

Te Kaunihera-ā-Rohe o Ruapehu
Ruapehu District Council



LAND TRANSPORT ASSET MANAGEMENT PLAN

2021-2031



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1 VISION, COUNCIL FOCUSES AND COMMUNITY OUTCOMES



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

Council Focuses

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

Creating and retaining jobs

Growing incomes and opportunities

Increasing the ratepayer base

Providing sustainable infrastructure

Providing value for money in all we do

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

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

Creating collaborative partnerships with tangata whenua

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



Social – Safe, Healthy Communities

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



Cultural – Vibrant and Diverse Living

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



Environmental – Sustaining Beautiful Environments

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



Economic – Thriving Economy

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



Strong Leadership and Advocacy

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

2 SPATIAL PLAN

THREE MAIN ROLES OF RUAPEHU DISTRICT IN NEW ZEALAND

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

PRINCIPLES

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

TOP THREE DISTRICT SHAPING MOVES

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

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

ENVIRONMENTAL TOURISM

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

- Park & Ride
- District_Gateway
- Lakes
- Whanganui River

- Unique Natural Features
- National Park
 - Stewardship Land

FOOD PRODUCTION & PRIMARY INDUSTRY

- Forestry
- Cropland
- Productive Grassland

PARTNERING WITH IWI ENHANCING THE MAORI ECONOMY

To be mapped subsequently when iwi have confirmed and are ready

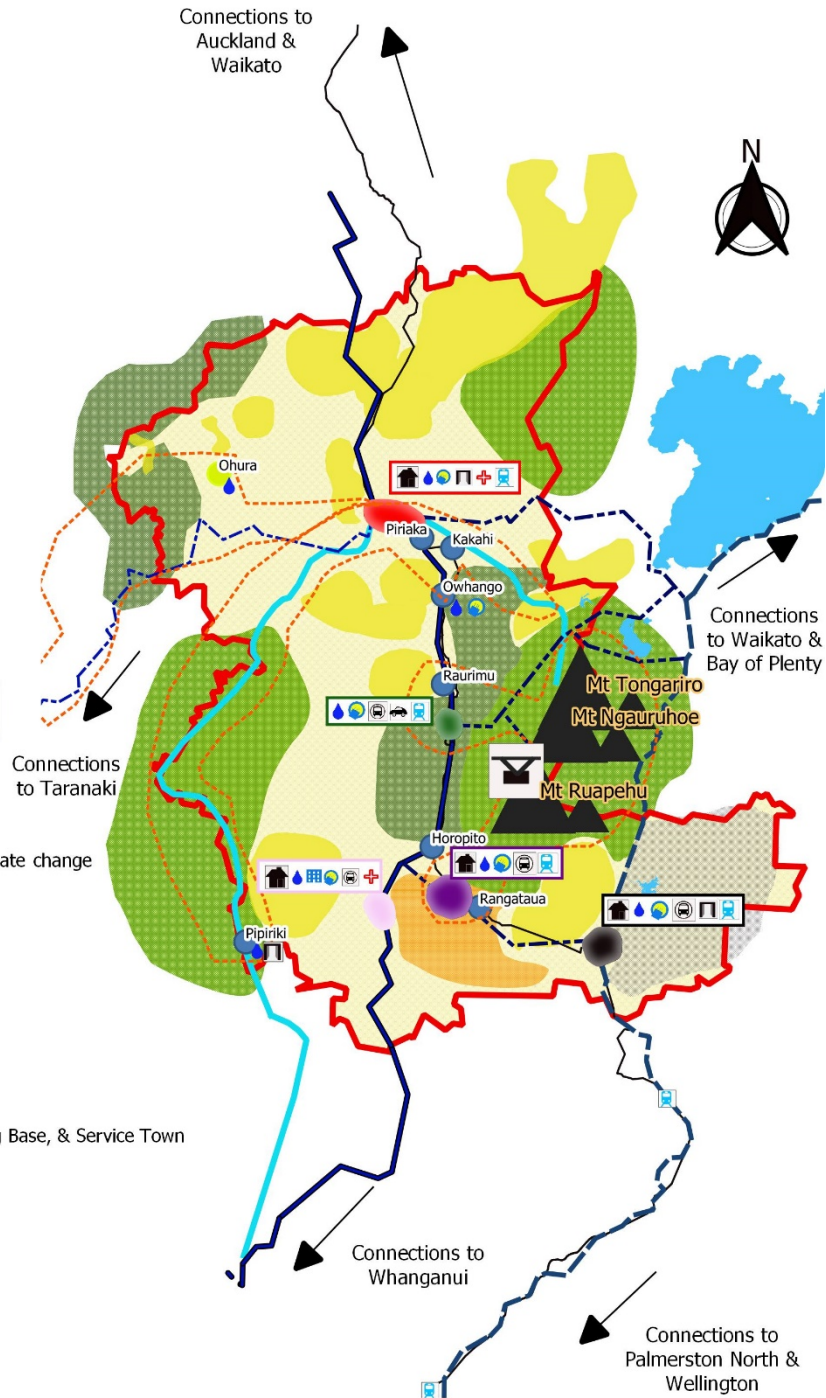
RESPONDING TO CLIMATE CHANGE

Participating in Horizon Regional Council's climate change workstream

INVESTING IN OUR TOWNS & SETTLEMENTS

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

Central government investigation to transition to new water delivery arrangements



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

3 THE RUAPEHU DISTRICT

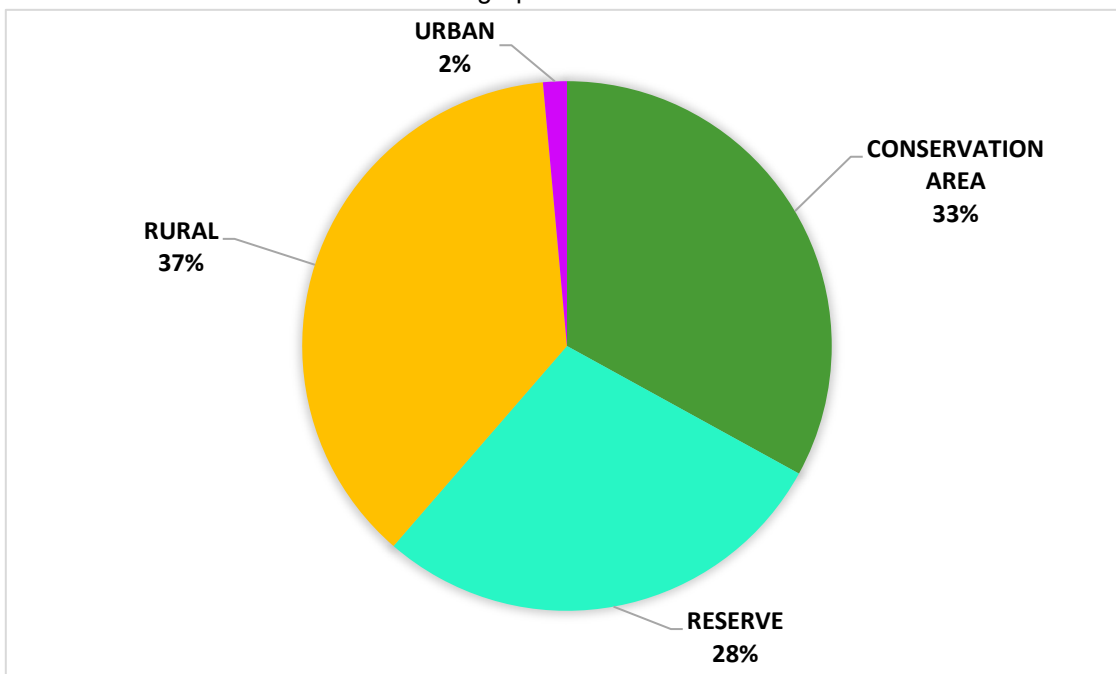
ENVIRONMENTAL

THE PLACE

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

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

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



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

THE NATURAL ENVIRONMENT

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

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

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

TONGARIRO NATIONAL PARK

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

CLIMATE

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

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

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

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

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

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

CLIMATE CHANGE ACTION

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

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

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

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



MAP OF RUAPEHU DISTRICT

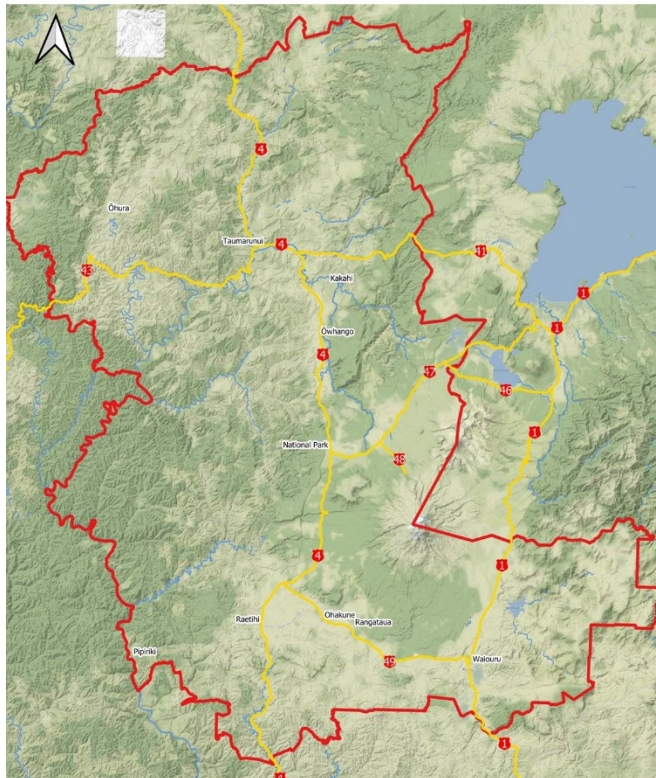
CULTURAL

SETTLEMENT

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

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

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



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

SOCIAL

TOWNSHIPS LOCATED THROUGHOUT THE DISTRICT

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

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

THE POPULATION

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

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

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

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

ECONOMY

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

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

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

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

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

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

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

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

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

VISITOR NUMBERS

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

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

RUAPEHU ALPINE LIFTS

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



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

4 ASSET MANAGEMENT

INTRODUCTION TO ASSET MANAGEMENT PLANNING AT RUAPEHU DISTRICT COUNCIL

ASSET MANAGEMENT OBJECTIVES AND INDUSTRY STANDARDS

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

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

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

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

RATIONALE AND INFRASTRUCTURE STRATEGY

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

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

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

WORK PROGRAMMES

Activity work programmes derive from:

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

5 LEVELS OF ASSET MANAGEMENT PLANS

CORE AMPs

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

ADVANCED AMPs

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

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

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

RUAPEHU DISTRICT COUNCIL'S AMPs

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

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

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

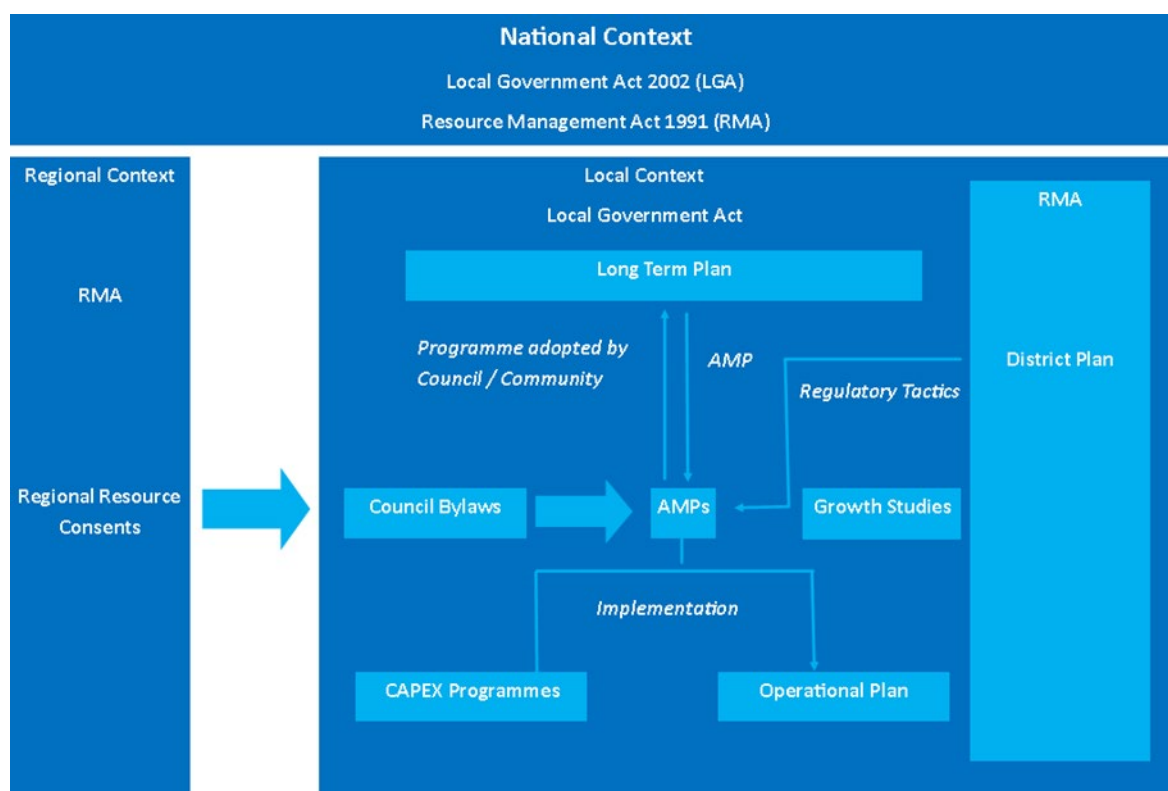
FUTURE IMPROVEMENTS

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

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

6 PLANNING REQUIREMENTS AND LOCAL GOVERNMENT PROCESSES

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



LEGAL REQUIREMENTS

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

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

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

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

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

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

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

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

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

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

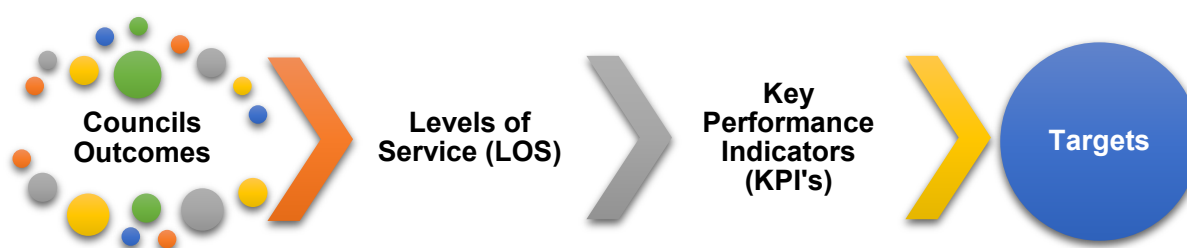
The AMPs detail the Goals, Levels of Service, KPIs and the targets which contribute to the organisation's Vision and Mission. They also identify demand changes and risks.

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

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

7 LEVELS OF SERVICE, KEY PERFORMANCE INDICATORS AND TARGETS

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



CHANGES IN LEVELS OF SERVICE

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

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

LEVELS OF SERVICE RELATIONSHIP TO ASSET MANAGEMENT PLANNING

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

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

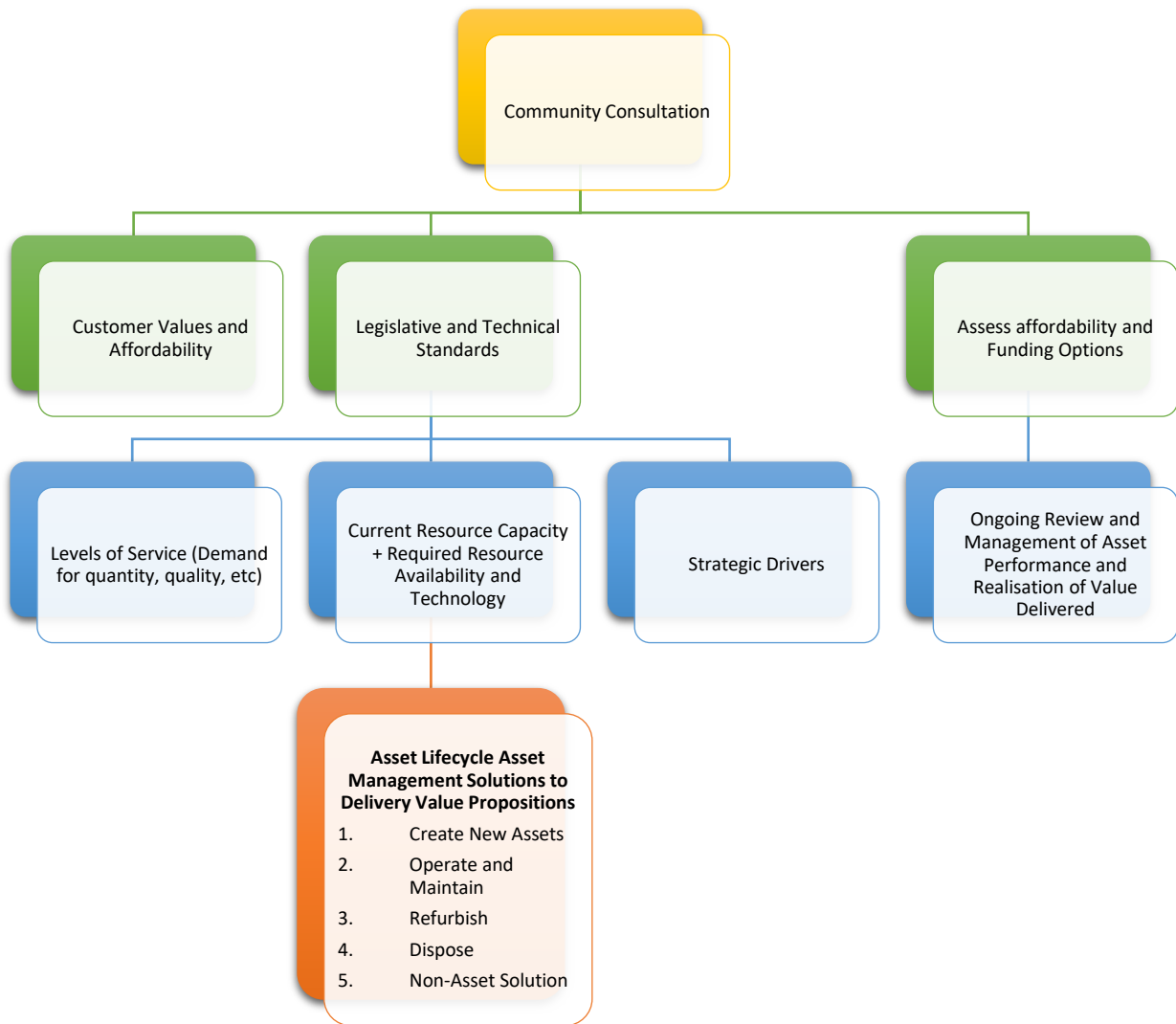
- (a) Planned outcomes
- (b) Legislative requirements
- (c) Technical constraints
- (d) Community affordability

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

Levels of Service:

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

The following figure shows LOS relationship to Asset Management Planning.



8 COMMUNITY ENGAGEMENT

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

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

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

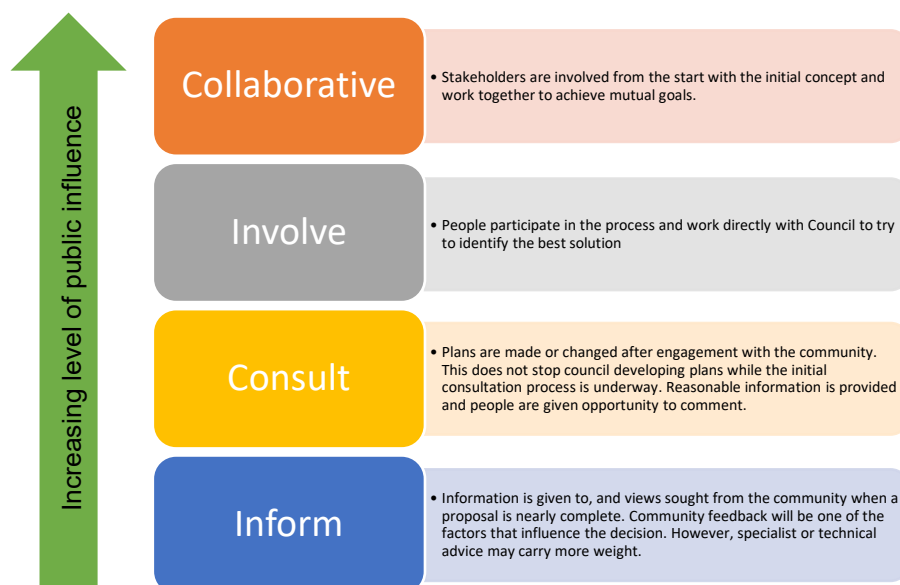
COUNCILS OBLIGATIONS AND ENGAGEMENT APPROACH

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

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

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

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



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

THE LOCAL GOVERNMENT ACT 2002 AND COMMUNITY ENGAGEMENT

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

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

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

PRE-ENGAGEMENT (AUGUST – NOVEMBER 2020)

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

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

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

SOCIAL MEDIA

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

COMMUNITY INTEREST GROUPS

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

CONSULTATION (MARCH – APRIL 2021)

CONSULTATION DOCUMENT

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

LOCALISED COMMUNITY MEETINGS

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

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

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

KEY COMMUNITY ISSUES

Location	Public Meeting Attendance	Online Views	Key Community Issues
National park	2	610	a) Affordability of National Park plan. b) Timing of non-commercial visitor rate increase
Ohura	8	425	a) Concerned about water quality b) Supportive of the proposed Forestry Targeted Rate increase c) Encourage council to Maintain & retain community assets
Waiouru	5	1200	a) Safety and parking issues at playground cost of housing winter workers b) Concerned about rate levels
Taumarunui	23	1500	a) Rate rises b) Impact of forestry on roading, c) Toilet and playground upgrades in central Taumarunui, d) Housing- agree that housing is an issue and wants to see council do something about it. e) Improving conversation, consultation and collaboration with Maori

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

FACEBOOK

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

SUMMARIES OF THE “BIG ISSUES”

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

NEWSPAPER & RADIO

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

WEBSITE

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

MĀORI ENGAGEMENT

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

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

YOUTH ENGAGEMENT

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

OTHER RELATED ISSUES

ROAD WORKS

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

3 WATERS- WATER SUPPLY/ STORM WATER/ WASTE WATER

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

TOWN REVITALISATION

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

HOUSING

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



9 RISK MANAGEMENT

INTRODUCTION

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

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

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

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

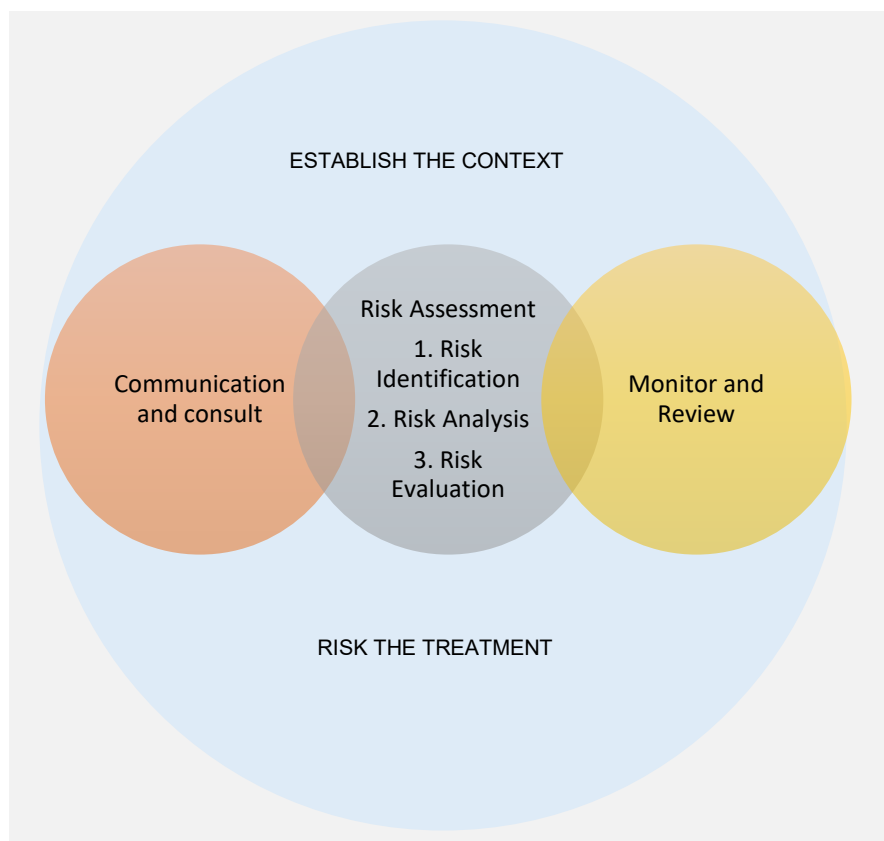
RDC’s risk assessment framework is simplified from the Joint Australian New Zealand International Standard: Risk Management – Principles and Guidelines (AS/NZS ISO 31000:2009).

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

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

The outcome of the risk management process is to:

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



RISK MANAGEMENT PROCESS

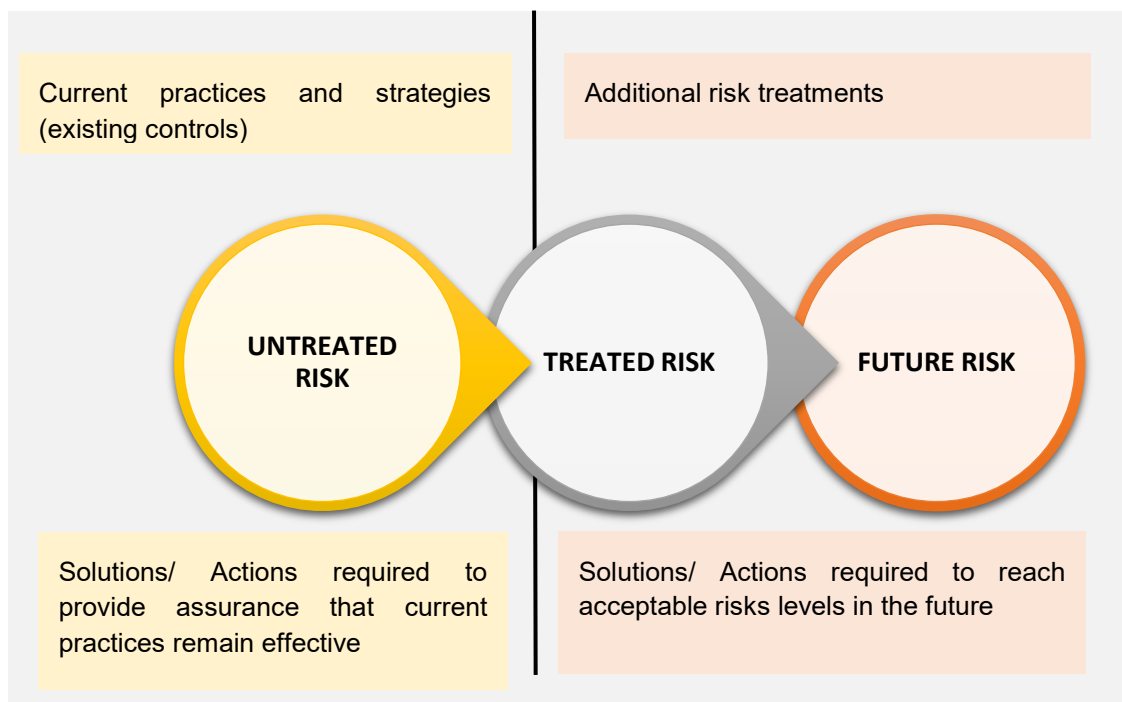
The risk management process is designed to ensure that:

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

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

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

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



ESTABLISH THE CONTEXT

The context for risk management is defined by:

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

The following steps were undertaken to establish the context:

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

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

EXTERNAL CONTEXT

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

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

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

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

INTERNAL CONTEXT

The risk assessment is oriented by RDC's objectives:

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

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

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

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

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

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

IDENTIFY THE RISKS

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

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

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

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

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

PROCESS FOR IDENTIFYING AND DESCRIBING RISKS

Identify and describe specific current risks.

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

ANALYSE RISKS

Each identified risk should be analysed to:

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

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

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

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

EVALUATE RISKS

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

The evaluation of risks should take into account:

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

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

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



Risk Management Framework

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

ASSESS THE CONSEQUENCES – STEP 1

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

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

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

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

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

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

Identify RDC's existing/current controls.

Assess the effectiveness of current controls.

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

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

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

Table 5: Rating Effectiveness of Controls

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

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

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

ASSESS THE LIKELIHOOD OF THAT CONSEQUENCE – STEP 2

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

Table 6: RDC Risk Likelihood Scale

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

RISK RATING

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

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

Table 7: Risk Assessment Matrix

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

MANAGE THE RISK – STEP 3

Manage the risk -

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

RISK TREATMENT – STEP 4

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

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

Table 8: Risk Treatment Strategy

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

10 LIFECYCLE MANAGEMENT

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

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

PLANNING AND PROCUREMENT

The need for a new asset is determined by:

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

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

OPERATIONS

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

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

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

MAINTENANCE

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

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

RENEWALS

Council renews assets when justified by:

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

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

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

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

DEVELOPMENT

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

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

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

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

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

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

DISPOSAL

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

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

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

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

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

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

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

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

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



11 FINANCIAL SUMMARY

INTRODUCTION

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

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

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

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

EXPENDITURE CATEGORIES

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

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

KEY ASSUMPTIONS

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

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

Confidence grades for each Activity are provided in Part 3.

12 CONTINUOUS IMPROVEMENT

INTRODUCTION

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

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

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

APPROACH



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

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

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

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

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

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

13 AMP REVIEW AND MONITORING

AMP REVIEW

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

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

This is summarised below.

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

AMP MONITORING

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

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

APPENDIX 1 – LIST OF ACRONYMS

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

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

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

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

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

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



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

INTRODUCTION

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

PURPOSE

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

METHOD AND ASSOCIATED LIMITATIONS

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

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

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

LIMITATIONS

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

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

⁹ Anecdotal

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

TO NOTE

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

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

Change from Area Unit to SA2

PART TWO

SUMMARY OF SIGNIFICANT PLANNING ASSUMPTIONS

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

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

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

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

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

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

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

Overview of Planning Assumptions

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

PART THREE: BASE INFORMATION FOR PLANNING ASSUMPTIONS

LEGISLATIVE / CENTRAL GOVERNMENT

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

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

LOCAL GOVERNMENT (RATING) ACT 2002

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

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

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

Forecasted Assumption(s):

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

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

Level of certainty: *Likely*

Potential Financial Consequence: *Low - Moderate*

TAUMATA AROWAI – THE WATER SERVICES REGULATOR BILL AND SUBSEQUENT BILLS

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

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

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

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

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

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

Level of certainty: Very Likely

Potential Financial Consequence: Significant

INFRASTRUCTURE FUNDING AND FINANCING BILL

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

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

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

Area of Impact: Three Waters, Roading, Environmental Planning

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

Level of certainty: Neutral

Potential Financial Consequence: Low

POTENTIAL RESOURCE MANAGEMENT ACT AMENDMENTS

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

Area of Impact: All Council operations

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

Level of certainty: Very Likely

Potential Financial Consequence: Moderate

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

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

DECLARATION OF CLIMATE EMERGENCY

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

Area of Impact: *Policy and Planning*

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

Level of certainty: *Very Likely*

Potential Financial Consequence: *Moderate*

CLIMATE CHANGE RESPONSE (ZERO CARBON) AMENDMENT ACT 2019

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

Area of Impact: *Policy and Planning*

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

Level of certainty: *Very Likely*

Potential Financial Consequence: *Moderate*

COVID-19

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

Area of Impact: *All Council Activities*

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

Level of certainty: *Likely*

Potential Financial Consequence: *Significant*

POPULATION

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

Forecasted Assumption(s):

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

Level of certainty: Likely

Potential Financial Consequence: Moderate

USUALLY RESIDENT POPULATION: DEMOGRAPHICS PAST AND PRESENT

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

AT A GLANCE:

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

Overview of District Demographics

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

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

AGE AND SEX

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

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

Summary of Past Service Age Groups

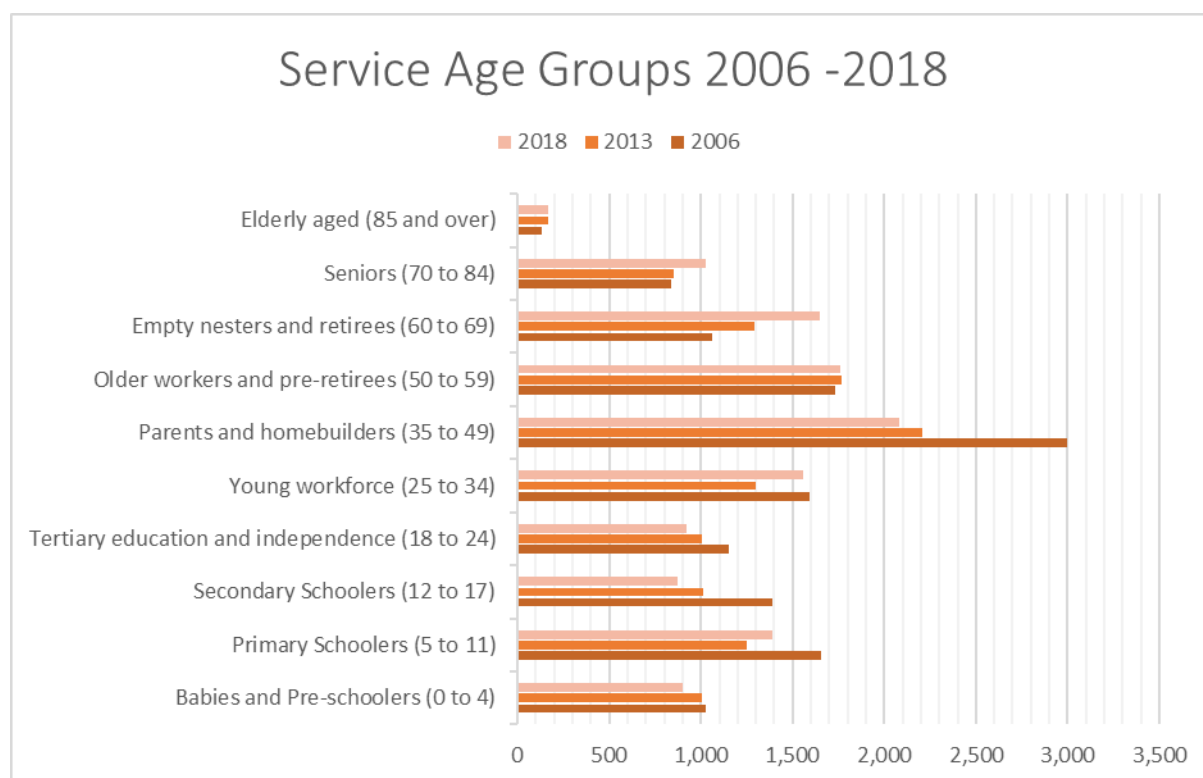
The above table in summary:

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

¹⁴ Profile ID

¹⁵ Profile ID

Summary of Past Service Age Groups Simplified



The tables above illustrate that;

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

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

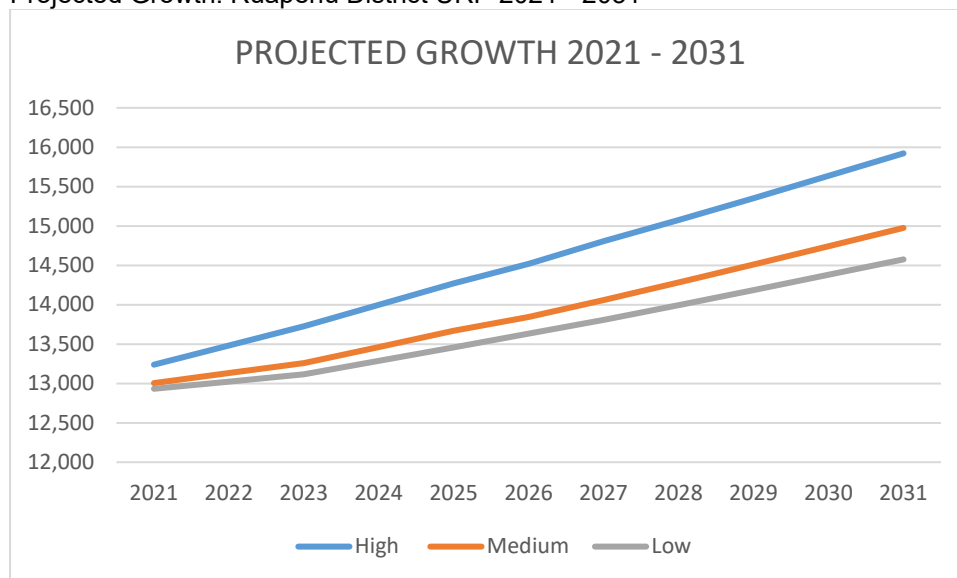
Council engaged with Infometrics to provide the projected population for the Ruapehu District out to 2053. Staff utilised this information in order to prepare projected population at SA2 levels out to 2031. Due to COVID, Infometrics have since provided three sets of possible projections all of which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

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

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

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

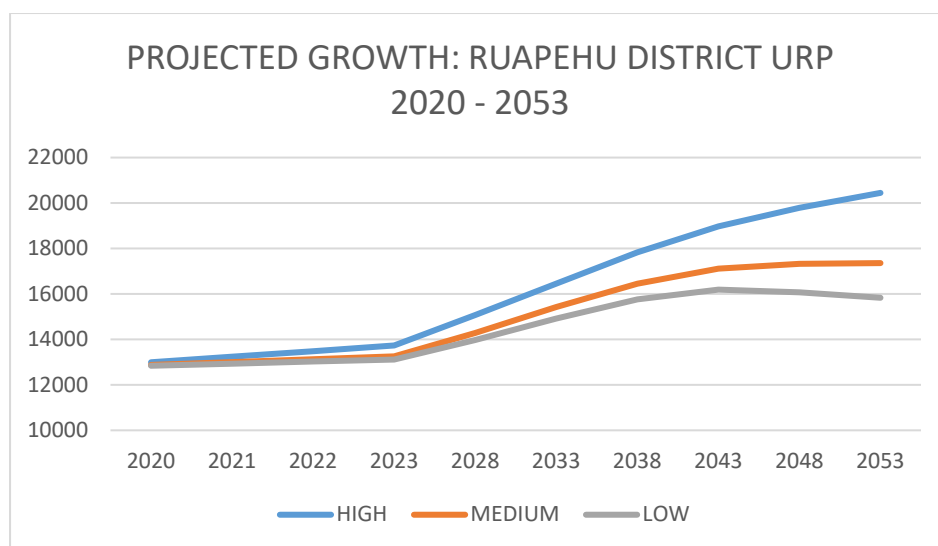
Projected Growth: Ruapehu District URP 2021 - 2031



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

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

Projected Growth: Ruapehu District URP 2021 – 2053



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

USUALLY RESIDENT POPULATION: PROJECTED GROWTH BY SA2

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

OVERVIEW OF SUGGESTED GROWTH LEVELS FOR URP:

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

Recommended Growth Levels per SA2

COMPONENT 2: ESTIMATED PROJECTED POPULATION – HOLIDAY HOMES

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

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

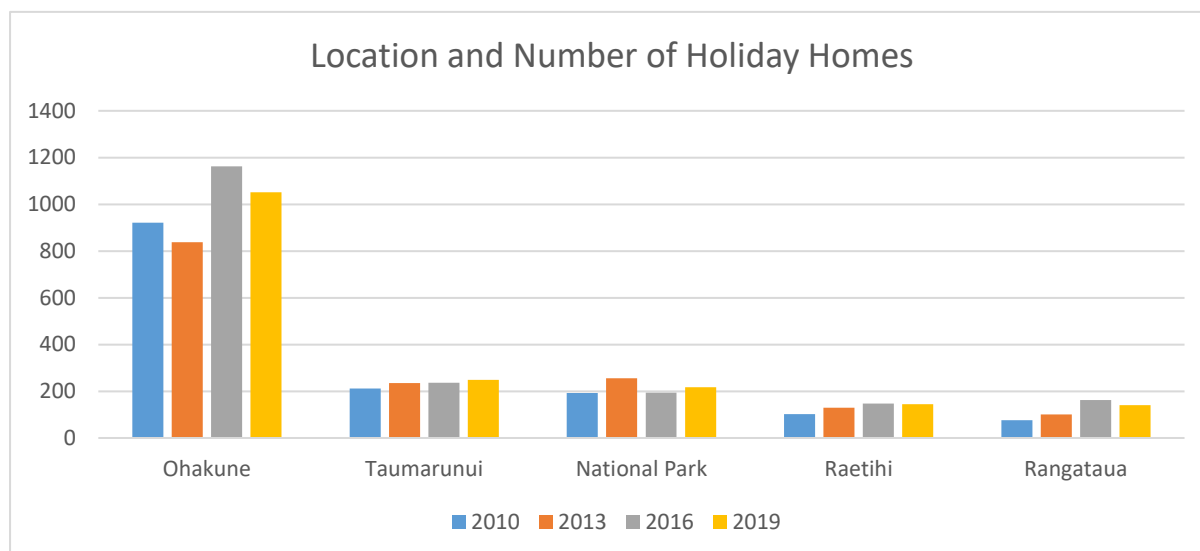
LOCATION AND NUMBER OF HOLIDAY HOMES

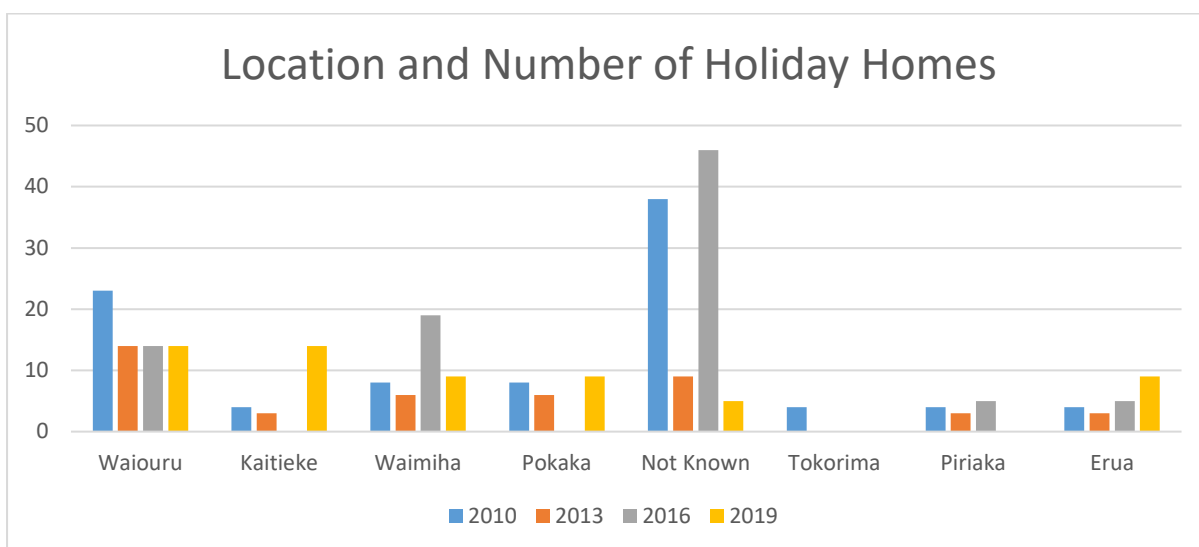
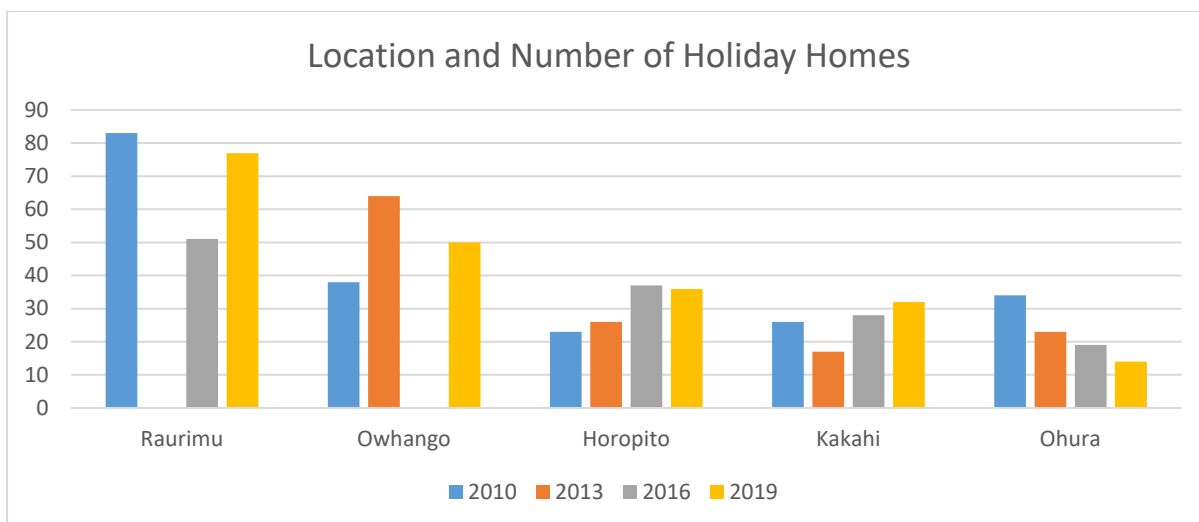
The table below reports the estimated number of holiday homes owned by non-resident rate payers in 2010, 2013, 2016 and 2019. It does not include rental homes owned by non-resident rate payers nor does it include holiday homes owned by residents living within the district. As stated above, this information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

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

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

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





ESTIMATED DISTRIBUTION OF HOLIDAY HOMES (%)

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

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

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

Estimated Distribution of Holiday Homes

HOLIDAY HOME OCCUPANCY

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

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

Table twenty: Holiday Home Occupancy

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

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

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

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

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

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

HOLIDAY HOME – PROJECTED GROWTH BY AREA

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

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

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

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

Table twenty-two: Projected Holiday Home Number and Population

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

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

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

Projected Holiday Home Population

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

COMPONENT 3: ESTIMATED PROJECTED POPULATION - COMMERCIAL ACCOMMODATION

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

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

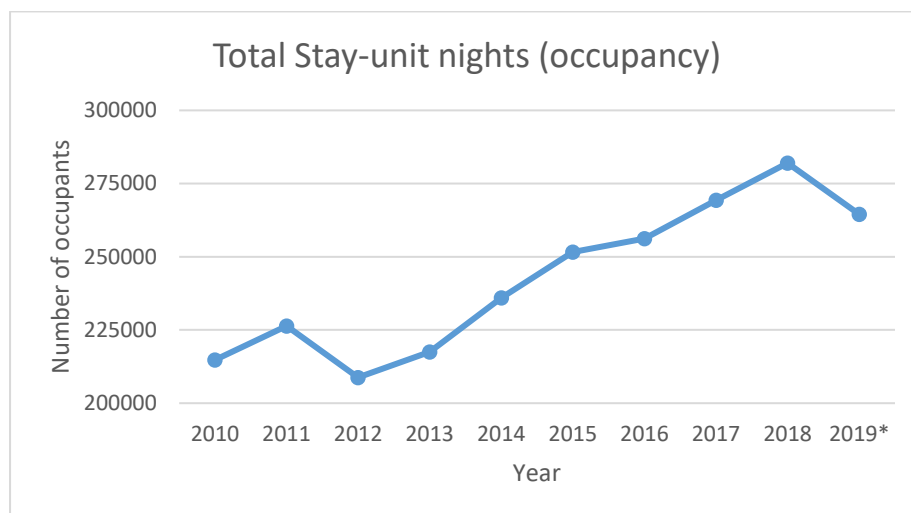
Over the past 10 years between 47 and 54 commercial accommodation providers have submitted data to CAM Stats. On average, there was a 0.294% increase in occupancy per year, a 2.46% increase in guest nights and a 2.8% increase in guest arrivals

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

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

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

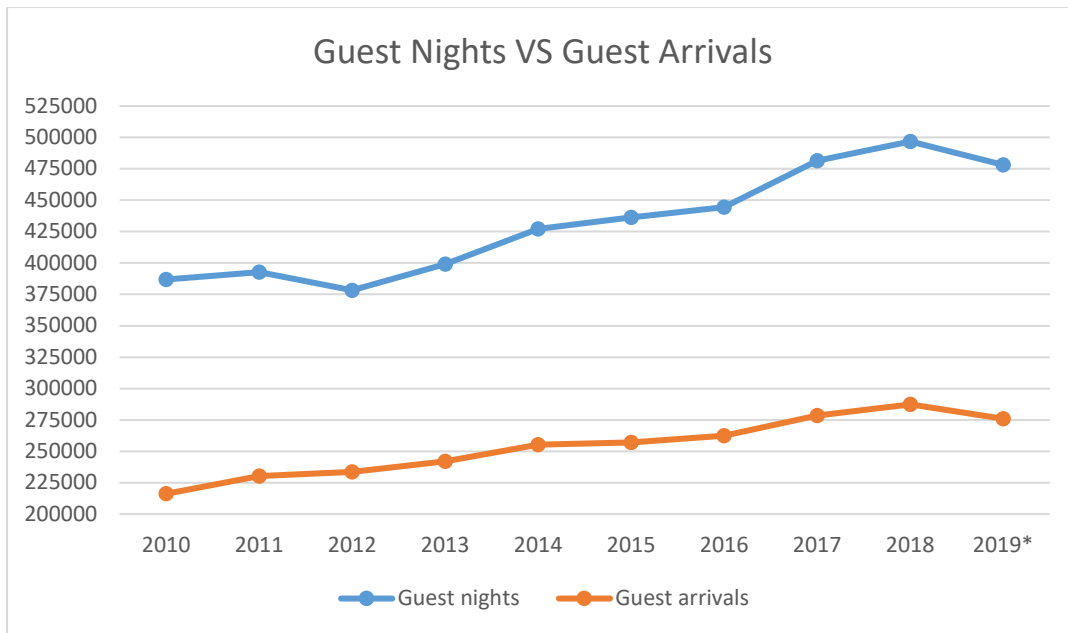
Commercial Accommodation Averages



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

CAM Percentage Change in Occupancy

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



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

CAM Percentage Change in Guest Nights

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

CAM Percentage Change in Guest Arrivals

COMMERCIAL ACCOMODATION – PROJECTED GROWTH BY SA2

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

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

Number of Commercial Accommodation Providers

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

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

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

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

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

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

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

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

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

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

COMPONENT 4: ESTIMATED PROJECTED POPULATION - DAY VISITORS

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

PEAK POPULATION

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

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

Peak Population: National Park

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

Peak Population: Ngapuke

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

Peak Population: Ohakune

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

Peak Population: Otangiwai-Ohura

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

Peak Population: Raetihi

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

Peak Population: Tangiwai

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

Peak Population: Taumarunui, Central East and North

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

Peak Population: Waiburu

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

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

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

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

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

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

3. INFRASTRUCTURE

Indicators of growth and expansion in the built environment include;

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

Forecasted Assumption(s):

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

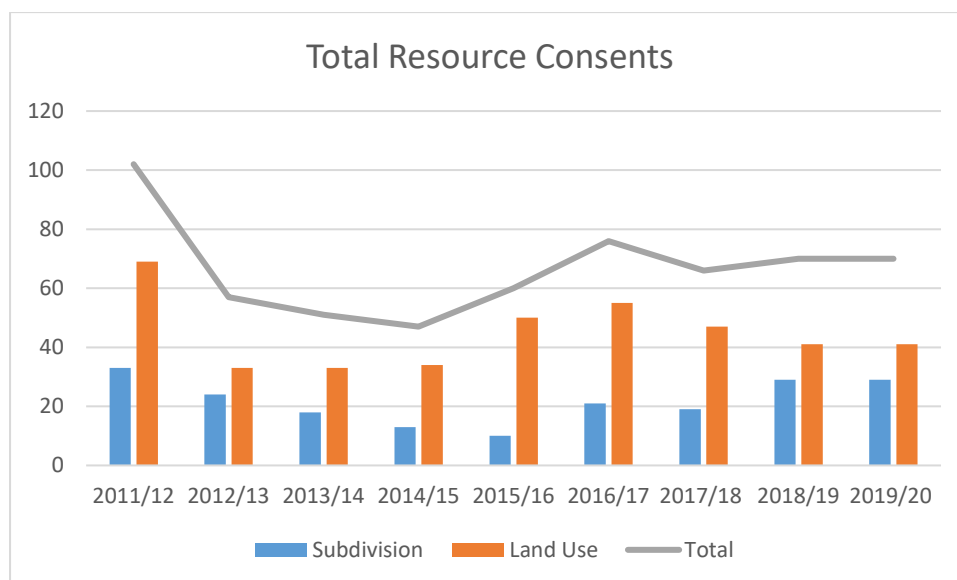
RESOURCE CONSENTS

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

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

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

2010 – 2020 Resource Consents

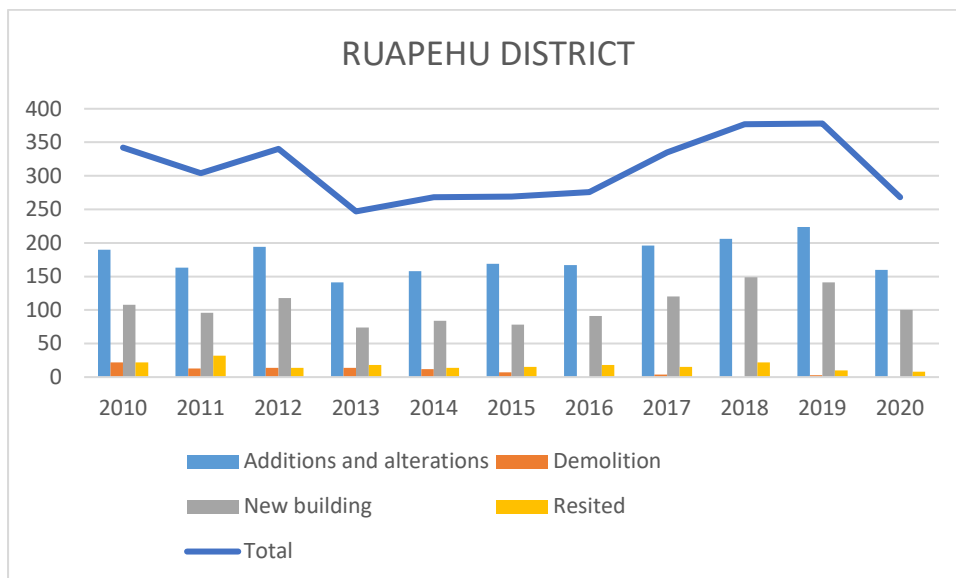


BUILDING CONSENTS

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

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

Ruapehu District: Building Consents

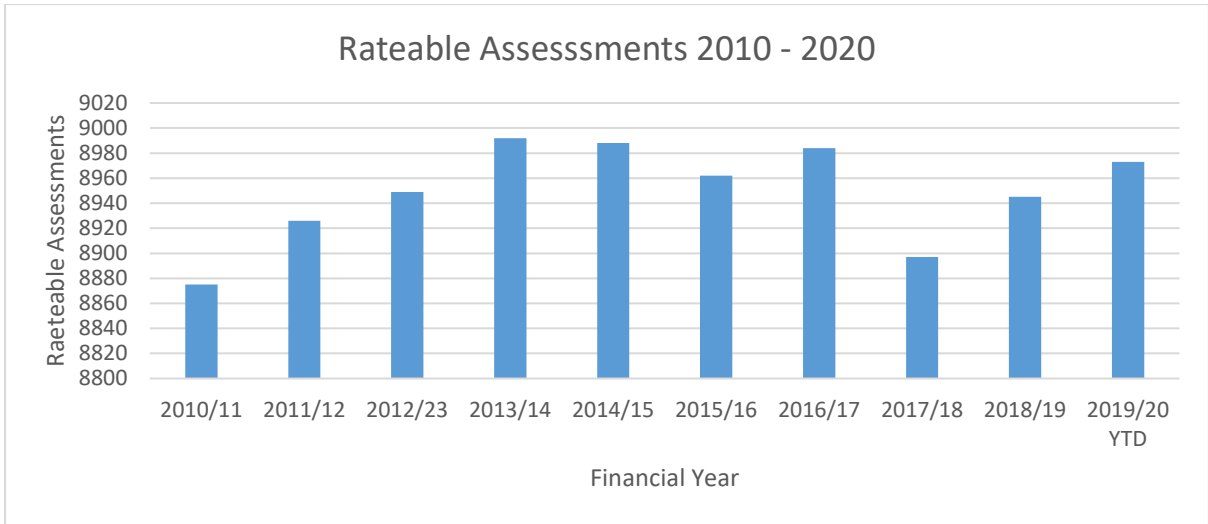


RATEABLE ASSESSMENTS

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

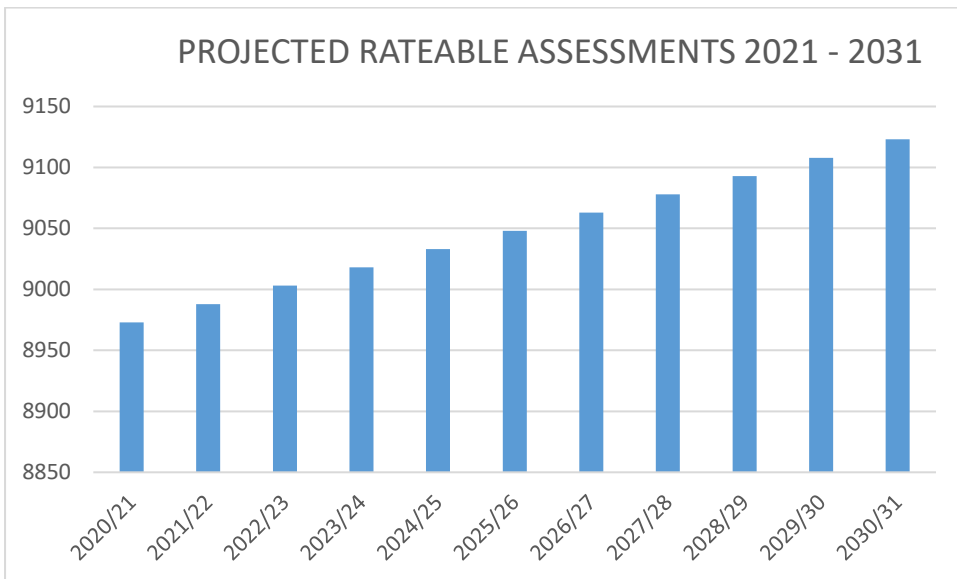
YEAR	RATEABLE ASSESSMENTS
2010/11	8875
2011/12	8926
2012/23	8949
2013/14	8992
2014/15	8988
2015/16	8962
2016/17	8984
2017/18	8897
2018/19	8945
2019/20 YTD	8973

Rateable Assessments



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

A: Projected Rateable Assessments



4. ECONOMY

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

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

Forecasted Assumption(s):

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

Level of Certainty: *Very Likely*

Potential Financial Consequence: *Significant*

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

Level of Certainty: *Likely*

Potential Financial Consequence: *Moderate*

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

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

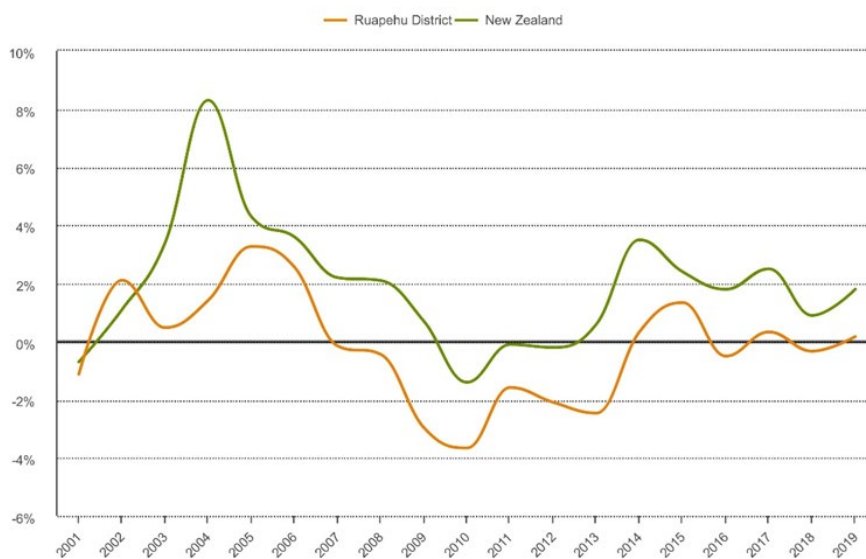
Ruapehu GDP contribution by Industry		
Industry	\$million	Share of total
Central Gov Admin, Defence & Safety	91	12.50%
Sheep, Beef Cattle & Grain Farming	78.8	10.80%
Property Operators & Real Estate Services	44.3	6.10%
Arts & Recreation Services	36.5	5.00%
Accommodation & Food Services	33	4.50%
Education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

A:GDP contribution by industry

NUMBER OF BUSINESS UNITS

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

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



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

5. NATURAL ENVIRONMENT

NATURAL DISASTERS

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

Forecasted Assumption(s):

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

CLIMATE CHANGE

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

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

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

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

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

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

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

TEMPERATURE

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

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

RAINFALL

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

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

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

SNOWFALL

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

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

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

WIND

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

STORMS

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

IMPACTS BY SEASON

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

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

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

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

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

Climate Change Possible Impacts by Season

Note:

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

Virtually certain: More than 99 per cent probability of occurrence

Extremely likely: More than 95 per cent

Probability very likely: More than 90 per cent

Probability likely: More than 66 per cent probability

More likely than not: More than 50 per cent probability

Very unlikely: Less than 10 per cent probability

Extremely unlikely: Less than 5 per cent probability.

6. FINANCIAL ASSUMPTIONS

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

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

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

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>

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Legislation.Govt:

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NZ Parliament:

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

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<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>

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<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

Land Transport

Asset Management Plan 2021-31

Part 3 Activity

Quality Information

Version 2: Final

Document	Land Transport Asset Management Plan
Document Number	Please see below
Date	15 June 2021
Prepared by	Simon Gough and Sian Killick
Reviewed by	Andrea Nicol
Approved by	Warren Furner







Version 1: Draft for Waka Kotahi NZ Transport Agency

Document	Land Transport Asset Management Plan - DRAFT
Document Number	Please see below
Date	11 December 2020
Prepared by	Simon Gough and Sian Killick
Reviewed by	Andrea Nicol
Approved by	Warren Furner

Version 00: Draft for Waka Kotahi NZ Transport Agency

Document	Land Transport Asset Management Plan - DRAFT
Document Number	Please see below
Date	12 October 2020
Prepared by	Simon Gough and Sian Killick
Reviewed by	Andrea Nicol
Approved by	Warren Furner

Revision History

Rev.No.	Author	Reviewer Name	Signature	Approved for Issue		
				Name	Signature	Date
Final 02	Simon Gough and Sian Killick	Andrea Nicol		Warren Furner		15/06/2021
Draft 01	Simon Gough and Sian Killick	Andrea Nicol		Warren Furner		11/12/2020
Draft 00	Simon Gough and Sian Killick	Andrea Nicol		Warren Furner		12/10/2020

A Executive Summary

A01 INTRODUCTION

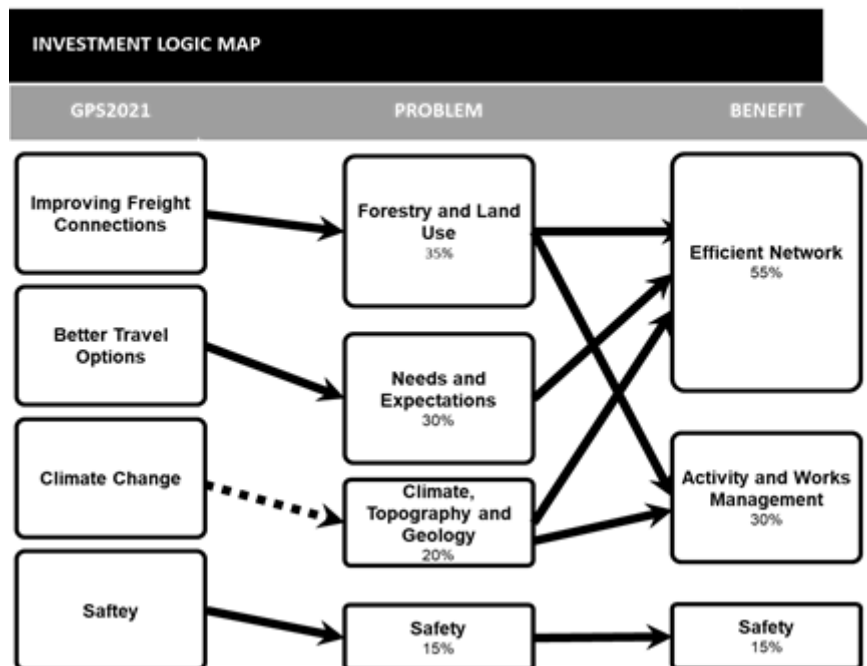
The contents of this Land Transport Asset Management Plan 2021-2024 are considered to meet the expectations of Waka Kotahi NZ Transport Agency (NZTA) Business Case Approach.

This Asset Management Plan (AMP) acts as the programme business case including the strategies, work programmes and long-term financial forecasts for Council’s Land Transport Portfolio.

A02 STRATEGIC CASE (SECTION B02)

The Government Policy Statement on land transport 2021/22-2030/31 (GPS2021) identified four strategic priorities. This AMP continues with the problems and benefits identified in the previous AMP as these align with the GPS21 strategic priorities as shown in the Investment Logic Map below.

FIGURE A.1: INVESTMENT LOGIC MAP SUMMARY



A02.1.1 Land Transport Assets

The purpose of the Land Transport activity is to provide a multi-modal network that allows for the safe, reliable, efficient and effective movement of vehicles, cyclists and people

The Land Transport activity is achieved through the following networks and assets:

- A vehicular network, comprising a network of sealed and unsealed roads, parking areas and facility roads, bridges and large culverts.
- A pedestrian network, comprising footpaths, bollards and chains. (Litter bins, monuments, seating and other street furniture are included in the Community Property AMP)
- Enabling infrastructure, comprising kerbs and channels, drainage sumps, culverts, road reserve including berms, and retaining walls.
- Safety infrastructure, comprising street and amenity lighting, road marking and raised pavement markers, street signs, traffic controls, including edge marker posts, pedestrian refuges, speed humps and traffic calming islands.

Council owns, and is responsible for the management of the assets outlined in the table below.

TABLE A-1: LAND TRANSPORT ASSET SUMMARY

Asset Group	Asset Type	Quantity	Replacement Cost(\$)
Pavement	Road Formation	1,344 km	96,712,893
	Pavement Layers	1,344 km	134,478,036
	Road Surface	496 km	25,107,514
Structures	Bridge	255 number	93,578,339
	Large Culverts	86 number	9,654,747
	Retaining Walls	5 number	6,421,167
	Minor Structures <ul style="list-style-type: none"> • Pedestrian Footbridge • Bluff Safety Netting 	1 number 150 m	577,271 822,608
Drainage	Kerb and Channels	1,537 km	25,360,636
	Small Culverts	92 km	34,795,468
	Other Drainage	1,451 number	1,406,448
Traffic Services	Street lighting	1,548 lights	4,136,305
	Road markings	399 km	480,793
	Road signs and Other	5,579 number	1,180,825
	Crossings	450 number	3,567,743
	Islands	32 number	322,697
	Railing	15,790 m	2,085,624
	Traffic Facility	1,345 number	3,572,990
Footpaths	Footpaths	70 km	11,023,393
Cycleways	Cycleways	369 km	included above
Bus shelters	Bus shelters	24 number	not valued
Facility roads and carparks	Facility roads and carparks	38,432 m2 56 number	included above
Total			455,285,496

A03 PROGRAMME BUSINESS CASE (SECTION B03)

The following work programmes have been identified by Council and are aligned to the Activity Management sections. The table below shows where the programmes contribute to addressing the problems identified in the Strategic Case (Section B02).

Table - Programmes and Their Contribution to the Problem Statements

Work Programme	Section	Forestry & Land Use	Needs & Expectations	Climate, Topography & Geology	Safety
Minor Safety Improvements	D02		Yes		Yes
Emergency Works	D02		Yes		Yes
Pavements	D03	Yes	Yes	Yes	Yes
Road Structures	D04	Yes	Yes		Yes
Drainage	D05		Yes	Yes	Yes
Traffic Services	D06		Yes		Yes
Footpaths	D07		Yes		Yes
Cycleways	D08		Yes		
Bus Shelters	D09		Yes		
Facility Roads & Carparks	D10		Yes		
Environmental Services	D11		Yes		Yes
Network & Asset Management	D12	Yes	Yes	Yes	Yes

A04 DELIVERING THE PROGRAMME

(SECTION B04)

Council uses a combination of internal staff, professional services and physical works contracts to deliver the activities identified in the roading programmes.

Council's approach to how it delivers the programme will be part of the Delivery of Services Review (Section 17A) review that it is required to formally do in the first half of 2021. The 17A review is a requirement of the Local Government Act 2002.

Network and Asset Management

The current professional services contract runs through to 30 June 2023. In addition to directly delivering the contracted services, this contract has also provided Council with improved access to wider resources and skills not traditionally easily available to the District.

Operations, Maintenance and Renewals

Operations, maintenance and renewals are currently being delivered under 9 separate contracts, a choice made to address issues Council experienced with the previous larger contract and to reverse market failure.

These contracts end on 30 June 2022 with no further extensions available. With a procurement plan being commenced early in 2021, the new replacement contracts will commence at the start of Year 2 of this AMP.

Capital Improvements / Developments

Capital projects are normally packaged up and contracted out individually. The majority of the programme planned in this AMP is for safety improvements and the replacement of a key bridge.

Minor safety improvements will usually be delivered under the appropriate maintenance contract.

Emergency Works

Historically the impact of unexpected storm events has been significant. Council has allowed \$8,100,000 as a contingency sum for the 3-year period. Each event must be separately submitted to Waka Kotahi for emergency funding.

A04.1.1 Proposed Programme Financials (un-inflated)

The expected cost over the next 3 year programme (2021/22-2023/24) is shown in the table below.

TABLE A-2: PROPOSED LAND TRANSPORT PROGRAMME 2021-24

Activity / Programme	Operations & Maintenance (\$)	Renewals (\$)	Development (\$)	Total (\$)
Emergency Works*	8,100,000	-	-	8,100,000
Minor Safety Improvements	-	-	8,394,656	8,394,656
Pavement	7,535,374	16,905,922	160,276	24,601,572
Structures	2,195,616	1,854,769	3,476,516	7,526,901
Drainage	3,177,707	1,304,442	144,866	4,627,015
Traffic Services	2,219,075	815,494	152,109	3,186,678
Footpath	426,246	381,159	150,000	957,405
Cycleway	187,573	-	-	187,573
Bus Shelters	-	-	84,600	84,600
Facility Roads	33,103	107,262	85,648	226,013
Environment	3,350,655	-	-	3,350,655
Network and Asset Management	2,999,128	-	-	2,999,128
Total	30,224,477	21,369,048	12,648,670	64,242,195

Notes:

- Figures provided are not inflated
- *Provisional budget based on historical level of costs incurred (based on the average over the last 5 years)

TABLE A-3: PROPOSED INVESTMENT LEVEL: SUBSIDISED 2021-24 PROGRAMME (LOCAL ROADS)

Activity	2021/22	2022/23	2023/24	Total 2021-24	Total 2018-21	% change
Operations and Maintenance	7,489,640	7,523,240	7,557,647	22,570,527	18,847,576	20%
Renewals Capex	8,929,923	10,523,500	7,609,622	27,063,045	19,851,367	36%
Development Capex	4,638,247	1,478,239	1,050,000	7,166,486	3,067,701	134%
Local Authority totals	21,057,810	19,524,979	16,217,269	56,800,058	41,766,644	36%

Notes:

- Figures provided are not inflated
- The first 7 to 10% of % change relates to inflation between the 3 -year funding periods
- O&M | This includes a 400% increase in Structures Maintenance for essential bridge painting
- Renewals | This includes a 291% increase in Structures Renewals due to the creation of the structures Renewals Work Category by Waka Kotahi
- Development (Improvements) | This needed to include the upgrade of B297 Matahiwi Track Suspension bridge for \$3.5M in 2021/22

TABLE A-4: PROPOSED INVESTMENT LEVEL: SUBSIDISED 2021-24 PROGRAMME (SPECIAL PURPOSE ROAD)

Activity	2021/22	2022/23	2023/24	Total 2021-24	Total 2018-21	% change
Operations and Maintenance	465,834	468,335	470,896	1,405,064	1,266,682	11%
Renewals Capex	212,287	212,287	212,287	636,862	1,405,698	-55%
Development Capex	1,565,000	1,565,000	1,565,000	4,695,000	3,199,684	47%
SPR totals	2,243,121	2,245,622	2,248,183	6,736,926	5,872,064	15%

Notes:

- Figures provided are not inflated
- The first 7 to 10% of % change relates to inflation between the 3 -year funding periods
- Renewals | Most of the renewals are complete so reduced budget now required to finish the remaining renewals
- Development (Improvements) | Need to accelerate minor safety improvements through this 3-year period

TABLE A-5: PROPOSED INVESTMENT LEVEL: NON-SUBSIDISED 2021-24 PROGRAMME

Activity	2021/22	2022/23	2023/24	Total 2021-24	Total 2018-21	% change
Operations and Maintenance	303,238	303,238	303,238	909,714	935,541	-3%
Renewals Capex	27,524	27,524	27,524	82,571	111,983	-26%
Development Capex	244,717	409,481	244,717	898,915	3,306,968	-73%
Non Subsidised totals	575,479	740,243	575,479	1,891,200	4,354,492	-57%

Notes:

- Figures provided are not inflated
- The first 7 to 10% of % change relates to inflation between the 3 -year funding periods
- O&M | Modest reduction of operations and maintenance
- Renewals | The last 3 years have run high for the facility roads and this now reduced back to the 'normal' of investment
- Development (Improvements) | 2 major carparks (Park and Ride for National Park and Ohakune Carrot (~\$2.5M) were in the 2018 budget and no similar scaled work required during next 3-years

A04.1.2 Proposed Programme Financials (inflated)

For clarity the following two tables show the subsidised activities but in inflated figures as this is how they are submitted to Waka Kotahi.

TABLE A-6: PROPOSED INVESTMENT LEVEL: SUBSIDISED 2021-24 PROGRAMME (LOCAL ROADS)

Activity	2021/22	2022/23	2023/24	Total 2021-24	Total 2018-21	% change
Operations and Maintenance	7,489,640	7,669,392	7,853,457	23,012,489	18,847,576	22%
Renewals Capex	8,929,923	10,671,368	7,908,908	27,510,199	19,851,367	39%
Development Capex	4,638,247	1,503,439	1,101,005	7,242,691	3,067,701	136%
Local Authority totals	21,057,810	19,844,199	16,863,370	57,765,379	41,766,644	38%

Notes:

- Figures provided are inflated by the appropriate BERL indices

TABLE A-7: PROPOSED INVESTMENT LEVEL: SUBSIDISED 2021-24 PROGRAMME (SPECIAL PURPOSE ROAD)

Activity	2021/22	2022/23	2023/24	Total 2021-24	Total 2018-21	% change
Operations and Maintenance	465,834	477,014	488,462	1,431,310	1,266,682	13%
Renewals Capex	212,287	217,382	222,599	652,269	1,405,698	-54%
Development Capex	1,588,655	1,621,755	1,637,217	4,847,627	3,199,684	52%
SPR totals	2,266,776	2,316,151	2,348,278	6,931,205	5,872,064	18%

Notes:

- Figures provided are inflated by the appropriate BERL indices

B Business Case

B01 INTRODUCTION

This introduction section provides an overview of the structure of the Asset Management Plan (AMP) itself, and how the different sections fit together to give a comprehensive view of our asset management planning processes and practices.

B01.1 Land Transport Assets

The purpose of the Land Transport activity is to provide a multi-modal network that allows for the safe, reliable, efficient and effective movement of vehicles, cyclists and people

The Land Transport activity is achieved through the following networks and assets:

- A vehicular network, comprising a network of sealed and unsealed roads, parking areas and facility roads, bridges and large culverts.
- A pedestrian network, comprising footpaths, bollards and chains. (Litter bins, monuments, seating and other street furniture are included in the Community Property AMP)
- Enabling infrastructure, comprising kerbs and channels, drainage sumps, culverts, road reserve including berms, and retaining walls.
- Safety infrastructure, comprising street and amenity lighting, road marking and raised pavement markers, street signs, traffic controls, including edge marker posts, pedestrian refuges, speed humps and traffic calming islands.

Council owns and is responsible for the management of the assets outlined in the table below.

TABLE B-1: LAND TRANSPORT ASSET SUMMARY

Asset Group	Asset Type	Quantity	Replacement Cost(\$)
Pavement	Road Formation	1,344 km	96,712,893
	Pavement Layers	1,344 km	134,478,036
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Structures	Bridge	255 number	93,578,339
	Large Culverts	86 number	9,654,747
	Retaining Walls	5 number	6,421,167
	Minor Structures <ul style="list-style-type: none"> • Pedestrian Footbridge • Bluff Safety Netting 	1 number 150 m	577,271 822,608
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Traffic Services	Street lighting	1,548 lights	4,136,305
	Road markings	399 km	480,793
	Road signs and Other	5,579 number	1,180,825

Asset Group	Asset Type	Quantity	Replacement Cost(\$)
	Crossings	450 number	3,567,743
	Islands	32 number	322,697
	Railing	15,790 m	2,085,624
	Traffic Facility	1,345 number	3,572,990
Footpaths	Footpaths	70 km	11,023,393
Cycleways	Cycleways	369 km	included above
Bus shelters	Bus shelters	24 number	not valued
Facility roads and carparks	Facility roads and carparks	38,432 m2 56 number	included above
Total			455,285,496

B01.2 Asset Management Introduction

The Land Transport Asset Management Plan (AMP) covers the financial and technical aspects of providing the multi-modal networks to customers at an appropriate level of service. As such, it describes the strategies, work programmes and long term financial forecasts for the activities undertaken under Land Transport.

Under the Local Government Act 2002, Council has to deliver revised Plans to its community on a three yearly cycle. The Plans must contain a minimum of ten years financial forecasts and detailed asset information for the Land Transport activity.

The plan has been written to provide the information required for good asset management planning as set out in:

- LGA 2002 Schedule 10
- Office of the Auditor General criteria for Asset Management Plans, 2006
- International Infrastructure Management Manual 2006, published by the National Asset Management Steering Group.

B01.2.1 Outlook and Timeframes

Asset management planning and therefore this plan, has four time horizons:

- 1 year outlook | This aligns to the Council Annual Plan process
- 3 year outlook | This aligns to the 3-yearly AMP updating cycle
- 10 year outlook | This aligns to the Council LTP financial requirements.
- 30 year outlook | This aligns to the Council Infrastructure Strategy and is mostly provided as financial profiles for the 30 years.

B01.3 Document Overview

Asset Management Plans are tactical plans which provide the link between Council outcomes, the levels of service Council provides to the community, the suitability,

sustainability and performance of the assets covered by the plans, and the risks of holding the assets. The Land Transport Activity is an important part of achieving Council's vision.

The layout of this Asset Management Plan is:

Part 1 - Who we are

Part 2 - Planning Assumptions

Part 3 | Section A - Land Transport Activity - Executive Summary

Part 3 | Section B - Land Transport Activity - Strategic and Programme Business Case

Part 3 | Section C - Land Transport Activity - Asset Planning

Part 3 | Section D - Land Transport Activity - Lifecycle Management Activities

Part 3 | Section E - Land Transport Activity - Finances

Part 4 - Land Transport Activity – Appendices

B01.4 Strategic and Programme Business Case

The Business Case Approach is a process that improves investment decision-making by clarifying why we are doing work, defining our strategic problems and benefits, ensuring there is robust evidence behind our strategic response, and building a robust case for investment.

The approach demonstrates the degree to which the proposed programme of works is the right solution in which to invest and seeks to clearly define the problems and contextual state of the district at the earliest stage of the process, with engagement of key partners and stakeholders where necessary. This early engagement is to assist getting understanding of the cause and scale of consequences and benefits of addressing the problems.

The business case also seeks to make sure during the lifecycle of a programme or project that the 'reasons' for doing it are still sound, and that it has a clear link back to organisational priorities and issues.

This Asset Management Plan fulfils the requirements to provide a **Strategic Business Case** and **Programme Business Case** in support of the funding requests also included.

The following provides the nine steps that form the Strategic and Programme Business Case for the District, and are further explained below:

Strategic Case (Section B02)

"Why we have to invest"

1. What outcomes does the activity deliver and why is it important to the Community?
2. Outlines what services are currently delivered, and how they are delivered
3. Clearly articulates the land transport problems and the benefits of addressing them or the consequences of ignoring them
4. Assesses the portfolio's current state and level of service, as well as the desired state and level of service provided to customers
5. Compares the portfolio's current state against the desired state, and identifies any gaps or deficiencies. So this entails assessing stages 2, 3 and 4

Programme Case (Developing the Programme) (Section B03)

“What we have to invest”

1. Develops options (for programmes of work) to achieve the desired outcomes (this will be an iterative process)
2. Includes asset, economic, financial, commercial and management elements to substantiate and test the options
3. Recommends the preferred option for programmes of work and presents this for LTP and RLTP consideration

Delivering the Programme (Section B04)

”How we have to invest”

1. In support of the Programme Case, this section outlines how the programme will be successfully delivered.

B01.5 Asset Planning

Asset Planning (other than Lifecycle Management Activities) are covered in two ways.

The aspects that relate to the wider Council and its activities are covered in Parts 1 and 2 of the AMP

The aspects that relate to the Land Transport Activity are covered in Part 3 - the ‘C’ Sections. These are summarised briefly below.

B01.5.1 Managing Growth and Demand (Section C01)

This section provides the context for managing the District’s growth and demand for services, and shows how Council has identified trends and factors that influence the future demand for assets. It also identifies the information and data used for growth assumptions to inform decisions on infrastructure and investment as incorporated into the AMP and the Long Term 10-Year Plan.

The Ruapehu environment is largely high quality, with a relatively low number of heavy industries or high intensity residential development. The high quality of the environment makes the District attractive to visitors who seek to visit natural and unspoilt landscapes. The number of visitors continues to grow and, with the advent of the National Cycleways, continued growth is expected at similar levels.

In the foreseeable future, growth in visitor numbers will ultimately result in growth in related businesses which may see some flow on demand in residential housing. Such growth is unlikely to put significant additional demand on the Land Transport portfolio.

As a consequence of the small and dispersed population, large tourism industry and large land area, the District faces many challenges in meeting the current and future service expectations of residents and visitors, in terms of Council’s ability to fund the desired service levels at an affordable (sustainable) cost level.

B01.5.2 Managing Risk (Section C02)

This section explains Council's Risk management framework and practices for its structured approach to identifying, assessing, and treating risks associated with the delivery of infrastructure services.

The AMP also identifies and assesses specific activity risks by assessing the consequence and likelihood of risk events, understanding what are the critical assets, and how these risks are managed by control, mitigation or removal.

The risks are assessed from both external and internal contexts. The external (PESTLE) context categories are:

- Political and Policy
- Economy
- Social
- Technological
- Legal and Regulatory
- Environmental

B01.5.3 Environmental Stewardship (Section C03)

Stewardship of the natural environment is extremely important to Council. This section demonstrates our understanding, commitment and interventions to actively protect the environment by mitigating harmful effects and risks that may arise from transport activities. Council actively manages its environmental obligations through its consenting and compliance monitoring practices. The section also discusses the risks to the transport activity from climate change and other natural hazard events.

There are a number of adverse environmental effects that can occur in the process of undertaking Transport related development, particularly major construction projects. The potential effects of the Transport activity can be generated during both the construction phase and the operational use of the network. This Asset Management Plan seeks to identify and document environmental risk and associated mitigation measures that could be employed.

B01.5.4 Levels of Service (Section C04)

Levels of service are key customer and stakeholder outcome statements that drive and set a standard for all infrastructure operational and investment decisions. Council recognises there is a wide range of customers and stakeholders with an interest in how activities are managed, including the resident community, visitors, specific interest groups within the community and regional and central government agencies. This section identifies proposed transport-specific service levels, with identified performance measures and risks. Subsections include:

- Land Transport Levels of Service
- Customer Service Requests and Complaints 2010 – 2020
- Accelerated and Enhanced Development Plans, such as at specific town centres
- Levels of Service Benchmarking
- Potential Negative Effects
- Future Levels of Service Improvement

B01.5.5 Data Quality (Section C05)

The quality of underlying data and information directly affects the confidence we can have in the infrastructure and investment decisions we make. This section identifies the confidence we have in our data through detailed examination of the reliability of the data with respect to its completeness and accuracy, and gives specific confidence ratings for the different types of transport assets. It also identifies gaps and shortcomings in data quality, and then describes planned improvements to rectify those gaps.

The Road Efficiency Group (REG) has initiated nationwide Data Quality reporting to elevate the focus and outcomes of getting better data quality. This section highlights the latest reports and areas that need more focus.

B01.5.6 Plan Improvements (Section C06)

Asset Management is about the People, Processes, Practices, Data and Systems required to make evidence-based, risk based decisions on infrastructure objectives, works and investment.

This section summarises the planned improvements to current AM planning and the AMP. This is based on assessment of the current practices against desired practices. It contains a timelined programme of AM improvements that will be implemented and monitored over time.

B01.6 Lifecycle Management Activities (Section D)

Section D is broken into 11 different asset / activity classes as well as an introduction section.

These sections explain the methods that Council uses to decide on the most effective and efficient infrastructure works to not only achieve service objectives, but to also sustain the network in the long-term. The section outlines the maintenance and renewals strategies and works that are planned over the next 10 years to operate the assets at agreed service levels while optimising long-term costs.

These sections also cover in detail the physical description and condition of the assets and how Council proposes to maintain, renew and improve existing assets, taking into account the associated risks and their criticality. The possible development of new assets to cope with growth or demand changes are also discussed and included in financial forecasting. When necessary, disposal options will also be considered for assets no longer used or considered to be worthy of retention for reasons of possible future use.

B01.7 Finances (Section E)

The section summarises the investment forecast for the next 10-years for asset management and physical works activities needed to manage and operate the transport network. This includes

- Operational Expenditure (OPEX) for both operations and maintenance, as well as
- Capital Expenditure (CAPEX) for both asset renewals as well as for new, upgraded and improvement works.

This section breaks up the finance information into the following three areas:

- E01 - Financial Management
- E02 - Financial Summary
- E03 - Asset Valuation

B02 STRATEGIC CASE

B02.1 Point of Entry

Council has completed a Point of Entry exercise for the preparation of the 2021 Asset Management Plan (AMP).

This included an external review of the current 2018 AMP as well as a review of the current industry guidelines and expectations from REG and Waka Kotahi NZ Transport Agency.

It was agreed:

- The Problem Statements workshopped and identified during the preparation of the 2018 AMP are still true and correct for the District and are to be used again in the 2021 AMP.
- Council took on board the direction that the line-of-sight in the AMP, to support the business case approach, needs to be improved.
- In general, current levels of services will be maintained.
- Asset management improvement activities are ongoing providing a focus on continuous improvement.

B02.2 Introduction

This Asset Management Plan demonstrates the case for change or intervention – that is, the clear rationale and evidence for proposed smart, best-value investments and work programmes to address the transport infrastructure problems facing the District. The case for intervention and change includes the benefits of addressing the problems and the consequences of not.

The transport infrastructure of the Ruapehu District (District) is ageing and was not originally built to handle the heavy traffic that the District sees today. Many of the roads are windy, narrow, designed for slow travel speeds, and, together with the ageing infrastructure can create hazardous conditions and serious safety issues. The number of tourists visiting the rugged natural beauty of the District is increasing, and so too is the amount of forestry log haulage. The Council desires to build and maintain a safe network that is able to cater for residents, road users, pedestrians, cyclists and tourists and the growing demands of commercial developments such as forestry.

B02.3 Strategic Direction

Land Transport receives its strategic direction from both Council as well as the New Zealand Government (via Waka Kotahi) as a co-investor. A lot of the inputs and directions from both of these parties is covered in the Strategic Context (B02.4) section below.

At the top level the government provides its strategic direction through the Government Policy Statement on land transport 2021/22-2030/31 (GPS2021). This identified four strategic priorities which are shown below.

- **Better Travel Options** : Providing people with better transport options to access social and economic opportunities.
- **Climate Change** : Developing a low carbon transport system that supports emissions reductions, while improving safety and inclusive access
- **Improving Freight Connections** : Improving freight connections for economic development
- **Safety** : Developing a transport system where no-one is killed or seriously injured

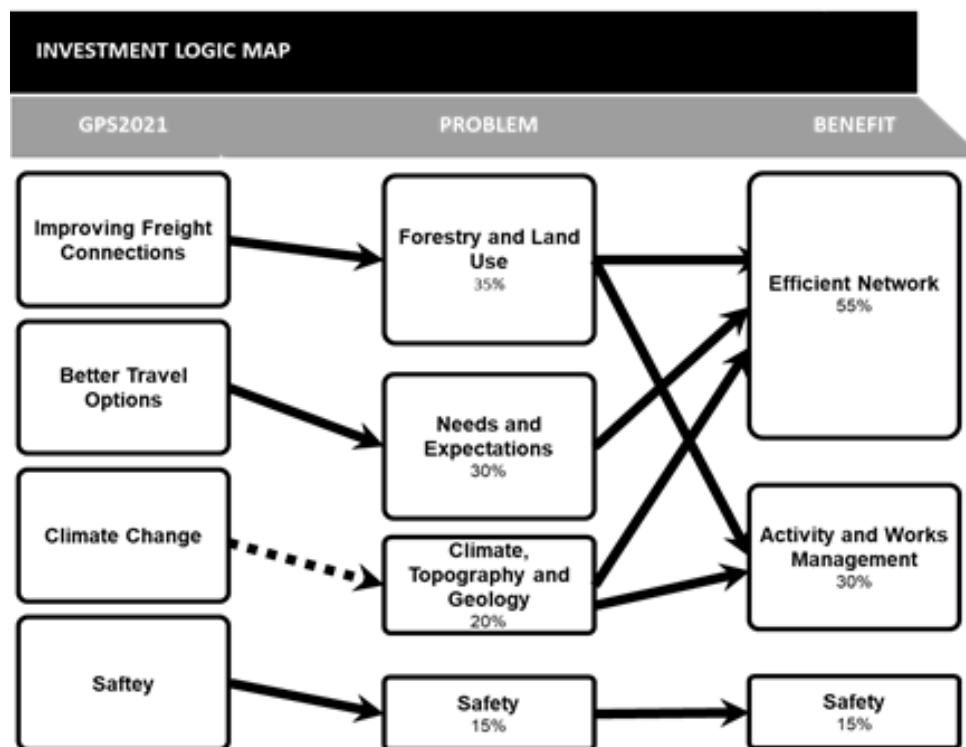
Within the Land Transport activity the following strategic directions have also influenced the development of this plan.

- To follow national and regional plans and strategies (see Strategic Context (B02.4))
- To address the problem statements (see Strategic Assessment (B02.6))
- To maintain and renew the existing network and assets to ensure that they provide the expected level of service at the lowest whole of life cost while managing risk (see Activity Management sections (Section D))

As an example, it has been identified that a more proactive approach is required to maintain the existing aging bridge assets by undertaking specialist painting to ensure that the full life of the bridges can be achieved while minimising the amount of ongoing maintenance.

Note that Council's problem statements (documented in this AMP) align to the GPS2021 strategic direction in that each problem is addressing one or more of the strategic priorities either directly or indirectly. The alignment is shown in the figure below:

FIGURE B.1: ALIGNMENT OF COUNCIL PROBLEM STATEMENTS TO GPS2021 STRATEGIC PRIORITIES



There is further detail on each problem statement in Strategic Assessment (section B2.6), in summary

- Forestry and Land use: indicates that there is freight moving on Districts roads in order to get to the State Highway network.
- Needs and Expectations: provide the options that district road network users require in order to travel through the district
- Climate Change : The district is initially focused on building the reliance of the road network to adjust for weather events brought about by climate change but is aware of the need to also reduce their climate impact over time.
- Safety : At all levels of planning there is always the need to implement the safest options possible.

B02.4 Strategic Context

This AMP and Business Case exists within National, Regional and Local level contexts. All three levels have requirements and drivers that affect the need to invest in the Land Transport assets and activities.

Requirements usually create an obligation on the Land Transport activities and can include:

- Legislation
- Regulations
- Strategies
- Plans
- Policies

Drivers are usually more local and include:

- Problems identified by valley meetings, council and other local organisations
- Network usage and performance
- Asset condition and performance
- Economic environment
- The environment
- Growth in population and land transport usage

The national, regional and local framework is described below.

B02.4.1 National Context

Legislation

The following legislation all sets expectations and obligations on Council that must be followed as part of delivering Land Transport activities

- Local Government Act 1974 and 2002 | Council's leadership and governance follows the following role and principles in the Act (and subsequent amendments):
 - To enable democratic local decision-making and action by, and on behalf of communities
 - To meet the current and future needs of communities for good-quality local infrastructure, local public services, and performance of regulatory functions in a way that is most cost-effective for households and businesses.
- Land Transport Management Act 2003
 - Schedule 10 of the Local Government Act identifies the information required to be included in the Long Term Plan (LTP). Specifically Part 1 section 2 (1) (c) states:
 - “outline any significant negative effects that any activity within the group of activities may have on the social, economic, environmental, or cultural well-being of the local community:”
 - Sets out requirements and process for development of Council’s Land Transport Programme, provides a framework for receiving funding from NZTA and allows for the establishment of future toll roads under certain conditions
- Land Transport Act 1998
 - Controls aspects of road and traffic operations and includes traffic regulations, bylaws, and enforcement
- Traffic Regulations 1976 and Land Transport Rules
 - This legislation details Road Rules and Regulations to be adhered to and monitored. This affects the operation and use of transportation assets, e.g. signage, speed limits, parking restrictions, installation of traffic signals (if appropriate in the future), and school patrols
- Utilities Access Act 2010

- Resource Management Act 1991
 - The RMA has a single overarching purpose: To promote the sustainable management of natural and physical resources.
 - The land transport activity needs to be aware of the requirements of the RMA especially through:
 - Safeguarding the life-supporting capacity of air, water, soil and ecosystems.
 - Avoiding, remedying or mitigating any adverse effects of activities on the environment.
- Building Act 1991
- Health and Safety at Work Act 2015
- Civil Defence Emergency Management (CDEM) Act 2002
 - The CDEM Act 2002 ensures that New Zealand has the resources to manage disasters.
 - The CDEM Act 2002 requires:
 - Ruapehu District to form a Civil Defence and Emergency Management Group (CDEM Group).
 - Development of a Civil Defence Emergency Management Plan that identifies risks from hazards and puts readiness, response and recovery procedures in place. The Plan is developed with public input to ensure hazards and risks are dealt with to a level accepted by the community.
- Building Act 2004
- Public Works Act 1981
 - Public works often cannot be carried out without affecting private landowners and their interests in land. For these reasons the Crown provides itself with legislative powers to acquire land compulsorily for public works so that public works proposals are not unreasonably delayed. A basic principle of the Act is that no person shall be deprived of land without receiving fair compensation.
- Telecommunications Act, Electricity Act, Gas Act, Railway Safety and Corridor Management Act
 - Provides utility operators, and others, with powers to use road corridors

Other Relevant Documentation

The following documentation sets expectations and obligations on Council as part of delivering Land Transport activities

Government Policy Statement

The Government Policy Statement 2021/22-2030/31 outlines the four strategic priorities for Government in transport: -

- Safety | developing a transport system where no-one is killed or seriously injured
- Better travel options | providing people with better transport options to access social and economic opportunities
- Climate change | developing a low carbon transport system that supports emission reductions, while improving safety and inclusive access
- Improving freight connections | improving freight connections for economic development

Investment Decision Making Framework

The Draft Investment Decision Making Framework (IDMF) gives effect to the Government Policy Statement on Land Transport through the Draft Investment Prioritisation Method (DIPM). It is in its draft form at present. The DIPM proposes three factors for prioritisation

- GPS alignment
- Scheduling
- Efficiency

One Network Road Classification

The One Network Road Classification (ONRC) framework provides a nationally consistent method to classify the road network and includes associated customer focussed levels of service, performance measures and related national benchmarking.

Refer to the following website for current classifications and associated rules:

<https://www.nzta.govt.nz/roads-and-rail/road-efficiency-group/projects/onrc/>

The ONRC Customer levels of service are expanded fully in Levels of Service (section C04). in summary they are

- Mobility (travel time reliability, resilience of the route)
- Safety
- Amenity (travel quality and aesthetics)
- Accessibility (land access and road network connectivity)

Note that REG has developed an umbrella framework called the One Network Framework (ONF) which is out for consultation at the time of preparing this AMP. It is not required to be used for the preparation of this AMP.

Council will implement the ONF as appropriate and as guided by REG as they look to roll it out across the industry. The initial focus will be on how it can be used to support asset planning within rural Districts like Ruapehu. It is expected that there will be lessons learnt during the implementation and that Council will look to learn from these and share its own experiences with other rural districts.

Waka Kotahi Investment Proposal (WKIP)

The Waka Kotahi Investment Proposal sets out the 10-year programme of activities that the Transport Agency proposes for inclusion in the National Land Transport Programme to align with the GPS.

National Land Transport Programme (NLTP)

Is the collation of the district and regional programmes, detailing how land transport funding will be used nationally over a three year period.

New Zealand Transport Agency Audits

As part of quality processes and as co-investor in the Council land transport activities, the Agency carries out technical and investment audits across all Road Controlling Authorities within New Zealand. These audits are intended to check compliance with NZTA's

procedures and policies. They also check processes, systems and personnel are in place to support analysis and good asset management decision making.

The audit reports assess Council effectiveness and provide some recommendations and expectations for the Council to follow up on.

Other Key National Planning Documents

The following documents provides further national context that may have implications or create expectations on Council that must be followed as part of delivering Land Transport activities

- Connecting New Zealand (2011)
- National Infrastructure Plan
- Safer Journeys
- Government Business Growth Agenda

B02.4.2 Regional Context

Ruapehu sits at the northern end of the Horizons Manawatu-Whanganui Region.

The Manawatu-Whanganui region is a predominantly rural region with a few main centres of population. It lies in the lower central North Island and has good land connections to the rest of New Zealand.

Economic outcomes vary across the Region and while the Region has not experienced the population and economic growth of some of the more densely populated regions in New Zealand, it has a number of unique features that contribute to the way in which goods and people are transported through and around the Region. It is identified as a surge region, identified as needing investment for regional growth by the Government.

Horizons Regional Land Transport Plan 2021-2031

Councils in the Region feed into the Plan, which lays out the strategic direction for the region. The 2021 - 2031 Plan is still under development at the time of preparing this AMP. The objectives identified in the Draft RLTP are:

- Objective 1: Travel Choice
 - Transport users in the region have access to affordable transport choices that are attractive, viable and encourage multi-modal travel
- Objective 2: Connectivity and Efficiency
 - The Regional transport network connects central New Zealand and is efficient, reliable and resilient
- Objective 3: Safety
 - The transport network is safe for all users
- Objective 4: Environment
 - The impact of transport on the environment and the transport system's vulnerability to climate change is minimised
- Objective 5: Land Use Integration
 - Transport and land use are integrated to support well connected communities that promote a strong regional economy and liveable region

The objectives inform headline targets outlining what the COuncil wants to achieve in the next ten years. They communicate the level of change sought in key areas.

The draft Headline targets are:

- Mode share | 20% increase in active travel and public transport modes by 2030
- Safety | 40% reduction in death and serious injuries on region's roads by 2030
- Resilience | 20% reduction in road closures on priority routes associated with natural hazards or unplanned events
- Carbon emissions | 30% reduction in regional carbon emissions from land transport by 2030

Accelerate 25 Regional Economic Action Plan

In 2015 a Government driven Regional Growth Study was undertaken to identify economic opportunities for the Manawatu-Whanganui Region. 'Distribution and Transport' was identified as a key enabler to unlock potential economic growth. The Study identified access to the rural area for movement of products as being vital, as well as providing access to previously land locked areas, which, when economically viable, will open up new opportunities for the region.

Horizon's One Plan

The One Plan 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. Council is required to take account of the One Plan when carrying out maintenance, renewal and capital work in the Transport programme

B02.4.3 Local Context

The section "**Part 1 | Who we are**" (also referred to as Part 1) provides information about our environment, economy, climate and population.

Some of the network challenges include:

- Low usual resident population.
- Tourism peaks
- High percentage of lower socio-economic residents
- Difficult conditions of soft soils, hilly terrain, high rainfall.
- Ageing, speed and weight restricted bridge structures
- Narrow roads with restricted visibility
- Roads with high personal risk due to geographic features such as hilly terrain
- Spine road networks limiting access if access is affected on spine roads

Long-Term Plan

The Plan sets out an agreed vision and Council outcomes for Ruapehu District. The framework of this plan is in line with the requirements of the Local Government Act 2002 (LGA 2002).

Annual Plan

The works identified in the AMP should automatically become the basis on which future Long Term and Annual plans are prepared.

District Plan

This core document incorporates policies and objectives for land use in Ruapehu District, and designations for future works incorporated in the AM Plan.

The current District Plan became operative in its entirety on 24 December 2014.

Asset Management Policy

Articulates the principles, requirements and responsibilities for the on-going management of Council's assets, so that Council services meet community expectations in relation to timeliness, quality and value for money now and in the future.

Community Outcomes

Council has stated its core priorities in the form of five Community Outcomes:

- Safe, healthy communities
- Vibrant and Diverse living
- Sustaining beautiful environments
- Strong leadership and advocacy
- Thriving economy

These are expanded upon in the Council Long Term Plan.

Land Transport activities directly impact the Community Outcomes

- 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 response; protect people and property from natural hazards
- Vibrant and Diverse living
- Sustaining beautiful environment
 - Our environment is accessible, clean and safe and our water, solid and air meets required standards
- Strong leadership and advocacy
- Thriving Economy
 - Our transportation network is reliable, safe and endeavours to meet the needs of users.
 - Regulatory services and reliable infrastructure help the economy prosper.

The Council Activities works and programmes are derived from the priorities that Council identified during the development of its Strategic Plans with its community.

B02.5 Engaging Our Customers, Partners and Stakeholders

The LGA 2002 requires Council to consult with affected and interested parties in making decisions. As a leader in the community, Council acts on behalf of the diverse “communities of interest” within the District, and works with residents and ratepayers so that they can confidently participate in local decision-making.

The following table lists the main customers (who benefit from the investment), partners (who share in the costs and benefits) and stakeholders (who help our planning efforts) who are affected by this business case:

TABLE B-2: CUSTOMERS, PARTNERS AND STAKEHOLDERS

Customer/ Partner	External Stakeholders	Internal Stakeholders
<ul style="list-style-type: none"> ● Citizens and ratepayers, tenants, visitors to the District, local community groups and local iwi. ● Road users including: <ul style="list-style-type: none"> ○ Motorists – private and commercial cars, vans, trucks and motorcycles ○ Cyclists ○ Pedestrians. ● Disabled users, including wheelchair and mobility scooter users ● Recreational users, including runners and skaters, trail cyclists ● Customers of cafes, restaurants and bars with outdoor seating ● Visitors to the District ● New Zealand Transport Agency (funding department) 	<ul style="list-style-type: none"> ● Local Government NZ ● Waha Kotahi NZ Transport Agency (highways department) ● Department of Conservation ● New Zealand Police ● Office of the Auditor General ● Ministry of Civil Defence and Emergency Management ● Ministry for the Environment ● Horizons Regional Council ● Ruapehu Alpine Lifts ● Automobile groups ● New Zealand Historic Places Trust ● Iwi ● Environmental groups ● Service utility providers ● Consultants and contractors ● Community Groups ● Federated Farmers ● Forest Owners Association 	<ul style="list-style-type: none"> ● Councillors and Management Team ● Community Boards ● Land Transport Team ● Corporate, Finance and Planning Team ● Solid Waste, Stormwater, Wastewater and Water Supply Team ● Community Development Team ● Recreation and Community Facilities Team. ● IT Manager ● Customer Services Team.

Council engages with the public in a number of forums and ways.

B02.5.1 Long Term Plan Consultation

Council engages with the public through information and formal consultation processes for the Long Term Plan (LTP). Pre engagement meetings have been carried out in the community during 2020.

The key themes identified to date cover

- Cycle trails - connectivity and safety for on road connectors
- Health - dusty roads, use of weed killers
- Safety - speed management in urban areas; pedestrian safety crossing highways in urban areas
- Access - paper roads being fenced off
- Amenities - truck parking in Waiouru,

This will be followed by the formal consultation period in the first quarter of next year.

A full summary of the Long Term Plan engagement process can be found in the LTP.

B02.5.2 River Valley Meetings

Three River Valley Community Engagement meetings are held per year, rotating around ten valleys in a three yearly cycle. They provide an opportunity for locals to meet roading staff and hear their issues and safety concerns in their valley to inform the Low cost low risk safety improvement programme.

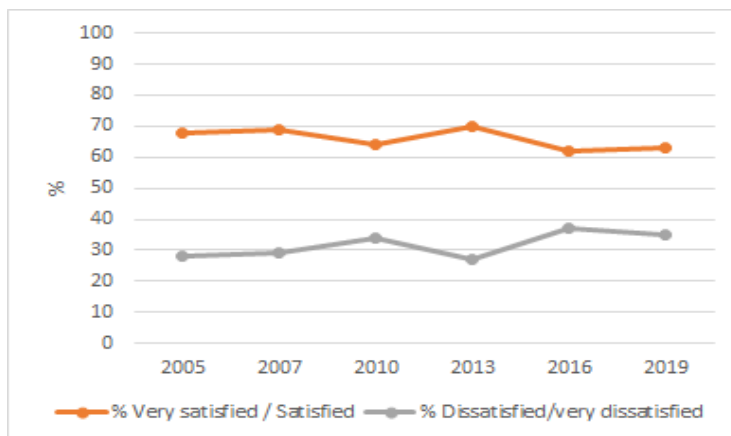
In 2020, River valley meetings were held at Kirikau, Ohura and Owhango. Locals identified sites for widening and raised issues around speed limits and signage improvements.

B02.5.3 Resident Customer Satisfaction Survey (NRB)

Council carries out a three yearly National Research Bureau Ltd Customer Satisfaction Survey as a means of measuring its effectiveness in representing the wishes and viewpoints of its residents.

Respondents rate their satisfaction with footpaths and with the maintenance of sealed and unsealed roads. Prior to 2010, the roading question surveyed the satisfaction of the maintenance of urban streets and rural roads.

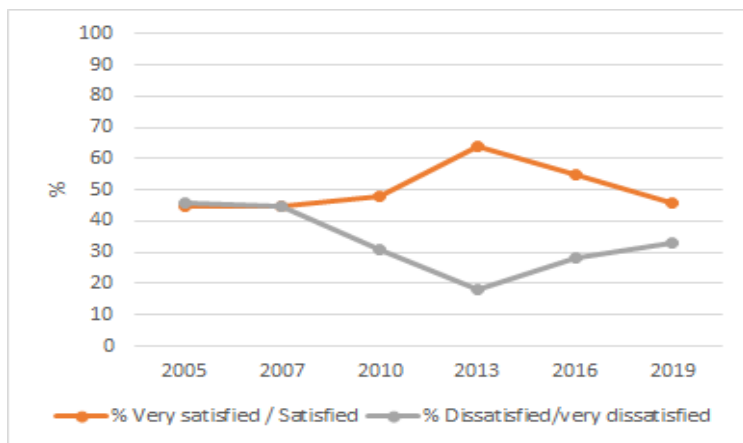
FIGURE B.2: NRB CUSTOMER SURVEY RESULTS - SEALED ROAD MAINTENANCE



Results are starting to gain. Non resident rate payers were more satisfied than residents, although both were above 50%. Three out of four wards were greater than 50% satisfied or very satisfied, with Ohura being the least. Council has been maintaining it's reseal and pavement rehabilitation programme over the last ten years and has also increased it's sealed pavement maintenance budget in the last two years.

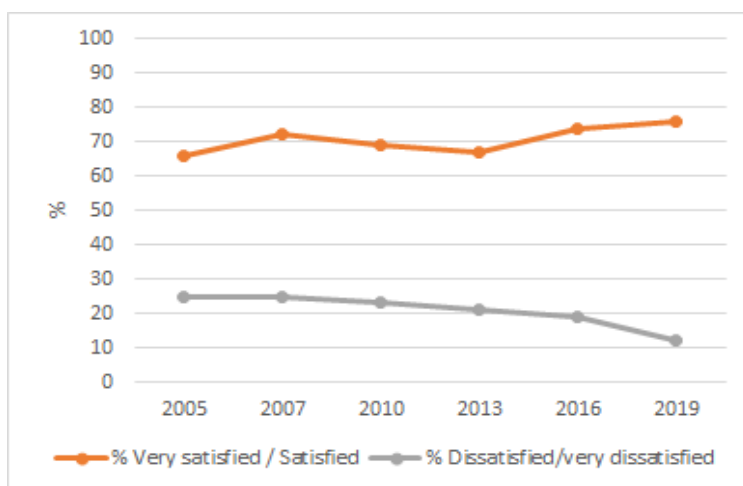
The main reasons residents were dissatisfied were that roads were in poor condition, needed maintenance/upgrading, had lots of potholes or were rough, bumpy or uneven. Even with the increase in sealed pavement maintenance, it is targeted to remove the worst of the defects or repair defects prior to sealing.

FIGURE B.3: NRB CUSTOMER SURVEY RESULTS - UNSEALED ROAD MAINTENANCE



By contrast, satisfaction with unsealed road maintenance is declining after gaining ground in 2013. Prolonged adverse weather, logging activity and skill shortages made maintaining levels of service challenging in winter 2018. In addition, a dry summer in 2020 saw corrugations occur frequently.

FIGURE B.4: NRB CUSTOMER SURVEY RESULTS - FOOTPATH MAINTENANCE



This is a pleasing result. A beautification project on the main street of Taumarunui in 2019 and a concerted effort on funding footpath renewals has had an impact.

B02.5.4 Level of Service Survey

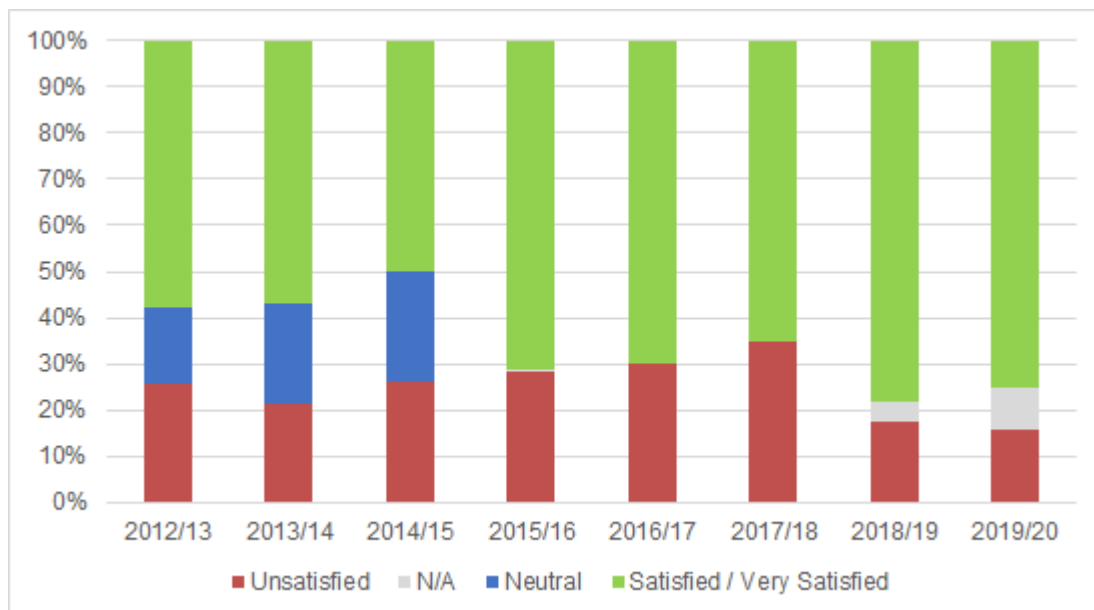
Council began an annual survey in 2012/13 to ask ‘How satisfied are you with District Roads (excluding State highways)?’. The survey targets visitors or users of Council services. It is attached to letters that Council sent to customers (eg dog registrations), available in hard copy at Council offices and a link included in emails.

The results are shown below.

TABLE B-3: LEVEL OF SERVICE SURVEY RESULTS

Year	No of Responses	Satisfied / Very Satisfied	Neutral	Unsatisfied	N/A
2012/13	133	57.9%	16.5%	25.6%	
2013/14	518	57%	21.6%	21.4%	
2014/15	160	50%	23.8%	26.3%	
2015/16	401	71.1%	Not reported	28.2%	0.7%
2016/17	167	70.1%	Not reported	29.9%	
2017/18	98	65.30%	Not reported	34.70%	
2018/19	247	78.14%	Not reported	17.41%	4.45%
2019/20	143	75%	Not reported	16%	9%

TABLE B-4: LEVEL OF SERVICE SURVEY GRAPH



These results show the satisfaction has remained fairly steady at 75%. It is expected that there will always be a certain level of dis-satisfaction so 75% is considered a fair result.

B02.6 Strategic Assessment

This Strategic Assessment section defines:

- The **problems** facing the District
- The **consequences** of not addressing the problems

- The **benefits** that would result from solving the problems.
- Status of the existing **evidence base** as a means of assessing the robustness of the problems and benefits from current information and stakeholder knowledge
- **Performance measures** that will be used to judge how an investment has contributed to the benefits of solving or realizing an opportunity identified in the strategic case

B02.6.1 The Problem Statements

A facilitated Investment Logic Mapping workshop was held in November 2016 to identify and consider the key issues and problems in the District. Stakeholders represented Councillors (Mayor and Deputy Mayor), NZ Police, NZ Transport Agency (Safety Manager), Road contractors, consultants, Land Transport business unit staff and Council accountant. This was reviewed as a desktop exercise in 2020, with the outcome being that the statements are still fit for purpose and relevant to the network issues.

The key issues and problems relating to the management of the transport activities are as follows:

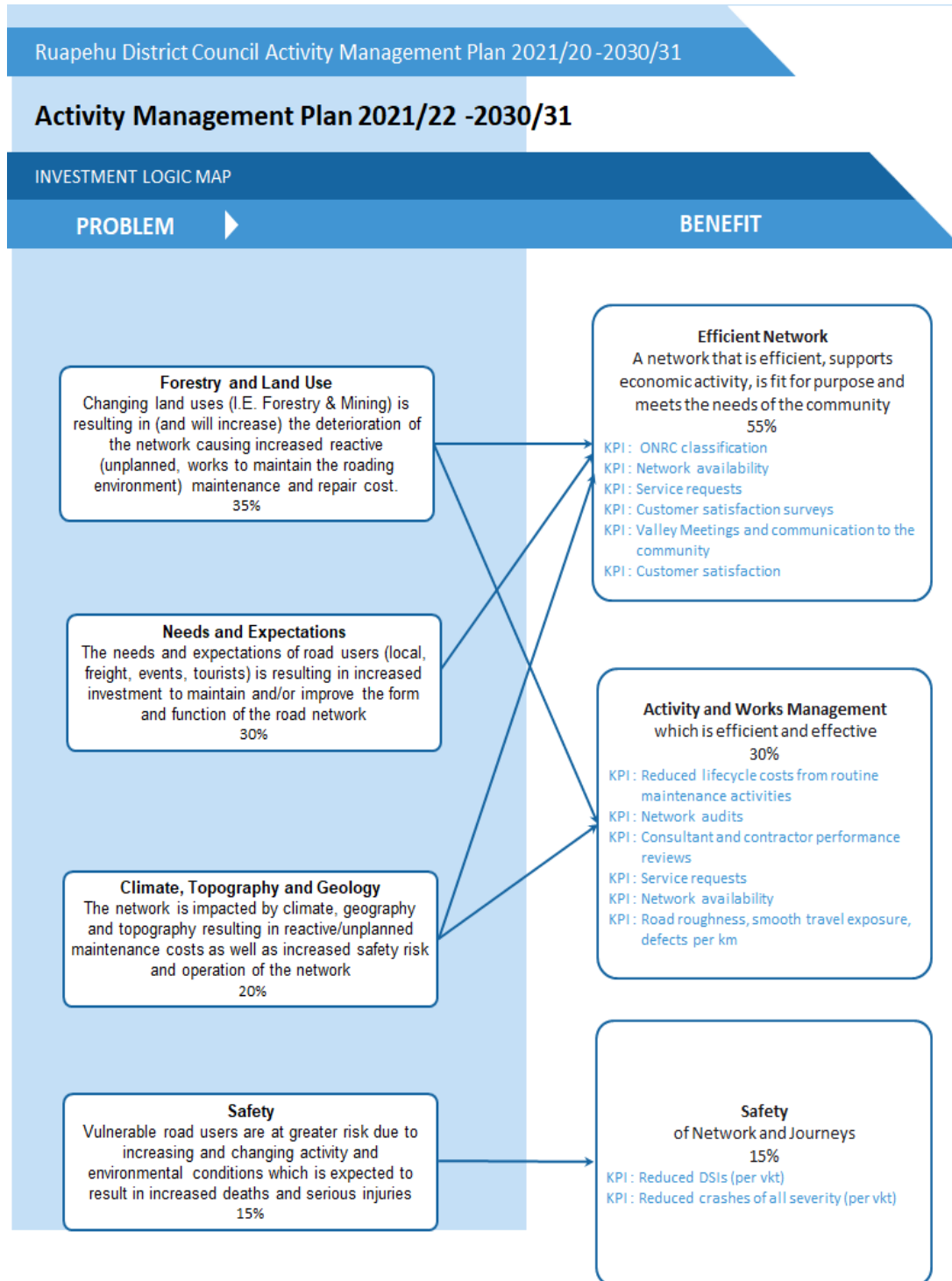
- Failure of ageing infrastructure from changing land uses
- Needs and expectations
- Climate, topography and geology
- Safety

The benefits of addressing and solving the problems were identified as follows:

- A network that is efficient, supports economic activity, is fit for purpose and meets the needs of the community.
- Activity and works management which is efficient and effective
- Safe network and safe journeys

The problem statements and the benefits of solving the problems are shown in more detail in the investment logic map below.

