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# LAND TRANSPORT ASSET MANAGEMENT PLAN 2018-2028



# **Land Transport Asset Management Plan 2018-28**

## **Part 3 – Activity**




# Part 3 – Land Transport Activity

## Quality Information




Document	Asset Management Plan
Document Number	Please see below
Date	31 August 2017
Prepared by	Glen Syred
Reviewed by	Andrea Nicol
Approved by	Warren Furner

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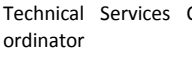
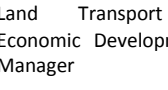

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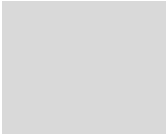
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## Part 3 – Land Transport Activity

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# Part 3 – Land Transport Activity

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## 1 Executive Summary

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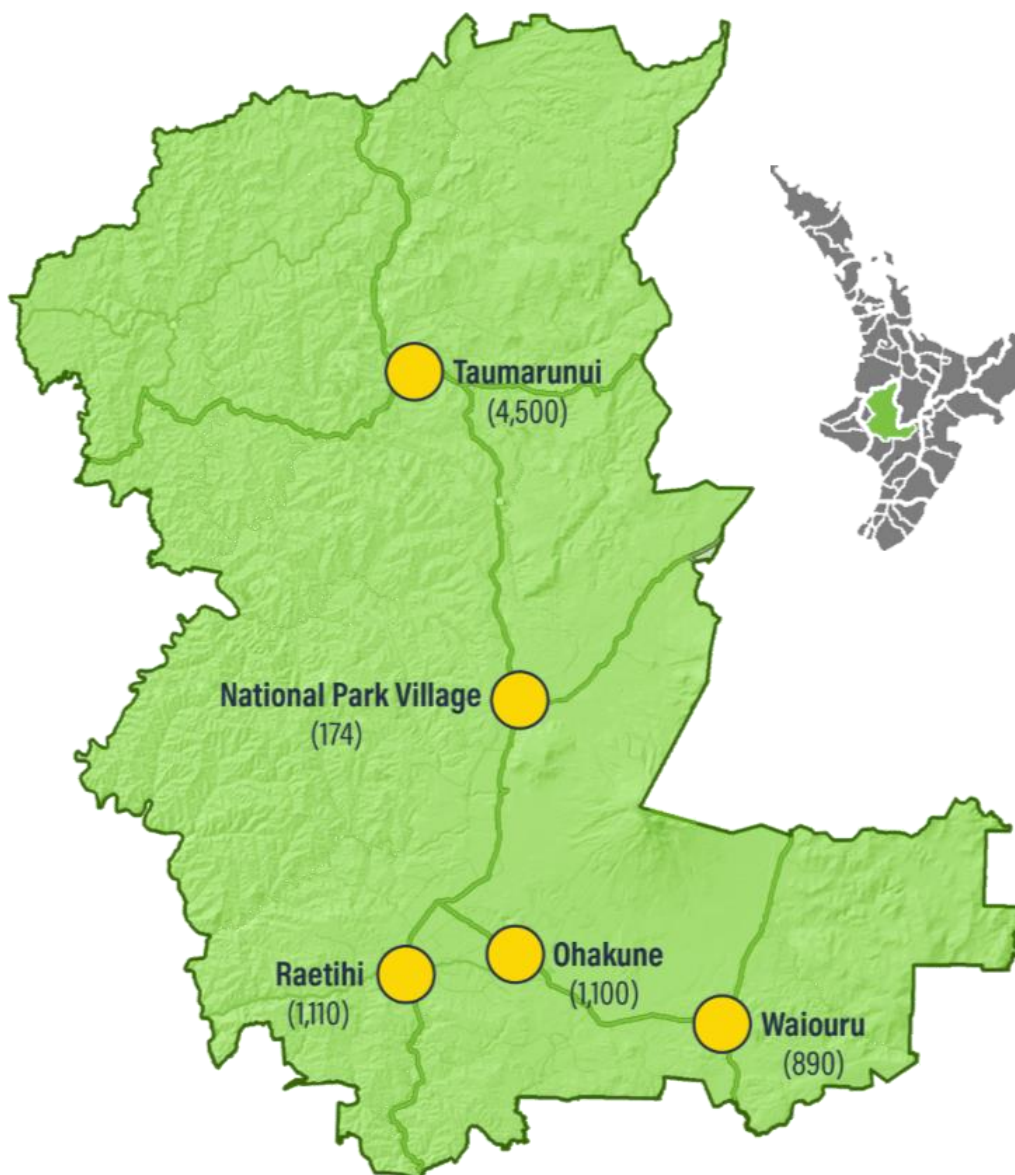
### 1.1 Introduction

- 1.1.1 The contents of this Asset Management Plan Executive Document together with the updated Land Transport Asset Management Plan 2018 are considered to meet the recommendations of the New Zealand Transport Agency (NZTA)/Road Efficiency Group (REG) Business Case Approach as far as best appropriate practice for the Ruapehu District Council.
- 1.1.2 This Asset Management Plan (AMP) describes the programme business case approach as well as the strategies, work programmes and long-term financial forecasts for Council's Land Transport Portfolio. Business Case Approach (BCA) 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.
- 1.1.3 The assets within this Portfolio support a number of Council's Long Term Plan (LTP) 2018-28 activities. The LTP is prescribed by Section 93 of the Local Government Act 2002. Under the Act, Council has to deliver revised plans to its community on a three yearly cycle. The 2018-28 LTP and Land Transport Asset Management Plan (AMP) contains a minimum of ten years financial forecasts and detailed asset information for the Land Transport activity, and are being revised and updated

<b>1.1.4 Ruapehu Land Transport Network</b>
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- (a) Ruapehu Geographic Overview
- (i) The Ruapehu District is a land-locked area encompassing 6,733km<sup>2</sup> in the central North Island with a usual resident population of 11,838 (Statistics NZ, Census 2013). The District's population ranks 50th in size out of the 67 districts in New Zealand and has about 0.27% of New Zealand's population. Ruapehu is one of New Zealand's largest Districts by land area but has a relatively small and dispersed population base. Ruapehu District has abundant natural resources and world-renowned scenery. The rural landscape supports large farming, horticulture, forestry industries and reserve land. Almost 90% of the land value is in the rural sector. It is a growing tourist destination, and has a significant number of visitors each year.
  - (ii) Sixty six percent of the road network is unsealed. The majority of the users consist of the following: farming community, forest industry, tourists, school buses, and postal delivery services. The majority of the roads have low volumes of traffic – less than 100 vehicles a day. However, some roads can get busy at certain times. For example, the Ohakune Mountain Road up to the Turoa Ski field has up to 4,500 vehicles a day during ski season. The road is now experiencing congestion in peak season due to the nature of the destination.
  - (iii) A map of Ruapehu is provided below.

