

Te Kaunihera-ā-Rohe o Ruapehu  
Ruapehu District Council



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

**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

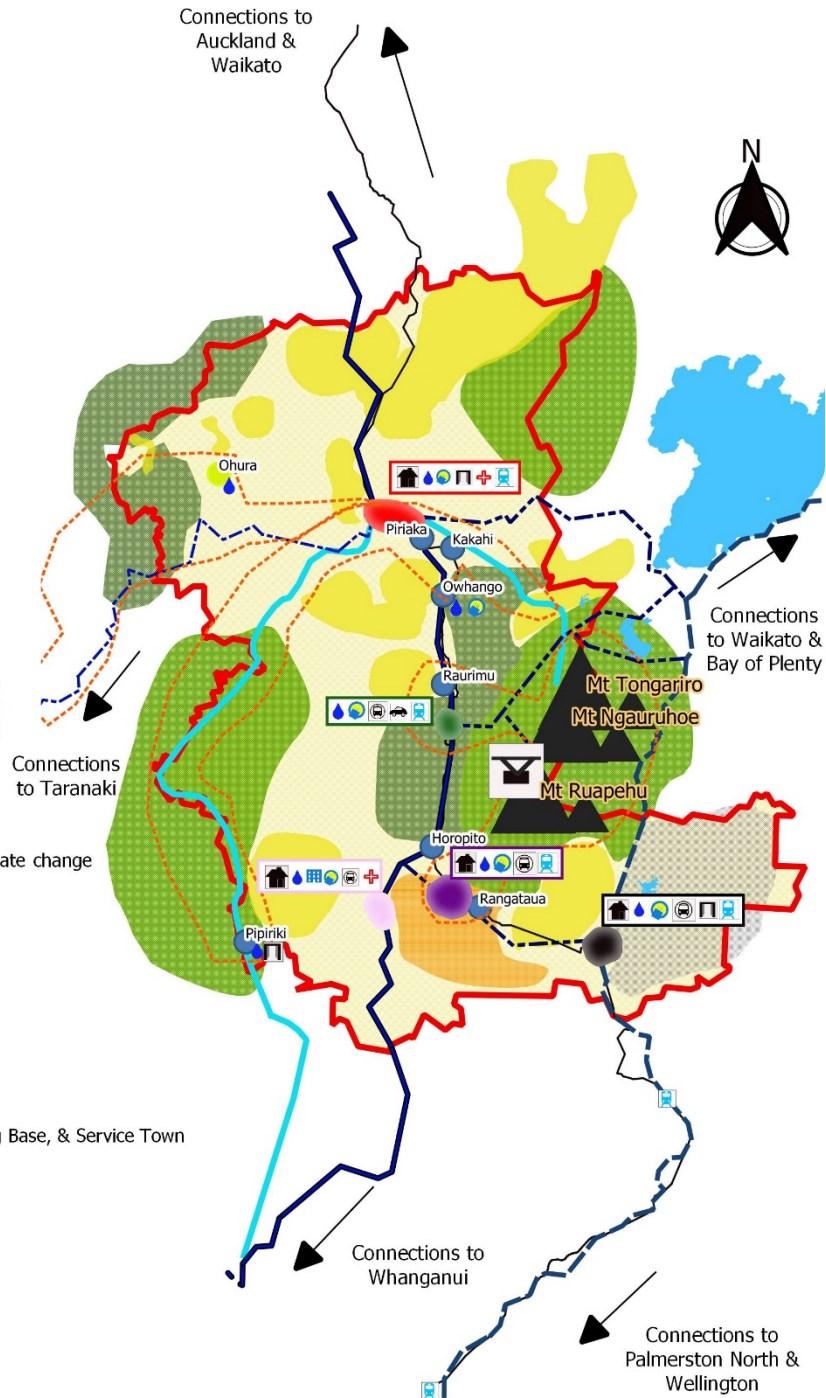
**RESPONDING TO CLIMATE CHANGE**

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

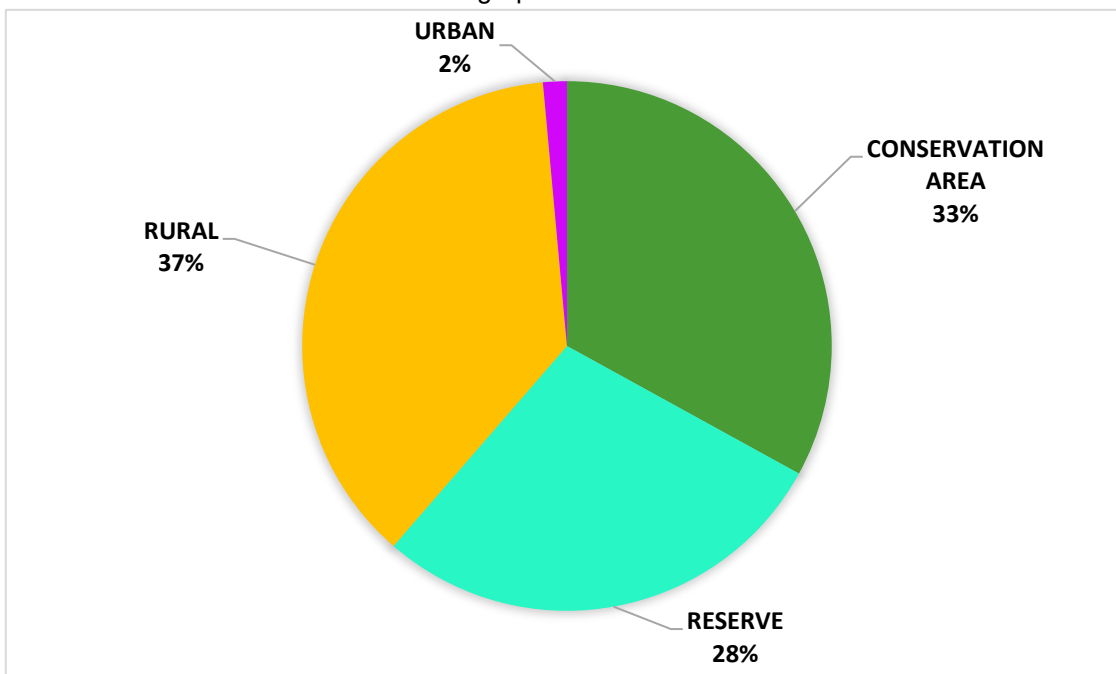
## ENVIRONMENTAL

### THE PLACE

The Ruapehu District is a land-locked area covering 6,733km<sup>2</sup>, 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 2090<sup>1</sup>. 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*).

<sup>1</sup> 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

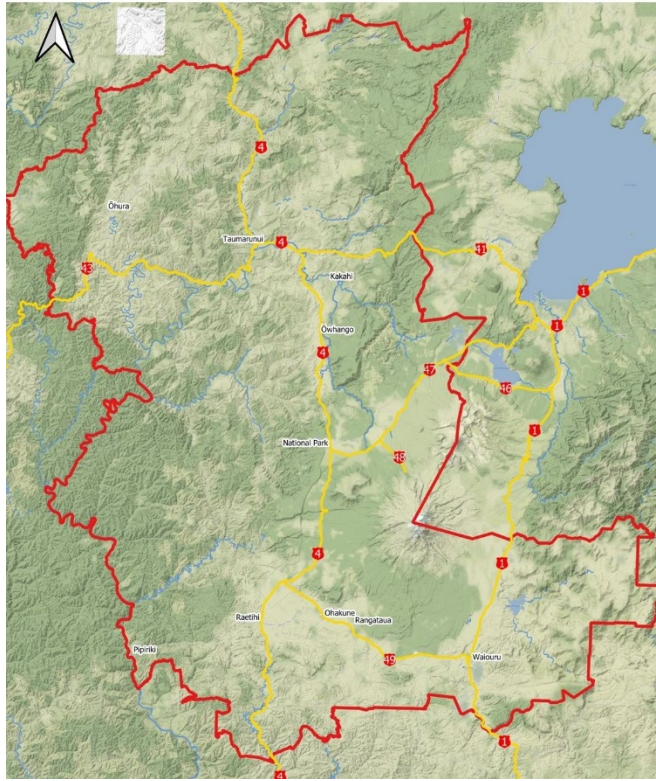
### CULTURAL

#### 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 economy<sup>2</sup>.

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 respectively<sup>3</sup>.

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)<sup>4</sup>. 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 194m<sup>5</sup>.

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

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

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

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

<sup>5</sup> 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 alone<sup>6</sup>



<sup>6</sup> 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.

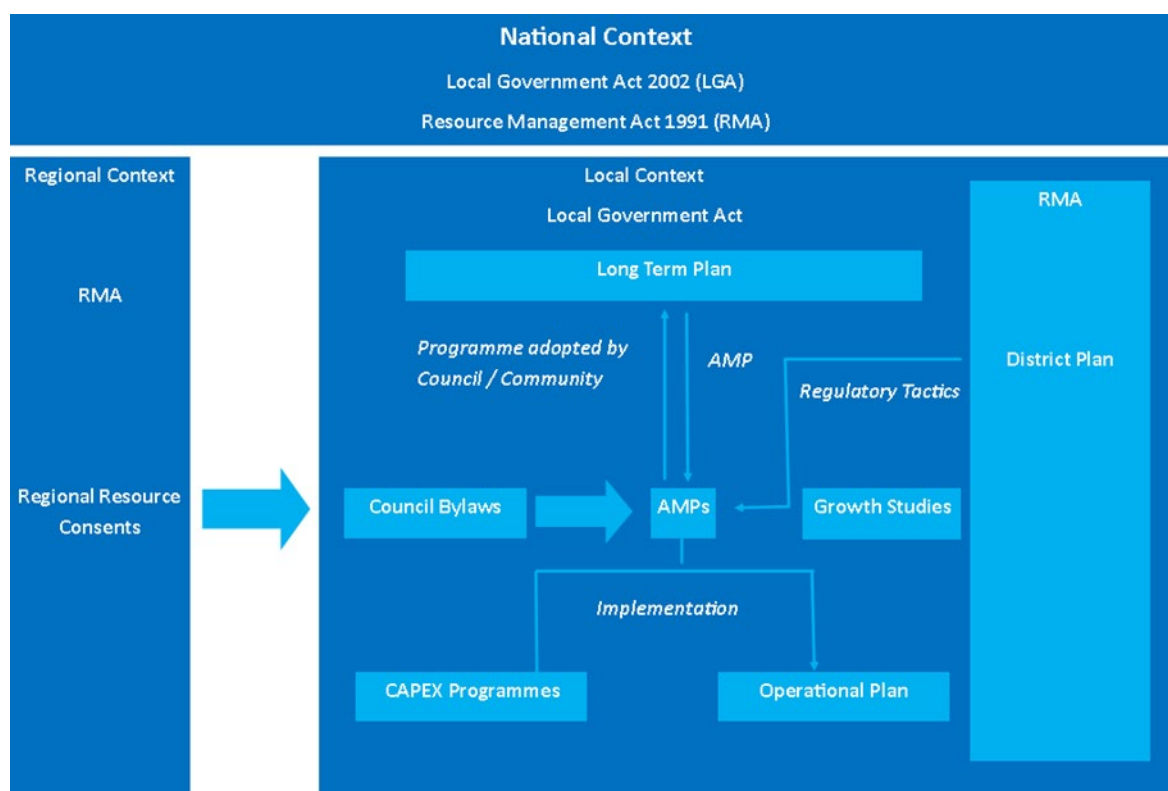
## FUTURE IMPROVEMENTS

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.

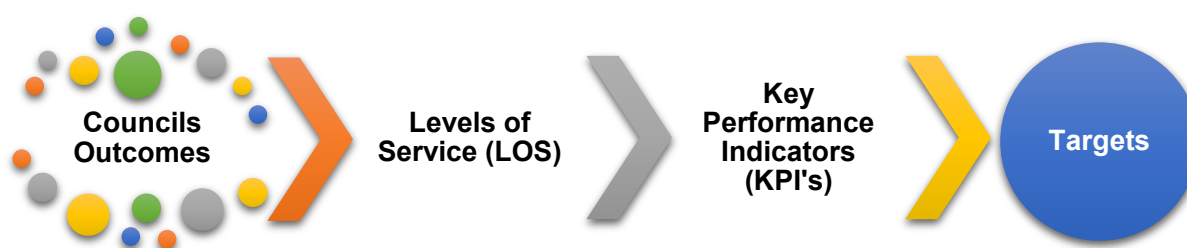
The AMPs detail the Goals, Levels of Service, KPIs and the targets which contribute to the organisation's Vision and Mission. They also identify demand changes and risks.

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:

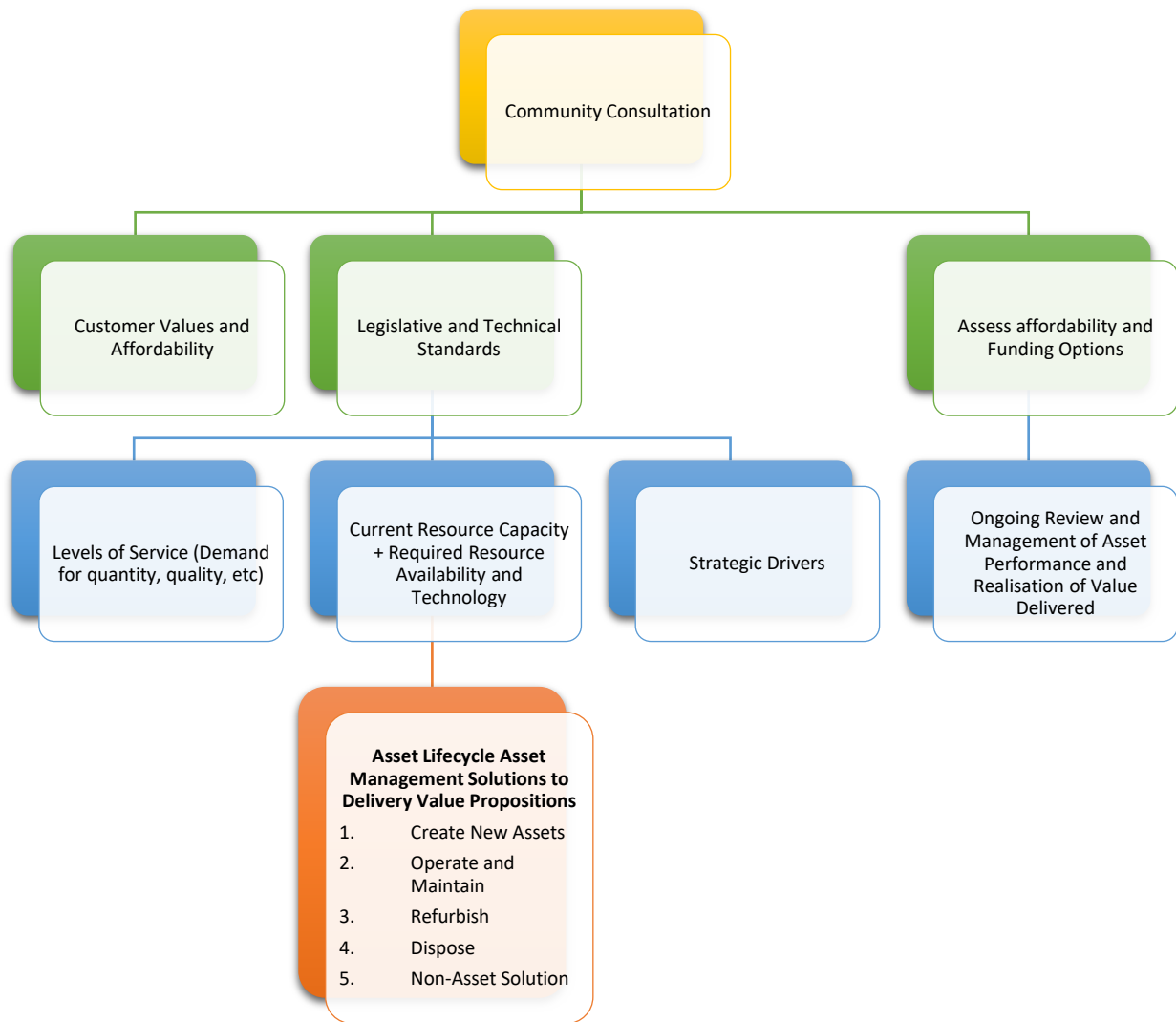
- (a) Planned outcomes
- (b) Legislative requirements
- (c) Technical constraints
- (d) Community affordability

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

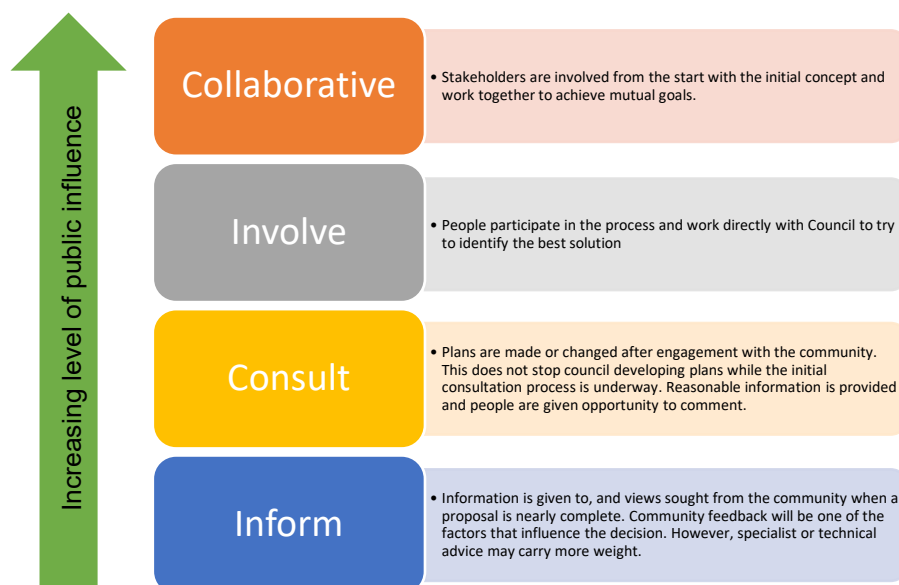
## COUNCILS OBLIGATIONS AND ENGAGEMENT APPROACH

All Community Engagement is undertaken in reference to Council's Engagement Strategy 2020, the RDC Significance and Engagement Policy<sup>7</sup>, 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.



<sup>7</sup> (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"> <li>a) Affordability of National Park plan.</li> <li>b) Timing of non-commercial visitor rate increase</li> </ul>
Ohura	8	425	<ul style="list-style-type: none"> <li>a) Concerned about water quality</li> <li>b) Supportive of the proposed Forestry Targeted Rate increase</li> <li>c) Encourage council to Maintain &amp; retain community assets</li> </ul>
Waiouru	5	1200	<ul style="list-style-type: none"> <li>a) Safety and parking issues at playground cost of housing winter workers</li> <li>b) Concerned about rate levels</li> </ul>
Taumarunui	23	1500	<ul style="list-style-type: none"> <li>a) Rate rises</li> <li>b) Impact of forestry on roading,</li> <li>c) Toilet and playground upgrades in central Taumarunui,</li> <li>d) Housing- agree that housing is an issue and wants to see council do something about it.</li> <li>e) Improving conversation, consultation and collaboration with Maori</li> </ul>

<b>Raetihi</b>	14	692	a) Forestry b) Options for three waters c) Housing, d) Need for banking services/ hub in town
<b>Owhango</b>	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
<b>Ohakune</b>	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.

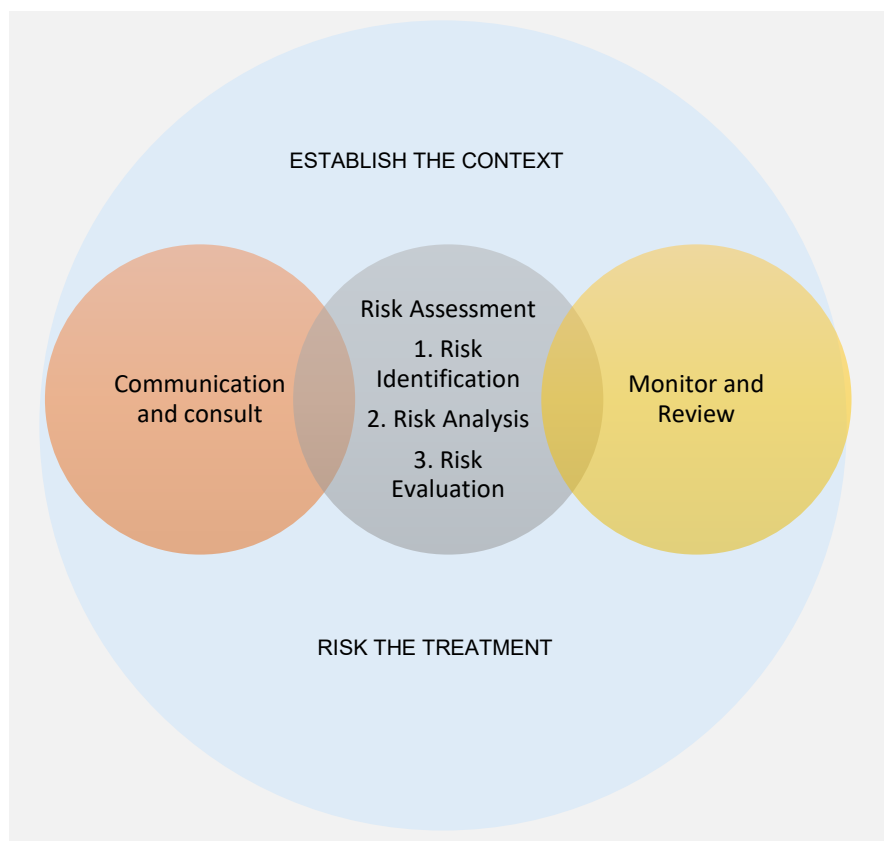
RDC’s risk assessment framework is simplified from the Joint Australian New Zealand International Standard: Risk Management – Principles and Guidelines (AS/NZS ISO 31000:2009).

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

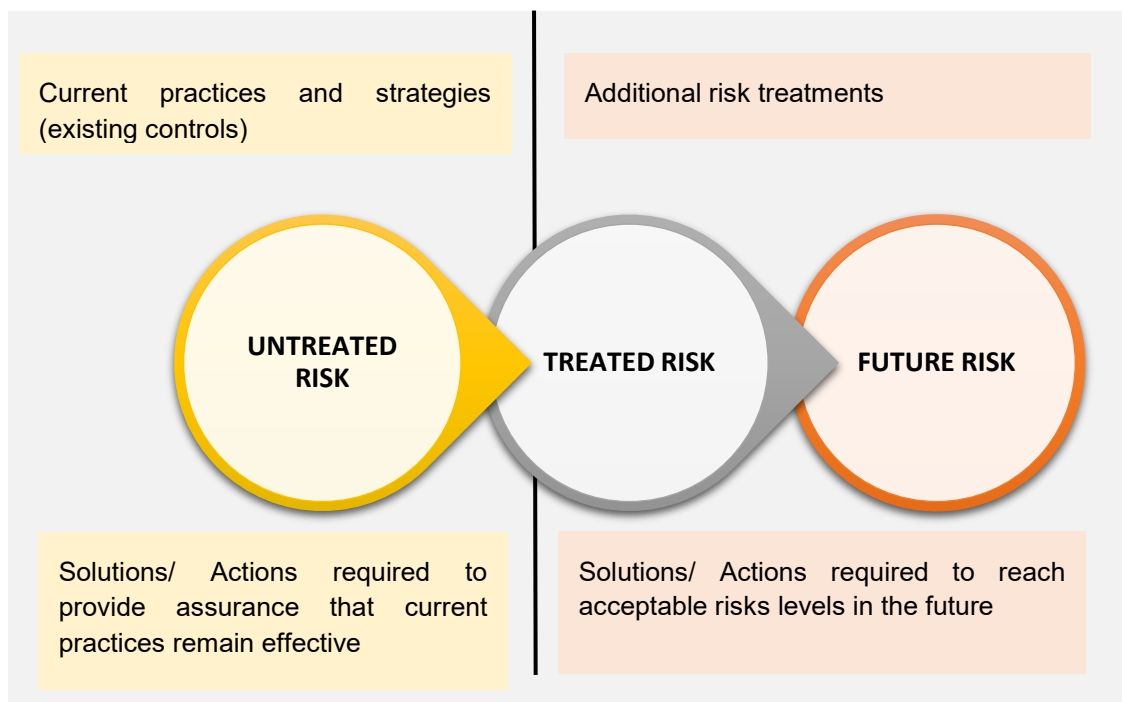
The risk management process is designed to ensure that:

- (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	Consequence Rating	Cost	People	Assets (Critical LOS reduced)	Environment	Consequence Rating	Cost	People	Assets (Critical LOS reduced)	Environment		
Insignificant (1)	< \$200		Small number of facilities for a short time		Low	Low	Med	Med	High	Will occur in most circumstances	90% chance					
Minor (2)	< \$2k	First aid	Localised effects	Minor damage of local importance	Low	Low	Med	High	High	Probably occur in most circumstances	67% chance					
Significant (3)	< \$200k	Off work injury, inability to recruit	Whole community for > 2 hours	Serious damage of local importance	Low	Med	High	High	High	Should occur at some time	17% chance					
Major (4)	< \$1m	Hospital: Long term stress	Isolated areas for > 2 weeks	Serious damage of regional importance	Med	High	EXT	EXT	EXT	Could occur at some time	3% chance					
Catastrophic (5)	> \$1m	Death: Pandemic	Whole community for > 1 week	Serious damage of national importance	High	High	EXT	EXT	EXT	May occur in exceptional circumstances	1% chance					

## 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
<b>Health Safety &amp;</b>	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
<b>Human Resources</b>	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	
<b>Reputation</b>	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
<b>Operational External -</b>	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
	<b>Example</b>		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
<b>Operational Internal</b>	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
<b>Project Management</b>	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
<b>Environmental Protection</b>	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
<b>Legal Regulatory Compliance</b>	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:

- (a) All expenditure is stated in dollar values as at December 2020, with allowances made for inflation over the ten year planning period.
- (b) 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	
<b>A</b>	Highly Reliable	Data based on sound records, procedures, investigations and analysis which is properly documented and recognised as the best method of assessment.
<b>B</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.
<b>C</b>	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.
<b>D</b>	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)<sup>8</sup>, 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 methodology<sup>9</sup>, 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.

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

<sup>9</sup> 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)
<b>Otagiwai – Heao: 345.67 SQ KM</b>	Otagiwai – Ohura: 2011.70 SQ KM
<b>Ohura: 3.25 SQ KM</b>	
<b>Ngapuke: 1285.11 SQ KM</b>	Ngapuke: 621.83 SQ KM
<b>Tarrangower: 3.17 SQ KM</b>	Taumarunui North: 3.595 SQ KM
<b>Taumarunui Central: 6.88 SQ KM</b>	Taumarunui Central: 5.54 SQ KM
<b>Sunshine – Hospital Hill: 5.15 SQ KM</b>	
<b>Manunui: 5.04 SQ KM</b>	Taumarunui East: 4.52 SQ KM
<b>Raurimu: 1366.36 SQ KM</b>	National Park: 1375.28 SQ KM
<b>203 National Park: 0.89 SQ KM</b>	
<b>Owhango: 0.93 SQ KM</b>	
<b>Tangiwai: 2693.58 SQ KM</b>	Tangiwai: 2696.63 SQ KM
<b>Raetihi: 3.89 SQ KM</b>	Raetihi: 3.86 SQ KM
<b>Ohakune: 8.47 SQ KM</b>	Ohakune: 6.44 SQ KM
<b>Waiouru: 5.79 SQ KM</b>	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
<b>1. LEGISLATIVE / CENTRAL GOVT</b>			
<b>The proposed Local Government (Rating of Whenua Maori) Amendment Bill is passed</b>	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
<b>Taumata Arowai—the Water Services Regulator Act 2020 is passed</b>	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
<b>Infrastructure Funding and Financing Act 2020 is passed</b>	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
<b>Potential Resource Management Act Amendments</b>	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
<b>Declaration of Climate Emergency</b>	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
<b>Climate Change Response (Zero Carbon) Amendment Act 2019</b>	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
<b>COVID-19</b>			
<b>New Zealand borders will remain closed to international tourists and visitors until at least 2021</b>	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
<b>Another outbreak of COVID will usher in another level 3 - 4 lock down</b>	There is a risk that a level 3 or 4 lock down will be imposed on Ruapehu communities.	Likely	Significant
<b>Levels of Service</b>	The assumption has been made that there will be no changes to levels of service.	Likely	Low
<b>2. POPULATION / GROWTH</b>			
<b>Increase in Usually Resident Population (URP) in all townships (SA2's) within the District</b>	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
<b>Proportion of under 5's and over 70's set to increase</b>	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
<b>Increase in Peak Population in all townships within the District</b>	<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"> <li>- The Peak Population of all townships will experience yearly growth ranging from 0.77% - 2.2% per year.</li> <li>- The total District Peak Population is set to increase 12% between 2021 - 2031.</li> </ul>	Likely	Moderate
<b>3. INFRASTRUCTURE</b>			
<b>Assets and asset lives (replacement, revaluation, depreciation)</b>	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
<b>State highway 4 (Whanganui-Raetihi Road)</b>	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
<b>Ohakune Water Treatment Plant</b>	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
<b>Subdivisions and Land Use</b>	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
<b>Resource Consents</b>	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
<b>Rateable Assessments</b>	The assumption has been made that the number of rateable assessments will continue to experience small scale growth of approximately 0.16%	Likely	Neutral
<b>4. ECONOMY</b>			
<b>Tourism and visitor numbers continue to rely on domestic tourism</b>	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
<b>The number of holiday homes will continue to increase in each of the three major urban areas</b>	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
<b>5. NATURAL ENVIRONMENT</b>			
<b>Occurrence of Natural Disasters</b>	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
<b>Increase in rainfall</b>	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
<b>Increase in average annual temperature</b>	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
<b>Decrease in snowfall</b>	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
<b>6. FINANCIAL</b>			
<b>Rates Receivables (Debtors)</b>	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
<b>External Funding For Roads</b>	<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
<b>Vested Assets</b>	The assumption has been made that no Vested Assets have been budgeted over the next ten years	Neutral	Low
<b>Government subsidies</b>	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
<b>Inflation</b>	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
<b>CAPEX Feasibility - Three Waters</b>	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
<b>CAPEX Feasibility - Other Works</b>	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
<b>Interest rates</b>	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
<b>5 – Very likely</b>	Significant
<b>4 – Likely</b>	Moderate
<b>3 – Neutral</b>	Low
<b>2 – Unlikely</b>	
<b>1 – Very unlikely</b>	

## 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 arrangements<sup>10</sup>. 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

<sup>10</sup> <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 land<sup>11</sup>. 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 infrastructure<sup>12</sup>.

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

<sup>11</sup> [https://www.parliament.nz/en/pb/sc/make-a-submission/document/52SCTI\\_SCF\\_BILL\\_93461/infrastructure-funding-and-financing-bill](https://www.parliament.nz/en/pb/sc/make-a-submission/document/52SCTI_SCF_BILL_93461/infrastructure-funding-and-financing-bill)

<sup>12</sup> [https://www.parliament.nz/en/pb/hansard-debates/rhr/combined/HansDeb\\_20191217\\_20191217\\_48](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
<b>Number of people</b>	12,309	238,797	4,699,755
<b>Median age</b>	39.0 years	39.4 years	37.4 years
<b>Males</b>	6,288	117,123	2,319,558
<b>Females</b>	6,021	121,671	2,380,197
<b>Number of Māori</b>	5,337	54,570	775,836
<b>Māori median age</b>	27.0 years	25.0 years	25.4 years

### Overview of District Demographics

Statistics New Zealand, InfoShare<sup>13</sup>, 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.

<sup>13</sup> <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 <sup>14</sup>				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			
<b>Total population</b>	<b>13,572</b>	<b>100.0</b>	<b>100.0</b>	<b>11,847</b>	<b>100.0</b>	<b>100.0</b>	<b>12,309</b>	<b>100.0</b>	<b>100.0</b>			

### Summary of Past Service Age Groups

The above table in summary:

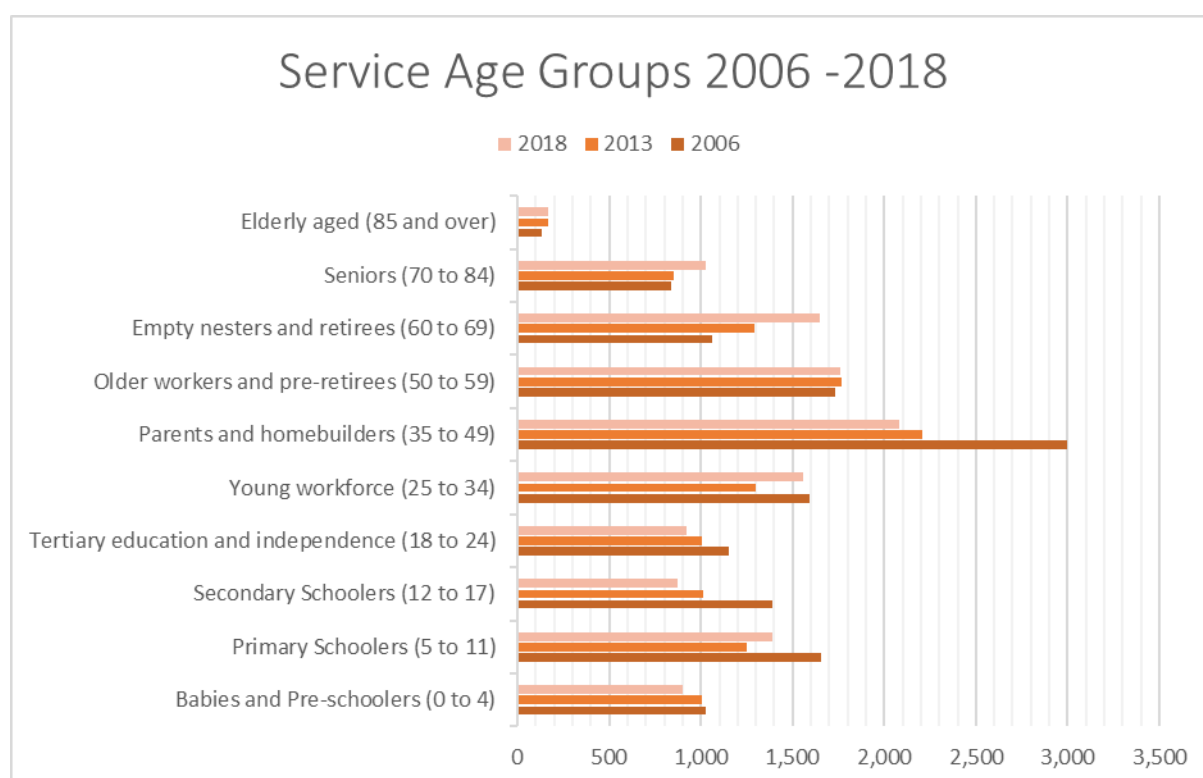
SERVICE AGE GROUP (YEARS) <sup>15</sup>	2006	2013	2018
Babies and Pre-schoolers (0 to 4)	1,026	1,002	900
Primary Schoolers (5 to 11)	1,653	1,251	1,389
Secondary Schoolers (12 to 17)	1,389	1,014	870
Tertiary education and independence (18 to 24)	1,149	1,005	918
Young workforce (25 to 34)	1,593	1,296	1,557
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
<b>Total population</b>	<b>13,572</b>	<b>11,847</b>	<b>12,309</b>

<sup>14</sup> Profile ID

<sup>15</sup> 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)

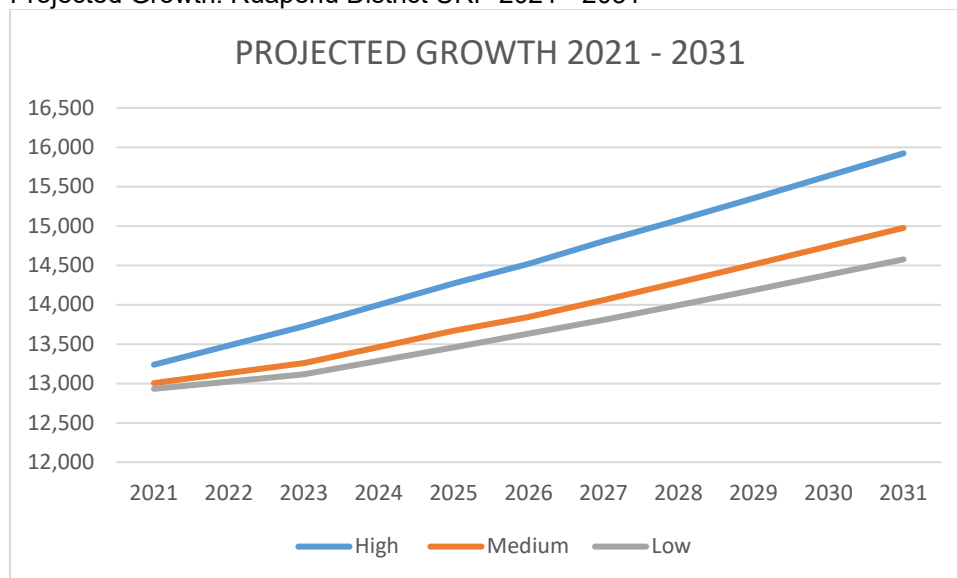
Council engaged with Infometrics to provide the projected population for the Ruapehu District out to 2053. Staff utilised this information in order to prepare projected population at SA2 levels out to 2031. Due to COVID, Infometrics have since provided three sets of possible projections all of which 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

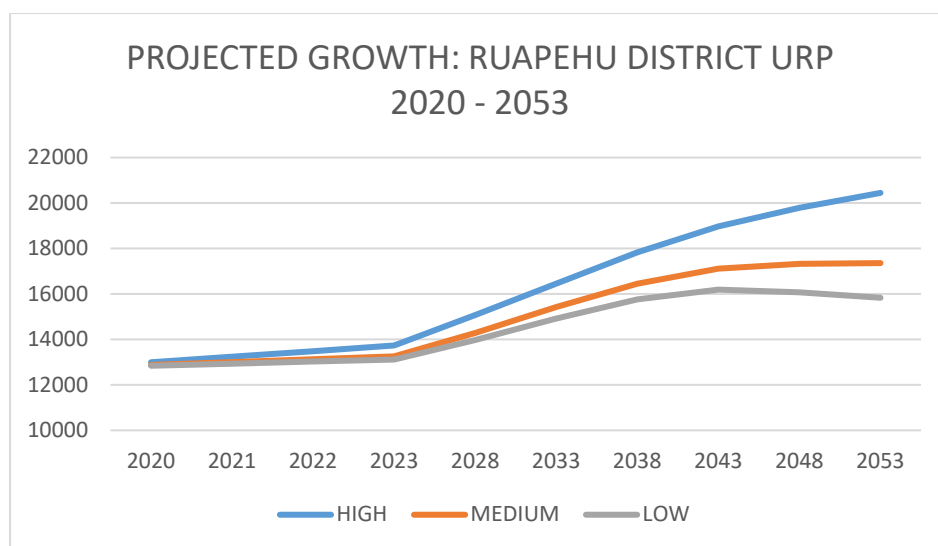
Projected Growth: Ruapehu District URP 2021 - 2031



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
<b>HIGH</b>	1.915	1.879	1.845	1.811	1.967	1.833	1.663	1.288	0.852	0.669
<b>MEDIUM</b>	0.998	0.988	0.978	0.969	1.543	1.592	1.343	0.810	0.233	0.043
<b>LOW</b>	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.