FIGURE B.5: INVESTMENT LOGIC MAP



Investor: Warren Fumer
 Facilitator: Tim Eldridge
 Accredited Facilitator: No – Registered Business Case Professional

Version no: 2
 Initial Workshop: 08 November 2016
 Last modified by: Sian Killick, RDC, GHD 9/10/2020
 Template version: 0.1

B02.6.2 Problem 1 – Forestry and Land Use

Definition | Increased forestry activity is resulting in (and will increase) the deterioration of the network, causing increased reactive (unplanned works to maintain the roading environment) maintenance and repair cost.

Evidence

This section provides the background and evidence to support that scope and scale of the problem.

Commercial and farm forestry is present throughout the District. Much of the planting is maturing at present. Commercial harvests may be carried out in summer, while farm blocks tend to be harvested year round. In 2018-19, small forest owners harvested 40% of the total harvest in New Zealand.

Forest harvests can increase truck movements by roughly 30 logging loads per hectare. Harvests usually take place over a short period of time. Sustained loading in a short time frame has a large detrimental effect on roads that are typically low volume and do not have the pavement depth to accommodate this.

Transport associated with servicing sheep and beef and dairy farming is less frequent and the network is more able to recover.

The main roads that are being directly impacted by forestry are shown below. They are a mix of sealed and unsealed, high and low volume.

- Ongarue-Waimiha Road
- Poro-O-Tarao Road
- Ongarue Stream Road
- Okauaka Road
- Ongarue Stream Road
- Ohura Mokau Road
- Waitaanga Road
- Ngakonui-Ongarue Road
- Mangapapa Road
- Ongarue Back and Uepango Road
- Kururau Road
- Oio Road
- Pipiriki Raetihi and Whanganui River Roads
- Middle Road

Forestry is forecast to continue throughout the District in this AMP period.

Asset Impacts

Pavements and surfacing:

Sealed roads

- Increased repetitive loading resulting in defects and poor performance.
- Ruapehu lacks data on pavement depth for a large part of the sealed network. We know that many roads were sealed 'as is' as part of government seal extension

grants. Test pits carried out on roads prior to rehabilitation have generally found 100mm of pavement depth on top of natural ground.

- **Example: Ongarue-Waimiha Road and Poro-O-Tarao Road**
 - This is a sealed route leading out of the District. Hancock Forest Management began harvesting their Ongarue blocks in 2015, with a 13 year harvest plan. No winter harvesting has been carried out. Forecast truck movements were for 2,112,301 tonnes to come out over the 13 year period with up to 478,410 tonnes/year. It should be noted that Hancock is only one of three harvesting in the area.
 - Since harvesting commenced, \$910,248 of sealed pavement repairs have been identified on the logging route used (Ongarue-Waimiha Road and Poro-O-Tarao Road). \$301,707 of seal repairs have been completed, \$61,894 is within the 2020/21 rehabilitation sites and \$732,344 was in Pavement Rehabilitation sites completed in the last four construction seasons.
 - NZ Transport Agency Technical Audit carried out in February 2017 found “there is some evidence however that tight budgets are resulting in tension between asset management and safety activities in some instances. For example Ongarue Waimiha Road had a number of serious surface defects posing a road safety risk which were generally accepted, due to planned asset management activities extending as far as 2021/22”.
 - We responded by prioritising this route for pavement rehabilitation above others. Since 2016, we have carried out 13.5km length of works at a cost of \$5,578,184 in rehabilitation work. We increased pavement depth up to 400mm on account of the heavy traffic, which increased our costs by \$40,000 per km.
- **Example: Pipiriki Raetihi Road seal defects**
 - This is a sealed route with a perpetual forest, i.e. an ongoing 25 year harvest cycle.
 - Seal repairs completed \$254,400 in the previous 3 years are 2017 (\$48,500), 2018 (\$22,000) and 2019 (\$184,000)
 - Identified seal repairs programmed but not yet approved total \$247,680.

Unsealed roads

- Increase in metalling and grading required when forestry harvests are carried out. Soft spots, corrugations are frequent.
- Farm forestry tends to be on these roads and carried out year round, increasing damage
- Slash can wash into culverts causing damage
- **Example: Waitaanga Road**
 - Waitaanga Road is a metal road connecting Ruapehu and New Plymouth Districts. It is used for logging traffic to cart out of the Ruapehu district. Ongoing harvesting on Waitaanga Road has seen unsealed pavement digouts frequently undertaken to address soft spots with \$121,800 in 2016/17, \$134,400 in 2017/18, \$9,400 (2018/19) and \$32,600 (2019/20) with an aggregate supply value of \$186,400. This road requires frequent grading to address corrugations. Structural metalling is programmed for this road between 2021/23.

- **Example: Waikaka Road 2019/20**
 - Three small farm forestry blocks (17Ha, 34Ha and 53Ha) harvested over a 10km stretch of road during July, August and September 2019. The first, smallest block resulted in a lot of slash, which washed down and blocked a culvert during two lots of heavy rain. Culvert had to be unblocked twice. The inlet was damaged while locating it and the saturated fill scoured away resulting in the culvert and road formation needing to be replaced. Maintenance metalling of 447t was carried out in March. This would typically only be repeated every 4 to 5 years. Following onset of logging, soft spot metalling was required in August, heavy metalling in September and top up in December, making an additional 1512t of metal being applied.
 - Total cost to Council for typical maintenance - \$15,800. Cost to Council for all of above \$61,100. Of this amount \$43,200 was unprogrammed, reactive work needing to be carried out.
 - Council was not advised of this harvest taking place and had no chance to influence logging timeframe.
 - Even if Council were aware of the logging, our District plan allows logging so we would not have been able to influence this, unless the landowner was agreeable to a change. We have no way to recover any costs from the landowner outside of our rating policies.
 - It is noted that some forestry companies will agree to maintain roads at their cost while using them. This relies on Council being aware of upcoming harvests and agreeable forestry companies.
- **Example: Mangaeturoa North Road,**
 - which required grading 8 times over a 9 month period, in comparison with 4 – 5 times on the adjacent metal roads.

Structures

- Increased repetitive loading resulting in increasing strain on bridge structures eg Poro-O-Tarao bridge - Minor repairs and cross bracing April 2017 \$11,613 to achieve Class 1 loading, with logging harvest onset subsequently structurally affecting bridge, leading to beam and deck replacement in December 2017 at a cost of \$231,779
- Increase in overweight vehicles and permits to use bridges for loads for which they were never designed
- Several weight restricted structures have anecdotally been used to carry loads greater than their weight restriction would allow, such as Mangateitei Rail Overbridge, putting road users, drivers and rail at greater risk.
- A number of currently weight restricted bridges are undergoing assessment for renewal on forest harvest routes

Vegetation control – increased blade work on forestry routes to ensure clear sight lines.

Potential Consequences

If the problem is not addressed then some of the following consequences are likely. The severity of the consequence will depend on what level of investment is made to address the problem as well as other factors that might be disconnected specifically from this problem:

- Not meeting Council outcomes:
 - Provide a network that is safe, reliable and endeavour to meet the needs of the users
 - Core infrastructure endeavours to keep pace with changing demand
- Likely to impact on the following ONRC Customer Outcomes:
 - Accessibility: of the transport networks available and network connectivity
 - Amenity: The level of travel comfort experienced by the road user and the aesthetic aspects of the road environment
 - Safety: How users experience the safety of the road
- Increasing cost to maintain the network
- Loss of asset life
- Increasing operating costs for road users
- Increased dissatisfaction from customers due to the condition of the affected roads

Benefits of Investment

In the ILM exercise it was identified that addressing this problem would contribute to the following benefit areas (as indicated in the ILM diagram above):

- Efficient Network
- Activity and Works Management
- Safety

These benefits are discussed more broadly in the Benefits of Investment section below.

In addition to the formal benefits mentioned above you can also assume that the consequences of not investing, documented above, will be reduced or eliminated.

Strategic Response

- Pavement Programme
 - Ensure sufficient funding available to react to pavement wear caused by the forestry routes
 - Prioritisation of heavy maintenance and renewal on forest plantation cartage roads, ideally following the initiation of the forestry activity. This removes the risk that investment is made and then a change occurs to the use of the forestry route.
- Network & Asset Management
 - Update RDC's 2006 forest planting survey
 - Advocacy role with private and commercial forest owners to identify harvest plans and ages of forests, and projected traffic loadings on local roads.
 - Liaise with the Ministry of Primary Industries and the Forest Owners Group.
 - District and Regional plans - when they are reviewed, take opportunity to get more controls eg resource consent to limit time period harvests can be undertaken
 - On low volume unsealed roads, negotiate maintenance agreements with forest owner for harvest period.

B02.6.3 Problem 2 – Needs and Expectations

Definition | The needs and expectations of road users (local, freight, events, tourists) is resulting in increased investment to maintain and / or improve the form and function of the road network.

The community expects Council to:-

- Have a safe, reliable and appropriate road network. The community wants better and safer roads to support local lifestyle and work, and commerce such as tourism, farming and forestry.
- Provide better access for heavy vehicles to improve freight efficiency
- Seal unsealed roads
- Maintain and renew existing footpath and fill in the missing links

Evidence

This section provides the background and evidence to support that scope and scale of the problem.

Asset Impacts | Sealed Surface and Pavements

Many of Council's roads are narrow and windy and are shared by mixed modes

TABLE B-5 TREATMENT LENGTH LENGTH(KM) IN WIDTH BANDS

Treatment Length	Treatment Length Width (km)			
	<4m	4<=x<6	>= 6m	% < 6 m
Sealed Roads	14.3	249.8	232.3	53%
Unsealed Roads	491.7	356.1	0.2	100%
Total	506	606	232.5	83%

The following unmet customer needs have been identified

- Network restrictions exist, with 8 roads having length restrictions, meaning trucks can't use trailers.
- Roads are rough:-
 - STE – 8% of the vehicle kilometres travelled sealed network is providing a rougher ride than is desirable
 - Peak Roughness - 206 lane-km of the network has high peak roughness above 150 NAASRA and 300 lane km are above 130. Which is 14% of sealed network above 150 and 26% above 130.
 - Average and peak roughness – while average roughness is meeting ONRC expectations peak roughness, while improving is still not meeting the ONRC expectation. (Full details in Pavements lifecycle section D03)

Peak roughness measured as the 95th percentile has been trending downwards in all but rural Low volume roads as shown below.

FIGURE B.6: PEAK ROUGHNESS 95TH PERCENTILE TREND - RURAL

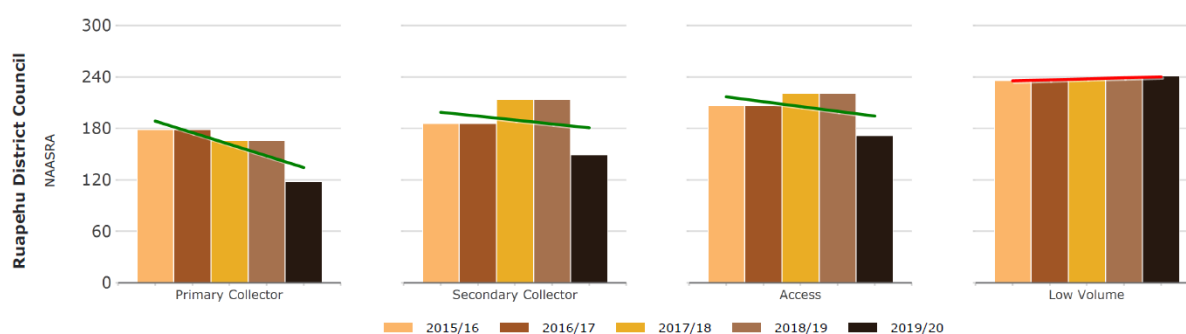
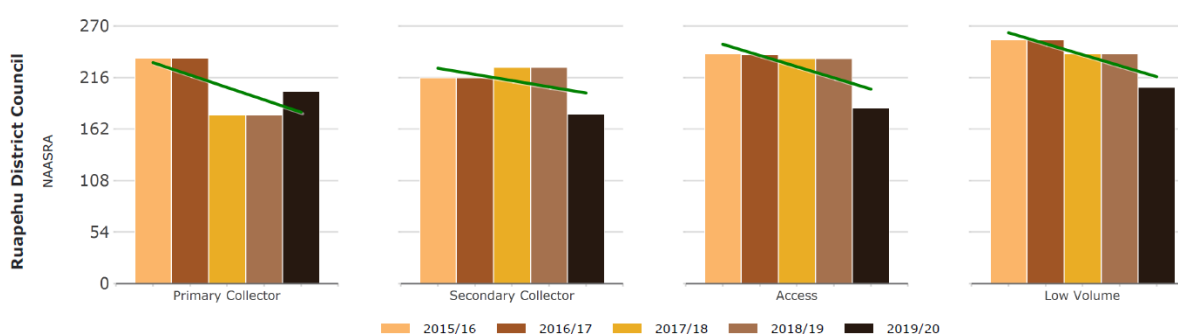


FIGURE B.7: PEAK ROUGHNESS - 95TH PERCENTILE TREND - URBAN



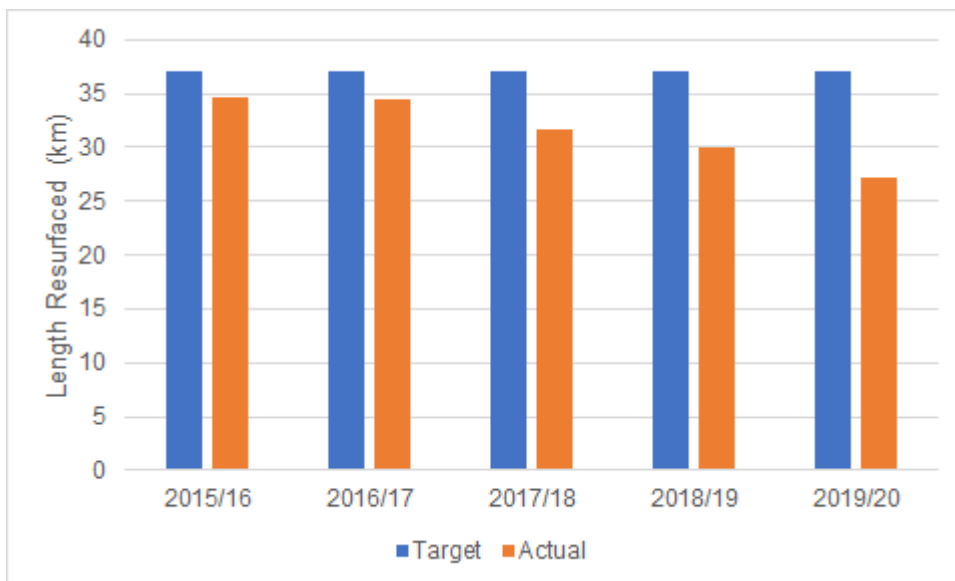
While the trends shown above are downwards the peak roughness is still not meeting the targets outlined in ONRC as shown below. Council is also underperforming against rural peers and the region see Benchmarking (section B02.7) for full details.

TABLE B-6: ONRC TARGETS BY CLASSIFICATION

ONRC Road Category (km of road)	Rural / Urban	95th percentile NAASRA - ONRC Target
Primary Collector	Rural	120
Secondary Collector	Rural	130
Access	Rural	150
Low Volume	Rural	180
Primary Collector	Urban	140
Secondary Collector	Urban	140
Access	Urban	150
Low Volume	Urban	170

Beginning with the 2015/16 Annual report the length of resurfacing is reported. For this report Resurfacing includes Reseals, Rehabilitation, Minor Improvement and other full width seal resurfacings. Target resurfacing lengths are not being achieved due to budget constraints and a volatile bitumen price index.

FIGURE B.8: RESURFACING LENGTHS



- Two thirds of the network is unsealed. Residents living on rural roads that are becoming semi-urban would prefer the roads to be sealed.
- Dust treatment requests are frequent. More data is being gathered on the health disbenefits of living on a dusty road.
- Flooding is experienced on some roads in moderate events.
- Ohakune Mountain Road (OMR) is at capacity during the peak morning and afternoon times during the ski season.
- Requests for service numbers though declining, continue to be higher than the KPI baseline of 1000. (With 1026 calls being in 2019/20.)
- Resident satisfaction surveys show 63% satisfaction with sealed roads and 46% with unsealed in 2019/20.

Asset Impacts | Road Structures

- 16 Weight restricted bridges, with 6 further speed restricted, restrict accessibility within the network to heavy traffic.
- 9% of the network is restricted to 50 Max vehicles
- 79% (242) of bridges are one lane
- There are no HPMV approved routes, but permits can be applied for and issued on a case by case basis dependant on route, load and vehicle size
- The following figure and table give an indication of bridges and large culverts which may need renewal over the next 40 years. This is based solely on bridge age and construction type. Further investigation and condition rate will be used to identify and prioritise as the renewal timeframe is reduced. More detail in lifecycle section - Structures (Section D04)

FIGURE B.9: STRUCTURE RENEWAL INDICATIVE PROGRAMME

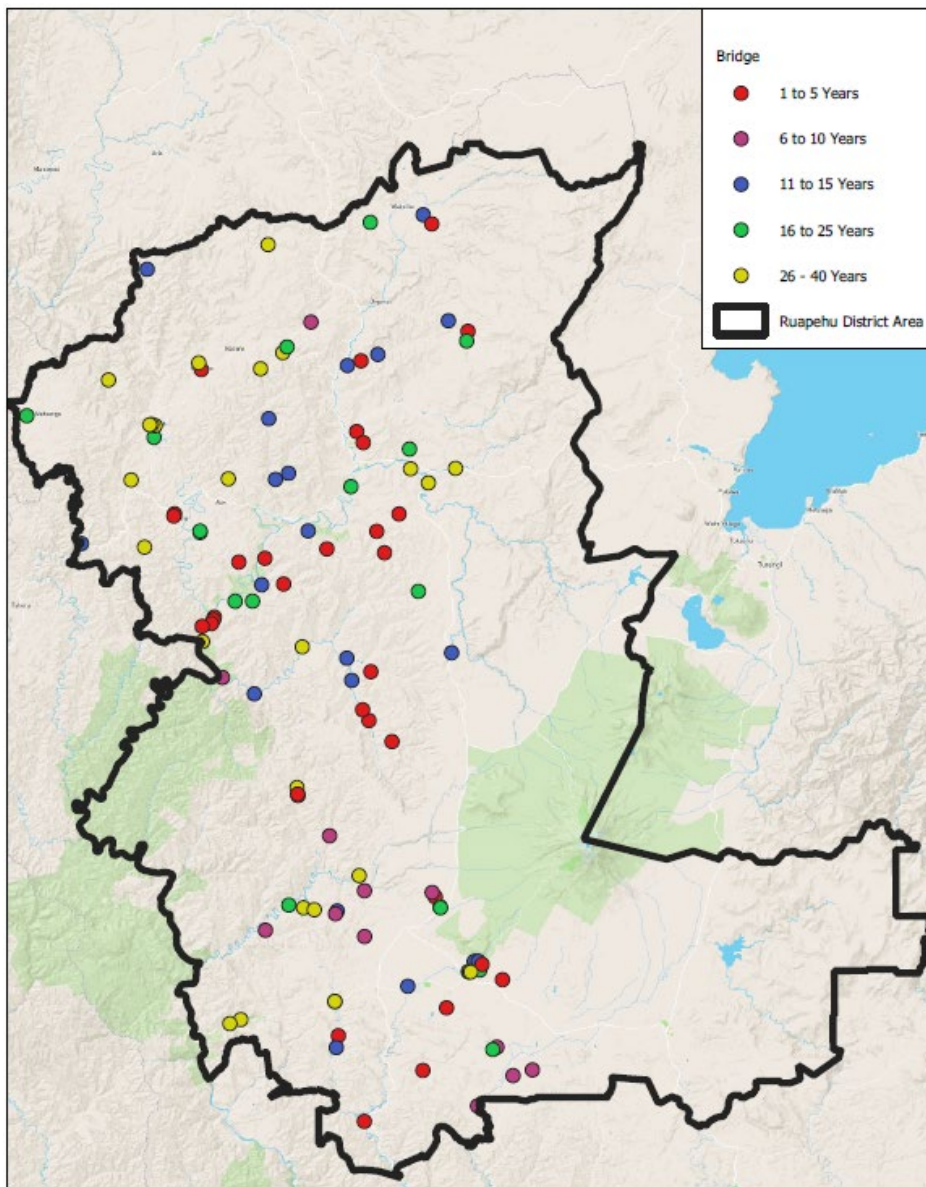


TABLE B-7: STRUCTURES RENEWAL INDICATIVE PROGRAMME

Structure	Age in Years					
	1 to 5 Years	6 to 10 Years	11 to 15 Years	16 to 25 Years	26 - 40 Years	> 40 Years
Bridge	9	2	9	6	7	256
Major Culvert	23	11	13	11	18	87

Asset Impacts | Other Assets

The following provides a brief insight into how other assets and activities are affected by changing needs and expectations:

- Drainage - tolerance for flooding and slips, and therefore network availability, is dropping resulting in a news for more planned resilience and quicker emergency responses
- Signs - modest impact caused by increased vehicle movements generally relates to an increase in associate risk of accidents occurring
- Streetlights - increasing network and increased expectation of being able to safely use the road network to walk around at night time
- Footpaths - increased push to support walking and cycling travel modes leads to an increase in deterioration of the existing assets as well increased expectations about the usability of the current footpaths (eg: need to reduce trip hazards)
- Great Rides (Cycleways) - community expectation on Councils to provide more recreational and outdoor facilities like the Great Rides

Potential Consequences

If the problem is not addressed, then some of the following consequences are likely. The severity of the consequence will depend on what level of investment is made to address the problem as well as other factors that might be disconnected specifically from this problem:

- Not meeting Council outcomes:
 - Providing a network that is safe, reliable and endeavours to meet the needs of the users
 - Core infrastructure endeavours to keep pace with changing demand
 - Managing the network with a strong focus on safety to avoid or mitigate significant hazards
- Likely to impact on the following ONRC Customer Outcomes:
 - Amenity: The level of travel comfort experienced by the road user and the aesthetic aspects of the road environment
 - Accessibility: The ease with which people are able to reach key destinations and the transport networks available to them
- Not providing appropriate resilient connections
- Not minimising the risk of transport disruption
- Increase in bridge damage due to inappropriate use
- Increase in crash numbers
- The network struggles to respond to changing transport demands and expectations
- Providing appropriate resilient connections
- Increases in the risk of transport disruption versus expectations of a more resilient network

Benefits of Investment

In the ILM exercise it was identified that addressing this problem would contribute to the following benefit areas (as indicated in the ILM diagram above):

- Efficient Network
- Activity and Works Management

These benefits are discussed in more broadly in the Benefits of Investment section below.

In addition to the formal benefits mentioned above, it is also assumed that the consequences of not investing, documented above, will be reduced or eliminated.

Strategic Response

- Pavement Programme
 - Continue investment to provide the current level of service
 - Continue Pavement renewal programme and address minor alignment issues, widening and corner widening in conjunction
 - Continue existing road maintenance and renewal programme.
- Additional signage on cycling tourism routes
- Continue Low Cost Low risk programme to address minor safety issues
- River Valley meetings
- Address bridge widening where necessary in conjunction with bridge renewal work
- Unsubsidised seal extension programme
- Work with the community (for example through the River Valley Engagement meetings) to prioritise spending such as from the minor improvement funds from NZTA and better targeted renewals
- A Footpath Development and Renewal Policy lays out criteria for assessing new footpath requirements
- Advocacy role with ski operators for more comfortable spread of peak traffic flows. Improved road geometry and technical design to improve performance of the road for passenger service vehicles. Minor improvements to relieve known congestion points caused by loss of traction in winter driving conditions, snow and ice
- Develop partnerships with the community and developers

B02.6.4 Problem 3 – Climate, Topography and Geology

Definition | The network is impacted by climate, geology and topography, resulting in reactive / unplanned maintenance costs as well as increased safety risk and operation of the network.

Evidence

This section provides the background and evidence to support that scope and scale of the problem.

Network Impacts

The climate has changed and is expected to continue to change. There are longer periods of dry weather and more intense rainfall events leading to higher incidence of storm damage and increased effort to maintain road access. The District's steep topology and geology of soft papa make it more vulnerable to increasing weather events.

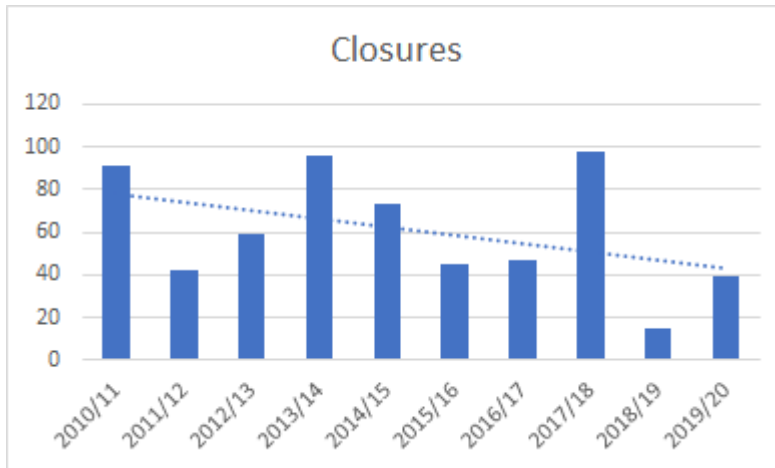
There are increasing requirements for sustainability and resilience across Council activities.

Resilience to respond to natural events:

- Limited availability of alternate routes in the rural network impacts on travel time reliability

- Several low level roads prone to flooding in moderate events with no alternate routes available
- Road closures over the previous 10 years due to storm damage have decreased but the number when a major storm hits are still high, with the nature of the District leading to long detours or parts of the district cut off.
- Accept some roads will not be available in storm damage events, the reason for a road closure could be storm damage due to slips and washouts from heavy rain or trees downed by heavy winds.

FIGURE B.10 :ROAD CLOSURES



- Average of \$2.3M expenditure on emergency works and minor events in 2015/16 to 2019/20. Managing expenditure to respond to flood damage is a significant issue. Land Transport’s budget is balanced, based on the local share cost. The five year average cost is used to forecast an indicative budget for emergency works. However, if this is exceeded by emergency events within a financial year, maintenance and renewal work has to be reduced in order to accommodate this.

FIGURE B.11: EMERGENCY REINSTATEMENT

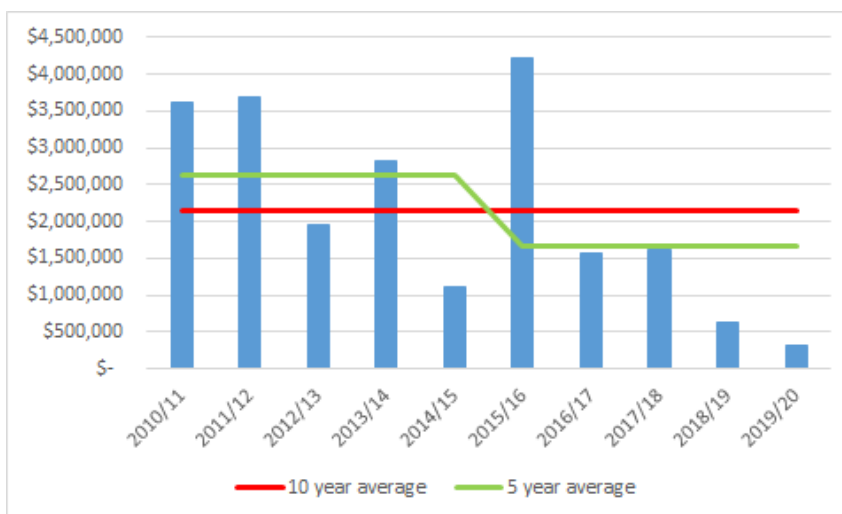
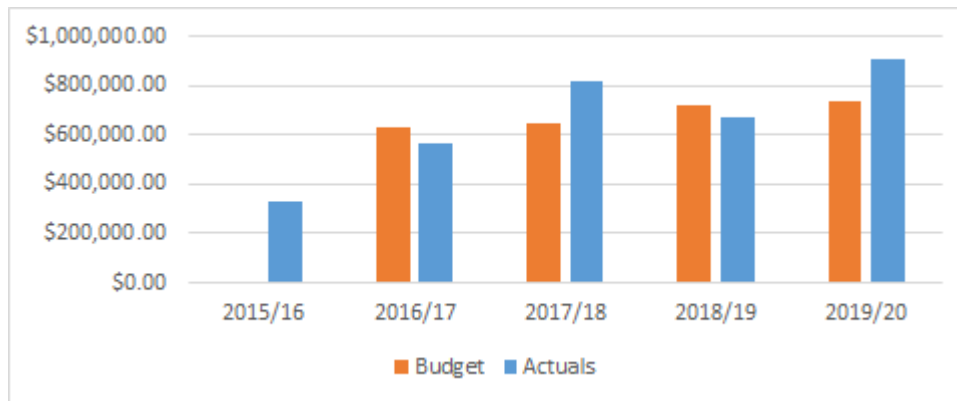


FIGURE B.12: MINOR EVENTS BUDGET VS ACTUAL



Assets Impacted

- Sealed pavements - dropouts, overslips, scouring
- Unsealed pavements - as above
- Bridges - scouring at abutments, build up of debris around abutment and piles, wash out of deck.
- Drainage - blocked culverts, damage at inlet/outlet.

Potential Consequences

Council's response to the problem is to ensure there is resilience to manage large water events. If the problem is not addressed, some of the following consequences are likely. The severity of the consequence will depend on what level of investment is made to address the problem as well as other factors that might be disconnected specifically from this problem:

- Not meeting Council outcomes:
 - Providing a network that is safe, reliable and endeavours to meet the needs of the users
 - Managing the network with a strong focus on safety to avoid or mitigate significant hazards
 - Excellent standards of safety and welfare are promoted and respected
 - Preparation, planning and timely response; protect people and property from natural hazards
- Likely to impact on the following ONRC Customer Outcomes:
 - Accessibility: of the transport networks available and network connectivity
 - Safety: How users experience the safety of the road
 - Resilience: The availability and restoration of each road when there is a weather or emergency event
- Increasing cost to maintain the network
- Loss of asset life
- Increasing operating costs for road users
- Increased dissatisfaction from customers due to the condition of the affected roads

Benefits of Investment

In the ILM exercise it was identified that addressing this problem would contribute to the following benefit areas (as indicated in the ILM diagram above):

- Efficient Network
- Activity and Works Management
- Safety

These benefits are discussed more broadly in the Benefits of Investment section below.

In addition to the formal benefits mentioned above you can also assume that the consequences of not investing, as documented above, will be reduced or eliminated.

- A network that is efficient, supports economic activity, is fit for purpose and meets the needs of the community
- Safety of network and journeys
- Minimise disruption when unplanned events occur
- Meeting ONRC CLOS for accessibility
- Providing appropriate resilient connections

Strategic Response

- Continue table drain cleaning and culvert flushing programme.
- Continue culvert replacement programme to address under size culverts
- Address scouring as soon as possible
- Keep inlets and outlets free of debris
- Continue to use appropriate rainfall forecast data for culvert size calculations
 - High Intensity Rainfall Design System (HIRDS) developed by NIWA which incorporates climate change projection information based on IPCC scenarios.
 - Main features of New Zealand climate change projections for 2090 (Ministry for the Environment, 2008)
- Ensure new bridges are designed to accommodate appropriate climate change impacts.
- Have subcontractor presence around network for resilience response
- Maintain permanent flood hazard signs in flood hazard areas
- Work with Horizons regarding river channel maintenance
- Continue to hold River Valley meetings to identify hazardous areas
- Hazardous tree programme
- Refer to the Sustainability section under Section 14 of this AMP.
- Consider adding a climate change factor to the O&M forecast needs of the road network over the next 30 years (for example +0.5% factor per annum)

B02.6.5 Problem 4 – Safety

Definition | Vulnerable road users are at greater risk due to increasing and changing activity and environmental conditions, which if not mitigated could result in increased deaths and serious injuries

Evidence

This section provides the background and evidence to support that scope and scale of the problem.

Network Impacts

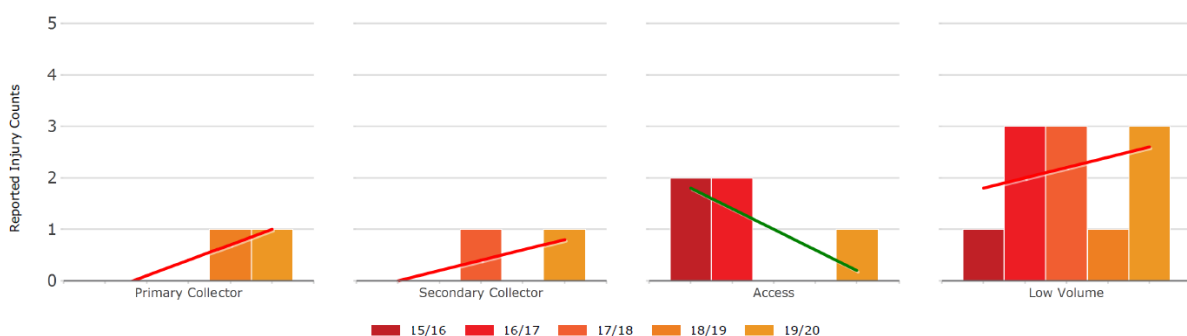
Fatal and serious injury (DSI) crashes:

- DSI Crash numbers are low with the number of crashes over the last 5 years being too low to be sure of a definite trend in all but low volume roads, the total number of crashes over the last five years is increasing as seen in the figure below.
- When reviewing the risk factors
 - Personal risk is a measure of the danger to each individual using the road being assessed.
 - Collective risk is a measure of the total number of Serious Injuries and Fatalities (DSI) per km over a section of road.

Ruapehu's personal risk, while low, is higher than it's peers, region and national result see benchmarking results for details (section B02.7).

- An increase in large haulage vehicles also presents a significant safety risk to all road users.
- We are concerned that volume increases would see a rise in crash numbers, particularly with the mix of different users, such as cyclists, light vehicles and heavy vehicles.

FIGURE B.13: CRASHES RESULTING IN DEATHS OR SERIOUS INJURIES



Potential Consequences

If the problem is not addressed then some of the following consequences are likely. The severity of the consequence will depend on what level of investment is made to address the problem as well as other factors that might be disconnected specifically from this problem:

- Not meeting Council outcomes:

- Providing a network that is safe, reliable and endeavours to meet the needs of the users
- Managing the network with a strong focus on safety to avoid or mitigate significant hazards
- Likely to impact on the following ONRC Customer Outcomes:
 - Safety: How users experience the safety of the road
 - Resilience: The availability and restoration of each road when there is a weather or emergency event
 - Accessibility: The ease with which people are able to reach key destinations and the transport networks available to them
- Increasing trend of fatal and serious injury significantly impacting on the local community
- Council strategic objective for providing a safe transport network not being met
- GPS strategic directive for safer journeys not met

Benefits of Investment

In the ILM exercise it was identified that addressing this problem would contribute to the following benefit areas (as indicated in the ILM diagram above):

- Safety

These benefits are discussed in more broadly in the Benefits of Investment section below.

In addition to the formal benefits mentioned above you can also assume that the consequences of not investing, documented above, will be reduced or eliminated.

The benefits of addressing this specific problem would include:

- Increasing safety for users of the network – safety for network and journeys
- Freight and passenger users can safely, efficiently and reliably get to their destinations as planned
- The network can respond to changing transport demands and expectations
- Meeting Council strategic objectives to provide a safe transport network
- Providing appropriate resilient connections

Strategic Response

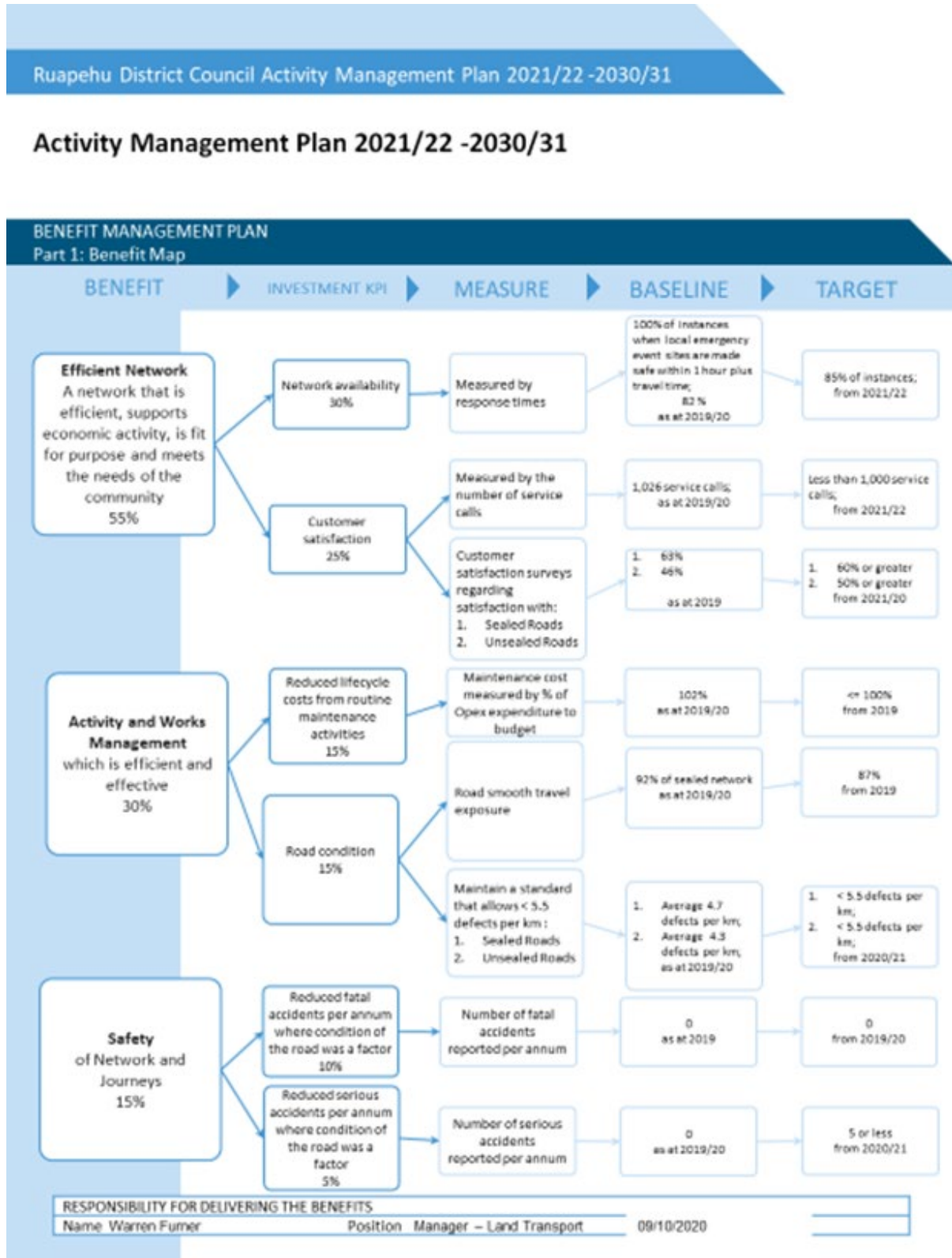
- Stop / Give Way controls at Intersection evaluations
- Hold River Minor Valley meetings
- Continue pavement renewal programme
- Continue low cost, low risk minor safety programme
- Continue network audits and inspections
- Continue Road Safety Audits for capital works as appropriate
- Continue to investigate serious and fatal crashes with respect to road conditions
- Continue to ensure road hazards are appropriately signed
- Investigate safe and appropriate speed limits for high risk routes
- Continue to lead Ruapehu Road Safety Action Plan joint effort between organisations with a road safety responsibility, such as Horizons and NZ Police.
- Advocate on behalf of vulnerable users for state highway works

B02.6.6 Performance Measures

The performance measures (also known as key performance indicators KPIs) quantify the benefits of investment and are used to judge how an investment has contributed to the benefits of solving or realizing an opportunity identified in the strategic case. Performance measures identified are listed below and explored in further detail in – Levels of Service (LoS) We Provide (Section C04)

The Benefits Management Plan is shown below. Further Key Performance Indicator information can be found in - Levels of Service (LoS) We Provide (Section C04)

FIGURE B.14: BENEFITS MANAGEMENT PLAN



Investor: Warren Fumer
 Facilitator: Tim Eldridge
 Accredited Facilitator: No – Registered Business Case Professional

Version no: 3
 Initial Workshop: 08 November 2016
 Last modified by: Sian Killick – GHD – 2020/10/9
 Template version: 0.1

B02.7 Benchmarking

B02.7.1 Benchmarking Background

The District was benchmarked against councils from the Rural Districts peer group. This peer group is made up of Districts with less than 10% urban roads and include the following Councils:

TABLE B-8: PEER GROUP COUNCILS

Council	Council
Ashburton District Council	Otorohanga District Council
Carterton District Council	Rangitikei District Council
Central Hawke's Bay District Council	Selwyn District Council
Central Otago District Council	South Taranaki District Council
Chatham Islands Council	South Wairarapa District Council
Clutha District Council	Southland District Council
DoC Roads *	Stratford District Council
Far North District Council	Tararua District Council
Gore District Council	Waikato District Council
Hurunui District Council	Waimate District Council
Kaipara District Council	Wairoa District Council
Mackenzie District Council	Waitaki District Council
Manawatu District Council	Waitomo District Council

* Excluded in some measures

Sourced from the ONRC performance measures reporting tool (PMRT) , the table below shows the District's network characteristics. The table details the road network length and number of journeys by ONRC category. Journeys travelled are measured by multiplying the volume of traffic on a road by its length. This shows where most customer journeys are made. Primary collector routes make up less than 1% of the network by length but carry 19% of the amount of travel undertaken in the district due to the higher traffic volumes. It should be noted that all these benchmarks exclude Ohakune Mountain Road due to its status as a Special Purpose Road.

TABLE B-9: NETWORK CHARACTERISTICS

ONRC Category	Urban (km)	Rural (km)	Total Length (km)	Urban Journeys	Rural Journeys	Annual Total Journeys Travelled (VKT)
Primary Collector	1	10	11	0.4	6.1	6.4
Secondary Collector	14	66	80	3.7	4.2	7.9
Access	19	315	334	2	8.6	10.6
Low Volume	77	824	901	1.8	6	7.8
Total Network	111	1,214	1,326	7.9	25	32.8

(VKT) = Vehicle Kilometers Travelled

B02.7.2 Benchmarking Results

The results of the Benchmarking categorised into the following:

- Safety
- Amenity
- Cost Efficiency

The key tool used in benchmarking is the ONRC performance management reporting tool (PMRT), below are some key benchmark categories. All graphics are PMRT reports for 2019/20 unless otherwise stated.

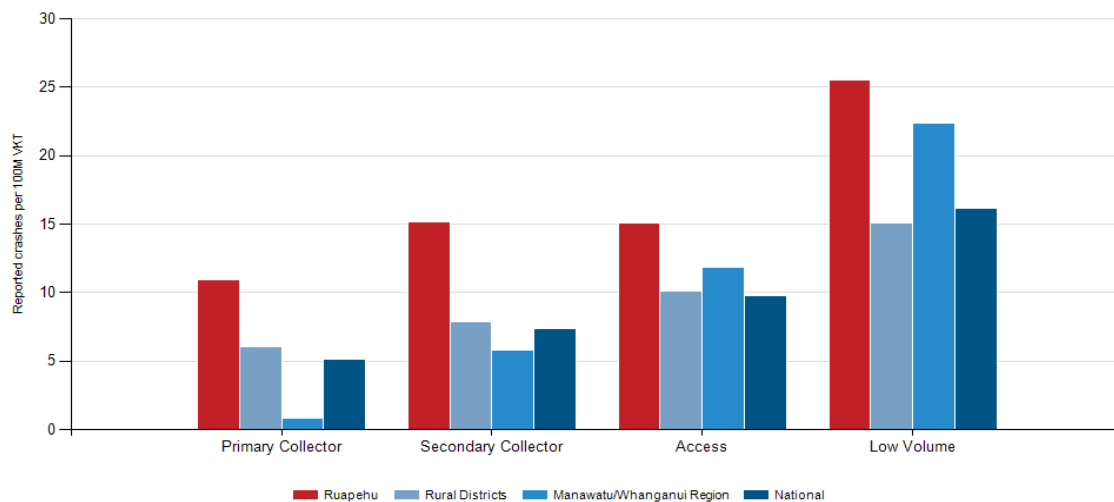
Safety

Collective and Personal Risk risk ratings were devised by the New Zealand Road Assessment Programme (KiwiRAP – a partnership between the Automobile Association, NZ Transport Agency, Ministry of Transport, ACC and NZ Police). These measures take in the last 10 years of information, the risk for primary collectors may be distorted due to the length of primary collectors (excluding OMR) in the district.

As discussed in Problem 4 - Safety (section B02.6.5) safety is a strategic problem that the District is focused on. While DSI numbers are low they are not decreasing either and the risk ratings compare unfavourably for rural, regional and national results for personal risk.

Personal risk measures the danger for each road user. Our personal risk is higher than our peers in each category.

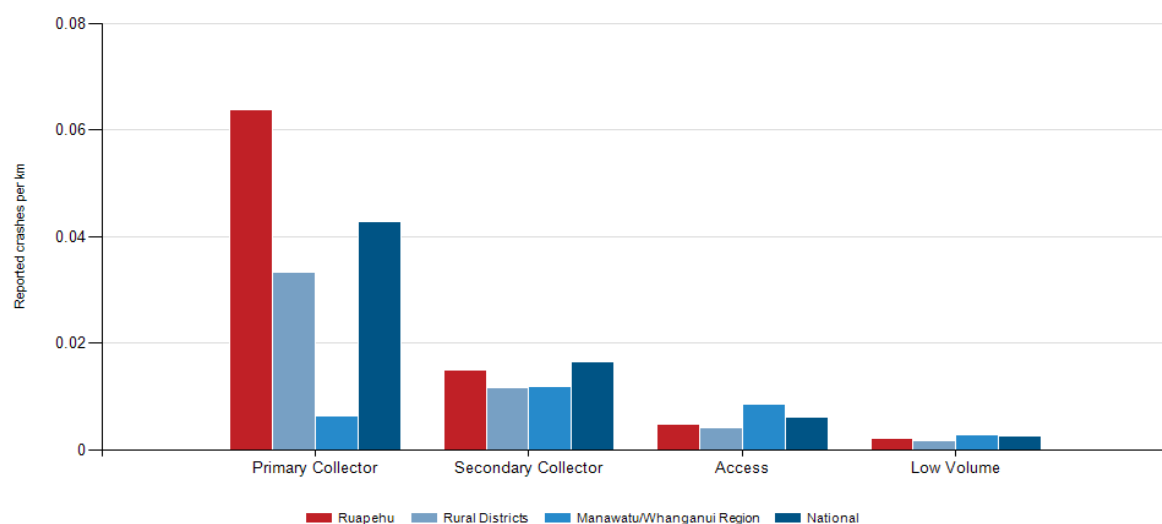
FIGURE B.15: THE TOTAL NUMBER OF REPORTED CRASHES BY TRAFFIC VOLUME EACH YEAR ON THE NETWORK



We are addressing issues through our work programmes such as minor safety, River Valley Engagement, and when we design flood damage and pavement rehabilitation repairs. We also regularly inspect the network for safety deficiencies that can be addressed through our maintenance programme. This measure takes in the last 10 years of information, the risk for primary collectors may be distorted due to the length of primary collectors (excluding OMR) in the district.

Collective risk is a measure of the total number of Death (Fatalities) and Serious Injuries (DSI) per km over a section of road.

FIGURE B.16: SAFETY CUSTOMER OUTCOME 2 – COLLECTIVE RISK - SERIOUS INJURIES AND FATALITIES (DSI) PER KM OF ROAD BY ONRC CATEGORY



We are addressing issues through our work programmes such as minor safety, River Valley Engagement, and when we design flood damage and pavement rehabilitation repairs. We also regularly inspect the network for safety deficiencies that can be addressed through our maintenance programme. This measure takes in the last 10 years of information, the risk for

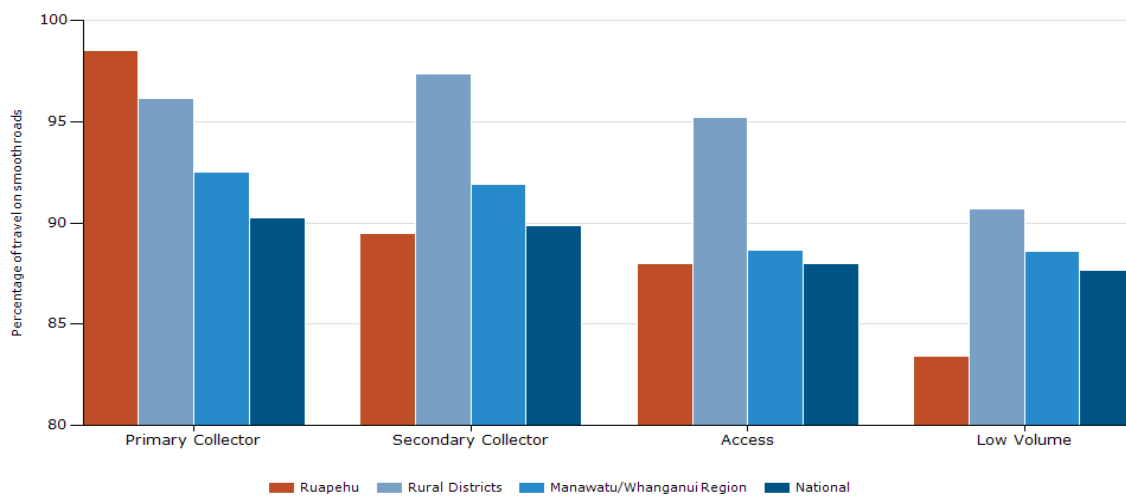
primary collectors may be distorted due to the length of primary collectors (excluding OMR) in the district.

Amenity

The amenity measures review the smoothness or roughness of a ride road users experience.

Smooth Travel Exposure(STE) is a measure of the percentage of kilometres travelled that are considered smooth.

FIGURE B.17: AMENITY CUSTOMER OUTCOME 1 – SMOOTH TRAVEL EXPOSURE (STE) BY ONRC CATEGORY



With the exception of primary collector roads, we are under performing against our peers, region and country. We know that we don't know what is under a lot of our roads. We also know that logging and heavy traffic are present on our low volume and access roads. The combination of heavy traffic on roads without much underlying support results in defects.

Peak roughness shown here is a measure of the 95th percentile of NAASRA values.

FIGURE B.18: AMENITY CUSTOMER OUTCOME 2 – PEAK ROUGHNESS (95TH PERCENTILE) – URBAN SEALED ROADS

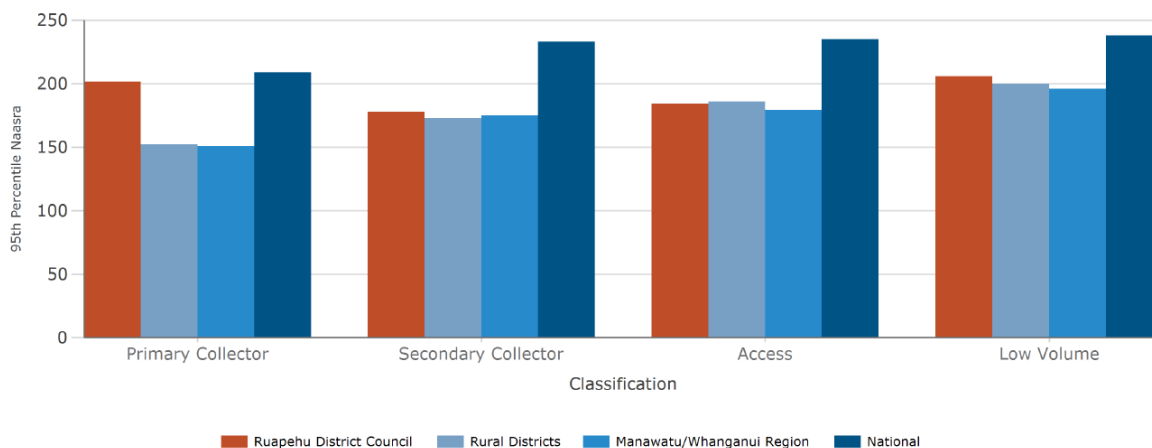
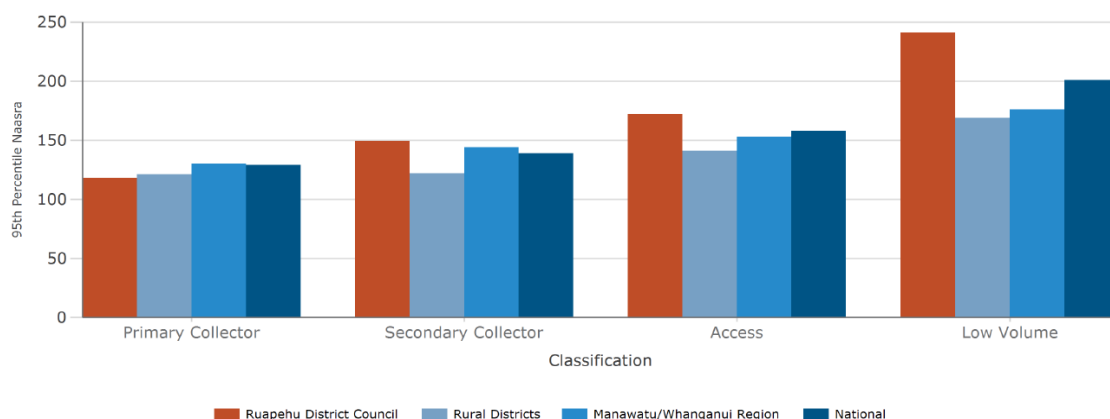


FIGURE B.19: AMENITY CUSTOMER OUTCOME 2 – PEAK ROUGHNESS (95TH PERCENTILE) – RURAL SEALED ROADS

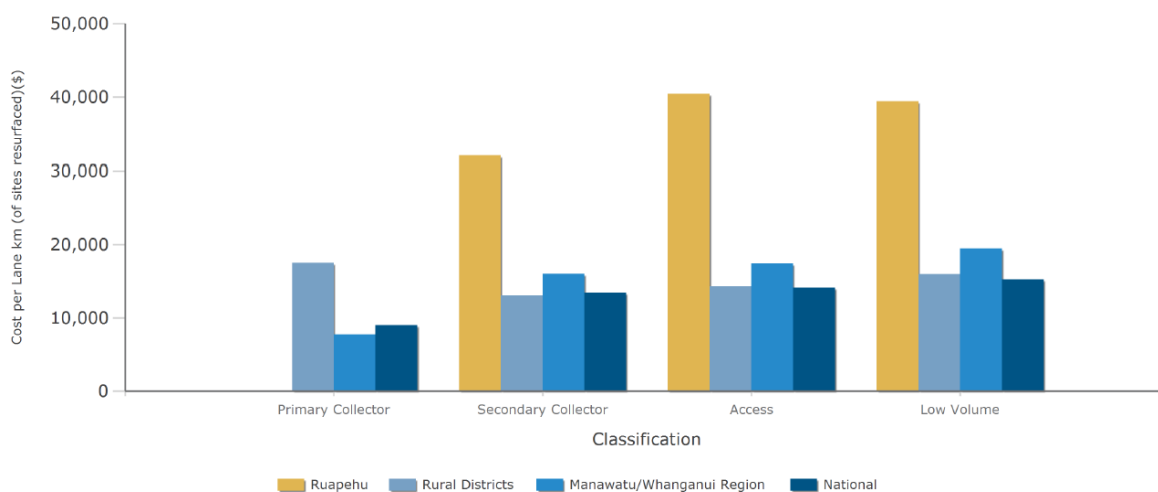


As with STE the same trend can be seen in the peak roughness comparisons, outside of the primary collector. In urban areas, we are on a par with our peers, but rurally (where the access and low volume access roads are predominantly located) we are an outlier. Our pavement rehabilitation programme in this AMP is rurally targeted.

Cost Efficiency

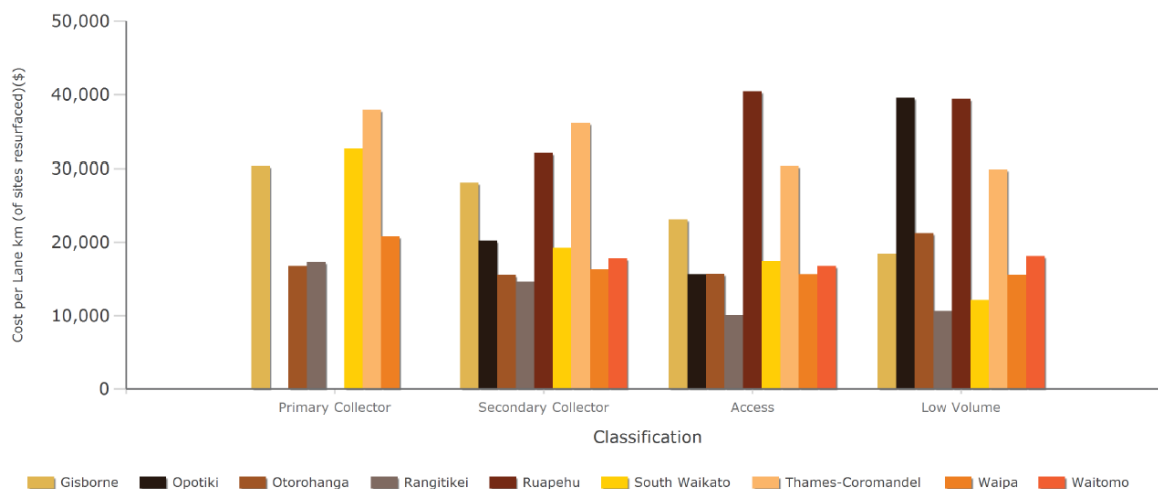
Districts costs for chipseal per lane km are shown below (2018/19)

FIGURE B.20: COST EFFICIENCY 2 – CHIPSEAL RESURFACING (COST) 2018/19



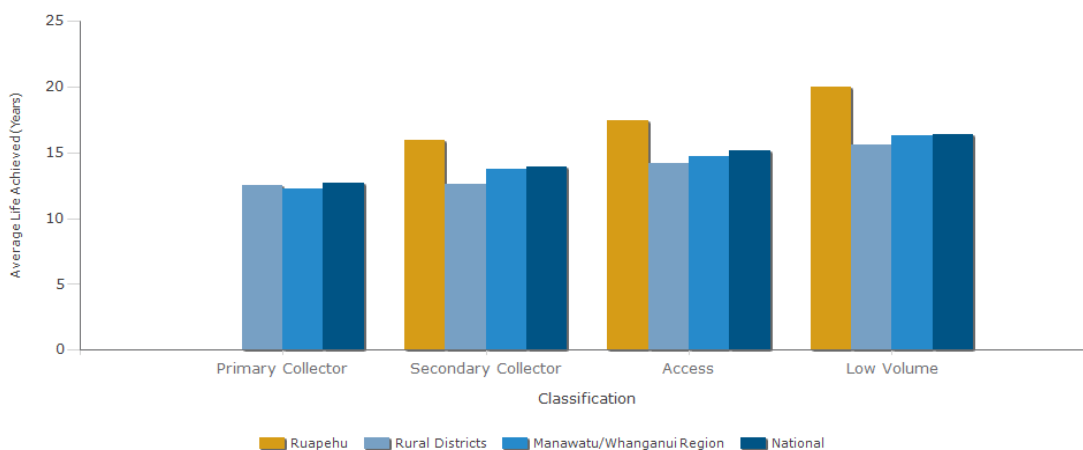
Districts costs are significantly higher than any of the benchmarking groups. In part this is due to the remoteness of the district. This can be seen when the Councils costs are compared with other remote North Island Districts below.

FIGURE B.21: COST EFFICIENCY 2 – CHIPSEAL RESURFACING (COST) 2018/19 NORTH ISLAND REMOTE DISTRICTS



As can be seen some other remote districts also have higher chipseal surfacing costs. These costs are a function of the contract model, technical expectations and procurement process. Council is confident that its contract model and technical requirements are in line with industry good practice, and as such the costs are the result of an open and competitive process and therefore the best that Council could get at the time of tender.

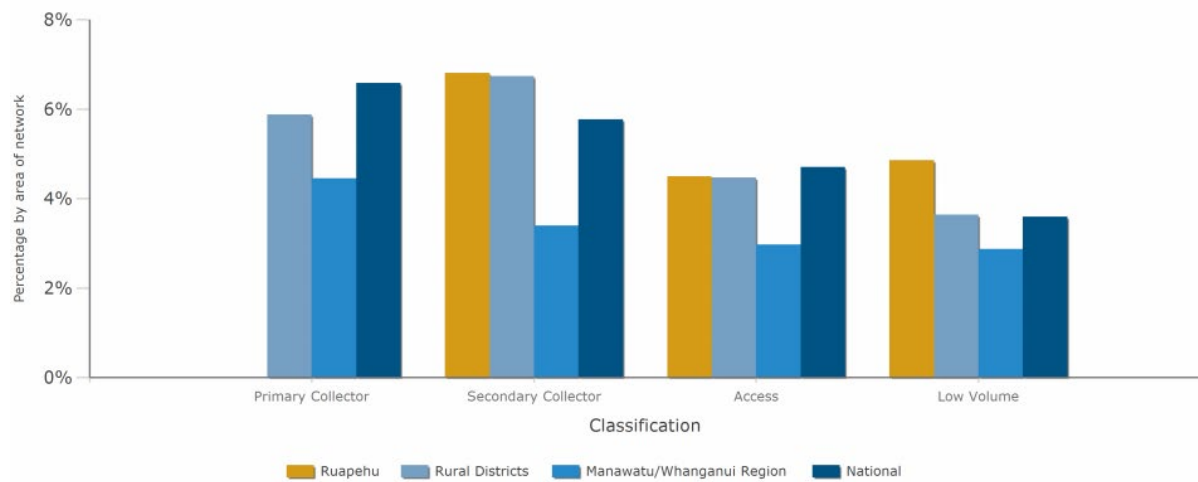
FIGURE B.22: COST EFFICIENCY 2 – CHIPSEAL RESURFACING (AVERAGE LIFE ACHIEVED) (2018/19)



Council is achieving (on average) a longer life from its surfaces prior to renewing them. This can reflect the result of some good maintenance practices but there when also looking at the STE results it can indicate that some surfacing is being stretched too far before it is renewed.

It also relates to a backlog of reseals with the budget not aligning to resurfacing needs. This budget has been increased in this AMP to address this issue.

FIGURE B.23: COST EFFICIENCY 2 - CHIPSEAL RESURFACING (PERCENTAGE RESURFACED) (2018/19)



Percentage of network surfacing renewed is now in line with peers with further funding in this AMP to reduce the reseal backlog.

We are in line with our peer group for resurfacing percentage of access and Low Volume roads but lagging in secondary collector classification.

Ruapehu designs pavements to last 25 years but expects them to have a 70 year return period. There was significant underinvestment following amalgamation in 1989 until 2005. There are a high number of sealed pavements that were constructed in the 1950s which are showing signs of stress and fatigue. In addition, key forestry routes are showing signs of significant deterioration. The rehabilitation programme in this AMP continues on the current target length to address this.

B03 PROGRAMME BUSINESS CASE

B03.1 Developing the Programme

The Programme Business Case considers the options for investment.

It provides the strategic response of the planned future state, identifies a programme of works or activities that deliver on the strategic case. Asset management information identifying maintenance, operations, renewals and improvement / new works.

Provides robust evidence that a decision to invest in a programme of work represents best value for money. Identifies a long list of alternatives, options, potential costs and identifies a preferred programme of activities to progress.

The investment required is a complicated balance across both spending in different programmes as well as the movement of budgets within the programmes. The strong focus is that the investment will deliver the best long term value for money across the full life of the assets while providing the appropriate levels of service to the customers.

B03.1.1 Identifying the Programmes

The following work programmes have been identified by Council and are aligned to the Activity Management sections. You will therefore find additional analysis and information within each of the individual activity management sections. This includes:

- At the start of each Activity section is a table that provides commentary on how it contributes toward addressing the problem statements and a second table that comments on how it contributes positively towards customer level of service
- Any strategies or policies that apply to these programmes are documented

The table below shows where the programmes contribute to addressing the problems identified in the Strategic Case (Section B02).

TABLE B-10: PROGRAMMES AND THEIR CONTRIBUTION TO THE PROBLEM STATEMENTS

Work Programme	Section	Forestry & Land Use	Needs & Expectations	Climate, Topography & Geology	Safety
Minor Safety Improvements	D02		Yes		Yes
Emergency Works	D02		Yes		Yes
Pavements	D03	Yes	Yes	Yes	Yes
Road Structures	D04	Yes	Yes		Yes
Drainage	D05		Yes	Yes	Yes
Traffic Services	D06		Yes		Yes
Footpaths	D07		Yes		Yes
Cycleways	D08		Yes		

Work Programme	Section	Forestry & Land Use	Needs & Expectations	Climate, Topography & Geology	Safety
Bus Shelters	D09		Yes		
Facility Roads & Carparks	D10		Yes		
Environmental Services	D11		Yes		Yes
Network & Asset Management	D12	Yes	Yes	Yes	Yes

B03.2 Programme Alternatives & Options

B03.2.1 Programme Alternatives (non-asset solutions)

The following table lists non-asset alternatives for each of the programmes. Council endeavours to consider all of these options when optioneering and when appropriate to the situation.

The value of these alternatives are when they can support:

- A reduction in demand for use of assets
- A reduction in physical works expenditure
- An improvement to a current level of service.

TABLE B-11: PROGRAMME ALTERNATIVES

Programme	Alternatives (non-Asset Solutions)
Minor Safety Improvements	<ul style="list-style-type: none"> • Increase driver education and safety campaigns • Consider reduction of speed limits on high risk roads • Review and improve design and engineering standards • Consider creating sight benches on windy roads
Emergency Works	<ul style="list-style-type: none"> • Where a slip occurs and closes a lane, during an emergency event, leave it closed if the traffic volumes mean there will be no undue delays caused by just a single lane • Leave a road closed if there is an acceptable alternative route
Pavements	<ul style="list-style-type: none"> • Close or cease public ownership of certain roads of very low or single property usage, when appropriate • Develop end user maintenance agreements for single owner roads, where appropriate • Dig up sealed roads and revert them back to unsealed roads where traffic volumes are low enough and the costs to maintain and renew can be reduced • Advocate for passenger transport options that reduce demand on the use of roads, ie public transport routes across the District • Campaign for passenger transport options that reduce demand on the use of roads ie rideshare, active travel modes • Allow some unsealed roads to narrow when low traffic volumes indicate that the current width is above the minimum standard
Road Structures	<ul style="list-style-type: none"> • Close, demolish or cease public ownership of certain structures of very low or single property usage, when appropriate • Increase or impose weight and / or speed restrictions • Where feasible replace low volume bridges with fords or level crossings

Programme	Alternatives (non-Asset Solutions)
Drainage	<ul style="list-style-type: none"> • Allow more surface flooding where feasible • Infill berm between parallel kerbs and stop maintaining the inner kerb where feasible • Join planning with councils infrastructure divisions (roading, 3 waters and open spaces)
Traffic Services	<ul style="list-style-type: none"> • Reduce quantity (and therefore level of service) of lighting, signage and road marking to reduce maintenance and renewal costs
Footpaths	<ul style="list-style-type: none"> • Walking and cycling strategy to ensure that investment made is in the correct locations
Cycleways	<ul style="list-style-type: none"> • Walking and cycling strategy to ensure that investment made is in the correct locations
Bus Shelters	<ul style="list-style-type: none"> • Relocate shelters • Remove unused bus shelters
Facility Roads & Carparks	<ul style="list-style-type: none"> • Get involved at planning of new facilities and carparks to influence the design to allow for reduced total cost of life
Environmental Services	<ul style="list-style-type: none"> • Reduce spray frequency • Reduce berm mowing frequency • Confirm Levels of Service are still appropriate to Customer Levels of Service and climate change
Network & Asset Management	<ul style="list-style-type: none"> • Not Applicable

B03.2.2 Programme Options

A 2016 NZ Transport Agency Technical Audit highlighted issues with safety and the condition of the network, noting that the network showed evidence of expenditure being at the level of affordability, rather than need. The 2018 AMP began work to address this, leveraging from increased financial assistance levels that began the same year. This AMP continues to address the same issue, working to further align affordability and need more closely.

We recognise that this won't be fully achievable in this AMP period but it supports the direction that Council is wanting to move in.

On that basis, there will always be a healthy tension between affordability and need.

To consider the impacts of different funding options, we have considered three funding levels to evaluate for our work programmes.

- **Low** - A reduced level of expenditure when compared to the current levels
- **Medium** - Equivalent to the current level of expenditure with possibly some minor adjustments within programmes or across programmes
- **High** - An increased level of expenditure when compared to the current levels

At a high level, some of the broader impacts would be:

- Low - more reactive work with increased risks of unexpected costs and higher long term costs
- Medium - status quo with only limited ability to address the strategic problem statements
- High - increased proactive work to reduce longer term costs

The table below provides an assessment of the impacts, including risks and consequences, these different funding options would have on the different work programmes.

TABLE B-12: QUALITATIVE IMPACT ANALYSIS OF FUNDING OPTIONS

Low	Medium (Current)	High	Decision
Minor Safety Improvements			
<ul style="list-style-type: none"> ● Reduction in safety improvements delivered ● Reduces ability to improve safety outcomes and Road to Zero vision ● LoS Impacts: <ul style="list-style-type: none"> ○ No improvement to crash statistics 	No Effective Change	<ul style="list-style-type: none"> ● Increase in safety improvements delivered ● Increases ability to improve safety outcomes and Road to Zero vision ● LoS Impacts: <ul style="list-style-type: none"> ○ Expect an improvement on crash statistics 	Medium
Emergency Works			
<ul style="list-style-type: none"> ● As emergency works are funded based on events occurring this programme is not affected by this analysis 	No Effective Change	<ul style="list-style-type: none"> ● As emergency works are funded based on events occurring this programme is not affected by this analysis 	Medium
Pavements			
<ul style="list-style-type: none"> ● Maintenance: Reactive maintenance budget will need to be increased due to the reduction in resurfacing and rehabilitation works ● Renewals: Reduced budget due to both the reduction in investment and the need to move further funds to maintenance to compensate for the expected increase in maintenance works ● Further wider long term impacts could result from having to focus the limited renewals investment on to the forestry routes ● Risk of not being able to keep up with pavement failures, increasing safety risk to users. (Problem Statement 4) ● Risk of not being able to keep up pavement renewal required within existing budget on forestry haul routes. (Problem Statement 1) ● Other pavements in need of renewal are delayed, increasing reactive maintenance costs (Problem Statement 1) ● LoS Impacts: <ul style="list-style-type: none"> ○ Higher roughness ○ Decreasing safety ○ Reliability and resilience may be impacted 	<ul style="list-style-type: none"> ● Renewals: Begin to catch up on underachievement in reseal lengths ● Maintain existing pavement renewal rate (70 yr return period) ● Metal strengthening on key unsealed routes 	<ul style="list-style-type: none"> ● Maintenance: Ideally keep this budget as close to existing as possible so the investment in renewals can be increased ● Renewals: Significant cumulative benefits by increasing resurfacing and rehabilitation works that lower the average age of the asset base and have an effect of lowering the maintenance need. This frees up maintenance funding to deal with other backlogs or areas struggling to meet expected levels of service ● Pavement rehabilitations would be targeted at forestry transport routes in advance, reducing the risk to Council from unexpected failures on the forestry routes ● Ability to address pavement failures, increasing safety for users. (Problem Statement 4) ● Ability to keep up pavement renewal required within existing budget on forestry haul routes. (Problem Statement 1) ● Better reliability ● LoS Impacts: <ul style="list-style-type: none"> ○ Lower average roughness ○ Possible improved safety 	Medium

Low	Medium (Current)	High	Decision
Road Structures			
<ul style="list-style-type: none"> ● Maintenance: Try not to reduce critical maintenance actions that could have high risk downstream consequences to the life of the asset or risk of sudden failure ● Component Replacements and Structures Renewals decreased but not to level required ● Increase in bridges needing to be have loading and / or speed restrictions applied (Problem Statement 1 & 2) ● More locals impacted by restricted bridges including economic impact for some businesses ● LoS Impacts: <ul style="list-style-type: none"> ○ Decreasing safety ○ Limiting access to network (weight restrictions) ○ Reduced reliability and resilience 	<p>No Effective Change</p>	<ul style="list-style-type: none"> ● Maintenance: Improvement in systematic approach to inspection programmes leading to a clearer identification of maintenance need, requiring increase to investment. ● Renewals: Significant increase to support the repainting of bridges (expensive work) to get long term life improvements ● Renewals: Significant increase to address the number of restricted bridges that are medium term safety risks and / or having an economic impact on the businesses that live after the restriction ● Ability to address required bridge repairs (Problem Statement 1 & 2) ● LoS Impacts: <ul style="list-style-type: none"> ○ No decrease in safety ○ Maintain or improve access to network (weight restrictions) ○ Maintain and improve reliability and resilience 	<p>High</p>

Low	Medium (Current)	High	Decision
Drainage			
<ul style="list-style-type: none"> ● Maintenance: Reduction in funding for drainage clearing and keeping the side drains to the right depth and shape ● Renewals: No funds available to increase the size of culverts when damaged and need to be replaced. ● Improvements: No funds available to proactively improve drainage to meet current standards and cope with the increasing frequency and size of rain events (climate change) ● Poorer side drainage will lead to an increase in pavement maintenance as the pavements become more saturated permanently or with slower recovery after rain events ● LoS Impacts: <ul style="list-style-type: none"> ○ Reduction in reliability and resilience in emergency events ○ Reduction in amenity as pavements affected by water 	<p style="text-align: center;">No Effective Change</p> <ul style="list-style-type: none"> ● LoS Impacts: <ul style="list-style-type: none"> ● Maintain current LoS achievement 	<ul style="list-style-type: none"> ● Maintenance: Increase frequency to less than 8 year water channel cleaning programme to maintain and preserve pavement integrity. Maintain existing network ● Renewals: Pavement integrity protected with ongoing programme. ● Incidences of flooding not increased and keeps up with likely increase in intensity of rain events ● LoS Impacts: <ul style="list-style-type: none"> ○ Improvement in reliability and resilience ○ No reduction in level of service for pavements affected by water 	Medium
Traffic Services			
<ul style="list-style-type: none"> ● Maintenance: reduced budgets leading to reduction in the frequency of some cyclic maintenance, eg: painting of railings, painting of line markings ● Renewals: same budget as mostly reactive to damaged assets ● Improvements: Slow down in rollout of LED programme ● Signs get dirtier and not fixed as quickly ● Street lighting power usage doesn't decrease due to LED programme ● Risk in more crashes occurring due to an asset in poor conditions, eg: line marking that has faded ● LoS Impacts: <ul style="list-style-type: none"> ○ Reduction in current amenity and safety 	<p style="text-align: center;">No Effective Change</p> <ul style="list-style-type: none"> ● LoS Impacts: <ul style="list-style-type: none"> ● Current amenity and safety LOS are maintained 	<ul style="list-style-type: none"> ● Maintenance: maintain current budget and look at some possible increases to painting and cleaning works ● Renewals: same budget as mostly reactive to damaged assets ● LoS Impacts: <ul style="list-style-type: none"> ○ Current amenity and safety LOS are maintained and slightly improved 	Medium

Low	Medium (Current)	High	Decision
Footpaths			
<ul style="list-style-type: none"> ● Maintenance: increase in maintenance because of the reduction on renewals leading to more safety related faults that need to be addressed ● Renewals: Minimal to no budget available for renewals ● Increase in customer complaints relating to usability and trip hazards ● The lack of renewals will eventually lead to not enough maintenance budget causing a deterioration downward spiral ● LoS Impacts: <ul style="list-style-type: none"> ○ Reduction in amenity and safety 	<p style="text-align: center;">No Effective Change</p> <ul style="list-style-type: none"> ● LoS Impacts: <ul style="list-style-type: none"> ● Maintain amenity and safety 	<ul style="list-style-type: none"> ● Maintenance: Increase budget to a level that achieves the desire LoS for condition and usability of the footpaths ● Maintenance: Broaden focus to also look at what investment can be made to improve the footpath amenity, including vegetation maintenance beside the path network ● Renewals: Ability to make minor improvements as part of renewals, like width improvements to bring paths up to current engineering standards ● Improvements: Increase in rollout of new footpaths to bring more existing streets up to the expected LoS ● LoS Impacts: <ul style="list-style-type: none"> ○ Improvement to amenity and safety 	Medium
Cycleways			
<ul style="list-style-type: none"> ● As a relatively small and new set of assets the current budget covers the basics needed so not much room to decrease or need to increase budgets ● LoS Impacts: <ul style="list-style-type: none"> ○ No change 	No Effective Change	<ul style="list-style-type: none"> ● As a relatively small and new set of assets the budget covers the basics needed so not much room to decrease or need to increase budgets ● LoS Impacts: <ul style="list-style-type: none"> ○ No change 	Medium
Bus Shelters			
<ul style="list-style-type: none"> ● As a small set of assets the current budget covers the basics needed so not much room to decrease or need to increase budgets ● LoS Impacts: <ul style="list-style-type: none"> ○ No change 	No Effective Change	<ul style="list-style-type: none"> ● As a small set of assets the current budget covers the basics needed so not much room to decrease or need to increase budgets ● LoS Impacts: <ul style="list-style-type: none"> ○ No change 	Medium
Facility Roads & Car Parks			
<ul style="list-style-type: none"> ● As a small set of assets the current budget covers the basics needed so not much room to decrease budgets ● LoS Impacts: <ul style="list-style-type: none"> ○ No change 	No Effective Change	<ul style="list-style-type: none"> ● Maintenance: More proactive inspections of the carparks and facility roads leads to a clearer picture that more maintenance is needed ● Renewals: These assets are inspected and included in the future renewals programme requiring investment ● Bring assets up to an acceptable LoS ● LoS Impacts: <ul style="list-style-type: none"> ○ Improvement to current amenity 	Medium

Low	Medium (Current)	High	Decision
Environmental Services			
<ul style="list-style-type: none"> • Reduction to vegetation maintenance leading to deteriorating sightlines • Risk of increase in crashes when sightlines in adequate, particularly at intersections and driveways • LoS Impacts: <ul style="list-style-type: none"> ○ Decreasing safety ○ Reduction in amenity 	No Effective Change	<ul style="list-style-type: none"> • Increase in investment to support improved sightline maintenance • LoS Impacts: <ul style="list-style-type: none"> ○ Improvements to safety 	Medium
Network & Asset Management			
<ul style="list-style-type: none"> • Reduced frequency of asset and network inspections and data collection • No improvements to existing data collection methods • Data collected but not utilised • No improvements to data quality • Forward work programmes less optimised • Very limited ability to deliver on any part of the asset management improvement programme • Reduction in ability to respond to customer complaints and questions, in a timely manner 	No Effective Change	<ul style="list-style-type: none"> • Ability to make a step change in asset and network data quality • Improvements to the ways that data are utilised for improved decision making • Ability to invest in automating some process and analytics • Initiate systematic inspections of retaining walls • Improved customer levels of service • Ability to implement a data driven approach to the management of the new Road Maintenance and Renewal contracts 	Medium

B03.3 Recommended Programme of Works

For the majority of programmes Council is maintaining the current level of funding (Medium option). They will continue to optimise and focus on improving decision making to optimise the use of these funds within each of the programmes.

See the Financial Summary (Section E02) for the final funding recommended for each of the work programmes.

For detailed information about the activities and lists of specific works in the programmes, then refer to Activity Management (Section D).

B03.4 Programme Risk

Risks associated with the Recommended Programme are identified in Managing Risk (Section C02) and Appendix D.

B03.5 Programme Financial Case

Further financial details can be found in Finances (Section E), indicating any agreements or understanding in place with commissioning bodies and/or any affordability gaps.

B04 DELIVERING THE PROGRAMME

The Council maintains ownership and responsibility for managing the delivery of the land transport activities and programmes of work.

Council procures professional service and physical work suppliers to supplement their internal resources to deliver the programme. The following sections provide further details on the approach that Council uses.

The management and administration of Council’s Land Transport assets is undertaken by the Land Transport Professional Business Unit, a small team of Council staff. The Asset management plan is delivered through eight physical works service contracts, two aggregate supply contracts and one Professional Services contract Council.

B04.1 Procurement

B04.1.1 17A Review

Land Transport delivery will be considered as per the requirements of the Local Government Act 2002 Section 17A Delivery of Services review in 2020/21.

B04.1.2 Procurement Strategy

Council’s approved procurement strategy is called “Procurement Strategy 2020-23. Making the most of what we have.”

Its focus is on getting better value from existing contracts and relationships.

Procurement Plans are prepared for specific large works procurement (eg: road maintenance) and are expected to include a more detailed look at options and the best methods in the current environment for the Council to achieve the best value for money.

All work (subsidised and unsubsidised) is carried out using contracts let in accordance with competitive pricing procedures (CPP), on a performance basis wherever possible.

TABLE B-13: KEY RISKS & ISSUES

Key Issue	Description	Strategies to Address Key Issues
Limited contractor interest	Despite work bundling, the infrastructure industry in New Zealand is stretched with a general shortage of experienced technical personnel, leading to limited contractor interest in provincial tenders and risk of uncompetitive prices.	Procurement strategy supports procurement types to stimulate the market, such as unbundling of contracts. Communicate forward work to market.
Skill shortages	Demand is high throughout NZ for skilled workers.	Procurement strategy identifies that training and succession planning are key elements

Key Issue	Description	Strategies to Address Key Issues
Strong contractor market	Fully encompassing contracts risk depleting the market of subcontractors	Procurement strategy supports procurement types to stimulate the market, such as unbundling of contracts. Communicate forward work to market.
Increasing contract prices	Most of the roading contract terms finish in June 2022 and Professional Services in June 2023. Forecasts used in the AMP assume current prices will hold. Recent national feedback from the initial bids to Waka Kotahi NZTA in October 2020 show this may be unlikely	Optimise roading programme in years 2 and 3 of 21/24 block further to respond to contract tensions. Procurement strategy supports procurement types to stimulate the market. Communicate forward work to market.

B04.1.3 REG Smart Buyer Assessment

Council has assessed itself against the Smart Buyer guidelines of the Road Efficiency Group in January 2020 and is in the range “Our organisation has embraced Smart Buyer principles and still has some areas where it can improve”. While Council employs best appropriate practice procurement, contracting, network management practices that comply and NZTA Procurement Manual requirements, the follow items for improvement will be the focus

- The exploration of opportunities to increase engagement with industry in order to provide longer term views of the capital works pipeline
- Council’s procurement strategy has identified that the best strategic opportunity lies in getting better value from its existing contracts and relationships and will focus on improving the long term value.
- While Council, with its Network Management Consultant, have close working relationships with contractors, there is still an opportunity to develop a more formal relationship in receiving candidate feedback from supplies as to the performance of council as a client.

The full January 2020 Smart Buyer Assessment can be found in Appendix J.

B04.2 The Council Team

The Council’s Land Transport team is responsible for the delivery of the land transport, through overview of delivery, financial accountability, policy, strategy, customer services, political reporting and relationships and stakeholder relationships.

Network management and physical works are contracted services to Council.

This wider transport team, that includes network consultants and works contractors, has a strong working relationship which supports improved outcomes.

Council’s delivery structure for Land Transport is described below:

Within Council (list in hierarchical order)

- Chief Executive | Clive Manley
- Land Transport and Economic Development Manager | Warren Furner
- Team Leader | Andrea Nicol
- Land Transport team members

External Contracts

- Network Management and Professional Support x 1
- Physical works contracts x 9

Refer to “Part 1 | Who we are” for information on Council’s organisational charts and delegations

Contract Execution

Contractors are required to programme and report comprehensively on the execution of the works. The contract documents specify technical standards required and define response times and cyclic inspection periods.

B04.3 Professional Services

The Council Procures the following professional services to deliver this plan:

Network Management Consultant | GHD | 2015 to 2023

- Professional advice, design, project management, reports
- Recommendations for strategies, programmes, projects and expenditure
- Network operations and management
- Preparation and procurement of maintenance and capital works contracts
- Contract administration and monitoring
- Asset Management
- Asset information capture
- Assist in the programme development and delivery as required
- Bridge management and inspections
- Implementation of Strategies and Policies
- Survey
- Engineering Design
- Environmental Consulting
- Review of new developments and assets
- Traffic Counting
- Corridor Access Requests (CARs) and Traffic Management Plans (TMPs) management
- Temporary Traffic Management Auditing

Network Condition Suppliers as required:

- Road Roughness
- Visual Condition Rating
- Pavement Testing

Other Services that require other suppliers:

- Engineering consulting (not provided by the Network Management Consultant)
- Procurement

B04.4 Physical Works

All maintenance, renewals and capital improvements are carried out through a variety of contracts.

The current maintenance and renewals term contracts are listed below. The majority expire after year 1 of this Plan. A Section 17A review (LGA 2002) and procurement plan will be developed in 2020/21 to address this.

TABLE B-14: CURRENT LAND TRANSPORT TERM CONTRACTS

Ref	Contract	Contract Period	Contract Start	Contract End Minimum	Contract End Maximum
1667	Alf Downs Street lighting Ltd Streetlight Maintenance	2Yr 10mth+3	1 Sep 16	30-Jun-22	30-Jun-22
1720	Downer NZ Ltd General Maintenance	5+3 (in Yr 6)	1-Oct-14	30-Jun-22	30-Jun-22
	Sealed Pavement Maintenance	5+3 (in Yr 6)	1-Oct-14	30-Jun-22	30-Jun-22
1721	Jilesen Group Ltd Unsealed Pavement Maintenance	5+3 (in Yr 6)	1-Oct-14	30-Jun-22	30-Jun-22
	Heavy Maintenance and Improvements	5+3 (in Yr 6)	1-Oct-14	30-Jun-22	30-Jun-22
	Pavement Rehabilitation	3+2+3 (in Yr 6)	1-Oct-14	30-Jun-22	30-Jun-22
1722	J & J Walters Ltd Reseals	3+2+3 (in Yr 6)	1-Oct-14	30-Jun-22	30-Jun-22
1723	Emmetts Civil Construction Capital Bridge Repairs	3+2+3 (in Yr 6)	1-Oct-14	30-Jun-22	30-Jun-22
1724	Mulch & Mow Vegetation Control	5+3 (in Yr 6)	1-Oct-14	30-Jun-22	30-Jun-22
1725	Agspec Ltd Plant Pest Control	5+3 (in Yr 6)	1-Oct-14	30-Jun-22	30-Jun-22
1726	KC Quarries Aggregate Supply	Annual	1-Oct-14	30-Jun-22	30-Jun-22
1727	Byfords Construction 2014 Ltd Aggregate Supply	Annual	1-Oct-14	30-Jun-22	30-Jun-22
1728	Inframax Aggregate Supply	Annual	1-Oct-14	30-Jun-22	30-Jun-22
1741	Roadmarking Services Ltd District Roadmarking	2 Years	1-Oct-14	30-Jun-22	30-Jun-22
1742	Ruapehu Alpine Lifts Ohakune Mountain Road Traffic Management	3 year (in Yr 3)	1-Jun-16	30-Jun-19	30-Jun-19*

*The Ohakune Mountain Road Traffic Management Contract is in the process of being renewed.

The following specific strategies are adopted, in addition to the general strategies discussed at the beginning of this section.

Council has endeavoured to make its contracts as effective as possible. To this end, the above contracts were designed to separate all the services required for maintenance, emergency works and significant projects into similar work types. The contractors are obliged to subcontract with appropriate local contractors for specific projects where appropriate. For specific large projects, Council may exercise its right to contract with alternative contractors.

Work Prioritisation

The programme of works is fiscally responsible and includes evidence-based, risk-based supporting analyses, included the following:

- Best value solutions to address the specific key problems and demands identified
- Comparison of network condition trends with past expenditure levels
- Benefit cost ratio (BCR),
- Life cycle analyses including consideration of annual depreciation of asset
- Effectiveness of historical programmes and expenditures
- Considerations of the costs, benefits and risks of alternatives and options

Performance Management

Contract performance is undertaken by the Professional Services Consultant. This includes:

- Monthly contract meetings
- Tracking deliverables and milestones
- Monthly programming discussions for maintenance contracts
- Financial management
- Performance management, including undertaking PACE scores

The Land Transport Team Leader also attends monthly contract meetings to ensure the connection through to the ultimate client is maintained in the contractor relationships.

A new Forward Works Programme (FWP) data design has been implemented in RAMM that provides a single source of the truth for programmes being delivered and tracking the status and delivery progress.

Confidence in Delivery

Agile | The different physical work contracts require the appropriate level of management and flexibility to deal with changing situations. For example a contract to deliver a capital project has a clear scope and definition from start to end of the project, whereas maintenance contracts need to react to situations that can change on a daily basis during an emergency event (eg: severe storm). The more dynamic needs are managed through strong relationships on a daily basis through to formal monthly meetings and programming processes.

Clarity | Council has valued creating clarity in its information, programmes and business practices through the update of this AMP. This is reflected in:

- Creation of an online collaborative register for improvement tasks management and integrated with risk management
- Creation of a new FWP data setup in RAMM to act as a single source of truth for managing current and future renewal and capital works
- Utilisation of GHD's MAX.quality to create standardised data analysis and reporting from RAMM data for consistent and efficient use in the AMP
- A major document structure upgrade to provide consistency across sections, especially across the lifecycle management sections
- A major document review to reduce duplication of information across the AMP

Resources | While there can be challenges attracting and retaining skilled resources in the regions, Council has achieved access to the right skills to deliver the work programme through the core team provided through the Professional Service contract and through the wider resources that the Professional Service contract have across New Zealand.

Continuous Improvement | Council has invested heavily in improving its AMP and asset management practices, but this is part of a permanent programme of review and improvements. Councils has established an Asset Management Improvement programme which is currently tracking over 140 improvement tasks at various stages of delivery.

Sound Financial Delivery | Council has a good track record delivering the financial programme over each of the last three years of the 2018-21 funding block.

Sound Programme Delivery | The REG data quality measures that track delivery against the programme held in TIO indicates approximately 75% of the programme is being delivered but this result has been undermined by some asset data timing issues. This is being investigated and processes will be improved to ensure the right data is entered into RAMM in a timely fashion. With some room for improvement, Council is also implementing some improvements to support more transparency on the programme delivery. Integration / Partnering

The Land Transport Team integrates and partners in a number of ways. Here are some examples:

- Leads a Transport Demand Management group on behalf of Council with external partners to address road safety, congestion and environmental issues associated with visiting the Tongariro National Park and two ski fields in winter. This includes solutions such as passenger transport, parking demand, signage and customer information.
- Leads the Ohakune Mountain Road Joint Advisory Committee which comprises the Department of Conservation, Ruapehu Alpine Lifts and iwi to manage Ohakune Mountain Road to it's Memorandum of Understanding.
- Member of the Horizons Regional Advisory Group, which comprises the Local Authorities within the Horizons Region. Opportunities for collaboration are explored in this Group.

- Leads Road Safety Action Group with Waka Kotahi, Police and Horizons addressing road safety issues.
- Plans to collaborate with Waka Kotahi on speed management issues where highway and local roads are affected.

B04.5 Programme Monitoring

The Land Transport Team provides reporting to the Executive Management Team and Council on the progress of delivery of the programme

Performance scorecard systems are used to manage contractual performances and provide opportunities for regular open dialogue with the suppliers.

Network consultant runs monthly supplier meetings with Council attending. Suppliers report on delivery and financial aspects of their contracts on a monthly basis.

Council also reports to NZTA (as the co-investor)

- Financially through claims on a monthly basis
- End of Year Achievement Reporting

The Land Transport team and operations are audited from time-to-time by NZTA Investment Team, NZTA Technical Audit Team and Audit NZ. Feedback is incorporated into the Asset Management Improvement Programme to be prioritised and actioned.

C Asset Management Planning

C01 MANAGING GROWTH AND DEMAND

This section outlines the Ruapehu District Council strategy for growth and demand related to the transport activity.

The Local Government Act requires that growth and demand be considered as part of asset management planning to ensure that future requirements are identified and planned for. This will ensure that the needs of the individuals, the community and the District can be maintained over the long term. Relevant legislation is discussed in Strategic Context (Section B02.4).

Planning for future growth and demand is imperative to provide an economically sustained pathway to meet the needs of the District and visitors to the District. The provision of the transport activity and its management is an essential element in the planning process.

C01.1 Planning for District Growth

The Ruapehu environment is largely high quality, with a relatively low number of heavy industries or high intensity residential development. The high quality of the environment makes the District attractive to visitors who seek to visit natural and unspoilt landscapes. The number of visitors continues to grow and, with many attractions and activities on offer, continued growth is expected at similar levels.

In the foreseeable future, growth in visitor numbers will ultimately result in growth in related businesses. Such growth is unlikely to put significant additional demand on the Land Transport portfolio.

As a consequence of the small and dispersed population, large tourism industry and large land area, the District faces many challenges in meeting the current and future service expectations of residents and visitors, in terms of Council's ability to fund the desired service levels at an affordable (sustainable) cost level.

C01.2 Growth versus Demand

Growth and demand planning allows for the identification and quantification of areas within the District that are likely to experience significant pressures. Although Growth and Demand are considered together in this section, it is worth noting that they do have different implications regarding the ongoing function/delivery of the activity.

Growth in relation to the transport activity mainly refers to the growth/changes in

- Population.
- Number of dwellings or business premises.
- Total size of economic activity.
- Total vehicle kilometres travelled (including % of heavy vehicles)

These changes can affect traffic flows, leading to increases in volume and changes in the peaks and locations of traffic movements.

C01.3 Key Demand Drivers

Future demand for roading and transportation services is driven by:

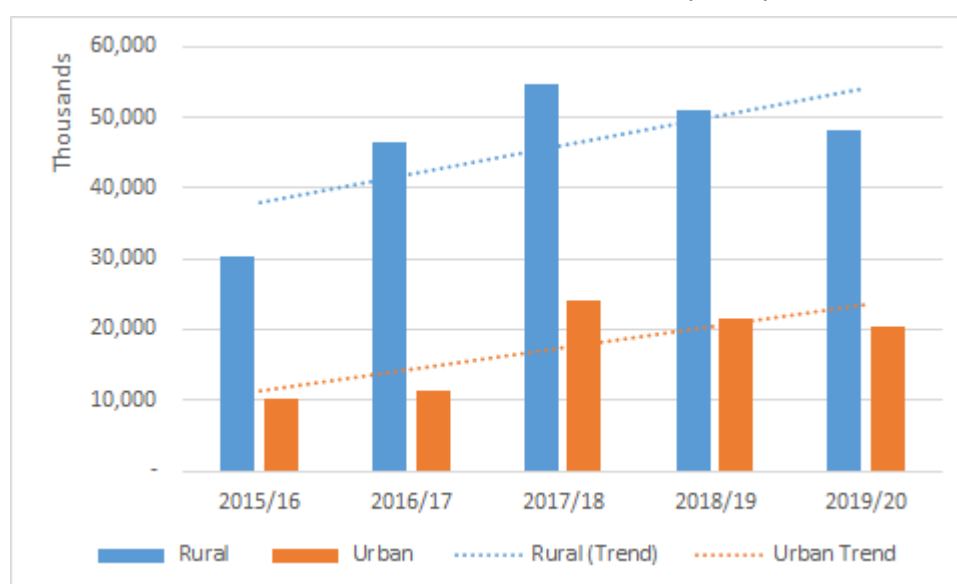
- Population and demographic patterns
- New residential dwellings and sub divisional activity
- Commercial, industrial and agricultural development
- Vehicle ownership and usage
- Climate change
- Legislative demands
- Community expectations
- Accessing services and recreation
- Restrictions on availability of parts of the network
- Passenger transport (or lack of)

C01.4 Population and demographic patterns

Detailed population and demographic pattern information is provided in the Planning Assumptions document supporting this AMP. The following information relates specifically to Land Transport.

Traffic counts indicate that in the last five years, overall vehicle kilometres travelled (VKT) have been increasing.

FIGURE C.1: VEHICLE KM TRAVELLED PER ANNUM (000'S)



The seasonal peaks generated by ski and outdoor activity traffic in the area mainly contribute to traffic patterns on the State Highways, apart from ski field access. Parking numbers are capped on both roads, requiring a joint approach from the skifield operator, Department of Conservation, New Zealand Transport Agency and Council to ensure safe, efficient access to the fields is provided using travel demand management in conjunction with provision of assets.

Visitor numbers are forecast to result in localised traffic growth and mixed use on critical routes (Ohakune Mountain Road, Raetihi-Ohakune Road, Ruatiti Road, Raetihi Pipiriki

Road, Koromiko Road and Poro O Tarao route from Taumarunui to Benneydale). This will require ongoing safety-related improvement work to manage.

Council continues it's work with relevant industry groups to better understand timings, vehicle numbers, loadings and routes affected to enable strengthening, capacity, safety-related realignment works and demand management strategies.

C01.5 New Residential Dwellings and Sub divisional Activity

Subdivisions can increase traffic numbers. Detailed information is provided in the Planning Assumptions document supporting this AMP.

Currently, significant subdivisions that are due to come online soon are.

- Kowhai Crescent - Ohakune
 - Stage 1 - Development started
 - Stage 2 - Planning started
 - Stage 3 - tbc
- Shannon Street - Ohakune
 - Stage 1 engineering plans under review.
 - Stage 2 - tbc
- Rimu St - Ohakune
 - Engineering plans received
- Social Housing in District
 - Council looking at what land is suitable and will partner with a developer to undertake the work

Council takes the following approach where new assets are created as part of a subdivision.

- If the road was not part of the maintained network, the subdivider will be required to bring it up to Council-specified standard and then Council may take it over as part of the maintained network.
- If the general standard of the subdivider's road is a sealed environment then the subdivider may be required to upgrade the adjacent Council road e.g. from unsealed to sealed.
- If there are a number of small subdivisions, development contributions may be used in addition to other funding sources to allow Council to seal the road up to those subdivisions. Typically, this is a case where no one subdivision causes enough extra use on the network to justify asking that individual to upgrade the road.

Sub Divisional growth may result in Council upgrading the adjacent existing local road.

Growth projects attract development contributions.

C01.6 Sealing Urban and Urban Periphery Roads

There are a small number of unsealed roads in urban areas or on their periphery. Pressure is placed on Council to seal these roads to increase amenity values and reduce dust.

These roads have been prioritised based on housing density in a 100m section and daily traffic numbers.

If residents wish to advance a road up the priority order, they must pay the cost of the local share. The table below shows the first ten roads in the priority list. The full list is available from Land Transport. Council's "Privately Funded Road Improvement Policy" covers dust seal extensions on rural roads

TABLE C-1: URBAN SEAL EXTENSION PRIORITIES

Priority Order	Road	Locality	Unsealed Length	Proposed Width	AADT	Dwellings	Housing Density in 100m section (HD=D ÷ L)	Estimated Cost	Traffic Housing Units of Demand AADT x HD (THUD)
1	Raurimu Road	Raurimu	513m	6m	63	17	0.33	\$308,000	21
2	Pito Street	Raurimu	261m	6m	27	12	0.46	\$157,000	12
3	Ohoeka Street	Owhango	345m	6m	37	8	0.23	\$208,000	9
4	Onematua Road	Owhango	476m	6m	65	5	0.11	\$286,000	7
5	Owhango Road	Owhango	119m	6m	27	3	0.25	\$72,000	7
6	Poru Street	Raurimu	209m	6m	13	10	0.48	\$126,000	6
7	Tuka Street	Piriaka	130m	6m	14	4	0.31	\$78,000	4
8	Tanoa Street	Piriaka	257m	6m	20	5	0.19	\$155,000	4
9	Miharo Street	Rangataua	32m	6m	6	2	0.63	\$19,000	4
10	Ward Street	National Park	112m	6m	10	4	0.36	\$67,000	4

C01.7 Tourism, Commercial, Industrial and Agricultural Activity

C01.7.1 Tourism

Tourism is one of the major industries in the District and with a high proportion of the District's tourism being of domestic origin, it is not expected to be as impacted by COVID-19 as tourism in other areas. Supporting tourism initiatives in the District is identified as one of the ways to support regional development in the Arataki Version 2.

Arataki outlines the context for change, current and future pressures on the land transport system, how these pressures will shape the land transport system and the challenges and opportunities that Waka Kotahi and its partners need to consider and respond to. Full details of Arataki Version 2 can be found by following the link below.

<https://www.nzta.govt.nz/planning-and-investment/planning/arataki/arataki-version-2/>

The seasonal peaks generated by ski and outdoor activity traffic in the area mainly contribute to traffic patterns on the State Highways, apart from ski field access.

However, increasing visitor numbers are forecast to result in localised traffic growth and mixed use on critical routes (Ohakune Mountain Road, Raetihi-Ohakune Road, Ruatiti Road, Raetihi Phipiriki Road, Koromiko Road and Poro O Tarao route from Taumarunui to Bennydale). This will require ongoing safety-related improvement work to manage.

More detailed information about tourism growth and demand is included in the Planning Assumptions document supporting this AMP.

C01.7.2 Forestry

The harvesting of large areas of forestry throughout the District is having a major impact on the District roading network.

The majority of planting occurred in 1989-90 and is maturing from 2014 onwards. It is prevalent throughout the District with an even mix of plantation and farm forestry. Some plantations are on perpetual harvest (e.g. Raetihi Phipiriki Road), while others have 5-10 year durations (Ongarue and Waimiha) or are one off (majority of farm forests). Forest blocks have also been converted to carbon farms in the last five years.

Maturing forestry plantations, as well as a trend to larger, heavy vehicles is leading to significantly increased heavy vehicle traffic around the harvested areas. This is having an effect on the rate of pavement deterioration. On sealed roads, this has previously been addressed within the existing pavement rehabilitation programme. However, this will not be sustainable in the long term.

A project to update Council's forestation information will be included in the Improvement Plan.

C01.7.3 Pastoral Farming

Traditional pastoral farming of sheep beef, and to a lesser extent deer, al
resses
on the network.

There is a continual move to larger farming units and vehicles of greater mass and size. This is particularly the case with dairy farming, where numerous units have significantly

increased their herd sizes to around 1,000. This can result in a need to improve the alignment of narrow rural roads and bridges or increase bridge capacity beyond that of the original design.

The trend also affects the connecting routes, many of which are still relatively narrow and winding, with inadequate foundations. The most direct impact is on safety.

C01.7.4 Market Gardening

Market gardening predominates around Ohakune, with the area providing approximately 40% of the carrots grown in New Zealand.

TABLE C-2: PRODUCE

Crop	2008			2012		
	Ruapehu (Ha)	NZ (Ha)	%	Ruapehu (Ha)	NZ (Ha)	%
Carrots	223	684	33%	368	857	43%
Potatoes	332	5,476	6%	527	5,442	10%
Other	152	1,686	9%	142	1,152	12%

Source: Statistics NZ

C01.7.5 Mining

Ruapehu has a variety of sources of aggregate throughout the District, with coal deposits in the Ohura area. Most aggregates in the north have come from river gravels, while in the south, it is pit sourced.

Demand for coal periodically sparks renewed interest in coal deposits in the Ohura area.

If this eventuated, road or rail could be used to transport to market. The uncertainties around timing and destinations make it difficult to plan for the road usage. Any response will be largely reactive.

C01.8 Changing Vehicle Use and Type

C01.8.1 Private vehicles

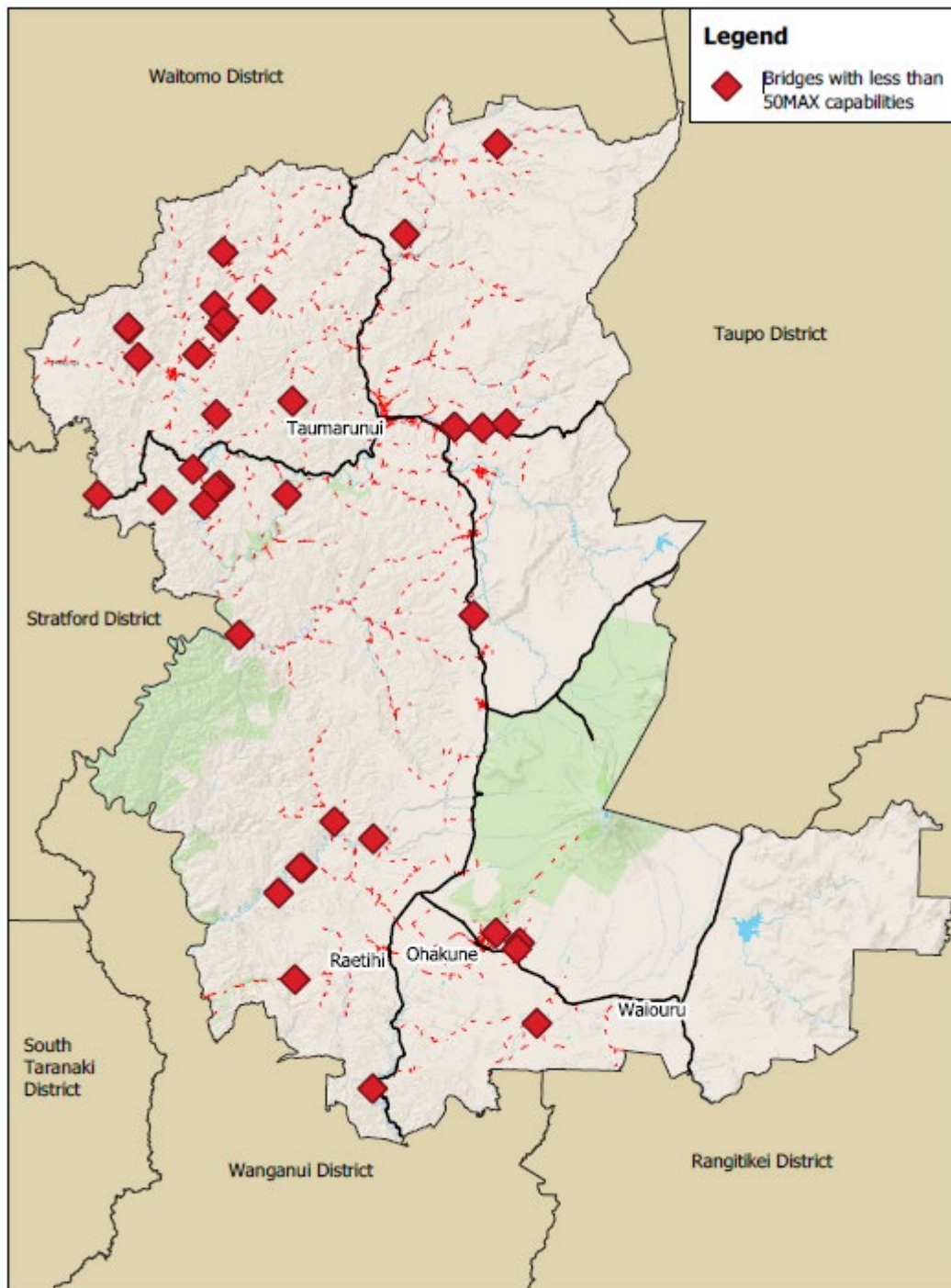
Vehicle ownership and usage continues to grow and the lack of passenger transport available means that residents rely on their personal vehicles.

C01.8.2 50Max Trucks

As 50Max trucks become more commonplace, there will be pressure to increase the capacity of these bridges on select routes.

High Productivity Motor Vehicles (HPMV) are vehicles that can carry a load that either exceeds 47T or 20m in length. They can only travel on permitted routes with enabling infrastructure. Upgrading bridges for the larger, heavier vehicles is costly. Waiaruhe Road, Waiouru is regularly used for servicing a fertiliser plant.

FIGURE C.2: MAP OF BRIDGES RESTRICTED TO 50MAX VEHICLES



There are currently 38 bridges restricted to 50Max trucks, a full list can be found in appendix G.

C01.8.3 Route Security

One of the major challenges facing the District is its vulnerability to extreme weather events and natural disasters. This has an impact on all modes of transport and is a factor in the planning of both land use and transport infrastructure. The network is characterised by main roads that follow deeply incised, papa based rivers, with short feeder roads that serve farms.

The geological characteristics of the papa belt mean that the main road network is built in a very unstable country that suffers from major slips which are very difficult to prevent.

The majority of bridges within the District were designed and constructed prior to the first national guideline for seismic design of bridges being published in 1980.

C01.8.4 Walking & Cycling

Ruapehu District has a large number of footpaths, mostly in urban areas, in comparison to the population. However, Council does face ongoing pressure for more footpaths, responding to the aging population forecast. Effort is being put into addressing under width and non accessible parts of the network.

TABLE C-3: LOCATION OF FOOTPATHS

Ward	Location	Length (m)	Area (m2)
National Park	National Park	3,179	4,424
	Owhango	945	1,275
	Raurimu	21	42
Ohura	Matiere	523	836
	Ohura	1,344	2,443
Taumarunui	Kakahi	152	182
	Manunui	2,925	4,337
	Matapuna	6,745	8,568
	Taumarunui	28,688	55,647
Waimarino	Ohakune	15,957	26,194
	Ohakune Mountain Road	103	144
	Raetihi	9,378	15,553
	Waiouru	1,581	2,784
Total		71,539	122,428

Council's focus is on recreational cycling rather than changing modes of transport or congestion relief.

Two multi day National Cycle trails (Nga Haerenga – New Zealand Cycle Trail) are present in the District - 'Mountains to the Sea' and 'The Timber Trail', along with 144km of "off road" tracks and 237km of Heartland on road rides. The cycleways have benefits for tourism and the District economy

The introduction of cycleways increased the number of cyclists on rural roads, raising concerns around safety. Ruapehu District has a Cycle Awareness Strategy.

C01.9 Climate Change

The Resource Management Act 1991 requires Council to consider the effects of climate change. This is backed by conclusive evidence both nationally and internationally that the climate is changing, resulting in rising sea levels, increases in weather extremes, such as “Weather Bombs” (increased frequency of El Nino conditions) – more storms, intense rainfall, flooding and drought, all of which impact on water quality and quantity and the interactions with the human and physical environment.

Council recognises climate change and its potential impact on the land transport activity. Increased rainfall intensities have the most significant impact and this is evidenced through the increasing emergency works expenditure indicated in the graph. Council has planned for this with the emergency works budget, response requirements within the maintenance contract and in capacity when replacing bridges and culverts.

C01.10 Legislative changes impacting on demand

The following legislative changes might have small incremental impacts on growth or decline in demand over time:

TABLE C-4: LEGISLATION THAT COULD IMPACT ON DEMAND

Legislation	Change and potential impact
Resource Management Act	Changes in RMA could stimulate growth.

C01.11 Impacts of Changing Demand on the Land Transport Activity

The following table summarises the effects of the identified growth and demand trends on the land transport activity.

TABLE C-5: GROWTH AND DEMAND TRENDS

Growth/Demand Trend	Impact
Overall population and sub divisional growth patterns	
Overall usually resident population declining in the District	Any decrease in the rating base to fund works is partially offset by increased holiday home development in specific locations.
Sub Divisional activity and holiday home growth in: <ul style="list-style-type: none"> • Ohakune • Rangataua • National Park • Horopito 	<p>Growth in asset base through adoption of third party infrastructure.</p> <p>Increasing community expectation regarding levels of service, in particular widening roads, and provision of footpaths, kerbing and stormwater channels.</p> <p>Increased rating base in specific locations may enable enhanced service levels there.</p>

Growth/Demand Trend	Impact
Increasing visitor numbers	
<p>Growing tourism industry leading to increased visitor numbers and significant holiday home development in</p> <ul style="list-style-type: none"> ● Ohakune ● Rangataua ● Horopito 	<p>Increasing visitor numbers and holiday home development leads to more vehicular and pedestrian traffic, and an increased peak/low variation. While the majority of the District's roads have sufficient capacity to be able to manage the foreseeable demand, the following specific routes have been identified as having capacity-related issues:</p> <ul style="list-style-type: none"> ● Ohakune Mountain Road – peak day tidal traffic exceeds capacity and is expected to continue to increase. ● Raetihi-Pipiriki Road – unsealed and areas of poor geometry with increasing tourism traffic expected. ● Oio Road – unsealed, areas of poor geometry with increasing tourism traffic expected. <p>Increasing numbers of rented motor-homes. These are sometimes uninsurable on unsealed roads, leading to increased pressure on Council for seal extensions on tourist routes.</p> <p>Increasing expectations regarding vehicular ride comfort and urban periphery pavement sealing.</p> <p>Increasing expectations regarding the amenity value of “visitor townships”.</p>
Increasing heavy vehicle numbers and size	
<p>Harvesting of forests leading to significantly increased heavy vehicle traffic.</p>	<p>Accelerated pavement deterioration and shortened pavement lives on specific routes.</p> <p>Increased need to improve the geometrics and other manoeuvrability and safety aspects of pavements on specific routes to accommodate increased numbers of large vehicles.</p> <p>Potential for an increase in need to upgrade restricted bridge capacity or geometry to allow more of the network to be travelled by heavier vehicles</p>
<p>Move to larger farming units and larger heavy vehicles.</p>	<p>Accelerated pavement deterioration and safety issues as above.</p> <p>Bridge capacity or geometry issues as above</p>
<p>Increased aggregate extraction from pits in the north, and renewed interest in coal deposits in Ohura leading to increased heavy vehicle traffic.</p>	<p>Accelerated pavement deterioration and safety issues as above.</p> <p>Bridge capacity or geometry issues as above</p>
Increasing vehicle ownership	
<p>Increasing vehicle ownership leading to increased vehicle trips.</p>	<p>Accelerated wear and tear on the Land Transport network, although this is minor in comparison to the deterioration caused by heavy vehicular traffic.</p> <p>Increased community expectations for improved ride comfort.</p> <p>Higher incidence of vehicular accidents.</p>

C01.12 Demand Projections

The following assumptions have been made for planning to manage practically the demand projection implications:

- Increasing expectations caused by growing populations in specific locations, and increased vehicular trips will be managed through ongoing community consultation as part of the service level reviews.
- The seasonal traffic generated by the ski, cycling and outdoor activities in the area mainly contributes to a change in the traffic patterns on the State Highways. It has little effect on the District Land Transport network, except for Ohakune and National Park. Traffic counts indicate that in the last ten years traffic volumes have been declining marginally.
- Assumptions have been made on the following specific routes:
 - Peak traffic flows on the Ohakune Mountain Road are expected to increase to 2,000 vehicles per day in each direction to align with car parking and lower mountain facility “comfortable carrying capacity” provided by Ruapehu Alpine Lifts (RAL). The one-way capacity of this road is currently limited to around 950 vehicles per hour.
 - Traffic volumes on Oio Road will increase over the next 10 years with increasing tourist volumes, including buses, mini buses and private motor cars. This will lead to the need to achieve a more uniform pavement width, widen and straighten sections of the roads within this 10 year planning period. It is anticipated these changes can be addressed within the minor improvements and rehabilitation programme.
- Heavy vehicle movements on feeder roads from forestry areas to state highways will increase in each direction throughout the district.
- Ruapehu will continue to apply sound pavement design with future loading forecasts to address increased deterioration rates caused by the shift to larger heavy vehicles.
- Increasing vehicle ownership and vehicular trips have negligible effect on the deterioration rate of the network.
- Increasing visitor numbers implies more vehicular and pedestrian traffic, and an increased peak/low variation.

C01.13 Meeting Growth and Changing Demand Needs

C01.13.1 Growth and Demand Forecasting

The following contribute to the robustness of the growth and demand forecasting, and management processes. With Council undertaking the following:

- Traffic volumes and patterns on the identified critical routes are monitored.
- Working closely with NZTA and Horizons to ensure consistency is achieved in local, regional and national land transport strategies.
- Liaises with KiwiRail to explore alternative transportation modes and benefits in a local and regional context as required.
- Working closely with industry groups to better understand anticipated demand increases. These groups include forestry groups, farmers, quarrying and mining companies.

