Current Performance 2018/19	Current Performance 2019/20	Current Year 2020/21 Target	2021/22 Target (year 1)	2022/23 Target (year 2)	2023/24 Target (year 3)	2024/25 to 2030/31 Target (years 4 to 10)	
Safe, Healthy Communities	Safety-public health	Provide public safety through continuous of wastewater collection system	The number of dry weather wastewater overflows from the Council's wastewater system, expressed per 1,000 wastewater connections to that wastewater system	Mandatory	0.84	1.9	< 7 per 1,000 connections	< 7 per 1,000 connections	< 7 per 1,000 connections	< 7 per 1,000 connections	< 7 per 1,000 connections	
				Total number of complaints received by Council about any of the following (expressed by 1000 connections to the territorial authority's wastewater system):								
	Quality reliability	-	To provide reliable wastewater networks	a) Wastewater odour b) Wastewater system faults c) Wastewater system blockages d) Council's response to issues with its wastewater system	Mandatory	0.64 Achieved		a) <15	a) <15	a) <15	a) <15	a) <15
						1.48 Achieved	0.63 Achieved	(b) <5	(b) <5	(b) <5	(b) <5	
						3.18 Achieved	0.84 Achieved	(c) < 25	(c) < 25	(c) < 25	(c) < 25	
						0 Achieved	2.74 Achieved	(d) <25 per 1,000 connections	(d) <25 per 1,000 connections	(d) <25 per 1,000 connections	(d) <25 per 1,000 connections	
					Technical	19		<30 per 100km	<30 per 100km	<30 per 100km	<30 per 100km	<30 per 100km
					Technical	Achieved (all townships graded as 2)		80%	80%	80%	80%	80%
	Customer	100%		>85% (using Veolia annual customer satisfaction survey, Or NBR survey 3 yearly)	>85%	>85%	>85%	>85%				
	Responsiveness	-	To provide prompt responses for service	Where Council attends a call-out in response to a blockage or fault in the Council networked system, the following median response times are measured: a) Attendance in hours from the time that Council receives notification to the time that service personnel reach the site; and b) Resolution in hours from the time that the Council receives notification to the time that service personnel confirm resolution of the blockage or other fault."	Mandatory	0.2 Achieved	0.58 Achieved	Mean response times ≤2hours	Mean response times ≤2hours	Mean response times ≤2hours	Mean response times ≤2hours	Mean response times ≤2hours
2.3 Achieved						3.07 Achieved	Mean response times ≤6 hours	Mean response times ≤6 hours	Mean response times ≤6 hours	Mean response times ≤6 hours		
Compliance with Council's resource consents for discharges from the wastewater system as measured by number of:												
Thriving, Natural Environment	Sustainable Environmental performance	-	Environmental impacts are managed and resource consents complied with	Mandatory	Zero- Achieved	Zero- Achieved	≤2	≤2	≤2	5	5	
					Zero- Achieved	Zero- Achieved	≤2	≤2	≤2	5	5	
					Zero- Achieved	Zero- Achieved	≤1	≤1	≤1	1	10	
					Zero- Achieved	Zero- Achieved	0	0	0	0	0	

Notes:

1. The times shown for "attendance" and "resolution" are reported by the service provider, Veolia as part of their contracted responsibilities. This includes travel time. The accuracy of these has not been verified by Council.
2. The number of connections is calculated from the number of customers charged in their rates for use of Council wastewater services (calculated at 4,720 as at 12 July 2018).
3. There are occasions where there is more than one complaint per event. In such a situation, each complaint is counted separately, not each event or occurrence.
4. The median time presented is based on calls that have been raised directly with Council and not Council's contractor Veolia.
5. The number of infringement notices will increase until new / upgraded plants are completed.

10.2 WASTEWATER IMPROVEMENT TASKS

Wastewater actions (from 2019 GHD peer review)	Task completed	AMP section
Develop a detailed prioritised roadmap of improvements for 3 to 5 years, based on review and prioritisation of all the suggested improvements shown in this table.	Improvement programme fully developed including other improvements identified as part of the 2012 AMP development.	8.1 (Part 3)
Building on the objectives and problem statements already known, develop a programme business case to align and show line of sight from objectives and services requirements, to problems, to benefits, to solution options, to decisions on works, programmes and investment.	The 2021 AMP has been structured in the business case approach while still retaining the traditional AMP sections to be consistent with IIMM.	2.8 (Part 3)
Provide breakdown of O&M costs and align to objectives. Provide O&M budgets for the period of the AMP with the annual expenditure budget tabulated and divided into reactive, planned and routine categories as appropriate.	Detailed operational budgets developed by Veolia categorised as recommended. An improvement action to categorise Council's financial system has been identified. This will need to fit with other corporate projects and priorities.	7.2 and 8.1 (Part 3) Appendix F (Part 4)
Explain the spikes and lows of financial forecasts.	The actual achievements against the LTP budgets for the wastewater capital programme for 2017/18, 2018/19 and 2019/20 have been summarised at a high level including variance explanations.	9.4 (Part 3)
Develop or include a register of all deferred works.	Any deferred capital projects have been summarised including the consequences in terms of LOS and asset risks. <i>Veolia to set up prior to finalising the AMP.</i>	Appendix F (Part 4)
Explain the weaknesses of the Asset Systems, the information gaps and how they are being addressed.	Gaps in systems, data and processes have been identified.	7.2 (Part 3)
Explain any cross-infrastructure work planning and decision-making undertaken by RDC.	This applies to the stormwater activity the most as direct link with land transport activity. At high level, this is covered in Part 1 and 30 Year Infrastructure Strategy. Growth planning for Ohakune and Taumarunui requires core infrastructure at the right time and at the right place to support housing provision.	Part 1 Section 4
Provide discussion on the likely impacts to RDC of the NZ Water Reform on this activity.	This has been identified as key issue for the wastewater activity.	2.4, 2.5, 3.3 (Part 3)
Consider discussion and learnings for this activity and linkage to water supply from both Havelock North and Raetihi contaminations.	The learnings from the Havelock North and Raetihi contaminations are directly linked to the water supply rather than the wastewater activity. At a high level, the operational procedures and processes improvements have also been applied to the wastewater activity. This was tested more recently with the lockdowns in 2020 due to the global pandemic.	7.4 and 5.1

Wastewater

Asset Management Plan 2021-31

Part 4 - Appendices

Appendix A – Summary of 2021 Long Term Plan Process

This is reflective of the decisions Council has made after the workshops on the Asset Management Planning, Council Policy and Strategies. The body of the AMP contains the material at 1 March 2021, before all Council workshops had been completed.

The LTP sets out what Ruapehu District Council is going to do and how it's going to pay for this in meeting the purpose of the Local Government Act 2002.

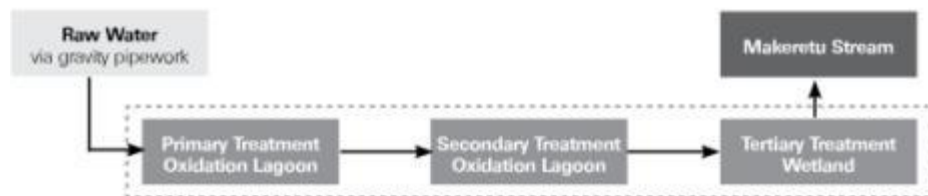
The AMPs are developed with prudence in mind, but must follow best practice and current ideas on the life of assets. Council finds that in practice the life of assets is very hard to predict, and has spent some effort collecting and analysing its data on infrastructure. This future cost components is a mix of uncertainty around renewal types, timeframes and appropriate technologies and, therefore, a healthy tension between estimated cost and actual current budgets and deliverables. The budgets in the AMP have been developed on the basis of using today's technologies. We know from experience in this fast moving world that changes occur, new technologies are developed and better and smarter ways of doing things are developed. The result is today's forecast budgets, while both prudent and representing the best available information when developed, can sometimes be reduced.

Appendix B – Physical Parameters: Wastewater Reticulation Schemes

B.1 National Park

The National Park Wastewater network provides for the collection and treatment of Wastewater generated from 317 connected properties within the National Park community. Wastewater is transported through the network to the National Park Wastewater Treatment Plant, where it is treated prior to discharge. The Wastewater reticulation network is entirely gravity and does not comprise WWPS. A schematic of the National Park wastewater network and photographs of select assets are shown below.

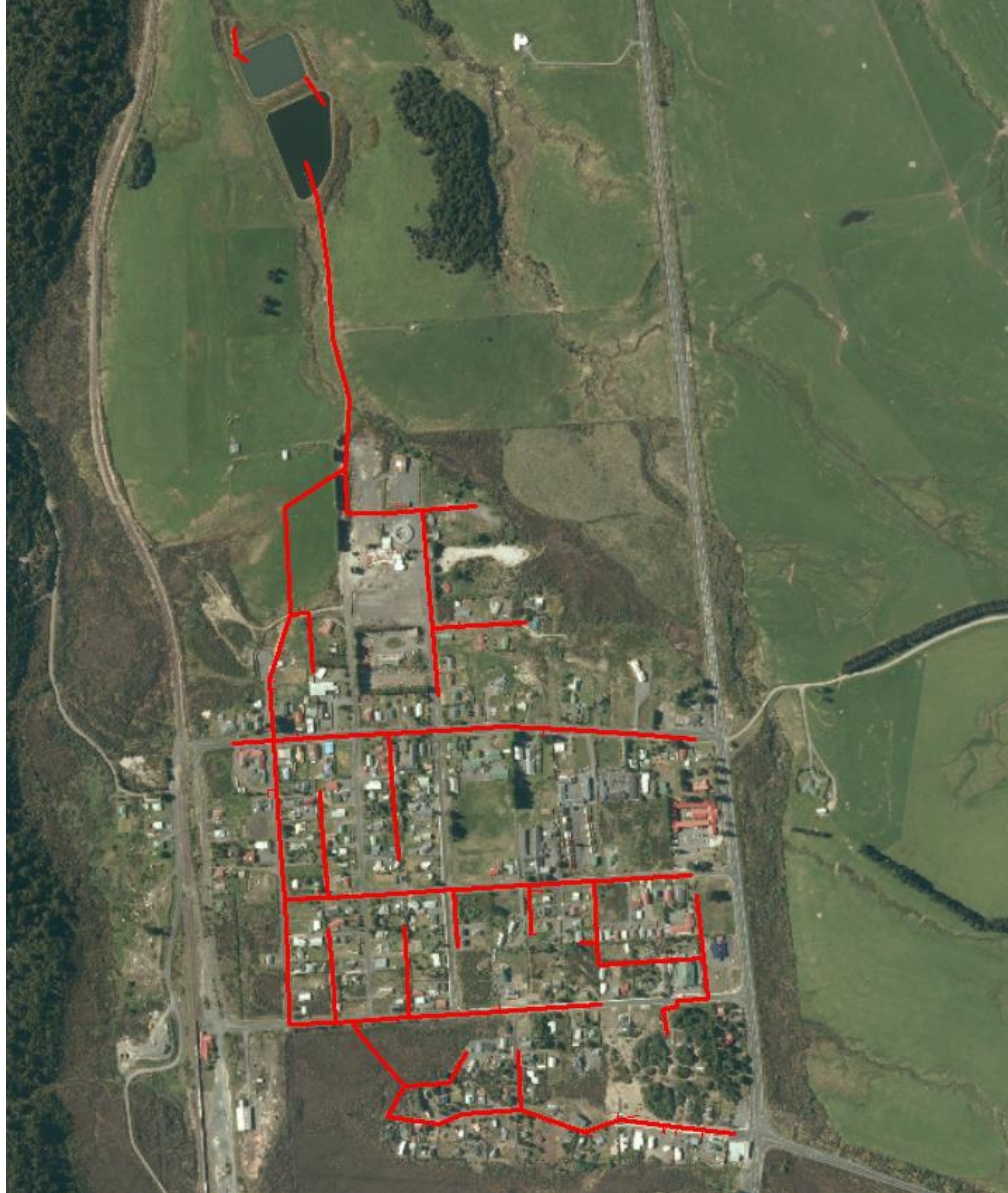
National Park Wastewater Treatment Plant and Network Schematic



Primary oxidation lagoon (left), secondary oxidation lagoon (middle), First discharge weir (right)

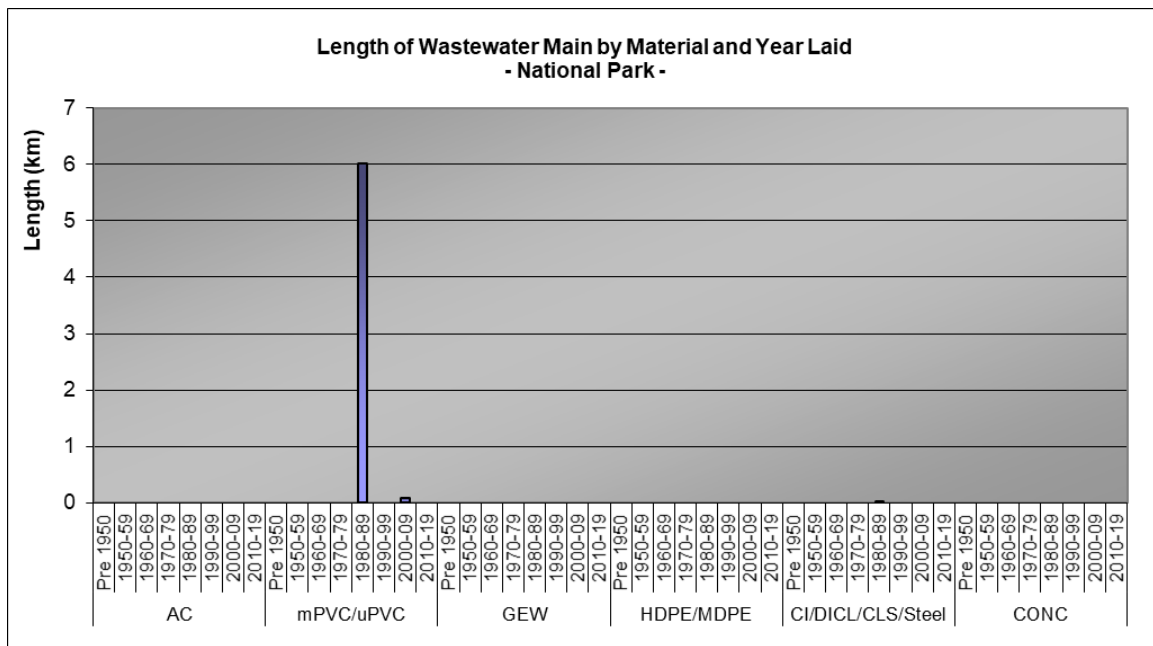
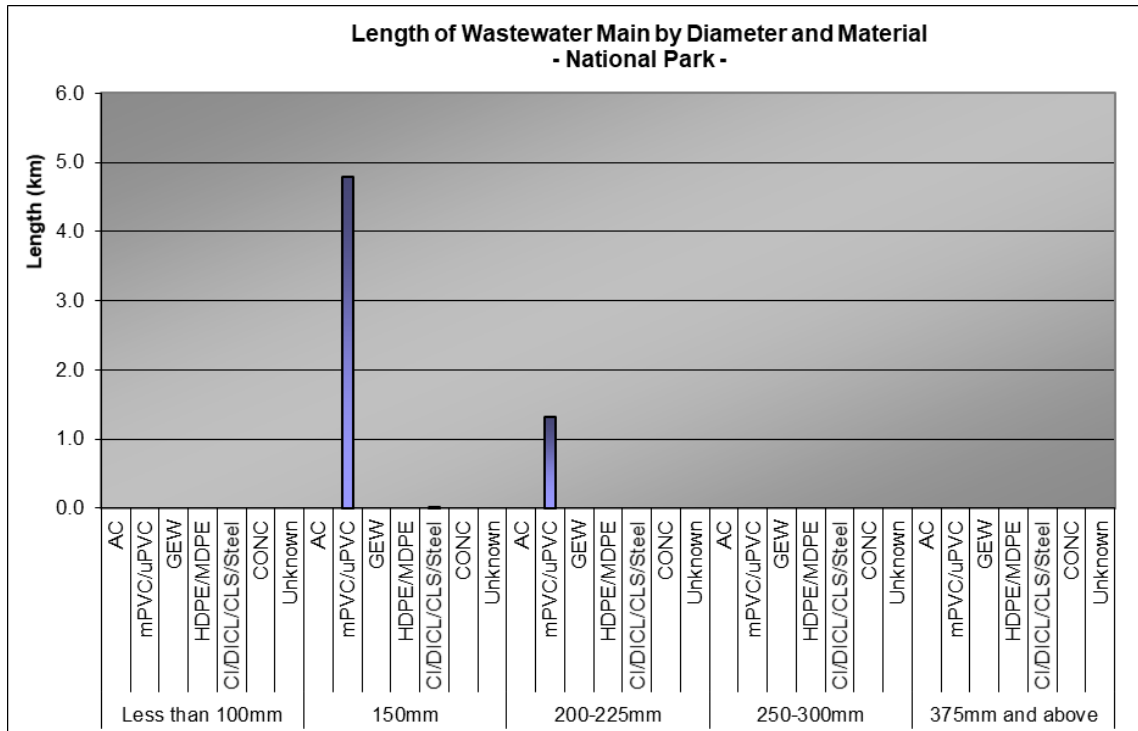
B.1.1 Network

- (a) **Wastewater mains:** The National Park wastewater reticulation network comprises an integrated series of wastewater mains, manholes, and connections. A reticulation network map for the 6.12km of wastewater main within the National Park wastewater network is shown below.



NATIONAL PARK

- (b) The graphs below show the composition of the National Park Wastewater reticulation network with respect to pipe diameter/material and pipe material/date laid. The pipelines within the Wastewater network are predominantly 150mm diameter (78.5% by network length) and 200-225mm diameter (21.5% by network length). The pipe materials used most are mPVC/uPVC, comprising 99.7% of the wastewater network. 98.6% of network infrastructure was installed from 1980 to 1989 (inclusive).



(c) **Manholes:** 89 manholes within the National Park Wastewater network provide access to Wastewater mains for inspection and maintenance.

B.1.2 Pump Stations

(a) There are no Wastewater pump stations within the National Park Wastewater system. The reticulation network is entirely gravity fed.

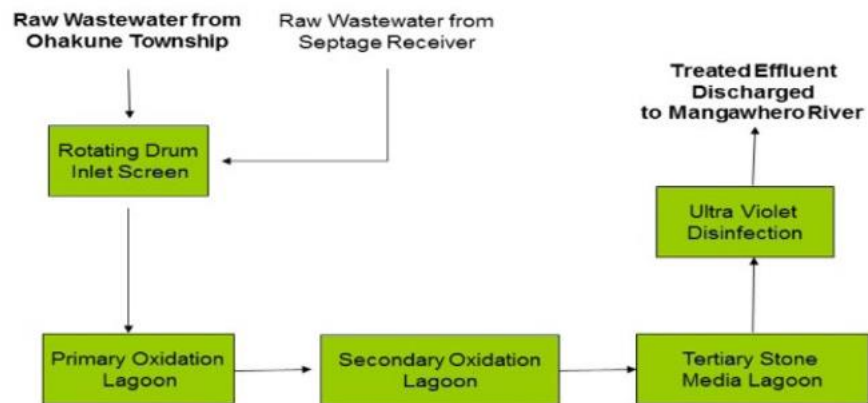
B.1.3 Treatment and Discharge

- (a) **Treatment:** Wastewater treatment is undertaken at the National Park WWTP which was commissioned in 1985. The WWTP provides primary, secondary and tertiary treatment via a primary and secondary oxidation lagoon, operating in series, and a wetland consisting of 6 small weirs/dams downstream of the outlet to the secondary lagoon.
- (b) The principle treatment assets comprise oxidation lagoons, manholes, pipework, valves, flow monitoring equipment, tertiary treatment weirs and a stormwater diversion system.
- (c) **Discharge:** The treated wastewater from the National Park WWTP is discharged into a tributary of the Makaretu Stream.

B.2 Ohakune

The Ohakune Wastewater network provides for the collection and treatment of Wastewater generated from 1514 connected properties within the Ohakune community. Wastewater is transported through the network to the Ohakune WWTP, where it is treated prior to discharge. A schematic of the Ohakune wastewater reticulation network and photographs of select assets are shown below.