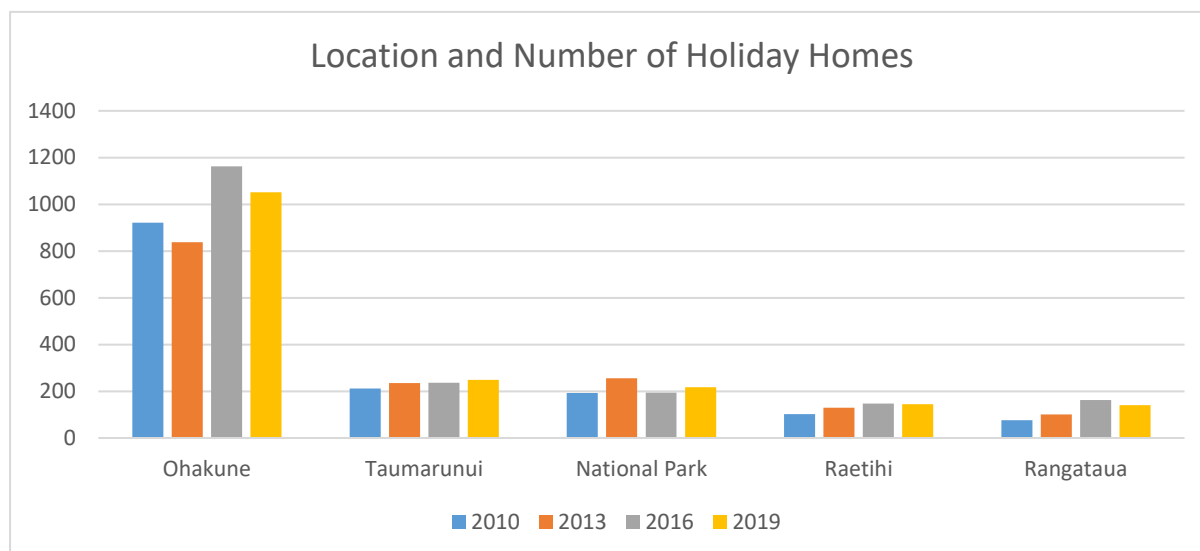
## LOCATION AND NUMBER OF HOLIDAY HOMES

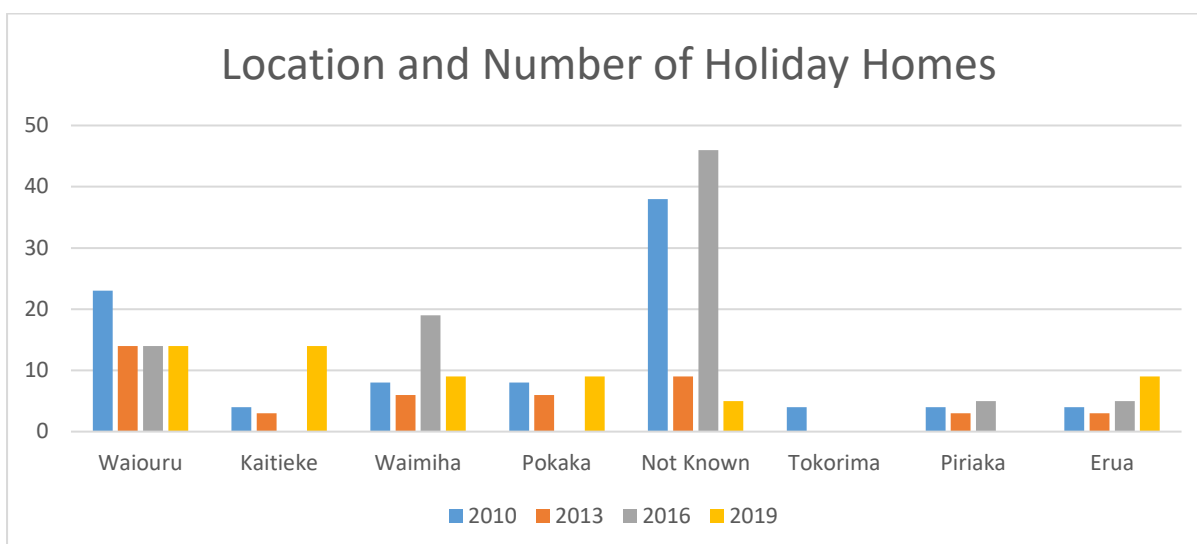
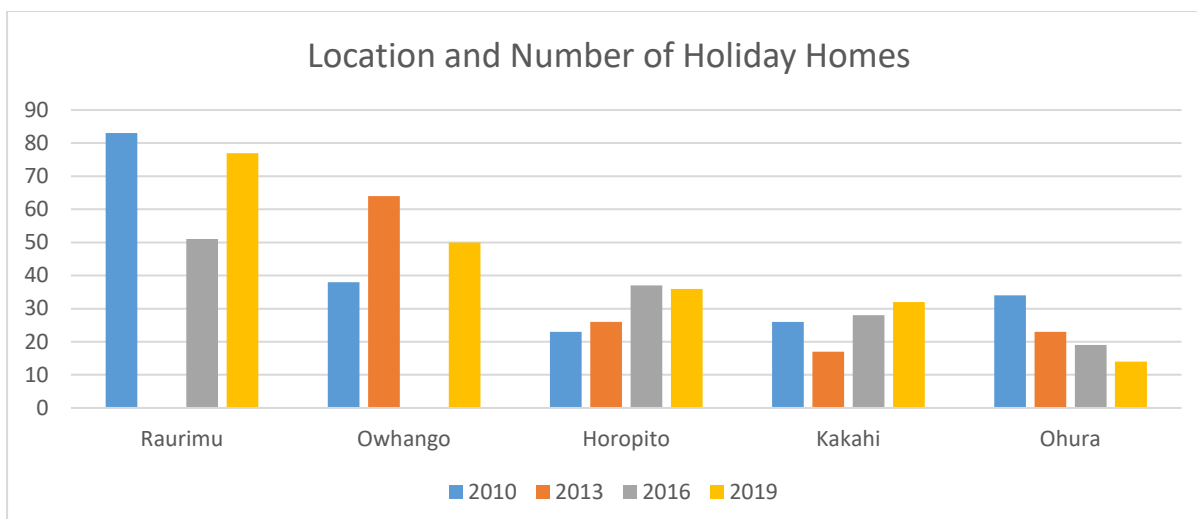
The table below reports the estimated number of holiday homes owned by non-resident rate payers in 2010, 2013, 2016 and 2019. It does not include rental homes owned by non-resident rate payers nor does it include holiday homes owned by residents living within the district. As stated above, this information 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
<b>TOTAL</b>	<b>1802</b>	<b>1733</b>	<b>2126</b>	<b>2071</b>
<b>Return Rate</b>	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
<b>TOTAL</b>	<b>7625</b>	<b>9992</b>	<b>9526</b>

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
<b>Projected number of holiday homes</b>	2125	2152	2179	2206	2233	2260	2287	2314	2341	2368	2395
<b>Projected population peak</b>	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
<b>Ohakune</b>	4,997	5,060	5,124	5,188	5,251	5,314	5,378	5,441	5,505	5,569	5,632
<b>Taumarunui</b>	1,173	1,188	1,203	1,218	1,233	1,248	1,262	1,277	1,292	1,307	1,322
<b>National Park</b>	1,089	1,103	1,117	1,130	1,144	1,158	1,172	1,186	1,200	1,213	1,227
<b>Raetihi</b>	652	660	669	677	685	693	702	710	718	727	735
<b>Rangataua</b>	586	593	600	608	615	623	630	638	645	652	660
<b>Raurimu</b>	338	343	347	351	355	360	364	368	373	377	381
<b>Owhango</b>	257	260	264	267	270	273	277	280	283	286	290

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

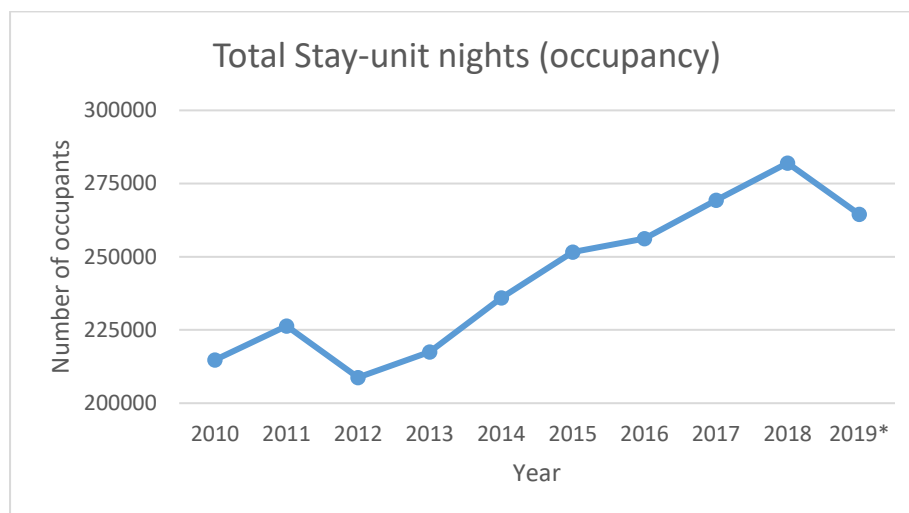
	<b>Average # of accom. units</b>	<b>Average Daily Capacity (stay units)</b>	<b>Average Occupancy Rate (%)</b>	<b>Total Stay unit nights (occupancy)</b>	<b>Average length of stay (days)</b>	<b>Average # Guests per stay-unit night</b>
<b>2010</b>	50	2,503	23.5	214,754	1.76	1.77
<b>2011</b>	51	2,402	25.81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

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



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

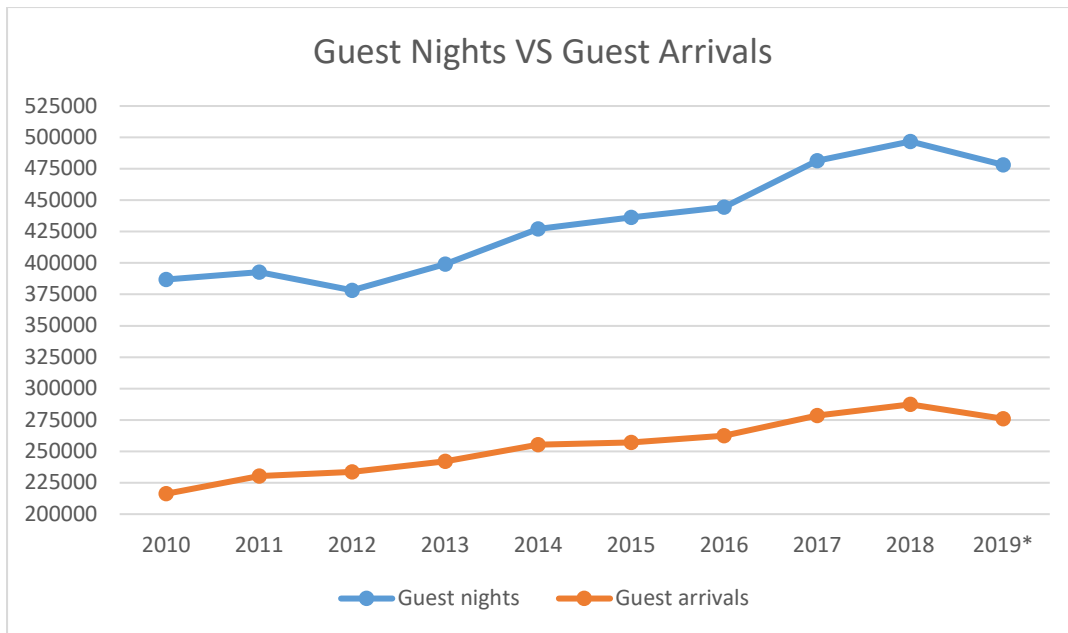
*Commercial Accommodation Averages*



Percentage change in occupancy	
<b>2010</b>	5.42%
<b>2011</b>	-7.78%
<b>2012</b>	4.20%
<b>2013</b>	8.49%
<b>2014</b>	6.62%
<b>2015</b>	1.81%
<b>2016</b>	5.11%
<b>2017</b>	4.71%
<b>2018</b>	-6.21%
<b>2019*</b>	
Average increase per year 2.49%	

*CAM Percentage Change in Occupancy*

<sup>17</sup> 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												
<b>URP</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>
<b>High</b>	1083	1104	1124	1144	1167	1190	1211	1234	1257	1280	1303	1327
<b>Medium</b>	1074	1084	1095	1105	1122	1140	1154	1172	1191	1210	1229	1249
<b>Low</b>	1071	1078	1086	1093	1108	1122	1136	1151	1167	1183	1199	1215
<b>Holiday Homes</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>
<b>Medium</b>	155	157	159	161	163	165	167	169	171	173	175	177
<b>CAM</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>
<b>High</b>	55	55	55	55	55	55	55	55	55	55	55	55
<b>Medium</b>	48	48	48	48	48	48	48	48	48	48	48	48
<b>Low</b>	42	42	42	42	42	42	42	42	42	42	42	42
<b>Day Visitors</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>
<b>High</b>	55	55	55	55	55	55	56	56	56	56	56	57
<b>Medium</b>	48	48	48	48	48	48	48	48	48	48	48	48
<b>Low</b>	42	42	42	42	42	42	41	41	41	41	41	42
<b>Total</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>
<b>High</b>	1349	1371	1393	1416	1440	1465	1489	1515	1539	1564	1590	1616
<b>Medium</b>	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												
<b>URP</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>
<b>High</b>	1102	1122	1143	1164	1187	1210	1231	1255	1278	1302	1326	1350
<b>Medium</b>	1092	1103	1113	1124	1141	1159	1174	1192	1211	1230	1250	1270
<b>Low</b>	1089	1096	1104	1112	1126	1141	1156	1171	1187	1203	1219	1236
<b>Holiday Homes</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>
<b>Medium</b>	644	652	660	669	677	685	693	702	710	718	727	735
<b>CAM</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>
<b>High</b>	109	109	109	109	109	109	109	109	109	109	109	109
<b>Medium</b>	96	96	96	96	96	96	96	96	96	96	96	96
<b>Low</b>	83	83	83	83	83	83	83	83	83	83	83	83
<b>Day Visitors</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>
<b>High</b>	109	109	109	109	109	111	111	111	111	111	111	113
<b>Medium</b>	83	83	83	83	83	83	83	83	83	83	83	83
<b>Low</b>	63	63	63	63	63	63	63	63	63	63	63	63
<b>Total</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>
<b>High</b>	1963	1992	2021	2050	2082	2115	2145	2177	2209	2240	2272	2307
<b>Medium</b>	1915	1934	1953	1972	1997	2023	2046	2073	2100	2127	2155	2184
<b>Low</b>	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

<b>TAUMARUNUI (CENTRAL, EAST AND NORTH - THREE SA2'S COMBINED)</b>												
<b>URP</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>
<b>High</b>	4941	5034	5127	5220	5322	5427	5521	5630	5733	5838	5945	6054
<b>Medium</b>	4896	4945	4993	5042	5119	5198	5264	5346	5431	5517	5605	5694
<b>Low</b>	4883	4917	4952	4987	5051	5117	5183	5250	5322	5394	5468	5542
<b>Holiday Homes</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>
<b>Medium</b>	1158	1173	1188	1203	1218	1233	1248	1262	1277	1292	1307	1322
<b>CAM</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>
<b>High</b>	436	436	436	436	436	449	449	449	449	463	463	463
<b>Medium</b>	385	385	385	385	385	385	385	385	385	385	385	385
<b>Low</b>	334	334	334	334	334	327	327	327	327	321	321	321
<b>Day Visitors</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>
<b>High</b>	436	436	436	436	436	449	449	449	449	463	463	463
<b>Medium</b>	385	385	385	385	385	385	385	385	385	385	385	385
<b>Low</b>	334	334	334	334	334	327	327	327	327	321	321	321
<b>Total</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>
<b>High</b>	6971	7079	7187	7294	7412	7558	7667	7790	7909	8056	8177	8301
<b>Medium</b>	6825	6888	6951	7014	7107	7201	7282	7378	7478	7579	7682	7786
<b>Low</b>	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
<b>NATIONAL PARK</b>												
Medium	4330	4363	4395	4428	4467	4553	4589	4629	4670	4759	4800	4842
<b>NGAPUKE</b>												
Low	1515	1528	1541	1554	1575	1597	1618	1640	1664	1687	1711	1736
<b>OHAKUNE</b>												
High	9457	9544	9631	9718	9808	10061	10149	10239	10329	10591	10682	10773
<b>OTANGIWAI - OHURA</b>												
Low	1310	1320	1329	1339	1355	1371	1387	1404	1422	1439	1458	1477
<b>RAETIHI</b>												
Low	1878	1894	1910	1926	1949	1972	1995	2018	2043	2067	2092	2117
<b>TANGIWAI</b>												
Low	2263	2282	2301	2321	2348	2376	2403	2432	2461	2491	2520	2550
<b>TAUMARUNUI (CENTRAL, EAST AND NORTH - THREE SA2'S COMBINED)</b>												
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												
<b>Total Peak POP</b>	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*

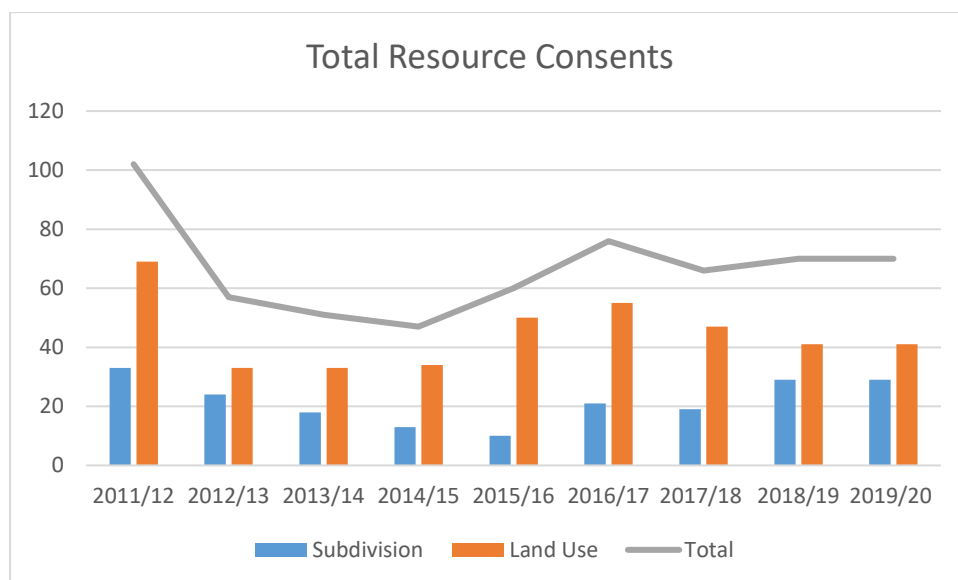
## RESOURCE CONSENTS

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



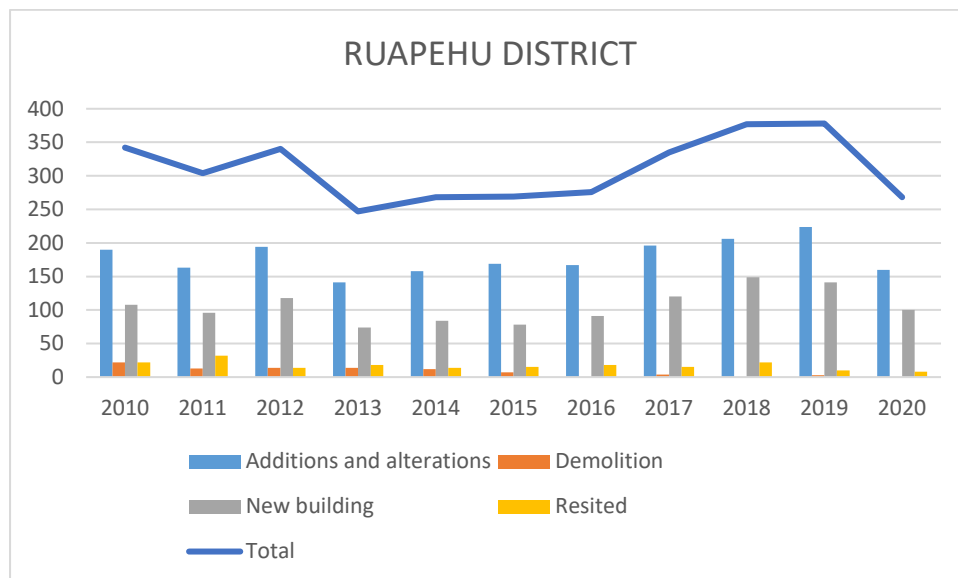
## BUILDING CONSENTS

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
<b>Total</b>	<b>342</b>	<b>304</b>	<b>340</b>	<b>247</b>	<b>268</b>	<b>269</b>	<b>276</b>	<b>335</b>	<b>377</b>	<b>378</b>	<b>268</b>	<b>3404</b>

Ruapehu District: Building Consents

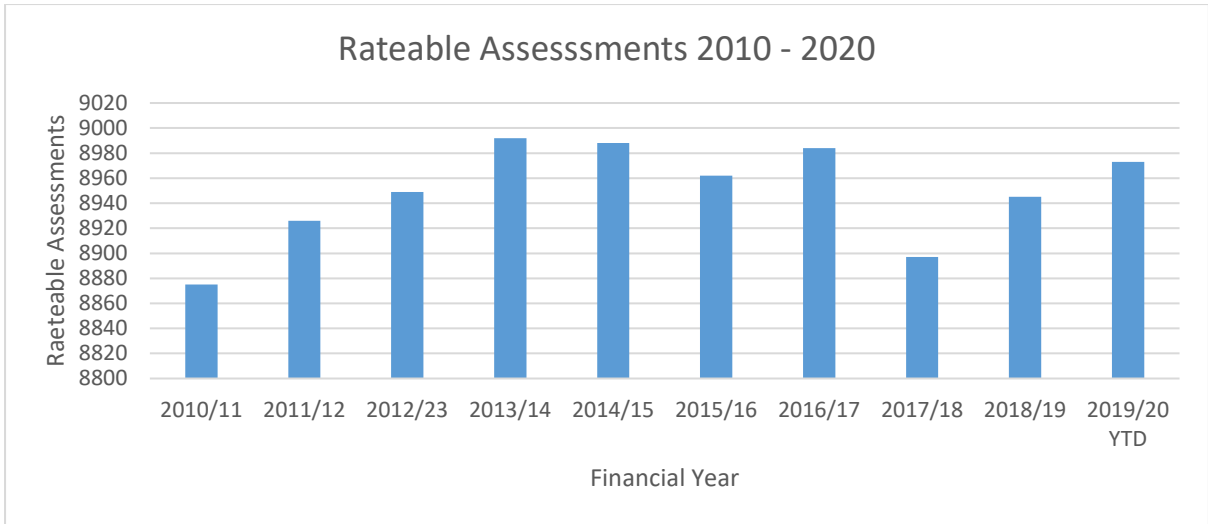


### RATEABLE ASSESSMENTS

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).

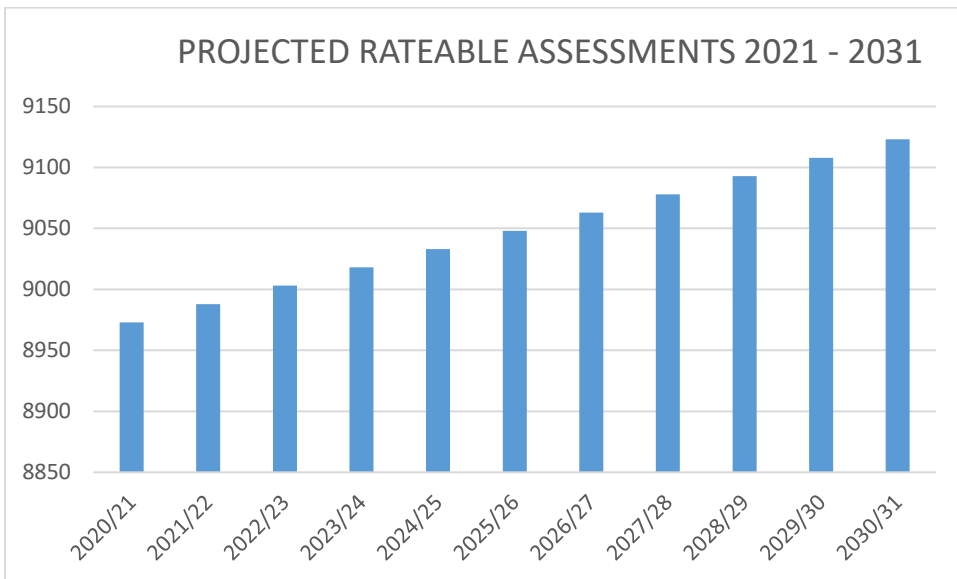
YEAR	RATEABLE ASSESSMENTS
2010/11	8875
2011/12	8926
2012/23	8949
2013/14	8992
2014/15	8988
2015/16	8962
2016/17	8984
2017/18	8897
2018/19	8945
2019/20 YTD	8973

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:

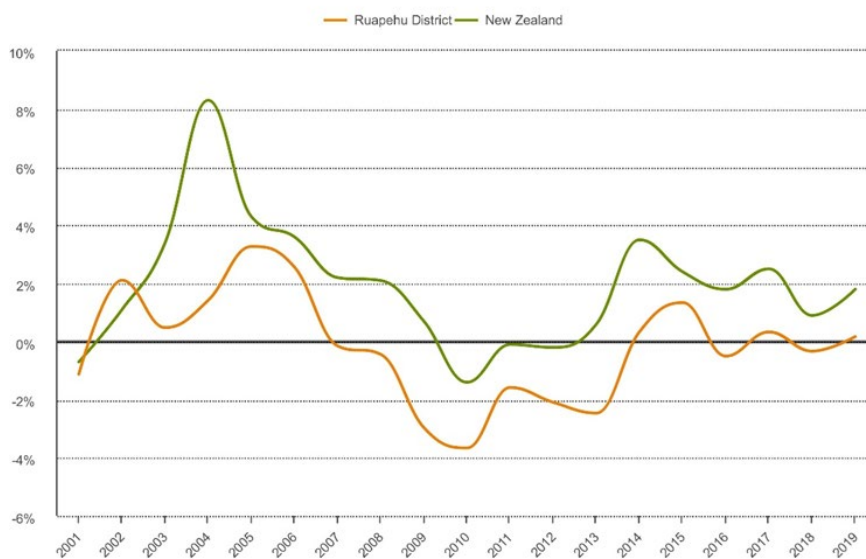
Ruapehu GDP contribution by Industry		
Industry	\$million	Share of total
Central Gov Admin, Defence & Safety	91	12.50%
Sheep, Beef Cattle & Grain Farming	78.8	10.80%
Property Operators & Real Estate Services	44.3	6.10%
Arts & Recreation Services	36.5	5.00%
Accommodation & Food Services	33	4.50%
Education & 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.<sup>18</sup>

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%



<sup>18</sup> 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' report<sup>19</sup> 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 CO<sub>2</sub> presently in our atmosphere (low emissions)
- (b) RCP 4.5 and RCP 6.0 = stabilisation of current CO<sub>2</sub> levels
- (c) RCP 8.5 = high concentration of CO<sub>2</sub> (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)**

<sup>19</sup> 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 2018<sup>20</sup>. The following changes are projected for the Manawatu-Wanganui region.<sup>21</sup>

## 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 <sup>22</sup> :	
<b>Spring</b>	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

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

<sup>21</sup> 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).

<sup>22</sup> 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

<b>Summer</b>	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
<b>Autumn</b>	0.7°C to 3.2°C temperature rise 5 per cent less to 2 per cent more rainfall in Whanganui and Taumarunui
<b>Winter</b>	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			
<b>Rates Receivables (Debtors)</b>	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
<b>External Funding For Roads</b>	<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
<b>Vested Assets</b>	The assumption has been made that no Vested Assets have been budgeted over the next ten years	Neutral	Low
<b>Government subsidies</b>	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



<b>Inflation</b>	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
<b>CAPEX Feasibility - Three Waters</b>	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
<b>CAPEX Feasibility - Other Works</b>	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
<b>Interest rates</b>	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

## 7. REFERENCES

### **Statistics NZ:**

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

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

<https://www.stats.govt.nz/tools/2018-census-place-summaries/ruapehu-district#ethnicity-culture-and-identity>

<https://www.stats.govt.nz/tools/2018-census-place-summaries/ruapehu-district#ethnicity-culture-and-identity>

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

Commercial Accommodation Monitor

### **Legislation.Govt:**

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

### **NZ Parliament:**

[https://www.parliament.nz/en/pb/sc/make-a-submission/document/52SCTI\\_SCF\\_BILL\\_93461/infrastructure-funding-and-financing-bill](https://www.parliament.nz/en/pb/sc/make-a-submission/document/52SCTI_SCF_BILL_93461/infrastructure-funding-and-financing-bill)

[https://www.parliament.nz/en/pb/hansard-debates/rhr/combined/HansDeb\\_20191217\\_20191217\\_48](https://www.parliament.nz/en/pb/hansard-debates/rhr/combined/HansDeb_20191217_20191217_48)

### **Profile ID**

<https://profile.idnz.co.nz/ruapehu/service-age-groups?BMID=30&Sex=2>

<https://profile.idnz.co.nz/ruapehu/ethnic-group?BMID=30&Sex=2>

### **Ministry for the Environment**

<https://www.mfe.govt.nz/sites/default/files/media/Climate%20Change/Climate-change-projections-2nd-edition-final.pdf>

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

### **Infometrics:**

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

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

<https://ecoprofile.infometrics.co.nz/Ruapehu%20District/Employment/Growth>

### **Ruapehu District Council:**

NRR Survey

QUBE: Building Consents; Rating database;

### **Other:**

Ministry of Education

Horizon's Regional Council

# **Stormwater and Flood Protection**

## **Asset Management Plan 2021-31**

### **Part 3 – Stormwater Activity**

## Quality Information

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Document Ref	Stormwater and Flood Protection Asset Management Plan 2020-30
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 Water 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

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### Version 1 (Draft for Audit) – February 2021

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

### Version for Consultation – March 2021

Prepared by:		Group Manager/Reviewed by:		Chief Executive/Approved	
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### Version for Adoption – June 2021

Prepared by:		Group Manager/Reviewed by:		Chief Executive/Approved	
Name	Anne-Marie Westcott Cushla Anich	Name		Name	Clive Manley
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# 1 EXECUTIVE SUMMARY

## 1.1 INTRODUCTION

The Stormwater and Flood Protection Asset Management Plan provides the evidence and financial background to the long-term management and maintenance of Ruapehu District Council's stormwater and flood protection network.

Efficient and effective stormwater and flood protection infrastructure is a key element in the sustainable and healthy development of a community. A developed network of pipes, culverts to drains, and water courses, provides a safe and efficient means of collecting and conducting stormwater through townships.

Through the Stormwater and Flood Protection activity, Council aims to:

- Provide efficient and safe stormwater collection and disposal and flood protection in an effective and environmentally acceptable manner
- Plan for resilience to flooding and safeguard the lives and property of communities during flood events
- Deliver stormwater neutral developments.
- Develop stormwater treatment systems which reduces degradation and contamination of receiving for greenfield developments and then progressively with built infrastructure.

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 the Council Vision, Focus Areas, Outcomes and Key Result Areas. Council recognises, and is managing, increasing stakeholder expectations, and localised areas of increased demand. This plan also links to the Horizon Regional Council's One Plan and Council's 30 Year Infrastructure Strategy.

The Stormwater and Flood Protection assets had a gross replacement cost of \$29.5 million (as at 1 July 2020) across 11 townships. The network includes stormwater reticulation mains (within the 50 kms town zones), public drains, watercourses (30 kms), open drains and associated culverts, manholes and sumps.

## 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	Problem Statement
<b>1 Changing legislation and regulations</b>	The Government is implementing three waters reform including creating standalone Crown entity Taumata Arowai to regulate 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.
<b>2 Public expectations and flooding</b>	Existing infrastructure and water courses in some locations are unable to cope with major flood events resulting in localized floods. Willow and vegetation management is required to prevent pinch points. Flooding effects habitable floors and causes disruption to operations, income and wellbeings. Ohakune, Taumarunui, Raetihi and Ohura are high risk towns to flooding impacts.
<b>3 Community affordability: Existing stormwater network not designed for treatment</b>	The existing stormwater network was not designed to provide stormwater treatment before it enters receiving waters. Treatment systems will become the norm, but the standards have not yet been released. The challenge is in how they are designed and made operationally affordability for the community.

### 1.3 KEY ISSUES

The strategic issues for the stormwater 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. 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 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. Stormwater treatment will also be required with global consents. We need to develop evidence-based strategy and programmes to be more proactive in stormwater quality. We need to be more proactive with reducing the impacts from the road runoff from our local transport network as well as from the state highway network.
- 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.
- Global consents for the Whanganui and Whangaehu Rivers.
- Accounting for climate change impacts and implementing new design and environmental regulations with scarce resources.

### 1.4 LEVELS OF SERVICE

Levels of service have been developed that combine the expectations and requirements of legislation, industry standards, users, stakeholders, and the Council. They cover:

- The habitable floor safety provided by the stormwater system
- The adequacy and operation of the stormwater network
- Responsiveness to problems with the stormwater system
- Customer satisfaction.

The levels of service for stormwater and flood protection are:

**Table 2: Service level summary for stormwater**

Community Outcomes	Key Attribute	Levels of service
Safe, healthy communities	Safety – flood protection	Stormwater systems protect houses from flooding in urban areas
	Quality – reliability	To provide reliable stormwater networks
	Responsiveness	To provide prompt responses for service
Thriving, natural environment	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 flood protection, responsiveness to faults, customer complaints, and full compliance with the consent requirements.

The current levels of service are mainly for meeting the mandatory performance measures. It is expected that capital improvements will be required to meet the new comprehensive stormwater consent, National Policy Statement for Freshwater Management 2020, and stormwater quality management.

## 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 Stormwater and Flood Protection activity are:

- Flooding, slips
- Unavailability of urban roads, flooding
- Pollution incidents, breach of discharge consent conditions, illness and environmental damage
- Inefficient management of assets, significant assets or service failure occurs with no management plan
- Extreme weather events
- Ohakune's main centre businesses are built over culverted waterways which terminate into the Mangatetei Stream.

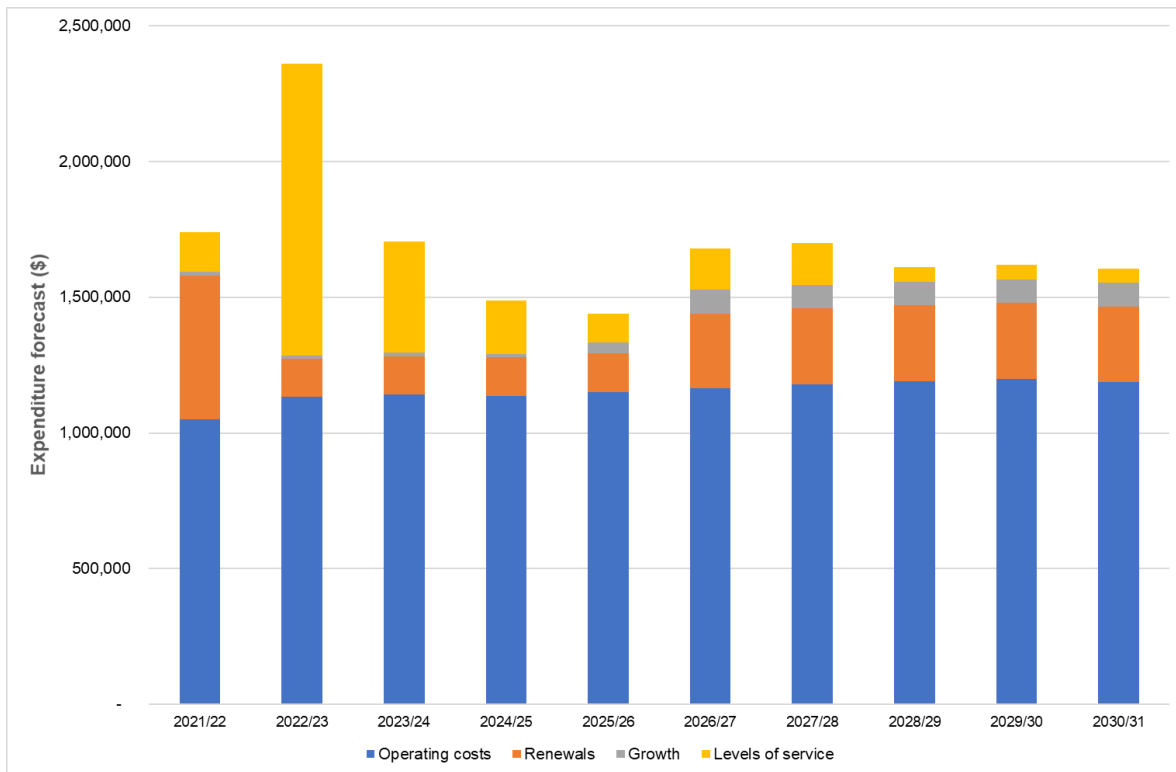
These risks are managed with existing controls including condition monitoring, maintenance history analysis, targeted renewal programmes, response planning, and Horizons ownership / management of flood control schemes.

Climate change directly impacts the stormwater 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. Seismic resistant materials are considered when we replace critical assets. Factors that are considered include location and consequences. We undertake a pragmatic evaluation at the renewal planning stage on a case by case basis.
- Enhanced collaboration with Veolia to have robust communication protocols and procedures for keeping the network resilient.
- Strengthening our infrastructure resilience in our townships with more built infrastructure in such towns as Raetihi, Ohakune and Taumarunui.

## 1.6 FINANCIAL SUMMARY

The total amount of expenditure for operations, maintenance and capital for the stormwater activity over the next ten years is \$16.9 million, as shown in the figure and table below. This shows that the total operational annual costs are about \$1.2 million and makes up 68% of the total forecast.



**Figure 1: Summary of stormwater ten year expenditure forecast**

Source: Council final LTP budgets (as at June 2021)

**Table 3: Summary of stormwater ten year expenditure forecast**

Stormwater Expenditure	2021/22	2022/23	2023/24	10 yr Total
Opex	1,049,590	1,131,655	1,140,475	<b>11,531,005</b>
Renewals	530,764	140,864	141,631	<b>2,489,862</b>
Growth	12,602	12,602	12,602	<b>522,635</b>
Levels of Service	146,184	1,075,484	410,584	<b>2,400,806</b>
<b>Total</b>	<b>1,739,140</b>	<b>2,360,605</b>	<b>1,705,292</b>	<b>16,944,308</b>

Capex (renewals and new works) expenditure across the 10 year expenditure period is forecast at \$5.4million. Renewals makes up 46% of the ten year capex expenditure followed by levels of service at 44%.

## 1.7 IMPROVEMENT PROGRAMME

The main improvement objectives to be achieved in the next three years due to their priority and importance for the stormwater activity include:

- Iwi partnership development - Establish Iwi Liaison /co-governance partners treaty settlement delivery as they reach settlement.
- Prepare for growth - We need to undertake Stormwater Master Planning an overarching framework to guide our long term planning and capital works programmes. Stormwater infrastructure will need to support growth in housing requirements, particularly for Ohakune.
- Critical assets - Refining the categorisation of critical stormwater 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.
- Strengthening resilience - Improving the resilience of the network in relation to climate change impacts.



- Regional Partnership - Continue with regional collaboration for three 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

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### 2.1 OVERVIEW

The purpose of the stormwater and flood protection activity is to provide a safe environment which protects the communities in the District in an environmentally sustainable manner. Efficient and effective stormwater and flood protection infrastructure is a key element in the sustainable and healthy development of a community. A developed network of pipes, culverts to drains, watercourses, provides a safe and efficient means of collecting and conducting stormwater through townships.

Flooding is the result of rainfall saturating the ground and exceeding drainage channel capacity. When there is limited structure planning there is insufficient capacity, and alternative flow paths develop, leading to flooding, endangering lives and property, and environmental damage.

The purpose of the stormwater and flood protection activity is to:

- Provide efficient and safe stormwater collection and disposal and flood protection in an effective and environmentally acceptable manner.
- Plan for resilience to flooding and safeguard the lives and property of communities during flood events.
- Develop a stormwater treatment system which reduces degradation and contamination of receiving environment once resource consents and new Government regulations are released.

To achieve this purpose, Council manages a stormwater and flood protection (stormwater) network which includes stormwater reticulation mains (within the townships 50 kms zone), public drains, watercourses (30 kms), open drains and associated culverts, manholes and sumps. The assets had a gross replacement cost of \$29.5 million (as at 1 July 2020) across 11 townships.

There is a strong relationship between the Stormwater and Flood Protection Asset Management Plan (AMP), Horizons One Plan (which addresses management of water in the region, including the impacts of flood control and drainage on watercourses) and other Council planning documents including the 30 Year Infrastructure Strategy. The National Policy Statement (NPS) for Freshwater Management 2020 and Horizons One Plan for resource management will improve the overall stormwater management. These planning documents have informed the development of this AMP.

Council recognises and is managing increasing stakeholder expectations and localised areas of increased demand. Further, Council is committed to initiatives to help manage potential negative effects associated with the stormwater and flood protection activity, including property flooding, stream degradation and contamination of receiving environments.

The strategic issues for the stormwater 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. Stormwater treatment will also be required with global consents. We need to develop evidence-based strategy and programmes to be more proactive in stormwater quality. We need to be more proactive with reducing the impacts from the road runoff from our local transport network as well as from the state highway network.
- 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.

## **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.

The Stormwater 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 historically input into a separate AMP covering the Whakapapa village stormwater assets (owned by DOC). This will not be required in future once the management of the stormwater assets are handed back.