C01.13.2 Demand Management Forecasting

As traffic growth on the majority of the District's roads is not likely to lead to congestion, techniques used by Council is currently focussed on limiting damage to pavements caused by heavy vehicles by:

- Discussion with transport operators to identify routes which are better suited for heavy vehicle use.
- Regulation - Traffic bylaws (restricting traffic use on specified routes, use of air brakes, speed etc).
- Key tourism routes will continue to be monitored for congestion during peak periods (for example Ohakune Mountain Road) and appropriate management strategies adopted.
- Responses will be developed to address demand on local roads e.g. potential to heavy vehicle parking areas to address damage from parking on local roads in Waiouru.

C02 MANAGING RISK

C02.1 Overview

This section covers the risk management implemented by Council and how it applies to current and future Land Transport activities. Information about Council's risk management framework can be found in "Part 1 | Who we are" document.

The risks are assessed from both external and internal contexts. The external (PESTLE) context categories are:

- Political and Policy
- Economy
- Social
- Technological
- Legal and Regulatory
- Environmental

The internal Asset Management context categories for each asset type are:

- Asset condition and performance
- Activity planning
- Activity management (operational)

The risk context and risk register were reviewed and updated in November 2020.

Extreme and High Risks worthy of particular note include:

- Collapse of non-maintained bridges
- Maintenance and renewal contract tendered prices increase significantly
- Collapse of maintained bridges
- Increased pavement deterioration due to forestry haulage
- Changing road user trends – safety issues
- Snow and Ice hazards
- Impact of COVID-19 on the economy and funding for roading

C02.2 Risk Context

Each of the elements that define the context for risk management applicable to the Land Transport activity has been examined and results have been summarised in Appendix D, Schedules 1 and 2.

C02.3 Risk Register

A Stakeholder workshop was held in 2015 to process potential external (PESTLE) risks and the internal asset (AM functions) risks. This was distilled into a register of medium, high and extreme risks. Both the PESTLE and Risk Register were reviewed in November 2020 with each risk described and evaluated per the Risk Management Framework in the figure below and management options discussed.

FIGURE C.3: RISK MANAGEMENT FRAMEWORK

Risk Management Framework						Step 2 Assess the likelihood of that consequence happening				
						Likelihood				
						Rare (1)	Unlikely (2)	Possible (3)	Likely (4)	Almost Certain (5)
						More than 50 years	Within 10 – 50 years	Within 2 - 10 years	Within 1– 2 years	Within 1year
Consequence						1% chance	3% chance	17% chance	67% chance	90% chance
Consequence Rating	Cost	People	Assets (Critical LoS reduced)	Environment	May occur in exceptional circumstances	Could occur at some time	Should occur at some time	Probably occur in most circumstances	Will occur in most circumstances	
Step 1 Assess the worst credible consequence of the event first	Insignificant (1)	< \$ 200		Small number of customers for a short time	0	0	0	0	0	
	Minor (2)	< \$ 2k	First aid	Localised effects	Material damage of local importance	0	0	0	1 (LT06)	
	Significant (3)	< \$ 200k	Off work injury; inability to recruit	Whole comm unity for > 2 hours	Serious damage of local importance	0	4	2 (LT11, LT14)	1 (LT02)	0
	Major (4)	< \$ 1m	Hospital; Long term stress	Isolated areas for > 2 weeks	Serious damage of regional importance	0	0	2 (LT13,LT15)	0	0
	Catastrophic (5)	> \$ 1m	Death; Pandemic	Whole comm unity for > 1 week	Serious damage of national importance	0	2 (LT05, LT09)	2 (LT01, LT17)	0	0
Legend						Step 4				
						Risk Manager (you) - - Low risk - monitor with review every 2 years - Medium risk - monitor with annual review - High risk - keep Chief Executive informed - EXTREME risk - keep Management Team informed				

Step 3
Manage the risk -
- Are those controls effective?
- Do we need more controls?
- Do it!
- Monitor it

The resulting matrix shows one risk identified as two extreme and eight high risks. The complete risk register can be reviewed in Appendix D.

Risks should be monitored and reviewed regularly. The following table outlines the expectation dependent on the Risk level.

FIGURE C.4: RISK MANAGEMENT METHODS

Risk Score	Risk Management Method
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

C02.4 Extreme and High Residual Risk Land Transport Activity Risks

Of those specific risks listed in the Risk Action Plan, the following remain with extreme or high residual risk and are worthy of particular note:

Extreme Risks

- LT01 Collapse of non-maintained bridges
- LT17 Maintenance and renewal contract tendered prices increase significantly

High Risks

- LT05 Collapse of maintained bridges
- LT09 Changing road user trends – safety issues
- LT13 Ability to deliver Asset Management Programme
- LT15 Achieving the expected lives for pavements and surfaces
- LT02 Increased pavement deterioration due to forestry haulage
- LT11 Snow and Ice causing road closures
- LT14 Availability of materials (Aggregates)
- LT03 One Network Road Classification (ONRC)
- LT04 Impact on local share affordability from changes to NZTA FAR
- LT16 Impact of COVID-19 pandemic on the economy and hence funding for roading works

C02.5 Risk Treatment Programme Exceptions

Any costs/resources needed to treat a specific risk are:

- Listed in the Risk Register
- Specified to be done by a determined date
- Provided for in the Long Term Plan

C02.6 Critical Assets and Routes

Critical assets are those for which the consequences of failure would be sufficiently serious that their failure should be prevented to the extent that it is practicable to do so. The consequences of asset failure may be evaluated with respect to:

- Impact on service delivery (i.e. levels of service)
- Impact on compliance requirements
- Impact on people (i.e. risk to life)
- Impact on property and infrastructure (i.e. disruption to others)
- Impact on the environment
- Cost to repair

Although a formal criticality assessment has not been undertaken, the following routes have been identified as critical, with a greater level of management applied to assets along them:

- Ohakune Mountain Road – a Special Purpose Road providing the only vehicular access to the Turoa Ski Area. This road is sometimes unable to meet current peak

traffic demands, which are expected to increase, has safety issues and is in a sensitive and harsh environment.

- Raetihi-Ohakune Road - this is an important tourist road, heavily used during the ski season.
- Ruatiti Road – This route has increasing tourism traffic. It has areas of poor geometry, particularly on the unsealed section. Work has been done over the past ten years on sealed sections to improve alignment, geometry and safety.
- Raetihi-Pipiriki Road – this road leads to the Pipiriki Township, on the banks of the Whanganui River.
- Oio Road – this important route is unsealed. It has areas of poor geometry, with increasing tourist traffic..
- Okahukura Saddle Road – This is one of the main routes into the Ohura hinterland.
- Ohura Road – provides access to Ohura and Matiere and surrounding farmland.
- Paparoa Road – provides only access to Kirikau and Tawata Valley across Te Maire Bridge.
- Ongarue Waimiha Road – provides access from SH4 to Ongarue.
- Poro O Tarao route from Taumarunui to Benneydale – inter district link to Benneydale and Timber Trail. This route is relied on by commercial traffic associated with forestry, stock truck and tourism traffic servicing the Timber Trail cycleway. It is currently sealed but is narrow with areas of poor geometry.
- Hekeawai Drive – provides alternative access to Taumarunui Hospital in emergency events should SH43 Hospital be closed or blocked.

C02.7 Resilience

Resilience refers to the ability of the transport network to support the safe evacuation of people and emergency response during and following a significant adverse event. This includes:

- The performance of transport assets during a significant event such that they do not create a hazard to people.
- The availability of key transport assets and routes to support evacuation and emergency response following a significant event.
- The capacity to return assets or routes to service following an unplanned disruption.

The adverse events which are considered for the purposes of a resilience assessment are:

- Major Earthquake
- Volcanic Eruption
- Extreme Wind
- Flooding
- Fire
- Land slip

Ruapehu District Council is predominantly a spine network with valley roads forming sole access to properties from the state highway.

Horizons Civil Defence Emergency Management Group Plan 2016 - 2021 (Version 1.3 June 2018) identifies Makatote Viaduct on State Highway 4 between National Park and Ohakune as the only area in our District with lifeline utility interdependencies.

C03 ENVIRONMENTAL STEWARDSHIP

C03.1 Overview

This section describes the environmental legislative obligations that Council has in undertaking the Land Transport activity including requirements specified as conditions of resource consents. It also demonstrates Ruapehu District Council's commitment to environmental stewardship through the inclusion of environmental impact mitigation in relevant Council strategies.

Environmental sustainability, protection of heritage values and the enhancement/protection of amenity are very important to the community. Maintaining these values is essential to tourism, economic viability, and the social and cultural health of the Ruapehu District communities. This section pulls together the many elements that contribute to good environmental management as relevant to the Ruapehu District Council.

C03.2 Sustainability Outcomes

A generally accepted definition of sustainability states that development should:

“Meet the needs of the present without compromising the ability of future generations to meet their own needs”

(Brundtland Commission Report, Our Common Future, Oxford University Press, 1987).

Whilst this definition nicely frames our ambition, it needs to be broken down further to identify the actions and changes in current behaviour that are required. When people are asked to behave sustainably they often respond “define it and we will do it”.

The key to this is context. For example:

- What are the unique needs, challenges and opportunities facing Ruapehu District Council at this time?
- What particular tools, techniques and policies can Council use in its move towards sustainability?

In other words:

- What needs to be done here, and why?
- How are we going to do it?
- What are the resources required?

There is no “one size fits all” approach and every organisation must discover how to implement sustainability principles in a way that works best for them.

This section defines Sustainability in a context that is relevant to Council and how this can be practically integrated into Ruapehu's ethos and ultimately into the delivery of Land Transport services.

C03.3 Sustainability Context

Sustainability and Local Government in New Zealand

The desire to implement sustainability is found in legislative drivers that affect everyone from central government to regional authorities to local bodies.

- The concept of sustainability is particularly 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.
- Working collaboratively can accelerate the process as we build on each other’s skills and experience to develop and disseminate best practices. This can be done through businesses, community-based organisations, and others.
- Local government functions are guided by the Local Government Act (LGA) 2002 and the Resource Management Act (RMA) 1991. Both of these statutes require councils to address economic, environmental, social and cultural sustainability in their decision making and activities.
- For local government, it is about planning and providing for the needs of individuals and communities, protecting ecosystems and their services and creating prosperity.
- The Horizons Regional Council is responsible under the RMA for ensuring that the natural and physical resources of the region (such as the land, air, water and coastal resources) are managed in a sustainable manner.

C03.4 Legislation

There are a number of legislative mechanisms aimed to avoid or mitigate potential adverse environmental effects associated with the management of the Transport network. These are set at national, regional and district level. Council is tracking legislation changes, specifically in relation to Climate Change and the impacts this might have on the transport network.

Specific requirements relating to environmental stewardship are covered in more detail in the following subsections.

TABLE C-6: ENVIRONMENTAL STEWARDSHIP LEGISLATIVE DRIVERS

Act/Plan	Environmental Stewardship Drivers
Resource Management Act 1991	Under the Resource Management Act 1991, Council has a statutory obligation to avoid, remedy or mitigate any adverse effects on the environment through sustainable management. In this context, resource consents are one way in which Council regulates the effects of activities such as building roads or bridges. Innovative design and use of Best Appropriate Practice in accordance with Councils Engineering Standards and Guidelines are also beneficial in taking into account and managing the effects an activity may have on the environment.
Local Government Act 2002 (including amendments)	Specific to environmental stewardship the Local Government Act (LGA) includes the principles of making itself aware of community views; providing opportunities for Maori to participate in decision-making processes; collaborating and cooperating with other local authorities as appropriate; ensuring prudent stewardship of resources; and taking a sustainable development approach.

Act/Plan	Environmental Stewardship Drivers
Land Transport Management Act 2003, and Amendments 2008, 2013 and 2018	<p>The purpose of the Land Transport Management Act 2003 (LTMA) is to:</p> <ul style="list-style-type: none"> (a) Provide an integrated approach to land transport funding and management. (b) Improve social and environmental responsibility in funding, planning and management of land transport. (c) Improve long term planning and investment in land transport. (d) Ensure land transport funding is cost effective. (e) Improve flexibility of funding including enabling land transport infrastructure to be built on a tolled or public/private partnership basis or combination of these. (f) The LTMA also requires the Council to consult with a wide range of parties when developing the annual land transport programme and requires that the programme is consistent with the Regional Land Transport Plan(RLTP).
Land Transport (Road Safety and Other Matters) Amendment Act 2011	<p>This Act amends the <u>Land Transport Act 1998</u>. From an environmental impact aspect, the act allows the road controlling authorities to:</p> <ul style="list-style-type: none"> (a) Restrict heavy traffic on roads. (b) Make certain bylaws including: <ul style="list-style-type: none"> (i) Restricting specified class of traffic. (ii) Restricting vehicles on unformed road (iii) Restricting planting of vegetation near corners
Hazardous Substances and New Organisms Act 1996 (HSNO)	<p>The HSNO Act and regulations control the import, manufacture or use (including disposal) of hazardous substances.</p> <p>Council administers the HSNO Act through enforcement officers, with a focus on facilities and activities that use, store, transport or dispose of hazardous substances, rather than on the substances themselves</p>

C03.5 National, Regional and Local Plans

In addition to legislation with an environmental stewardship impact there are national, regional and locals plans that also need to be adhered to. A summary of the environmental impacts of these plans are outlined below:

C03.5.1 Horizons One Plan

Under the RMA a regional plan is required to direct the management of air, land and water resources in the region including: air, soil, rivers and streams, lakes, groundwater, wetlands and the coast.

The One Plan became operative in its entirety in December 2014.

The One Plan identifies natural values of the regions resources and policies for protecting them. It identifies specific management areas related to certain streams, lakes, wetlands, aquifers and air quality areas. It also identifies whether an activity is permitted and whether resource consent is needed.

C03.5.2 Ruapehu District Plan

The District Plan became fully in effect in December 2014 and provides zoning throughout the District. Certain activities that are permitted in one zone may not be permitted in another. The different types of resource consents are:

- Land use
- Subdivision

Activities that need resource consent are classified as controlled restricted discretionary, discretionary and non-complying.

C03.5.3 Regional Land Transport Plan

The Horizons Regional Land Transport Plan 2018 Review (2015 - 25) sets the strategic direction for transport in the Region and identifies activities for investment by local and Central government.

The purpose of the Plan is to describe the transport goals for the Region and how they will contribute to an effective, efficient and safe land transport system.

C03.5.4 Draft Government Policy Statement

The GPS 2021 sets out the government's priorities for expenditure from the National Land Transport Fund. It is released three yearly and provides a 10 year policy view.

The Draft GPS 2021 has the following strategic priorities:-

- Safety
- Better travel options
- Climate change
- Improving Freight Connections

C03.6 Resource Consents

If the construction of an asset does not meet the development controls outlined in the District Plan or relates to an activity that has the potential to result in adverse effects on the environment, beyond those contemplated by the District Plan provisions, resource consent may be required.

An Assessment of Environmental Effects (AEE) is required to support any resource consent applications to the respective Councils when seeking approval to construct, alter or vary the use of a facility or building that is not permitted by the relevant plan.

The AEE process 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, and includes the examination and comparison of options and



alternatives for mitigating any identified adverse effects, and the confirmation and recommendations on the preferred options and methodology to carry out the works.

The critical environmental factors requiring consideration may include geological and geotechnical effects of land movement (cut and fill), the ecological and biological effects of vegetation removal or earthworks, and the cultural, archaeological and social effects on the environment of the development. These, together with noise, traffic, and visual effects, may require specialist inputs and consultation with the local communities.



The AEE process involves:

- The effects of the proposal on other person(s), e.g. neighbours affected by dust or noise.
- The effects of the proposal on the natural environment e.g. increase in the amount of dust or the disturbance of waterways due to earthworks.
- The visual impact of the proposed activity.
- Proposed methods of how any identified adverse effects are minimised.

The critical environmental factors requiring consideration include:

- Ecosystems and their constituent parts, including people and communities.
- All natural and physical resources.
- Amenity values.
- The social, economic, aesthetic, and cultural conditions which affect the matters stated in the paragraphs above.

Council holds a number of resource consents to enable the safe and environmentally appropriate operation of its Transport activities. Details of the consents are outlined in Appendix E: Resource Consents.

C03.7 Designation

The purpose of a designation within a District Plan is to:

- Inform the community about the route and operation of existing and future transportation networks.
- Allow the designating authority to do anything that is in accordance with the designation (without the need for other resource consents under the district plan). The usual provisions of the district plan do not apply to the designated site. Environmental compliance is ensured with Outline plans.
- Protects future routes from inappropriate development and can assist in strategic planning.
- Allow land to be purchased for transportation purposes.

Designations need to be implemented within a specific timeframe. However, they may be rolled over into new plans.

The District Plan contains the following Transport designations:

TABLE C-7: DISTRICT PLAN DESIGNATIONS

Plan Ref	Purpose
No 25 Map B2	Middle Road Gravel pit (metal reserve) Sec 9 Blk XV Manganui SD Gravel Pit GAZ 80/3273 Operative District Plan 2000 Requiring Authority RDC
No 26 Map A2	Whangaehu Valley Road Metal Pit (Ross's Pit) Pt Sec 6 Pts Rangiwaea 4F14D2B 4F14D3A2 Blk XIII Karioi SD – Metal Pit Operative District Plan 2000 Requiring Authority RDC
No 86 Various	District Railway Purposes Main Trunk Railway and Okahukura – Stratford Railway Requiring Authority New Zealand Railways Corporation
	Railway Purposes (Secondary) As marked on planning maps. NZ Railways Corporation
No 87 Various	State Highway 1, 4, 43, 41, 47, 48, 49 (Road Reserve) All State Highways within the Ruapehu District existing on the date that a decision was made on this Plan Requiring Authority NZ Transport Agency

C03.8 Potential Issues

There are a number of adverse environmental effects that can occur in the process of undertaking Transport related activities, during both construction and operational use of the network.

The information provided below outlines some of these issues and associated mitigation measures that could be employed.

TABLE C-8: POTENTIAL ENVIRONMENTAL ISSUES

Issue	Description	Mitigation Measures
Dust	<p>Dust can affect vegetation health along the edge of construction works or earthworks areas, can be a nuisance to the surrounding public, and can contribute to sediment loads by being deposited in areas without sediment control measures. Sediments deposited on sealed public roads can also result in a dust nuisance. Similarly, unsealed roads can present a dust nuisance during periods of prolonged drought.</p>	<p>The following mitigation measures may be considered in the control of dust emissions:</p> <ul style="list-style-type: none"> ● Wheel washing for trucks leaving development sites. ● Spraying down areas (with water) to control dust emissions. ● Monitoring at site boundaries
Sediment Runoff	<p>Sediment runoff from construction works is generally controlled via sediment control techniques and administered by the Regional Council. Sediment from exposed areas of land can enter waterways, streams and rivers, potentially causing adverse effects to fauna and flora.</p>	<p>The following mitigation measures may be considered in the control of sediment runoff:</p> <ul style="list-style-type: none"> ● Effective sediment control techniques such as cut-off drains, ponds, and silt fences retain sediment and prevent it from entering water systems ● Compliance with an approved sediment and erosion control plan
Noise	<p>Noise is a factor to be considered during construction projects. The District Plan contains the standards for noise and the restrictions imposed on construction such as hours of operation and the decibel limits to be adhered to. Monitoring typically takes place to establish background noise levels against which construction and traffic noise can be measured. The documents that Council shall have regard to include:</p> <ul style="list-style-type: none"> ● NZS 6806: 1993 Road Traffic Sound. ● “Guidelines for the Management of Road Traffic Noise – State Highway Improvements” by Transit New Zealand 1994. 	<p>The following mitigation measures may be considered in the control of noise emissions:</p> <ul style="list-style-type: none"> ● Hours of permitted work ● Monitoring at site boundaries ● Compliance with standards ● Community consultation
Landscape Values	<p>The Whanganui River is an outstanding landscape feature in the district and conservation of landscape value is to be taken into account with any proposed developments.</p>	<p>The following mitigation measures can be considered when taking into account landscape values:</p> <ul style="list-style-type: none"> ● Review District Plan maps ● Community consultation

Issue	Description	Mitigation Measures
Cultural Heritage	<p>Places of particular cultural heritage value have been scheduled and identified on the District planning maps so that location is known and can be taken into account when considering development and applying for resource consents. The scheduled sites are those that are registered under the Historic Places Act 1993, or those requested to be scheduled following consultation with iwi. Not all sites are recorded and for major developments it is important that consultation be undertaken with tangata whenua, registered archaeologists, NZ Historic Places Trust and the Regional Council. Protocols can be developed in the event of discovery.</p>	<p>The following mitigation measures may be considered when taking into account cultural heritage values or sites:</p> <ul style="list-style-type: none"> ● Consultation with key stakeholders ● Development of protocols ● Due diligence prior to development
Stormwater Discharge	<p>Stormwater discharges need to be managed to prevent pollutants from entering waterways. Roads provide a number or potential contaminants such as metals (from vehicles), hydrocarbons, gross pollutants (litter) and herbicides (from vegetation control). These can cause adverse effects for flora and fauna in receiving waters.</p> <p>In addition, stormwater pipes/culvert outlets can cause scour during large flows.</p>	<p>The following mitigation measures may be considered in the control of stormwater discharges:</p> <ul style="list-style-type: none"> ● Adequate maintenance and clearing of channels, catchpits and roadside drains. ● Retention dams, swales, and outfall structures to dissipate flows. Any number of options can be evaluated prior to consent approvals. ● Evaluate receiving waters to determine background water quality ● Monitoring of the mixing zone

C03.9 Climate Change

New Zealand’s climate varies significantly from year to year and from decade to decade. Human-induced long-term trends will be superimposed on these natural variations and it is this combination that will provide the future climate extremes to which New Zealand society will be exposed.

The Ministry for the Environment has produced a document entitled “Climate Change and Long Term Council Community Planning” (October 2008) which advises that ‘Local government is required to operate under a range of principles that are set out in law or have evolved through good practice and case law. The key principles are:

- Sustainability
- Consideration of the foreseeable needs of future generations
- Avoidance, remedy or mitigation of adverse effects
- Adoption of a precautionary approach
- The ethic of stewardship/Kaitiakitanga
- Consultation and participation
- Financial responsibility
- Liability
- Resilient communities
- Spill

The Ministry for the Environment climate change projections for the Manawatu/ Whanganui region relevant to Ruapehu District are:

- Temperatures are likely to be around 0.9°C warmer by 2040 and 2.1°C warmer by 2090, compared to 1990.
- In Taumarunui, average annual rainfall is likely to increase by 3% by 2040. Very heavy rainfall events are likely to become more frequent in the region.
- The number of storms crossing the Tasman Sea is expected to increase in summer and decrease in winter, by the end of the century. The intensity of these storms is likely to decrease in both summer and winter.
- The frequency of extreme winds over this century is likely to increase by between 2-5% in almost all regions of New Zealand in winter, and decrease by a similar amount in summer.
- Significant decreases in seasonal snow are projected for 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 a shift towards increasing rainfall instead of snowfall as snowlines rise to higher elevations due to rising temperatures. Research suggests that at heights between 1,000 and 2,000m:
 - the maximum seasonal snow depth is likely to decrease by approximately 20% by 2040 and approximately 40% by 2090
 - a low snow year is expected to be five times more likely by the 2090s.

The Ministry for the Environment's analysis on what this will mean for Manawatu-Whanganui relevant to the Ruapehu District and the Land Transport Activity are:

- Flooding – More heavy rainfall will increase the risk of flooding, which could become up to four times as frequent by the end of the century. This could have large implications for areas already prone to river flooding.
- Erosion and landslides – Drier average conditions, combined with more intense rainfall at times, could lead to increased problems with erosion, landslides and sedimentation in rivers. Some areas already at high risk include the hill country within the Ruapehu District.
- Biosecurity – Warmer, wetter conditions could increase the spread of pests, weeds and diseases over time.

The following mitigation measures are considered when taking into account climate change:

- Have regard to projections during planning phases
- Cognisance of areas located as being potential hazard zones
- Specialist advice

C03.10 Hazards

The Ruapehu District and surrounding regions are exposed to a number of natural hazards. From an activity point of view hazards have the potential to cause major disruption and need to be taken into account.

Information on the risk posed by natural hazards is sparse for the Ruapehu District. In conjunction with the Horizon Regional Council the Council has developed a database of natural hazards.

Under Horizon Regional Council's One Plan, Council is responsible for developing objectives, policies, and methods (including rules) for the control of the use of land.

The following hazard types have been identified as being significant to the Land Transport activity. Monitoring of natural hazards and their impacts are ongoing.

Flooding

Flooding is a commonly occurring major natural hazard that results when the natural and modified drainage systems fail in a particular rainfall event. The risk of flooding is influenced by a number of factors such as:

- Weather systems
- Hydrological factors (catchment size, rainfall intensity and infiltration)
- Hydraulic factors
- Soil type
- Land use
- Ground saturation
- Storm events and the resulting flooding can result in significant adverse effects on both residents and the environment. These effects may include:
- Personal injury or loss of life, property and possessions or livelihood
 - Disruption of utilities and transportation networks
 - Impacts on the environment may include vegetation and habitat loss, erosion and sedimentation in waterways, and soil and water contamination

Flooding hazards within the Ruapehu District have principally occurred within the Ohura area, although other areas are subject to flooding.

Horizons Regional Council has modelled flood risks for Ohakune and Taumarunui.

Landslides

Landslides are generally caused by slope saturation and can include mudslides, debris flow or avalanches, rock falls and rock slides. Increased ground saturation can be caused by intense rainfall, changes in groundwater and water level changes in rivers, earth dams, lake banks and the coastline. Generally flooding and landslide events are closely linked as they both result from heavy rainfall, stormwater runoff and ground saturation.

The risk of landslide is influenced by a number of factors such as:

- Underlying geology. Predominance of papa in District makes landslides or underslips highly likely in rural areas.
- Proximity to rivers, lakes and the coast.
- Past and present land use including vegetation changes.
- Infrastructure development.

Landslides can result in significant adverse effects on the road network including loss of access for short term or longer periods.

Snow and Ice

Snow and ice on the roads can make driving conditions hazardous in places in winter. Grit is used in places to mitigate this, along with CMA in specific locations.

Earthquakes

New Zealand is considered amongst the most seismically active places on earth, as it is located on an active boundary of two tectonic plates.

Volcanic Activity

Mt Ruapehu is one of New Zealand's most active volcanoes. Major eruptions have been recorded approximately 50 years apart (1895, 1945 and 1995/96). Minor eruptions are frequent. The eruptions are not the only threat. There is a more serious threat from lahars (volcanic mud flow). In between eruptions, a lake forms in the volcano's caldera from melting snow. If a previous eruption has deposited a dam of ash, rocks and mud in the lake's natural overflow point, then the lake becomes dangerously full, held back only by the temporary dam.

The impacts from a 1-in-1,000 year event may include:

- Several eruptions over several months, that send eruption –columns between 8 - 12 km high, and that disperse between 1 and 10 mm of ash across much of the Region.
- Crater rim collapse and production of a ~6 million cubic metre lahar down the Whangaehu Valley.
- Localised projectiles, pyroclastic surges and lahars impact upon the mountain (particularly the Western ski fields and Whakapapa Village).

C03.10.1 Impacts on the Roding Network

Events can cause localised or widespread disruption and loss of access on the network.

The main causes of large-scale failure are earthquake and river flooding, with severe storms and landslides causing most site-specific failures.

The consequences are primarily social and economic, around isolation and restricted or lost access. Many local roads have no alternative detour routes available.

Plans to deal with a large scale failure are detailed in the CDEM Plans.

C04 LEVELS OF SERVICE

Levels of Service (LoS) standards define the levels to which Ruapehu District provides services to the community. Some standards are defined by statutory requirements, others in conjunction with the community, and some with key stakeholders. AMP Part 1 | Who we are provides information about the process used to set Levels of Service.

These standards (or levels of service) provide a basis for determining whether assets need to be constructed, replaced, remanufactured, or maintained. These LoS measures have been defined to enable Ruapehu District’s performance to be measured and reported against.

Council’s Significance and Engagement Policy 2018 provides guidance on determining matters of significance for elected members and the community, along with informing the community on how they can expect to be engaged in Council’s decision making process.

Council is expected to deliver the Land Transport Activity in perpetuity and assets are maintained and replaced as required to enable this where it is most desirable and affordable.

Council operates several programmes that assist in these improvement activities including:

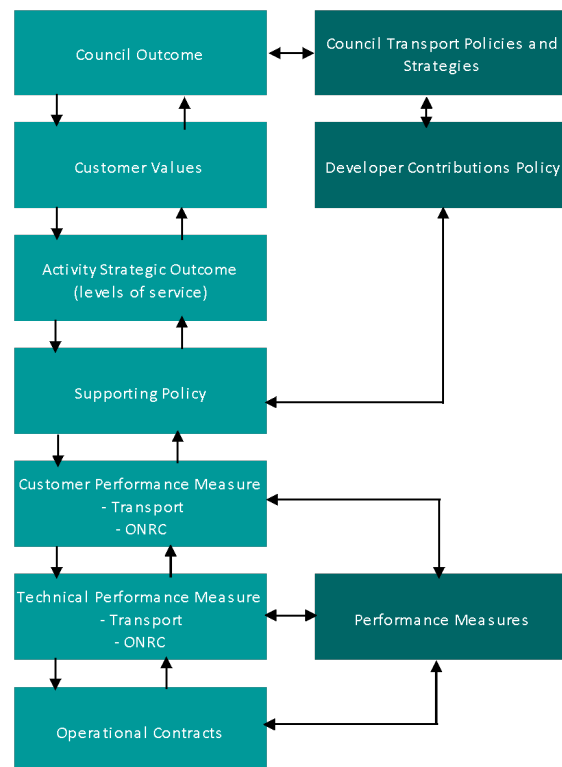
Sealed Pavement and Rehabilitation programme.

- Minor Safety Project programmes.
- Footpath safety improvement and development.
- Kerb and channel development.
- Bus shelters development.

Council Outcomes identify the community priorities and direction that the council wants to deliver. In order to deliver these Outcomes, it is important that the transport technical and customer services and operational and maintenance contracts are clearly linked to achieve this.

The diagram alongside outlines how the council outcomes are linked to the performance measures and transport policies and strategies.

FIGURE C.5: LEVEL OF SERVICE LINKAGES



C04.1 Land Transport Levels of Service

The levels of service Council provides are presented in the following tables. Performance against these targets will be reported annually unless specifically noted.

Council has prioritised its Land Transport Levels of service in order of importance as below:

1. ONRC Performance Measures / Customer Levels of Service
 - a. NZTA allocates funding based on RCA's performance
2. Department of Internal Affairs Non Financial Performance Measures
 - a. Legislatively required since 30 July 2014
3. Council's own Levels of Service

C04.1.1 ONRC Levels of Service

Under ONRC, RCAs manage their networks at fit-for-purpose customer levels of service. The Transport Agency is co-funding RCAs at a level to operate, maintain and improve its network in line with its classification, and the desired levels of service for safety and speed – taking a one network approach to improve consistency and predictability.

Link to Key ONRC Customer Level of Service (LoS)

The following table highlights how this activity contributes to improving the Key ONRC Customer LoS.

TABLE C-9: ONRC PERFORMANCE MEASURES / CUSTOMER LEVELS OF SERVICE

Customer Level of Service	Sub-Category	Description
Mobility	Reliability	Travel time reliability – the consistency of travel times that road users can expect
	Resilience	The availability and restoration of each road when there is a weather or emergency event, whether there is an alternative route available and the road user information provided
Safety		How users experience the safety of the road
Amenity		The level of travel comfort experienced by the road user and the aesthetic aspects of the road environment (e.g. cleanliness, comfort/convenience, security) that impact on the travel experience of road users in the road corridor
Accessibility		The ease with which people are able to reach key destinations and the transport networks available to them, including land use access and network connectivity

Some key Performance Measures are shown in the table below.

TABLE C-10: ONRC LEVELS OF SERVICE

Targets	ONRC cLOS	Frequency	Source	Current Performance 2019/20	Year 1 target 2020/21	Year 2 target 2021/22	Year 3 target 2022/23	Years 4-5 target 2023/24 - 2024/25	Years 6-10 target 2025/26 - 2029/30
85th Percentile NAASRA roughness index across the urban sealed pavement network	Amenity	Biannual Inspections	ONRC PMRT	124	150	150	150	150	150
85th Percentile NAASRA roughness index across the rural sealed pavement network	Amenity	Biannual Inspections	ONRC PMRT	102	120	120	120	120	120
The average quality of ride on a sealed local road network, measured by smooth travel exposure	Amenity	Annually	ONRC PMRT	90%	≥87%	≥87%	≥87%	≥87%	≥87%
The total number of reported serious injuries and fatalities (DSI) each year on the network	Safety	Annually	ONRC PMRT	38	<5	<5	<5	<5	<5

C04.1.2 Department of Internal Affairs (DIA) Levels of Service

In addition to the ONRC Performance Measures above, the Secretary for Local Government has developed mandatory non-financial performance measures for local authorities to use when reporting to its communities. This has been mandated through the Local Government Act 2002 Amendment No 2 to help the public contribute to discussions on future levels of service for their communities and participate more easily in their local authority’s decision-making processes.

As Council is required to report on these measures specifically they are detailed below. However it is acknowledged there is some overlap with existing measures.

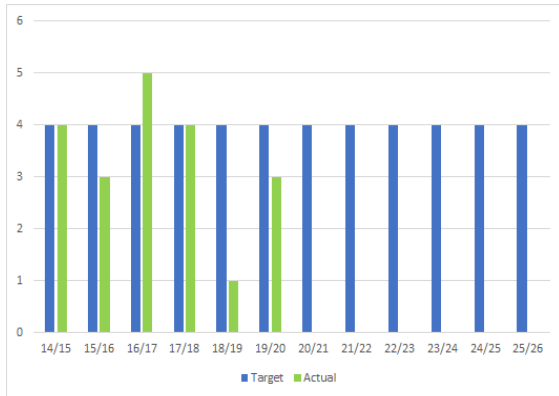
TABLE C-11: DIA LEVELS OF SERVICE TARGETS

Measure	Frequency	Reported to	Current Performance 2019/20	Year 1 target 2020/21	Year 2 target 2021/22	Year 3 target 2022/23	Years 4-5 target 2023/24 - 2024-25	Years 6-10 target 2025/26 - 2029/30
The change from the previous financial year in the number of fatalities and serious injuries on the local road network, expressed as a number	Annually	Annual Report	+2	0 or a decrease	0 or a decrease	0 or a decrease	0 or a decrease	0 or a decrease
The average quality of ride on a sealed local road network, measured by smooth travel exposure	Annually	Annual Report	90%	Target level of smooth travel exposure $\geq 87\%$	Target level of smooth travel exposure $\geq 87\%$	Target level of smooth travel exposure $\geq 87\%$	Target level of smooth travel exposure $\geq 87\%$	Target level of smooth travel exposure $\geq 87\%$
The percentage of the sealed local road network that is resurfaced	Annually	Annual Report	4.03%	$\geq 7.5\%$	$\geq 7.5\%$	$\geq 7.5\%$	$\geq 7.5\%$	$\geq 7.5\%$
The percentage of footpaths within Council's district that fall within the level of service or service standard for the condition of footpaths that is set out in Council's asset management plan.	Annually	Annual Report	94% / 3.3%	90% of network to be in average condition or greater & not more than 5% of network in Poor condition	90% of network to be in average condition or greater & not more than 5% of network in Poor condition	90% of network to be in average condition or greater & not more than 5% of network in Poor condition	90% of network to be in average condition or greater & not more than 5% of network in Poor condition	90% of network to be in average condition or greater & not more than 5% of network in Poor condition
The percentage of customer service requests relating to roads and footpaths to which the Council responds within the time frame specified in the long term plan (Note 1)	Annually	Annual Report	88%	$\geq 85\%$	$\geq 85\%$	$\geq 85\%$	$\geq 85\%$	$\geq 85\%$

Note 1: The Request for Service targets are outlined in Appendix

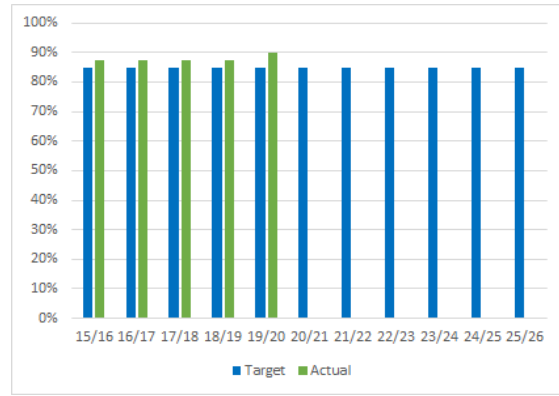
FIGURE C.6: DIA LEVELS OF SERVICE TRENDS

Number of fatal & serious injuries



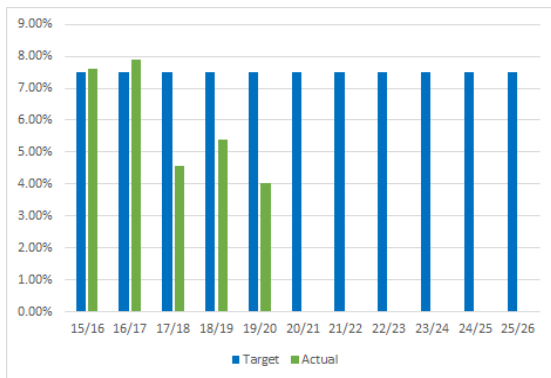
LOS achieved if Actual equal or less than Target
Result: LOS not achieved

Smooth Travel Exposure



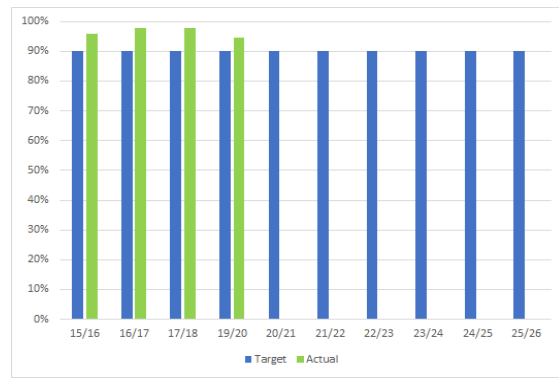
LOS achieved if Actual equal or greater than Target
Result: LOS achieved

Percentage of sealed network that is resurfaced



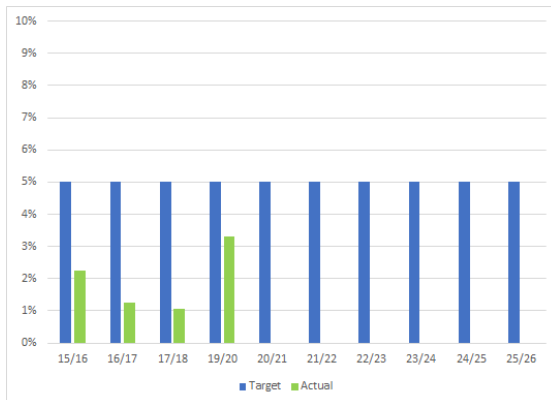
LOS achieved if Actual equal or greater than Target
Result: LOS not achieved

Percentage of footpaths in average condition or higher



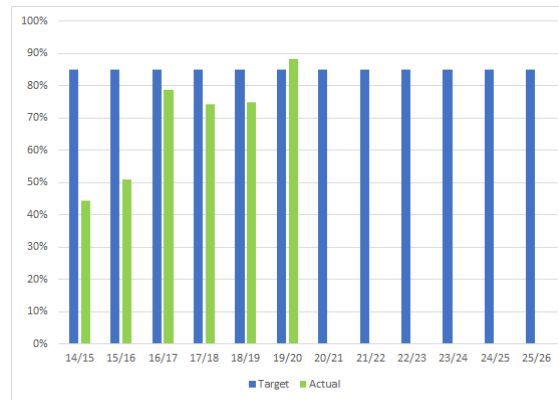
Target: 75% in average or greater condition
LOS achieved if Actual equal or greater than Target
Result: LOS achieved

Percentage of footpaths in poor condition



LOS achieved if Actual equal or less than Target
Result: LOS achieved

Percentage of customer service requests responded to in timeframes specified



LOS achieved if Actual equal or greater than Target
Result: LOS achieved 2019/20

C04.1.3 Ruapehu District Council Levels of Service

Outside of the ONRC Performance Management LoS and the DIA LoS, Council has set a number of LoS for the District, as shown below.

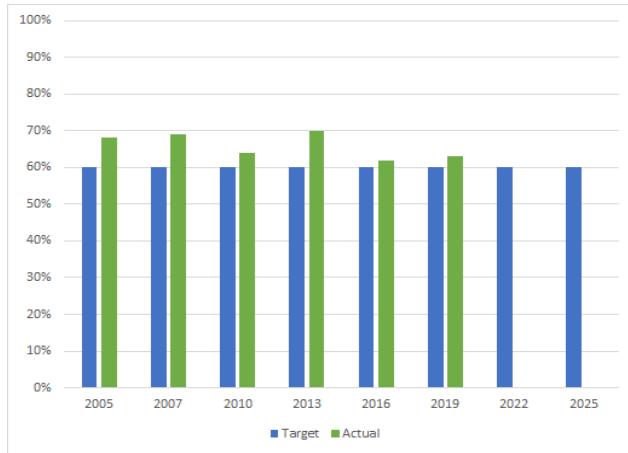
TABLE C-12: COUNCILS LEVELS OF SERVICE

Targets	Frequency	Reported where	Current Performance 2019/20	Year 1 target 2020/21	Year 2 target 2021/22	Year 3 target 2022/23	Years 4-5 target 2023/24 - 2024-25	Years 6-10 target 2025/26 - 2029/30
Customer satisfaction with Sealed roads	3 yearly	NRB Customer Survey	63% - 2019	Not measured	Not measured	60% or greater	60% or greater	60% or greater
Customer satisfaction with Unsealed roads	3 yearly	NRB Customer Survey	46% - 2019	Not measured	Not measured	50% or greater	50% or greater	50% or greater
Response times: Percentage of instances when local emergency sites advised by service calls are made safe within 2 hours plus travel time.	Quarterly	GHD Report	82%	85%	85%	85%	85%	85%
Maintain the sealed roads to a standard that allows < 5.5 defects per km based a 10% sample monthly audit	Annual	Annual Report	4.7 defects for year	< 5.5 defects	< 5.5 defects	< 5.5 defects	< 5.5 defects	< 5.5 defects
Maintain the unsealed roads to a standard that allows < 5.5 defects per km based a 10% sample monthly audit	Annual	Annual Report	4.3 defects for year	< 5.5 defects	< 5.5 defects	< 5.5 defects	< 5.5 defects	< 5.5 defects

The following figure provides the Levels of service trends since 2015/16, with and targets until 2025/26.

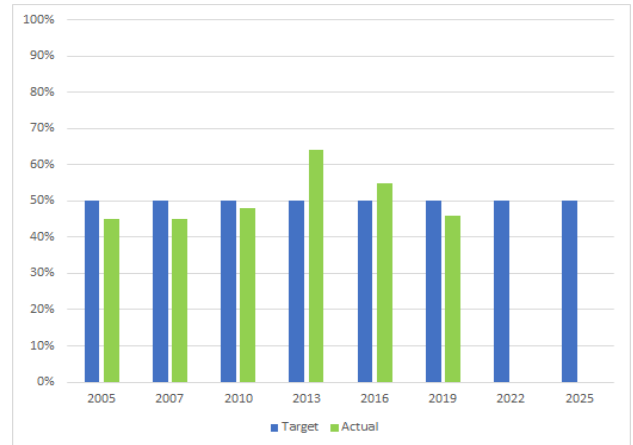
FIGURE C.7: DISTRICT LEVELS OF SERVICE TRENDS

Customer Satisfaction of Sealed Roads



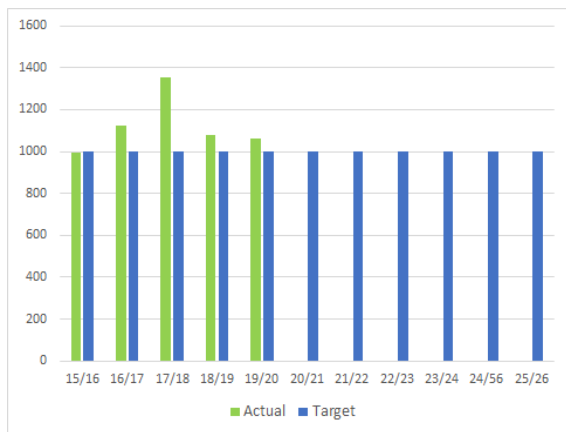
% of customers satisfied / Very Satisfied
 Target is 60% or greater
 LOS achieved if Actual **equal or more** than Target
Result: LOS Achieved 2005 - 2019

Customer Satisfaction of Unsealed Roads



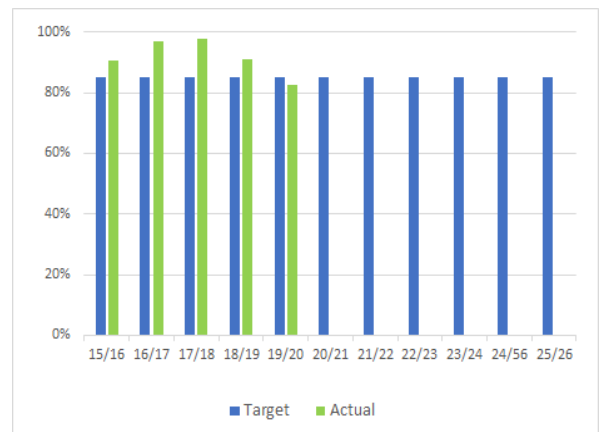
% of customers satisfied / Very Satisfied
 LOS achieved if Actual equal or more than Target
 Target from 2013 onwards is 50% or greater
Result: LOS Achieved 2013 & 2016

Number of Service Calls



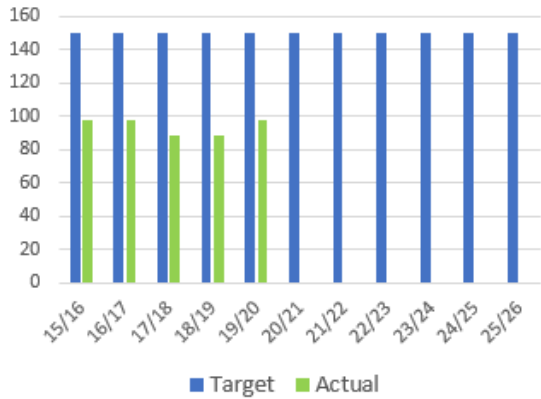
LOS achieved if Actual less than Target
 Target < 1000 calls received per annum
Result: LOS Achieved 2010/11-2015/16

Response times



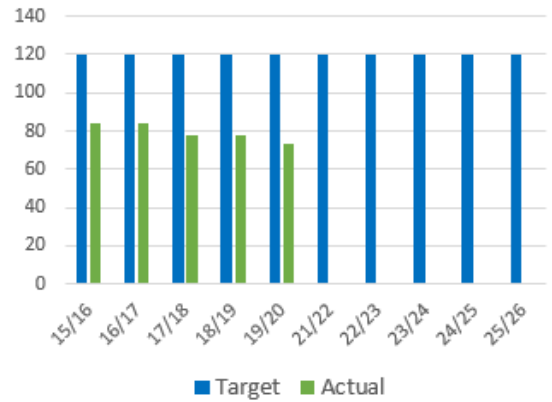
Percentage of instances when local emergency sites advised by service calls are made safe within 2 hours plus travel time.
 LOS achieved if Actual equal or more than Target
Result: LOS Achieved 2015/16-2018/19, nearly achieved 2019/20

Average NAASRA roughness index across the urban sealed pavement network



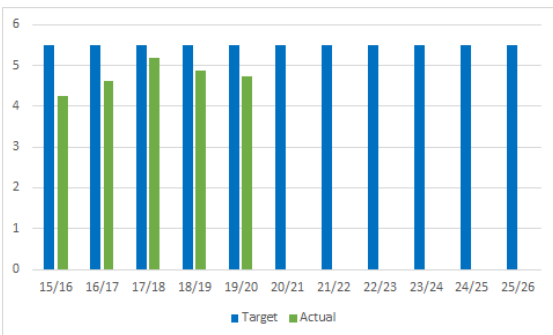
Note: LOS achieved if Actual equal or less than Target
 Result: LOS Achieved 2015-16 - 2019/20

Average NAASRA roughness index across the rural sealed pavement network



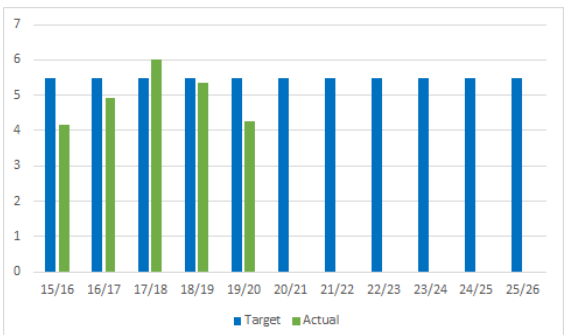
Note: LOS achieved if Actual equal or less than Target
 Result: LOS Achieved 2015-16 - 2019/20

Maintain the sealed roads to a standard that allows < 5.5 defects per km



LOS achieved if Actual less than Target
 Result: LOS Achieved 2015/16 - 2019/20

Maintain the unsealed roads to a standard that allows < 5.5 defects per km



LOS achieved if Actual less than Target
 Result: LOS Achieved 2015/16-2016-17 & 2018/19-2019/20

TABLE C-13: AFFORDABILITY/SUSTAINABILITY LEVELS OF SERVICE

Level Service of The safety of the land transport network is acceptable to users								
Links to Strategic Goal	Providing an affordable transportation network that meets the reasonable needs of the wider community Encouraging the community to participate in decision making processes and to be informed about changes or initiatives within the community							
Links to Outcomes	Council is proactive, transparent and accountable							
Customer Value	The core customer value this service aims to provide is: Affordability / Sustainability							
ONRC Customer Value	Value for Money							
Level Service of The Number of Weight Restricted Bridges is kept to a minimum								
Targets	Frequency	Reported to	Current Performance 2019/20	Year 1 target 2020/21	Year 2 target 2021/22	Year 3 target 2022/23	Years 4-5 target 2023/24 – 2024/25	Years 6-10 target 2025/26 – 2030/31
Maintain the number of Restricted Bridges - less than Class 1	Annual	Land Transport	16 restricted	16	15	15	15	15
We will achieve this level of service by:	Upgrading restricted bridges where applicable Managing the maintenance of sealed roads to minimise faults Managing the maintenance of unsealed roads to minimise faults Ensuring compliance with all maintenance KPIs in Road Maintenance Contract Ensuring compliance with all response times specified in Road Maintenance Contract Ensuring compliance with response times in Council's Request for Service System (Ozone)							
We will measure whether this level of service is achieved by:	Biannual NRB Customer Satisfaction Survey Annual Ruapehu District Council Level of Service Customer Survey Recording the number of service calls related to all roading activities Road smoothness two yearly inspections High speed data Contractual KPI reporting							
Planned improvements	Increasing capability by Reducing weight restrictions on selected bridges Seal extension programme							

TABLE C-14: FINANCIAL MANAGEMENT LEVEL OF SERVICE

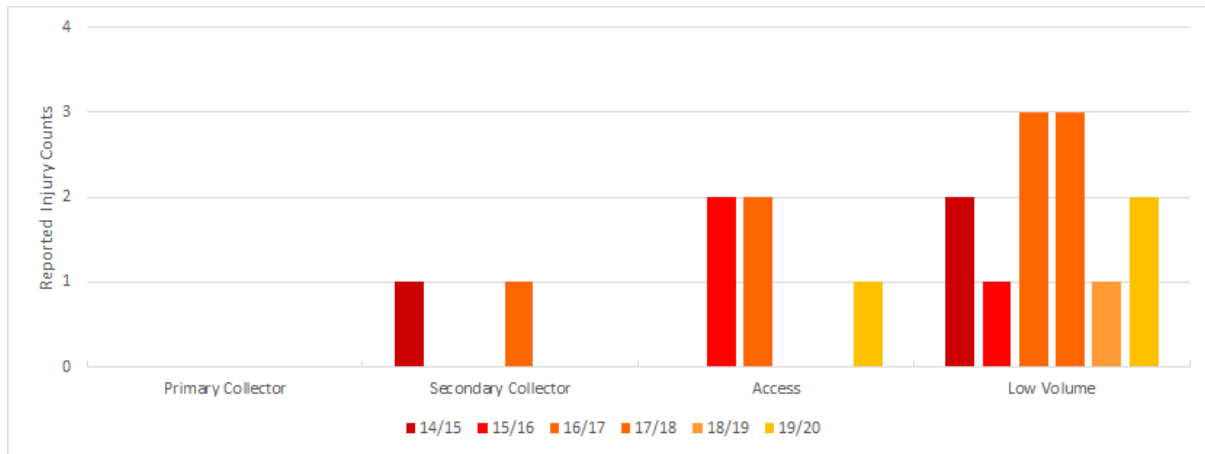
Level of Service		The financial management of the land transport network is acceptable to users						
Links to Strategic Goal	Providing an affordable transportation network that meets the reasonable needs of the wider community Encouraging the community to participate in decision making processes and to be informed about changes or initiatives within the community							
Links to Outcomes	Council is proactive, transparent and accountable							
Customer Value	The core customer value this service aims to provide is: Affordability / Sustainability							
ONRC Customer Value	Value for Money							
Customer Measure		Maintenance, renewal capital work programmes are completed within budget						
Targets	Frequency	Reported to	Current Performance 2019/20	Year 1 target 2020/21	Year 2 target 2021/22	Year 3 target 2022/23	Years 4-5 target 2023/24 - 2024-25	Years 6-10 target 2025/26 - 2029/30
% of Opex expenditure to budget	Quarterly	Finance System	102%	+/- 5 % of budget	+/- 5 % of budget	+/- 5 % of budget	+/- 5 % of budget	+/- 5 % of budget
% of Capex expenditure to budget	Quarterly	Finance System	76%	+/- 5 % of budget	+/- 5 % of budget	+/- 5 % of budget	+/- 5 % of budget	+/- 5 % of budget
We will achieve this level of service by:	Managing the works programme and monitoring expenditure							
We will measure whether this level of service is achieved by:	Recording all transactions accurately in the appropriate element of the financial system Analysing the expenditure versus the budgets and comparing the rate of spend, the time of year in terms of construction season and the ability to meet the annual target.							
Planned improvements								

TABLE C-15: SAFETY LEVELS OF SERVICE

Level of Service		The safety of the land transport network is acceptable to users						
Links to Strategic Goal	Supporting road safety activities promoted by Horizons Regional Council Managing the Network with a strong focus on safety to avoid or mitigate significant hazards							
Links to Outcomes	Core infrastructure endeavours to keep pace with changing demand. Excellent standards of safety and welfare are promoted and respected.							
Customer Value	The core customer value this service aims to provide is: Safety							
ONRC Customer Outcome	Safety / Resilience / Accessibility							
Customer Measure								
Targets	Frequency	Reported where	Current Performance 2019/20	Year 1 target 2020/21	Year 2 target 2021/22	Year 3 target 2022/23	Years 4-5 target 2023/24 - 2024-25	Years 6-10 target 2025/26 - 2029/30
All reported fatal and serious crashes are investigated	Annual	Annual Report	100%	100%	100%	100%	100%	100%
Improvement recommendations from fatal and serious crash reports implemented	Annual	Annual Report	100%	100%	100%	100%	100%	100%
Number of reported fatal or serious accidents per annum, 100	Annual	Annual Report	3	5 or less	5 or less	5 or less	5 or less	5 or less
We will achieve this level of service by:	Inspecting and appropriately modifying fatal and serious accidents sites in accordance with the safety inspection report Maintaining signs and markings in accordance with RDC’s “Report on RTS 5 standard roadmarkings – July 2010”. Ensuring compliance with all maintenance KPIs in Road Maintenance Contract Ensuring compliance with all response times specified in Road Maintenance Contract							
We will measure whether this level of service is achieved by:	Reporting NZTA CAS records of the number of reported accidents per quarter Monthly 10% network audit by network consultant Monthly maintenance audit reports for signs and markings Contractual KPI reporting							
Planned improvements	Minor safety (low cost, low risk) works programme.							

As can be seen in the Figure below the number of serious injury or fatal crashes on District roads has remained at or below target for the last 6 years. This doesn't mean that there is no more that can be done, and Council will continue to manage the road network in a way to reduce risk of crashes of any sort.

FIGURE C.8: SAFETY CUSTOMER OUTCOME 1 – NUMBER OF SERIOUS INJURIES AND FATALITIES (DSI) BY ONRC CATEGORY



Customer Service Requests

Council has a Service request system to log calls from the public. Calls can be issues identified on the network or requests for service. Total service calls were increasing steadily, reaching a peak in 2017/18 before declining in the last two years..

FIGURE C.9: TOTAL ROADING SERVICE CALLS

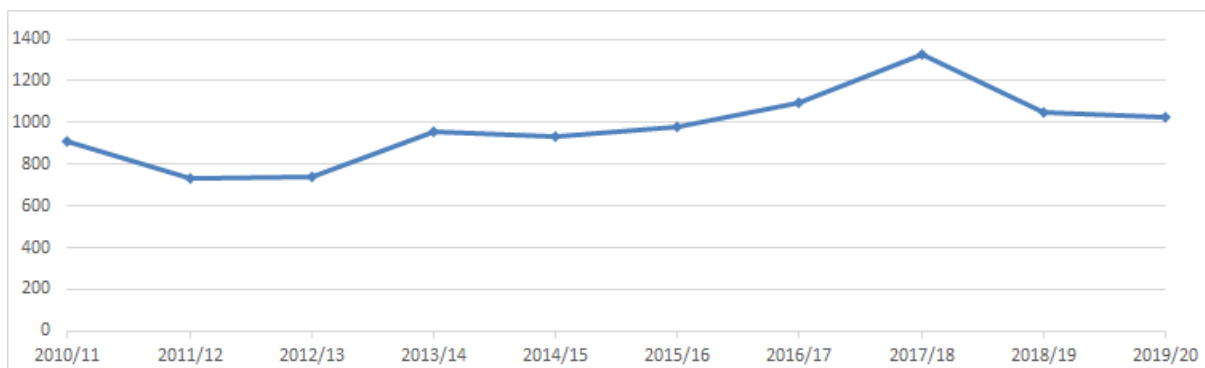
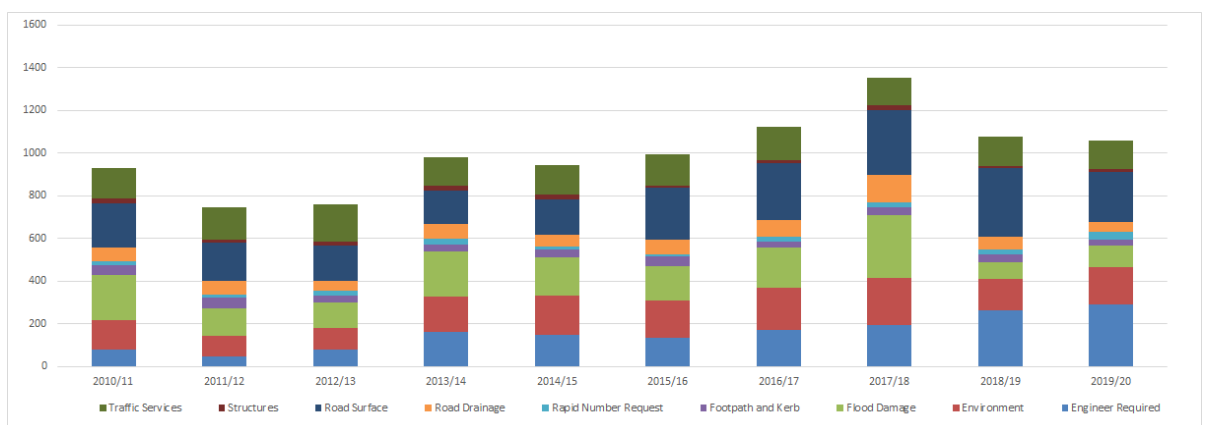


FIGURE C.10: EQEST FOR SERVICE CALL TYPES



The graphs above show the total calls and call types over the previous 10 years. The proportions remain relatively steady, typically the largest proportions of calls are Road Surface, Structures and Flood Damage. It can be seen that in 2017/18 there was a large spike in flood damage calls and Engineer required calls have increased steadily since 2012/13 with a large increase from 2018/19 onwards.

Total number of calls can be an indication of the level of satisfaction for network users. This is one of the Key performance indicators. However, as calls are a mix of complaints and / or requests for service or work instructions, it is indicative only.

C04.2 Expected Changes to Service Levels

The LoS tables indicate that service levels Council provides are not anticipated to change.

C04.3 Accelerated and Enhanced Development Plans

Where individual communities wish to increase either the service levels provided or the rate of achievement of the target service levels, the Community Board or Ward Committee may propose and fund one or both of the following:

- An Accelerated Programme, which provides for an increase in the rate or priority of achievement of the standard features for specific locations.
- An Enhanced Programme, which provides for an enhancement of the standards for specific locations such as town centres, e.g., pavers in place of asphalt footpaths, powder coated or specially designed street light poles and fittings, garden features, etc.

C05 DATA QUALITY

C05.1 Overview

There is an expectation for Council to manage and understand the quality of the data used to make decisions. Council uses RAMM as its key asset management tool for Road Transport. In recent years the Road Efficiency Group (REG) within NZTA has been publishing data quality reports based on RAMM data.

In 2019 Council subscribed to the MAX.quality tool which identifies and notifies specific asset data quality errors as part of their Data Quality Improvement Programme.

Council will continue with MAX.quality using it to drive data quality improvements by both identifying records needing correction, but more importantly to help improve processes so that data is correctly entered the first time.

C05.2 REG Data Quality Project 2019/20

The quality of the RAMM data being used by the ONRC Performance Measures Reporting Tool (PMRT) is assessed annually by REG. This reporting is done in conjunction with the ONRC Customer Levels of Service, the outputs of the REG data quality project build confidence in the results of the ONRC Customer Levels of Service.

Overall Ruapehu achieved a score of **69** in its REG 2019/20 Data Quality Report.

Each data quality test has a defined banding as to what is an acceptable result. Each test's outcome means that the data being measured either

- Meets the expected standard
- Has some minor issues
- Has major Issues

The following table outlines the overall breakdown of Councils PMRT results for 2019/20. For the 59 tests that are relevant to the District, the table outlines the percentage of Data Quality Tests which fall into each grade.

TABLE C-16: PMRT DATA QUALITY REPORT 2019/20

	Number of Tests	Grade 1 Expected Standard	Grade 2 Minor Issues Present	Grade 3 Major Issues Present
Overall Score	59	49%	24%	27%

Each quality test is mainly testing on of 3 Quality Dimensions:

- Completeness
 - This dimension measures the amount populated of a particular data attribute.
- Accuracy
 - This dimension measures the accuracy of the data in terms of location, correct association to related assets as well as whether the entered data makes sense.

- Timeliness
 - This dimension measures the temporal aspect in which data is updated for assets such as the ongoing renewal/replacement of assets, the consistency of routine processes like traffic counts and the timeliness in which data is entered following renewals.

TABLE C-17: PMRT DATA QUALITY REPORT 2019/20 BY DIMENSION

Quality Dimension	Number of Tests	Grade 1 Expected Standard	Grade 2 Minor Issues Present	Grade 3 Major Issues Present
Completeness	25	56%	36%	8%
Accuracy	21	50%	5%	45%
Timeliness	16	36%	29%	36%

These tests are also categorised as to the asset type or activity they relate to. Details of these breakdowns will be shown alongside the MAX.quality Data Confidence results in Detailed Data Confidence (section C05.4)

C05.3 MAX.quality Data Confidence

The MAX.quality Data Confidence measures summarise the current state of RAMM data is seen by the MAX.quality insight error log. Each Data Confidence measure focuses on an asset type. The results along with the PMRT results aligned to each activity lifecycle section are detailed below.

While the Data Confidence Indexes reported below are a single value, they indicate the proportion of asset records without an issue as reported by MAX.quality Data Quality Tests. As these indices report the proportion of records without an issue the higher the percentage the better. It should be noted that they are backed by a number of MAX.quality data quality tests focusing on individual attributes on an asset or activity.

The use of the MAX.quality tool is to help identify data issues to lead to data improvement programmes, both to

- improve existing data,
- inform data management process improvements
 - in order for new data to be captured correctly the first time
 - Data updates to be captured and processed timeously.

C05.4 Detailed Data Confidence

To align with each Activity Lifecycle section (Sections D02-D12) a more detailed breakdown of the PMRT results and the MAX.quality Data Confidence are summarised and compared.

C05.4.1 C05.4.1 Network (D02)

REG Data Quality

All of the Network Data Quality tests (except one) test for data accuracy.

TABLE C-18: PMRT RESULT FOR NETWORK DATA QUALITY

Network Quality	Number of Tests	Grade 1 Expected Standard	Grade 2 Minor Issues Present	Grade 3 Major Issues Present
Network: Carriageway	8	63%	38%	0%
Treatment Length	5	60%	40%	0%

MAX.quality Data Confidence

There currently is not a summarised data confidence Index for Networks.

Data Quality

While none of the PMRT results are showing major issues, it should be noted that the quality of the network has an effect on all the asset activities.

C05.4.2 Pavement (D03)

REG Data Quality

The Pavement Data Quality tests are grouped into Asset inventory and Condition tests as shown below.

TABLE C-19: PMRT RESULT FOR PAVEMENT DATA QUALITY

Pavement	Number of Tests	Grade 1 Expected Standard	Grade 2 Minor Issues Present	Grade 3 Major Issues Present
Asset Inventory: Pavement	3	0%	33%	67%
Asset Inventory: Surfacing	6	17%	50%	33%
Condition: Rating	2	100%	0%	0%
Condition: Roughness	2	100%	0%	0%

The tests showing major issues are detailed below.

TABLE C-20: PMRT PAVEMENT TESTS SHOWN AS MAJOR ISSUE

Sub category	Ref	Metric Description	Dimension
Surfacing	SURF4	Surface records with Original Cost	Completeness
Surfacing	SURF5	Surface records with Work Origin	Completeness
Pavement	PAVE1	Achieved pavement renewal programme as-built	Timeliness
Pavement	PAVE2	Pavement layer records have valid attribute data	Accuracy

TABLE C-21: MAX.QUALITY DATA CONFIDENCE

Data Confidence Index	Result
Pavement	27%
Surfacing	90%

Data Quality

Surfacing data quality for PMRT measures shows a lack of work origin and original cost since these were introduced in the 2016/17 year. As these feed into cost and efficiency measures for renewals work there should be a process to enter both pieces of information as a new surface record is entered into RAMM.

Both Pavement and Surfacing measures for PMRT use the relevant Structure table. For pavement this means that if multiple layers are entered at the same time they must have distinct layer dates. During entry of this year's pavement program an historical layer to indicate what is beneath the new pavement has been entered but given the same layer date as the new layers. RAMM has assumed the historical layer is the top layer in the structure and the PMRT measure has assumed that the data has not been entered to match with TIO and that there are missing attributes.

C05.4.3 C05.4.3 Structures (D04)

REG Data Quality

Of the asset types associated with structures PMRT only measures the quality of Retaining walls.

TABLE C-22: PMRT RESULT FOR STRUCTURES DATA QUALITY

Structures	Number of Tests	Grade 1 Expected Standard	Grade 2 Minor Issues Present	Grade 3 Major Issues Present
Asset Inventory: Retaining Walls	2	100%	0%	0%

TABLE C-23: MAX.QUALITY DATA CONFIDENCE

Data Confidence Index	Result
Bridges	5%
Major Culverts	79%
Retaining Walls	65%

Data Quality

The quality of the bridge data contained in RAMM as reported by the GHD MAX.quality system is poor - with only 5% of all bridges having no errors. The majority of these errors are bridges not having the Bridge type, lane width or length field populated. It should be noted that there is a lot of information about bridges maintained on spreadsheets, this needs to be reconciled with RAMM and updates made to bring RAMM into alignment with the assets on the ground.

There is a high degree of confidence in the completeness of information for major culverts.

Information on structural retaining walls that is recorded also has a reasonable confidence level. It is known that there are unrecorded rock retaining walls on the network, these are added to the database as they are discovered.

C05.4.4 Drainage (D05)

REG Data Quality

The PMRT reports for drainage are grouped into Drainage (limited to Culverts) and Surface Water Channels.

TABLE C-24: PMRT RESULT FOR DRAINAGE DATA QUALITY

Drainage	Number of Tests	Grade 1 Expected Standard	Grade 2 Minor Issues Present	Grade 3 Major Issues Present
Asset Inventory: Drainage	2	0%	0%	100%
Asset Inventory: SW Channel	2	0%	0%	100%

The tests showing major issues are detailed below.

TABLE C-25: PMRT MEASURES WITH MAJOR ISSUES

Sub category	Ref	Metric Description	Dimension
Drainage	DRAIN1	Culvert assets known	Completeness
Drainage	DRAIN2	Culvert asset records maintained	Timeliness
SW Channel	SWC1	SWC asset known	Completeness
SW Channel	SWC2	SWC asset records maintained	Timeliness

TABLE C-26: MAX.QUALITY DATA CONFIDENCE

Data Confidence Index	Result
Minor Culverts	21%
Other Drainage	12%
Surface Water Channels	7%

Data Quality

The major issues for both the PMRT measures for completeness and MAX.quality is the lack of construction dates. The PMRT measures for timeliness are a measure of the proportion of new assets added to RAMM

C05.4.5 Traffic Services (D06)

REG Data Quality

The PMRT reports for Traffic Services are grouped into Streetlights, Signs and Railings.

TABLE C-27: PMRT RESULT FOR TRAFFIC SERVICES DATA QUALITY

Traffic Services	Number of Tests	Grade 1 Expected Standard	Grade 2 Minor Issues Present	Grade 3 Major Issues Present
Asset Inventory: Streetlights	3	67%	33%	0%
Asset Inventory: Signs	3	33%	0%	67%
Asset Inventory: Railings	2	0%	50%	50%

The tests showing major issues are detailed below.

TABLE C-28: PMRT MEASURES WITH MAJOR ISSUES

Sub category	Ref	Metric Description	Dimension
Signs	SIGNS1	Sign assets known	Completeness
Signs	SIGNS3	Sign replacement activity	Timeliness
Railings	RAIL1	Railing assets known	Completeness

TABLE C-29: MAX.QUALITY DATA CONFIDENCE

Data Confidence Index	Result
Street Lights	94%
Signs	72%
Railings	73%

Data Quality

The major factor for both sign and railings ‘assets known’ is the lack of installation dates. It is unlikely that this information will be easily available for these types of assets. From 2019/2020 the PMRT reports the lack of an installation date on these assets will not be included in the group of assets with missing attributes if this is the only issue and there is a recent (less than 3 years) condition rating on the asset. Therefore, a programme to capture asset condition on a regular basis should be considered.

The signs and railing completeness measures report accuracy by looking at a number of attributes of each asset and reporting the percentage of records without an error on any of the attributes.

For the timeliness measure for signs, there is a known gap in the signs inventory in RAMM. This measure tests for the number of signs marked “replaced” during a given timeframe. The result is possibly misleading, as while Council may have been replacing signs at the expected rate, without an old sign to mark as replaced, the activity is not being measured by the PMRT measure. This should improve over time as the portion of missing signs is decreased.

C05.4.6 Footpaths (D07)

REG Data Quality

The PMRT reports for Footpaths are a single group.

TABLE C-30: PMRT RESULT FOR FOOTPATH DATA QUALITY

Footpaths	Number of Tests	Grade 1 Expected Standard	Grade 2 Minor Issues Present	Grade 3 Major Issues Present
Asset Inventory:Footpath	2	0%	50%	50%

The tests showing major issues are detailed below.

TABLE C-31: PMRT MEASURES WITH MAJOR ISSUES

Sub category	Ref	Metric Description	Dimension
Footpath	FOOT1	Footpath asset known	Completeness

TABLE C-32: MAX.QUALITY DATA CONFIDENCE

Data Confidence Index	Result
Footpaths	35%

Data Quality

The major factor contributing to this result is the current lack of construction dates.

Data Completeness

The gap in known footpath asset data will be addressed as part of the improvement plan.

It is expected that data completeness will continue to improve gradually through business as usual activities of maintenance and inspections.

C05.4.7 Other Assets (D08-D11)

The assets associated with sections D08-D11 are not currently set up in RAMM, and as such there is not much known about the quality of information known about them.

C05.4.8 Network and Asset Management (D12)

The PMRT reports for Network and Asset Management are grouped into Crash Data, Traffic Counting, Traffic Estimates and Maintenance Activity.

TABLE C-33: PMRT RESULT FOR NETWORK AND ASSET MANAGEMENT DATA QUALITY

Network and Asset Management	Number of Tests	Grade 1 Expected Standard	Grade 2 Minor Issues Present	Grade 3 Major Issues Present
Crash: Crash Data	2	50%	50%	0%
Demand/Use: Traffic Count	3	0%	0%	100%
Demand/Use: Traffic Estimates	5	100%	0%	0%
Maintenance Activity: Maintenance Activity	7	71%	14%	14%

The tests showing major issues are detailed below.

TABLE C-34: PMRT MEASURES WITH MAJOR ISSUES

Sub category	Ref	Metric Description	Dimension
Traffic Count	COUNT1	Well targeted traffic count programme	Completeness
Traffic Count	COUNT3	Traffic loading understood	Completeness
Traffic Count	COUNT2	Traffic count programme activity on sealed network	Timeliness
Maintenance Activity	MAINT1	Consistency of pavement, surfacing and shoulder maintenance activity units	Accuracy

MAX.quality Data Confidence

Currently there are no MAX.quality data confidence measures for Network and asset management.

Data Quality

Council is starting to prioritise traffic counts and seeks to see improvement in this area in the future.

C05.5 Data Confidence Improvement Actions

While the data quality discussed in sections C05.2-C05.4 are all based on RAMM data, the Council has built up a library of additional data which supplements the information in RAMM.

Where appropriate Council should use this data to reconcile the information in RAMM with a view to improving the data quality results reported by both REG's PMRT and MAX.quality Data Confidence Indices.

The data quality issues will be prioritised and addressed in the Improvement Plan focusing on measures which provide benefit to the overall asset management.

C06 PLAN IMPROVEMENTS

C06.1 Overview

Making improvements to the asset management plan is the result of ongoing continuous improvement focus across the Land Transport business and operation.

Council currently has an Asset Management Improvement Programme (AMIP), that includes an online register of improvement tasks. The structure of the programme is to provide more focus and structure to the ongoing prioritisation of tasks and support the work is being progressed.

Improvements to this AMP, and to future AMPs, is a subset of the Asset Management Improvement Programme (AMIP).

Council is focused on delivering appropriate and sustainable levels of improvements each year. A significant amount of these are relatively minor, but valuable, tweaks to business processes, communications and information management.

C06.2 Improvements Achieved

Council has progressively reviewed and made improvements to its asset management planning since the first AMP was prepared in 1996. In recent years Council has reviewed the format of the AMP to include the Business Case approach, risk management frameworks, ONRC Levels of Service and Benchmarking.

The following provides a few highlevel highlights of improvements made in the last 3 years:

- AMP | Council had it's 2018 AMP audited by GHD (independent of the team that prepared the AMP) and the improvement suggestions have been included into the AMIP improvement tasks register. A number of these have already been incorporated into this version of the AMP.
- AMP | The AMP document itself has gone through a major upgrade to:
 - remove significant duplication of information,
 - provide consistency of document structure and information across all lifecycle management sections, and
 - simplify the document to make it clearer and easier to use.
- Data quality | Council has implemented the MAX Products (supplied by GHD) to further enhance the focus on data quality, improved reporting and use of information and maintenance contract overview. This data quality transparency has allowed Council to make initial steps forward in improving its data quality.
- Structures Management | Council has established a new field inspection app for Bridge Inspections and all inspection data is now stored and managed in RAMM. This has provided a better 'one source of the truth' by bringing bridge information more fully into RAMM as well as allowing for a few smarts to be included, like taking historical defects back into the field for the next round of inspections.
- Forward Works Programme (FWP) | Council has implemented a single FWP setup in RAMM to provide a 'single source of the truth' for all capital and major renewal programmes.

A list of completed improvement tasks is included as part of the improvements task register excerpt in Appendix C.

C06.3 Improvement Programme

The development of this AMP is based on existing levels of service, the best available current information and the knowledge of Council staff.

It is expected that the Asset Management Improvement Programme (AMIP) is part of an ongoing process as there are often changes to the environment with which asset planning is occurring. This includes changes to knowledge of customer expectations, improved availability of trusted data, changing expectations from Waka Kotahi and / or the Road Efficiency Group and changing external demands for the use of the networks and assets.

The purpose of the Improvement Programme includes:

- Identify and prioritise ways to cost-effectively improve the quality of asset management planning and practices (as usually documented or referred to in the AMP).
- Identify indicative time-scales, priorities, human and financial resources required to achieve asset management planning objectives.
- Identify data and process improvements in asset management which will improve the accuracy and availability of information available during the writing of future AMPs.

A summary of the current state of the AMIP Improvement Tasks Register is shown below. To support the relationship to the AMP document, the improvement category relates to the sections within the AMP document.

TABLE C-35: IMPROVEMENTS PLAN STATUS SUMMARY BY CATEGORY

Improvement Category	Status			Total
	Future	Active	Completed	
B04 Delivery - Maintenance Contracts Improvements		4	1	6
B04 Delivery - Network & Asset Management Improvements		1		1
C02 Risk Management Improvements	3	3	3	9
C03 Environmental Stewardship Improvements	1			1
D02 Network Safety Improvements	3	3		6
D03 Pavement AM Improvements	2	4	1	7
D04 Structures AM Improvements	2	2		4
D05 Drainage AM Improvements	6	1		7
D06 Railings AM Improvements	2			2
D06 Signs and Markings AM Improvements	7		1	8
D06 Streetlight AM Improvements	2			2
D07 Footpath AM Improvements	6	1		7
D08 Great Rides (Cycleways) AM Improvements	5			5
D09 Bus Shelter AM Improvements	4			4
D10 Facility Roads and Carparks AM Improvements	3	1		4
D12 Asset Information Management Improvements		3	8	11
D12 Network & Asset Management Improvements	12	15	11	38
E01 Financial Management Improvements	1	1		2
E03 Financial Valuation Improvements	5	1		6
SP Forestry Activity Impacts	3			3
Improvements Total	67	40	25	132

D Asset Management

D01 ACTIVITY MANAGEMENT

INTRODUCTION

D01.1 Purpose and Strategic Case Link

Each asset class managed by Council as part of the transport activity has a section detailing its link to the Strategic case, how it contributes to serving or addressing the problem statements (from the Strategic Case) and the Customer One Network Road Classification (ONRC) levels of service.

The Activity Management sections provide comprehensive details of how the asset or activity will be managed and delivered during this AMP period.

D01.2 The Need for Investment

Each Activity Management section outlines why Council needs to invest in this asset class, including:

- Known Issues, Needs and Risks
- Historical commentary
- Levels of Service

This provides the background on what is needed, what has happened in the past which affects current and future needs, the current level of service the asset is providing and if there is a need to change the level of service.

D01.3 Assets to be Managed

Assets to be managed provides a description of the current assets showing:

- Asset Description - Details of the asset quantities and locations
- Asset Values - Details of the current valuation of the assets

D01.4 Asset Performance

Asset performance is broken up into:

- Asset Age / Remaining Useful life
- Asset (or network) Condition
- Asset (or network) Performance

It is critical that Council has clear knowledge of the condition of their assets and how they are performing. Condition data for some assets and networks has been captured over a number of years, which enables Council to understand future expenditure patterns and to make management decisions regarding maintenance, replacement and renewals.

The development and continued use of condition assessment data will allow preparation of reliable and trusted forward work programmes.

Asset condition over time also supports the ability to verify and update depreciation curves used in RAMM Valuation, which includes the prediction of remaining life.

A number of assets use the 1 to 5 scale for recording their condition.

TABLE D-1: CONDITION GRADE DESCRIPTIONS

Grade	Condition	Description of Condition
1	Very Good	Sound physical condition. Assets likely to perform adequately without major work for 25 years or more.
2	Good	Acceptable physical condition; minimal short-term failure risk but potential for deterioration in long-term (15 years plus). Minor work required.
3	Fair	Significant deterioration evident; failure likely within the next 5 years but further deterioration likely and major replacement likely within next 15 years. Minor components or isolated sections of the asset need replacement or repair now but the asset still functions safely at adequate level of service.
4	Poor	Failure likely in the short-term. Likely need to replace most or all of the assets within 5 years. No immediate risk to health or safety but works required within 3 years ensuring the asset remains safe. Substantial work required in the short-term, asset barely serviceable.
5	Very Poor	Failed or failure imminent. Immediate need to replace most or all of the assets. Health and safety hazards exist which present a possible risk to public safety or assets cannot be serviced/operated without risk to personnel. Major work or replacement required urgently.

D01.5 Asset Management

Asset management provides details of how the assets are managed outlining:

- Standards
- Strategies and Policies
- Risk Management
- Delivery

D01.6 Operations

The Activity Management sections provide the details of operational activities to be undertaken during the lifetime of this AMP, along with the plan of how they will be delivered.

Operational activities do not change the underlying asset but improve the operation of the asset or increase the life, for example:

- Road sweeping - maintains a clean environment and limits run off into drainage
- Grate Cleaning - allows water to flow into drainage

D01.7 Maintenance

The Activity Management sections provide the details of maintenance activities to be undertaken during the lifetime of the AMP, along with the plan as to how they will be delivered.

The main focus of the maintenance programme is on the rural roading network, primarily to reduce the deterioration of pavement and surfacing which has resulted from the higher traffic loadings of modern heavy vehicles. Standards are set and monitored by New Zealand Transport Agency (NZTA).

D01.7.1 Maintenance Types

Maintenance is the regular, ongoing, day-to-day work that is necessary to keep assets operating, including instances where portions of the asset fail and need immediate repair to make it operational again.

Maintenance falls into the following types:

- **Reactive** | Reactive action to correct asset faults and failures on an as required basis
- **Proactive** | Proactive inspection and maintenance works prioritised and planned to prevent future or further asset failure.
- **Cyclic** | Cyclic work is work that is repeated on a set frequency
- **Emergency** | Emergency work can be done immediately to address an immediate hazard often resulting from a vehicle crash or a storm event. The work is usually limited to making the road safe and then permission is required to do more major repairs

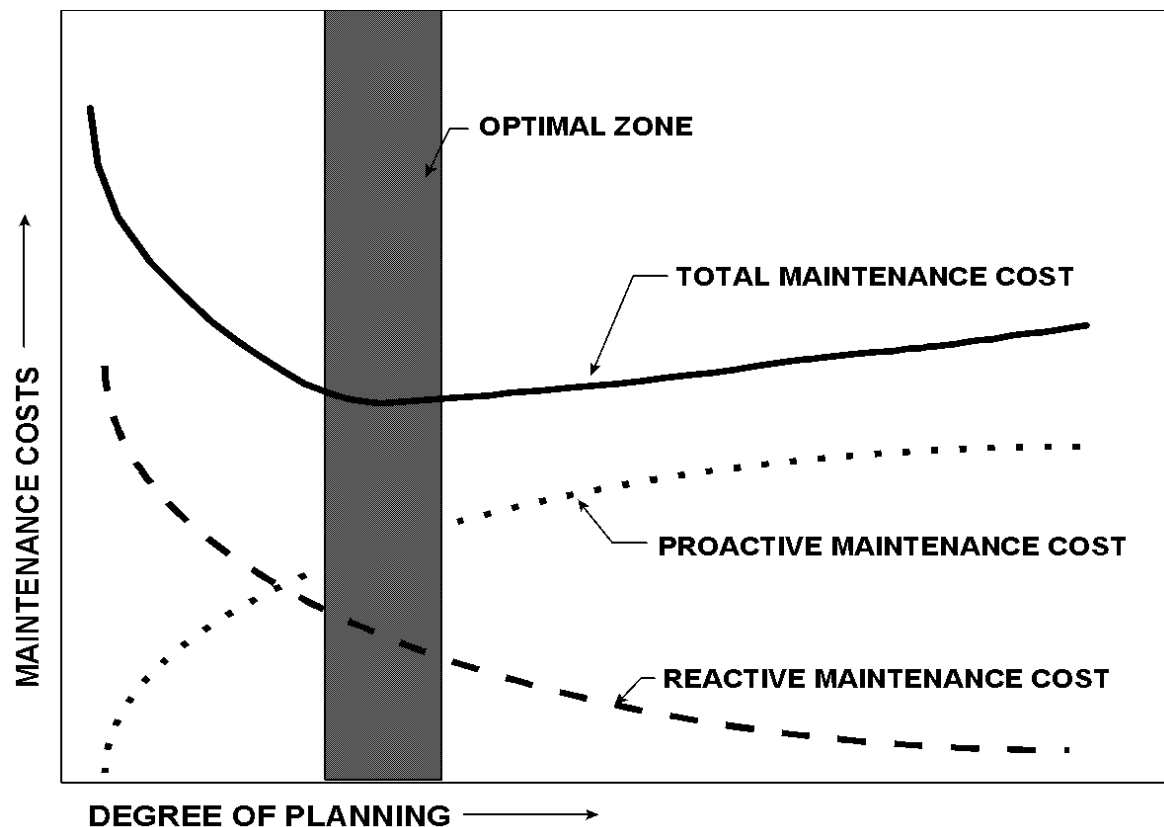
It should be also noted that within the maintenance contracts there are two types of permissions for when the contractor has permission to do the maintenance work.

- **Routine** | The contract specifically gives permission to carry this type of maintenance when the work is identified or comes due (eg: cyclic)
- **Programmed** | The contract requires the contractor to seek permission to do the work prior to commencing. This is normally done through the monthly programming process. This is sometimes called Ordered Work

D01.7.2 Maintenance General Strategy

A key element of asset management planning is determining the most cost-effective blend of proactive and reactive maintenance as illustrated below.

FIGURE D.1: OPTIMAL MAINTENANCE ZONE



Maintenance decision making needs to weigh up the following factors to continue to provide an appropriate level of service:

- **Risk of failure** - The risk associated with failure of assets
- **Levels of service** - Meeting the expected levels of service for the ratepayers, businesses and other road and path users
- **Economic efficiency** - Intervening at the right time, using activities like asset condition assessments to help optimise the intervention timing
- **Legislative and standards compliance** – eg, requirements of the LGA 2002, NZTA funding and NZTA standards

D01.8 Renewals

The Activity Management sections provide the details of the renewal activities to be undertaken during the lifetime of this AMP along with the plan as to how they will be delivered.

An asset renewal restores an existing asset to its original capacity or required condition. The objective in renewing an asset is to apply the correct treatments at the optimum time so that the required level of service is delivered while minimising total lifecycle costs.

Assets for renewal are identified through analysis of the asset information, held in RAMM, which takes into account factors such as age, condition and performance. Technical staff then make an assessment of the data and prioritise a renewal programme taking into account risk and criticality.

Assets are renewed when it is determined to be more cost effective in the long term to replace rather than continue to maintain them. In that sense it can often be a purely economic justification and not only for maintaining customer levels of service.

While the Council recognises that asset development and asset renewal can occur simultaneously, it is important to note that the purpose of asset renewal is to prevent a decline in the service potential of the assets the difference is outlined below:

- **Asset renewal** is concerned with maintaining the condition of the assets and current service levels.
- **Asset development** is concerned with the service improvements, measured by asset performance or asset extensions to provide for growth.

D01.8.1 Renewal Types

Renewals are broken into the following types;

- **Replacement** | involves renewing an asset by replacing it on a like with like basis. The deteriorated asset is removed and an equivalent asset replaced.
- **Rehabilitation** | the process of upgrading major elements of the assets by modifying or rejuvenating them so as to render them able to deliver the original level of service.

D01.8.2 Renewal General Strategy

The renewals programme must be implemented at adequate levels to maintain current levels of service and the overall quality of assets. Levels of expenditure on the asset renewal programme will vary from year to year, and will reflect:

- The age profile of the assets
- The condition/performance profile of the assets
- The cost to maintain the assets (impacting the benefits of undertaking a renewal)
- The differing economic/useful lives of individual assets comprising the overall system of assets

Failure to maintain an adequate renewal programme will see a decline in the overall standard of the network of assets and a commensurate increase in likely maintenance costs.

D01.8.3 Deferred Renewals

Renewal works identified may be deferred if the cost is beyond Council's ability to pay. This can occur when higher priority works are required on other infrastructure assets, there are short-term peaks in expenditure or if an inadequate funding sources exists.

Although the deferral of some renewal works may not impact significantly on short-term operation of assets, repeated deferral will create a liability for the longer term.

The more deferrals occur, it may create a greater requirement in terms of maintenance funding to retain levels of service.

Renewal deferrals (if any) are detailed in the Life Cycle Management sections.

D01.9 Development Works

The Activity Management sections detail the development activities to be undertaken during the lifetime of this AMP along with the plan as to how they will be delivered.

D01.9.1 Development Work Types

Development works are broken into the following types;

- **Preventative** | involves investments in new assets but with the primary purpose of reducing current and future maintenance costs
- **Improvements** | involves significantly improving an existing asset or improving an intersection or road corridor. This is primarily done to improve customer level of service or cope with growth.
- **New** | involves the construction of brand new assets, intersections or road sections. This is primarily done to improve customer level of service or cope with growth.
- **Vested** | involves the construction of new assets (usually whole roads) that are then 'vested' to Council so that the Council will now own and maintain the assets. This normally occurs as part of the subdivision process.
- **Legislative** | involves assets that are built out of legislative requirements

D01.10 Asset Disposal

The Activity Management sections detail the disposal activities (if any) to be undertaken during the lifetime of this AMP.

Disposal is the retirement or sale of assets whether surplus or superseded by new or improved assets.

Assets could become surplus to requirements for any of the following reasons:

- Under-utilisation.
- Obsolescence.
- Provision exceeds required level of service.
- Assets replaced before their predicted economic life.
- Uneconomic to upgrade or operate.
- Policy changes.
- Service provided by other means (eg, private sector involvement).
- Potential risk of ownership (financial, environmental, legal, social)

D01.11 Funding Request

In order to undertake the operations, maintenance, renewals and development activities outlined in the sections above, finance is required. This section details the funding needed by the activity.

D01.12 Asset Management Improvements

The details of any improvement project or activities that will improve the management of the asset being discussed. The complete improvement plan is outlined in the "Plan Improvement and Monitoring (section C06), with details in Appendix C.

D02 NETWORK

This section focuses on the network as a whole. The management of individual component assets is described in the individual asset lifecycle sections.

The State Highways that pass through the District are owned and maintained by Waka Kotahi New Zealand Transport Agency (NZTA). The rail network also falls outside of Council's area of operations, and is currently owned and operated by KiwiRail.

D02.1 Purpose and Strategic Case Link

The purpose of land under road is:

Provide a multi-modal network that allows for the safe, reliable, efficient and effective movement of vehicles, cyclists and people

The legal public road (including unformed road surfaces) is the Council's responsibility to manage. However, the Utilities Act 2010 provides rights for other users to utilise the road corridor, such as:

- Telecommunications
- Power
- Gas
- Water
- Wastewater
- Stormwater

In managing the network as a whole, council undertakes network wide activities, including:

- Low cost, low risk Programme of Works
- Emergency Works and Minor Events – responding to accidents and weather events that cause damage or disruption to the road
- Crash reviews
- Safety reviews

Link to Strategic Case Problem Statements

The following table highlights how this activity supports addressing the problems identified in the Strategic Business Case.

	Problem Description	Activity Contribution
Forestry & Land Use	Changing land uses (i.e. Forestry & Mining) is resulting in (and will increase) the deterioration of the network causing increased reactive (unplanned, works to maintain the roading environment) maintenance and repair costs	This activity doesn't provide any significant contribution towards addressing this problem

	Problem Description	Activity Contribution
Needs & Expectations	The needs and expectations of road users (local, freight, events, tourists) is resulting in increased investment to maintain and/or improved the form and function of the road network	A large part of the minor safety programme is co-created with the River Valley communities to ensure that it is addressing their needs
Climate, Topography & Geology	The network is impacted by climate, geography and topography resulting in reactive/unplanned maintenance costs as well as increased safety risk and operation of the network	This activity doesn't provide any significant contribution towards addressing this problem
Safety	Vulnerable road users are at greater risk due to increasing and changing activity and environmental conditions which is expected to result in increased deaths and serious injuries	Emergency Works Provision of appropriate and timely response to emergency and weather events is firstly focused on making the site safe to look after the road users and public Minor Safety Improvement Programme This delivers minor improvement works with the focus on improving the safety outcomes for a site or a length of network

Link to Key ONRC Customer Level of Service (LoS)

The following table highlights how this activity contributes to improving the Key ONRC Customer LoS.

	Customer Level of Service Description	Activity Contribution
Mobility - Reliability	Travel time reliability – the consistency of travel times that road users can expect	Emergency Works The efficiency of response to unexpected events reduces the amount of time that the network is restricted. Minor Safety Improvements Improving the safety of the network reduces the likelihood and severity of crashes, therefore reducing the amount of restrictions and closures that occur on the network.
Mobility - Resilience	The availability and restoration of each road when there is a weather or emergency event, whether there is an alternative route available and the road user information provided	Emergency Works The efficiency of response to unexpected events reduces the amount of time that the network is restricted.

	Customer Level of Service Description	Activity Contribution
Safety	How users experience the safety of the road	Emergency Works Appropriate response to unexpected events helps to make safe the site and network for road users Minor Safety Improvements A core activity to addressing safety issues identified on the network
Amenity	The level of travel comfort experienced by the road user and the aesthetic aspects of the road environment (e.g. cleanliness, comfort/convenience, security) that impact on the travel experience of road users in the road corridor	This activity doesn't provide any significant contribution towards this customer level of service
Accessibility	The ease with which people are able to reach key destinations and the transport networks available to them, including land use access and network connectivity	This activity doesn't provide any significant contribution towards this customer level of service

D02.2 Network to be Managed

D02.2.1 Network Description

The Council roading network of 1,342km is broken down into different classifications below.

TABLE D-2: NETWORK STATISTICS

Asset Type	Quantity	Urban / Rural		ONRC Classification			
	Kilometres	Urban (km)	Rural (km)	Primary Collector (km)	Secondary Collector (km)	Access (km)	Low Volume (km)
Local Authority (LA)							
Sealed	470	104	366	11	79	249	131
Unsealed	847	7	841	-	-	84	764
Other	8	0	8	0	0	1	7
TOTAL (LA)	1,325	111	1,214	11	80	334	901

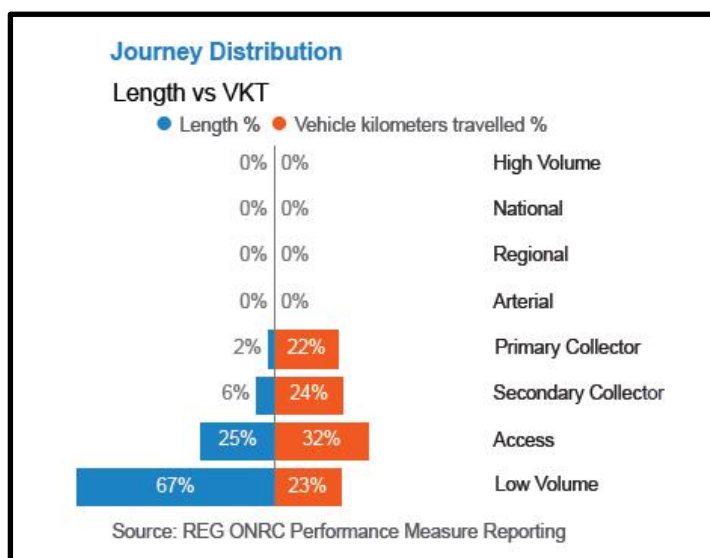
Asset Type	Quantity	Urban / Rural		ONRC Classification			
	Kilometres	Urban (km)	Rural (km)	Primary Collector (km)	Secondary Collector (km)	Access (km)	Low Volume (km)
Special Purpose Road (SPR)							
Sealed	16	0	16	16	0	-	-
Unsealed	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-
TOTAL - (SPR)	16	0	16	16	0	-	-

The special purpose road is Ohakune Mountain Road.

In addition to the road network shown in the above table, Council also has the following two further transport related networks to manage:

- A pedestrian network, comprising 70 km of footpaths - see Footpaths (Section D07) for more information.
- Off road Cycleway network 15.4km (plus additional 46km of Council paper roads maintained by DoC) - see Great Rides (Section D08) for more information.

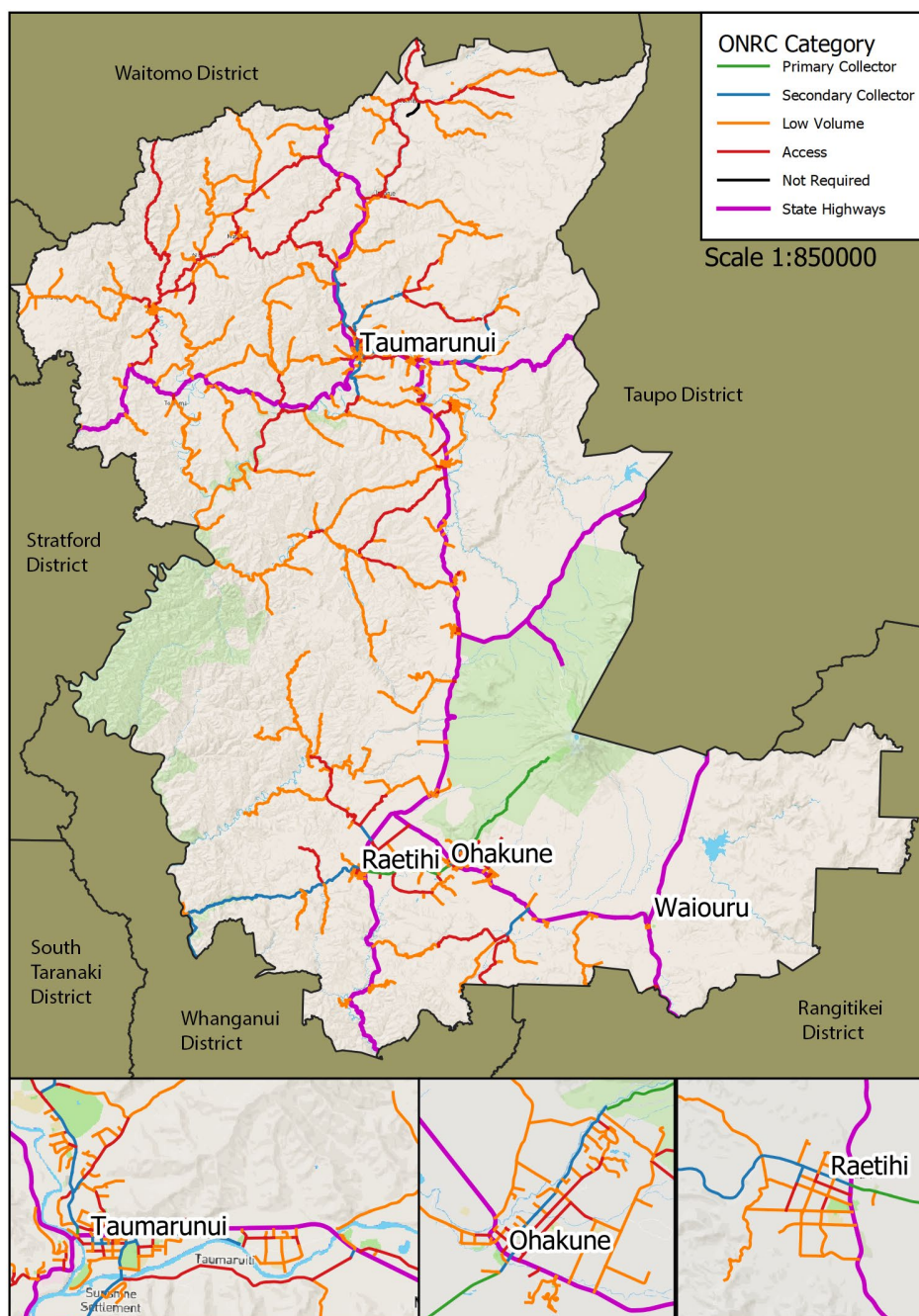
FIGURE D.2:- LENGTH VS VKT BY ONRC CLASS



The figure above clearly shows the disproportionate amount of traffic that is carried by the Primary and Secondary collectors when compared to the network length.

The following map outlines the extent of the roading network by ONRC classification.

FIGURE D.3: MAP OF NETWORK BY ONRC CLASSIFICATION



Ohakune Mountain Road (OMR)

The OMR provides the only vehicle access to the Turoa Ski Area within the Dual World Heritage listed Tongariro National Park. The road is managed by Council, under a Memorandum of Understanding (MoU) with the Department of Conservation (DOC) and Iwi to establish, maintain and promote a collaborative and co-operative working relationship between the parties. The detailed strategic plan for this route was revised in 2012 and has its focus on pavement renewal and minor improvements.

The road is a sealed 2-lane road, generally between 5.5 and 7 metres wide and 16km long. It climbs roughly 1,000 metres to the ski area carpark at an elevation of 1,600 metres. The

average grade is 1 in 16 with a maximum of approximately 1 in 7 over a 600m length above the s-bend at the bush line. The OMR currently has a thin flexible chipseal with a grade 3 chip on the top surface, although asphaltic concrete is now being used on the road above the 11km mark. The highest hourly flow recorded on the road is 732 vph (downhill, July 2010).

The environment changes significantly as the road climbs the mountain and can be split into three distinct sections:

- Podocarp forest up to about 5 km
- Beech forest that extends up to the bushline at 13 km
- Alpine section up to the carpark at 16 km

The process of managing the road is no different than that for any other road in the network. The funding for the road is different though as it is classified as a Special Purpose Road. The road presently qualifies for 100% funding from NZTA for maintenance, renewals and Capital works. However, the financial assistance rate will change to that of local roads from 2024/25.

D02.2.2 Asset Values

Replacement Cost and Annual Depreciation

- The network is valued at a component (asset) level. As such, refer to the individual asset lifecycle sections for valuation details.
- Full details available in Finances (Section E)

D02.3 The Need for Investment

D02.3.1 Known Needs, Issues and Risks

The following table provides the key drivers that support investment in this activity. Note that the primary network problems are handled and discussed in the Strategic Case (Section B02):

Driver	Name	Description	Strategies to Address
Need	Assets to fulfil their purpose	Assets to fulfil their purpose in accordance with agreed Levels of Service.	Purpose is as documented in the D02.1 Overview and Strategic Case Link. Transport Activity Level of Service is documented in Section C04 - Levels of Service we Provide Activity specific Level of Service
Need	Emergency Management	Emergency management response is required to be timely in order to maintain network accessibility and safety during events. <ul style="list-style-type: none"> • Weather • Accident response 	Transport Activity Level of Service is documented in Section C04 - Levels of Service we Provide Activity specific Level of Service

Driver	Name	Description	Strategies to Address
Issue	Nature of the roads - safety issues	Majority of rural roads are narrow and windy with the likelihood for vehicle crashes high. Personal risk (versus collective risk) is high.	<p>Make use of the Low cost low risk Improvements programme to undertake network wide improvements.</p> <p>Use targeted maintenance programmes for component assets.</p> <p>Lower speed limits - need speed limit review</p> <p>Review intersections to identify those requiring realignment.</p>
Issue	Dispersed network	Ruapehu is one of the largest districts in the North Island, yet has a very small dispersed population of fewer than two people per square kilometre.	
Issue	Emergency Works - Impact on network programme finance	When there is a need to respond in an emergency situation budget is diverted from other programmes of works	Council expenditure is managed to balance the local share budget, which may mean reductions in maintenance and renewal work if emergency works costs are higher than expected.
Issue	Emergency works - diversion of contractor resource	The need to respond to an emergency or undertake reinstatement works can divert contractor resources from other programmes of work.	Manage needs during emergency reinstatement works.
Issue	Peak capacity problems with the Ohakune Mountain Road and Tongariro Alpine Crossing .	<p>The Ski area is reaching capacity so traffic should stabilise in winter.</p> <p>Probable increase for sightseeing (not skiing) due to gondola.</p> <p>There is an increase in sight seeing visitors to the mountain which contributes to the pressure on the carpark without increasing ticket sales.</p>	<p>Demand management and park and rides at the bottom.</p> <p>A Park and Ride site has been formed in National Park to assist with capacity up the mountain. Park and Ride locations have been considered in Ohakune which will need to be developed further as demand continues to increase. Further park and ride sites need to be considered around the Whakapapa side to allow for future growth and the increasing demand on the Tongariro Alpine Crossing.</p>
Issue	Ohakune Mountain Road Safety Issues	Ohakune Mountain Road route safety and suitability issues.	<p>Further capital improvement works address route suitability and safety issues on routes with increasing tourist and commercial traffic.</p> <p>Confirm list of what's currently planned</p>
Issue	Increasing Traffic	Increasing traffic (due to tourist and commercial traffic) imposes demands for safety on roads in difficult terrain.	The Low cost low risk Improvements programme and targeted maintenance.

Driver	Name	Description	Strategies to Address
Issue	Nature of the roads - safety issues	Majority of the Rural roads are narrow and windy with the likelihood for vehicle crashes high.	The Low cost low risk Improvements programme and targeted maintenance. Under take a speed limits review (legal need) and Lower speed limits as indicated
Issue	Heavy Vehicle Safety on narrow, windy roads	Heavy traffic - safety Trucks can take the complete road on a corner.	The Low cost low risk Improvements programme and targeted maintenance.
Issue	Increased cycling on the network	With the increase in on road cycling tracks within the district and Tour Aotearoa passing through the district there has been a significant increase in the number of cyclists on the network. Along with an increase in tourists using roads to access the cycle tracks. Even though there are more cyclists there is no additional space for the cyclists. Buffer to safely pass cyclists and walkers on the road.	Consider widening the road and installing cycle paths where it is feasible.

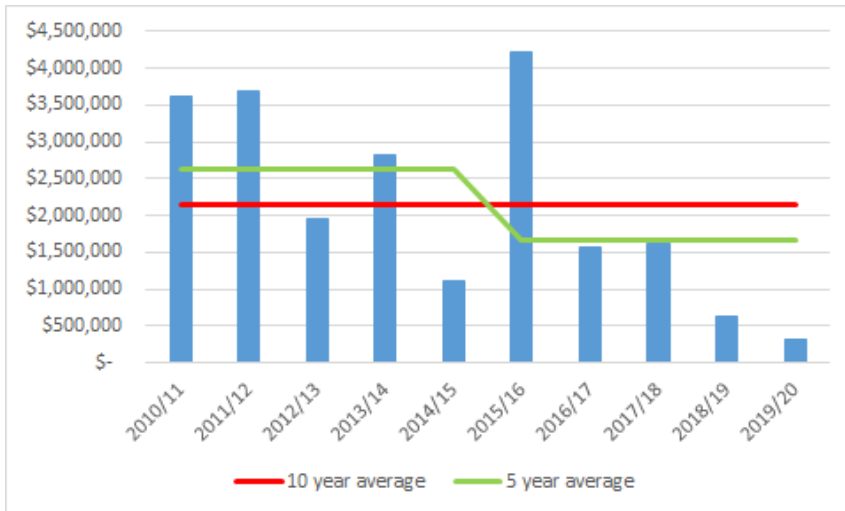
D02.3.2 Historical Commentary

The initial ONRC classification of the network was set after moderation in 2015. A new moderation round was completed and agreed with NZTA during 2020 prior to the mid-year data extraction for the REG PMRT Tool.

In 2018 the creation of a new work category of Low Cost, Low Risk was created for minor improvement works. The Low Cost, Low Risk allowed for projects of up to \$1M to be funded. Council was encouraged to use Low Cost, Low Risk as a means to gain funding for projects like bridge replacements, but due to the oversubscribed nature of fund bridge renewals did not take place during the 2018/21 timeframe. The individual project limit has been lifted for the 2021 to \$2M.

A significant issue for Council is managing the expenditure emergency works expenditure. The Land Transport budget is balanced based on the local share cost. Below is the emergency works expenditure history.

FIGURE D.4: EMERGENCY WORKS EXPENDITURE



The five year average cost is used to forecast an indicative budget for emergency works. However, if this is exceeded by emergency events within a financial year, maintenance and renewal work has to be reduced in order to accommodate the over expenditure. This has a significant impact on forward works and asset condition.

Minor events are the response to events of less than \$100,000 which are not qualified as emergency works, that reduce customer levels of service significantly.

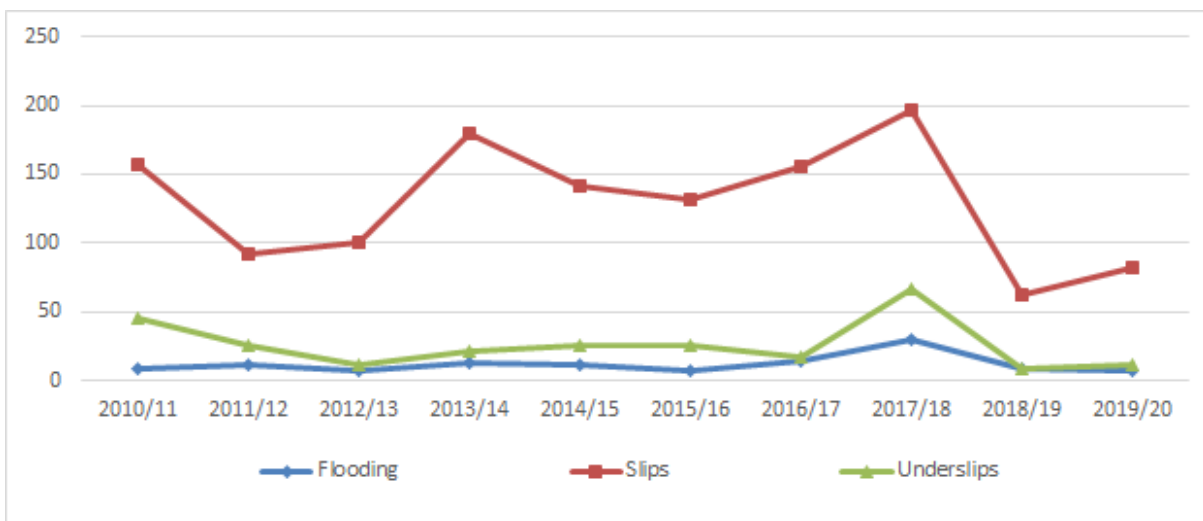
D02.3.3 Levels of Service

Service Calls

Flood damage calls are directly related to weather events. They can cover slips, dropouts, fallen trees and flooding. Flood damage is a major problem for the network as the nature of it makes it vulnerable to storm damage. Flood damage affects ONRC customer service levels of resilience, accessibility (travel time reliability) and safety.

‘Slips’ calls are for land slipping on to the road or roadside; ‘underslip’ calls are for the road slipping down, ‘flooding’ is flooding of the road. Underslips are also referred to as dropouts.

FIGURE D.5: FLOOD DAMAGE CALLS



Significant LoS Change

No significant change has been made to Network based LoS in recent history.

D02.4 Network Performance

D02.4.1 Age / Remaining Useful Life

The age and remaining useful life of a network is generally considered to relate to the primary asset that supports the function of the network.

- For road networks this is the pavement and surfacing assets
- For cycleway and offroad path networks this would be the footpath assets.

Please refer to the specific asset activity section to see the age and remaining useful life information.

D02.4.2 Condition

The condition of a network is generally considered to relate to the primary asset that supports the function of the network.

- For road networks this is the pavement and surfacing assets
- For cycleway and offroad path networks this would be the footpath assets.

Please refer to the specific asset activity section to see the condition information.

D02.4.3 Network Performance - Safety - crash stats

Network performance can be measured in terms of:

- Safety (crash statistics)
- Volumes of traffic carried (VKT)
- Availability (significant road closures)
- Delay could also be considered but this is not so applicable for the Ruapehu local road network.

The main measures of these are captured as part of the REG ONRC Performance Management Reporting Tool (PMRT). Refer to Levels of Service (Los) We Provide (Section C04) for access to these measures and some discussion.

D02.5 Asset Management

D02.5.1 Standards

- Road Safety and Geometric Design standards (numerous as known to the industry)
- Standard NZS4404:2010 Land Development and Subdivision Infrastructure, should be used for urban roads.
- Austroads engineering standards should be used for rural roads. This includes:
 - Road geometry
 - Pavement engineering
 - Safety management (relating to pavements).

D02.5.2 Strategies and Policies

- Road safety strategy
- Traffic counting strategy
- Engineering Lifelines (Horizons Council) - Civil Defence Emergency Management - Group Plan 2016-2021.
- Council Land Transport Policy allows for land owner funded improvements (eg: seal extensions).

D02.5.3 Risk Management

The key activity and specific asset risks are identified in the “Known Needs, Issues and Risks” section above.

The overall approach to risk and criticality can be found in Managing Risk (Section C02).

D02.5.4 Delivery

Asset management of the network is delivered operationally by the Professional Services contract and strategically by the Council Rooding Team Leader. The table below indicates the responsibilities for emergency responses (including minor events)

Activity Type	Activity	Delivery Method
Operations	Call Outs	General Maintenance Contract
Operations	Emergency - Initial Response	General Maintenance Contract
Operations	Emergency - Investigation, design and estimate	Professional Services Contract
Operations	Emergency - Repairs	Heavy Maintenance Contract

D02.5.5 Data Quality and Confidence

Refer to Data Quality (Section C05) for all commentary and analysis on data quality. This supports the understanding on how the data can be used to support reporting, valuations and asset management.

D02.6 Operations

D02.6.1 Activities

Emergency Works

Work undertaken for Emergency works and minor events depends on the repair method used to reinstate all assets to their pre-existing service level. Repairs can include earthworks (retreats), vegetation removal, retaining walls (gabion, timber and rock), drainage, structures, pavement and surface replacement and traffic services (sight rails, signs, markings).

- The General Maintenance contractor is responsible for Immediate response work is carried out to make sites safe
- The Professional Services Consultant is responsible for the investigation, design and estimate.

- The consultant is also responsible for carrying out the NZTA approval process
- The Heavy Maintenance contractor is responsible for implementing the design and carrying out physical works
- Repairs can include
 - Earthworks and retreats
 - Slip removal
 - Retaining structures such as timber, rock wall or gabion baskets
 - Culvert reinstatement
 - Structure reinstatement
 - Pavement reinstatement
 - Surface reinstatement
 - Traffic services such as site rails, signs and markings
- Responsiveness and preparedness
 - A suitable level of preparedness for prompt and effective response to asset failures and emergencies is maintained by ensuring the availability of suitably trained and equipped staff and service delivery contractors. Asset failures are responded to with the initial objective of restoring service as quickly as possible by the most economic method available, and making temporary repairs if major repairs or renewals are required.

Call Outs

- Minor Events are of a smaller scale than emergency works but use the same type of repairs
- These are funded from normal maintenance funding and not from emergency event funding
- Emergency and call centre response

D02.6.2 Plan

The nature of emergency services mean that the service is provided as and when required.

D02.7 Maintenance

D02.7.1 Activities

Maintenance activities are done to individual assets and therefore there are no network level maintenance activities that can be recorded here.

D02.8 Renewals

D02.8.1 Renewals Activities

Renewal activities are done to individual assets and therefore there are no network level renewal activities that can be recorded here.

D02.9 Development Works

D02.9.1 Activities

Development activities covered under this section generally relate to safety and capacity improvements as well as the construction of new roads but usually does not include any activities that are specific to a single asset class.

Drivers for Capital works programmes

The following three reasons are the drivers for investment in capital projects. Often a project is driven by an agreed mixture of these reasons:

- Growth in the population, ratepayers or demand in the use of the networks
- Renewal of the existing assets (assets have reached the end of their economic life)
- Change to the desired service levels that the network provides

Low Cost, Low Risk Rooding Improvements (NZTA W/C 341)

Low cost, low risk allows for projects up to \$2M focused on the following

- Road 2 Zero
- Walking and cycling improvements
- Local road improvements

These could include

- Visibility improvements
- Improved street lighting
- Road curvature realignment
- Signage
- Road widening
- Intersection improvements

Note that from time to time there are minor improvement works that need to be undertaken under Land Transport that are not a subsidisable activity. These are provisioned for in the financial plan as unsubsidised works.

Activities Not Used

The following activities are not being used during the 3-years of this AMP period

New Roads (NZTA W/C 323) | This provides for the construction of a new road or road link that is additional to the existing road network, including any associated new road structures. This excludes modifications or deviations to existing roads

Road Improvements (NZTA W/C 324) | This provides for:

- improvements to or upgrading of existing roads within the existing or widened road reserve
- deviations onto a new road reserve, where the original road is closed, including any associated new road structures.

Resilience Improvements (NZTA W/C 357) | This provides for non-routine work to protect the following from damage:

- roads
- road structures
- eligible walking facilities
- eligible cycle facilities.

This activity also provides for non-routine work to minimise the threat of road closure from natural phenomena.

Travel Demand Management (NZTA W/C 421) | This provides for travel demand management activities to improve the performance of the land transport system by changing transport demand and travel behaviour.

The purpose of travel demand management is to support efficient and effective use of the transport system, and to reduce the negative impacts of travel and freight movement. Demand management activities influence how, when and where people and freight travels.

The objectives of travel demand management activities are to:

- shape transport demand to better balance it with supply
- shape travel behaviour to ease pressure on the transport network and the environment
- deliver economic benefits to businesses, communities and/or New Zealand from a national perspective.

Vesting of Network assets

Assets may be vested into Council's assets as part of subdivision development. The Developer is required to include the roading assets as part of the subdivision to agreed council standards.

D02.9.2 Plan

The low cost low risk programme will fund the following network improvements over the next 10 years.