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- (iv) Ruapehu is one of the largest Districts in New Zealand, but it has a very small dispersed population of 11,838 (Census 2013), which equates to less than two people per square kilometre.
- (v) Adjacent districts include Taupo, Waitomo, Whanganui, Rangitikei, New Plymouth and Stratford. Ruapehu is part of the Horizons region. It is in NZTA's peer group of having less than 10% urban area. Other districts within this group that are most similar to Ruapehu with respect to key issues, urban/rural areas, topographical, geographical and climatic challenges include Rangitikei, Wairoa and Central Hawkes Bay.

(b) Network Assets

- (i) In order to enable the Land Transport activity, Council owns and manages the following Transport assets summarized below:

Asset Group	Asset Type	Quantity		Optimised Replacement Cost ORC (\$)
Pavement	Road Formation	1,339	km	89,709,396
	Pavement Layers	1,339	km	122,716,353
	Road Surface	485	km	23,700,372
Structures	Bridge	255	number	85,309,954

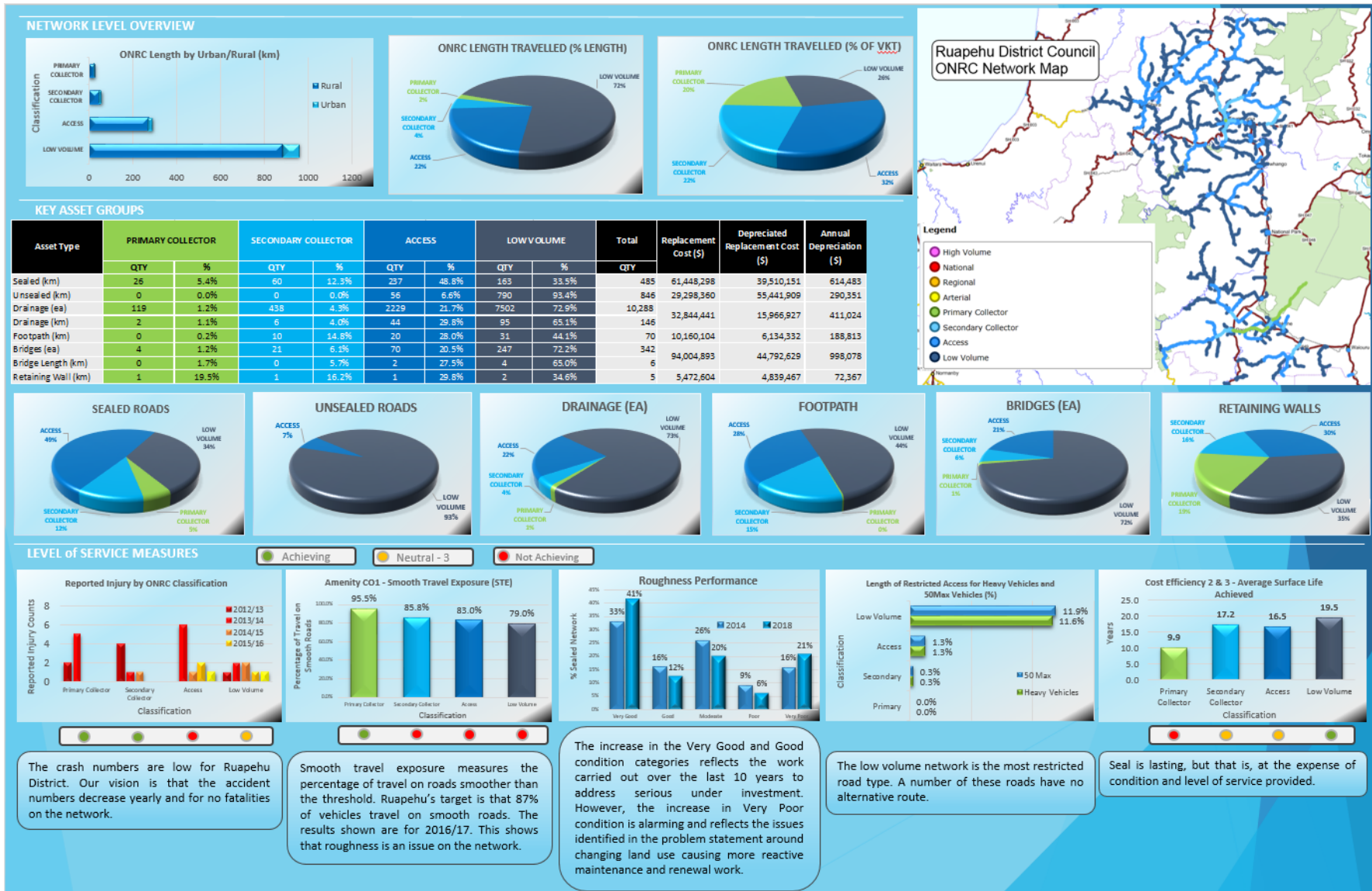
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Asset Group	Asset Type	Quantity		Optimised Replacement Cost ORC (\$)
	Large Culverts	86	number	8,694,939
	Retaining Walls	4	km	5,472,604
	Minor Structures			1,291,208
	• Pedestrian Footbridge	1	Number	
	• Bluff Safety Netting	150	m	
Drainage	Kerb and Channels	1,545	km	23,136,758
	Small Culverts and Other assets	142	km	32,844,441
Traffic Services	Street lighting	1,049	lights	3,761,569
	Road markings	398	km	442,045
	Road signs	5511	number	1,058,047
	Crossings	450	number	3,290,782
	Islands	31	number	292,543
	Railing	14,527	m	1,870,710
	Traffic Facility	1,345	number	45,471
Footpaths	Footpaths	69	km	10,160,104
Cycleways	Cycleways	344	km	included above
Bus shelters	Bus shelters	16	number	not valued
Facility roads and carparks	Facility roads and carparks	44,666	m <sup>2</sup>	included above
		62	number	
<b>Total</b>				<b>413,797,295</b>

\*Note: Land Under Roads is valued at \$43M but not included in table above. Total ORC including land under roads is \$456,921,756, and note that pavement shoulders are valued as part of the pavement layers. In addition, Minor Structures asset group includes two assets – Bluff Safety Netting and OMR Pedestrian Footbridge.