National Park Wastewater Treatment Plant Schematic



Grit & solids removal (left), Stop log wall between primary and secondary oxidation lagoons (2nd from left), Tertiary stone media lagoon (3rd from left), UV Disinfection chamber (right)

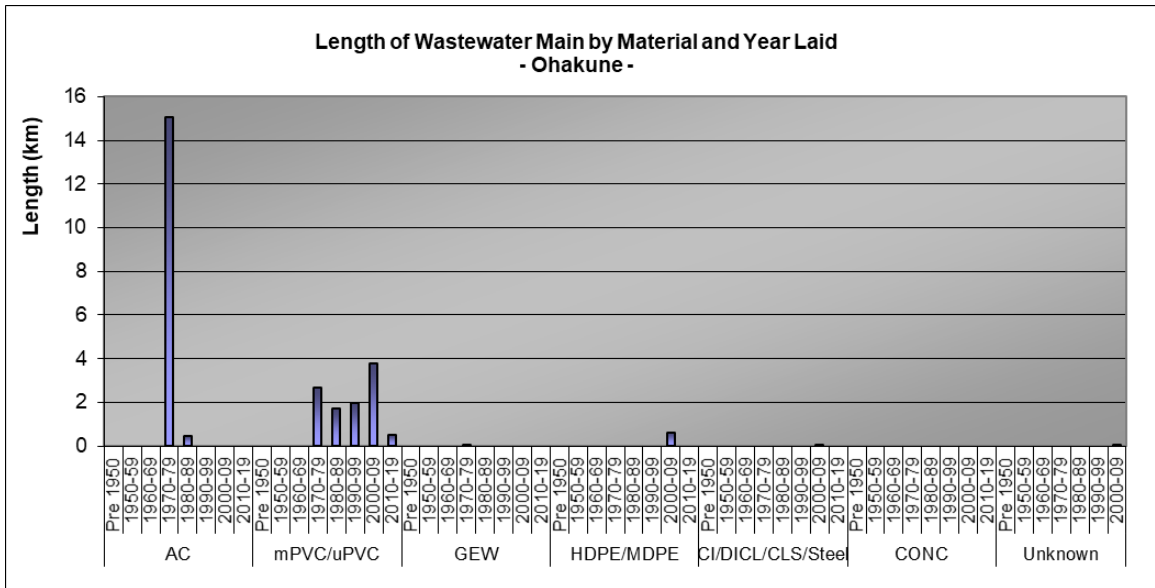
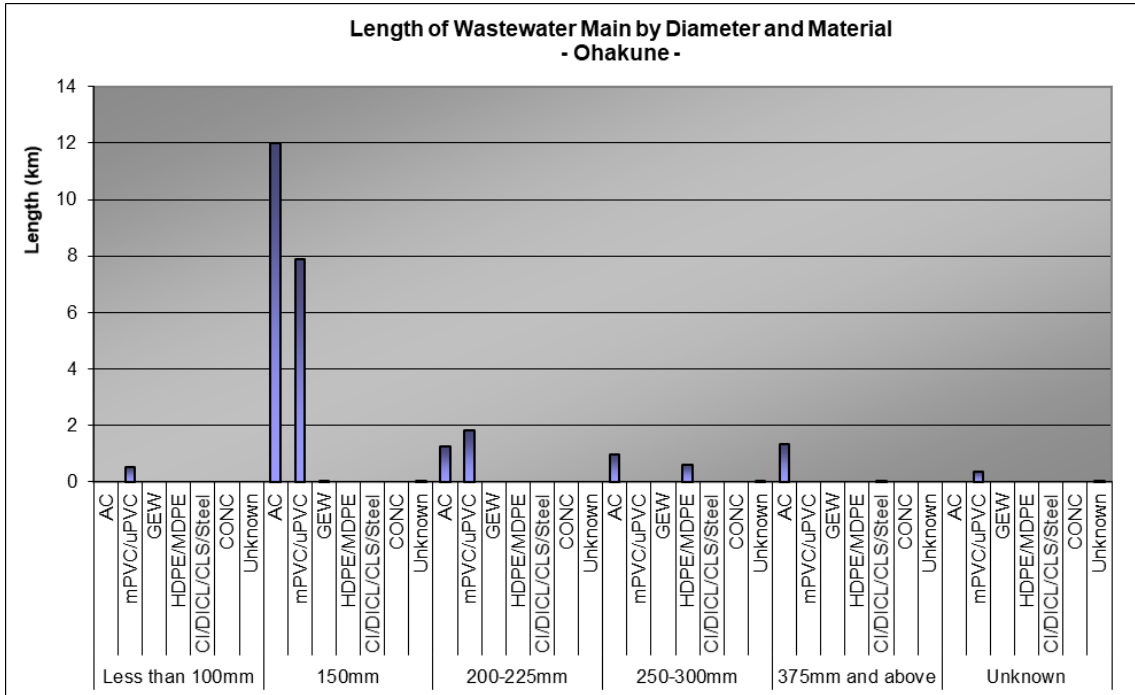
B.2.1 Network

- (a) **Wastewater mains:** The Ohakune Wastewater reticulation network comprises an integrated series of mains, manholes, connections, and a pump station. A reticulation map for the 26.9 km of Wastewater main within the network is shown below.



OHAKUNE

- (b) The graphs below provide a composition of the Ohakune Wastewater reticulation network with respect to pipe diameter/material, and pipe material/date laid. The pipelines within the network are predominantly 150mm diameter (74.1% by network length) and 200mm-300mm diameter (17.5% by network length). The pipe materials used most are AC/ACS and mPVC/uPVC comprising 57.8% and 39.5% of the network respectively. The majority of the network infrastructure was installed from 1970 to 1979 (inclusive), totalling 17.8 km, or 66.1% of the network.



- (c) **Manholes:** 422 manholes across the Ohakune Wastewater supply network provide access to Wastewater mains for inspection and maintenance.

B.2.2 Pump Stations

- (a) **Pump Station:** A small collection area south of Rangataua Road is serviced by the Snowmass Drive wastewater pumping station. The principal pump station assets include pumps, pump sump, valves, pipe work, switchboard and controls.

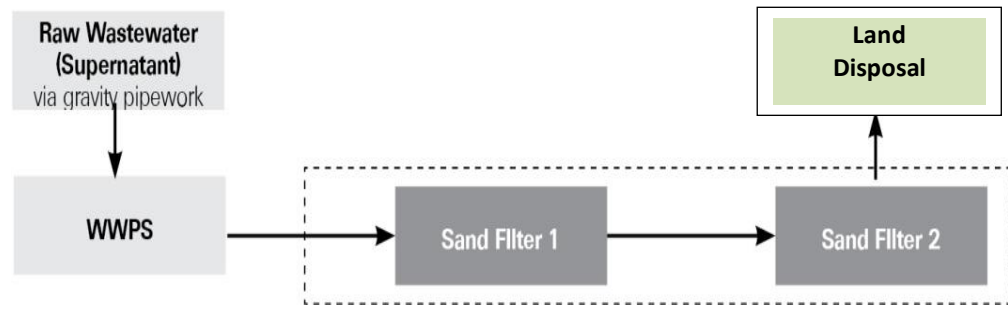
B.2.3 Treatment and Discharge

- (a) **Treatment:** Wastewater treatment is undertaken at the Ohakune Wastewater Treatment Plant. Treatment begins as raw sewage passes through a rotating drum screen and grit trap and into the primary oxidation lagoon. Effluent passes from the primary lagoon to the secondary lagoon through a stop log and mesh barrier which divides the two lagoons. Effluent is then passed from the secondary lagoon to a tertiary stone media lagoon before being collected and passed through an ultra violet disinfection unit. SCADA at the WWTP provides real time control and monitoring.
- (b) The principle Wastewater treatment assets comprise a septage receiver, intake screen/grit trap, primary oxidation lagoon, dissolved oxygen monitoring equipment, lagoon partition/separation weir, secondary lagoon, tertiary stone media lagoon, level monitoring equipment, aerators, UV disinfectant unit, pipework, valves, switchboards and the WWTP building.
- (c) **Discharge:** Treated wastewater from the Ohakune Wastewater Treatment Plant is discharged to the Mangawhero River. The principle discharge assets comprise an outlet flow meter, outlet flow meter chamber, gabion basket retaining wall, and pipework.

B.3 Pipiriki

The Pipiriki Wastewater network provides for collection and treatment of wastewater generated from 19 connected properties within the Pipiriki community. The network is a STEDS (septic tank effluent discharge scheme), which collects and treats effluent discharge from individual septic tanks located on the individual properties. Effluent discharge is transported to the Pipiriki WWTP (sand filters), where it is further treated prior to discharge to the sub-surface irrigation system. A schematic of the network and photographs of select assets within the network are shown below.

Pipiriki Wastewater Treatment Plant and Network Schematic





New WWPS (left), irrigation field (middle), control valves for the distribution through the irrigation field (right)

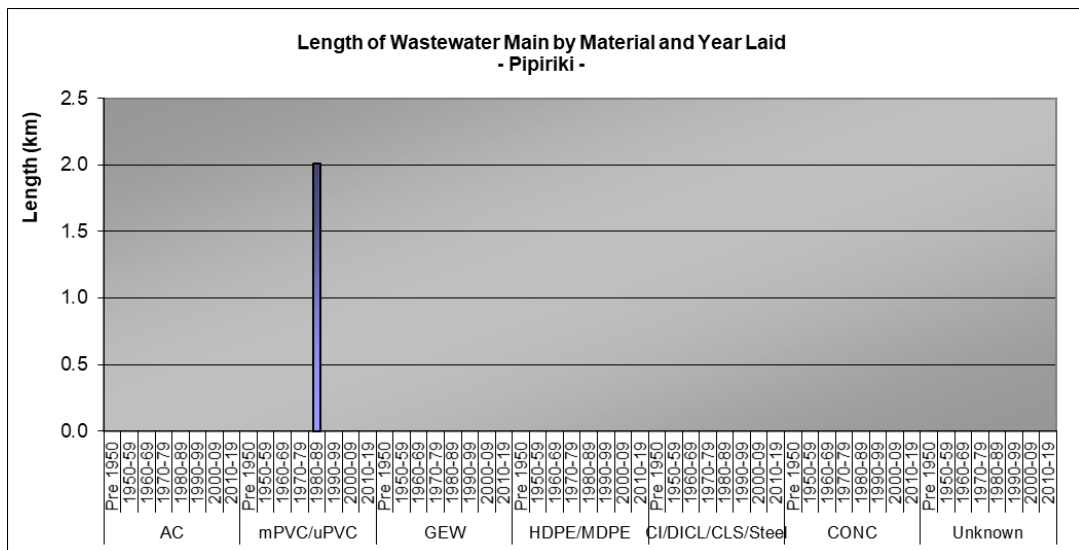
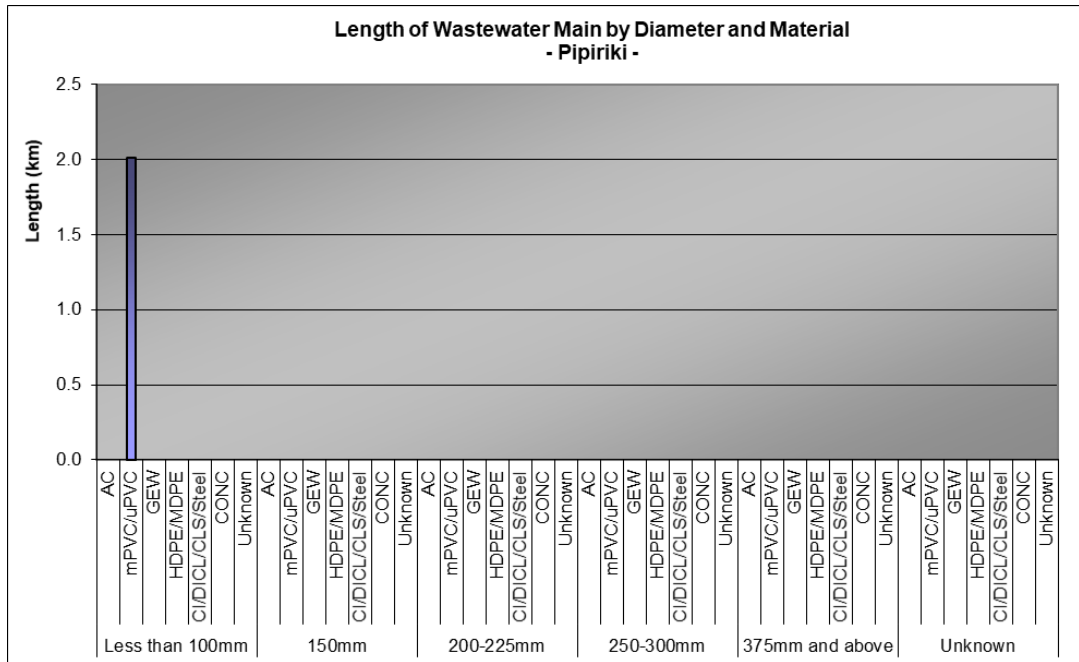
B.3.1 Network

- (a) **Wastewater mains:** The Pipiriki Wastewater reticulation network comprises an integrated series of wastewater mains, manholes, lampholes, and connections as summarised in Table 5.1.1. A reticulation network map for the 2.0 km of wastewater main within the Pipiriki network is shown below.



PIPIRIKI

- (b) The graphs below provide a graphical composition of the Pipiriki reticulation network with respect to pipe diameter/material, and pipe material/date laid. The entire pipeline within the Wastewater reticulation network is $\leq 100\text{mm}$ in diameter and made from mPVC/uPVC. The entire infrastructure was installed between 1980 and 1989 (inclusive).



- (c) **Manholes:** 16 manholes across the network provide access to Wastewater mains for inspection and maintenance.
- (d) **Lampholes:** The inspection of Wastewater mains is also achieved via nine lampholes constructed across the network.

B.3.2 Pump Stations

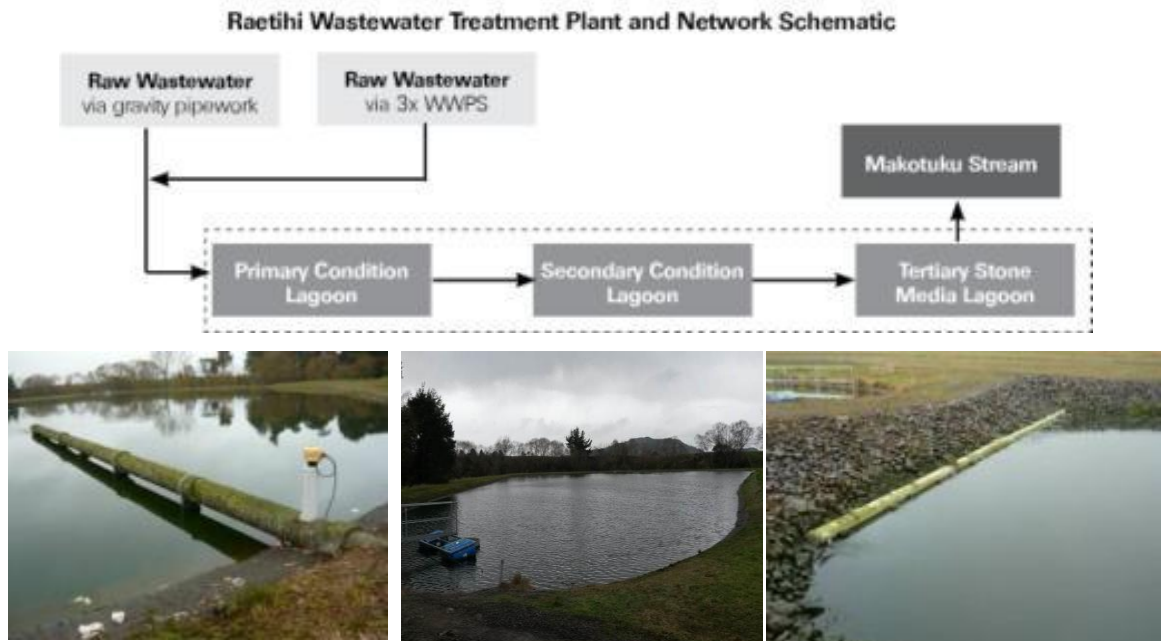
- (a) **Pump Station:** The Pipiriki community properties are serviced by private septic tanks and supernatant gravity feeds to the Pipiriki WWPS. The principal pump station assets include pumps, pump sump, valves, pipe work, switchboards, and controls. The same pump station collects effluent from the sand filters via a second pump sump and discharges to the pressure compensating sub-surface irrigation line.

B.3.3 Treatment and Discharge

- (a) **Treatment:** Wastewater treatment is undertaken at the Pipiriki WWTP. Treatment consists of two sand filters. The principle assets comprise of concrete chambers, valves, site enclosure, and timber tanks containing sand filters, manhole risers and pipework.
- (b) **Discharge:** The effluent from the sand filters is collected and treated wastewater is discharged to a pressure compensating sub-surface irrigation system in an area of land adjacent to the Wanganui River.

B.4 Raetihi

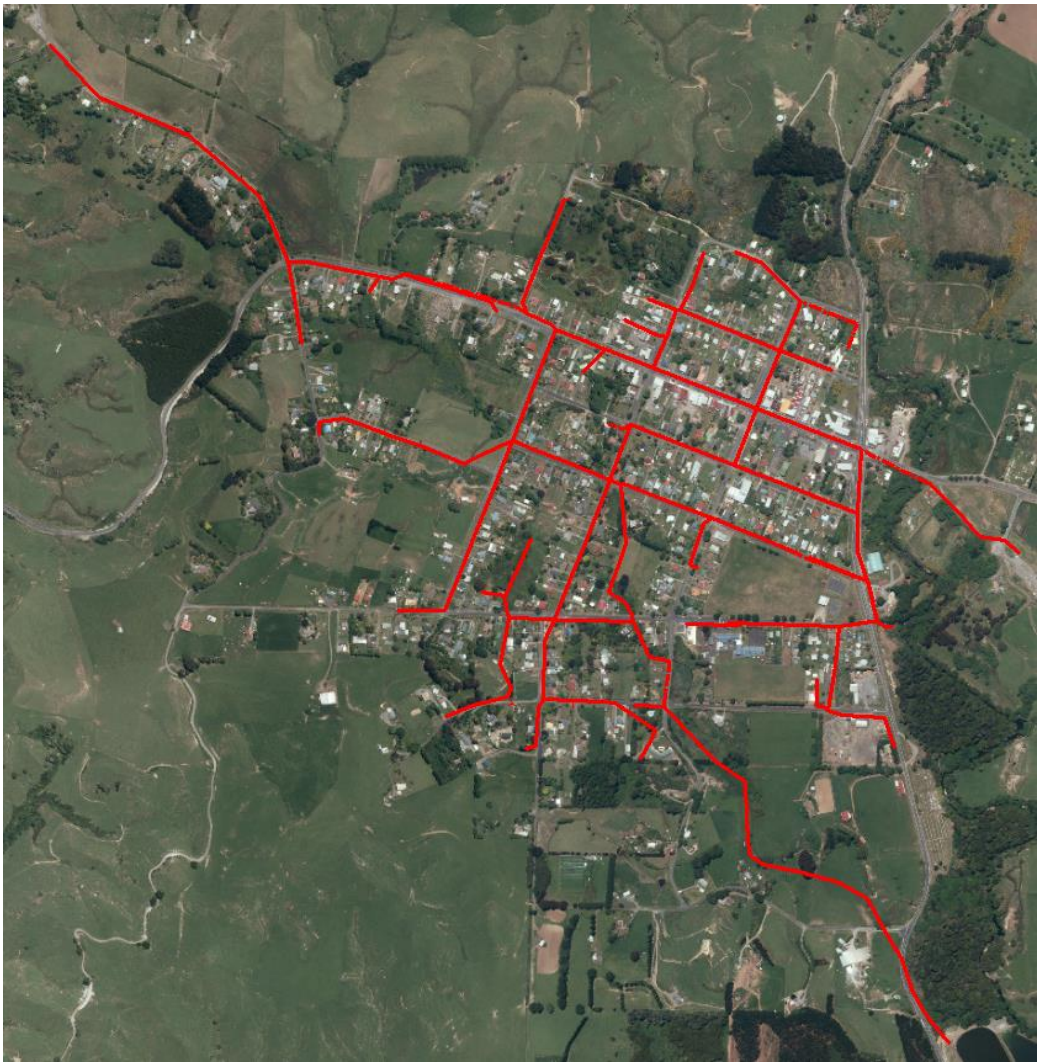
The Raetihi Wastewater network provides for collection and treatment of wastewater generated from 508 connected properties within the Raetihi community. Wastewater is transported through the network to the Raetihi WWTP, where it is treated prior to discharge. A schematic of the Raetihi network and photographs of select assets are shown below.



Inlet to primary oxidation lagoon (left), Secondary oxidation lagoon (middle), Tertiary stone media lagoon (right)

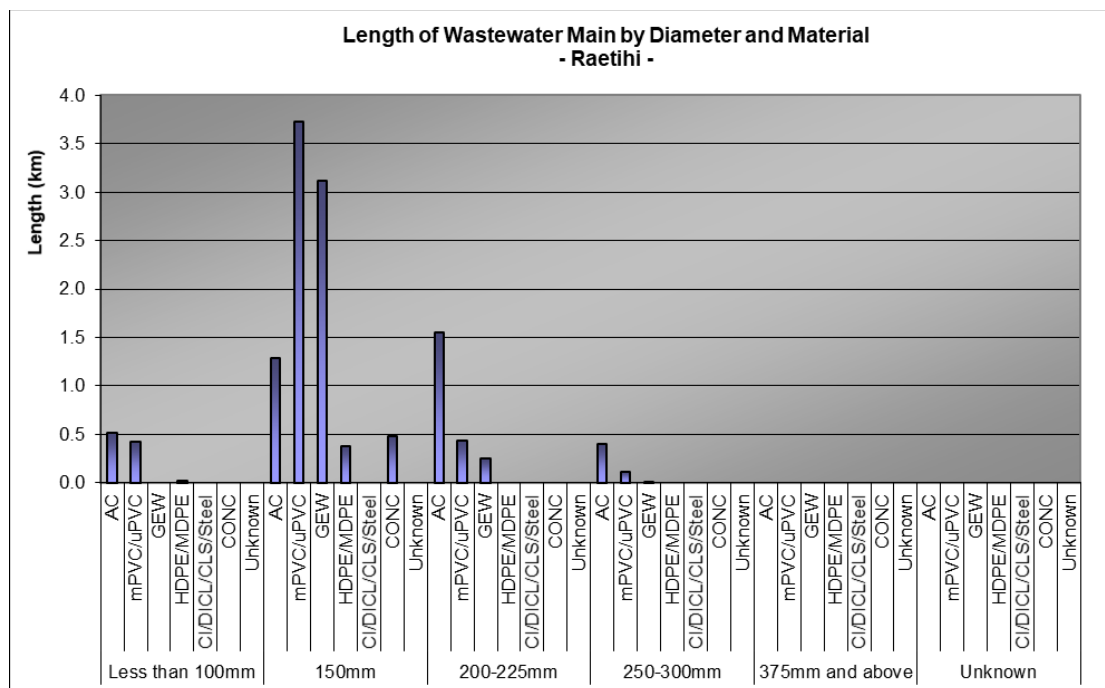
B.4.1 Network

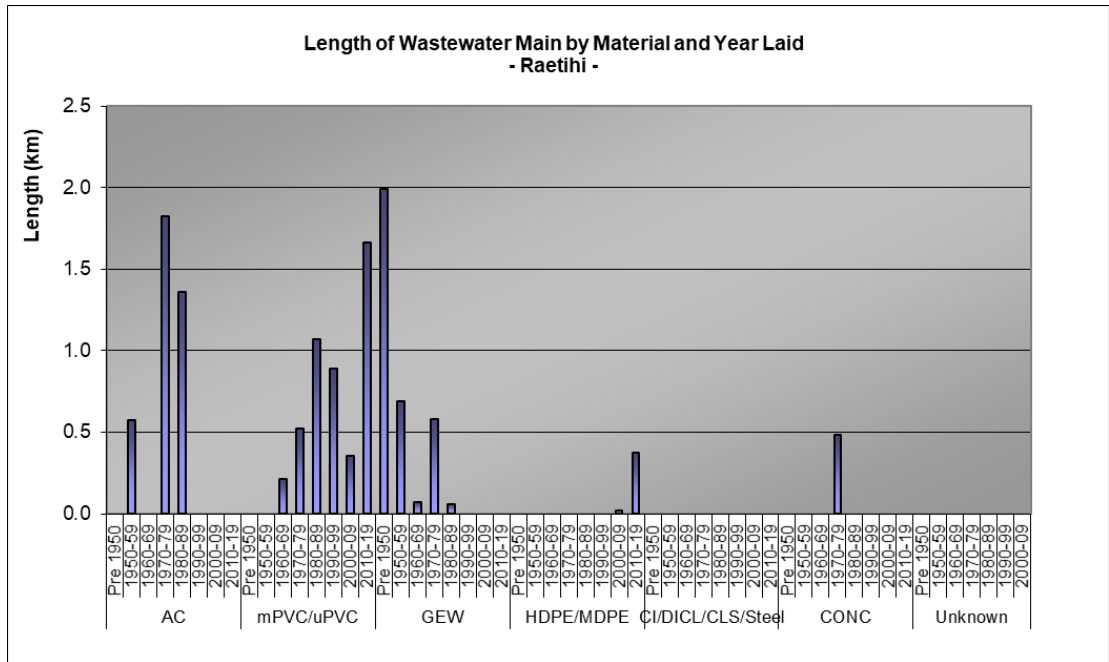
- (a) **Wastewater mains:** The Raetihi wastewater reticulation network comprises an integrated series of mains, manholes, connections, and pump stations. A reticulation map for the 12.7 km of main within the Raetihi network is shown below.