## **2.3 ASSETS AT A GLANCE**

### **2.3.1 Stormwater asset summary**

Council is responsible for the provision and management of stormwater in urban environments (the 50km road speed advice notices are the delineation points). This is the majority of our large communities: Ohura, Matiere, Taumarunui, Kakahi, Owhango, National Park, Raetihi, Ohakune, Rangataua and Waiouru. In Waiouru, Council owns and operates the stormwater system outside the Army base and the New Zealand Defence Force owns and operates the system within the military base.

The stormwater and flood protection activity is achieved through:

- Piped networks including manholes, sumps, inlets and outlets
- Open drain networks
- Flood alleviation networks including stopbanks and flood detention systems
- Treatment in new subdivisions with high quality environmental discharges or high volume traffic parking areas
- Built environment effects by having stormwater neutrality designs, peak flow retention and greenfield discharges such as raingardens.

Council provides stormwater and flood protection services within the District to approximately 5,406 rateable properties via the Council-owned stormwater networks. The Stormwater and Flood Protection assets had a gross replacement cost of \$29.5 million (as at 1 July 2020) across 11 townships. A summary of stormwater 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. Kakahi, Raurimu and Matiere also have very small stormwater networks and have not been included in this table. Most of the stopbanks are owned by HRC (see next section).

**Table 4: Summary of stormwater assets by township**

Township	Rateable properties connected	Stormwater pipeline length (km)	Watercourses (km)	Manholes
National Park	319	2.9	0.93	37
Ohakune	1,628	12.2	10.491	151
Ohura	NA	0.6	2.36	0
Owhango	146	0.2	0.315	1
Raetihi	553	3.9	4.718	18
Rangataua	211	2.2	1.07	39
Taumarunui	2,465	26.9	10.203	344
Waiouru	84	1.3	0	9
<b>Total</b>	<b>5,406</b>	<b>50.2</b>	<b>30.09</b>	<b>599</b>

Source: AssetFinda (as at 30 June 2019)

Note that the total pipeline length is 50.7km with the Kakahi, Raurimu and Matiere small communities included.

### 2.3.2 Flood control schemes

The Upper Whanganui River Control Scheme and associated rockwalls within Taumarunui are operated by Horizons and are excluded from Council's AMP. Horizons owns the main stopbank through the flood scheme and Council owns some smaller rockwalls in side streams and infrastructure protection rock walls. Planning of works is discussed between parties in areas that influence the flood control scheme where they overlap. Council's property management team manages the associated land as part of their activity. Council has a representative plus a Councillor on the Upper Whanganui River Management Group. Any improvements to the scheme are suggested through their LTP or Annual Plan.

Horizons also manage other schemes within our District but are located outside the urban zones. Flood protection and land drainage forms a major part of Horizon's activity. Managing rivers through engineering works allows us to help prevent floods and provide adequate land drainage where necessary. All ratepayers in the Region contribute to flood protection.

However, those who live within a scheme area pay an additional direct rate for the protection they receive. A scheme is a designated area of land that receives protection from flooding, riverbank erosion and channel movement, and can also include land drainage services. Within the Ruapehu District, there are the Upper Whanganui, Pungapunga, Pakihi Valley and District Schemes. Council has a representative on the schemes within the Ruapehu District.

HRC provide flood warning alerts (Waterline) as part of their role in keeping communities safe. This information is used by Ruapehu District in helping our communities remains safe. The flood warning sites in the Ruapehu District are listed below including the flood level heights which trigger alerts. The information can be found on their website.

**Table 5: River Flood warning heights**

SITE	LEVELS (M)	LEVELS (M)	LEVELS (M)	LEVELS (M)	LEVELS (M)	LEVELS (M)	MAX RECORDED HEIGHT (M)
Upper Whanganui Catchment							
Mangaroa at Ohura Town Bridge	4.5	5	6	7			
Ohura at Tokorima	7						12.3
Ongarue at Taringamotu	5	6	7	8			
Whanganui at Pipiriki	6	8	10	11	12	13	14.38
Whangaehu Catchment							
Whangaehu at Kauangaroa							13.3
Whangaehu at Aranui							8.66
Mangawhero at Raupiu Road	4	4.5	4.6	5			9.28
Mangawhero at Pakihi Road Bridge							
Tokiahuru at Junction							
Makotuku at Raetihi							

Additional environmental data is provided on their website for: air, groundwater, rainfall, rivers, soil, water quality and water matters. This information and NIWA operated weather or hydrological sites are provided through their websites. This information informs the Ruapehu community and helps Council make decisions.

### 2.3.3 Customer / Council ownership

Council is responsible for maintenance of the stormwater system from the property boundary in pipe connections. All pipes and drains beyond the property boundary are owned by, and are the responsibility of, the property owner. Further clarification is provided in the Ruapehu Drainage Report.

Property owners cannot gather and divert stormwater onto their neighbours' section, nor can they stop the natural drainage pathways from the land.

## 2.4 STRATEGIC CONTEXT

### 2.4.1 Strategic overview

The strategic context of the strategic and planning processes for the stormwater 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.

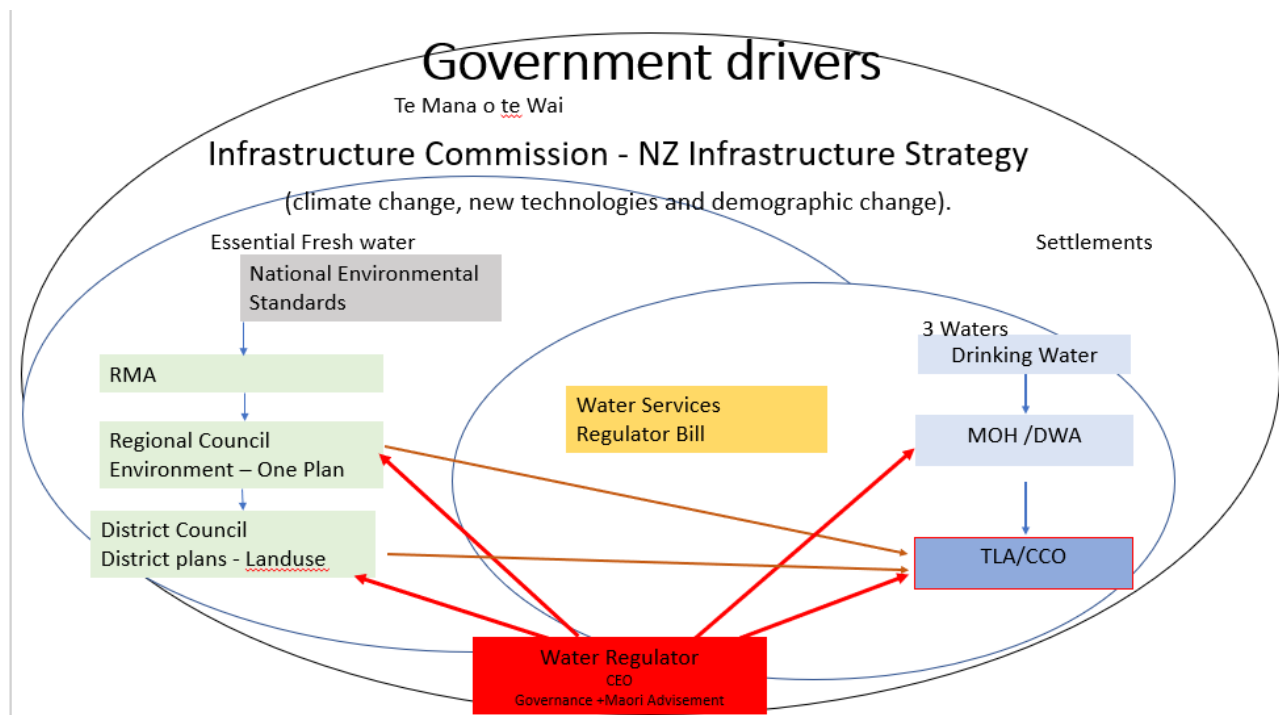
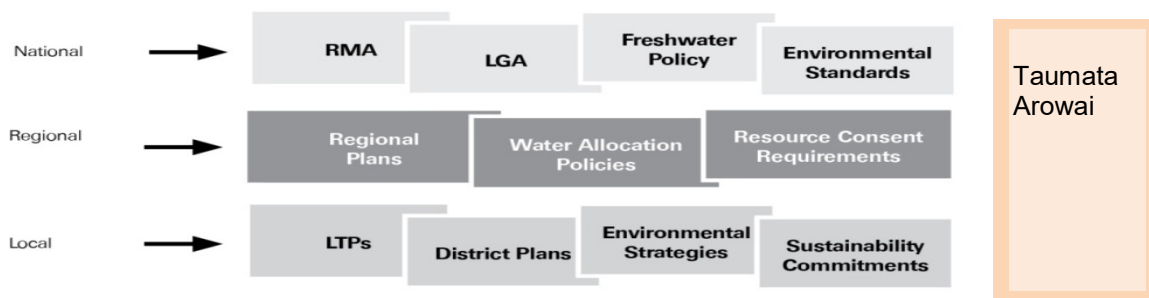


Figure 2: Key strategic planning framework

## 2.4.2 National context

This section set out the strategic objectives at a national level that directs the stormwater activity and this AMP. These key strategic documents are summarised in Table 8.

There are significant legislation and policy changes that will impact the stormwater 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 stormwater 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.

#### **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 to 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 Programmes 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 stormwater. 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.

### **2.4.3 Regional context**

Council collaborates in the Manawatu-Whangai 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 to 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, setting new requirements for stormwater 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:

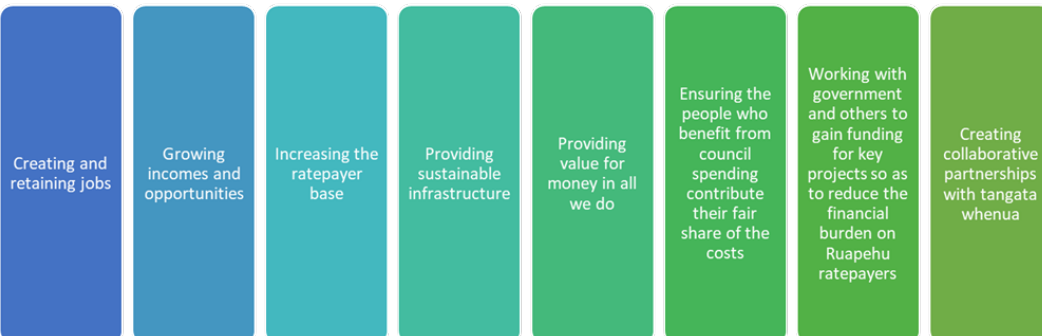




Drive and support the development of safe, prosperous rural communities that are able to thrive and capitalise on our agriculture, business and tourism sectors while sustaining our beautiful environment

## 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 stormwater activity are:

- Provide efficient and safe stormwater collection and disposal and flood protection in an effective and environmentally acceptable manner
- Plan for resilience to flooding and safeguard the lives and property of communities during flood events
- Deliver stormwater neutral developments
- Develop stormwater treatment systems which reduces degradation and contamination of receiving for greenfield developments and then progressively with built infrastructure.

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 stormwater activity was determined to be driven by the following themes:

- Safe, Healthy Communities*  
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

(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.

Council regards the stormwater and flood protection activity as an essential service for the public good. It helps protect:

- People and property from the impacts of flooding
- The environment
- The general public's health by reducing the levels of stormwater pollutants discharged into natural waters.

The linkages between the Community Outcomes and stormwater objectives and where these are addressed in the AMP are summarised in Table 6.

**Table 6: Strategic linkages**

Community Outcomes	Outcomes	Stormwater Objectives	Addressed in AMP Sections
Strong Leadership and Advocacy	<ul style="list-style-type: none"> <li>• Council advocates strongly for the provision of, access to affordable and effective health, welfare, law enforcement and education services.</li> <li>• Council is proactive, transparent and accountable.</li> </ul>	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 Lifecycle Management
Safe, Healthy Communities	<ul style="list-style-type: none"> <li>• Quality regulation, regulatory services and infrastructure.</li> <li>• Core infrastructure endeavours to keep pace with changing demand</li> <li>• Excellent standards of safety and welfare are promoted and respected.</li> <li>• Preparation, planning and timely responses protect people and property from natural hazards.</li> </ul>	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"> <li>• Our environment is accessible, clean and safe and our water, soil and air meets required standards.</li> <li>• The promotion of our District includes focus on our natural rivers, bush and mountains, as well as the built heritage, agriculture and railways.</li> </ul>	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 7 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 7: Strategic linkages with levels of service**

Community Outcome	LOS	KPIs	Performance	Supporting practices
Safe, Healthy Communities	Safety – flood protection	Resilience (degree of protection)	<ul style="list-style-type: none"> <li>• Number of flooding events that occur in a territorial authority district</li> <li>• Number of habitable floors affected in each event</li> <li>• Life and property protected</li> </ul>	<ul style="list-style-type: none"> <li>• AMP / LTP</li> <li>• Risk Management</li> <li>• Emergency Action Plan</li> <li>• Planned capital programme</li> <li>• Lifecycle Management</li> </ul>
	Quality – reliability	Asset integrity	<ul style="list-style-type: none"> <li>• Pipeline blockages</li> <li>• Asset condition</li> </ul>	<ul style="list-style-type: none"> <li>• AMP / LTP</li> <li>• Risk Management</li> <li>• Emergency Action Plan</li> <li>• Planned Capital programme</li> <li>• Lifecycle management</li> </ul>

Community Outcome	LOS	KPIs	Performance	Supporting practices
	Responsiveness	<ul style="list-style-type: none"> <li>Continuity of service</li> <li>Customer service</li> </ul>	<ul style="list-style-type: none"> <li>Response times</li> <li>Customer satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>Management of operations and maintenance contract.</li> <li>Competitive contract tendering.</li> <li>Development /financial contribution</li> <li>Benchmarking.</li> <li>Annual customer survey.</li> <li>Resource/building consent management.</li> <li>Customer information/advice/ asset database.</li> <li>AMP/LTP public consultation – LOS</li> </ul>
Thriving Natural Environment	Environmental Sustainability	<ul style="list-style-type: none"> <li>Growth Planning</li> <li>Infrastructure Strategy</li> <li>Stormwater quality</li> <li>Sustainability</li> </ul>	<ul style="list-style-type: none"> <li>Number of properties protected from flood event</li> <li>Flood protection and control works system adequacy and maintenance (not and RDC measure)</li> <li>Resource Consent compliance</li> <li>Percentage of stormwater volume removed from wastewater reticulation</li> </ul>	<ul style="list-style-type: none"> <li>AMP / LTP</li> <li>Sustainability policies and bylaws</li> <li>Stormwater investigations.</li> <li>Hydraulic capacity – flood mapping</li> <li>Design/construction/ connections standards</li> <li>Capital works programme</li> <li>Project database/ evaluation</li> <li>Water and Sanitary Assessment.</li> <li>Flushing programme development.</li> <li>Treatment and management of discharge.</li> <li>Compliance with consent conditions.</li> <li>Inflow and Ingression assessments</li> </ul>

### 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.

Improvements to the stormwater network to meet higher standards expected by the NPS freshwater management 2020 and greater requirements for stormwater quality management will likely require greater investment in future. Ruapehu District has a small rating base to share these additional future costs. We need to make cost effective decisions to meet the various higher requirements as well as being affordable for our community as well as improved environmental outcomes.

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 Table 8. Additional standards are covered in Table 13 and Table 14.

**Table 8: Key planning documents**

Document	Summary	Frequency
<b>National Context</b>		
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 Waihanganga	National Infrastructure Plan 2010, 2011, 2013 and 2015, 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
<b>Regional Context</b>		
The One Plan – Horizons Regional Council	This is the regional plan for resource management over the next ten 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
<b>Local Context</b>		
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

Document	Summary	Frequency
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 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 stormwater 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 stormwater infrastructure assets to assist with the operation of the stormwater 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 stormwater systems and discharges. Assets must be maintained and renewed to ensure ongoing compliance with consents and enable consent renewal. Council still needs to prepare the comprehensive resource consents to discharge stormwater from its townships.	Annual compliance reports
<b>Industry context</b>		
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, Wastewater, Water Supply, 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 Stormwater 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

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 stormwater activity are summarised in Table 9.

**Table 9: Key stormwater issue summary**

Key Issues	Potential Impacts	Refer to AMP Section
Implications of the Government's Three Waters Reform on service delivery models	<p>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.</p> <p>This AMP provides transparency on the current state of the District's stormwater assets and identifies the required upgrades to assist in the regional discussions. HRC, Taumata Arowai, iwi and the community will expect improved environmental outcomes for our waterways.</p> <p>The collection, treatment and discharge of stormwater is an issue of concern to iwi groups in the District. The impact is that iwi may not agree with Council's proposed solutions and investment cannot proceed. As treaty settlement and co-governance is actioned there will be more emphasis on waterway health.</p>	Section 2.4 Strategic Context and Section 3.3 Legislative Requirements
NPS for Freshwater Management 2020	<p>The other significant emerging issue is the implications of the NPS for Freshwater Management 2020 on Council's stormwater quality improvements. This will dictate the redrafting of the Regional Policy Statement and will be the basis for assessing our Comprehensive Stormwater Resource Consent application and setting conditions.</p> <p>A number of recommendations have been made to support a pathway to meeting the objectives of the NPS for Freshwater Management. This includes programmes to facilitate a more collaborative and efficient approach to stormwater management, steps to undertake catchment scale modelling to support the establishment of water quality objectives and actions to support the implementation of programmes to deliver environmental outcomes.</p> <p>The highest priority recommendations considered moving forward regionally were identified as:</p> <ul style="list-style-type: none"> <li>• Establish a regional stormwater working group</li> <li>• Establish a regional training programme</li> <li>• Develop regionally consistent data and reporting related to environmental considerations</li> <li>• Develop regional code of practice for industrial land use</li> <li>• Establish regional design guidelines for stormwater treatment devices</li> <li>• Undertake modelling to capture future land use changes and development scenarios.</li> </ul>	Section 6.4 Asset Performance
Understanding climate change impacts and land use	<p>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 flow reached 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).</p> <p>Stormwater infrastructure may not be able to cope long term, particularly with intense rainfall predicted. Global climate change is likely to bring more intensive rainfall events with longer dry periods between them and annual rainfall volume is also expected to increase. Changes in rainfall intensity and frequency will have an impact on the performance of the stormwater network.</p>	Section 5 Managing Risk
Community affordability	<p>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.</p> <p>There is pressure on the relatively small rating base in the Ruapehu District to provide infrastructure to meet the demands of high visitor numbers. Council seeks Government funding to make the significant costs of upgrades to meet increased demand more affordable to the local community. Legislation has not been finalised and with limited resources, Council prioritised the three waters spend as: drinking water, wastewater and then stormwater for major upgrades.</p>	Section 3.3 Legislative Requirements, Section 6.3 Asset Performance and Section 9.3 Funding Strategy
Resource consent for stormwater	<p>Historically Council has not applied for resource consents to discharge stormwater from its townships. The towns are largely built in high alpine swamp plains with limited drainage. There are numerous drains and streams through these townships with numerous short drainage pipes to the streams. Global consents will be required for these communities across the Ruapehu District and this is identified as a future improvement project.</p> <p>A significant amount of work will be required to prepare the consent application and supporting technical information. The One Plan has stringent conditions regarding discharges of water to the receiving environment as well as the considerations of the NPS for Freshwater Management 2020.</p> <p>Stormwater treatment will also be required with global consents. We need to develop evidence-based strategy and programmes to be more proactive in stormwater quality.</p> <p>We need to be more proactive with reducing the impacts from the road runoff. Also, Waka Kotahi NZ Transport Agency (Waka Kotahi) state highway network contributes runoff into the</p>	Section 6.4 Asset Performance

Key Issues	Potential Impacts	Refer to AMP Section
	stormwater network and potential generate the highest number of untreated contaminants to the environment. Council will need to work with Waka Kotahi to develop treatment systems for stormwater.	
Servicing future capacity - Ohakune	Ohakune is experiencing significant population growth and stormwater is a constraint on enabling future development in the township. Existing stormwater systems at the bottom of catchments cannot cope with the effects of growth. We need to develop a Stormwater Master Plan as an overarching framework to guide our long term planning and capital works programme. Geotechnical planning needs to consider high ground water tables, soils ability to cope with storm events, and stormwater channel development, resulting treatment is needed when towns are expected to grow.	Section 4.3 Meeting Growth
Land use conflicts	The movement of stormwater off properties can be through open channels which have a much greater capacity than pipes. Some community members: <ul style="list-style-type: none"> <li>• Have concerns around health and safety of open channels, watercourses</li> <li>• See open channels as losing available ground for building</li> <li>• Lack understanding that they must keep channels clear</li> <li>• Vegetation must be appropriate to allow flow in the berm</li> <li>• Understanding the importance of secondary flow paths (swale drains)</li> <li>• Riparian planting and treatment delivery.</li> </ul> Council will need to spend time with their communities to enable them to engage with their watercourses and move attitudes from hiding the waterways in culverts to embracing and enhancing the life in the waterways. Ruapehu must develop water sensitive communities by working with nature rather than conveying it through traditional piped reticulation.	
Network resilience	The development of resilience or natural hazards planning is a function of both Regional and District Council Plans. It requires some significant assessment of flood modelling and understanding of the interface of urban development. Horizons provide the information around flood mapping for subdivision development. Historical township development must now be assessed under climate change and response plans need to be developed. Flooding of transportation routes can result in disruption to social and economic activities, and emergency services. However, roads can also provide the most economic secondary flow path to protect lives and property.	Section 5.3 Climate Change, Resilience and Zero Carbon
Flood hazards – Ohura	Flooding hazards within the Ruapehu District have principally occurred within the Ohura Township. This township has been affected by numerous large flooding events over many years, which has resulted in dwellings being made uninhabitable and many requiring extensive repairs including having raised foundations. The residents recognise they live in a flood plain and have rejected infrastructure development such as a stopbank scheme. They are investing in adaptive management and resilience planning such as early warning and self-evacuation.	Section 6.4 Asset Performance
Flood hazards – Ohakune, Taumarunui and Raetihi	Ohakune, Taumarunui and Raetihi are also susceptible, being located in a flood plain and flood basin. Horizons have modelled the flood risks for Ohakune and Taumarunui and flood control work programmes are being put in place to mitigate risks, but this will take some time. Horizons Regional Council has recently recalibrated the model for Ohakune and have establish a scheme. A Ruapehu District wide river management scheme has been established to facilitate management of works across rivers. Raetihi township has been subject to some willow removal work during last LTP which has allowed the river to flow more freely.	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 10: Stormwater Problem Statements**

Problem	Problem Statement
<b>1. Changing legislation and regulations</b>	The Government is implementing three waters reform including creating standalone Crown entity Taumata Arowai to regulate 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.
<b>2. Public expectations and flooding</b>	Existing infrastructure and water courses in some locations are unable to cope with major flood events resulting in localized floods. Willow and vegetation management is required to prevent pinch points. Flooding effects habitable floors and causes disruption to operations, income and wellbeings. Ohakune, Taumarunui, Raetihi and Ohura are high risk towns to flooding impacts.



Problem	Problem Statement
<b>3. Community affordability: Existing stormwater network not designed for treatment</b>	The existing stormwater network was not designed to provide stormwater treatment before it enters receiving waters. Treatment systems will become the norm, but the standards have not yet been released. The challenge is in how they are designed and made operationally affordability for the community.

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.

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.

A sustainable stormwater and flood protection system is one that mitigates against potential negative effects on the receiving environment. Council attempts to minimise impacts by planning for stormwater management, having good maintenance and renewal practices and providing prompt services when system failures occur. It should not generate unacceptable waste or cause pollution.

Sustainability is not limited to operation of the system. It can include, for example, extending the projected life of current stormwater systems by implementing stormwater storage of peak flows, drainage, secondary drainage through swale drains, rain gardens, wetlands, and other treatment sources.

Rediscovering our streams and watercourse by riparian management, walkways, contemplation spaces, wetlands, bogs and fish passages also supports sustainability

Flood and network modelling and mapping have created a framework for future improvements.

Sustainability is also encouraged through regulations such as Council's Trade Waste and Stormwater Bylaw 2019 which regulates what might be discharged into the stormwater system operated by Council or its agents. This bylaw helps control the quantity and composition of residential and industrial flows.

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.

Council works with HRC to share expertise in river management and flood protection control. Horizons manage stopbanks within the Ruapehu District via schemes, such as the Upper Whanganui River. At the end of this scheme, there is Council infrastructure rockworks which protect bridges and the Taumarunui Water Supply Intake. All of these items have been taken over by Horizons and now it's an integrated management system.

The Ohakune scheme and a Ruapehu District wider scheme were developed for flood and general river management.

Examples of education that reduce environmental impacts are:

- Educational information such as being supermarket aware can reduce phosphorous discharges from our waterways. This was a joint initiative with Ngati Rangī and Uenuku. The pamphlet is also translated into Te Reo Māori.
- Education around waterway management to enable flood waters to flow.
- Provide some cohesion for water flow discussion between public and private ownership and responsibility for waterway management within the urban zone.

## **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.

## **2.6.3 Green Infrastructure**

There is a move nationally towards using green infrastructure for managing stormwater than traditional hard assets such as pipes and manholes. This slows down the stormwater flows as well as providing quality treatment, rather than the hard engineered assets. Historically we have installed kerb and channel in urban areas as part of our transport activity and many of our communities expect this. We will work internally with our Transport Team and educate our community about this new stormwater management approach.

Stormwater is collected from private dwellings, commercial and industrial sites, parks and reserves, roading kerbs and catchpits. While Council owns the pipes which generated the discharges into the environment, there are many contributing partners, from households, commercial owners, Waka Kotahi and individual Council departments. Historically industry "best practise" options have been left to the owners of each Council area.

National legislative changes in the freshwater programme, three waters reforms and a general review has indicated that Council needs a strategy to manage stormwater to cover current and future improvements. The strategy will be completed when the RMA changes and three waters regulations have clarified the legislative positions.

Council will investigate a global Resource Consents for stormwater discharges. These consents will include An Assessment of Environmental Effects (AEE) which involves the identification and assessment of both the potential and the perceived physical, social and cultural impacts that the proposed works may have on the existing environment. Alternative options will be examined and compared to select the best options to mitigate adverse effects. This will include confirmation and recommendations on the preferred options and methodology to carry out the works.

It is expected that a suite of methods will be selected such as rain gardens and stormwater neutral treatment options for new developments. Potentially the enhancement of the natural waterway as a whole may provide the best method to mitigate effects rather than the individual treatment of each point. In selecting the options, consideration has to be given to the volume of water carried as some systems may exacerbate flooding during high rainfall events.

Potential stormwater discharge effects include:

- Gross solids (plastics, sticks)
- Sediment runoff and erosion
- Hydrocarbon

- Nutrient enrichment
- Heavy metals
- Other contaminates
- Visual impacts
- Flood hazard.

Council does not hold resource consents for stormwater discharges. It does however have treatment provisions for its newer larger parking facilities in Ohakune, National Park and Taumarunui. It has the requirement for peak attenuation in some areas and stormwater neutrality for new developments. Current and potential options used in the improvement of stormwater management are:

- Debris screens
- On and off premise sediment treatment
- Hydrocarbon
- Attenuation / detention ponds or structures for stormwater neutrality
- Raingardens
- Flow dispersion structures to reduce erosion
- Swale drains and ephemeral flow paths
- Street cleaning (covered in the property asset management plan)
- Catch/cesspit maintenance and pipe leads (waste from roads and kerbs)
- Silt traps
- CDS system
- Riverbank protection assets
- Mowing and weed spraying
- District Plan resource consents
- Horizons resource consents.

Existing infrastructure installed before the allowance for climate change is sized to cater for 1:5 year events. Council is currently looking at standards for design including capacities for assets in its Code of Practise. This will include climate change rainfall data, and other Horizons Regional Council information to be included in the code, such as a minimum floor height for buildings within flood plains.

The education of the community and development of sampling programme will help Council prioritise how it will select treatment options to deliver the best environmental outcome that is affordable to the contributing partners.

Ownership of stormwater assets is split across activities. Land Transport holds the ownership and management of culverts in the RAMM database, along with all other pipe works and culverts outside the urban zones. Horizons holds and provides advice on flood zones across the Region including Ruapehu District. There are also flood maps for Ohura, Ohakune and Taumarunui.

## 2.7 POTENTIAL EFFECTS

There is recognition of the potential positive and negative effects resulting from the stormwater activity which Council manages as outlined in Table 11.

Table 11: Summary of effects

Potential Positive Impact	Potential Negative Impact	Mitigation
<b>Environmental</b>		
Potential environmental impact from construction of infrastructure	Environmental damage during construction of new works.	Environmental damage is mitigated through resource consent conditions which are specified into the contract document and monitored closely during the implementation of physical works.
Instream effects minimised	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 degradation of receiving water from stormwater discharges.	Council continues to improve the planning of new subdivisions and high volume parking areas to improve the quality of discharges.

Potential Positive Impact	Potential Negative Impact	Mitigation
	Waterways with no vegetation management has resulted in changes to water courses, reducing riverbed capacity and creating bank erosion.	Partnership with Horizons to control vegetation around communities.
	The stormwater and flood protection runoff naturally contains debris and chemicals that are present in the catchment area.	Stormwater and flooding runoff are monitored by Horizons Regional Council for water quality and other effects.
<b>Economic</b>		
Provides infrastructure to support business development in the community.	The cost of investment in infrastructure.	Council is committed to implementing cost-effective solutions as part of successful asset management. LoS have been set with consideration to community affordability and efficiencies are sought on an ongoing basis.
	Significant costs and time to implement new stormwater treatment projects across multiple townships.	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 far as practicable.
	Risk of stifling community investment because of perception of reduced water quality.	Education with community and developers that stormwater neutrality and treatment is part of the cost of business and done together is achievable.
<b>Social</b>		
Provides infrastructure to protect habitable areas from flooding.	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.
Instream effects minimised	Watercourses become degraded and unfit for interaction: wading or swimming.	Treatment of stormwater to remove gross and other pollutants. Upgrade of stormwater systems in urban areas where the ponding from flooding is considered too deep and therefore unsafe for local residents, particularly children.
<b>Cultural</b>		
Community and iwi consultation in the urban areas has been very effective for decision making process.	Reduction in water levels in waterways unacceptable to iwi.	Council has regular communication with iwi and are working towards ways of engaging and embracing stream improvements.
	Reduced water quality reduces the engagement with the river	<p>Council is working to improve catchments by engaging with the community and forming Ngā Wai Ora o te Whangaehu, a catchment accord group with objectives to collaboratively improve the river. The Whanganui River has gained its own legal identity with all the corresponding rights, duties and liabilities of a legal person: Te Awa Tupua. There are four intrinsic principles known as Tepua te Kawa which are intended to be considered when decisions are made around the river and catchment:</p> <ul style="list-style-type: none"> <li>• The first is that the river is a source of physical and spiritual sustenance, sustaining life and natural resources</li> <li>• Recognising that the river flows from the mountain to the sea</li> <li>• Iwi and hapu have an inalienable relationship with the river</li> <li>• small and large streams flow into one another and form one river.</li> </ul>

Council has formed Ngā Wai Ora o te Whangaehu River Catchment Group. The group supported an application to the Freshwater Improvement Fund and received \$590,000. This will be part of the \$1.68 million that is planned to be spent in the catchment on initiatives delivered by HRC, Ngati Rangī and landowners. There is no direct Council benefit from this fund other than to support community efforts in the wider waterways and sits on the governance board delivering the Government Funding.

## 2.8 PLAN STRUCTURE

The Stormwater AMP has been structured into three key parts to communicate the infrastructure requirements in the business case approach as shown in Table 12 as well as the traditional AMP sections recommended by the IIMM.

**Table 12: Plan structure**

<b>Business Case</b>	<b>Description</b>	<b>AMP Sections</b>
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"> <li>• Introduction</li> <li>• Provision of Services</li> <li>• Managing Growth and Demand</li> <li>• Managing Risk</li> </ul>
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"> <li>• Programme Case</li> <li>• AM Practices</li> <li>• Financial Summary</li> <li>• Appendices – references.</li> </ul>
Detailed Case	Part 4 provides the detailed evidence to support the investment proposed. This is the traditional lifecycle management plans for the stormwater schemes and by townships.	Part 4 contains the appendices covering: <ul style="list-style-type: none"> <li>• Physical parameters for the schemes</li> <li>• Asset capacity / performance</li> <li>• Asset condition</li> <li>• Asset information by township</li> <li>• Risk register.</li> </ul>

### 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 stormwater 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 stormwater activity.

**Table 12: Key customers and stakeholders**

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

### 3.3 LEGISLATIVE REQUIREMENTS

Statutory requirements have an impact on how Council operates to meet its stakeholder obligations. Key legislation affecting the stormwater activity are summarised in the following table.

**Table 13: Main legislation influencing stormwater activity**

Legislation	Requirement
LGA 2002 Amendment Act 2010	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. 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. AMPs are the main method of demonstrating Schedule 10 requirements. 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).
	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.
	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. 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.
	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.
Health Act 1956	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 and discharge into receiving waters such as streams, drains and watercourses.
Health and Safety at Work Act 2015	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. 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.
Resource Management Act (RMA) 1991	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.
National Policy Statement (NPS) for Freshwater Management 2020	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. 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. 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.

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"> <li>• 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</li> <li>• ensuring that Taumata Arowai has suitable expertise to build and maintain confidence in its capability as a regulator</li> <li>• developing sector capability, by promoting collaboration, education and training</li> <li>• partnering and engaging meaningfully with other people and organisations</li> <li>• partnering and engaging early and meaningfully with Māori, including to inform how Taumata Arowai can: <ul style="list-style-type: none"> <li>(i) give effect to Te Mana o te Wai</li> <li>(ii) understand, support and enable the exercise of mātauranga Māori, tikanga Māori and kaitiakitanga.</li> </ul> </li> </ul> <p>A Water Service Bill will provide the regulatory system that Taumata Arowai will administer. 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>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 stormwater activity are summarised in the following table.

**Table 14: Key stormwater standards and guidelines**

Standard / Guideline	Description
Asset Management Policy (2020)	This policy gives guidance and direction on the development of AMPs. The policy sets out eight objectives for AM planning and practices.
The Ruapehu Bylaw (2018)	The Ruapehu Bylaw consolidates three old bylaws: <ul style="list-style-type: none"> <li>• Public Places Bylaw</li> <li>• Public Health and Safety Bylaw</li> <li>• Animal Control Bylaw.</li> </ul> The new bylaw covers a diverse range of activities including seeking to protect from nuisance and promote public health and safety within the District.
Trade Waste and Stormwater Bylaw 2019	The purpose of this bylaw is to regulate the discharge of trade waste to the sewerage system, and discharges to the stormwater system.
Stormwater Management Policy 2019	This policy outlines the stormwater management requirements to minimise adverse effects, caused by stormwater flowing off property, when land is developed commercially or privately. It requires that any stormwater that flows off the property must be at least neutral, in that the level of stormwater flowing off the property after development is no greater than the level of stormwater flowing off the property before development.
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 for stormwater. The guidelines include (but are not limited to) modelling, treatment standards, 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:

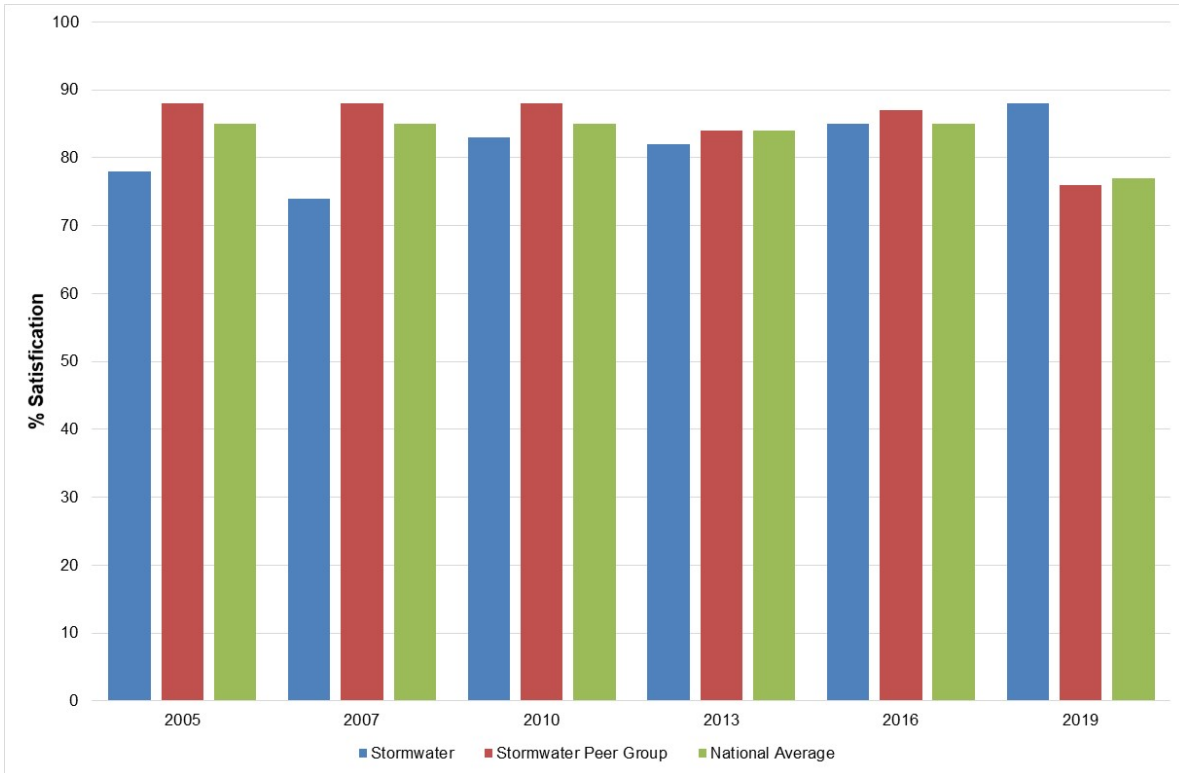
- Resident satisfaction surveys (refer below)
- Consultation with community groups for Annual Plan and LTP
- Service request response levels (refer below)
- Joint governance catchment groups for shared values related to water including Whangaehu River Catchment project.
- Treaty settlement co-governance 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 stormwater system. 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 stormwater service since 2005. This shows that residents' satisfaction has historically been higher than the national average and the peer group. Council will seek to maintain this level of satisfaction over the next three years.

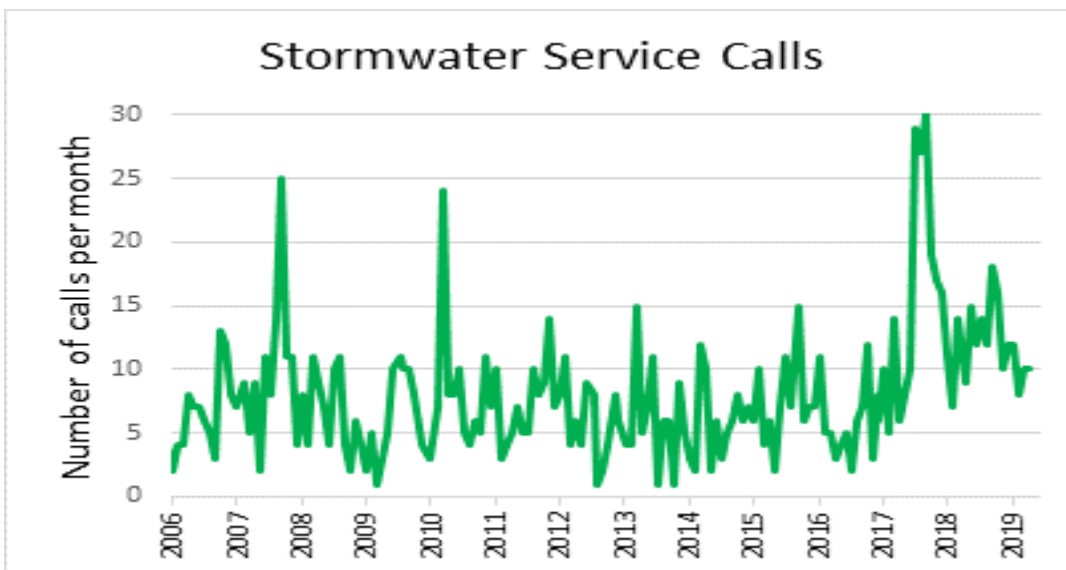


**Figure 3: Stormwater customer satisfaction results**

Source: National Research Bureau Customer Service Surveys

### 3.5.2 Customer service data

There has been a historic trend of five to ten jobs per month for stormwater service calls. In the last three years there is a trend of increasing calls in the range of 10 to 15 calls per month as shown in Figure 4. Stormwater generally has low level number of calls per month compared to water supply and wastewater activities, except in storm events.



**Figure 4: Number of stormwater service call per month**

Source: Council's RFS

### 3.5.3 Contractor surveys

The Facilities Management Contractor, Veolia, undertakes regular customer satisfaction surveys. 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 Contractor's service since 2008. The survey results indicate high level of satisfaction for stormwater with an 87% average. These surveys are reviewed and considered in the improvement plan and monthly contractor report discussions.