- (ii) The above Transport assets are included in this AMP. The value of the Land Transport portfolio is \$457 million. This is based on the 2017 asset valuation carried out by GHD Limited 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. The valuation includes all roading assets and land under roads.
- (iii) The figure below summarises Ruapehu District's (District) Land Transport assets.

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## 1.1.5 Ruapehu District Council – Land Transport Activity

- (a) Council was established on November 1989 and is the local territorial authority for the District. Council's role is to provide a road and pedestrian network that allows for the safe, reliable, efficient and effective movement of vehicles and people. Council's leadership and governance follows the role and principles of the local government as per the Local Government Act (LGA) 2002 and subsequent amendments namely:
- (i) To enable democratic local decision-making and action by, and on behalf of communities
  - (ii) 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.

Our Vision of the District is that:

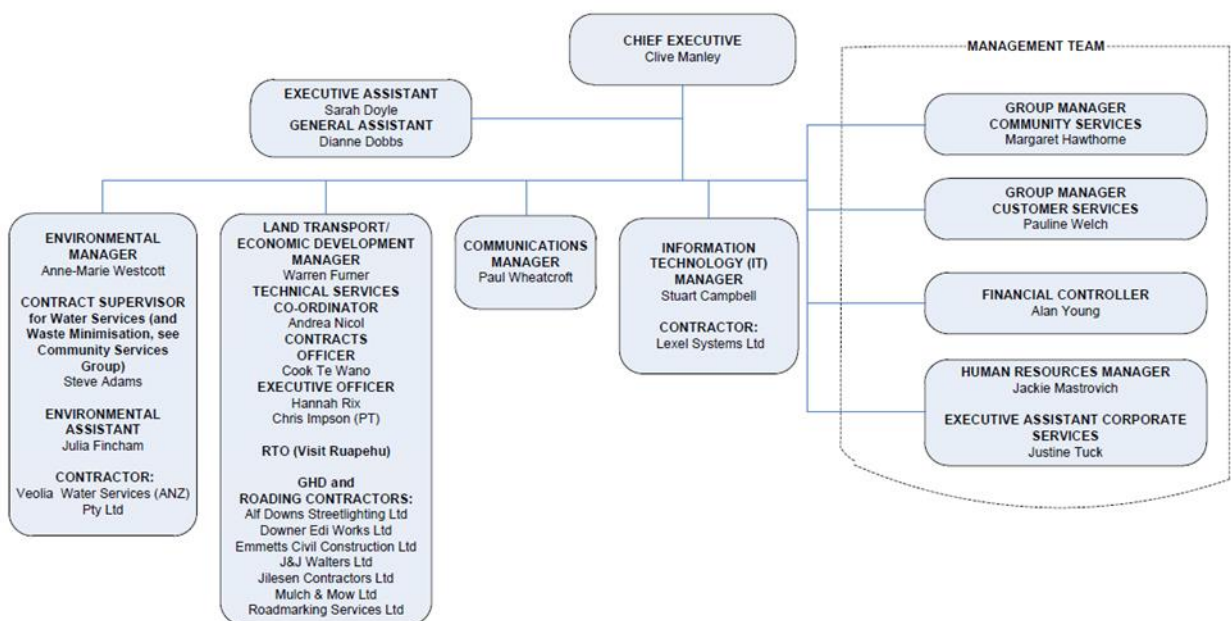
**Drive and support the development of safe, prosperous rural communities that are able to capitalise on our agriculture, business and tourism sectors while sustaining our beautiful environment**

Supported by Our Mission Statement to:

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

- (i) **Creating and retaining jobs,**
- (ii) **Growing incomes,**
- (iii) **Increasing the ratepayer base,**
- (iv) **Providing sustainable infrastructure,**
- (v) **Providing value for money in all we do,**
- (vi) **Ensure the people who benefit from Council spending contribute their fair share of the costs**

- (b) The management and administration of Council's Land Transport assets is undertaken by a small team of Council staff shown below.



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# Part 3 – Land Transport Activity

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## 1.2 The Need for Investment and the Case for Change

- 1.2.1 With regard to Ruapehu District’s land transport infrastructure, the “Why we have to invest” is captured in the Strategic Case; and the “What we have to invest” is captured in the Programme Business Case.
- 1.2.2 These cases are explained in more detail as they are unpacked in the main body of the AMP under sections for Introduction, Planning Context, Lifecycle Management Plans for asset groups, Asset Management Practices, Plan Improvement and Monitoring and the Financial Management sections.
- 1.2.3 The District applies a robust business case approach in the way it develops and justifies its programmes of work and Long Term Plan.
- 1.2.4 This AMP demonstrates how Ruapehu District will achieve its goals and associated strategic targets to achieve its community outcomes through effective sustainable management of land transport infrastructure.
- 1.2.5 The Ruapehu District Land Transport AMP meets the investment assessment criteria by showing:
- (a) The Strategic Case – “Why we have to invest”. That is aligned to and to address the particular problems of soft soils, hilly terrain and high rainfall; and of increasing forestry haulage impacting the condition and safety of our roads. Refer the AMP Part 3, Introduction Section 4.
  - (b) The Programme Business Case – “What we have to invest”. That is, in road pavements, including bridges, drainage; and in road safety. Refer the AMP Part 3, Introduction Section 5.
  - (c) Also, Delivering the Programme – “How we have to invest”. Refer the AMP Part 3, Introduction Section 6.
- 1.2.6 The following are summaries of these sections.