RAETIHI

- (b) The following graphs provide a graphical composition of the Raetihi Wastewater reticulation network with respect to pipe diameter/material, and pipe material/date laid. The pipelines within the network are predominantly 150mm diameter (70.6% by network length) and 200mm-225mm diameter (17.6% by network length). The pipe materials used most are PVC and GEW with 37% and 26.6% of the network respectively. Over half of the wastewater infrastructure was installed pre 1979. Approximately 15% of the network was installed pre 1950, being the GEW totalling 2km.
- (c) **Manhole:** 151 manholes across the network provide access to mains for inspection and maintenance.





B.4.2 Pump Stations

- (a) **Pump stations:** The Raetihi network consists of three wastewater pumping stations which convey wastewater to the Raetihi WWTP (Bridge, Highway and Seddon Streets). The principal pump station assets include pumps, pump sump, valves, pipe work, switchboards, controls and buildings.

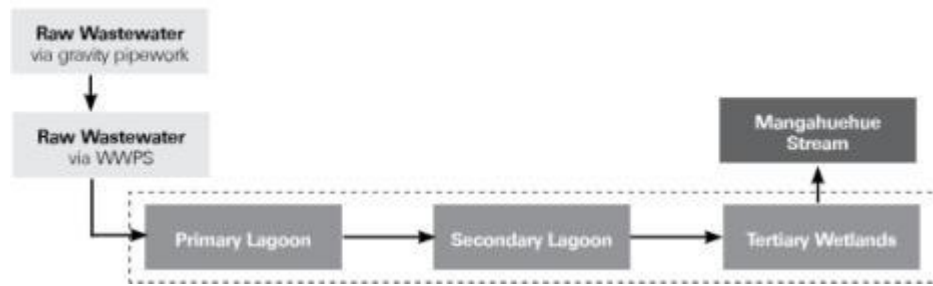
B.4.3 Treatment and Discharge

- (a) **Treatment:** Wastewater treatment is undertaken at the Raetihi WWTP. Treatment consists of primary, secondary and tertiary treatment via primary and secondary lagoons operating in series and a tertiary stone media lagoon downstream of the secondary lagoon.
- (b) The principal treatment assets comprise of a primary oxidation lagoon, secondary oxidation lagoon, tertiary stone media lagoon, lagoon outlet and overflow structures, and pipework.
- (c) **Discharge:** The treated Wastewater is discharged to the Makotuku River. The principal discharge assets comprise flow monitoring equipment, flow monitoring chambers, discharge chambers, gabion discharge wall, and pipework.

B.5 Rangataua

The Rangataua Wastewater network provides for collection and treatment of Wastewater generated from 199 connected properties within the Rangataua community. Wastewater is transported through the network to the Rangataua Wastewater Treatment Plant. A schematic of the network and photographs of select assets are shown below.

Rangataua Wastewater Treatment Plant and Network Schematic



Rangataua rising main upgrade (left), Primary oxidation lagoon (middle), Secondary oxidation lagoon (right)

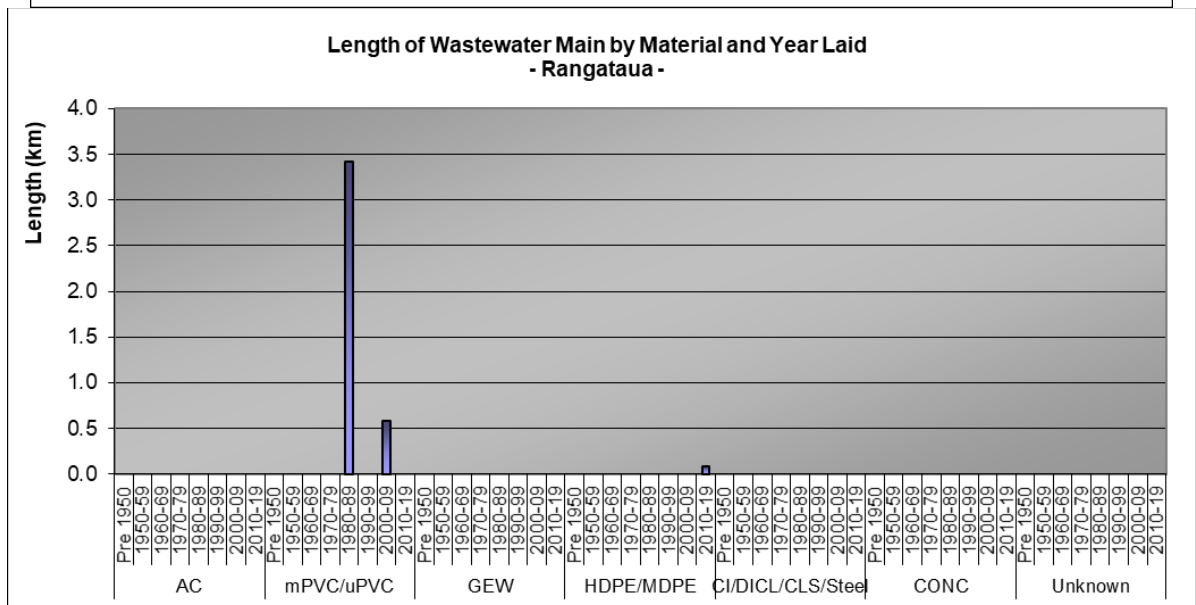
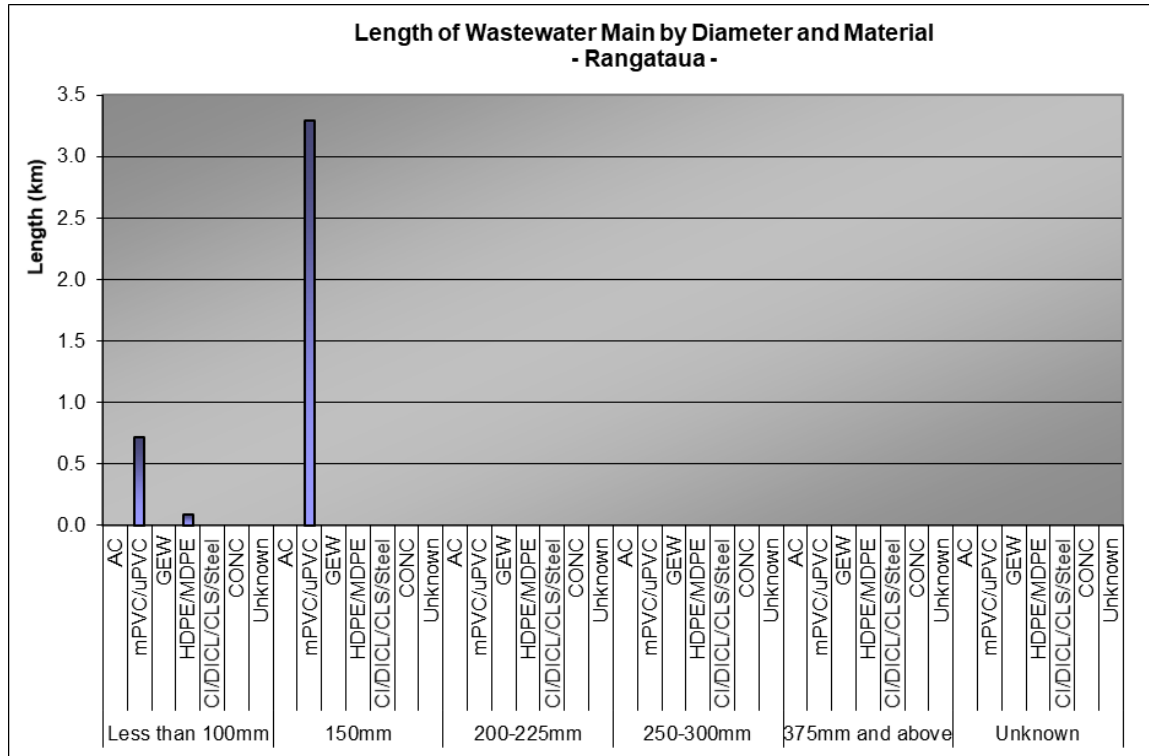
B.5.1 Network

- (a) **Wastewater mains:** The Rangataua network comprises an integrated series of Wastewater mains, manholes, connections, and a pump station. A reticulation network map for the 4.1 km of wastewater main within the network is shown below.



RANGATAUA

- (b) The following graphs provide a graphical composition of the Rangataua Wastewater reticulation network with respect to pipe diameter/material, and pipe material/date laid. The pipelines within the network are predominantly 150mm diameter (80.5% by network length) and <=100mm diameter (19.5% by network length). The majority of the network is made from mPVC/uPVC pipe material (97.9%) with the balance in HDPE/MDPE (2.1%). The majority of the network infrastructure was installed from 1980 to 1989 (inclusive), totalling 3.4km, or 83.6% of the network.



- (c) **Manhole:** 33 manholes across the Rangataua Wastewater supply network provide access to mains for inspection and maintenance.

B.5.2 Pump Station

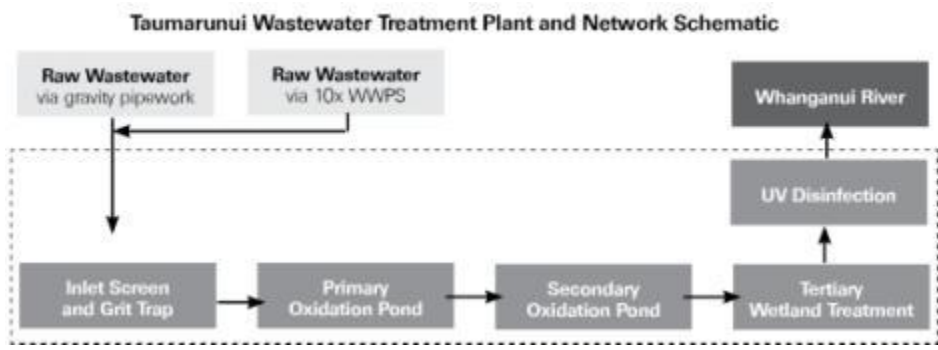
- (a) **Pump station:** The Rangataua Wastewater network consists of a WWPS located on the corner of Marino and Kaha Streets, which pumps wastewater to the Rangataua WWTP. The principal pump station assets include pumps, pump sump, valves, pipe work, switchboards, and controls.

B.5.3 Treatment and Discharge

- (a) **Treatment:** Wastewater treatment is undertaken at the Rangataua WWTP. Treatment consists of primary, secondary and tertiary treatment via primary and secondary lagoons operating in series and tertiary treatment wetlands downstream of the secondary lagoon.
- (b) The principal treatment assets comprise primary and secondary oxidation lagoons, valves, overflow chamber, outlet weir, and pipework.
- (c) **Discharge:** The treated wastewater is discharged to the Mangahuehue Stream.

B.6 Taumarunui

The Taumarunui Wastewater network provides for collection and treatment of wastewater generated from 2,140 connected properties within the Taumarunui community. Wastewater is transported through the network to the Taumarunui WWTP, where it is treated prior to discharge. A schematic of the Taumarunui reticulation network and photographs of selected assets within the network are shown below.





Inlet step screen



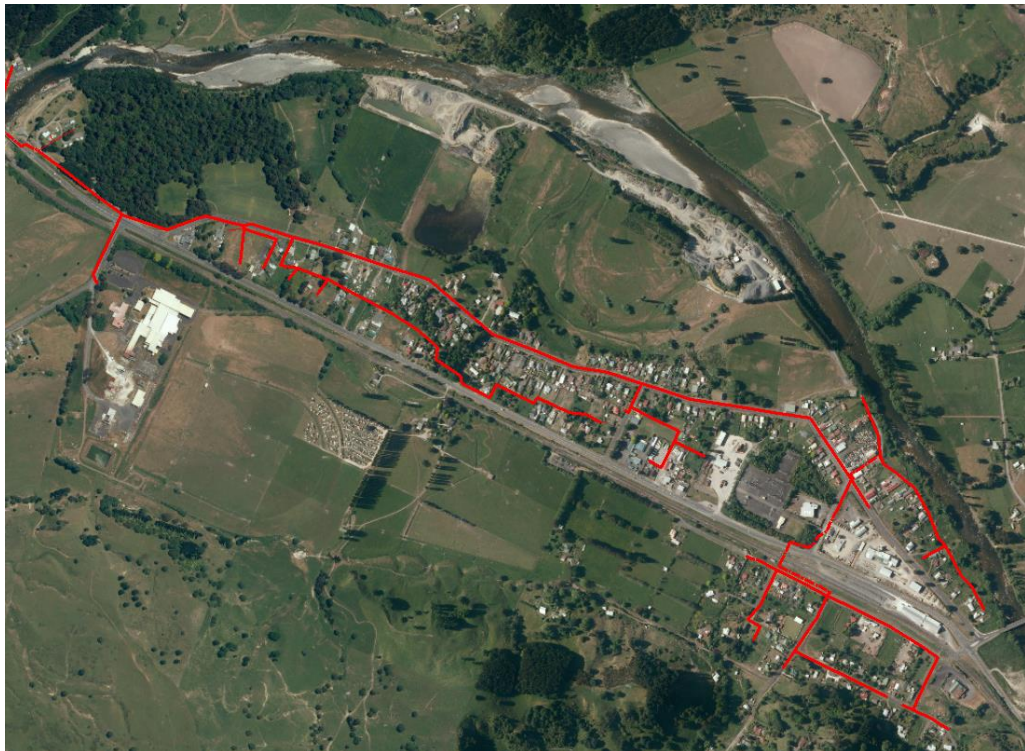
Primary/Secondary oxidation lagoons



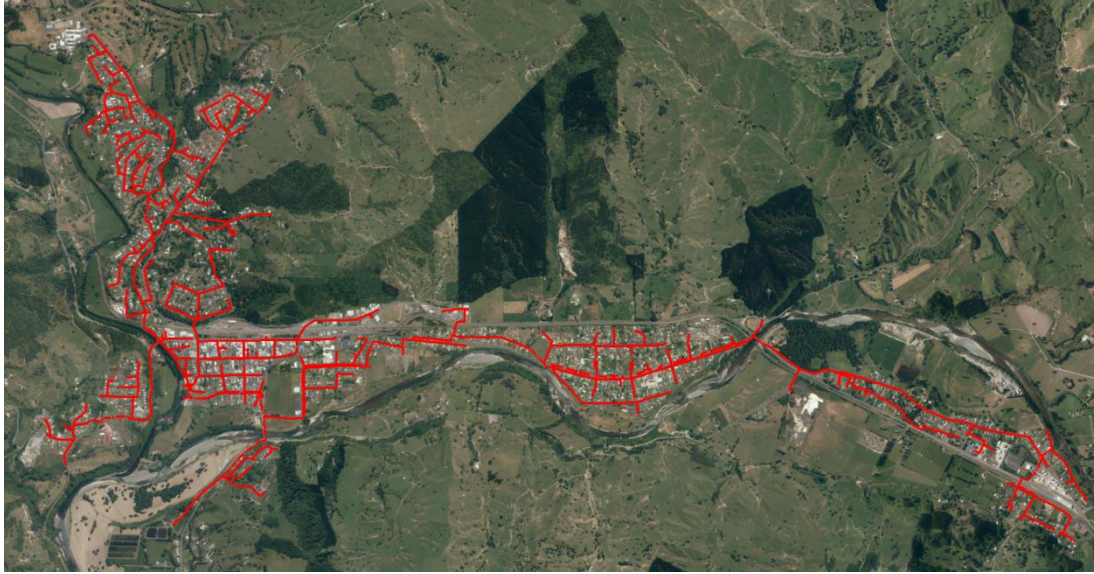
UV disinfection

B.6.3 Network

- (a) **Wastewater mains:** The Taumarunui Wastewater reticulation network comprises an integrated series of mains, manholes, lampholes, connections and pump stations. A reticulation map for the 49.2km of wastewater main within the network is shown below.

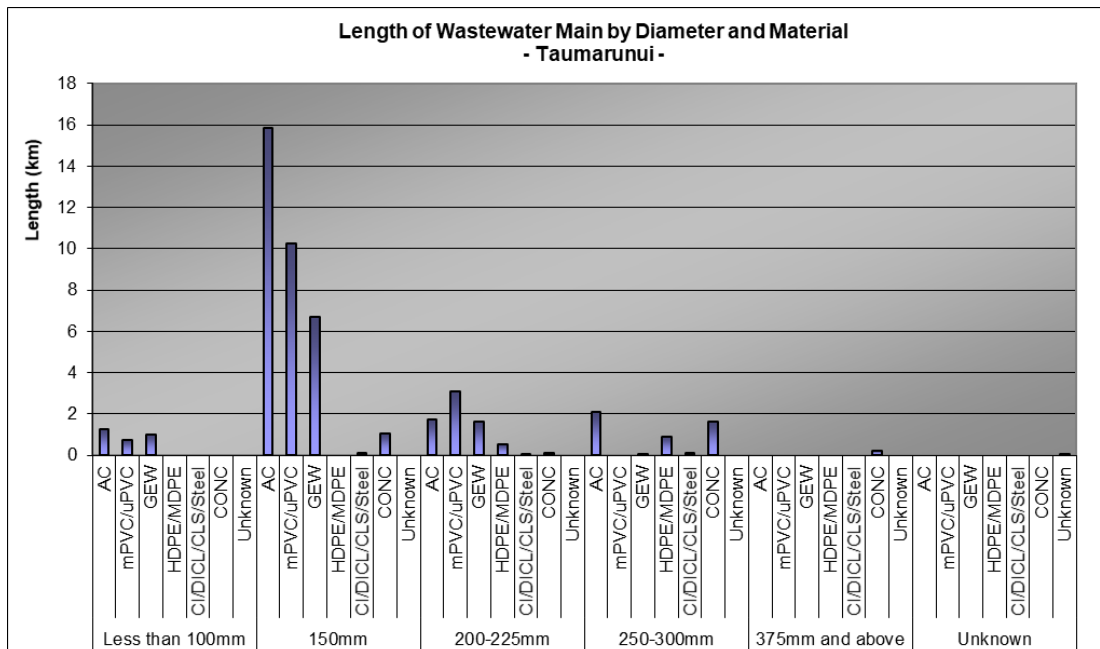


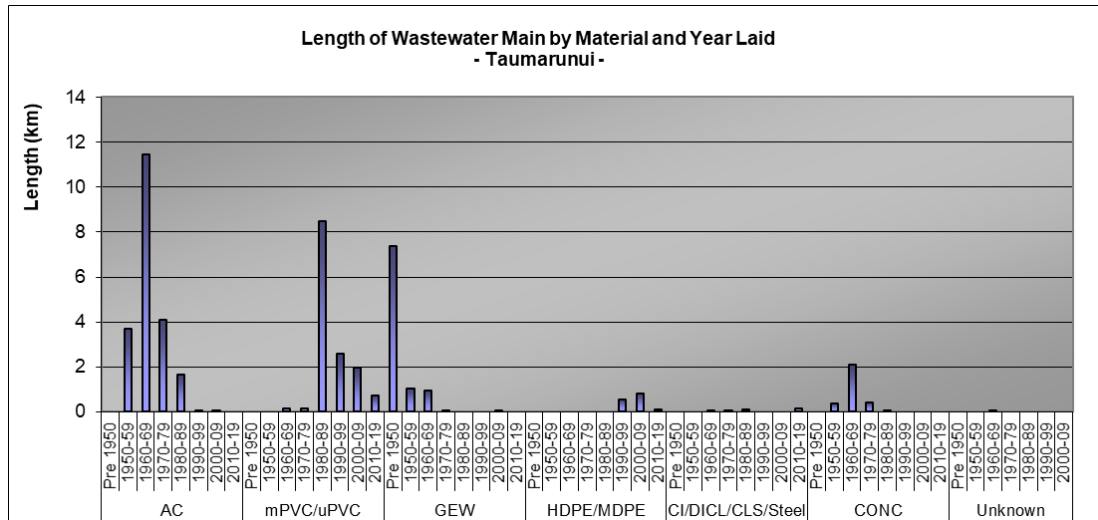
Manunui wastewater reticulation network



Taumarunui wastewater reticulation network

- (b) The graphs below provide a graphical composition of the Taumarunui wastewater network with respect to pipe diameter/material, and pipe material/date laid. The pipelines within the network are predominantly 150mm diameter (69.0% by network length) and 200mm-225mm diameter (14.6% by network length). The pipe materials used most are AC and mPVC/uPVC at 42.6% and 28.5% of the network respectively. Fifty percent of the network infrastructure was installed during the periods between 1960 to 1969 totalling 14.7 km (29.9% of the network) and 1980 to 1989 totalling 10.3 km (21.0% of the network).





- (c) **Manholes:** 700 manholes across the network provide access to mains for inspection and maintenance.
- (d) **Lampholes:** The inspection of mains is also achieved via 34 lampholes constructed across the network.

B.6.2 Pump Stations

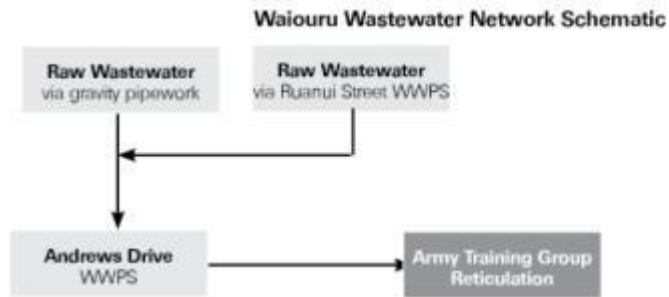
- (a) **Pump Stations:** The network consists of ten pumping stations (Bullians Avenue, Camp Ground, Golf Road, Huia Street, Matai Street Nos 1 and 2, Sunshine Road, Tubby Woods, Tuku Street and Victory Bridge) which convey wastewater to the Taumarunui WWTP. The principal pump station assets include pumps, pump sumps, valves, pipework, switchboards, controls and buildings.