TABLE D-3: LOW COST LOW RISK PROGRAMME OF WORKS

Project	Type	2021/22	2022/23	2023/24	2024/25+
Pavement Rehabilitation - local Roads	Minor Improvements	\$450,000	\$450,000	\$450,000	\$3,150,000
Street lighting improvements	Safety Improvements	\$100,000	\$100,000	\$100,000	\$800,000
River Valley Improvements Budget	Minor Improvements	\$500,000	\$500,000	\$500,000	\$3,500,000
Pavement Rehabilitation - Special Purpose Road	Minor Improvements	\$1,565,000	\$1,565,000	\$1,565,000	\$525,000
Taupo Road Streetlight Upgrade	Safety Improvements	\$428,239			
Level Crossing Device Upgrades	Safety Improvement	\$111,731			\$335,193
Old Station Road Bridge (B317)	Safety Improvements				\$758,803

The following developer subdivisions will include vested assets across the various activities.

TABLE D-4: DEVELOPER LEAD SUBDIVISIONS

Road	Scope	Timing	Funding
Kowhai Crescent	New Subdivision assets to be vested. Stage 1 - Development started Stage 2 - Planning started Stage 3 - tbc	Date of handover depends on the developer.	None - Developer
Shannon Street	New Subdivision assets to be vested Stage 1 - Engineering plans under review Stage 2 - tbc.	Date of handover depends on the developer.	None - Developer
Rimu Street - Ohakune	Engineering plans received	Date of handover depends on the developer.	None - Developer
Joint Venture Social Housed	In early planning stages of identifying suitable land and development partners	tbc	tbc

D02.10 Disposal

D02.10.1 Activities

At a network level disposal activities relate to the divesting of roads or a section of road. The following two scenarios provide a couple of examples of when this would apply:

- The end of a rural cul-de-sac now only serves a single property and so the section of the road that only serves the single property is divested to the property owner.
- A new road is built that renders a section of existing road surplus to any current or future needs.

Each situation needs to be considered carefully and if the Council wants to proceed then there is a formal process, including the involvement of NZ Transport Agency, to go through.

D02.11 Funding Request

Network can be funded by the following NZTA Work Categories:

- WC 140: Minor Events
- WC 141: Emergency Works
- WC 341: Low Cost, Low Risk Roading Improvements

Council has identified the following programmes for 2021/22, which is indicative of the next 10 years to address the challenges faced by the transport network and deliver the District's Strategy and Investment Outcomes.

The figures below set out the historical actual expenditure and 2020/21 budget in actual dollars and the future draft budget figures in terms of 2021/22 base dollars.

FIGURE D.6: NETWORK - EMERGENCY WORKS HISTORICAL AND PROJECTED OPERATIONS AND MAINTENANCE EXPENDITURE \$(000)

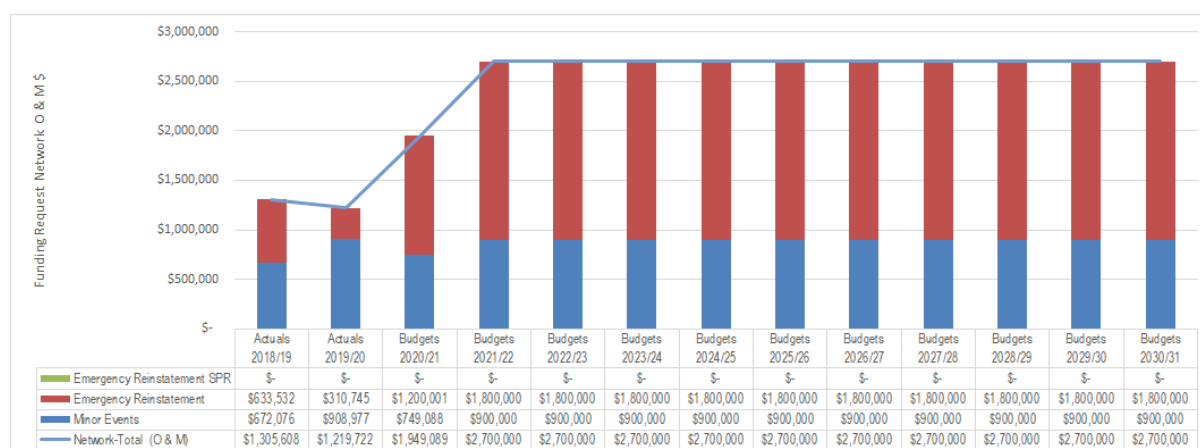
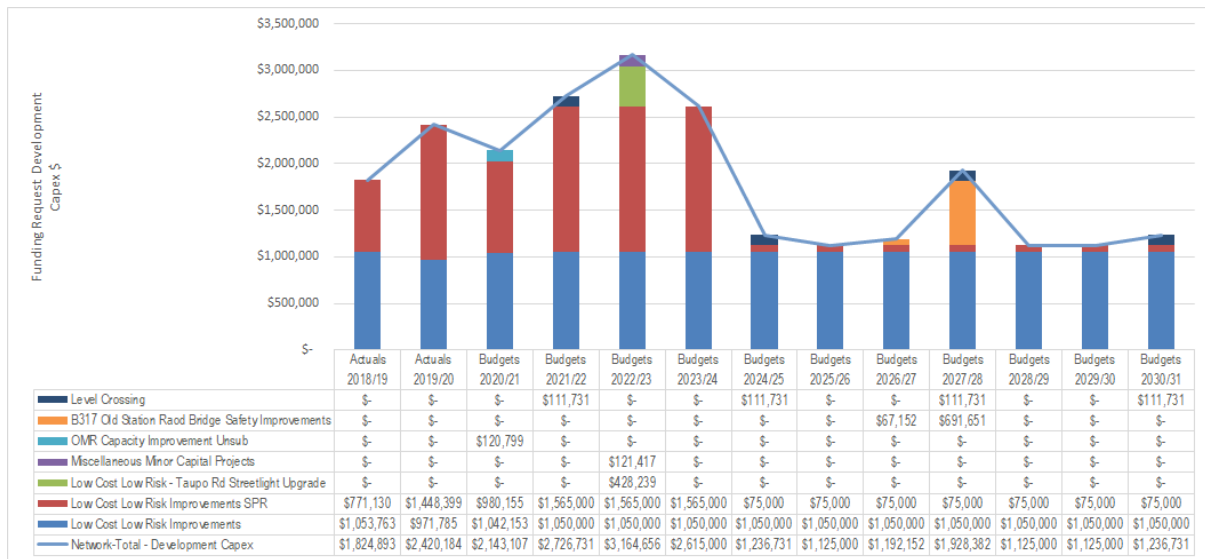


FIGURE D.7: NETWORK - IMPROVEMENTS HISTORICAL AND PROJECTED DEVELOPMENT EXPENDITURE \$(000)



Finances (Section E) and Appendix B provide more detail on the funding sources for these programmes and projects.

D03 PAVEMENTS

D03.1 Purpose and Strategic Case Link

The purpose of pavements is:

Provide a road network that is suitable for the safe, effective and efficient movement of vehicles and people through the district while maintaining good access to properties, businesses and other areas of interest

Pavements are critical infrastructure that enables growth of the economy and connectivity of diverse communities.

Link to Strategic Case Problem Statements

The following table highlights how this activity supports addressing the problems identified in the Strategic Business Case.

	Problem Description	Activity Contribution
Forestry & Land Use	Changing land uses (i.e. Forestry & Mining) is resulting in (and will increase) the deterioration of the network causing increased reactive (unplanned, works to maintain the roading environment) maintenance and repair costs	Strong enough pavements allow heavier vehicles to safely navigate the network with sustainable levels of maintenance required and lower risks of sudden pavement failures
Needs & Expectations	The needs and expectations of road users (local, freight, events, tourists) is resulting in increased investment to maintain and/or improved the form and function of the road network	Pavements are the fundamental element that enable road users to use the network for its intended purpose
Climate, Topography & Geology	The network is impacted by climate, geography and topography resulting in reactive/unplanned maintenance costs as well as increased safety risk and operation of the network	A well maintained surface provides a weatherproof coating to protect the pavement, therefore increasing resilience and reducing unplanned costs
Safety	Vulnerable road users are at greater risk due to increasing and changing activity and environmental conditions which is expected to result in increased deaths and serious injuries	Both the overall condition of the pavement and the specific properties of the surface have a direct impact on the safety of using the road network

Link to Key ONRC Customer Level of Service (LoS)

The following table highlights how this activity contributes to improving the Key ONRC Customer LoS.

	Customer Level of Service Description	Activity Contribution
Mobility - Reliability	Travel time reliability – the consistency of travel times that road users can expect	Well maintained pavements are less likely to suffer unexpected failures causing network restrictions or closures
Mobility - Resilience	The availability and restoration of each road when there is a weather or emergency event, whether there is an alternative route available and the road user information provided	This activity doesn't provide any significant contribution towards this customer level of service
Safety	How users experience the safety of the road	Both the overall condition of the pavement and the specific properties of the surface have a direct impact on the safety of using the road network
Amenity	The level of travel comfort experienced by the road user and the aesthetic aspects of the road environment (e.g. cleanliness, comfort/convenience, security) that impact on the travel experience of road users in the road corridor	Well maintained pavements provide a smoother ride, improving the comfort of the road users
Accessibility	The ease with which people are able to reach key destinations and the transport networks available to them, including land use access and network connectivity	Pavements provide the key element to enable the network and therefore provide accessibility

D03.2 Assets to be Managed

D03.2.1 Asset Description

Pavement assets managed under the Land Transport Activity include:

- Surfacing
- Pavement Layers (Sealed)
- Pavement Layers (Unsealed)

Because of the largely rural nature of the District and relatively low traffic volumes, the following main types of pavement surfaces are used by Council.

All the information in this complete Pavement section combines Local Authority roads and Special Interest Roads.

TABLE D-5: PAVEMENT SURFACE TYPES

Surface Type	Description
Chipseal	Two layers of sprayed bitumen with stone chips spread on each bitumen layer as a running surface. The life cycle for chipseal surfacing varies depending on the chip size used (small chip means less bitumen that can be sprayed as the waterproofing membrane) and by traffic volume.
Asphaltic Concrete	Mix of graded aggregate and asphaltic binder laid in a 25mm - 40mm layer. This is hard wearing and provides a quiet and smooth running surface for main urban areas. This surfacing is limited to main urban routes in Taumarunui and Ohakune, as well as the Ohakune Mountain Road.
Slurry Seal	Emulsion and fine aggregate –is laid between 3mm - 8mm thick.
Unsealed	Graded Metal

TABLE D-6: TREATMENT LENGTH SURFACE DETAILS

Asset Type	Quantity	Urban / Rural		ONRC Classification			
	Kilometres	Urban (km)	Rural (km)	Primary Collector (km)	Secondary Collector (km)	Access (km)	Low Volume (km)
Asphalt Mix							
Reseal	8.7	6.1	2.6	2.7	3.4	0.9	1.6
1st Coat	0.4	-	0.4	0.4	-	-	-
Total - Asphalt Mix	9	6.1	3	3.1	3.4	0.9	1.6
Chipseal							
Reseal	406.1	93.5	312.7	19.2	51.5	208.5	127
1st Coat	27.2	4.1	23.1	-	2.6	19.7	4.9
2nd Coat	64.7	2.3	62.4	4.8	22.4	20.6	16.9
Total - Chipseal	498.1	99.8	398.2	24	76.5	248.7	148.8
NO Surface Details							
NO Surface Details	1	0.4	0.6	-	0	0.5	0.4
Grand Total	508.1	106.3	401.8	27.1	79.9	250.2	150.9

As the length of surfaces shown in the surface length table above is slightly more than shown in the network breakdowns for sealed pavements on the network, a pavement type review may be needed.

TABLE D-7: TREATMENT LENGTH PAVEMENT DETAILS

Asset Type	Quantity	Urban / Rural		ONRC Classification			
	Kilometres	Urban (km)	Rural (km)	Primary Collector (km)	Secondary Collector (km)	Access (km)	Low Volume (km)
Local Authority							
Sealed	480	106	374	11	80	250	139
UnSealed	848	7	841	-	-	84	764
Total - Local Authority	1,328	112	1,216	11	80	334	903
Special Purpose Road							
Sealed	16	0	16	16	0	-	-
UnSealed	-	-	-	-	-	-	-
Total - Special Purpose Road	16	0	16	16	0	-	-
Treatment Length Total	1,344	113	1,232	27	80	334	903

The treatment length table covers most of the network but there is a substantial part of the sealed network where there is no known pavement data as to what is below the surface.

D03.2.2 Asset Values

Replacement Cost and Annual Depreciation

The Council's Land Transport assets have been valued as at 30 June 2020. As part of this process the following are calculated and shown in the tables below:

- ORC = Optimised Replacement Cost
- ODRC = Optimised Depreciated Replacement Cost ("today's value")
- AD = Annual Depreciation

TABLE D-8: ASSET TYPES AND VALUATION

Asset Type	Length (km)	ORC (\$)	DORC (\$)	AD (\$)
Road Formation	1,344	96,712,893	96,712,893	-
Pavement Layers – Basecourse / Subbase / Shoulders	1,344	134,478,036	101,760,517	996,435
Road Surface	496	25,107,514	9,958,570	1,551,158
Total		256,298,443	208,431,980	2,547,593

Note that Road Formation is not depreciated. This is due to only having to create the shape of the formation once during the original construction and after that it effectively lasts forever. Hence, it doesn't depreciate in value over time.

D03.3 The Need for Investment

D03.3.1 Known Needs, Issues and Risks

The following table provides the key drivers that support investment in this activity:

Driver	Name	Description	Strategies to Address Key Issues
Need	Resurfacing is required	<p>The sealed network requires resealing as the seal wears out causing loss of traction increasing the likelihood of accidents and further pavement deterioration</p> <p>The oxidation of the binder, which can lead to chip loss, and more importantly, loss of pavement waterproofing, leading directly to water ingress and pavement damage</p>	Renewals annual update process
Need	Unsealed road metalling needs to be done	Metal loss from unsealed roads creates unsafe situations for road users and exposes the road base to more rapid deterioration	Metal requirements are identified by the contractor
Need	Need for AC surface on the OMR	Snow and Ice clearing on OMR has a risk of damaging the current surface	<p>AC programme makes it easier to clear snow and ice off it with minimal damage to the road surface.</p> <p>Investigate if the snow clearing method or equipment can be changed to limit damage.</p>
Issue	Reseals not matching need	<p>Reseals are not keeping up with the target reseal re-surfacing due to previous budget constraints.</p> <p>Ideally re-seals should be ~30 km/year but currently averaging ~22.5km/year.</p> <p>Hence there is an increasing maintenance requirement and there is potential for the network to deteriorate further as the need for reseals continues to be greater than the budget.</p>	<p>Reseals are addressed on a needs base and prioritised on condition</p> <p>Smooth Travel Exposure (STE) has improved recently so there is some conflicting evidence on asset management need vs the current outcomes. Increase budget in this AMP, continue to monitor the situation further over this AMP period with a potential larger correction needed in 3-years time.</p>

Driver	Name	Description	Strategies to Address Key Issues
Issue	Pavement Rehabilitation construction to keep up with the need.	The pavement rehabilitation sites are required to last an average of 65 years to allow for the current rate of rehabilitation sites to cover the district, however they are only designed to last 25 years with good maintenance practices. Furthermore, there is a wave of pavement rehabilitation sites expected from those built in the late 60's and 80's and also the increase in logging traffic.	Undertake pavement rehabilitations based on site priority. Continue to monitor the evidence to evaluate the true need going forward in the long term Continue to gather enough evidence to allow achieved life analysis to be successfully run.
Issue	Additional maintenance due to deferred reseal and Pavement rehabilitation	With both the reseal and rehabilitation programmes not meeting desired quantities the network is deteriorating and requires some more maintenance.	Continue to refine how maintenance work is prioritised to support getting the best return from the budgets spent In the new contracts look at a more systematic approach to the collection of inspection data to support a greater understanding of the maintenance need that exists across the network
Issue	Logging Traffic	Ongoing logging traffic and the consequent increase in vehicle movements increases deterioration and maintenance requirements on the road pavements	Where there is higher demand, due to rapid deterioration from the additional heavy traffic, alter pavement reseal and rehabilitation priorities to routes of current and known logging routes which are causing the deterioration.
Issue	Existing Pavement Depth Knowledge	Lack of historical pavement depth	Testing for depth and characteristics of the pavement is undertaken before design of rehabilitation treatment.
Issue	Pre-seal Coordination	Coordination between pre reseal contractors getting work completed ready for the reseal contractor.	Advance condition rating for identifying needs so programming for repairs can be undertaken and reseal repairs undertaken early in preparation for the reseal contractor.
Issue	Lack of Kiwirail programme visibility	Only kiwirail contractors are licensed to work in the rail corridor. Only know of the work when Council receives the invoice.	Continue to improve relationships with Kiwirail to create greater transparency on both parties activities relating to rail crossings

D03.3.2 Historical Commentary

During the late 1960's to early 1980's, Council strengthened a lot of the original road pavements and a lot of the roads were sealed for the first time during this period.

This means many of the pavements and surfaces will be coming to the end of their useful lives. Furthermore, the 1958/59 amalgamation of councils to larger districts provided subsidies for work. During this phase, many roads were sealed as is without widening or any pavement design. This has left the narrow sealed pavements inherently weak, with poor sight visibility and geometry.

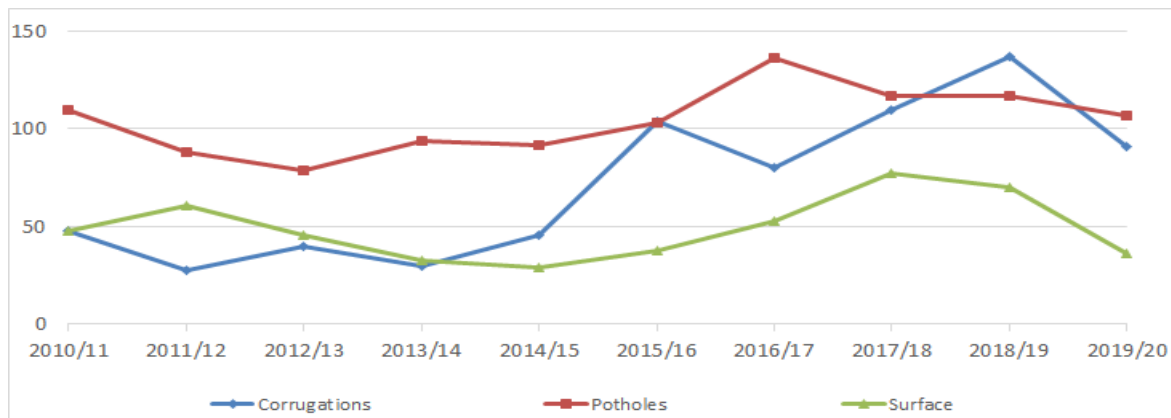
Low reseal indices has led to a lack of pre reseal repairs, due to limited budgets, leading to similar aged pavement requiring work.

D03.3.3 Levels of Service

Service Calls

Road surface calls relate to Amenity ONRC customer service level. Surface calls relate to more aggregate being required, surface slippery or greasy, oil or other items spilt on the surface, soft spots, dust, grit required, ice, mud and so on.

FIGURE D.8: ROAD SURFACE SERVICE CALLS



While the number of calls above is shown to be constant or downward trending in the early years, a new unsealed pavement maintenance contract began in October 2014, resulting in a number of calls regarding the style of grading after the change over. It was found that this style of grading was allowing more corrugations to occur.

Calls regarding the surface of 'main' unsealed roads have risen since logging has been undertaken.

All three areas have shown a decline in the last year. This will need to be monitored over the next few years to see if it is the start of a positive downward trend.

Customer Satisfaction Survey

Customer satisfaction survey results indicate that 63% of residents are satisfied with the maintenance of sealed roads and 46% of residents are satisfied with the maintenance of unsealed roads. Dissatisfied residents reasons include maintenance and renewal issues such as potholes, roughness, slips and washouts and improvement issues such as seal requirements to mitigate dust and narrow road width.

Significant Customer LoS Change

Funding levels over a long duration have reduced ability to deliver optimal resurfacing and pavement rehabilitation works reducing the following customer LoS

- Amenity: road rougher / customer satisfaction
- Safety: road rougher

Improved investigation and design for pavement rehabilitation is improving the following customer LoS

- Affordability (rates due to improved whole of life costs)
- Accessibility - less road works due to longer expect pavement life

D03.4 Asset Performance

D03.4.1 Age Profile / Remaining Useful Life

The tables below show the average age of each asset type.

FIGURE D.9: SURFACING AGE PROFILES

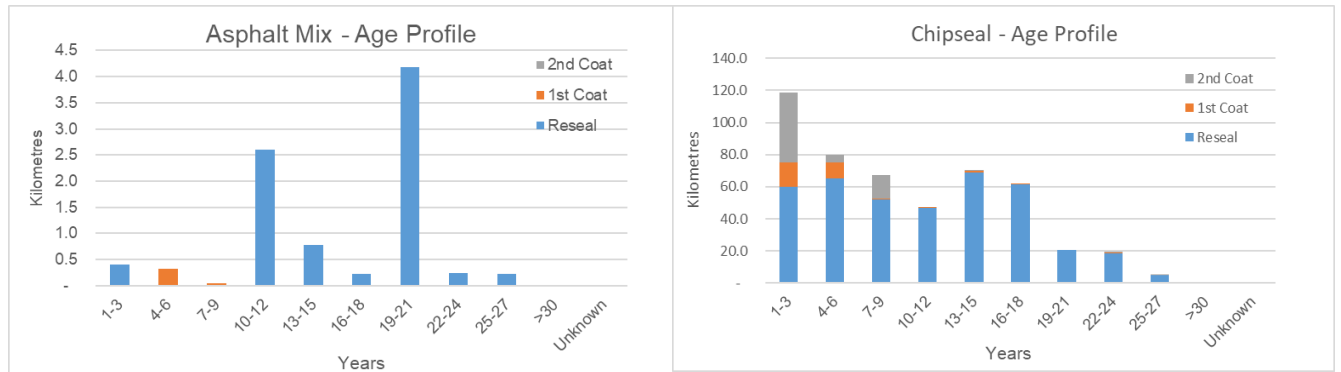
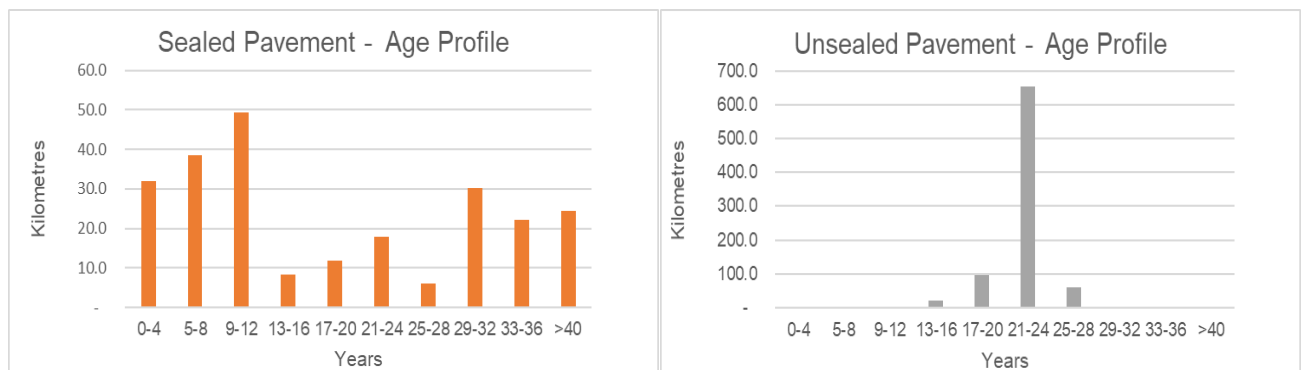


FIGURE D.10: FIGURE - PAVEMENT AGE PROFILES



The above figures for pavement age profiles are limited to the proportion of pavement where details are known. See assets to be managed (Section D03.2). For unsealed pavement this is a reasonable as only 2% without details, but for Sealed pavements 51% are without detail this mostly has distorted the profile, possibly looking better than it should.

D03.4.2 Condition

The following information provides an overview of the condition data for the road network.

Pavement Roughness

Road roughness, as defined in terms of NAASRA (National Association of Australian State Roading Authority) counts, is an indicator of road condition and performance. These counts are measured by either a standard response meter or laser profilometer at 20 m intervals which are then averaged and reported for every 100m for all sealed roads.

A count of <70 is the standard requirements for new construction and rehabilitation of sealed roads.

A count of >150 is regarded as a “rough pavement” and generally recognised as the point at which customer complaints begin to be generated. Depending on traffic volumes a smoothing treatment may be appropriate.

Smoothing rough pavements will only be subsidised by NZTA if carried out in conjunction with replacing failed pavements.

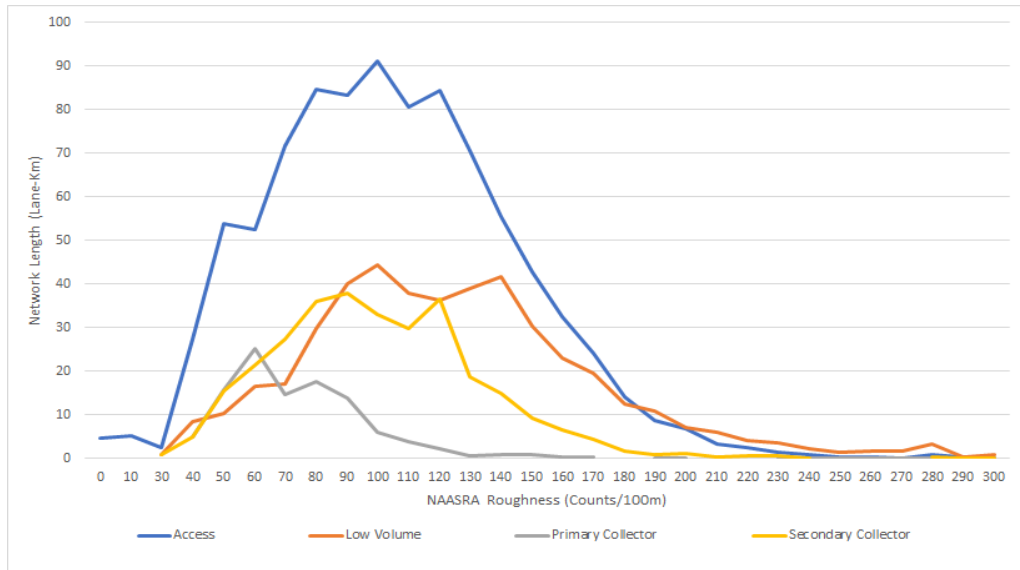
The table below shows the current roughness parameters adopted from the ONRC road classifications. The data is shown by ONRC category.

TABLE D-9: CURRENT ROUGHNESS PARAMETERS ADOPTED FROM ONRC CLASSIFICATIONS WITH ACTUAL PERFORMANCE

ONRC Road Category (km of road)	Rural / Urban					Current Sealed Roughness Parameters				
		Average NAASRA		95th percentile NAASRA		1	2	3	4	5
		ONRC Target	Actual	ONRC Target	Actual	Very Good	Good	Moderate	Poor	Very Poor
Primary Collector (0.8)	Urban	110	98	140	202	≤ 80	80- 95	95- 125	125- 140	>140
Primary Collector (26)	Rural	100	73	120	118	≤ 80	80- 90	90- 110	110- 120	>120
Secondary Collector (14)	Urban	110	112	140	178	≤ 80	80- 95	95- 125	125- 140	>140
Secondary Collector (65)	Rural	110	96	130	150	≤ 90	90- 100	100- 120	120- 130	>130
Access (18)	Urban	120	117	150	184	≤ 90	90 -105	105- 135	135- 150	>150
Access (314)	Rural	120	104	150	172	≤ 90	90- 105	105- 135	135- 150	>150
Access (LV) (78)	Urban	140	131	170	206	≤ 110	110- 125	125 -155	155- 170	>170
Access (LV) (826)	Rural	140	121	180	241	≤ 100	100- 120	120- 160	160- 180	>180

The following graph provides an overview of the Network Roughness for 2019. It shows that a good majority of the network is comfortably within the Very Good – Moderate range as described in the third graph.

FIGURE D.11: CURRENT NETWORK ROUGHNESS BY HIERARCHY – 2019



Data uses the 'Latest' flag, 90% of data is from 2019, 5% of data is from 2017 and 5% of data is older than 2017

FIGURE D.12: SEALED ROAD ROUGHNESS TRENDS

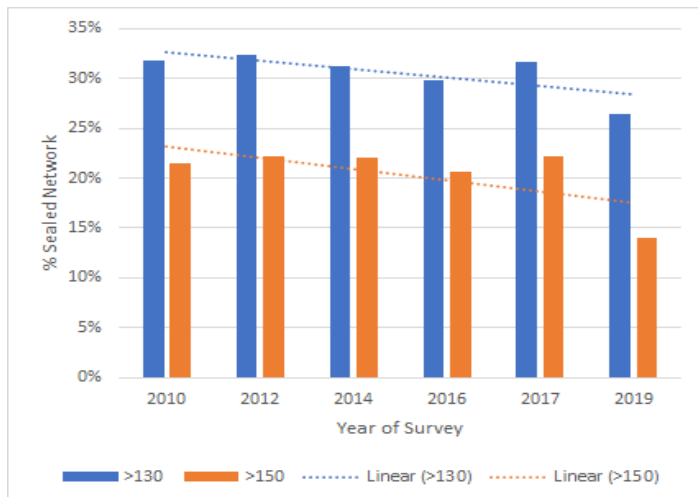
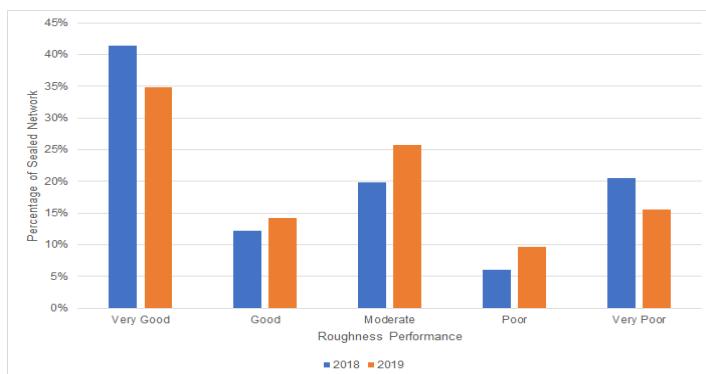
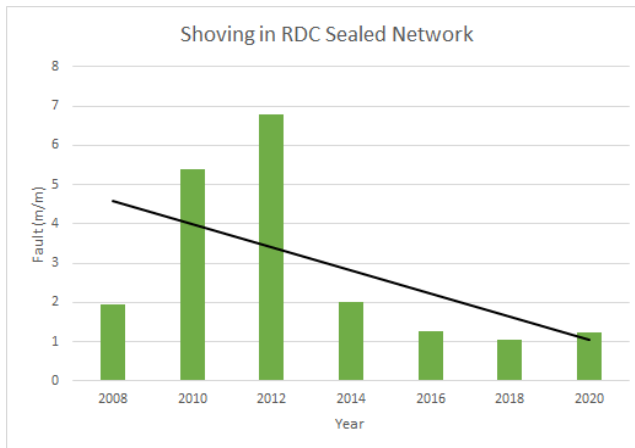


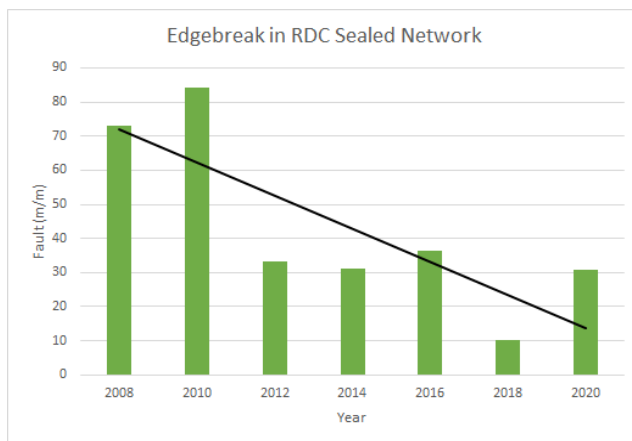
FIGURE D.13: SEALED ROAD ROUGHNESS PERFORMANCE



Visual Condition Rating Data

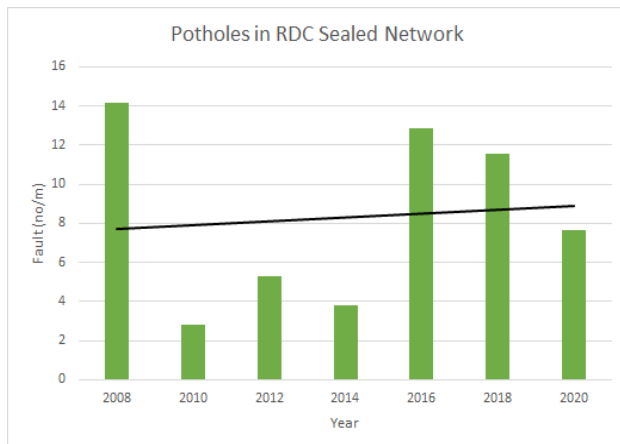


Shoving | The graph shows the historical shoving faults that have been recorded on the network. Shoving, waving or bulging of the pavement is a sign of movement, usually failure along a shear surface at some depth within the road formation. High values indicate that the road pavement is inadequate to support the traffic loading, and renewal and strengthening of the pavement are required. There has been a decline over the years in the number of shoving defects per km.

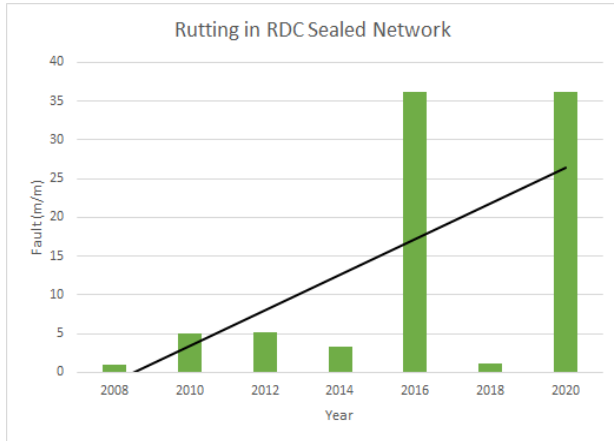


Edgebreak | The graph shows the historical edge break defects that have been recorded on the network.

The high values are an indicator that the road pavement width is inadequate and seal widening is required. Width improvements have resulted in improvements (decline) in this parameter over the last ten years; however the increase in 2020 needs to be monitored.



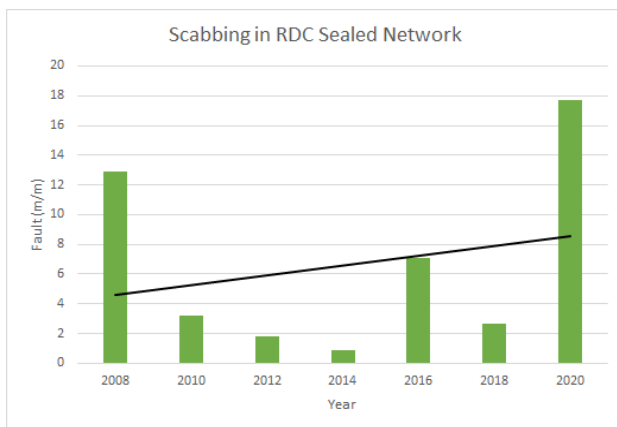
Potholes | The graph shows the number of potholes measured per km of network with the trend line showing a general increase in the number of potholes per km from 2008 to 2019 and a significant increase from 2014 due in large part to the significant deterioration on key logging routes.



Rutting | The graph shows that the length of rutting measured in the network has undergone a significant increase since 2008, indicating deterioration in this parameter particularly in the past two years.

Rutting is the longitudinal depression in the wheel path of the traffic lane. There are a number of potential causes including the breakdown of a weak gravel base material, insufficient strength in the shoulder of the road or the failure of the subgrade material on which the gravel base has been laid.

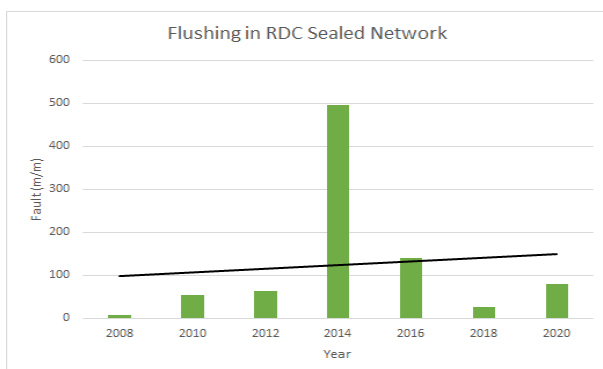
Rutting can lead to ponding of surface water, which is a safety hazard. High values indicate that the road surface needs smoothing to reduce vehicle-operating costs



Scabbing | The graph shows quite a varied picture over the years. At this point it would be hard to determine any longer term trends.

Scabbing is sealing chip that becomes separated from the bitumen due to a lack of bond. The lack of bond can be caused by poor compaction, low binder application, rain within the first few days of the sealing, traffic travelling too fast over the new seal or even dirty or poor graded chip.

Scabbing also occurs when seal nears the end of its useful life, typically when the binder becomes brittle and the movement of traffic dislodges chips. A significant increase from 2014 to 2016 is symptomatic of binder failure where reseal budget is not sufficient to cover reseal need.



Flushing | Also known as bleeding.

Flushing can occur due to:

- Excess binder used during sealing
- Hot weather causing the binder to melt
- Surface chips getting pushed down by traffic into a softened basecourse.

2014 is best treated as a rogue result as it is totally out of character and proportion to the results from the other condition surveys.

The amount of flushing (m/km) has increased from 2008 to 2016, and then stabilised loosely around that level for the last two surveys.

D03.4.3 D03.4.3 Performance

Understanding how a pavement performs, including the failure modes and their frequency and probability of occurrence, is critical to the prediction of future costs and is the basis of optimised renewal decision making.

Based on the data above, it is shown that in 2019/20 14% of the sealed network had a NAASRA count >150 and 26% of the network has a NAASRA count >130. This is a big improvement compared to previous years, where the results have been more or less similar between years (Figure - Sealed Road Roughness Trends). While there is still work required to reach the 95th percentile NAASRA target, the average target was met this year for all but one category (Urban Secondary Collectors). This indicates that the pavement rehabilitation and seal maintenance programme done between 2017 and this year has resulted in a significant improvement in the network roughness measure.

It is recommended that this level of investment continues to further improve the network roughness measure.

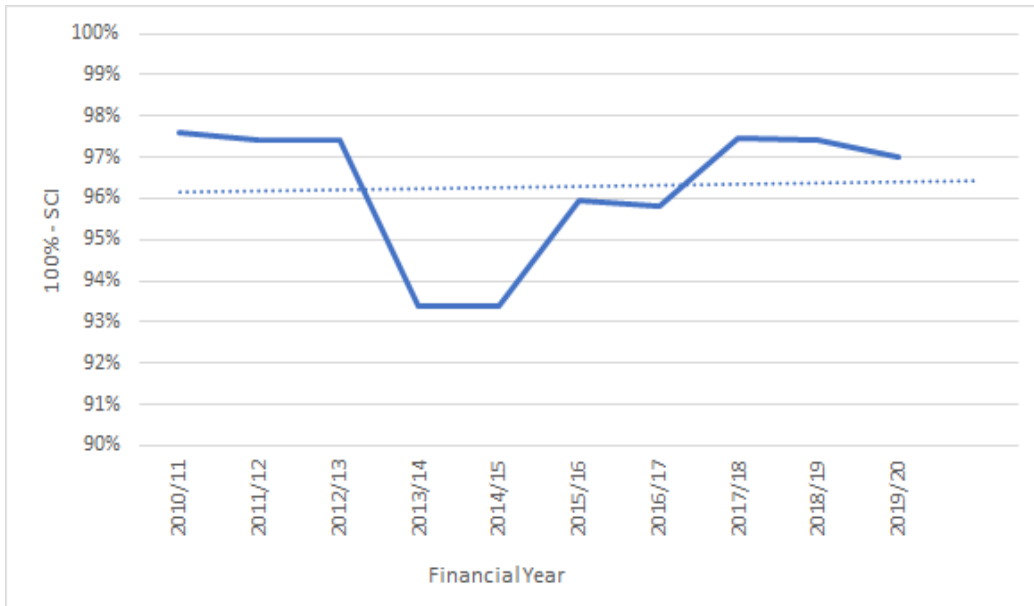
Approximately 21% of the sealed network has a NAASRA count in the Very Poor range (ONRC target is 5% or less). Similar local authorities achieve a better performance with 5-15% of the sealed network at this rough level. Recent rehabilitation work has alleviated the situation but is insufficient to keep on top of the deterioration and marks a significant worsening over the last 3 years, largely due to forestry impacts.

New Zealand Transport Agency KPIs - the agency requires a number of key pavement condition KPIs annually based on RAMM data and Territorial Local Authorities returns. These are: Surface Condition Index (SCI) and Pavement Integrity Index (PII) and Smooth Travel Exposure (STE) and they are described further below.

Surface Condition Index (SCI)

The Surface Condition Index (SCI) is a single index that describes the network surface condition and allows easy comparison of historical and future surface conditions. SCI values are calculated in RAMM based on visually measured condition defects. The index is commonly expressed as 100% - SCI to give consistency with other parameters where good is higher on the graph and bad is lower

FIGURE D.14: SURFACE CONDITION INDEX



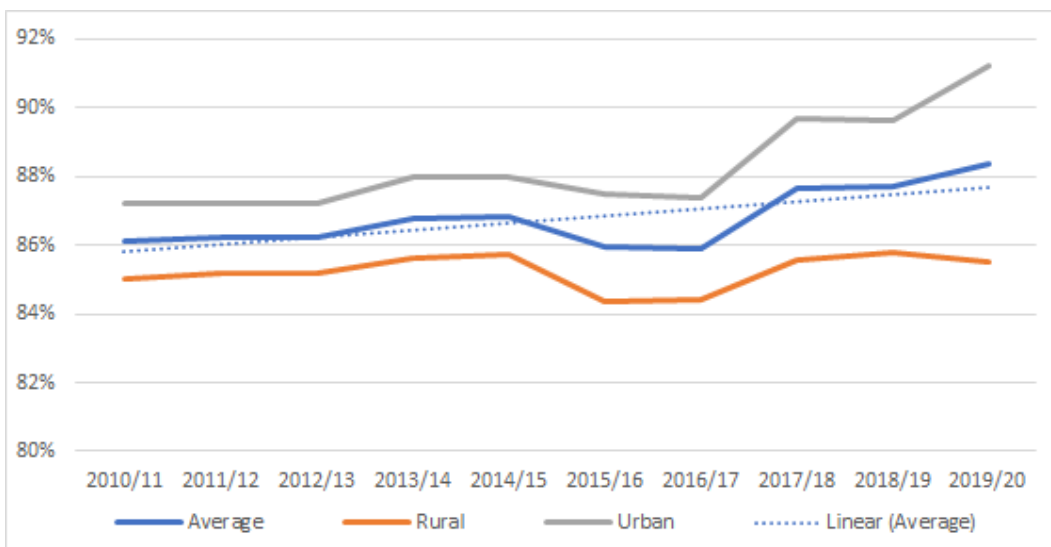
The SCI is a “weighted sum” of the surface faults in sealed road surfaces. SCI combines alligator cracking scabbing, potholes, pothole patches and flushing. The lower the SCI value, the worse the condition of the pavement. SCI is used to trigger resurfacing or reseal treatments.

Note that the significant drop in SCI value in 2013/14 and 2014/15 involved new contractors undertaking the condition surveys and it is suspected that there was over-reporting of some failure types, such as surface flushing. There has been a significant increase in the SCI value to the current result of 97%.

Pavement Integrity Index (PII)

The Pavement Integrity Index (PII) measures the health of the pavements and is generated from the RAMM condition data. It combines surface data (SCI) with rutting and shoving. The network average of the PII is reported for historical and future performance. The higher the 100% - PII value, the greater the pavement integrity.

FIGURE D.15: PAVEMENT INTEGRITY INDEX



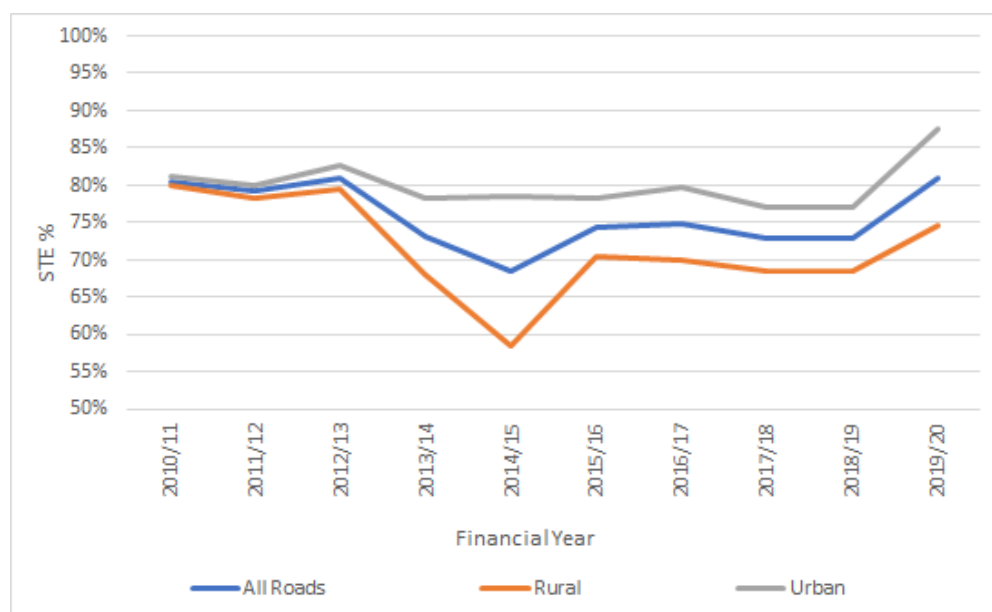
Smooth Travel Exposure (STE)

Smooth Travel Exposure (STE) is the proportion of vehicle kilometres travelled each year on roads smoother than a specified threshold. The higher the result, the more vehicles are travelling on smooth roads. STE affects the level of travel comfort experienced by the road use – ONRC CLOS of Amenity.

Ruapehu has a target that 87% of all vehicles kilometres travelled will be on smooth roads.

For the purpose of the NZTA reviews, the target roughness is generally taken as 150 NAASRA. A roughness greater than 150 NAASRA usually indicates poor road condition where roughness becomes noticeable.

FIGURE D.16: SMOOTH TRAVEL EXPOSURE



The 2019/20 result shows a significant move away from the overall trend. This will be monitored and it will be only over the next year or two that we will be able to ascertain whether this is a major change to condition or in fact a rogue result.

D03.5 Asset Management

D03.5.1 D03.5.1 Standards

Maintenance Standards

The road maintenance standards and specifications are based on NZTA HM specifications (previously the Transit C Series) and have been modified over many years to ensure contractors deliver best value for money and fit for purpose solutions for the Ruapehu roads.

Full details and lists are included in the individual maintenance contracts.

Renewal and Development Standards

The required design parameters for renewal and project works, as well as vested new assets, are summarised in the table below:

- Standard NZS 4404:2010 Land Development and Subdivision Infrastructure, should be used for urban roads.
- Austroads engineering standards should be used for rural roads. This includes:
 - Road geometry
 - Pavement engineering
 - Safety management (relating to pavements).

TABLE D-10: ROAD PARAMETERS

Classification	Standard	Lane Width (m)	Total Shoulder Width (m) (each side)	Seal Width (m)	Carriageway Width (including shoulder)	Formation width (to back of water channels)	Design Speed	
							Flat or Rolling	Hilly
Access Low Volume	Minimum	2.50	0.5	5.0	6.0	8.0	Up to 70	Up to 50
Access Low Volume	Desirable	3.00	0.5	6.0	7.0	9.0	Up to 70	Up to 50
Access	Minimum	2.50	0.5	5.0	6.0	8.0	Up to 70	Up to 50
Access	Desirable	3.00	0.5	6.0	7.0	9.0	Up to 70	Up to 50
Secondary Collector	Minimum	2.75	1.0	5.5	7.5	9.5	Up to 80	Up to 60
Secondary Collector	Desirable	3.25	1.0	6.5	8.5	10.5	Up to 80	Up to 60
Primary Collector	Minimum	3.00	1.0	6.0	8.0	10.0	Up to 100	Up to 70
Primary Collector	Desirable	3.50	1.0	7.0	9.0	11.0	Up to 100	Up to 70
Special Purpose Road (SPR)	Minimum	3.25	1.0	6.5	8.5	10.5	100	Up to 100
Special Purpose Road (SPR)	Desirable	3.75	1.0	7.5	9.5	11.5	100	Up to 100

D03.5.2 Strategies and Policies

Maintenance

While not formal, the maintenance contract specifications imply a significant number of strategies for the maintenance of the road pavements and surfaces.

There are accepted industry practices being followed for pavement maintenance strategies. These have not been documented specifically for Council.

Renewals

The focus will be on the main spine roads of the district.

- Review pre reseal repair work to confirm the use of mini rehabilitation to support longer reseal sections gaining full life.
- Identify other works required along the route of the renewals hence
 - optimising complete cost,
 - reducing disruption,
- Identify work being undertaken by 3 waters, utilities etc and plan to only undertake work once their planned work is completed.
- Forestry
 - Maintain flexibility to be able to react to forestry harvest roads.
 - Design for higher level of service for known forestry roads.
 - Condition information has shown a need to focus on road damage due to the forestry harvest.

Seal Extensions

Strategy | Council has a prioritised list of urban seal extensions with the eventual aim of sealing all urban roads. Note that the term ‘urban’ does not fully align with NZTA definitions, which have moved from speed limit based to Stats NZ (which define most Council urban areas as rural).

- Urban roads are usually sealed for aesthetics.
- Rural roads are usually sealed for dust suppression, traction or shape (ie bridge approaches)

D03.5.3 Risk Management

The key activity and specific asset risks are identified in the “Known Needs, Issues and Risks” section above.

The overall approach to risk and criticality can be found in Managing Risk (Section C02).

D03.5.4 Delivery

The pavement asset activities are delivered under the current Council contracts as outlined in the table below.

Activity Type	Activity	Delivery Method
Operations	Carriageway Cleaning - Rural	General Maintenance Contract
Operations	Carriageway Cleaning - Urban	Parks and Reserves Contract
Maintenance	Pre-Reseal Pavement Repairs	General Maintenance Contract
Maintenance	Sealed Crack Sealing	General Maintenance Contract
Maintenance	Sealed Digouts	General Maintenance Contract
Maintenance	Sealed Mill & Fill	General Maintenance Contract
Maintenance	Sealed Pothole Repairs	General Maintenance Contract
Maintenance	Sealed Stabilised Digouts	General Maintenance Contract

Activity Type	Activity	Delivery Method
Maintenance	Unsealed Aggregate Replacement	Heavy Maintenance Contract
Maintenance	Unsealed Digouts	Heavy Maintenance Contract
Maintenance	Unsealed Grading	Heavy Maintenance Contract
Maintenance	Unsealed Pothole Repairs	Heavy Maintenance Contract
Maintenance	Adjusting Surface Covers	General Maintenance Contract
Maintenance	Edge Break Repairs	General Maintenance Contract
Maintenance	Unsealed Shoulders Maintenance (including Water Channel)	General Maintenance Contract
Maintenance	Unsealed Shoulders Maintenance (including Water Channel)	Heavy Maintenance Contract
Renewals	Sealed Pavement Rehabilitation	Heavy Maintenance Contract
Renewals	Sealed Resurfacing	Reseals Contract
Renewals	Unsealed Heavy Metalling	Heavy Maintenance Contract
Development	New Roads - Vested	Developer
Development	Seal Extensions - Bridge approaches and Intersections (LCLR)	General Maintenance Contract
Development	Seal Extensions - New Carriage lengths	Heavy Maintenance Contract
Development	Seal Widening - as part of Pavement Rehabilitation	Heavy Maintenance Contract
Development	Seal Widening - pre Reseal repairs	General Maintenance Contract

D03.5.5 Data Quality and Confidence

Refer to Data Quality (Section C05) for all commentary and analysis on data quality. This supports the understanding on how the data can be used to support reporting, valuations and asset management.

D03.6 Operations

D03.6.1 Activities

Operational activities for Pavements are:

- Carriageway cleaning (sweeping road at intersections and driveways) to remove gravel dragged onto the road surface

D03.6.2 Plans

Operational activities are undertaken on an as needed basis.

Work is identified by

- Customer calls to the service centre
- Roadman on patrol

D03.7 Maintenance

D03.7.1 Activities

Programmed Annually

- Cyclic Activities
 - Grading of unsealed roads via a cyclic programme
 - Repair of potholes on sealed road via a cyclic programme

Programmed Monthly

- Repairing failed pavements by digging out and replacing, or stabilising, the existing pavement. (Programmed as identified (inspection or service request))
- Repair of surface openings and minor surface levelling (Programmed as identified (inspection or service request))
- Repair of surface defects. (Programmed as identified (inspection or service request))
- Repair of edge breaks. (Programmed as identified (inspection or service request))
- Adjusting surface covers. (Programmed as identified (inspection or service request))
- Maintenance of unsealed shoulders. (Programmed as identified (inspection or service request))
- Application of running course on unsealed roads.

Reactive

- Grading of unsealed roads - additional grading on a reactive basis when a 3rd Grader is available
- Repair of potholes on unsealed roads

Pre-reseal Repairs

Pre-reseal repairs are pavement repairs that are required prior to a site being resurfaced. These pavement repairs ensure that the full surface has an appropriate base for which it can achieve its full design life.

Desirable timeframe: Pre-reseal repairs shall be completed the year prior to the construction of the resurfacing works

D03.7.2 Plans

The following applies to (non-routine) maintenance activities:

- Possible maintenance is prioritised as high if there is a significant risk to the safety of road users or the public or to the asset deteriorating rapidly and therefore losing significant value which is avoidable with appropriate maintenance work.
- Possible maintenance is prioritised as medium if it is likely that the area of distress may expand, or the method of repair changes, such that the cost of any repair will increase. It could be also considered that medium priority represents industry good practice for asset interventions.
- Pavement repairs in a resurfacing site (pre-seal repairs) should be completed a year ahead of the surfacing work. This allows the underlying pavement work to settle and be accepted before the surface is laid.
- Customer complaints are also investigated and remedies are programmed.

Deferred Maintenance

There is some history of deferred maintenance over past years due to Council's inability to fully fund its maintenance and renewals obligations. The deferred work has been itemised and will be prioritised and addressed through pavement maintenance and renewals.

Currently focusing on very bad repairs and leaving other identified repairs due to lack of budget. Don't have a full picture of the maintenance required as currently no regulated inspection regime.

D03.8 Renewals

D03.8.1 Activities

Pavement renewal activities include:

- Sealed road resurfacing
- Sealed pavement rehabilitation
- Unsealed road metalling
- Unsealed road strengthening

D03.8.2 Plans

Methods of Renewals Analysis

Renewal needs for roads are indicated by high roughness, poor condition rating and the high cost of routine pavement maintenance. Methods of renewal analysis are summarised below:

- Age- based method
 - Each type of surface has an expected life based on the expected traffic loadings. This is then used to firstly create a remaining useful life profile, which helps provide a big picture overview of the asset base, as well as identifying the individual assets that have reached the end of their expected useful life.
 - Reaching the end of the expected life does not mean that the asset should be immediately replaced. This is just a trigger to investigate further to identify if more life can be achieved in its current state or with some maintenance work or if it does indeed need replacing.
- Condition based method
 - RAMM contains a Treatment Selection Algorithm (TSA), which utilises the condition data and other road inventory data to make recommendations as to preferred treatments on the network. The outputs from the treatment selection are utilised at a network level and at an individual treatment section level.
 - At a network level the treatment selection summary report identifies the length of the network recommended for resealing in the current and following year and makes recommendations as to the length of the network to undergo more major treatments such as smoothing or strengthening. The treatment selection programme undertakes an economic analysis of the maintenance options for each road section in order to identify the most cost-effective treatment option based on the ongoing cost of maintenance and the unit costs of the various maintenance and renewal treatments.

- The treatment summary report is a useful tool in assessing the effectiveness of the maintenance and renewal strategies being followed and is an indicator of the future maintenance needs of the network. The treatment selection outputs are also used to identify sections of road with various faults and make recommendations as to which specific road sections should be considered for resealing or rehabilitation. These outputs are used in the preparation of the annual resealing and rehabilitation programmes. The treatment selection programme is run annually following the updating of the RAMM database to reflect the physical work completed in the previous summer.
- It should be noted that the TSA is a tool used in conjunction with visual inspections by a senior pavements engineer to determine the final annual pavement renewal programmes for sealed roads.
- Another process utilised by some authorities is deterioration modelling using a software called dTIMS and a model developed by IDS (an industry group under IPWEA NZ). dTIMS is not considered to provide significant value for low volume networks such as Ruapehu District, when compared to the costs and effort to capture the necessary data, setup dTIMS and then run the different scenarios through the model.

Sealed Road Surfacing (Reseals)

The expected life of seals and reseals depends on traffic loading and pavement strength, and ranges from 7 to 16 years. On average, a seal life of 13 years is considered appropriate for the Ruapehu network. For the Council network, this equates to approximately an average of 37km per year less the 7km of pavements targeted for renewal under pavement rehabilitation activity leaving an annual target of 30km.

The exception is the OMR where the life cycle is typically only seven years.

In selecting the most suitable surfacing material for each category of road the impact of that material on the total pavement life and the life cycle cost is taken into consideration. The following factors are considered during material selection:

- Traffic volume, percentage of Heavy Commercial Vehicles (HCV) and road geometry (eg, chipseal is inappropriate in high stress areas and highly trafficked roads in residential areas).
- The texture of the existing surface.
- The condition of the existing surface, for example, cracking, stone loss, flushing, etc.
- The need for waterproofing.
- The flexibility of the existing road formation (stiff surfacing coats will fail if they are applied to flexible pavements)
- The proximity of dwellings to the carriageway and the potential for noise nuisance and vibration, for example because of poor subgrade conditions or poor trench reinstatement.
- Safety and appearance.

Chip sealing will remain the predominant resurfacing type to be used in the future. Chip seals include single and two coat seals as well as specialist treatments such as Polymer Modified Bitumen (PMB), Stress Absorbing Membranes (SAML) and geotextile reinforced seals.

Specialist treatments may be used in high traffic stress areas, where the pavement is showing high distress levels such as cracking or where there is a history of premature failure of the surfacing. The initial chip seal treatment is specified by the consultant and the contractor then carries out the detailed design in accordance with the specification. Any variations to chip size and seal type are then agreed between Contractor, Engineer and Asset Manager.

- Texturising or void fill seals are used in areas exhibiting scabbing or flushing or as a pre-treatment to even out variations in surface textures for a pavement section.
- Two coat seals may be constructed by the “drylock” or “racked in” method, (a single layer of bitumen with two applications of aggregate, largest first followed by a smaller locking chip) or the “bi couche” method (two applications of bitumen, one prior to each aggregate application).
- First coat seals may be either a single coat grade 4 seal or a two coat grade 3/5.
- The first coat/second coat method remains the most economic life cycle option but there are some advantages in the two coat seal system. The use of the two coat seal is relatively resistant to damage from subsequent housing development or lack of initial traffic in urban subdivisions and tends to defer the requirements for second coating for the forward programme.
- The asphaltic surfacing, slurry seals and asphaltic concrete are used in moderate and high stress areas particularly in the urban areas and on the Ohakune Mountain Road. This asphaltic surfacing must be placed on sound pavements to achieve their design life and therefore cannot be used when the underlying pavement won't support the flexible surface.

Reseal strategies

Most reseals are chip seals. The following specific strategies are adopted, in addition to the general strategies discussed in the methods of renewal analysis section.

- Reseal pavements at intervals close to the maximum seal life cycles, unless earlier intervention is warranted by the condition of the pavement such as:
 - There is evidence of crack initiation from binder condition and stone loss
 - Lack of water proofing
 - Loss of texture resulting in loss of skid resistance.
- Identify the actual sections of carriageway treated each year and the treatment used from RAMM output. RAMM analyses average life data for each surfacing material, the volume and mix of traffic using the road and the current condition.
- Confirm and prioritise reseal works by undertaking on-site inspections of work needs identified in RAMM outputs (this is necessary due to limitations of RAMM outputs in identifying when earlier intervention is necessary or desirable as above).
- Investigate, and implement as appropriate, opportunities for further optimisation of maintenance activity by:
 - Improving forecasting of seal life based on AADT, seal type, subgrade strength and local factors.
 - Having greater vigilance on pavements which have passed their forecast seal life by several years and are still not showing signs of cracking (pavements with high AADT are inspected more frequently).

- Improving performance-based contracting with a more appropriate performance evaluation of contractors, and using the results for improving the quality of future contractors.

Sealed Pavement Rehabilitation

Pavement rehabilitation is carried out when this provides the minimum whole-of-life cost for the pavement, ie, intervention is indicated when the net present value (NPV) of the rehabilitation exceeds the do-minimum option. NZTA will provide funding assistance for rehabilitation based on this criterion.

Road pavements that are structurally sound but have an unacceptably rough surface may be rehabilitated by pavement smoothing, as defined in the NZTA Programming and Funding Manual. However, in order to obtain NZTA funding assistance for pavement smoothing, it is necessary to establish a nationally competitive Benefit/Cost ratio. The required level of pavement rehabilitation will vary depending on;

- The condition profile of the carriageway.
- The level of ongoing maintenance demand.
- The differing economic lives of the materials used.
- The subgrade strength and type.
- The usage of the road.

NZTA requires a positive Net Present Value (NPV) for pavement rehabilitation works where the benefits are primarily maintenance savings to the Roading Controlling Authority. For pavement reconstruction where the benefits are primarily to the road user, in reduced roughness, vehicle operating costs or road safety and in this work category, the existing pavement may be widened after improvements carried out to a maximum of 20%. The target roughness value for those works is <70 NAASRA.

When rehabilitating roads, all drainage deficiencies including substandard culverts are rectified and road widths are brought up to the appropriate road standard.

This means rehabilitation projects are a combination of reinstatement of an element of renewal and an element of growth. The work done to widen the road is seen as the element attributable to growth. Analysis of cost has shown that this element attributable to growth represents 15% of the cost of a typical rehabilitation project.

Older pavements that are starting to fail, or become rough, where a complying Benefit/Cost cannot be achieved or current funding is not available, may be scheduled for:

- Resurfacing with a specified seal coat
- Partial smoothing
- Controlled deterioration where sufficient work is carried out to keep the road safe and usable until funding for rehabilitation can be secured.
- Reverting to unsealed

NZTA has traditionally adopted a strategy where the Benefit/Cost ratio is used as the main criteria to determine whether a road improvement or replacement project will be funded. However, the Land Transport Management Act 2003 requires consideration of a wider range of factors. The Benefit/Cost ratio is based upon:

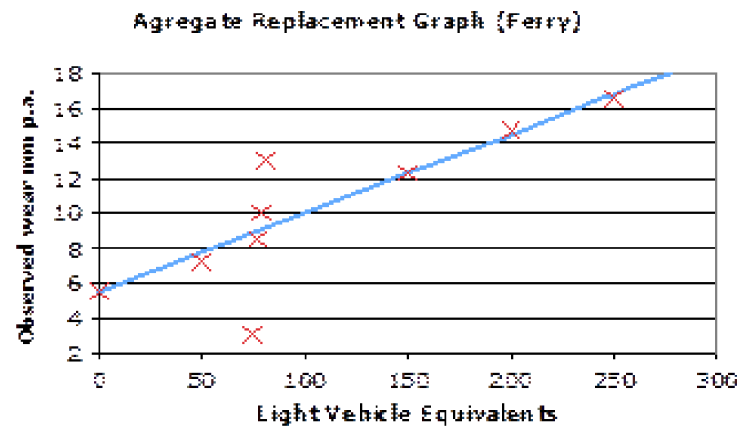
- The benefit to the road user for reducing delays in the time to travel along a given route.
- Vehicle operating cost savings.
- Safety benefits.
- Intangible benefits including community dislocation, environmental issues (including noise and vibration) and other possible local, regional and national issues.

A Benefit/Cost of 1 or greater means that the benefits exceed the costs.

Unsealed Road Metalling

Unsealed roads lose their top surface of metal, known as the wearing course. This loss is due to the effects of the traffic on the road, grading the road and due to weather effects, mainly rainfall. The metal lost is replaced periodically as part of the renewals programme. Metalling takes place on programmes submitted by the contractor. The normal procedure is for grading to be followed by an AP30 running course. The pavement generally consists of a running course surface (a sacrificial wearing course layer) and a load bearing base course layer below that.

Annual aggregate replacement quantities are based on the empirical formula developed by Allan Ferry, a NZ renowned specialist in unsealed road maintenance. The Ferry formula, reproduced below in graphical form suggests that the average aggregate consumption on the Ruapehu unsealed road network is 6.5mm/pa. With an unsealed road length of 854km, an average re-metalling width of 4.0m and an average traffic volume over the entire unsealed network of 22.5 vehicles per day. This equates to a total of 31,000m³ loose measure.



Deferred Renewals

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 need to be assessed. Although the deferral of some renewal works may not impact significantly on the short-term operation of the assets, repeated deferral will create a liability in the longer term.

- There is currently a backlog of reseals and this is being investigated. Prioritisation of deferrals is based on RAMM TSA in conjunction with engineering judgement and network knowledge.
- Council should be renewing approximately 30 km/year of surfacing per year but is only achieving approximately 22.5 km/year.
- There is a backlog in pavement renewals due to past under investment in pavement renewals. This has been exacerbated by the increased loading and damage to the pavement from recent log haulage from forestry blocks.

D03.9 Development

The development activity can significantly improve an existing asset or network as well as creating new assets.

Note that the renewals activity allows for replacements to have some minor improvements or significant improvements when it utilises current technology or standards.

Also note that Council receives new network and assets through the vesting process in accordance with the District Plan.

D03.9.1 Activities

Development activities, driven by growth or level of service enhancement include:

Seal widening

- It is unlikely that roads within Ruapehu District identified for seal widening could be justified solely on road user benefits due to low traffic volumes. These roads will, however, be considered for widening in conjunction with rehabilitation due to failing conditions.

Seal extensions

NZTA funding criteria sets a high threshold for sealing unsealed roads.

Council will consider sealing roads provided they meet the funding criteria and subject to affordability and policy. The priority order in which works are carried out is based on traffic numbers and housing density.

Most seal extensions in the District are unsubsidised as they do not meet NZTA funding criteria.

New road construction

If required, this is covered under Network (Section D02)

Corridor improvement works

If required, this is covered under Network (Section D02)

D03.9.2 Plans

Seal Widening

The following roads have been identified for seal widening:

- Ohakune Mountain Road – Council is progressively widening the sealed surface in conjunction with minor improvements
- Ruatiti Road – Council is progressively widening the sealed surface in conjunction with minor improvements and pavement rehabilitations
- Poro O Tarao Road and Ongarue Waimiha Road – Council is progressively widening the sealed surface in conjunction with minor improvements and pavement rehabilitations
- Taringamotu Road and Ngapuke Road – Council is progressively widening the sealed surface in conjunction with minor improvements and pavement rehabilitations

- Oio Road – Council is progressively widening the sealed surface in conjunction with minor improvements and pavement rehabilitations.

Seal Extensions

There are seal extensions planned for the 2021 to 2023 period. This is discussed further in Managing Growth and Demand (Section C01)

It is not currently planned for Rural roads to be sealed unless the adjacent landowners contribute towards the cost.

TABLE D-11: URBAN SEAL EXTENSION PRIORITIES

Priority Order	Road	Locality	Unsealed Length	Proposed Width	AADT	Dwellings	Housing Density in 100m section (HD=D ÷ L)	Estimated Cost	Traffic Housing Units of Demand AADT x HD (THUD)
1	Raurimu Road	Raurimu	513m	6m	63	17	0.33	\$308,000	21
2	Pito Street	Raurimu	261m	6m	27	12	0.46	\$157,000	12
3	Ohoeka Street	Owhango	345m	6m	37	8	0.23	\$208,000	9
4	Onematua Road	Owhango	476m	6m	65	5	0.11	\$286,000	7
5	Owhango Road	Owhango	119m	6m	27	3	0.25	\$72,000	7
6	Poru Street	Raurimu	209m	6m	13	10	0.48	\$126,000	6
7	Tuka Street	Piriaka	130m	6m	14	4	0.31	\$78,000	4
8	Tanoa Street	Piriaka	257m	6m	20	5	0.19	\$155,000	4
9	Miharo Street	Rangataua	32m	6m	6	2	0.63	\$19,000	4
10	Ward Street	National Park	112m	6m	10	4	0.36	\$67,000	4

D03.10 Disposal Plan

There are many unformed 'paper roads' in the District, which are not maintained by Council. Council has adopted a report to facilitate the rationalisation of unformed roads.

Many sealed and unsealed rural roads service only one or two properties and have very low traffic volumes. Social and economic sustainability should be considered through applying optimised decision making (ODM) to which parts of the network are uneconomic and should or should not be reduced.

Network reduction can be achieved by transferring management of very low volume unsealed rural no-exit roads to the adjacent landowners. Each situation needs to be considered carefully and if the Council wants to proceed then there is a formal process, including the involvement of NZ Transport Agency, to go through.

D03.11 Funding Request

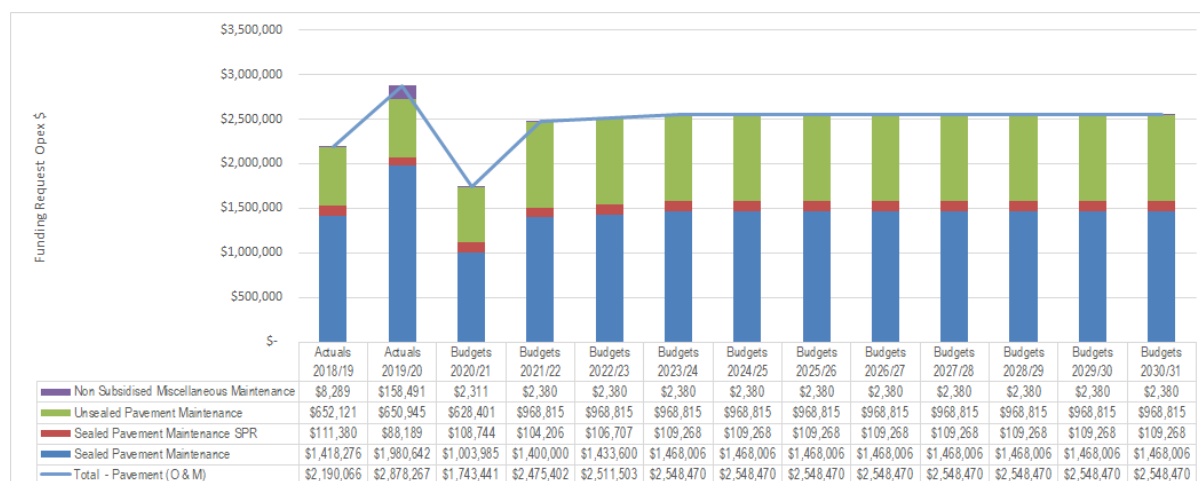
Pavements can be funded by the following NZTA Work Categories:

- WC 111: Sealed pavement maintenance
- WC 112: Unsealed road pavement maintenance
- WC 211: Unsealed road metalling
- WC 212: Sealed road resurfacing
- WC 214: Sealed road pavement rehabilitation

Additional funding is also requested via the Low cost low risk work category and is documented in Network (Section D02).

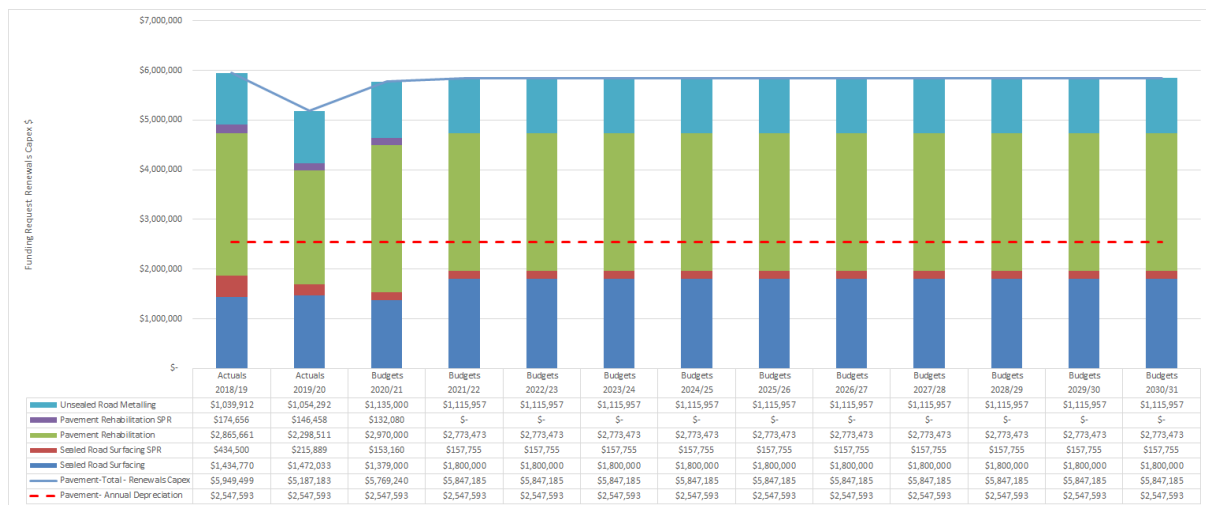
The figures below set out the historical actual expenditure and 2020/21 budget in actual dollars and the future draft budget figures in terms of 2021/22 base dollars.

FIGURE D.17: PAVEMENT HISTORICAL AND PROJECTED OPERATIONS & MAINTENANCE EXPENDITURE \$



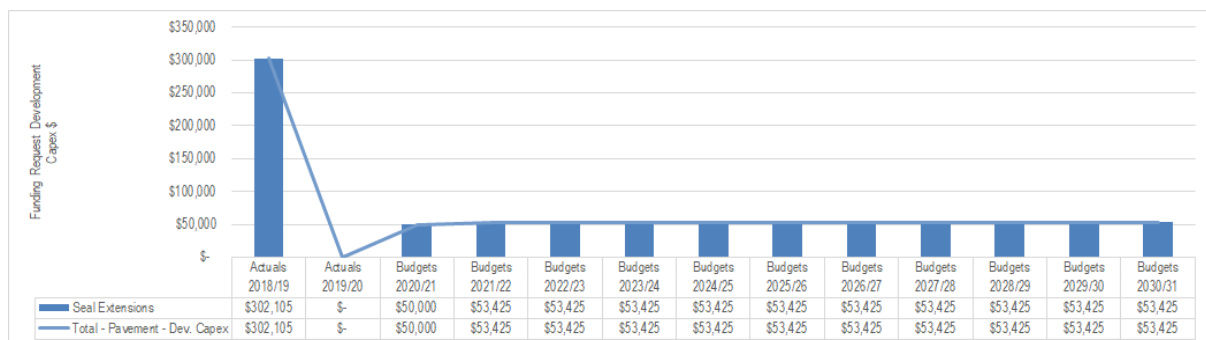
The proposed budgets allow for sealed maintenance to be maintained at the current level with unsealed pavement maintenance increased to put running course maintenance into the correct work category from 2021/22. The predicted expenditure for the period of 2021/22 to 2030/31 is approximately \$2.5 M per year.

FIGURE D.18: PAVEMENT HISTORICAL AND PROJECTED CAPITAL RENEWAL EXPENDITURE
 \$



Annual depreciation of \$2.5M is well below the expected total pavement renewal costs of \$5.8M. The next valuation needs to investigate this difference to identify where this difference is coming from.

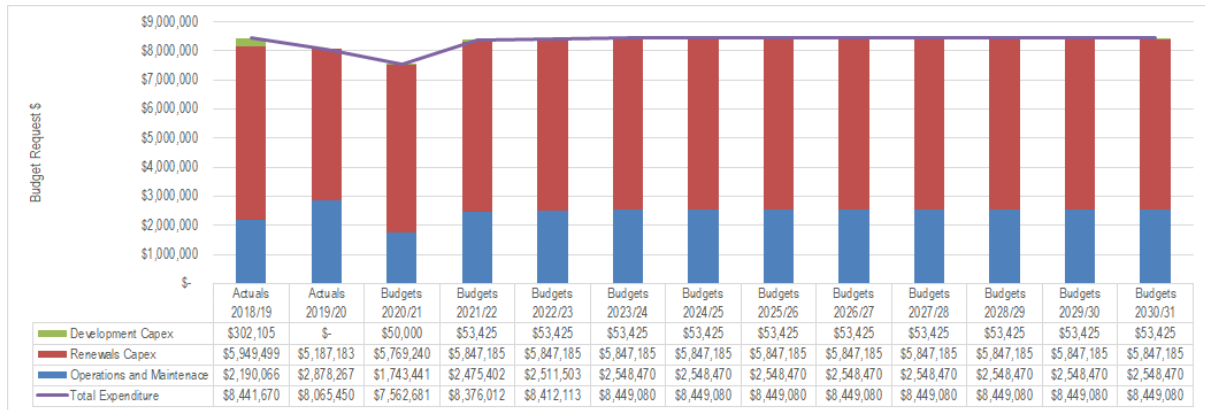
FIGURE D.19: PAVEMENT HISTORICAL AND PROJECTED CAPITAL DEVELOPMENT WORKS EXPENDITURE
 \$



This budget only reflects work directly under pavements work categories or unsubsidised work. There is additional pavement work budgeted under the low cost low risk work category which is outlined above but budgeted in Network (Section D02).

The figure below sets out the historical and projected combined expenditure for pavement projects and programmes.

FIGURE D.20: PAVEMENT HISTORICAL AND PROJECTED COMBINED EXPENDITURE \$



Finances (Section E) and Appendix B provide more detail on the funding sources for these programmes and projects.

D04 STRUCTURES

D04.1 Purpose and Strategic Case Link

The purpose of road bridges and large culverts is:

Provide continuous all-weather roading over rivers, streams, railway lines and uneven terrain

The purpose of retaining walls are:

To provide protection and support for road pavements

Link to Strategic Case Problem Statements

The following table highlights how this activity supports addressing the problems identified in the Strategic Business Case.

Structures contribute to the Reliability, Resilience (whether key alternate routes have suitable structures for all traffic), Accessibility and Safety of the network.

	Problem Description	Activity Contribution
Forestry & Land Use	Changing land uses (i.e. Forestry & Mining) is resulting in (and will increase) the deterioration of the network causing increased reactive (unplanned, works to maintain the roading environment) maintenance and repair costs	Adequate (not restricted) bridges allow for land to be harvested. They also allow heavy vehicles to safely navigate the network and on occasion allow alternative routes
Needs & Expectations	The needs and expectations of road users (local, freight, events, tourists) is resulting in increased investment to maintain and/or improved the form and function of the road network	Bridges are a critical element of the network enabling travel between locations while retaining walls respond to historical ground movement problems and protect against future road closures due to rocks and dirt inundating the carriageway
Climate, Topography & Geology	The network is impacted by climate, geography and topography resulting in reactive/unplanned maintenance costs as well as increased safety risk and operation of the network	This activity doesn't provide any significant contribution towards addressing this problem
Safety	Vulnerable road users are at greater risk due to increasing and changing activity and environmental conditions which is expected to result in increased deaths and serious injuries	Well maintained bridges are critical to avoid any unexpected failures which have a high severity and consequence if this was to happen

Link to Key ONRC Customer Level of Service (LoS)

The following table highlights how this activity contributes to improving the Key ONRC Customer LoS.

	Customer Level of Service Description	Activity Contribution
Mobility - Reliability	Travel time reliability – the consistency of travel times that road users can expect	Well maintained bridges are less likely to suffer unexpected failures causing network restrictions or closures
Mobility - Resilience	The availability and restoration of each road when there is a weather or emergency event, whether there is an alternative route available and the road user information provided	Well maintained bridges are less likely to be damaged during during an emergency event leading to access restrictions and reduced network availability
Safety	How users experience the safety of the road	Well maintained bridges are critical to avoid any unexpected failures which have a high severity and consequence if this was to happen
Amenity	The level of travel comfort experienced by the road user and the aesthetic aspects of the road environment (e.g. cleanliness, comfort/convenience, security) that impact on the travel experience of road users in the road corridor	This activity doesn't provide any significant contribution towards this customer level of service
Accessibility	The ease with which people are able to reach key destinations and the transport networks available to them, including land use access and network connectivity	Structures provide a critical element to enable the networks to function and therefore deliver accessibility to the community and visitors

D04.2 Assets to be Managed

D04.2.1 Asset Description

Road Structure assets managed under the Land Transport Activity include:

- bridges
- large culverts (note these are culverts with a cross-sectional area greater than 3.4m², small culverts are managed as Drainage)
- retaining walls
- minor structures (include footbridges and bluff safety netting)

Note that many retaining walls are part of the natural landscape including many not recorded in RAMM (Stone and Willow). These are not routinely managed or maintained.

Road Structures assets are managed in the following RAMM tables, and the following information is sourced directly from these tables:

- Bridges
 - All Bridge information
 - Major culverts sub asset breakdown
- Drainage - All major culvert information on quantities, age, rul and valuations
- Retaining Walls - All information
- Minor Structures - All information

Council owns:

- **255 structural bridges** -Bridges vary from high standard concrete structures to very low standard wooden structures with severe weight and capacity restrictions.
- **86 major culverts** - Culverts are drainage tunnels/structures under roads. Large culverts are defined as those with a waterway area of greater than or equal to 3.4m². They are treated as bridges.
- **1 pedestrian footbridge** - managed as a minor structure.
- 3 - additional footbridges not in RAMM that are Transport assets with a further two to be confirmed if roading or parks.
- **285 retaining walls** - Retaining walls provide structural support for road pavements and footpaths, or for steep ground slopes adjacent to them. These walls are typically unreinforced rock walls and are considered to be natural embankments. There are also willow crib walls along river edges supporting the roads.
- **Dobbs Bluff Safety netting** - managed as a minor structure

The following tables provide a further breakdown of quantities by asset types and sub-types.

TABLE D-12: BRIDGES AND LARGE CULVERTS ASSET QUANTITIES

Asset Type	Quantity		Urban / Rural		ONRC Classification			
	Number	Metres	Urban (Each)	Rural (Each)	Primary Collector (Each)	Secondary Collector (Each)	Access (Each)	Low Volume (Each)
Bridges								
Bridge - Concrete	91	1,873	11	80	2	8	28	53
Bridge - Concrete/Steel Beam - Conc Deck	2	64	-	2	-	-	-	2
Bridge - Steel Beam - Concrete Deck	109	2,599	4	105	1	7	28	73
Bridge - Steel Beam - Steel Deck	1	32	-	1	-	-	-	1
Bridge - Steel Beam - Timber Deck	45	742	1	44	-	-	2	43
Bridge - Steel/Timber Beam - Timber Deck	2	43	-	2	-	-	-	2
Bridge - Timber	5	80	-	5	-	1	1	3
Bridge Total	255	5,432	16	239	3	16	59	177
Major Culverts								
Culvert - Concrete Box	31	386	11	20	1	3	8	19
Culvert - Concrete pipe	12	149	4	8	-	1	2	9
Culvert - Papa Drives	15	410	-	15	-	3	4	8
Culvert - Timber	3	61	1	2	-	-	-	3
Culvert - Other	2	30	-	2	-	1	-	1
Culvert - ARMCO	23	395	-	23	-	1	3	19
Major Culverts Total	86	1,431	16	70	1	9	17	59
Total	341	6,864	32	309	4	25	76	236

TABLE D-13: RETAINING WALL ASSET QUANTITIES

Asset Type	Quantity		Urban / Rural		ONRC Classification			
	Number	Metres	Urban (Each)	Rural (Each)	Primary Collector (Each)	Secondary Collector (Each)	Access (Each)	Low Volume (Each)
Retaining Walls								
Block	2	26	-	2	-	1	-	1
Concrete	9	239	2	7	-	1	3	4
Concrete and Steel	1	10	-	1	-	1	-	-
Earth	15	309	-	15	-	-	3	12
Galvanised Steel	7	282	1	6	1	2	4	-
Railway Iron and Sleeper	1	20	-	1	-	-	-	1
Steel	1	17	-	1	-	-	-	1
Steel and Wood	1	16	-	1	-	-	1	-
Stone	186	3,131	6	180	14	47	44	81
Timber	19	296	3	16	1	7	4	6
Willow Logs	1	33	-	1	-	-	1	-
Wood	4	133	1	3	-	1	3	-
Unknown	39	410	-	39	-	1	18	20
Total	286	4,922	13	273	16	61	81	126

The two retaining walls that are unclassified are on Kururau Road (SH 43) by the hospital. As this is not a local authority road there is no classification in Councils RAMM database.

TABLE D-14: OTHER STRUCTURES

Asset Type	Quantity		Urban / Rural		ONRC Classification			
	Number	Metres	Urban (Each)	Rural (Each)	Primary Collector (Each)	Secondary Collector (Each)	Access (Each)	Low Volume (Each)
Minor Structures								
Pedestrian Foot Bridge	1	53	1			1		
Bluff Safety Netting	1	150		1				1

D04.2.2 Asset Values

Road Structure assets form 24.6% (\$111.1M) of the total Land Transport Activity value (Optimised Replacement Cost) and 23.8% (\$1.2M) of the annual depreciation.

Behind pavements, this is one of the larger asset groups in the Transportation network.

Further breakdown of the various asset types that form this group can be found in the tables below.

The Council's Land Transport assets have been valued as at 30 June 2020. As part of this process the following are calculated and shown in the tables below:

- ORC = Optimised Replacement Cost
- ODRC = Optimised Depreciated Replacement Cost ("today's value")
- AD = Annual Depreciation

Bridges and Major Culverts

TABLE D-15: VALUATION OF BRIDGES AND MAJOR CULVERTS

Asset Type	Number	Metres	ORC (\$)	DORC (\$)	AD (\$)
Bridges					
Bridge - Concrete	91	1,873	39,222,906	19,836,883	392,248
Bridge - Concrete/Steel Beam - Conc Deck	2	64	1,018,219	509,109	10,182
Bridge - Steel Beam - Concrete Deck	109	2,599	41,418,764	20,480,353	414,188
Bridge - Steel Beam - Steel Deck	1	32	412,791	251,803	4,128
Bridge - Steel Beam - Timber Deck	45	742	9,862,233	1,779,184	138,412
Bridge - Steel/Timber Beam - Timber Deck	2	43	592,098	84,585	8,459
Bridge - Timber	5	80	1,051,328	180,229	14,778
Bridge Total	255	5,432	93,578,339	43,122,146	982,395

Asset Type	Number	Metres	ORC (\$)	DORC (\$)	AD (\$)
Major Culverts					
Culvert - Concrete Box	31	386	2,588,398	1,043,816	25,954
Culvert - Concrete pipe	12	149	830,708	411,946	9,004
Culvert - Papa Drives	15	410	2,756,253	642,776	27,388
Culvert - Timber	3	61.1	442,760	150,540	6,325
Culvert - Other	2	30	216,069	48,327	2,118
Culvert - ARMCO	23	395	2,820,559	1,067,739	39,013
Major Culverts Total	86	1,431	9,654,747	3,365,144	109,802
Total	341	6,864	103,233,086	46,487,290	1,092,197

Retaining Walls

TABLE D-16: VALUATION OF RETAINING WALLS

Asset Type	Number	Metres	ORC (\$)	DORC (\$)	AD (\$)
Retaining Walls					
Block	2	26	28,325	26,201	354
Concrete	9	239	309,471	235,091	3,095
Concrete and Steel	1	10	12,875	11,330	129
Earth	15	309	616,496	547,723	6,165
Galvanised Steel	7	282	175,099	129,779	3,502
Railway Iron and Sleeper	1	20	25,750	1,058	353
Steel	1	17	7,296	5,253	146
Steel and Wood	1	16	4,807	267	89
Stone	186	3,131	4,048,356	3,603,870	50,604
Timber	19	296	667,824	474,865	13,205
Willow Logs	1	33	42,487	25,492	850
Wood	4	133	-	-	-
Unknown	39	410	482,381	429,577	6,024
Total	286	4,922	6,421,167	5,490,506	84,516

TABLE D-17:- VALUATION OF OTHER STRUCTURES

Asset Type	Number	Metres	ORC (\$)	DORC (\$)	AD (\$)
Minor Structures					
Pedestrian Foot Bridge	1	53	577,271	525,317	5,773
Bluff Safety Netting	1	150	822,608	493,565	32,904
Total			1,399,878	1,018,881	38,677

D04.3 The Need for Investment

D04.3.1 Known Needs, Issues and Risks

The following table provides the key drivers that support investment in this activity:

Driver	Name	Description	Strategies to Address
Need	Assets to fulfil their purpose	Assets to fulfil their purpose in accordance with agreed Levels of Service.	<p>Purpose is documented in the D04.1 Overview and Strategic Case Link.</p> <p>Transport Activity Level of Service is documented in Section C04 - Levels of Service we Provide</p> <p>Activity specific Level of Service</p>
Risk	Non-maintained bridges (including major culverts)	<p>There are 24 identified bridges that serve single or multiple properties on unmaintained sections of the network. (These are not present in RAMM)</p> <p>These represent a liability for Council.</p>	<p>Council is seeking to dispose of these bridges whether through removal or transfer to the property owner.</p> <p>The Land Transport team maintains a list of these bridges and their issues and risks.</p> <p>These bridges were inspected in 2017/2018. These bridges have a structural inspection approximately every six years. The plan is to share the inspection results with the landowners.</p> <p>These bridges are detailed in Appendix G.</p>

Driver	Name	Description	Strategies to Address
Issue	Non-maintained Bridges	Not maintained by Council. High risk of failure and harm if not properly maintained. Ownership is uncertain.	Establish ownership. Ensure inspections are carried out and risks assessed. Consider options on a case-by-case basis for: <ul style="list-style-type: none"> • Retirement/ removal • Maintain restrictions • Renew/ replace (Council fully funded) • Divest, sell to landowner to manage risk
Issue	Structures over rails have higher cost to replace	Rail protection and electrification requirements add significant cost to bridge renewal projects, particularly on mothballed lines.	The Council continues to work with Kiwirail to ensure renewals are fit for purpose at least cost.
Issue/ Need	Aging Bridge Stock	As outlined in section D4.3.1 there are <ul style="list-style-type: none"> • 26 Bridges and 11 Major Culverts at or near end life (37 total) • Another 29 bridges and 13 major culverts with less than 30 years life remaining (42 total) • And a further 47 bridges and 25 major culverts with less than 40 years life remaining (72 total) <p>Accumulatively 42% of bridges and major culverts could need replacement in the next 40 years.</p> <p>This level of rapid replacements will not be able to be funded by Council.</p>	Council will proactively lobby government and industry groups that this is a national problem and funding ability needs to be addressed in the next 10 years prior to the bow wave of replacements hitting the forward works programmes.

Driver	Name	Description	Strategies to Address
Issue / Risk	'Papa' Drives are hand excavated, non-designed tunnels in sedimentary rock ('papa').	<p>As a 'Papa' Drive is not an engineered solution it is unknown how strong the rock is.</p> <p>Bridges spreadsheet indicates 19 Papa drives of which 3 are known to have concrete lids.</p> <p>7 of these are on through roads and 12 no exit roads.</p> <p>RAMM currently defines 15 Papa Drives</p> <ul style="list-style-type: none"> ● 3 on secondary collectors ● 4 on Access ● 8 on Low Volume <p>The difference between RAMM and spreadsheet needs to be reconciled, could be concrete lids have changed type.</p> <p>'Papa' Drives are inspected as part of the bridge inspection programme but some are challenging to inspect as working in confined spaces and sometimes fully submerged.</p> <p>Proactive maintenance is then scheduled as required following inspections.</p> <p>There are some 'Papa' Drives that cannot be effectively monitored / inspected as they are unsafe to enter, leading to the need for reactive maintenance when an issue surfaces.</p> <p>It should be noted that some 'Papa' Drives have collapsed in the past.</p> <p>It is also more expensive to replace a 'Papa' Drive than a standard culvert renewal</p>	<p>In order to manage 'Papa' Drives additional information is recorded during an inspection</p> <ul style="list-style-type: none"> ● the minimum cover depth to allow for trending to further assess risk <p>This additional information allows for changes to be monitored and intervention undertaken if necessary.</p> <p>The life of a Papa Drive can be extended with the installation of a Concrete lid.</p> <p>Failures usually at inlet/outlet where the regular wetting from rain/drying in sun causes minor spalling or large log debris blocks inlets.</p> <p>No further proactive additional actions required during the period of this AMP</p>
Issue	ARMCO not achieving expected life	<p>ARMCO culverts have a limited life of 50 years⁽¹⁾, less than expected when originally designed and installed. This has usually been due to corrosion in the areas submerged with water and affects the circular culverts more than the multi-plate culverts (6/25 circular).</p> <p>Currently there are 25 steel culverts of which;</p> <ul style="list-style-type: none"> ● 7 have been lined ● 2 don't require lining ● 14 not lined ● 2 unknown due to permanent high water and silt. 	<p>Where possible, this life may be extended by lining the invert with concrete.</p> <p>If the culvert has deformed then it should be replaced.</p> <p>The remaining are assessed as part of the structures inspection programme and need to be programmed for full replacement.</p>

Driver	Name	Description	Strategies to Address
Issue	Funding for replacement of low traffic volume bridges	<p>While the Council has identified bridges that require strengthening or replacement on low volume roads it is difficult to justify and receive funding for these works.</p> <p>If these bridges aren't strengthened or replaced then the Customers may receive a level of service lower than they need or expect.</p>	<p>Continue with the asset management strategy on managing the end-of-life phase of low-volume bridges to extract as much economic value from these assets. This includes</p> <ul style="list-style-type: none"> • frequency of inspections, • Monitoring • the use of restrictions. • Structures component replacement • Programme for low cost low risk replacement • Accept reduced level of service <p>Funding requests should prioritise renewals based on</p> <ul style="list-style-type: none"> • Condition (and hence risk) • Freight load • Traffic columns • The availability of alternative routes.
Issue	Bridge Restrictions	<p>22 bridges currently have weight or speed restrictions applied to them. These therefore provide a lower customer level of service than current design standard of supporting Class 1 vehicles. A list of restricted bridges can be found in Appendix G.</p> <p>Customers can't use bridges to undertake certain activities efficiently. This will often relate to agriculture, farming and forestry activities which have a higher economic activity value.</p>	<p>Improve register of restricted bridges to track;</p> <ul style="list-style-type: none"> • the management strategy, • funding likelihood • why an upgrade or replacement won't be sought.
Issue	Bridge width	<p>A number of bridges are narrow and often restricted to one-lane only. Many of these bridges also have geometric alignment difficulties on approach.</p> <p>This leads to damage from large vehicles leading to a safety risk for other road users and an increase in maintenance needs.</p>	<p>Bridge damage is remediated as soon as recorded to limit safety risk.</p> <p>The alignment to the approach is being improved as space and budget allow.</p> <p>Bridge replacement design to meet key parameters in the bridge standards (section D04.5.1) this is also a requirement to attract subsidies.</p> <p>Note: this doesn't mean replacing automatically with two lanes.</p>

Driver	Name	Description	Strategies to Address
Issue	High frequency heavy loading	<p>Activities, like logging, can run for a relatively short period of time over bridges.</p> <p>The higher frequency and speed of the loaded trucks going over a bridge can cause damage such that it accelerates the maintenance and renewal needs when compared to the expected design life of the asset (for example, nuts being shaken loose and therefore need tightening more often)</p>	<p>Inspections need to monitor when this might be occurring on a bridge.</p> <p>Knowledge of harvest time and location is critical to be able to do this. Work with forestry organisations and Horizons to continue to build relationships and gain data of harvest timeframes and locations.</p>
Issue	Earthquakes	<p>Council's assets are in a seismically active zone.</p> <p>A larger event could cause significant structures damage and therefore repair and replacement costs that the Council may not be able to afford.</p>	<p>With use of "NZTA Seismic Screening of Bridges" All bridges have been screened seismic evaluations and this process has identified the bridges that may need to have a seismic assessment.</p> <p>Those requiring full assessment are undertaken as per "NZTA Bridge Manual" process for seismic assessments.</p> <p>After major earthquakes and flood events the bridges are inspected and work identified as appropriate.</p>
Issue	Retaining Structures Data	<p>The District does not have complete information on retaining structures in RAMM. It is estimated that up to 50% of the assets on the network are not currently recorded.</p> <p>Without good asset data these assets can't be valued, depreciated, inspected and managed.</p> <p>Any increasing risk and liability from these 'missing' assets in RAMM will be hidden from the Council.</p>	<p>It is believed that the majority of these missing assets are Rock Walls which are often hidden and have a lower risk profile than structurally engineered retaining walls. The Council has decided therefore to not pro-actively try to capture the 'missing assets'.</p> <p>The Council has been capturing new retaining structures into RAMM and where old structures are identified, these will also be added to the asset register.</p>
Risk	Bridge collapse	<p>Bridge collapse has been identified as a risk with high residual risk for Council.</p>	<p>Mitigation measures identified as frequent inspections, maintenance, renewals and reporting.</p> <p>Overweight permitting is fully assessed according to guidelines to limit the risk.</p>
Issue	HPMV and 50Max trucks	<p>As 50Max trucks become more common place, there will be pressure to increase the capacity of the bridges on the network to be able to take these loads.</p> <p>We have a network that can take 50Max in some scenarios and have no plans for any further upgrades during the term of this plan.</p>	<p>Council has identified all the 50Max restricted bridges and will develop a strategy to consider freight volumes and prioritise improvements.</p>

Note 1: The average useful life for ARMCO culverts has been assumed as 70 years in the 2017 valuation. This should be re-assessed in the next valuation.

D04.3.2 Historical Commentary

Due to low traffic volumes on Councils roads projects to replace end of life bridges often do not qualify for NZTA funding. Council will award the renewal project a very low priority if it does not qualify for NZTA funding. This means they will be unlikely to proceed, leaving a backlog of bridges requiring replacement. Previously the main focus has been on structural component replacement.

The definition of Class 1 vehicles has led to a possible change in loading on bridges.

- Class 1 is now up 46 tonnes on vehicles with an additional axle and longer length.

An assessment has shown this has not increased risk to bridges designed to meet the previous class 1 limits.

In summary, after going through this and taking advice we did not restrict any to 44 tonne.

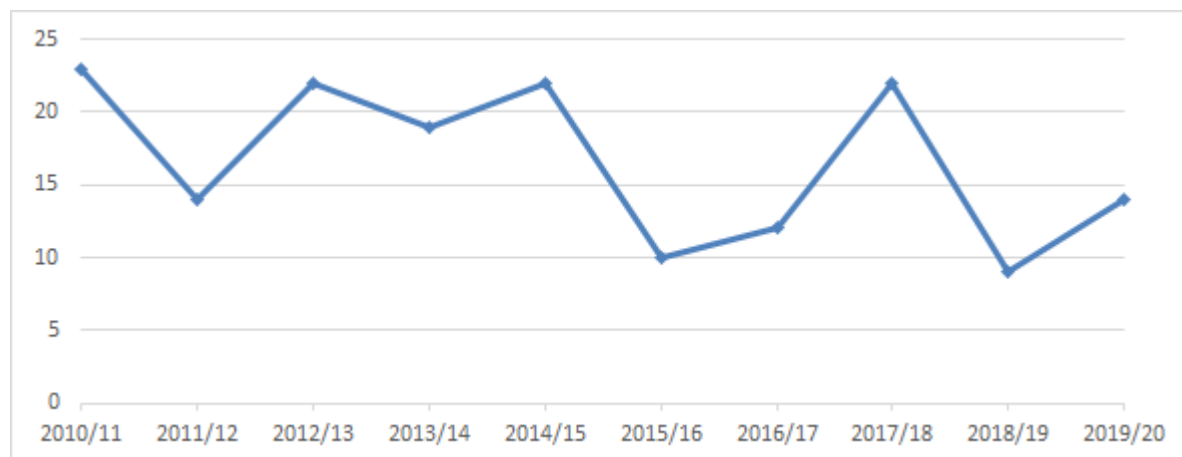
D04.3.3 Levels of Service

Structures Calls

Calls relate to issues on bridges such as ponding, scouring, bridge deck issues, vehicles damaging bridges or bridges being too narrow. An increase in bridge maintenance is reflected in the downward trend in recent years.

Structures provide for the ONRC customer service level of accessibility of the network.

FIGURE D.21: STRUCTURES CALLS



Significant LoS Change

No significant LoS change is planned.

D04.4 Asset Performance

D04.4.1 Age Profile / Remaining Useful Life

Road Structures have the following age and remaining useful life (RUL) averages. In all cases, Total useful life (TUL) is the expected life for the asset type/ subtype combination. As

age is available for all assets, the average age is a true reflection of this asset profile. RUL is calculated as

$$\text{Average RUL} = \text{TUL} - \text{Average Age}$$

Bridges and Major Culverts

TABLE D-18: BRIDGES AND MAJOR CULVERTS AVERAGE AGE AND RUL

Asset Type	Number	Metres	Total Useful Life	Average Age	Average Remaining Useful Life
Bridges					
Bridge - Concrete	91	1872.81	100	51	49
Bridge - Concrete/Steel Beam - Conc Deck	2	64	100	59	41
Bridge - Steel Beam - Concrete Deck	109	2598.83	100	54	46
Bridge - Steel Beam - Steel Deck	1	32	100	39	61
Bridge - Steel Beam - Timber Deck	45	741.8	70	59	11
Bridge - Steel/Timber Beam - Timber Deck	2	43	70	47	23
Bridge - Timber	5	80	70	75	0
TOTAL	255	5432.44	0	0	0
Major Culverts					
Culvert - Concrete Box	31	386	100	58	42
Culvert - Concrete pipe	12	149	100	52	48
Culvert - Papa Drives	15	410	100	73	27
Culvert - Timber	3	61.1	70	45	25
Culvert - Other	2	30	70	69	1
Culvert - ARMCO	23	395	70	44	26
Major Culverts Total	86	1,431			
Total	341	6,864			

While the table above gives the impression that most bridges and major culverts still have some remaining useful lives these are only averages. It does highlight that Timber Bridges are on average over the expected useful life and the most likely there are some Steel Beam

with Timber Deck bridges at or nearing end of life. As these are a major cost to renew further breakdowns of age profiles is shown below.

TABLE D-19: BRIDGES AGE PROFILE

Asset Type	Quantity		Total Useful Life	Age in Years (Each)									
	Number	Metres		1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Bridges													
Bridge - Concrete*	91	1873	100	4	1	5	20	13	28	5	5	8	1
Bridge - Concrete/Steel Beam - Conc Deck	2	64	100	-	-	-	-	-	1	1	-	-	-
Bridge - Steel Beam - Concrete Deck	109	2599	100	3	-	4	14	6	41	35	4	2	-
Bridge - Steel Beam - Steel Deck	1	32	100	-	-	-	1	-	-	-	-	-	-
Bridge - Steel Beam - Timber Deck	45	742	70	-	-	2	5	16	2	4	6	9	1
Bridge - Steel/Timber Beam - Timber Deck	2	43	70	-	-	-	-	2	-	-	-	-	-
Bridge - Timber	5	80	70	-	-	-	-	-	1	2	-	2	-
Nearing or at End of Life	25									6	6	11	2
Bridge Total	255	5,432	610	7	1	11	40	37	73	47	15	21	2
Major Culverts													
Culvert - Concrete Box	31	386	100	-	2	-	7	-	7	11	1	2	1
Culvert - Concrete pipe	12	149	100	-	1	-	-	4	6	1	-	-	-
Culvert - Papa Drives	15	410	100	1	-	-	1	-	-	8	-	-	5
Culvert - Timber	3	61	70	-	-	-	-	3	-	-	-	-	-
Culvert - Other	2	30	70	-	-	-	1	-	-	-	-	-	1
Culvert - ARMCO	23	395	70	-	1	-	11	7	-	4	-	-	-
Nearing or at End of Life	11									4	-	-	7
Major Culverts Total	86	1,431	510	1	4	-	20	14	13	24	1	2	7
Total	341	6,864		8	5	11	60	51	86	71	16	23	9

* One bridge age unknown

The shaded areas above highlight the 7 bridges within 10 years of their expected useful life and 18 older than expected. There are four ARMCO major culverts of age 66 years, the other seven major culverts are all 100 years old. It should be noted that the ages of 15 Bridges and 29 Major Culverts are estimates.

FIGURE D.22: BRIDGES AGE PROFILE BY TYPE

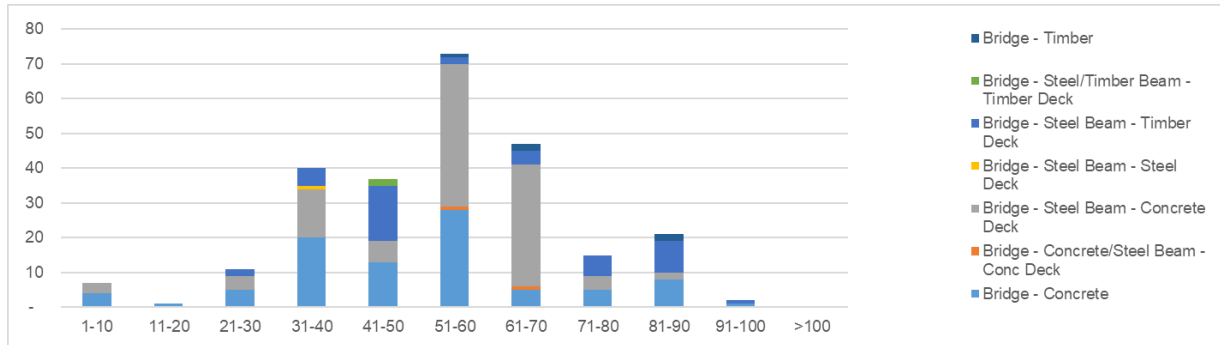
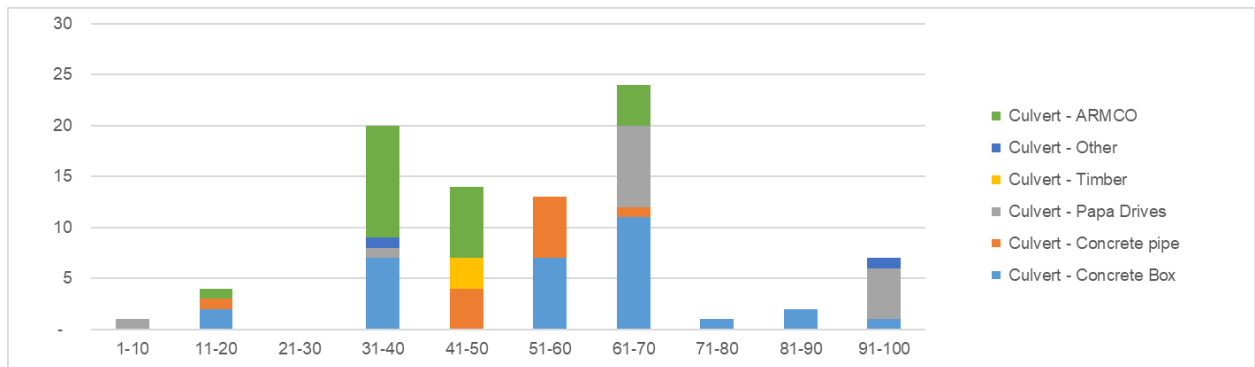


FIGURE D.23: MAJOR CULVERT AGE PROFILE BY TYPE



Retaining Walls

TABLE D-20: RETAINING WALLS AVERAGE AGE AND RUL

Asset Type	Number	Metres	Total Useful Life	Average Age	Average Remaining Useful Life
Retaining Walls					
Block	2	26	100	6	94
Concrete	9	239	100	34	66
Concrete and Steel	1	10	100	12	88
Earth	15	309	80	10	70
Galvanised Steel	7	282	80	9	71
Railway Iron and Sleeper	1	20	50	70	-
Steel	1	17	50	14	36
Steel and Wood	1	16	50	51	-
Stone	186	3,131	50	8	42
Timber	19	296	50	17	33
Willow Logs	1	33	50	20	30
Wood	4	133	50	18	32
Unknown	39	410	-	10	-
Total	286	4,922			

* It should be noted that one stone retaining wall did not have a known age. This was excluded in the calculation of the average age and average RUL shown above.

From the table above it can be seen that there are two retaining walls where the average age is greater than the total useful life. In order to understand the detailed picture an age profile is shown below.

TABLE D-21: RETAINING WALL AGE PROFILE

Asset Type	Quantity		Total Useful Life	Age in Years (Each)*										
	Number	Metres		1-5	6-10	11-15	16-20	21-25	26-50	51-55	56-65	66-70	71-80	>80
Retaining Walls														
Block	2	26	100	-	2	-	-	-	-	-	-	-	-	-
Concrete	9	239	100	-	1	2	3	-	-	-	-	3	-	-
Concrete and Steel	1	10	100	-	-	1	-	-	-	-	-	-	-	-
Earth	15	309	80	-	10	5	-	-	-	-	-	-	-	-
Galvanised Steel	7	282	80	-	6	-	1	-	-	-	-	-	-	-
Railway Iron and Sleeper	1	20	50	-	-	-	-	-	-	-	-	1	-	-
Steel	1	17	50	-	-	1	-	-	-	-	-	-	-	-
Steel and Wood	1	16	50	-	-	-	-	-	-	1	-	-	-	-
Stone	186	3,131	50	81	62	28	10	1	-	-	-	3	-	-
Timber	19	296	50	-	10	6	-	1	-	-	-	2	-	-
Willow Logs	1	33	50	-	-	-	1	-	-	-	-	-	-	-
Wood	4	133	50	-	-	-	4	-	-	-	-	-	-	-
Unknown	39	410	-	1	29	8	-	-	-	-	-	-	-	1
Nearing or at End of Life	8									1	-	6	-	1
Total	286	4,922		82	120	51	19	2	-	1	-	9	-	1

*note years ages without retaining walls condensed

As noted in section D4.2.3 there is a lack of historical information of rock walls so this may not show the complete picture. There are eight retaining walls older than their expected life. There is a need to both confirm that these actually still exist without improvements since the construction date in RAMM, and the condition reviewed.

D04.4.2 Condition

Bridges and Major Culverts

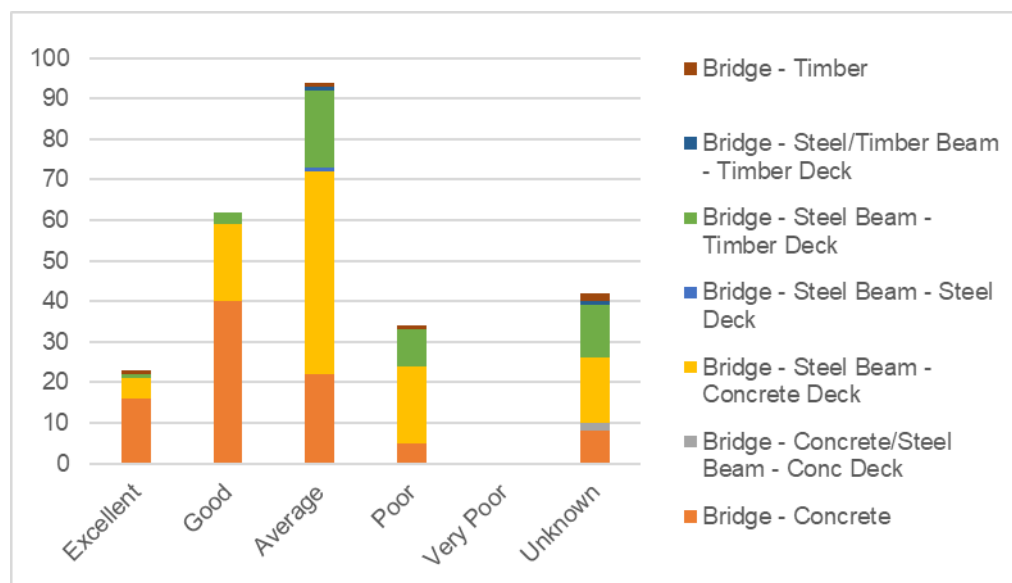
Bridges have been inspected/rated on site after each inspection conducted. To confirm the condition rating a formula was applied based on 40 elements rated in the bridge inspection report to calculate the condition rating of the bridge structure. This condition rating is based on a 1 to 5 rating to give an indication of the overall status of the bridge. These ratings are then uploaded into RAMM and have been used to generate the information below.

The method of assigning a rating to each bridge has only recently been implemented, so the number of bridges with an unknown condition below is not a true picture of the state of all bridges. It indicates those still to undergo the process. These will be addressed during the next round of inspections.

TABLE D-22: BRIDGE CONDITION PROFILE

Asset Type	Quantity		Condition					
	Number	Metres	Excellent (Each)	Good (Each)	Average (Each)	Poor (Each)	Very Poor (Each)	Unknown (Each)
Bridge - Concrete	90	1857.81	16	39	22	5	0	8
Bridge - Concrete/Steel Beam - Conc Deck	2	64	0	0	0	0	0	2
Bridge - Steel Beam - Concrete Deck	109	2598.83	5	19	50	19	0	16
Bridge - Steel Beam - Steel Deck	1	32	0	0	1	0	0	0
Bridge - Steel Beam - Timber Deck	45	741.8	1	3	19	9	0	13
Bridge - Steel/Timber Beam - Timber Deck	2	43	0	0	1	0	0	1
Bridge - Timber	5	80	1	0	1	1	0	2
TOTAL	254	5417.44	23	61	94	34	0	42

FIGURE D.24: BRIDGE CONDITION PROFILE



Major Culverts

Currently major culverts inspections are being managed via a spreadsheet. All major culvert inspections give a priority rating 0 to 5, where “0” indicates no urgency for the repair and 5 being needs urgent attention.

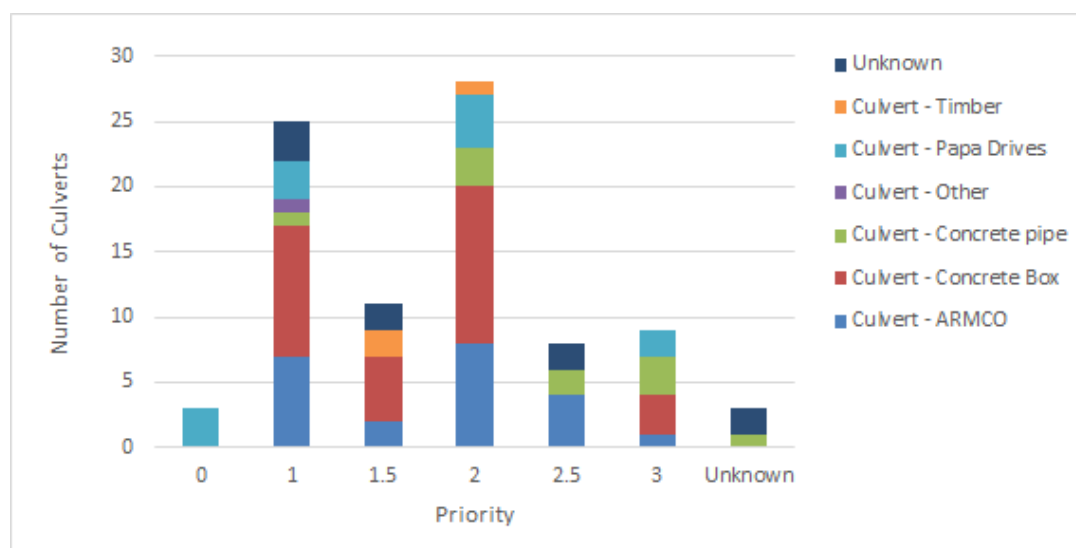
A rating system same as for the bridge's condition rating will be implemented from 2021/2022 to indicate large culvert conditions.

The table and figure below show the current priority for repair information available. Once the rating system has been implemented this will be transitioned to RAMM condition ratings.

TABLE D-23: MAJOR CULVERT PRIORITY FOR REPAIR

Asset Type	Number	Priority (Each)						
		0	1	1.5	2	2.5	3	Unknown
Culvert - ARMCO	22		7	2	8	7	1	
Culvert - Concrete Box	30		10	5	12		3	
Culvert - Concrete pipe	10		1		3	2	3	1
Culvert - Other	1		1					
Culvert - Papa Drives	12	3	3		4		2	
Culvert - Timber	3			2	1			
Unknown	9		3	2		2		2
Total	87	3	25	11	28	11	9	3

FIGURE D.25: MAJOR CULVERT PRIORITY FOR REPAIR



Retaining Walls

Retaining walls assets in RAMM have no meaningful condition data due to the age of any that are even rated. As most of these are rock walls and timber retaining walls so are managed as they need repair.

Minor Structures

Pedestrian footbridges are included under the road infrastructure bridge inspection program. General inspections completed on a 2 yearly bridge inspection cycle and principle inspections on a 6 yearly cycle resulting in a list of required works to be undertaken.

Dobbs Bluff Netting requires specialised equipment to be installed in order to access it. It is inspected and repaired by a specialist company every two years.

D04.4.3 Performance

Bridges and Major Culverts

Many of the district's bridges meet the standard to which they were designed and are still performing well within the designed expectation.