## 1.3 The Strategic Case

- 1.3.1 Strategically, we have to invest in the road network. Our investment strategy in the road network aligns to and addresses government and regional priorities in the Draft Government Policy Statement (GPS) and NZTA’s Draft Investment Assessment Framework (IAF) and Transport Agency Investment Proposal (TAIP) for:
- (a) Value for money
  - (b) A consideration of supporting regional economy, and economic development areas,
  - (c) A resilient system, and
  - (d) A priority for safety.
- 1.3.2 Specifically, our investment strategy aligns to and addresses the local problems and benefits discussed below.
- 1.3.3 Ruapehu District’s economy remains economically dependent on agriculture, horticulture and forestry despite tourism having a big impact on urban infrastructure. This sector provides 24% of the total employment (Infrastructure Strategy 2015-45). Growth of agriculture, tourism, commerce and industry is heavily reliant on the ability to move goods and visitors efficiently around the District.
- 1.3.4 Having an effective Land Transport network is fundamental to the viability of the economy of the Ruapehu District. A well-designed and maintained Land Transport network secures the economic future of Ruapehu.
- 1.3.5 Not only are there routine challenges and problems of maintaining for the customers a safe and working road network in difficult conditions of corrosive/sensitive soils, hilly terrain and high rainfall; the District is also facing an increase in the number of Heavy Commercial Vehicles (HCV) on rural roads in recent years. This has caused an increased deterioration of the District’s rural road network and aging rural bridges. This is because of a number of reasons such as forestry harvest around the central North Island, an increased in larger HCV’s servicing farms and Council’s own aggregate trucks.
- 1.3.6 As harvest of timber in the region gets underway, approximately 24 million tonnes of timber is anticipated to be transported out of the District. Loading from these logging trucks cause as much wear and tear on the rural road network during the harvesting period as dairying, sheep and beef farms do over a longer period. This highlights the sort of pressures that economic growth has on rural communities that have infrastructure

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## Part 3 – Land Transport Activity

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in some cases nearing the end of its life. An increase in large haulage vehicles also presents a significant safety risk to all road users.

- 1.3.7 At the same time, there is an increasing number and diversity of community and stakeholder groups; and they want better and safer roads to support local lifestyle and work, and commerce such as tourism, farming and forestry. There is an increase in the number of tourists accessing remote locations such as cycleways.
- 1.3.8 The following routine challenges arise as the road network deteriorates over time:
- (a) The sealed network requires resealing as the seal wears out causing loss of traction increasing the likelihood of accidents and further pavement deterioration;
  - (b) Metal loss from unsealed roads creates unsafe situations for road users and exposes the road base to more rapid deterioration;
  - (c) 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; and
  - (d) Lighting, line marking and signs deteriorate over time increasing the accident risk to road users if they are absent.
- 1.3.9 Workshops were held with key stakeholders to identify and consider the District's key issues and key problems, which are additional to the normal, routine challenges. This was done using NZTA's recommended 'investment logic mapping' framework. The following four main particular problem statements are derived:
- (a) Failure of aging infrastructure from changing land uses
  - (b) Needs and Expectations
  - (c) Climate, Topography and Geology
  - (d) Safety
- 1.3.10 The benefits of addressing and solving the problems were identified as follows:
- (a) A network that is efficient, supports economic activity, is fit for purpose and meets the needs of the community.
  - (b) Activity and works management which is efficient and effective
  - (c) Safe network and safe journeys
- 1.3.11 The problem statements, the benefits of solving the problems, and how these benefits can be measured are shown in more detail by the investment logic map below



# Part 3 – Land Transport Activity

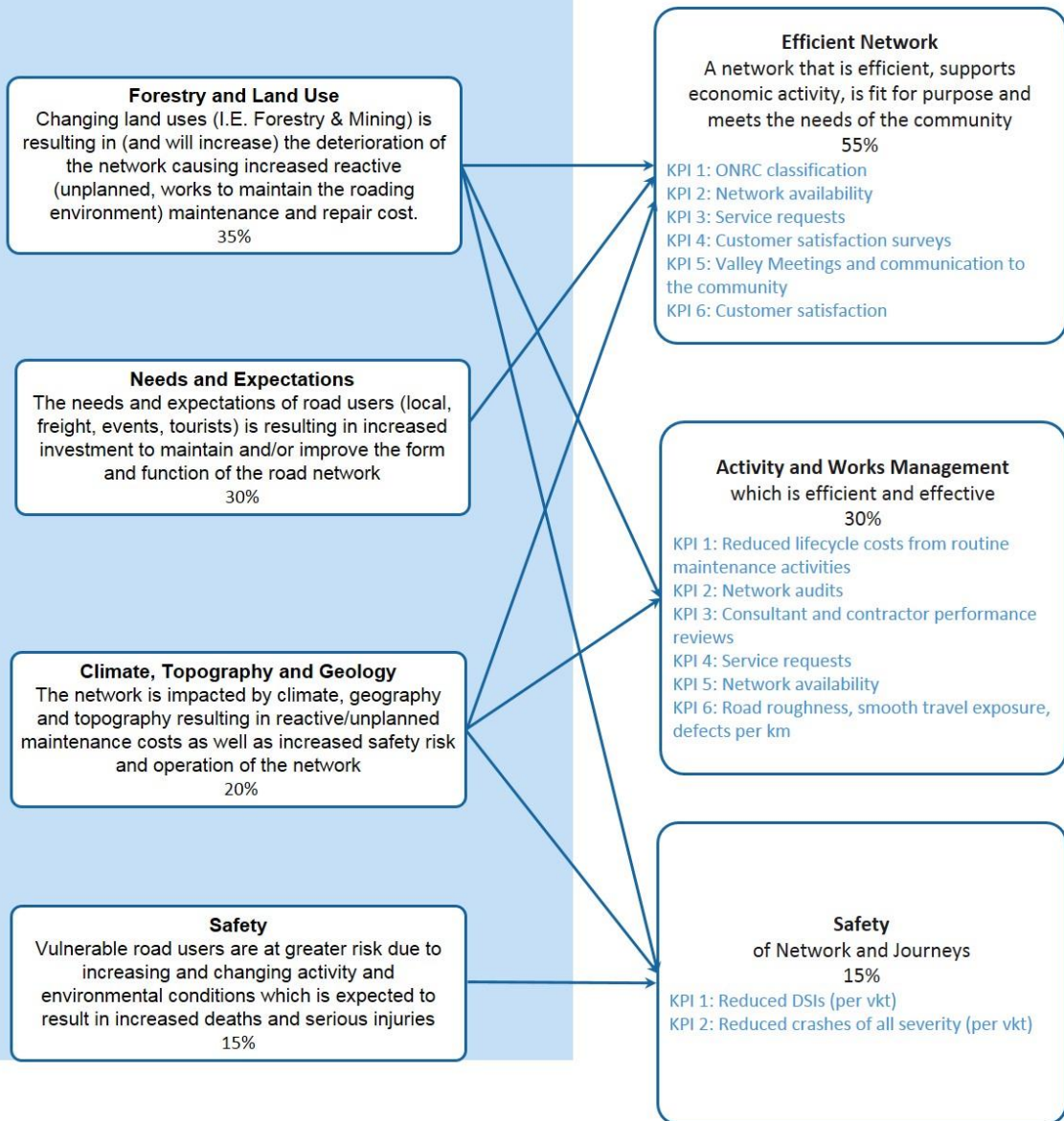
Ruapehu District Council Activity Management Plan 2018/19 -2027/28