B.6.3 Treatment and Discharge

- (a) **Treatment:** Wastewater treatment is undertaken at the Hikumutu WWTP. Treatment initially consists of inlet screening followed by primary and secondary oxidation via ponds in series. Tertiary wetland treatment and UV disinfection then follows prior to discharge.
- (b) The principal assets comprise an inlet chamber, overflow/bypass chamber screen, inlet screen, hydraulic press, flow and level monitoring equipment, primary lagoon, secondary lagoon, collection chamber, aerators, tertiary wetlands, UV disinfection chamber, switchboards, buildings, valves, and pipework.
- (c) **Discharge:** The treated Wastewater is discharged to the Whanganui River.

B.7 Waiouru

The Council component of the Waiouru Wastewater network provides for the collection of Wastewater from 81 connected properties within the Waiouru community. Wastewater from these properties is transported through the network to the New Zealand Army Training Group reticulation network where responsibility for its treatment and disposal is transferred to the Army Training Group. A schematic of the reticulation network and photographs of select assets are shown below.



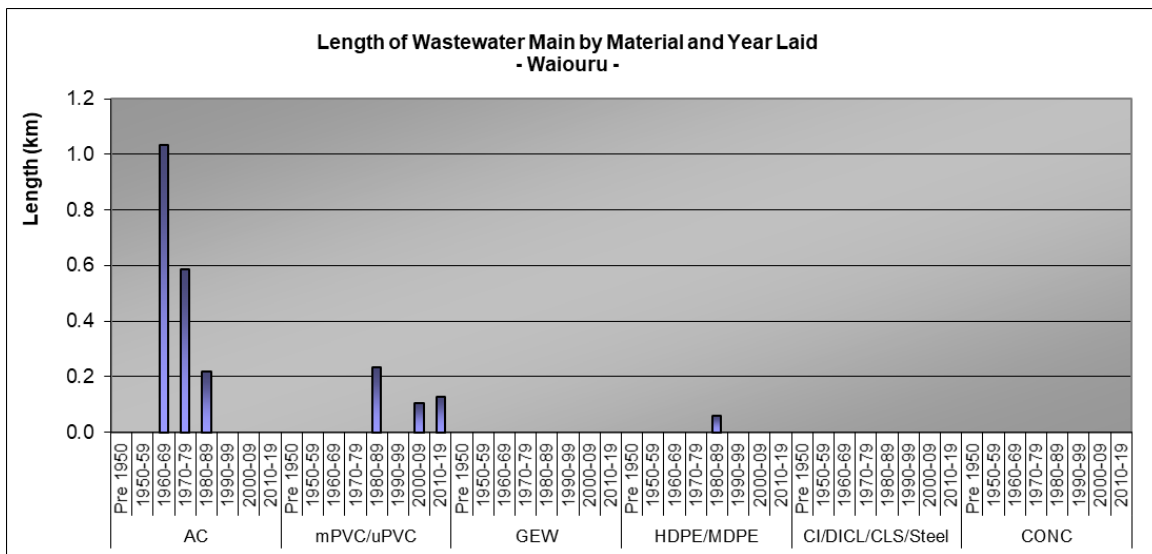
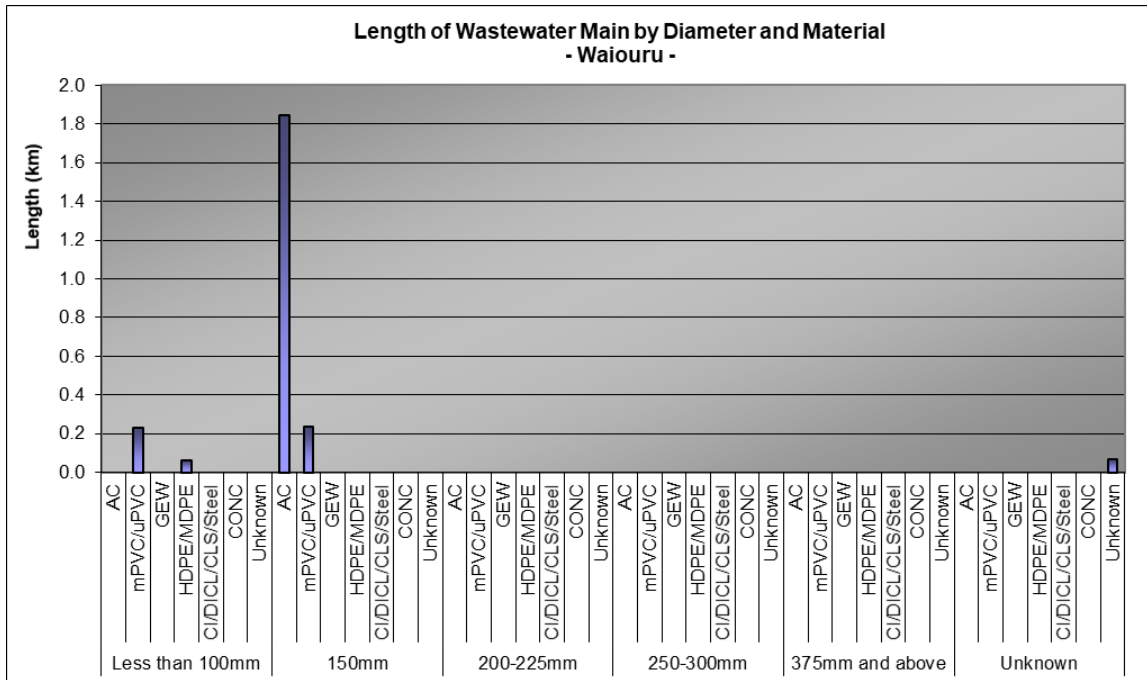
B.7.1 Network

- (a) **Wastewater mains:** The Waiouru Wastewater reticulation network comprise an integrated series of mains, manholes, connections, and pump stations. A reticulation network map for the 2.4 km of main within the network is provided below.



WAIOURU

- (b) The following graphs provide a graphical composition of the Waiouru reticulation network with respect to pipe diameter/material, and pipe material/date laid. The pipelines within the network are predominantly 150 mm diameter (85.4% by network length). The pipe material used most is AC, with 75.6% of the network. The largest part of the network infrastructure was installed from 1960 to 1969 (inclusive), totalling 1.0 km, or 42.5% of the network.



(c) **Manhole:** 23 manholes across the network provide access to mains for inspection and maintenance.

B.7.2 Pump Station

(a) The Waiouru Wastewater network consists of two pumping stations (Ruanui Street and Andrews Drive). The principal assets include pumps, pump sumps, valves, pipe work, switchboards, controls and buildings.

B.7.3 Discharge

(a) **Discharge:** Wastewater is ultimately discharged to the Army Training Group reticulation system, where it is treated.

Appendix C – Physical Parameters: Asset Capacity/Performance

C.1 National Park

Asset Capacity/Performance Grading		Comment/Substantiation
Network		
Wastewater Mains	1	<ul style="list-style-type: none"> The reticulation has performed well since installation. Operators do not report ongoing problems. During 2019 there were no reported wastewater chokes within the National Park network. Significant problems are not experienced with either root intrusion or fat accumulation. The network does not suffer from capacity limitation. At current flows the wastewater mains are currently over capacity due to the network designed and sized to cater for predicted future growth.
Manholes	2	<ul style="list-style-type: none"> Manholes are typically free from foreign rubbish. Wastewater blockages and overflows as a result of blocked or damaged manholes are rare. Manholes are generally locatable without undue difficulty. However, prior to removal of a manhole lid, it can be difficult to distinguish easily between stormwater and wastewater manholes. This can especially be so as a result of GIS plans which are not accurate. <p>However:</p> <ul style="list-style-type: none"> System information (lid levels and invert levels) is not recorded for the majority of the wastewater manholes.
Treatment and Discharge		
Wastewater Treatment Plant	3	<ul style="list-style-type: none"> The hydraulic performance of the WWTP is good. Current inflow is below the plant design capacity. The location of the WWTP away from the central town area aids in ensuring there are no odour complaints. Stormwater bypass trenching and infrastructure is installed at the plant to reduce stormwater ingress into the lagoons, in addition to preventing overloading of the tertiary wetlands. This system is reported to provide adequate performance for stormwater bypassing. <p>However:</p> <ul style="list-style-type: none"> The consented daily effluent volume was regularly exceeded for the period 2014 – 2019. There is a lack of any form of inlet solids screening or grit removal.

C.2 Ohakune

Asset Capacity/ Performance Grading		Comment/Substantiation
Network		
Wastewater Mains	3	<ul style="list-style-type: none"> Operators do not report undue problems in relation to the reliability of the Ohakune mains. Undue problems are not experienced with either root intrusion or fat accumulation. During 2019 a total of 4 reported wastewater chokes occurred within the Ohakune network. Future performance has been improved with the installation of a 225mm diameter wastewater main replacing the existing 150mm diameter main . CIP patch repairs completed on trunk main in Burns Street and Mangawhero Terrace Extension. Additional CCTV investigation planned for 2020.
Manholes	2	<ul style="list-style-type: none"> Manholes are typically free from foreign rubbish. Wastewater blockages and overflows as a result of manholes or content within them are rare. <p>However:</p> <ul style="list-style-type: none"> A number of manholes inspected as part of the 2019 Condition Assessment were becoming overgrown which would make them more difficult to locate. There were a number of manholes that were not able to be assessed due to this issue. Operators indicated that a number of manholes were sealed over at the time of the 2019 Condition Assessment making inspection and assessment impossible. A number of manholes inspected as part of the 2019 Condition Assessment were observed with restricted man-entry due to the manhole lid being offset from the manhole riser. The GIS plans showing the location of the wastewater manholes are reported to contain regions of inaccuracy. While the GIS provides a useful operational aid an accurate system plan would dramatically assist with overall system operation.
Pump stations		
WWPS	2	<ul style="list-style-type: none"> A satisfactory level of performance is currently provided by Snowmass Drive WWPS for the developed catchment area. The area is planned to be further developed which will result in increased inflow to the station. The WWPS is connected to the SCADA system.
Treatment and Discharge		
Wastewater Treatment Plant	3	<ul style="list-style-type: none"> The WWTP generally achieves treated effluent compliance, however Ammonia compliance is not always achieved (especially during colder months), and Suspended Solids is generally not achieved. The plant is currently operating with tertiary treatment in the form of a tertiary stone media lagoon. Effluent passes through a UV disinfection chamber prior to discharging to the Mangawhero River via a rock filter. A septage Reception facility was installed to the plant Inlet works in 2010 allowing for the controlled introduction of septage to the WWTP. A Parshall flume type inlet flow meter is installed at the plant which is performing well. This replaced the original ultrasonic flow meter which did not accurately calculate flows into the plant as the gravity fed inlet pipe was usually only partially full. The inlet flume and outlet Magflow meter flows and daily volume and the UV intensity are monitored through SCADA at the site.

Asset Capacity/ Performance Grading		Comment/Substantiation
		<ul style="list-style-type: none"> Discharge volumes of zero occur during low flows in the summer period. This is due to the UV disinfection unit requiring a minimum flow rate to prevent the unit burning out. Effluent is held back in the subsurface flow wetland until the minimum flow rate is achieved. The sampling point within the UV chamber was moved to above ground to eliminate the need for confined space entry. The inlet step screen was replaced with a Rotary Drum Screen and grit trap in 2016 to improve the screening performance at the WWTP. <p>However:</p> <ul style="list-style-type: none"> Dye testing of the lagoons has revealed process short-cutting to be taking place resulting in reduced waste residence time in the lagoon. Insufficient ammonia and suspended solids removal is achieved to ensure full compliance with the quality criteria specified under the resource consent, however this does not appear to cause any significant adverse effects on the receiving environment as demonstrated by the Water Quality monitoring of the receiving waters. The aerators require significant on-going maintenance. At the time of the 2019 Condition Assessment, three of the four aerators were out of service. Due to Health and Safety issues, the aerator need to be removed from the pond for repair / overhaul. Issues are being experienced with the septage pumps due to pump blockages, as a result of the septic waste containing a high volume of rags. At the time of writing this AMP, an investigation was underway to assess upgrade works at the septage receiving facility.

C.3 Pipiriki

Asset Capacity/ Performance Grading		Comment/Substantiation
Network		
Wastewater mains	1	<ul style="list-style-type: none"> The reticulation has performed well since installation with operators reporting that there are no known performance problems within the network. During 2019 there was only 1 reported wastewater choke within the Pipiriki wastewater network. No ongoing preventative maintenance main cleaning is required to be undertaken on the Pipiriki mains.
Manholes	2	<ul style="list-style-type: none"> Manhole performance is deemed good rather than very good due to the presence of sand seen in one manhole and gravel in another . <p>However:</p> <ul style="list-style-type: none"> The large majority of the manholes are accessible and quickly locatable. However two manholes were unable to be located and are suspected to have been buried.. One manhole was not inspected as we were unable to remove the cover.
Pump stations		
WWPS	2	<ul style="list-style-type: none"> Operators report no undue problems with the performance of the WWPS in terms of overflows from the WWPS or malfunctioning equipment. The WWPS is located away from residential dwellings. This negates the impact of any odours from the WWPS. Recent switchboard replacement and SCADA implementation has increased visibility into the system and has given appropriate alarming capability. <p>However</p> <ul style="list-style-type: none"> No potable water supply at the pump station with which to wash down equipment or the wet well itself.

Asset Capacity/ Performance Grading		Comment/Substantiation
		<ul style="list-style-type: none"> There is no safety grating over the wet well access hole.
Treatment and Disposal		
Wastewater Treatment Plant	3	<ul style="list-style-type: none"> The plant provides a satisfactory level of performance and is superior to no treatment at all. The filters act as a further level of treatment from that already provided by the septic tanks. A flow meter meter was installed in 2012 on the WWPS rising main which provides accurate influent flows to the WWTP. <p>However:</p> <ul style="list-style-type: none"> Investigations indicate a likelihood that the filters are overloaded during peak flow conditions. Historical monitoring results have shown frequent non compliance with resource consent suspended solids level requirements for the discharge. Frequent maintenance is required on the filters in order to prevent a crust forming on the top layer of media which would cause blockage of the filters. Poor monitoring of the plant results in occasional overflowing of the filters when the influent flow exceeds the capacity of the sand filters (ie, sand filters may become bound leading to a reduced capacity).

C.4 Raetihi

Asset Capacity/ Performance Grading		Comment/Substantiation
Network		
Wastewater Mains	4	<ul style="list-style-type: none"> The network provides a poor level of performance. There is a history of chokes and blockages within the Raetihi network. During 2019, there were 7 recorded wastewater chokes within the network. The analysis of operational data indicate Raetihi to have the highest choke rate within the Ruapehu District. Preventative maintenance is required in areas on an ongoing basis to prevent blockages and subsequent overflows. Significant inflow and infiltration previously occurred to the wastewater network during periods of rainfall resulting in overflow along the trunk main to the WWTP. Relining of poor condition mains throughout the wastewater network which was completed in 2018/19 has been effective. No overflows were recorded during the 2019/20 period due to overloading of the system. Seven minor overflows were recorded during the 2019/20 period within private property to land only, and were all as a result of issues with lateral connections or blockages in the main. <p>However:</p> <ul style="list-style-type: none"> In order to further reduce wet weather flows to the WWTP, smoke testing is to be completed in a staged manner to identify problematic areas and this is budgeted for the 2020/21 period.
Manholes	2	<ul style="list-style-type: none"> Manholes are typically free from foreign rubbish. Blockages and overflows as a result of manholes or content within them are rare. Manholes are generally locatable without excessive difficulty.
Pump stations		
WWPS	3	<ul style="list-style-type: none"> A satisfactory level of performance is provided by the wastewater pump stations. Standby pumps exist at both Highway and Seddon Street WWPS.

Asset Capacity/ Performance Grading		Comment/Substantiation
		<ul style="list-style-type: none"> SCADA installed at Bridge St, Highway and Seddon Street WWPS provides real time control and alarming. The pumps at the Seddon Street WWPS were upgraded in 2019 from vortex pumps to cutter pumps and are reported to be now performing significantly better with reduced pump blockages <p>However:</p> <ul style="list-style-type: none"> The absence of a standby pump at Bridge WWPS presents a significant operational limitation. While the single pump is adequately sized for typical inflows, any failure of the pump requiring significant repair or replacement, could leave the station at risk in terms of maintaining operation. The risk of such an event is only partially offset by the storage provided as a result of the oversized pump sump.
Treatment and Disposal		
Wastewater Treatment Plant	3	<ul style="list-style-type: none"> The Raetihi WWTP is currently operating at a satisfactory level under most circumstances, although there has been odours noticed from the plant, especially during summer. A sludge depth survey of the WWTP ponds was completed in 2019. The survey determined that sludge occupies approx. 20% of Pond 1 volume and less than 8% of Pond 2 volume. A new effluent meter was installed in 2019, to replace the insitu flow meter which had been performing poorly. An investigation is underway as of June 2020 to assess the installation of mains power to the site due to the limitation of the existing solar power supply and the issues experienced with a reliable SCADA connection. Quality criteria specified under the resource consent are not always achieved. <p>Specifically:</p> <ul style="list-style-type: none"> Discharge under wet weather conditions can exceed the 820 m³/day (wet weather flow) limit existing under the resource consent. There are no aerators installed at the WWTP and dissolved oxygen within the primary oxidation pond falls below the minimum 2g/m³ required under the resource consent. Suspended solids levels in the discharge exceed those allowable under the resource consent, resulting in non-compliance. The primary lagoon has floating debris such as tissues and sanitary napkins, due to there being no screening of the influent effluent to the primary oxidation lagoon. The design capacity of the plant is exceeded during the winter season and, while odours are less apparent, the level of treatment is reduced. <p>However</p> <ul style="list-style-type: none"> Council, with the support of the Tourism Infrastructure Fund, has commenced a feasibility study to establish a combined wastewater scheme for Ohakune and Raetihi. Such a scheme is anticipated to be a number of years away, pending RDC and external funding availability, as well as field investigations and consenting / design of a new scheme.

C.5 Rangataua

Asset Capacity/ Performance Grading		Comment/Substantiation
Network		
Wastewater Mains	2	<ul style="list-style-type: none"> The reticulation network performs well and operators do not report specific problems. During 2019 there was 1 reported choke within the Rangataua network. A limited ongoing preventative maintenance programme is in place to ensure blockages are prevented from an area of historical problems.

	Asset Capacity/ Performance Grading	Comment/Substantiation
		<p>However:</p> <ul style="list-style-type: none"> The network suffers from increases in flows during wet weather events.
Manholes	2	<ul style="list-style-type: none"> Manholes are typically free from foreign rubbish. Blockages and overflows, as a result of manholes or content within them, are rare. <p>However:</p> <ul style="list-style-type: none"> A number of manholes are located within stormwater open drains. This increases the potential for stormwater entry into the network.
Pump stations		
WWPS	3	<ul style="list-style-type: none"> The sole WWPS operates well under non-rainfall conditions. The WWPS rising main is 832m in length and 80mm in diameter. Investigations indicate the rising main is not restricting the flow to the WWTP currently, however as the population grows, further assessment will be required. <p>However:</p> <ul style="list-style-type: none"> The WWPS is subject to stormwater inflow, with it's capacity being exceeded during periods of heavy rain.
Treatment and Disposal		
Wastewater Treatment Plant	3	<ul style="list-style-type: none"> The WWTP is operating well with acceptable quality exiting the wetland. Resource consent quality compliance is generally achieved. <p>However:</p> <ul style="list-style-type: none"> The resource consent for the Rangataua WWTP expired on 20 December 2005. While an application has been lodged for a replacement consent, no such consent has been obtained. There is no influent screening of grit removal at the WWTP Sludge levels are potentially high and the need to desludge should be assessed in the short term.

C.6 Taumarunui

	Asset Capacity/ Performance Grading	Comment/Substantiation
Network		
Wastewater Mains	2	<ul style="list-style-type: none"> The overall performance of the Taumarunui wastewater main assets within can be regarded as Good.] Wastewater choke numbers during 2019 average only 3.3 chokes per 1000 connection per annum. The Taumarunui community had significant installation of GEW wastewater mains prior to 1950 and during the 1950's and 1960's, along with AC wastewater mains during the 1950's through to the 1980's. The older sections of the network are progressively deteriorating and contribute to significant inflow and infiltration (I&I) and wet weather flow increases. The Huia Street WWPS and Sunshine WWPS catchments are subject to particularly high levels of I&I during high intensity rainfall periods. Smoke testing of targeted areas of the network has identified significant number of illegal stormwater connections to the wastewater network, contributing significant direct inflow.
Manholes	2	<ul style="list-style-type: none"> Structured assessment of 46 wastewater manholes (6.6% of the overall manhole assets) indicate 97.8% of wastewater manholes to be of performance 2, 3 or 4 with an overall average performance of 2 (Good). Manholes are typically free from structural defects or foreign objects which may impact upon the functional performance of the manholes.

	Asset Capacity/ Performance Grading	Comment/Substantiation
Pump Stations		
WWPS	3	<ul style="list-style-type: none"> • WWPS generally perform satisfactorily, with operators reporting few ongoing performance problems. • The major WWPS have both duty and standby pumps. • Victory Bridge WWPS and Huia Street WWPS have standby generators with automatic changeover to provide ongoing operation in the event of power outages, thereby avoiding discharge to the surrounding watercourses. • Victory Bridge, Huia Street, Sunshine Road, Tuku Street, Golf Road, Bullians Avenue, Tubby Woods and Campground WWPS are connected to SCADA and provide real time monitoring and alarming. <p>However:</p> <ul style="list-style-type: none"> • Bullians Ave, Golf Rd and Sunshine have narrow access into pump building which makes lifting of pump very cumbersome. • Huia St drywell area is regarded as a confined space. This reduces the response time as operators would have to perform additional safety measures before entering the work area. Matai Street No 2 WWPS has: <ul style="list-style-type: none"> ○ inadequate standby capacity as only one pump is available. ○ Installation of pump rail is recommended to ease cumbersome maintenance when lifting of pump is required. ○ Reflux valve performance is unsatisfactory and further investigation is required as backflow is observed in wet-well. • Matai Street No 1 & 2 WWPS pump controls & monitoring can be integrated into SCADA for wet-well level control and to improve fault alarming. Existing floats will act as backup • Tubby Woods WWPS has a low number of daily starts of the pumps suggesting an overcapacity of wet-well chamber. • Tuku St WWPS is generally in good working condition – however due to poor design in the pump station has resulted in numerous performance issues <ul style="list-style-type: none"> ○ Inlet cage basket needs redesigning to prevent rags overflowing to Victory Bridge. ○ Pumps’ start/stop set-points can only be set at VSD by equipment specialists. Recommend wiring modification to allow set-points to be set in RTU ○ Drywell is a confined space area, thus safety procedures need to be put in place when operator enters the chamber to service the pumps/valves. This will have a significant impact on the response time ○ Accumulation of sewer debris above the drywell and frequent start-ups of pumps suggest inadequate sump capacity • At Victory Bridge frequent starts of submersible pumps indicates inadequate capacity of the wet-well chamber
Treatment and Disposal		
Wastewater Treatment Plant	2	<ul style="list-style-type: none"> • The quality of Treated effluent being discharge into the river is at an acceptable level. The WWTP is connected to SCADA to provide real time monitoring and alarming. <p>However:</p> <ul style="list-style-type: none"> • Installation of extraction fan at UV chamber to improve safety due to build-up of toxic fumes. Redesign of aerators’ handrail can improve safety. • Problems on aerator PLC control & status to SCADA need to be resolved. This can improve DO level control and reduce energy & maintenance cost by using soft-starters. • Influent flow meter is linked to SCADA to provide an accurate record of daily inflow. • The inlet stepscreen was overhauled in 2018, due to operational issues.