Where they are not designed to meet the current class 1 vehicle standard, changing land usage can lead to a bridge not meeting the customers desired levels of service. Examples are

- swing bridge (including height restriction)
- 50MAX Restrictions

Bridges not meeting their design standard can be restricted leaving customers with loss of service.

Retaining Walls

Apart from a few concrete retaining walls that are performing well, not relevant for the majority of this asset type.

Minor Structures

Not relevant for this asset type.

D04.5 Asset Management

D04.5.1 Standards

Inspections are undertaken in accordance with "Bridges and Other Highway Structures: Inspection Policy" (NZTA 2017) and use the NZTA-based inspection forms (S6).

Bridges are inspected and assessed for faults using 40 different criteria to determine the overall condition of the bridge asset in accordance with the Transit New Zealand Bridge Inspection and Maintenance Manual and the NZTA bridge inspection policy. Items requiring remedial work are categorised relative to the severity and extent, being attributed to either a routine maintenance item or to structural defects that may compromise the structural integrity of the bridge.

Weight and Speed Restrictions

A structural assessment of these bridges occurs biennially to determine deterioration and the load carrying capacities relative to the maximum permitted loads which are determined in the Transit New Zealand Bridge Manual as 100% Class 1.

- A 100% Class 1 heavy vehicle represents the maximum legal load for heavy vehicles of various axle configurations. The structural assessment and weight restriction of an existing bridge includes safety factors with the intention of not unduly over-stressing the structure.
- A vehicle exceeding the weight restriction on a bridge may over-stress the bridge but not necessarily cause failure. Repetitive over-stressing of the bridge structure will, however, ultimately lead to failure.

D04.5.2 Strategies and Policies

Bridge renewals are critical to maintain the overall integrity and access across the network. Council has 12 timber bridges that are reaching the end of their design life and a number of other bridges and large culverts will also require renewal over this period. This is a key focus.

D04.5.3 Risk Management

The key activity and specific asset risks are identified in the “Known Needs, Issues and Risks” section above.

The overall approach to risk and criticality can be found in Managing Risk (Section C02).

D04.5.4 Delivery

The structures assets activities are delivered under the current council contracts as outlined in the table below.

Activity Type	Activity	Delivery Method
Operations	Bridge - BMP Cleaning	General Maintenance Contract
Operations	Bridge - Cleaning	General Maintenance Contract
Operations	Bridge - Sweeping	General Maintenance Contract
Operations	Bridge - Vegetation Control	General Maintenance Contract
Operations	Retaining Walls - Inspections	Professional Services Contract
Maintenance	Bridge - Railing Replacement	General Maintenance Contract
Maintenance	Bridge - Drainage Maintenance	General Maintenance Contract
Maintenance	Bridge - Rail Painting	General Maintenance Contract
Maintenance	Bridge - Railing Repairs	General Maintenance Contract
Maintenance	Bridge - Safety Features	General Maintenance Contract
Maintenance	Bridge - Structure Painting	New Contracts
Maintenance	Bridge - Urgent Work	General Maintenance Contract
Maintenance	Bridge - Watercourse Alignment	Heavy Maintenance Contract

Activity Type	Activity	Delivery Method
Maintenance	Dobbs Bluff Netting - Inspect and Repair	Procured as required
Renewals	Bridge - Renewal	Capital Bridge Repairs Contract
Renewals	Bridge - Structural Component Replacement	Capital Bridge Repairs Contract

Inspections are carried out under the Professional services contract and further detail is in section D12

D04.5.5 Data Quality and Confidence

Refer to Data Quality (Section C05) for all commentary and analysis on data quality. This supports the understanding on how the data can be used to support reporting, valuations and asset management.

D04.6 Operations

D04.6.1 Activities

Operational Activities for Bridges

- Cleaning
- Vegetation Control
- Sweeping
- Cleaning BMP
- Urgent work - all immediate response urgent work on bridges and culverts for whatever reason, eg vehicle damage to a bridge.

D04.6.2 Plan

Roadmen undertake bridge and major culvert operational activities as part of their routine patrols.

D04.7 Maintenance

D04.7.1 Activities

Routine maintenance of the bridge structure and safety features of the bridge, including weight and speed restriction signs and all reflective safety aids on the bridge structure ends. Maintenance includes:

- Repairing/ replacing damaged components, e.g. handrails and guardrails
- Maintaining drainage
- Watercourse alignment
- Painting railings
- Structural painting

D04.7.2 Plan

Maintenance programmes are prepared from the schedules of defects identified during the inspections. Repair treatments and priorities are determined by considering the impact on:

- Public safety (top priority).
- Traffic movement.
- Future costs if the work is not done.

Patrolmen undertake some maintenance activities as part of their routine patrols.

Deferred Maintenance

There is a significant backlog of routine maintenance ranging from bridge structural painting to upgrading under strength structural components. This is now being addressed through an increase in budgets funded from savings in other programmes such as pavement rehabilitations. The programme is currently being assessed for resource consent conditions and is subject to regional Council approval of the works in rivers.

D04.8 Renewals

D04.8.1 Activities

Weight restrictions needed to help justify a replacement economically.

The overall objective is to steadily renew assets considering the following:

- The age profile
- The condition profile
- The level of on-going maintenance
- The economic lives of the materials used
- Financial and customer risks

Renewals are reviewed regularly, with any deferred work re-prioritised alongside new renewal projects and a revised programme established where required.

Bridges require ongoing maintenance and renewal to help ensure that they continue to perform and meet their design life expectancy. However, this does not increase the design life, as all components weaken with age. Therefore it becomes necessary to programme bridges for replacement and renewal based on their condition. See Asset performance section for more details.

Council has increased its structural component expenditure in this AMP period to address deferred works.

D04.8.2 Plan

Programme of bridge renewals for the next 3 years

TABLE D-24: BRIDGE RENEWALS

Bridge Renewals	2021/22 (\$)	2022/23 (\$)	2023/24 (\$)
B292 Mangateitei Rail Over Bridge Replacement (Mangateitei Road)	0	2,822,721	0
B404 Ruapehu Rail Over Bridge Renewal	1,796,584	0	0
Pokatea Kokakonui Rd Culvert 24 replacement (LCLR)	0	0	300,000
Kokopuiti Rail Overbridge replacement (LCLR)	0	0	0
Woods Road bridge - replace with culvert	30,000	0	0
McNaughts Upper Retaruke Road bridge replacement	0	221,760	0
B41 Kirikau Valley No.2 bridge replacement	0	337,193	0
B54 Mangahoe No 1 bridge replacement	0	0	176,547
Total - Bridge Renewal	1,826,584	3,381,674	476,547

Deferred Renewals

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 need to be assessed. Although the deferral of some renewal works may not impact significantly on the short-term operation of the assets, repeated deferral will create a liability in the longer term.

Council is reviewing its structures deferred renewals alongside its component replacement programme as many of its structures are not economic to replace.

D04.9 Development Works

The development activity can significantly improve an existing asset or network as well as creating new assets.

Note that the renewals activity allows for replacements to have some minor improvements or significant improvements when it utilises current technology or standards.

Also note that Council can sometimes receive a new structure or asset through the vesting process in accordance with the District Plan.

D04.9.1 Activities

The replacement and upgrading of structures to meet current needs and expectations.

D04.9.2 Plan

Although this suspension bridge is functioning to its design capacity of 16 tonnes, the harvest period for a forest block it provides access to has become due, meaning the bridge's weight capacity is no longer fit for purpose.

TABLE D-25: STRUCTURES DEVELOPMENT PLAN

Bridge Development	2021/22 (\$)	2022/23 (\$)	2023/24 (\$)
Matahiwi Track Suspension bridge upgrade	3,476,516	0	0
Total - Bridge Development	3,476,516	0	0

There is the possibility that additional structures will be vested from a subdivision. The condition of vesting will be that they meet an agreed specification before Council receives ownership.

D04.10 Disposal Plan

Council has 24 bridges on the unmaintained sections of the network. These bridges represent a risk to council and need careful management. Council prefers to transfer ownership and risk to those receiving benefit from the bridge. Where Council cannot find a willing owner, then removal is Council's preferred option. Where there is no public benefit Council should not spend public money to maintain the bridge. Council will develop a disposal plan to transfer ownership and risk to another party or to remove the bridge physically. There are likely to be more bridges than Council is aware of.

The bridges that Council are aware of are listed in Appendix G

D04.11 Funding Request

Road Structures can be funded by the following NZTA Work Categories:

- WC 114: Structures maintenance
- WC 215: Structures component replacements
- WC 216: Bridge and structure renewals
- WC 322: Replacement of bridges and structures
- WC 323: New roads
- WC 324: Road improvements - (for new structures)
- WC 357: Resilience improvements

Additional funding is also requested via the Low cost low risk work category and is documented in the Networks Lifecycle section (D02).

There are financial implications to upgrading weight and speed restricted bridges. In most situations it will mean the renewal or upgrading of the structure. Funding may be available

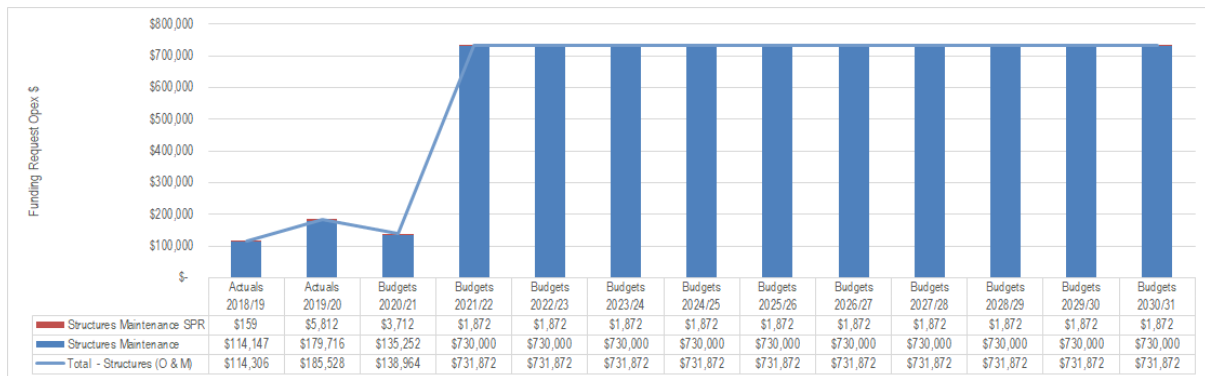
from NZTA if the financial analysis meets NZTA’s requirements. Funding is allowed for in this plan under the Structural Component replacement category.

Land owner contribution is a possibility to raising the priority or type of the bridge works.

Council has identified the following programmes for 2022/23, which is indicative of the next 10 years to address the challenges faced by the transport network and deliver the District’s Strategy and Investment Outcomes.

The figures below set out the historical actual expenditure and 2020/21 budget in actual dollars and the future draft budget figures in terms of 2021/22 base dollars.

FIGURE D.26: STRUCTURE HISTORICAL AND PROJECTED OPERATIONS AND MAINTENANCE EXPENDITURE \$



There is a significant increase in structures operations and maintenance budget due to the inclusion of a bridge painting programme for the first time.

FIGURE D.27: STRUCTURES HISTORICAL AND PROJECTED CAPITAL RENEWAL EXPENDITURE \$

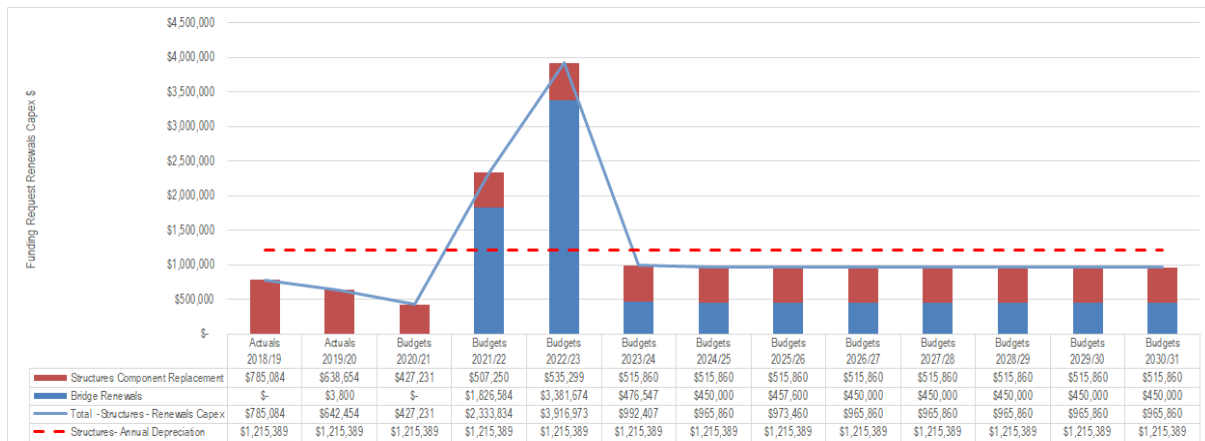


FIGURE D.28: STRUCTURES HISTORICAL AND PROJECTED CAPITAL DEVELOPMENT WORKS EXPENDITURE \$

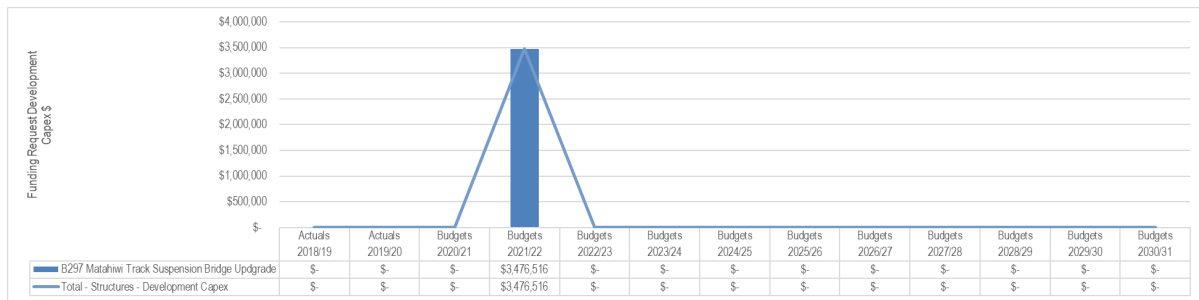
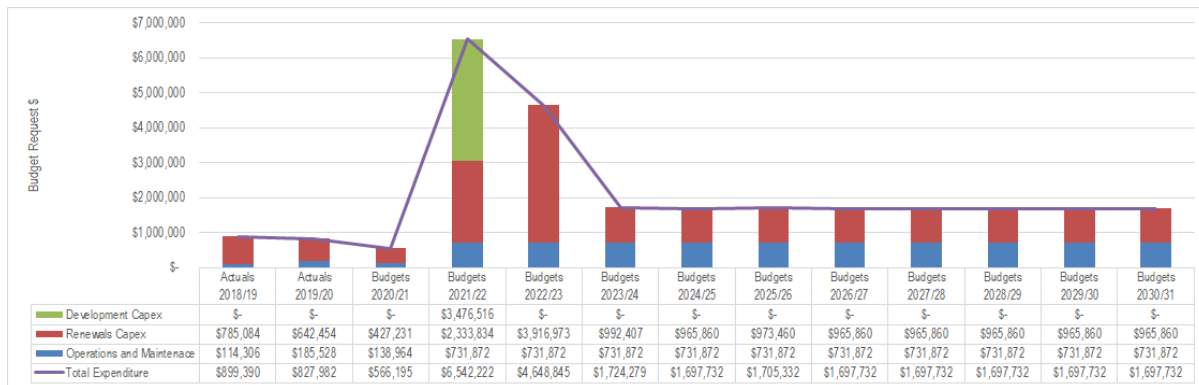


FIGURE D.29: STRUCTURES HISTORICAL AND PROJECTED COMBINED EXPENDITURE \$



Finances (Section E) and Appendix B provide more detail on the funding sources for these programmes and projects.

D05 DRAINAGE

D05.1 Purpose and Strategic Case Link

The purpose of drainage assets is:

Support the safe use of the road network during rain events and to provide protection to the integrity of the road pavements and property from flooding

Link to Strategic Case Problem Statements

The following table highlights how this activity supports addressing the problems identified in the Strategic Business Case.

	Problem Description	Activity Contribution
Forestry & Land Use	Changing land uses (i.e. Forestry & Mining) is resulting in (and will increase) the deterioration of the network causing increased reactive (unplanned, works to maintain the roading environment) maintenance and repair costs	This activity doesn't provide any significant contribution towards addressing this problem
Needs & Expectations	The needs and expectations of road users (local, freight, events, tourists) is resulting in increased investment to maintain and/or improved the form and function of the road network	Drainage reduces the damage to the network during rain events and hence maintains the road users ability to travel as required.
Climate, Topography & Geology	The network is impacted by climate, geography and topography resulting in reactive/unplanned maintenance costs as well as increased safety risk and operation of the network	The District's steep topography makes it prone to slip damage and washouts. Drainage infrastructure is essential for reducing the network's vulnerability to flood damage.
Safety	Vulnerable road users are at greater risk due to increasing and changing activity and environmental conditions which is expected to result in increased deaths and serious injuries	Drainage reduces the damage to the network during rain events and hence improves the safety of road uses.

Link to Key ONRC Customer Level of Service (LoS)

The following table highlights how this activity contributes to improving the Key ONRC Customer LoS.

	Customer Level of Service Description	Activity Contribution
Mobility - Reliability	Travel time reliability – the consistency of travel times that road users can expect	Adequate Drainage reduces the damage to the network, maintaining the road users access to reliable travel times across the district
Mobility - Resilience	The availability and restoration of each road when there is a weather or emergency event, whether there is an alternative route available and the road user information provided	Adequate Drainage reduces the damage to the network, reducing the time and effort to restore any damage after a weather event
Safety	How users experience the safety of the road	Adequate Drainage reduces the flooding during a weather event, improving the safety of road users who have to travel during the event. Adequate Drainage reduces damage to the network during a weather event, hence maintaining safer roads for road users immediately after an event.
Amenity	The level of travel comfort experienced by the road user and the aesthetic aspects of the road environment (e.g. cleanliness, comfort/convenience, security) that impact on the travel experience of road users in the road corridor	Adequate Drainage reduces damage to the network during a weather event, hence maintaining ride comfort of road users. Drainage Operational activities of sweeping and cleaning maintain the cleanliness of the District
Accessibility	The ease with which people are able to reach key destinations and the transport networks available to them, including land use access and network connectivity	Adequate Drainage reduces the damage to the network during rain events and hence maintains the road users availability to travel to all parts of the district. Noting that there are portions of the district with either no alternative access, or long detours for access.

D05.2 Assets to be Managed

D05.2.1 Asset Description

Drainage assets managed under the Land Transport Activity include:

- Minor Culverts (note that major culverts, with a cross-sectional area greater than 3.4m², are managed as bridges)
- Kerbs and channels
- Surface water channels (shallow and deep)
- Catchpits, sumps, manholes and soak pits (note most of these are urban drainage and as such are managed under the Stormwater Activity with a small number in rural areas maintained under the Land Transport Activity)

Drainage assets are managed in the following RAMM tables, and the following information is sourced directly from these tables:

- Drainage - culverts and point drainage assets
- Surface Water Channel

TABLE D-26: DRAINAGE ASSET QUANTITIES

Asset Type	Quantity		Urban / Rural		ONRC Classification				
	Number	Metres	Urban (Each)	Rural (Each)	Primary Collector (Each)	Secondary Collector (Each)	Accesses (Each)	Low Volume (Each)	No ONRC Class Assigned (Each)
Minor Culverts									
Total - Culvert	8,601	91,315	249	8,352	82	409	1,981	6,129	-
Total - Side Culvert	103	952	36	67	-	15	23	65	-
Total Culverts	8,704	92,268	285	8,419	82	424	2,004	6,194	-
Other Drainage									
Catchpit type 1	80		72	8	2	15	28	35	-
Catchpit type 2	22		20	2	-	1	10	11	-
Debris catching grid	7		-	7	6	-	1	-	-
Drop Chamber	354		4	350	1	37	155	161	-
Flume down batter	21		-	21	-	1	7	13	-
Manhole	78		36	42	1	7	27	43	-
Manhole Sump	3		2	1	-	-	-	3	-
Other	4		3	1	-	1	1	2	-
Scour Protection	9		-	9	-	3	6	-	-
Side drain	251		56	195	-	11	47	193	-
Soak pit	8		6	2	-	-	-	8	-
SOCK	2		-	2	-	-	2	-	-
Subsoil drain	45		1	44	-	8	28	9	-
Sump	567		550	17	6	101	128	320	12
Total Other Drainage	1,451		750	701	16	185	440	798	12
Total Drainage	10,155		1,035	9,120	98	609	2,444	6,992	12

FIGURE D.30: SURFACE WATER CHANNEL ASSET QUANTITIES

Asset Type	Quantity		Urban / Rural		ONRC Classification				
	Number	Metres	Urban (Each)	Rural (Each)	Primary Collector (Each)	Secondary Collector (Each)	Access (Each)	Low Volume (Each)	No ONRC Class Assigned (Each)
Kerb and Channel									
Dished Channel (Concrete)	47	3,555	34	13	11	11	14	10	1
Kerb & Channel (Concrete)	743	107,868	727	16	10	138	190	356	49
Kerb & Dished Channel (Concrete)	1	175	-	1	1	-	-	-	-
Kerb Only (Concrete)	67	4,039	66	1	2	6	15	43	1
Mountable Kerb & Channel (Concrete)	127	17,655	111	16	3	14	30	71	9
Mountable Kerb Only (Concrete)	3	46	3	-	-	1	2	-	-
Other Type	1	35	-	1	-	-	-	1	-
SWC (Deep, >200 Below Seal Edge)	833	579,161	108	725	7	87	315	424	-
SWC (Shallow, <200 Below Seal Edge)	1,184	824,263	104	1,080	11	44	256	871	2
Total Kerb and Channel	3,006	1,536,797	1,153	1,853	45	301	822	1,776	62

Assets shown as no ONRC class assigned are Council owned assets on road carriageways not owned by council. Currently only Council owned carriageways have an ONRC classification.

D05.2.2 Asset Values

Drainage assets form 13.6% (\$61.5M) of the total Land Transport Activity value (Optimised Replacement Cost) and 15.1% (\$0.7M) of the annual depreciation.

The Council's Land Transport assets have been valued as at 30 June 2020. As part of this process the following are calculated and shown in the tables below:

- ORC = Optimised Replacement Cost
- ODRC = Optimised Depreciated Replacement Cost ("today's value")
- AD = Annual Depreciation

FIGURE D.31: DRAINAGE ASSET VALUES

Asset Type	Number	Metres	ORC (\$)	DORC (\$)	AD (\$)
Minor Culverts					
Culvert	8,601	91,315	34,795,468	15,898,238	434,935
total - Side Culvert	103	952.3	-	-	-
Total Culverts	8,704	92,268	34,795,468	15,898,238	434,935
Other Drainage					
Catchpit type 1	80		7,848	5,518	98
Catchpit type 2	22		-	-	-
Debris catching grid	7		12,816	6,501	641
Drop Chamber	354		-	-	-
Flume down batter	21		11,455	8,527	164
Manhole	78		-	-	-
Manhole Sump	3		-	-	-
Other	4		4,432	2,632	55
Scour Protection	9		-	-	-
Side drain	251		611,431	230,494	7,643
Soak pit	8		8,865	7,286	111
SOCK	2		643	257	43
Subsoil drain	45		120,668	96,749	1,508
Sump	567		628,290	260,929	7,854
Total Other Drainage	1,451	-	1,406,448	618,893	18,117
Total Drainage	10,155	92,268	36,201,916	16,517,131	453,052

FIGURE D.32: KERB AND CHANNEL ASSET VALUES

Asset Type	Number	Metres	ORC (\$)	DORC (\$)	AD (\$)
Kerb and Channel					
Dished Channel (Concrete)	47	3,555	596,664	308,100	7,458
Kerb & Channel (Concrete)	743	107,868	15,055,408	6,154,119	188,193
Kerb & Dished Channel (Concrete)	1	175	28,675	24,015	358
Kerb Only (Concrete)	67	4,039	372,093	142,461	4,651
Mountable Kerb & Channel (Concrete)	127	17,655	2,446,012	1,375,163	30,575
Mountable Kerb Only (Concrete)	3	46	4,238	3,337	53
Other Type	1	35	3,224	1,209	40
SWC (Deep, >200 Below Seal Edge)	833	579,161	2,828,622	1,075,375	35,358
SWC (Shallow, <200 Below Seal Edge)	1184	824,263	4,025,700	1,513,101	50,321
Total	3,006	1,536,797	25,360,636	10,596,880	317,007

D05.3 The Need for Investment

D05.3.1 Known Needs, Issues and Risks

The following table provides the key drivers that support investment in this activity:

Driver	Name	Description	Strategies to Address Key Issues
Need	Assets to fulfil their purpose	Assets to fulfil their purpose in accordance with agreed Levels of Service.	Purpose is documented in the D07.1 Overview and Strategic Case Link. Transport Activity Level of Service is documented in Section C04 - Levels of Service we Provide Activity specific Level of Service
Issue	Undersize Culverts	When a culvert is undersized it becomes more easily blocked due to <ul style="list-style-type: none"> • Metal which travels off of unsealed roads • Sticks and debris blocking entrances or becoming jammed in the pipe <p>Currently 42 % of Culverts are less than or equal the 375mm min diameter desired.</p>	Increase culvert capacity during renewals using current best practices and standards.
Issue	Insufficient Culverts on hill country	The distance between culverts on rural roads is too large reducing the ability to drain water away from the road.	Decrease distance between culverts during renewals
Issue	Lack of drainage on adjacent land in the flat river valleys	Council maintains drainage on the road corridor, if there is no drainage on adjacent land the road becomes <ul style="list-style-type: none"> • flooded during weather event • Due to silting the corridor is often below the adjacent land so acts as a drain during flooding damaging the pavement 	Need to work with adjacent land owners to provide a channel to drain the road corridor. Research what compliance enforcement can be undertaken. (Land Drainage Act 1908)
Issue	Deep drains adjacent to road edge	Deep drains adjacent to the road edge are a safety issue. Even if these are not initially deep or close to the road edge scarring can open up the drain during weather events.	Continue with programme initiated during the 2018/21 AMP of cleaning and reprofiling road side drains
Issue	Global Warming	Drainage is expected to need to carry more water per weather event due to global warming.	Renewed structures to take into account increased rainfall or more heavy intensity events due to global warming.
Need	Fish passages	Fish passage is required for all wet culverts. Including the need to retro fit those meeting the criteria	Identify all culverts needing retrofitting for fish passage.
Issue	Armco Culverts	Armco culverts are rusting out at the bottom before achieving their expected life.	Maintenance activity to turn or line culvert to increase life. Replace on as required basis.

Driver	Name	Description	Strategies to Address Key Issues
Issue	Culvert network aging	Butt joints on older culverts are separating, leading to the end pipe of a culvert falling off. When this happens a full culvert replacement is often the best course of action. Leading the need for unplanned work and prioritising renewal programmes.	The type of butt joint culverts that are failing are no longer constructed. Current pipes are manufactured as socket joints with rubber rings. This issue should decrease over time.
Issue	Forestry slash	During weather events forestry slash has washed off of the hills, blocking drains and leading to flooding.	Work with the regional council, forestry owners and harvesters to make sure the slash is managed in a way that it cannot be washed into the waterways during weather events.

D05.4 Historical Commentary

Council currently has a culvert network which in some cases is undersized and or lacks capacity. Council aims to bring the minimum culvert size across the district up to 375mm as a minimum as renewals are undertaken.

Below is a breakdown of the current culvert sizes on the network.

Culvert Diameter	Quantity (No)	Length (metres)
X <= 370mm	3974	80130.3
370mm < X <= 450mm	3934	41747.9
450mm < X <= 600mm	521	7051.5
600mm < X <= 1000mm	597	7157.7
1000mm < X <= 2000mm	465	4740.6
2000mm < X	21	3188
Total	9512	144016

ARMCO culverts have not been achieving their expected life due to the nature of local soils.

TABLE D-27: CULVERTS BY TYPE BY MATERIAL

Asset Type	Quantity	
	Number	Metres
Culvert		
Aluminium	130	1304
Armco	243	2735
Asbestos cement	71	729
Concrete	7977	84390
Earthenware	63	546
H Density Polyethyl	6	226

Asset Type	Quantity	
HELCOR STEEL PIPES	4	44
Natural Ground	48	748
Other	7	85
Poly Vinyl Chloride	36	496
Steel	14	125
Timber construction	7	59
Total - Culvert	8,606	91,486
Culvert Material	Number	Metres
Culvert side		
Concrete	100	838.8
H Density Polyethyl	4	116
Poly Vinyl Chloride	1	15
Steel	3	25
Total - Side Culvert	108	994.8
Total	8,714	92,481

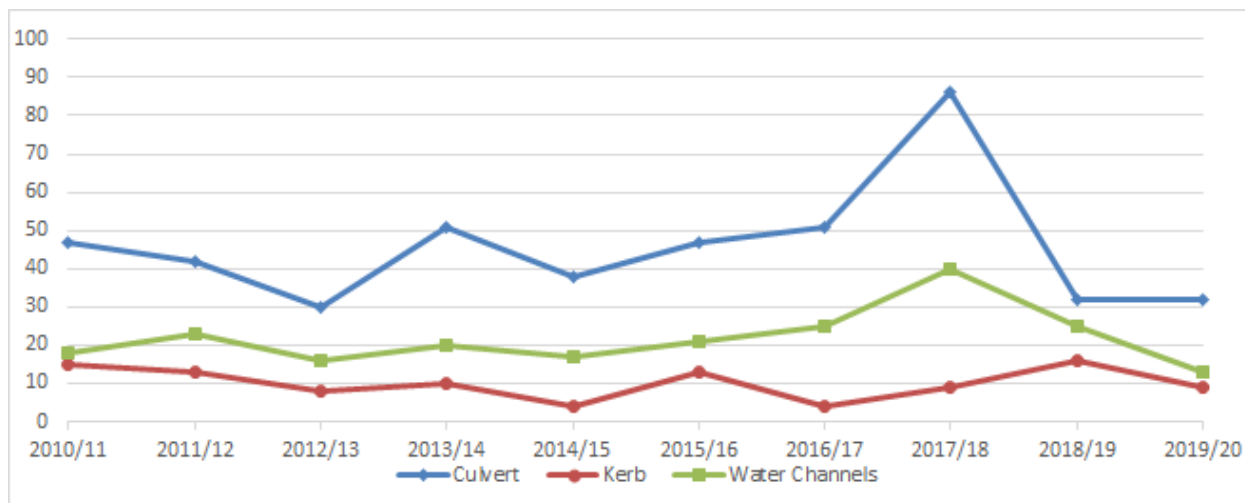
Improvements have systematically been made to surface water drainage over the last ten years through regular cleaning and re-profiling programmes of deep water channels located close to road carriageways. This where possible increases the distance to the road edge and reduces the depth of the channel. This improves safety as there is less likelihood of vehicles entering the channel or the road being undermined during weather events. In 2018 Council retained the services of a reprofiling digger on a permanent basis and set up a programme to clean and reprofile all deep drains close to the road edge. While this is a programme of works the machinery is also directed to handle emergencies as needed.

D05.4.1 D05.3.3 Levels of Service

Service Calls

Calls relate to both maintenance and infrastructure issues. A culvert inspection programme informs forward work.

FIGURE D.33: DRAINAGE SERVICE CALLS



SIGNIFICANT LOS CHANGE

No significant change has been made to drainage based LoS in recent history.

D05.5 Asset Performance

D05.5.1 Age Profile / Remaining Useful Life (RUL)

The tables below show the average age and remaining useful life(RUL) of each asset type.

It should be noted that where an asset doesn't have a construction date its RUL is calculated initially using a default date defined in the valuation module for the assets valuation rule. As noted in section D5.3.3, construction date completeness is a data accuracy issue.

Due to the lack of age information the following calculation has been used

$$\text{Average Age} = \text{Total Useful Life} - \text{Average RUL}$$

TABLE D-28: DRAINAGE ASSET AGE INFORMATION

Asset Type	Number	Metres	Total Useful Life	Average Age	Average RUL
Minor Culverts					
Culvert	8,601	91,315	80	42	38
Side Culvert	103	952.3	80	19	61
Total Culverts	8,704	92,268			

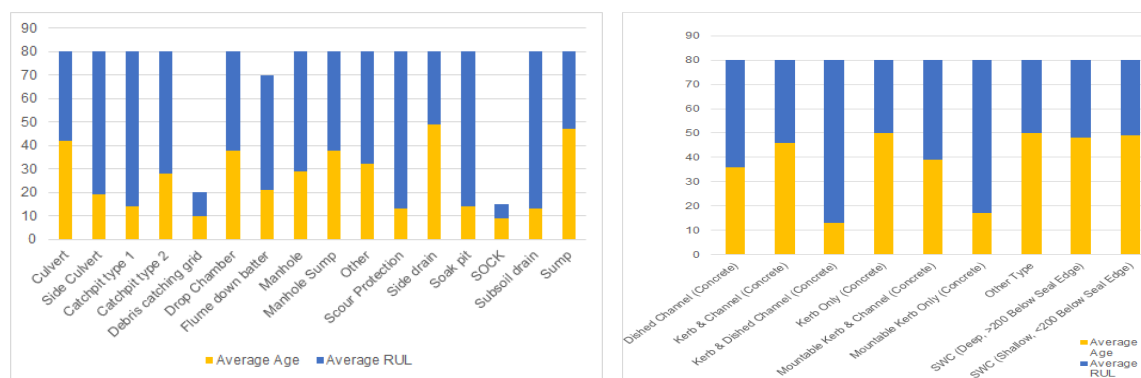
Asset Type	Number	Metres	Total Useful Life	Average Age	Average RUL
Other Drainage					
Catchpit type 1	80		80	14	66
Catchpit type 2	22		80	28	52
Debris catching grid	7		20	10	10
Drop Chamber	354		80	38	42
Flume down batter	21		70	21	49
Manhole	78		80	29	51
Manhole Sump	3		80	38	42
Other	4		80	32	48
Scour Protection	9		80	13	67
Side drain	251		80	49	31
Soak pit	8		80	14	66
SOCK	2		15	9	6
Subsoil drain	45		80	13	67
Sump	567		80	47	33
Total Other Drainage	1,451	-			

TABLE D-29: SURFACE WATER CHANNEL ASSET AGE INFORMATION

Asset Type	Number	Metres	Total Useful Life	Average Age	Average RUL
Kerb and Channel					
Dished Channel (Concrete)	47	3,555	80	36	44
Kerb & Channel (Concrete)	743	107,868	80	46	34
Kerb & Dished Channel (Concrete)	1	175	80	13	67
Kerb Only (Concrete)	67	4,039	80	50	30
Mountable Kerb & Channel (Concrete)	127	17,655	80	39	41
Mountable Kerb Only (Concrete)	3	46	80	17	63
Other Type	1	35	80	50	30
SWC (Deep, >200 Below Seal Edge)	833	579,161	80	48	32
SWC (Shallow, <200 Below Seal Edge)	1184	824,263	80	49	31
Total	3,006	1,536,797			

The graphs below compare the average age and remaining useful lives of assets

FIGURE D.34: DRAINAGE ASSET AGE PROFILES



The profiles above comparing average age to average RUL indicate that most asset types have a reasonable profile with none showing a limited average RUL. There is a degree of uncertainty in this information as many of the RUL have been set to defaults.

D05.5.2 Condition

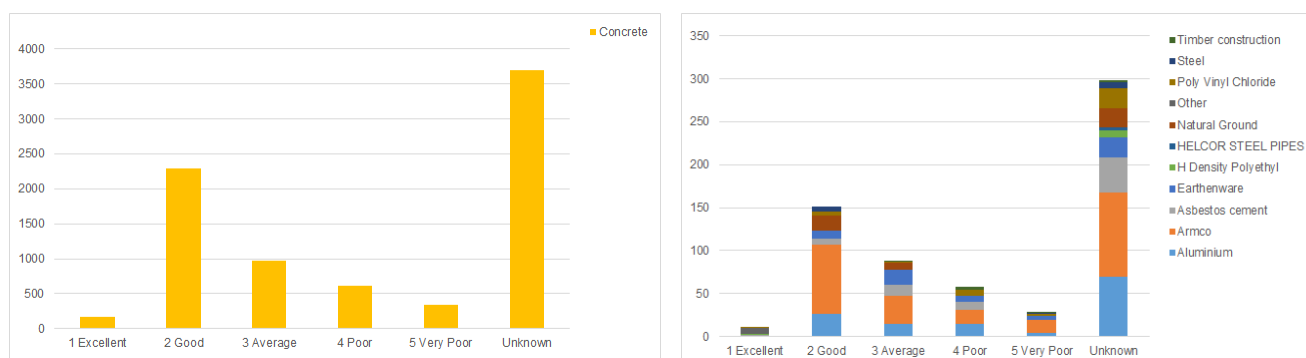
While the condition of minor culverts is known to some extent there is no formal condition rating taking place for other drainage assets and surface water channels. Roadmen are recording condition ratings into RAMM based on the maintenance condition. New culverts are entered with a rating of excellent. The table below shows the current condition rating profile in RAMM; it indicates that only 45% of culverts have a known condition rating.

TABLE D-30: MINOR CULVERT CONDITION PROFILE

Asset Type	Quantity		Condition					
	Number	Metres	Excellent (Each)	Good (Each)	Average (Each)	Poor (Each)	Very Poor (Each)	Unknown (Each)
Culvert								
Aluminium	130	1,304	-	26	15	15	4	70
Armco	243	2,735	1	81	32	16	15	98
Asbestos cement	71	729	1	7	13	9	1	40
Concrete	7,976	84,365	158	2,291	968	610	336	3,613
Earthenware	63	546	-	9	18	8	4	24
H Density Polyethyl	5	206	1	-	-	-	-	4
HELCOR STEEL PIPES	4	44	-	-	-	-	-	4
Natural Ground	48	748	-	18	8	-	-	22
Other	7	85	7	-	-	-	-	-
Poly Vinyl Chloride	36	496	1	4	1	5	2	23
Steel	14	125	-	6	-	1	2	5
Timber construction	7	59	-	-	1	3	1	2
Total - Culvert	8,604	91,441	169	2,442	1,056	667	365	3,905
Culvert Material	Number	Metres	Excellent (Each)	Good (Each)	Average (Each)	Poor (Each)	Very Poor (Each)	Unknown (Each)

Asset Type	Quantity		Condition					
Side Culvert								
Concrete	96	801	3	6	3	2	1	81
H Density Polyethyl	4	116	-	-	-	-	-	4
Poly Vinyl Chloride	1	15	-	-	-	1	-	-
Steel	2	20	-	-	-	-	-	2
Total - Side Culvert	103	952	3	6	3	3	1	87
Total All Culverts	8,707	92,394	172	2,448	1,059	670	366	3,992

FIGURE D.35FIGURE: CONDITION PROFILE OF MINOR CULVERTS BY MATERIAL



Of the minor culverts with a known condition rating, 8% are in very poor condition and a further 14% are poor.

D05.5.3 Performance

Culverts within the district generally have performed well and cope with flows during minor rain events. Blockages of the smaller culverts are typically caused by sticks and leaves during autumn and road gravel migration during heavy rain events. Some of the poor condition culverts are due to pipe segments being misaligned, however, the culvert barrels are clear of obstruction and provide a free flow of water during the rain events.

Armco and Helcor steel pipe performance has been poor within the district, as the chemical makeup of the soils reacts with the metal accelerating corrosion. In some areas, the bottom of the pipe has rusted out in the wetted flow area within 10 years of installation, causing undermining and washouts of the outlets.

In the flatter river valleys and market gardening areas, the outlet drainage channels through private farmland have not been maintained by the owner or filled in over time, leading to the culverts not being able to perform their drainage function during heavy inflows.

D05.6 Asset Management

D05.6.1 Standards

Council standard for small culverts is currently a minimum diameter of 375mm under roads, 300mm under driveways with 90m between Culverts.

Horizons Regional Council expectation for new culvert diameter is that the culvert will cope with an Average Exceedance Probability (AEP) of 50% (2 year flood) flowing full and without overflowing the road in a 5% AEP (20 year flood).

D05.6.2 Strategies and Policies

Council has determined the following strategies to manage the drainage activity:

- Culverts of at least 375mm will be used for all renewals and new developments.
- Deep drains and undersized culverts are systematically replaced in conjunction with pavement renewals.
- Priority for the replacement of kerb and channel and cesspits is given to road sections in conjunction with other renewal programmes, such as resurfacing and pavement rehabilitation
- A dedicated machine has been procured to reprofile surface water channels focusing on a proactive programme deep channels close to the carriageway edge as this is a safety issue.
- The water channels on unsealed rural roads shall be reprofiled as part of the grading component of the road maintenance contract.

Horizon Regional Council requires resource consents for drainage.

Culvert Renewals do not require consent if they are

- 300mm - 1200mm in diameter
- less than 20m in total length
- less than 2.0m of fill height over the culvert
- provide 50% AEP when flowing full.

D05.6.3 Risk Management

The key activity and specific asset risks are identified in the “Known Needs, Issues and Risks” section above.

The overall approach to risk and criticality can be found in Managing Risk (Section C02).

Drains and drainage appliances lose their effectiveness over time due to vegetation growth, silt, scour etc thus putting the network at risk from high rainfall events increasing the risk of interruption of transport services and potentially increasing cost to the businesses in the area by lowering productivity

D05.6.4 Delivery

The drainage asset activities are delivered under the current Council contracts as outlined in the table below

Activity Type	Activity	Delivery Method
Operations	Drainage - Kerb and Channel sweeping (urban areas)	Parks and Reserves Contract
Operations	Drainage - Vegetation control (urban areas)	Parks and Reserves Contract
Operations	Drainage - Catchpit cleaning (urban areas)	Water and Stormwater Maintenance Contractor
Operations	Drainage - Removal of detritus in water channels	General Maintenance Contract
Operations	Drainage - Spaying of water channels (rural areas)	Vegetation Control Contract
Operations	Drainage - Culvert inspection	General Maintenance Contract
Maintenance	Drainage - Culvert Maintenance	General Maintenance Contract
Maintenance	Drainage - Cleaning roadside water channels	Heavy Maintenance Contract
Maintenance	Drainage - Forming cut-out drains	General Maintenance Contract
Maintenance	Drainage - Reshaping cut-out drains	Heavy Maintenance Contract
Maintenance	Drainage - Reshaping roadside water channels	Heavy Maintenance Contract
Renewals	Drainage - Culvert Renewal	Heavy Maintenance Contract
Renewals	Drainage - Inlet/outlet extension	Heavy Maintenance Contract
Renewals	Drainage - Catchpit Renewal	General Maintenance Contract
Renewals	Drainage - Kerb and Channel Renewal	General Maintenance Contract
Development	Drainage - Culverts - Vested	Developer
Development	Drainage - Kerb and Channel - New with Footpath Development	General Maintenance Contract
Development	Drainage - Kerb and Channel - New with pavement rehabilitation	Heavy Maintenance Contract

D05.6.5 Data Quality and Confidence

Refer to Data Quality (Section C05) for all commentary and analysis on data quality. This supports the understanding on how the data can be used to support reporting, valuations and asset management.

D05.7 Operations

D05.7.1 Activities

Operational activities for drainage undertaken by road transport contractors are;

- Removal of detritus from water channels
- Spraying of rural water channels
- Culvert maintenance and condition inspection

D05.7.2 Plan

Roadmen undertake detritus removal from water channel and culvert inspections as part of their routine patrols

Spraying of rural water channels is programmed by the vegetation control contract at least twice a year, with an additional run programmed if required.

D05.8 Maintenance

D05.8.1 Activities

Maintenance activities for drainage are;

- Cleaning and reshaping roadside water channels
- Reshaping cut-out drains
- Culvert maintenance
- Forming cut-out drains

D05.8.2 Plan

Roadmen undertake culvert maintenance and the forming of cut-out drains as part of their routine patrol.

Cleaning and reshaping of water channels is managed by the heavy maintenance contractor on an 8 yearly cyclic programme.

Deferred Maintenance

There is no deferred maintenance at this time.

D05.8.3 D05.8 Renewals

D05.8.4 Activities

Renewals activities for drainage are

- Culvert renewal
- Inlet/outlet extension
- Kerb and channel renewal
- Catchpit renewal

D05.8.5 Plan

Reactive renewals are programmed as needed;

- due to culvert collapse,
- undersized culverts leading scouring or other damage

Culvert, Kerb and channel renewals are programmed to support the reseals and pavement rehabilitation programmes, as well as condition.

Catchpit renewals are programmed as part of kerb and channel renewal programme

Deferred Renewals

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 need to be assessed. Although the deferral of some renewal works may not impact significantly on the short-term operation of the assets, repeated deferral will create a liability in the longer term.

No deferred renewals are currently expected for this activity.

D05.9 Development

The development activity can significantly improve an existing asset or network as well as creating new assets.

Note that the renewals activity allows for replacements to have some minor improvements or significant improvements when it is utilising current technology or standards.

Also note that Council will receive new network assets through the vesting process in accordance with the District Plan.

D05.9.1 Activities

Development works are generally initiated through triggers such as growth, Levels of Service, regulatory, operational efficiency, or vested (gifted) through subdivisions.

Culverts located on road sections up for pavement rehabilitation or sealed road surfacing are assessed for condition and extended or replaced prior to the renewal of the pavement.

The kerb and channel development budget (unsubsidised) is used for amenity and drainage improvements in urban areas. This budget allows the Land Transport team to work with communities proactively. Sites and works are identified during the delivery year, noting that the scale of budget and works doesn't support longer term planning.

D05.9.2 Plan

There are no subsidised drainage development works planned for the 2021/24 block.

The unsubsidised development will follow the footpath development to support new footpaths.

D05.10 Disposal Plan

There are no assets to be disposed of, outside of renewal works, at this time.

D05.11 Funding Request

Road Structures can be funded by the following NZTA Work Categories:

- WC 113: Routine drainage maintenance
- WC 213: Drainage renewals

Council has identified the following programmes for 2021/22, which is indicative of the next 10 years to address the challenges faced by the transport network and deliver the District’s Strategy and Investment Outcomes.

The figures below set out the historical actual expenditure and 2020/21 budget in actual dollars and the future draft budget figures in terms of 2021/22 base dollars.

FIGURE D.36 :DRAINAGE HISTORICAL AND PROJECTED OPERATIONS AND MAINTENANCE EXPENDITURE \$

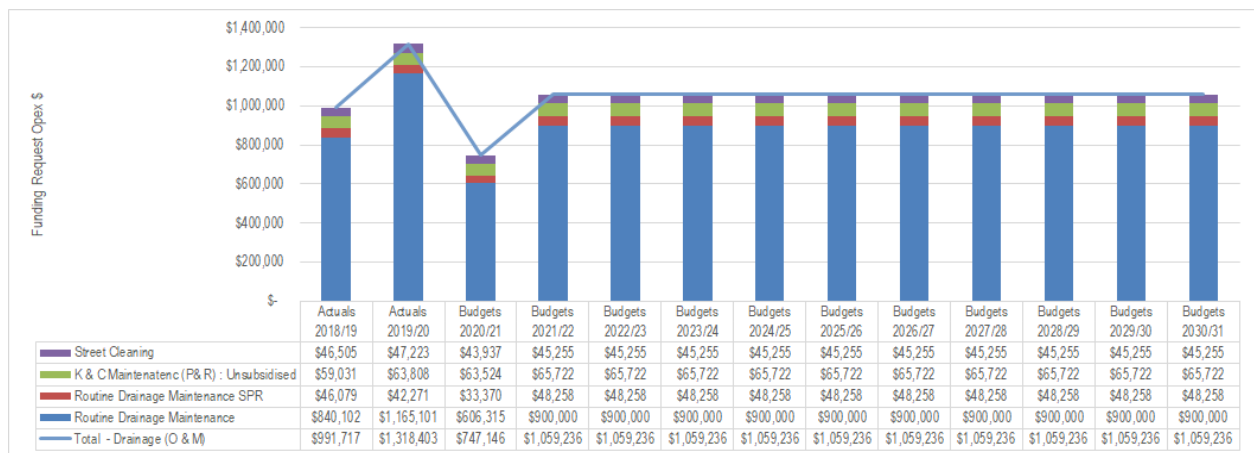
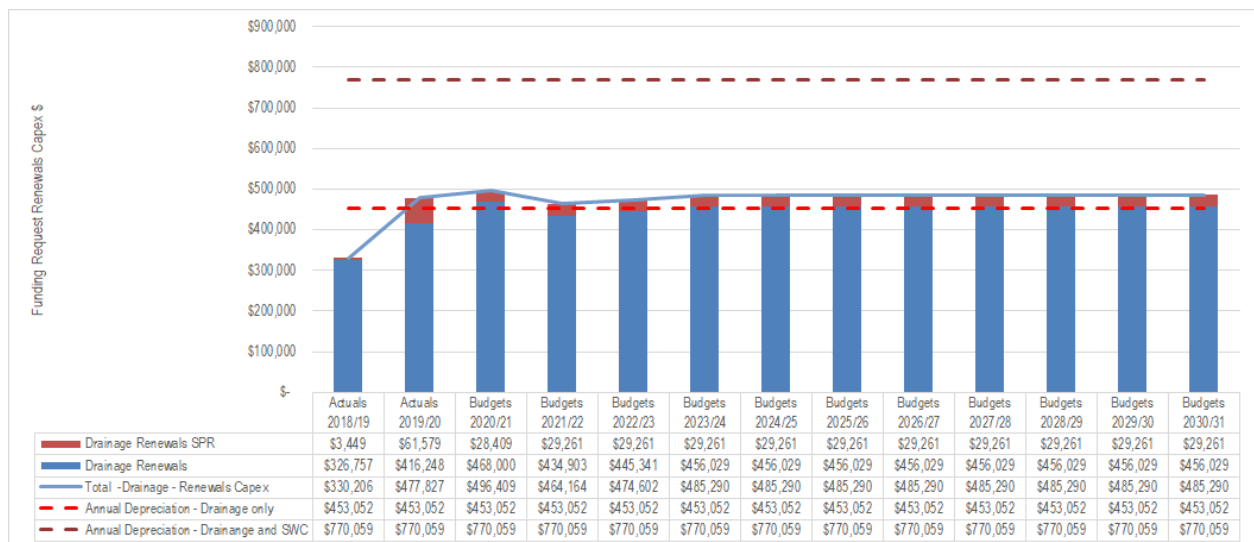
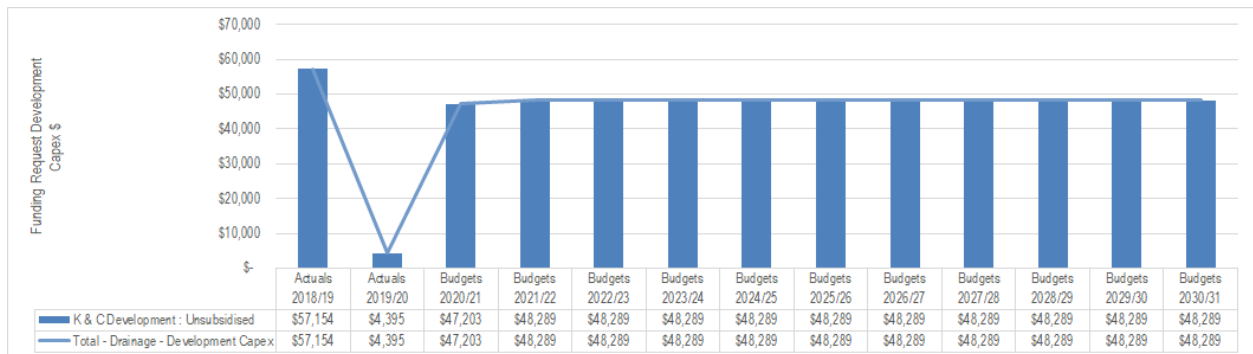


FIGURE D.37: DRAINAGE HISTORICAL AND PROJECTED CAPITAL RENEWAL EXPENDITURE \$



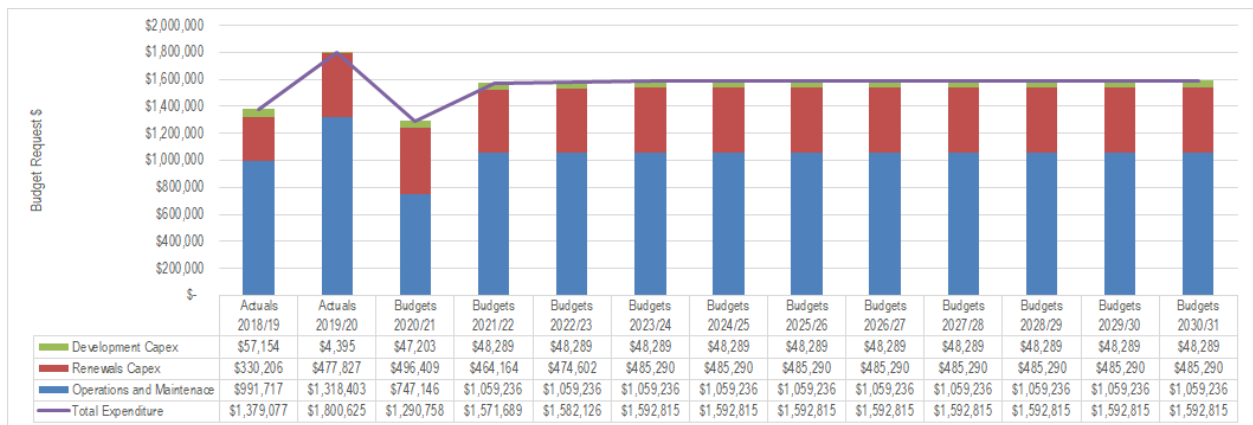
The annual depreciation for all drainage asset type is shown above, along with the depreciation for culverts and other drainage assets (not surface water channels). It can be seen that the drainage renewals is inline with the drainage depreciation. Currently there is no plan for surface water channel renewals.

FIGURE D.38: DRAINAGE HISTORICAL AND PROJECTED CAPITAL DEVELOPMENT EXPENDITURE \$



The figure below sets out the historical and projected combined expenditure for drainage projects and programmes.

FIGURE D.39: DRAINAGE HISTORICAL AND PROJECTED COMBINED EXPENDITURE \$



Finances (Section E) and Appendix B provide more detail on the funding sources for these programmes and projects.

D06 TRAFFIC SERVICES

D06.1 Purpose and Strategic Case Link

The purpose of traffic service assets is:

Support the safe use of the road network by all road users

A large number of traffic service assets support not just road users but also the community using walking and cycling within the road and path corridors.

Link to Strategic Case Problem Statements

The following table highlights how this activity supports addressing the problems identified in the Strategic Business Case.

	Problem Description	Activity Contribution
Forestry & Land Use	Changing land uses (i.e. Forestry & Mining) is resulting in (and will increase) the deterioration of the network causing increased reactive (unplanned, works to maintain the roading environment) maintenance and repair costs	This activity doesn't provide any significant contribution towards addressing this problem
Needs & Expectations	The needs and expectations of road users (local, freight, events, tourists) is resulting in increased investment to maintain and/or improved the form and function of the road network	Traffic Services allow the network users to travel safely to their destination. All of traffic services levels of services are set out in regulations and design guides
Climate, Topography & Geology	The network is impacted by climate, geography and topography resulting in reactive/unplanned maintenance costs as well as increased safety risk and operation of the network	This activity doesn't provide any significant contribution towards addressing this problem
Safety	Vulnerable road users are at greater risk due to increasing and changing activity and environmental conditions which is expected to result in increased deaths and serious injuries	Traffic Services assets aid the safe and orderly movement of traffic and indicate road use restrictions

Link to Key ONRC Customer Level of Service (LoS)

The following table highlights how this activity contributes to improving the Key ONRC Customer LoS.

	Customer Level of Service Description	Activity Contribution
Mobility - Reliability	Travel time reliability – the consistency of travel times that road users can expect	Adequate traffic services (eg: lighting and signs) improves the safety outcomes on the network, therefore reducing network restrictions or closures
Mobility - Resilience	The availability and restoration of each road when there is a weather or emergency event, whether there is an alternative route available and the road user information provided	This activity doesn't provide any significant contribution towards this customer level of service
Safety	How users experience the safety of the road	To aid the safe and orderly movement of traffic and indicate road use restrictions
Amenity	The level of travel comfort experienced by the road user and the aesthetic aspects of the road environment (e.g. cleanliness, comfort/convenience, security) that impact on the travel experience of road users in the road corridor	This activity doesn't provide any significant contribution towards this customer level of service
Accessibility	The ease with which people are able to reach key destinations and the transport networks available to them, including land use access and network connectivity	Destination signage provides guidance to how to reach places

D06.2 Assets to be Managed

D06.2.1 Asset Description

Traffic Services assets managed under the Land Transport Activity include:

- Street lighting
- Road signs
- Road markings
- Traffic controls
 - Traffic Islands
 - Speed Humps
 - Railings (including barriers)
 - Edge Marker Posts
 - Crossings

Street Lighting

Street Light assets are managed in the following RAMM tables, and the following information is sourced directly from these tables:

- Street light poles
- Street light brackets
- Street light lights
- Street light rating - for condition of poles, brackets and lights.

The table below shows that Council manages approximately 1548 street lights, 1530 Brackets and 687 lighting poles. The majority (95%) of street lighting is provided in urban areas, with Taumarunui making up 51% of all lights. Rural lighting is provided in the vicinity of major intersections (called flag lighting)

TABLE D-31: TABLE : STREET LIGHTS QUANTITIES

Asset Type	Number	Urban / Rural		ONRC Classification			
		Urban (Each)	Rural (Each)	Primary Collector (Each)	Secondary Collector (Each)	Access (Each)	Low Volume (Each)
Street Lights							
Poles	687	677	10	12	181	117	223
Brackets	1,530	1,464	65	14	291	293	776
Lights	1,548	1,479	69	15	291	293	781
Total	3,765	3,620	144	41	763	703	1,780

Ownership

As can be seen above Council owns substantially fewer poles than lights and while there can be more than one light per pole this is mainly due to;

- Where a pole solely supports a streetlight or other Council infrastructure it is the property of Council.
- Where poles also support overhead wire utility services, they may be the property of the utility company.
 - Power authority (either The Lines Company (north) or Powerco (south east and south west))
 - Phone lines - Chorus.

NZ Transport Agency Street Lighting

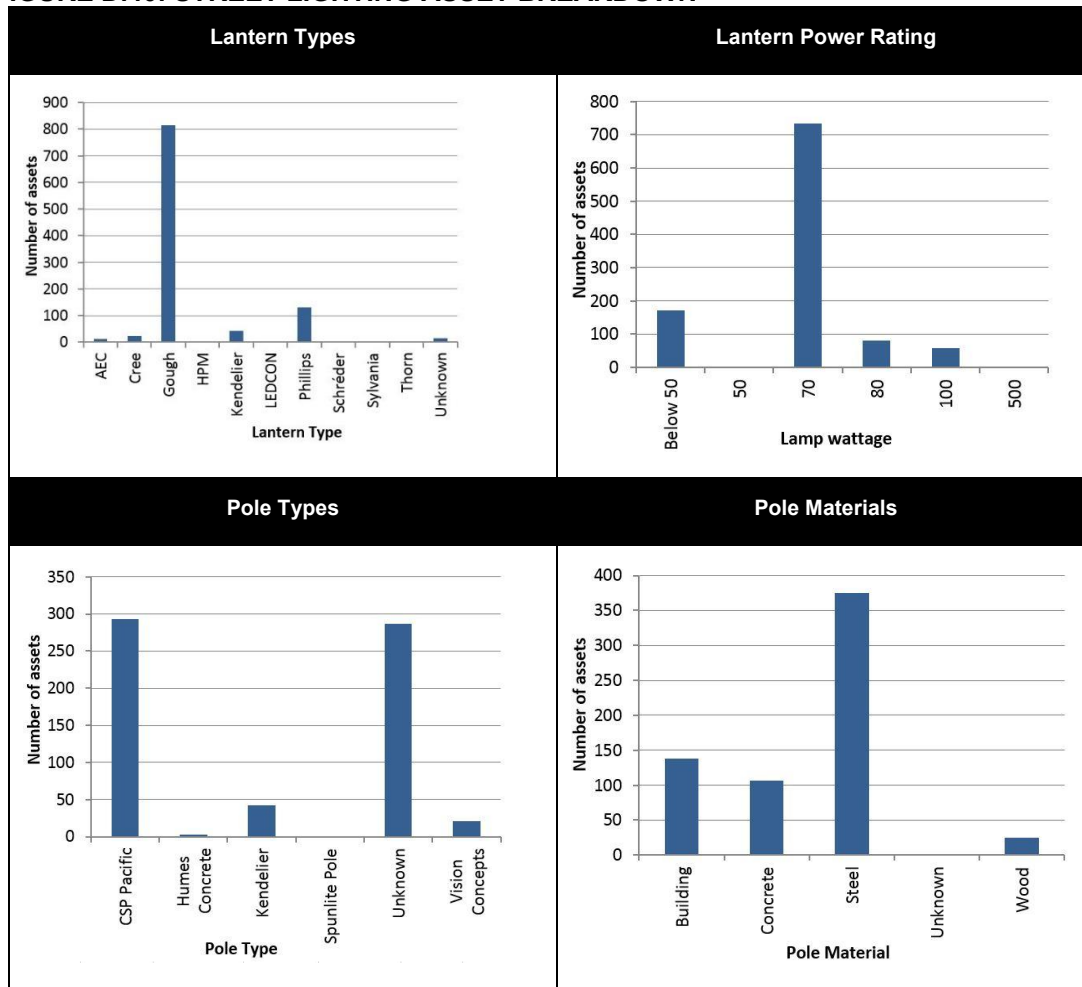
Council manages maintenance of State Highway lights on behalf of the Transport Agency in a Memorandum of Understanding. Costs are therefore incurred by the Council for this work and then recovered from NZTA.

TABLE D-32: BREAKDOWN OF STREET LIGHT OWNERSHIP

Owner	Poles	Bracket	Light
Council Transport	687	1,530	1,549
Council Other	50	55	55
NZTA	218	263	271
DOC	16		
Utility	891	2	2
Other	2	21	21
Total	1,864	1,871	1,898

The following graphs show the breakdown of lantern types and the breakdown of power ratings. While 70W lanterns still predominate the switch to LED will lead to a change over time.

FIGURE D.40: STREET LIGHTING ASSET BREAKDOWN



Road Signs

Road Signs assets are managed in the following RAMM tables, and the following information is sourced directly from these table:

- Signs

Council owns and manages 5,232 road signs

The following table summarises the road signs managed by Council, although there is low confidence in this information as signs were not routinely added to RAMM for a period of time. Hence council is reliant on roadmen to report poor quality or missing signage. Council via its professional services contract is intending to undertake an inventory check to review RAMM to actual inventory.

TABLE D-33: ASSET INFORMATION - ROAD SIGNS (GENERALLY ALUMINUM SUBSTRATE)

Asset Type	Number	Urban / Rural*		ONRC Classification				
		Urban (Each)	Rural (Each)	Primary Collector (Each)	Secondary Collector (Each)	Access (Each)	Low Volume (Each)	No ONRC Class Assigned (Each)
Regulatory signs which road users are required to obey								
Markings	1,387	474	886	27	126	439	766	29
Regulatory Heavy Vehicle	68	2	64	-	3	11	52	2
Regulatory Parking	94	83	10	10	45	18	19	2
Regulatory Total	1,549	559	960	37	174	468	837	33
Warning and Hazard								
Hazard Markings	1,324	97	1,208	41	84	408	772	19
Permanent Warning	1,286	232	1,050	66	131	607	477	5
Warning Miscellaneous	11	5	6	2	3	2	4	-
Warning Total	2,621	334	2,264	109	218	1,017	1,253	24

Asset Type	Number	Urban / Rural*		ONRC Classification				
		Urban (Each)	Rural (Each)	Primary Collector (Each)	Secondary Collector (Each)	Access (Each)	Low Volume (Each)	No ONRC Class Assigned (Each)
Information								
Guide	26	11	15	4	2	7	13	-
Information General	154	66	75	4	14	50	71	15
Information Miscellaneous	26	14	12	5	3	7	11	-
Information signs	1,061	536	485	33	134	307	530	57
Local Authority	4	2	2	-	2	2	-	-
Miscellaneous	30	9	18	7	3	7	10	3
Motorist Services	13	10	3	-	4	5	2	2
Tourist	93	49	44	-	14	31	45	3
Unknown	2	-	2	-	-	-	2	-
Information Total	1,409	697	656	53	176	416	684	80
Total	5,579	1,590	3,880	199	568	1,901	2,774	137

*Note there are 109 signs where urban/rural has not been determined.

Road Markings

Road Markings assets are managed in the following RAMM table, and the following information is sourced directly from these tables:

- Markings

Council owns and manages 399 km of road markings

TABLE D-34: ASSET INFORMATION ROAD MARKINGS

Asset Type	Description	Quantity
Road markings and raised pavement markers	Intersection markings: <ul style="list-style-type: none"> • Centre lines/edge lines/lane lines. • Lane arrows. • Wait lines/continuity lines. • Cycle lanes. • Border lines/diagonal lines. • Stop lines. • Give way lines. 	399 km

Traffic Controls

Traffic Control assets are managed in the following RAMM tables, and the following information is sourced directly from these tables:

- Railings
- Islands
- Traffic Facilities for ;
 - Speed Humps
 - Edge Marker Posts
- Crossings

A summary of Councils Traffic Controls can be seen in the table below

TABLE D-35: RAILINGS QUANTITIES

Asset Type	Quantity		Urban / Rural		ONRC Classification				
	Number	Metres	Urban (m)	Rural (m)	Primary Collector (m)	Secondary Collector (m)	Access (M)	Low Volume (m)	No ONRC Class Assigned
Railings									
Barrier	22	510	14	470	-	61	80	343	26
Barrier Cable Terminal unit	4	12	-	12	-	-	12	-	-
Bridge Rail	21	356	8	296	-	-	106	198	52
Guard rail	159	3,156	295	2,861	773	208	1,523	652	-
Hand rail	79	1,760	83	1,614	20	38	511	1,128	63
Sight rail	759	6,116	589	5,527	29	722	1,843	3,522	-
Steel Tube and Post barrier	20	304	75	229	25	-	36	243	-
Timber	17	290	3	287	-	72	25	193	-
W Section Guard rail	109	3,286	252	3,034	959	104	1,250	973	-
Total	1,190	15,790	1,319	14,330	1,806	1,205	5,386	7,252	141

The 141m of railing with no ONRC cannot be linked to the network so are also missing from the urban/rural split.

The remainder of the traffic control assets are listed below.

TABLE D-36: ASSET INFORMATION – TRAFFIC CONTROLS

Asset Type	Description	Unit	Quantity
Traffic Islands	Median	Each	1
	Rotary	Each	1
	Splitter	Each	20
	Throat	Each	10
	Islands Total		32
Edge Marker Posts			1340
Speed humps			5
Crossings			450

D06.2.2 Asset Values

Traffic Services assets form 2.6% (\$11.8M) of the total Land Transport Activity value (Optimised Replacement Cost) and 7.5% (\$0.4M) of the annual depreciation.

Due to the short average useful lives of traffic services assets compared to other asset groups it should be noted that the proportion of the Land Transport Activities annual depreciation is much higher than the optimised replacement cost.

The Council's Land Transport assets have been valued as at 30 June 2020. As part of this process the following are calculated and shown in the tables below:

- ORC = Optimised Replacement Cost
- ODRC = Optimised Depreciated Replacement Cost ("today's value")
- AD = Annual Depreciation

Street Lighting

Street lighting assets form 0.9% (\$4.1M) of the total Land Transport Activity value (Optimised Replacement Cost) and 3.3% (\$0.2M) of the annual depreciation.

TABLE D-37: STREET LIGHT REPLACEMENT COST AND ANNUAL DEPRECIATION

Asset Type	Number	ORC (\$)	DORC (\$)	AD (\$)
Street Lights				
Poles	687	2,013,646	597,587	80,546
Brackets	1,530	1,615,717	347,457	64,595
Lights	1,548	506,942	83,378	22,773
Total		4,136,305	1,028,422	167,914

Road Signs

Road sign assets form 0.3% (\$1.1M) of the total Land Transport Activity value (Optimised Replacement Cost) and 2.1% (\$0.1M) of the annual depreciation.

TABLE D-38: SIGNS REPLACEMENT COST AND ANNUAL DEPRECIATION

Asset Type	Number	ORC (\$)	DORC (\$)	AD (\$)
Regulatory signs which road users are required to obey				
Regulatory General	1,387	219,854	33,854	20,424
Regulatory Heavy Vehicle	68	18,087	3,775	1,695
Regulatory Parking	94	12,846	2,448	1,181
Regulatory Total	1,549	250,787	40,077	23,300
Warning				
Hazard Markings	1,324	227,633	24,825	20,802
Permanent Warning	1,286	260,984	49,641	24,199
Warning Miscellaneous	11	2,995	718	282
Warning Total	2,621	491,612	75,184	45,283
Information				
Guide	26	6,364	1,171	586
Information General	154	49,883	7,027	4,492
Information Miscellaneous	26	5,659	1,962	544
Information signs	1,061	339,798	63,164	31,476
Local Authority	4	639	58	58
Miscellaneous	30	6,468	588	588
Motorist Services	13	4,293	1,185	407
Tourist	93	25,322	8,298	2,389
Unknown	2	-	-	-
Information Total	1,409	438,426	83,453	40,540
All Signs	5,579	1,180,825	198,714	109,123

Road Markings

Road marking assets form 0.1% (\$0.4M) of the total Land Transport Activity value (Optimised Replacement Cost) as road markings are repainted every year there is no annual depreciation.

TABLE D-39: ROAD MARKING REPLACEMENT COST AND ANNUAL DEPRECIATION

Asset Type	Number	Metres	ORC (\$)	DORC (\$)	AD (\$)
Markings	km	399	480,793	480,793	-

Traffic Controls

Traffic control assets form 1.3% (\$6.0M) of the total Land Transport Activity value (Optimised Replacement Cost) and 2.1% (\$0.1M) of the annual depreciation

TABLE D-40: TRAFFIC CONTROLS REPLACEMENT COST AND ANNUAL DEPRECIATION

Asset Type	Number	Metres	ORC (\$)	DORC (\$)	AD (\$)
Railings					
Barrier	22	510	82,262	14,506	1,633
Barrier Cable Terminal unit	4	12	3,153	77	77
Bridge Rail	21	356	72,764	20,745	1,617
Guard rail	159	3,156	365,226	63,475	9,646
Hand rail	79	1,760	196,554	21,514	4,880
Sight rail	759	6,116	572,879	206,682	16,225
Steel Tube and Post barrier	20	304	41,836	1,020	1,020
Timber	17	290	26,506	980	651
W Section Guard rail	109	3,286	724,444	22,146	17,743
Railings - Total	1,190	15,790	2,085,624	351,145	53,492
Other Traffic Controls					
Islands	32	-	322,697	153,291	4,303
Speed Humps	5	-	5,247	1,049	350
Edge Mark Posts	1,340	-	32,738	2,293	2,049
Crossings	450	-	3,567,743	484,525	47,570
Other Traffic Controls- Total	1,827	-	3,928,425	641,159	54,271
Traffic Controls - Total	3,017	15,790	6,014,049	992,304	107,763

D06.3 The Need for Investment

Council considers that it has a basic approach to traffic services investment, and has identified areas for improvement.

D06.3.1 Known Needs, Issues and Risks

The following table provides the key drivers that support investment in this activity:

Driver	Name	Description	Strategies to Address Key Issues
Need	Assets to fulfil their purpose	Assets to fulfil their purpose in accordance with agreed Levels of Service.	Purpose is documented in the D06.1 Overview and Strategic Case Link. Transport Activity Level of Service is documented in Section C04 - Levels of Service we Provide Activity specific Level of Service
Need	Changing to LED	LED (light emitting diode) road lighting offers a number of benefits compared to HPS (high pressure sodium) lighting, including reduced energy and maintenance costs, and better light quality leading to increased public safety. ⁽¹⁾	Council has develop an LED strategy which considers LED application both for new and renewal of existing installations, based on the lowest whole of life cost
Issue	Sodium Components	The ability to support Sodium assets is decreasing due to lack available components	Replace with LED as per LED strategy by sections. Usable replaced component will be retained for adhoc replacement due to failure
Issue	Lighting Distances	Currently lighting not at standard distances. As council makes use of poles owned by others in the main. As poles are replaced by their owner these may not allow 'like for like' reinstatement of lighting.	Where budget allows, additional lighting to infill large gaps to improve the quality of lighting provided. Line capacity may be an issue. Where new lighting is being installed the design will meet the required standard.
Issue	Lighting Asset Loss	As poles are replaced by the owner Council lighting assets are sometimes discarded or broken	Work with asset owners to get prior knowledge of their replacement programmes to manage council asset retrieval.
Need	Guard Rails	There are areas where guardrails should be installed	Installation of cheaper sight rails will improve safety at an affordable price until guard rails can be funded
Need	Crossings Upgrade	Crossings need to be upgraded to meet mobility standards	Improve during footpath and kerb and channel renewals.
Issue	Curve warning inconsistent	The presence of curve warning signage is inconsistent across routes	Strategy to be developed to target route consistency as funds permit.
Issue	Delineation inconsistent	Inconsistent delineation across the network.	Implement delineation strategy based on ONRC.

Driver	Name	Description	Strategies to Address Key Issues
Issue	Data in RAMM	Lack of railings and signs information in RAMM. After an initial big data capture exercise during RAMM setup no new asset information was entered for approximately 15 years	New and replacement assets captured into RAMM ongoing. Take a sample of roads and compare assets on road and compare with RAMM to get a level of confidence.

Note 1: From NZTA and EECA joint statement 10 July 2014 entitled "Information about LED road lighting".

D06.3.2 Historical Commentary

Due to a previous lantern and gear replacement programme, sodium lanterns are now the predominant type.

This will change again over time as the LED replacement programme is underway.

Any new lighting installed by Council since 2015 has been LED lights.

Under the current contract signs, railings and EMPs are maintained via the use of the roadman.

At one time there was a focus on painting railings and bridges as this gave a cared for feeling to the network. This cycle of work is not as it used to be.

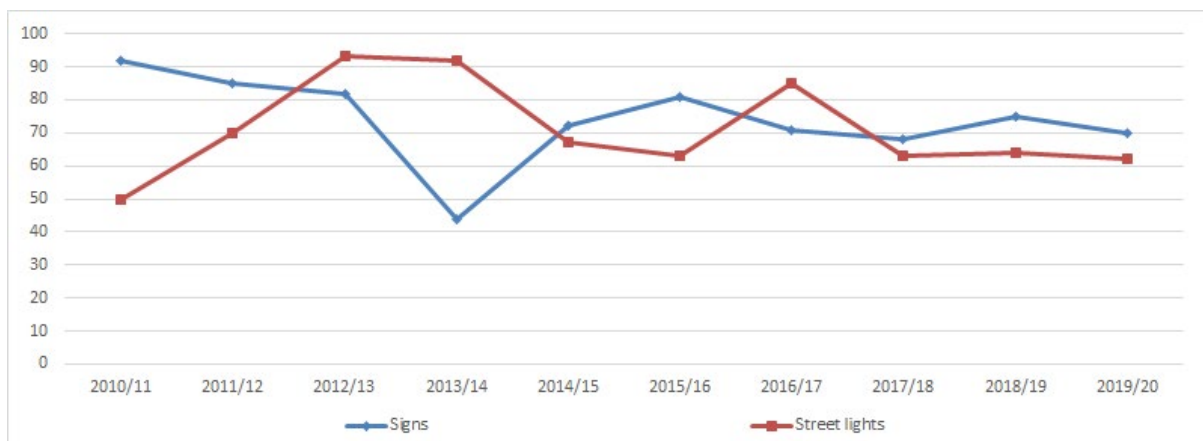
Crossings are often the responsibility of the adjacent landowner and should be to Council standards, this is not always the case.

Railway level crossings include many of the assets described as traffic services. There are 23 level crossings in the district. Council is responsible for the warning signage on the approaches to these on local roads (with NZTA on state highways). The level crossing devices (barriers, lights etc) are maintained by KiwiRail. KiwiRail maintains the crossing devices and bills council who then claims the cost from NZTA at council base rates.

D06.3.3 Levels of Service

Service Calls

TRAFFIC SERVICE CALLS ARE BROKEN DOWN INTO SIGNS AND STREETLIGHTS. THEY RELATE TO ACCESSIBILITY ONRC CUSTOMER SERVICE LEVEL. FIGURE D.41: TRAFFIC SERVICES CALLS



Sign calls range between issues with broken or missing signs, to requests for additional signage, both roading and commercial fingerboards. Sign vandalism tends to increase in winter in tourist areas such as Ohakune

A large number of streetlight calls relate to circuit faults, which are power supply related, outside the Streetlight maintenance contract.

Significant Los Change

LED replacement will improve colour vision at night and also reduce light scatter (pollution) improving night sky.

D06.4 Asset Performance

D06.4.1 Asset Age / Remaining Useful Life

The tables below show the average age and remaining useful life(RUL) of each asset type.

It should be noted that where an asset doesn't have a construction date its RUL is calculated initially using a default date defined in the valuation module for the assets valuation rule.

Due to the lack of age information the following calculation has been used

$$\text{Average Age} = \text{Total Useful Life} - \text{Average RUL}$$

Street Lighting

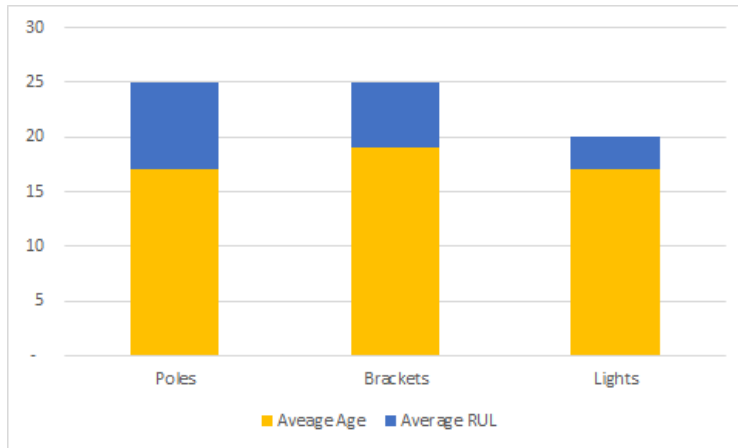
The following age and remaining useful life details are for Council Traffic Activity owned assets only.

TABLE D-41: STREET LIGHTS ASSET AGE INFORMATION

Asset Type	Number	Total Useful Life	Average Age	Average RUL
Street Lights				
Poles	687	25	18	7
Brackets	1,530	25	20	5
Lights	1,548	20	17	3

With only 28% of these assets having an known installation date, the information is estimated only. The graph compares the average age with the average remaining useful life for streetlights.

FIGURE D.42: ASSET AGE - STREETLIGHTS



Based on the Remaining useful life (RUL) which, for the 2020 valuation was based on asset age, approximately 80% of streetlight poles need to be replaced in the next 5 years. However, only approximately 33% of the poles needing replacement are owned by Council. See ownership RUL below.

TABLE D-42: REMAINING USEFUL LIFE OF STREETLIGHT POLES BY POLE OWNER

Pole Owner	0-5	6-10	11-15	16-20	21-25	Total
Council Transport	445	49	72	64	57	687
Council Other	44			3	3	50
NZTA	159	9	17	11	22	218
DOC					16	16
Utility	854	1	15	15	6	891
Other	2					2
Total	1,504	59	104	93	104	1,864

Road Signs

The age of road signs is not well documented, the table below indicates that the majority of Councils road signs are nearing the end of their useful life.

TABLE D-43: SIGNS ASSET AGE INFORMATION

Asset Type	Number	Total Useful Life	Average Age	Average RUL
Regulatory signs which road users are required to obey				
Regulatory General	1387	10	8	2
Regulatory Heavy Vehicle	68	10	8	2
Regulatory Parking	94	10	8	2
Regulatory	1549	10	8	2
Warning				
Hazard Markings	1324	10	9	1
Permanent Warning	1286	10	8	2
Warning Miscellaneous	11	10	8	2
Warning	2621	10	8	2
Information				
Guide	26	10	8	2
Information General	154	10	8	2
Information Miscellaneous	26	10	7	3
Information signs	1061	10	8	2
Local Authority	4	10	9	1
Miscellaneous	30	10	9	1
Motorist Services	13	10	7	3
Tourist	93	10	7	3
BLANK	2	10	2	8
Information	1409	10	8	2
All Signs	5579	10	8	2

Signs are maintained by the roadmen who will report when a sign requires replacement based on condition.

Road Markings

As almost all markings are repainted annually there are no age details to report.

Traffic Controls

The age of traffic controls has only been documented here for railings. The Average RUL indicates that many are coming to the end of their expected life.

TABLE D-44: RAILING ASSET AGE INFORMATION

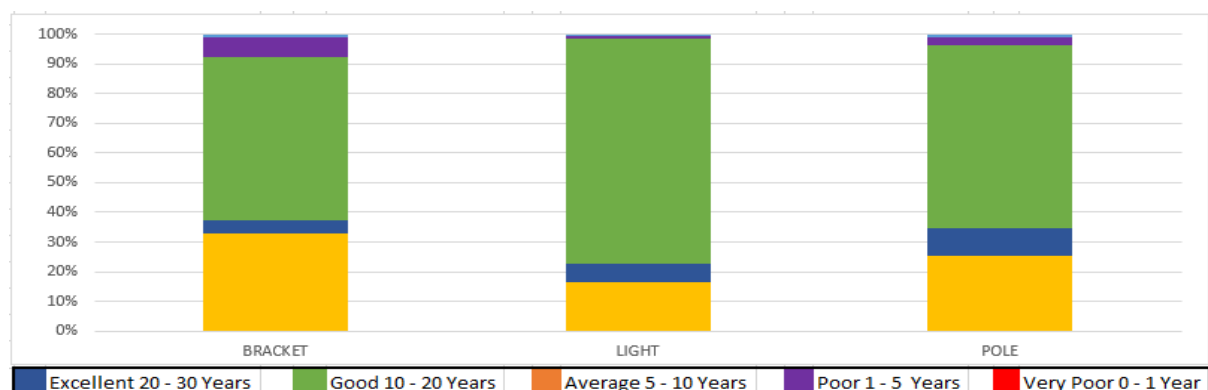
Asset Type	Number	Total Useful Life	Average Age	Average RUL
Railings				
Barrier	22	30	26	4
Barrier Cable Terminal unit	4	30	29	1
Bridge Rail	21	30	20	10
Guard rail	159	30	26	4
Hand rail	79	30	27	3
Sight rail	759	30	19	11
Steel Tube and Post barrier	20	30	29	1
Timber	17	30	29	1
W Section Guard rail	109	30	29	1
Total	1190	30	24	6

D06.4.2 D06.4.2 Condition

Street Lighting

The rating data on streetlights is gathered annually by the streetlight contractor and is stored in the RAMM Contractor module.

FIGURE D.43: STREET LIGHTING CONDITION RATINGS



The condition rating figure above shows that more than 58% brackets, 82% of lights and 75% of poles are in good or excellent condition, with a remaining life expectancy of more than 10 years.

Road Signs

Roadman report any damage to road signs but no formal condition information

Road Markings

As road markings are repainted annually there is no need to condition rate them.

Traffic Controls

Roadmen report any damage to railings but no formal condition information.

EMP's are managed by the roadmen replacing as they need.

D06.4.3 Performance

Currently there are no performance measures being managed for traffic services

D06.5 Asset Management

D06.5.1 Standards

Street Lighting

- All completely new street lights shall be LED.
- The design standard for new works is AS/NZS 1158 and this is a requirement of the Council's Engineering Code of Practice for subdivisional development.
- Electrical safety statutes, regulations and codes of practice apply to any works on the street lighting activity.

Road Signs

- New Zealand Transport Agency
 - Manual of traffic signs and markings (MOTSAM)
 - Road and Traffic Standards Series (RTS Series)

Pavement Marking

Council has developed a delineation standard based on RTS5. This standard sets out the criteria and standard for markings. The following are requirements of the standard;

- all lines will be remarked annually
- all rural sealed roads over 5.1m wide with over 50 vehicles per day will have centre lines. A recent comparison in RAMM of roadmarkings to carriageway sealed roads produced the following result.

There are 69% of all rural sealed roads over 5.1m wide with over 50 ADT with centerlines of some sort (percentage by length). Centerlines are defined as road marking type of :

- Centreline 100mm 3 x 7
- Centreline 100mm continuous
- Flush Median

- Intersection Continuity Lines (150mm 1 x 3)
- No Overtaking 100mm continuous
- No Overtaking advance 100mm 13 x 7
- No Stopping Line (yellow) 100mm 1 x 1

(The level of accuracy of this information will need to be confirmed)

Traffic Controls

Standards for traffic controls can be found in the

- New Zealand Transport Agency
 - Road and Traffic Standards Series (RTS Series)

Vehicle crossing

Most vehicle crossings are installed and maintained by the adjacent property owner. These must be to council standards.

D06.5.2 Strategies and Policies

The level of service of signage installed on roads is related to the road ONRC i.e. collector roads will have more than access roads. A strategy of ensuring the level of service is consistent for a route has also been implemented.

Street lighting renewals are undertaken as part of improvements to the road corridor as a whole.

Where traffic services are damaged by 3rd parties reparation can be sought, but often they are repaired or replaced when identified on site, from within existing budgets.

D06.5.3 Risk Management

The key activity and specific asset risks are identified in the “Known Needs, Issues and Risks” section above.

The overall approach to risk and criticality can be found in Managing Risk (Section C02).

- Lighting, line marking and signs deteriorate over time increasing the accident risk to road users if they are absent.

D06.5.4 Delivery

The traffic services assets activities are delivered under the current council contracts as outlined in the table below

TABLE D-45: TRAFFIC SERVICES ACTIVITY DELIVERY

Activity Type	Activity	Delivery Method
Operations	Street Light - Call out response	Streetlight Maintenance Contract
Operations	Street Light - Condition Inspection	Streetlight Maintenance Contract
Operations	Street Light - Power	Lines Companies (Two across district)
Operations	Road Signs - Cleaning	General Maintenance Contract
Operations	Road Signs - Graffiti Removal	General Maintenance Contract

Activity Type	Activity	Delivery Method
Operations	Road Signs - Reinstatement	General Maintenance Contract
Operations	Road Signs - Straightening	General Maintenance Contract
Operations	Railings - Cleaning	General Maintenance Contract
Operations	Railings - Graffiti Removal	General Maintenance Contract
Operations	Railings - Reinstatement	General Maintenance Contract
Operations	Railings - Straightening	General Maintenance Contract
Operations	Islands - Operations	Parks and Reserves Contract
Operations	Crossings - Operations	Parks and Reserves Contract
Operations	EMP - Cleaning	General Maintenance Contract
Operations	EMP - Graffiti Removal	General Maintenance Contract
Operations	EMP - Reinstatement	General Maintenance Contract
Operations	EMP - Straighten	General Maintenance Contract
Maintenance	Street Light - Bulk Bulb Replacement	Streetlight Maintenance Contract
Maintenance	Street Light - Component Replacement	Streetlight Maintenance Contract
Maintenance	Road Signs - Post Painting	General Maintenance Contract
Maintenance	Road Signs - Repairs	General Maintenance Contract
Maintenance	Road Markings - Annual Repaint	District Roadmarking Contract
Maintenance	Road Markings - Disabled Parks (blue) biannual repaint	District Roadmarking Contract
Maintenance	Road Markings - Raised Reflective Pavement Markers - Renewal	District Roadmarking Contract
Maintenance	Railings - Painting	General Maintenance Contract
Maintenance	Islands - Kerb Repairs	General Maintenance Contract
Renewals	Street Light - Pole Replacement (non Council Asset)	Asset Owner
Renewals	Street Light - Replacement (pole and fitting)	Streetlight Maintenance Contract
Renewals	Street Light - Sectional Replacement with LED	Streetlight Maintenance Contract
Renewals	Road Signs - Replacement	General Maintenance Contract
Renewals	Level Crossing Device Upgrades	KiwiRail Appointed Contractor
Development	Street Light - Design	Procured as required
Development	Street Light - Extension of Lighting Network	Streetlight Maintenance Contract
Development	Street Light - Upgrading LoS	Streetlight Maintenance Contract
Development	Street Light - Vested	Developer
Development	Road Signs - Additional motorist information and service signs	General Maintenance Contract
Development	Road Signs - Vested	Developer
Development	Road Markings - Vested	Developer

Activity Type	Activity	Delivery Method
Maintenance	Railings - Renewals	General Maintenance Contract
Maintenance	Railings - Repairs	General Maintenance Contract
Maintenance	Islands - Edge Painting	District Roadmarking Contract
Maintenance	Crossings - Repairs	General Maintenance Contract
Maintenance	EMP - Replacement	General Maintenance Contract
Renewals	Street Flags - Installation and Removal	General Maintenance Contract
Renewals	Street Flags - Replacement flags and Cross Arms	Procured as required

Processes and methods currently employed are described in the maintenance, renewals and capital works sections that follow and include:

- Routine inspections.
- Repair/replacement of faulty/failed components within specified timeframes.
- Identification, prioritisation and programming of improvements and ordered works.
- Clear reporting requirements based on KPIs.

Streetlights

The design work for major works is referred to lighting suppliers. Their proposals are then reviewed and site checked by the installation contractor and Council staff.

The maintenance of streetlights for Council is undertaken by the street lighting maintenance contractor.

Annual Inspections are undertaken to inform the current state of street lighting. Maintenance programmes are developed from the schedules of defects identified during the inspections. Repair options and priorities are determined by considering the impact on:

- Public safety (top priority).
- Traffic movement.
- Future costs if the work is not done.

Assets are replaced when:

- This is more economic than repair of faulty or damaged assets.
- Faulty or damaged lanterns cannot be repaired because of obsolescence or replacement parts being unobtainable.
- The existing asset does not meet current design/safety standards.

Road Signs

Road signs are managed under the general maintenance contract and most activities are undertaken by the roadmen.

Maintenance will be undertaken under existing Roding Maintenance term contracts.

Obsolete, damaged, sub-standard and non-conforming signs identified during routine inspections will be programmed for replacement according to the following priority:

- Public safety

- Traffic volumes
- Convenience of road users

Where there is a hazard, maintenance will be undertaken to the timeframes summarised below:

- | | |
|------------------------|----------|
| ● All regulatory signs | 24 hours |
| ● All other signs | 4 weeks |
| ● Marker posts | 8 weeks |
| ● Emergency Works | 24 hours |

Road Markings

Road marking is undertaken by the road marking contractor (supplier agreement), with all markings remarked annually between December and May.

Traffic controls

Islands, speed humps and crossings in urban areas are cleaned and generally maintained by Parks and Reserves Contractor as part of the urban landscape. Maintenance and renewal take place under the Sealed Pavement Maintenance contract.

Edge marker posts and railings are maintained by the roadmen under the general maintenance contract

D06.5.5 Data Quality and Confidence

Refer to Data Quality (Section C05) for all commentary and analysis on data quality. This supports the understanding on how the data can be used to support reporting, valuations and asset management.

D06.6 Operations

D06.6.1 Activities

Street Lighting

Operations are for activities include:

- Inspections
- Call out to faulty lights

Operational costs also include power costs.

- There are several energy providers in the District. A formal Electricity Supply Contract is in place with TrustPower.
- The Lines Company charges separately for transmission charges for part of the district.

It is expected that power costs will be reduced due to the LED replacement programme.

Road Signs

Operations activities include:

- Cleaning
- graffiti removal
- straightening
- reinstatement

Road Marking

There are no operational activities directly related to road markings

Traffic Controls

Operations for railings and EMP activities include:

- Cleaning
- Graffiti removal
- Straightening
- Reinstatement

Islands and Crossings have no operational costs for the transport activity as these are undertaken by the Parks and Reserves activity.

D06.6.2 Plan

Street lighting inspections and road marking are planned on an annual basis.

Street light call out is on 'as needed' when reported by service request to the call centre.

All other activity is undertaken by the roadmen as part of their routine patrols.

D06.7 Maintenance

D06.7.1 Activities

Street Lighting

Maintenance activities include:

- Planned bulk bulb replacement and structural defects.
- Repairing/replacing damaged or unsound components, e.g. lanterns, control gear, poles.
- Lamps other than LED are replaced on a cyclic four year bulk replacement programme that has significantly reduced customer calls relating to light outages.
- Shear base retorquing

There is an expectation of reduced maintenance needs due to the LED replacement programme.

Road Signs

Maintenance activities include:

- Repairs to damaged signage
- Post painting

Road Markings

Maintenance activities include the annual repainting of:

- centrelines,
- edge lines,
- no-passing line,
- intersection controls
- parking controls
- Pedestrian crossings.

Disabled park symbols are painted annually and biennially for the blue paint and symbols.

Reflective Raised Pavement Markers are renewed as replacements are needed.

Traffic Controls

Maintenance activities include:

- Island edge painting
- Island kerb repairs
- Repairs to damaged rails
- Painting of railings
- EMP replacement
- Crossing repairs

D06.7.2 Plan

Street lighting

- Bulb replacements as needed, with an expectation of approximately 400 per year.

Road signs

- Ongoing as part of roadmans duties

Road markings

- Annual painting plan

Traffic Controls

- Ongoing as part of roadmans duties

Deferred Maintenance

The street lighting stock is being gradually improved within available budgets.

D06.8 Renewals

D06.8.1 Activities

Street Lighting

Renewal works generally involve

- The replacement of the lantern or individual components (lamps are replaced under maintenance)
- Pole replacement
- Replacement of blocks of streetlights with LED's on a like for like basis (ie no additional poles or lights)

Road Marking

There is no renewal programme for Road Marking as remarking is done annually under operations and maintenance. On this basis all markings is considered an OPEX activity.

Currently Council is not using any long-life markings that need to be managed as an asset and therefore would need a renewals programme.

Road Signs

Renewal needs are identified from the condition assessment and general knowledge of signs as identified by roadman.

Assets are replaced when:

- The existing asset does not meet current design/safety standards.
- Budgets permit.

Traffic Controls

Island renewal is undertaken as part of pavement renewal

Railings are renewed on an adhoc basis as the need is identified by the roadmen.

EMPs are managed by the maintenance programme

Crossings renewal is undertaken as part of the footpath maintenance programme

D06.8.2 Plan

Streetlight renewal are programmed as needed with works prioritised according to:

- Public safety
- Benefit/ cost savings available, eg, power efficiencies
- The required level of renewal will depend on
 - The age profile of streetlights.
 - The condition profile of streetlights.
 - The level of ongoing maintenance.
 - The economic lives of the materials and components used.

All other traffic service assets are renewed on an 'as needed' basis when identified by roadmen or requests for service to the call centre.

Deferred Renewals

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 need to be assessed. Although the deferral of some renewal works may not impact significantly on the short-term operation of the assets, repeated deferral will create a liability in the longer term.

No deferred renewals are currently expected for this activity.

D06.9 Development

D06.9.1 Activities

Street Lighting

Streetlights are acquired or upgraded by:

- Extensions constructed by Council where no streetlights previously existed.
- Taking over new streetlights installed with subdivisional development (constructed at the developer's expense).
- Upgrading work to improve the lighting levels of service provided
- In association with the street upgrading programme.
- Minor safety works.
- In association with power under-grounding work.

Lighting on major roads will be upgraded progressively where existing standards are less than desirable.

Lighting in residential streets which have obsolete or fluorescent fittings will be upgraded. Any other lighting upgrading will be undertaken when carrying out street improvements.

Road signs

Road signs development will include

- Additional motorist information and service signs
- Street Flags
- Taking over new signs installed with subdivisional development (constructed at the developer's expense).

Road markings

Taking over new markings installed with subdivisional development (constructed at the developer's expense).

Traffic Controls

Taking over new controls installed with subdivisional development (constructed at the developer's expense).

D06.9.2 D06.8.2 Plan

Street Lighting

The following improvements are planned

Road	Scope	Timing	Funding
Miro Street (Ohakune)	Improvements to meet standards	2020/21-2021/22	Low Cost Low Risk
Taupo Road	Improvements to meet standards with the possibility of extension to the Highway	2022/23	Low Cost Low Risk
Park and Ride (Ohakune)	New assets as the park and ride as developed	TBC this will be a partnership development	Council funding & partnership
Vested	New Subdivision assets to be vested	Date of handover depends on the developer.	None - Developer

Other Traffic Services Development

Road	Scope	Timing	Funding
Motorist Service & Information Signs	Install new signage for key destinations eg Welcome to District/Town signs	Ongoing	Council
Streetflags District	Supply decorative flags that are displayed on streetlights through our towns for events	Ongoing	Council
Level Crossing Device Upgrades (Kiwirail placeholder)	Install additional safety measures at Level crossings	Tbc - dependent on Kiwirails programme of works	Low Cost Low Risk

D06.10 Disposal Plan

Disposal activity for streetlights is limited to lanterns, controls and poles, which have been replaced with new components. Components, which can be used as spare parts, are retained in storage by the contractor or credit is given to Council.

Other surplus assets have no commercial value and are disposed of at District Landfills or transfer stations.

D06.11 Funding Request

Traffic Services can be funded by the following NZTA Work Categories:

- WC 122: Traffic services maintenance
- WC 222: Traffic services renewals

Council has identified the following programmes for 2021/22, which is indicative of the next 10 years to address the challenges faced by the transport network and deliver the District's Strategy and Investment Outcomes.

The figures below set out the historical actual expenditure and 2020/21 budget in actual dollars and the future draft budget figures in terms of 2021/22 base dollars.

FIGURE D.44: TRAFFIC SERVICES HISTORICAL AND PROJECTED OPERATIONS AND MAINTENANCE EXPENDITURE \$

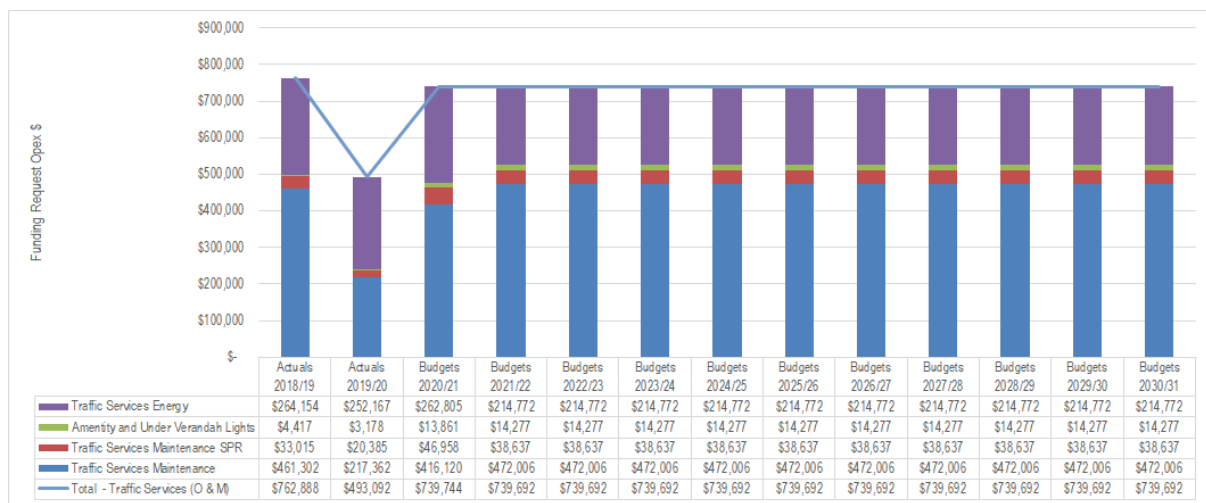


FIGURE D.45: TRAFFIC SERVICES HISTORICAL AND PROJECTED CAPITAL RENEWAL EXPENDITURE \$

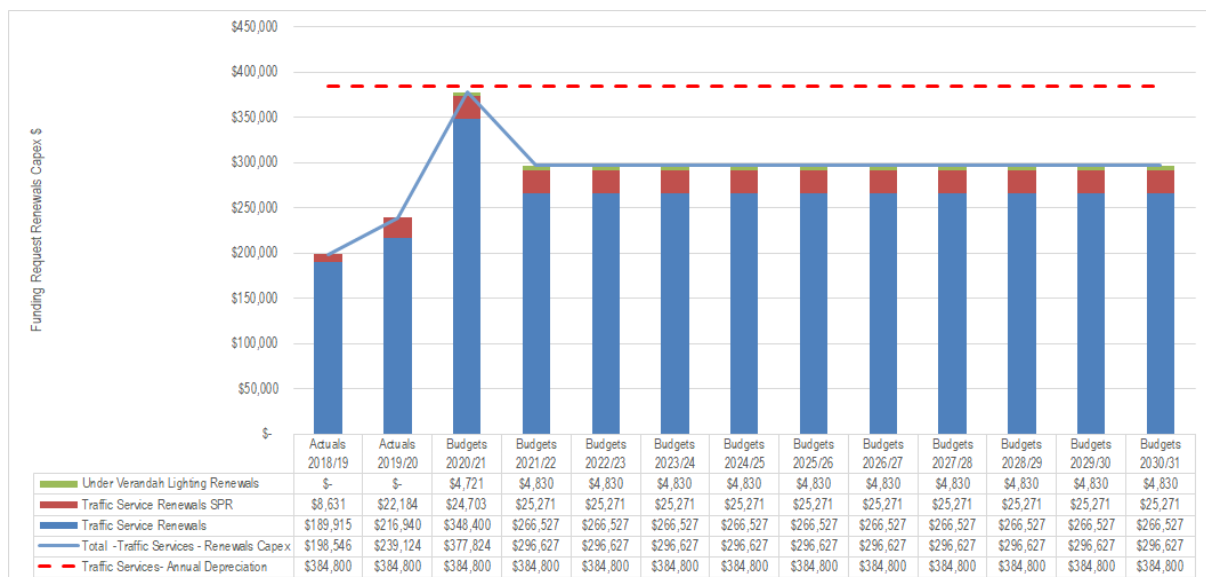
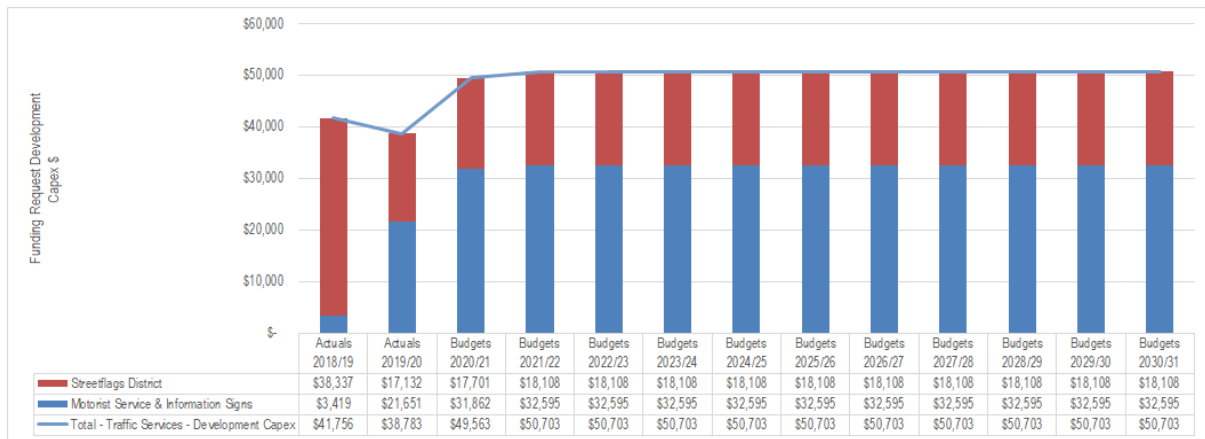
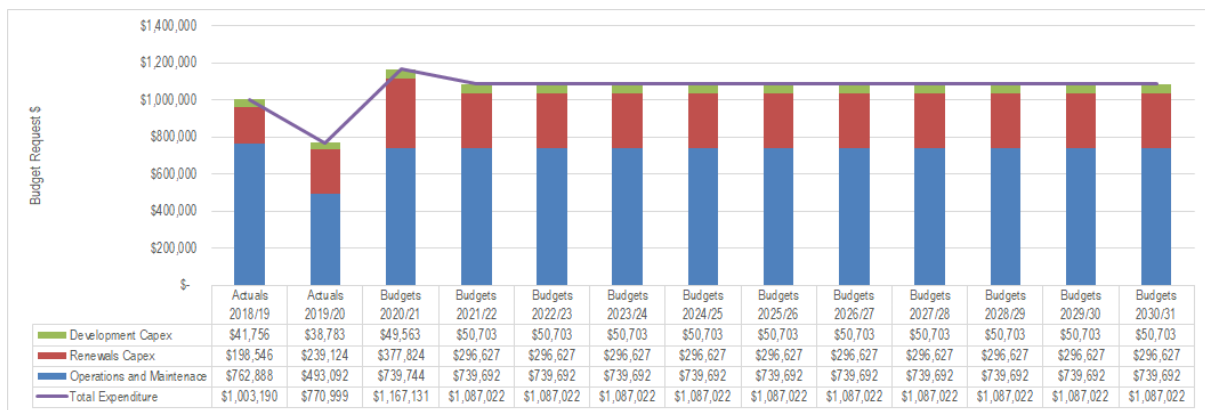


FIGURE D.46: TRAFFIC SERVICES HISTORICAL AND PROJECTED CAPITAL DEVELOPMENT WORKS EXPENDITURE \$



The figure below sets out the historical and projected combined expenditure for traffic services projects and programmes.

FIGURE D.47: TRAFFIC SERVICES HISTORICAL AND PROJECTED COMBINED EXPENDITURE \$



Finances (Section E) and Appendix B provide more detail on the funding sources for these programmes and projects.

D07 FOOTPATHS

D07.1 Purpose and Strategic Case Link

The purpose of footpaths is:

Provide a safe, convenient and defined means for pedestrian movement alongside and linking roadways and public space

Link to Strategic Case Problem Statements

The following table highlights how this activity supports addressing the problems identified in the Strategic Business Case.

	Problem Description	Activity Contribution
Forestry & Land Use	Changing land uses (i.e. Forestry & Mining) is resulting in (and will increase) the deterioration of the network causing increased reactive (unplanned, works to maintain the roading environment) maintenance and repair costs	This activity doesn't provide any significant contribution towards addressing this problem
Needs & Expectations	The needs and expectations of road users (local, freight, events, tourists) is resulting in increased investment to maintain and/or improved the form and function of the road network	Footpaths provide a key service to the community and visitors by providing a safe and comfortable means to walk around mostly the urban areas
Climate, Topography & Geology	The network is impacted by climate, geography and topography resulting in reactive/unplanned maintenance costs as well as increased safety risk and operation of the network	This activity doesn't provide any significant contribution towards addressing this problem
Safety	Vulnerable road users are at greater risk due to increasing and changing activity and environmental conditions which is expected to result in increased deaths and serious injuries	Providing footpaths for use, removes the need for people to use the road carriageway to walk on. This significantly decreases the risk of pedestrians being involved in accidents and being injured.

Link to Key ONRC Customer Level of Service (LoS)

The following table highlights how this activity contributes to improving the Key ONRC Customer LoS.

	Customer Level of Service Description	Activity Contribution
Mobility - Reliability	Travel time reliability – the consistency of travel times that road users can expect	This activity doesn't provide any significant contribution towards this customer level of service
Mobility - Resilience	The availability and restoration of each road when there is a weather or emergency event, whether there is an alternative route available and the road user information provided	This activity doesn't provide any significant contribution towards this customer level of service
Safety	How users experience the safety of the road	Providing footpaths for use, removes the need for people to use the road carriageway to walk on. This significantly decreases the risk of pedestrians being involved in accidents and being injured.
Amenity	The level of travel comfort experienced by the road user and the aesthetic aspects of the road environment (e.g. cleanliness, comfort/convenience, security) that impact on the travel experience of road users in the road corridor	Footpaths are the fundamental asset that enables the path network to deliver an adequate level of service to the community and visitors. As they are also used for recreation they also contribute to health and wellbeing outcomes.
Accessibility	The ease with which people are able to reach key destinations and the transport networks available to them, including land use access and network connectivity	Footpaths provide some accessibility to recreational areas that are not available via the road network.

D07.2 Assets to be Managed

D07.2.1 Asset Description

Footpath assets managed under the Land Transport Activity include:

- Footpaths
- Crossings

Footpath assets are managed in the following RAMM tables, and the following information is sourced directly from these tables:

- Footpaths (footpath table)

Council manages a total of 70 km of footpaths in urban areas, with more than 90% concrete or asphaltic concrete.

There are additional footpaths owned by Council managed by Recreation and Community Facilities which are part of the pedestrian network.

TABLE D-46: FOOTPATH QUANTITIES BY URBAN/ RURAL AND ONRC

Footpath Material	Quantity		Urban / Rural		ONRC Classification				
	Number	Metres	Urban (m)	Rural (m)	Primary Collector (m)	Secondary Collector (m)	Access (m)	Low Volume (m)	No ONRC Class Assigned (m)
Asphaltic concrete (black)	51	4,552	4,552	-	-	1,681	1,236	1,236	399
Concrete	515	59,962	57,673	2,289	272	11,389	14,265	27,786	6,250
Interlock Block with AC infill	5	524	524	-	-	-	-	-	524
Interlocking blocks	28	1,489	1,489	-	23	-	288	288	890
Metal	11	1,374	1,366	8	50	539	340	445	-
Paving Panels	2	282	282	-	-	111	171	-	-
Paving Stones	1	44	44	-	-	44	-	-	-
Seal	9	905	875	30	-	488	49	-	368
Wooden	1	37	37	-	-	-	-	37	-
Unknown	7	520	490	30	-	14	114	392	-
Total	630	69,689	67,332	2,357	345	14,266	16,463	30,184	8,431

D07.2.2 Asset Values

Footpath assets form 2.4% (\$11.0 M) of the total Land Transport Activity (Optimised Replacement Cost) and 3.8% (\$188,000) of the annual depreciation.

The Council's Land Transport assets have been valued as at 30 June 2020. As part of this process the following are calculated and shown in the tables below:

- ORC = Optimised Replacement Cost
- ODRC = Optimised Depreciated Replacement Cost ("today's value")
- AD = Annual Depreciation

TABLE D-47: FOOTPATHS REPLACEMENT COST AND ANNUAL DEPRECIATION

Footpath Material	Number	Metres	ORC (\$)	DORC (\$)	AD (\$)
Asphaltic concrete (black)	51	4552	1,847,740	530,880	67,341
Concrete	515	59,962	7,940,698	5,256,218	99,259
Interlock Block with AC infill	5	524	213,903	129,896	3,565
Interlocking blocks	28	1,489	663,992	343,415	11,067
Metal	11	1,374	53,524	9,210	2,336
Paving Panels	2	282	80,171	41,689	3,207
Paving Stones	1	44	8,339	4,670	334
Seal	9	905	126,261	17,364	4,600
Wooden	1	37	18,762	8,255	750
Unknown	7	520	70,003	49,641	2,715
Total	630	69,689	11,023,393	6,391,238	195,174

The table and graphs below show the ORC and Annual Depreciation costs for Footpath assets. Concrete provides the main surface type for footpaths with approximately 70% of the ORC.

D07.3 Need for Investment

D07.3.1 Known Needs, Issues and Risks

The following table provides the key drivers that support investment in this activity:

Driver	Name	Description	Strategies to Address Key Issues
Need	Assets to fulfil their purpose	Assets to fulfil their purpose in accordance with agreed Levels of Service.	<p>Purpose is documented in the D07.1 Overview and Strategic Case Link.</p> <p>Transport Activity Level of Service is documented in Section C04 - Levels of Service we Provide</p> <p>Activity specific Level of Service</p>

Driver	Name	Description	Strategies to Address Key Issues
Issue	Changing land use and activities	Land use change to more urban or increase in an activity (eg: tourists) increases the need for footpaths to be provided.	First priority is to get developers to provide the necessary footpaths to support new types of land use or activities. Run a New Footpaths programme to fill any other gaps in need. Identified through the Footpath Condition assessment.
Issue	Vehicle damage to footpaths	Heavy vehicles using the berms, or as a result of building activities on the adjacent property, cause damage to footpaths leading an increase to maintenance needs.	Reactive maintenance. Reactive and proactive renewals when the extent of damage larger Bond taken for certain specific activities (eg: house moving) to cover for risks of asset damage.
Issue	Damage from tree roots	Tree roots displace footpath slabs. Damage can occur suddenly as a result of seasonal growth spurts in trees and some tree species such as liquid amber and flowering cherry have a particularly shallow root system that causes the most problems. The trees that cause damage could be situated either on adjacent private land or within the road corridor	Repair damage and where approved by the tree owner, the tree is also cut and removed to prevent future damage.
Issue	Pram crossing	Majority of pram crossings are not compliant with current standards	Create a pram crossing maintenance renewals programme. Design for compliance during footpath renewal.
Issue	No tactile pavement markers to support pedestrian crossings	No tactile pavement markers to support pedestrian crossings	New and renewed pram crossing may have tactile pavers included
Risk	New Footpaths Funding	New footpaths can receive NZTA subsidy under the Low Cost Low Risk programme. However as it is a nationally contested funds there is a high chance that none or limited footpaths will be funded.	Highlight the risks to Council. Promote, when appropriate, Councils to fully fund new footpaths.

D07.3.2 Historical Commentary

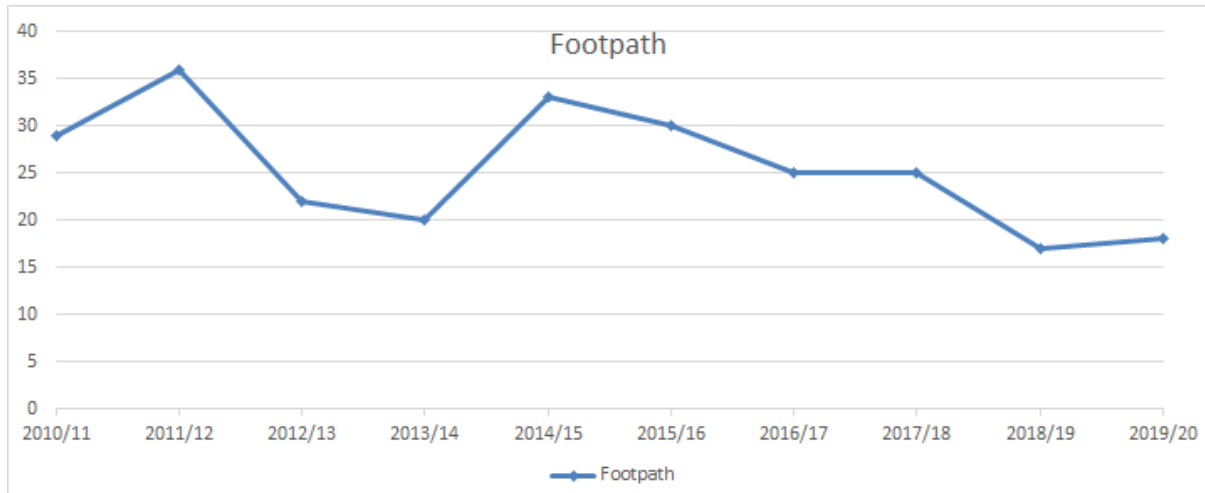
- Prior to July 2018 footpaths were not a subsidised activity by NZ Transport Agency.
- Up until 2015 funding for footpath maintenance and renewals was restricted. From July 2015 Council started to budget spending the footpath depreciation amount.
- To date Council has self funded footpath extensions to a low value allowing small development with a safety focus to go ahead.

D07.3.3 Levels of Service

Service Calls

The service calls for Footpaths are shown below, they show a decreasing trend since 2014/15.

FIGURE D.48: FOOTPATH SERVICE CALLS



Footpath calls cover issues such as trip hazards, slippery surfaces, slips and broken paths. The footpath renewal budget was increased in the 2015 LTP, enabling significant renewal work to be carried out. Call numbers have fallen over the same period.

Customer Satisfaction

Customer satisfaction survey results indicate that:

- 76% of residents are satisfied or very satisfied with the provision of footpaths.
- Dissatisfied residents (12%) reasons include lack of footpaths, poor condition (uneven, potholes, rough, broken), lack of maintenance or needing upgrading. The increase in renewal expenditure in the last 3 years has shown in the results where the overall very satisfied/satisfied category had a slight increase over previous years.

Significant LoS Change

This AMP continues to support the improvements to the footpaths Levels of Service by renewals generally increasing footpath width to 1.5m and providing pram crossings to meet the latest mobility standards.

D07.4 Asset Performance

D07.4.1 Age Profile / RUL

The age information of about 40% of the Council footpath assets is known. This is because they were constructed or renewed following Council's use of the RAMM system and the requirement to record the asset data in this system. The age information for the other 60% is unknown.

It should be noted that where an asset doesn't have a construction date its RUL is calculated initially using a default date defined in the valuation module for the assets valuation rule.