## Activity Management Plan 2018/19 -2027/28

INVESTMENT LOGIC MAP

PROBLEM

BENEFIT



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

Version no: Draft for discussion  
Initial Workshop: 08 November 2016  
Last modified by: Tim Eldridge, RDC, GHD 15/12/2016  
Template version: 0.2

1.3.5 The alignment of Problem Statements with Council’s Strategic Objectives is shown in Part 3 – Land Transport Activity Section 4.

## Part 3 – Land Transport Activity

- 1.3.6 The line of sight analysis with regards to the current asset performance in the problem space, how it links to the ONRC customer outcomes, benefits of addressing the problems, consequences of not addressing them, and their strategic responses is shown in Part 3 – Land Transport Activity Section 4.
- 1.3.7 The evidence for the problems is shown in Part 3 – Land Transport Activity Section 4.

### 1.4 Programme Business Case (Developing the Programme)

- 1.4.1 The Programme Business Case states “What we have to invest”.
- 1.4.2 It provides the strategic response of the planned future state, identifies a programme of works or activities that deliver on the strategic case, with asset management information that identifies maintenance, operations, renewals and improvement/new works programmes.
- 1.4.3 In order to address the strategic issues and problems stated, our programme must address the key themes of road pavements, bridges and road safety.
- 1.4.4 Road pavements need re-surfacing, base rehabilitation, bridges to support them, and drainage to keep the water out. Road safety requires robust bridges, signage, street lighting, and an environment that maximizes driver visibility and pedestrian safety. Our investment strategy for road safety is cognizant of local issues raised by NZTA’s road safety action planning and crash analysis systems.
- 1.4.5 In a constrained budget environment, ONRC road categorisation has helped us to optimize available funds by prioritising and re-focusing investment where it is needed most in the network.
- 1.4.6 Our 2015-18 actual achieved average programme of \$15.8M invests:
- (a) \$8.4M in Operations and Maintenance (O&M) of roads, drainage and safety related works
  - (b) \$5.8M in Renewals of roads, drainage and safety related works
  - (c) \$1.6M in Capital improvement works
- 1.4.7 However, the clear evidence in our Strategic Case and Programme Business Case demonstrates that although most of the investment needs can be met by re-allocating existing budgets, there is also a need for more funds to meet these particular issues and problems.
- 1.4.8 The evidence shows that even with the current investment levels, there is an increasing damage, worsening condition and higher repair costs to roads especially on haulage routes. Compounding this is the forest plantation harvesting and heavy traffic counts are projected to increase further over the next 10 years. The previous budget allocations and activities will not fully cater to these new demands.
- 1.4.9 We need to re-focus/re-allocate and increase our investment if we are to have sustained roading network over the long term.

#### 1.4.10 Programme Alignment to Problems

- (a) The District believes that the problems require the following programme responses:

Problem	Programme Response
Maintaining level of service in difficult conditions	Status quo, re-allocate as appropriate within existing budgets.
Forestry and land use	Re-direct pavement renewals to routes of current and known logging routes.
Needs and expectation of road users to maintain and improve the road network	Status quo, re-allocate to improve form and function of road pavements and facilities.
Climate, Topography and Geology impacts	Council responses to climate, topography and geology impacts with the emergency works budget, response within the maintenance contract and in capacity when replacing bridges and culverts.

## Part 3 – Land Transport Activity

Problem	Programme Response
Safety risks due to changing use and conditions	Further capital improvement works address safety issues on routes with increasing tourists and commercial traffic.

### 1.4.11 Proposed 2018/19 to 2020/21 LTP Programme

- (a) The above programme responses have been quantified and developed into a proposed programme of works going forward for 2018/19 to 2020/21 as shown below.
- (b) We re-focused and increased the 2015-18 actual achieved programme of works to a new proposed 2019-21 programme to align and address the problems facing the District.
- (c) We recommend a necessary re-allocation and increase to our core annual programme by \$4.1M (26%) to \$19.9M, made up of:
- \$8.7M Operations and Maintenance of roads, drainage and safety related works (an increase of \$0.2)
  - \$8.8M Renewals of roads, drainage and safety related works (an increase of \$3.1M)
  - \$2.4M in Capital development works (an increase of \$0.8M)
- (d) The breakdown details and alignment to the problem statements are as follows (showing annual 3-year average programme budgets). Refer to Part 3 – Land Transport Activity Section 5 for more detail.