	Asset Capacity/ Performance Grading	Comment/Substantiation
		<ul style="list-style-type: none"> The "flume" effluent flow meter was replaced with an Area Velocity meter and connected to the SCADA system in 2019 to provide an accurate record of daily effluent flow.

C.7 Waiouru

	Asset Capacity/ Performance Grading	Comment/Substantiation
Network		
Wastewater Mains	3	<ul style="list-style-type: none"> Operators report no identifiable areas of poor performance. Problems are not experienced with either root intrusion or fat accumulation. The network does not suffer from capacity limitations. <p>However:</p> <ul style="list-style-type: none"> During 2019 there were no reported wastewater chokes within the Waiouru reticulation.
Manholes	2	<ul style="list-style-type: none"> Manholes are typically free from foreign rubbish, blockages and overflows, as a result of manholes or content within them, are rare. <p>However:</p> <ul style="list-style-type: none"> However, of some concern was the fact that 4 of the 22 wastewater manholes within the Waiouru network were unable to be located due to suspected inaccuracies in the RDC GIS System information (lid levels and invert levels) is not recorded for the majority of the manholes.
Pump stations		
WWPS	3	<ul style="list-style-type: none"> Andrews Drive WWPS performs well with minimal fault related problems SCADA and a new switch board has been installed at Andrews Drive WWPS providing real time monitoring and alarming. Since the 2008 Assessment a reflux valve has been fitted to the rising main of Ruanui Street WWPS which prevents backflow into the sump following pump operation. <p>However:</p> <ul style="list-style-type: none"> Andrews Drive and Ruanui St WWPS have no RPZ backflow prevention device fitted to the wash-down water supply to prevent drinking water contamination. Ruanui Street WWPS has no standby pump and also no fault notification via SCADA to advise of a WWPS fault.

Appendix D – Physical Parameters: Asset Condition

D.1 National Park

Asset Condition Grading		Comment/substantiation
Network		
Wastewater Mains	2	<ul style="list-style-type: none"> The reticulation mains are approx. 35 years old and are almost entirely of PVC material. Operators report no known deficiencies or defects in relation to the condition of the wastewater mains.
Manholes	2	<ul style="list-style-type: none"> Integrity of the manholes is high with manhole chamber and benching in overall good condition. The average age of the manholes is approx.. 35 years, typically installed in 1986 when the Wastewater system was installed.
Treatment and Disposal		
Wastewater Treatment Plant	3	<ul style="list-style-type: none"> The concrete banks around the perimeter of the oxidation lagoon banks are heaving. At present there are a number of sections that have lifted. Sections of bank heave have also been previously replaced.

D.2 Ohakune

Asset Condition Grading		Comment/Substantiation
Network		
Wastewater Mains	3	<ul style="list-style-type: none"> 57.8% of the reticulation consists of AC mains. This is believed to be in fair condition based on there being no adverse impact on performance or incidents of mains having to be repaired or replaced. However, the average age of the AC main is approx. 50 years. As a result, future age related softening and degradation can be expected. Operators report the PVC main to be in good condition.
Manholes	2	<ul style="list-style-type: none"> Integrity of the manholes is generally high with manhole chamber and benching in overall good condition. The average age of the wastewater manholes is approx. 40 years. During the 2019 Condition Assessment inspection, a manhole was observed with a severely corroded access ladder and a number of manholes had restricted man-entry due to the lid being offset from the riser.
Pump stations		
WWPS	1	<ul style="list-style-type: none"> The sole WWPS (Snowmass Drive WWPS) was installed in 2006 and the equipment is considered to be good or very good condition.
Treatment		
Wastewater Treatment Plant	2	<ul style="list-style-type: none"> The integrity of the plant equipment is generally good. The primary and secondary lagoon concrete embankments are in good condition and are not showing signs of heaving. The UV disinfection unit is in good condition. However: Pond mesh barrier (curtain) is in poor condition resulting in short-circuiting. The aerators are in poor condition. At the time of the 2019 Condition Assessment inspection, three out of four aerators out of service due to operational issues with these units.

D.3 Pipiriki

Asset Condition Grading		Comment/Substantiation
Network		
Wastewater Mains	1	<ul style="list-style-type: none"> The reticulation mains are 30 years old and of PVC material. There are no known defects or condition problems with the reticulation.
Manholes	2	<ul style="list-style-type: none"> Operationally, the absence of any incidents would indirectly indicate the manholes are of acceptable condition so as to not impede operational performance. The 5 manholes inspected only show minor wear and tear, minor surface damage to the structure and a bit of corrosion with no cracking or loss of stability evident.
Pump Stations		
WWPS	2	<ul style="list-style-type: none"> The sole WWPS was installed in 1998. In 2014 an additional civil components were added to allow effluent to be pumped to the irrigation field. The reflux valves and isolating valves are located within the pump sump. As such, operators are physically required to enter the pump sump to operate these valves, resulting in a potential OSH risk. Corrosion of the valves is also commencing as a result of their direct exposure to the corrosive WWPS environment. The WWPS switchboard has been replaced since the 2014 Condition Assessment.
Treatment and Disposal		
Wastewater Treatment Plant	3	<ul style="list-style-type: none"> Generally the condition of the Pipiriki WWTP is moderate , with minor deterioration evident. This is reflective of the age of the wooden structure having been commissioned in 1988. A new pressure compensating sub-surface irrigation effluent field was installed adjacent to the Whanganui River in 2014. <p>However: The sand filter timber work is showing early signs of deterioration The stock fence surrounding the sand filters has broken railings in two places The sand surface level has dropped significantly requiring the addition of more sand. The sand surface needs a program of more frequent vegetation removal</p>

D.4 Raetihi

Asset Condition Grading		Comment/Substantiation
Network		
Wastewater Mains	4	<ul style="list-style-type: none"> The reticulation mains have average age of approx. 50 years. However, the average age of the GEW mains, which comprise the largest percentage of mains within the township by material type, have an average age of approx. 80 years. High infiltration rates within the Raetihi network were related to its age and poor condition, however recent relining of poor sections of the wastewater network has reduced wet weather flows.
Manholes	2	<ul style="list-style-type: none"> Integrity of the manholes is high, with the chamber and benching in overall good condition. A small number of manholes require rehaunching. The average age of the manholes is approx. 55 years.
Pump Stations		
WWPS	2	<ul style="list-style-type: none"> WWPS are generally in good condition. Highway and Seddon Street WWPS switchboards have recently been replaced. SCADA componentry installed at the Highway WWPS during 2011 is in excellent condition. <p>However:</p>

Asset Condition Grading		Comment/Substantiation
		<ul style="list-style-type: none"> Corrosion of pipework is commencing within the Bridge WWPS pump sump and the Bridge Road WWPS switchboard wiring is untidy and exhibits corrosion. Corrosion is contributed to by the unsealed cable entry ducts into the switchboards. The untidy wiring is also a potential OSH hazard. The Bridge Road WWPS reflux valve is located within the pump sump and requires operators to enter the sump to access the valve. Corrosion of pump guide rails and discharge pipework is evident at the Highway WWPS. The Seddon Street WWPS pump sump is showing signs of concrete degradation. New pumps have been installed at Seddon Street WWPS in 2019.
Treatment and Disposal		
Wastewater Treatment Plant	2	<ul style="list-style-type: none"> The integrity and safety of the WWTP is generally good with no identified areas of major concern. Most items of equipment are in good condition A new effluent flow meter was installed in 2019. The solar power and telemetry components at the inlet and outlet sites were replaced in 2019 due to the theft of the previously existing equipment .

D.5 Rangataua

Asset Condition Grading		Comment/Substantiation
Network		
Wastewater Mains	2	<ul style="list-style-type: none"> The reticulation mains are on average approx. 30 years old. There are no known defects or condition problems with the PVC reticulation which comprises the majority of the reticulation.
Manholes	2	<ul style="list-style-type: none"> Integrity of the manholes is high with the chamber and benching in overall good condition. The average age of the manholes is approx. 30years.
Pump Stations		
WWPS	2	<ul style="list-style-type: none"> The Rangataua WWPS pump chamber, valves and electrical components inspected were in good condition.
Treatment and Disposal		
Wastewater Treatment Plant	2	<ul style="list-style-type: none"> The integrity and safety of the plant is generally in good order. The concrete around the side of the oxidation lagoons is in good condition and is not exhibiting heaving. The inlet pipe to the primary oxidation lagoon is in good condition. A cover has been installed over the lagoon control valve chamber between lagoons. A new fence and gate has been installed to provide safe access to the wetlands.

D.6 Taumarunui

Asset Condition Grading		Comment/Substantiation
Network		
Wastewater Mains	3	<ul style="list-style-type: none"> The average age of the reticulation is approx. 55 years. However the average age of GEW mains is approx. 95 years while PVC mains is approx. 30 years. Wastewater main break / collapse numbers during 2019 are 2.1 failures per 100km of wastewater main per annum. The number of wastewater chokes resulting from structural (condition) related defects is low.

Asset Condition Grading		Comment/Substantiation
Manholes	3	<ul style="list-style-type: none"> Structured inspections of 46 wastewater manholes (6.6% of overall manhole assets) indicate 95.7% of wastewater manholes to be of condition 2, 3, or 4 with an overall average condition of 3 (Moderate). Integrity of the wastewater manholes is functionally sound with manhole chamber, cover (lid) and benching in overall Moderate condition. Typical wastewater manhole structural defects observed include minor – moderate “weeping” or “sweating” between manhole risers, damaged pipe entries, benching deterioration, demanded manhole haunching and lids, and corrosion of step rungs.
Pump stations		
WWPS	2	<ul style="list-style-type: none"> WWPS are generally in good condition. Bullians Ave, rust was noted on pump #2 rails support bracket. Camp ground WWPS rust was observed under the switchboard. This may be caused by H₂S ingress via the cable duct from the wet-well chamber. Huia Street WWPS extensive rusts noted on pumps’ rails and pump chamber covers were observed. Matai St No 1 WWPS Valve chamber is in poor condition with cracks and ground water infiltration evident. Tuku St WWPS extensive rust observed on 200mm inlet gate valve and 100mm reflux valves. Victory Bridge WWPS No reported issues with rising mains. Upgrade works on July 2012 involve replacing existing AC mains with concrete lined steel pipes across Victory Bridge onto Hikumutu Road to replace existing AC rising mains. Victory Bridge WWPS switchboard was replaced during 2010, Campground WWPS switchboard was replaced during 2011, Golf Rd WWPS switchboard and Tuku St WWPS was replaced in 2012, Tubby Woods WWPS in 2013 and Bullians Ave Switchboard was replaced in 2014. Emergency power supply generators were installed at Victory Bridge WWPS and Huia Street WWPS during 2010. A portable generator suitable for operation of other WWPS was obtained in 2012. SCADA was installed at Victory Bridge, Huia Street, Campground WWPS during 2010/11. SCADA was installed in Golf Road and Tuku St WWPS in 2012, Tubby Woods WWPS in 2013 and Bullians Ave WWPS in 2014, and at Sunshine Road WWPS.
Treatment		
Wastewater Treatment Plant	2	<ul style="list-style-type: none"> The integrity and safety of the plant is generally in good order. Inlet Chamber condition is moderate. UV unit is in good condition. Lagoons & wetland cells are in good condition. Pipework & valves are in good condition. New brackets for PVC diffusers at inlet of wetland cells were installed in 2013 to replacing the old brackets. Buildings are structurally sound. <p>However:</p> <ul style="list-style-type: none"> Apparent corrosion on concrete wall in inlet chamber needs to be rectified. Backflow preventer to be tested by a competent body. Dead reeds at Wetland Cell #2 to be investigated A major overhaul of the inlet stepscreen was completed in 2018. A new effluent flow meter was installed in 2019. At the time of writing this AMP, an investigation is underway regarding aerator replacement.

D.7 Waioruru

	Asset Condition Grading	Comment/Substantiation
Network		
Wastewater Mains	2	<ul style="list-style-type: none"> The network is primarily AC and has an overall average age of approx. 45 years of operations. Despite the composition of the network being principally AC mains it is, however, believed to be in acceptable condition.
Manholes	2	<ul style="list-style-type: none"> Inspections as part of the 2014 Condition Assessment indicate the integrity of the manholes to be high, with manhole chamber and benching generally in good condition. The average age of the manholes is approx. 50 years.
Pump stations		
	2	<ul style="list-style-type: none"> The components at the Andrews Drive and Ruanui Street WWPS are in overall good condition. A new switchboard was fitted at Andrews Drive. However: Andrews Drive the building itself is in need of some minor repairs and repainting of all the external woodwork is needed soon . A small number of items in poorer condition at the Ruanui Street WWPS bring its individual rating down.

Appendix E – Asset Valuation Breakdown by Township At 1st July 2020

RUAPEHU DISTRICT COUNCIL WATER, WASTEWATER & STORMWATER VALUATION 2020					
- VALUATION SUMMARY - Wastewater (DEPRECIABLE ASSETS)					
Catchment	Asset Type	Gross Replacement Cost @ 01/07/2020	Depreciated Replacement Cost @ 01/07/2020	Accumulated Depreciation Cost @ 01/07/2020	Annual Depreciation
National Park	Network	2,186,499	1,411,947	774,553	23,479
	Pump Stations	0	0	0	0
	Treatment & Disposal	1,529,256	1,142,410	386,846	18,197
	Total	3,715,755	2,554,357	1,161,398	41,676
Ohakune	Network	9,727,650	4,902,584	4,825,066	122,521
	Pump Stations	96,714	50,490	46,225	4,642
	Treatment & Disposal	3,699,203	2,372,054	1,327,150	96,297
	Total	13,523,568	7,325,128	6,198,440	223,459
Pipiriki	Network	446,983	290,819	156,164	4,732
	Pump Stations	155,616	77,810	77,806	7,702
	Treatment & Disposal	537,410	452,575	84,836	7,527
	Total	1,140,009	821,204	318,806	19,961
Raetihi	Network	4,087,269	1,985,765	2,101,504	47,399
	Pump Stations	499,460	263,283	236,177	21,185
	Treatment & Disposal	2,008,868	1,565,389	443,480	21,621
	Total	6,595,597	3,814,437	2,781,161	90,206
Rangataua	Network	1,315,756	924,032	391,724	14,082
	Pump Stations	136,215	49,068	87,147	5,430
	Treatment & Disposal	1,499,316	1,220,941	278,375	10,158
	Total	2,951,287	2,194,041	757,246	29,670
Taumarunui	Network	17,794,762	6,717,077	11,077,685	216,315
	Pump Stations	2,445,970	1,198,575	1,247,395	93,160
	Treatment & Disposal	3,963,588	2,185,732	1,777,856	95,758
	Total	24,204,319	10,101,384	14,102,935	405,233
Waiouru	Network	725,364	299,568	425,796	9,663
	Pump Stations	218,162	124,194	93,968	9,920
	Treatment & Disposal	0	0	0	0
	Total	943,526	423,762	519,764	19,583
TOTAL WW (Depreciable only)	Network	36,284,283	16,531,792	19,752,490	438,192
	Pump Stations	3,552,137	1,763,419	1,788,718	142,039
	Treatment & Disposal	13,237,642	8,939,100	4,298,542	249,557
	Total	53,074,062	27,234,312	25,839,750	829,788

Appendix F – Financial Tables

The table below contains the budget maintenance, renewal and capital expenditure for the next 10 years (2021/22 – 2030/31) prior to any changes as noted in Appendix A. Figures in Appendix F are not inflated.

F.1 National Park

CAPITAL VALUES

NATIONAL PARK WASTEWATER		2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031
Description (Name)	Scope										
National Park WWTP: Upgrade Concept Proposal preliminary works	Feasibility Studies and preliminary design & site works.	\$ 58,870.38	\$ 29,802.93	\$ 41,102.93	\$ 104,802.93	\$ 235,749.97	\$ 37,719.97	\$ 40,873.95	\$ 125,373.95	\$ 1,232,643.95	\$ 30,571.03
		\$ -	\$ -	\$ -	\$ 75,000.00	\$ 75,000.00	\$ -	\$ -	\$ -	\$ -	\$ -
National Park WWTP: Upgrade	Upgrade the National Park WWTP: Selected option from the National Park WWTP Upgrade Concept Proposals report as identified through further works and design.	\$ -	\$ -	\$ -	\$ -	\$ 123,030.00	\$ -	\$ -	\$ -	\$ 1,107,270.00	\$ -
National Park Wastewater Networks Refurbishment- Adjustment	Adjustment of Structured scheduled relining programme for the National Park wastewater mains	\$ 21,091.50	\$ 16,186.50	\$ 16,186.50	\$ 16,186.50	\$ 16,186.50	\$ 16,186.50	\$ 16,186.50	\$ 16,186.50	\$ 16,186.50	\$ 16,186.50
National Park WWTP: Wastewater Main Refurbishment	To repair the mains break and disjointed pipe at the WWTP inlet swamp.	\$ 24,800.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
National Park Wastewater Above Ground Assets: Renewals	Structured scheduled replacement programme for the National Park wastewater treatment plant	\$ 12,978.88	\$ 13,616.43	\$ 13,616.43	\$ 13,616.43	\$ 21,533.47	\$ 21,533.47	\$ 24,687.45	\$ 24,687.45	\$ 24,687.45	\$ 14,384.53
National Park Wastewater Network: Growth Extension	Extension of the wastewater network for growth	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 84,500.00	\$ 84,500.00	\$ -
National Park Wastewater Network: Growth Extension	Joint extension at St Peters	\$ -	\$ -	\$ 11,300.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

OPERATIONAL VALUES

National Park - Wastewater	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
All Other Maintenance Lump Sum	27,695	27,695	27,695	27,695	27,695	27,695	27,695	27,695	27,695	27,695
All Other Maintenance Dayworks	6,303	6,303	6,303	6,303	6,303	6,303	6,303	6,303	6,303	6,303
Overheads	-	-	-	-	-	-	-	-	-	-
Supply & Disposal	-	-	-	-	-	-	-	-	-	-
Power	-	-	-	-	-	-	-	-	-	-
Insurance	1,738	1,738	1,738	1,738	1,738	1,738	1,738	1,738	1,738	1,738
Other (incl consultants)	35,658	35,658	35,658	35,658	35,658	35,658	35,658	35,658	35,658	35,658
Grand Total	71,394	71,394	71,394	71,394	71,394	71,394	71,394	71,394	71,394	71,394

F.2 Ohakune

CAPITAL VALUES

OHAKUNE WASTEWATER		2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031
Description (Name)	Scope										
Ohakune Wastewater Network: Snowmass Drive (Turoa Village) WWPS: Asset renewal	Renewal (replacement and refurbishment) of assets.	\$ 736,478.67	\$ 314,115.85	\$ 471,740.35	\$ 471,740.35	\$ 474,725.28	\$ 332,039.99	\$ 935,327.29	\$ 335,227.29	\$ 335,227.29	\$ 2,133,549.55
Ohakune Wastewater Network: Snowmass Drive (Turoa Village) WWPS: Asset renewal	Renewal (replacement and refurbishment) of assets.	\$ 5,400.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ohakune Wastewater Networks: Wastewater Main Refurbishment	Structured scheduled relining and renewal programme for the Ohakune wastewater mains (includes for upsizing where required to accommodate growth).	\$ 170,177.00	\$ 170,177.00	\$ 170,177.00	\$ 170,177.00	\$ 170,177.00	\$ 170,177.00	\$ 170,177.00	\$ 170,177.00	\$ 170,177.00	\$ 170,177.00
Ohakune Wastewater Above Ground Assets: Renewals	Structured scheduled replacement programme for the Ohakune wastewater treatment plant	\$ 81,311.67	\$ 124,348.85	\$ 124,348.85	\$ 124,348.85	\$ 127,333.78	\$ 142,272.99	\$ 145,460.29	\$ 145,460.29	\$ 145,460.29	\$ 68,819.90
Ohakune Wastewater Network: Network extensions	Soldiers Road network extension	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 600,100.00	\$ -	\$ -	\$ -
Ohakune WWTP: Upgrade	Upgrade of Ohakune WWTP to meet resource consent requirements	\$ -	\$ -	\$ 157,624.50	\$ 157,624.50	\$ 157,624.50	\$ -	\$ -	\$ -	\$ -	\$ 1,874,962.65
Ohakune Wastewater Network: Growth Extension	Extension of the wastewater network for growth	\$ 19,590.00	\$ 19,590.00	\$ 19,590.00	\$ 19,590.00	\$ 19,590.00	\$ 19,590.00	\$ 19,590.00	\$ 19,590.00	\$ 19,590.00	\$ 19,590.00
Ohakune Wastewater Network: Sewer Rehabilitation	Hobbit sewer line rehabilitation	\$ 100,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ohakune WWTP: Septage Receiver	Ohakune WWTP Septage Receiver Upgrade	\$ 310,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Ohakune WWTP: Plant Upgrade	Ohakune WWTP Upgrade to increase pond retention time	\$ 50,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

OPERATIONAL VALUES

Ohakune - Wastewater	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
All Other Maintenance Lump Sum	146,997	146,997	146,997	146,997	146,997	146,997	146,997	146,997	146,997	146,997
All Other Maintenance Dayworks	32,558	32,558	32,558	32,558	32,558	32,558	32,558	32,558	32,558	32,558
Overheads	-	-	-	-	-	-	-	-	-	-
Supply & Disposal	-	-	-	-	-	-	-	-	-	-
Power	14,402	14,402	14,402	14,402	14,402	14,402	14,402	14,402	14,402	14,402
Insurance	9,687	9,687	9,687	9,687	9,687	9,687	9,687	9,687	9,687	9,687
Other (incl consultants)	10,593	10,593	10,593	10,593	10,593	10,593	10,593	10,593	10,593	10,593
Grand Total	214,237	214,237	214,237	214,237	214,237	214,237	214,237	214,237	214,237	214,237