Due to the lack of age information the following calculation has been used

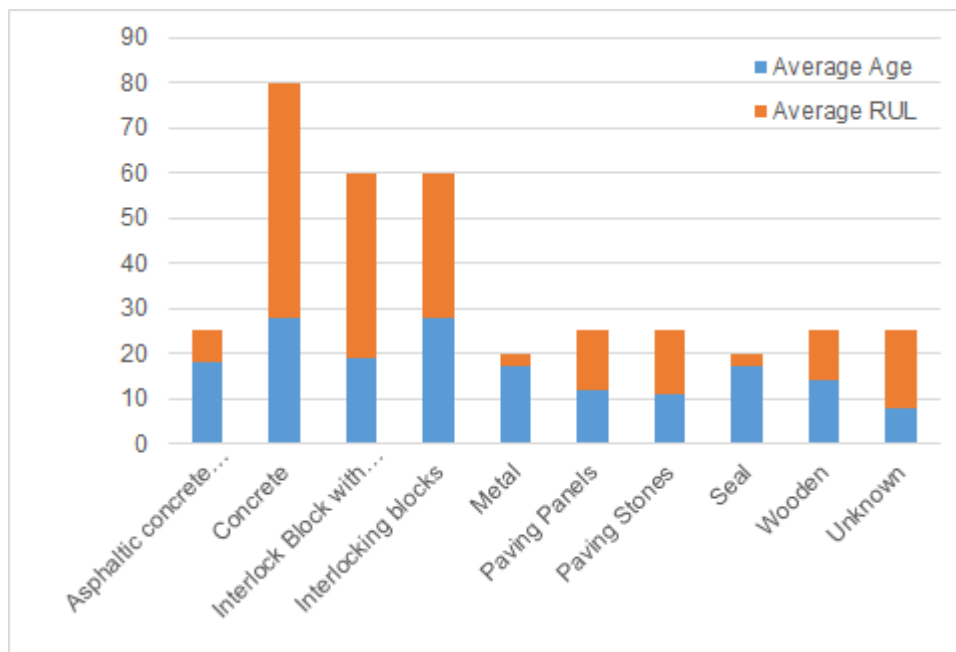
$$\text{Average Age} = \text{Total Useful Life} - \text{Average RUL}$$

TABLE D-48: FOOTPATH AGE AND RUL

Footpath Material	Number	Metres	Total Useful Life	Average Age	Average RUL
Asphaltic concrete (black)	51	4,552	25	18	7
Concrete	515	59,962	80	28	52
Interlock Block with AC infill	5	524	60	19	41
Interlocking blocks	28	1,489	60	28	32
Metal	11	1,374	20	17	3
Paving Panels	2	282	25	12	13
Paving Stones	1	44	25	11	14
Seal	9	905	20	17	3
Wooden	1	37	25	14	11
Unknown	7	520	25	8	17
Total	630	69,689			

The table above indicates that Metal and Chip Sealed footpaths are nearing the end of their useful lives with AC also beginning to need a review.

FIGURE D.49: FOOTPATHS – AGE AND RUL



D07.4.2 Condition

Footpath Condition rating is managed outside of RAMM, and currently includes both Transport assets and some managed on behalf of other Council Activities.

Condition Methodology

The condition of all footpaths was measured in 2020 and regularly recorded through previous maintenance contracts. Council's footpath condition rating system uses three criteria to prioritise repair or replacement needs:

- Displacement (safety against tripping).
- Cracked and settled.
- Discretionary (based on other factors such as usage, ponding potential, width etc).

The main reasons for deterioration are (in order):

- Tree root damage.
- Vehicle damage.
- Disintegration from natural weathering (age).
- Inadequate reinstatement by service authorities and unauthorised street openings.

Footpath Condition Rating

- Data collected over the 2015 – 18 period has enabled a baseline to be established. The rating method has been revised since the 2015 AMP to reflect the methodology used.
- Defects include;
 - Trip hazards ≤ 10mm for seal or concrete surface
 - Trip hazard ≤ 4mm for cobble surface

- Scabbing / Depression / Potholes / Cracking
- Loose or Missing cobbles
- If Footpath width is not $\geq 1.2\text{m}$ in compliance with Accessibility Standard - NZS4121: 2001 Design for access and mobility: Buildings and Associated facilities
- Pram Crossings present if required and compliant
- Pram crossings compliant with accessibility standards (eg ramp steepness not greater than 1 in 12)

TABLE D-49: FOOTPATH CONDITION RATING

Score	Description
0	Brand new. Footpath is in perfect condition
1	Very good condition – no visible defects
2	Good condition – only very minor defects visible
3	Average condition – a number of defects are visible, but it is still quite serviceable
4	Below average condition – quite a few obvious defects are visible
5	Poor condition – significant percentage of footpath exhibiting severe cracking and other defects
6	Very poor condition – totally unsuitable for pedestrian use

Condition Summary

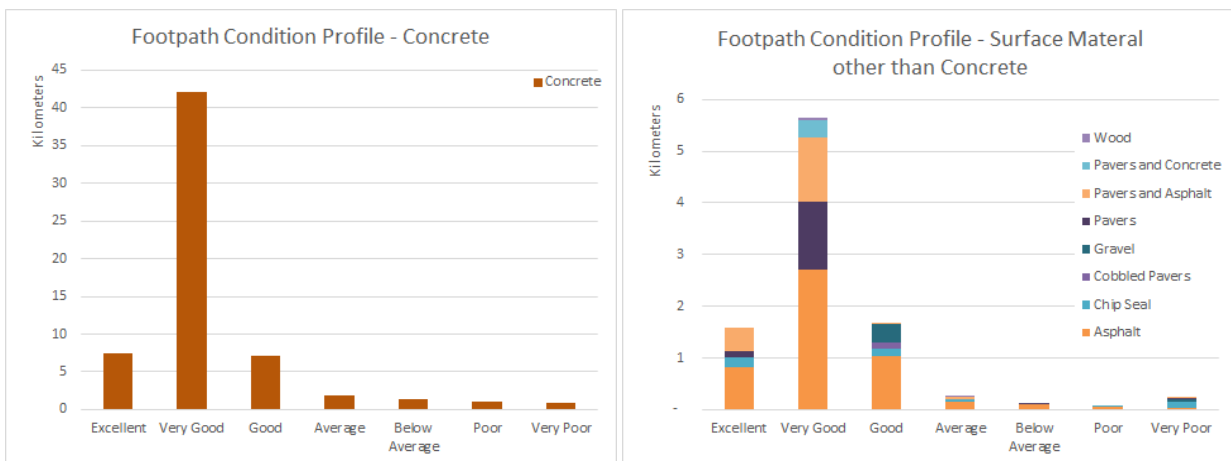
In general, the footpath condition is considered to be good. See summary below

TABLE D-50: FOOTPATH CONDITION BY SURFACE MATERIAL

Footpath Material	Condition (m)						
	Excellent	Very Good	Good	Average	Below Average	Poor	Very Poor
Asphalt	828	2,707	1,032	156	115	48	33
Chip Seal	176		151	53		13	130
Cobbled Pavers			115				
Concrete	7,434	42,163	7,188	1,903	1,382	1,041	848
Gravel			364				32
Pavers	141	1,317	5	1	6		23
Pavers and Asphalt	446	1,230	5	33			5

Footpath Material	Condition (m)						
	Excellent	Very Good	Good	Average	Below Average	Poor	Very Poor
Pavers and Concrete		356					
Wood		40		19			
Total	9,025	47,814	8,860	2,165	1,503	1,102	1,070

FIGURE D.50: FOOTPATH CONDITION BY SURFACE MATERIAL



Of the footpath lengths currently graded Very Poor, approximately 200m represent tripping hazards and 153m are related to pram crossings where either there is a pram crossing required or the existing crossing doesn't meet the standard.

D07.4.3 Performance

Some sub-divisional roading works which have been completed in the past have proved to be of poor quality construction, and there is an ongoing problem of tree root damage and lifting of slabs. Interlocking blocks and pavers inherently require higher maintenance but have the advantage of being “reusable” and can be uplifted and relayed to access or lay services. Interlocking blocks are generally confined to the highly trafficked retail areas.

Changes to specifications over time have led to a number of footpath widths and pram crossing types, which are now substandard based on the latest NZS specifications. The 2020 footpath inspection measured all footpaths and rated the pram crossings as very poor condition where their availability and adherence to standards for mobility scooter usage were not to specification.

D07.5 Asset Management

D07.5.1 Standards

Footpaths and pram crossing shall be built or renewed to the requirements set out in the following standards:

- NZS 4404:2010 Land Development and Subdivision Infrastructure
- NZS 4121:2001 Design for access and mobility - Buildings and associated facilities
- NZTA RTS 14 Guidelines for facilities for blind and vision impaired pedestrians

D07.5.2 Strategies and Policies

Council will continue to encourage developers to provide cycling and walking facilities, with good connections to existing facilities at the development boundaries. The connectivity aspect is to ensure that linkages are provided between road networks as well as other public areas and facilities such as reserves, car parks, swimming pools, etc, thereby providing a viable alternative transport route for the community. By providing attractive and ideally more direct routes, walking and cycling transportation may be attractive.

The identification, commencement and completion of a few feature projects are ideal opportunities for Council to demonstrate commitment to the promotion of walking and cycling in the District.

Safety inspections will have sufficient focus on connectivity improvements.

Local Government Act 1974: 331 Footpaths and channels - requires pram crossing to be provided as works are being undertaken in the area. Pram crossings shall be provided that are wheelchair and mobility scooter accessible.

A policy for footpath development is in place. When requested the extension of footpaths will be considered where the vehicular traffic flow is in excess of 300 vehicles per day and number of dwellings or business premises exceeds 7.5 per 100m.

The emphasis is on addressing high-use areas to and from areas such as:

- Marae
- Schools
- Community housing
- Retirement rest homes
- Central business districts (CBD)

Ruapehu District Council takes a roading bond for resource consents issued for building relocations and constructions. Currently no footpath deposit is taken for minor alterations and other building works.

The other significant issue is vehicle damage either from heavy vehicles using the berms or as a result of building activities on the adjacent property. To address the damage from building activities, Ruapehu District Council takes a roading bond for resource consents issued for building relocations and constructions.

This deposit is refunded to the applicant at the completion of the building works if no damage to the footpath or berm has occurred or if the applicant has, as part of the process, repaired

the footpath to a standard acceptable to the Team Leader Land Transport. If there is damage to the footpath or berm the Council retains the deposit until either the applicant repairs the damage or repairs are carried out by Council at the applicant's cost and any residual money refunded.

D07.5.3 Risk Management

The key activity and specific asset risks are identified in the “Known Needs, Issues and Risks” section above.

The overall approach to risk and criticality can be found in Managing Risk (Section C02).

D07.5.4 Delivery

The footpath asset activities are delivered under the current council contracts as outlined in the table below

Activity Type	Activity	Delivery Method
Operations	Footpath - Litter removal	Parks and Reserves Contract
Operations	Footpath - Sweeping	Parks and Reserves Contract
Operations	Footpath - Vegetation removal	Parks and Reserves Contract
Operations	Footpath - Vegetation spraying	Parks and Reserves Contract
Maintenance	Footpath - Addressing ponding issues	General Maintenance Contract
Maintenance	Footpath - Leveling uneven surfaces (<20m)	General Maintenance Contract
Maintenance	Footpath - Lip grinding	General Maintenance Contract
Maintenance	Footpath - Pothole repairs	General Maintenance Contract
Maintenance	Footpath - Raised service covers	General Maintenance Contract
Maintenance	Footpath - Replace broken pavers	General Maintenance Contract
Maintenance	Crossing - Maintenance	General Maintenance Contract
Maintenance	Footpath - Slab replacements	General Maintenance Contract
Renewals	Crossing - Renewals	General Maintenance Contract
Renewals	Footpath - Renewals	General Maintenance Contract
Development	Footpath - New	General Maintenance Contract
Development	Footpath - Vested	Developer
Development	Crossing - New	General Maintenance Contract
Development	Crossing - New	Adjacent Land Owner
Development	Crossing - Vested	Developer

The maintenance contractors also receive and investigate complaints on footpath condition whilst Council’s in-house team liaises with building consents and relocations to approve the location and construction of vehicle crossings.

D07.5.5 Data Quality and Confidence

Refer to Data Quality (Section C05) for all commentary and analysis on data quality. This supports the understanding on how the data can be used to support reporting, valuations and asset management.

D07.6 Operations

D07.6.1 Activities

Operational Activities include;

- Spraying of vegetation on footpath edges and cracks
- Sweeping
- Litter removal
- Keep free of vegetation

Note that intervention levels, when appropriate, are defined in maintenance contracts.

D07.6.2 Plan

There is an outcomes based contract that ensures the specified level of service is maintained.

D07.7 Maintenance

D07.7.1 Activities

Maintenance activities include:

- Slab replacements
- Pothole repairs
- Raised service covers
- Addressing ponding issues
- Levelling short lengths of uneven surfaces (<20m)
- Replace broken pavers
- Lip grinding

Note that intervention levels, when appropriate, are defined in maintenance contracts.

D07.7.2 Plan

Work is identified through using the outputs of the footpath condition inspections as set out in Section D12 Network and Asset Management.

Urgent safety repairs are undertaken as a priority and are carried out as a first priority for the use of the available funding.

Deferred Maintenance

Currently there is no deferred maintenance for footpaths.

D07.8 Renewals

D07.8.1 Activities

Footpath renewals are defined as the replacement of continuous sections exceeding 20m in length and can include major upgrading works.

Renewal activities include:

- Overlaying of the existing surface with a similar material
- Removing the existing surfacing and laying new surface
- Full reconstruction (including upgrades)

D07.8.2 Plan

The required level of renewal will vary depending on:

- The age profile of footpaths.
- The condition profile of footpaths.
- The characteristics of the adjacent footpath network.
- Proximity to trees.
- The level of ongoing maintenance demand.
- The differing economic lives of the materials used.

Deferred Renewals

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 need to be assessed. Although the deferral of some renewal works may not impact significantly on the short-term operation of the assets, repeated deferral will create a liability in the longer term.

No deferred renewals are currently expected for this activity.

D07.9 Development

The development activity can significantly improve an existing asset or network as well as creating new assets.

Note that the renewals activity allows for replacements to have some minor improvements or significant improvements when it utilising current technology or standards.

Also note that Council will receive new network assets through the vesting process in accordance with the District Plan.

D07.9.1 Activities

Development activities include:

- New footpaths constructed by Council
- Vested assets (usually from subdivisions)

TABLE D-51: NEW FOOTPATHS PRIORITISATION AND DELIVERY PROCESS

Step 1: Inputs	Step 2: Prioritisation	Step 3: Forward Works Programme	Step 4: Works Delivery
Requests are received (including ad-hoc and through Annual Plan process) Gaps are identified in current footpath network	Community Board Liaison; the following are taken into consideration Standards and Policies listed in the above sections <ul style="list-style-type: none"> • Safety • Development and changing land use • Vehicular Traffic levels • Availability of nearby amenities (eg: lighting) 	Programme of possible works is maintained Funding approvals	Design Construction MSQA Asset Handover

D07.9.2 Plan

Footpath development is undertaken under the unsubsidised work category. The details for the footpath development programme are shown in the table below.

TABLE D-52: FOOTPATH DEVELOPMENT PROGRAMME (BY BUDGET (\$))

Ward	AMP Years 1-3 (2021/22-2023/24) (\$)	AMP years 4-10 (2024/25-2030/31) (\$)	Future from 2031/32 (\$)
National Park		57,500	65,000
Ohakune	15,000	98,125	
Taumarunui	135,000	133,125	181,250
Waimarino		102,500	56,250
Total	150,000	391,250	302,500

TABLE D-53: FOOTPATH DEVELOPMENT PROGRAMME (BY LENGTH (M))

Ward	AMP Years 1-3 (2021/22-2023/24) (\$)	AMP years 4-10 (2024/25-2030/31) (\$)	Future from 2031/32 (m)
National Park	404	338	
Ohakune	791	978	358
Taumarunui	1,000	951	839
Waimarino		414	347
Total	2,195	2,681	1,544

Footpath development in the future may be subsidised once Council has a “Walking and Cycling Strategy” allowing for development to be escalated forward.

D07.10 Disposal Plan

No assets are planned to be disposed of at this time.

D07.11 Funding Request

Footpaths can be funded by the following NZTA Work Categories:

- WC 125: Footpath maintenance
- WC 215: Footpath renewals

Council has identified the following programmes for 2021/22, which is indicative of the next 10 years to address the challenges faced by the transport network and deliver the District’s Strategy and Investment Outcomes.

The figure below sets out the historical actual expenditure and 2020/21 budget in actual dollars and the future draft budget figures in terms of 2021/22 base dollars.

FIGURE D.51: FOOTPATHS HISTORICAL AND PROJECTED OPERATIONS AND MAINTENANCE EXPENDITURE \$

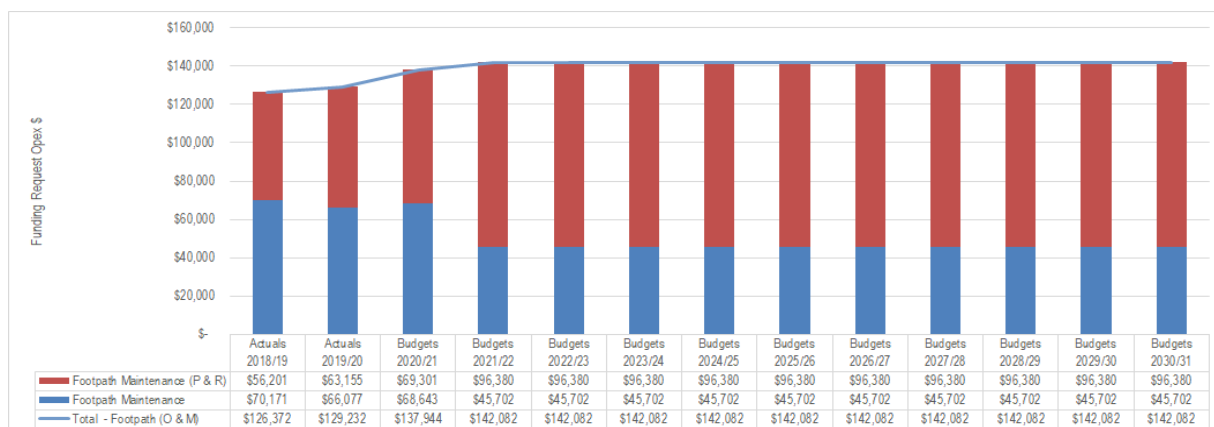
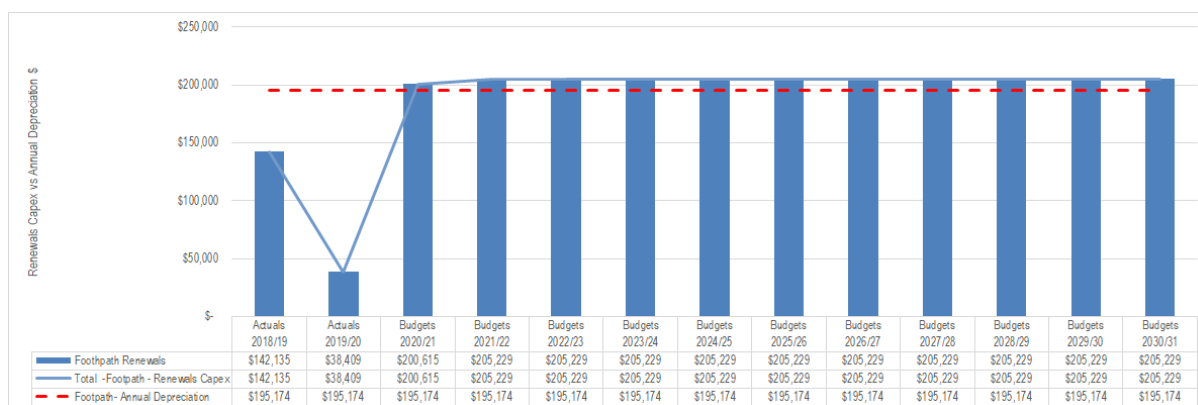


FIGURE D.52: FOOTPATHS HISTORICAL AND PROJECTED CAPITAL RENEWAL EXPENDITURE \$



The level of footpath renewals is shown to be aligned with the current annual depreciation. Footpath renewals are funded under the footpath maintenance work category above.

New Assets Funding

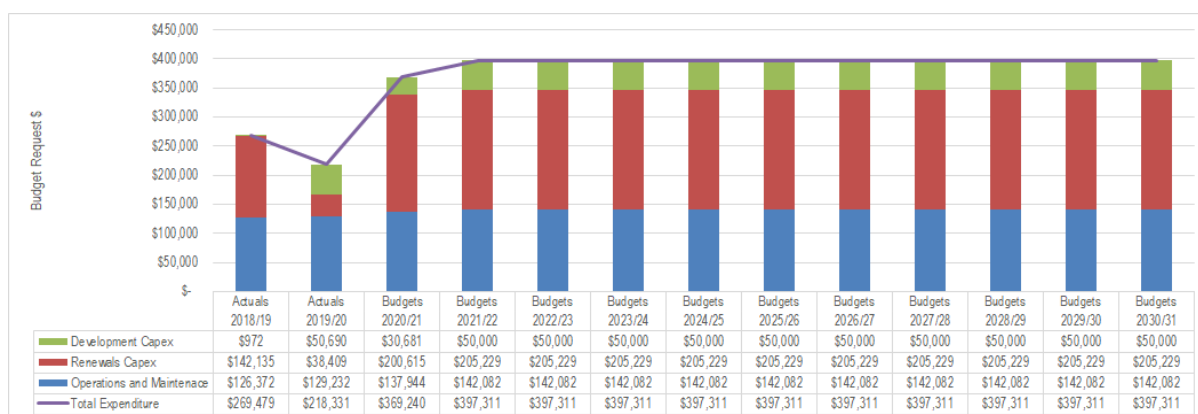
- Council is able to access funding from NZTA to undertake specific ‘Low Cost Low Risk’ projects that help to ensure a safe cycling or walking environment. This funding is at present limited to projects of no more than \$2M, of which NZTA will fund at base rates. Council is required to produce a walking and cycling strategy in order to access these funds.
- Large sections of new cycle lanes or footpaths will not be funded through Council’s minor safety budget. Council will prioritise for treatment those areas that have historical crash issues or where potential hazards (eg, on-road parking, narrow roads, high traffic volumes or speeds) are identified on routes that Council is promoting. Council will work with NZTA to ensure consistency of service between State Highways and Council Roads.

FIGURE D.53: FOOTPATHS HISTORICAL AND PROJECTED CAPITAL DEVELOPMENT WORKS EXPENDITURE \$



The figure below sets out the historical and projected combined expenditure for footpaths projects and programmes.

FIGURE D.54: FOOTPATHS HISTORICAL AND PROJECTED COMBINED EXPENDITURES \$



Finances (Section E) and Appendix B provide more detail on the funding sources for these programmes and projects.

D08 GREAT RIDES (CYCLEWAYS)

D08.1 Purpose and Strategic Case Link

The purpose of cycleways is:

Provide recreational opportunities for cyclists along the Ruapehu Great Bike Rides tracks

The Ruapehu cycleways are a part of the New Zealand Cycle Trail network of Great Rides.

Link to Strategic Case Problem Statements

The following table highlights how this activity supports addressing the problems identified in the Strategic Business Case.

	Problem Description	Activity Contribution
Forestry & Land Use	Changing land uses (i.e. Forestry & Mining) is resulting in (and will increase) the deterioration of the network causing increased reactive (unplanned, works to maintain the roading environment) maintenance and repair costs	This activity doesn't provide any significant contribution towards addressing this problem
Needs & Expectations	The needs and expectations of road users (local, freight, events, tourists) is resulting in increased investment to maintain and/or improved the form and function of the road network	The Great Rides contribute to the community by providing further recreational activities as well as attracting tourists that have a positive impact on the local economy.
Climate, Topography & Geology	The network is impacted by climate, geography and topography resulting in reactive/unplanned maintenance costs as well as increased safety risk and operation of the network	This activity doesn't provide any significant contribution towards addressing this problem
Safety	Vulnerable road users are at greater risk due to increasing and changing activity and environmental conditions which is expected to result in increased deaths and serious injuries	This activity doesn't provide any significant contribution towards addressing this problem

Link to Key ONRC Customer Level of Service (LoS)

The following table highlights how this activity contributes to improving the Key ONRC Customer LoS.

	Customer Level of Service Description	Activity Contribution
Mobility - Reliability	Travel time reliability – the consistency of travel times that road users can expect	This activity doesn't provide any significant contribution towards this customer level of service
Mobility - Resilience	The availability and restoration of each road when there is a weather or emergency event, whether there is an alternative route available and the road user information provided	This activity doesn't provide any significant contribution towards this customer level of service
Safety	How users experience the safety of the road	This activity doesn't provide any significant contribution towards this customer level of service
Amenity	The level of travel comfort experienced by the road user and the aesthetic aspects of the road environment (e.g. cleanliness, comfort/convenience, security) that impact on the travel experience of road users in the road corridor	This activity doesn't provide any significant contribution towards this customer level of service
Accessibility	The ease with which people are able to reach key destinations and the transport networks available to them, including land use access and network connectivity	On Road sections provide accessibility between sections of mainly DoC off road Great Rides sections

D08.2 Assets to be Managed

D08.2.1 Asset Description

Two Great rides are located within the Ruapehu being the Timber Trail from Pureora to Ongarue and the Mountains to Sea Cycle Trail from Ohakune to Whanganui. Each trail has large sections of off road trail with link routes on low volume local roads. The Cycling Awareness Strategy has identified the on road cycle routes and seeks to minimise risk by raising awareness, engineering and education initiatives.

Cycleways assets managed under the Land Transport Activity include:

- Cycleways (managed as footpath records)

The national cycleway project implemented in 2013 encourages cyclists on 66 km of trails on paper roads and over 160 km of trails that utilise low volume Council roads throughout the district.

The Ruapehu District provides opportunities for cyclists along the two cycle trails. The project encourages cyclists on 258 km of trails and over 300 km of low volume roads.

The on-road sections of the cycleway are managed by Council under the Land Transport Activity.

Off road sections are managed by the organisation that maintains the section. Council (Land Transport) actively manages off-road trail forming:

- 15.4 km of Fishers Track between National Park Village and Retaruke Valley and
- Depot Road (5.75 km)

The remaining off-road trails are managed by DOC over unformed roads vested in Council. A table showing the maintenance of sections is attached in Appendix F.

Asset data for the cycleway pavements is limited. The land which is paper road under the cycleways has been identified and has been valued as part of the valuation exercise.

The cycleways are part of the National Cycleway. The location, ownership and responsibility for the cycleways is a complex mix of formed road, paper road and off-road with a mix of Council or Department of Conservation (DOC) responsibility. It is important to note that there are adjoining sections outside the District. The table below shows the breakdown.

TABLE D-54: CYCLEWAYS OWNERSHIP AND MANAGEMENT

Cycleway Management	Mountains to Sea (km)		Pureroa Timber Trail (km)		Extension (km)		Total (km)		
	In District	Out of District	In District	Out of District	In District	Out of District	In District	Out of District	TOTAL (km)
RDC Maintained Road	111.9		22.0		44.4		178.3		178.3
RDC Paper Road	15.4						15.4		15.4
RDC Paper Road Maintained by DOC	46.00						46.00		46.00
DOC Reserve	11.1		35.0	37.0			46.1	37.0	83.1
Whanganui River	32.00						32.00		32.00
NZTA Maintained Road		11.0			51	129	51	140.0	191.0
Whanganui DC Maintained Road		67.6						67.6	67.6
Total (km)	216.4	78.6	57.0	37	95.4	129	368.8	244.6	613.4

D08.2.2 Asset Values

On-road sections of the cycleway are not included as separate assets but are included in the road maintenance and renewals sections as part of the road network.

Depreciation on sections of trail managed by DOC are not provided for in this plan, as they are a visitor asset owned by DOC. This assumes the assets created over the road reserve are owned by DOC.

Off-road sections managed by Council are included in this plan. Tracks are audited yearly and then if required, maintained by that track's appointed contractor.

D08.3 The Need for Investment

D08.3.1 Known Needs, Issues and Risks

The following table provides the key drivers that support investment in this activity:

Driver	Name	Description	Strategies to Address Key Issues
Need	Assets to fulfil their purpose	Assets to fulfil their purpose in accordance with agreed Levels of Service.	Purpose is as documented in the D07.1 Overview and Strategic Case Link. Transport Activity Level of Service is documented in - Levels of Service we Provide (Section C04) Activity specific Level of Service
Issue	Safety for users	While cyclists on off road sections are away from traffic, the use of on road sections though low volume roads requires safety monitoring	Will ensure cycling trends are monitored and action taken to raise cyclist and motorist awareness of new use trends on rural roads.
Issue	Level of Service	The overall vision for level of service on the trail can lack clarity.	Council funds maintenance to the existing service level. Improvements would require capital funding and investment from external providers.

D08.3.2 Historical Commentary

Council considers that it has a very basic approach to cycleways investment and has identified areas for improvement by completing the NZCT Trail Warrant of Fitness inspection and report in 2017.

Investment in cycleway assets is required because:

- The purpose of cycle trails in Ruapehu is to provide a recreational cycling facility as a part of the New Zealand Cycle Trail network of Great Rides that meets NZCT Trail Design Guidelines.

Council funds maintenance of the on road sections.

The Ministry of Business Innovation and Employment (MBIE) currently provides a contestable fund for improving the Great Ride and to address emergency events.

Processes and methods currently employed are described in the maintenance, renewals and capital works sections that follow and include:

- On-road cycleway sections are maintained in conjunction with routine road maintenance and renewals.
- Off-road Council sections are audited annually with identified works programmed or carried out.
- Responsibilities for off-road sections have been assigned to various stakeholders as outlined in table above and in more detail in Appendix F.

D08.3.3 Levels of Service

The Level of service required by the Great Rides which these cycleways contribute to is split between

- On road sections as per pavements section
- Off road council sections - New Zealand Great Ride trail standards
- Off road sections DoC defines the expected LoS

D08.4 Asset Performance

D08.4.1 Age Profile / RUL

Both Cycle Trails were completed in 2013 and continue to meet Grade 2 and 3 trail specifications as part of the New Zealand Great Ride trail standards.

D08.4.2 Condition

Condition assessments for on-road cycleways are undertaken as part of pavement inspections.

The condition assessment of the off-road cycle trail section maintained by Council is done annually or following notification of problems.

Condition assessment results (Trail Warrant of Fitness) and service requests are recorded with remedial works undertaken as a transport activity.

DOC has responsibility for condition assessment and maintenance for trails constructed by them, regardless of their paper road status.

D08.4.3 Performance

Not currently applicable.

D08.5 Asset Management

D08.5.1 Standards

The cycleways must meet the following standards:

- New Zealand Great Ride trail standards for the appropriate grades
<https://nzcycletrail.com/>

D08.5.2 Strategies and Policies

The Trail Warrant of Fitness informs the maintenance cycle trail maintenance activity however the majority of off road trail sections are through DOC Estate and funding is expected to be from their budgets.

Governance and Operations are provided by Ruapehu District Council in partnership with DOC and Whanganui District Council.

D08.5.3 Risk Management

The key activity and specific asset risks are identified in the “Known Needs, Issues and Risks” section above.

The overall approach to risk and criticality can be found in Section C02 Managing Risk.

D08.5.4 Delivery

Governance and Operations are provided by Ruapehu District Council in partnership with DOC and Whanganui District Council.

On road sections within Council boundaries are managed as part of the road.

The two off-road sections managed by Council, namely Fishers Track and Depot road are delivered under the current council contracts as outlined in the table below

TABLE D-55: CYCLEWAY ACTIVITY DELIVERY

Activity Type	Activity	Delivery Method
Operations	Cycleway - Vegetation Clearance	Vegetation Control Contract
Operations	Cycleway - Slip Clearance	General Maintenance Contract
Operations	Cycleway - Structures Inspection	Professional Services Contract
Maintenance	Cycleway - Culvert Maintenance	General Maintenance Contract
Maintenance	Cycleway - Reshape Surface	General Maintenance Contract
Maintenance	Cycleway - Aggregate Application	General Maintenance Contract
Maintenance	Cycleway - Trail Marker Pegs	General Maintenance Contract
Maintenance	Cycleway - Structures Maintenance	Procured as required

D08.5.5 Data Quality and Confidence

Data is managed as part of the pavement section for on road cycleways. See Pavements (Section D03).

D08.6 Operations

D08.6.1 Activities

Operational activities for on road sections are managed as part of the operational activities for roading. See Pavements (Section D03).

Operational activities for Off-road sections managed by Council are included in this plan, being.

- Annual vegetation clearance
- Slip Clearance
- Structures inspections

D08.6.2 Plan

The operations activity for vegetation clearance is planned as required.

The Structures inspections are included in the general structure inspection programme as discussed in Structures (Section D04).

Slip Clearance is undertaken as required when reported via customer call centre.

D08.7 Maintenance

D08.7.1 Activities

Maintenance activities on the on-road sections will be undertaken as part of asset management activities for roading. See Pavements (Section D03).

Maintenance activities on the Off road sections managed by Council include:-

- The use of a small digger to;
 - clear slips,
 - culverts maintenance
 - reshape surface
 - apply aggregate where needed
- Trail marker pegs maintenance.
- Structures maintenance

D08.7.2 Plan

Maintenance is programmed as a result of inspection or request via the customer call centre.

Deferred Maintenance

Currently there is no deferred maintenance for footpaths.

D08.8 Renewals

There are no identified renewal works to be undertaken over the next ten years on Council's sections.

Deferred Renewals

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 need to be assessed. Although the deferral of some renewal works may not impact significantly on the short-term operation of the assets, repeated deferral will create a liability in the longer term.

There are no deferred renewals at this time. However, once an inventory has been taken there may be other assets that need to be incorporated into council inventory and a clear

knowledge of ages and remaining useful lives will indicate whether or not renewals will need to be programmed.

D08.9 Development

Additional sections of the Mountains to Sea Great Ride were announced in October 2020 to be funded by the Provincial Growth Fund. They are expected to be completed between summer 2022 and mid 2025.

The following additions have been approved:

- Te Ara Mangawhero: Off road trail approximately 19km long from Tūroa to Ohakune taking cyclists through the spectacular flanks of Mt Ruapehu. Cyclists and walkers will no longer have to travel down the Ohakune Mountain Road but instead navigate via a new purpose-built cycle trail befitting of a Great Ride. The proposed trail utilises sections of the Old Blyth Track, winds through Rimu Hill and makes the most of the old Bennett and Punch tramline.
- Mangawhero Link track - approximately 11km of trail connecting riders and walkers from part way down the Te Ara Mangawhero across to Horopito.
- Missing Link (working title), connecting Horopito (and the end of the Ohakune Old Coach Road) to National Park Village via Pōkākā and Makatote valleys – and will utilise existing old State highway paths and the popular Marton Sash and Door tramline trails.

While these are not funded by Council there may be additional Operational, Maintenance and Renewal costs associated with them in the future.

D08.10 Disposal Plan

No assets are planned for disposal at this time.

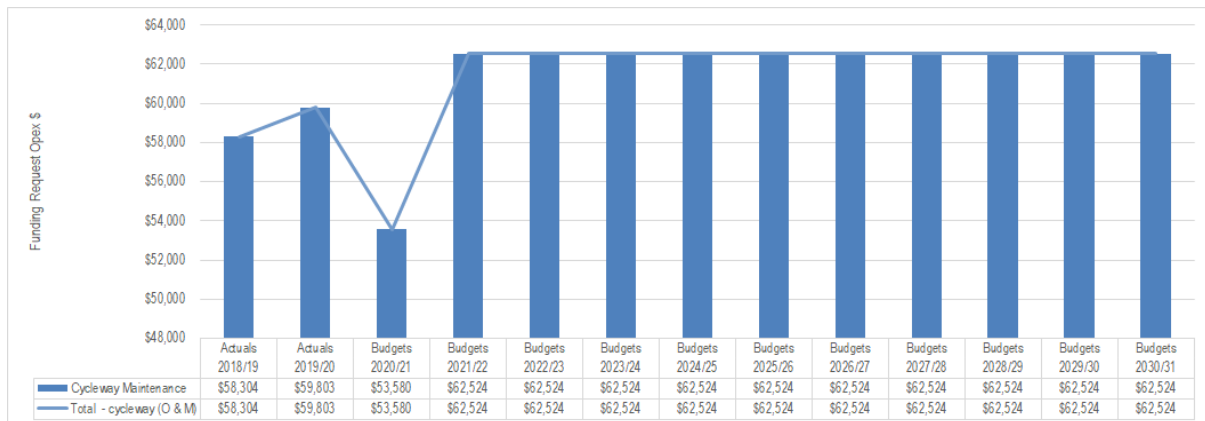
D08.11 Funding Request

On road cycleway funding is included in the Pavements lifecycle (section D03)

Off road cycleway funding is currently unsubsidised.

The figure below set out the historical actual expenditure and 2020/21 budget in actual dollars and the future draft budget figures in terms of 2021/22 base dollars.

FIGURE D.55: CYCLEWAY HISTORICAL AND PROJECTED OPERATIONS AND MAINTENANCE EXPENDITURE \$



Finances (Section E) and Appendix B provide more detail on the funding sources for these programmes and projects.

D09 BUS SHELTERS

D09.1 Purpose and Strategic Case Link

The purpose of bus shelters is:

Provide shelter from all weathers for school or public transport users

Bus shelters are provided by Council for the benefit of children waiting for school buses, park and Ride users and people waiting for the InterCity buses.

Note that there are currently no local regular public bus services operating in the Ruapehu District.

Link to Strategic Case Problem Statements

The following table highlights how this activity supports addressing the problems identified in the Strategic Business Case.

	Problem Description	Activity Contribution
Forestry & Land Use	Changing land uses (i.e. Forestry & Mining) is resulting in (and will increase) the deterioration of the network causing increased reactive (unplanned, works to maintain the roading environment) maintenance and repair costs	This activity doesn't provide any significant contribution towards addressing this problem
Needs & Expectations	The needs and expectations of road users (local, freight, events, tourists) is resulting in increased investment to maintain and/or improved the form and function of the road network	Bus shelters are provided to help make the experience of waiting for buses more comfortable and therefore encourage more people to use public transport or school buses
Climate, Topography & Geology	The network is impacted by climate, geography and topography resulting in reactive/unplanned maintenance costs as well as increased safety risk and operation of the network	This activity doesn't provide any significant contribution towards addressing this problem
Safety	Vulnerable road users are at greater risk due to increasing and changing activity and environmental conditions which is expected to result in increased deaths and serious injuries	This activity doesn't provide any significant contribution towards addressing this problem

Link to Key ONRC Customer Level of Service (LoS)

The following table highlights how this activity contributes to improving the Key ONRC Customer LoS.

	Customer Level of Service Description	Activity Contribution
Mobility - Reliability	Travel time reliability – the consistency of travel times that road users can expect	This activity doesn't provide any significant contribution towards this customer level of service
Mobility - Resilience	The availability and restoration of each road when there is a weather or emergency event, whether there is an alternative route available and the road user information provided	This activity doesn't provide any significant contribution towards this customer level of service
Safety	How users experience the safety of the road	This activity doesn't provide any significant contribution towards this customer level of service
Amenity	The level of travel comfort experienced by the road user and the aesthetic aspects of the road environment (e.g. cleanliness, comfort/convenience, security) that impact on the travel experience of road users in the road corridor	Bus shelters are provided to help make the experience of waiting for buses more comfortable
Accessibility	The ease with which people are able to reach key destinations and the transport networks available to them, including land use access and network connectivity	This activity doesn't provide any significant contribution towards this customer level of service

D09.2 Assets to be Managed

D09.2.1 Asset Description

Bus Shelters are managed by transport for Council as they are on the road corridor, with transport arranging any installation works.

Information on Bus Shelters is not maintained in RAMM.

There are 24 bus shelters, these are provided for the following reasons:

- 21 - School bus shelters
- 3 - Taumarunui Intercity bus passengers
- 1 - Park and Ride (National Park)

Note that bus shelters are usually made up of a concrete pad and the shelter then attached to the concrete pad.

D09.2.2 Asset Values

The Bus Shelters are assets owned by Land Transport.

The bus shelters do not form a significant component of the total assets and to date have not been included in the valuation of the transportation assets.

D09.2.3 Data Quality and Confidence

There is confidence in knowing the quantity and location of the current bus shelters. No further details are held at this time.

D09.3 The Need for Investment

D09.3.1 Known Needs, Issues and Risks

The following table provides the key drivers that support investment in this activity:

Driver	Name	Description	Strategies to Address Key Issues
Need	Assets to fulfil their purpose	Assets to fulfil their purpose in accordance with agreed Levels of Service.	Purpose is documented in the D09.1 Overview and Strategic Case Link. Transport Activity Level of Service is documented in Section C04 - Levels of Service We Provide Activity specific Level of Service needs to be developed. School bus shelters have been historically provided by Council.
Issue	Vandalism	Shelters are damage and tagged with graffiti	When shelters are renewed, they are replaced with standard vandal and graffiti resistant structures
Issue	Demographic changes	As the shelters are currently for school children. Population density and bus shelter requirements are continually changing	Council will evaluate future needs based on population density and consider replacing the bus shelters over time with uniform relocatable structures that can be easily moved as dictated by demand.
Issue	Shelter Ownership	Currently there is no clear ownership of bus shelters to any activity leading to the lack of planning.	During this AMP period, an appropriate strategy and / or policy will be prepared including defining each activities roles and responsibilities.
Issue	No long term planning	New shelters are placed reactive to need and there is not a clear understanding of longer term need or policy on the level of service that the Council is willing to fund.	During this AMP period, an appropriate strategy and / or policy will be prepared
Risk	Public Transport Services Created	Any start-up of public bus services may create an unexpected demand for bus shelters beyond the current funding level.	Partnership opportunities to be investigated to support investment for PT infrastructure.

D09.3.2 Historical Commentary

Bus shelters are provided to help make the experience of waiting for buses more comfortable. Their primary purpose is to provide shelter from inclement weather for school children waiting for their school buses.

The Taumarunui Intercity and Park and Ride at National Park shelters are a recent initiative. While Transport arranged for these shelters to be installed outside of the transport budget, the understanding is that they are Reserves and Facilities assets. They are not currently valued as Transport assets and no provision has been made for maintaining them in this document.

Both Intercity and Park and Ride shelters will need expanding if funding allows. There are also additional Park and Ride facilities discussed in the Facility Roads and Carparks lifecycle (Section D10) which may require shelters.

D09.3.3 Levels of Service

None currently defined. The strategy and / or policy, being prepared during this AMP period, will need to address the levels of service that the Council wants to adopt, formalise and fund.

Significant LoS Change

No significant change has been made to bus shelter requirements based LoS in recent history.

D09.4 Asset Performance

There is currently no bus shelter information available on,

- Age
- Remaining Useful Life
- Condition
- Performance

D09.5 Asset Management

D09.5.1 Standards

Bus shelters shall be in conformance with the Building Code.

D09.5.2 Strategies and Policies

To date the installation of bus shelters has been reactive. A strategy will be developed during this AMP period. A policy may be developed, in conjunction with the strategy development.

D09.5.3 Risk Management

The key activity and specific asset risks are identified in the “Known Needs, Issues and Risks” section above.

The overall approach to risk and criticality can be found in Managing Risk (Section C02).

D09.5.4 Delivery

The Bus Shelter assets activities are delivered under the current council contracts as outlined in the table below

Table - Bus Shelters Activity Delivery

Activity Type	Activity	Delivery Method
Operations	Bus Shelter - Cleaning	Parks and Reserves Contract
Operations	Bus Shelter - Graffiti Removal	Parks and Reserves Contract
Operations	Bus Shelter - Weed Spraying	Parks and Reserves Contract
Maintenance	Bus Shelter - Minor repairs	Parks and Reserves Contract
Maintenance	Bus Shelter - Component replacements (eg: glass panel or a seat)	Parks and Reserves Contract
Maintenance	Bus Shelter - Lighting maintenance	Parks and Reserves Contract
Maintenance	Bus Shelter - Relocation	General Maintenance Contract
Development	Bus Shelter - Installation - concrete pad	Heavy Maintenance Contract
Development	Bus Shelter - Design and build	Procured as required

D09.6 Operations

D09.6.1 Activities

Operations activities for Bus Shelters are

- Cleaning
- Graffiti Removal
- Weed spraying

D09.6.2 Plan

Operational activities are undertaken on an as needed basis.

Work is identified by customer calls as well as by the Parks & Reserves contractors.

D09.7 Maintenance

D09.7.1 Activities

Maintenance Activities for Bus Shelters are

- Minor repairs
- Component replacements (eg: glass panel or a seat)
- Lighting maintenance
- Relocating bus shelters

D09.7.2 Plan

Maintenance activities are undertaken on an as needed basis.

Work is identified by customer calls as well as by the Parks & Reserves contractors.

Deferred Maintenance

There is no deferred maintenance identified at this time.

D09.8 Renewals

With the majority of bus shelters being relatively new and in reasonable condition, there are no renewals programmed during the 3-years of this AMP.

Deferred Renewals

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 need to be assessed. Although the deferral of some renewal works may not impact significantly on the short-term operation of the assets, repeated deferral will create a liability in the longer term.

No deferred renewals are currently expected for this activity.

D09.9 Development

While there are no new shelters currently programmed during the 3 years of this plan, it is expected that some new shelters will be required as and when a strong need arises.

Based on historical needs, this plan budgets for one new shelter per year.

D09.10 Disposal Plan

While there are no bus shelters planned for disposal at this time it is possible that some could be removed (and not replaced) if they fall into disrepair and the demand for use has reduced to the point where the bus shelter is no longer required.

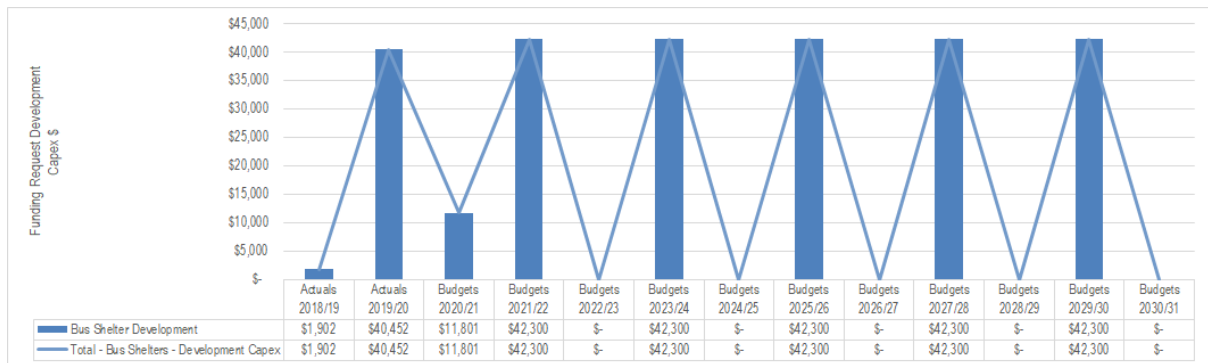
D09.11 Funding Request

Bus Shelters are not currently funded by NZTA Work Categories.

Council has identified the following programmes for 2021/22, which is indicative of the next 10 years to address the challenges faced by the transport network and deliver the District's Strategy and Investment Outcomes.

The figures below set out the historical actual expenditure and 2020/21 budget in actual dollars and the future draft budget figures in terms of 2021/22 base dollars.

FIGURE D.56: BUS SHELTERS HISTORICAL AND PROJECTED CAPITAL DEVELOPMENT EXPENDITURE \$



There is no historical and projected operational or capital renewals expenditure component of bus shelters projects and programmes.

Finances (Section E) and Appendix B provide more detail on the funding sources for these programmes and projects.

D10 FACILITY ROADS AND CARPARKS

D10.1 Purpose and Strategic Case Link

The purpose of facility roads is:

Provide drivable access to commercial, recreational and parking areas

The purpose of carparks is:

To ensure the adequate supply of car parking for residents and visitors (both able and disabled) to commercial, recreational and business areas

Facility road and Carpark assets are road types and designated areas and not individual assets in their own rights. As such the following assets are part of providing facility roads and carparks:

- Pavements
- Signs
- Barriers
- Markings
- Street lighting

Facility roads cover access roads to community facilities, providing public access to Council owned and maintained facilities such as cemeteries, camping grounds, flats, transfer stations and Contractor access to facilities like sewage treatment plants. These roads are generally not on Road Reserve.

Link to Strategic Case Problem Statements

The following table highlights how this activity supports addressing the problems identified in the Strategic Business Case.

	Problem Description	Activity Contribution
Forestry & Land Use	Changing land uses (i.e. Forestry & Mining) is resulting in (and will increase) the deterioration of the network causing increased reactive (unplanned, works to maintain the roading environment) maintenance and repair costs	This activity doesn't provide any significant contribution towards addressing this problem
Needs & Expectations	The needs and expectations of road users (local, freight, events, tourists) is resulting in increased investment to maintain and/or improved the form and function of the road network	Providing access roads to commercial facilities and activity areas, as well carparks, is an expected service from the community and therefore supports their needs and wellbeing
Climate, Topography & Geology	The network is impacted by climate, geography and topography resulting in reactive/unplanned maintenance costs as well as increased safety risk and operation of the network	This activity doesn't provide any significant contribution towards addressing this problem

	Problem Description	Activity Contribution
Safety	Vulnerable road users are at greater risk due to increasing and changing activity and environmental conditions which is expected to result in increased deaths and serious injuries	This activity doesn't provide any significant contribution towards addressing this problem

Link to Key ONRC Customer Level of Service (LoS)

The following table highlights how this activity contributes to improving the Key ONRC Customer LoS.

	Customer Level of Service Description	Activity Contribution
Mobility - Reliability	Travel time reliability – the consistency of travel times that road users can expect	This activity doesn't provide any significant contribution towards this customer level of service
Mobility - Resilience	The availability and restoration of each road when there is a weather or emergency event, whether there is an alternative route available and the road user information provided	This activity doesn't provide any significant contribution towards this customer level of service
Safety	How users experience the safety of the road	This activity doesn't provide any significant contribution towards this customer level of service
Amenity	The level of travel comfort experienced by the road user and the aesthetic aspects of the road environment (e.g. cleanliness, comfort/convenience, security) that impact on the travel experience of road users in the road corridor	Provide end of journey access to council and other facilities
Accessibility	The ease with which people are able to reach key destinations and the transport networks available to them, including land use access and network connectivity	This activity doesn't provide any significant contribution towards this customer level of service

D10.2 Assets to be Managed

D10.2.1 Asset Description

Land Transport maintains 13 sealed car parking areas for off-street parking as well as 10 gravelled areas providing parking for facilities such as sports clubs.

Land Transport maintains 33 facility roads, covering a length of 7 km.

The finished surfaces vary between asphalt, seal, pavers and gravel surfaces.

This section covers the pavement and surface needs of facility roads and off street carparks only, as:

- On street carparking is provided for as part of the pavement section
- Other assets (ie signs and streetlights) are managed in the section specific to the activity

Currently Facility Roads and Carparks are not managed as a whole in RAMM.

Facility Roads

Council manages approximately seven kilometres of facility roads.

TABLE D-56: FACILITY ROADS BY LOCATION AND SURFACE MATERIAL

Ward	Facility Roads - Surface Material (metres)				Total
	Concrete	Gravel	Hotmix	Seal	
National Park	35	1,141			1,176
Ohura		470		61	531
Taumarunui	24	710		1,730	2,464
Waimarino		2,460		440	2,900
Total	60	4,781		2,231	7,071

FIGURE D.57: FACILITY ROADS LENGTHS BY LOCATION

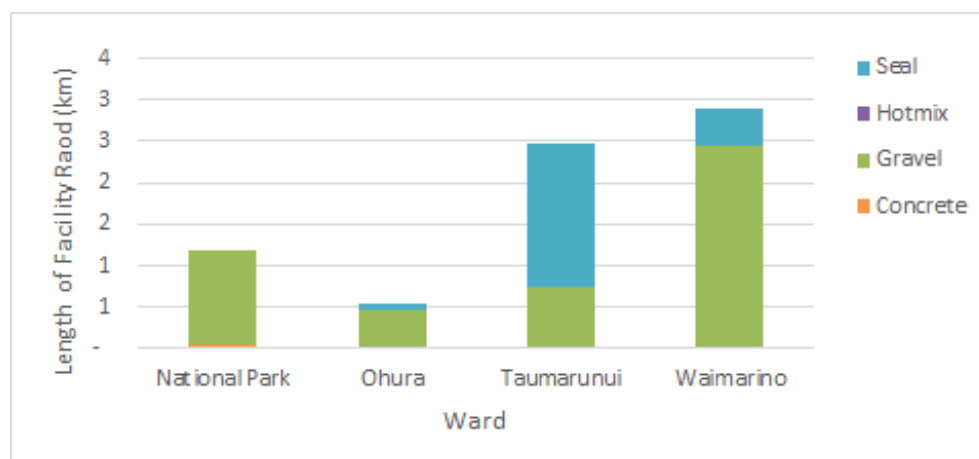


TABLE D-57: FACILITY ROADS SURFACE MATERIALS

Surface	Length Known	Number	Length (m)
Concrete	Yes	2	60
Gravel	Yes	20	4,781
	No	1	-
Hotmix	No	1	-
Seal	Yes	9	2,231
Total		23	7,071

Carparks

There are 23 Off Street Carparks mainly in the town centres with the majority in Taumarunui. While the area of all carparks is not known they cover approximately 14,500m².

TABLE D-58: CARPARK ASSETS BY LOCATION

Ward	Carpark Surface (number)					Total
	Asphalt	Cobble	Gravel	Hotmix	Seal	
National Park			2		1	3
Ohura					1	1
Taumarunui	2	1	6		7	16
Waimarino			2	1		3
Total	2	1	10	1	9	23

FIGURE D.58: NUMBER OF CARPARKS BY WARD

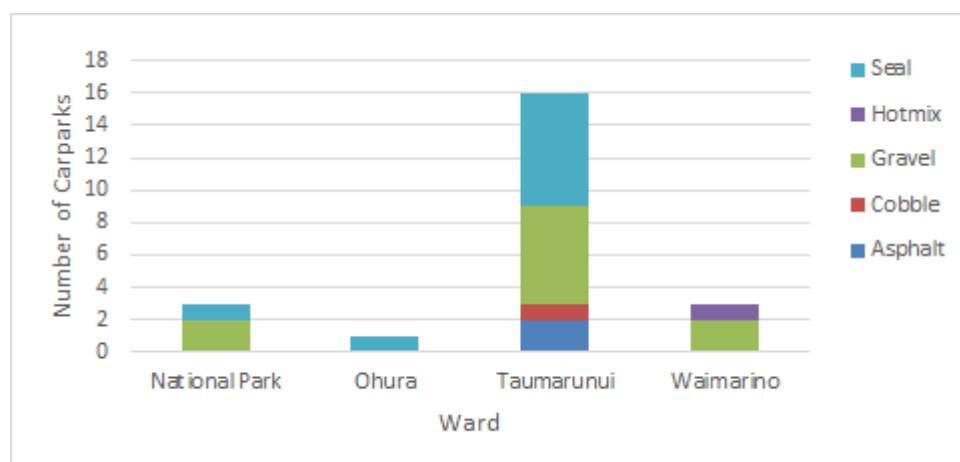


TABLE D-59: CARPARK ASSETS SURFACE MATERIAL BY AREA

Surface	Area Known	Number	Area (m2)
Asphalt	Yes	2	1,610
Cobble	Yes	1	200
Gravel	Yes	4	4,556
	No	6	-
Hotmix	Yes	1	1,400
Seal	Yes	7	6,692
	No	2	-
Total		23	14,458

D10.2.2 Asset Values

Assets in the road corridor are covered in the pavement section. Assets managed by the roading activity for other Council activities will be covered in appropriate activity documents.

D10.3 The Need for Investment**D10.3.1 Known Needs, Issues and Risks**

The following table provides the key drivers that support investment in this activity:

Driver	Name	Description	Strategies to Address Key Issues
Need	Assets to fulfil their purpose	Assets to fulfil their purpose in accordance with agreed Levels of Service.	<p>Purpose is documented in the D07.1 Overview and Strategic Case Link.</p> <p>Transport Activity Level of Service is documented in Section C04 - Levels of Service we Provide</p> <p>Level of Service needs to be developed.</p>

Driver	Name	Description	Strategies to Address Key Issues
Issue	Lack of clarity on ownership	Lack of clarity on asset ownership has resulted in lack of budgeting, asset management and delivery.	Land Transport to proactively champion maintenance and renewal, as the Council experts in pavements and road assets, that they take on the role of asset management and delivery ownership for these assets. Ownership of Improvement planning needs agreement. In addition, an agreement is needed on whether the asset ownership should sit with Land Transport or the separate Departments that the asset supports. Note that the Asset Owner is responsible for the valuation and budgeting for operations, maintenance and renewals.
Issue	Lack of asset management processes being applied	The lack of clarity on ownership has meant that asset management processes have been adhoc and therefore not ensuring consistent CLoS have been achieved	Clarify ownership and the proper practices be documented in the appropriate AMP and delivery.
Issue	Inadequate historical funding	Inadequate historical maintenance and renewals funding	Addressed in asset management plan budgets
Issue	Lack of new or upgrade activities when a major change to facilities	New facilities are built or have a major upgrade but the associated access or carpark are not adequately provided or upgraded. This is leading to the limited renewals budgets being expected to cover new assets or upgrades.	These need to be addressed as part of the facility project and therefore not part of Land Transport. Land Transport to advocate that this be addressed during Council projects.

D10.3.2 Historical Commentary

Historically, renewal funding was not allowed for until 2012/13. A renewals regime needs to be developed for this asset to quantify work required and ensure renewals are carried out in a timely manner.

A lack of clear ownership has meant improvement planning has been reactive and matched to budget rather than need.

D10.3.3 Levels of Service

SERVICE CALLS

Service calls for facility roads and carparks are included in Pavement call type.

D10.4 Asset Performance

D10.4.1 Age Profile / RUL

There is limited information on the age of facility road and carpark assets.

D10.4.2 Condition

There is no existing condition rating information. RAMM condition rating is not considered to be necessary due to the small size of many of the assets. The sealed parking areas vary from poor to excellent condition, largely correlating with age.

D10.4.3 Performance

Currently there is no performance information available for facility roads and carparks,

D10.5 Asset Management

D10.5.1 Standards

Facility Roads and Carparks should be developed to meet the relevant standards outlined in the pavements sections.

D10.5.2 Strategies and Policies

Roading is positioning itself to offer guidance to other activities developing assets as to the correct facility roads and carparks to provide and the long term budgetary needs to maintain these services.

D10.5.3 Risk Management

The key activity and specific asset risks are identified in the “Known Needs, Issues and Risks” section above.

The overall approach to risk and criticality can be found in Managing Risk (Section C02).

D10.5.4 Delivery

The Land Transport contracts are used to deliver operations, maintenance and renewal works on carparks and facility roads.

Routine works are done as instructed works so that costs can be tracked.

D10.6 Operations

D10.6.1 Activities

Refer to the Pavements Section for a list of activities.

D10.6.2 Plan

Operational activities are carried out on a needs basis when requested.

D10.7 Maintenance

D10.7.1 Activities

Refer to the Pavements Section for a list of activities.

D10.7.2 Plan

These items are priced, prioritised and programmed. Repairs are carried out based on priority or from information received from Council's Request for Service system.

Deferred Maintenance

Anecdotal evidence suggests that there is a significant maintenance backlog for facility roads and carparks. This will need to be addressed over a number of years but will also depend on whether an accelerated renewals programme can be funded and delivered.

D10.8 Renewals

D10.8.1 Activities

Refer to the Pavements Section for a list of activities.

D10.8.2 D10.8.2 Plan

Existing car parks that need resurfacing have been identified. These will be addressed as funding is available.

DEFERRED RENEWALS

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 need to be assessed. Although the deferral of some renewal works may not impact significantly on the short-term operation of the assets, repeated deferral will create a liability in the longer term.

Anecdotal evidence suggests that there is a significant renewals backlog for facility roads and carparks. This will need to be addressed over a longer period than this AMP to bring it back to a condition where maintenance and renewal levels are normalised again.

D10.9 Development

New facility roads and carparks will most likely be partnerships between Council and the land owners. In this AMP, investigation and design funding is included for two potential sites

- a Park and Ride in Ohakune and
- a truck parking facility in Waiouru

to address safety, damage to Council assets and congestion concerns. Both would require partnership funding.

D10.10 Disposal Plan

There are no assets to be disposed of at this time.

D10.11 Funding Request

Facility Roads and Carparks are not currently funded by NZTA Work Categories.

Council has identified the following programmes for 2021/22, which is indicative of the next 10 years to address the challenges faced by the transport network and deliver the District's Strategy and Investment Outcomes.

The figures below set out the historical actual expenditure and 2020/21 budget in actual dollars and the future draft budget figures in terms of 2021/22 base dollars.

FIGURE D.59: FACILITY ROADS AND CARPARKS HISTORICAL AND PROJECTED OPERATIONS AND MAINTENANCE EXPENDITURE \$

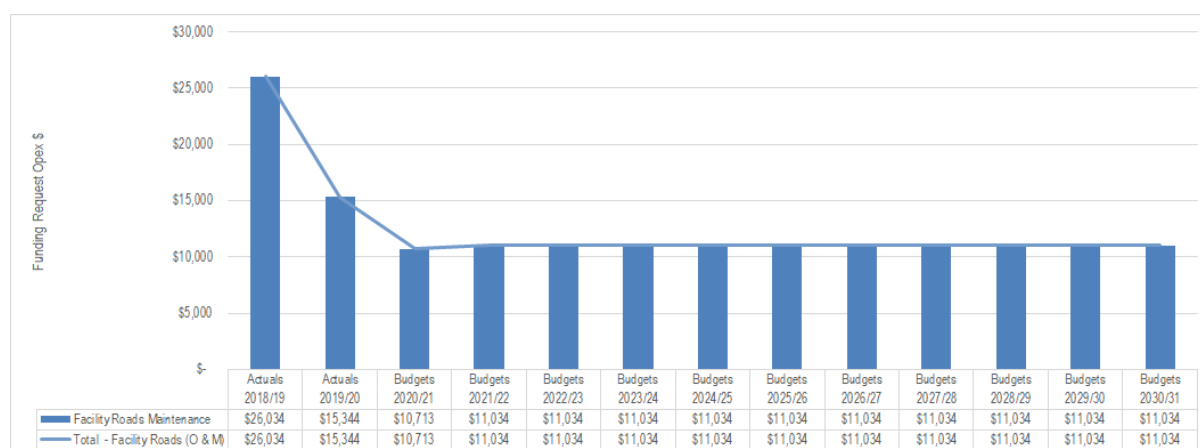


FIGURE D.60: FACILITY ROADS AND CARPARKS HISTORICAL AND PROJECTED CAPITAL RENEWAL EXPENDITURE \$

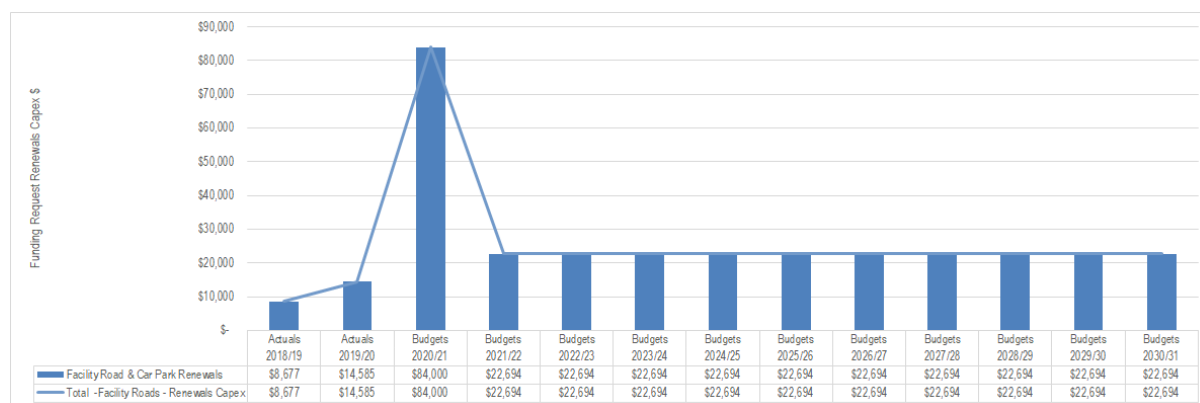


FIGURE D.61: FACILITY ROADS AND CARPARKS HISTORICAL AND PROJECTED CAPITAL DEVELOPMENT WORKS EXPENDITURE \$

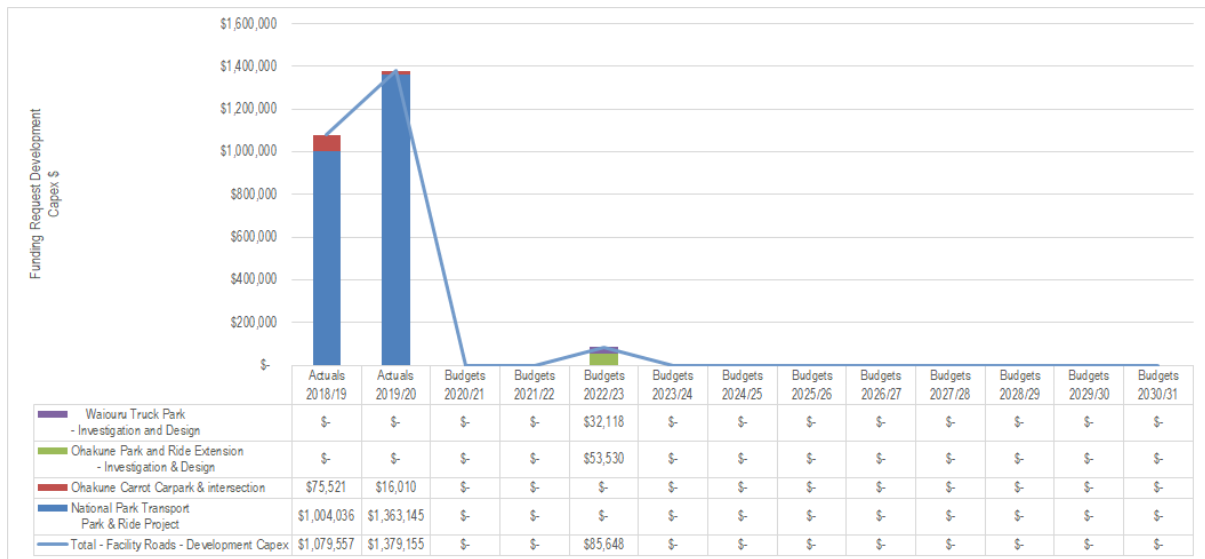
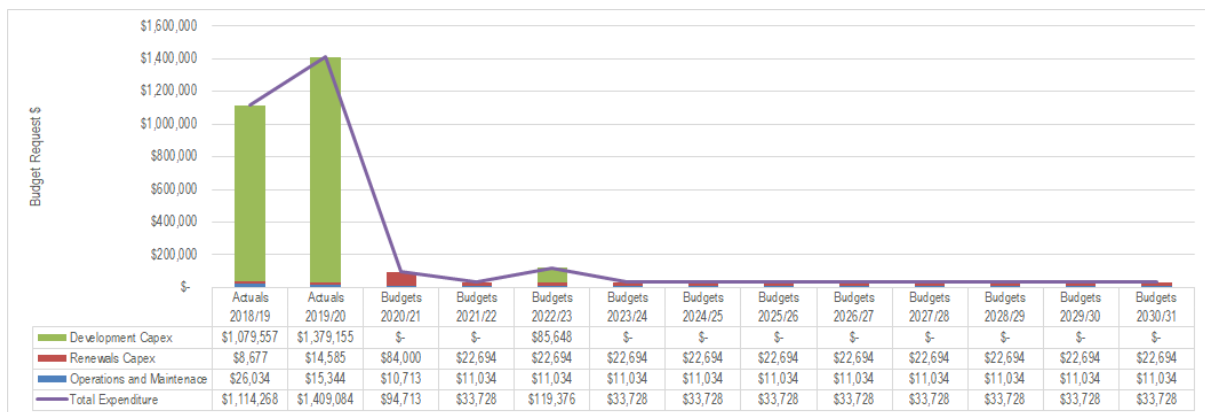


FIGURE D.62: FACILITY ROADS AND CARPARKS HISTORICAL AND PROJECTED COMBINED EXPENDITURE \$



Finances (Section E) and Appendix B provide more detail on the funding sources for these programmes and projects.

D11 ENVIRONMENTAL SERVICES

D11.1 Purpose & Strategic Case Link

The purpose of environmental services is:

Provide activities that manage the environment for the safety of road and pathway users as well as protecting environmental outcomes

Link to Strategic Case Problem Statements

The following table highlights how this activity supports addressing the problems identified in the Strategic Business Case.

	Problem Description	Activity Contribution
Forestry & Land Use	Changing land uses (i.e. Forestry & Mining) is resulting in (and will increase) the deterioration of the network causing increased reactive (unplanned, works to maintain the roading environment) maintenance and repair costs	This activity doesn't provide any significant contribution towards addressing this problem
Needs & Expectations	The needs and expectations of road users (local, freight, events, tourists) is resulting in increased investment to maintain and/or improved the form and function of the road network	Management of vegetation and litter meets the expectation of a clean and tidy network to travel through
Climate, Topography & Geology	The network is impacted by climate, geography and topography resulting in reactive/unplanned maintenance costs as well as increased safety risk and operation of the network	This activity doesn't provide any significant contribution towards addressing this problem
Safety	Vulnerable road users are at greater risk due to increasing and changing activity and environmental conditions which is expected to result in increased deaths and serious injuries	Management of roadside vegetation can improve, <ul style="list-style-type: none"> - lines of sight - reduce icing in winter - reduce fire risk All improving road user safety

Link to Key ONRC Customer Level of Service (LoS)

The following table highlights how this activity contributes to improving the Key ONRC Customer LoS.

	Customer Level of Service Description	Activity Contribution
Mobility - Reliability	Travel time reliability – the consistency of travel times that road users can expect	This activity doesn't provide any significant contribution towards this customer level of service
Mobility - Resilience	The availability and restoration of each road when there is a weather or emergency event, whether there is an alternative route available and the road user information provided	This activity doesn't provide any significant contribution towards this customer level of service
Safety	How users experience the safety of the road	Management of roadside vegetation can improve, - lines of sight - reduce icing in winter - reduce fire risk All improving road user safety
Amenity	The level of travel comfort experienced by the road user and the aesthetic aspects of the road environment (e.g. cleanliness, comfort/convenience, security) that impact on the travel experience of road users in the road corridor	Management of vegetation and litter meets the expectation of a clean and tidy landscape to travel through
Accessibility	The ease with which people are able to reach key destinations and the transport networks available to them, including land use access and network connectivity	This activity doesn't provide any significant contribution towards this customer level of service

D11.2 Activities to be Managed

This section is purely operational based activities and as such there are no assets to be managed

Environmental Services activities carried out to deliver Land Transport include:

- Environmental Maintenance – maintaining the roadside vegetation and berms to keep the sightline window clear.
- Plant Pest maintenance – to target plant pest species in the roadside corridor

D11.3 The Need for Investment

D11.3.1 Known Needs, Issues and Risks

The following table provides the key drivers that support investment in this activity:

Driver	Name	Description	Strategies to Address Key Issues
Need	Assets to fulfil their purpose	Assets to fulfil their purpose in accordance with agreed Levels of Service.	Purpose is documented in the D011.1 Overview and Strategic Case Link. Transport Activity Level of Service is documented in Section C04 - Levels of Service we Provide Activity specific Level of Service
Issue	Weather causing unseasonal growth	Unseasonal growth leads to loss of lines of sight	Vegetation control contract terms are measure and value to allow a more flexible approach
Issue	Weather causing fire risk	Dry weather can increase fire risk especially where there is uncontrolled vegetation	Vegetation control contract terms are measure and value to allow a more flexible approach
Risk	Hazardous trees	Hazardous trees represent a safety risk on the network Potentially hazardous tree work exceeds budget availability	Record and monitor hazardous tree complaints; remove trees posing a safety risk as budget allows. Apply for funding from other parties, ie Shovel ready funding from MBIE to address potential risk.
Issue	Ice on Roads	Ice represents a safety issue	Daylight cuttings to minimise shaded areas and routine gritting. OMR : Calcium Magnesium Acetate ice control operations are undertaken to address this issue.
Issue	Plant Pests	Council is required to address plant pests on road corridors. The need exceeds community affordability.	Target plant pests on Council's plant pest strategy. Work in conjunction with Horizons Regional Council and land owners where we can to spread our budget further.

D11.3.2 Historical Activity Commentary

Vegetation control can be a high complaint area depending on the growing season. While we have consistently achieved our target mowing rounds, the peak growing period is difficult for contractors to get ahead of, resulting in a number of complaints annually.

Wet weather or high fire risk seasons also affect mowing delivery.

Trees on the roadside are a safety concern and exceed budget affordability to remove. Trees reported through service requests are monitored and removed if they pose an immediate danger.

D11.3.3 Levels of Service

Service Calls

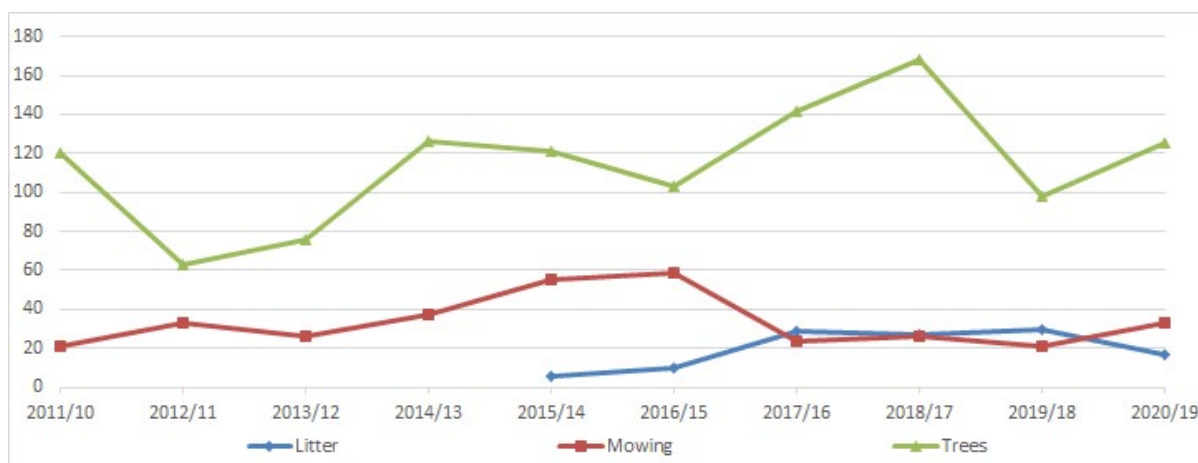
Vegetation calls relate to both Amenity and Safety ONRC customer service levels. The category is made up of mowing, litter and hazardous trees.

Trees on road reserve are becoming a significant issue on the network as they age and grow. Council addresses this as the environmental maintenance budget allows, removing trees that pose significant hazards.

Mowing is done to keep the vegetation window clear and to provide sightlines. Mowing calls spike when growth conditions take off (e.g. warm, wet summer). The current mowing contract is measure and value to give the contractor a greater degree of flexibility around timing. An approach change in 2016/17 to target known problem areas has helped to lower call numbers.

Litter calls began being recorded in 2014/15. The calls relate to roadside rubbish, offensive dumping or waste near the road and fly tipping.

FIGURE D.63: VEGETATION SERVICE CALLS



Significant LoS Change

There are no planned LoS changes.

D11.4 Asset Performance

This section is purely operational based activities and as such there are no assets for performance to be measures

D11.5 Asset Management

D11.5.1 Standards

None noted at this time for Environment Service

D11.5.2 Strategies and Policies

Non noted at this time for Environment Service

D11.5.3 Risk Management

The key activity and specific asset risks are identified in the “Known Needs, Issues and Risks” section above.

The overall approach to risk and criticality can be found in Managing Risk (Section C02).

D11.5.4 Delivery

The Transport activity manages the environment in the rural area the activities include by use of the following contracts

Activity Type	Activity	Delivery Method
Operations	Environment - Mowing Berm	Vegetation Control Contract
Operations	Environment - Mowing Arm	Vegetation Control Contract
Operations	Environment - Weed Spraying	Plant Pest Control Contract
Operations	Environment - High cut saw blade work	Vegetation Control Contract
Operations	Environment - Pest Plant Removal	Plant Pest Control Contract
Operations	Environment - Litter removal (urban areas)	Parks and Reserves Contract
Operations	Environment - Litter removal (rural areas)	Council Staff
Operations	Environment - Hazardous Tree monitoring	Professional Services Contract
Operations	Environment - Hazardous Tree Removal	Vegetation Control Contract
Operations	Environment - Ice Gritting	General Maintenance Contract
Operations	Environment - Grit Removal	General Maintenance Contract
Operations	Environment - Calcium Magnesium Acetate Ice Control	Procured as required
Operations	Environment - Snow Clearing	General Maintenance Contract

D11.6 Operational

D11.6.1 Activities

Vegetation control is carried out on the rural roadside network. Vegetation control includes:

- arm mowing
- berm mowing
- saw blades to remove high vegetation in the window
- road side and plant pest spraying

Ice/Snow Management

- Ice gritting
- Snow clearing
- Grit removal
- Calcium Magnesium Acetate Ice control

D11.6.2 Plan

These activities are managed on an as needed basis.

D11.7 Maintenance

There are no maintenance works associated with these services

D11.8 Renewal Plan

There are no renewal works associated with these services

D11.9 Development Plan

There are no development works associated with these services

D11.10 Disposal Plan

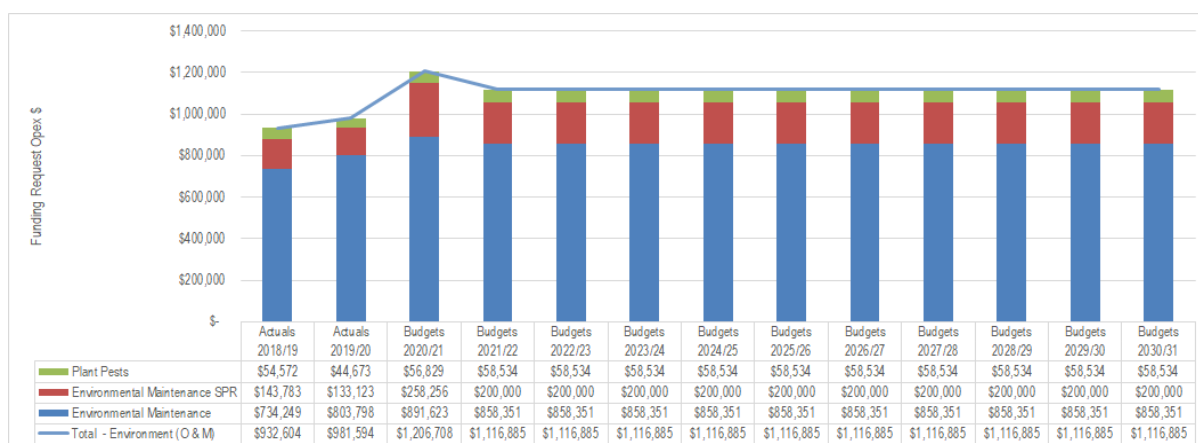
There are no assets to be disposed of.

D11.11 Funding Request

Environmental Services can be funded by the following NZTA Work Categories:

- WC 121: Environment maintenance

FIGURE D.64: ENVIRONMENTAL SERVICES AND EMERGENCY WORKS HISTORICAL AND PROJECTED OPERATIONS AND MAINTENANCE EXPENDITURE \$(000)



There is no further funding request due to the fact that there are no other work types associated with this activity.

Finances (Section E) and Appendix B provide more detail on the funding sources for these programmes and projects.

D12 NETWORK AND ASSET MANAGEMENT

D12.1 Purpose and Strategic Case Link

The purpose of network and asset management is:

Provide professional services that support and lead the way that the transport networks are operated, maintained, renewed and improved

Link to Strategic Case Problem Statements

The following table highlights how this activity supports addressing the problems identified in the Strategic Business Case.

	Problem Description	Activity Contribution
Forestry & Land Use	Changing land uses (i.e. Forestry & Mining) is resulting in (and will increase) the deterioration of the network causing increased reactive (unplanned, works to maintain the roading environment) maintenance and repair costs	Liaison with forestry companies and landowners to gain a better understanding of likely activity and the roads that could be affected
Needs & Expectations	The needs and expectations of road users (local, freight, events, tourists) is resulting in increased investment to maintain and/or improved the form and function of the road network	Network and asset management is at the core of balancing the management of the assets and risk to meet the needs and expectations of the customers
Climate, Topography & Geology	The network is impacted by climate, geography and topography resulting in reactive/unplanned maintenance costs as well as increased safety risk and operation of the network	Activities and procurement to acknowledge these challenges and include measures and incentives to improve the situation for the ratepayers and network users
Safety	Vulnerable road users are at greater risk due to increasing and changing activity and environmental conditions which is expected to result in increased deaths and serious injuries	Management of safety information and issues supports the development of safety programmes. Investigations into crashes also allows lessons to be learnt and improvements to be made.

Link to Key ONRC Customer Level of Service (LoS)

The following table highlights how this activity contributes to improving the Key ONRC Customer LoS.

	Customer Level of Service Description	Activity Contribution
Mobility - Reliability	Travel time reliability – the consistency of travel times that road users can expect	Good asset management, safety management and transport planning supports network reliability
Mobility - Resilience	The availability and restoration of each road when there is a weather or emergency event, whether there is an alternative route available and the road user information provided	Good asset management and transport planning supports network resilience
Safety	How users experience the safety of the road	Management of safety information and issues supports the development of safety programmes. Investigations into crashes also allows lessons to be learnt and improvements to be made.
Amenity	The level of travel comfort experienced by the road user and the aesthetic aspects of the road environment (e.g. cleanliness, comfort/convenience, security) that impact on the travel experience of road users in the road corridor	Good asset management provides an appropriate level of ride comfort as well ensuring all assets and vegetation maintained to the right condition.
Accessibility	The ease with which people are able to reach key destinations and the transport networks available to them, including land use access and network connectivity	Network planning allows for accessibility objectives to be met

D12.2 Activities to be Managed

This section covers the key Land Transport business activities in place to assist Council in delivering Asset Management and Land Transport services, including:

- Asset Management
 - Asset Management Planning
 - Asset Inspections
 - Network Condition surveys
 - Asset Information Management (RAMM)
- Safety Management
 - Network Safety Inspections
 - Minor safety Programme
 - Crash Investigations
- Forward Work Programmes Management
 - Asset Renewals

- Asset Improvements
- New Assets and Networks
- Network Controls
 - Corridor Access Requests
 - Temporary Traffic Management
 - Customer and Stakeholder Management
 - Overweight and Overdimension Permitting
- Bridge Management
 - Restrictions
- Traffic Counting and Estimations
- Contracts
 - Procurement
 - Contract Administration
 - Contract Supervision, Auditing and Inspections
- Financial Management

D12.3 Asset Management

D12.3.1 Maintenance Programme Development and Management

Maintenance is primarily divided into three types of work:

- Routine | Work of a minor nature where the contract provides approval to undertake the work with no further approvals required from Council
- Cyclic | Work to be undertaken on a set frequency
- Emergency | work that is in reaction to an unexpected event where there is a need to make the sit or network safe as soon as possible and therefore there is no time to seek prior approval for the works
- Programmed | Work that is to be submitted as part of a monthly works programme, in alignment with budget expectations, and approved by Council prior to work commencing

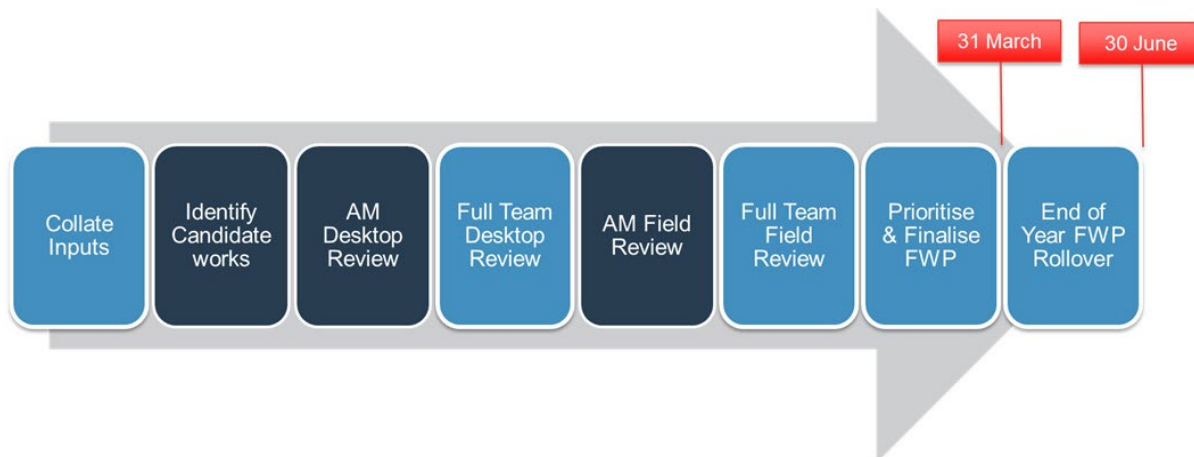
The maintenance programme is therefore made up of programmed work and follows the following steps.



D12.3.2 Renewals Programme Development and Management

The following predominantly applies to pavement and surfacing renewals as these are the most significant of works and the most sophisticated work identification process. Other assets broadly follow a similar process but often with some level of simplification.

The overall process to prepare the renewals programme is as follows:



The following indicates what is involved with collating inputs:



Pavement and Surfacing Treatment Selection Process

Council uses the Treatment Selection Algorithm (TSA) in RAMM to assist with identification of potential work sites. This includes the use of historical data when identifying possible sites for resurfacing.

As such an emphasis is sometimes placed upon seal age and remaining life; although seal age should be an input to the selection process, seal condition is the actual driver for resurfacing priorities.

Decisions are made that focus on the immediate need to ensure that the required level of service is maintained. Field validation is used to refine the programme.

The RAMM database is annually updated to enable forward work programmes to be developed, both via the Treatment Selection process, and inspection of the network asset. These programmes provide analysis, prediction and costing of major pavement capital works such as reseals and sealed road pavement rehabilitations, in addition to other works such as kerb and channel and footpaths.

Steps include:

- Seal age data is an input.
- RAMM TSA analysis to provide candidate sites.
- Reconciliation is made with the previous FWP.
- Known high or low priority sites are identified by RDC network managers, together with their contractors and network consultants.
- Joint workshop and drive overs between RDC AM, their contractors and consultants to challenge and validate the candidate sites.
- Forecast of backlog

D12.4 Asset Condition and Performance Monitoring

D12.4.1 Asset Inspections

Road Structures

Inspection activities include:

- Annual routine surveillance bridge and culvert inspections.
- General bridge inspections undertaken by a bridge inspector biannually on all bridges.
- Six yearly principal bridge and culvert inspections undertaken by a structural engineer on all non-restricted bridges.
- Special inspections on all restricted bridges every two years and after specific events such as earthquakes, severe floods or instances of overloading.

Superficial condition assessments are undertaken in accordance with “Bridges and Other Highway Structures: Inspection Policy” (NZTA 2017) and use the NZTA-based inspection forms. The inspections identify any obvious defect which may affect the safety of road users, defects to the bridge structure, or anything else requiring urgent attention, such as:

- Impact damage from vehicles, especially to guardrails and handrails.
- Build-up of flood debris.
- Adequacy of sign and road marking.
- Erosion damage.
- Deck drainage function.
- Approach settlement and condition of road surface.
- Expansion joint function.
- General and detailed condition inspections are undertaken in accordance with Transit’s ‘Bridge Inspection and Maintenance Manual’, taking into account such

factors as structural integrity, defects, safety and appearance. A Microsoft Excel spreadsheet is used to compile physical attributes and condition records.

Bridges, culverts, and retaining structures will be inspected regularly (see D12 Network and Asset Management) and preventative maintenance work undertaken to:

- Prevent failure of the bridge.
- Protect the investment in the asset by extending the life of the structure.
- Minimise repair costs.

Weight and Speed Restrictions

A structural assessment of bridges occurs biennially to determine deterioration and the load carrying capacities relative to the maximum permitted loads which are determined in the Transit New Zealand Bridge Manual as 100% Class 1.

- A 100% Class 1 heavy vehicle represents the maximum legal load for heavy vehicles of various axle configurations.
- The structural assessment and weight restriction of an existing bridge includes safety factors with the intention of not unduly over-stressing the structure.
- A vehicle exceeding the weight restriction on a bridge may over-stress the bridge but not necessarily cause failure. Repetitive over-stressing of the bridge structure will, however, ultimately lead to failure.

Street Lights

Asset condition are monitored by undertaking the following planned inspections:

- Inspections of lighting on the network are carried out on a monthly cycle.
- Faulty, accident damaged or vandalised lanterns, lamps, control gear columns and associated equipment will be repaired on demand and within the specified response timeframes
 - two days for lights on a state highway,
 - three days in urban areas and
 - five days in rural areas
 - providing an immediate response to hazards.

The rating data on streetlights is gathered annually by the streetlight contractor and is stored in the RAMM Contractor module.

Road Signs

The condition of signs and road marking are assessed visually against the relevant NZTA Standards in routine inspections undertaken by the Contractor, with the results reported to Council.

Signs are inspected at a minimum of monthly intervals during the roadmans routine inspections. If there are issues requiring maintenance or replacement outside of the roadman's activities a dispatch will be generated. There is no measure of sign condition updated in RAMM.

Footpaths

The visual condition rating of Footpaths is undertaken every two years. The results are populated into a spreadsheet and then used to support the identification of maintenance and renewals work.

Road Markings

Not monitored

Kerb crossings

Are inspected for non-compliance as part of the next footpath condition inspection.

Culverts

Culverts inspections are undertaken by the contractors, focusing on blockages and its ability to work properly during a rain event.

D12.4.2 Network Condition Monitoring

Bi-annual roughness and condition ratings of sealed roads

Pavement condition is measured via the RAMM Rating and Roughness Survey whereby all sealed roads are assessed every two years. Physical faults are continuously recorded on the carriageway to capture trend data.

Pavement condition surveys should be carried out two-yearly for all sealed roads and annually for roads carrying >2,000 vehicles per day. As Ruapehu has so few roads that carry over 2,000 vehicles per day, these sections are also carried out two-yearly. The network is broken into treatment lengths.

Roughness surveys are carried out in even years. In 2000 & 2002, Beca Carter Hollings & Ferner undertook the survey. From 2004 to 2006, ARRB Road Info Ltd conducted it. From 2008, Shaw's Consulting Services Ltd have undertaken it.

The rating surveys record the following information:

- Shoving (shear failure)
- Edge break
- Rutting
- Potholes/pothole repair
- Scabbing
- Flushing
- Alligator cracking

D12.4.3 Maintenance Inspections

Each of Council's maintenance contractors has significant experience in road fault data collection for their area of responsibility.

All faults identified during routine inspections are assigned a severity priority level as per agreed intervention levels defined in the relevant Maintenance Contract Level of Service Specifications, which is overseen by the Network Management Consultant.

Faults identified by one contractor that relate to a different contract are passed on to the relevant contract.

D12.5 Operations

D12.5.1 Contract Management

See relevant parts of Delivering the Programme (Section B04).

D12.5.2 Customer Service Requests

Customer service requests are entered into Origen Ozone Request for Service System (RFS) that records the details of the call. This information is then forwarded in real time to the Contractors.

Contractors provide progress reports on each request received. These are recorded against the RFS until the job is completed and closed off. This information allows for information to be provided to the caller, along with monitoring of response times.

D12.6 Asset Information Management

Note that corporate systems are covered in Part 1 of the AMP. This includes Finance and Customer Service Request systems.

Council's current systems being used for asset information management are described below. The Council is satisfied that the current systems are more than adequate for its business needs and is focused on making better use of the available functionalities as well as centralising more information into its 'single source of the truth'.

D12.6.1 RAMM Information Management

The Council uses RAMM for its primary management of all data that supports asset and maintenance management. This is in support of managing business operations and supporting the management of all asset life cycles.

Information currently being managed in RAMM, includes:

- Network details
- Network condition
- Asset details
- Asset condition
- Asset value
- Maintenance Cost history
- Maintenance Work Orders (dispatches)
- Forward Works Programme
- Traffic Counting
- Traffic Estimates

An asset management system is a combination of processes, data and software applied to provide the essential outputs for effective asset management. Council utilises a number of these aspects for the effective management of their assets.

The primary support system Council has to manage the assets is RAMM.

- Council uses the RAMM system to manage information on the assets
- The RAMM system contains a schedule of all roads in the network and information on carriageway widths, surfacing types and ages, pavement composition, traffic volumes and loadings and road condition data. Information on structures such as drainage facilities, footpaths, bridges, streetlights and signs is also stored on the RAMM system.

D12.6.2 RAMM Modules

In addition to managing data RAMM also provides a number of modules and functions that Council utilises to asset with the management of their activities and optimise the asset management outcomes. These include:

- RAMM Works Management (previously RAMM Contractor)
- RAMM Valuation
- RAMM Treatment Selection Algorithm (TSA)
- RAMM Map
- RAMM Pavement Management
- RAMM Network Management
- NZTA Annual Reporting

D12.6.3 GHD MAX Products

To complement Council's investment in RAMM, they have invested in the use of the following GHD MAX Products. Any data created by these products are stored and managed within the Council's RAMM database.

MAX.quality | Automated RAMM product focused on data quality, monthly trend reporting and notifications to get the right information to the right person to trigger business actions

MAX.maintenance | Automated RAMM product focused on dispatch data quality, activity reporting, performance management, notifications and financial management

MAX.dashboard | Microsoft PowerBI based product that visualises the automated trend reporting from other products as well as deep dive analysis of some other RAMM datasets.

MAX.structures | Council is a development partner in this RAMM based product to manage all data relating to road structures, from inspection programming and results through to automated algorithms for dispatching of maintenance work and identifying potential renewals work.

D12.6.4 Other Datasets

In addition to data being managed in RAMM the Council has built up a library of additional data which supplements the information in RAMM.

This is generally held in spreadsheets and will be migrated into RAMM where appropriate.

D12.6.5 Data Quality

Confidence grades have been assessed and are set out in Data Quality (Section C05).

D12.7 Funding Request

Network and Asset Management can be funded by the following NZTA Work Categories:

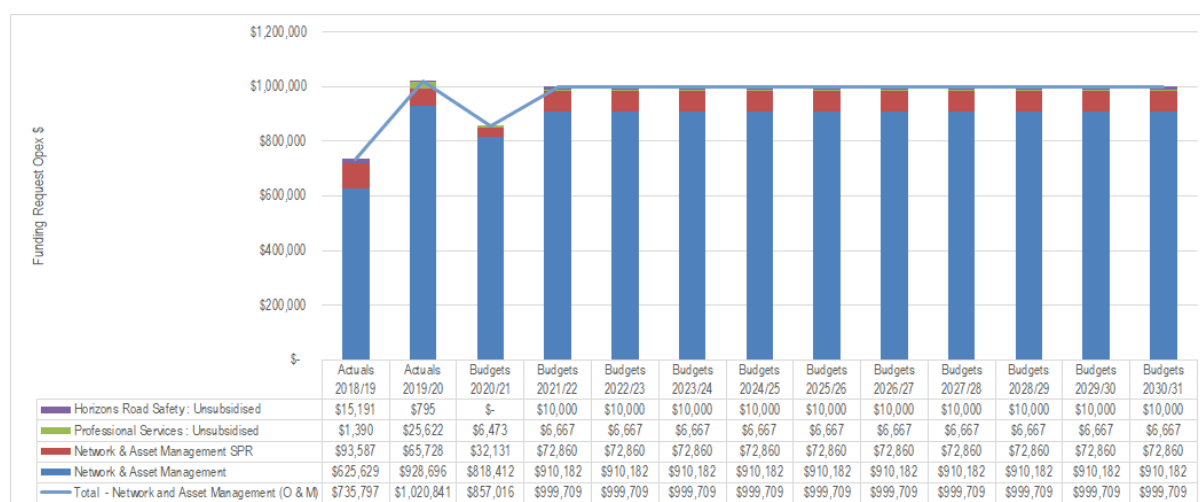
WC 151: Network and asset management

WC 003: Activity management planning

Council's effort to manage our budgets means that we incorporate Activity management planning into our standard Network and asset management budget rather than apply for additional funding.

Note that design and contract supervision for projects is managed and funded as part of the project and not under network and asset management.

FIGURE D.65: ASSET MANAGEMENT PRACTICES HISTORICAL AND PROJECTED OPERATIONS AND MAINTENANCE EXPENDITURE \$



There is no further funding request due to the fact that there are no other work types associated with this activity.

Finances (Section E) and Appendix B provide more detail on the funding sources for these programmes and projects.

E Finances

E01 FINANCIAL MANAGEMENT

E01.1 Introduction

More detailed financial costs have been obtained for the first three years of the ten year period as more accuracy can be ensured for these short term projections. It is more difficult to predict the local and global influences on cost over the later part of the ten year period

The adopted programmes and budgets, and the implications of any changes made from the proposed AMP are identified within Appendix A. These changes and implications will then be a key input into subsequent plan updates.

In between these three yearly reviews, Council conducts an Annual Plan (AP) process, which allows for significant amendments to the three year plan to be considered. The AP also undergoes a public consultation process and Council adopts amendments to the LTP close to 30 June for each of the two AP years. This AMP is updated to reflect any changes to the ten year plan by updating Appendix A.

E01.2 Accounting Standards

Financial Reporting

For financial reporting purposes, the Transport activity combines with the overall District Council requirements to comply with generally accepted accounting practice in accordance with s111 of the Local Government Act 2002.

Asset Valuation

Transportation asset valuations are carried out in accordance with the New Zealand International Accounting Standard 16 (NZIAS16) and New Zealand Infrastructure Asset Valuation and Depreciation Guidelines Edition 2.0, 2006 (from IPWEA / NAMS).

E01.3 Revenue and Financing Policy

The Local Government Act 2002 requires the adoption of policies that outline how operating and capital expenditure for each activity will be funded. This is detailed in the Revenue and Financing Policy, which is included in the Council's LTP. The policy identifies:

- The community outcomes to which the activity primarily contributes.
- The distribution of benefits between the community as a whole, any identifiable part of the community, and individuals.
- The costs and benefits, including consequences for transparency and accountability, of funding the activity distinctly from other activities.

E01.4 Land Transport Funding

Funding for the roading network and related activities is provided through;

- Rates collected by Council
- Development contributions paid to Council

- Other funding sources (eg: debt funding for Council major capital projects or fees)
- NZTA funding (subsidy based on the Funding Assistance Rate (FAR))
- All of Government special support programmes, for example:
 - Provisional Growth Fund (PGF)
 - Post COVID-19 stimulus funding

Notes:

- Rates funding for roading is received from the District Land Transport Rate Capital Value, being that portion of the roading budget not funded by NZTA subsidy.
- Work that does not qualify for NZTA funding is unsubsidised. This includes maintenance and renewal of footpaths, seal extensions and facility roads and car parks.
- Council is developing the Long Term Plan 2021/31 in parallel. Programmes from the AMP are fed into the Plan. Affordability is considered during the process. Any changes that are required in this process to address affordability will be reflected in Appendix A.
- Initial bid shows a \$3.1M increase (20%) in local share from 2018/21 expenditure to 2021/24 budget.

E01.4.1 Development Contributions

The procedure for setting Development Contributions is outlined in the Development Contribution Policy.

Through the application of its Development Contributions Policy, the Council seeks to obtain contributions to fund infrastructure required due to district growth. The proceeds from development contributions will be applied to growth related capital works within the roading, water and wastewater activities.

The value of the Land Transport Development Contributions is determined under the Development Contributions Policy and is updated through Council from time-to-time. Note that development contributions received each year will not necessarily match development expenditure.

There are growth driven projects in the Land Transport Activity projects over the next 10 years, therefore development contributions will be received.

E01.4.2 NZTA Funding

Conditions of Funding

In order to receive investment assistance from NZTA, Council must ensure that

- Any project meets one or more of the objectives of the Land Transport Management Act (LTMA)
- Reflect the priorities and guidance setout in the Government Policy Statement (GPS)
- Aligned to the [NZTA Planning & Investment Knowledge Base](#)
- Show how capital projects in the LTP contribute to the purpose of the LTMA (in accordance with Schedule 1 Clause 4 of the LTMA)

The purpose of the LTMA is to contribute to the aim of achieving an integrated, safe, responsive and sustainable land transport system.

The five objectives of the LTMA are to:

- Assist economic development.
- Assist safety and personal security.
- Improve access and mobility.
- Protect and promote public health.
- Ensure environmental sustainability.

Projects which can be shown to be economically justified are given preference in determining which are to be undertaken.

NZ Transport Agency Funding Assistance

The NZ Transport Agency funding assistance applies to agreed activities on all local roads in the Ruapehu District. There are different funding assistance rates (FAR) for Special Purpose Roads and Emergency Works.

The following table shows the subsidy rates for 2021/22 onwards:

Table - NZTA Subsidy Funding Assistance Rates (FAR)

Local Roads & Emergency Works Base Rate	Emergency Works Elevated Rate	Special Purpose Road
2021/22 - 75%	2021/22 - 95%	2021/22 to 2023/24 - 100%
2022/23 onwards - 74%	2022/23 onwards - 94%	2024/25 onwards - 74%

Special Purpose Road (SPR)

Council has one SPR - Ohakune Mountain Road, located in the Tongariro National Park.

There are no surrounding rate payers. It is currently funded at 100% FAR; however, this will transition to the standard Council FAR rate from 2024/25 onwards.

Emergency Works

Emergency works for qualifying events on local roads are funded at the base FAR rate until costs go 10% above the organisation's road maintenance and renewal programme in one year, in which case they are funded at base FAR plus 20%, up to a maximum of 95%.

A qualifying event is as per the definition and criteria set out in [NZTA Planning & Investment - WC 141: Emergency Works](#)

It is an event where an approved organisation incurs significant expenditure in responding to out of the ordinary, short duration, natural events unusual for the particular area.

Kiwirail Level Crossings

As Kiwirail are not an Approved Organisation (AO), they claim the costs from Council, at the Councils base rate funding. Level crossing warning device maintenance is in the order of \$15 – \$20K per annum.

Maintenance and renewal obligations are outlined in Railways Act 2005. Crossings are either road over rail or rail over road. Kiwirail assesses the crossing needs and has a requirement to supply this information to Council in order to be able to budget for this work.

The Draft Government Policy Statement (GPS) proposes to include Kiwirail as part of the National Land Transport Programme. Coordination of work programmes may benefit from this change.

Unsubsidised Activities

The unsubsidised component of the roading programme is funded by Council, as per the Revenue and Finance policy.

E01.4.3 National Land Transport Fund (NLTF)

The National Land Transport Fund receives revenue from Road User Charges, part of Motor Vehicle Registration and Licensing fees and fuel excise duty on petrol, LPG and CNG. This fund is distributed by the NZTA in line with the Government Policy Statement (GPS) to Road Controlling and Passenger Transport Authorities, the Police, Rail and Maritime Authorities.

E01.5 Financial Assumptions

The following provides a list of some key assumptions used during the preparation of the financial plan and summaries:

- That the tender prices received over the three years of this plan only escalate by the level of expected cost inflation.

E02 FINANCIAL SUMMARY

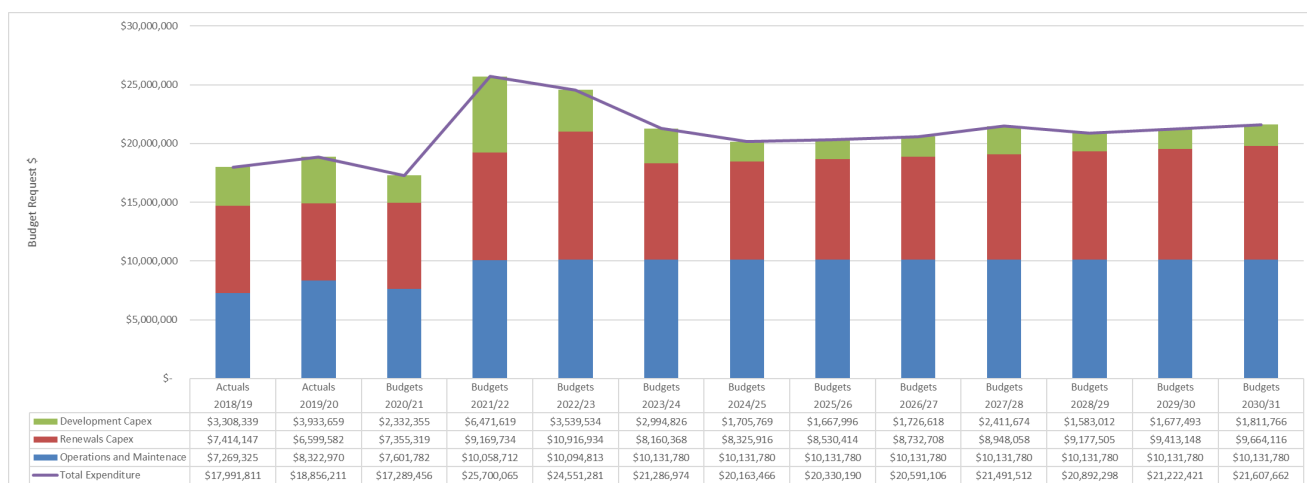
Asset management planning translates the physical aspects of planned operational, maintenance, renewal and development works into financial terms.

The 10 year Forecast Funding Impact Statement can be found in the Council Long Term Plan (LTP).

The following figure provides the overall actual expenditures and approved budget, for the three years prior to this AMP, and the 10 year draft proposed budget for operations and maintenance, capital expenditure and combined for the land transport activity.

The three years prior to the AMP are provided as actual dollars and the future draft budget budgets in terms of base dollars set as the first year of the AMP.

FIGURE E.1: OVERALL ACTUAL AND BUDGET EXPENDITURE FOR ALL ASSET GROUPS AND ALL EXPENDITURE TYPES



Changes that are made as a result of the consultation process will be documented in Appendix A.

The below table shows the recommended funding, for each of the work programmes, during 2021/22 to 2021/24 and is compared with the previous 3-year period.

TABLE E-1: RECOMMENDED PROGRAMME OF WORKS

	Previous Programme Estimated Cost 2018/19 - 2020/21 3 year Total	Recommended Programme Estimated Cost 2021/22 - 2023/24 3 year Total	Proposed Difference	Justification
O & M - Total	\$23,194,077	\$30,285,305	\$7,091,228	31% Increase
Emergency Works	\$4,474,419	\$8,100,000	\$3,625,581	Last emergency event was February 2018 leaving 2018/19 & 2019/20 underspent. Need to allow for new emergencies

	Previous Programme Estimated Cost 2018/19 - 2020/21 3 year Total	Recommended Programme Estimated Cost 2021/22 - 2023/24 3 year Total	Proposed Difference	Justification
O & M (excluding Emergency works)	\$18,719,658	\$22,185,305	\$3,465,647	19% Increase
Pavement	\$6,811,774	\$7,535,374	\$723,600	Backlog of renewals is leading to additional maintenance required especially on logging routes.
Structures	\$438,798	\$2,195,616	\$1,756,818	Increase is due to inclusion of bridge painting for the first time.
Drainage	\$3,057,266	\$3,177,707	\$120,441	Maintaining Level of Service
Traffic Services	\$1,995,724	\$2,219,075	\$223,351	Reset due to underspend on markings 2019/20
Footpath	\$393,548	\$426,246	\$32,698	Resetting to previous level requested by Council
Cycleway	\$171,687	\$187,573	\$15,886	Maintaining Level of Service with increased cycleway due to Depot Road
Facility Roads	\$52,091	\$33,103	-\$18,988	Resetting to previous level budgeted by Council, recent renewals should reduce maintenance
Environment	\$3,120,906	\$3,350,655	\$229,749	Maintaining Level of Service
Network and Asset Management	\$2,613,654	\$2,999,128	\$385,474	Implement Asset Management Improvements
Level Crossing - (KiwiRail)	\$64,210	\$60,828	-\$3,382	Maintaining Level of Service
Renewals - Total	\$21,369,048	\$27,782,477	\$6,413,429	30% Increase
Pavement	\$16,905,922	\$17,541,554	\$635,632	Reseal budget has been increased to allow Council to address underachievement in AMP target lengths.
Structures	\$1,854,769	\$7,243,214	\$5,388,445	Efficient and safe structures, prioritising renewal of structures. Bridges reaching the end of their life (total replacement or replacement of significant parts of the structure). These works also accommodate the increase in size of trucks.

	Previous Programme Estimated Cost 2018/19 - 2020/21 3 year Total	Recommended Programme Estimated Cost 2021/22 - 2023/24 3 year Total	Proposed Difference	Justification
Drainage	\$1,304,442	\$1,424,057	\$119,615	Maintaining Level of Service
Traffic Services	\$815,494	\$889,882	\$74,388	Maintaining Level of Service
Footpath	\$381,159	\$615,687	\$234,528	Maintaining Level of Service
Facility Roads	\$107,262	\$68,082	-\$39,180	Reset to meet Councils previous Budget
Development - Total	\$9,574,353	\$12,760,401	\$3,186,048	33% Increase
Network - Improvements (LCLR)	\$6,388,184	\$8,394,656	\$2,006,472	Maintaining Level of Service
Pavement	\$352,105	\$160,276	-\$191,829	Reset to meet Councils previous Budget
Structures	\$ -	\$3,476,516	\$3,476,516	B297 Matahiwi Track Suspension bridge upgrade
Drainage	\$108,752	\$144,866	\$36,114	Maintaining Level of Service
Traffic Services	\$130,102	\$152,109	\$22,007	Maintaining Level of Service
Footpath	\$82,343	\$150,000	\$67,657	
Bus Shelters	\$54,155	\$84,600	\$30,445	Budget for one every second year. Alignment with this. Maintaining Level of service (previous programme 1 new shelter new programme 2 new shelters)
Facility Roads	\$2,458,712	\$85,648	-\$2,373,064	Reset to Council previous expectations. Previous period included showcase park and rides
Level Crossing	\$ -	\$111,731	\$111,731	Level crossing upgrades managed by Kiwirail. Last expected upgraded delayed
Total Budgets	\$54,137,478	\$70,828,184	\$16,690,706	27% Overall Increase

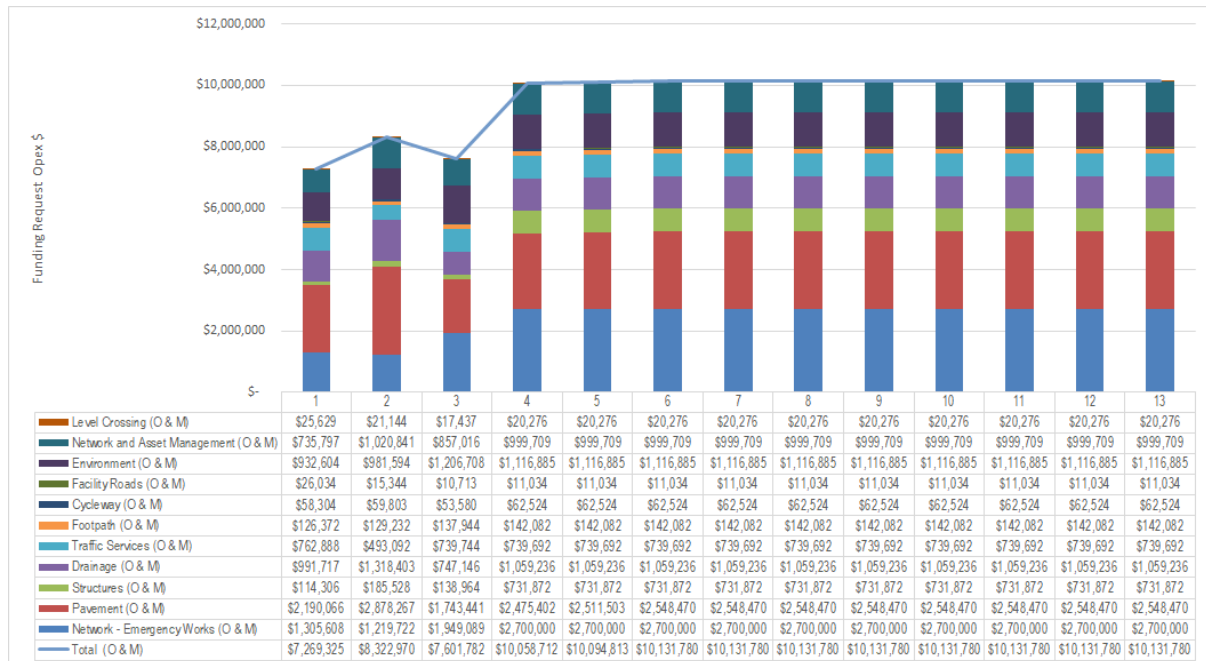
A detailed budget can be found in Appendix B.

E02.1 Operations and Maintenance

E02.1.1 Financial Summary

The figure below provides a summary of the Operations and Maintenance actual and budget forecasts per asset group as discussed in the previous sections.

FIGURE E.2: COMBINED HISTORICAL AND PROJECTED OPERATIONS AND MAINTENANCE EXPENDITURE FOR ALL ASSET GROUPS



E02.1.2 Maintenance Deferrals

Maintenance deferrals (if any) are detailed in the Life Cycle Management sections.

E02.2 Capital Renewals and Development

E02.2.1 Financial Summary

The figure below provides a summary of the capital (renewal and development works) actual and budget forecasts per asset group as discussed in the previous sections.

FIGURE E.3: COMBINED HISTORICAL AND PROJECTED CAPITAL RENEWAL EXPENDITURE FOR ALL ASSET GROUPS

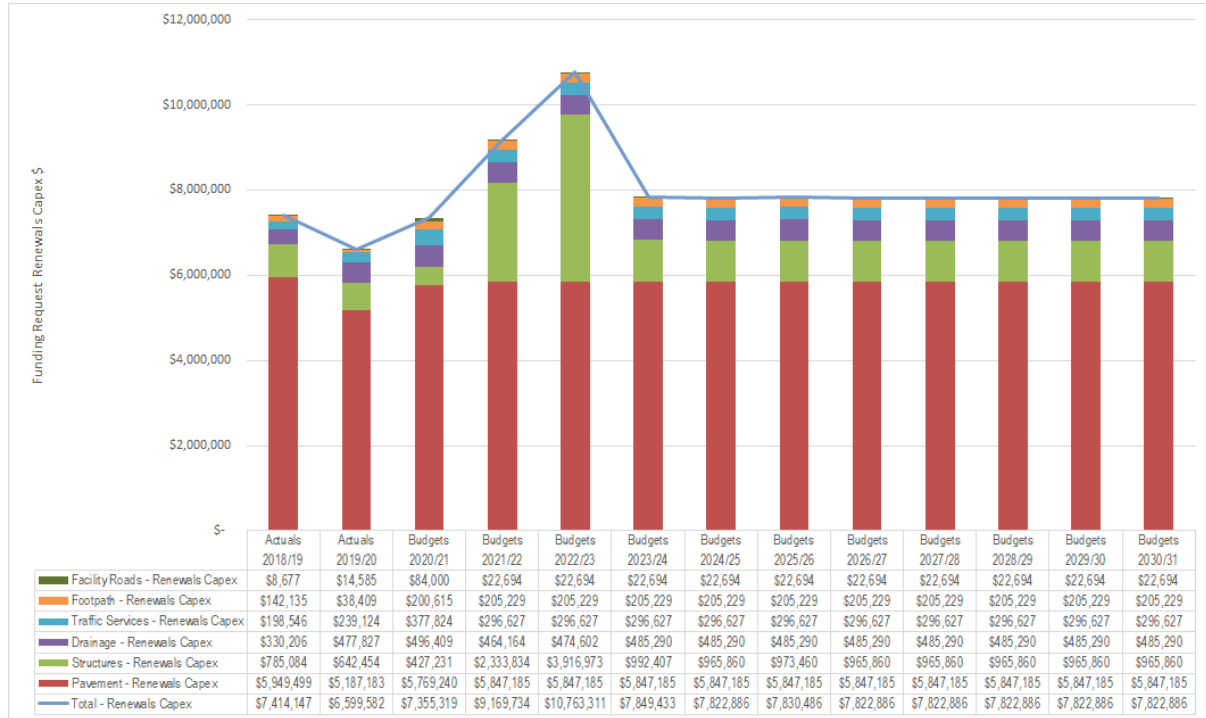
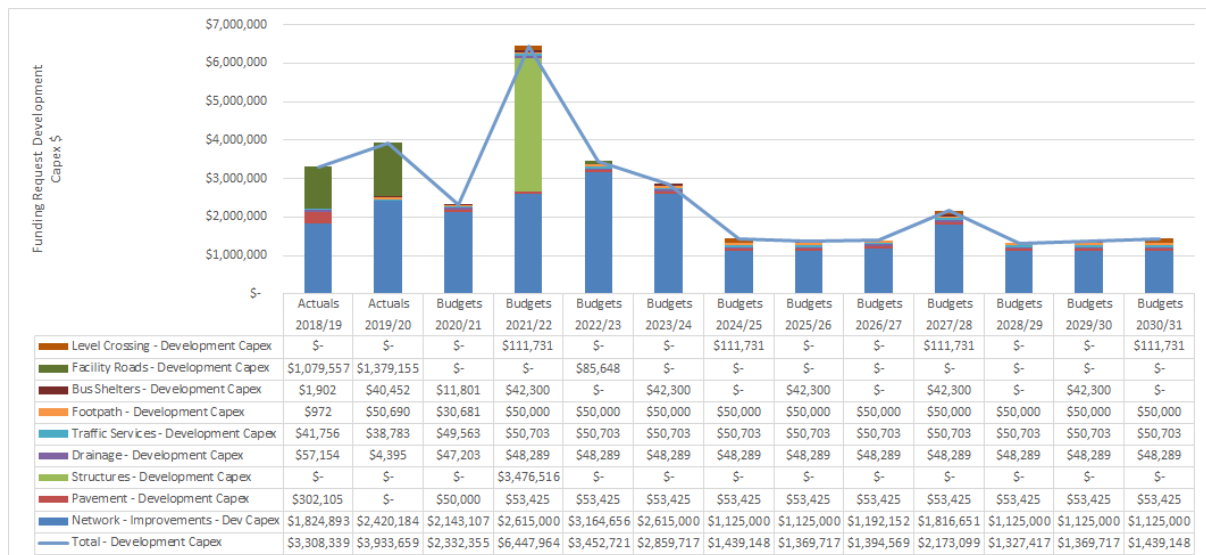


FIGURE E.4: COMBINED HISTORICAL AND PROJECTED CAPITAL DEVELOPMENT WORKS EXPENDITURE FOR ALL ASSET GROUPS



E02.2.2 Renewal Deferrals

Renewal deferrals (if any) are detailed in the Life Cycle Management sections.