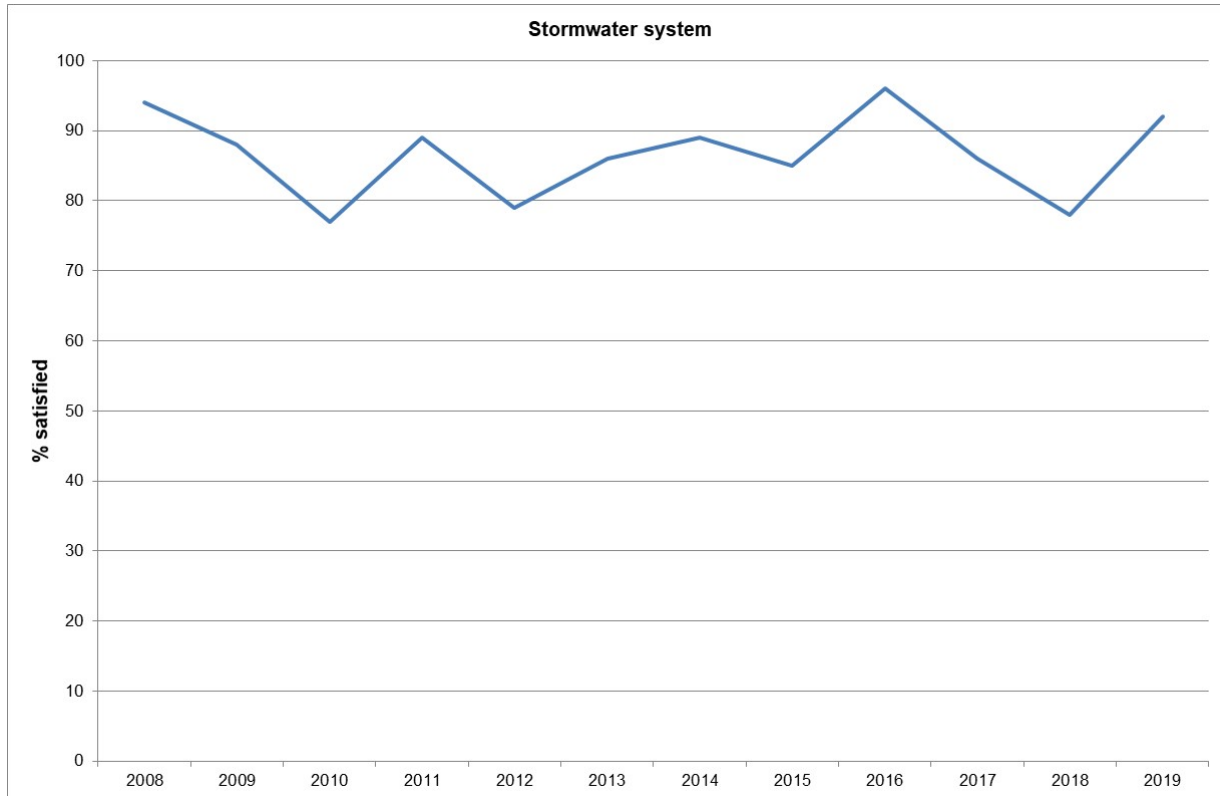


Figure 5: Veolia's customer satisfaction surveys

### 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 mandatory, customer and technical performance measures. All measures are reported on a District wide basis.

The LOS and performance measures for the stormwater 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: Stormwater service level summary

Council Outcomes	Key service attribute	LOS	How we will measure our performance	Performance measure type	Current performance for 2018/19	Current performance for 2019/20	Current Year 2020/21 Target	2021/22 Target (year 1)
Safe, healthy communities	Safety – flood protection	Stormwater systems protect houses from flooding in urban areas	The number of flooding events that occur in the Ruapehu District For each flooding event, the number of habitable floors affected (Expressed per 1,000 properties connected to the territorial authority's stormwater system.)	Mandatory	Achieved	Achieved (see note 3)	≤ 3 per 1,000 properties	≤ 3 per 1,000 properties
			The number of complaints received by Council about the performance of its stormwater system (per 1,000 connections to Council's stormwater system)	Mandatory	5.2 Achieved	3.8 Achieved	≤15 per 1,000 properties	≤15 per 1,000 properties
	Quality - reliability	To provide reliable stormwater networks	Number of reported stormwater pipeline blockages per 100km of pipeline per year	Technical	New measure;	New measure	≤30	≤30
			Percentage of stormwater assets in satisfactory condition (condition grades 1,2,3 or 4)	Technical	New measure	New measure	New measure	80%
			Customers are satisfied with the stormwater services provided	Customer	96% Achieved	86% Achieved	>80%	>80%
Responsiveness	To provide prompt responses for service	The median response time to attend a flooding event, measured from the time that Council receives notification to the time that service personnel reach the site	Mandatory	(no floods) Achieved	(no floods) Achieved	≤2 hours	≤2 hours	
Thriving, natural environment	Sustainable - Environmental performance	Environmental impacts are managed and resource consents complied with	Compliance with the Council's resource consents for discharge from its stormwater system. Measured by the number of:	Mandatory				
			a) abatement notices		zero Achieved	zero Achieved	≤2	≤2
			b) infringement notices		zero Achieved	zero Achieved	≤1	≤1
			c) enforcement orders		zero Achieved	zero Achieved	≤1	≤1
			d) prosecutions received by Council in relation those resource consents		zero Achieved	zero Achieved	0	0

Notes:

- 1 A flooding event means an overflow of stormwater from a Council stormwater system that enters a habitable floor
- 2 The number of connections is calculated from the number of customers charged in their rates for use of Council stormwater services (calculated at 5,316 in August 2016).
- 3 There were no flooding events in 2019/20.
- 4 A habitable floor refers to a floor of a building (including a basement) but does not include ancillary structures such as stand-alone garden sheds or garages.
- 5 There are no resource consents for stormwater in the townships.

### **3.7 SERVICE GAPS**

Overall, Council achieved the mandatory performance measures for 2018/19 and 2019/20 covering flood protection, responsiveness to faults, customer complaints, and full compliance with the consent requirements.

The current LOS are broadly meeting the mandatory performance measures. It is expected that capital improvements will be required to meet the new comprehensive stormwater consent, NPS for Freshwater Management 2020, and stormwater quality management.

The mandatory performance measures for flood protection does not always reflect the flood risks to our urban areas and communities. Known flooding issues are discussed in Section 6.4 Asset Performance.

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

## 4 MANAGING GROWTH AND DEMAND

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### 4.1 INTRODUCTION

With the change in District growth and / or change in residential use comes an increase in stormwater volumes from hard surface areas in newly developed urban areas. The level of surface imperviousness and the frequency and intensity of rainfall events are the two main parameters impacting future stormwater flows and demands.

This section describes how Ruapehu District is developing and the approach Council will take to manage the effects of demand and growth for the stormwater 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 stormwater 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).

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. 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. This will mainly impact on the demand for stormwater 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

Future demand for stormwater services and flood protection is driven by:

- Population increase resulting in new residential dwellings and sub divisional activity with additional level of surface imperviousness
- Frequency and intensity of rainfall events
- Restrictions in flood path as lifestylers seek to plant in flood plains and dam oxbows
- Development of stormwater treatment at strategic positions
- Redevelopment of the stormwater network to enable the community to engage with their waterways.

Changes in weather patterns impacts future stormwater demands and is discussed in Sections 5.3 Climate Change.

#### 4.3.1 Development patterns

The development and population growth are factors influencing future stormwater demand for the Waimarino area. Pressures to develop land outside of townships with infrastructure will continue to drive a demand for continued increase in the infrastructure network, as experienced in Ohakune and development of roadside drainage network in Owhango.

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.

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.

Stormwater infrastructure will need to support growth in housing requirements and contribute by providing capacity to remove excess flood water. Housing development may be stimulated with the economic recovery programme (refer below).

#### **4.3.2 Stormwater quality**

We will need to be more proactive in stormwater quality management in future, driven by global consents, NPS for Freshwater Management 2020 and iwi as well as community expectations.

One of the future drivers is a demand for higher treatment of stormwater before it is released into the environment. The environmental parameters are set out in the Horizons One Plan and RMA 1991. Much of the influence comes from the NPS for Freshwater Management 2020.

Stormwater treatment will also be required with global consents. We need to develop evidence-based strategy and programmes to be more proactive in stormwater quality.

Environmental sustainability is also about reducing the runoff from roads and the degradation of receiving environments. It is recognised that stormwater runoff from the transport network pollutes the waterways. We need to be more proactive with reducing the impacts from the road runoff. Also, Waka Kotahi's state highway network contributes runoff into the stormwater network and potential generates the highest number of untreated contaminants to the environment. Council will need to work with Waka Kotahi to develop treatment systems for stormwater.

### **4.4 MEETING GROWTH AND CHANGING DEMAND NEEDS**

#### **4.4.1 Flooding impacts on District**

Council has experienced intense mountain storms that are very localised and sometimes only affect one or two townships. They have affected habitable floors and inundated wastewater systems. Council works with HRC to capture data and validate their flood modelling in Ohakune and then project out the future risks and mitigation measures. HRC has introduced a flood protection scheme for Ohakune. This scheme is in its infancy and a formal strategy to manage the risks, and mitigation measures that may still be required such as raising houses, relocation and bunds, covenant's on land titles and minimum floor heights will also have yet to be considered.

HRC has a number of rural schemes in the rural zone such as Pakihi. In addition to the Ohakune scheme, a Ruapehu District Wide scheme was formed to help manage the rivers or sections of rivers that do not fall into the scheme.



Taumarunui township is protected from the Whanganui River flooding via the Upper Whanganui River Flood Control Scheme owned and operated by HRC. Council has its own auxiliary rock works at the front, and around the Victory Bridge on the Whanganui River, but it was considered prudent that this be developed and managed by the Regional Council who have expertise in this area.

Taumarunui township has an internal risk of a localised storm event creating flooding within the township because water cannot get through the stop bank and into the Whanganui River. This can be alleviated by increasing the outlet structures, allowing more drainage water to flow into the river before it rises. However, when the river is in full flood, the water will no longer discharge through the outlet structures as the flood flaps will shut.

The only option is then for the water to move out of its channels into alternative paths and form a pond in the Taumarunui Domain. Pumping over the stopbank into the Whanganui River may also be considered but the size and volume that must be pumped may not be achieved any return on investments for intense rainfall events.

These works were summarised and prioritised into a programme of works to deliver the best outcome for the resource effort and to protect the greatest number of properties in a storm event. Any works near the stopbank requires resource consent under the One Plan. Council has lodged an application after iwi and public consultation for an infrastructural consent for works near a stop bank. This consent will enable all Council works including drainage works to be undertaken. Councils have an ongoing work programme to resolve this issue in conjunction with HRC.

Raetihi township - drain clearance within the township has significantly enabled water to release to the river. River modelling at the township will provide an understanding of the Makotuku flow levels that affect the township. This is around the rise of the river height preventing the township draining into the river. Some willow clearance work has been undertaken to increase the river capacity, but the actual effect has not yet been quantified. Horizons have installed a hydrological site just upstream from the township to provide more detailed information.

Ohura township is built in a flood plain and remains the most at risk community but rejected Horizon's proposal to develop a flood management scheme for the township. Council purchased flood damaged buildings and placed building restrictions on floodable land. The remaining community has adopted adaptive management approach through resilience planning; being prepared and enacting their response regularly. In 2017 Council contributed to Horizons flood warning system (rain gauges and river heights) by adding more data connectivity and sirens throughout the town. Council's Civil Defence Officer and Horizons continue to work with the community.

Drainage and stream channel integrity remain the best mechanism to maintain low impacts on our other small communities. At the District Plan review more work will be done on minimum floor heights in green field builds to reduce the risk of their flood vulnerability.

#### **4.4.2 Stormwater capacity**

There is a general trend of stormwater produced by increasing impervious areas, larger roof areas and reduced green spaces across the District which implies growing demands on infrastructure capacity. Currently, the proportion of the District that is impervious is unknown. It is acknowledged that this may increase with growth, especially in the development area of Ohakune. The Flood Modelling and Mapping produced in 2010 provides a sound basis for planning and looking at current and future capacity requirement for Ohakune.

The capacity demand on stormwater and flood protection infrastructure will be significant, particularly in the Waimarino area (inclusive of Ohakune, Raetihi and Rangataua) which, with National Park, is the area in the District that is expected to continue to experience positive growth.

#### **4.4.3 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.

Increasing extreme weather patterns with frequent high-intensive storms will also increase the potential for ingress and infiltration volumes. Council needs to plan actively to collect stormwater from homes rather than allow ground soakage in townships with high ground water tables and low pervious soils. A caution is also required for highly pervious soils that are prone to the creation of tomos.

#### 4.4.4 Demand Management Plan

Managing Council's stormwater demand is not only about managing increasing future needs and expectations but is also about changes in behaviours and philosophy. Council's current stormwater demand management programme is summarised in the table below.

**Table 16: Current stormwater demand management programme**

Programme	Description
District Plan	The District Plan is the legal framework that Council uses for land use planning. The management of imperviousness areas is promoted along with appropriate stormwater management. It contains provisions governing stormwater and flood protection management, including implementing planning controls to limit future development in known problem areas that are too costly to solve.
Request for Service (RFS)	The Council provides on-going operational and maintenance support to properties within the stormwater areas of service. This helps reduce the amount of flooding and inundation.
Public education and awareness	Education and awareness encourage sustainable stormwater management including: <ul style="list-style-type: none"> <li>rain gardens, pervious pavements and storage of peak volumes in high risk areas.</li> <li>minimisation of rainwater into the wastewater network through faulty private drains and illegal stormwater connections</li> <li>promoting environmental awareness and the effects of activities such as car washing, where contaminants may enter the stormwater system through sumps.</li> </ul>
Sustainable development	Developers are encouraged to use best practice guidelines for water sensitive development as bio retention and low impact design. Opportunities are to be sought to regenerate existing urban areas by improving amenity values for the community. Stormwater neutrality required for urban development and upgrade works through the bylaw.
Climate change planning	Councils response to climate change includes building our knowledge based on latest thinking nationally and participating in forums where appropriate. Councils developing an adaptation approach to climate change in collaboration with Regional Council. Refer to Section 5.3 Climate Change, Resilience and Zero Carbon for further details. Pipe sizes are increased during replacement supports achieving climate resilience.

Future initiatives that Council may consider are:

- Revise the demand management plan taking into consideration best practice in the industry and adapting for the District’s needs appropriate for a small district council
- Assessing available rainfall network and exploring early warning and flood prediction modelling with Horizons
- Promoting education around stormwater drainage including:
  - Peak water storage and rain gardens
  - Keeping waterways clear
  - Stormwater grates drain to streams which are living things
- Continue partnership workshops with HRC and other councils to develop appropriate treatment methods
- Partnership treatment solutions with land transport agencies.

#### **4.4.5 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 stormwater infrastructure with the main drivers being:

- Planning for growth to support housing, particularly in Ohakune. We need to undertake Stormwater Master Planning an overarching framework to guide our long term planning and capital works programmes.
- 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 stormwater in main townships where applicable
- To meet legislative compliance.

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

### **4.5 CHANGES IN TECHNOLOGY AND DESIGN**

New technology and design need to be considered in most AMPs. These are discussed in this section in relation to stormwater retention, technology and education. In many situations, technology is a source of future cost savings, increased service and stormwater quality. Whatever technology is utilised it must be in sympathy with the need to manage heavy rainfall events and flooding.

Examples of stormwater system technology and design improvements that Council may consider include:

- Promotion of a stormwater action hierarchy of 'education – enhancement – enforcement' to improve stormwater discharge quality to the District's streams and rivers
- Provide one-to-one education and follow up audits of local business' operational regimes and treatment structures, particularly in town centres and industrial zones
- Restore the habitat in local drainage reserves by clearing weed infestations from drains and riverbanks
- Upgrade road sumps at litter 'hotspots' to include in-sump filters to enhance stormwater quality, and provide information for education initiatives
- Upgrade of culverts causing restrictions, or restrictions being removed
- Retention dams
- Low cost treatment solutions, rain gardens, shade cloth capture bags
- Treatment of drainage catchments rather than each individual discharge

### **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
- New global stormwater consent conditions will likely require Council to be more proactive in stormwater quality than current practices
- 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 stormwater 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 stormwater activity have been identified, described, classified, analysed, evaluated, rated and results are recorded in the Risk Register (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 the 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 shows six risks identified as high treated risk, and no extreme risks.

Table 19: 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 Stormwater Activity Risks

Of those specific risks listed in the Stormwater Activity Risk Register the following are the most critical and are worthy of particular note:

- Extensive damage to stopbanks due to earthquakes or natural hazards
- Extensive damage to flood detention systems due to earthquakes or natural hazards.
- Extensive damage to inlets and outlets from volcanic eruption.
- Damage of critical pipelines due to earthquakes.
- Failure of critical pipelines.

These risks are managed with the following existing controls:

- Condition monitoring, maintenance history analysis, targeted renewal programmes, response planning and system redundancy options.
- Response planning.
- Overflow monitoring and response planning.
- Horizons ownership / management of flood control schemes.

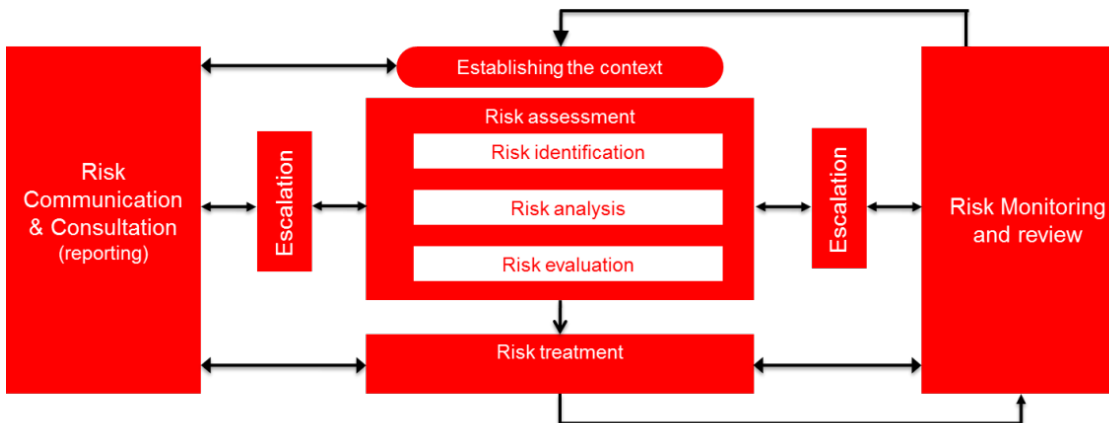
Ruapehu Risk Management System relies on input from its many contractors and service providers and this is appropriate for a small district council. Further to Council's Risk management framework, Veolia is required to manage risk and produce their own risk management procedures to describe the responsibilities, 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.

### 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 in Figure 9.

Figure 9: Veolia -ANZ Risk Management Processes



Veolia Risk analysis:

- 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 as shown in Table 20.

Table 20: 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

- The Veolia Risk Analysis Matrix categorises each risk into one of four risk rating categories, Table 21. 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).

**Table 21: Veolia Risk Rating 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

- 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 Emergency Response Plans (ERP) contingency plans.
    - Capital works briefs and capital works handovers scenarios determined by function / senior management.

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 the levels of risk are assessed into extreme, high, moderate and low. The risk treatment options considered to reduce the causes, probability or impact of failure 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 - rehabilitation 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 22 lists all the identified risks with a significant to catastrophic impact, should they occur. Response planning has been undertaken for each of these risks, although the likelihood for many of these events is low and the consequential risk severity is low or moderate.

**Table 22: High Consequence Events**

Core Value	Outcome	LoS Failure Indicator	Asset group	Asset Sub-Group	Caused By
Safety	Safe, healthy communities Strong leadership and advocacy	Flooding, slips	Piped Network	Piped network critical pipes	Rainfall event exceeds design stormwater (extreme)
				Piped network non-critical pipes	Rainfall event exceeds design stormwater (extreme)
			Open Drain Network	Public open drains	Rainfall event exceeds design stormwater (extreme). Vegetation maintenance in flood plan.
			Private Open Drains in Urban Area	Public open drains	
Flood Alleviation Infrastructure	Stopbanks	Lack of capacity at outlet structure for small flood. No drainage during large flood.			
Responsiveness	Safe, healthy communities Vibrant and diverse living	Unavailability of urban roads, flooding	Flooding Alleviation Infrastructure	Stopbanks	Extensive damage (earthquake or other natural hazard)
Sustainability	Thriving natural environment	Pollution incidents, breach of discharge consent conditions, illness and environmental damage	Piped Network	Inlets and Outlets	Volcanic eruption
Infrastructure Stewardship	Thriving economy Vibrant and diverse living	Inefficient Management of Assets, Significant Assets or Service Failure Occurs with no Management Plan.	All	All	Risk analysis and management is not comprehensive

The following two risk events are also relevant for the stormwater activity:

- Extreme weather events
- Ohakune's main centre businesses are built over culverted waterways which terminate into the Mangatetei Stream.

## 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
Stormwater 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 are 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 stormwater:

Natural Resource	Key Climate Influences	Impacts of Climate Change
Rivers	Rainfall	<ul style="list-style-type: none"> <li>River flows likely to, on average, increase in the west and decrease in the east of New Zealand.</li> <li>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).</li> <li>Winter will see more rainfall in winter with less snow in the Alpine areas.</li> <li>Less water for irrigation in northern and eastern areas.</li> <li>Increased problems with water quality.</li> </ul>
Water Quality	Temperature and rainfall	<ul style="list-style-type: none"> <li>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.</li> <li>Lower stream flows in summer will raise water temperatures and aggravate water quality problems.</li> </ul>
Water Availability	Rainfall	<ul style="list-style-type: none"> <li>Decreases in rainfall, which are most likely in the north and east of New Zealand.</li> </ul>

### 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 stormwater activity.

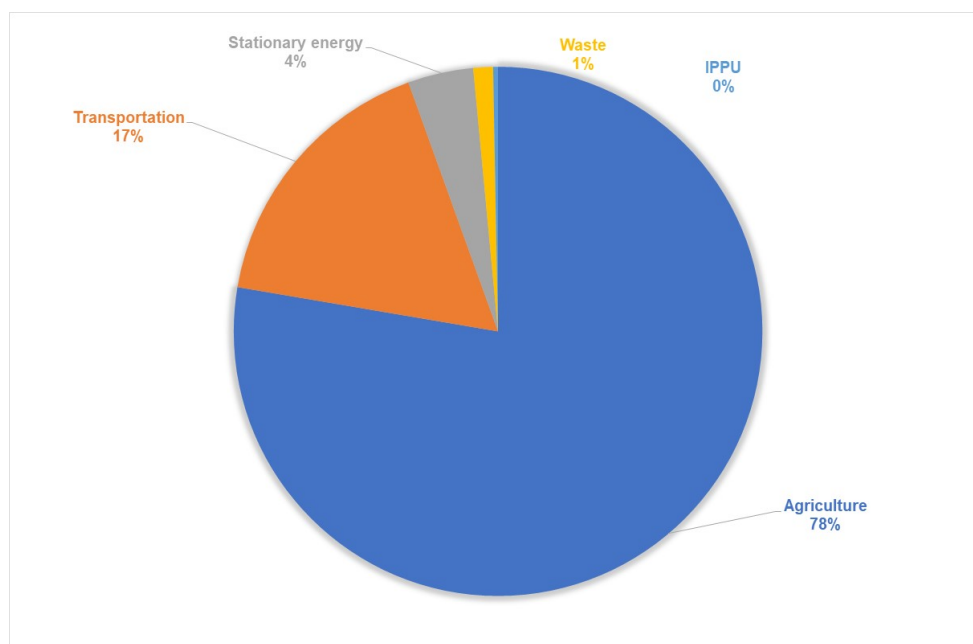
#### At regional level:

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 6.



**Figure 6: 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.

HRC employs a district advice coordinator to provide natural hazards information to the public and territorial authorities. This advice covers hazard information and flood history to inform sale or purchase of property and subdivisions and also advice around inundation levels when building or new dwelling or extensions or for insurance purposes.

**At local and activity levels:**

These likely climate change impacts on Ruapehu's stormwater network will need to be considered with any long-term planning. More frequent flooding may increase with more intensive and frequent storms.

Knowing that heavy, intense rainfall events will not be catered for by the primary network, prudent planning in New Zealand has been based on the provision of overland flow paths (the secondary network), which will cater for larger events. Roads as a secondary path are not an option for most of Ruapehu communities as these were designed to remain open in flood events.

### 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 stormwater operators and is essential for remote communities like those in the Ruapehu District. 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 stormwater 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. Seismic resistant materials are considered when we replace critical assets. Factors that are considered include location and consequences. We undertake a pragmatic evaluation at the renewal planning stage on a case by case basis.
- Enhanced collaboration with Veolia to have robust communication protocols and procedures for keeping the network resilient
- 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:

- Assess pipe sizes to provide for future capacity
- Update the Memorandum of Understanding (MOU) for the Upper Whanganui River Scheme setting out infrastructure asset management roles and responsibilities. Develop new MOU's for the District Wide Scheme and the Ohakune Scheme.
- Developing a process with Horizons to capture stormwater culvert changes over time to provide inputs into modelling of flooding capacity and map updates
- Move the Mangawhero Rivers from the 'Wild River' catchment into the 'Managed River' system through the Ohakune township.
- Move the Pungapuna River stopbank into the Upper Whanganui River Scheme.
- Assess stopbank development options for Ohakune and Raetihi WWTPs if the asset is to remain in use long term.
- Resource consents required for culvert discharge into the Whanganui River scheme
- Education campaign for vegetation clearance in flood plains – public open drains
- Collate rainfall data and design capacity over time.

### 5.3.4 Zero Carbon

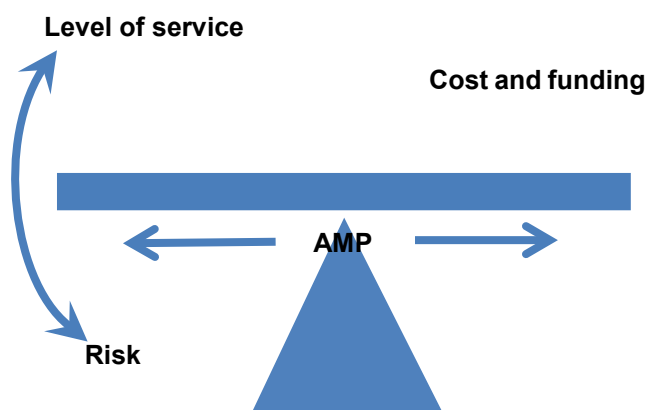
The Zero Carbon Act and recent Council direction mean that Council will be considering opportunities for reducing the carbon emissions it generates. Preliminary opportunities identified include:

- Council will continue to seek new technology and opportunities to reduce its carbon footprint where appropriate for the District size, learning from other water utilities in New Zealand and internationally
- Continue to measure carbon footprint as part of the Climate Change Regional Group.

## 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 stormwater and flood protection services to deliver the LOS defined in Section 3 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 shown below.



### 6.2 ASSET INFORMATION SUMMARY

Council provides stormwater and flood protection services within the District to approximately 5,406 rateable properties via the following eleven Council-owned stormwater networks:

- Kakahi
- Matiere
- National Park
- Ohakune
- Ohura
- Owhango
- Raetihi
- Rangataua
- Raurimu
- Taumarunui
- Waiouru.

Each of these stormwater networks comprises an integrated system of stormwater pipelines, culverts, manholes, sumps and watercourses. District-wide overview information on Council's stormwater systems and assets is provided in Table 17 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 17: Stormwater asset summary**

Township	Rateable properties connected	Stormwater Pipeline Length (km)	Culverts	Watercourses (km)	Manholes	Sumps
National Park	319	2.9	50	0.93	37	38
Ohakune	1,628	12.2	299	10.491	151	239
Ohura	NA	0.6	74	2.36	0	0

Township	Rateable properties connected	Stormwater Pipeline Length (km)	Culverts	Watercourses (km)	Manholes	Sumps
Owhango	146	0.2	68	0.315	1	1
Raetihi	553	3.9	115	4.718	18	52
Rangataua	211	2.2	0	1.07	39	23
Taumarunui	2,465	26.9	336	10.203	344	498
Waiouru	84	1.3	0	0	9	27
<b>Total</b>	<b>5,406</b>	<b>50.2</b>	<b>942</b>	<b>30.09</b>	<b>599</b>	<b>878</b>

Source: AssetFinda (as at 30 June 2019)

#### Notes

- Kakahi, Raurimu and Matiere also have very small stormwater networks and have not been included in this table (total pipeline length is 50.7km with these small communities included)
- The total manhole numbers are 601 with two manholes at Kakahi included
- Rateable properties served are the total number of connections 2020 as recorded in the financial system and provided by Council as at July 2020.

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 Stormwater pipelines

Stormwater is collected via 50.7 km of stormwater pipelines in total (including small communities) of various sizes and materials and is summarised in Table 18. The majority of the stormwater piped network is of 200-375mm diameter and most pipes are concrete material (coded as CONC/RCRRJ in table). In terms of age, 60% of the network was laid after 1980 with a further 30% constructed in the period 1950-1969.

Table 18: Stormwater pipeline details

Length by Diameter			Length by material			Length by date laid		
Diameter (mm)	Length (km)	%	Material	Length (km)	%	Date laid	Length (km)	%
<150mm	3.3	6.4	AC	0.3	0.5	Pre 1950	1.6	3.1
200-280mm	15.2	29.9	PVC/uPVC	2.9	5.8	1950-59	5.6	11.1
300-375mm	18.2	36.0	GEW	0.8	1.5	1960-69	9.8	19.3
450-750mm	10.9	21.6	HDPE	1.5	2.9	1970-79	4.5	8.9
>825mm	2.2	4.3	STEEL	0.7	1.3	1980-89	18.8	37.0
Unknown	0.9	1.8	CONC/RCR RJ	43.3	85.5	1990-99	1.8	3.6
			Unknown	1.2	2.5	2000-09	6.9	13.6
						2010-19	1.7	3.4
<b>Total</b>	<b>50.7</b>	<b>100.0</b>	<b>Total</b>	<b>50.7</b>	<b>100.0</b>	<b>Total</b>	<b>50.7</b>	<b>100.0</b>

Source: AssetFinda as at 30 June 2019

## 6.2.2 Watercourses

Approximately 30.1km of watercourse and 12.4 km of public drains and 19.0 km of open channel also collects and transports stormwater generated within the District.

Ohakune has a number of watercourses flowing through the township which have been maintained periodically. The Mangawhero River and Mangateitei Stream are the major waterways running through Ohakune. There are significant esplanade reserves that from time to time requiring erosion maintenance through rock wall development. This work is undertaken by Council's Recreation and Community Services in conjunction with Horizons.

Where watercourses and open drains flow through private property, maintenance has generally been left to the owner's discretion. In future, a co-ordinated effort will need to be made to remove vegetation which is restricting flow under structures through the township.



*Choke in Miro Street watercourse - tributary in Ohakune*

## 6.2.3 Manholes

601 manholes in total across the network provide access to stormwater pipelines for inspection and maintenance (with the two manholes at Kakahi included).

## 6.2.4 Sumps

878 sumps across the network collect stormwater and direct it to the stormwater pipelines.

## 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 stormwater system. Systematic and documented criticality assessment of Council assets has, however, not been undertaken for either the above or below ground asset components.

Critical asset identification is currently used in decision making with renewals, condition assessments and operational activities. Refining the categorisation of critical stormwater assets at component level to support better decision making has been identified as an improvement action. The categorisation of critical stormwater 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 stormwater activity is shown in the table below.

**Table 19: 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 such 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.

The following assets have been identified as being critical based on operational knowledge and studies completed to date, with a greater level of management applied to them:

For Ohakune this covers:

- Miro Street channel – this channel is full and is unable to take any further increases without causing the likelihood of flooding.
- Most channels passing through urban Ohakune, excluding Mangawhero and Mangateitei Rivers, are unable to take additional runoff from development without the likelihood of flooding.
- Mitigation planning from the Ohakune Flood Modelling and Mapping - Ohakune flood control work programme was developed which included:
  - A spray programme on the Mangawhero River
  - Clearance of vegetation and other congestion material
  - Raising the Miro Street Drainage stopbanking
  - Diversion channel
  - Developing a small stopbank to protect existing house levels
  - Clearing of vegetation and bank protection in the Mangawhero River.

A Flood Management Scheme has been established with Horizons as the lead authority. Horizons are now seeking a resource consent for the management in the waterways in the scheme.

For Taumarunui this covers:

- Internal drainage release through the stopbanks during storm events which do not coincide with the Whanganui River in flood.
- Investigate the pipe capacity and channel system through the township
- Mitigation planning from the Taumarunui Flood Modelling and Mapping a Taumarunui Flood Control Work programme was developed which included:
  - Clearance of vegetation and other congestion material in private drains and minor watercourses.
  - Increasing culvert size through the stopbanks at a number of key locations to release more water.

For Raetihi this covers:

- Continued improvement of the drainage networks through willow clearance
- Understanding the river capacity issues and river flows which will affect the township
- Flood mitigation required within the township.

It is recognised that further controls need to be developed including CCTV of critical pipelines, and network models. Stormwater and flooding risk and assessment is less mature compared with the water and wastewater planning.

## **6.4 ASSET PERFORMANCE**

Asset performance of our stormwater network is assessed in terms of capacity constraints (flood protection) and stormwater quality. There is now greater emphasis on environmental outcomes with the additional oversight of stormwater services by Government and Regional Councils as well as the suite of legislative and regulation changes to improve freshwater ecological health. Historically, we have been more reactive than proactive with managing the performance of the stormwater network particularly stormwater quality. This section sets out the key initiatives that we intend to undertake, recognising that this takes time.

### **6.4.1 Consent conditions**

Historically Council has not applied for resource consents to discharge stormwater from its townships. The towns are largely built in high alpine swamp plains with limited drainage. There are numerous drains and streams through these townships with numerous short drainage pipes to the streams. Global consents will be required for these communities across the Ruapehu District and this is identified as a future improvement project.

The preparation for the stormwater discharge consent still needs to be undertaken. A significant amount of work will be required to prepare the consent application and supporting technical information. The One Plan has stringent conditions regarding discharges of water to the receiving environment as well as the considerations of the NPS for Freshwater Management 2020. Consents are subject to requirements that restrict the quality of water that can be discharged, the main purpose of this is environmental protection.

Council anticipates that we will likely need to improve the quality of our stormwater that is discharged. This will require a proactive approach to retrospectively fit infrastructure that assists with improving stormwater quality as opportunities arise.

#### 6.4.2 Performance by asset class

The overall performance of Council's stormwater and flood protection assets is summarised in the table below. Specific information on asset performance for each of the individual stormwater networks is provided in Appendix C, Part 4.

Table 20: Asset performance summary by asset class

Asset Capacity/ Performance Grading		Comment/Substantiation
Network		
Stormwater and Flood Protection	2	The operation of the stormwater and flood protection assets is typically satisfactory provided ongoing maintenance is undertaken to ensure sumps and stormwater pipes are kept free of debris and open drains are sprayed and kept clear of vegetation.

Performance grading scale: 1 = very good; 2 = good 3= moderate 4= poor 5 = very poor

Although Council is monitoring the stormwater pipeline blockages as a technical LOS for asset performance, the public stormwater network is mainly open drains, so blockages are less relevant compared with wastewater.

#### 6.4.3 Performance of individual township systems

Overall performance grades by township are provided in the table below. Overall asset performance has improved relative to that reported within the 2018 AMP. Minor stormwater improvement works were undertaken by Council which, along with regular ongoing maintenance, have had a positive impact upon asset performance.

Flood modelling studies have been conducted for Horizons for Taumarunui and Ohakune in 2010. These reports identified stormwater and flood protection system limitations presenting flooding risk within both townships. These risks have been assessed and recommended flood control works identified.

Table 21: Performance of individual township systems

Stormwater System	Asset Capacity/Performance Grading
National Park	2
Ohakune	3
Ohura	2
Owhango	3
Raetihi	2
Rangataua	2
Raurimu	3
Taumarunui	2
Waiouru	2

Performance grading scale: 1 = very good; 2 = good 3= moderate 4= poor 5 = very poor

#### 6.4.4 Drainage performance

In general, stormwater and wastewater networks in Aotearoa New Zealand are separate systems. However, stormwater inflow and infiltration (I/I) into the wastewater network is a significant problem. Inflow is used to describe direct flows of stormwater into the wastewater network – and can arise from issues such as illegal connections of stormwater into the wastewater network or from surface water flowing into gully traps in residential properties.

Infiltration refers to stormwater or groundwater flowing into the pipes or manholes where they have cracked – which happens due to ground movement. This means that during rainfall, the wastewater network can be prone to overflowing. Generally, the wastewater network has been designed so that, in the event of an overflow from the wastewater network, it is able to discharge into the stormwater network or the nearest stream or estuary. The reason for this was flooded streams can assimilate the wastewater without causing environmental harm. Public health is safeguarded with the wastewater not being in contact with the general population.

Council provides an active programme of I/I assessment including:

- Waiouru township. The problem within this township was low and significant issues were rectified.
- Rangataua had significant I/I which was addressed. Active manhole checks and the oxidation lagoons suggest this issue has been resolved for now.
- Raetihi had major I/I issues however a reduction in wet weather flows reflects an improvement in the condition of the wastewater mains as a result of pipe relining which was completed in 2018/19. Council continues with its active programme of relining, pump station and wastewater lid inspections along with illegal connection removal. A smoke testing programme is planned for the 2020/21 period.
- Ohakune has some I/I during extreme rainfall. CCTV camera work will help identify more sites.
- National Park I/I was low with only one significant site to resolve.
- Taumarunui I/I assessment of the SH1-Huia and Sunshine, which is the oldest section of town, showed some issues which have since been rectified. The next section to assess is Golf Road where the pump station is indicating I/I can be detected.
- Council will continue with a rolling programme to assess I/I as this is a regular recurring problem for New Zealand towns.

Other asset performance issues are:

- Raetihi - One of the major gaps in level of service identified is the potential for flooding in Raetihi. Flood water in the Makotuku River can prevented the drains and streams which flow through the town entering the main water body. The backing up of water caused flooding in Raetihi and has affected a number of habitable floors in 2013-2014. Horizons and Ruapehu District Council have cleared willows from the Makotuku riverbank thought to be reducing the stream capacity. Work now needs to assess the effectiveness of increasing the channel capacity which will help. Adaptive management and mitigation options will need to be considered in the future
- Taumarunui township flood drainage works are ongoing and discussed further in Part 4.
- Ohakune flood model has been validated since the 2013 flood. Currently Horizons are undertaking consultation with the public to assess the interest in the development of a flood management scheme on the Mangawhero River and its tributaries around Ohakune township down to the current private stopbank. Should the Community reject the development of a scheme Council will need to do more works.
- Operations - A Memorandum of Understanding between HRC and Ruapehu District Council to clarify works and responsibilities needs to be developed and identified as an improvement project. The ratepayer is the same and needs to see efficient and effective collaboration of works. This has been identified as a future improvement.
- Horizons have now developed a Ruapehu District Scheme for vegetation management planning for other rivers outside the main schemes. Willows and other vegetation need to be managed to prevent the development of islands, reduce riverbed capacity and ultimately result in altering of the water course. This has been experienced in Raetihi, Ohura, and Kakahi.

## **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 overall asset condition of Council's stormwater 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 stormwater networks is provided in Part 4, Appendix D.



**Table 22: Asset condition by asset class**

Asset Condition Grading		
Asset	Condition	Comment/Substantiation
<b>Network</b>		
Stormwater and Flood Protection	2	The condition of the stormwater pipework, manholes and kerbside sump stormwater entry pits is generally good.

Performance grading scale: 1 = very good; 2 = good 3= moderate 4= poor 5 = very poor

**Table 23: Condition of individual township systems**

Stormwater System	Asset Condition Grading
National Park	2
Ohakune	3
Ohura	2
Owhango	3
Raetihi	2
Rangataua	2
Raurimu	3
Taumarunui	3
Waiouru	2

Performance grading scale: 1 = very good; 2 = good 3= moderate 4= poor 5 = very poor

Minor stormwater renewals / improvement works have also been undertaken by Council which have had a positive impact upon asset condition. Indicative projects are shown in below.



Improving Outfall of Stormwater



State Highway 4, Raetihi  
New Stormwater Line



Installing a New Wing Wall,  
Taumarunui

## 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 24: Rolling asset performance and condition assessment schedule**

Year	Stormwater Supply Systems
1	Raetihi and Waiouru
2	Taumarunui
3	National Park
4	Owhango and Ohura
5	Raurimu and Rangataua
6	Ohakune

## 6.7 LIFECYCLE MANAGEMENT DECISION MAKING

Council categorises lifecycle management activities into broad categories as shown in the table below.