F.3 Pipiriki

CAPITAL VALUES

PIPIRIKI WASTEWATER		2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031
Description (Name)	Scope										
Pipiriki Wastewater Above Ground Assets: Renewals	Structured scheduled replacement programme for the Pipiriki wastewater treatment plant	\$ 132,511.51	\$ 9,614.01	\$ 9,614.01	\$ 15,179.86	\$ 15,179.86	\$ 15,179.86	\$ 15,179.86	\$ 15,179.86	\$ 15,259.08	\$ 7,626.11
Pipiriki WWTP: Renewal of Sand filter	Replace sand filter lining and rebuild the media within the sand filter.	\$ 60,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Pipiriki WWTP: Asset renewal	Renewal (replacement and refurbishment) of assets.	\$ 7,200.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Pipiriki Wastewater Networks: Pipiriki WWPS	Relocate the NRVs and stop valves, which are located within the pump chamber, to outside the chamber within a valve chamber.	\$ 24,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Pipiriki WWPS: Asset renewal	Renewal (replacement and refurbishment) of assets.	\$ 6,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Pipiriki WWTP: Install of additional Sand filter	Identify requirement and costs for an additional sand filter and storage tank for the Pipiriki wastewater treatment plant	\$ 10,800.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Pipiriki WWTP - Irrigation area stormwater piping	Install stormwater piping at WWTP irrigation area	\$ 15,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

OPERATIONAL VALUES

Pipiriki - Wastewater	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
All Other Maintenance Lump Sum	-	-	-	-	-	-	-	-	-	-
All Other Maintenance Dayworks	7,426	7,426	7,426	7,426	7,426	7,426	7,426	7,426	7,426	7,426
Overheads	-	-	-	-	-	-	-	-	-	-
Supply & Disposal	-	-	-	-	-	-	-	-	-	-
Power	807	807	807	807	807	807	807	807	807	807
Insurance	934	934	934	934	934	934	934	934	934	934
Other (incl consultants)	336	336	336	336	336	336	336	336	336	336
Grand Total	9,503	9,503	9,503	9,503	9,503	9,503	9,503	9,503	9,503	9,503

F.4 Raetihi

CAPITAL VALUES

RAETIHI WASTEWATER		2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031
Description (Name)	Scope										
Raetihi Wastewater Networks: Wastewater Main Relining based on remaining Useful Asset Life - STAGE 2	Perform Stage Two of a structured rolling programme of sewer lining for the existing Raetihi Wastewater Reticulation mains.	\$ 239,201.04	\$ 102,451.88	\$ 173,347.69	\$ 501,089.47	\$ 203,069.99	\$ 79,094.63	\$ 81,607.68	\$ 82,111.80	\$ 71,483.77	\$ 683,830.29
Raetihi Wastewater Above Ground Assets: Renewals	Structured scheduled replacement programme for the Raetihi wastewater treatment plant	\$ 73,416.26	\$ 73,416.26	\$ 84,053.39	\$ 107,494.05	\$ 107,494.05	\$ 34,077.79	\$ 34,077.79	\$ 34,077.79	\$ 23,440.66	\$ -
Raetihi Wastewater Networks: Bridge WWPS	Relocate the NRVs and stop valves, which are located within the pump chamber, to outside the chamber within a valve chamber.	\$ 21,784.78	\$ 29,035.62	\$ 36,752.80	\$ 41,053.92	\$ 43,034.43	\$ 45,016.84	\$ 47,529.89	\$ 48,034.01	\$ 48,043.11	\$ 28,842.74
Raetihi Wastewater Networks: Seddon WWPS: Asset Renewal	Renewal (replacement and refurbishment) of assets.	\$ 24,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Raetihi WWTP: Inlet Screening	Install inlet screening system at the Raetihi WWTP.	\$ -	\$ -	\$ -	\$ 300,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Raetihi WWTP: Upgrade	New WWTP to service Ohakune and Raetihi townships	\$ -	\$ -	\$ 52,541.50	\$ 52,541.50	\$ 52,541.50	\$ -	\$ -	\$ -	\$ -	\$ 624,987.55
Raetihi WWTP - Power Supply	Install mains power from nearby 25kVA transformer to power up telemetry system	\$ 50,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Raetihi WWTP - Pond DO Analyser	Install on line DO analyser in Primary Pond	\$ 40,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Raetihi Wastewater Networks: Highway WWPS	Replace vortex pumps with cutter type Flygt pumps	\$ 30,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

OPERATIONAL VALUES

Raetihi - Wastewater	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
All Other Maintenance Lump Sum	85,215	85,215	85,215	85,215	85,215	85,215	85,215	85,215	85,215	85,215
All Other Maintenance Dayworks	7,426	7,426	7,426	7,426	7,426	7,426	7,426	7,426	7,426	7,426
Overheads	-	-	-	-	-	-	-	-	-	-
Supply & Disposal	-	-	-	-	-	-	-	-	-	-
Power	1,724	1,724	1,724	1,724	1,724	1,724	1,724	1,724	1,724	1,724
Insurance	8,921	8,921	8,921	8,921	8,921	8,921	8,921	8,921	8,921	8,921
Other (incl consultants)	10,482	10,482	10,482	10,482	10,482	10,482	10,482	10,482	10,482	10,482
Grand Total	113,768	113,768	113,768	113,768	113,768	113,768	113,768	113,768	113,768	113,768

F.5 Rangataua

CAPITAL VALUES

RANGATAUA WASTEWATER		2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031
Description (Name)	Scope										
Rangataua Wastewater Networks: Wastewater Main Refurbishment	Structured scheduled relining programme for the Rangataua wastewater mains	\$ 90,080.58	\$ 35,764.83	\$ 486,697.53	\$ 11,697.53	\$ 11,697.53	\$ 11,773.57	\$ 149,773.57	\$ 11,773.57	\$ 18,533.83	\$ 9,590.00
Rangataua Wastewater Above Ground Assets: Renewals	Structured scheduled replacement programme for the Rangataua wastewater treatment plant	\$ -	\$ -	\$ 483.33	\$ 483.33	\$ 483.33	\$ 483.33	\$ 483.33	\$ 483.33	\$ -	\$ -
Rangataua WWTP: Modification Investigation	Investigate the following possible additions/modifications to the WWTP process for an improvement in discharge compliance: (1) aerators (2) Dissolved Oxygen monitoring (3) Three-phase power installation (4) switchboard (5) SCADA, (6) a grit trap, (7) an inlet screen, and; (8) wetlands	\$ 10,080.58	\$ 10,764.83	\$ 11,214.19	\$ 11,214.19	\$ 11,214.19	\$ 11,290.24	\$ 11,290.24	\$ 11,290.24	\$ 18,533.83	\$ 9,590.00
Rangataua WWTP: Modification Construction	Upgrade the WWTP in accordance with the recommendations from the Rangataua WWTP: Modification Investigation Project (see above)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 18,000.00	\$ -	\$ -	\$ -
Rangataua Wastewater Networks: Rangataua WWPS: Asset Renewal	WWPS switchboard replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 120,000.00	\$ -	\$ -	\$ -
Rangataua WWTP - Pond Desludging	Assess sludge levels and undertake Pond Desludging	\$ 80,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
		\$ -	\$ 25,000.00	\$ 475,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

OPERATIONAL VALUES

Rangataua - Wastewater	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
All Other Maintenance Lump Sum	15,978	15,978	15,978	15,978	15,978	15,978	15,978	15,978	15,978	15,978
All Other Maintenance Dayworks	15,900	15,900	15,900	15,900	15,900	15,900	15,900	15,900	15,900	15,900
Overheads	-	-	-	-	-	-	-	-	-	-
Supply & Disposal	-	-	-	-	-	-	-	-	-	-
Power	1,644	1,644	1,644	1,644	1,644	1,644	1,644	1,644	1,644	1,644
Insurance	951	951	951	951	951	951	951	951	951	951
Other (incl consultants)	6,644	6,644	6,644	6,644	6,644	6,644	6,644	6,644	6,644	6,644
Grand Total	41,117	41,117	41,117	41,117	41,117	41,117	41,117	41,117	41,117	41,117

F.6 Taumarunui

CAPITAL VALUES

TAUMARUNUI WASTEWATER		2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031
Description (Name)	Scope	\$ 3,291,037.08	\$ 884,716.52	\$ 700,391.07	\$ 1,110,642.99	\$ 1,108,607.35	\$ 499,654.86	\$ 551,078.07	\$ 668,332.92	\$ 1,073,734.80	\$ 716,270.42
Taumarunui Wastewater Networks: Wastewater Main Refurbishment	Structured scheduled relining programme for the Taumarunui wastewater mains	\$ 391,188.57	\$ 391,188.57	\$ 418,264.69	\$ 597,709.52	\$ 597,709.52	\$ 210,388.96	\$ 271,664.85	\$ 367,881.76	\$ 765,929.58	\$ 599,465.27
Taumarunui Wastewater Networks: Camp Ground WWPS: Asset Renewal	Renewal (replacement and refurbishment) of assets.	\$ -	\$ 24,200.00	\$ -	\$ -	\$ 24,200.00	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Wastewater Networks: Golf Road WWPS: Asset Renewal	Renewal (replacement and refurbishment) of assets.	\$ 53,800.00	\$ -	\$ -	\$ 53,800.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Wastewater Networks: Huia Street WWPS	Install third submersible pump to operate under a two duty/one standby pumping configuration.	\$ -	\$ 26,400.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Wastewater Networks: Huia Street WWPS: Asset Renewal	Renewal (replacement and refurbishment) of assets.	\$ -	\$ 53,800.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Wastewater Networks: Matai No 1 WWPS	Install SCADA onsite for data acquisition and alarming capability	\$ -	\$ 53,800.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Wastewater Networks: Matai No 1 WWPS: Asset Renewal	Renewal (replacement and refurbishment) of assets.	\$ 16,150.00	\$ -	\$ -	\$ -	\$ -	\$ 16,150.00	\$ -	\$ -	\$ -	\$ -
Taumarunui Wastewater Networks: Matai No 2 WWPS	Install pump guide rails	\$ 7,200.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Wastewater Networks: Matai No 2 WWPS	Install SCADA onsite for data acquisition and alarming capability	\$ -	\$ 53,800.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Wastewater Networks: Matai No 2 WWPS	Install standby pump and associated equipment	\$ -	\$ 10,800.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Wastewater Networks: Sunshine Road WWPS: Asset Renewal	Renewal (replacement and refurbishment) of assets.	\$ -	\$ -	\$ -	\$ 10,800.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Wastewater Networks: Tubby Woods WWPS	Replace existing pump guide rails	\$ 4,800.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Wastewater Networks: Tubby Woods WWPS: Asset Renewal	Renewal (replacement and refurbishment) of assets.	\$ -	\$ 16,150.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 16,150.00
Taumarunui Wastewater Networks: Tuku Street WWPS	Replace existing pump guide rail for Pump 1	\$ 3,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Wastewater Networks: Tuku Street WWPS: Asset Renewal	Renewal (replacement and refurbishment) of assets.	\$ -	\$ -	\$ 10,755.90	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Wastewater Networks: Victory Bridge WWPS	Replace existing pump guide rails for submersible pumps (lower wet well)	\$ 4,800.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui (Hikumutu) Wastewater Above Ground Assets: Renewals	Structured scheduled replacement programme for the Taumarunui wastewater treatment plant	\$ 243,098.51	\$ 254,577.95	\$ 261,370.48	\$ 268,333.47	\$ 271,597.83	\$ 273,115.90	\$ 279,413.22	\$ 300,451.17	\$ 307,805.22	\$ 100,655.15
Taumarunui (Hikumutu) WWTP: Asset Renewal	Renewal (replacement and refurbishment) of assets.	\$ -	\$ -	\$ -	\$ 180,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Wastewater Networks: Huia Street WWPS	Modification to Wetwell entry to allow pumps to be lifted out	\$ 75,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Wastewater Networks: Victory Bridge & Huia WWPS: Asset Renewal	Generator renewal	\$ -	\$ -	\$ -	\$ -	\$ 215,100.00	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui (Hikumutu) WWTP: Upgrades	sludge handling and dewatering for Hikumutu WWTP	\$ 537,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui WWTP: Aerator PLC & Switchboard	Replace Existing Aerators PLC as damaged and switch board to enable monitoring of aerators and soft starts to prolong aerator life. Integrate inlet flow and volume with SCADA	\$ 120,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Camping Ground WWPS-RTU	Replace obsolete RTU with new model	\$ -	\$ -	\$ 10,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui (Hikumutu) WWTP: Asset Renewal	Renewal (replacement) of aerators.	\$ 1,000,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Wastewater Networks: Hakiha Street Wastewater Main Upgrade	Hakiha Street Wastewater Main Upgrade	\$ 470,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui (Hikumutu) WWTP: Septage Receiver	Installation of septage receiving facility at WWTP	\$ 365,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

OPERATIONAL VALUES

Taumarunui - Wastewater	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
All Other Maintenance Lump Sum	242,864	242,864	242,864	242,864	242,864	242,864	242,864	242,864	242,864	242,864
All Other Maintenance Dayworks	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000
Overheads	-	-	-	-	-	-	-	-	-	-
Supply & Disposal	-	-	-	-	-	-	-	-	-	-
Power	72,331	72,331	72,331	72,331	72,331	72,331	72,331	72,331	72,331	72,331
Insurance	27,166	27,166	27,166	27,166	27,166	27,166	27,166	27,166	27,166	27,166
Other (incl consultants)	353,436	353,436	353,436	353,436	353,436	353,436	353,436	353,436	353,436	353,436
Grand Total	750,797	750,797	750,797	750,797	750,797	750,797	750,797	750,797	750,797	750,797

F.7 Waiouru

CAPITAL VALUES

WAIOURU WASTEWATER		2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031
Description (Name)	Scope										
Waiouru Wastewater Above Ground Assets: Renewals	Structured scheduled replacement programme for the Waiouru above ground assets (includes WWPS's)	\$ 115,419.54	\$ 5,618.19	\$ 6,320.37	\$ 8,217.02	\$ 12,083.76	\$ 8,736.89	\$ 12,301.94	\$ 36,286.76	\$ 15,003.08	\$ 10,296.83
Waiouru Wastewater Networks: Andrews Drive WWPS: Asset Renewal	Renewal (replacement and refurbishment) of assets.	\$ 27,104.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 21,296.00	\$ -	\$ -
Waiouru Wastewater Reticulation: Ruanui Street WWPS	Investigate station upgrade. Install second pump as a standby unit, upgrade existing switchboard for two pump operation, install additional guide rails, riser and valving for two pump configuration.	\$ 38,400.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Waiouru Wastewater Reticulation: Ruanui Street WWPS: Asset Renewal	Renewal (replacement and refurbishment) of assets.	\$ 3,750.00	\$ -	\$ -	\$ -	\$ 3,750.00	\$ -	\$ -	\$ -	\$ -	\$ -
Waiouru Wastewater Networks: SCADA Upgrade	SCADA upgrade	\$ 41,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

OPERATIONAL VALUES

Waiouru- Wastewater	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
All Other Maintenance Lump Sum	57,045	57,045	57,045	57,045	57,045	57,045	57,045	57,045	57,045	57,045
All Other Maintenance Dayworks	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Overheads	-	-	-	-	-	-	-	-	-	-
Supply & Disposal	-	-	-	-	-	-	-	-	-	-
Power	1,457	1,457	1,457	1,457	1,457	1,457	1,457	1,457	1,457	1,457
Insurance	444	444	444	444	444	444	444	444	444	444
Other (incl consultants)	643	643	643	643	643	643	643	643	643	643
Grand Total	63,589	63,589	63,589	63,589	63,589	63,589	63,589	63,589	63,589	63,589

F.8 District Wide

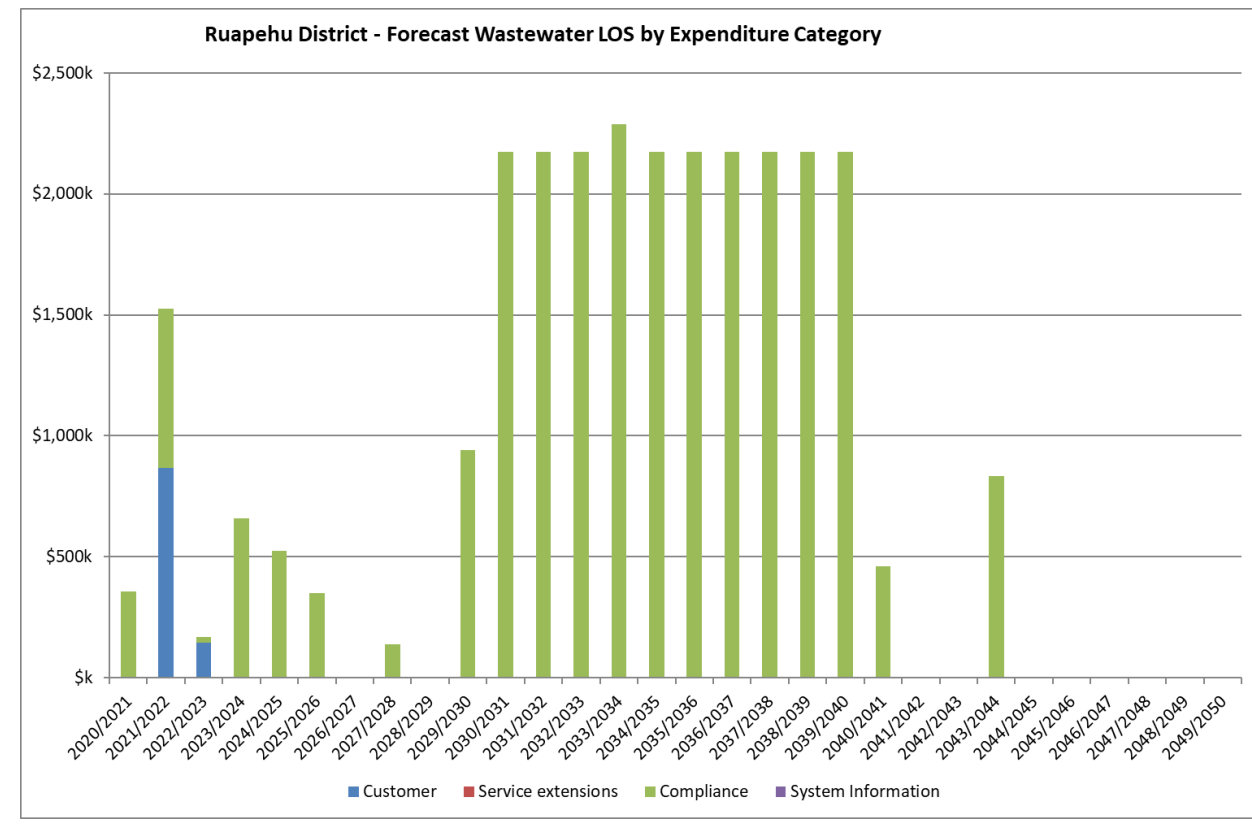
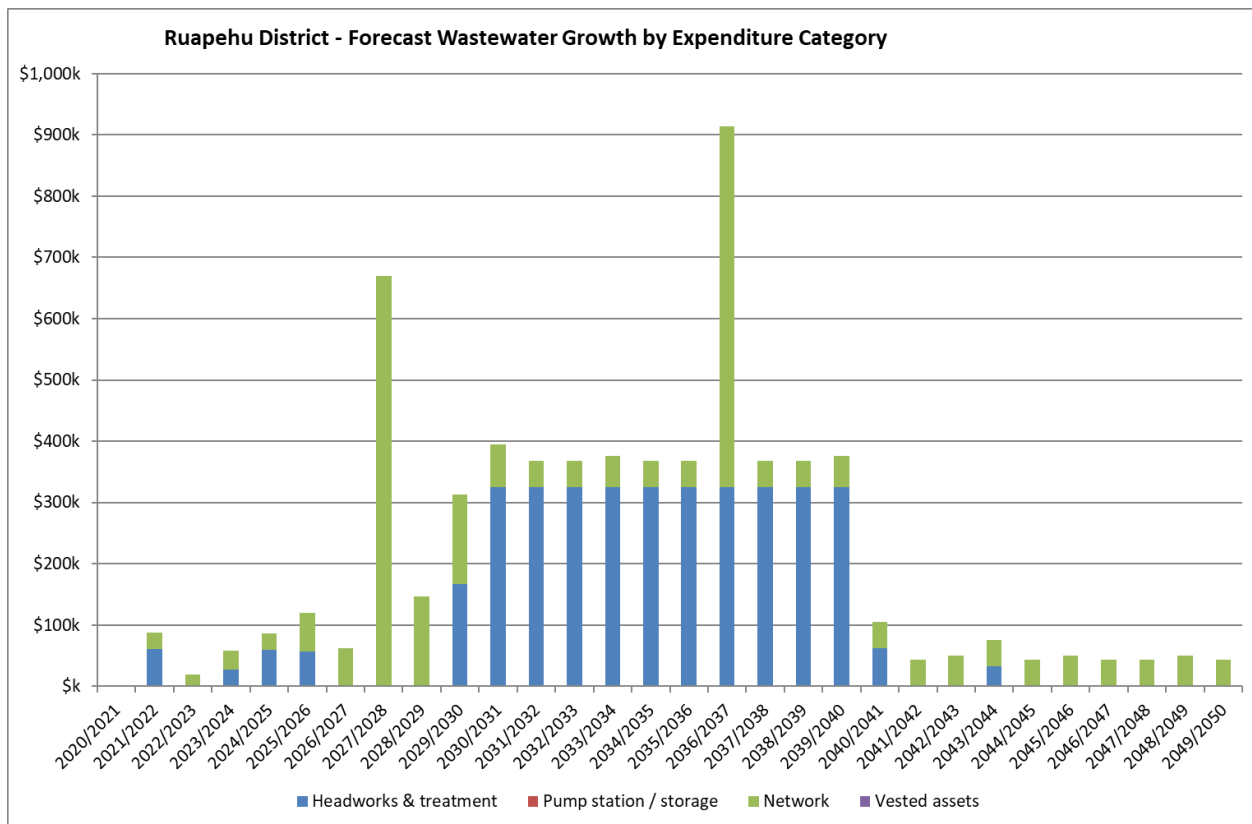
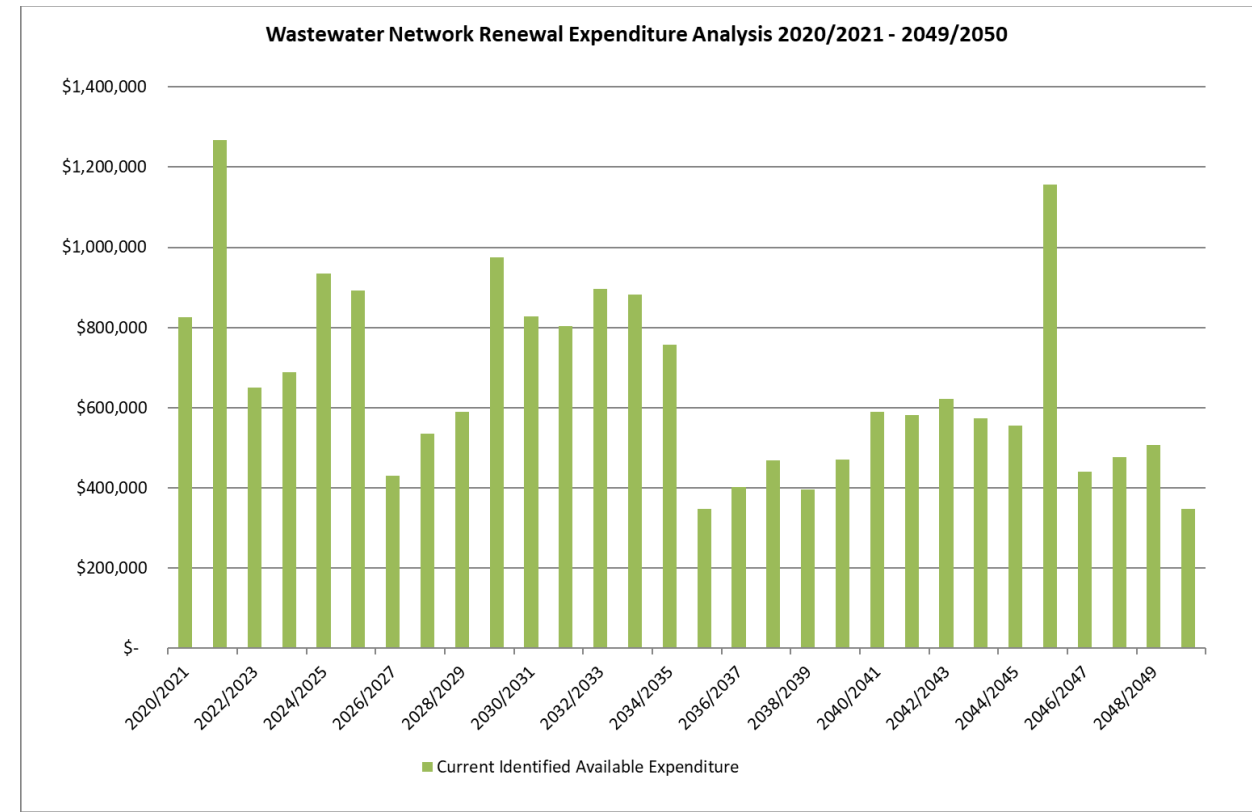
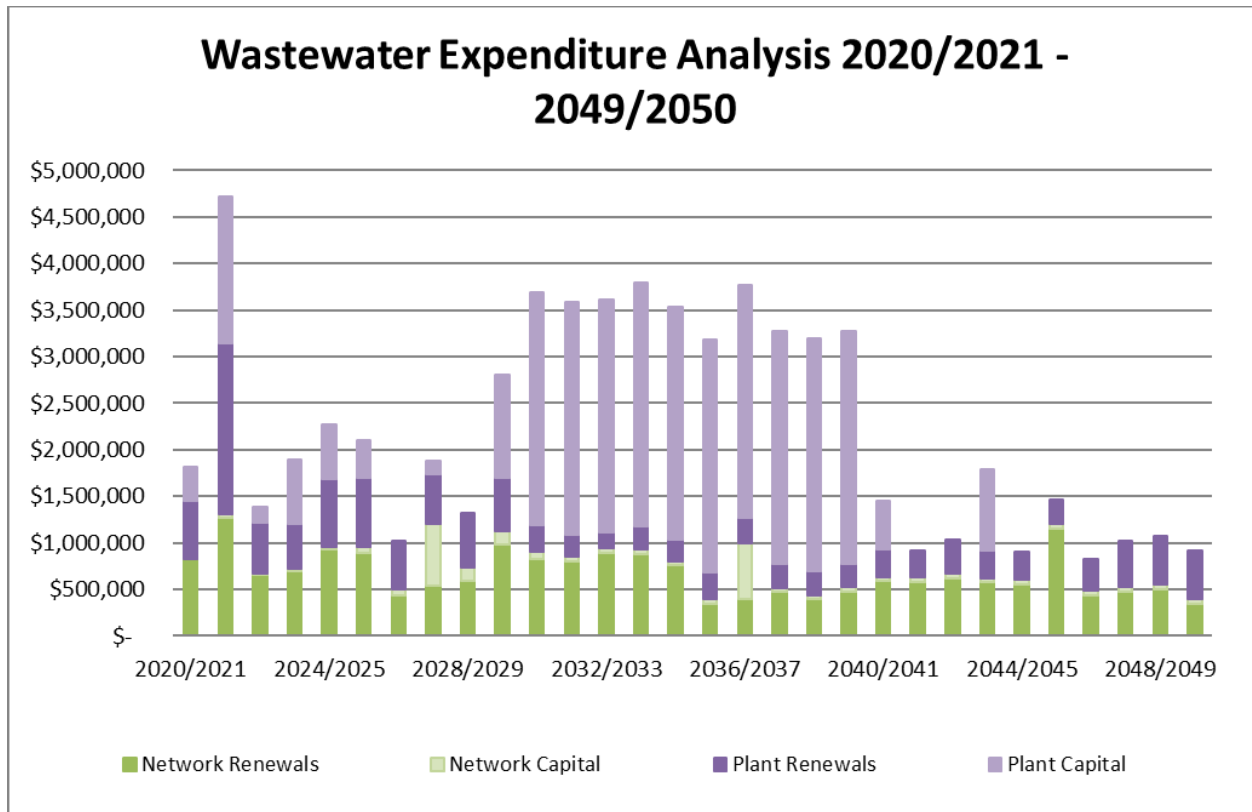
CAPITAL VALUES