E03 ASSET VALUATION

Statutory financial reporting requirements require Council to revalue its fixed assets at least once every 5 years, or in any year where there has been a significant movement in asset values. It is normal practice to undertake a valuation update in the intervening years.

A full valuation report was produced as part of the 2020 valuation and provides details of the process, valuation results, assumptions and any areas for improvement.

An asset valuation is to be used for asset management (calculating long term asset renewal projections), identifying loss of service potential (depreciation) and for financial reporting purposes.

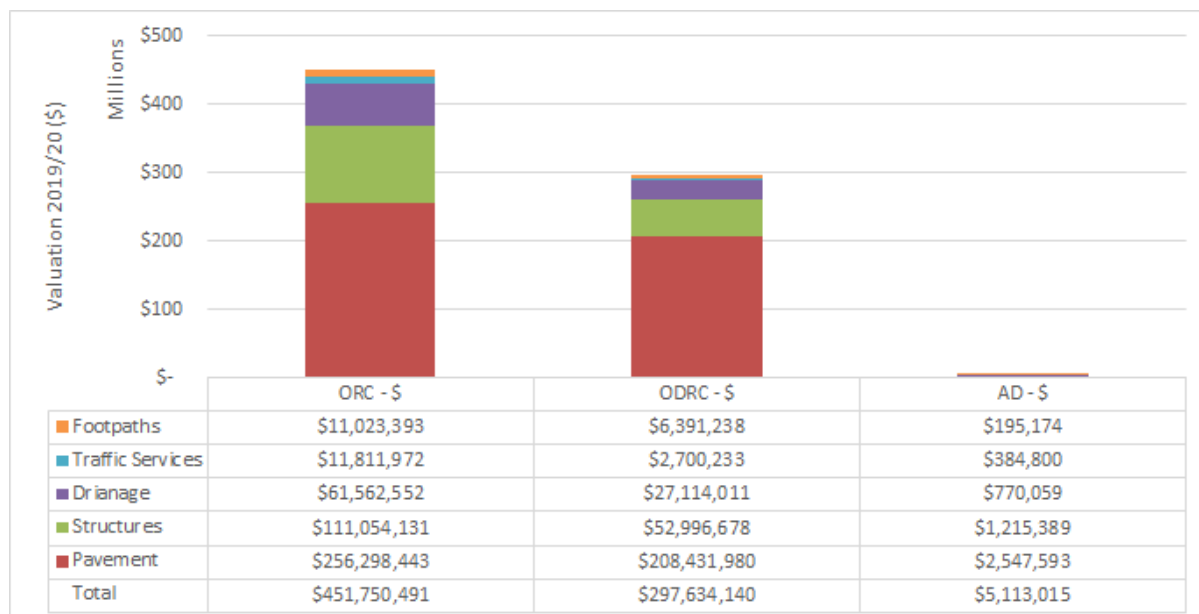
TABLE E-2: VALUATION TERMINOLOGY

Terminology	General Meaning
Gross Replacement cost (GRC)	The cost of constructing a new fixed asset using the present day technology, and maintaining the original service potential.
Replacement cost (RC)	The cost of the modern equivalent asset that would be used to replicate the existing asset. The asset cost is 'optimised' down to allow for surplus capacity or technical obsolescence.
Depreciated Replacement Cost (DRC)	The replacement cost after deducting the wear of an asset to reflect the remaining useful life of the asset. Calculated on the gross replacement cost of modern equivalent assets (MEA). Calculated as Replacement Cost x (RUL / Expected Life)
Annual Depreciation (AD)	Annual depreciation is the rate of depreciation per year and is the optimised replacement cost divided by the estimated useful life. Calculated as Optimised Replacement Cost / Expected Life
Remaining Useful Life (RUL)	Defined as the Asset Expected Life – Asset Ages as at the valuation date
Expected Life	The life that the asset is expected to fulfil its purpose / function satisfactorily Calculated as Remaining Useful Life (RUL) + Current Age

E03.1 Valuation as at 30 June 2020

The transport assets have been valued by GHD for Ruapehu District Council. The following graph shows the key valuation outputs per asset group.

FIGURE E.5: 2020 VALUATION PER ASSET GROUP



Please refer to the individual Asset Class Lifecycle Management Sections for further valuation figures and breakdowns.

E03.1.1 Useful Lives

The expected lives used in the valuation are based on previous valuations and are within the ranges specified in the NZ Infrastructure Valuation and Depreciation Guidelines.

A condition and/or performance based Remaining Useful Lives (RUL) calculation has not been used for this valuation as the type of condition and performance data required to support this would not make a material impact on the valuation at this time.

These are the Average Useful Lives used in the 30 June 2020 valuation.

TABLE E-3: AVERAGE USEFUL LIVES

Lifecycle Section	Asset Valuation Component	Average Useful Life (Yrs)
D03 Pavements	Formation	100
	Subbase	100
	Basecourse	100
	Road Surface	15
D04 Structures	Bridge Deck ^{Note 1}	70 - 100
	Bridge Culvert	70 - 100
	Retaining Wall	50-100
	Bluff Safety Netting	25

Lifecycle Section	Asset Valuation Component	Average Useful Life (Yrs)
D05 Drainage	Minor Culvert	80
	Cesspit	80
	Flume Down Batter	70
	Debris Catching Grid	20
	Side Culvert	80
	Side Drain	80
	Sock	15
	Structure	80
	Subsoil Drain	80
	Stormwater Channel	80
D06 Traffic Services	Streetlight - Pole	25
	Streetlight - Bracket	25
	Streetlight - Light	20
	Sign	9-10
	Marking	1
	Railing	30-50
	Traffic Facility	15
D07 Footpath	Footpath	20-80 ^{Note 2}

Note 1: Including OMR Footbridge

Note 2: Based on Footpath material type, where 'Metal' footpaths AUL= 20 years

E03.2 Valuation Assumptions

Assumptions made in compiling the 2020 asset valuations are:

- The confidence and accuracy level of the asset register is sufficient to carry out the valuation and there are no issues that materially affect the total valuation.
- The component level of the data used for the valuation was sufficient to calculate depreciation separately for those assets which have different useful lives.
- The unit replacement costs used in the valuation reflect the current RDC contract costs.
- Land under roads was excluded from 2020 revaluation and it was assumed there is no significant change from the 2014 value.

E03.3 Valuation Methodology

The assets have been valued based on the Depreciated Replacement Cost (DRC) approach for depreciable assets as outlined in the New Zealand Infrastructure Asset Valuation and Depreciation Guidelines.

Data: Transportation assets owned by Council and held in the RAMM asset information management system were included in the valuation. The data was reviewed to establish confidence in its accuracy and completeness.

Unit Replacement Cost: The previous valuation unit rates were escalated, where appropriate, using New Zealand Transport Agency indices to reflect changes in inflation and market conditions since the previous valuation. These are in line with current Council contract costs. The replacement costs are 'brownfield' values indicating replacement of existing assets without any increased capacity.

Useful Lives: The useful lives used at asset component level are based on previous valuations and are within the ranges specified in the NZ Infrastructure Valuation and Depreciation Guidelines.

Depreciation Methods: Assets were depreciated on a straight-line basis over their useful lives to determine Optimised Depreciated Replacement Cost. Non-depreciable assets were identified according to Council renewal and maintenance strategies.

Valuation Tool: RAMM Valuation Module was used to carry out the valuation.

Land Transport
Asset Management Plan 2021-31

Part 4 - Appendices

Appendix A – Revisions to Asset Management Plan

A1 Summary of 2021 Long Term Plan Process

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. The future cost components are a mix of uncertainty around renewal types, timeframes and appropriate technologies and, therefore, a healthy tension of estimated cost and actual current budgets and deliverables. The budgets in the AMP have been developed on the basis of using today's technologies. Council knows, 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 or amended.

Version 1 contains material and forecasts submitted to Waka Kotahi NZ Transport Agency as at 11 December 2020. The financial forecasts are summarised in Appendix B.

Once the LTP is adopted, the adopted programmes and budgets, and the implications of any changes made from the proposed AMP are notified within Appendix A. These changes and implications will then be a key input into subsequent plan updates.

A2 Budget for Consultation as at 28 January 2021

Following a management workshop in January 2021, the following amendments were made.

- Operations
 - Structures maintenance - introduction of new bridge painting work was graduated
 - Footpath maintenance was increased minimally in years 1 to 3 and substantially from year 4 to increase maintenance of a proposed new cycle path between Raetihi and Ohakune.
 - Emergency works revenue was changed to match expenditure in years 1 to 10. This reflects the minimal emergency works Council has experienced in the last 2 years.
- Capital
 - Footpath renewal was increased by \$50,000 per annum to stage fund the proposed cycle path between Raetihi and Ohakune.

There were no changes to the budget following consultation.

A3 Final Budgets as at 30 June 2021

Waka Kotahi NZ Transport Agency advised Council of their indicative budget allocation for 2021/24 on 31 May 2021. This saw a reduction of \$3.5M over three years. Note this figure includes inflation.

Council reduced work categories to accommodate the reduction. The substantial changes made were:

- Operations – reductions in
 - Minor events
 - Network and asset management
- Capital – reductions in
 - Metal strengthening
 - Pavement rehabilitation
 - Reseal
 - Footpath renewal

Budgets for years 4 to 10 have not been altered.

It is noted that while this allocation is larger than 2018/21, it includes two substantial one off bridge renewals. Council is concerned about the risk of budgets not keeping pace with industry cost escalations and the risk of contract prices increasing after the current ones expire in June 2022.

Waka Kotahi NZ Transport Agency noted in the Technical Audit carried out in 2016, that maintenance reflected community affordability rather than asset need and Council addressed this in its budget for consultation, which was accepted by the Community with no change. The reduction in allocation has now seen this response mostly removed.

A4 Summary of Uninflated Budgets \$NZD as at 15 June 2021

A4.1 Maintenance and Operations Budget

A4.1.1 The table below contains the uninflated maintenance expenditure budgets for the next 10 years (2021/22 - 2030/31) \$NZD.

Description	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	10 years
Maintenance											
Local Roads Maintenance											
Pavement Maintenance Sealed	1,253,785	1,268,785	1,268,785	1,468,006	1,468,006	1,468,006	1,468,006	1,468,006	1,468,006	1,468,006	14,067,397
Pavement Maintenance Unsealed	903,464	903,464	903,464	968,815	968,815	968,815	968,815	968,815	968,815	968,815	9,492,097
Structures Maintenance	457,447	457,447	457,447	730,000	730,000	730,000	730,000	730,000	730,000	730,000	6,482,341
Routine Drainage Maintenance	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	9,000,000
Street Cleaning	45,435	45,435	45,435	45,255	45,255	45,255	45,255	45,255	45,255	45,255	453,090
Traffic Services Maintenance	686,778	686,778	686,778	686,778	686,778	686,778	686,778	686,778	686,778	686,778	6,867,780
Level Crossing Devices	20,276	20,276	20,276	20,276	20,276	20,276	20,276	20,276	20,276	20,276	202,760
Footpath Maintenance	142,082	142,082	142,082	142,082	142,082	142,082	142,082	142,082	142,082	142,082	1,420,820
Environmental (Vegetation) Maintenance	858,351	858,351	858,351	858,351	858,351	858,351	858,351	858,351	858,351	858,351	8,583,510
Minor Events	750,000	750,000	750,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	8,550,000
Network & Asset Management	860,182	860,182	860,182	910,182	910,182	910,182	910,182	910,182	910,182	910,182	8,951,820
Total - Local Road Maintenance Expenditure	6,877,800	6,892,800	6,892,800	7,629,745	7,629,745	7,629,745	7,629,745	7,629,745	7,629,745	7,629,745	74,071,615
NZTA subsidy	-5,158,350	-5,100,672	-5,100,672	-5,646,011	-5,646,011	-5,646,011	-5,646,011	-5,646,011	-5,646,011	-5,646,011	-54,881,773
Local Roads Maintenance Budget	1,719,450	1,792,128	1,792,128	1,983,734	1,983,734	1,983,734	1,983,734	1,983,734	1,983,734	1,983,734	19,189,842
Special Purpose Roads Maintenance											
Pavement Maintenance Sealed	118,136	106,707	109,268	109,268	109,268	109,268	109,268	109,268	109,268	109,268	1,098,989
Structures Maintenance	1,872	1,872	1,872	1,872	1,872	1,872	1,872	1,872	1,872	1,872	18,720
Routine Drainage Maintenance	48,023	48,023	48,023	48,023	48,023	48,023	48,023	48,023	48,023	48,023	480,228
Traffic Services Maintenance	38,637	38,637	38,637	38,637	38,637	38,637	38,637	38,637	38,637	38,637	386,370
Environmental (Vegetation) Maintenance	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	2,000,000
Network & Asset Management	72,860	72,860	72,860	72,860	72,860	72,860	72,860	72,860	72,860	72,860	728,600
Total SPR Maintenance Expenditure	479,528	468,099	470,660	470,660	470,660	470,660	470,660	470,660	470,660	470,660	4,712,907
NZTA subsidy	-479,528	-468,099	-470,660	-348,288	-348,288	-348,288	-348,288	-348,288	-348,288	-348,288	-3,856,306
SPR maintenance Budget	0	0	0	122,372	122,372	122,372	122,372	122,372	122,372	122,372	856,601
Emergency Reinstatement											
Emergency Reinstatement	1,234,844	1,496,921	1,065,000	1,061,018	1,062,158	1,061,018	1,061,018	1,061,018	1,061,018	1,061,018	11,225,031
Total Emergency Reinstatement	1,234,844	1,496,921	1,065,000	1,061,018	1,062,158	1,061,018	1,061,018	1,061,018	1,061,018	1,061,018	11,225,031
NZTA subsidy	-1,105,749	-1,349,826	-917,905	-913,923	-915,063	-913,923	-913,923	-913,923	-913,923	-913,923	-9,772,081
Emergency Reinstatement Budget	129,095	147,095	147,095	147,095	147,095	147,095	147,095	147,095	147,095	147,095	1,452,950
Non Subsidised Maintenance											
Kerb & Channel - District	65,722	65,722	65,722	65,722	65,722	65,722	65,722	65,722	65,722	65,722	657,220
Cycleway Maintenance	77,000	77,000	77,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	1,281,000

Facility Parking	11,034	11,034	11,034	11,034	11,034	11,034	11,034	11,034	11,034	11,034	11,034	110,344
Miscellaneous	2,380	2,380	2,380	2,380	2,380	2,380	2,380	2,380	2,380	2,380	2,380	23,803
Network & Asset Management	6,667	6,667	6,667	6,667	6,667	6,667	6,667	6,667	6,667	6,667	6,667	66,672
Plant Pest Control	58,534	58,534	58,534	58,534	58,534	58,534	58,534	58,534	58,534	58,534	58,534	585,339
Highway Street Light Maintenance	0	0	0	0	0	0	0	0	0	0	0	0
Under Verandah Lighting	14,277	14,277	14,277	14,277	14,277	14,277	14,277	14,277	14,277	14,277	14,277	142,768
Horizons Road Safety	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	100,000
Total Non Subsidised Maintenance	245,615	245,615	245,615	318,615	318,615	318,615	318,615	318,615	318,615	318,615	318,615	2,967,146
Council Revenue	-168,000	-168,000	-168,000	-168,000	-168,000	-168,000	-168,000	-168,000	-168,000	-168,000	-168,000	-1,680,000
Non Subsidised Budget	77,615	77,615	77,615	150,615	150,615	150,615	150,615	150,615	150,615	150,615	150,615	1,287,146
Total Maintenance	1,926,160	2,016,838	2,016,838	2,403,815	2,403,815	2,403,815	2,403,815	2,403,815	2,403,815	2,403,815	2,403,815	22,786,539

A4.2 Capital Budget

A4.2.1 The table below contains the uninflated capital expenditure budgets for the next 10 years (2021/22-2030/31).

Description	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	10 years
Renewals											
Local Roads Renewals											
Sealed Road Surfacing	1,668,189	1,668,189	1,668,189	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	17,604,567
Unsealed Road Metalling	915,957	915,957	915,957	1,115,957	1,115,957	1,115,957	1,115,957	1,115,957	1,115,957	1,115,957	10,559,570
Pavement Rehabilitation	2,723,473	2,723,473	2,723,473	2,773,473	2,773,473	2,773,473	2,773,473	2,773,473	2,773,473	2,773,473	27,584,730
Bridge Renewals	4,649,305	558,953	0	450,000	457,600	450,000	450,000	450,000	450,000	450,000	8,365,858
Structures Component Replacement	507,250	535,299	515,860	515,860	515,860	515,860	515,860	515,860	515,860	515,860	5,169,433
Drainage Renewals	434,903	445,341	456,029	456,029	456,029	456,029	456,029	456,029	456,029	456,029	4,528,477
Traffic Service Renewals	266,527	266,527	266,527	266,527	266,527	266,527	266,527	266,527	266,527	266,527	2,665,266
Footpath Renewals	168,521	168,521	168,521	205,229	205,229	205,229	205,229	205,229	205,229	205,229	1,942,166
Total - Local Road Renewals Expenditure	11,334,125	7,282,260	6,714,556	7,583,075	7,590,675	7,583,075	7,583,075	7,583,075	7,583,075	7,583,075	78,420,066
NZTA subsidy	-8,500,594	-5,388,872	-4,968,772	-5,611,476	-5,617,100	-5,611,476	-5,611,476	-5,611,476	-5,611,476	-5,611,476	-58,144,190
Local Roads Renewals Budget	2,833,531	1,893,387	1,745,785	1,971,600	1,973,576	1,971,600	1,971,600	1,971,600	1,971,600	1,971,600	20,275,876
Special Purpose Roads Renewals											
Sealed Road Surfacing	157,755	157,755	157,755	157,755	157,755	157,755	157,755	157,755	157,755	157,755	1,577,548
Drainage Renewals	29,261	29,261	29,261	29,261	29,261	29,261	29,261	29,261	29,261	29,261	292,613
Traffic Service Renewals	25,271	25,271	25,271	25,271	25,271	25,271	25,271	25,271	25,271	25,271	252,712
Total SPR Renewals Expenditure	212,287	212,287	212,287	212,287	212,287	212,287	212,287	212,287	212,287	212,287	2,122,872
NZTA subsidy	-212,287	-212,287	-212,287	-157,093	-157,093	-157,093	-157,093	-157,093	-157,093	-157,093	-1,736,510
SPR Renewal Budget	0	0	0	55,195	55,195	55,195	55,195	55,195	55,195	55,195	386,363
Non Subsidised Renewals											
Under Verandah Lighting Renewals	4,830	4,830	4,830	4,830	4,830	4,830	4,830	4,830	4,830	4,830	48,296
Facility Road & Car Park Renewals	22,694	22,694	22,694	22,694	22,694	22,694	22,694	22,694	22,694	22,694	226,940

Total Non Subsidised Renewals	27,524	27,524	27,524	27,524	27,524	27,524	27,524	27,524	27,524	27,524	27,524	275,236
Total Renewals	2,861,055	1,920,911	1,773,308	2,054,318	2,056,294	2,054,318	2,054,318	2,054,318	2,054,318	2,054,318	2,054,318	20,937,475

Description	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	10 years
Development											
Local Roads Development											
Road Network improvements (LCLR)	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	10,500,000
Taupo Rd Streetlight Upgrade (LCLR)	0	428,239	0	0	0	0	0	0	0	0	428,239
B317 Old Station Road Bridge Safety Improvements (LCLR)	0	0	0	0	0	67,152	691,651	0	0	0	758,803
Level Crossing (LCLR)	111,731	0	0	111,731	0	0	111,731	0	0	111,731	446,924
B297 Matahiwi Track Suspension Bridge Upgrade	3,476,516	0	0	0	0	0	0	0	0	0	3,476,516
Total - Local Road Development Expenditure	4,638,247	1,478,239	1,050,000	1,161,731	1,050,000	1,117,152	1,853,382	1,050,000	1,050,000	1,161,731	15,610,482
NZTA subsidy	-3,478,685	-1,093,897	-777,000	-859,681	-777,000	-826,692	-1,371,503	-777,000	-777,000	-859,681	-11,598,139
Local Roads Development Budget	1,159,562	384,342	273,000	302,050	273,000	290,460	481,879	273,000	273,000	302,050	4,012,343
Special Purpose Roads Development											
SPR Road Network Improvements (LCLR)	1,565,000	1,565,000	1,565,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	5,220,000
Total SPR Development Expenditure	1,565,000	1,565,000	1,565,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	5,220,000
NZTA subsidy	-1,565,000	-1,565,000	-1,565,000	-55,500	-55,500	-55,500	-55,500	-55,500	-55,500	-55,500	-5,083,500
SPR Renewal Budget	0	0	0	19,500	19,500	19,500	19,500	19,500	19,500	19,500	136,500
Non Subsidised Development											
Miscellaneous Minor Capital Projects	0	121,417	0	0	0	0	0	0	0	0	121,417
Seal Extensions	53,425	53,425	53,425	53,425	53,425	53,425	53,425	53,425	53,425	53,425	534,254
Kerb and Channel Development	48,289	48,289	48,289	48,289	48,289	48,289	48,289	48,289	48,289	48,289	482,887
Motorist Service & Information Signs	32,596	32,596	32,596	32,596	32,596	32,596	32,596	32,596	32,596	32,596	325,960
Streetflags District	18,108	18,108	18,108	18,108	18,108	18,108	18,108	18,108	18,108	18,108	181,081
Pedestrian Safety Improvements - District wide	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	500,000
Bus Shelter Development	42,300	0	42,300	0	42,300	0	42,300	0	42,300	0	211,500
Ohakune Park and Ride Extension - Investigation & Design	0	0	0	0	53,530	500,000	0	0	0	0	553,530
Waiouru Truck Park - Investigation and Design	0	32,118	0	0	500,000	0	0	0	0	0	532,118
Total Non Subsidised Development	244,718	355,953	244,718	202,418	798,248	702,418	244,718	202,418	244,718	202,418	3,442,746
Total Development	1,404,280	740,295	517,718	523,968	1,090,748	1,012,378	746,097	494,918	537,218	523,968	7,591,589

Description	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	10 years
Budget Summary											
Total Maintenance	1,926,160	2,016,838	2,016,838	2,403,815	2,403,815	2,403,815	2,403,815	2,403,815	2,403,815	2,403,815	22,786,539
Total Renewals	2,861,055	1,920,911	1,773,308	2,054,318	2,056,294	2,054,318	2,054,318	2,054,318	2,054,318	2,054,318	20,937,475
Total Development	1,404,280	740,295	517,718	523,968	1,090,748	1,012,378	746,097	494,918	537,218	523,968	7,591,589
Budget Total	6,191,494	4,678,044	4,307,864	4,982,101	5,550,857	5,470,510	5,204,230	4,953,051	4,995,351	4,982,101	51,315,603

A5 Summary of Inflated Budgets \$NZD as at 15 June 2021

A5.1 Maintenance and Operations Budget

A5.1.1 The table below contains the inflated maintenance budgets for the next 10 years (2021/22 - 2030/31) \$NZD. Using Berl as shown

BERL	2.30%	2.40%	2.40%	2.50%	2.50%	2.60%	2.60%	2.70%	2.70%	2.80%	
Description	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	10 years
Maintenance											
Local Roads Maintenance											
Pavement Maintenance Sealed	1,253,785	1,268,785	1,294,161	1,468,006	1,497,366	1,527,313	1,557,860	1,589,017	1,620,797	1,653,213	14,730,303
Pavement Maintenance Unsealed	903,464	921,533	939,964	968,815	988,191	1,007,955	1,028,114	1,048,677	1,069,650	1,091,043	9,967,406
Structures Maintenance	457,447	466,596	475,928	744,600	759,492	774,682	790,175	805,979	822,099	838,541	6,935,538
Routine Drainage Maintenance	900,000	918,000	936,360	955,087	974,189	993,673	1,013,546	1,033,817	1,054,493	1,075,583	9,854,749
Street Cleaning	45,435	46,344	47,271	45,255	46,160	47,083	48,025	48,985	49,965	50,964	475,488
Traffic Services Maintenance	686,778	700,514	714,524	728,814	743,391	758,258	773,424	788,892	804,670	820,763	7,520,027
Level Crossing Devices	20,276	20,682	21,095	21,517	21,947	22,386	22,834	23,291	23,757	24,232	222,017
Footpath Maintenance	142,082	144,924	147,822	150,779	153,794	156,870	160,007	163,208	166,472	169,801	1,555,759
Environmental (Vegetation) Maintenance	858,351	875,518	893,028	910,889	929,107	947,689	966,643	985,975	1,005,695	1,025,809	9,398,704
Minor Events	750,000	765,000	780,300	903,338	921,405	939,833	958,630	977,802	997,358	1,017,306	9,010,973
Network & Asset Management	860,182	877,386	894,933	920,032	938,433	957,202	976,346	995,873	1,015,790	1,036,106	9,472,282
Total - Local Road Maintenance Expenditure	6,877,800	7,005,280	7,145,386	7,817,133	7,973,475	8,132,945	8,295,604	8,461,516	8,630,746	8,803,361	79,143,246
NZTA subsidy	-5,158,350	-5,183,907	-5,287,586	-5,784,678	-5,900,372	-6,018,379	-6,138,747	-6,261,522	-6,386,752	-6,514,487	-58,634,780
Local Roads Maintenance Budget	1,719,450	1,821,373	1,857,800	2,032,454	2,073,104	2,114,566	2,156,857	2,199,994	2,243,994	2,288,874	20,508,466
Special Purpose Roads Maintenance											
Pavement Maintenance Sealed	118,136	106,707	109,268	111,454	113,683	115,956	118,275	120,641	123,054	125,515	1,162,689
Structures Maintenance	1,872	1,909	1,948	1,987	2,026	2,067	2,108	2,150	2,193	2,237	20,498
Routine Drainage Maintenance	48,023	48,983	49,963	50,962	51,981	53,021	54,081	55,163	56,266	57,392	525,836
Traffic Services Maintenance	38,637	39,410	40,198	41,002	41,822	42,658	43,512	44,382	45,269	46,175	423,064
Environmental (Vegetation) Maintenance	200,000	204,000	208,080	212,242	216,486	220,816	225,232	229,737	234,332	239,019	2,189,944
Network & Asset Management	72,860	74,317	75,804	77,320	78,866	80,443	82,052	83,693	85,367	87,074	797,797
Total SPR Maintenance Expenditure	479,528	475,327	485,260	494,965	504,865	514,962	525,261	535,767	546,482	557,412	5,119,828
NZTA subsidy	-479,528	-475,327	-485,260	-366,274	-373,600	-381,072	-388,693	-396,467	-404,397	-412,485	-4,163,103
SPR maintenance Budget	0	0	0	128,691	131,265	133,890	136,568	139,299	142,085	144,927	956,726
Emergency Reinstatement											
Emergency Reinstatement	1,234,844	1,526,859	1,108,026	1,125,961	1,149,714	1,171,450	1,194,879	1,218,776	1,243,152	1,268,015	12,241,675
Total Emergency Reinstatement	1,234,844	1,526,859	1,108,026	1,125,961	1,149,714	1,171,450	1,194,879	1,218,776	1,243,152	1,268,015	12,241,675
NZTA subsidy	-1,105,749	-1,376,823	-954,988	-969,862	-990,494	-1,009,045	-1,029,226	-1,049,810	-1,070,806	-1,092,223	-10,649,026
Emergency Reinstatement Budget	129,095	150,037	153,038	156,098	159,220	162,405	165,653	168,966	172,345	175,792	1,592,649
Non Subsidised Maintenance											

Kerb & Channel - District	65,722	67,036	68,377	69,745	71,140	72,562	74,014	75,494	77,004	78,544	719,638
Cycleway Maintenance	77,000	78,540	80,111	153,000	156,060	159,181	162,365	165,612	168,924	172,303	1,373,096
Facility Parking	11,034	11,255	11,480	11,710	11,944	12,183	12,427	12,675	12,929	13,187	120,823
Miscellaneous	2,380	2,428	2,476	2,526	2,577	2,628	2,681	2,734	2,789	2,845	26,064
Network & Asset Management	6,667	6,801	6,937	7,075	7,217	7,361	7,508	7,659	7,812	7,968	73,004
Plant Pest Control	58,534	59,705	60,899	62,117	63,359	64,626	65,919	67,237	68,582	69,953	640,930
Highway Street Light Maintenance	0	0	0	0	0	0	0	0	0	0	0
Under Verandah Lighting	14,277	14,562	14,854	15,151	15,454	15,763	16,078	16,400	16,728	17,062	156,327
Horizons Road Safety	10,000	10,200	10,404	10,612	10,824	11,041	11,262	11,487	11,717	11,951	109,497
Total Non Subsidised Maintenance	245,615	250,527	255,537	331,935	338,574	345,345	352,252	359,297	366,483	373,813	3,219,379
Council Revenue	-168,000	-171,360	-174,787	-178,283	-181,849	-185,486	-189,195	-192,979	-196,839	-200,776	-1,839,553
Non Subsidised Budget	77,615	79,167	80,750	153,652	156,725	159,860	163,057	166,318	169,644	173,037	1,379,826
Total Maintenance	1,926,160	2,050,577	2,091,588	2,470,896	2,520,314	2,570,720	2,622,135	2,674,577	2,728,069	2,782,630	24,437,667

A5.2 Capital Budget

A5.2.1 The table below contains the inflated capital expenditure budgets for the next 10 years (2021/22-2030/31). Using Berl as shown

BERL	2.30%	2.40%	2.40%	2.50%	2.50%	2.60%	2.60%	2.70%	2.70%	2.80%	
Description	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	10 years
Renewals											
Local Roads Renewals											
Sealed Road Surfacing	1,668,189	1,708,226	1,749,223	1,800,000	1,845,000	1,892,970	1,942,187	1,994,626	2,048,481	2,105,839	18,754,741
Unsealed Road Metalling	915,957	937,940	960,451	1,115,957	1,143,856	1,173,596	1,204,110	1,236,621	1,270,009	1,305,570	11,264,066
Pavement Rehabilitation	2,723,473	2,788,836	2,855,768	2,773,473	2,842,810	2,916,723	2,992,558	3,073,357	3,156,337	3,244,715	29,368,050
Bridge Renewals	4,649,305	558,953	0	450,000	457,600	450,000	450,000	450,000	450,000	450,000	8,365,858
Structures Component Replacement	507,250	535,299	515,860	528,757	541,976	556,067	570,525	585,929	601,749	618,598	5,562,011
Drainage Renewals	434,903	445,341	456,029	467,430	479,116	491,573	504,353	517,971	531,956	546,851	4,875,523
Traffic Service Renewals	266,527	272,923	279,473	286,460	293,622	301,256	309,089	317,434	326,005	335,133	2,987,921
Footpath Renewals	168,521	172,566	176,707	205,229	210,360	215,829	221,441	227,420	233,560	240,100	2,071,731
Total - Local Road Renewals Expenditure	11,334,125	7,420,084	6,993,512	7,627,306	7,814,339	7,998,014	8,194,262	8,403,357	8,618,098	8,846,805	83,249,901
NZTA subsidy	-8,500,594	-5,490,862	-5,175,199	-5,644,206	-5,782,611	-5,918,530	-6,063,754	-6,218,484	-6,377,392	-6,546,635	-61,718,268
Local Roads Renewals Budget	2,833,531	1,929,222	1,818,313	1,983,100	2,031,728	2,079,484	2,130,508	2,184,873	2,240,705	2,300,169	21,531,633
Special Purpose Roads Renewals											
Sealed Road Surfacing	157,755	161,541	165,418	169,553	173,792	178,311	182,947	187,886	192,959	198,362	1,768,525
Drainage Renewals	29,261	29,964	30,683	31,450	32,236	33,074	33,934	34,850	35,791	36,793	328,036
Traffic Service Renewals	25,271	25,878	26,499	27,161	27,840	28,564	29,307	30,098	30,911	31,776	283,305
Total SPR Renewals Expenditure	212,287	217,382	222,599	228,164	233,868	239,949	246,188	252,835	259,661	266,932	2,379,866
NZTA subsidy	-212,287	-217,382	-222,599	-168,842	-173,063	-177,562	-182,179	-187,098	-192,149	-197,530	-1,930,690
SPR Renewal Budget	0	0	0	59,323	60,806	62,387	64,009	65,737	67,512	69,402	449,175
Non Subsidised Renewals											

Under Verandah Lighting Renewals	4,830	4,945	5,064	5,191	5,321	5,459	5,601	5,752	5,907	6,073	54,142
Facility Road & Car Park Renewals	22,694	23,239	23,796	24,391	25,001	25,651	26,318	27,029	27,758	28,536	254,413
Total Non Subsidised Renewals	27,524	28,184	28,861	29,582	30,322	31,110	31,919	32,781	33,666	34,608	308,556
Total Renewals	2,861,055	1,957,406	1,847,174	2,072,004	2,122,855	2,172,980	2,226,436	2,283,391	2,341,883	2,404,180	22,289,364

Description	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	10 years
Development											
Local Roads Development											
Road Network improvements (LCLR)	1,050,000	1,075,200	1,101,005	1,128,530	1,156,743	1,186,818	1,217,676	1,250,553	1,284,318	1,320,279	11,771,122
Taupo Rd Streetlight Upgrade (LCLR)	0	428,239	0	0	0	0	0	0	0	0	428,239
B317 Old Station Road Bridge Safety Improvements (LCLR)	0	0	0	0	0	75,902	802,102	0	0	0	878,004
Level Crossing (LCLR)	111,731	0	0	120,087	0	0	129,573	0	0	140,492	501,883
B297 Matahiwi Track Suspension Bridge Upgrade	3,476,516	0	0	0	0	0	0	0	0	0	3,476,516
Total - Local Road Development Expenditure	4,638,247	1,503,439	1,101,005	1,248,617	1,156,743	1,262,721	2,149,351	1,250,553	1,284,318	1,460,770	17,055,764
NZTA subsidy	-3,478,685	-1,112,545	-814,744	-923,977	-855,990	-934,413	-1,590,520	-925,409	-950,395	-1,080,970	-12,667,648
Local Roads Development Budget	1,159,562	390,894	286,261	324,641	300,753	328,307	558,831	325,144	333,923	379,800	4,388,116
Special Purpose Roads Development											
SPR Road Network Improvements (LCLR)	1,588,655	1,621,755	1,637,217	75,000	76,875	78,874	88,977	91,380	93,847	96,475	5,449,054
Total SPR Development Expenditure	1,588,655	1,621,755	1,637,217	75,000	76,875	78,874	88,977	91,380	93,847	96,475	5,449,054
NZTA subsidy	-1,588,655	-1,621,755	-1,637,217	-55,500	-56,888	-58,367	-65,843	-67,621	-69,447	-71,391	-5,292,683
SPR Renewal Budget	0	0	0	19,500	19,988	20,507	23,134	23,759	24,400	25,083	156,371
Non Subsidised Development											
Miscellaneous Minor Capital Projects	0	121,417	0	0	0	0	0	0	0	0	121,417
Seal Extensions	53,425	54,708	56,021	57,421	58,857	60,387	61,957	63,630	65,348	67,177	598,930
Kerb and Channel Development	48,289	49,448	50,634	51,900	53,198	54,581	56,000	57,512	59,065	60,719	541,345
Motorist Service & Information Signs	32,596	33,378	34,179	35,034	35,910	36,843	37,801	38,822	39,870	40,986	365,420
Streetflags District	18,108	18,543	18,988	19,462	19,949	20,468	21,000	21,567	22,149	22,769	203,003
Pedestrian Safety Improvements - District wide	50,000	51,200	52,429	53,740	55,083	56,515	57,985	59,550	61,158	62,870	560,530
Bus Shelter Development	42,300	0	44,355	0	46,600	0	49,055	0	51,740	0	234,050
Ohakune Park and Ride Extension - Investigation & Design	0	0	0	0	53,530	500,000	0	0	0	0	553,530
Waiouru Truck Park - Investigation and Design	0	32,118	0	0	500,000	0	0	0	0	0	532,118
Total Non Subsidised Development	244,718	360,811	256,606	217,557	823,126	728,794	283,797	241,081	299,329	254,522	3,710,342
Total Development	1,404,280	751,705	542,867	561,698	1,143,867	1,077,608	865,763	589,983	657,652	659,406	8,254,829

Description	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	10 years
Budget Summary											
Total Maintenance	1,926,160	2,050,577	2,091,588	2,470,896	2,520,314	2,570,720	2,622,135	2,674,577	2,728,069	2,782,630	24,437,667
Total Renewals	2,861,055	1,957,406	1,847,174	2,072,004	2,122,855	2,172,980	2,226,436	2,283,391	2,341,883	2,404,180	22,289,364
Total Development	1,404,280	751,705	542,867	561,698	1,143,867	1,077,608	865,763	589,983	657,652	659,406	8,254,829
Budget Total	6,191,494	4,759,688	4,481,629	5,104,598	5,787,036	5,821,309	5,714,333	5,547,951	5,727,604	5,846,216	54,981,860

Appendix B - Summary Financial Tables

B1 Summary Budgets \$NZD as at 11 December 2020 Uninflated

B1.1 Maintenance and Operations Budget

B1.1.1 The table below contains the uninflated aintenance expenditure budgets for the next 10 years (2021/22 - 2030/31) \$NZD.

Description	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	10 years
Maintenance											
Local Roads Maintenance											
Pavement Maintenance Sealed	1,400,000	1,433,600	1,468,006	1,468,006	1,468,006	1,468,006	1,468,006	1,468,006	1,468,006	1,468,006	14,577,651
Pavement Maintenance Unsealed	968,815	968,815	968,815	968,815	968,815	968,815	968,815	968,815	968,815	968,815	9,688,150
Structures Maintenance	730,000	730,000	730,000	730,000	730,000	730,000	730,000	730,000	730,000	730,000	7,300,000
Routine Drainage Maintenance	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	9,000,000
Street Cleaning	45,255	45,255	45,255	45,255	45,255	45,255	45,255	45,255	45,255	45,255	452,551
Traffic Services Maintenance	614,679	614,679	614,679	614,679	614,679	614,679	614,679	614,679	614,679	614,679	6,146,790
Level Crossing Devices	20,276	20,276	20,276	20,276	20,276	20,276	20,276	20,276	20,276	20,276	202,760
Footpath Maintenance	142,082	142,082	142,082	142,082	142,082	142,082	142,082	142,082	142,082	142,082	1,420,820
Environmental (Vegetation) Maintenance	858,351	858,351	858,351	858,351	858,351	858,351	858,351	858,351	858,351	858,351	8,583,510
Minor Events	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	900,000	9,000,000
Network & Asset Management	910,182	910,182	910,182	910,182	910,182	910,182	910,182	910,182	910,182	910,182	9,101,820
Total - Local Road Maintenance Expenditure	7,489,640	7,523,240	7,557,647	7,557,647	7,557,647	7,557,647	7,557,647	7,557,647	7,557,647	7,557,647	75,474,053
NZTA subsidy	-5,617,230	-5,567,198	-5,592,658	-5,592,658	-5,592,658	-5,592,658	-5,592,658	-5,592,658	-5,592,658	-5,592,658	-55,925,695
Local Roads Maintenance Budget	1,872,410	1,956,042	1,964,988	1,964,988	1,964,988	1,964,988	1,964,988	1,964,988	1,964,988	1,964,988	19,548,357
Special Purpose Roads Maintenance											
Pavement Maintenance Sealed	104,206	106,707	109,268	109,268	109,268	109,268	109,268	109,268	109,268	109,268	1,085,060
Structures Maintenance	1,872	1,872	1,872	1,872	1,872	1,872	1,872	1,872	1,872	1,872	18,720
Routine Drainage Maintenance	48,258	48,258	48,258	48,258	48,258	48,258	48,258	48,258	48,258	48,258	482,585
Traffic Services Maintenance	38,637	38,637	38,637	38,637	38,637	38,637	38,637	38,637	38,637	38,637	386,370
Environmental (Vegetation) Maintenance	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	2,000,000
Network & Asset Management	72,860	72,860	72,860	72,860	72,860	72,860	72,860	72,860	72,860	72,860	728,600
Total SPR Maintenance Expenditure	465,834	468,335	470,896	470,896	470,896	470,896	470,896	470,896	470,896	470,896	4,701,334
NZTA subsidy	-465,834	-468,335	-470,896	-348,463	-348,463	-348,463	-348,463	-348,463	-348,463	-348,463	-3,844,304
SPR maintenance Budget	0	0	0	122,433	122,433	122,433	122,433	122,433	122,433	122,433	857,030
Emergency Reinstatement											
Emergency Reinstatement	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	18,000,000
Total Emergency Reinstatement	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	18,000,000
NZTA subsidy	-1,350,000	-1,332,000	-1,332,000	-1,332,000	-1,332,000	-1,332,000	-1,332,000	-1,332,000	-1,332,000	-1,332,000	-13,338,000
Emergency Reinstatement Budget	450,000	468,000	468,000	468,000	468,000	468,000	468,000	468,000	468,000	468,000	4,662,000
Non Subsidised Maintenance											
Kerb & Channel - District	65,722	65,722	65,722	65,722	65,722	65,722	65,722	65,722	65,722	65,722	657,220

Cycleway Maintenance	62,524	62,524	62,524	62,524	62,524	62,524	62,524	62,524	62,524	62,524	62,524	625,244
Facility Parking	11,034	11,034	11,034	11,034	11,034	11,034	11,034	11,034	11,034	11,034	11,034	110,344
Miscellaneous	2,380	2,380	2,380	2,380	2,380	2,380	2,380	2,380	2,380	2,380	2,380	23,803
Network & Asset Management	6,667	6,667	6,667	6,667	6,667	6,667	6,667	6,667	6,667	6,667	6,667	66,672
Plant Pest Control	58,534	58,534	58,534	58,534	58,534	58,534	58,534	58,534	58,534	58,534	58,534	585,339
Highway Street Light Maintenance	72,099	72,099	72,099	72,099	72,099	72,099	72,099	72,099	72,099	72,099	72,099	720,990
Under Verandah Lighting	14,277	14,277	14,277	14,277	14,277	14,277	14,277	14,277	14,277	14,277	14,277	142,768
Horizons Road Safety	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	100,000
Total Non Subsidised Maintenance	303,238	303,238	303,238	303,238	303,238	303,238	303,238	303,238	303,238	303,238	303,238	3,032,380
Council Revenue	-168,000	-168,000	-168,000	-168,000	-168,000	-168,000	-168,000	-168,000	-168,000	-168,000	-168,000	-1,680,000
Non Subsidised Budget	135,238	135,238	135,238	135,238	135,238	135,238	135,238	135,238	135,238	135,238	135,238	1,352,380
Total Maintenance	2,457,648	2,559,280	2,568,226	2,690,659	2,690,659	2,690,659	2,690,659	2,690,659	2,690,659	2,690,659	2,690,659	26,419,767

B1.2 Capital Budget

B1.2.1 The table below contains the uninflated capital expenditure budgets for the next 10 years (2021/22-2030/31).

Description	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	10 years
Renewals											
Local Roads Renewals											
Sealed Road Surfacing	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000	18,000,000
Unsealed Road Metalling	1,115,957	1,115,957	1,115,957	1,115,957	1,115,957	1,115,957	1,115,957	1,115,957	1,115,957	1,115,957	11,159,570
Pavement Rehabilitation	2,773,473	2,773,473	2,773,473	2,773,473	2,773,473	2,773,473	2,773,473	2,773,473	2,773,473	2,773,473	27,734,730
Bridge Renewals	1,826,584	3,381,674	476,547	450,000	457,600	450,000	450,000	450,000	450,000	450,000	8,842,405
Structures Component Replacement	507,250	535,299	515,860	515,860	515,860	515,860	515,860	515,860	515,860	515,860	5,169,433
Drainage Renewals	434,903	445,341	456,029	456,029	456,029	456,029	456,029	456,029	456,029	456,029	4,528,477
Traffic Service Renewals	266,527	266,527	266,527	266,527	266,527	266,527	266,527	266,527	266,527	266,527	2,665,266
Foothpath Renewals	205,229	205,229	205,229	205,229	205,229	205,229	205,229	205,229	205,229	205,229	2,052,291
Total - Local Road Renewals Expenditure	8,929,923	10,523,500	7,609,622	7,583,075	7,590,675	7,583,075	7,583,075	7,583,075	7,583,075	7,583,075	80,152,172
NZTA subsidy	-6,697,442	-7,787,390	-5,631,120	-5,611,476	-5,617,100	-5,611,476	-5,611,476	-5,611,476	-5,611,476	-5,611,476	-59,401,906
Local Roads Renewals Budget	2,232,481	2,736,110	1,978,502	1,971,600	1,973,576	1,971,600	1,971,600	1,971,600	1,971,600	1,971,600	20,750,265
Special Purpose Roads Renewals											
Sealed Road Surfacing	157,755	157,755	157,755	157,755	157,755	157,755	157,755	157,755	157,755	157,755	1,577,548
Drainage Renewals	29,261	29,261	29,261	29,261	29,261	29,261	29,261	29,261	29,261	29,261	292,613
Traffic Service Renewals	25,271	25,271	25,271	25,271	25,271	25,271	25,271	25,271	25,271	25,271	252,712
Total SPR Renewals Expenditure	212,287	212,287	212,287	212,287	212,287	212,287	212,287	212,287	212,287	212,287	2,122,872
NZTA subsidy	-212,287	-212,287	-212,287	-157,093	-157,093	-157,093	-157,093	-157,093	-157,093	-157,093	-1,736,510
SPR Renewal Budget	0	0	0	55,195	55,195	55,195	55,195	55,195	55,195	55,195	386,363
Non Subsidised Renewals											
Under Verandah Lighting Renewals	4,830	4,830	4,830	4,830	4,830	4,830	4,830	4,830	4,830	4,830	48,296
Facility Road & Car Park Renewals	22,694	22,694	22,694	22,694	22,694	22,694	22,694	22,694	22,694	22,694	226,940

Total Non Subsidised Renewals	27,524	27,524	27,524	27,524	27,524	27,524	27,524	27,524	27,524	27,524	27,524	275,236
Total Renewals	2,260,004	2,763,634	2,006,025	2,054,318	2,056,294	2,054,318	2,054,318	2,054,318	2,054,318	2,054,318	2,054,318	21,411,864

Description	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	10 years
Development											
Local Roads Development											
Road Network improvements (LCLR)	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	10,500,000
Taupo Rd Streetlight Upgrade (LCLR)	0	428,239	0	0	0	0	0	0	0	0	428,239
B317 Old Station Road Bridge Safety Improvements (LCLR)	0	0	0	0	0	67,152	691,651	0	0	0	758,803
Level Crossing (LCLR)	111,731	0	0	111,731	0	0	111,731	0	0	111,731	446,924
B297 Matahiwi Track Suspension Bridge Upgrade	3,476,516	0	0	0	0	0	0	0	0	0	3,476,516
Total - Local Road Development Expenditure	4,638,247	1,478,239	1,050,000	1,161,731	1,050,000	1,117,152	1,853,382	1,050,000	1,050,000	1,161,731	15,610,482
NZTA subsidy	-3,478,685	-1,093,897	-777,000	-859,681	-777,000	-826,692	-1,371,503	-777,000	-777,000	-859,681	-11,598,139
Local Roads Development Budget	1,159,562	384,342	273,000	302,050	273,000	290,460	481,879	273,000	273,000	302,050	4,012,343
Special Purpose Roads Development											
SPR Road Network Improvements (LCLR)	1,565,000	1,565,000	1,565,000	225,000	225,000	225,000	75,000	75,000	75,000	75,000	5,670,000
Total SPR Development Expenditure	1,565,000	1,565,000	1,565,000	225,000	225,000	225,000	75,000	75,000	75,000	75,000	5,670,000
NZTA subsidy	-1,565,000	-1,565,000	-1,565,000	-166,500	-166,500	-166,500	-55,500	-55,500	-55,500	-55,500	-5,416,500
SPR Renewal Budget	0	0	0	58,500	58,500	58,500	19,500	19,500	19,500	19,500	253,500
Non Subsidised Development											
Miscellaneous Minor Capital Projects	0	121,417	0	0	0	0	0	0	0	0	121,417
Seal Extensions	53,425	53,425	53,425	53,425	53,425	53,425	53,425	53,425	53,425	53,425	534,254
Kerb and Channel Development	48,289	48,289	48,289	48,289	48,289	48,289	48,289	48,289	48,289	48,289	482,887
Motorist Service & Information Signs	32,595	32,595	32,595	32,595	32,595	32,595	32,595	32,595	32,595	32,595	325,948
Streetflags District	18,108	18,108	18,108	18,108	18,108	18,108	18,108	18,108	18,108	18,108	181,081
Pedestrian Safety Improvements - District wide	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	500,000
Bus Shelter Development	42,300	0	42,300	0	42,300	0	42,300	0	42,300	0	211,500
Ohakune Park and Ride Extension - Investigation & Design	0	53,530	0	0	0	0	0	0	0	0	53,530
Waiouru Truck Park - Investigation and Design	0	32,118	0	0	0	0	0	0	0	0	32,118
Total Non Subsidised Development	244,717	409,481	244,717	202,417	244,717	202,417	244,717	202,417	244,717	202,417	2,442,734
Total Development	1,404,279	793,824	517,717	562,967	576,217	551,376	746,096	494,917	537,217	523,967	6,708,577

Description	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	10 years
Budget Summary											
Total Maintenance	2,457,648	2,559,280	2,568,226	2,690,659	2,690,659	2,690,659	2,690,659	2,690,659	2,690,659	2,690,659	26,419,767
Total Renewals	2,260,004	2,763,634	2,006,025	2,054,318	2,056,294	2,054,318	2,054,318	2,054,318	2,054,318	2,054,318	21,411,864
Total Development	1,404,279	793,824	517,717	562,967	576,217	551,376	746,096	494,917	537,217	523,967	6,708,577
Budget Total	6,121,931	6,116,737	5,091,968	5,307,944	5,323,170	5,296,353	5,491,073	5,239,894	5,282,194	5,268,944	54,540,208

B2 Summary Budgets \$NZD as at 11 December 2020 Inflated

B2.1 Maintenance and Operations Budget

B2.1.1 The table below contains the uninflated maintenance expenditure budgets for the next 10 years (2021/22 - 2030/31) \$NZD. Using Berl as shown

BERL	2.30%	2.40%	2.40%	2.50%	2.50%	2.60%	2.60%	2.70%	2.70%	2.80%	
Description	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	10 years
Maintenance											
Local Roads Maintenance											
Pavement Maintenance Sealed	1,400,000	1,433,600	1,468,006	1,504,707	1,542,324	1,582,425	1,623,568	1,667,404	1,712,424	1,760,372	15,694,829
Pavement Maintenance Unsealed	968,815	992,067	1,015,876	1,041,273	1,067,305	1,095,055	1,123,526	1,153,861	1,185,016	1,218,196	10,860,990
Structures Maintenance	730,000	747,520	765,460	784,597	804,212	825,121	846,575	869,432	892,907	917,908	8,183,732
Routine Drainage Maintenance	900,000	921,600	943,718	967,311	991,494	1,017,273	1,043,722	1,071,903	1,100,844	1,131,668	10,089,533
Street Cleaning	45,255	46,341	47,453	48,640	49,856	51,152	52,482	53,899	55,354	56,904	507,337
Traffic Services Maintenance	614,679	629,431	644,538	660,651	677,167	694,774	712,838	732,084	751,851	772,903	6,890,916
Level Crossing Devices	20,276	20,763	21,261	21,792	22,337	22,918	23,514	24,149	24,801	25,495	227,306
Footpath Maintenance	142,082	145,492	148,984	152,708	156,526	160,596	164,771	169,220	173,789	178,655	1,592,824
Environmental (Vegetation) Maintenance	858,351	878,951	900,046	922,547	945,611	970,197	995,422	1,022,299	1,049,901	1,079,298	9,622,623
Minor Events	900,000	921,600	943,718	967,311	991,494	1,017,273	1,043,722	1,071,903	1,100,844	1,131,668	10,089,533
Network & Asset Management	910,182	932,026	954,395	978,255	1,002,711	1,028,782	1,055,530	1,084,029	1,113,298	1,144,471	10,203,679
Total - Local Road Maintenance Expenditure	7,489,640	7,669,392	7,853,457	8,049,793	8,251,038	8,465,565	8,685,670	8,920,183	9,161,028	9,417,537	83,963,302
NZTA subsidy	-5,617,230	-5,675,350	-5,811,558	-5,956,847	-6,105,768	-6,264,518	-6,427,396	-6,600,935	-6,779,161	-6,968,977	-62,207,740
Local Roads Maintenance Budget	1,872,410	1,994,042	2,041,899	2,092,946	2,145,270	2,201,047	2,258,274	2,319,248	2,381,867	2,448,560	21,755,562
Special Purpose Roads Maintenance											
Pavement Maintenance Sealed	104,206	106,707	109,268	112,000	114,800	117,785	120,847	124,110	127,461	131,030	1,168,215
Structures Maintenance	1,872	1,917	1,963	2,012	2,062	2,116	2,171	2,230	2,290	2,354	20,986
Routine Drainage Maintenance	48,258	49,417	50,603	51,868	53,164	54,547	55,965	57,476	59,028	60,681	541,006
Traffic Services Maintenance	38,637	39,564	40,514	41,527	42,565	43,672	44,807	46,017	47,259	48,582	433,144
Environmental (Vegetation) Maintenance	200,000	204,800	209,715	214,958	220,332	226,061	231,938	238,201	244,632	251,482	2,242,118
Network & Asset Management	72,860	74,609	76,399	78,309	80,267	82,354	84,495	86,776	89,119	91,615	816,804
Total SPR Maintenance Expenditure	465,834	477,014	488,462	500,674	513,191	526,533	540,223	554,809	569,789	585,743	5,222,273
NZTA subsidy	-465,834	-477,014	-488,462	-370,499	-379,761	-389,635	-399,765	-410,559	-421,644	-433,450	-4,236,622
SPR maintenance Budget	0	0	0	130,175	133,430	136,899	140,458	144,250	148,145	152,293	985,650
Emergency Reinstatement											
Emergency Reinstatement	1,800,000	1,843,200	1,887,437	1,934,623	1,982,988	2,034,546	2,087,444	2,143,805	2,201,688	2,263,335	20,179,066
Total Emergency Reinstatement	1,800,000	1,843,200	1,887,437	1,934,623	1,982,988	2,034,546	2,087,444	2,143,805	2,201,688	2,263,335	20,179,066
NZTA subsidy	-1,350,000	-1,363,968	-1,396,703	-1,431,621	-1,467,411	-1,505,564	-1,544,709	-1,586,416	-1,629,249	-1,674,868	-14,950,509
Emergency Reinstatement Budget	450,000	479,232	490,734	503,002	515,577	528,982	542,735	557,389	572,439	588,467	5,228,557
Non Subsidised Maintenance											
Kerb & Channel - District	65,722	67,299	68,915	70,637	72,403	74,286	76,217	78,275	80,389	82,639	736,783

Cycleway Maintenance	62,524	64,025	65,562	67,201	68,881	70,672	72,509	74,467	76,477	78,619	700,936
Facility Parking	11,034	11,299	11,570	11,860	12,156	12,472	12,796	13,142	13,497	13,875	123,702
Miscellaneous	2,380	2,437	2,496	2,558	2,622	2,690	2,760	2,835	2,912	2,993	26,685
Network & Asset Management	6,667	6,827	6,991	7,166	7,345	7,536	7,732	7,941	8,155	8,383	74,743
Plant Pest Control	58,534	59,939	61,377	62,912	64,484	66,161	67,881	69,714	71,596	73,601	656,199
Highway Street Light Maintenance	72,099	73,829	75,601	77,491	79,429	81,494	83,613	85,870	88,189	90,658	808,272
Under Verandah Lighting	14,277	14,619	14,970	15,345	15,728	16,137	16,557	17,004	17,463	17,952	160,052
Horizons Road Safety	10,000	10,240	10,486	10,748	11,017	11,303	11,597	11,910	12,232	12,574	112,106
Total Non Subsidised Maintenance	303,238	310,516	317,968	325,917	334,065	342,751	351,662	361,157	370,909	381,294	3,399,477
Council Revenue	-168,000	-168,000	-168,000	-168,000	-168,000	-168,000	-168,000	-168,000	-168,000	-168,000	-1,680,000
Non Subsidised Budget	135,238	142,516	149,968	157,917	166,065	174,751	183,662	193,157	202,909	213,294	1,719,477
Total Maintenance	2,457,648	2,615,789	2,682,600	2,884,041	2,960,342	3,041,678	3,125,130	3,214,045	3,305,360	3,402,614	29,689,247

B2.2 Capital Budget

B2.2.1 The table below contains the uninflated capital expenditure budgets for the next 10 years (2021/22-2030/31).

Description	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	10 years
Renewals											
Local Roads Renewals											
Sealed Road Surfacing	1,800,000	1,843,200	1,887,437	1,934,623	1,982,988	2,034,546	2,087,444	2,143,805	2,201,688	2,263,335	20,179,066
Unsealed Road Metalling	1,115,957	1,142,740	1,170,166	1,199,420	1,229,405	1,261,370	1,294,166	1,329,108	1,364,994	1,403,214	12,510,539
Pavement Rehabilitation	2,773,473	2,840,036	2,908,197	2,980,902	3,055,425	3,134,866	3,216,372	3,303,214	3,392,401	3,487,388	31,092,275
Bridge Renewals	1,826,584	3,381,674	476,547	450,000	457,600	450,000	450,000	450,000	450,000	450,000	8,842,405
Structures Component Replacement	507,250	535,299	515,860	528,757	541,976	556,067	570,525	585,929	601,749	618,598	5,562,011
Drainage Renewals	434,903	445,341	456,029	467,430	479,116	491,573	504,353	517,971	531,956	546,851	4,875,523
Traffic Service Renewals	266,527	272,923	279,473	286,460	293,622	301,256	309,089	317,434	326,005	335,133	2,987,921
Foothpath Renewals	205,229	210,155	215,198	220,578	226,093	231,971	238,002	244,429	251,028	258,057	2,300,740
Total - Local Road Renewals Expenditure	8,929,923	10,671,368	7,908,908	8,068,170	8,266,224	8,461,649	8,669,951	8,891,890	9,119,821	9,362,576	88,350,481
NZTA subsidy	-6,697,442	-7,896,812	-5,852,592	-5,970,446	-6,117,006	-6,261,620	-6,415,764	-6,579,999	-6,748,668	-6,928,306	-65,468,655
Local Roads Renewals Budget	2,232,481	2,774,556	2,056,316	2,097,724	2,149,218	2,200,029	2,254,187	2,311,891	2,371,153	2,434,270	22,881,826
Special Purpose Roads Renewals											
Sealed Road Surfacing	157,755	161,541	165,418	169,553	173,792	178,311	182,947	187,886	192,959	198,362	1,768,525
Drainage Renewals	29,261	29,964	30,683	31,450	32,236	33,074	33,934	34,850	35,791	36,793	328,036
Traffic Service Renewals	25,271	25,878	26,499	27,161	27,840	28,564	29,307	30,098	30,911	31,776	283,305
Total SPR Renewals Expenditure	212,287	217,382	222,599	228,164	233,868	239,949	246,188	252,835	259,661	266,932	2,379,866
NZTA subsidy	-212,287	-217,382	-222,599	-168,842	-173,063	-177,562	-182,179	-187,098	-192,149	-197,530	-1,930,690
SPR Renewal Budget	0	0	0	59,323	60,806	62,387	64,009	65,737	67,512	69,402	449,175
Non Subsidised Renewals											
Under Verandah Lighting Renewals	4,830	4,945	5,064	5,191	5,321	5,459	5,601	5,752	5,907	6,073	54,142
Facility Road & Car Park Renewals	22,694	23,239	23,796	24,391	25,001	25,651	26,318	27,029	27,758	28,536	254,413

Total Non Subsidised Renewals	27,524	28,184	28,861	29,582	30,322	31,110	31,919	32,781	33,666	34,608	308,556
Total Renewals	2,260,004	2,802,740	2,085,177	2,186,629	2,240,346	2,293,525	2,350,115	2,410,409	2,472,331	2,538,280	23,639,557

Description	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	10 years
Development											
Local Roads Development											
Road Network improvements (LCLR)	1,050,000	1,075,200	1,101,005	1,128,530	1,156,743	1,186,818	1,217,676	1,250,553	1,284,318	1,320,279	11,771,122
Taupo Rd Streetlight Upgrade (LCLR)	0	428,239	0	0	0	0	0	0	0	0	428,239
B317 Old Station Road Bridge Safety Improvements (LCLR)	0	0	0	0	0	67,152	691,651	0	0	0	758,803
Level Crossing (LCLR)	111,731	0	0	120,087	0	0	129,573	0	0	140,492	501,883
B297 Matahiwi Track Suspension Bridge Upgrade	3,476,516	0	0	0	0	0	0	0	0	0	3,476,516
Total - Local Road Development Expenditure	4,638,247	1,503,439	1,101,005	1,248,617	1,156,743	1,253,970	2,038,900	1,250,553	1,284,318	1,460,770	16,936,564
NZTA subsidy	-3,478,685	-1,112,545	-814,744	-923,977	-855,990	-927,938	-1,508,786	-925,409	-950,395	-1,080,970	-12,579,439
Local Roads Development Budget	1,159,562	390,894	286,261	324,641	300,753	326,032	530,114	325,144	333,923	379,800	4,357,124
Special Purpose Roads Development											
SPR Road Network Improvements (LCLR)	1,588,655	1,621,755	1,637,217	239,596	241,658	243,855	88,977	91,380	93,847	96,475	5,943,415
Total SPR Development Expenditure	1,588,655	1,621,755	1,637,217	239,596	241,658	243,855	88,977	91,380	93,847	96,475	5,943,415
NZTA subsidy	-1,588,655	-1,621,755	-1,637,217	-177,301	-178,827	-180,453	-65,843	-67,621	-69,447	-71,391	-5,658,510
SPR Renewal Budget	0	0	0	62,295	62,831	63,402	23,134	23,759	24,400	25,083	284,905
Non Subsidised Development											
Miscellaneous Minor Capital Projects	0	121,417	0	0	0	0	0	0	0	0	121,417
Seal Extensions	53,425	54,708	56,021	57,421	58,857	60,387	61,957	63,630	65,348	67,177	598,930
Kerb and Channel Development	48,289	49,448	50,634	51,900	53,198	54,581	56,000	57,512	59,065	60,719	541,345
Motorist Service & Information Signs	32,595	33,377	34,178	35,033	35,908	36,842	37,800	38,821	39,869	40,985	365,407
Streetflags District	18,108	18,543	18,988	19,462	19,949	20,468	21,000	21,567	22,149	22,769	203,003
Pedestrian Safety Improvements - District wide	50,000	51,200	52,429	53,740	55,083	56,515	57,985	59,550	61,158	62,870	560,530
Bus Shelter Development	42,300	0	44,355	0	46,600	0	49,055	0	51,740	0	234,050
Ohakune Park and Ride Extension - Investigation & Design	0	53,530	0	0	0	0	0	0	0	0	53,530
Waiouru Truck Park - Investigation and Design	0	32,118	0	0	0	0	0	0	0	0	32,118
Total Non Subsidised Development	244,717	414,339	256,604	217,556	269,595	228,793	283,796	241,079	299,328	254,521	2,710,328
Total Development	1,404,279	805,234	542,866	604,491	633,179	618,227	837,044	589,982	657,651	659,405	7,352,357

Description	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	10 years
Budget Summary											
Total Maintenance	2,457,648	2,615,789	2,682,600	2,884,041	2,960,342	3,041,678	3,125,130	3,214,045	3,305,360	3,402,614	29,689,247
Total Renewals	2,260,004	2,802,740	2,085,177	2,186,629	2,240,346	2,293,525	2,350,115	2,410,409	2,472,331	2,538,280	23,639,557
Total Development	1,404,279	805,234	542,866	604,491	633,179	618,227	837,044	589,982	657,651	659,405	7,352,357
Budget Total	6,121,931	6,223,763	5,310,643	5,675,161	5,833,867	5,953,431	6,312,289	6,214,435	6,435,342	6,600,299	60,681,161

Appendix C – Detailed Improvement Plan

Task	Task Description	Status	Source	REG Pillar	Priority	Completed Date
B04 Delivery - Maintenance Contracts Improvements						
Review of surface assets vs surface/paving jobs in RAMM Contractor	To support removal of obsolete dispatches - review of surface assets vs open RAMM dispatches for surfacing and paving	Active	2018 AMP	Evidence	B	
Dispatch Quality Dimension Improvements via Fault code configuration	Action: Using Fault code configuration to drive better Dispatch Quality in the dimensions area. Many of the fault codes allow optional input of length, width, depth and quantity which means the user is not prompted for missing information. Where possible these should be set to either - Give warning if blank or - Never This should trigger a response if data is missing. Many of the fault codes allow multiple units of measure which should also be reviewed.	Active	MAX.maintenance	Evidence	D	
Redundant Dispatch Clean up	Action: Review all dispatches of an open status (entered, dispatched, in progress) using key dates to determine if there are redundant dispatches which are contributing to the MAX.maintenance error totals	Active	MAX.maintenance	Evidence	D	
Maintenance Activity Location Review	Action: Maintenance activity should be correctly located: MAX.quality: First Run i	Active	MAX.quality	Evidence	G	
Input missing maintenance cost data	Input missing maintenance cost data	Closed - Complete	2018 AMP	Evidence	B	30/06/2020

Task	Task Description	Status	Source	REG Pillar	Priority	Completed Date
B04 Delivery - Network & Asset Management Improvements						
Include a section in the AMP on staff skills, capabilities, training and development to support the business outcomes	Include a section in the AMP on staff skills, capabilities and training & development to support the business objectives and expected outcomes.	Active	2019 AMP Review (by GHD)	People / Culture	D	
C02 Risk Management Improvements						
Improve information on assets and activity associated risks.		Future	2018 AMP	Systems	D	
Routinely examine untreated risk and existing controls.		Future	2018 AMP	Systems	D	
Make improvements on costings and prioritisation of risks	Make further improvements on costings and prioritisation of risks.	Future	2019 AMP Review (by GHD)	Decision Making	D	
Undertake a review of the PESTLE analysis and Asset Management functions	PESTLE analysis done (2021) Asset Management Functions still to be reviewed	Active	2018 AMP	Systems	B	
Review Risk setup inline with Part 1	Risk Register included in 2021 AMP an improvement.	Active	2021 AMP	Systems	D	
Investigate how risk management outcomes can be used to further support the right delivery	Further imbed risk management outcomes in how it gets used to support the right delivery	Active	2019 AMP Review (by GHD)	Decision Making	D	
In the AMP show timeframes for progressing the risk actions identified	Add timeframes for progressing the risk actions identified	Closed - Complete	2019 AMP Review (by GHD)	Decision Making	C	6/12/2020
Investigate how the outcomes from the risk assessment can be merged with wider Asset Management improvements	Investigate how the outcomes from the risk assessment can be merged with wider task and project management for the whole of business.	Closed - Complete	2019 AMP Review (by GHD)	Decision Making	D	25/11/2020
Expand in the AMP the discussion on asset performance analysis and link to (route) criticality	Expand the discussion and commentary of performance analysis for most of the asset classes and link to (route) criticality (to support any shortcomings)	Closed - Complete	2019 AMP Review (by GHD)	Decision Making	D	25/11/2020

Task	Task Description	Status	Source	REG Pillar	Priority	Completed Date
C03 Environmental Stewardship Improvements						
Develop approach to managing and tracking consents	Develop approach to managing and tracking consents and the associated requirements (including monitoring, associated assets)	Future	2018 AMP	Systems	D	
D02 Network Safety Improvements						
Speed limit Review	Undertake a speed limit Review	Future	2021 AMP	Decision Making	D	
Intersection Review	Undertake a Intersection Review	Future	2021 AMP	Evidence	D	
Review Traffic Counting method used by Council		Future	2021 AMP	Decision Making	D	
Develop a program for network improvements	Using MAX.quality first run, determine any initial network attributes to review. Separate into separate tasks as progresses	Active	MAX.quality	Evidence	B	
Centerline vs Carriageway Improvements	The correctness of the network is key to asset locations, valuations etc. A review of centrelines and relationship of calibration points in relationship to carriageways is key to network correctness.	Active	MAX.quality	Evidence	B	
Network Data Error Review	A review MAX.quality Network Data errors	Active	MAX.quality	Evidence	D	
D03 Pavement AM Improvements						
Produce the pavement renewal strategy	There are a number of documents related to pavement renewals but the strategy is not formally recorded.	Future	2018 AMP	Systems	D	

Task	Task Description	Status	Source	REG Pillar	Priority	Completed Date
Review the Treatment Length Segmentation	The treatment length segmentation of the network should be reviewed and updated where applicable, to ensure this aligns with pavement/surfacing asset information for the network. The treatment length segmentation forms the basis of the valuation dataset for the treatment length components, so it is important the treatment lengths are updated and maintained in accordance with construction and renewal activities on the network.	Future	2019 Valuation	Decision Making	D	
Complete a top down check by comparison with annual depreciation rates		Active	2018 AMP	Systems	D	
Complete a top down check on historical trends for renewals	Complete a top down check on historical trends for renewal quantities, costs, network LOS KPIs such as condition, performance and backlog	Active	2018 AMP	Systems	D	
Maintain the Expected Surface Lives in RAMM	<p>a. Analysing Achieved lives on a 3 yearly cycle that matches AMP cycles</p> <p>b. Cross check surface life analysis against table 4.4 of Chipsealing in NZ</p> <p>Check once updated if any updates needed to the Carriageway surface table (make this a periodic activity)</p> <p>Work identified through these REG Guides:</p> <p>2. Maintaining Expected Surface Lives in RAMM https://www.nzta.govt.nz/assets/Road-Efficiency-Group/docs/managing-expected-surface-lives-in-RAMM-guideline.pdf</p> <p>3. Managing Expected Surface Lives in RAMM https://www.nzta.govt.nz/assets/Road-Efficiency-Group/docs/managing-expected-surface-lives-in-RAMM-overview.pdf</p>	Active	REG	Decision Making	D	

Task	Task Description	Status	Source	REG Pillar	Priority	Completed Date
Consider modifying the network condition survey frequencies to better support consistency of current data available for the three yearly planning cycle	Consider modifying the network condition survey frequencies to better support consistency of current data available for the three yearly planning cycle.	Active	2019 AMP Review (by GHD)	Decision Making	D	
Compare the renewal rate vs asset deterioration rate		Closed - Complete	2018 AMP	Systems	D	30/11/2019
D04 Structures AM Improvements						
Develop a strategy to prioritise improvements on all 50Max restricted bridges		Future	2021 AMP	Service Delivery	H	
Retaining Wall Performance	Gain an understanding of retaining wall performance, currently not condition rated and managed on as needs basis	Future	2021 AMP	Decision Making	H	
Global resource consent for painting bridges	Council is in the process of applying for a global resource consent from Horizons Regional Council for painting bridges. This will provide a set of procedures and strategies to help manage environmental impacts for this type of work.	Active	2018 AMP	Service Delivery	B	
Review breakdown between Bridge/Major Culvert/ minor Culvert in RAMM	RAMM data review to confirm SW_culvert on bridge is correct confirm if drainage with a bridge id is actually a major culvert confirm large culverts have bridge id in drainage to classify as major culvert	Active	MAX.quality	Evidence	B	
D05 Drainage AM Improvements						
Drainage - renewal rate vs depreciation rate	Compare the renewal rate and depreciation rate to assess the effectiveness of the District wide capital renewal plan.	Future	2021 AMP	Decision Making	B	
Drainage RAMM assets Audit	Undertake an audit of the RAMM database and capture missing assets – between 1998 and 2007 drainage assets were collected irregularly.	Future	2021 AMP	Evidence	E	

Task	Task Description	Status	Source	REG Pillar	Priority	Completed Date
Drainage Inlet and Outlet Improvement	Review missing drainage inlet and outlet information by drainage type. Determine if sufficient options are available in the lookup table Determine if any rules for bulk update can be found	Future	MAX.quality	Evidence	F	
Drainage Location Review	Action : Almost all Drainage records with missing location information have northing and esating values so can use RAMM or other GIS tools to place. If using RAMM possibly delay until Network Phase is complete Source: First Run quality tests	Future	MAX.quality	Evidence	G	
Drainage Construction Date - Improve missing data for Culverts	Drainage construction date - part of REG AM - DR1 (17/18 score 20.5; 18/19 score 44.5) and also tested in MAX.quality insight 403 - first run	Future	MAX.quality	Evidence	H	
Surface water Channel Date of construction Improvement	Action: Surface Water Channel review types and consider if construction date can be taken from pavement data (where available) as an assumed date of construction Source: SW channel construction date - part of REG AM - SW1 (17/18 score 13.4) and also tested in MAX.quality first run	Future	MAX.quality	Evidence	I	
Drainage Inspection Data Improvement	Action : Implement business process to improve Drainage inspection data capture.	Active	MAX.quality	Evidence	B	
D06 Railings AM Improvements						
Railings Condition Ratings	Undertake a condition rating process for Railings	Future	2021 AMP	Evidence	D	
Railing Shape Improvement	Action : desk top exercise using street view to set the shape. Source: MAX.quality First run	Future	MAX.quality	Evidence	G	

Task	Task Description	Status	Source	REG Pillar	Priority	Completed Date
D06 Signs and Markings AM Improvements						
RAMM Sign Location Review	Action : Almost all Signs records with missing location information have northing and esating values so can use RAMM or other GIS tools to place. If using RAMM possibly delay until Network Phase is complete Source: REG AM-Si2 - 17/18 score 99.5 - Yellow	Future	MAX.quality	Evidence	B	
Implement the Council Delineation Standard	Council has a delineation Standard 2010- review implementation to date and finish outstanding markings. Reviewed 2017 \\ghdnet.internal\ghd\NZ\Taumarunui\Projects\51\34054\Technical\Delineation\Delineation report	Future	2021 AMP	Service Delivery	B	
Data analysis for each road having at least 1 name blade sign	Desk top exercise to confirm each road has at least one name blade sign. Can be RAMM Sql exercise using sign class/type	Future	Max.quality	Evidence	C	
Curvature warning signs standardisation	Our strategy should be consistent with ONRC implementation Strategy	Future	2018 AMP	Systems	D	
10% network audit to check if signs in RAMM	Need a sample of different roads to audit. Audit and confirm if confidence in both completeness - Are all signs in RAMM - Do signs in RAMM exist - Are attributes in RAMM correct. Once 10% done review if need to setup a complete audit over the network	Future	2018 AMP	Evidence	E	
Sign Dimensions review	Action : review if any possible assumptions to be made about sign width and height by sign type Source : part of REG AM-Si1 Max.quality first run	Future	MAX.quality	Evidence	H	

Task	Task Description	Status	Source	REG Pillar	Priority	Completed Date
Signs Condition Rating	Undertake a condition rating process for Signs Currently roadmen report signs needing replacement but no formal condition survey. Complete audits before undertaking this task	Future	2021 AMP	Evidence	I	
In the AMP section for Pavement Markings note why the work is considered OPEX and not a capital renewal	Add a note to Pavement Markings (Section 20.8.2) on why the work is considered OPEX and not a capital renewal. Also commentary on whether any long life markings are used in the district to ensure clarity on why no renewals required.	Closed - Complete	2019 AMP Review (by GHD)	Decision Making	D	26/11/2020
D06 Streetlight AM Improvements						
Review information requirements to support Streetlight Management	Consider using this data within RAMM to determine the remaining useful life and improve confidence in forecasted streetlight spending The condition rating data on streetlights is gathered annually by the streetlight contractor and is stored in the RAMM Contractor module.	Future	2018 AMP	Evidence	G	
Streetlight Location Review	Action : All Streetlight records with missing location information have northing and esating values so can use RAMM or other GIS tools to place. If using RAMM possibly delay until Network Phase is complete Source: REG AM-SI1 - 17/18 score 71.8 - Red MAX.quality First Run	Future	MAX.quality	Evidence	H	
D07 Footpath AM Improvements						
Research other walking & cycling strategies	Search and find other strategy examples and summarise good and bad etc.	Future	2018 AMP	Systems	B	
Off Road footpaths - Add carriageways	Add off road footpath carriageway. - Bell road Zig Zag - Bell to High - Bakers Track - Bell to West -Kanuka to Teite	Future	MAX.quality	Evidence	B	

Task	Task Description	Status	Source	REG Pillar	Priority	Completed Date
Identify any additional footpaths subsidisable under NZTA rules	Identify additional footpaths owned by Council which are part of the pedestrian network and as such are subsidisable under NZTA work category 125 footpath maintenance.	Future	2021 AMP	Decision Making	B	
Footpath Condition Rating into RAMM	Currently Footpath Condition Rating is maintained in a spreadsheet. RAMM should be updated with a condition rating per footpath section	Future	2021 AMP	Evidence	D	
Produce a walking and cycling strategy for the District	Strategy to support the development of cycleways and walkways. Maximising the new NZTA subsidised opportunities	Future	2018 AMP	Systems	H	
Placement of Pram Crossings in RAMM	Capture the placement and status of Pram Crossings in RAMM.	Future	2021 AMP	Evidence	H	
Footpath extra Area Update	Action : Review any known extra footpath areas and set. Bulk update all footpath extra areas which are currently NULL to zero. Impact of changing null to zero is minimal on value as null assumes zero. Source : MAX.quality first run	Active	MAX.quality	Evidence	C	
D08 Great Rides (Cycleways) AM Improvements						
NZCT Cycleway AM plan for complete length - Confirm Councils commitment	Before proceeding need to confirm Councils commitment to this project	Future	2018 AMP	Systems	A	
Cycleway Asset Inventory	Undertake an inventory of assets on Council maintain / owned sections of the off road cycleways - fisher track - depot road	Future	2021 AMP	Evidence	B	

Task	Task Description	Status	Source	REG Pillar	Priority	Completed Date
Tasks identified in NZCT Trail Warrant of Fitness inspection and report in 2017	locate copy of WoF Inspection. Isolate tasks that are RDC specific for adding to Cycleway Asset Management Improvement Tasks. Add tasks relevant to creating a single mountains to sea AMP jointly with all parties to this NZCT AMP (mountains to sea)	Future	2018 AMP	Systems	D	
Review Council's Cycling Awareness Strategy	Confirm current Cycling Awareness Strategy (need a copy) Review in light to latest information and best practice	Future	2021 AMP	Service Delivery	D	
Produce a specific Asset Management Plan for the trail from Mt Ruapehu to The North Mole at Whanganui	This would include Ruapehu and Whanganui District councils, NZTA and Department of Conservation: to create a plan for the complete cycleway. Trail Governance would have to commit funds for the work programme.	Future	2018 AMP	Systems	H	
D09 Bus Shelter AM Improvements						
Bus Shelter Configuration Review	Consider replacing the bus shelters over time with uniform relocatable structures. Uniform relocatable structures can be easily moved as dictated by demand.	Future	2018 AMP	Systems	B	

Task	Task Description	Status	Source	REG Pillar	Priority	Completed Date
Bus Shelter Strategy	<p>1. Determine the Bus Shelter Service to Provide to School Children Of particular interest is the level of service to provide for school kids waiting at bus stops with the following options to be continued:</p> <ul style="list-style-type: none"> -Provide no bus shelters (remove the existing) -Decreasing level of service with the removal of shelters as they fall into disrepair -Policy for when a bus shelter should be supplied to a new location -Proactive management based on tracking where the demand currently is and moving the shelters on to different concrete pads. <p>2. Define Bus Shelter ownership and management</p> <ul style="list-style-type: none"> -Ownership -Responsibility for the delivery of activities associated with bus shelter operations, maintenance, renewals and development -Responsibility for the cost of the above activities 	Future	2021 AMP	Decision Making	D	
Add Bus Shelter information to RAMM	Add information on Bus Shelters to RAMM	Future	2021 AMP	Evidence	G	
Bus Shelter Needs Assesment based on population density	Population density and school bus shelter requirements are continually changing. RDC will evaluate future need based on population density and consider replacing the bus shelters over time with uniform relocatable structures that can be easily moved as dictated by demand.	Future	2018 AMP	Systems	H	
D10 Facility Roads and Carparks AM Improvements						
Setup systematic process for inspections and work initiation	Maintenance & renewals planning & delivery	Future	2018 AMP	Systems	B	
Develop a Facility Roads and Carparks Renewals Plan		Future	2021 AMP	Decision Making	B	

Task	Task Description	Status	Source	REG Pillar	Priority	Completed Date
Review if Facility Roads and Carparks can be managed in RAMM		Future	2021 AMP	Evidence	D	
Facility Roads and Carparks Management Review	<p>Meet with asset team leaders to discuss* Address ownership and who will be in charge of what.</p> <p>* Clarity (agreement / MoU) on who is responsible for:</p> <p>* Asset ownership</p> <p>* funding for maintenance, renewal and improvement (does this follow ownership)</p> <p>* Asset Management (inspections, work programmes, work delivery)</p> <p>* Where and how budgets are held or funded</p> <p>* How are service requests handled</p>	Active	2018 AMP	Systems	B	
D12 Asset Information Management Improvements						
Review the AMP asset data quality tables and identify priorities	Review AMP data confidence tables	Active	2018 AMP	Evidence	B	
Prepare an active Data Quality Management Plan	<p>Road Controlling Authorities should have an active Data Quality Management Plan</p> <p>Work identified through this REG Guide:</p> <p>1. Data Quality Management</p> <p>https://www.nzta.govt.nz/assets/Road-Efficiency-Group/docs/data-quality-management-guideline.pdf</p> <p>This plan will generate improvement plans/tasks for individual asset types</p>	Active	REG	Evidence	B	

Task	Task Description	Status	Source	REG Pillar	Priority	Completed Date
Review missing ownership for assets	Knowing asset ownership can have a material effect on the Valuation (currently have to assumed all owned by Council). * Step 1 Agree a methodology to determine asset owner by asset type with update tasks per asset type * Action and support methodology	Active	2019 Valuation	Decision Making	C	
Review the REG 2017/18 Data Quality Reports and identify priorities	Review 2017/18 REG reports	Closed - Complete	2018 AMP	Evidence	B	30/06/2019
Review areas of shortfall identified in the MAX.quality First Run Report.	Review MAX.quality outcomes and identify the improvement tasks in this Asset Management Improvement Programme	Closed - Complete	2018 AMP	Evidence	B	30/06/2019
Update Pavement Layer records Ownership	Action: Bulk update setting Pavement layer ownership to same as the ownership of the underlying carriageway. Source MAX.quality first run	Closed - Complete	MAX.quality	Evidence	B	31/07/2019
Update Surface Layer records Ownership	Action : Bulk update setting Surface ownership to the same as the ownership of the underlying carriageway Source MAX.quality first run	Closed - Complete	MAX.quality	Evidence	B	31/07/2019
Stormwater Drainage Shape Update	Action: Review Drainage type and materials to identify standards that can be used for shape. Bulk update those that are standard. i.e concrete culverts Source MAX.quality first run	Closed - Complete	MAX.quality	Evidence	B	31/07/2019
Review areas of shortfall identified in the MAX.maintenance initial report	MAX.maintenance first run report made recommendations that would provide better outcomes going forward.	Closed - Complete	2018 AMP	Evidence	B	30/06/2019
Setup and manage all capital programmes in RAMM	Setup a single FWP in RAMM for managing all forward capital works. Use MAX.fwp UDTs as a starting point.	Closed - Complete	General	Decision Making	B	30/10/2020

Task	Task Description	Status	Source	REG Pillar	Priority	Completed Date
First Run error log exceptions :Installation dates signs and railings	<p>Action: Some insight in the first run produced errors which the effort involved to correct are not worth the effort. These errors are set to Exception.</p> <p>Followup : Should create processes to monitor new errors on these insights to confirm new data is correct.</p> <p>Source: frist run - see progress notes for details</p>	Closed - Complete	MAX.quality	Evidence	D	31/07/2019
Review the REG 2018/19 Data Quality Reports and identify priorities - Superceeded	<p>Review 2018/19 REG reports in particular identify why some areas are failing and improvement tasks needed.</p> <p>Sian to run new MAX.quality tests aligned to REG AM Data Quality Report and analyse why some ares still failing. In particular include: AM-DR1, AM-MA1, AM-SL1 & 3, AM-SU1a, AMP-PA1, AM-Su1b (Presume this is OMR AC?) - Andrea feels that these could be wrong.</p>	Closed - Cancelled	2018 AMP	Evidence	B	
D12 Network & Asset Management Improvements						
AMP - Review readability of PBC by other Council staff member	Andrea to arrange readability review of PBC by other Council staff member	Future	2018 AMP	Communicating	B	
Integrate KPI with ONRC targets	<p>Current / historical KPIs may have had targets tied to non-ONRC classification.</p> <p>Next amp needs to split out ONRC classes for some KPIs</p>	Future	2018 AMP	Evidence	D	
Review current AMP KPIs and Measures and assess for ease of reporting	Review made some progress	Future	2018 AMP	Evidence	D	
Investigate if a cross-asset renewals strategy would be beneficial to Council	Consider if a cross-asset renewals strategy would be beneficial. This would provide guidance how renewals for different asset classes might be prioritised against each other.	Future	2019 AMP Review (by GHD)	Decision Making	D	
Improve the renewals section for signs	Expand and improve on the renewals section for signs	Future	2019 AMP Review (by GHD)	Decision Making	D	

Task	Task Description	Status	Source	REG Pillar	Priority	Completed Date
Improve the renewals section for railings	Expand and improve on the renewals section for railings	Future	2019 AMP Review (by GHD)	Decision Making	D	
Expand in the AMP the discussion on asset performance analysis and link to risk	Expand the discussion and commentary of performance analysis for most of the asset classes and link to risk (to support any shortcomings)	Future	2019 AMP Review (by GHD)	Decision Making	D	
Create a document to explain how the KPIs are measured		Future	2018 AMP	Evidence	G	
Identify the desired maturity levels for the AMP reviews so that the identified improvement options can be further prioritised	Identify the desired maturity levels against this review so that the identified improvement options can be further prioritised.	Future	2019 AMP Review (by GHD)	People / Culture	G	
Consider whether a broader approach to criticality (route and asset) would offer benefits to the prioritisation of works	Consider whether a broader approach to criticality (route and asset) would offer benefits to the prioritisation of works. This could potentially benefit asset classes like Road Structures.	Future	2019 AMP Review (by GHD)	Decision Making	G	
Improve the renewals section for bus shelters	Expand and improve on the renewals section for bus shelters	Future	2019 AMP Review (by GHD)	Decision Making	G	
Check progress on Business Continuity Plan (BCP)	<p>Include a documented set of procedures and information that enables critical services or products to be continually delivered to clients, including disaster recovery site.</p> <p>Develop a Business Continuity Plan (BCP) with a documented set of procedures and information that enables critical services or products to be continually delivered to clients, including disaster recovery site.</p>	Future	2018 AMP	Service Delivery	H	
Develop a schedule in the AMP showing who is involved in the preparation of the AMP	Develop a schedule showing who is involved in the preparation of the AMP and their relevant department.	Active	2019 AMP Review (by GHD)	Decision Making	A	
Use the ONRC PMRT better for evidence and support in the next AMP Update	Especially showing trend graphs and commenting	Active	2018 AMP	Evidence	B	

Task	Task Description	Status	Source	REG Pillar	Priority	Completed Date
Review AMP KPIs for opportunity to automate / use RAMM data smarter	First pass review and then discuss with Council to identify any further steps needed	Active	2018 AMP	Evidence	B	
Investigate opportunities for how some decision making could be directly shown in the AMP	Investigate opportunities for how some decision making could be directly shown in the AMP, for example certain types of 'faults' identified during a condition inspection could be immediately dispatched for fixing upon office verification. Further building line of sight from inputs to actions and across different business processes.	Active	2019 AMP Review (by GHD)	Decision Making	D	
Include in AMP discussion on any significant level of service gaps identified	More commentary and discussion could be shown to discuss any significant level of service gaps identified.	Active	2019 AMP Review (by GHD)	Decision Making	D	
Improve the relationship of the different AMPs (planning and activities) in the next AMP	Improve the relationship of the different AMPs (planning and activities) in the next AMP round.	Active	2019 AMP Review (by GHD)	Decision Making	D	
Improve the renewals section for cycleways	Expand and improve on the renewals section for cycleways	Active	2019 AMP Review (by GHD)	Decision Making	D	
Include in the AMP clearer reporting on how RDC has followed up on NZTA audit recommendations	Include clearer reporting on how RDC has followed up on NZTA audit recommendations. Use the AMIP to support this feedback loop.	Active	2019 AMP Review (by GHD)	Communicating	D	
In the AMP provide a register of specific deferred renewals due to budget or other constraints	If there is a clear deferral of renewal work occurring due to budget or other constraints then these works should be maintained in a register.	Active	2019 AMP Review (by GHD)	Decision Making	D	
Expand in the AMP the information in the Lifecycle Management sections showing performance and condition data	Expand the section and tables in the Lifecycle Management sections to show performance and condition data >> analysis and discussion >> use for investment decision making.	Active	2019 AMP Review (by GHD)	Communicating	D	
In the AMP create a strong link to the business process for maintenance and asset decision making and management	Create a strong link to the business process for maintenance (usually centred around maintenance contracts) and asset decision making and management for best outcomes. (strengthening line of sight)	Active	2019 AMP Review (by GHD)	Decision Making	D	
Include a section in the AMP on key operational data and its role in the planning of transport assets	Include a section in the AMP on key operational data and its role in the planning of transport assets.	Active	2019 AMP Review (by GHD)	Decision Making	D	

Task	Task Description	Status	Source	REG Pillar	Priority	Completed Date
Centralise information on changes in growth and demand (including forecasting) in AMP Part 1	Include a section in Part 1 to centralise the information and commentary on changes in growth and demand (including forecasting).	Active	2019 AMP Review (by GHD)	Decision Making	D	
Develop a Road Safety strategy and integrate it into the AMP appropriately	Develop a Road Safety strategy and integrate it into the AMP appropriately.	Active	2019 AMP Review (by GHD)	Decision Making	E	
Investigate whether a method of coordinating works during the planning, design and delivery phases could deliver benefits to RDC	Investigate whether a method of coordinating works during the planning, design and delivery phases could deliver benefits to RDC (as opposed to only through only the AMP phase which is affected by the need for the Transport AMP to be delivered prior to the other AMPs).	Active	2019 AMP Review (by GHD)	Decision Making	H	
Setup an Asset Management Improvement tracking sheet	Move the improvement programme into an excel data base and actively manage the improvement initiatives noted in this plan over the next three years.	Closed - Complete	2018 AMP	Systems	A	30/06/2019
Establish an Asset Management Steering Team and meet six monthly to review progress against improvement plan.		Closed - Complete	2018 AMP	Systems	A	30/06/2019
Transfer any improvement actions from the 2019 AMP review in to the Improvement Programme (AMIP)	Transfer any accepted improvement actions from this review in to the Asset Management Improvement Programme (AMIP)	Closed - Complete	2019 AMP Review (by GHD)	People / Culture	A	25/11/2020
Develop a prioritised roadmap of improvements for the next 3 to 5 years	Develop a detailed prioritised roadmap of improvements for the next 3 to 5 years based on review and prioritisation of all the suggested improvements included in the Asset Management Improvement Programme. The approved roadmap of improvement tasks is to be resourced, costed, mile-stoned and implemented.	Closed - Complete	2019 AMP Review (by GHD)	Decision Making	A	26/11/2020
AMP - Review readability of strategic case using non roading person	Andrea to arrange readability review of Strategic Case by non-Roading person	Closed - Complete	2018 AMP	Communicating	B	20/11/2020
In the AMP change the 'Age and Condition' section to 'Asset Performance'	Suggest renaming the 'Age and Condition' section to 'Asset Performance' for better alignment to standard industry practice and IIMM.	Closed - Complete	2019 AMP Review (by GHD)	Communicating	C	25/11/2020

Task	Task Description	Status	Source	REG Pillar	Priority	Completed Date
ONRC Transition Plan Completion	Review ONRC transition plan, identify what's left to complete and complete final tasks.	Closed - Complete	2018 AMP	Systems	D	29/11/2019
Assess in the AMP the performance and suitability of key systems	Assess the performance and suitability of key systems and link to the improvement programme if required.	Closed - Complete	2019 AMP Review (by GHD)	Systems	D	25/11/2020
In the AMP improve clarity on what deferred renewals mean	Include a statement for asset class (sub-class) on what deferred renewals means (and possible consequence) for that asset class	Closed - Complete	2019 AMP Review (by GHD)	Communicating	D	25/11/2020
In some Lifecycle Management sections in the AMP improve strategy, process or procedure documented for the prioritisation of works	Some further asset classes would benefit with a strategy, process or procedure documented for the prioritisation of works. This should include commentary on what factors and weightings could affect work priority.	Closed - Complete	2019 AMP Review (by GHD)	Decision Making	D	25/11/2020
Include in the AMP condition data, analysis and methodology regarding asset condition and inspections	Include condition data, analysis and methodology regarding asset condition and inspections	Closed - Complete	2019 AMP Review (by GHD)	Decision Making	D	25/11/2020
E01 Financial Management Improvements						
Obtain leads to funding streams	Currently 2021 AMP to allow for expected change to subsidy. Further actions: * Investigate options for co-funding of improvement works on Ohakune Mountain Road where it is of benefit to the ski field operator. * Continue to lobby Government to retain Special Purpose Road FAR rates at 100%.	Future	2021 AMP	Service Delivery	D	
Include in the AMP a depreciation forecast	Include a forecast of depreciation in the AMP with discussion on what the trend may indicate for the future asset management.	Active	2019 AMP Review (by GHD)	Decision Making	D	
E03 Financial Valuation Improvements						

Task	Task Description	Status	Source	REG Pillar	Priority	Completed Date
Review the RAMM Valuation Setup for treatment length components for basecourse and subbase	Review the setup of the multiple individual treatment length components for the basecourse and subbase asset classes in the RAMM asset valuation module, to confirm if a more streamlined approach could be utilised. This could potentially improve efficiencies with the valuation process and improve reporting outcomes by way of aggregating data changes to an asset class level.	Future	2019 Valuation	Decision Making	D	
Review Default Lives used for Asset Valuation	Default lives should be reviewed as part of the 2019/20 full valuation, to confirm these are appropriate/applicable for existing asset types where there are large numbers of unknown construction dates	Future	2019 Valuation	Decision Making	D	
Undertake a detailed analysis on the calculation of depreciation for pavement and surfacing	Undertake a detailed analysis on the calculation of depreciation for pavement and surfacing assets, including whether more granularity on long and short life pavements and surfaces are being appropriately recognised	Future	2019 Valuation	Systems	D	
Run an Asset Impairment Workshop	In the next valuation process, include a workshop with client and consultant staff to provide a more detailed look at whether any RDC transport assets could be considered impaired.	Future	2019 Valuation	Decision Making	D	
Improve the RAMM Valuation Module Naming Conventions	Make some additional valuation module setup improvements, to improve naming conventions applied	Future	2019 Valuation	Systems	G	
Improve asset attributes that contribute to asset valuations	Continue to update and improve existing asset datasets, particularly where attributes influence outcomes in the valuation process, such as those used for calculating unit of measures for an asset.	Active	MAX.quality	Evidence	B	
Special Project Forestry Activity Impacts						
Approach forestry and farm forest owners for harvest plan information	Council will carry out a project to improve its forestation information with input from forest stakeholders.	Future	2018 AMP	Evidence	B	

Task	Task Description	Status	Source	REG Pillar	Priority	Completed Date
Review and update map of forestry routes and expectations using RDC rating database	<p>* Update map of forestry. Reconcile 2006 data with harvesting undertaken to date. Update information for forward planning</p> <p>* Council will carry out a project to improve its forestation information with input from forest stakeholders</p>	Future	2018 AMP	Evidence	B	
Setup Routes as a RAMM UDT for Forestry Routes and Initial Data Setup	<p>Routes Type = Forestry Routes Sub Type = Hierarchy Use existing Forestry Map (GIS) as initial data to create in RAMM</p>	Future	2018 AMP	Evidence	C	

Appendix D - Risk Register – Land Transport

D1 Schedule 1 – Land Transport Activity Risk Management External Context Review – PESTLE Analysis

PESTLE analysis is used to gain a macro picture of an industry environment. PESTLE stands for Political, Economic, Social, Technological, Legal and Environmental factors. It allows Council to form an impression of the factors that might impact on its business.

The following trends, issues or factors provide the external context for the management of risks for the Land Transport activity, and their anticipated impacts. 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 Land Transport Activity?			
			Levels of Service	Growth and Demand	Revenue and Funding	Regulatory or Stakeholder Requirements or Constraints
Political	Government Policy Statement (GPS) on Land Transport Funding	The GPS is the Government’s primary tool to communicate what it wants to achieve in land transport, and how it expects to see funding allocated between types of activity across the land transport system. Historically, the GPS is issued three-yearly but sometimes this can be affected by the electoral cycle. A change in government could cause a larger change to the GPS.	A change in the GPS can create a significant increase or decrease in LoS eg. increased in funding for Active Travel modes	No impact identified	Would Council priorities align with the GPS allowed funding. Council would be constrained as to which activities it could fund depending on Government available funds	No impact anticipated

What are the anticipated impacts on RDC Land Transport Activity?						
Category	Trends, Issues or Factors	What is the Trend, Issue or Factor?	Levels of Service	Growth and Demand	Revenue and Funding	Regulatory or Stakeholder Requirements or Constraints
Economy	Infrastructure delivery capacity	The infrastructure industry in New Zealand is stretched with a general shortage of experienced technical personnel. Limited contractor interest in 2014. Could still be an issue during the upcoming contract tender.	Inability to deliver planned programmes to the required time and quality	No impact anticipated	Reduced resource availability or lack of competition will potentially increase the costs and therefore pressure on the rates or a reduction in services able to be delivered	No impact anticipated
Economy	Oil prices	Volatility in global crude oil prices affecting reseal prices.	A sudden change in costs will impact the quantity of resurfacing that can be completed	No impact anticipated	No impact anticipated	No impact anticipated

Economy	Trends in RDC Primary Sector	<p>The primary sector is the largest productive sector in the region. Identified trends in this industry include:</p> <p>Government's Business Growth Agenda aims to increase exports as a percentage of GDP from 30% to 40% by 2025. The Government is implementing actions to increase NZ's export market growth. MBIE is conducting an Agribusiness research study for the Manawatu-Whanganui region</p> <p>There is an estimated 36,500 ha of forestry plantation which is expected to reach maturity from 2015 onwards. At harvest, this area may yield up to 24 million tonnes of timber which needs to be transported out of the district.</p> <p>Progression to larger farming units and transport vehicles</p> <p>Potential for conversion of some forestry land to sheep/deer/dairy following harvesting.</p> <p>Conversion of sheep & deer farms to dairy</p> <p>Continued increase in area of land under market gardening.</p> <p>Increasing aggregate extraction in north of the district, potential opening of coal mines</p>	<p>May lead to pressure to improve geometrics and other manoeuvrability and safety aspects of pavements on specific routes to accommodate increased HCV numbers and vehicle sizes. Actual needs, locations and timings have not been determined at this time.</p>	<p>Expect a significant increase in HCV movements associated with forestry harvesting operations (potentially 800,000 movements, both directions). HCV movements from forestry may have significant impact on a small % of roads in the district (both sealed and unsealed).</p> <p>Key routes likely to be affected are: Oio, Poro-O-Tarao, Paparua, Pipiriki Raetihi Road.</p> <p>Other trends may also contribute increased or decreased HCV movements around the district (depending on overall landuse changes). However, timing and magnitude of impact is unknown at this time. MBIE study will provide additional knowledge here.</p> <p>RDC is currently developing an Economic Development Strategy.</p> <p>Increase in HCV traffic brings increases safety risk (fatal or serious accidents), especially when combined with increased tourist traffic.</p>	<p>An increase in the rates base from commercial properties is considered unlikely. A rating differential has been implemented by Council to recover forestry costs from forest owners</p>	<p>No impact anticipated</p>
Economy	Tourism Trends	<p>Tourism is an important contributor to the Ruapehu economy. Key trends are:</p> <p>Overall annual visitor numbers to the district are increasing.</p>	<ul style="list-style-type: none"> ● Increased congestion on tourist routes at peak tourist times ● Increasing expectations 	<p>Overall vehicle kms travelled in the district is increasing due to the both the increase in the</p>	<p>Additional funding required for seal extensions on urban periphery roads.</p>	<p>No impact anticipated</p>

			What are the anticipated impacts on RDC Land Transport Activity?			
Category	Trends, Issues or Factors	What is the Trend, Issue or Factor?	Levels of Service	Growth and Demand	Revenue and Funding	Regulatory or Stakeholder Requirements or Constraints
		<p>There are peaks in visitor numbers in both winter and summer.</p> <p>The number of holiday homes in the district is increasing, reflecting Ruapehu as a domestic holiday destination. Government initiative Tourism 2025 is active within the district.</p> <p>National cycle trails are driving recreational cyclist numbers (Rural roads in the district are included in the National Cycleway network).</p> <p>Also, following trends are perceived (but not yet quantified):</p> <p>Increasing numbers of motor homes.</p> <p>Increasing numbers of Te Araroa / Freedom walkers.</p> <p>Increasing numbers of recreational road users (e.g. adventure bikers).</p>	<p>regarding vehicular ride comfort and urban periphery pavement sealing.</p> <ul style="list-style-type: none"> • Increasing expectations regarding the amenity value of "visitor townships". • Minor improvements required to some roads which are part of the National Cycle Network (e.g. Kokomiko Road). • Potential for increased risk of injury/death arising from accidents involving active uses of the network. 	<p>usual resident population and visitors. Visitor trends are driving demand at peak times (summer and winter) for both vehicle and pedestrian traffic in specific locations.</p>	<p>Limited opportunities for RDC to capture funding from tourism:</p> <ul style="list-style-type: none"> • Holiday homes trend is sustaining rates base in the district despite declining normally resident population. 	
Economy	Covid-19	The impact of Covid-19 is still to be fully understood but is expected to impact Council financially.	<ul style="list-style-type: none"> • Lack resources from overseas • Lack personnel due to competition from other infrastructure projects 	<ul style="list-style-type: none"> • Tourism initially impacted due to lockdowns, and longer term still to be determined how the lack of international tourists will impact 	<ul style="list-style-type: none"> • Reduced car usage, reduces fuel tax which reduces funds for NZTA • Reduced activity in the district could reduce the revenue from rates 	No impact anticipated

What are the anticipated impacts on RDC Land Transport Activity?						
Category	Trends, Issues or Factors	What is the Trend, Issue or Factor?	Levels of Service	Growth and Demand	Revenue and Funding	Regulatory or Stakeholder Requirements or Constraints
Legal / Regulatory	Increasing environmental standards: <ul style="list-style-type: none"> • Horizons One Plan • National Environmental Standards (NES) • Zero Carbon 	Increased requirements, costs and difficulties of obtaining consents for the Land Transport activity. NES for drinking water sources imposes restrictions on discharge permits above abstraction points (this has been in effect since 2008) NES for contaminated land requires contaminated land to be identified and assessed before it is developed (this has been in effect since 2011).	No impact anticipated.	No impact anticipated	Increased costs of doing business.	Under the NES requirements for drinking water sources, there is potential for increased requirements with respect to managing discharges from road network (inc. carparks) where above water supply abstraction points. Also consents now required for works near stop banks. NES for contaminated land unlikely to impact the land transport activity. Zero Carbon may require review of materials used in the roading activity.
Legal / Regulatory	Co-Management with Iwi	Co-management of land under the RMA and Settlement Agreements.	No impact anticipated.	No impact anticipated	Changed way of doing business and potential of increased costs of doing business.	Increasing the number of stakeholders to engage with for works

What are the anticipated impacts on RDC Land Transport Activity?						
Category	Trends, Issues or Factors	What is the Trend, Issue or Factor?	Levels of Service	Growth and Demand	Revenue and Funding	Regulatory or Stakeholder Requirements or Constraints
Social	Changing demographics – Usually Resident Population	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 The usually resident population is also aging.	Potential shift in LoS priorities e.g. demand for wider footpaths to accommodate mobility scooters.	Improvements required on Urban edge as population increases Additional footpaths Seal extensions	Increased costs to meet the growth needs.	No impact anticipated
Social	Changing demographics – Holiday Homes	The number of holiday homes in the district has been increasing over the last few years. Key growth areas for holiday homes and subdivision activity are: <ul style="list-style-type: none"> • Ohakune • Rangataua • National Park • Horopito 	Increasing community expectation regarding levels of service, in particular widening and/or sealing roads, and provision of footpaths, kerbing and stormwater channels. RDC has established a policy regarding seal extensions for subdivisions.	Minor growth in asset base through adoption of third party infrastructure from greenfield growth. Increasing traffic volumes on urban periphery roads due to a range of factors including tourism, ski area growth, lifestyle changes and some subdivision. Holiday homes occupancy contributes to seasonal peaks in traffic due to high avg occupants per home (4.4-4.7) compared to normally resident households (2.5).	The increase in holiday homes in the district has been sustaining the District's rates base despite the gradual decline in the usually resident population. However, the forecast growth in rateable assessments for the district is low (~5% over the next ten years).	No impact anticipated
Technological	Electric Vehicles	Increase in electric vehicle numbers	Working with other agencies a LoS has to be established and supported for the supply of adequate charging stations	No impact anticipated	No impact anticipated	No impact anticipated

What are the anticipated impacts on RDC Land Transport Activity?						
Category	Trends, Issues or Factors	What is the Trend, Issue or Factor?	Levels of Service	Growth and Demand	Revenue and Funding	Regulatory or Stakeholder Requirements or Constraints
Technological	Digital Disruption	<p>The increase in the availability of digital information and systems that could disrupt or support the delivery of Land Transport. For example:</p> <ul style="list-style-type: none"> • Digital twinning (digital representation of the physical world) • Asset sensors • Control systems • Mobility-as-a-service (smart car-sharing) 	Greater data could allow for increase in quality of decision making and/or process efficiencies to be attained	Mobility-as-a-service could change demand for car ownership levels	Digital improvements often need an upfront investment. This will either be difficult to fund or reduce short term operational funding while investments are being made for future benefit	A growing amount of the community, road users and tourists are digitally savvy and therefore will increase the need for Council to provide information in more digital formats as well as an increase in data expectations overall
Technological	Change in Class 1 Maximum (44 - 47 tonnes)	<p>50MAX trucks have been introduced to the NZ road network. 50MAX are trucks that are slightly longer than standard 44 tonne vehicles and have an additional axle (9 in total) in order to operate at 50 tonnes maximum total weight.</p> <p>High Productivity Motor Vehicles (HPMVs) can be longer, wider or heavier than standard vehicles. Council has no HPMV routes but these vehicles can travel by permit if necessary.</p>	<p>50MAX are permitted on RDC roads as they are designed to have no greater pavement wear than the current 44 tonne vehicle fleet. However, they are restricted from some bridges and narrow roads in the district. NZTA is upgrading all 50MAX restricted bridges on the State Highway network. Longer term there may be increased pressure on RDC to upgrade 50MAX restricted bridges in the district.</p>	No impact anticipated	If 50MAX routes are required, funding will be required from rates. Upgrading roads and bridges to be suitable for the larger, heavier vehicles is costly and as most roads would be classified as Access accessing NZTA funding will be restricted.	No impact anticipated

Category	Trends, Issues or Factors	What is the Trend, Issue or Factor?	What are the anticipated impacts on RDC Land Transport Activity?			Regulatory or Stakeholder Requirements or Constraints
			Levels of Service	Growth and Demand	Revenue and Funding	
Environmental	Climate Change	<p>Climate change is expected to impact the frequency and severity of weather-related hazards (rainfall patterns, storm intensity and frequency, drought):</p> <ul style="list-style-type: none"> • Increase in overall rainfall, with increase in rainfall intensity • Number and strength of ex-tropical cyclones reaching NZ also likely to increase • Decrease in winter temperatures and snowfall. Places which currently receive snowfall likely to see shift to rainfall or sleet. 	Potential decrease in route availability and resilience	No impact anticipated	Potential increases in Emergency Works expenditure associated with the effects of increased rainfall intensity and frequency (e.g. landslips, flooding, bridge scour). Emergency Works budget has remained steady based on past 5 year average.	No impact anticipated

D2 Schedule 2 – Land Transport Activity Risk Register

The risk register in the following table identifies risks for the current and future Land Transport activities of Ruapehu District Council. It has been developed in consultation with key staff. It is informed by the PESTLE analysis (Schedule 1) and key staff's knowledge of Asset Management Functions.

Land Transport maintains its master risk register as part of its online Asset Management Improvement Programme tool (AirTable). These will be monitored as part of the ongoing improvement programme management. Any improvement actions required to manage risk are treated as part of the broader improvement tasks register.

The Risk Register analyses risks that have a higher risk profile than the routine levels of service maintenance. The process for identifying the risks is outlined in Part 1 Managing Risk (Section 8).

Once risks have been identified and evaluated the next step is to understand the options for tolerating the risk. That is, is it a risk the council will accept or should a mitigation/management strategy be created.

Risk Tolerance has been defined as

- **Reduce:** The risk is unacceptable and must be reduced.
- **Tolerate:** The risk can be tolerated provided it is as low as reasonably practicable. Opportunities to reduce the risk further should be identified and implemented where it is practicable (cost-effective) to do so. The risk should be actively monitored to ensure it remains as low as reasonably practicable.
- **Accept:** The risk is acceptable and does not need to be reduced further. The risk should be periodically reviewed to ensure it remains as low as reasonably practicable.

All the risks described in this section are owned by the Land Transport Manager and it is their task to ensure that risks are communicated, reviewed and reported on appropriately.

The below table provides a snapshot of the current risk register.

Risk ID	Risk Name	Risk Description	Current Actions/ Controls addressing the risk	Consequence	Likelihood	Risk Score	Tolerance	Review Date
LT1	Collapse of unmaintained bridges	<p>* Potential failure of unmaintained bridges leading to injury, death and/or environmental impact.</p> <p>* Full extent of exposure is unknown as the total number of unmaintained structures is unknown. Currently 24 unmaintained bridges have been identified.</p> <p>* Although inspections of the 24 identified bridges are carried out every 2 years, RDC has so far been unable to reduce this risk.</p> <p>* Some bridges have significant (> 5m) drops beneath them.</p>	2-yearly inspections of the 24 known bridges.	Catastrophic	Possible	Extreme	Reduce	1/4/2021
LT17	Maintenance and renewal contract tendered prices increase significantly	<p>The road maintenance and renewal contracts finish in June 2022. There is a risk that the tendered prices that are submitted will be higher than the budgeted level of inflation. The following supports this risk:</p> <p>* Recent national feedback from the initial bids to Waka Kotahi NZTA in October 2020 shows they are seeing increases up to 40% on previous pricing</p> <p>* The increased funding for "Shovel Ready" projects (as part of the COVID-19 response financial stimulus package) will increase demand for the finite resources available in the construction and road industry</p> <p>* Expectations that Council will have</p>		Catastrophic	Possible	Extreme	Tolerate	30/6/2021

Risk ID	Risk Name	Risk Description	Current Actions/ Controls addressing the risk	Consequence	Likelihood	Risk Score	Tolerance	Review Date
		<p>to support costs to train new resources to fill the gaps as part of the COVID-19 financial stimulus package to deal with the resource shortages</p> <p>* The NZ Government Climate declared a Climate Emergency in Dec 2020. There is a likelihood that the modifying the contracts to support the use of more sustainable materials, equipment and practices will further increase the upward pressure on prices</p>						

Risk ID	Risk Name	Risk Description	Current Actions/ Controls addressing the risk	Consequence	Likelihood	Risk Score	Tolerance	Review Date
LT16	Impact of COVID-19 pandemic on the economy and hence funding for roading works	<ul style="list-style-type: none"> * Potential material reduction in tourism activity in the district could reduce income to Council (rates income) * Central government income has been impacted (including petrol tax) which could flow in to a reduction in available funds for local government maintenance and renewals * Reduced funding will lead to reduced Levels of Service able to be provided to the community and road users * COVID-19 pandemic has had some impacts on the global movement of goods and materials * Council chooses to shrink overall budgets in the future 	New risk no current actions	Minor	Almost Certain	High	Accept	1/3/2021

Risk ID	Risk Name	Risk Description	Current Actions/ Controls addressing the risk	Consequence	Likelihood	Risk Score	Tolerance	Review Date
LT2	Increased pavement deterioration due to forestry haulage	<ul style="list-style-type: none"> * Increases in HCVs, primarily due to forestry harvesting over the next 20 years, impacting pavement deterioration. * This is the first round of forestry harvests from 1990s planting programme. * Potentially 24 million tonnes of timber to be exported over next 20 years (~23,000 tonnes/week). * Plantation locations are known but timing of harvests is unknown. * Some uncertainty re likely freight routes as influenced by commercial decisions about preferred export location. * Expect significant impacts on ~15% of sealed network (~150km). Potentially reduce pavement life from 65 years to 30 years. Also increased maintenance on unsealed network. * Increased costs for pavement rehab as need to design for increased HCV loads (expect most plantations to be replanted). 	<ul style="list-style-type: none"> * Budget allocation for pavement renewals was increased from 0.5km in 2006 to 7km per year in 2009. * RDC has agreements on a case by case basis with some forest owners that forest owners will pay for any increased maintenance on the unsealed network due to forestry haulage. This covers some of the unsealed roads likely to be affected. * Due to difficulty of predicting pavement deterioration, typically respond reactively to forestry industry requests for works on roads. 	Significant	Likely	High	Tolerate	1/5/2021

Risk ID	Risk Name	Risk Description	Current Actions/ Controls addressing the risk	Consequence	Likelihood	Risk Score	Tolerance	Review Date
LT5	Collapse of maintained bridges	<ul style="list-style-type: none"> * Potential failure of maintained bridges resulting in route closure. * The district's bridge stock is aging, with most bridges constructed prior to 1972 before the introduction of modern seismic standards. * Heavy vehicles crossing bridges against restrictions (weight and speed) 	<ul style="list-style-type: none"> * All bridges are structurally inspected every 6 years. However, programmed seismic assessments have not been undertaken. * Bridges requiring strengthening or replacement are identified from 6 yearly inspections. Renewals/upgrades are prioritised based on condition, freight load, traffic and availability of alternative routes. However, RDC generally cannot afford to fund bridge replacements without NZTA funding (some bridges on low volume roads do not qualify). * Weight restrictions in place where applicable * currently there are 16 Class 1 weight-restricted bridges. * There are also a further 5 speed only restricted bridges. These bridges have structural inspections every 2 years. * Bridges will be inspected immediately following a seismic event, with closures or restrictions put in place accordingly. * Restrictions are not always complied with increasing risk to both user and the bridge * Re-inspect when aware of non-compliance * Bridge Closure if risk of immediate failure identified. Followed by assessment of options to maintain LoS * Temp bridge * Detour * Emergency repairs 	Catastrophic	Unlikely	High	Reduce	1/5/2021

Risk ID	Risk Name	Risk Description	Current Actions/ Controls addressing the risk	Consequence	Likelihood	Risk Score	Tolerance	Review Date
LT9	Changing road user trends causing safety issues	<ul style="list-style-type: none"> * Changing road user trends results in increase in fatal/serious accidents on the road network. Trends include: * HCV movements * Motor homes * Cyclists * Unfamiliar or inexperienced drivers * Recreational road users (e.g. adventure bikers) * Te Araroa / Freedom walkers 	<ul style="list-style-type: none"> * Consider temporary warning signs on routes with forestry harvesting as required. * Cycle Awareness Strategy * Draft Delineation Policy * MOTSAM 	Catastrophic	Unlikely	High	Tolerate	1/5/2021
LT11	Snow and Ice causing road closures	<ul style="list-style-type: none"> * Road closures and traffic accidents resulting from snow and ice on district roads. * High frequency hazard impacting Central Plateau and mountain roads. (E.g. roads through National Park are closed on average 3 days per year). * Local centres can remain isolated after State Highways are opened because local roads still blocked/iced. 	<ul style="list-style-type: none"> * RDC implements pre-treatment (CMA, gritting and snow clearing for the Ohakune Mountain Road * There is no contracted response for Local Road network. Contractors do have equipment for clearing roads (i.e. snow ploughs that can be called upon. However, it is prioritised to the State Highway network. 	Significant	Possible	High	Tolerate	1/5/2021
LT13	Ability to deliver Asset Management Programme	<ul style="list-style-type: none"> * Council loses access to the necessary skilled resources to deliver the Land Transport Programme. * These resources are made up of internal and external resources (consultants and contractors) * Loss of Intellectual property through loss of key staff * Need for competitive procurement environment creating undesired change to personnel 	<ul style="list-style-type: none"> * Procurement strategy is the primary location where this risk is managed * Breaking up of physical work contracts helped provide a more sustainable supplier market * Contractual requirements for consultants and contractors to meet expectations of providing skilled resources 	Major	Possible	High	Tolerate	1/5/2021

Risk ID	Risk Name	Risk Description	Current Actions/ Controls addressing the risk	Consequence	Likelihood	Risk Score	Tolerance	Review Date
LT14	Availability of materials (Aggregates)	<ul style="list-style-type: none"> * Can't complete work due to aggregates becoming more scarce. * Changes to resource consents reducing quarry quantities * Increased H&S requirements on quarries increases costs * Nationwide shortages of suitable aggregate causing scarcity and cost increases 	<ul style="list-style-type: none"> * Annual aggregate negotiations at start of financial year * NZTA specs for other aggregates that can be used (but don't meet M4 standard) 	Significant	Possible	High	Tolerate	1/5/2021
LT15	Achieving the Expected Lives for Pavements and Surfaces	<ul style="list-style-type: none"> * The design and workmanship are inadequate for surfaces and pavements to fully achieve their expected lives * This can include pre-mature failure * This is a risk every year from design and works completed in the past * Failures increase the future need for more renewals to be programmed * This undermines achieving the lowest whole-of-life value for for the network 	Liaison with contractors (focus group) to proactively encourage the programmes to be completed in the correct timeframes	Major	Possible	High	Reduce	1/5/2021

Risk ID	Risk Name	Risk Description	Current Actions/ Controls addressing the risk	Consequence	Likelihood	Risk Score	Tolerance	Review Date
LT6	No programme to open up more network to 50MAX Vehicles	<ul style="list-style-type: none"> * No programme to upgrade bridges to open up more of the network to 50 MAX Vehicles (there is no requirement to do this) * Reputational risk that complaints are received from some industries that this affects their efficiency or economic viability <p>Notes:</p> <ul style="list-style-type: none"> * NZTA is upgrading all 50MAX restricted bridges on the State Highway network * Increases in HCV traffic in the district resulting from primary sector trends (refer PESTLE Analysis for summary) may lead to increased pressure on RDC to upgrade 50MAX restricted bridges in the district * NZTA funding for 50MAX upgrades may be restricted on low volume roads 	<ul style="list-style-type: none"> * Some weight restricted bridges will be upgraded in 2018/28 AMP to 100% of Class I * RDC is not currently planning to upgrade any additional 50MAX restricted bridges. * All 50MAX restricted bridges have been identified and mapped on GIS. * Bridges to be assessed for 50 Max requirements and prioritised 	Significant	Unlikely	Medium	Accept	31/12/2021
LT7	Footpaths – pedestrian slip, trip and fall hazards	<ul style="list-style-type: none"> * Pedestrian injury caused by unidentified trip hazards on footpaths. * Footpaths generally in good condition. 	<ul style="list-style-type: none"> * Footpath inspections * Annual Lip grinding programme * Attend to footpath surface that have a reported issue with people slipping * Prioritise footpaths for reactive maintenance/renewal based on risk assessment. 	Minor	Unlikely	Medium	Accept	31/12/2021
LT8	Deep side drains are a safety hazard	<ul style="list-style-type: none"> * Injury or death attributable to deep drain hazards. * Deep drains adjacent to roads are a feature of the Ruapehu District road network. These drains pose a safety hazard to road users. 	<ul style="list-style-type: none"> * Deep drains are repositioned / re-profiled in conjunction with pavement renewals. * Repositioning or reprofiling of drains during renewals should take into consideration any effects on stormwater capacity and potential flooding issues. 	Significant	Unlikely	Medium	Accept	31/12/2021

Risk ID	Risk Name	Risk Description	Current Actions/ Controls addressing the risk	Consequence	Likelihood	Risk Score	Tolerance	Review Date
LT10	Major hazardous substance incidents	<ul style="list-style-type: none"> * A major spill can have a significant environmental impact. For example, impacts on RDC rivers and water supplies * Current known distribution of spills includes State Highways, rail and local roads (e.g. fuel deliveries to farms, chemicals to water treatment plants). * Current incident frequency is approx. 1 incident per year (most likely to occur on a state highway). 	<ul style="list-style-type: none"> * Fire service provides initial containment, RDC maintenance contractors provide traffic and detour management. Nearest hazmat cleanup team is Palmerston North (3 hours away). * Maintaining Regional capability through CDEM Group Hazardscape Planning * Continue to support Emergency Management structures within Council and Region * Carriers have existing and effective controls in place for the transport of hazardous substances. 	Significant	Unlikely	Medium	Accept	31/12/2021

Appendix E - Resource Consents

Below is a list of all the current consents Land Transport holds with Horizons Regional Council.