Table 25: 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 incorporate 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	Levels of service 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 is shown in below. This tree is used by the contractor in their daily operation activities.

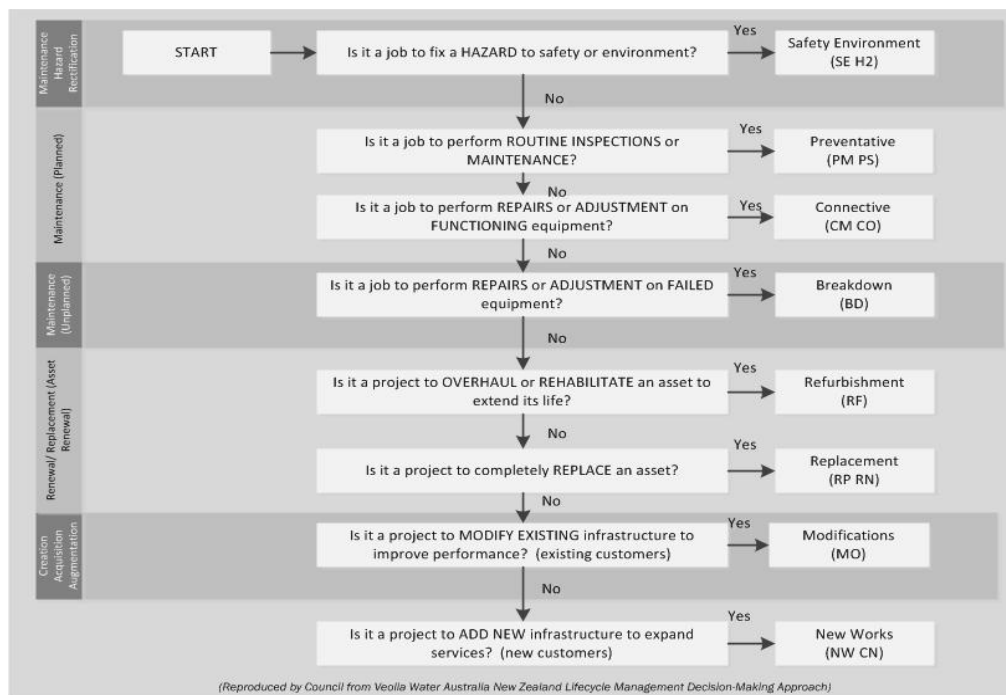


Figure 7: Asset maintenance, renewals and creation decision making

## 6.8 SERVICE DELIVERY ARRANGEMENTS

Council maintains ownership and responsibility for managing the stormwater 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 stormwater 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 a 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 will 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 water supply LoS are met. Council keeps the stormwater networks 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 the table below.

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 26: Operation and maintenance activities**

Plan Component	Description	Specific items
Operations	Work conducted for the operation of Council's Stormwater and Flood Protection 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.	Council labour, corporate systems and overhead costs providing for the following services required to deliver stormwater services to the Ruapehu District: <ul style="list-style-type: none"> <li>• Operations services</li> <li>• Customer services</li> <li>• Operations (facilities management contractor).</li> <li>• Operator labour for stormwater reticulation operation.</li> <li>• Facilities management contractor depot, vehicle and overhead costs.</li> <li>• Insurance.</li> <li>• Consultants/testing/software/other services.</li> </ul>
Hazard Management ( <i>Safety or environmental</i> )	Work undertaken by the Facilities Management Contractor to fix a hazard which is affecting safety or the environment.	Replacement of stormwater manhole lids or sump grates.
Preventative Maintenance ( <i>Planned</i> )	Periodically scheduled inspections and maintenance scheduled by the Facilities Management Contractor 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"> <li>• Stormwater manhole inspections.</li> <li>• Open channel/watercourse inspection and cleaning/spraying (where required).</li> <li>• Stormwater network sumps and mains cleaning.</li> </ul>
Corrective Maintenance ( <i>Planned</i> )	Planned maintenance, typically identified from preventative maintenance tasks, scheduled by the Facilities Management Contractor, to return an asset to its required LoS.	<ul style="list-style-type: none"> <li>• Haunching of manhole lids</li> <li>• Relining of pipe</li> </ul>

Plan Component	Description	Specific items
Breakdowns Maintenance (Unplanned)	Reactive maintenance, typically as a result of a RFS call to Council's call centre, required to be undertaken by the Facilities Management Contractor to return a failed asset to its required LoS.	Facilities management Contractor costs associated with undertaking reactive maintenance items including: <ul style="list-style-type: none"> <li>• Cleaning of stormwater blockages.</li> <li>• Repair of collapsed gravity stormwater mains.</li> <li>• Repair of manholes.</li> <li>• Replacement of stolen manhole lids</li> <li>• Inspection and problem remedy in response to stormwater flooding complaints.</li> </ul>

## 6.10 ASSET RENEWAL PLAN

Asset renewals do not increase the asset 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 the table below.

Table 27: 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 immediately:

- 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 Stormwater 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 28: Useful lives**

Stormwater Pipeline Material	Council revised useful life	Useful Life (Based on Wastewater)	NZ Infrastructure Asset Valuation and Depreciation Guidelines typical useful lives (years)	Justification
AC/ACS	71	70	50-150	Useful life revisions consistent with gravity horizontal infrastructure and available supporting stormwater main condition information (CCTV inspection)
CONC/RCRRJ	82	92		
CLS/Steel	100	92		
GEW	100	84		
PE/MDPE/MDPE80/HDPE/BO SHDPE/ PE100	100	88		
PVC/mPVC/UPVC	100	88		

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. Reflective of Council underspend was the limited deterioration of the asset against the theoretical useful life. The ten year renewal forecast is still less than the annual depreciation. This will need to be monitored to ensure existing levels of service are not impacted and that the asset is preserved long term with the investment level.

**Table 29: 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)
All	357,100	92,000	211,000	26,000	248,986

**Key renewal projects:**

Key stormwater renewal projects for the District are indicated in the following table. The investment levels in stormwater renewals over the ten years are relatively low and needs to be monitored as noted above. Majority of the renewal investment is in Taumarunui. Project specific details by township and project relating to renewal plan works are shown in Part 4 Appendix F.

**Table 30: Key stormwater renewal projects**

Township	Renewal project	Justification
National Park	National Park Stormwater Networks: Stormwater Main Replacement	Structured scheduled programme for rehabilitation / replacement of the National Park stormwater mains (estimated at \$45.5k in total in first 5 years).
Raetihi	Raetihi Stormwater Networks: Stormwater Main Replacement	Structured scheduled programme for rehabilitation / replacement of the Raetihi stormwater mains (estimated at \$16.7 in total over ten years).
Taumarunui	Taumarunui Stormwater Networks: Stormwater Main Replacement	Structured scheduled programme for rehabilitation / replacement of the Taumarunui stormwater mains. (Estimated at \$172k per annum on average over the ten year period).
Waiouru	Waiouru Stormwater Networks: Stormwater Main Replacement	Structured scheduled programme for rehabilitation / replacement of the Waiouru stormwater mains (estimated at \$160k in total in first 5 years).

**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 stormwater infrastructure with the main drivers being:

- To meet the demands of growth by stormwater provision to Council's customers through efficient utilisation of natural resources
- To meet the LoS with respect to safe and effective stormwater in main townships where applicable
- To meet legislative compliance where possible.

Council growth and LoS activity categories are shown in the following table.

**Table 31: Asset creation sub-activities**

Creation Plan Activity Category	Creation Plan Sub-Activity Category	Description
Growth	Network	Growth expenditure on Stormwater and Flood Protection network (pipework) assets.
	Pump Station/Storage	Growth expenditure on Stormwater pump station/storage assets.
	Vested Assets	Accounting related category for vested Stormwater and Flood Protection assets from new developments.
LoS	Compliance	Replacement, upgrading or installation of new assets to achieve compliance with statutory obligations and Health and Safety compliance.
	Customer	Replacement, upgrading or installation expenditure to achieve (existing) customer LoS. Also includes expenditure to improve asset operability and reliability to ensure LoS are achieved.
	Service Extensions	Expenditure on new assets to provide stormwater 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 Stormwater and Flood Protection services.

Key asset creation projects for the District are indicated in the following table.

**Table 32: Key asset creation projects**

Township	Work and Expenditure Item	Justification
Ohakune	Ohakune Stormwater Networks: Growth Extension	Extension of the stormwater network to accommodate growth in the Ruapehu Road area. (Estimated at \$235k in total in last 5 years).
Owhango	Owhango Stormwater: Planning	Stormwater system master planning (management and development plan). (Estimated at \$30k in 2024/25).
Raetihi	Raetihi Stormwater: Piping of Open Channel Systems	Piping of existing stormwater open channels. (Estimated at \$67k in total).
Taumarunui	Taumarunui Stormwater: Tuaki Street & Maata Street Flood Control	Installation of new 2m x 1m Box Culvert adjacent to the stopbank in the Taumarunui Domain. (Estimated at \$235k in total).
	Taumarunui Stormwater: Taupo Road Flood Control	Installation of new 1.5m x 1m box culvert at 158-160 Taupo Road. (Estimated at \$276k in total).
	Taumarunui Stormwater: Tuku Street Flood Control	Installation of new Tuk Street Culvert and 1.5m x 1m culvert in Tuku Street domain. (Estimated at \$200k in total).
	Taumarunui Stormwater Networks: Hakiaha Street	Hakiaha Street (estimated at \$390k in total)
	Taumarunui Stormwater: Short St Physical Works	Short St upgrade (estimated at \$1 million in 2022/23)
District	District Wide - Roading Projects	To provide share of stormwater costs (including rural maintenance). Estimated at \$48k per annum over the ten years.

There are several small towns in the District that are currently unserviced or have limited stormwater servicing. The current status of these unserviced townships is shown in table below. There will be pressure for a Council reticulated stormwater system as these townships grow but this is not expected to be within the next ten years.

Development has historically resulted in the piping of watercourses and drains, which is no longer considered good practise. The One Plan has restricted the piping of waterways and drains to endorse good practise. Council

must balance the ability of the District to fund such a reticulated scheme with the social good which arises from a public stormwater and flood protection scheme.

**Table 33: Status of development in un-serviced townships**

Township	Water Service Status	Comments
Horopito	No formal Stormwater and Flooding system. The sections are large and subdivision was for self-sufficient servicing.	Development is occurring now but is slow.
Kakahi	Only roadside drains (3km in total)	Development is slow
Matiere	Only a partial Stormwater and Flooding system (1.4km in total)	Development is slow
Raurimu	Only a partial Stormwater and Flooding system	Development is occurring now but relatively slow

## 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 stormwater and flood protection 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.

There are no stormwater or flood protection assets of significant value that have been identified for decommission.

## 7 ASSET MANAGEMENT PRACTICES

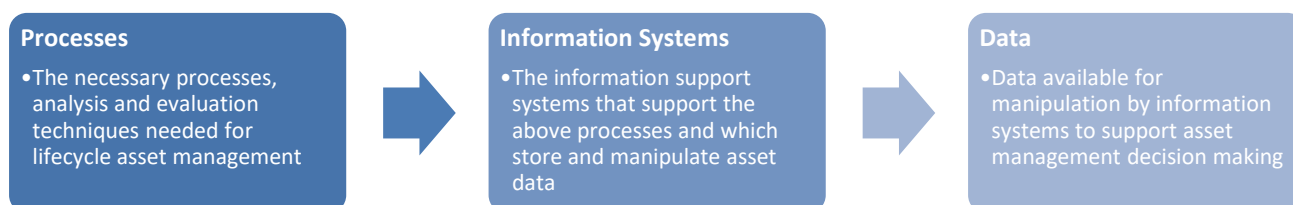
### 7.1 OVERVIEW

Council is committed to continue with good practice AM as a sustainable standard for its stormwater and flood protection 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 ASSET MANAGEMENT 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 stormwater activity is a mixture of in house resources, long term service provider Veolia, Horizon Regional Council providing river management 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 stormwater asset data is shown in Table 34.

**Table 34: Asset data completeness and accuracy**

Asset Class	Inventory Data Completeness (%)			Inventory Data Accuracy (confidence)		
	Measure	Age	Condition	Measure	Age	Condition
<b>Network</b>						
Stormwater mains	100%	100%	99.7%	Reliable	Mostly reliable	Reliable
Sumps	100%	100%	99.8%	Reliable	Mostly reliable	Reliable
Manholes	100%	100%	99.3%	Reliable	Mostly reliable	Reliable

Source: AssetFinda (as at June 2019)



## 7.4 PROCESSES

The key asset management processes are summarised in Table 35.

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 35: Asset management processes**

<b>AM Process Area</b>	<b>Purpose</b>	<b>Status/enhancement</b>
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 MAXIMO CMMS, 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 networks. 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. This will be checked for stormwater but is unlikely to have any significant implications for this 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.
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	Stormwater SOPs provide guidance on the requirements for the management and monitoring of the stormwater assets.	Veolia operate and maintain the stormwater assets under there SOPs in accordance with their ISO 9001 certified Quality Management System.

## 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 36.

**Table 36: Asset management systems**

<b>Data Collection (and Software)</b>	<b>Use</b>	<b>Details</b>	<b>Status / enhancements</b>
GIS (Intramaps and MapInfo)	Storage and analysis	MapInfo GIS is used to store inventory information for all water, wastewater and stormwater 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 three 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.
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.

<b>Data Collection (and Software)</b>	<b>Use</b>	<b>Details</b>	<b>Status / enhancements</b>
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

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### 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 AMP and the issues identified. The three year improvement programme plus ongoing improvements is summarised in the following table.

The main improvement objectives to be achieved in the next three years due to their priority and importance for the stormwater activity include:

- Iwi partnership development - Establish Iwi Liaison /co-governance partners treaty settlement delivery as they reach settlement.
- Prepare for growth - We need to undertake Stormwater Master Planning an overarching framework to guide our long term planning and capital works programmes. Stormwater infrastructure will need to support growth in housing requirements, particularly for Ohakune.
- Critical assets - Refining the categorisation of critical stormwater 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.
- Strengthening resilience - Improving the resilience of the network in relation to climate change impacts.
- Regional Partnership - Continue with regional collaboration for three 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 37: 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 three 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			
		1.3	Prepare the comprehensive resource consents to discharge stormwater from its townships.	Environmental Manager	High	To start				
		1.4	Develop a strategy for improved stormwater quality management to reduce pollution running off the public roads with Council's internal transport team for good environmental outcomes.	Team Leader Land Transport, Environmental Manager	Medium	To start				
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 Rangi	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	Undertake Stormwater Master Planning an overarching framework to guide our long term planning and capital works programmes. Stormwater infrastructure will need to support growth in housing requirements, particularly for Ohakune.	Environmental Manager	High	To start				
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	Undertake the cyclical asset condition assessment programme.	Environmental Manager	High	Ongoing				

No.	AM Improvement Area	Project no	Action	Responsibility	Priority (High / Medium / Low)	Status	Indicative Timeframe			
							2020/21	2021/22	2022/23	2023/24
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				
7	Managing Risk	7.1	Review the 2018 Stormwater Activity Risk Register in collaboration with Veolia.	Environmental Manager	High	To start				
		7.2	Refine the categorisation of critical stormwater assets at component level to support better decision making. The categorisation of critical above ground water 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.	Environmental Manager	High	To start				
8	Operational Planning	8.1	Develop MOU between HRC and Ruapehu District Council to clarify works and responsibilities in relation to flood protection for all schemes.	Environmental Manager	High	To start				
		8.2	Review emergency response information and continuity plan.	Environmental Manager	High	Underway	Continuity Plan	Township recovery		
		8.3	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				
10	Financial Planning	10.1	Reconcile the two datasets for stormwater 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	10.2			
		10.2	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				
		10.3	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				
		10.4	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

No.	AM Improvement Area	Project no	Action	Responsibility	Priority (High / Medium / Low)	Status	Indicative Timeframe			
							2020/21	2021/22	2022/23	2023/24
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 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 stormwater 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	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				
		15.2	Undertake the review of Three Waters O & M Contract.	Environmental Manager	High	Underway	Review works	Contract decision		

No.	AM Improvement Area	Project no	Action	Responsibility	Priority (High / Medium / Low)	Status	Indicative Timeframe			
							2020/21	2021/22	2022/23	2023/24
16	Audit and Improvement	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 38: 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
Quarterly	Implementation of the Improvement Programme	Tracking the progress of implementing the improvement programme quarterly 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 ten year forecast period from 2021/22 to 2030/31 (and subject to adoption of the LTP by Council). All amendments will be provided in Part 4, Appendix A which will be updated with the Exceptions Annual Plan each year.

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 ten 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 stormwater activity over the next ten years is \$16.9 million, as shown in the figure and table below. This shows that the total operational annual costs are about \$1.2 million and makes up 68% of the total forecast. The chart is only showing for the next ten years; refer to Part 4, Appendix G for 30 year forecasts.

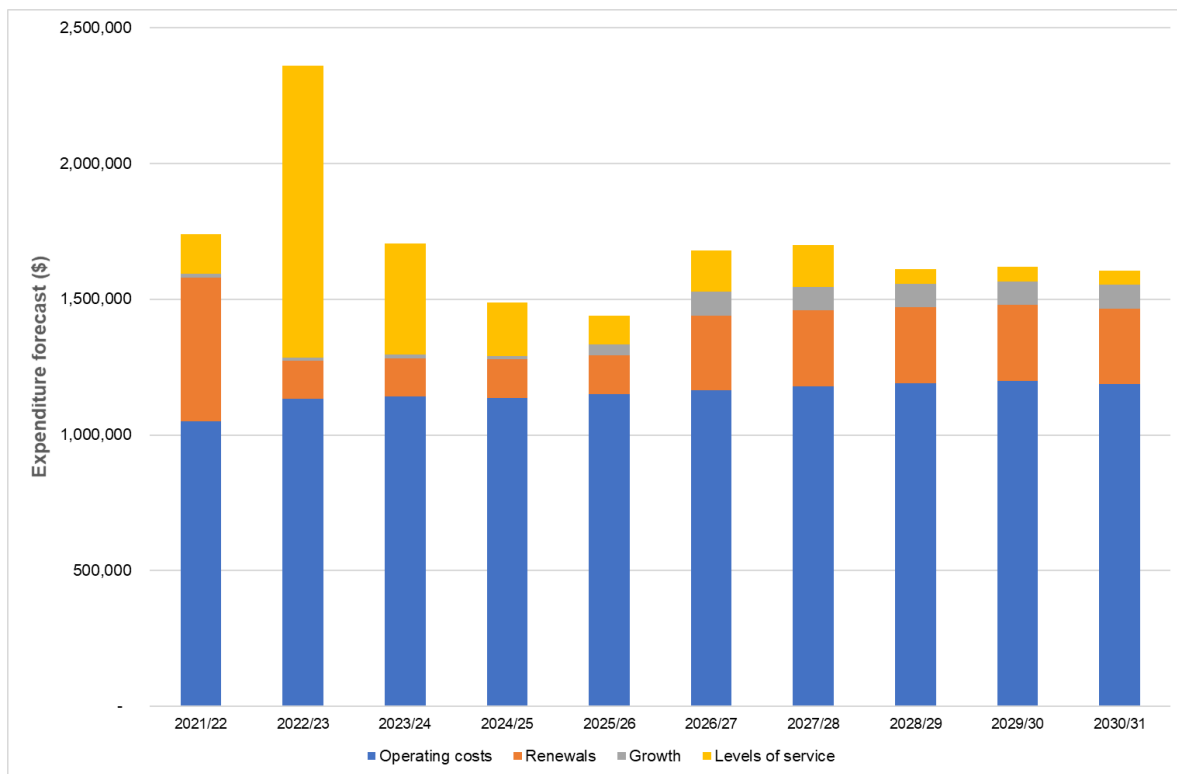


Figure 8: Summary of stormwater ten year expenditure forecast

Source: Council's final LTP budgets (as at June 2021)

**Table 39: Summary of stormwater ten year expenditure forecast**

<b>Stormwater expenditure</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>Ten year total</b>
Opex	1,049,590	1,131,655	1,140,475	<b>11,531,005</b>
Renewals	530,764	140,864	141,631	<b>2,489,862</b>
Growth	12,602	12,602	12,602	<b>522,635</b>
Levels of Service	146,184	1,075,484	410,584	<b>2,400,806</b>
<b>Total</b>	<b>1,739,140</b>	<b>2,360,605</b>	<b>1,705,292</b>	<b>16,944,308</b>

Capex (renewals and new works) expenditure across the ten year expenditure period is forecast at \$5.4 million. Renewals makes up 46% of the ten year capex expenditure followed by levels of service at 44%.

Operational expenditure consists of direct (such as staff and contractor costs) and indirect costs (such as overheads, depreciation and finance costs). Depreciation makes up 36% of the ten year opex expenditure followed by other expenses (contractor and utility costs) at 33%.

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 stormwater activity will be funded in accordance with the financial policies of Council as indicated below.

**Table 40: Funding strategy for stormwater activity**

<b>Programme</b>	<b>Funding mechanism</b>
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 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. The priority of spending is on water and wastewater then stormwater infrastructure.

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.

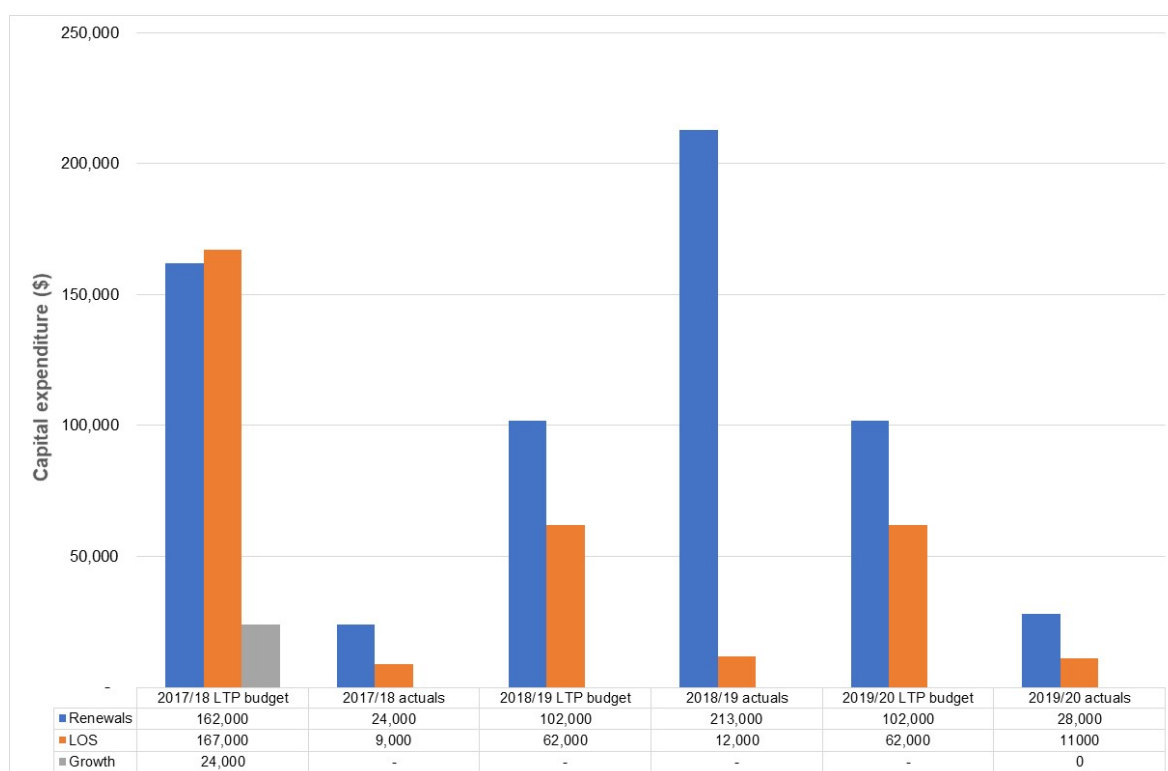
Council wishes to make a step change in investment in core infrastructure, particularly for water supply and wastewater activities. The 2021 LTP signals that we cannot keep the capital investment and debt levels so it is affordable for our community. We must undertake these works in order to provide 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 stormwater capital programme for 2017/18, 2018/19 and 2019/20 are presented in the following figure. Although the stormwater capital programme is not large, achievement was variable with under achievement in two years. Although resource consent consultation, and agreement on works have also detained the addition of a culvert through the Upper Whanganui River Scheme stopbank.

Failures to deliver capital works 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 9: 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 stormwater schemes is contained within Part 4, Appendix E.

**Table 41: Asset valuation summary**

Stormwater Asset Group	Replacement Cost (\$)	Depreciated Replacement Cost (\$)	Accumulated Depreciation (\$)	Annual Depreciation (\$)
Network	29,068,388	14,959,404	14,108,984	352,232
Pump Stations	0	0	0	0

Stormwater Asset Group	Replacement Cost (\$)	Depreciated Replacement Cost (\$)	Accumulated Depreciation (\$)	Annual Depreciation (\$)
Treatment and Disposal	391,069	376,484	14,584	4,868
<b>Total</b>	<b>29,459,457</b>	<b>15,335,888</b>	<b>14,123,569</b>	<b>357,100</b>

Source: Veolia Water (as at 1 July 2020)

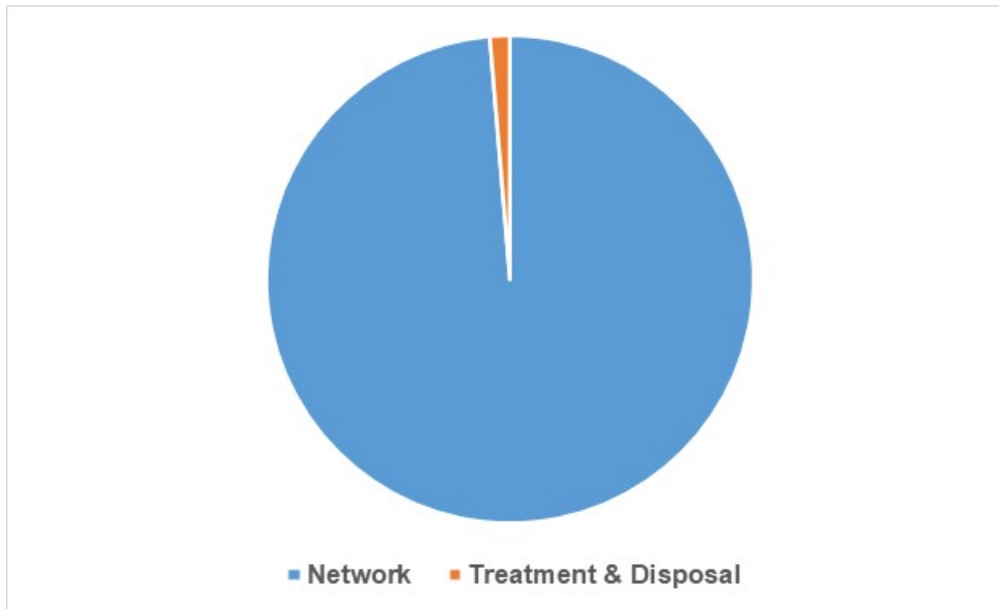


Figure 10: Valuation breakdown by major asset class

Asset valuations are undertaken on an annual basis including reviewing useful lives and updating unit rates.

## 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 ten 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 stormwater 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 42: 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

Council Outcomes	Key service attribute	LOS	How we will measure our performance	Performance measure type	Current performance for 2018/19	Current performance for 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 – flood protection	Stormwater systems protect houses from flooding in urban areas	The number of flooding events that occur in the Ruapehu District For each flooding event, the number of habitable floors affected (Expressed per 1,000 properties connected to the territorial authority's stormwater system.)	Mandatory	Achieved	Achieved (see note 3)	≤ 3 per 1,000 properties	≤ 3 per 1,000 properties	≤ 3 per 1,000 properties	≤ 3 per 1,000 properties	≤ 3 per 1,000 properties
	Quality - reliability	To provide reliable stormwater networks	The number of complaints received by Council about the performance of its stormwater system (per 1,000 connections to Council's stormwater system)	Mandatory	5.2 Achieved	3.8 Achieved	≤15 per 1,000 properties	≤15 per 1,000 properties	≤15 per 1,000 properties	≤15 per 1,000 properties	≤15 per 1,000 properties
			Number of reported stormwater pipeline blockages per 100km of pipeline per year	Technical	New measure	New measure	≤30	≤30	≤30	≤30	≤30
			Percentage of stormwater assets in satisfactory condition (condition grades 1,2,3 or 4)	Technical	New measure	New measure	New measure	80%	80%	80%	80%
			Customers are satisfied with the stormwater services provided	Customer	96% Achieved	86% Achieved	>80%	>80%	>80%	>80%	>80%
	Responsiveness	To provide prompt responses for service	The median response time to attend a flooding event, measured from the time that Council receives notification to the time that service personnel reach the site	Mandatory	(no floods) Achieved	(no floods) Achieved	≤2 hours	≤2 hours	≤2 hours	≤2 hours	≤2 hours
Thriving, natural environment	Sustainable - Environmental performance	Environmental impacts are managed, and resource consents complied with	Compliance with the Council's resource consents for discharge from its stormwater system. Measured by the number of:	Mandatory							
			a) abatement notices		zero Achieved	zero Achieved	≤2	0	0	0	0
			b) infringement notices		zero Achieved	zero Achieved	≤1	0	0	0	0
			c) enforcement orders		zero Achieved	zero Achieved	≤1	0	0	0	0
			d) prosecutions received by Council in relation those resource consents		zero Achieved	zero Achieved	0	0	0	0	0

## 10.2 STORMWATER IMPROVEMENT TASKS

Stormwater 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 stormwater 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 stormwater 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 stormwater activity. This was tested more recently with the lockdowns in 2020 due to the global pandemic.	7.4 and 5.1



# **Stormwater and Flood Protection**

## **Asset Management Plan 2021-31**

Part 4 - Appendices

## **Appendix A – Summary of 2021 Long Term Plan Process**

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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.

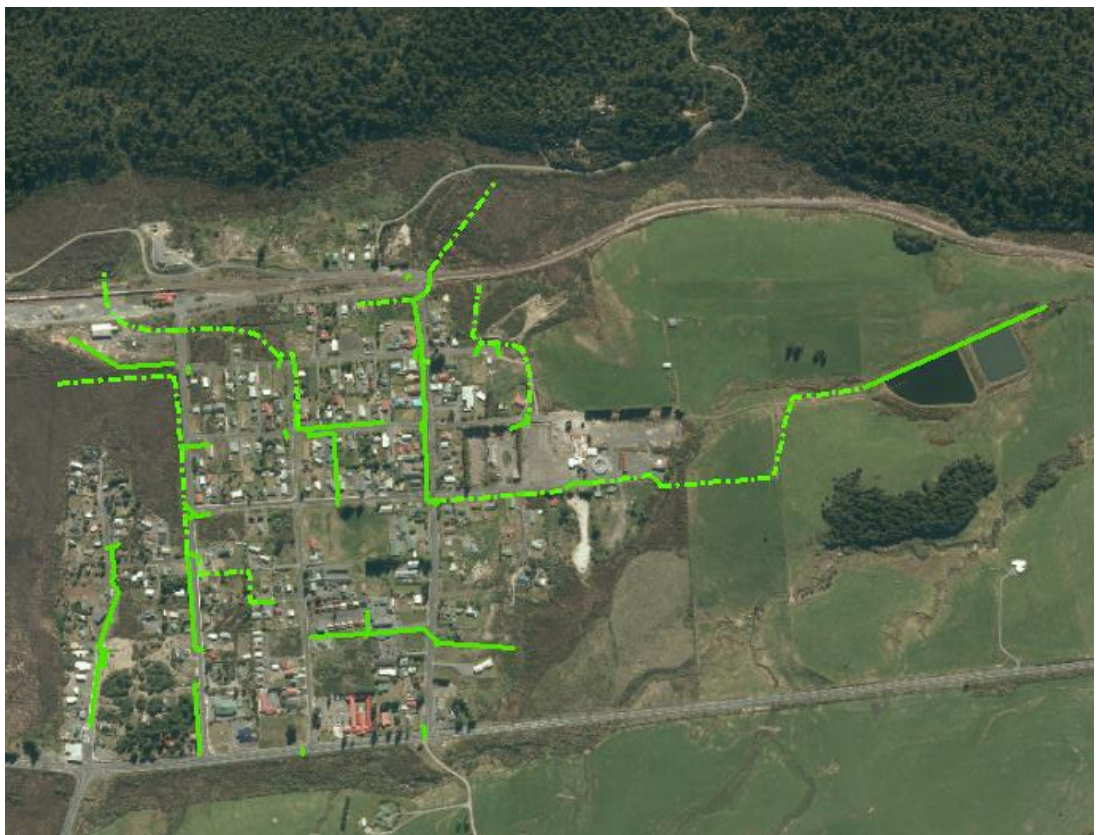
## Appendix B – Physical Parameters: Stormwater Reticulation Schemes

### B.1 National Park

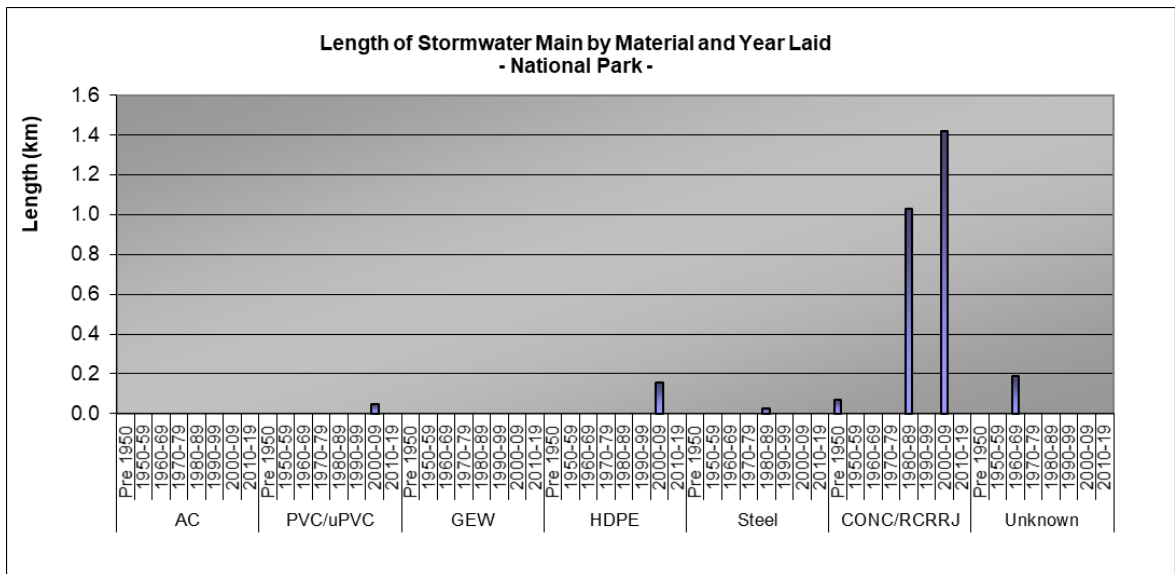
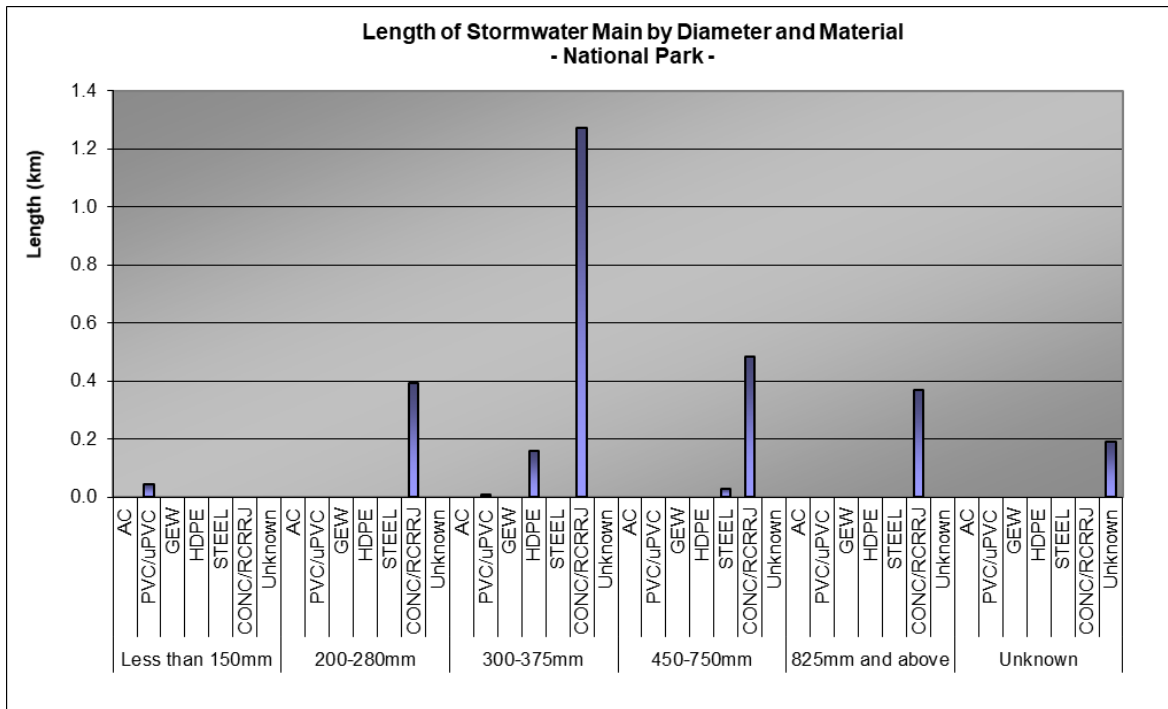
The National Park Stormwater reticulation network provides water channels to drain Stormwater and flows from roads and properties in built up areas within the National Park community.

#### B.1.1 Network

- (a) **Stormwater Mains:** The National Park Stormwater reticulation network comprises an integrated combination of public drains and reticulated pipework systems consisting of pipework and manholes with kerbside sump stormwater entry pits as summarised in Table 23 (AMP Part 3), together reticulation network map for the 2.9km of stormwater main within the National Park stormwater network is provided below.



- (b) The graphs provide a graphical composition of the National Park stormwater reticulation network with respect to pipe diameter/material, and pipe material/date laid. The pipelines are predominantly 300-375mm diameter (48.7% by network length) and 450-750mm diameter (17.4% by network length). The pipe materials used most is CONC/RCRRJ with 85.5%. Much of the infrastructure was installed from 2000 to 2009 (inclusive) totalling 1.62km, or 55.2%.
- (c) **Culverts:** 50m
- (d) **Water Courses:** 930m
- (e) **Manholes:** 37 manholes dispersed across the network provide access to stormwater mains for inspection and maintenance
- (f) **Sumps:** 38



**B.1.2 Flooding**

(a) National Park Stormwater Planning by Barnett and MacMurray Limited 2004 provides hydrological and hydraulic modelling for a 10% AEP level of services. Flood levels in the 2% AEP event with the concept design in place were also estimated. The National Park planning document has the majority of recommendation completed which provided improvement to the majority of the township. National Park is on a high plateau with no major streams running through the township. Stormwater release is made more difficult because commonly the road is higher than the property frontage. Using this model recommendation and adding additional drainage has reduced most stormwater service calls from National Park. Upgrading of this modelling will be considered in the future once other critical issues are resolved.