Expenditure Type	Previous Programme Estimate Cost Per Year (\$M) <sup>1</sup>	2018/19 Recommended Programme Estimate Cost Per Year (\$M) <sup>2</sup>	Difference Proposed (\$M)	Programme Alignment to Problems and Benefits
<b>Operations and Maintenance (O&amp;M)</b>	<b>\$8.4</b>	<b>\$8.7</b>	<b>\$0.2</b>	<b>3% Increase</b>
Pavements	\$1.8	\$1.7	-\$0.1	Maintaining levels of service; prioritisation of heavy maintenance on forest plantation haul roads.
Structures	< \$0.1	< \$0.1	< \$0.1	Maintaining levels of service (structures on Special Purpose Roads); efficient and safe structures.
Drainage	\$0.5	\$0.6	\$0.1	Maintaining levels of service (as well as drainage on Special Purpose Roads); sustained efficiency.
Traffic Services	\$0.9	\$0.9	< \$0.1	Maintaining levels of service.
Footpaths	\$0.1	\$0.1	< \$0.1	Maintaining levels of service.
Cycleways	< \$0.1	< \$0.1	< \$0.1	Maintaining levels of service.
Facility Roads and Carparks	< \$0.1	< \$0.1	< -\$0.1	Maintaining levels of service.
Asset Management Practices	\$0.7	\$0.9	\$0.2	Implement Asset Management improvements.
Environmental Services and Emergency Works	\$4.2	\$4.2	\$0.1	Maintaining levels of service.
<b>Renewals (R)</b>	<b>\$5.8</b>	<b>\$8.8</b>	<b>\$3.1</b>	<b>53% Increase</b>
Pavements	\$4.4	\$6.1	\$1.8	Increased Renewals Works on forest plantation haul roads.

## Part 3 – Land Transport Activity

Expenditure Type	Previous Programme Estimate Cost Per Year (\$M) <sup>1</sup>	2018/19 Recommended Programme Estimate Cost Per Year (\$M) <sup>2</sup>	Difference Proposed (\$M)	Programme Alignment to Problems and Benefits
Structures	\$0.6	\$1.7	\$1.1	Efficient and safe structures, prioritising renewal of structures. Bridges reaching the end of its life (total replacement or replacement of significant parts of the structure). These works also accommodate the increase in size of trucks.
Drainage	\$0.3	\$0.4	\$0.1	Maintaining levels of service.
Traffic Services	\$0.2	\$0.4	< \$0.1	Maintaining levels of service.
Footpaths	\$0.2	\$0.2	\$0.0	Safe and accessible footpaths, prioritising footpaths within parks and reserves.
Bus Shelters	< \$0.1	< \$0.1	< \$0.1	Maintaining levels of service.
Facility Roads and Carparks	< \$0.1	< \$0.1	< \$0.1	Maintaining levels of service.
<b>Capital Development Works</b>	<b>\$1.6</b>	<b>\$2.4</b>	<b>\$0.8</b>	<b>50% Increase</b>
Pavements	\$1.0	\$1.9	\$0.9	Increased Capital Development Works on forest plantation haul routes.
Structures	\$0.3	\$0.3	<-\$0.1	Maintaining levels of service.
Traffic Services	< \$0.1	\$0.1	< \$0.1	Maintaining levels of service.
Drainage	\$0.1	\$0.1	< \$0.1	Provision of new kerb & channel.
Footpaths	< \$0.1	< \$0.1	< \$0.1	Provision of new footpaths
Facility Roads and Carparks	\$0.2	< \$0.1	-\$0.2	Maintaining levels of service.
<b>Grand Total (\$M)</b>	<b>\$15.8</b>	<b>\$19.9</b>	<b>\$4.1</b>	<b>26% Overall Increase</b>

Note:

1 Previous Programme is an annual 3-year average from 2015/16 to 2017/18.

2 Recommended Programme is an annual 3-year average from 2018/19 to 2020/21.

The values are uninflated to base year 2017/18.

- (e) The proposed ongoing programme of work after 2021 is shown in the Financial Summary section of the AMP.
- (f) Our programme also aligns with NZTA's Draft Investment Assessment Framework (IAF) and the Draft Government Policy Statement (GPS) because it shows:
- value for money by targeting the right work in the right places at the right time to achieve least long-term costs;
  - a consideration of supporting regional economy by catering for heavy haulage and commercial traffic; and
  - a priority for safety by addressing tree hazards, pavement damage by logging trucks and other road and bridge safety improvements.
- (g) This Land Transport AMP 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 change includes the benefits of addressing the problems and the consequences of not.

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## Part 3 – Land Transport Activity

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### 1.4.12 Potential Consequences

- (a) The consequence for our Community if the programme is not approved is that the level of service would need to be reduced and safety may be compromised.
- (b) The goal for land transport is that our transportation network is reliable, safe and endeavours to meet the needs of users. Ruapehu does this by providing a fit for purpose programme that aims for just-in-time renewals.
- (c) Evidence is showing that the current programme is not keeping up with need. A reduction or loss of funding would severely limit our ability to provide a safe and sustainable road network. As road conditions deteriorated, efficiency would be impacted upon and it would become more difficult for farmers to get stock and produce to market, for residents to go about their normal lifestyles, and for roads to support the burgeoning tourist market in the District.

### 1.4.13 Programme Improvement Plan

- (a) We concur with the findings of the NZTA investment audit report March 2017 that we need to “focus on improving RAMM data quality and completeness to provide improved information to Council and greater transparency to the Transport Agency”.

## 1.5 Delivering the Programme

### 1.5.1 Programme Governance, Monitoring Reporting

- (a) The District maintains ownership and responsibility for managing the land transport activity, the associated infrastructure and the delivery of the total programme of works. Council has engaged a dedicated team of Network Consultants to provide specific expertise, to provide strategic, tactical and operational inputs and resources, to manage physical works contracts and to assist in the programme development and delivery as required.
- (b) Physical works contracts are used for various aspects of roading maintenance.
- (c) Refer to Service Delivery in Section 16 in the Part 3 Land Transport Activity document for further details on programme governance, monitoring and reporting.

### 1.5.3 Procurement Capability and Smart Buyer Assessment

- (a) Council has assessed itself against the Smart Buyer guidelines of the Road Efficiency Group and is in the range “Our organisation has embraced Smart Buyer principles as still has some areas where it can improve”. Council employs best appropriate practice procurement, contracting, network management practices that comply and NZTA Procurement Manual requirements.

### 1.5.4 Programme Improvement Plan

- (a) The District Council concurs with the findings of the NZTA investment audit report Feb/March 2017 – we need to “focus on improving RAMM data quality/completeness, which will provide improved information to Council and greater transparency to the Transport Agency”.
- (b) Council is currently and has committed additional resources to improving the quality and completeness of its data in RAMM.

## 1.6 Conclusion

### 1.6.1 Strategic Case

- (a) Strategically, we have to invest in the road network.
- (b) Apart from the routine challenges of maintaining for our customers a safe and working road network in difficult conditions of soft soils, hilly terrain, high rainfall and a high demand for tourism; we are facing particular issues and problems.