DISTRICTWIDE PROJECTS - WASTEWATER		2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031
Description (Name)	Scope										
District Wide Wastewater Network Capacity Upgrades	District Wide program for additional capacity for wastewater distribution networks	\$ 50,000.00	\$ -	\$ -	\$ 50,000.00	\$ 43,069.95	\$ 43,069.95	\$ 93,069.95	\$ 43,069.95	\$ 43,069.95	\$ 93,069.95
District Wide Wastewater: I&I Reduction	Inflow and Infiltration investigations and remedial works	\$ -	\$ -	\$ -	\$ -	\$ 43,069.95	\$ 43,069.95	\$ 43,069.95	\$ 43,069.95	\$ 43,069.95	\$ 43,069.95
		\$ 50,000.00	\$ -	\$ -	\$ 50,000.00	\$ -	\$ -	\$ 50,000.00	\$ -	\$ -	\$ 50,000.00

OPERATIONAL VALUES

District Wide Projects- Wastewater	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
All Other Maintenance Lump Sum	-	-	-	-	-	-	-	-	-	-
All Other Maintenance Dayworks	-	-	-	-	-	-	-	-	-	-
Overheads	384,919	384,919	384,919	384,919	384,919	384,919	384,919	384,919	384,919	384,919
Supply & Disposal	-	-	-	-	-	-	-	-	-	-
Power	-	-	-	-	-	-	-	-	-	-
Insurance	-	-	-	-	-	-	-	-	-	-
Other (incl consultants)	-	-	-	-	-	-	-	-	-	-
Grand Total	384,919	384,919	384,919	384,919	384,919	384,919	384,919	384,919	384,919	384,919

Appendix G – Financial Charts (30 years)



Appendix H - Risk Register – Wastewater Activity

Schedule 1 – Wastewater Activity Risk Management External Context Review – PESTLE Analysis

The following trends or issues provide the external context for the management of risks for the Wastewater activity, and their anticipated impacts. This table has been updated since the previous version of Appendix 4 in AMP Version dated 10 March 2015. This informs the Risk Register (Schedule 2). Risks with no impact identified were not included in the Register.

Category	Trends, Issues or Factors	What is the Trend, Issue or Factor?	What are the anticipated impacts on RDC Wastewater activity?			
			Levels of Service	Growth and Demand	Revenue and Funding	Regulatory or Stakeholder Requirements or Constraints
Political and Policy	Potential change of Political Party in power	A change in Political leadership for the country may result in a change of direction in the management of Wastewater services.	There may be new measures according to Government directives.	No impact identified	Prioritisation of funding or a need for increased funding to enable the District to meet changing directives.	Uncertainty in response to change in directives.
Political and Policy	National infrastructure Plan (NIP) 2011	The NIP 2011, and subsequent update report released in 2013, were produced to reduce uncertainty, look at opportunities and challenges ahead and identify priority areas for infrastructure over a 20 year timeframe. There are now mandatory Non-financial Performance Measures against which all Wastewater activity in New Zealand will be measured. The mandatory Non-financial measures effectively become Ruapehu's new performance measures which will create some challenges for small rural townships. This introduces some different measures for Council.	May lead to changes in Levels of Service.	No impact identified	Prioritisation of funding will be required to fund upgrades or changes to the discharge points necessary to meet changing standards.	Stakeholder response requirements are increased.
Political and Policy	National Policy Statement for Freshwater Management (2014)	The Government is proposing wide-ranging, staggered and long-term improvements to how fresh water is managed in New Zealand. The reforms would create a water management system that allows more transparent, better targeted and informed decisions on fresh water. Businesses and water users would have more certainty so they can plan and invest. This may impact on the wastewater quality and quantity discharge into waterways.	Implication on quality of discharge, may trigger upgrades or changes in Levels of Service.	Families and businesses will not see Ruapehu as a desirable area to relocate if they do not meet freshwater targets, or if increasing regulation makes it difficult to establish a business. Cost of living in RDC may increase because of disposal charges.	Prioritisation of funding will be required to put systems in place to improve the quality of discharge to ensure compliance.	Stakeholders need to work together to manage river water quality. Resource Consent may not be achieved if RDC cannot meet compliance demands.
Political and Policy	Regionalisation: Single regional authority	There is the potential that in the longer term local government bodies may request or be legislated to amalgamate or reorganise. This is not currently under investigation.	Reorganisation or amalgamation would require significant rework of levels of service across the different Districts.	Additional growth and demand factors would become apparent under a reorganisation or amalgamation.	Prioritisation of funding would be required within a reorganisation or amalgamation of local authorities which could affect the funding allocated to the RDC Wastewater Activity assets.	Stakeholder requirements would be affected with differing priorities and understanding.
Political and Policy	CDEM Act 2002	Requires lifeline utilities (such as the wastewater network) to function at the fullest possible extent during and after an emergency and to have plans for such functioning.	Potential for loss of level of service during emergency event if systems not maintained. Uncertainty of system's ability to cope without being tested.	Demand will need to be met following emergency event.	Prioritisation of funding to ensure robust networks.	Stakeholder requirements would be affected with differing priorities. Uncertainty of ability of system to cope.
Economy	Infrastructure delivery capacity	The infrastructure industry in New Zealand is stretched with a general shortage of experienced technical personnel.	Loss of skilled labour may impact on level of service delivered.	No impact anticipated	Contracts may cost more but deliver the same components of work as today.	Limited contractor interest in provincial tenders and risk of uncompetitive prices. RDC has worked to mitigate this risk and ensure stability by awarding the Wastewater contract to a large company for a longer term.

Category	Trends, Issues or Factors	What is the Trend, Issue or Factor?	What are the anticipated impacts on RDC Wastewater activity?			
			Levels of Service	Growth and Demand	Revenue and Funding	Regulatory or Stakeholder Requirements or Constraints
Economy	Oil prices	Volatility in global crude oil prices affecting pipe manufacture and transport prices. The global crude oil price has collapsed to under US\$50 per barrel due to oversupply. The World Bank is forecasting a long-term recovery with prices potentially not returning to 2014 levels until after 2020.	No impact anticipated	No impact anticipated	May translate into an increase in the price of pipes, a transport component of the Consumer Price Index (CPI). This will be addressed by annual rate adjustments.	No impact anticipated
Economy	Rising Insurance premiums	In the advent of Natural Disasters, Insurance companies continue to raise premium and become risk adverse making the future of rebuild cost uncertain.	No impact anticipated.	Attractiveness as an investment town potentially reduced.	Increased revenue may be sought through increased rates.	Becomes increasingly difficult to pay.
Economy	Tourism Trends	Tourism is an important contributor to the Ruapehu economy. Key trends are: <ul style="list-style-type: none"> • Overall annual visitor numbers to the district are increasing. • There are peaks in visitor numbers in both winter and summer. • Winter visitor numbers are declining, while summer visitor numbers are increasing. • The number of holiday homes in the district is increasing, reflecting Ruapehu as a domestic holiday destination. • Government initiative Tourism 2025 is active within the district. • National cycle trails are driving recreational cyclist numbers (237km of rural roads in the district are included in the National Cycleway network). Also, following trends are perceived (but not yet quantified): <ul style="list-style-type: none"> • Increasing numbers of motor homes. • Increasing numbers of Te Araroa / Freedom walkers. • Increasing numbers of recreational road users (e.g. adventure bikers). 	Pressure to maintain Levels of Service to the Peak Population.	Demand will increase with increasing peak population.	Additional funding required to maintain a system adequate to cope with Peak Population numbers. <ul style="list-style-type: none"> • Limited opportunities for RDC to capture funding from tourism: • Holiday homes trend is sustaining rates base in the district despite declining normally resident population. 	In the short term may have longer term financial costs.
Legal / Regulatory	Health and Safety Reform Bill / Health and Safety at Work Act	The new Act will impose: <ul style="list-style-type: none"> • A primary duty on a Person Conducting a Business or Undertaking (PCBU), to ensure the health and safety of the PCBU's workers and other people associated with the work carried out by the PCBU. • A positive due diligence duty on Officers of PCBUs (i.e., those in governance roles) to ensure the PCBU complies with its health and safety duties. • Duties on workers and other people in workplaces. • Duties which provide for better levels of participation by workers in matters of health and safety. 	No impact anticipated	No impact anticipated	Increasing cost of doing business.	Increased liability for Council and staff. Council is supporting contractors to upskill with respect to H&S management where necessary. Increased monitoring requirements in order to demonstrate compliance.

Category	Trends, Issues or Factors	What is the Trend, Issue or Factor?	What are the anticipated impacts on RDC Wastewater activity?			
			Levels of Service	Growth and Demand	Revenue and Funding	Regulatory or Stakeholder Requirements or Constraints
Legal / Regulatory	Increasing environmental standards: • Horizons One Plan	Horizons One Plan is a regional plan for resource management over the next 10 years and became operative in April 2013. It defines how the natural and physical resources of the Region (including fresh air, clean water, productive land and natural ecosystems) will be cared for and managed by the Regional Council in partnership with Territorial Authorities and the community. The guiding document for the One Plan is the Regional Management Act (RMA), with the National Policy Statement for Freshwater Management (NPSFM) falling under this. The One Plan is targeting point source (end of pipe) pollution and non-point source pollution with new standards for discharges to water or onto land that will affect surface water and ground water quality.	Increased levels of service as new environmental standards are required with new resource consents.	No impact anticipated.	Prioritisation of funding will be required to put systems in place to meet new wastewater quality standards.	Stakeholders required to assist RDC with non-point source pollution. Resource Consent may not be achieved if RDC cannot maintain water quality within required limits.
Legal / Regulatory	Co-Management with Iwi	Recent treaty settlements have increased Iwi expectations re co-management of land under the RMA and Settlement Agreements.	No impact anticipated.	No impact anticipated	Increased costs of doing business.	Increasing interaction and time required to obtain consent for works and potential for stakeholder conflicts.
Social	Changing demographics – Usually Resident Population	The usually resident population is declining across the district. This is predicted to continue over the next ten years. The usually resident population is also aging. In small towns aging reticulation systems are in need of replacement and a declining population will mean decisions need to be made about the future of the Wastewater Activity.	A retraction of services to smaller areas. Redundancy of Council owned and operated wastewater networks and possibly a move to using septic tanks in smaller townships.	The decline in the usually resident population means that less Wastewater activity will be generated on an 'as usual' basis, however the Wastewater network will need to be maintained at a level sufficient to cope with peak populations.	Potential decline in rate paying base. More ratepayers not paying Wastewater activity rates as they move to septic tanks.	In smaller towns stakeholders need to make decisions around the future of the wastewater activity.
Social	Changing demographics – Holiday Homes	The number of holiday homes in the district has been increasing over the last few years. Key growth areas for holiday homes and subdivision activity are: • Ohakune • Rangataua • National Park • Horopito No significant new residential and subdivisional activity is forecast for the district over the next 12 years (annual growth is forecast at 1.3% over this period).	Increasing community expectation regarding levels of service.	Minor growth in asset base to meet Peak Population requirements. Holiday homes occupancy contributes to seasonal peaks in Wastewater activity due to high avg occupants per home (4.4) compared to normally resident households (2.5).	The increase in holiday homes in the district has been sustaining the District's rates base despite the gradual decline in the usually resident population. However, the forecast growth in rateable assessments for the district is low (~5% over the next ten years).	No impact anticipated
Social	Community expectations	The community's expectations are increasing regarding to: • Sustainable systems. • Wastewater quality increase with less chemical use • Wastewater quality in the environmental and surrounding land use. • Disruption to individual property owners during new works construction	Increasing expectations may result in a gap between service level delivered and service level expected.	No impact expected	Closing these gaps may challenge affordability	Developing systems to meet the communities increasing expectations may not be sustainable.
Environmental	Climate Change	Climate change is expected to impact the frequency and severity of weather-related hazards (rainfall patterns, storm intensity and frequency, drought): • Increase in overall rainfall, with increase in rainfall intensity • Number and strength of ex-tropical cyclones reaching NZ also likely to increase • Decrease in winter temperatures and snowfall. Places which currently receive snowfall likely to see shift to rainfall or sleet.	Potential for low river levels in times of drought compounding wastewater effects on the environment. Increased requirement for backflow prevention during periods of flood. Wastewater Treatment Plants need to be able to cope with flood levels to prevent overflow or being flooded.	Demand for increased capacity during floods.	Additional funding required to make alterations necessary to cope with flood levels.	May not achieve resource consent compliance during drought or flood periods.

Category	Trends, Issues or Factors	What is the Trend, Issue or Factor?	What are the anticipated impacts on RDC Wastewater activity?			
			Levels of Service	Growth and Demand	Revenue and Funding	Regulatory or Stakeholder Requirements or Constraints
Environmental	Natural nutrient levels high	Ground and river nutrient levels in the Ruapehu District are exclusive to this area. For example, naturally occurring levels of Phosphorus are higher than One Plan targets set by Regional Council, particularly in times of low flow.	Freshwater values are not met.	No impact anticipated.	Prioritisation of funding will be necessary for RDC to understand the existing environment. Special treatment requirements will mean additional cost.	RDC may not comply.
External Infrastructure	Security of Supply	The NZ Defence Force owns and operates the Waiouru Wastewater Treatment Plant. Wastewater is transported through a wastewater network owned and operated by RDC to the Army Training Group, which is responsible for its treatment and disposal.	RDC has no certainty that treatment and disposal will be maintained and compliance standards met.	If NZ Defence Force systems fail RDC may not be able to meet demand for Waiouru.	RDC may be required to support the NZ Defence Force to maintain treatment and disposal systems. If the system fails RDC may need to fund an alternative solution for Wastewater activity in Waiouru.	Uncertainty of activity.
Technology	Science of effect and land use has not caught up to social expectations.	There is a cultural and societal desire to ensure our environment stays healthy for future generations. Driver to move wastewater to land. Science of effects of wastewater to land has not been fully explored.	Expectations are not met.	No impact anticipated.	Increasing pressure to trial new, unproven technology.	Expectations not met. Stakeholders have different priorities.
Technology	Increasing costs of advanced technology.	Technology continues to improve, such as lining of wastewater pipes (allowing more to be lined) and advanced wastewater treatment solutions. Advanced technology operational costs are still outside small communities' affordability.	Increasing expectations and an inability for RDC to maintain levels of service at levels maintained by other, larger Councils.	No impact anticipated.	Advanced technology operational costs are still outside small communities' ability to afford.	No impact anticipated.

Schedule 2 – Wastewater Activity Risk Register

The risk register provided in the following tables for the current and future Wastewater activities of Ruapehu District Council have been developed in consultation with key staff.