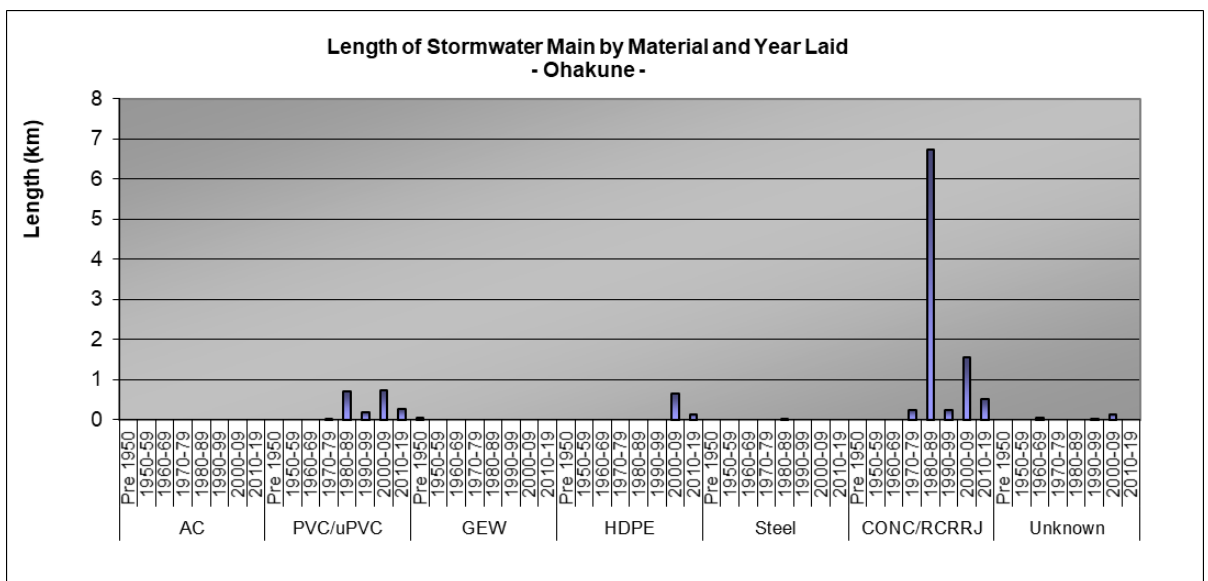
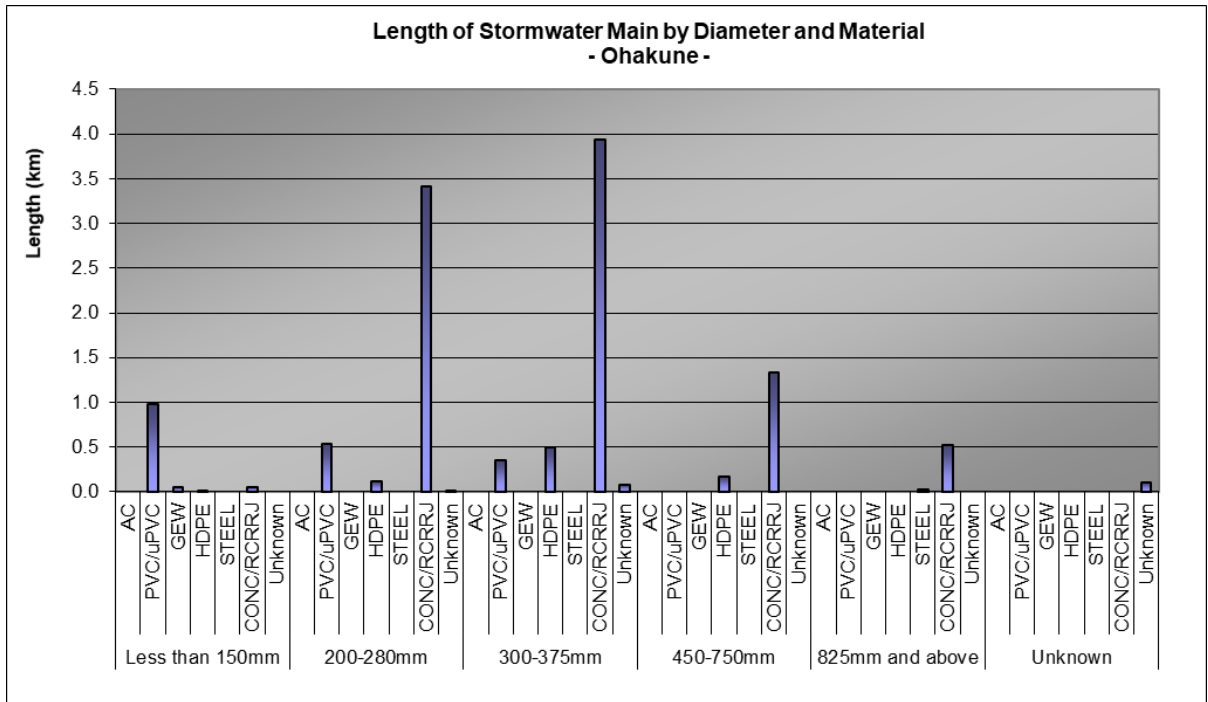
## B.2 Ohakune

The Ohakune stormwater reticulation network provides water channels to drain stormwater and flows from roads and properties in built up areas within the Ohakune community.

### B.2.1 Network

- (a) **Stormwater Mains:** The Ohakune Stormwater and Flood Protection reticulation network comprises an integrated combination of public drains and reticulated systems consisting of pipework and manholes with kerbside sump Stormwater entry pits as summarised in Table 23 (AMP Part 3), together with a reticulation network map for the 12.2km of stormwater main within the network.
- (b) The graphs provide a graphical composition of the network with respect to pipe diameter/material, and pipe material/date laid. Much of the network is 300-375mm diameter (40% by network length) and 200mm-280mm diameter (33.3% by network length). The pipe material used most is CONC/RCRRJ with 76.1%. Much of the network infrastructure was installed from 1980 to 1989 (inclusive), totalling 7.5 km, or 61.3%.
- (c) **Culverts:** 299m
- (d) **Water Courses:** 10491m
- (e) **Manholes:** 151 manholes dispersed across the network provide access to Stormwater mains for inspection and maintenance
- (f) **Sumps:** 239





**B.2.2 Flooding**

- (a) Ohakune lies on the floodplain of a number of river and stream channels that flow off the south western flanks of Mount Ruapehu and has, in the past, experienced flooding to both the urban and commercial sectors of town.
- (b) Increased investment in both the commercial and residential parts of the township has significantly increased the potential losses that will occur in the next large flood event that affects the Ohakune area.
- (c) In June 2008, John Philpott & Associates Ltd (JP&A) undertook Stage One of a three stage investigation to identify the extent of the flooding problem and ultimately the solution to prevent or limit the extent of damage to Ohakune in future flood events.
- (d) Stage One of this investigation involved two parts. Part One was to inspect all the culverts and bridges on the channels that flow through Ohakune to identify factors that could affect their flood carrying

capacity and to inspect all open watercourses to identify where their flood-carrying capacity was adversely affected by vegetation and other such restrictions. Part Two was to measure and log the precise location of all the culvert and bridge structures on these open channels for input into the flood plain model to be developed by Horizons.

- (e) Stage Two, completed by Horizons, undertook a flood study of the township of Ohakune and the surrounding rural and semi-rural areas that are potentially affected by flooding. This study utilised the information collected by JP&A along with LIDAR mapping data obtained by Horizons and other information provided by Council. The study involved the development of hydrologic and hydraulic models to estimate flooding for the 2% AEP (annual exceedance probability), the 1% AEP and the 0.5% AEP design flood events.
- (f) The results of the Horizons study show that there are significant areas of Ohakune that are susceptible to flooding, mostly from the small tributaries that flow in an east-west direction to join the Mangawhero River which flows along the town's western boundary.
- (g) Stage Three has been for JP&A to produce the Ohakune Flood Control Works Programme August 2011, which looks at findings of the model and methodologies to elevate effects. This will be an iterative process and after the programme is complete or major changes in culverts occur then the modelling will be repeated. Currently all changes to culvert sizes and pipe replacement or extension are being captured for this purpose. Some of this work has highlighted the need to further refine the model, which is now ongoing.
- (h) It is imperative that Land Transport with culvert upgrades, changes to road crossing and bridge improvements consults to ensure appropriate capacity is provided for Stormwater and Flood Protection and preferential paths through swale drains are developed in road verges or use of the roadway in preference to the flooding of valuable property and/or the reduced risk to public safety.
- (i) The flood in 2013 provided an opportunity to recalibrated the Horizons flood modelling data. This resulted in Horizons producing a preliminary report for flood control in Ohakune. Council asked the Regional Council in 2016 to develop this into a Proposed Flood Defence Scheme for Ohakune township. Currently Horizons are engaged with the Ohakune public discussing the establishment of an "Ohakune river and drainage scheme that will provide 100 year flood defence to the township and properties. It is proposed the scheme will consist of stopbanking, channel clearance to allow for greater water capacity, floodwater storage. The option of improving aquatic habitat through the township, including beatification and enhancement aspects. This will form part of the Regional Council Long Term Plan consultation should the feedback be positive. Should Regional Council not develop a river scheme for Ohakune then Council will be required to continue on its programme to increase channels and storage options, potential at a slower rate.
- (j) Co-ordination with the Recreation and Community Facilities as major asset owners ensures the drainage channel and flood plain (river berm) are not restricted by vegetation plantings.

### **B.3 Ohura**

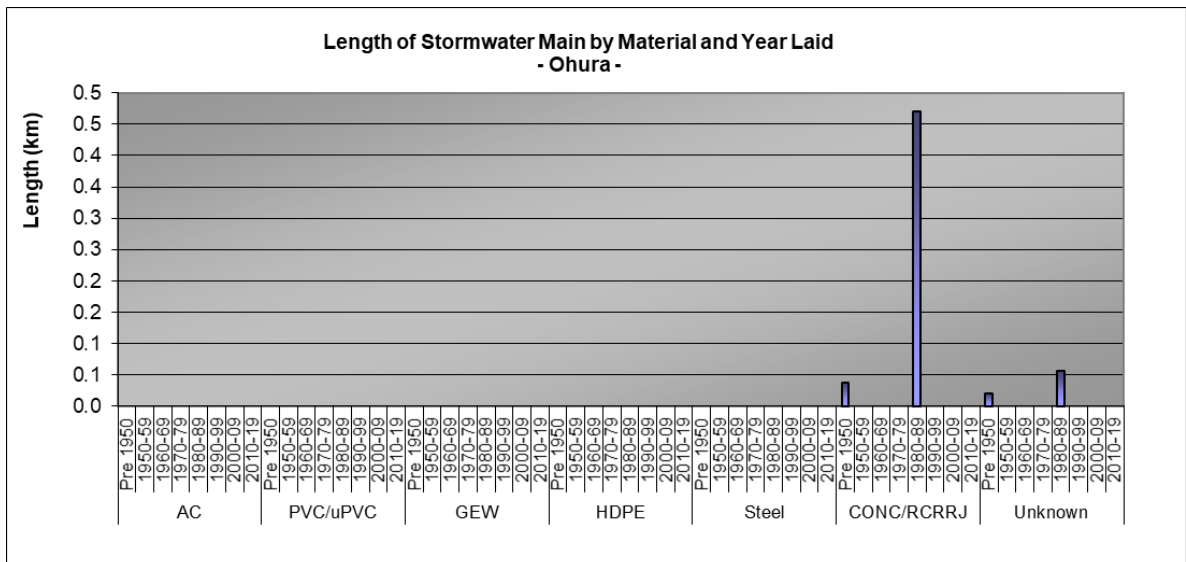
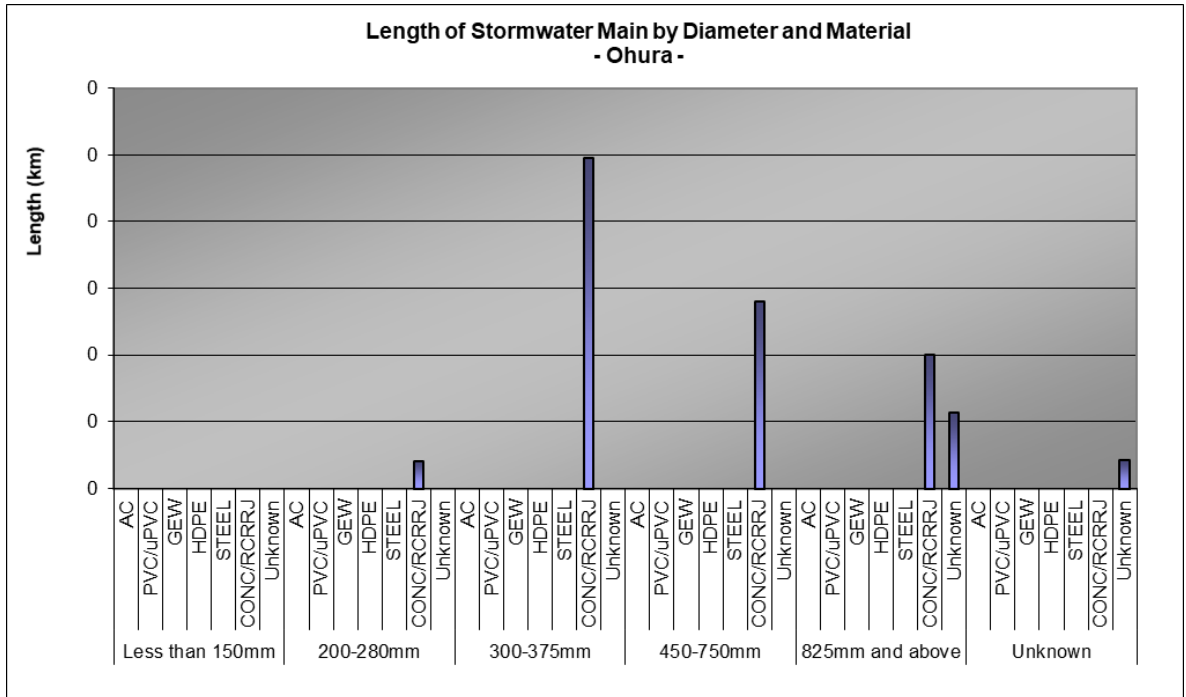
The Ohura stormwater reticulation network provides water channels to drain stormwater and flows from roads and properties in built up areas within the Ohura community.

#### **B.3.1 Network**

- (a) **Stormwater Mains:** The Ohura stormwater reticulation network comprises an integrated combination of public drains and reticulated systems consisting of pipework and manholes with kerbside sump stormwater entry pits as summarised in Table 23 (AMP Part 3), together with a reticulation network map for the 0.59km of stormwater main within the Ohura network.
- (b) The graphs provide a graphical composition of the Ohura network with respect to pipe diameter/material, and pipe material/date laid. The pipelines within the network are predominantly 300-375 mm diameter (42.3% by network length) and 825 mm diameter and above (26.7% by network length). Almost entire network is made from CONC/RCRRJ pipe material at 86.7% and the balance

being unknown. The majority of the network infrastructure was installed from 1980 to 1989 (inclusive) totalling 0.53 km, or 90.0%.

- (c) **Culverts:** 74.5m
- (d) **Water Courses:** 2,360m. The Ohura township has three main water courses: Mangaparare Stream, Waitewhena Stream and the Mangaroa River. There is also a significant number of deep drains which discharge into these watercourses. Within the town boundary the drains are maintained by the Council under a yearly programme with its Facilities Manager.





### B.3.2 Flooding

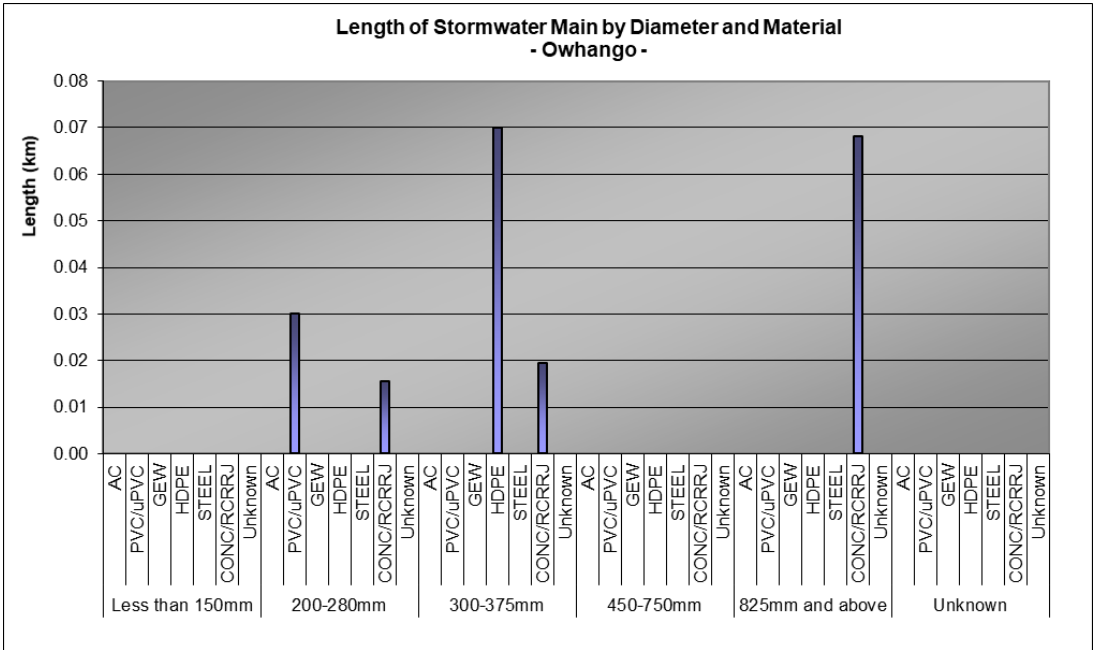
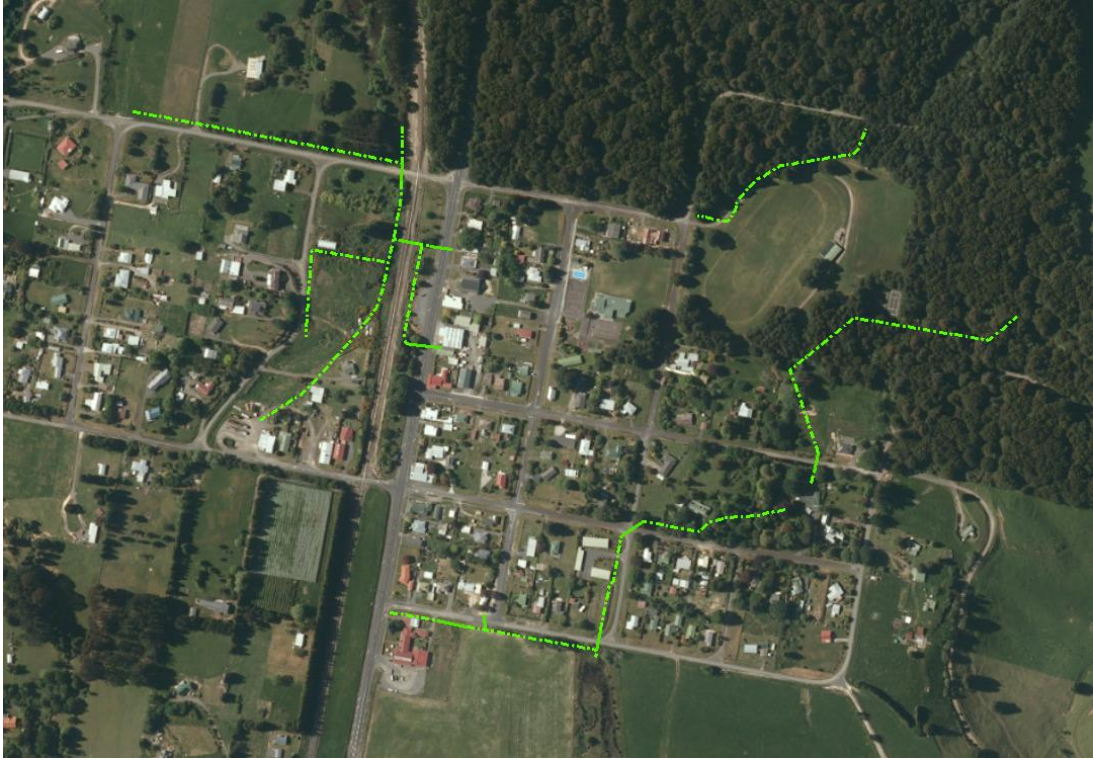
- (a) The township of Ohura is located in a flood plain at the confluence of three rivers including the Mangaroa River and was originally surveyed on a swamp. The sub-catchments feed into this floodplain which is subjected to prolonged high intensity rainfall and which is prone to accelerated erosion. Historically the township of Ohura has been prone to repeated flooding.
- (b) On the evening of Wednesday 28 October 1998, Ohura and other parts of the District west of State Highway 4 experienced extensive and severe flooding that was estimated to have greater than a 50 year return period. Flood waters inundated some properties to a height of up to 1.2 metres and 18 houses were considered uninhabitable and seven a health risk. For up to three weeks 42 rural families were isolated because of road damage. A Civil Defence Emergency was declared on Friday 30 October 1998 and remained in place until Wednesday 3 November 1998.
- (c) A flood management scheme with stopbanks was proposed in the 1990s and was reinvestigated after this major flood with the option of a partial stop bank being selected. The resource consent was opposed at the Environment Court level as locals opposed the proposal. Consequently Council revoked its decision to seek resource consent for the construction of the Ohura stopbank and flooding remains a major problem in the Ohura township.
- (d) While resilience remains high in the community, Council and Horizons have been jointly working to implement rainfall gauges in the headwaters of both valleys to provide an early warning system. Horizons has also installed a hydrology site to provide river heights and a webcam on the Mangaroa River to provide a visual at the hydrology site. A remote early warning alarm sounding system has been installed in the Ohura township over this last three LTP periods. The community and working on further Civil Defence procedures together with both Council and Horizons.
- (e) The hydrology site and other survey information will help Horizons determine if their flood mapping advice for this township requires further updating.

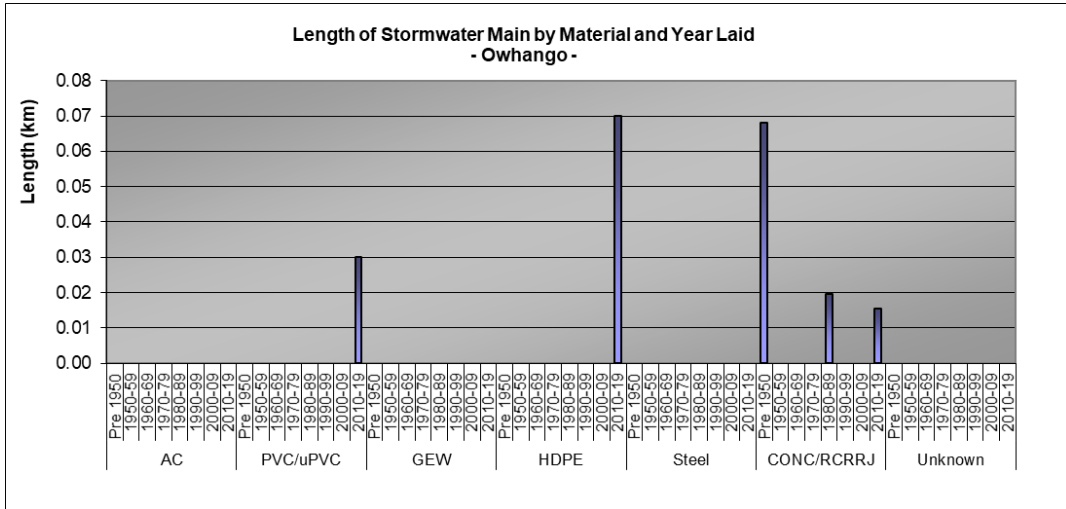
## B.4 Owhango

The Owhango Stormwater reticulation network provides water channels to drain Stormwater flows from roads and properties in built up areas within the Owhango community.

### B.4.1 Network

- (a) **Stormwater mains:** The Owhango stormwater reticulation network comprises an integrated combination of public drains and reticulated pipework systems consisting of pipework and manholes with kerbside sump stormwater entry pits as summarised in Table 23 (AMP Part 3), together with a reticulation network map for the 0.2km of stormwater main within the Owhango network.
- (b) The graphs provide a graphical composition of the Owhango network with respect to pipe diameter/material, and pipe material/date laid. The pipelines within the network are predominantly 300-375 diameter (44.0% by network length). Approximately half (50.8%) of the piped stormwater network is made from CONC/RCRRJ pipe material. The majority of the piped network infrastructure was installed from 2010 to 2019 (inclusive) totalling 0.12 km, or 56.9%.
- (c) **Culverts:** 68m
- (a) **Water Courses:** 315m
- (e) **Sumps:** 1





#### **B.4.2 Flooding**

- (a) The Owhango township is not in a floodplain and therefore any flooding is from surface water only. Investigations during wet periods indicate ponding of water is mainly caused by driveway crossings restricting the flow of water. In one small section the roadside drainage work needs to be formed. This matter falls under the Land transport activity to formulate roadside drains. The community must, however, agree on a structural plan on the actual level of service to be developed around the road berm.

#### **B.5 Raetihi**

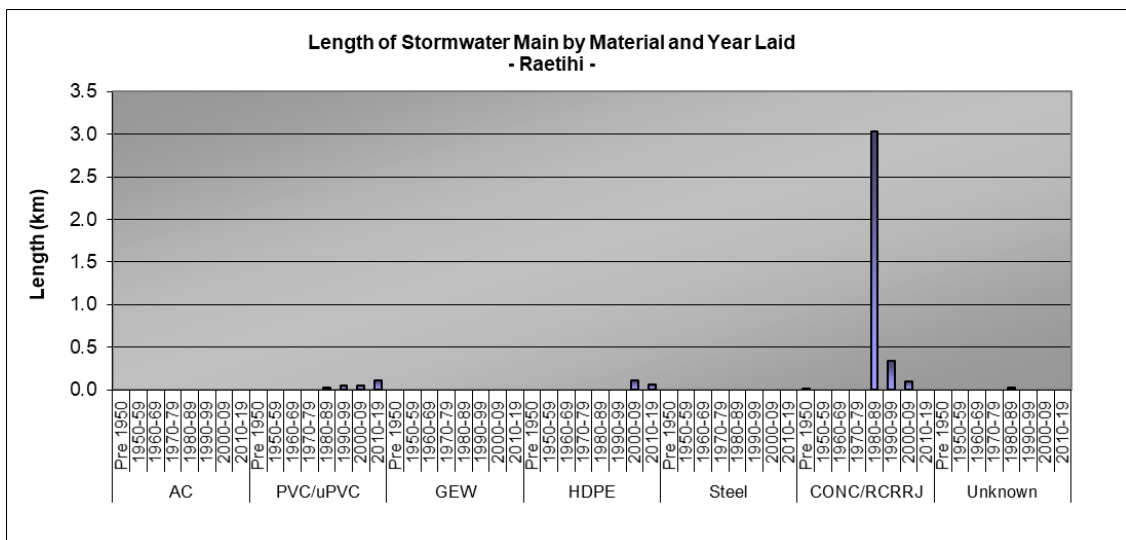
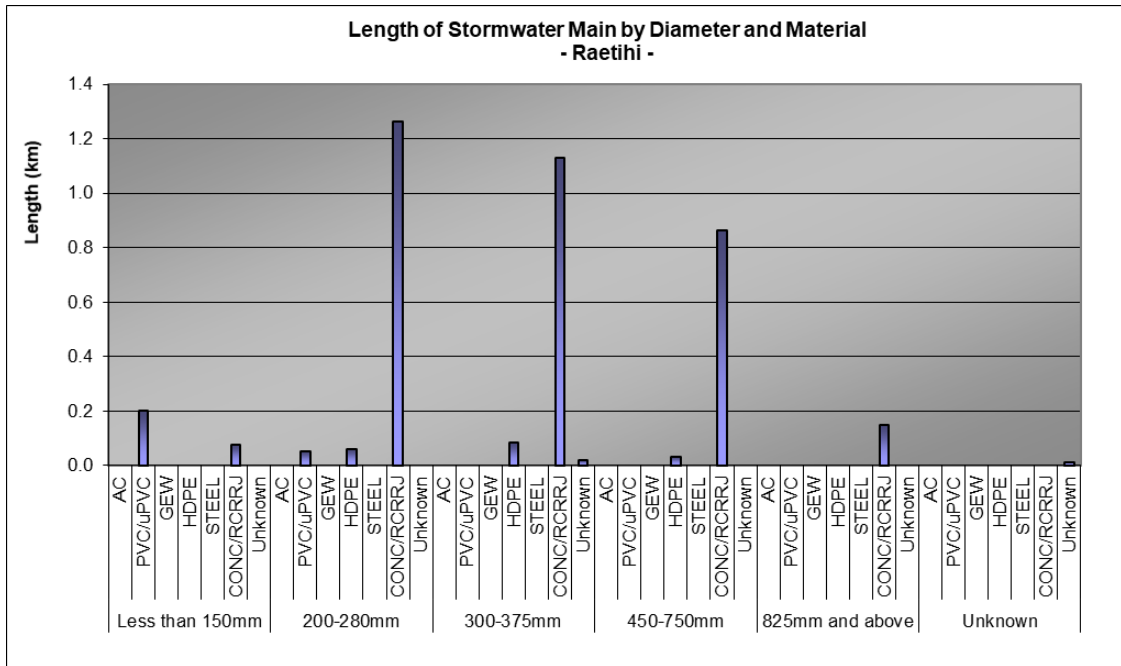
The Raetihi stormwater reticulation network provides water channels to drain stormwater and flows from roads and properties in built up areas within the Raetihi community.

#### **B.5.1 Network**

- (a) **Stormwater Mains:** The Raetihi Stormwater reticulation network comprises an integrated combination of public drains and reticulated systems consisting of pipework and manholes with kerbside sump stormwater entry pits as summarised in Table 23 (AMP Part 3), together with a reticulation network map for the 3.9 km of stormwater main within the network.



- (b) The graphs provide a graphical composition of the Raetihi stormwater reticulation network with respect to pipe diameter/material, and pipe material/date laid. The pipelines within the network include 200mm-280mm diameter (34.8% by network length) and 300-375mm diameter (31.3% by network length). The pipe materials used most are CONC/RCRRJ with 88.3% of the network. The majority of the network infrastructure was installed from 1980 to 1989 (inclusive) totalling 3.1km, or 78.4%.
- (c) **Culverts:** 115m
- (d) **Water Courses:** 4718m
- (e) **Manholes:** 18 manholes dispersed across the network provide access to stormwater mains for inspection and maintenance
- (f) **Sumps:** 52



**B.5.2 Flooding**

- (a) Raetihi township is built above the main Makotuku River flood plain. While there is a series of small watercourses through the township, there are few reports of flooding, other than surface flooding from blocked grates. Generally these blockages are related to leaf litter in the first flush of rain in the township streets.
- (b) An assessment of Raetihi watercourses to assess flooding and potential future works was undertaken by JP&A. The report found the following future works are required:
  - (i) The Makotuku River is a natural watercourse that has a large catchment rising onto the western slopes of Mount Ruapehu. In the reach of the river as it passes Raetihi, there are a significant number of medium to large willows growing in the channel that are of no benefit to the river and must restrict the passage of flood flows. A joint project with Horizons Regional Council has resulted in most of these trees being removed where land owner permission has been possible. Further channel willow maintenance is required but this is a matter between the property owner and Horizons rather than Council. Council will however remain in touch with Horizons

to ensure that there are not works that are identified that may further alleviate potential impacts on Council infrastructure and community property.

- (ii) The Seddon Street watercourse is a small channel meandering through urban Raetihi. During the last AMP it was identified that there are a number of small to large willows growing in and adjacent to the stream channel with others fallen into the channel and causing blockages. Council in collaboration with property owners has completed the opening of the Seddon Street watercourse for most of its length. Ongoing works to remove the last of the vegetation and develop a maintenance programme of spraying and clearing needs to be developed.
- (c) According to the LGA 1971, Section 511, in a situation where, in the opinion of Council, the free flow of water in any drainage channel or in any watercourse, not under their control is impeded or is likely to be impeded by any obstruction, and that obstruction is likely to cause loss of life, injury, or damage to property in the District, Council may require the occupier or, the owner of the land on the banks of the drainage channel or watercourse, to remove the obstruction. An education and joint effort will be required to develop an integrated channel maintenance programme in this area.
- (d) Light Detection and Ranging (LIDAR) data has been collated of contour mapping to further inform planning in the future. Willow clearing completed in 2017 will change the river capacity and needs to be considered. Flood events in 2013 and 2016 in the Makotuku River showed that when the river rises to a very high level it prevents the natural drainage within the township. This then backs up through the town drainage network and this needs to be model to estimate how much the water moves out of the channel and how deep the water would be. This is future works for the Council to be worked through with the community and Horizons. This includes an understanding of the flooding zones, risk with climate change and mitigation options.

## **B.6 Rangataua**

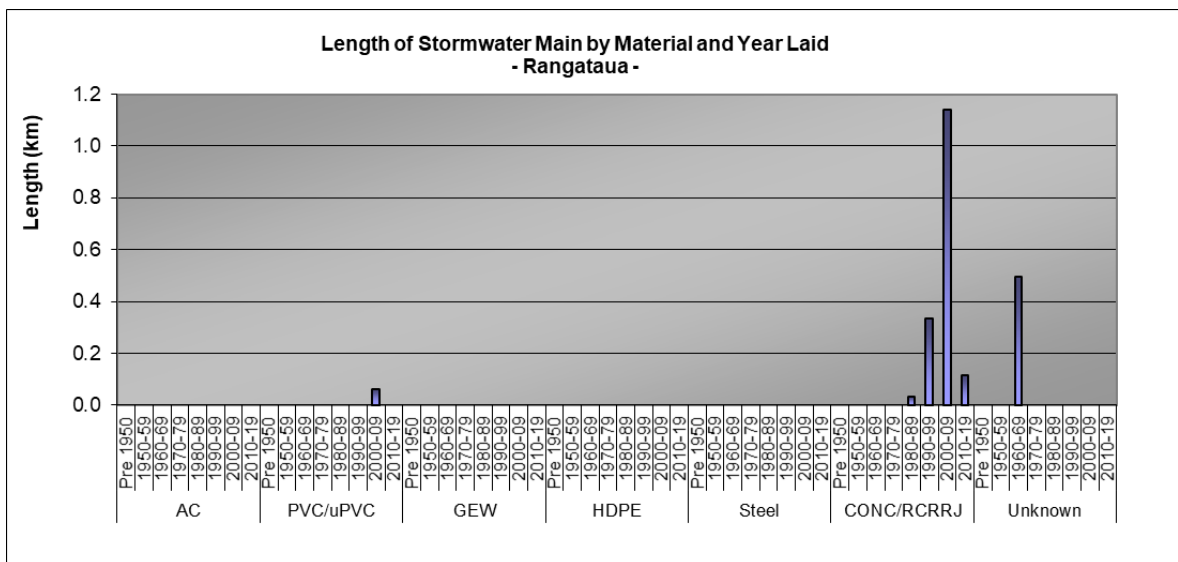
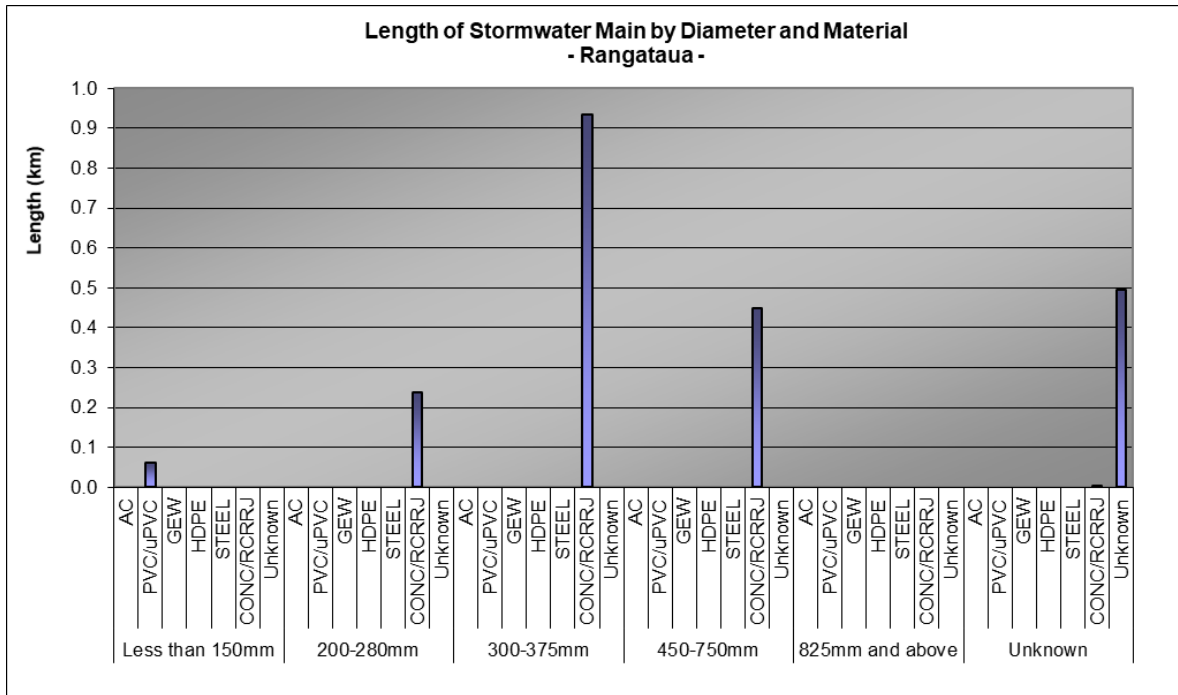
The Rangataua Stormwater reticulation network provides water channels to drain stormwater and flows from roads and properties in built up areas within the Rangataua community.

### **B.6.1 Network**

- (a) **Stormwater Mains:** The Rangataua stormwater reticulation network comprises of an integrated combination of public drains and reticulated pipework systems consisting of pipework and manholes with kerbside sump entry pits as summarised in Table 23 (AMP Part 3). A reticulation network map for the 2.18 km of stormwater main within the network is shown below, together with a graphical composition of the Rangataua stormwater reticulation network with respect to pipe diameter/material, and pipe material/date laid.

- (b) The pipes within the stormwater reticulation network include 300mm-375mm diameter (42.9% by network length) and 450-750mm diameter (20.6% by network length). The pipe materials used most within Rangataua are CONC/RCRRJ with 74.5% of the network. The majority of the network infrastructure was installed from 2000 to 2009 (inclusive) totalling 1.20 km and 1960 to 1969 (inclusive) totalling 0.49km.
- (c) **Culverts:** 0m
- (d) **Water Courses:** 1,070m
- (e) **Manholes:** 39 manholes dispersed across the Rangataua stormwater network provide access to stormwater mains for inspection and maintenance
- (f) **Sumps:** 23





**B.6.2 Flooding**

- (a) Rangataua township is built in a highland swampy area with a high water table. The township is located approximately 0.5km from the Mangaehu Stream which does not pose a threat to the houses. The drainage network is made up of large diameter reticulation with swale drains over top and deep open drains. Surface water flooding has been the main issue for this township. Ensuring the water can get away is a major factor in reducing flooding and has resulted in the cleaning of private and public drains. In a very large event where the river swells there is no ability to further release the water from the township and surface water flooding will remain an issue which should be considered during subdivision of lower lying sections and building floor levels.
- (b) A trade-off between Stormwater capacity provided by deep open drains and public safety needs to be considered in this town. There has been a series of new reticulated works with swale drainage to

provide a compromise between the community safety and capacity. Light Detection and Ranging (LIDAR) data has been collated of contour mapping to further inform planning in the future.

## B.7 Raurimu

The Raurimu stormwater reticulation network provides water channels to drain stormwater and flows from roads and properties in built up areas within the Raurimu community.