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## Part 3 – Land Transport Activity

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- (c) An increasing number of forestry trucks are already damaging our roads and bridges as they cater to a greater level of forestry harvesting, which is projected to increase even further over the next 10 years.
- (d) An increase in large haulage vehicles also presents a significant safety risk to all road users.
- (e) At the same time, there is an increasing number and diversity of community and stakeholder groups; and their want better and safer roads to support local lifestyle and work, and commerce such as tourism, farming and forestry.

<b>1.6.2 Programme Business Case</b>
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- (a) In order to address the strategic issues and problems stated, our programme must address the key themes of road pavements and road safety.
- (b) Road pavements need re-surfacing, base rehabilitation, bridges to support them, and drainage to keep the water out.
- (c) Road safety requires signage, street lighting, and an environment that maximizes driver visibility and pedestrian safety.
- (d) In a constrained budget environment, the ONRC has helped us to optimize available funds by prioritising and re-focusing investment to where in the network it is needed the most.
- (e) Our 2015-18 actual achieved average programme of \$15.8M invests:
  - (i) \$8.4M in Operations and Maintenance (O&M) of roads, drainage and safety related works
  - (ii) \$5.8M in Renewals of roads, drainage and safety related works
  - (iii) \$1.6M in Capital improvement works
- (f) However, the clear evidence in our Strategic Case and Programme Business Case demonstrates that we also need more funds to meet these particular issues and problems. The findings from the NZTA investment audit report Feb/March 2017 concluded, “There is evidence that limited budgets are resulting in tension between asset management requirements and the need to provide a safe road network”.
- (g) The evidence shows that even with the current investment levels, there is an increasing damage, worsening condition and higher repair costs to roads especially on haulage routes; and what is worse is that forest harvesting and heavy traffic counts are projected to increase further over the next 10 years.
- (h) The previous budget allocations and activities will not fully cater to these new demands.
- (i) We need to re-focus and increase our investment if we are to have sustained roading network over the long term.
- (j) We recommend a necessary re-allocation and increase to our core annual programme by \$4.1M (26%) to \$19.9M, made up of:
  - (i) \$8.7M Operations and Maintenance of roads, drainage and safety related works (an increase of \$0.2)
  - (ii) \$8.8M Renewals of roads, drainage and safety related works (an increase of \$3.1M)
  - (iii) \$2.4M in Capital development works (an increase of \$0.8M)
- (k) The Ruapehu AMP meets the investment assessment criteria by showing:
  - (i) in the Strategic Case - why we have to invest”. That is aligned to and to address the particular problems of soft soils, hilly terrain, high rainfall and a high demand for tourism; and of increasing forestry haulage impacting the condition and safety of our roads.
  - (ii) in the Programme Business Case, “What we have to invest”. That is, in road pavements, including bridges and drainage; and in road safety
- (l) The AMP shows the need to increase the programme by \$4.1M (26 %) to \$19.9M.
- (m) Our programme business case shows value for money, a consideration of supporting regional economy and a priority for safety all of which are in line with NZTA’s IAF and the GPS.

<b>1.6.3 Potential Consequences</b>
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- (a) If the programme is not approved, the consequence for our Community is that the level of service would need to be reduced and safety may be compromised.
- (b) The goal for land transport is that our transportation network is reliable, safe and endeavours to meet the needs of users. Ruapehu does this by providing a fit for purpose programme that aims for just-in-time renewals.

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## Part 3 – Land Transport Activity

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- (c) Evidence is showing that the current programme is not keeping up with need. A reduction or loss of funding would severely limit our ability to provide a safe and sustainable road network. As road conditions deteriorated, efficiency would be impacted upon and it would become more difficult for farmers to get stock and produce to market, for residents to go about their normal lifestyles, and for roads to support the burgeoning tourist market in the District.

<b>1.6.4 Programme Improvement Plan</b>
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- (a) Council is currently and has committed additional resources to improving the quality and completeness of its data in RAMM.

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# Part 3 – Land Transport Activity

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## 2 Introduction

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### 2.1 Overview

- 2.1.1 This Asset Management Plan describes the strategies, work programmes and long term financial forecasts for Council's Land Transport Portfolio. The assets within this Portfolio support a number of Council's Long Term Plan 2018-28 activities. The Long Term Plan is prescribed by Section 93 of the Local Government Act 2002.
- 2.1.2 Under the Act, 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.
- 2.1.3 The Asset Management Plan structure and detail is based on the International Infrastructure Management Manual 'IIMM' Guidelines and the Road Efficiency Group guidelines.
- 2.1.4 The Office of the Auditor General audits the quality of Council's Asset Management Plans against the IIMM.
- 2.1.5 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.
- 2.1.6 This is an Asset Management Plan, with a covering activity based Executive Summary. Asset Management Plans are based around assets, while Activity Management Plans are focused around managing activities, where the assets enable the activities. Both achieve the same outcome, as assets support activities.
- 2.1.7 The layout is:
- Part 1 – "Who are we? The Ruapehu Context for Asset Management" This describes Ruapehu District Council's approach to Asset Management. It applies to all Council Assets
  - Part 2 – Planning Assumptions. Covers planning for all Council assets.
  - Part 3 - Land Transport Activity. Contains Executive Summary, Strategic Business Case and Programme Business Case Covers issues relating to specifically to Land Transport
  - Part 4 – Appendices
- 2.1.8 The AMP demonstrates how Council will achieve its goals and associated strategic targets to support the achievement of Ruapehu District's community outcomes, through effective sustainable management of land transport infrastructure.
- 2.1.9 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.
- 2.1.10 The plan assumes that Transport assets as a whole will have an indefinite life and the main focus of the plan is on determining the strategies required for maintaining, rehabilitating and renewing components over the next ten years. It is intended that this plan be reviewed annually with a major update every three years prior to the LTP review process
- 2.1.11 The plan presents levels of service we propose to provide, with the identified demand changes and risks.
- 2.1.12 The AMP covers a ten year timeframe. Financial details are shown for the budget for 2017/18 and ten year forecasting from 2018/19 through to 2027/28. Actual expenditure will be shown from 2015/16. Budget figures in Part 3 Activity are uninflated. Budgets may be subject to change as part of annual consultation processes. Any changes will be detailed in Appendix A.