Risk Id	Description of the Risk	Risk Context and Details	Untreated Risk <i>(Stopping what we do now, what would the risk level be if we did nothing to prevent or minimise it?)</i>			Existing Treatments/Controls <i>(What we are doing now to avoid the risk or reduce its effect)</i>	Treated Risk <i>(Considering what we do now, what is the current actual risk level we face?)</i>			Risk Manager <i>(Who has the responsibility and ability to follow through)</i>	Treatment/ Management Options <i>(What can we possibly do to further reduce the risk level or provide assurance that current practices remain effective?)</i>
			Consequence	Likelihood	Risk level		Effectiveness	Consequence	Likelihood		

Wastewater AMP Risks

WW01	Inefficient management of wastewater assets	<p>Inefficient management of wastewater assets</p> <p>Caused by:</p> <ul style="list-style-type: none"> No management plan Lack of documented and understood strategies and procedures Inadequate analysis of condition or performance Inadequate operations and maintenance cost tracking Inadequate capital works forecasts Inadequate works prioritisation techniques Inadequate risk management <p>Consequences:</p> <ul style="list-style-type: none"> Doubts about value for money Significant asset or service failure occurs 			#N/A	<ul style="list-style-type: none"> AM planning AM monitoring Annual Audit NZ audits Three yearly AM practices reviews Condition assessments Annual Plan submissions Risk assessment reviews Capital Works spreadsheet prioritised (target infrastructure) Capital list reviewed yearly – targeted upgrades/renewals Capture of breaks, chocks and overflows ('hot spots') CCTV lines 		2	3	M	Environmental Manager	<ul style="list-style-type: none"> CCTV reviews Spacially represent hotpoints Update Asset Finder information with latest condition assessment Network models Use Asset Finder planning tools to better capacity
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Wastewater AMP Risks - Pipe Network

Risk Id	Description of the Risk	Risk Context and Details	Untreated Risk <i>(Stopping what we do now, what would the risk level be if we did nothing to prevent or minimise it?)</i>			Existing Treatments/Controls <i>(What we are doing now to avoid the risk or reduce its effect)</i>	Treated Risk <i>(Considering what we do now, what is the current actual risk level we face?)</i>			Risk Manager <i>(Who has the responsibility and ability to follow through)</i>	Treatment/ Management Options <i>(What can we possibly do to further reduce the risk level or provide assurance that current practices remain effective?)</i>	
			Consequence	Likelihood	Risk level		Effectiveness	Consequence	Likelihood			Risk level
WW02	Overflows from a critical wastewater pipeline	<p>Failure of a wastewater pipeline that has an adverse effect on a large number of users</p> <ul style="list-style-type: none"> • Failure of critical pipeline • Blockage (roots, debris, fat) • Third party damage (e.g. by another utility operator) • Operator error (e.g. while undertaking maintenance works) <p>Consequences:</p> <ul style="list-style-type: none"> • Pollution • Contamination of adjacent properties • Contamination of receiving waters • Environmental damage • Restrictions on access to contaminated areas and waters • Illnesses, near misses or injuries • Breach of discharge consent conditions • Prosecution • Loss of wastewater service 			#N/A	<ul style="list-style-type: none"> • Standard conditions for working around public sewerage systems • Condition monitoring • Maintenance history analysis • Targeted renewal programmes • Response plans • Routine inspections and maintenance • Strong H&S requirements in contracts • Strong operating procedures, training and audits • Incident reporting • Emergency management plans • Environmental decontamination plans • Jet rodding as preventative maintenance • Critical length of pipe and tapping bands install • Sucker trucks • Critical methods statements 		3	3	H	Environmental Manager	<ul style="list-style-type: none"> • CCTV reviews of pipes • System redundancies • Signage to alert public in stock • Map trees and sewer to identify more at risk lines • Develop plan for maintenance of lines outside of our jet rodders capacity
WW03	Extraordinary loss of a critical wastewater pipeline	<p>Loss of a wastewater pipeline that has a sustained adverse effect on a large number of users</p> <ul style="list-style-type: none"> • Natural hazard/disaster (volcanic eruption, earthquake, storm, flooding, landslide) <p>Consequences:</p> <ul style="list-style-type: none"> • Ground upheaval disrupting flow • Pollution • Contamination of adjacent properties • Contamination of receiving waters • Environmental damage • Restrictions on access to contaminated areas and waters • Illnesses, near misses or injuries • Breach of discharge consent conditions • Loss of wastewater service • Emergency response • Significant cost 			#N/A	<ul style="list-style-type: none"> • Emergency Response plans • Environmental cleanup plans • Signage and communication plan • List of suppliers of pipe • HQS plans and method statement for new risk or critical pipeline • Regional lifelines plan 		4	2	H	Environmental Manager	<ul style="list-style-type: none"> • Add new critical risk methods to HQS and best practice manual • Only option is planning for event – not realistic

Risk Id	Description of the Risk	Risk Context and Details	Untreated Risk <i>(Stopping what we do now, what would the risk level be if we did nothing to prevent or minimise it?)</i>			Existing Treatments/Controls <i>(What we are doing now to avoid the risk or reduce its effect)</i>	Treated Risk <i>(Considering what we do now, what is the current actual risk level we face?)</i>			Risk Manager <i>(Who has the responsibility and ability to follow through)</i>	Treatment/ Management Options <i>(What can we possibly do to further reduce the risk level or provide assurance that current practices remain effective?)</i>	
			Consequence	Likelihood	Risk level		Effectiveness	Consequence	Likelihood			Risk level
WW04	Overflows from a non-critical wastewater pipeline	<p>Failure of a wastewater pipeline that has an adverse effect on a small number of users</p> <ul style="list-style-type: none"> • Failure of non-critical pipeline • Blockage (roots, debris, fat) • Third party damage (e.g. by another utility operator) • Operator error (e.g. while undertaking maintenance works) <p>Consequences:</p> <ul style="list-style-type: none"> • Pollution • Contamination of adjacent properties • Contamination of receiving waters • Environmental damage • Restrictions on access to contaminated areas and waters • Illnesses, near misses or injuries • Breach of discharge consent conditions • Loss of wastewater service 			#N/A	<ul style="list-style-type: none"> • Standard conditions for working around • Public sewerage systems • Condition monitoring • Maintenance history analysis • Targeted renewal programmes • Response plans • Routine inspections and maintenance • Strong H&S requirements in contracts • Strong operating procedures, training and audits • Reactive maintenance capability • Reporting incidents • Chocks, blockages and overflows recorded • Clean up procedure • Sucker trucks • Spare pipelengths –bund line 		2	3	M	Environmental Manager	<ul style="list-style-type: none"> • System redundancies • CCTV hotspots • Map hotspots • Assess tree growth against hotspots • Root cutter use • Relining manhole to mainhole (ie. Continuous line without joints)
WW05	Extraordinary loss of a non-critical wastewater pipeline	<p>Loss of a wastewater pipeline that has a sustained adverse effect on a small number of users</p> <ul style="list-style-type: none"> • Natural hazard/disaster (volcanic eruption, earthquake, storm, flooding, landslip) <p>Consequences:</p> <ul style="list-style-type: none"> • Ground upheaval disrupting flow • Pollution • Contamination of adjacent properties • Contamination of receiving waters • Environmental damage • Restrictions on access to contaminated areas and waters • Illnesses, near misses or injuries • Breach of discharge consent conditions • Loss of wastewater service 			#N/A	<ul style="list-style-type: none"> • Response plans • Bund line (?) • Signage and communications plan • Sucker truck • Pump station wetwell used as storage • Cost of pipe and supplier availability • Regional lifelines plan 		2	3	M	Environmental Manager	<ul style="list-style-type: none"> • Assess portable bund option • Add new critical risk methods to HQS and best practice manual

Risk Id	Description of the Risk	Risk Context and Details	Untreated Risk <i>(Stopping what we do now, what would the risk level be if we did nothing to prevent or minimise it?)</i>			Existing Treatments/Controls <i>(What we are doing now to avoid the risk or reduce its effect)</i>	Treated Risk <i>(Considering what we do now, what is the current actual risk level we face?)</i>			Risk Manager <i>(Who has the responsibility and ability to follow through)</i>	Treatment/ Management Options <i>(What can we possibly do to further reduce the risk level or provide assurance that current practices remain effective?)</i>
			Consequence	Likelihood	Risk level		Effectiveness	Consequence	Likelihood		

WW06	Inadequate pipe network capacity	<p>The wastewater piped network does not have the capacity to meet peak demand</p> <p>Caused by:</p> <ul style="list-style-type: none"> • Incorrect demand forecast • Demand escalates due to ineffective demand management strategies • Poor understanding of community aspirations • Demand growth provided for in District Plan but not matched by infrastructural capacity • Deferral of planned works • Reduced capacity due to siltation and service intrusion • Invert level exceeds design allowances <p>Consequences:</p> <ul style="list-style-type: none"> • Wastewater overflows • Poor wastewater drainage from users premises 			#N/A	<ul style="list-style-type: none"> • Review of actual demand and trends • Detailed future growth analysis • Routine consumption monitoring and trend analysis, feedback into demand forecasting and demand management/capital upgrade programmes • LOS based on legislative requirements, industry practice and understanding of community expectations through annual plan process and community meetings for specific local issues • Development contributions • Flow monitoring • Overflow monitoring • Response plans • Roots monitoring • Demand analysis as part of consent process • Wastewater impacts (part of District Plan change) <p>Monitor pump station usage</p>		2	3	M	Environmental Manager	<ul style="list-style-type: none"> • Network models • Trend analysis of collection network • Assess pump station trends • Structural planning
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Wastewater AMP Risks - Pumping Stations

Risk Id	Description of the Risk	Risk Context and Details	Untreated Risk <i>(Stopping what we do now, what would the risk level be if we did nothing to prevent or minimise it?)</i>			Existing Treatments/Controls <i>(What we are doing now to avoid the risk or reduce its effect)</i>	Treated Risk <i>(Considering what we do now, what is the current actual risk level we face?)</i>			Risk Manager <i>(Who has the responsibility and ability to follow through)</i>	Treatment/ Management Options <i>(What can we possibly do to further reduce the risk level or provide assurance that current practices remain effective?)</i>
			Consequence	Likelihood	Risk level		Effectiveness	Consequence	Likelihood		

WW07	Failure of a wastewater pump station	<p>Failure or breakdown of a wastewater pump station</p> <p>Caused by:</p> <ul style="list-style-type: none"> • Damage from sabotage/terrorism • Operator error (e.g. while undertaking maintenance works) • Failure of pumping station mechanical component • Failure of pumping station electrical component • Failure of pumping station structural component • Power outage <p>Consequences:</p> <ul style="list-style-type: none"> • Wastewater overflows 			#N/A	<ul style="list-style-type: none"> • Standard conditions for working around public sewerage systems • Standard conditions around entry to wastewater pumping stations • Condition monitoring • Targeted renewal programmes • Response plans • Standby generators • Wet well capacity • Strong H&S requirements in contracts • Strong operating procedures, training and audits • Bund • Standby duty pumps • Preventative maintenance programme 		2	3	M	Environmental Manager	<ul style="list-style-type: none"> • System redundancies • Maintenance history analysis • Extra storage • Portable bund
WW08	Extraordinary loss of a wastewater pump station	<p>Loss of a wastewater pump station that has a sustained adverse effect</p> <ul style="list-style-type: none"> • Natural hazard/disaster (volcanic eruption, earthquake, storm, flooding, landslide) <p>Consequences:</p> <ul style="list-style-type: none"> • Wastewater overflows 			#N/A	<ul style="list-style-type: none"> • Response plans • System redundancies • Standby/ portable generators • Flow monitoring • Overflow monitoring • Cleaning of pipelines • Demand analysis as part of consent process • Routine inspections and maintenance • Planning capability (i.e. to effect capacity improvement if required) • Bunds 		2	3	M	Environmental Manager	<ul style="list-style-type: none"> • Network models • Monitoring of performance against consent requirements

Risk Id	Description of the Risk	Risk Context and Details	Untreated Risk <i>(Stopping what we do now, what would the risk level be if we did nothing to prevent or minimise it?)</i>			Existing Treatments/Controls <i>(What we are doing now to avoid the risk or reduce its effect)</i>	Treated Risk <i>(Considering what we do now, what is the current actual risk level we face?)</i>			Risk Manager <i>(Who has the responsibility and ability to follow through)</i>	Treatment/Management Options <i>(What can we possibly do to further reduce the risk level or provide assurance that current practices remain effective?)</i>	
			Consequence	Likelihood	Risk level		Effectiveness	Consequence	Likelihood			Risk level
WW09	Failure of a wastewater treatment plant	Failure or breakdown of a wastewater treatment plant Caused by: <ul style="list-style-type: none"> • Damage from sabotage/terrorism • Operator error (e.g. while undertaking maintenance works) • Failure of treatment plant mechanical component • Failure of treatment plant electrical component • Failure of treatment plant structural component • Power outage • Excessive trade/chemical effluent Consequences: <ul style="list-style-type: none"> • Wastewater overflows • Inadequately treated wastewater • Discharge of untreated wastewater 			#N/A	<ul style="list-style-type: none"> • Standard conditions for working around public sewerage systems • Condition monitoring • Maintenance history analysis • Targeted renewal programmes • Response plans • Standby generators • Standby pumps • Wet well capacity • Storage • Strong H&S requirements in contracts • Strong operating procedures, training and audits • Bunds 		2	3	M	Environmental Manager	<ul style="list-style-type: none"> • Aeration plans • Available biological enzymes • Assess plant curtain to increase retention • System redundancies
WW10	Extraordinary loss of a wastewater treatment plant	Loss of a wastewater treatment plant that has a sustained adverse effect <ul style="list-style-type: none"> • Natural hazard/disaster (volcanic eruption, earthquake, storm, flooding, landslide) Consequences: <ul style="list-style-type: none"> • Wastewater overflows • Inadequately treated wastewater • Discharge of untreated wastewater 			#N/A	<ul style="list-style-type: none"> • Response plans • Standby generators • Bunds 		4	2	H	Environmental Manager	<ul style="list-style-type: none"> • Only option is planning for event – not realistic

Risk Id	Description of the Risk	Risk Context and Details	Untreated Risk <i>(Stopping what we do now, what would the risk level be if we did nothing to prevent or minimise it?)</i>			Existing Treatments/Controls <i>(What we are doing now to avoid the risk or reduce its effect)</i>	Treated Risk <i>(Considering what we do now, what is the current actual risk level we face?)</i>			Risk Manager <i>(Who has the responsibility and ability to follow through)</i>	Treatment/ Management Options <i>(What can we possibly do to further reduce the risk level or provide assurance that current practices remain effective?)</i>	
			Consequence	Likelihood	Risk level		Effectiveness	Consequence	Likelihood			Risk level
WW11	Inadequate wastewater treatment capacity	<p>The wastewater treatment plant does not have the capacity to meet peak demand</p> <p>Caused by:</p> <ul style="list-style-type: none"> • Incorrect demand forecast • Demand escalates due to ineffective demand management strategies • Poor understanding of community aspirations • Demand growth provided for in District Plan but not matched by infrastructural capacity • Deferral of planned works <p>Consequences:</p> <ul style="list-style-type: none"> • Wastewater overflows • Inadequately treated wastewater • Discharge of untreated wastewater 			#N/A	<ul style="list-style-type: none"> • Review of actual demand and trends • Detailed future growth analysis • Routine consumption monitoring and trend analysis, feedback into demand forecasting and demand management/capital upgrade programmes • LOS based on legislative requirements, industry practice and understanding of community expectations through annual plan process and community meetings for specific local issues • Development contributions • Response plans • Demand analysis as part of consent process • Wastewater impacts (part of District Plan change) • Monitoring of performance against consent requirements • Planning capability (i.e. to effect capacity improvement if required) 		3	2	M	Environmental Manager	<ul style="list-style-type: none"> • Network models

Schedule 3 – Wastewater Activity Risk Action Plan

Risk Id	Description of the Risk	Source of the Risk	Treated risk level	Treatment/Management Options Available <i>(What can we possibly do to further reduce the risk level or provide assurance that current practices remain effective?)</i>	Risk Manager <i>(Who has the responsibility and ability to follow through)</i>	Risk Appetite <i>(How much do we want to reduce this risk?)</i>	Treatment/Management Action(s) Selected <i>(Defined actions to be programmed and resourced under the direction of the Risk Manager)</i>	Monitoring /Reporting <i>(Who will monitor the action and receive progress reports)</i>	Timeframe <i>(Define programme for action completion)</i>	Costs/ Resources <i>(Allocate \$ amounts and staff time required for action)</i>	Future risk level <i>(The risk score that could be achieved if selected treatments are actioned)</i>
WW02	Overflows from a critical wastewater pipeline	Pipe Network	H	<ul style="list-style-type: none"> CCTV reviews of pipes System redundancies Signage to alert public Map trees and sewer to identify more at risk lines Develop plan for maintenance of lines outside of our jet rodders capacity	Environmental Manager	Moderate	<ul style="list-style-type: none"> AMP provides for a level of CCTV each year Modelling 	Environment Manager	Ongoing	\$10K	M
WW03	Extraordinary loss of a critical wastewater pipeline	Pipe Network	H	<ul style="list-style-type: none"> Add new critical risk methods to HQS and best practice manual Only option is planning for event – not realistic 	Environmental Manager	Routine	<ul style="list-style-type: none"> Add new critical risk methods to HQS and best practice manual 				H
WW10	Extraordinary loss of a wastewater treatment plant	Treatment Plants	H	<ul style="list-style-type: none"> Only option is planning for event – not realistic 	Environmental Manager	Moderate	<ul style="list-style-type: none"> Trend analysis 	Veolia Environment Manager	Yearly		M

Schedule 4 – Veolia Wastewater Risk Register

Community Outcome	Core Value	Strategic Outcome	LOS Failure Indicator	Asset Group	Asset Sub-Group	Caused By	Consequence					Likelihood	Risk		Controls				
							Corporate Image	Safety & Health	Environmental	Community Effect / Loss of Service	Loss of Revenue/ Business Costs		Weighted Ave	Existing	To Develop				
							15%	25%	20%	25%	15%								
CO 10 - Core facilities, services and infrastructure planning and provision keep pace with development. CO 22 - An environment which has an excellent quality of water, soil and air. CO 23 - River catchment areas and waterways are protected from erosion and pollution.	Safety	To maintain public health.	Wastewater overflows, contamination of adjacent properties, receiving waters, illnesses, near misses, injury	Piped Network	Pipe Network - Critical Pipes	Failure of critical pipeline	2	3	3	3	3	C	H	Condition monitoring, maintenance history analysis, targeted renewal programmes, response planning, system redundancy options	CCTV survey of critical pipes				
						Asset failure through 3rd party damage	1	2	2	2	2	C	M	Standard conditions working around public sewerage system					
						Risks associated with working on the network	3	4	1	1	1	C	M	Strong H&S requirements in contracts and in operational procedures, training, audits					
					Pipe Network - Non critical Pipes	Failure of non critical pipeline	2	2	2	2	2	C	M	Condition monitoring, maintenance history analysis, targeted renewal programmes, response planning, system redundancy options					
						Asset failure through 3rd party damage	1	1	1	1	1	C	L	Standard conditions working around public sewerage system					
						Risks associated with working on the network	2	3	1	1	2	C	M	Strong H&S requirements in contracts and in operational procedures, training, audits					
				Pump stations	Failure of pumping station mechanical component	2	2	3	2	2	C	M	Condition monitoring, maintenance history analysis, targeted renewal programmes, response planning, system redundancy options - standby pumps and wet well over-capacity						
					Failure of pumping station electrical component	2	3	3	2	2	C	M	Condition monitoring, maintenance history analysis, targeted renewal programmes, response planning, system redundancy options - standby pumps and wet well over-capacity						
					Failure of pumping station structural component	2	2	2	2	2	D	L	Condition monitoring, maintenance history analysis, targeted renewal programmes, response planning, system redundancy options - standby pumps and wet well over-capacity						
					Asset failure through 3rd party damage	1	1	1	1	1	C	L	Standard conditions working around public sewerage system, entry to WWPS						
					Risks associated with working in the WWPS	3	4	1	1	2	C	M	Strong H&S requirements in contracts and in operational procedures, training, audits						
					Treatment plants	Failure of WWTP mechanical component	2	2	3	2	2	C	M	Condition monitoring, maintenance history analysis, targeted renewal programmes, response planning, system redundancy options					
				Failure of WWTP electrical component		2	3	3	2	2	C	M	Condition monitoring, maintenance history analysis, targeted renewal programmes, response planning, system redundancy options						
				Failure of WWTP structural component		2	2	1	2	2	D	L	Condition monitoring, maintenance history analysis, targeted renewal programmes, response planning, system redundancy options						
				Risks associated with working at the WWTP		3	4	1	1	2	C	M	Strong H&S requirements in contracts and in operational procedures, training, audits						
CO 10 - Core facilities, services and infrastructure planning and provision keep pace with development. CO 22 - An environment which has an excellent quality of water, soil and air. CO 23 - River catchment areas and waterways are protected from erosion and pollution.	Quality	To provide and maintain an appropriate level of infrastructure.	Loss of wastewater service	Piped Network	Pipe Network - Critical Pipes	Extensive damage (earthquake or other natural hazard)	2	2	3	2	3	D	L	Response planning					
						Blockage (roots, debris, fat)	2	2	3	2	2	C	M	Routine inspections and maintenance, response planning					
					Pipe Network - Non critical Pipes	Extensive damage (earthquake or other natural hazard)	2	2	2	2	2	D	L	Response planning					
				Blockage (roots, debris, fat)		2	2	2	2	1	C	M	Reactive maintenance capability						
				Pump stations	Power outage	2	2	3	2	2	C	M	Wet-well storage, standby generators, response planning						
					Extensive damage (earthquake or other natural hazard)	2	2	3	2	3	D	L	Routine inspections and maintenance response and repair, renewal if necessary						
				Treatment plants	Power outage	2	2	3	2	2	C	M	Storage, standby generators, response planning						
					Extensive damage (earthquake or other natural hazard)	2	2	3	5	5	D	M	Response planning						
				CO 10 - Core facilities, services and infrastructure planning and provision keep pace with development. CO 22 - An environment which has an excellent quality of water, soil and air. CO 23 - River catchment areas and waterways are protected from erosion and pollution.	Sustainability	Enhance the sustainability of social, environment, cultural and economic well beings of our communities.	Pollution incidents, breaches of discharge consent conditions, illnesses, and environmental damage	Piped Network	Pipe Network - Critical Pipes	I/I exceeds design allowances	2	2	3	3	2	B	H	Overflow monitoring and response planning	Network models
										Reduced capacity of pipes - siltation, service intrusion	1	1	3	3	2	C	M	Overflow and roots monitoring and response planning	
										Incorrect demand forecasts, deferred planning action	2	2	3	2	2	C	M	Flow monitoring, demand analysis as part of consent process, ww impacts part of DP change	Network models
										Changes to DP and population served	2	1	3	2	3	C	M	Flow monitoring, demand analysis as part of consent process, ww impacts part of DP change	Network models
Pipe Network - Non critical Pipes	Volcanic eruption	2	2						3	4	4	C	H	Response planning					
	I/I exceeds design allowances	2	2						2	2	2	B	H	Overflow monitoring and response planning	Network models				
	Reduced capacity of pipes - siltation, service intrusion	1	1						2	2	1	C	L	Overflow and roots monitoring and response planning					
	Incorrect demand forecasts, deferred planning action	2	2						2	2	2	C	M	Flow monitoring, demand analysis as part of consent process	Network models				
Pump stations	Changes to DP and population served	2	1					3	2	3	C	M	Flow monitoring, demand analysis as part of consent process, ww impacts part of DP change	Network models					
	Volcanic eruption	2	2					2	3	2	C	M	Response planning						
	Incorrect demand forecasts, deferred planning action	2	2					3	2	2	C	M	Flow monitoring, demand analysis as part of consent process	Network models					
	I/I exceeds design allowances	2	2					3	2	2	B	H	Overflow monitoring and response planning	Network models					
Treatment plants	Consent requirements not met	3	1					3	2	2	C	M	Monitoring of performance against consent requirements, planning capability to effect improvement if required						
	Incorrect demand forecasts, deferred planning action	2	2					3	2	2	C	M	Flow monitoring, demand analysis as part of consent process	Network models					
	I/I exceeds design allowances	2	2					3	2	2	B	H	Overflow monitoring and response planning	Network models					
	Volcanic eruption	2	2					2	3	2	C	M	Response planning						
All	All	Inefficient management of assets, significant asset or service failure occurs with no management plan	Inadequate certainty that the levels of service provide optimum benefit for the cost					Inadequate analysis of condition, performance, operations and maintenance cost tracking, and capital works forecasts	Inadequate works prioritisation techniques	Risk analysis and management is not comprehensive	2	1	2	3	2	C	M	AM Planning and monitoring	
											2	1	3	2	2	C	M	Annual Audit NZ audits; three yearly AM practices reviews	
				2	1	2	3				2	C	M	Three yearly condition assessment, AM planning processes	CCTV survey of critical assets				
				2	1	2	2				2	C	M	AM Planning, monitoring, 3 yearly AM practices reviews					
				2	1	2	2				2	C	M	AM Planning processes and AP submissions					
				2	3	3	2				3	D	M	Risk assessment review processes					