### B.7.1 Flooding

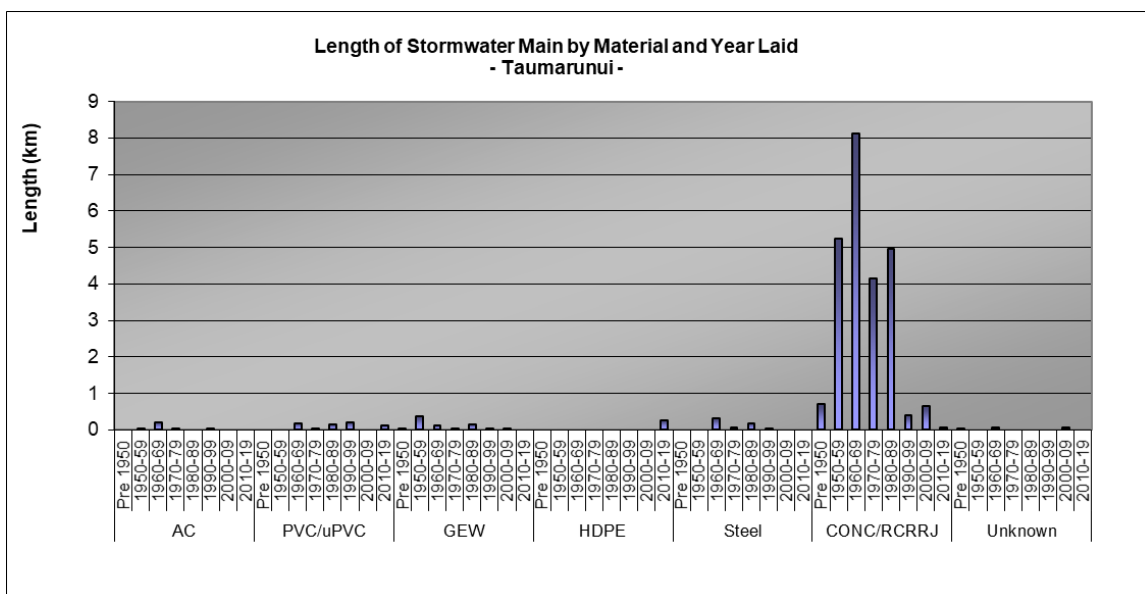
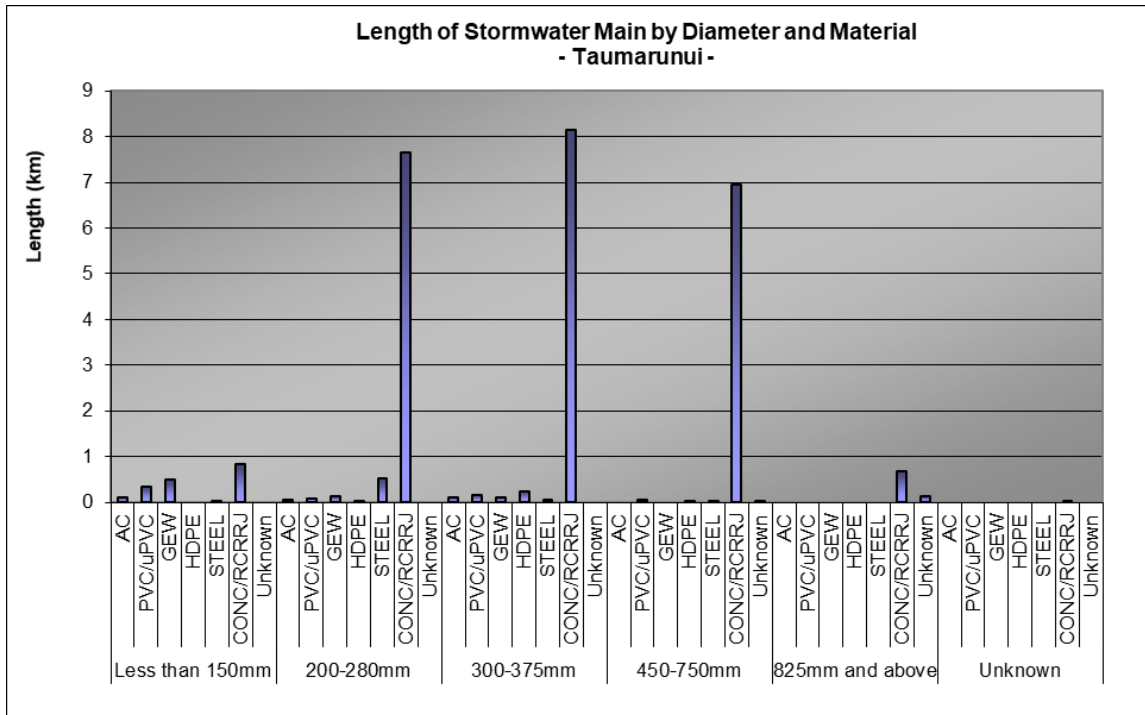
- (a) There is no infrastructure other than roading culverts. Some properties have been built beside the Piopotea Stream which is the main water course on the edge of the township. There are eight main drainage systems within the township largely allowing drainage to the Piopotea Stream.
- (b) Surface flows were inundating local septic tanks within the township. In 2017 the main Northern watercourse, Poro and Pito drains were cleared for vegetation growth which has removed the surface flooding issues. These are the main drains of the township and are a mix of private and public land.
- (c) Ongoing maintenance programme of spraying and clearing needs to be developed but this will be at a much lower level of maintenance.

## B.8 Taumarunui

The Taumarunui stormwater reticulation network provides water channels to drain Stormwater Flooding and flows from roads and properties in built up areas within the Taumarunui community.

### B.8.1 Network

- (a) **Stormwater Mains:** The Taumarunui stormwater reticulation network comprises an integrated combination of public drains and reticulated pipework systems consisting of pipework and manholes with kerbside sump stormwater entry pits. A reticulation network map for the 26.9 km of stormwater main within the Taumarunui network is provided below, together with a graphical composition of the Taumarunui reticulation network with respect to pipe diameter/material, and pipe material/date laid. The pipelines within the stormwater reticulation network are predominantly 300-375mm diameter (32.7% by network length) and 200-280mm diameter (31.5% by network length). The pipe materials used most are CONC/RCRRJ with 90.3% of the network. The majority of the network infrastructure was installed from 1960 to 1969 (inclusive) totalling 9.0 km and 1950 to 1959 (inclusive) totalling 5.6 km.
- (b) **Culverts:** 336m
- (c) **Water Courses:** 10.2 km
- (d) **Manholes:** 344 manholes dispersed across the Taumarunui Stormwater network provide access to stormwater mains for inspection and maintenance
- (e) **Sumps:** 498



**B.8.2 Flooding**

- (a) Taumarunui lies on the flood basin of the Taringamotu, Ongarue, Whanganui and Whakapapa Rivers.
- (b) The Whanganui River Scheme was established in the 1990s by Horizons to provide landowners adjacent to, and in the floodplain of, the Whanganui River through Manunui and Taumarunui, a degree of protection against flooding and riverbank erosion. The control of flooding is largely limited to the urban area of Taumarunui downstream of the State Highway 4 Bridge. The surrounding community will receive benefit from the works carried out to directly protect Taumarunui. When the Scheme was established a small number of river control assets that were considered to be the responsibility of the

Council were not included in the river control scheme. These rock wall assets are now being managed as part of the Whanganui River Scheme and further items are being added. Horizons have extended the management scheme to include the Ongarue Stream.

- (c) The Barrett and MacMurray 2004 Maukuroa Stream Flood Control Investigation provided a number of recommendations to reduce flooding in the stream. These works included drain cleaning and construction of larger culverts at Matai and Miro Streets which have been completed.
- (d) In 2008, JP&A undertook stage one of a three stage investigation to identify the extent of the stream works and the flooding problem and ultimately the solution to prevent or limit the extent of damage to Taumarunui in future flood events. The investigation found there are many open channels in Taumarunui, some of which are classified as drains and some as watercourses. A significant number of the smaller natural watercourses that pass through the built up urban areas have been modified to the point that they are now considered to be drains. A maintenance regime is currently in place that ensures the channels classified as drains are maintained to ensure they perform effectively. However, there appears to be a very inconsistent approach to maintenance of natural watercourses unless, as noted above, these have been included within the numerous channels maintained as drains. The natural watercourses, where maintenance has not been a high priority activity, are often located where a lack of maintenance has had little if any impact on adjacent properties other than to raise local water levels on rural land as highlighted by JP&A, June 2008. Council has been working to remove obstructions and trees from within the flood path as an ongoing programme of improvements. Council has been actively discuss the tree removal from private property and Councils property team has made progress with clearing of channels.
- (e) Stage Two, completed by Horizons, undertook a flood study of Taumarunui and the surrounding rural and semi-rural areas that are potentially affected by flooding. This study utilised the information collected by JP&A along with LIDAR mapping data obtained by Horizons and other information provided by Council. The study involved the development of hydrologic and hydraulic models to estimate flooding for the 2% AEP (annual exceedance probability), the 1% AEP and the 0.5% AEP design flood events. The results of the Horizons study show that there are significant areas of Taumarunui that are susceptible to flooding.
- (f) Stage Three has been for JP&A to produce the Taumarunui Flood Control Works programme, August 2011, which looks at findings of the model and methodologies to elevate effects. This will be an iterative process and after the programme is complete or major changes in culverts occur then the modelling will be repeated. Currently all changes to culvert sizes and pipe replacement or extension are being captured for this purpose. The report found two scenarios:
  - (i) The Whanganui River generally has a slow rising peak flow. When there is intensive localised rain the internal drainage system becomes full because water cannot be released through the flood gates at high enough volumes to alleviate the rising water levels in these drains. This is generally the most common type of flooding occurring within the Taumarunui township, a second culvert outlet will allow more water through the choke points, and a series of recommendations were made under the report Taumarunui Flood Control Works Council has signed a Memorandum of understanding with Horizons around the ownership of assets on the stopbank
  - (ii) If the Whanganui River peak and the Taumarunui intensive rainfall occur at the same time, resulting in no drainage through the stopbank wall. In this scenario significant flooding would occur and control works would be significant as the water will need to be pumped over the bank. More information is required to decide how the community would be best served by the development of fixed flood pumping stations or mobile pumps from purpose built sump points .
- (g) The Tongariro Power Development diverts water from the headwater tributaries of the Whanganui River down through the Tokaanu Power Station and into Lake Taupo. The volume diverted is 50 cumecs which, when Lake Taupo is full, is not taken and is free to flow down its natural watercourse. This gives the effect of a relatively stable river flow for most of the year but what appear as high peaks during intensive rainfall. This can result in increased erosion and silt deposits along its length as the River is not exposed to smaller flood events on a regular basis. The increased volume needs to be taken into consideration under scenario B above.

- (h) Coordination with the following are essential to reduce the risk of flooding within Taumarunui:
  - (i) Recreation and Community Facilities, as major asset owners, ensure the drainage channel and flood plain (river berm) are not restricted by vegetation plantings.
  - (ii) Railways and its maintenance of drains.
  - (iii) Land Transport with culvert upgrades, changes to road crossing and bridge improvements consults to ensure appropriate capacity is provided for Stormwater and Flood Protection and preferential paths through swale drains are developed in road verges or use of the roadway in preference to the flooding of valuable property and/or the reduced risk to public safety.

## **B.9 Waiouru**

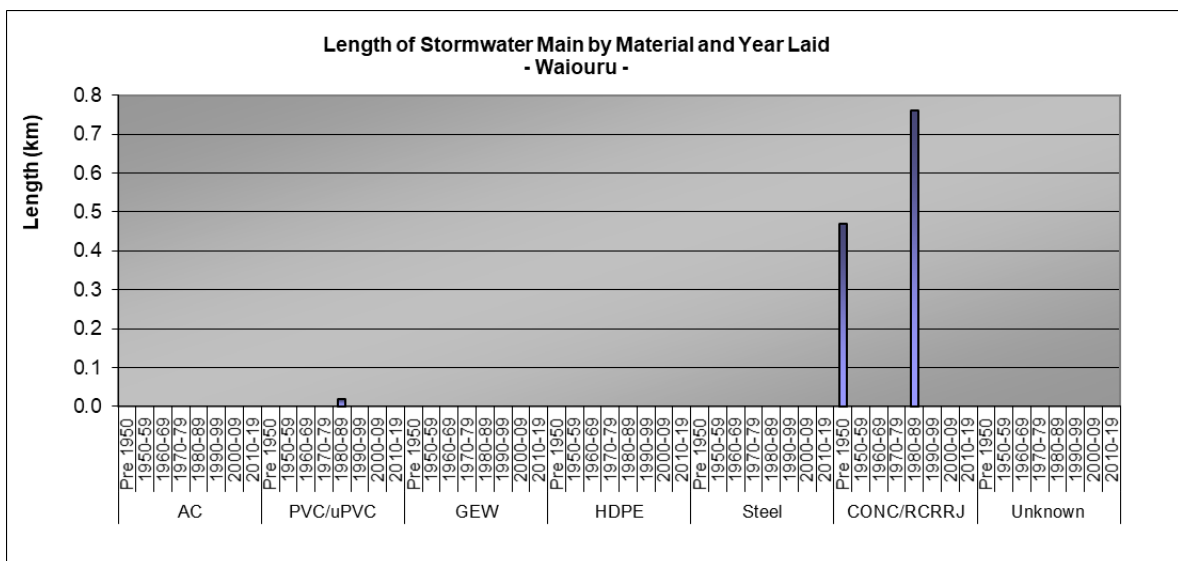
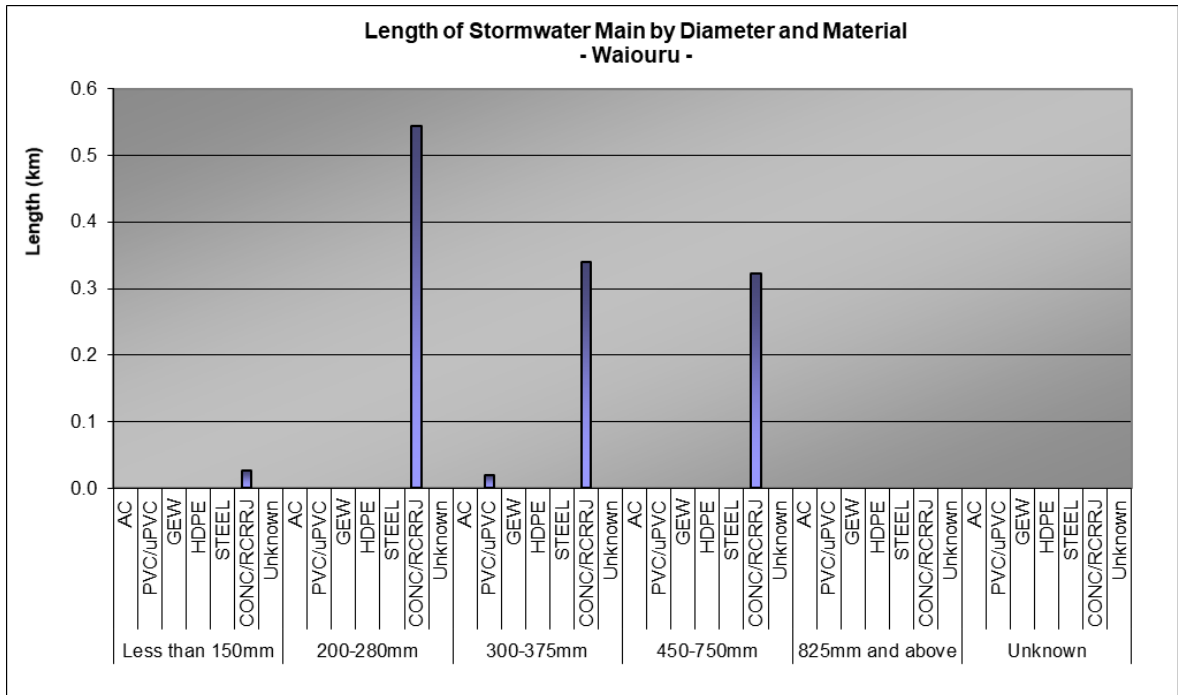
The Waiouru Stormwater reticulation network provides water channels to drain Stormwater and Flooding and flows from roads and properties in built up areas within the Waiouru community.

### **B.9.1 Network**

- (a) **Stormwater mains:** The Waiouru stormwater reticulation network comprises an integrated combination of public drains and reticulated pipework systems consisting of pipework and manholes with kerbside sump stormwater entry pits as summarised within Table 23 (AMP Part 3). A reticulation network map for the 1.25 km of stormwater main within the Waiouru network is provided below, together with 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 200mm-280mm diameter (43.4% by network length) and 300-375mm diameter (28.7% by network length). The pipe materials used most are CONC/RCRRJ with 98.4%. The majority of the network infrastructure was installed from 1980 to 1989 (inclusive) totalling 0.78 km, or 62.4%.



- (b) **Culverts:** 0m.
- (c) **Manholes:** 9 manholes dispersed across the Waiouru stormwater network provide access to stormwater mains for inspection and maintenance
- (d) **Sumps:** 27



**B.9.2 Flooding**

- (a) Waiouru township is situated on the high desert plateau and has no significant streams threatening the township. Any flooding is the direct result of high intensive rainfall creating surface flooding within the township. The State Highway is built higher than some of the surrounding urban infrastructure which may cause increased surface flooding. Upgrades of the road will be done in coordination with township planning in an attempt to alleviate these issues.
- (b) Railways also have a drain which conducts some of the stormwater from the township. This needs a maintenance programmed formatted with the railways.

## Appendix C – Physical Parameters: Asset Capacity/Performance

Asset Capacity/Performance Grading		Comment/Substantiation
<b>C.1 National Park</b>		
<b>(The National Park planning document has the majority of recommendations completed which provided improvement to the majority of the township.)</b>		
Stormwater	2	<ul style="list-style-type: none"> <li>The operation of the Stormwater reticulation is satisfactory provided ongoing maintenance is undertaken to ensure sumps and reticulation pipes are kept free of debris and open drains are sprayed and kept clear of vegetation.</li> <li>The principal problem in relation to the Stormwater grates is the clogging of these grates with leaves and other debris if the roadside kerb and channel are not clean. This can be an issue as the responsibility for the roadside kerb and channel and for stormwater grates and sumps is with two separate maintenance contracts.</li> <li>System information (lid levels and invert levels) is not recorded for the majority of the stormwater manholes in AssetFinda (BizeAsset) or GIS. However, structural flow modelling has been undertaken for this community.</li> </ul>
Flood Planning	3	<ul style="list-style-type: none"> <li>National Park Stormwater Planning by Barnett and MacMurray Limited 2004 provides hydrological and hydraulic modelling of the Stormwater systems at National Park and produced a concept design of upgrades to provide a 10% AEP LoS. Flood levels in the 2% AEP event with the concept design in place were also estimated. Recommendations of upgrades of the system were also provided.</li> </ul>
<b>C.2 Ohakune</b>		
Stormwater	3	<ul style="list-style-type: none"> <li>The operation of the Stormwater reticulation is typically satisfactory providing ongoing maintenance is undertaken to ensure sumps and reticulation pipes are kept free of debris and open drains are sprayed and kept clear of vegetation.</li> <li>Upgrades to a number of locations throughout the stormwater reticulation have been reported to have generally improved the overall system performance. The most significant upgrades include mains renewals, open drain upgrades, culvert replacements etc. in Shannon Street, Miro Street, Upper Thames Street and Utuhia Place.</li> <li>During 2019 there were no reported stormwater chokes in the National Park stormwater network.</li> </ul> <p>However:</p> <ul style="list-style-type: none"> <li>Flood modelling undertaken by Hydro Tasmania Consulting for Horizons during 2010 identified that significant areas of Ohakune are susceptible to flooding, mostly from the small tributaries that flow in an east-west direction to join the Mangawhero River which flows along the town's western boundary.</li> <li>Operator inspection of manholes as part of the 2019 Condition Assessment indicate that a number of road sumps suffered from debris accumulation and some grates were sealed closed by the concrete surround. Additionally the GIS plans showing the location of the stormwater manholes and cesspits are reported to contain regions of inaccuracy.</li> <li>The Stormwater culvert pipework is difficult to clean and maintain because of the diameter variations.</li> <li>System information (lid levels and invert levels) is not recorded for the majority of the stormwater manholes into the AssetFinda (BizeAsset) system. The data has been collected and used the development of the flood model under guidance of John Philpot.</li> </ul>
Planning	3	<ul style="list-style-type: none"> <li>Ohakune Township Flood Modelling Study Report produced by Hydro-Tasmania Consulting 22 July 2010 provides a flood study of the township of Ohakune and the immediate surrounding rural and semi-rural areas potentially affected by flooding from Stormwater and the coincident flooding from the Mangawhero River and its tributaries.</li> </ul>



Asset Capacity/ Performance Grading		Comment/Substantiation
		<p>This developed hydrological and hydraulic models to estimate flooding for the 1 in 50 AEP, 1 in 100 AEP and 1 in 200 AEP design event.</p> <ul style="list-style-type: none"> <li>• John Philpot and Associates Ltd Ohakune Flood control works programme.</li> <li>• Horizons have recalibrated their model using the 2013 and 2016 flood events.</li> </ul>
<b>C.3 Ohura</b>		
Stormwater	2	<ul style="list-style-type: none"> <li>• Historically the Stormwater public drains were not maintained. This resulted in the drains becoming silted up and overgrown. Performance has been improved as a result of maintenance undertaken by Veolia. Stormwater open drains, watercourses and pipes were observed to be flowing freely during the 2018 Condition Assessment inspection.</li> <li>• Maintenance of these drains is seen as sufficient to ensure satisfactory stormwater performance.</li> <li>• During 2019 there was 1 reported stormwater choke in the Ohura Stormwater network.</li> </ul>
Flood Planning	4	<ul style="list-style-type: none"> <li>• Significant investigations and stopbank schemes have been considered for this town but not provided due to lack of community support.</li> <li>• The community has been undertaking resilience planning with the help of Council Civil Defence Officer</li> <li>• Horizons have installed a hydrological site at Ohura and rainfall gauges on the two ranges which are used in the early warning system.</li> </ul>
<b>C.4 Owhango</b>		
Stormwater	3	<ul style="list-style-type: none"> <li>• The operation of the stormwater is satisfactory providing ongoing maintenance is undertaken to ensure sumps and reticulation pipe are kept free of debris and open drains are sprayed and kept clear of vegetation. Vegetation growth and presence of accumulated silt in open drains was observed at the time of the 2018 Condition Assessment inspection.</li> <li>• Hydraulic capacity of the Stormwater drains is satisfactory.</li> <li>• During 2019 there were no reported stormwater chokes in the Owhango Stormwater network.</li> </ul>
Flood Planning	3	<ul style="list-style-type: none"> <li>• Flooding is not a significant issue for this township.</li> </ul>
<b>C.5 Raetihi</b>		
Stormwater	2	<ul style="list-style-type: none"> <li>• The Stormwater system does not suffer from untoward flooding, despite the lack of flow continuity or design in construction of the reticulation. During 2019 there were 2 reported stormwater chokes in the Raetihi stormwater network.</li> <li>• Ongoing satisfactory operation of the Stormwater reticulation is dependent upon ongoing maintenance to ensure sumps and reticulation pipes are kept free of debris and open drains are sprayed and kept clear of vegetation.</li> <li>• Sumps and grates inspected as part of the 2014 Condition Assessment were typically clean internally but often suffered from debris accumulation over the surface grate. This principally results from the accumulation of leaves and litter within the roadside kerb and channels, washed over the Stormwater grates during rainfall. Failure to maintain the kerb and channel subsequently results in an increase in the likelihood of stormwater flooding.</li> <li>• A number of stormwater manholes and cesspits planned to be inspected as part of the 2014 Condition Assessment were unable to be located due to inaccuracies in the GIS.</li> <li>• The Stormwater mains are often installed without continuity of diameter.</li> <li>• System information (lid levels and invert levels) is not recorded for Stormwater manholes.</li> </ul>

Asset Capacity/ Performance Grading		Comment/Substantiation
Flood Planning	2	<ul style="list-style-type: none"> <li>Flood plan planning is not a significant issue for this town.</li> <li>LIRA data has been collected to establish ground level which can be used to establish localised flooding.</li> </ul>
<b>C.6 Rangataua</b>		
Stormwater	2	<ul style="list-style-type: none"> <li>The operation of the Stormwater reticulation is good with sumps and reticulation pipes typically free of debris and open drains sprayed and kept clear of vegetation.</li> <li>Operators report minimal problems associated with the Rangataua stormwater system. Complaints or request for service in relation to flooding or stormwater blockages are also minimal.</li> <li>During 2019 there were no reported stormwater chokes in the Rangataua stormwater network.</li> <li>Manholes are, as a generalisation, typically free from foreign rubbish and stormwater blockages and overflows as a result of manholes or content within them is rare.</li> </ul> <p>However:</p> <ul style="list-style-type: none"> <li>The GIS plans showing the location of the stormwater manholes and cesspits are reported to contain regions of inaccuracy.</li> </ul>
Flood Planning	2	<ul style="list-style-type: none"> <li>Flooding is not a significant issue for this township.</li> </ul>
<b>C.7 Raurimu</b>		
Stormwater	3	<ul style="list-style-type: none"> <li>The combination of designated public drains and roadside and open drains provide for satisfactory collection and distribution of stormwater.</li> <li>Overall performance of stormwater network can be regarded as Moderate.</li> <li>Stormwater network is typically satisfactory with most open drains free of debris and vegetation. During the 2018 Condition Assessment inspection, a small number of drains were observed to contain growing vegetation or debris accumulation which would impact on stormwater flows.</li> </ul>
Flood Planning	2	<ul style="list-style-type: none"> <li>Flooding is not a significant issue for this township.</li> </ul>
<b>C.8 Taumarunui</b>		
Stormwater	2	<ul style="list-style-type: none"> <li>The operation of the Taumarunui stormwater reticulation network is typically satisfactory with manholes, sumps and reticulation pipes free of debris (or debris well below the invert level) and open drains sprayed and kept clear of vegetation.</li> <li>Structured assessment of 32 stormwater manholes (9.3% of the overall manhole assets) indicate 93.6% of wastewater manholes to be of performance 2, 3 or 4 with an overall average performance of 2 (Good).</li> <li>Manholes are typically free from serious structural defects or foreign objects which may impact upon the functional performance of the manholes.</li> </ul> <p>However:</p> <ul style="list-style-type: none"> <li>A number of stormwater manholes are buried. A number of stormwater manholes planned to be inspected as part of the 2015 Condition Assessment were unable to be located due to apparent inaccuracies in the GIS.</li> <li>Structured assessment of 42 stormwater sumps (8.5% of the overall stormwater sump assets) indicate 93.0% of stormwater sumps to be of performance 2 or 3 with an overall average performance of 2 (Good).</li> <li>Sumps and grates inspected as part of the 2015 Condition Assessment were typically clean internally but often suffered from debris accumulation over the surface grate. This principally results from the accumulation of leaves and litter within the roadside kerb and channel which is washed over the stormwater grates during rainfall. Failure to</li> </ul>

Asset Capacity/ Performance Grading		Comment/Substantiation
		<p>maintain the kerb and channel subsequently impacts upon the functional performance of the sumps and increases the likelihood of stormwater flooding.</p> <ul style="list-style-type: none"> <li>• Anecdotal evidence of insufficient pipe sizes and degrees of pipe disjuncting have been reported by RDC and Veolia staff.</li> <li>• Flood modelling undertaken by DHI for Horizons during 2010-2011 identified that within the Taumarunui township itself, extensive flooding occurs as a result of local rainfall and not as a result of flooding from the Whanganui River. This flooding is exacerbated by the small streams that discharge into the town from the hills to the north. This can be alleviated by increasing the outlet structures to the Whanganui River, allowing more drainage water to flow into the river before it rises. However, when the river is in full flood, the water will no longer discharge through the outlet structures as the flood-flaps will shut. The only option is then for the water to move into alternative paths, pond or be pumped over the stop bank into the Whanganui River.</li> <li>• System information (lid levels and invert levels) is recorded for some of the stormwater manholes.</li> </ul>
Planning	3	<ul style="list-style-type: none"> <li>• JP&amp;A 2008, Stream and River Channel Management Taumarunui.</li> <li>• Barnett and MacMurray Limited, May 2004. Maukuroa Stream Flood Control Investigation May 2004</li> <li>• Taumarunui township Flood Modelling Study Report produced by Hydro-Tasmania Consulting 22 July 2010 provides a flood study of the township of Taumarunui and the immediate surrounding rural and semi-rural areas potential affecting by flooding from stormwater and the coincident flooding from the Whanganui River and its tributaries. This developed Hydrological and hydraulic models to estimate flooding for the 1 in 50 AEP, 1 in 100 AEP and 1 in 200 AEP design event.</li> </ul>
<b>C.9 Waiouru</b>		
Stormwater	2	<ul style="list-style-type: none"> <li>• The operation of the Stormwater reticulation is good, with sumps and grates inspected as part of the 2014 condition assessment were typically clean internally but often suffered from debris accumulation over the surface grate.</li> <li>• Operators report minimal problems associated with the Waiouru stormwater system. Complaints or request for service in relation to flooding or stormwater blockages are also minimal.</li> </ul> <p>However:</p> <ul style="list-style-type: none"> <li>• System information (lid levels and invert levels) is not recorded for the all of the manholes.</li> </ul>
Flood Planning	2	<ul style="list-style-type: none"> <li>• Flooding is not a significant issue for this township.</li> </ul>

## Appendix D – Physical Parameters: Asset Condition

Asset Condition Grading		Comment/Substantiation
<b>D.1 National Park</b>		
Stormwater	2	<ul style="list-style-type: none"> <li>The condition of the Stormwater pipework, manholes and kerbside sump stormwater entry pits is good as observed at the 2018 Condition Assessment inspection. These are relatively new and as such are in good condition. Operators have not reported condition related problems with this aspect of the stormwater system.</li> <li>The condition of the public drains and roadside open channels is acceptable.</li> </ul>
<b>D.2 Ohakune</b>		
Stormwater	3	<ul style="list-style-type: none"> <li>The majority of the stormwater reticulation consists of Concrete mains. These assets are believed to be in fair condition based on there being no adverse impact on performance or incidents of main having to be repaired or replaced.</li> <li>Many of the concrete pipes within the Stormwater network have no reinforcing.</li> <li>Installation of manholes to the pipework has often been done by the smashing of the stormwater pipe and the direct installation of the manhole on top of the pipe, often without a base. The stormwater mains are often installed without continuity of diameter. Significant improvements made to the stormwater network, which has begun to rectify issues such as diameter continuity. Still some asset replacement or rehabilitation required in the medium term.</li> </ul>
<b>D.3 Ohura</b>		
Stormwater	2	<ul style="list-style-type: none"> <li>The condition of the public drains and roadside open channels is acceptable. Structurally the channel banks are satisfactory.</li> <li>While the open channel public drains and roadside open drains pose a higher safety risk than pipe and sump reticulated systems the Ohura stormwater system is seen as appropriate. This is especially so given the population and economic status of the Ohura township.</li> </ul>
<b>D.4 Owhango</b>		
Stormwater	3	<ul style="list-style-type: none"> <li>The condition of the public drains and roadside open channels is acceptable. Structurally the channels are satisfactory.</li> <li>Significant signs of growing vegetation and accumulation of silt observed in open drains and sumps</li> </ul>
<b>D.5 Raetihi</b>		
Stormwater	2	<ul style="list-style-type: none"> <li>The condition of the stormwater pipework, manholes and kerbside sump stormwater entry pits is of an acceptable nature.</li> </ul> <p>However:</p> <ul style="list-style-type: none"> <li>A number of stormwater cesspits inspected as part of the 2014 Condition Assessment were in poor condition with a significant amount of repair works required to improve their condition.</li> </ul>
<b>D.6 Rangataua</b>		
Stormwater	2	<ul style="list-style-type: none"> <li>Integrity of the manholes is high with manhole chamber and benching in overall good condition. Occasional manholes require minor remedial works.</li> <li>The average age of the stormwater manholes is approx. 15 years</li> <li>Cesspits are, as a generalisation, typically free from foreign rubbish and stormwater blockages and overflows as a result of manholes or content within them is rare.</li> </ul>
<b>D.7 Raurimu</b>		

Asset Condition Grading		Comment/Substantiation
Stormwater	3	<ul style="list-style-type: none"> <li>Public drains and roadside open drains are satisfactory in terms of their physical structure.</li> </ul>
<b>D.8 Taumarunui</b>		
Stormwater	3	<p>Overall condition of the Taumarunui stormwater reticulation network can be regarded as Moderate.</p> <ul style="list-style-type: none"> <li>Structured inspection of 32 stormwater manholes (9.3% of the overall manhole assets) indicate 100% of stormwater manholes to be of condition 2, 3 or 4 with an overall average condition of 3 (Moderate).</li> <li>Integrity of the stormwater manholes is functionally satisfactory with manhole chamber, cover (lid) and benching in overall Moderate condition.</li> <li>Typical stormwater manhole structural defects observed include damage to pipe entries, minor – moderate cracking, concrete deterioration, and general signs of wear and tear.</li> <li>Structured inspection of 42 stormwater sumps (8.5% of the overall stormwater sump assets) indicate 100% of stormwater sumps to be of condition 2, 3 or 4 with an overall average condition of 3 (Moderate).</li> <li>Integrity of the stormwater sumps is satisfactory with concrete channels, pipework, and grates in overall Moderate condition.</li> <li>Typical stormwater sump structural defects observed include damage to pipe entries, damage / deterioration of concrete channels, and rusting of grilles.</li> </ul>
<b>D.9 Waiouru</b>		
Stormwater	2	<ul style="list-style-type: none"> <li>Many individual manholes and cesspits were noted as being in very good condition as part of the 2014 Condition Assessment inspections.</li> </ul> <p>However:</p> <ul style="list-style-type: none"> <li>Half of the roadside cesspits inspected had grates that were unable to be removed as they had been tar sealed into place during road works. This made condition assessment inspections somewhat difficult.</li> <li>Additionally, one of the cesspits inspected was noted as being in poor condition, requiring repair to broken grating to bring the unit up to an acceptable standard.</li> </ul>

## Appendix E – Asset Valuation Breakdown by Township at 1 July 2020

RUAPEHU DISTRICT COUNCIL WATER, WASTEWATER & STORMWATER VALUATION 2020					
- VALUATION SUMMARY - Stormwater (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
<b>Kakahi</b>	Network	192,102	106,330	85,773	2,232
	Pump Stations	0	0	0	0
	Treatment & Disposal	0	0	0	0
	<b>Total</b>	<b>192,102</b>	<b>106,330</b>	<b>85,773</b>	<b>2,232</b>
<b>Matiere</b>	Network	88,950	37,707	51,243	996
	Pump Stations	0	0	0	0
	Treatment & Disposal	0	0	0	0
	<b>Total</b>	<b>88,950</b>	<b>37,707</b>	<b>51,243</b>	<b>996</b>
<b>National Park</b>	Network	1,869,975	1,287,079	582,896	22,575
	Pump Stations	0	0	0	0
	Treatment & Disposal	5,833	4,666	1,167	292
	<b>Total</b>	<b>1,875,808</b>	<b>1,291,745</b>	<b>584,063</b>	<b>22,867</b>
<b>Ohakune</b>	Network	7,472,217	5,000,592	2,471,625	89,595
	Pump Stations	0	0	0	0
	Treatment & Disposal	132,620	125,989	6,631	1,658
	<b>Total</b>	<b>7,604,837</b>	<b>5,126,582</b>	<b>2,478,256</b>	<b>91,253</b>
<b>Ohura</b>	Network	514,388	290,066	224,322	6,095
	Pump Stations	0	0	0	0
	Treatment & Disposal	0	0	0	0
	<b>Total</b>	<b>514,388</b>	<b>290,066</b>	<b>224,322</b>	<b>6,095</b>
<b>Owhango</b>	Network	97,987	66,032	31,955	1,055
	Pump Stations	0	0	0	0
	Treatment & Disposal	0	0	0	0
	<b>Total</b>	<b>97,987</b>	<b>66,032</b>	<b>31,955</b>	<b>1,055</b>
<b>Raetihi</b>	Network	1,988,059	1,244,699	743,360	24,463
	Pump Stations	0	0	0	0
	Treatment & Disposal	33,021	32,856	165	165
	<b>Total</b>	<b>2,021,080</b>	<b>1,277,555</b>	<b>743,525</b>	<b>24,628</b>
<b>Rangataua</b>	Network	1,205,711	934,967	270,744	14,582
	Pump Stations	0	0	0	0
	Treatment & Disposal	0	0	0	0
	<b>Total</b>	<b>1,205,711</b>	<b>934,967</b>	<b>270,744</b>	<b>14,582</b>
<b>Raurimu</b>	Network	7,704	7,473	231	77
	Pump Stations	0	0	0	0
	Treatment & Disposal	0	0	0	0
	<b>Total</b>	<b>7,704</b>	<b>7,473</b>	<b>231</b>	<b>77</b>
<b>Taumarunui</b>	Network	15,023,055	5,737,471	9,285,584	183,094
	Pump Stations	0	0	0	0
	Treatment & Disposal	219,594	212,973	6,622	2,753
	<b>Total</b>	<b>15,242,649</b>	<b>5,950,444</b>	<b>9,292,205</b>	<b>185,847</b>
<b>Waiouru</b>	Network	608,241	246,988	361,253	7,469
	Pump Stations	0	0	0	0
	Treatment & Disposal	0	0	0	0
	<b>Total</b>	<b>608,241</b>	<b>246,988</b>	<b>361,253</b>	<b>7,469</b>
<b>TOTAL SW (Depreciable only)</b>	Network	29,068,388	14,959,404	14,108,984	352,232
	Pump Stations	0	0	0	0
	Treatment & Disposal	391,069	376,484	14,584	4,868
	<b>Total</b>	<b>29,459,457</b>	<b>15,335,888</b>	<b>14,123,569</b>	<b>357,100</b>

## Appendix F – Financial Summary

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 STORMWATER		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 Stormwater Networks: Stormwater Main Replacement	Structured scheduled programme for rehabilitation / replacement of the National Park stormwater mains	\$ 9,094.00	\$ 9,094.00	\$ 9,094.00	\$ 9,094.00	\$ 9,094.00	\$ -	\$ -	\$ -	\$ -	\$ -

#### OPERATIONAL VALUES

National Park - Stormwater	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	10,652	10,652	10,652	10,652	10,652	10,652	10,652	10,652	10,652	10,652
All Other Maintenance Dayworks	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Overheads	-	-	-	-	-	-	-	-	-	-
Supply & Disposal	-	-	-	-	-	-	-	-	-	-
Power	-	-	-	-	-	-	-	-	-	-
Insurance	1,087	1,087	1,087	1,087	1,087	1,087	1,087	1,087	1,087	1,087
Other (incl consultants)	-	-	-	-	-	-	-	-	-	-
<b>Grand Total</b>	<b>17,739</b>	<b>17,739</b>	<b>17,739</b>	<b>17,739</b>	<b>17,739</b>	<b>17,739</b>	<b>17,739</b>	<b>17,739</b>	<b>17,739</b>	<b>17,739</b>

**F.2 Ohakune**

CAPITAL VALUE

<b>OHAKUNE STORMWATER</b>		<b>2021/2022</b>	<b>2022/2023</b>	<b>2023/2024</b>	<b>2024/2025</b>	<b>2025/2026</b>	<b>2026/2027</b>	<b>2027/2028</b>	<b>2028/2029</b>	<b>2029/2030</b>	<b>2030/2031</b>
<b>Description (Name)</b>	<b>Scope</b>										
Ohakune Stormwater Networks: Stormwater Main Replacement	Structured scheduled programme for rehabilitation / replacement of the Ohakune stormwater mains	\$ 14,133.83	\$ 14,133.83	\$ 14,133.83	\$ 14,133.83	\$ 14,133.83	\$ 60,669.99	\$ 60,669.99	\$ 60,669.99	\$ 60,669.99	\$ 60,669.99
Ohakune stormwater Networks Refurbishment- Adjustment	Adjustment of Structured scheduled programme for rehabilitation / replacement of the Ohakune stormwater mains	\$ 483.84	\$ 483.84	\$ 483.84	\$ 483.84	\$ 483.84	\$ -	\$ -	\$ -	\$ -	\$ -
Ohakune Stormwater Networks: Growth Extension	Extension of the stormwater network for growth	\$ 13,649.99	\$ 13,649.99	\$ 13,649.99	\$ 13,649.99	\$ 13,649.99	\$ 13,649.99	\$ 13,649.99	\$ 13,649.99	\$ 13,649.99	\$ 13,649.99
		\$ -	\$ -	\$ -	\$ -	\$ -	\$ 47,020.00	\$ 47,020.00	\$ 47,020.00	\$ 47,020.00	\$ 47,020.00

OPERATIONAL VALUE

<b>Ohakune - Stormwater</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>	<b>2025/26</b>	<b>2026/27</b>	<b>2027/28</b>	<b>2028/29</b>	<b>2029/30</b>	<b>2030/31</b>
All Other Maintenance Lump Sum	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000
All Other Maintenance Dayworks	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500	16,500
Overheads	-	-	-	-	-	-	-	-	-	-
Supply & Disposal	-	-	-	-	-	-	-	-	-	-
Power	-	-	-	-	-	-	-	-	-	-
Insurance	4,285	4,285	4,285	4,285	4,285	4,285	4,285	4,285	4,285	4,285
Other (incl consultants)	3,306	3,306	3,306	3,306	3,306	3,306	3,306	3,306	3,306	3,306
<b>Grand Total</b>	<b>52,091</b>	<b>52,091</b>	<b>52,091</b>	<b>52,091</b>	<b>52,091</b>	<b>52,091</b>	<b>52,091</b>	<b>52,091</b>	<b>52,091</b>	<b>52,091</b>



**F.3 Ohura**

CAPITAL VALUE

<b>OHURA STORMWATER</b>		2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031
Description (Name)	Scope	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
No Capital Projects											

OPERATIONAL VALUE

Ohura - Stormwater	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	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Overheads	-	-	-	-	-	-	-	-	-	-
Supply & Disposal	-	-	-	-	-	-	-	-	-	-
Power	-	-	-	-	-	-	-	-	-	-
Insurance	313	313	313	313	313	313	313	313	313	313
Other (incl consultants)	-	-	-	-	-	-	-	-	-	-
<b>Grand Total</b>	<b>3,313</b>	<b>3,313</b>	<b>3,313</b>	<b>3,313</b>	<b>3,313</b>	<b>3,313</b>	<b>3,313</b>	<b>3,313</b>	<b>3,313</b>	<b>3,313</b>

**F.4 Owhanggo**

CAPITAL VALUE

<b>OWHANGO STORMWATER</b>		<b>2021/2022</b>	<b>2022/2023</b>	<b>2023/2024</b>	<b>2024/2025</b>	<b>2025/2026</b>	<b>2026/2027</b>	<b>2027/2028</b>	<b>2028/2029</b>	<b>2029/2030</b>	<b>2030/2031</b>
<b>Description (Name)</b>	<b>Scope</b>	\$ -	\$ -	\$ -	\$ 30,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Owhanggo Stormwater: Planning	Stormwater system master planning (management and development plan)	\$ -	\$ -	\$ -	\$ 30,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