Consent No	Consent Status	Type	Sub Type	River	Location	Volume	Description	Commence	Expire	Review
ATH-2000008852.00	Current	Bridge Construction	Land Use Consent (River & Lake Beds)	Makara Stream	Whangaehu		Bridge Construction	17/10/2000	26/09/2035	
101400	Current	Land Use Consent	River and Lake Beds	Makotuku River	Raetihi Ohakune Road, Raehiti		Bridge Construction	17/10/2000	26/09/2035	
ATH-2007011672.01	Current	Bridge Construction & Maintenance	Land Use Consent (River & Lake Beds)	Mangakahikatoa Stream	Northern Whanganui		Bridge Construction & Maintenance	25/05/2007	2/04/2042	
ATH-2007011672.02	Current	Bridge Construction & Maintenance	Land Use Consent (River & Lake Beds)	Mangakahikatoa Stream	Northern Whanganui		Bridge Construction & Maintenance	25/05/2007	2/04/2042	
105108	Current	Discharge Permit	Land		Raetihi Ohura Road, Shorts Hill, Raetihi	13,890m3 of cleanfill	Cleanfill Discharge	10/12/2009	19/11/2014	S.124 Existing Use
102074	Current	Land Use Consent	River and Lake Beds	Makara Stream	Middle Road, Horopito West		Culvert Construction	1/02/2002	17/12/2036	
103862	Current	Land Use Consent	River and Lake Beds	Maukuroa Stream	Miro Street , Manunui, Taumarunui		Culvert Construction	6/12/2006	15/11/2042	
6087	Current	Land Use Consent	River and Lake Beds	Pipiriki Raetihi Road, RD 6, Raetihi			Culvert Construction	6/06/1995	17/05/2030	
101040	Current	Land Use Consent	River and Lake Beds	Waitaanga Stream	Waitaanga North Road, Waitaanga		Culvert Construction	26/04/2000	31/03/2035	
ATH-1995004266.00	Current	Culvert Construction	Land Use Consent (River & Lake Beds)	Mangaetoroa River	Whangaehu		Culvert Construction	08/06/1995	17/05/2030	
ATH-2002009608.00	Current	Culvert Construction	Land Use Consent (River & Lake Beds)	Makara Stream	Whangaehu		Culvert Construction	01/02/2002	17/12/2036	
ATH-1996004307.00	Current	Culvert Construction	Land Use Consent (River & Lake Beds)	Mangaetoroa Stream	Whangaehu		Culvert Construction	27/09/1996	6/09/2031	

Consent No	Consent Status	Type	Sub Type	River	Location	Volume	Description	Commence	Expire	Review
ATH-2000008446.00	Current	Culvert Construction	Land Use Consent (River & Lake Beds)	Penetaiti Stream	Whanganui River		Culvert Construction	26/04/2000	31/03/2035	
ATH-2006011536.00	Current	Culvert Construction	Land Use Consent (River & Lake Beds)	Whanganui River	Northern Whanganui		Culvert Construction	06/12/2006	15/11/2042	
4335	Current	Land Use Consent	River and Lake Beds		Oio Road, Retaruke		Culvert Construction and Maintenance	22/04/1994	30/03/2029	
ATH-1994001334.00	Current	Culvert Construction & Maintenance	Land Use Consent (River & Lake Beds)	Retaruke River	Northern Whanganui		Culvert Construction and Maintenance	22/04/1994	30/03/2029	
ATH-1996004135.00	Current	Erosion Protection Works	Land Use Consent (River & Lake Beds)	Mangawhero River	Whangaehu		Erosion Protection Works	24/06/1996	31/05/2031	
ATH-2007011668.00	Current	Fish Passage Construction	Land Use Consent (River & Lake Beds)	Makara Stream	Northern Whanganui		Fish Passage Construction	20/04/2007	28/03/2042	
105635	Current	Land Use Consent	River and Lake Beds	Mangawhero River	Mangawhero Terrace, Ohakune		Land Disturbance	17/02/2011		
ATH-2011013708.00	Current	Land Disturbance	Land Use Consent (River & Lake Beds)	Mangawhero River	Whangaehu		Land Disturbance	17/02/2011		
103876	Current	Land Use Consent	River and Lake Beds	Maukuroa Stream	Miro Street , Manunui, Taumarunui		Land Disturbance and Excavation	6/12/2006	15/11/2042	
ATH-2006011552.00	Current	Land Disturbance & Excavation	Land Use Consent (River & Lake Beds)	Whanganui River	Northern Whanganui		Land Disturbance and Excavation	06/12/2006	15/11/2042	
ATH-2008012440.00	Current	Multi-Culvert Ford Reconstruction	Land Use Consent (River & Lake Beds)	Mangaetoroa Stream			Multi-Culvert Ford Reconstruction	04/11/2008	1/07/2043	
104541	Current	Land Use Consent	River and Lake Beds	Makotuku River	Ruapehu District Council Road Reserve		Multi-Culvert Ford Reconstruction	4/11/2008	1/07/2043	
103970	Current	Land Use Consent	River and Lake Beds	Ohura River			Multiple Bridge Construction and Maintenance	25/05/2007	2/04/2042	

Consent No	Consent Status	Type	Sub Type	River	Location	Volume	Description	Commence	Expire	Review
105581	Current	Land Use Consent	River and Lake Beds	Mangawhero River	Mangawhero Terrace, Ohakune		Pedestrian Bridge Construction	17/02/2011		
ATH-2011013646.00	Current	Pedestrian Bridge Construction	Land Use Consent (River & Lake Beds)	Mangawhero River	Whangaehu		Pedestrian Bridge Construction	17/02/2011		
ATH-2018202110.00	Current	Rangiwaea Stream Culvert Replacement	Land Use Consent (River & Lake Beds)	Rangiwhaia Stream	Whangaehu		Rangiwaea Stream Culvert Replacement	16/10/2018	1/07/2023	
ATH-2009013094.00	Existing Use Protection Applies (s124)	Recontouring & Earthworks	Land Use Consent (Land)	Hoihenga Stream	Northern Whanganui		Recontouring and Earthworks	10/12/2009	19/11/2014	S.124 Existing Use
105107	Current	Land Use Consent	Land		Raetihi Ohura Road, Shorts Hill, Raetihi	13,890m3 of cleanfill	Recontouring and Earthworks	10/12/2009	19/11/2014	S.124 Existing Use
101046	Current	Land Use Consent	River and Lake Beds	Mangawhero Stream	Ohakune		River Control Works	17/07/2000	26/06/2035	
100330	Current	Land Use Consent	River and Lake Beds	Ongarue River	Ongarue Back Road Bridge		River Control Works	1/12/1998	10/11/2032	
100585	Current	Land Use Consent	River and Lake Beds	Piopiotea Stream,	Raurimu Road and Uwaha Road		River Control Works	27/04/1999	6/04/2034	
ATH-1996004778.00	Current	Road Construction	Land Use Consent (Land)	Mangaetoroa Stream	Whangaehu		Road Construction	23/01/1996	6/12/2030	
ATH-1996004783.00	Current	Road Construction	Land Use Consent (Land)	Mangaetoroa Stream	Whangaehu		Road Construction	23/01/1996	6/12/2030	
7008	Current	Land Use Consent	River and Lake Beds	Mangoihe Stream	Raetihi to Pipiriki Road		Road Construction	3/03/1997	10/02/2032	
ATH-1997003322.00	Current	Road Construction	Land Use Consent (River & Lake Beds)	Mangoihe Stream	Northern Whanganui		Road Construction	03/03/1997	10/02/2032	
6388	Current	Land Use Consent	Land		Raetihi-Pipiriki Road, Raetihi		Road Construction	23/01/1996	6/12/2030	
6391	Current	Land Use Consent	Land		Raetihi to Pipiriki Road		Road Construction	23/01/1996	6/12/2030	
ATH-2002009743.00	Current	Slip Material Clearing	Land Use Consent (Land)	Whanganui River	Northern Whanganui		Slip Material Clearing	24/05/2002	3/05/2039	

Consent No	Consent Status	Type	Sub Type	River	Location	Volume	Description	Commence	Expire	Review
103708	Current	Land Use Consent	River and Lake Beds	Whanganui River	Pukehou Road, Kakahi		Stopbank Construction	13/10/2006	22/09/2041	
ATH-2006011369.00	Current	Stopbank Construction	Land Use Consent (River & Lake Beds)	Whanganui River	Northern Whanganui		Stopbank Construction	13/10/2006	22/09/2041	
ATH-2010012849.00	Current	Stopbank Construction	Land Use Consent (River & Lake Beds)	Whanganui River	Northern Whanganui		Stopbank Construction	15/03/2010		
ATH-2010013227.00	Current	Stopbank Construction	Land Use Consent (River & Lake Beds)	Whanganui river	Northern Whanganui		Stopbank Construction	15/03/2010		
104900	Current	Land Use Consent	River and Lake Beds		Pukehou Road, Kakahi		Stopbank Construction	15/03/2010		
105227	Current	Land Use Consent	River and Lake Beds		Pukehou Road, Kakahi		Stopbank Construction	15/03/2010		
103301	Current	Discharge Permit	Water		Mountain road, Mt Ruapehu		Stormwater Discharge (Containing Calcium Magnesium Acetate, CMA)	3/06/2005	30/05/2015	S.124 Existing Use
103302	Current	Discharge Permit	Land		Mountain road, Mt Ruapehu		Stormwater Discharge (Containing Calcium Magnesium Acetate, CMA)	3/06/2005	30/05/2015	S.124 Existing Use
6531	Current	Water Permit	Non-consumptive	Whangaehu River	Whangaehu Valley Road		Stormwater Diversion	15/05/1996	23/04/2031	
101150	Current	Water Permit	Non-consumptive	Waitaanga Stream	Waitaanga North Road, Waitaanga		Temporary Waterway Diversion	26/04/2000	31/03/2035	
100627	Current	Water Permit	Non-consumptive	Piopiotea Strea,	Raurimu Road and Uwha Road		Water Diversion	28/04/1999	7/04/2034	
101593	Current	Water Permit	Non-consumptive	Whanganui River	Matapuna Bridge, Taumarunui		Water Diversion	2/06/2001	12/05/2031	
101595	Current	Water Permit	Non-consumptive	Whanganui River	Matapuna Bridge, Taumarunui		Water Diversion	4/06/2001	14/05/2031	
102962	Current	Water Permit	Non-consumptive	Whanganui River	Marsack Road, Taumarunui		Water Diversion	5/08/2004	5/08/2039	

Consent No	Consent Status	Type	Sub Type	River	Location	Volume	Description	Commence	Expire	Review
104542	Current	Water Permit	Non-consumptive	Makotuku River	Ruapehu District Council Road Reserve		Waterway Diversion Construction	4/11/2008	1/07/2043	
ATH-2008012441.00	Current	Waterway Diversion Construction	Water Permit (Non-Consumptive)	Mangaetoroa Stream	Whangaehu		Waterway Diversion Construction	04/11/2008	1/07/2043	

Appendix F – Cycleway Maintenance Responsibility Table

Section	From	To	Trail Length	River	Connecting Length	Owner	Maintained by	Surface Type	Off Road	RDC Maintained Rd Network	RDC Paper Road	RDC Paper Rd maintained by DOC	DOC	Other
Ohakune Old Coach Road	Ohakune	Horopito	11.1			DOC	DOC		Y				11.1	
Old Station Rd	Thames St	Marshalls Rd			1.0	RDC	RDC	Seal with off road gravel cycle path	Y	1.0				
Marshalls Rd	Old Station Rd	Old Coach Road			1.5	RDC	RDC	Gravel		1.5				
Clydes Access	Old Coach Road	Matapuna Rd			1.4	RDC	RDC	Gravel & 2 fords		1.4				
Ruatiti & Middle Road	Horopito	Mangapurua												
Farm Section	Clydes Access	SH4			0.6	RDC	RDC	Gravel		0.6				
SH4	Clydes Access	Hutiwai Road			0.2	NZTA	RDC	Gravel off road trail	Y	0.2				
Hutiwai Rd	SH4	Harore Rd			0.2	RDC	RDC	Gravel		0.2				
Harore Rd	Hutiwai Rd	Middle Rd			0.4	RDC	RDC	Grass	Y		0.4			
Middle Rd	Harore Rd	Ruatiti Rd			13.5	RDC	RDC	Gravel		13.5				
Ruatiti Rd	Middle Rd	Makino Rd			14.3	RDC	RDC	Seal		14.3				
Mangapurua Track	Makino Rd	Mangapurua Rd			14.8	RDC	RDC	Gravel		14.8				
Mangapurua Track	Mangapurua Rd	Mangapurua Landing, Whanganui River	36.0			DOC	DOC		Y			36.0		
Mangapurua Landing	Mangapurua Landing	Pipiriki		32.0		N/A	N/A	Whanganui River	Y					32.0
Whanganui River Road	Pipiriki	Whanganui												
Whanganui River Road	Pipiriki	District Boundary			6.4	RDC	RDC	Seal	N	6.4				
Whanganui River Road	District Bdy	SH4			57.6	WDC	WDC	Seal	N					57.6
SH4	Whanganui River Rd	Whanganui			11.0	NZTA	NZTA	Seal	N					11.0
Whanganui	SH4	North Mole (Trail end)			10.0	WDC	WDC	Gravel off road trail	Y					10.0
Alternative M2S Track														
Kaiwhakauka Track	End of Oio Road	Mangapurua Trig							Y					
Depot Rd	Oio Road	Mangapurua Rd			1.0	RDC	RDC	Metal	Y	1.0				
Mangapurua Rd	Kaiwhakauka Track	Kaiwhakauka Track (Doc Section)			5.0	RDC	RDC	Metal	Y	5.0				
Kaiwhakauka Track	Mangapurua Rd	Doc Section	10.0			DOC	DOC	Gravel cycle path	Y			10.0		
Tracks Connector	Upper Retaruke Rd	End of Oio Rd (Whakahoro)												
Oio Rd	Upper Retaruke Rd	End of Oio Rd			7.0	RDC	RDC	Seal		7.0				
Oio Rd	Upper Retaruke Rd	End of Oio Rd (Whakahoro)			18.0	RDC	RDC	Metal		18.0				
Fishers Track	National Park	Kurua Road	15			RDC	RDC	Gravel / Grass	Y			15		
Fisher Rd	Pehi Rd	Kurua Rd			1.2	RDC	RDC	Metal		1.2				
Kurua Rd	Fisher Rd	Upper Retaruke Rd			4.6	RDC	RDC	Gravel / Grass		4.6				
Kurua Rd	Fisher Rd	Upper Retaruke Rd			9.8	RDC	RDC	Metal		9.8				
Upper Retaruke Rd	Kurua Rd	Monument (Junction of Oio Rd & Upper Retaruke)			9.3	RDC	RDC	Metal		9.3				
Upper Retaruke Rd	Kurua Rd	Monument (Junction of Oio Rd & Upper Retaruke)			2.1	RDC	RDC	Seal		2.1				
			72.1	32.00	190.9			Total	295.00	111.9	15.4	46.00	11.1	110.6
Timber Trail	Pureora	Ongarue	72.0			DOC	DOC	35km in District	Y				35.0	37.0
Timber Trail Car park	Timber Trail Car park	Ongarue			1.8	RDC	RDC	Seal		1.8				
Ongarue	Ongarue	Okahukura Bridge Rd			12.7	RDC	RDC	Metal		12.7				
Okahukura Bridge Rd	Okahukura Bridge Rd	Taumarunui			7.5	RDC	RDC	Seal		7.5				
			72.0		22.0			Total	94.0	22.0	0.0	0.0	35.0	37.0
	Taumarunui	District Boundary			180	NZTA	NZTA	Seal 51km in District						180.0
	Taumarunui	Kawautahi Rd			9.6	RDC	RDC	Seal		9.6				
	Taumarunui	Kawautahi Rd			14.4	RDC	RDC	Metal		14.4				
	Hikumu Rd	Oio Rd			1.9	RDC	RDC	Seal		1.9				
	Hikumu Rd	Oio Rd			18.5	RDC	RDC	Metal		18.5				
			224.4					Total	224.4	44.4	0.0	0.0	0.0	180.0
			144.1	32.0	437.3			Total	613.4	178.3	15.4	46.0	46.1	327.6

Note: All lengths in kilometres (km)

Appendix G – Restricted and Unmaintained Bridges

G1 - Weight Restricted Bridges

Bridge No.	Bridge Name	Road Name	Maximum Weight on any One Axle (kg)	Gross Weight (Maximum sum of Axle Weight)	Gross Weight (Maximum sum of Axle Weight) (kg)	Maximum Speed Limit (Km/h)	Comments
4	Aitchesons	Mangakara	8,200	90% Class I	17700	10	Note: Class 1 is 8,200kg axle
19	Heao No.1	Heao	4,000	40% Class I	8000	5	
43	Knights	Knights	8,200	50% Class I	10000	15	Additional bracing would increase capacity to 70%
147	Kokopuiti Rail Over Bridge	Kokopuiti	5,700	50% Class I	11000	15	Inspection says 55% Class 1, but signs in 10% increments
148	Waipu Rail Over Bridge	Waipu	5,000	50% Class I	10000	5	
153	Waikaka Rail Overbridge	Waikaka	8,200	90% Class I	18000	15	New Posting
174	Rimu No.2	Rimu	6,500	60% Class I	12000	15	
186	Tockers	Tangarakau	3,400	30% Class I	6000	15	Removal of sand from deck will increase to 40% Class I
218	Lacy's Suspension	Te Rata	6,000		9200	10	Note current restriction is a reduction from previous 10,500kg
240	Woods	Woods	5,700	50% Class I		50	
278	Hoihenga Suspension	Hoihenga	5,000		10000	15	
292	Rail Over Bridge	Mangateitei	8,200	70% Class I	14000	15	
297	Mangawhero Stream	Matahiwi Track	8,200	80% Class I	16000	5	
308	Haitanas Suspension	Haitana's Access	7,200		12000	15	
309	Thompsons Bridge	Haitana's Access	7,200	60% Class I		15	
404	Ruapehu Road Rail Overbridge	Ruapehu Road	2,500	40% Class I	5000	50	Note: this is heavier than many empty buses, some weigh 13,500kg empty without fuel or driver!

G2 - Speed Restricted Bridges

Bridge No.	Bridge Name	Road Name	Maximum Weight on any One Axle (kg)	Gross Weight (Maximum sum of Axle Weight)	Gross Weight (Maximum sum of Axle Weight) (kg)	Maximum Speed Limit (Km/h)	Comments
30	Grants	Kaikara	8200			10	Speed Restriction - 10kph restriction to remain
60	Mangakara No.4	Mangakara				30	Speed Restriction
71	Mansons Siding	Mansons Siding				30	Speed Restriction
132	Richardsons	Otunui North				30	Speed Restriction - 100% Class I, App D
192	Treacy's	Paparoa				10	Speed Restriction
241	Bodys (Fifields)	Bodys				10	Speed Restriction - 100% Class I App D

G3 - 50max Restricted Bridges

Bridge No.	Bridge Name	Road Name	Location
125	ORANGI	ORANGI ROAD	96
281	TOKITOKIRAU STREAM	MAKAKAHI ROAD	12857
31	KAIKARA #2	KAIKARA ROAD	1246
32	KAIKARA #3	KAIKARA ROAD	1465
132	OTUNUI NORTH NO.3 (RICHARDSON'	OTUNUI NORTH ROAD	4392
147	KOKOPUITI R.O.B.	KOKOPUITI ROAD	227
148	WAIPU R.O.B. (NIHONIHO PAH)	WAIPU ROAD	299
153	WAIKAKA R.O.B.	OHURA NORTH ROAD	6275
174	RIMU ROAD NO.2	RIMU ROAD	1395
186	TANGARAKAU ROAD NO.1	TANGARAKAU ROAD	86
19	HEAO #1	HEAO ROAD	3939
192	TE MAIRE MANGAOHUTU NO.4 (TREA	PAPAROA ROAD	7169
218	LACY'S SUSPENSION	OIO ROAD	42996
240	WOODS	WOODS ROAD	1604
241	BODY'S (FIFIELDS)	BODY ROAD	65
278	HOIHENGA SUSPENSION	HOIHENGA ROAD	1023
291	MANGATEITEI STREAM #3	MANGATEITEI ROAD	1616
292	R.O.B.	MANGATEITEI ROAD	850
297	MANGAWHERO STREAM	MATAHIWI TRACK	1285
30	KAIKARA #1(GRANT'S)	KAIKARA ROAD	691
308	HAITANAS SUSPENSION	HAITANA'S ACCESS ROAD	145
309	THOMPSON BRIDGE	HAITANA'S ACCESS ROAD	406
4	AITCHESONS	MANGAKARA ROAD	5315
404	OHAKUNE RAIL OVERBRIDGE	RUAPEHU ROAD	2074
43	KNIGHTS	KNIGHTS ROAD	851
60	MANGAKARA NO.4	MANGAKARA ROAD	5534
71	MANSONS SIDING	MANSONS SIDING ROAD	83
331	MANGOIHE STREAM	PIPIRIKI RAETIHI ROAD	12655
339	RUATITI STREAM	RUATITI ROAD	18735

356	WHANGAEHU RIVER (NGAMOKAI)	WHANGAEHU VALLEY ROAD	4614
118	ONGARUE STREAM NO.2 (OKAUAKA)	ONGARUE STREAM ROAD	8323
175	ROTO ROAD NO.1 (KAKAHI)	ROTO ROAD	5550
205	TOKIRIMA NO.3 (BLAREMBURGS)	TOKIRIMA ROAD	6164
385	OHURA RIVER	OHURA ROAD	33066
58	MANGAKARA #2 (MANGAKARA STRM)	MANGAKARA ROAD	1425
89	NGAPUKE NO.2	NGAPUKE ROAD	2130
90	NIHONIHO TRUSS	OHURA NORTH ROAD	6100
91	OHURA MOKAU NO.1 (MATIERE)	OHURA MOKAU ROAD	40

G4 - Unmaintained Bridges

Bridge No.	Bridge Name	Road Name	Route Position	Ward	Remarks
242	Waitangi Access No.2 (McGuinness')	Waitangi Access		Taumarunui	Bridge Closed, for farm use only
447	Tapuiwahine No 2	Tapuiwahine		Ohura	Old wooden bridge. Access to Ohura Mokau? Possibly replaced by farmer
187	Tangarakau Road No.2	Tangarakau	1,500	Ohura	Past Gate Not Maintained
431	Rakautangi Footbridge (Owens)	Symes	270	Waimarino	Suspension Footbridge
448	Rakautangi No 2	Rakautangi (Symes)		Waimarino	Railway iron with ponga deck?
446	Pura Pit	Pura Road, off Waitewhena		Ohura	Access to Ohura County metal pit. May have been replaced by Colin Mackenzie
325	Ongangana Stream	Owairua	2,130	Waimarino	Hardwood Beams with hardwood deck (Understrut), also Photo 04-Sep-98
276	Gillets No.2	Otautau	880	Waimarino	Bridge Closed in 1989
277	Gillets No.3	Otautau	900	Waimarino	Bridge Closed in 1989
425	Tuahu Stream (Small Banana)	Off S.H.4 Parapara's	155,000	Waimarino	Castellated Girders with CIS concrete deck
439	Steeles Bridge (Retaruke River)	Off Oio Road	40,000	National Park	Wooden Deck Steel Truss Bridge
445	Makahiwi	Off Kawautahi	15,290	National Park	Possibly upgraded by Carter Holt for forestry access
307	Maungarongo Pa	Off Burns St.	30	Waimarino	RSJ's with precast concrete deck slabs. Marae Access opposite Bracken Street
444	Maungarongo Pa No.2	Off Burns St.	514	Waimarino	Concrete bridge on 2nd private access to marae
199	Te Whakarae	Motutara	120	Ohura	Not Council Bridge
67	Maungaroa No.4	Maungaroa		National Park	Bridge Closed
419	Cornelius's Bridge	Mangatiti		Waimarino	Private bridge. RDC may do 6-yearly inspections
408	Chasm	Mangaeturoa South Rd	7,045	Waimarino	Private Bridge Concrete Slabs
33	Kaikimotu No.3	Kaikimotu	2,480	Ohura	Not Maintained By Council
34	Kaikimotu No.4	Kaikimotu		Ohura	Not Maintained By Council
149	Kaikimotu No.1	Kaikimotu	483	Ohura	Replaced by Carter Holt. Not Maintained By Council
227	Kaikimotu No.2	Kaikimotu	903	Ohura	Replaced by Carter Holt. Not Maintained By Council
450	Rawnsleys	Crotons		Waimarino	Part of bridge might be on road reserve
442	Mangawhero River	Burns/ Mangawhero River	2,224	Waimarino	Private Bridge with not maintained sign

Appendix H - Forward Works Programme

Work Year	Work Group	Work Type	Work Subtype	Road ID	Start	End	Length (m)	Width	Area	Work Funding Category	Total Cost
2020/21	Rehab	Reconstruction	Generic	OHURA ROAD	15850	16730	880	5.5	4840	Sealed road pavement rehabilitation	(\$ 407,179.33)
2020/21	Rehab	Reconstruction	Generic	ONGARUE VILLAGE ROAD	74	369	295	5.6	1652	Sealed road pavement rehabilitation	(\$ 124,087.28)
2020/21	Rehab	Reconstruction	Generic	RIMU STREET (OHAKUNE)	0	220	220	12.4	2728	Sealed road pavement rehabilitation	(\$ 283,162.96)
2020/21	Rehab	Reconstruction	Generic	MANGAPARO ROAD	3780	5000	1220	6	7320	Sealed road pavement rehabilitation	(\$ 842,699.27)
2020/21	Rehab	Reconstruction	Generic	PORO O TARAO ROAD	8150	9330	1180	6.4	7552	Sealed road pavement rehabilitation	(\$ 463,332.24)
2020/21	Rehab	Reconstruction	Generic	TAUPO ROAD	0	112	112	11	1232	Sealed road pavement rehabilitation	(\$ 47,111.10)
2020/21	Rehab	Reconstruction	Generic	TUHUA ROAD	0	135	135	4.8	648	Sealed road pavement rehabilitation	(\$ 56,785.70)
2021/22	Rehab	Reconstruction	Generic	ONGARUE WAIMIHA ROAD	880	2860	1980	6.1	12078	Sealed road pavement rehabilitation	(\$ 722,691.91)
2022/23	Rehab	Reconstruction	Generic	WHANGAEHU VALLEY ROAD	2490	3150	660	5.8	3828	Sealed road pavement rehabilitation	(\$ 250,800.00)
2022/23	Rehab	Reconstruction	Generic	GOLDFINCH STREET	674	1114	440	9	3960	Sealed road pavement rehabilitation	(\$ 183,920.00)
2021/22	Rehab	Reconstruction	Generic	RUATITI ROAD	6800	8440	1640	5.6	9184	Sealed road pavement rehabilitation	(\$ 721,600.00)
2021/22	Rehab	Reconstruction	Generic	KURURAU ROAD	1500	2400	900	4.5	4050	Sealed road pavement rehabilitation	(\$ 378,000.00)
2021/22	Rehab	Reconstruction	Generic	ONGARUE WAIMIHA ROAD	5980	8500	2520	5.9	14868	Sealed road pavement rehabilitation	(\$ 951,181.74)
2022/23	Rehab	Reconstruction	Generic	RUATITI ROAD	8440	10430	1990	5.5	10945	Sealed road pavement rehabilitation	(\$ 736,300.00)
2022/23	Rehab	Reconstruction	Generic	WHANGAEHU VALLEY ROAD	4580	6400	1820	5.5	10010	Sealed road pavement rehabilitation	(\$ 691,600.00)
2022/23	Rehab	Reconstruction	Generic	RUATITI ROAD	10430	11920	1490	5	7450	Sealed road pavement rehabilitation	(\$ 551,300.00)
2022/23	Rehab	Reconstruction	Generic	RUAPEHU ROAD	1317	2104	787	5.9	4643.3	Sealed road pavement rehabilitation	(\$ 299,060.00)
2023/24	Rehab	Reconstruction	Generic	OIO ROAD	1300	2700	1400	6	8400	Sealed road pavement rehabilitation	(\$ 532,000.00)
2023/24	Rehab	Reconstruction	Generic	TARINGAMOTU ROAD	7200	7500	300	7	2100	Sealed road pavement rehabilitation	(\$ 152,000.00)
2023/24	Rehab	Reconstruction	Generic	RUATITI ROAD	1200	3000	1800	6	10800	Sealed road pavement rehabilitation	(\$ 684,000.00)
2023/24	Rehab	Reconstruction	Generic	PAPAROA ROAD	5000	5500	500	5	2500	Sealed road pavement rehabilitation	(\$ 190,000.00)
2023/24	Rehab	Reconstruction	Generic	PAPAROA ROAD	6290	7170	880	4.5	3960	Sealed road pavement rehabilitation	(\$ 334,400.00)
2026/27	Rehab	Reconstruction	Generic	OHURA ROAD	11000	12000	1000	5.3	5300	Sealed road pavement rehabilitation	(\$ 380,000.00)
2023/24	Rehab	Reconstruction	Generic	OKAHUKURA SADDLE ROAD	30	2150	2120	5.1	10812	Sealed road pavement rehabilitation	(\$ 805,600.00)
2026/27	Rehab	Reconstruction	Generic	OIO ROAD	22500	23000	500	5.3	2650	Sealed road pavement rehabilitation	(\$ 190,000.00)
2024/25	Rehab	Reconstruction	Generic	MANGAPARO ROAD	5000	7000	2000	6	12000	Sealed road pavement rehabilitation	(\$ 760,000.00)
2025/26	Rehab	Reconstruction	Generic	OHURA ROAD	10	6510	6500	5.5	35750	Sealed road pavement rehabilitation	(\$ 2,470,000.00)
2026/27	Rehab	Reconstruction	Generic	OIO ROAD	23000	24750	1750	5.3	9275	Sealed road pavement rehabilitation	(\$ 665,000.00)
2024/25	Rehab	Reconstruction	Generic	HIHI STREET	0	373	373	6.2	2312.6	Sealed road pavement rehabilitation	(\$ 143,605.00)
2024/25	Rehab	Reconstruction	Generic	ONGARUE BACK ROAD	5790	7530	1740	6	10440	Sealed road pavement rehabilitation	(\$ 661,200.00)
2026/27	Rehab	Reconstruction	Generic	OIO ROAD	50	1300	1250	5	6250	Sealed road pavement rehabilitation	(\$ 475,000.00)
2020/21	Rehab	Reconstruction	Generic	OHURA ROAD	15000	15850	850	5.4	4590	Sealed road pavement rehabilitation	(\$ 287,851.83)
2025/26	Rehab	Reconstruction	Generic	PAPAROA ROAD	100	610	510	5	2550	Sealed road pavement rehabilitation	(\$ 229,500.00)
2020/21	Rehab	Reconstruction	Generic	ONGARUE WAIMIHA ROAD	14100	16350	2250	6	13500	Sealed road pavement rehabilitation	(\$ 762,926.70)
2020/21	Rehab	Reconstruction	Generic	OHAKUNE MOUNTAIN ROAD	13500	13940	440	6.4	2816	Sealed road pavement rehabilitation	(\$ 448,683.66)
2027/28	Rehab	Reconstruction	Generic	PAPAROA ROAD	7170	8990	1820	4.7	8554	Sealed road pavement rehabilitation	(\$ 691,600.00)
2024/25	Rehab	Reconstruction	Generic	ONGARUE BACK ROAD	40	1840	1800	6	10800	Sealed road pavement rehabilitation	(\$ 693,000.00)
2028/29	Rehab	Reconstruction	Generic	OHURA ROAD	4000	5000	1000	5.5	5500	Sealed road pavement rehabilitation	(\$ 380,000.00)
2021/22	Bridge	Bridge Renewal	Bridge Renewal	KIRIKAU VALLEY ROAD	3310	3336	26			Bridge and structures renewals	(\$ 314,957.50)
2021/22	Bridge	Bridge Renewal	Bridge Renewal	RUAPEHU ROAD	2074	2104	30			Bridge and structures renewals	(\$ 1,890,000.00)
2022/23	Bridge	Bridge Renewal	Bridge Renewal	UPPER RETARUKE ROAD	6030	6047	17			Bridge and structures renewals	(\$ 221,760.00)
2022/23	Bridge	Bridge Renewal	Bridge Renewal	MANGATEITEI ROAD	850	866	16	4.5	72	Bridge and structures renewals	(\$ 2,694,588.29)
2023/24	Bridge	Bridge Renewal	Bridge Renewal	MANGAHOE ROAD	154	166	12			Bridge and structures renewals	(\$ 161,040.00)
2023/24	Bridge	Bridge Renewal	Bridge Renewal	POKATEA KOKAKONUI ROAD	1853	1855	2			Bridge and structures renewals	(\$ 300,000.00)
2021/22	Bridge	Bridge Repair	Component Replacement	BENNETT ROAD	130	154	24	3	72	Structures component replacements	(\$ 139,700.00)
2021/22	Bridge	Bridge Repair	Component Replacement	KAIKARA ROAD	1465	1474	9			Structures component replacements	(\$ 38,500.00)

Appendix H - Forward Works Programme

Work Year	Work Group	Work Type	Work Subtype	Road ID	Start	End	Length (m)	Width	Area	Work Funding Category	Total Cost
2021/22	Bridge	Bridge Repair	Component Replacement	HAITANA'S ACCESS ROAD	145	192	47			Structures component replacements	(\$ 45,150.00)
2027/28	Rehab	Reconstruction	Generic	PAPAROA ROAD	9990	12090	2100	4.7	9870	Sealed road pavement rehabilitation	(\$ 798,000.00)
2021/22	Bridge	Bridge Repair	Component Replacement	KURUA ROAD	1016	1027	11			Structures component replacements	(\$ 7,950.00)
2021/22	Bridge	Bridge Repair	Component Replacement	WHAKAMARO ROAD	12	32	20			Structures component replacements	(\$ 13,600.00)
2021/22	Bridge	Bridge Repair	Component Replacement	PUKEKAHA ROAD	7170	7195	25			Structures component replacements	(\$ 13,000.00)
2021/22	Bridge	Bridge Repair	Component Replacement	ORUAKUKURU ROAD	15730	15740	10	4	40	Structures component replacements	(\$ 28,550.00)
2021/22	Bridge	Bridge Repair	Component Replacement	BURNAND ROAD	2209	2221	12	3	36	Structures component replacements	(\$ 15,050.00)
2021/22	Bridge	Bridge Repair	Component Replacement	ECHOLANDS ROAD	600	614	14	3	42	Structures component replacements	(\$ 28,350.00)
2022/23	Bridge	Bridge Repair	Component Replacement	HEAO ROAD	3939	3958	19			Structures component replacements	(\$ 45,000.00)
2022/23	Bridge	Bridge Repair	Component Replacement	HOHOTAKA ROAD	4158	4170	12	3	36	Structures component replacements	(\$ 27,250.00)
2022/23	Bridge	Bridge Repair	Component Replacement	HIKUMUTU ROAD	5991	6004	13			Structures component replacements	(\$ 11,000.00)
2027/28	Rehab	Reconstruction	Generic	PAPAROA ROAD	1590	5000	3410	5	17050	Sealed road pavement rehabilitation	(\$ 1,295,800.00)
2022/23	Bridge	Bridge Repair	Component Replacement	OIO ROAD	41441	41452	11			Structures component replacements	(\$ 12,000.00)
2022/23	Bridge	Bridge Repair	Component Replacement	ORUAIWI ROAD	279	294	15			Structures component replacements	(\$ 24,400.00)
2022/23	Bridge	Bridge Repair	Component Replacement	PAPAROA ROAD	318	332	14			Structures component replacements	(\$ 60,700.00)
2022/23	Bridge	Bridge Repair	Component Replacement	HOIHENGA ROAD	1023	1066	43			Structures component replacements	(\$ 22,950.00)
2022/23	Bridge	Bridge Repair	Component Replacement	MAKAKAHI ROAD	12857	12870	13			Structures component replacements	(\$ 23,050.00)
2022/23	Bridge	Bridge Repair	Component Replacement	MURUMURU ROAD	839	849	10			Structures component replacements	(\$ 60,700.00)
2023/24	Bridge	Bridge Repair	Component Replacement	PAPA ROAD	437	448	11			Structures component replacements	(\$ 17,050.00)
2023/24	Bridge	Bridge Repair	Component Replacement	VILES ACCESS ROAD	138	170	32			Structures component replacements	(\$ 50,500.00)
2024/25	Rehab	Reconstruction	Generic	MANGAPARO ROAD	800	1880	1080	5.5	5940	Sealed road pavement rehabilitation	(\$ 410,400.00)
2021/22	Bridge	Bridge Repair	Component Replacement	MANGAKARA ROAD	1425	1455	30			Structures component replacements	(\$ 17,600.00)
2023/24	Bridge	Bridge Repair	Component Replacement	WOODS ROAD	1604	1611	7			Structures component replacements	(\$ 63,900.00)
2023/24	Bridge	Bridge Repair	Component Replacement	MANGAKARA ROAD	5315	5327	12			Structures component replacements	(\$ 11,600.00)
2021/22	Bridge	Bridge Repair	Component Replacement	WILLIAMSONS ROAD	530					Structures component replacements	(\$ 48,000.00)
2021/22	Bridge	Bridge Repair	Component Replacement	MANGAETUROA SOUTH ROAD	6587	6589	2			Structures component replacements	(\$ 30,500.00)
2021/22	Bridge	Bridge Repair	Component Replacement	TAWATA ROAD	14993	14997	4			Structures component replacements	(\$ 35,300.00)
2021/22	Bridge	Bridge Repair	Component Replacement	MIRO STREET (OHAKUNE)	717	723	6	8.5	51	Structures component replacements	(\$ 18,000.00)
2021/22	Bridge	Bridge Repair	Component Replacement	ORUAKUKURU ROAD	4168	4171	3			Structures component replacements	(\$ 28,000.00)
2022/23	Bridge	Bridge Repair	Component Replacement	TARINGAMOTU ROAD	1464	1467	3			Structures component replacements	(\$ 131,200.00)
2022/23	Bridge	Bridge Repair	Component Replacement	PUKEKAHA ROAD	5300	5304	4			Structures component replacements	(\$ 47,200.00)
2023/24	Bridge	Bridge Repair	Component Replacement	TE MAIRE VALLEY ROAD	1137	1141	4			Structures component replacements	(\$ 33,300.00)
2023/24	Bridge	Bridge Repair	Component Replacement	UEPANGO ROAD	1452	1454	2			Structures component replacements	(\$ 16,800.00)
2023/24	Bridge	Bridge Repair	Component Replacement	ARAWA STREET	766	780	14	9	126	Structures component replacements	(\$ 21,250.00)
2023/24	Bridge	Bridge Repair	Component Replacement	GOLDFINCH STREET	674	685	11	9	99	Structures component replacements	(\$ 17,800.00)
2023/24	Bridge	Bridge Repair	Component Replacement	ORUAKUKURU ROAD	15860	15863	3			Structures component replacements	(\$ 45,500.00)
2023/24	Bridge	Bridge Repair	Component Replacement	MANGAWHERO TERRACE	920	923	3			Structures component replacements	(\$ 32,350.00)
2026/27	Rehab	Reconstruction	Generic	BURNAND ROAD	0	1690	1690	5.2	8788	Sealed road pavement rehabilitation	(\$ 642,200.00)
2026/27	Rehab	Reconstruction	Generic	OHURA ROAD	5000	6000	1000	5.5	5500	Sealed road pavement rehabilitation	(\$ 418,000.00)
2022/23	Bridge	Bridge Repair	Component Replacement	HIKUMUTU ROAD	9263	9291	28			Structures component replacements	(\$ 34,550.00)
2020/21	Seal Extension	Seal Extension	Chipseal	PITO STREET	0	261	261	3	783	Road improvements	(\$ 172,700.00)
2020/21	Seal Extension	Seal Extension	Chipseal	OHOEKA STREET	0	345	345	5	1725	Road improvements	(\$ 228,800.00)
2020/21	Seal Extension	Seal Extension	Chipseal	ONEMATUA ROAD	0	134	134	4.2	562.8	Road improvements	(\$ 314,600.00)
2020/21	Seal Extension	Seal Extension	Chipseal	OWHANGO ROAD	837	956	119	3	357	Road improvements	(\$ 79,200.00)
2020/21	Seal Extension	Seal Extension	Chipseal	PORO STREET	102	311	209	3.2	668.8	Road improvements	(\$ 138,600.00)
2020/21	Seal Extension	Seal Extension	Chipseal	TUKA STREET	0	130	130	3.5	455	Road improvements	(\$ 85,800.00)

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Work Year	Work Group	Work Type	Work Subtype	Road ID	Start	End	Length (m)	Width	Area	Work Funding Category	Total Cost
2020/21	Seal Extension	Seal Extension	Chipseal	TANO A STREET	184	441	257	3.5	899.5	Road improvements	(\$ 170,500.00)
2020/21	Seal Extension	Seal Extension	Chipseal	MIHARO STREET	703	735	32	4.8	153.6	Road improvements	(\$ 20,900.00)
2020/21	Seal Extension	Seal Extension	Chipseal	WARD STREET (NAT. PARK)	429	541	112	3	336	Road improvements	(\$ 73,700.00)
2020/21	Reseal	Chipseal	Generic	GOLF ROAD ROUNDABOUT	0	130	130	5.6	728	Sealed road resurfacing	(\$ 8,208.20)
2020/21	Reseal	Chipseal	Generic	TARRANGOWER AVENUE	0	148	148	6.7	991.6	Sealed road resurfacing	(\$ 11,180.29)
2020/21	Reseal	Chipseal	Generic	TARRANGOWER AVENUE	148	227	79	7.5	592.5	Sealed road resurfacing	(\$ 6,680.44)
2023/24	Bridge	Bridge Repair	Component Replacement	PAPAROA ROAD	10	103	93	3.5	325.5	Structures component replacements	(\$ 40,200.00)
2020/21	Reseal	Chipseal	Generic	TARRANGOWER AVENUE	277	300	23	7.4	170.2	Sealed road resurfacing	(\$ 1,919.01)
2020/21	Reseal	Chipseal	Generic	TARRANGOWER AVENUE	300	336	36	7.4	266.4	Sealed road resurfacing	(\$ 3,003.66)
2020/21	Reseal	Chipseal	Generic	MIDDLE ROAD	7751	8319	568	5.4	3067.2	Sealed road resurfacing	(\$ 38,496.43)
2020/21	Seal Extension	Seal Extension	Chipseal	RAURIMU ROAD	1244	1757	513	3.8	1949.4	Road improvements	(\$ 338,800.00)
2020/21	Reseal	Chipseal	Generic	MIDDLE ROAD	9150	9942	792	5.4	4276.8	Sealed road resurfacing	(\$ 53,678.12)
2020/21	Reseal	Chipseal	Generic	MIDDLE ROAD	9942	10027	85	5.4	459	Sealed road resurfacing	(\$ 5,760.91)
2020/21	Reseal	Chipseal	Generic	MIDDLE ROAD	10027	10415	388	5.4	2095.2	Sealed road resurfacing	(\$ 26,296.86)
2020/21	Reseal	Chipseal	Generic	CROSS STREET	0	171	171	11.8	2017.8	Sealed road resurfacing	(\$ 22,750.70)
2023/24	Bridge	Bridge Repair	Component Replacement	KIRIKAU VALLEY ROAD	580	599	19			Structures component replacements	(\$ 120,300.00)
2020/21	Reseal	Chipseal	Generic	MIDDLE ROAD	8319	9138	819	5.4	4422.6	Sealed road resurfacing	(\$ 55,508.05)
2020/21	Reseal	Chipseal	Generic	KAITIEKE ROAD	500	548	48	6.1	292.8	Sealed road resurfacing	(\$ 3,674.93)
2020/21	Reseal	Chipseal	Generic	TARRANGOWER AVENUE	227	277	50	7.5	375	Sealed road resurfacing	(\$ 4,228.13)
2020/21	Reseal	Chipseal	Generic	PAPAROA ROAD	7120	8988	1868	4.7	8779.6	Sealed road resurfacing	(\$ 110,192.76)
2020/21	Reseal	Chipseal	Generic	PAPAROA ROAD	13120	13186	66	4.3	283.8	Sealed road resurfacing	(\$ 3,561.97)
2020/21	Reseal	Chipseal	Generic	RAILWAY ROW	650	987	337	6.2	2089.4	Sealed road resurfacing	(\$ 23,557.99)
2020/21	Reseal	Chipseal	Generic	PAPAROA ROAD	8988	9986	998	4.7	4690.6	Sealed road resurfacing	(\$ 58,871.72)
2020/21	Reseal	Chipseal	Generic	PIPIRIKI RAETIHI ROAD	12383	16400	4017	6	24102	Sealed road resurfacing	(\$ 302,504.20)
2020/21	Reseal	Chipseal	Generic	PAPAROA ROAD	9986	12087	2101	4.7	9874.7	Sealed road resurfacing	(\$ 123,937.36)
2020/21	Reseal	Chipseal	Generic	THAMES STREET	182	269	87	11.8	1026.6	Sealed road resurfacing	(\$ 11,574.92)
2020/21	Reseal	Chipseal	Generic	BALLANCE STREET	136	262	126	8.5	1071	Sealed road resurfacing	(\$ 12,075.53)
2020/21	Reseal	Chipseal	Generic	BALLANCE STREET	262	335	73	8	584	Sealed road resurfacing	(\$ 6,584.60)
2020/21	Reseal	Chipseal	Generic	BALLANCE STREET	335	658	323	8.4	2713.2	Sealed road resurfacing	(\$ 30,591.33)
2020/21	Reseal	Chipseal	Generic	ORUAKUKURU ROAD	14983	15034	51	5	255	Sealed road resurfacing	(\$ 3,200.51)
2020/21	Reseal	Chipseal	Generic	ORUAKUKURU ROAD	15044	15400	356	5	1780	Sealed road resurfacing	(\$ 22,340.78)
2020/21	Reseal	Chipseal	Generic	PAPAROA ROAD	12104	13092	988	4.7	4643.6	Sealed road resurfacing	(\$ 58,281.82)
2020/21	Reseal	Chipseal	Generic	ORUAKUKURU ROAD	15500	15730	230	5	1150	Sealed road resurfacing	(\$ 14,433.65)
2020/21	Reseal	Chipseal	Generic	ORUAKUKURU ROAD	15740	16484	744	5	3720	Sealed road resurfacing	(\$ 46,689.72)
2020/21	Reseal	Chipseal	Generic	ORUAKUKURU ROAD	16484	17160	676	5	3380	Sealed road resurfacing	(\$ 42,422.38)
2020/21	Reseal	Chipseal	Generic	BALLANCE STREET	0	136	136	12.2	1659.2	Sealed road resurfacing	(\$ 18,707.48)
2020/21	Reseal	Chipseal	Generic	ORUAKUKURU ROAD	17280	17500	220	5	1100	Sealed road resurfacing	(\$ 13,806.10)
2020/21	Reseal	Chipseal	Generic	ORUAKUKURU ROAD	17500	17600	100	5	500	Sealed road resurfacing	(\$ 6,275.50)
2020/21	Reseal	Chipseal	Generic	ORUAKUKURU ROAD	15400	15500	100	5	500	Sealed road resurfacing	(\$ 6,275.50)
2020/21	Reseal	Chipseal	Generic	ORUAKUKURU ROAD	18000	18200	200	5	1000	Sealed road resurfacing	(\$ 12,551.00)
2020/21	Reseal	Chipseal	Generic	ORUAKUKURU ROAD	18200	18320	120	5	600	Sealed road resurfacing	(\$ 7,530.60)
2020/21	Reseal	Chipseal	Generic	ORUAKUKURU ROAD	18320	18730	410	5	2050	Sealed road resurfacing	(\$ 25,729.55)
2020/21	Reseal	Chipseal	Generic	PIPIRIKI RAETIHI ROAD	8262	12358	4096	6.4	26214.4	Sealed road resurfacing	(\$ 329,016.93)
2020/21	Reseal	Chipseal	Generic	ORUAKUKURU ROAD	19309	19340	31	3.7	114.7	Sealed road resurfacing	(\$ 1,439.60)
2020/21	Reseal	Chipseal	Generic	ORUAKUKURU ROAD	19340	19449	109	3.7	403.3	Sealed road resurfacing	(\$ 5,061.82)
2020/21	Reseal	Chipseal	Generic	ORUAKUKURU ROAD	17600	18000	400	5	2000	Sealed road resurfacing	(\$ 25,102.00)

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Work Year	Work Group	Work Type	Work Subtype	Road ID	Start	End	Length (m)	Width	Area	Work Funding Category	Total Cost
2020/21	Reseal	Chipseal	Generic	ORUAKUKURU ROAD	18730	19309	579	3.7	2142.3	Sealed road resurfacing	(\$ 26,888.01)
2020/21	Reseal	Chipseal	Generic	ORUAKUKURU ROAD	17160	17280	120	5	600	Sealed road resurfacing	(\$ 7,530.60)
2020/21	Reseal	Chipseal	Generic	RUANUI STREET	43	279	236	8.6	2029.6	Sealed road resurfacing	(\$ 22,883.74)
2021/22	Reseal	Chipseal	Generic	GOLF ROAD	0	36	36	11.8	424.8	Sealed road resurfacing	(\$ 4,789.62)
2020/21	Reseal	Chipseal	Generic	ORUAKUKURU ROAD	19449	20446	997	3.7	3688.9	Sealed road resurfacing	(\$ 46,299.38)
2020/21	Reseal	Chipseal	Generic	ORUAKUKURU ROAD	20446	21668	1222	3.7	4521.4	Sealed road resurfacing	(\$ 56,748.09)
2021/22	Reseal	Chipseal	Generic	HOROPITO HEIGHTS	0	205	205	6	1230	Sealed road resurfacing	(\$ 15,437.73)
2021/22	Reseal	Chipseal	Generic	KURURAU ROAD	1125	1300	175	9	1575	Sealed road resurfacing	(\$ 17,758.13)
2021/22	Reseal	Chipseal	Generic	KURURAU ROAD	1300	1360	60	5.7	342	Sealed road resurfacing	(\$ 4,292.44)
2021/22	Reseal	Chipseal	Generic	KURURAU ROAD	1360	1596	236	5.7	1345.2	Sealed road resurfacing	(\$ 16,883.61)
2021/22	Reseal	Chipseal	Generic	PEI TE HURINUI DRIVE	0	29	29	7.5	217.5	Sealed road resurfacing	(\$ 2,452.31)
2021/22	Reseal	Chipseal	Generic	PEI TE HURINUI DRIVE	29	147	118	7.5	885	Sealed road resurfacing	(\$ 9,978.38)
2021/22	Reseal	Chipseal	Generic	PEI TE HURINUI DRIVE	147	219	72	7.5	540	Sealed road resurfacing	(\$ 6,088.50)
2020/21	Reseal	Chipseal	Generic	RANGIPO STREET	0	443	443	8.6	3809.8	Sealed road resurfacing	(\$ 42,955.50)
2021/22	Reseal	Chipseal	Generic	KAWAUTAHI ROAD	0	402	402	5.4	2170.8	Sealed road resurfacing	(\$ 27,245.71)
2021/22	Reseal	Chipseal	Generic	KAWAUTAHI ROAD	428	1000	572	5.6	3203.2	Sealed road resurfacing	(\$ 40,203.36)
2021/22	Reseal	Chipseal	Generic	KAWAUTAHI ROAD	1000	1870	870	5	4350	Sealed road resurfacing	(\$ 54,596.85)
2021/22	Reseal	Chipseal	Generic	PETER MCINTYRE STREET	115	134	19	2.9	55.1	Sealed road resurfacing	(\$ 691.56)
2021/22	Reseal	Chipseal	Generic	WHAKAPAPA ROAD	7597	7712	115	5.6	644	Sealed road resurfacing	(\$ 7,261.10)
2021/22	Reseal	Chipseal	Generic	TARINGAMOTU ROAD	8639	11881	3242	7	22694	Sealed road resurfacing	(\$ 284,832.39)
2021/22	Reseal	Chipseal	Generic	NGATAI STREET	0	685	685	11.9	8151.5	Sealed road resurfacing	(\$ 91,908.16)
2021/22	Reseal	Chipseal	Generic	NGATAI STREET	685	767	82	11.9	975.8	Sealed road resurfacing	(\$ 11,002.15)
2021/22	Reseal	Chipseal	Generic	NGATAI STREET	767	834	67	9.7	649.9	Sealed road resurfacing	(\$ 7,327.62)
2021/22	Reseal	Chipseal	Generic	PARAONE STREET	116	232	116	12.3	1426.8	Sealed road resurfacing	(\$ 16,087.17)
2021/22	Reseal	Chipseal	Generic	PARAONE STREET	232	284	52	6.3	327.6	Sealed road resurfacing	(\$ 3,693.69)
2021/22	Reseal	Chipseal	Generic	PARAONE STREET	284	370	86	3.2	275.2	Sealed road resurfacing	(\$ 3,102.88)
2021/22	Reseal	Chipseal	Generic	TAUPO ROAD	0	995	995	11	10945	Sealed road resurfacing	(\$ 123,404.88)
2021/22	Reseal	Chipseal	Generic	TAUPO ROAD	1056	1382	326	11.8	3846.8	Sealed road resurfacing	(\$ 43,372.67)
2021/22	Reseal	Chipseal	Generic	TAUPO ROAD	1936	2428	492	12.2	6002.4	Sealed road resurfacing	(\$ 67,677.06)
2021/22	Reseal	Chipseal	Generic	KAITIEKE ROAD	0	361	361	6.1	2202.1	Sealed road resurfacing	(\$ 27,638.56)
2021/22	Reseal	Chipseal	Generic	OHURA ROAD	14067	15000	933	5.4	5038.2	Sealed road resurfacing	(\$ 63,234.45)
2021/22	Reseal	Chipseal	Generic	BUDDO STREET	545	607	62	5	310	Sealed road resurfacing	(\$ 3,495.25)
2021/22	Reseal	Chipseal	Generic	KELLANDS ROAD	0	222	222	4.5	999	Sealed road resurfacing	(\$ 12,538.45)
2021/22	Reseal	Chipseal	Generic	WHAKAPAPA ROAD	7712	7872	160	6	960	Sealed road resurfacing	(\$ 12,048.96)
2021/22	Reseal	Chipseal	Generic	KIRTON ROAD	0	27	27	5.9	159.3	Sealed road resurfacing	(\$ 1,999.37)
2021/22	Reseal	Chipseal	Generic	KIRTON ROAD	57	428	371	5.9	2188.9	Sealed road resurfacing	(\$ 27,472.88)
2021/22	Reseal	Chipseal	Generic	KIRTON ROAD	428	953	525	7	3675	Sealed road resurfacing	(\$ 46,124.93)
2021/22	Reseal	Chipseal	Generic	AYR STREET	299	319	20	13.3	266	Sealed road resurfacing	(\$ 2,999.15)
2021/22	Reseal	Chipseal	Generic	MILTON STREET	0	122	122	5.7	695.4	Sealed road resurfacing	(\$ 7,840.64)
2021/22	Reseal	Chipseal	Generic	MIRO STREET (OHAKUNE)	1477	1535	58	7.3	423.4	Sealed road resurfacing	(\$ 4,773.84)
2021/22	Reseal	Chipseal	Generic	MIRO STREET (OHAKUNE)	1535	1809	274	7.3	2000.2	Sealed road resurfacing	(\$ 22,552.26)
2021/22	Reseal	Chipseal	Generic	KAKA STREET (EAST) (OHURA)	0	128	128	4	512	Sealed road resurfacing	(\$ 5,772.80)
2021/22	Reseal	Chipseal	Generic	HUNT STREET	0	30	30	3	90	Sealed road resurfacing	(\$ 1,129.59)
2021/22	Reseal	Chipseal	Generic	TUI STREET (OHURA)	70	130	60	10.5	630	Sealed road resurfacing	(\$ 7,103.25)
2021/22	Reseal	Chipseal	Generic	SOUTHRIDGE DRIVE	0	343	343	7.2	2469.6	Sealed road resurfacing	(\$ 27,844.74)
2021/22	Reseal	Chipseal	Generic	TUI STREET (OHURA)	130	312	182	5	910	Sealed road resurfacing	(\$ 10,260.25)

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Work Year	Work Group	Work Type	Work Subtype	Road ID	Start	End	Length (m)	Width	Area	Work Funding Category	Total Cost
2021/22	Reseal	Chipseal	Generic	ONGARUE WAIMIHA ROAD	2860	3608	748	6	4488	Sealed road resurfacing	(\$ 56,328.89)
2021/22	Reseal	Chipseal	Generic	TARINGAMOTU ROAD	14440	15470	1030	7	7210	Sealed road resurfacing	(\$ 90,492.71)
2021/22	Reseal	Chipseal	Generic	MANGAPAPA ROAD	9798	10744	946	6	5676	Sealed road resurfacing	(\$ 71,239.48)
2021/22	Reseal	Chipseal	Generic	MANGAPAPA ROAD	10750	10794	44	6	264	Sealed road resurfacing	(\$ 3,313.46)
2021/22	Reseal	Chipseal	Generic	MCLENNAN ROAD	0	115	115	4.7	540.5	Sealed road resurfacing	(\$ 6,783.82)
2021/22	Reseal	Chipseal	Generic	OKIOI STREET	223	445	222	5.4	1198.8	Sealed road resurfacing	(\$ 13,516.47)
2021/22	Reseal	Chipseal	Generic	ONEPU ROAD	0	126	126	6	756	Sealed road resurfacing	(\$ 8,523.90)
2021/22	Reseal	Chipseal	Generic	ONEPU ROAD	126	241	115	6	690	Sealed road resurfacing	(\$ 7,779.75)
2021/22	Reseal	Chipseal	Generic	OTAPOURI ROAD	0	100	100	7.6	760	Sealed road resurfacing	(\$ 9,538.76)
2021/22	Reseal	Chipseal	Generic	OWHANGO ROAD	359	475	116	5.3	614.8	Sealed road resurfacing	(\$ 6,931.87)
2021/22	Reseal	Chipseal	Generic	OWHANGO ROAD	475	698	223	5.7	1271.1	Sealed road resurfacing	(\$ 14,331.65)
2021/22	Reseal	Chipseal	Generic	OWHANGO ROAD	698	837	139	5	695	Sealed road resurfacing	(\$ 7,836.13)
2021/22	Reseal	Chipseal	Generic	OWHANGO ROAD	837	956	119	3	357	Sealed road resurfacing	(\$ 4,025.18)
2021/22	Reseal	Chipseal	Generic	TUI STREET (OHURA)	0	70	70	12	840	Sealed road resurfacing	(\$ 9,471.00)
2021/22	Reseal	Chipseal	Generic	PIPIRIKI RAETIHI ROAD	19416	21367	1951	5.5	10730.5	Sealed road resurfacing	(\$ 134,678.51)
2021/22	Reseal	Chipseal	Generic	TAITUA STREET (PIRIAKA)	414	655	241	6	1446	Sealed road resurfacing	(\$ 18,148.75)
2021/22	Reseal	Chipseal	Generic	TAITUA STREET (PIRIAKA)	655	720	65	3.5	227.5	Sealed road resurfacing	(\$ 2,855.35)
2021/22	Reseal	Chipseal	Generic	ONGARUE WAIMIHA ROAD	5295	8290	2995	5.9	17670.5	Sealed road resurfacing	(\$ 221,782.45)
2021/22	Reseal	Chipseal	Generic	PIPIRIKI RAETIHI ROAD	16400	17274	874	5.5	4807	Sealed road resurfacing	(\$ 60,332.66)
2021/22	Reseal	Chipseal	Generic	PITT STREET	0	340	340	9.2	3128	Sealed road resurfacing	(\$ 35,268.20)
2021/22	Reseal	Chipseal	Generic	PITT STREET	340	573	233	9.4	2190.2	Sealed road resurfacing	(\$ 24,694.51)
2021/22	Reseal	Chipseal	Generic	PITT STREET	573	799	226	9.7	2192.2	Sealed road resurfacing	(\$ 24,717.06)
2021/22	Reseal	Chipseal	Generic	QUEEN STREET	0	285	285	8.2	2337	Sealed road resurfacing	(\$ 26,349.68)
2021/22	Reseal	Chipseal	Generic	QUEEN STREET	285	519	234	8.1	1895.4	Sealed road resurfacing	(\$ 21,370.64)
2021/22	Reseal	Chipseal	Generic	EAST STREET	346	397	51	9.6	489.6	Sealed road resurfacing	(\$ 5,520.24)
2021/22	Reseal	Chipseal	Generic	EAST STREET	397	585	188	10.6	1992.8	Sealed road resurfacing	(\$ 22,468.82)
2021/22	Reseal	Chipseal	Generic	NORTH STREET	0	383	383	8.3	3178.9	Sealed road resurfacing	(\$ 35,842.10)
2021/22	Reseal	Chipseal	Generic	RANGAROA CUL DE SAC	0	47	47	5.8	272.6	Sealed road resurfacing	(\$ 3,073.57)
2021/22	Reseal	Chipseal	Generic	RANGAROA ROAD	363	605	242	7.7	1863.4	Sealed road resurfacing	(\$ 21,009.84)
2021/22	Reseal	Chipseal	Generic	TANGA ROAD	0	1450	1450	5	7250	Sealed road resurfacing	(\$ 90,994.75)
2021/22	Reseal	Chipseal	Generic	SOUTH STREET	0	519	519	8.3	4307.7	Sealed road resurfacing	(\$ 48,569.32)
2021/22	Reseal	Chipseal	Generic	WEST STREET	0	178	178	8.1	1441.8	Sealed road resurfacing	(\$ 16,256.30)
2021/22	Reseal	Chipseal	Generic	ESPLANADE (TOWN)	0	349	349	6.1	2128.9	Sealed road resurfacing	(\$ 24,003.35)
2021/22	Reseal	Chipseal	Generic	MAATA STREET	196	270	74	11.8	873.2	Sealed road resurfacing	(\$ 9,845.33)
2021/22	Reseal	Chipseal	Generic	MAATA STREET	270	368	98	11.7	1146.6	Sealed road resurfacing	(\$ 12,927.92)
2021/22	Reseal	Chipseal	Generic	SHORT STREET	42	140	98	10.7	1048.6	Sealed road resurfacing	(\$ 11,822.97)
2021/22	Reseal	Chipseal	Generic	OHOEKA STREET	320	345	25	5	125	Sealed road resurfacing	(\$ 1,409.38)
2021/22	Reseal	Chipseal	Generic	RAETIHI OHAKUNE ROAD	0	104	104	8.9	925.6	Sealed road resurfacing	(\$ 10,436.14)
2021/22	Reseal	Chipseal	Generic	RAETIHI OHAKUNE ROAD	164	245	81	8.4	680.4	Sealed road resurfacing	(\$ 7,671.51)
2021/22	Reseal	Chipseal	Generic	RAETIHI OHAKUNE ROAD	245	359	114	8.4	957.6	Sealed road resurfacing	(\$ 10,796.94)
2021/22	Reseal	Chipseal	Generic	RAETIHI OHAKUNE ROAD	359	567	208	8.6	1788.8	Sealed road resurfacing	(\$ 20,168.72)
2021/22	Reseal	Chipseal	Generic	RAETIHI OHAKUNE ROAD	567	1031	464	8.8	4083.2	Sealed road resurfacing	(\$ 51,248.24)
2021/22	Reseal	Chipseal	Generic	RAETIHI OHAKUNE ROAD	8800	9060	260	8.2	2132	Sealed road resurfacing	(\$ 26,758.73)
2021/22	Reseal	Chipseal	Generic	RAETIHI OHAKUNE ROAD	9060	9238	178	8.6	1530.8	Sealed road resurfacing	(\$ 19,213.07)
2021/22	Reseal	Chipseal	Generic	RANGAROA ROAD	605	920	315	7.1	2236.5	Sealed road resurfacing	(\$ 25,216.54)
2021/22	Reseal	Chipseal	Generic	RAETIHI OHAKUNE ROAD	9800	10850	1050	8.3	8715	Sealed road resurfacing	(\$ 109,381.97)

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Work Year	Work Group	Work Type	Work Subtype	Road ID	Start	End	Length (m)	Width	Area	Work Funding Category	Total Cost
2021/22	Reseal	Chipseal	Generic	RAETIHI OHAKUNE ROAD	10850	10950	100	8.5	850	Sealed road resurfacing	(\$ 9,583.75)
2021/22	Reseal	Chipseal	Generic	PORO O TARAO ROAD	2900	4663	1763	6.4	11283.2	Sealed road resurfacing	(\$ 141,615.44)
2021/22	Reseal	Chipseal	Generic	TUMOANA STREET	0	230	230	11.7	2691	Sealed road resurfacing	(\$ 30,341.03)
2021/22	Reseal	Chipseal	Generic	GEORGE STREET	750	1081	331	4.8	1588.8	Sealed road resurfacing	(\$ 17,913.72)
2021/22	Reseal	Chipseal	Generic	RUANUI STREET	0	43	43	8.6	369.8	Sealed road resurfacing	(\$ 4,169.50)
2021/22	Reseal	Chipseal	Generic	WHANGAEHU VALLEY ROAD	8292	9106	814	5.6	4558.4	Sealed road resurfacing	(\$ 57,212.48)
2022/23	Reseal	Chipseal	Generic	GOLF ROAD	2390	2427	37	11.6	429.2	Sealed road resurfacing	(\$ 4,839.23)
2021/22	Reseal	Chipseal	Generic	PORO O TARAO ROAD	6000	6860	860	6.4	5504	Sealed road resurfacing	(\$ 69,080.70)
2022/23	Reseal	Chipseal	Generic	HIKURANGI TERRACE	207	270	63	6	378	Sealed road resurfacing	(\$ 4,261.95)
2021/22	Reseal	Chipseal	Generic	PORO O TARAO ROAD	6860	7314	454	6.4	2905.6	Sealed road resurfacing	(\$ 36,468.19)
2021/22	Reseal	Chipseal	Generic	RAETIHI OHAKUNE ROAD	9238	9800	562	8.3	4664.6	Sealed road resurfacing	(\$ 58,545.39)
2022/23	Reseal	Chipseal	Generic	WARD STREET	713	904	191	7.5	1432.5	Sealed road resurfacing	(\$ 16,151.44)
2022/23	Reseal	Chipseal	Generic	HIKUMUTU ROAD	0	36	36	7.4	266.4	Sealed road resurfacing	(\$ 3,003.66)
2022/23	Reseal	Chipseal	Generic	UPPER RETARUKE ROAD	5942	6012	70	5	350	Sealed road resurfacing	(\$ 4,392.85)
2022/23	Reseal	Chipseal	Generic	UPPER RETARUKE ROAD	6028	6098	70	5	350	Sealed road resurfacing	(\$ 4,392.85)
2022/23	Reseal	Chipseal	Generic	MIRO STREET	0	349	349	10.5	3664.5	Sealed road resurfacing	(\$ 41,317.24)
2022/23	Reseal	Chipseal	Generic	TARINGAMOTU ROAD	15470	17190	1720	7	12040	Sealed road resurfacing	(\$ 151,114.04)
2022/23	Reseal	Chipseal	Generic	MIRO STREET	1076	1187	111	10.7	1187.7	Sealed road resurfacing	(\$ 13,391.32)
2022/23	Reseal	Chipseal	Generic	MIRO STREET	2129	2302	173	10.7	1851.1	Sealed road resurfacing	(\$ 20,871.15)
2022/23	Reseal	Chipseal	Generic	RIMU STREET	0	208	208	12.4	2579.2	Sealed road resurfacing	(\$ 29,080.48)
2022/23	Reseal	Chipseal	Generic	TARATA PLACE	0	85	85	8.2	697	Sealed road resurfacing	(\$ 7,858.68)
2022/23	Reseal	Chipseal	Generic	TARINGAMOTU ROAD	17190	17594	404	7	2828	Sealed road resurfacing	(\$ 35,494.23)
2022/23	Reseal	Chipseal	Generic	TAUPO ROAD (SOUTH)	47	114	67	14.8	991.6	Sealed road resurfacing	(\$ 11,180.29)
2022/23	Reseal	Chipseal	Generic	OHURA MOKAU ROAD	658	1529	871	4.8	4180.8	Sealed road resurfacing	(\$ 52,473.22)
2022/23	Reseal	Chipseal	Generic	HIKURANGI TERRACE	0	207	207	6.9	1428.3	Sealed road resurfacing	(\$ 16,104.08)
2022/23	Reseal	Chipseal	Generic	OHURA ROAD	24133	24683	550	5.8	3190	Sealed road resurfacing	(\$ 40,037.69)
2022/23	Reseal	Chipseal	Generic	TAUPO ROAD (SOUTH)	0	47	47	12.9	606.3	Sealed road resurfacing	(\$ 6,836.03)
2022/23	Reseal	Chipseal	Generic	OHURA ROAD	22717	24133	1416	5.8	8212.8	Sealed road resurfacing	(\$ 103,078.85)
2022/23	Reseal	Chipseal	Generic	OHURA ROAD	36886	36959	73	6.9	503.7	Sealed road resurfacing	(\$ 5,679.22)
2022/23	Reseal	Chipseal	Generic	AYR STREET	276	299	23	10.7	246.1	Sealed road resurfacing	(\$ 2,774.78)
2022/23	Reseal	Chipseal	Generic	GOLDFINCH STREET	163	183	20	12.5	250	Sealed road resurfacing	(\$ 2,818.75)
2022/23	Reseal	Chipseal	Generic	MANGAWHERO TERRACE	700	765	65	10.4	676	Sealed road resurfacing	(\$ 7,621.90)
2022/23	Reseal	Chipseal	Generic	MIRO STREET	349	1076	727	12.3	8942.1	Sealed road resurfacing	(\$ 100,822.18)
2022/23	Reseal	Chipseal	Generic	MANGAWHERO TERRACE	1039	1160	121	10.5	1270.5	Sealed road resurfacing	(\$ 14,324.89)
2022/23	Reseal	Chipseal	Generic	RUAPEHU ROAD	0	103	103	5.4	556.2	Sealed road resurfacing	(\$ 6,271.16)
2022/23	Reseal	Chipseal	Generic	RUAPEHU ROAD	125	388	263	5.7	1499.1	Sealed road resurfacing	(\$ 16,902.35)
2022/23	Reseal	Chipseal	Generic	RUAPEHU ROAD	388	910	522	5.8	3027.6	Sealed road resurfacing	(\$ 34,136.19)
2022/23	Reseal	Chipseal	Generic	RUAPEHU ROAD	910	1305	395	5.9	2330.5	Sealed road resurfacing	(\$ 26,276.39)
2022/23	Reseal	Chipseal	Generic	KAKAPO STREET	0	162	162	4.4	712.8	Sealed road resurfacing	(\$ 8,036.82)
2022/23	Reseal	Chipseal	Generic	KAKAPO STREET	162	282	120	5	600	Sealed road resurfacing	(\$ 6,765.00)
2022/23	Reseal	Chipseal	Generic	KAKAPO STREET	282	485	203	4.5	913.5	Sealed road resurfacing	(\$ 10,299.71)
2022/23	Reseal	Chipseal	Generic	NGARIMU STREET	0	218	218	22.9	4992.2	Sealed road resurfacing	(\$ 56,287.06)
2022/23	Reseal	Chipseal	Generic	NGARIMU STREET	218	340	122	22.8	2781.6	Sealed road resurfacing	(\$ 31,362.54)
2022/23	Reseal	Chipseal	Generic	TAWA STREET (OHURA)	0	248	248	5	1240	Sealed road resurfacing	(\$ 13,981.00)
2022/23	Reseal	Chipseal	Generic	OHURA ROAD	24813	26882	2069	6.2	12827.8	Sealed road resurfacing	(\$ 161,001.72)
2022/23	Reseal	Chipseal	Generic	ONGARUE VILLAGE ROAD	369	1060	691	5.4	3731.4	Sealed road resurfacing	(\$ 46,832.80)

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Work Year	Work Group	Work Type	Work Subtype	Road ID	Start	End	Length (m)	Width	Area	Work Funding Category	Total Cost
2022/23	Reseal	Chipseal	Generic	MANGAWHERO TERRACE	765	1039	274	10.3	2822.2	Sealed road resurfacing	(\$ 31,820.31)
2022/23	Reseal	Chipseal	Generic	OHURA ROAD	24683	24813	130	5.8	754	Sealed road resurfacing	(\$ 9,463.45)
2022/23	Reseal	Chipseal	Generic	OMAKI ROAD	243	484	241	4	964	Sealed road resurfacing	(\$ 10,869.10)
2022/23	Reseal	Chipseal	Generic	OMATANE ROAD	124	246	122	5.3	646.6	Sealed road resurfacing	(\$ 7,290.42)
2022/23	Reseal	Chipseal	Generic	OMATANE ROAD	246	358	112	5.3	593.6	Sealed road resurfacing	(\$ 6,692.84)
2022/23	Reseal	Chipseal	Generic	OMATANE ROAD	358	480	122	5.3	646.6	Sealed road resurfacing	(\$ 7,290.42)
2022/23	Reseal	Chipseal	Generic	ONGE STREET	0	116	116	5.3	614.8	Sealed road resurfacing	(\$ 6,931.87)
2022/23	Reseal	Chipseal	Generic	WILLIAMS AVENUE	0	385	385	7.2	2772	Sealed road resurfacing	(\$ 31,254.30)
2022/23	Reseal	Chipseal	Generic	ONGE STREET	195	217	22	5	110	Sealed road resurfacing	(\$ 1,240.25)
2022/23	Reseal	Chipseal	Generic	ONGARUE WAIMIHA ROAD	0	1900	1900	6.1	11590	Sealed road resurfacing	(\$ 145,466.09)
2022/23	Reseal	Chipseal	Generic	OHINETONGA ROAD	0	25	25	5	125	Sealed road resurfacing	(\$ 1,568.88)
2022/23	Reseal	Chipseal	Generic	TAITUA STREET (PIRIAKA)	0	77	77	6.6	508.2	Sealed road resurfacing	(\$ 6,378.42)
2022/23	Reseal	Chipseal	Generic	TAITUA STREET (PIRIAKA)	77	414	337	7	2359	Sealed road resurfacing	(\$ 29,607.81)
2022/23	Reseal	Chipseal	Generic	TANOA STREET	0	156	156	7.2	1123.2	Sealed road resurfacing	(\$ 14,097.28)
2022/23	Reseal	Chipseal	Generic	TANOA STREET	156	184	28	5.7	159.6	Sealed road resurfacing	(\$ 2,003.14)
2022/23	Reseal	Chipseal	Generic	AMEKU ROAD	0	251	251	5.5	1380.5	Sealed road resurfacing	(\$ 15,565.14)
2022/23	Reseal	Chipseal	Generic	ONGE STREET	116	195	79	5.3	418.7	Sealed road resurfacing	(\$ 4,720.84)
2022/23	Reseal	Chipseal	Generic	EAST STREET	0	346	346	9.6	3321.6	Sealed road resurfacing	(\$ 37,451.04)
2022/23	Reseal	Chipseal	Generic	KAHA STREET (RANGATAUA)	0	226	226	5	1130	Sealed road resurfacing	(\$ 12,740.75)
2022/23	Reseal	Chipseal	Generic	KAHA STREET (RANGATAUA)	226	535	309	5	1545	Sealed road resurfacing	(\$ 17,419.88)
2022/23	Reseal	Chipseal	Generic	KAHA STREET (RANGATAUA)	535	748	213	5	1065	Sealed road resurfacing	(\$ 12,007.88)
2022/23	Reseal	Chipseal	Generic	PIWARI STREET	797	830	33	6.2	204.6	Sealed road resurfacing	(\$ 2,306.87)
2022/23	Reseal	Chipseal	Generic	TAU STREET	0	40	40	4.8	192	Sealed road resurfacing	(\$ 2,164.80)
2022/23	Reseal	Chipseal	Generic	TAU STREET	40	122	82	5	410	Sealed road resurfacing	(\$ 4,622.75)
2022/23	Reseal	Chipseal	Generic	TAU STREET	122	263	141	5	705	Sealed road resurfacing	(\$ 7,948.88)
2022/23	Reseal	Chipseal	Generic	TAU STREET	263	323	60	3.1	186	Sealed road resurfacing	(\$ 2,097.15)
2022/23	Reseal	Chipseal	Generic	MAKOKOMIKO ROAD	8699	10500	1801	6	10806	Sealed road resurfacing	(\$ 135,626.11)
2022/23	Reseal	Chipseal	Generic	REREMAI STREET	0	126	126	5.2	655.2	Sealed road resurfacing	(\$ 8,223.42)
2022/23	Reseal	Chipseal	Generic	AMEKU ROAD	251	861	610	5.5	3355	Sealed road resurfacing	(\$ 37,827.63)
2022/23	Reseal	Chipseal	Generic	MIRIAMA STREET	150	488	338	12.2	4123.6	Sealed road resurfacing	(\$ 46,493.59)
2022/23	Reseal	Chipseal	Generic	MORERO TERRACE	770	782	12	7.6	91.2	Sealed road resurfacing	(\$ 1,028.28)
2022/23	Reseal	Chipseal	Generic	SHORT STREET	0	42	42	10.7	449.4	Sealed road resurfacing	(\$ 5,066.99)
2022/23	Reseal	Chipseal	Generic	SUNSHINE SETTLEMENT ROAD	0	901	901	5	4505	Sealed road resurfacing	(\$ 50,793.88)
2022/23	Reseal	Chipseal	Generic	MAATA STREET	0	196	196	12.2	2391.2	Sealed road resurfacing	(\$ 26,960.78)
2022/23	Reseal	Chipseal	Generic	TAITUA STREET	238	448	210	12	2520	Sealed road resurfacing	(\$ 28,413.00)
2022/23	Reseal	Chipseal	Generic	NGAPAKIHI ROAD	0	487	487	5	2435	Sealed road resurfacing	(\$ 30,561.69)
2022/23	Reseal	Chipseal	Generic	MANGAPARO ROAD	0	800	800	5.5	4400	Sealed road resurfacing	(\$ 55,224.40)
2022/23	Reseal	Chipseal	Generic	KATARINA STREET	126	262	136	22.5	3060	Sealed road resurfacing	(\$ 34,501.50)
2022/23	Reseal	Chipseal	Generic	RAETIHI OHAKUNE ROAD	1031	3666	2635	8.8	23188	Sealed road resurfacing	(\$ 291,032.59)
2022/23	Reseal	Chipseal	Generic	RAETIHI OHAKUNE ROAD	5491	5670	179	7.7	1378.3	Sealed road resurfacing	(\$ 17,299.04)
2022/23	Reseal	Chipseal	Generic	TAITUA STREET	0	238	238	11.5	2737	Sealed road resurfacing	(\$ 30,859.68)
2022/23	Reseal	Chipseal	Generic	RAETIHI OHAKUNE ROAD	7642	8800	1158	8.2	9495.6	Sealed road resurfacing	(\$ 119,179.28)
2022/23	Reseal	Chipseal	Generic	SERVICE ROAD SOUTH	0	65	65	5.5	357.5	Sealed road resurfacing	(\$ 4,030.81)
2022/23	Reseal	Chipseal	Generic	SERVICE ROAD SOUTH	65	203	138	4.7	648.6	Sealed road resurfacing	(\$ 7,312.97)
2022/23	Reseal	Chipseal	Generic	SERVICE ROAD SOUTH	203	285	82	11.8	967.6	Sealed road resurfacing	(\$ 10,909.69)
2022/23	Reseal	Chipseal	Generic	WHANGAEHU VALLEY ROAD	1685	2490	805	5.8	4669	Sealed road resurfacing	(\$ 58,600.62)

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Work Year	Work Group	Work Type	Work Subtype	Road ID	Start	End	Length (m)	Width	Area	Work Funding Category	Total Cost
2022/23	Reseal	Chipseal	Generic	WHANGAEHU VALLEY ROAD	3174	4025	851	3.7	3148.7	Sealed road resurfacing	(\$ 39,519.33)
2022/23	Reseal	Chipseal	Generic	RAETIHI OHAKUNE ROAD	3666	5321	1655	8	13240	Sealed road resurfacing	(\$ 166,175.24)
2022/23	Reseal	Chipseal	Generic	WHANGAEHU VALLEY ROAD	4150	4188	38	5.5	209	Sealed road resurfacing	(\$ 2,623.16)
2022/23	Reseal	Chipseal	Generic	WHANGAEHU VALLEY ROAD	4188	4598	410	5.5	2255	Sealed road resurfacing	(\$ 28,302.51)
2023/24	Reseal	Chipseal	Generic	TARINGAMOTU ROAD (EXTENSION)	0	94	94	4.5	423	Sealed road resurfacing	(\$ 4,769.33)
2023/24	Reseal	Chipseal	Generic	HINAU STREET	0	46	46	7	322	Sealed road resurfacing	(\$ 4,041.42)
2023/24	Reseal	Chipseal	Generic	MANGAREWA ROAD	3901	6080	2179	4.7	10241.3	Sealed road resurfacing	(\$ 128,538.56)
2022/23	Reseal	Chipseal	Generic	RAETIHI OHAKUNE ROAD	5321	5491	170	8	1360	Sealed road resurfacing	(\$ 17,069.36)
2022/23	Reseal	Chipseal	Generic	RAETIHI OHAKUNE ROAD	5790	7642	1852	8.2	15186.4	Sealed road resurfacing	(\$ 190,604.51)
2022/23	Reseal	Chipseal	Generic	WHANGAEHU VALLEY ROAD	4025	4150	125	5.5	687.5	Sealed road resurfacing	(\$ 8,628.81)
2023/24	Reseal	Chipseal	Generic	OIO ROAD	10074	10100	26	5.3	137.8	Sealed road resurfacing	(\$ 1,729.53)
2023/24	Reseal	Chipseal	Generic	RATA STREET	0	106	106	8.7	922.2	Sealed road resurfacing	(\$ 10,397.81)
2023/24	Reseal	Chipseal	Generic	RATA STREET	106	216	110	8.7	957	Sealed road resurfacing	(\$ 10,790.18)
2023/24	Reseal	Chipseal	Generic	O'REILLY CRESCENT	0	150	150	5.5	825	Sealed road resurfacing	(\$ 9,301.88)
2023/24	Reseal	Chipseal	Generic	TUKU STREET	278	300	22	3.5	77	Sealed road resurfacing	(\$ 868.18)
2023/24	Reseal	Chipseal	Generic	OIO ROAD	18354	20607	2253	5.3	11940.9	Sealed road resurfacing	(\$ 149,870.24)
2023/24	Reseal	Chipseal	Generic	OIO ROAD	20607	23000	2393	5.3	12682.9	Sealed road resurfacing	(\$ 159,183.08)
2023/24	Reseal	Chipseal	Generic	MIRO STREET	2302	2324	22	10.7	235.4	Sealed road resurfacing	(\$ 2,654.14)
2023/24	Reseal	Chipseal	Generic	OHURA ROAD	20410	20580	170	6.1	1037	Sealed road resurfacing	(\$ 13,015.39)
2023/24	Reseal	Chipseal	Generic	OHURA ROAD	20580	21166	586	6	3516	Sealed road resurfacing	(\$ 44,129.32)
2023/24	Reseal	Chipseal	Generic	OHURA ROAD	13430	14067	637	5.5	3503.5	Sealed road resurfacing	(\$ 43,972.43)
2023/24	Reseal	Chipseal	Generic	OHURA ROAD	32160	33009	849	5.6	4754.4	Sealed road resurfacing	(\$ 59,672.47)
2023/24	Reseal	Chipseal	Generic	OHURA ROAD	33009	33199	190	6.2	1178	Sealed road resurfacing	(\$ 14,785.08)
2023/24	Reseal	Chipseal	Generic	OHURA ROAD	21166	21341	175	6.3	1102.5	Sealed road resurfacing	(\$ 13,837.48)
2023/24	Reseal	Chipseal	Generic	OHURA ROAD	33600	34140	540	5.6	3024	Sealed road resurfacing	(\$ 37,954.22)
2023/24	Reseal	Chipseal	Generic	OHURA ROAD	12039	13150	1111	5.5	6110.5	Sealed road resurfacing	(\$ 76,692.89)
2023/24	Reseal	Chipseal	Generic	OHURA ROAD	34600	35161	561	5.6	3141.6	Sealed road resurfacing	(\$ 39,430.22)
2023/24	Reseal	Chipseal	Generic	OKAHUKURA SADDLE ROAD	11073	11098	25	6	150	Sealed road resurfacing	(\$ 1,882.65)
2023/24	Reseal	Chipseal	Generic	BUDDO STREET	607	628	21	5	105	Sealed road resurfacing	(\$ 1,183.88)
2023/24	Reseal	Chipseal	Generic	WARD STREET (NAT. PARK)	415	429	14	3	42	Sealed road resurfacing	(\$ 473.55)
2023/24	Reseal	Chipseal	Generic	OHURA ROAD	13150	13430	280	5.5	1540	Sealed road resurfacing	(\$ 19,328.54)
2023/24	Reseal	Chipseal	Generic	CARTERS TERRACE	0	81	81	5.7	461.7	Sealed road resurfacing	(\$ 5,205.67)
2023/24	Reseal	Chipseal	Generic	MIRO STREET (OHAKUNE)	140	152	12	11.3	135.6	Sealed road resurfacing	(\$ 1,528.89)
2023/24	Reseal	Chipseal	Generic	MIRO STREET (OHAKUNE)	152	168	16	9.5	152	Sealed road resurfacing	(\$ 1,713.80)
2023/24	Reseal	Chipseal	Generic	TI KOUKA PLACE	0	159	159	6.4	1017.6	Sealed road resurfacing	(\$ 11,473.44)
2023/24	Reseal	Chipseal	Generic	OHURA ROAD	33199	33600	401	6	2406	Sealed road resurfacing	(\$ 30,197.71)
2023/24	Reseal	Chipseal	Generic	TARANUI ROAD	560	580	20	6.8	136	Sealed road resurfacing	(\$ 1,533.40)
2023/24	Reseal	Chipseal	Generic	TARANUI ROAD	580	624	44	6.8	299.2	Sealed road resurfacing	(\$ 3,373.48)
2023/24	Reseal	Chipseal	Generic	TARANUI ROAD	644	792	148	6.4	947.2	Sealed road resurfacing	(\$ 10,679.68)
2023/24	Reseal	Chipseal	Generic	OHURA ROAD	34140	34600	460	5.6	2576	Sealed road resurfacing	(\$ 32,331.38)
2023/24	Reseal	Chipseal	Generic	ONGARUE BACK ROAD	12350	12613	263	3.8	999.4	Sealed road resurfacing	(\$ 12,543.47)
2023/24	Reseal	Chipseal	Generic	ONGARUE BACK ROAD	12638	12670	32	3.8	121.6	Sealed road resurfacing	(\$ 1,526.20)
2023/24	Reseal	Chipseal	Generic	TUHUA ROAD	205	275	70	3.7	259	Sealed road resurfacing	(\$ 3,250.71)
2023/24	Reseal	Chipseal	Generic	MANGAPAPA ROAD	0	59	59	6.7	395.3	Sealed road resurfacing	(\$ 4,961.41)
2023/24	Reseal	Chipseal	Generic	KIRTON ROAD	953	967	14	7	98	Sealed road resurfacing	(\$ 1,230.00)
2023/24	Reseal	Chipseal	Generic	OWAIRUA ROAD	0	113	113	4.2	474.6	Sealed road resurfacing	(\$ 5,351.12)

Appendix H - Forward Works Programme

Work Year	Work Group	Work Type	Work Subtype	Road ID	Start	End	Length (m)	Width	Area	Work Funding Category	Total Cost
2023/24	Reseal	Chipseal	Generic	PIPIRIKI RAETIHI ROAD	0	1571	1571	6.5	10211.5	Sealed road resurfacing	(\$ 128,164.54)
2023/24	Reseal	Chipseal	Generic	TARANUI ROAD	0	560	560	9	5040	Sealed road resurfacing	(\$ 56,826.00)
2023/24	Reseal	Chipseal	Generic	TARANUI STREET	0	78	78	5	390	Sealed road resurfacing	(\$ 4,397.25)
2023/24	Reseal	Chipseal	Generic	MANGAPAPA ROAD	4641	4702	61	5.7	347.7	Sealed road resurfacing	(\$ 4,363.98)
2023/24	Reseal	Chipseal	Generic	PIPIRIKI RAETIHI ROAD	5185	8262	3077	6.5	20000.5	Sealed road resurfacing	(\$ 251,026.28)
2023/24	Reseal	Chipseal	Generic	PIPIRIKI RAETIHI ROAD	1571	2604	1033	6.5	6714.5	Sealed road resurfacing	(\$ 84,273.69)
2023/24	Reseal	Chipseal	Generic	PIPIRIKI RAETIHI ROAD	2604	4943	2339	6.5	15203.5	Sealed road resurfacing	(\$ 190,819.13)
2023/24	Reseal	Chipseal	Generic	PIPIRIKI RAETIHI ROAD	23000	24721	1721	5.8	9981.8	Sealed road resurfacing	(\$ 125,281.57)
2023/24	Reseal	Chipseal	Generic	PIPIRIKI RAETIHI ROAD	24721	24861	140	5.1	714	Sealed road resurfacing	(\$ 8,050.35)
2023/24	Reseal	Chipseal	Generic	PIPIRIKI RAETIHI ROAD	24861	25644	783	5.1	3993.3	Sealed road resurfacing	(\$ 45,024.46)
2023/24	Reseal	Chipseal	Generic	WHANGANUI RIVER ROAD	0	245	245	4	980	Sealed road resurfacing	(\$ 11,049.50)
2023/24	Reseal	Chipseal	Generic	DUNCAN STREET	560	722	162	7.7	1247.4	Sealed road resurfacing	(\$ 14,064.44)
2023/24	Reseal	Chipseal	Generic	PIPIRIKI RAETIHI ROAD	4943	5185	242	6.3	1524.6	Sealed road resurfacing	(\$ 19,135.25)
2023/24	Reseal	Chipseal	Generic	GREY STREET	0	425	425	7.5	3187.5	Sealed road resurfacing	(\$ 35,939.06)
2023/24	Reseal	Chipseal	Generic	GREY STREET	425	914	489	7.7	3765.3	Sealed road resurfacing	(\$ 42,453.76)
2023/24	Reseal	Chipseal	Generic	GREY STREET	914	1155	241	5.7	1373.7	Sealed road resurfacing	(\$ 15,488.47)
2023/24	Reseal	Chipseal	Generic	GREY STREET	1155	1466	311	4.2	1306.2	Sealed road resurfacing	(\$ 14,727.41)
2023/24	Reseal	Chipseal	Generic	KING STREET	0	435	435	7.7	3349.5	Sealed road resurfacing	(\$ 37,765.61)
2023/24	Reseal	Chipseal	Generic	PIPIRIKI RAETIHI ROAD	17320	19404	2084	5.5	11462	Sealed road resurfacing	(\$ 143,859.56)
2023/24	Reseal	Chipseal	Generic	MANGATEITEI ROAD	2968	2987	19	5.2	98.8	Sealed road resurfacing	(\$ 1,240.04)
2023/24	Reseal	Chipseal	Generic	MIHARO STREET	692	703	11	4.8	52.8	Sealed road resurfacing	(\$ 595.32)
2023/24	Reseal	Chipseal	Generic	KYDD LANE	0	147	147	7.4	1087.8	Sealed road resurfacing	(\$ 12,264.95)
2023/24	Reseal	Chipseal	Generic	MANUAUTE STREET	255	380	125	11	1375	Sealed road resurfacing	(\$ 15,503.13)
2023/24	Reseal	Chipseal	Generic	RIVER ROAD	305	337	32	2.6	83.2	Sealed road resurfacing	(\$ 938.08)
2023/24	Reseal	Chipseal	Generic	GOLF COURSE ROAD	0	557	557	4.8	2673.6	Sealed road resurfacing	(\$ 33,556.35)
2023/24	Reseal	Chipseal	Generic	ONGARUE STREAM ROAD	8186	8249	63	5	315	Sealed road resurfacing	(\$ 3,953.57)
2023/24	Reseal	Chipseal	Generic	ONGARUE STREAM ROAD	8279	8309	30	5	150	Sealed road resurfacing	(\$ 1,882.65)
2023/24	Reseal	Chipseal	Generic	WAIONE ROAD	2839	2852	13	4.4	57.2	Sealed road resurfacing	(\$ 717.92)
2023/24	Reseal	Chipseal	Generic	SERVICE ROAD NORTH	0	229	229	7.9	1809.1	Sealed road resurfacing	(\$ 20,397.60)
2023/24	Reseal	Chipseal	Generic	PIPIRIKI RAETIHI ROAD	21387	23000	1613	5.8	9355.4	Sealed road resurfacing	(\$ 117,419.63)
2023/24	Reseal	Chipseal	Generic	RANFURLY TERRACE	0	408	408	5.5	2244	Sealed road resurfacing	(\$ 25,301.10)
2023/24	Reseal	Chipseal	Generic	WHANGAHEU VALLEY ROAD	6593	8292	1699	5.3	9004.7	Sealed road resurfacing	(\$ 113,017.99)
2024/25	Reseal	Chipseal	Generic	MANGAREWA ROAD	0	391	391	4.7	1837.7	Sealed road resurfacing	(\$ 23,064.97)
2023/24	Reseal	Chipseal	Generic	DUNCAN STREET	722	857	135	5.5	742.5	Sealed road resurfacing	(\$ 8,371.69)
2024/25	Reseal	Chipseal	Generic	MANGAREWA ROAD	1471	1931	460	4.7	2162	Sealed road resurfacing	(\$ 27,135.26)
2024/25	Reseal	Chipseal	Generic	MANGAREWA ROAD	1931	2061	130	4.7	611	Sealed road resurfacing	(\$ 7,668.66)
2024/25	Reseal	Chipseal	Generic	TARINGAMOTU ROAD	7537	7588	51	7	357	Sealed road resurfacing	(\$ 4,480.71)
2024/25	Reseal	Chipseal	Generic	FALKNER PARK	0	264	264	7.1	1874.4	Sealed road resurfacing	(\$ 21,133.86)
2024/25	Reseal	Chipseal	Generic	FALKNER PARK (LEFT)	0	52	52	7.8	405.6	Sealed road resurfacing	(\$ 4,573.14)
2024/25	Reseal	Chipseal	Generic	HILLVIEW CRESCENT	0	158	158	7.4	1169.2	Sealed road resurfacing	(\$ 13,182.73)
2024/25	Reseal	Chipseal	Generic	MAHOE ROAD	0	136	136	8.1	1101.6	Sealed road resurfacing	(\$ 12,420.54)
2024/25	Reseal	Chipseal	Generic	FISHER ROAD	0	25	25	6.8	170	Sealed road resurfacing	(\$ 1,916.75)
2024/25	Reseal	Chipseal	Generic	FISHER ROAD	25	45	20	6.8	136	Sealed road resurfacing	(\$ 1,533.40)
2024/25	Reseal	Chipseal	Generic	MANGAREWA ROAD	415	1471	1056	4.7	4963.2	Sealed road resurfacing	(\$ 62,293.12)
2024/25	Reseal	Chipseal	Generic	KIRK STREET	0	258	258	6.8	1754.4	Sealed road resurfacing	(\$ 19,780.86)
2024/25	Reseal	Chipseal	Generic	MILLAR STREET	420	549	129	5.5	709.5	Sealed road resurfacing	(\$ 7,999.61)

Appendix H - Forward Works Programme

Work Year	Work Group	Work Type	Work Subtype	Road ID	Start	End	Length (m)	Width	Area	Work Funding Category	Total Cost
2024/25	Reseal	Chipseal	Generic	MILLAR STREET	549	668	119	4.9	583.1	Sealed road resurfacing	(\$ 6,574.45)
2024/25	Reseal	Chipseal	Generic	TONGARIRO PLACE	0	55	55	5.6	308	Sealed road resurfacing	(\$ 3,472.70)
2024/25	Reseal	Chipseal	Generic	GOLDFINCH STREET	0	163	163	6.7	1092.1	Sealed road resurfacing	(\$ 12,313.43)
2023/24	Reseal	Chipseal	Generic	WAITAANGA ROAD	3539	4400	861	6	5166	Sealed road resurfacing	(\$ 64,838.47)
2024/25	Reseal	Chipseal	Generic	OHAKUNE MOUNTAIN ROAD	13725	14400	675	6.4	4320	Sealed road resurfacing	(\$ 85,536.00)
2024/25	Reseal	Chipseal	Generic	FISHER ROAD	45	98	53	4.3	227.9	Sealed road resurfacing	(\$ 2,860.37)
2024/25	Reseal	Chipseal	Generic	OHAKUNE MOUNTAIN ROAD	15980	16200	220	6.4	1408	Sealed road resurfacing	(\$ 27,878.40)
2024/25	Reseal	Chipseal	Generic	OHAKUNE MOUNTAIN ROAD	12535	13355	820	6.6	5412	Sealed road resurfacing	(\$ 107,157.60)
2024/25	Reseal	Chipseal	Generic	OHAKUNE MOUNTAIN ROAD	16274	16329	55	6.4	352	Sealed road resurfacing	(\$ 6,969.60)
2024/25	Reseal	Chipseal	Generic	TAYLOR'S ROAD	0	340	340	6.9	2346	Sealed road resurfacing	(\$ 26,451.15)
2024/25	Reseal	Chipseal	Generic	MAKOKOMIKO ROAD	0	1738	1738	6	10428	Sealed road resurfacing	(\$ 130,881.83)
2024/25	Reseal	Chipseal	Generic	SEDDON STREET	29	480	451	21.9	9876.9	Sealed road resurfacing	(\$ 111,362.05)
2024/25	Reseal	Chipseal	Generic	SEDDON STREET	480	709	229	10.3	2358.7	Sealed road resurfacing	(\$ 26,594.34)
2024/25	Reseal	Chipseal	Generic	OHAKUNE MOUNTAIN ROAD	14800	15760	960	6.4	6144	Sealed road resurfacing	(\$ 121,651.20)
2024/25	Reseal	Chipseal	Generic	MANGAPARO ROAD	2715	3780	1065	5.4	5751	Sealed road resurfacing	(\$ 72,180.80)
2030/31	Reseal	Chipseal	Generic	GOLF ROAD ROUNDABOUT #2	0	60	60	8	480	Sealed road resurfacing	(\$ 5,412.00)
2024/25	Reseal	Chipseal	Generic	MANGAREWA ROAD	2061	3901	1840	4.7	8648	Sealed road resurfacing	(\$ 108,541.05)
2024/25	Reseal	Chipseal	Generic	OHAKUNE MOUNTAIN ROAD	16200	16242	42	6.4	268.8	Sealed road resurfacing	(\$ 5,322.24)
2024/25	Reseal	Chipseal	Generic	SEDDON STREET	709	741	32	9.8	313.6	Sealed road resurfacing	(\$ 3,535.84)
2028/29	Rehab	Reconstruction	Generic	OHURA ROAD	6000	11000	5000	5.3	26500	Sealed road pavement rehabilitation	(\$ 1,900,000.00)
2030/31	Rehab	Reconstruction	Generic	PORO O TARAO ROAD	2000	2800	800	6	4800	Sealed road pavement rehabilitation	(\$ 304,000.00)
2030/31	Rehab	Reconstruction	Generic	OLD STATION ROAD	0	700	700	5	3500	Sealed road pavement rehabilitation	(\$ 268,660.00)
2030/31	Rehab	Reconstruction	Generic	SEDDON STREET	0	1300	1300	21.9	28470	Sealed road pavement rehabilitation	(\$ 494,000.00)
2020/21	Footpath	New Footpath	Generic	SIMMONS ROAD	5	580		1.5		Walking facilities	(\$ 75,000.00)
2020/21	Footpath	New Footpath	Generic	MILLAR STREET	6	410		1.5		Walking facilities	(\$ 50,000.00)
2020/21	Footpath	New Footpath	Generic	BRACKEN STREET	3	170	473	1.5	709.5	Walking facilities	(\$ 25,000.00)
2020/21	Footpath	New Footpath	Generic	MIRO STREET	1619	2044		1.5		Walking facilities	(\$ 46,875.00)
2020/21	Footpath	New Footpath	Generic	RIMU STREET (OHAKUNE)	203	451	318	1.5	477	Walking facilities	(\$ 84,375.00)
2023/24	Footpath	New Footpath	Generic	SIMMONS ROAD	580	880		1.5		Walking facilities	(\$ 50,000.00)
2024/25	Footpath	New Footpath	Generic	SIMMONS ROAD	880	1034		1.5		Walking facilities	(\$ 28,125.00)
2027/28	Footpath	New Footpath	Generic	MILLAR STREET	431	536		1.5		Walking facilities	(\$ 15,625.00)
2028/29	Footpath	New Footpath	Generic	MILLAR STREET	547	660		1.5		Walking facilities	(\$ 15,625.00)
2028/29	Footpath	New Footpath	Generic	DUNCAN STREET	702	857	414	1.5	621	Walking facilities	(\$ 37,500.00)
2027/28	Footpath	New Footpath	Generic	SNOWMASS DRIVE	177	386		1.5		Walking facilities	(\$ 40,625.00)
2026/27	Footpath	New Footpath	Generic	MIRO STREET	2044	2299		1.5		Walking facilities	(\$ 25,000.00)
2026/27	Footpath	New Footpath	Generic	ONEPU ROAD	2	122		1.5		Walking facilities	(\$ 18,750.00)
2021/22	Footpath	New Footpath	Generic	PARAONE STREET	123	365		1.5		Walking facilities	(\$ 35,000.00)
2021/22	Footpath	New Footpath	Generic	WYE STREET	2	123	769	1.5	1153.5	Walking facilities	(\$ 15,000.00)
2031/32	Footpath	New Footpath	Generic	MIRO STREET	10	424		1.5		Walking facilities	(\$ 60,000.00)
2030/31	Footpath	New Footpath	Generic	TUROA DRIVE	3	187		1.5		Walking facilities	(\$ 29,500.00)
2024/25	Footpath	New Footpath	Generic	TUROA DRIVE (LHS)	11	68		1.5		Walking facilities	(\$ 9,225.00)
2024/25	Footpath	New Footpath	Generic	TUROA DRIVE (RHS)	8	70		1.5		Walking facilities	(\$ 10,125.00)
2024/25	Footpath	New Footpath	Generic	TUROA DRIVE ROUNDABOUT	3	13		1.5		Walking facilities	(\$ 1,600.00)
2024/25	Footpath	New Footpath	Generic	TUROA DRIVE ROUNDABOUT	18	29		1.5		Walking facilities	(\$ 1,700.00)
2024/25	Footpath	New Footpath	Generic	TUROA DRIVE ROUNDABOUT	42	75		1.5		Walking facilities	(\$ 5,350.00)
2022/23	Footpath	New Footpath	Generic	WACKROW STREET	14	123		1.5		Walking facilities	(\$ 50,000.00)

Appendix H - Forward Works Programme

Work Year	Work Group	Work Type	Work Subtype	Road ID	Start	End	Length (m)	Width	Area	Work Funding Category	Total Cost
2031/32	Footpath	New Footpath	Generic	HUKAROA ROAD	54	401		1.5		Walking facilities	(\$ 56,250.00)
2031/32	Footpath	New Footpath	Generic	HIKURANGI TERRACE	6	203		1.5		Walking facilities	(\$ 30,000.00)
2029/30	Footpath	New Footpath	Generic	HILLVIEW CRESCENT	155	158	119	1.5	178.5	Walking facilities	(\$ 27,500.00)
2025/26	Footpath	New Footpath	Generic	MT. VIEW STREET	3	401		1.5		Walking facilities	(\$ 65,000.00)
2030/31	Footpath	New Footpath	Generic	BELL ROAD (TOWN)	201	366		1.5		Walking facilities	(\$ 27,500.00)
2029/30	Footpath	New Footpath	Generic	BELL ROAD (TOWN)	100	245		1.5		Walking facilities	(\$ 25,000.00)
2031/32	Footpath	New Footpath	Generic	RANGAROA ROAD	366	912		1.5		Walking facilities	(\$ 91,250.00)
2030/31	Rehab	Reconstruction	Generic	WHANGAEHU VALLEY ROAD	8000	10500	2500	5.6	14000	Sealed road pavement rehabilitation	(\$ 950,000.00)
2030/31	Rehab	Reconstruction	Generic	OHURA MOKAU ROAD	700	2500	1800	4.8	8640	Sealed road pavement rehabilitation	(\$ 684,000.00)
2028/29	Rehab	Reconstruction	Generic	MANGAPARO ROAD	7000	8000	1000	5.6	5600	Sealed road pavement rehabilitation	(\$ 380,000.00)
2031/32	Footpath	New Footpath	Generic	WARD STREET (NAT. PARK)	172	541	487	1.5	730.5	Walking facilities	(\$ 65,000.00)
2026/27	Footpath	New Footpath	Generic	TONGARIRO PLACE	2	48		1.5		Walking facilities	7500

Appendix I: Request for Service Targets

	Subtype	Category	Complete by
1	Bridge	Routine	15 days
2	Building relocation road inspections	Routine	5 days
3	Contract / Engineer required	Routine	5 days
4	Corrugations	Routine	15 days
5	Culvert	Urgent	3 days
	Culvert	Routine	15 days
6	Flooding	Urgent	3 days
7	Footpath Issues	Routine	15 days
8	Kerb or Channel Issues	Routine	15 days
9	Litter	Routine	15 days
10	Mowing / Vegetation Control	Routine	60 days
11	Potholes	Routine	15 days
12	Rapid Number plates	Routine	10 days
13	Roading Team to Investigate	Routine	5 days
14	Signs / Sight rails / markings	Urgent	3 days
	Signs / Sight rails / markings	Routine	15 days
15	Slips	Emergency	2 days
16	Streetlights	Urgent	2 days
	Streetlights	Routine	30 days
17	Surface - Frost / Grit / Oil / Accident	Urgent	5 days
18	Trees - Fallen or standing	Urgent	5 days
	Trees - Fallen or standing	Routine	15 days
19	Underslip	Emergency	2 days
20	Water channel issues (rural)	Urgent	3 days
	Water channel issues (rural)	Routine	15 days

Appendix J: Smart Buyer Self-Assessment

NZTA – Smart Buyer Self- Assessment for Council as at January 2020.

This assessment is based on the Smart Buyer Principles identified in the Road Maintenance Task Force Report. Score the following by ticking the appropriate box - (1) Disagree to (5) Strongly Agree

Whenever you score yourself “4 or 5” think of an example you can use to justify your score to an independent auditor or the other attendees at this workshop

Ruapehu District Council (Land Transport) - Assessment statement (As At January 2020) Our Organisation	Score				
	1	2	3	4	5
1. Fully understands the different contracting models available. <i>Council has a good understanding of different models and approaches and has demonstrated a willingness to change models in the past when it became clear that it would deliver a different result.</i>				X	
2. Holds meetings that update the contracting industry on the forward works programme and any changes in approach, and proactively engages with the contracting industry to ensure that gains optimal value from any changes being implemented. <i>There is still an opportunity to increase the engagement with industry and the longer term views of the capital works pipeline.</i>			X		
3. Has sufficient robust data (or is in the process of gathering robust data) on our networks that enable optimal integrated decision-making. <i>Council has some good data and utilises a tool, MAX.quality, to support improving the quality of existing data. However, there is still more focus and work being applied to further improve data quality and how it gets used.</i>				X	
4. Has access to expertise that fully enables best use of the data available. <i>Council, through its Network Management Consultant has strong skills in analysing data and using this information to support decision making. This is further enhanced by Council using MAX.dashboard where some of the analytics have been automated and displayed in an interactive dashboard.</i>				X	
5. Is open to alternative solutions to those proposed in the contract documents. <i>Council has an openness to discussing and evaluating alternative approaches to achieve greater value for money or outcomes. For example, listening to contractor feedback on constructability of bridge repairs and replacements.</i>					X
6. Understands risk and how to allocate and manage it. <i>Council had a key discussion on the allocation of risk during the last maintenance contract procurement. This resulted in the Council accepting some further risk to receive reduced costs from the contractor. Some great positive examples are available but there are some areas that can be further explored in the next round of maintenance contracts.</i>				X	
7. Has a Council that is prepared to pay more now to achieve a lower whole-of-life cost. <i>Council procurement utilises Price Quality Method (PQM) for evaluation for the majority of tenders. This acknowledges that Council values quality and is prepared to pay a premium to achieve this. Council, through the Network Management Consultant, also does optioneering within more significant works (eg: bridge replacements and pavement rehabilitations) to optimise the whole-of-life costs.</i>				X	
8. Actively pursues value for money & does not always award contracts to the lowest price. <i>Council procurement utilises Price Quality Method (PQM) for evaluation for the majority of tenders. This acknowledges that Council values quality and is prepared to pay a premium to achieve this.</i>				X	
9. Is able to manage supplier relationships / contracts to ensure optimal expenditure, which sustains infrastructural assets at appropriate levels of service. <i>Council, with the Network Management Consultant, have developed closer working relationships with contractors (focus groups). Council's procurement strategy has identified that the best strategic opportunity lies in getting better value from its existing contracts and relationships, and will focus on improving the long term value.</i>			X		
10. Supports ongoing skill and competency training and development for its staff. <i>Council staff attendance at courses, conferences and industry forum and training sessions. Council has also actively participated in the REG programme and actively supported their suppliers to also participate.</i>				X	

11. Actively shares and gain knowledge within the sector. <i>Council staff attend courses, conferences, industry forums and training sessions.</i>					X
12. Is effective in keeping up with best practice in procurement, including best practice RFP / contract documentation. <i>Council contracting strategy, use of specialist consultant.</i>				X	
13. Regularly seeks and receives candid feedback from suppliers on its own performance as a client and consistently looks to improve its performance. <i>Council, with Network Management Consultant, have close working relationships with contractors, there is still an opportunity to develop this further more formally.</i>			X		
14. Explores opportunities for collaboration by either sharing in-house resources with neighbours, or by procuring together or tendering together. That exploration could be through an LGA s17A evaluation of transport function delivery options. <i>Council has previously explored and engaged with NZTA and neighbours on opportunities for joint procurement. To date none of these have eventuated.</i>				X	
Number of ticks in each column			3	9	2
Multiplying factor	x1	x2	x3	x4	x5
Total Score in Column			9	36	10
Total Score	55				

Score: Interpretation

65 to 70: Our organisation is a Smart Buyer - people love working for us and with us!

55 to 64: Our organisation has embraced Smart Buyer principles as still has some areas where it can improve

45 to 54: Our organisation gets by but has opportunities for improvement

30 to 44: Our organisation is not rocking the boat when it comes to pursuing value for money

0 to 29: Our organisation is a bit of a basket case!

If you were to repeat this assessment in say one or two years' time, how do you expect it will have changed, which questions will show the greatest change (up or down) and what action / inaction on the part of your organisation will have been the driver of that change?

The need for 'smarter buyers' (pages 36 and 37 of the RMTF report)

A theme that underpins a number of the conclusions of this review is that RCAs must be both efficient and effective managers of their road assets and smart buyers of the services they require. These issues strongly relate to the concept of 'smart procurement' with a balanced focus across 'the three Es':

1. economy – through securing (or supporting) the provision of products, materials and expertise at the quality, in the volumes and at the times and locations required, at the lowest price
2. efficiency – through the processes used, including standard documentation and contracting forms selected for achieving best cost / quality and outcomes; and knowledge of the product / materials and supplier market applied
3. effectiveness – taking opportunities for changing from traditional products and materials by maintaining support for innovation in the nature and characteristics of products and materials, and for a strong supplier market

The impact of raising the capability of RCAs would include reduced supplier selection process costs, better management of risk and more objective assessment of performance for use in future supplier selection processes.

The contracting industry has provided the following useful analysis of the characteristics of a smart buyer: Some RCAs are smart buyers but this is believed to be the exception.

Smart buyers have:

- An improved understanding of costs that better inform their decision making process
- An understanding of the impact delivery models and supplier selection criteria can have on the value of contracts

- Robust forward work programmes that are communicated to the industry and supported by budgets that allows the work to be completed
- Knowledge of the network to determine treatments required based on physical evidence and supported by knowledge of the costs involved
- In house expertise that aids the decision making process and allows acceptance of innovative solutions possibly with or without the involvement of consultants
- A clear understanding of risk and how it is allocated and managed
- An understanding that lowest price will not always deliver desirable outcomes
- An understanding that being prepared to pay more may result in enhanced whole of life value for money.

Not so smart buyers:

- Award contracts predominately based on price – with little appreciation of any risk to best value for money
- Outsource work to the detriment of asset knowledge
- Choose contract forms that are fashionable, not well understood and poorly managed
- Lack technical and contractual management skills
- Lack asset management skills that prevent the development of robust forward work programmes
- Do not support forward work programmes with appropriate budgets.

Task Force members debated the nuances around individual items in these lists but believe that they provide a platform on which to build a list of the characteristics that would be exhibited by an RCA that has the capability and the capacity to be a smart buyer.

One Task Force member described a smart buyer in the following terms:

A 'smart buyer' RCA ensures its staff are up-to-date, regularly shares best practice experiences with colleagues from other agencies, and supports and resources their teams appropriately in the recognition that getting the strategic direction right is a very small cost compared to the consequence of getting it wrong. This requires staff to be involved in regular training, attendance and participation in sector gatherings, and involvement in NZTA investigating teams and the like. Ironically in the interests of 'cost-saving' many agencies are limiting staff involvement in these activities. A smart buyer does not ask the question – what if I train my staff and they leave? – but rather asks the question – what if I don't train my staff and they stay?