OPERATIONAL VALUE

<b>Owhanggo - Stormwater</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>	<b>2025/26</b>	<b>2026/27</b>	<b>2027/28</b>	<b>2028/29</b>	<b>2029/30</b>	<b>2030/31</b>
All Other Maintenance Lump Sum	-	-	-	-	-	-	-	-	-	-
All Other Maintenance Dayworks	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Overheads	-	-	-	-	-	-	-	-	-	-
Supply & Disposal	-	-	-	-	-	-	-	-	-	-
Power	-	-	-	-	-	-	-	-	-	-
Insurance	-	-	-	-	-	-	-	-	-	-
Other (incl consultants)	-	-	-	-	-	-	-	-	-	-
<b>Grand Total</b>	<b>2,000</b>	<b>2,000</b>	<b>2,000</b>	<b>2,000</b>	<b>2,000</b>	<b>2,000</b>	<b>2,000</b>	<b>2,000</b>	<b>2,000</b>	<b>2,000</b>

**F.5 Raetihi**

CAPITAL VALUE

<b>RAETIHI STORMWATER</b>		<b>2021/2022</b>	<b>2022/2023</b>	<b>2023/2024</b>	<b>2024/2025</b>	<b>2025/2026</b>	<b>2026/2027</b>	<b>2027/2028</b>	<b>2028/2029</b>	<b>2029/2030</b>	<b>2030/2031</b>
<b>Description (Name)</b>	<b>Scope</b>										
Raetihi Stormwater Networks: Stormwater Main Replacement	Structured scheduled programme for rehabilitation / replacement of the Raetihi stormwater mains	\$ 25,226.47	\$ 25,226.47	\$ 25,226.47	\$ 2,749.47	\$ 3,233.33	\$ 483.86	\$ 483.86	\$ 483.86	\$ 483.86	\$ 483.86
Raetihi Stormwater: Piping of Open Channel Systems	Piping of existing stormwater open channels	\$ 2,749.47	\$ 2,749.47	\$ 2,749.47	\$ 2,749.47	\$ 3,233.33	\$ 483.86	\$ 483.86	\$ 483.86	\$ 483.86	\$ 483.86
		\$ 22,477.00	\$ 22,477.00	\$ 22,477.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

OPERATIONAL VALUE

<b>Raetihi - Stormwater</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>	<b>2025/26</b>	<b>2026/27</b>	<b>2027/28</b>	<b>2028/29</b>	<b>2029/30</b>	<b>2030/31</b>
All Other Maintenance Lump Sum	21,608	21,608	21,608	21,608	21,608	21,608	21,608	21,608	21,608	21,608
All Other Maintenance Dayworks	12,200	12,200	12,200	12,200	12,200	12,200	12,200	12,200	12,200	12,200
Overheads	-	-	-	-	-	-	-	-	-	-
Supply & Disposal	-	-	-	-	-	-	-	-	-	-
Power	-	-	-	-	-	-	-	-	-	-
Insurance	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108	1,108
Other (incl consultants)	854	854	854	854	854	854	854	854	854	854
<b>Grand Total</b>	<b>35,770</b>	<b>35,770</b>	<b>35,770</b>	<b>35,770</b>	<b>35,770</b>	<b>35,770</b>	<b>35,770</b>	<b>35,770</b>	<b>35,770</b>	<b>35,770</b>

**F.6 Rangataua**

CAPITAL VALUE

<b>RANGATAUA STORMWATER</b>		<b>2021/2022</b>	<b>2022/2023</b>	<b>2023/2024</b>	<b>2024/2025</b>	<b>2025/2026</b>	<b>2026/2027</b>	<b>2027/2028</b>	<b>2028/2029</b>	<b>2029/2030</b>	<b>2030/2031</b>
<b>Description (Name)</b>	<b>Scope</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
No Capital Projects		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

OPERATIONAL VALUE

<b>Rangataua - Stormwater</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>	<b>2025/26</b>	<b>2026/27</b>	<b>2027/28</b>	<b>2028/29</b>	<b>2029/30</b>	<b>2030/31</b>
All Other Maintenance Lump Sum	-	-	-	-	-	-	-	-	-	-
All Other Maintenance Dayworks	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000
Overheads	-	-	-	-	-	-	-	-	-	-
Supply & Disposal	-	-	-	-	-	-	-	-	-	-
Power	-	-	-	-	-	-	-	-	-	-
Insurance	612	612	612	612	612	612	612	612	612	612
Other (incl consultants)	3,609	3,609	3,609	3,609	3,609	3,609	3,609	3,609	3,609	3,609
<b>Grand Total</b>	<b>12,221</b>	<b>12,221</b>	<b>12,221</b>	<b>12,221</b>	<b>12,221</b>	<b>12,221</b>	<b>12,221</b>	<b>12,221</b>	<b>12,221</b>	<b>12,221</b>

**F.7 Raurimu**

CAPITAL VALUE

<b>RAURIMU STORMWATER</b>		<b>2021/2022</b>	<b>2022/2023</b>	<b>2023/2024</b>	<b>2024/2025</b>	<b>2025/2026</b>	<b>2026/2027</b>	<b>2027/2028</b>	<b>2028/2029</b>	<b>2029/2030</b>	<b>2030/2031</b>
<b>Description (Name)</b>	<b>Scope</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
No Capital Projects											

OPERATIONAL VALUE

<b>Raurimu - Stormwater</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>	<b>2025/26</b>	<b>2026/27</b>	<b>2027/28</b>	<b>2028/29</b>	<b>2029/30</b>	<b>2030/31</b>
All Other Maintenance Lump Sum	-	-	-	-	-	-	-	-	-	-
All Other Maintenance Dayworks	-	-	-	-	-	-	-	-	-	-
Overheads	-	-	-	-	-	-	-	-	-	-
Supply & Disposal	-	-	-	-	-	-	-	-	-	-
Power	-	-	-	-	-	-	-	-	-	-
Insurance	-	-	-	-	-	-	-	-	-	-
Other (incl consultants)	-	-	-	-	-	-	-	-	-	-
<b>Grand Total</b>	-	-	-	-	-	-	-	-	-	-

**F.8 Taumarunui**

CAPITAL VALUE

TAUMARUNUI STORMWATER		2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031
Description (Name)	Scope	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Taumarunui Stormwater Networks: Stormwater Main Replacement	Structured scheduled programme for rehabilitation / replacement of the Taumarunui stormwater mains	\$ 541,102.95	\$ 1,080,502.95	\$ 416,369.80	\$ 195,169.80	\$ 134,769.80	\$ 357,573.56	\$ 363,598.80	\$ 263,548.80	\$ 262,781.95	\$ 262,781.95
Taumarunui Stormwater: Tuaki Street & Maata Street Flood Control	Installation of new 2m x 1m Box Culvert adjacent to the stopbank in the Taumarunui Domain	\$ 80,502.95	\$ 80,502.95	\$ 81,269.80	\$ 81,269.80	\$ 81,269.80	\$ 257,523.56	\$ 263,548.80	\$ 263,548.80	\$ 262,781.95	\$ 262,781.95
Taumarunui Stormwater: Tuaki Street & Maata Street Flood Control	Installation of new 900mm culvert at the end of Turaki Street	\$ -	\$ -	\$ 53,500.00	\$ 107,000.00	\$ 53,500.00	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Stormwater: Taupo Road Flood Control	Installation of new 1.5m x 1m box culvert at 158-160 Taupo Road	\$ 20,700.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Stormwater: Tuku Street Flood Control	Installation of new Tuk Street Culvert and 1.5m x 1m culvert in Tuku Street domain	\$ -	\$ -	\$ 276,100.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Stormwater: Miscellaneous Flood Control	Improve grates and new drop inlet screens on manholes - Housing Corp drain	\$ -	\$ -	\$ -	\$ 6,900.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Stormwater: Miscellaneous Flood Control	New manhole and drop inlet Screen - Esplanade	\$ -	\$ -	\$ 5,500.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Stormwater Networks: Hakiaha Street	Hakiaha Steet SW rehabilitation	\$ 389,900.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Stormwater - Short St Stomwater Investigation	Short Street Stormwater Investigation	\$ 50,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Taumarunui Stormwater - Short St Physical Works	Short Street Stormwater Physical Works	\$ -	\$ 1,000,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

OPERATIONAL VALUE

Taumarunui - Stormwater	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	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
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	-	-	-	-	-	-	-	-	-	-
Insurance	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435	8,435
Other (incl consultants)	11,166	11,166	11,166	11,166	11,166	11,166	11,166	11,166	11,166	11,166
<b>Grand Total</b>	<b>134,601</b>	<b>134,601</b>	<b>134,601</b>	<b>134,601</b>	<b>134,601</b>	<b>134,601</b>	<b>134,601</b>	<b>134,601</b>	<b>134,601</b>	<b>134,601</b>

**F.9 Waiouru**

CAPITAL VALUE

<b>WAIOURU STORMWATER</b>		<b>2021/2022</b>	<b>2022/2023</b>	<b>2023/2024</b>	<b>2024/2025</b>	<b>2025/2026</b>	<b>2026/2027</b>	<b>2027/2028</b>	<b>2028/2029</b>	<b>2029/2030</b>	<b>2030/2031</b>
<b>Description (Name)</b>	<b>Scope</b>	\$ 31,983.33	\$ 31,983.33	\$ 31,983.33	\$ 31,983.33	\$ 31,983.33	\$ -	\$ -	\$ -	\$ -	\$ -
Waiouru Stormwater Networks: Stormwater Main Replacement	Structured scheduled programme for rehabilitation / replacement of the Waiouru stormwater mains	\$ 31,983.33	\$ 31,983.33	\$ 31,983.33	\$ 31,983.33	\$ 31,983.33	\$ -	\$ -	\$ -	\$ -	\$ -

OPERATIONAL VALUE

<b>Waiouru - Stormwater</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>	<b>2025/26</b>	<b>2026/27</b>	<b>2027/28</b>	<b>2028/29</b>	<b>2029/30</b>	<b>2030/31</b>
All Other Maintenance Lump Sum	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500
All Other Maintenance Dayworks	-	-	-	-	-	-	-	-	-	-
Overheads	-	-	-	-	-	-	-	-	-	-
Supply & Disposal	-	-	-	-	-	-	-	-	-	-
Power	-	-	-	-	-	-	-	-	-	-
Insurance	329	329	329	329	329	329	329	329	329	329
Other (incl consultants)	-	-	-	-	-	-	-	-	-	-
<b>Grand Total</b>	<b>4,829</b>	<b>4,829</b>	<b>4,829</b>	<b>4,829</b>	<b>4,829</b>	<b>4,829</b>	<b>4,829</b>	<b>4,829</b>	<b>4,829</b>	<b>4,829</b>

**F.9 District Wide**

CAPITAL VALUE

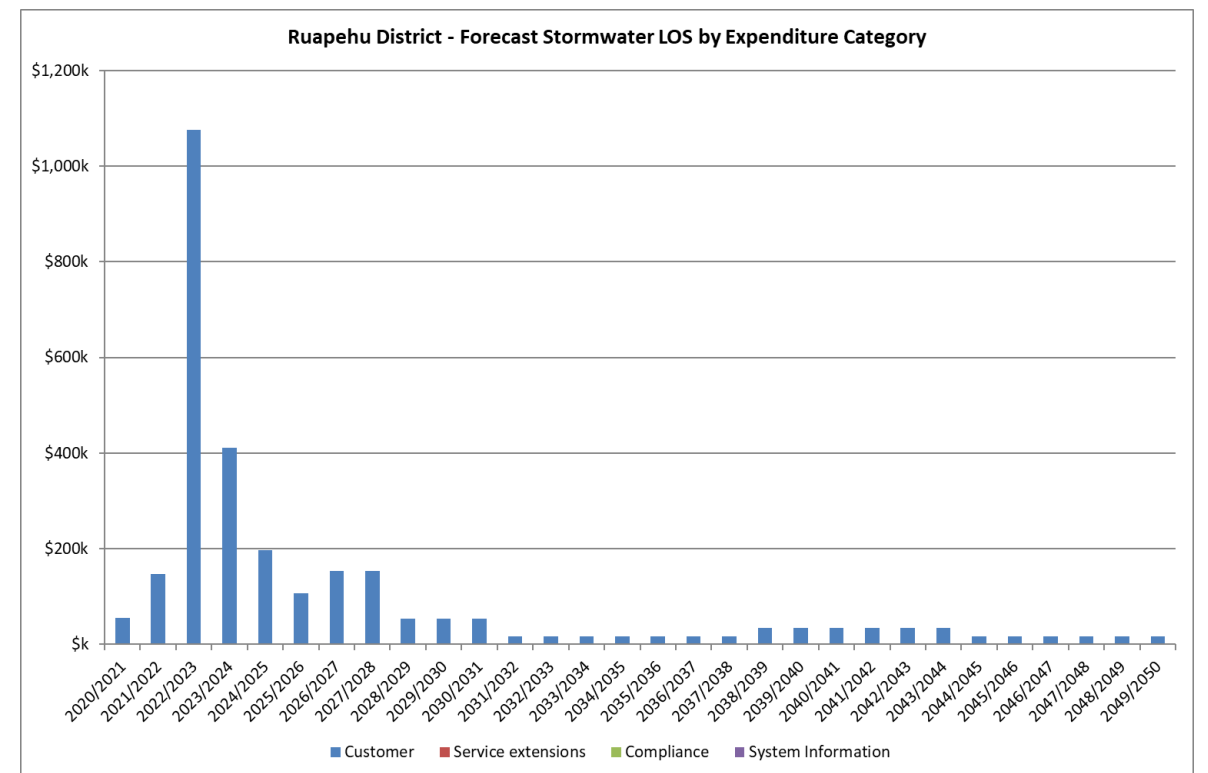
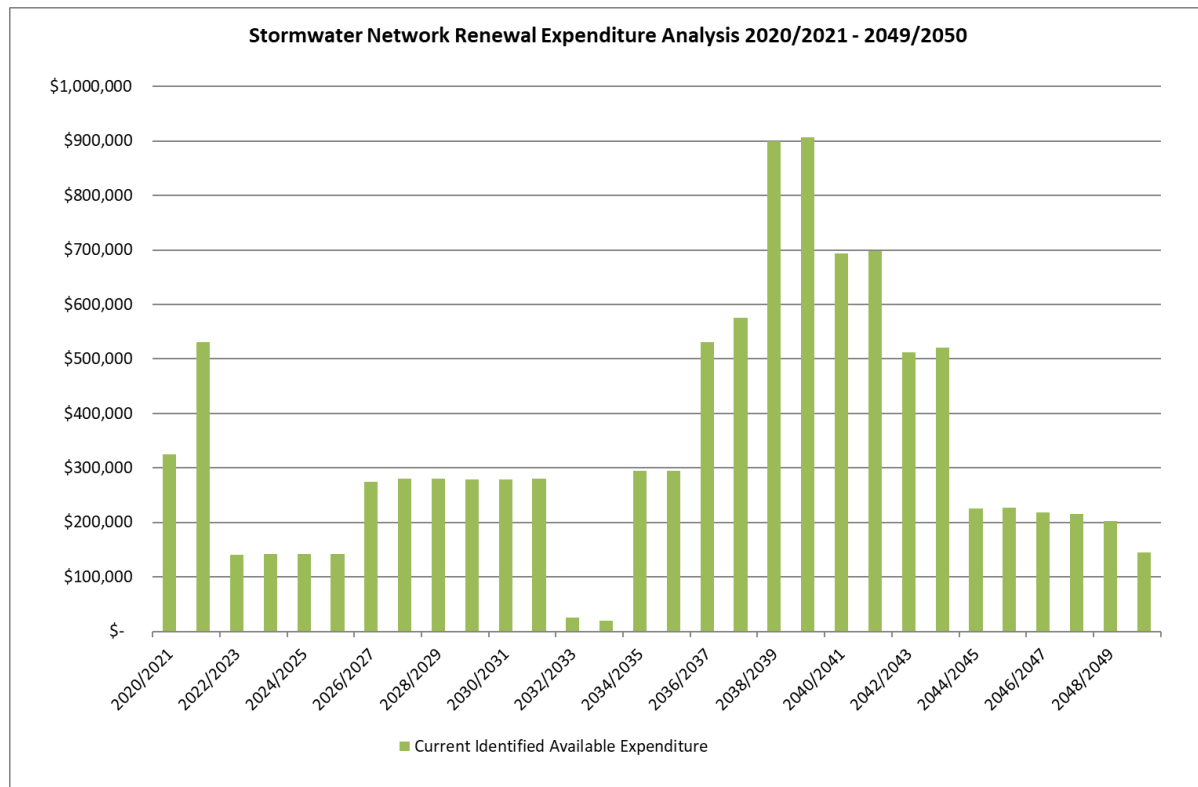
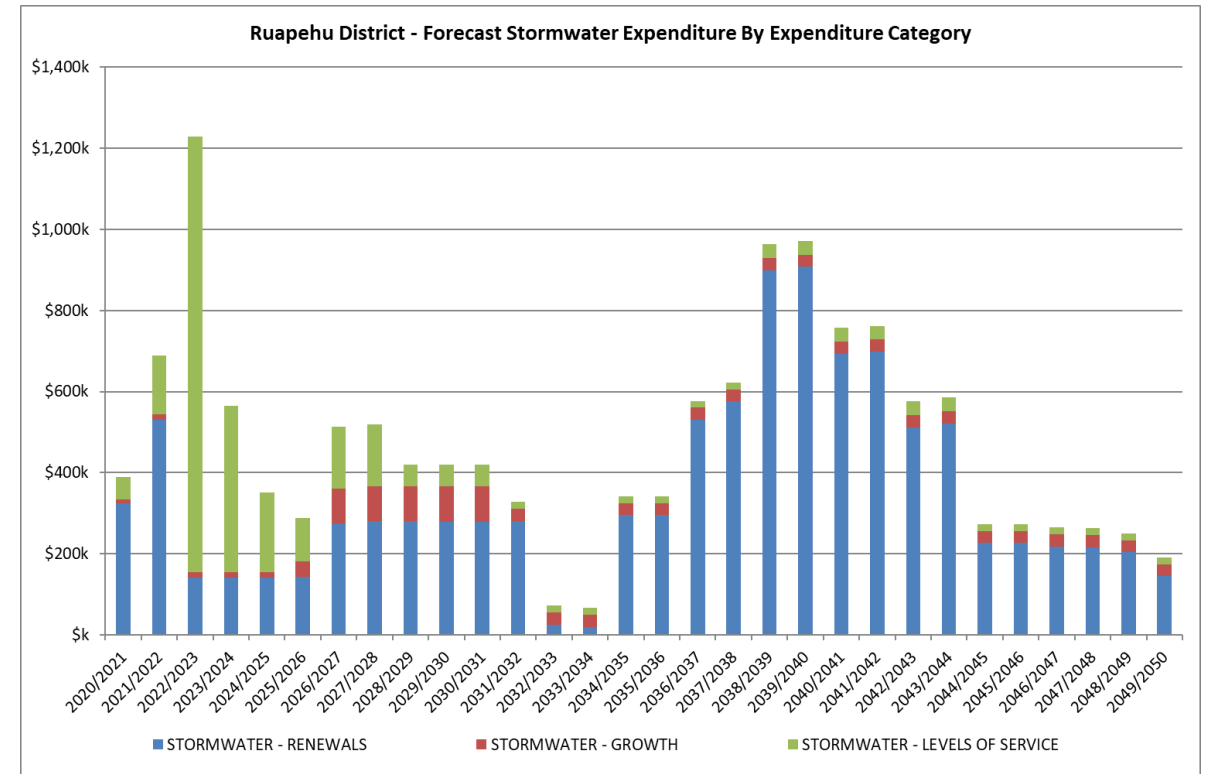
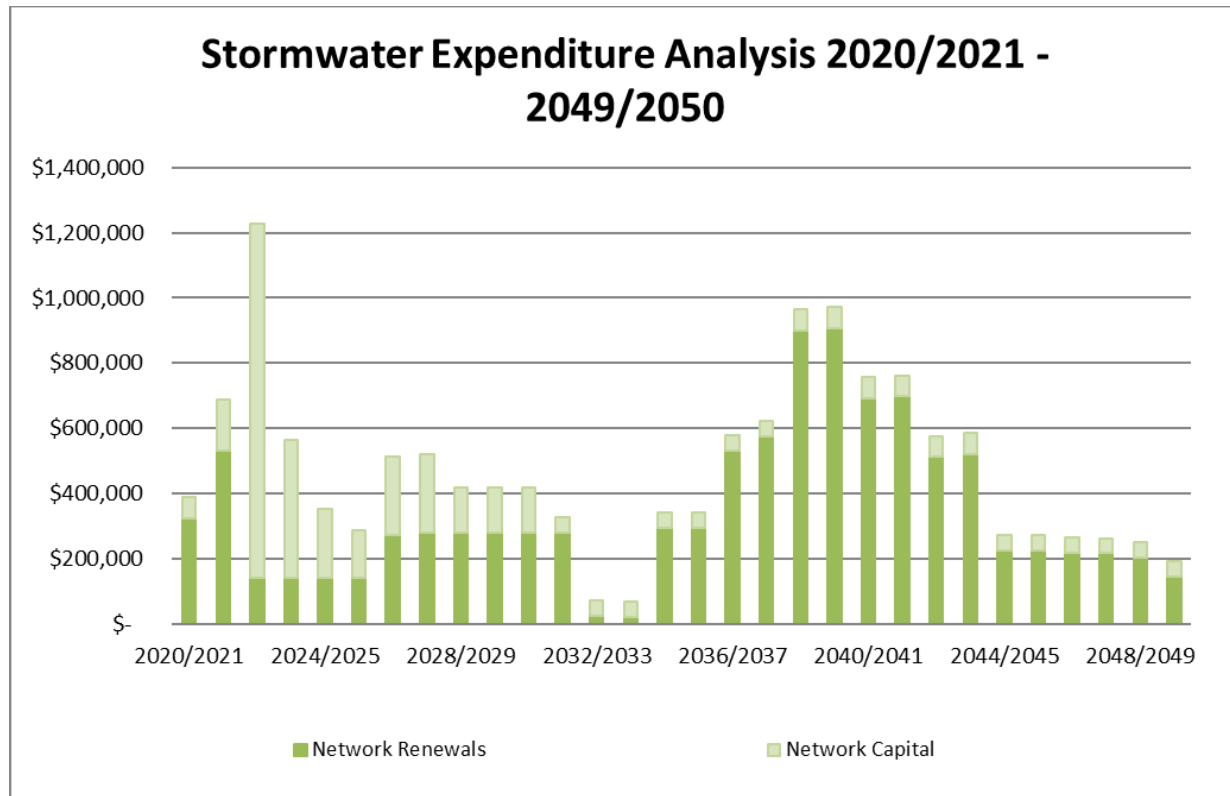
<b>DISTRICT WIDE PROJECTS - STORMWATER</b>		<b>2021/2022</b>	<b>2022/2023</b>	<b>2023/2024</b>	<b>2024/2025</b>	<b>2025/2026</b>	<b>2026/2027</b>	<b>2027/2028</b>	<b>2028/2029</b>	<b>2029/2030</b>	<b>2030/2031</b>
<b>Description (Name)</b>	<b>Scope</b>										
District Wide - Stormwater Network Capacity Upgrades	District Wide program for additional capacity for stormwater networks	\$ 68,009.98	\$ 68,009.98	\$ 68,009.98	\$ 68,009.98	\$ 94,929.18	\$ 94,929.18	\$ 94,929.18	\$ 94,929.18	\$ 94,929.18	\$ 94,929.18
District Wide - Rooding Projects	To provide share of stormwater costs [inc Rural maintenance]	\$ 48,010.00	\$ 48,010.00	\$ 48,010.00	\$ 48,010.00	\$ 48,010.00	\$ 48,010.00	\$ 48,010.00	\$ 48,010.00	\$ 48,010.00	\$ 48,010.00
District Wide - Stormwater Drain Vegetation Clearance	Vegetation clearance of open drains to provide clear flowpath	\$ 19,999.98	\$ 19,999.98	\$ 19,999.98	\$ 19,999.98	\$ 19,999.98	\$ 19,999.98	\$ 19,999.98	\$ 19,999.98	\$ 19,999.98	\$ 19,999.98

OPERATIONAL VALUE

<b>District Wide Projects - Stormwater</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>	<b>2025/26</b>	<b>2026/27</b>	<b>2027/28</b>	<b>2028/29</b>	<b>2029/30</b>	<b>2030/31</b>
All Other Maintenance Lump Sum	110,000	110,000	110,000	110,000	110,000	110,000	110,000	110,000	110,000	110,000
All Other Maintenance Dayworks	-	-	-	-	-	-	-	-	-	-
Overheads	189,408	189,408	189,408	189,408	189,408	189,408	189,408	189,408	189,408	189,408
Supply & Disposal	-	-	-	-	-	-	-	-	-	-
Power	-	-	-	-	-	-	-	-	-	-
Insurance	-	-	-	-	-	-	-	-	-	-
Other (incl consultants)	-	-	-	-	-	-	-	-	-	-
<b>Grand Total</b>	<b>299,408</b>	<b>299,408</b>	<b>299,408</b>	<b>299,408</b>	<b>299,408</b>	<b>299,408</b>	<b>299,408</b>	<b>299,408</b>	<b>299,408</b>	<b>299,408</b>



Appendix G – Financial Charts – 30 years



## DiAppendix H – Risk Register

### Schedule 1 – Stormwater Activity Risk Management External Context Review – PESTLE Analysis

The following trends or issues provide the external context for the management of risks for the Stormwater 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 Stormwater 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 Stormwater 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 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 Stormwater 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.	May restrict levels of service.	Demand for better systems.	Prioritisation of funding will be required to put systems in place to maintain and improve infrastructure to ensure compliance.	Stakeholders need to work together to manage river systems that are able to cope with flood episodes. New measures may restrict land activity. 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 Stormwater Activity assets.	Stakeholder requirements would be affected with differing priorities and understanding.
Political and Policy	CDEM Act 2002	Requires lifeline utilities (such as a stormwater network) to function at the fullest possible extent during and after an emergency and to have plans for such functioning. Capability of the stormwater network will impact on this.	Potential for loss of level of service during emergency event if systems not maintained. Uncertainty of system's ability to cope without being tested.	Increased demand from houses as they increase their hard surface areas.	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 have an impact on levels 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 Stormwater 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 Stormwater 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 premiums and become risk adverse making the future of rebuild costs 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"> <li>• Overall annual visitor numbers to the district are increasing.</li> <li>• There are peaks in visitor numbers in both winter and summer.</li> <li>• Winter visitor numbers are declining, while summer visitor numbers are increasing.</li> <li>• The number of holiday homes in the district is increasing, reflecting Ruapehu as a domestic holiday destination.</li> <li>• Government initiative Tourism 2025 is active within the district.</li> <li>• National cycle trails are driving recreational cyclist numbers (237km of rural roads in the district are included in the National Cycleway network).</li> </ul> Also, following trends are perceived (but not yet quantified): <ul style="list-style-type: none"> <li>• Increasing numbers of motor homes.</li> <li>• Increasing numbers of Te Araroa / Freedom walkers.</li> <li>• Increasing numbers of recreational road users (e.g. adventure bikers).</li> </ul>	Increased levels of service.	Demand for camp areas with green space that does not flood. Pipe more drains to increase road verges.	Additional funding required to maintain a system adequate to cope with Peak Population numbers and increased levels of service. <ul style="list-style-type: none"> <li>• Limited opportunities for RDC to capture funding from tourism:</li> <li>• Holiday homes trend is sustaining rates base in the district despite declining normally resident population.</li> </ul>	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"> <li>• 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.</li> <li>• 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.</li> <li>• Duties on workers and other people in workplaces.</li> <li>• Duties which provide for better levels of participation by workers in matters of health and safety.</li> </ul>	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.
Legal / Regulatory	Increasing environmental standards: <ul style="list-style-type: none"> <li>• Horizons One Plan</li> </ul>	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 targets stormwater activity around levels of service in four areas including public safety, infrastructure stewardship, environmental sustainability and responsiveness.	Increased requirements to levels of service.	No impact anticipated.	Prioritisation of funding will be required to put systems in place to meet stormwater discharge standards.	Stakeholders required to assist RDC with management of stormwater on private properties. Resource Consent may not be achieved if RDC cannot maintain water quality within required limits.

Category	Trends, Issues or Factors	What is the Trend, Issue or Factor?	What are the anticipated impacts on RDC Stormwater activity?			
			Levels of Service	Growth and Demand	Revenue and Funding	Regulatory or Stakeholder Requirements or Constraints
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	Community expectations	The community's expectations are increasing regarding to: <ul style="list-style-type: none"> <li>• Sustainable systems.</li> <li>• Stormwater quality in the environmental and surrounding land use.</li> <li>• Responsiveness</li> <li>• Disruption to individual property owners during new works construction</li> </ul>	Increasing expectations may result in a gap between service level delivered and service level expected.	No impact anticipated.	Closing these gaps may challenge affordability	Developing systems to meet the communities increasing expectations may not be sustainable.
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.	Requirement for wider roadside shoulders for mobility scooters.	Demand for more space on roadside or paths to decrease flooding.	Decline in rate paying base and an increasing demand to charge for stormwater flows.	More accessible paths for mobility scooters.
Environmental	Climate Change	Climate change is expected to impact the frequency and severity of weather-related hazards (rainfall patterns, storm intensity and frequency, drought): <ul style="list-style-type: none"> <li>• Increase in overall rainfall, with increase in rainfall intensity</li> <li>• Number and strength of ex-tropical cyclones reaching NZ also likely to increase</li> <li>• Decrease in winter temperatures and snowfall. Places which currently receive snowfall likely to see shift to rainfall or sleet.</li> </ul>	Potential for increase in flood events. Increased requirement for backflow prevention during periods of flood. Change in design of subdivisions.	Demand for increased capacity during floods (ability to hold peak flows for 2-4 hours).	Additional funding required to make alterations necessary to cope with flood levels.	Increased input from stakeholders required to manage flood prevention on their own properties. Requirement to reduce hard surface areas and for peak stormwater storage.

## Schedule 2 – Stormwater Activity Risk Register

The risk register provided in the following tables for the current and future Stormwater 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			Risk level
<b>Stormwater AMP Risks</b>												
ST01	Service failure	<p>Service failure occurs</p> <p>Caused by:</p> <ul style="list-style-type: none"> <li>No management plan</li> <li>Insufficient management of assets</li> <li>Risk analysis and management is not comprehensive</li> <li>Insufficient investment to keep pace with growth and demand</li> </ul> <p>Consequences:</p> <ul style="list-style-type: none"> <li>Unavailability of urban roads</li> <li>Flooding</li> <li>Illness, danger, serious injury or death</li> <li>Pollution incidents, environmental damage</li> <li>Breach of discharge consent conditions</li> <li>Additional cost</li> </ul>			#N/A	<ul style="list-style-type: none"> <li>Asset management processes</li> <li>Engagement of competent staff and contractors</li> <li>AMP planning</li> <li>AMP monitoring</li> <li>Condition assessments</li> <li>3 year AMP practise review</li> <li>Annual Plan submission</li> <li>Risk assessment overview</li> <li>Maintenance planning</li> </ul>		4	1	M	Environmental Manager	<ul style="list-style-type: none"> <li>Sustainable management of the network</li> </ul>
<b>Stormwater AMP Risks - Piped Network</b>												
ST02	Extreme rainfall event exceeds stormwater design capability of critical pipes	<p>Stormwater critical pipe network cannot manage the rainfall</p> <p>Caused by:</p> <ul style="list-style-type: none"> <li>Insufficient design</li> <li>Extreme rainfall event</li> </ul> <p>Consequences:</p> <ul style="list-style-type: none"> <li>Flooding</li> <li>Slips</li> <li>Illness, danger, serious injury or death</li> <li>Pollution incidents, environmental damage</li> <li>Breaches of discharge consent conditions</li> </ul>			#N/A	<ul style="list-style-type: none"> <li>Overflow monitoring</li> <li>Response planning</li> <li>Preventative maintenance</li> <li>Condition assessment</li> <li>Flood model of major risk towns Ohakune &amp; Taumarunui</li> <li>Emergency Response Plan</li> <li>Catchment model before any open drained roading piped</li> <li>Roading consider catchment before accepting crossing</li> </ul>		4	3	H	Environmental Manager	<ul style="list-style-type: none"> <li>Develop flood model overlay with houses for Ohakune and Taumarunui</li> <li>CCTV network</li> <li>Rerun models</li> </ul>

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
ST03	Extreme rainfall event exceeds stormwater design capability of non-critical pipes	Stormwater non-critical pipe network cannot manage the rainfall Caused by: • Insufficient design • Extreme rainfall event Consequences: • Flooding • Slips • Illness, danger, serious injury or death • Pollution incidents, environmental damage • Breaches of discharge consent conditions			#N/A	<ul style="list-style-type: none"> <li>• Overflow monitoring</li> <li>• Response planning</li> <li>• Emergency Response Plan</li> <li>• Hard stand modelling</li> <li>• Preventative maintenance</li> <li>• Condition assessment</li> </ul>		4	3	H	Environmental Manager	<ul style="list-style-type: none"> <li>• Develop network models</li> <li>• CCTV lines</li> </ul>
ST04	Extensive damage to piped network inlets and outlets	Extensive damage to piped network inlets and outlets Caused by: • Volcanic eruption or other natural hazard Consequences: • Unavailability of urban roads • Flooding • Danger • Pollution incidents, environmental damage • Breach of discharge consent conditions • Illness, danger, serious injury or death			#N/A	<ul style="list-style-type: none"> <li>• Response planning</li> <li>• Emergency planning</li> <li>• Lifelines</li> </ul>		4	3	H	Environmental Manager	
ST05	Extensive damage to critical stormwater pipes	Extensive damage to critical pipes Caused by: • Volcanic eruption or other natural disaster Consequences: • Unavailability of urban roads • Flooding • Danger • Pollution incidents, environmental damage • Breach of discharge consent conditions • Illness, danger, serious injury or death			#N/A	<ul style="list-style-type: none"> <li>• Response planning</li> <li>• Emergency planning</li> <li>• Lifelines</li> </ul>		2	3	M	Environmental Manager	

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
ST06	Wastewater overflows into the stormwater network	Wastewater overflows on to land and into the stormwater network Caused by: • Failure of critical wastewater pipeline Consequences: • Contamination of adjacent properties • Contamination of receiving waters • Pollution incidents, environmental damage • Illness • Injury			#N/A	<ul style="list-style-type: none"> <li>• Condition monitoring</li> <li>• Maintenance history analysis</li> <li>• Targeted renewal programmes</li> <li>• Response planning</li> <li>• System redundancy options</li> <li>• Communication and Signage planning</li> <li>• Incident response reporting</li> <li>• Regular I&amp;I works to remove stormwater from wastewater system</li> </ul>		2	4	H	Environmental Manager	<ul style="list-style-type: none"> <li>• CCTV survey of critical wastewater pipes</li> <li>• System redundancy options</li> </ul>

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		

Stormwater AMP Risks - Open Drain Network

ST07	Extreme rainfall event exceeds stormwater open drain design capability	Stormwater open public drains cannot manage the rainfall Caused by: <ul style="list-style-type: none"> <li>• Insufficient design</li> <li>• Extreme rainfall event</li> <li>• Inadequate vegetation maintenance in flood plain</li> <li>• Insufficient investment to keep pace with growth and demand</li> </ul> Consequences: <ul style="list-style-type: none"> <li>• Flooding</li> <li>• Slips</li> <li>• Illness, danger, serious injury or death</li> <li>• Children drowning</li> </ul>			#N/A	<ul style="list-style-type: none"> <li>• Vegetation management in the flood plain</li> <li>• Bylaws</li> <li>• Education to private owners</li> <li>• Facilitate clearance of drains</li> </ul>		4	1	M	Environmental Manager	
ST08	Extreme rainfall event exceeds stormwater private urban open drain design capability	Stormwater open drains on private property in urban areas cannot manage the rainfall Caused by: <ul style="list-style-type: none"> <li>• Insufficient design</li> <li>• Extreme rainfall event</li> <li>• Inadequate vegetation maintenance in flood plain</li> <li>• Insufficient maintenance by property owner</li> <li>• Insufficient investment to keep pace with growth and demand</li> </ul> Consequences: <ul style="list-style-type: none"> <li>• Flooding</li> <li>• Slips</li> <li>• Illness, danger, serious injury or death</li> <li>• Children drowning</li> </ul>			#N/A	<ul style="list-style-type: none"> <li>• Education to private owners</li> <li>• Facilitate clearance of drains</li> <li>• Bylaw against infrastructure and obstructing drainage</li> </ul>		4	1	M	Environmental Manager	<ul style="list-style-type: none"> <li>• Publicity to owners</li> </ul>

Stormwater AMP Risks - Pump 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			Risk level
ST09	Stormwater pump stations cannot manage	Stormwater non-critical pipes in pump stations cannot manage the rainfall Caused by: • Insufficient design capacity Consequences: • Flooding • Slips • Pollution incidents, environmental damage • Breaches of discharge consent conditions • Illness, danger, serious injury or death			#N/A	• No stormwater pump stations		3	3	H	Environmental Manager	

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		

Stormwater AMP Risks - Treatment Plants												
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
ST10	Stormwater treatment plants cannot manage	Stormwater non-critical pipes in treatment plants cannot manage the rainfall Caused by: • Insufficient design Consequences: • Flooding • Slips • Pollution incidents, environmental damage • Breaches of discharge consent conditions • Illness, danger, serious injury or death			#N/A	• No treatment plants		3	3	H	Environmental Manager	

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
Stormwater AMP Risks - Stopbanks												
ST11	Stormwater stopbanks do not drain	Stormwater stopbanks do not drain back to natural waterways Caused by: <ul style="list-style-type: none"> <li>• Insufficient design</li> <li>• Extreme rainfall event</li> <li>• Insufficient maintenance</li> <li>• Insufficient investment to keep pace with growth and demand</li> <li>• Lack of capacity at outlet structure for small flood</li> <li>• No drainage during large flood</li> </ul> Consequences: <ul style="list-style-type: none"> <li>• Flooding</li> <li>• Slips</li> <li>• Illness, danger, serious injury or death</li> </ul>			#N/A	<ul style="list-style-type: none"> <li>• Increase ability to drain internally</li> </ul>		3	2	M	Environmental Manager	<ul style="list-style-type: none"> <li>• Risk model - number of houses effected</li> </ul>
ST12	Extensive damage to stopbanks	Extensive damage to stopbanks Caused by: <ul style="list-style-type: none"> <li>• Earthquake or other natural hazard</li> </ul> Consequences: <ul style="list-style-type: none"> <li>• Unavailability of urban roads</li> <li>• Flooding</li> <li>• Illness, danger, serious injury or death</li> </ul>			#N/A	<ul style="list-style-type: none"> <li>• Horizons responsible for stop banks</li> </ul>		3	2	M	Environmental Manager	

**Schedule 3 – Stormwater 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>
ST02	Extreme rainfall event exceeds stormwater design capability of critical pipes	Piped Network	H	<ul style="list-style-type: none"> <li>Develop flood model overlay with houses for Ohakune and Taumarunui</li> <li>Rerun models</li> <li>CCTV network</li> </ul>	Environmental Manager	Urgent	<ul style="list-style-type: none"> <li>GIS overlay known information</li> </ul>	IT	ongoing	\$10K	H
ST03	Extreme rainfall event exceeds stormwater design capability of non-critical pipes	Piped Network	H	<ul style="list-style-type: none"> <li>Develop network models</li> <li>CCTV lines</li> </ul>	Environmental Manager	Routine	<ul style="list-style-type: none"> <li>Rolling programme to CCTV and undertake condition assessment</li> </ul>	EM/Veolia	ongoing	\$10K	H
ST04	Extensive damage to piped network inlets and outlets	Piped Network	H		Environmental Manager	Routine					H
ST06	Wastewater overflows into the stormwater network	Piped Network	H	<ul style="list-style-type: none"> <li>CCTV survey of critical wastewater pipes</li> <li>System redundancy options</li> </ul>	Environmental Manager	Routine	<ul style="list-style-type: none"> <li>Rolling programme to CCTV and undertake condition assessment</li> </ul>	EM	ongoing	\$10K	M
ST09	Stormwater pump stations cannot manage	Pump Stations	H		Environmental Manager	Routine	<ul style="list-style-type: none"> <li>No stations currently</li> </ul>				H
ST10	Stormwater treatment plants cannot manage	Treatment Plants	H		Environmental Manager	Routine	<ul style="list-style-type: none"> <li>No treatment plants</li> </ul>				H