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## Part 3 – Land Transport Activity

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- 2.1.13 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
- 2.1.14 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.
- 2.1.15 A 30 year outlook is also provided in the Council Infrastructure Strategy. This is a separate document and will be referred to throughout the AMP.
- 2.1.16 Council's key planning strategies and policies are the ten year LTP, the Financial Strategy and Council Bylaws and Policies. The LTP and Financial Strategy are reviewed in three year cycles, with public consultation on the LTP. The AMPs are also reviewed in the same cycle, with the review of the current 2015-25 AMP being undertaken for the 2018-28 period. Council Bylaws must be reviewed at least ten yearly and require public consultation. Policies are updated three yearly or as required.
- 2.1.17 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.
- 2.1.18 This part of the AMP covers 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. Disposal options will also be considered for assets no longer used or considered to be worthy of retention for reasons of possible future use.

### 2.2 Planning For District Growth

- 2.2.1 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.
- 2.2.2 In the foreseeable future, growth in visitor numbers will ultimately result in growth in related businesses which may see some growth demand in residential housing. Such growth is unlikely to put significant additional demand on the Land Transport portfolio.
- 2.2.3 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.

### 2.3 Protecting Our Environment

- 2.3.1 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.

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## Part 3 – Land Transport Activity

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### 2.4 Managing Our Assets

- 2.4.1 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.

### 2.5 The Cost to Ruapehu District Community

- 2.5.1 The maintenance, operation and renewal of Councils Land Transport Assets are Council's most significant expenditure and account for 45% of all activity expenditure. Historically, Council has received significant investment subsidy from the National Land Transport Fund which has enabled the community receive the levels of service it enjoys today. This is particularly important during times of extreme weather events, causing flood damage to the network.
- 2.5.2 This AMP strives to maintain current LoS and investment on its Land Transport assets in an environment of increasing costs and lower financial assistance from the National Land Transport Fund. As a result of the Financial Assistance Rate (FAR) Review in 2014, NZTAs level of investment for local road maintenance and renewal was programmed to increasing by 1% per annum to 72% by 2023/24. In 2017/18, Council applied for the FAR rate to be increased to 72% for local roads from 2018/19 onwards to address the issues, level of service and safety needs of the network. Council was successful in it's application.

### 2.6 Striving for Excellence

- 2.6.1 Council is committed to strive for excellence in the delivery of all of its services to the community. Council will actively benchmark itself against other local territorial authorities, both rural and urban to try and keep pace with evolving levels of service, environmental and financial sustainability concerns and apply risk assessment and mitigation in all decision making for maintenance, renewal or development of the assets.
- 2.6.2 Excellence in the context of the Ruapehu's Land Transport environment will be achieved through a strong focus on partnership and innovation from Council's service providers. Council will continue to develop a virtual contracting alliance where efficiencies can be encouraged in a traditional contracting environment. The new service contracts let in 2014 have provided this opportunity whereby financial challenges ahead can be more successfully managed.

### 2.7 Land Transport

- 2.7.1 The purpose of the activity is to provide a road and pedestrian network that allows for the safe, reliable, efficient and effective movement of vehicles and people
- 2.7.2 Through the land transport activity, Council aims to achieve the following strategic goals (SG):
- (a) SG 1 All District roads provide continuous all weather travel.
  - (b) SG 2 Supporting road safety activities promoted by Horizons Regional Council.
  - (c) SG 3 Managing the Network with a strong focus on safety to avoid or mitigate significant hazards.
  - (d) SG 4 Providing an affordable transportation network that meets the reasonable needs of the wider community.
  - (e) SG 5 Encouraging the community to participate in decision making processes and to be informed about changes or initiatives within the community.
- 2.7.3 There is a strong relationship between the Land Transport AMP and other Council planning documents. The LoS provided through asset management have a connection with the Council Vision, Mission, Outcomes and Key Performance Indicators. Council recognises, and is managing, increasing stakeholder expectations.
- 2.7.4 The Land Transport activity enabling the purpose and strategic goals is achieved through:
- (a) A vehicular network, comprising a network of sealed and unsealed roads, parking areas and facility roads, bridges and large culverts.

## Part 3 – Land Transport Activity

- (b) A pedestrian network, comprising footpaths, bollards and chains. (Litter bins, monuments, seating and other street furniture are included in the Community Property AMP)
- (c) Enabling infrastructure, comprising kerbs and channels, drainage sumps, culverts, road reserve including berms, and retaining walls.
- (d) 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.

2.7.5 Council owns, and is responsible for the management of the assets outlined in Table 1. The value of the Land Transport portfolio is \$457 million. This is based on the 2017 asset valuation carried out by GHD Limited and 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. The valuation includes all roading assets and land under roads. The land under roads was last valued in 2016.

**Table 1: Land Transport Asset Summary**

Asset Group	Asset Type	Quantity	Optimised Replacement Cost ORC (\$)
Pavement	Road Formation	1,339 km	89,709,396
	Pavement Layers	1,339 km	122,716,353
	Road Surface	485 km	23,700,372
Structures	Bridge	255 number	85,309,954
	Large Culverts	86 number	8,694,939
	Retaining Walls	4 km	5,472,604
	Minor Structures <ul style="list-style-type: none"> <li>• Pedestrian Footbridge</li> <li>• Bluff Safety Netting</li> </ul>	1 Number 150 m	1,291,208
Drainage	Kerb and Channels	1,545 km	23,136,758
	Small Culverts and Other assets	142 km	32,844,441
Traffic Services	Street lighting	1,049 lights	3,761,569
	Road markings	398 km	442,045
	Road signs and Other	5,232 number	1,058,047
	Crossings	450 number	3,290,782
	Islands	31 number	292,543
	Railing	15,515 m	1,870,710
	Traffic Facility	1,345 number	45,471
Footpaths	Footpaths	69 km	10,160,104
Cycleways	Cycleways	344 km	included above
Bus shelters	Bus shelters	16 number	not valued
Facility roads and carparks	Facility roads and carparks	44,666 m2	included above
		62 number	
<b>Total</b>			<b>413,797,295</b>

Note:

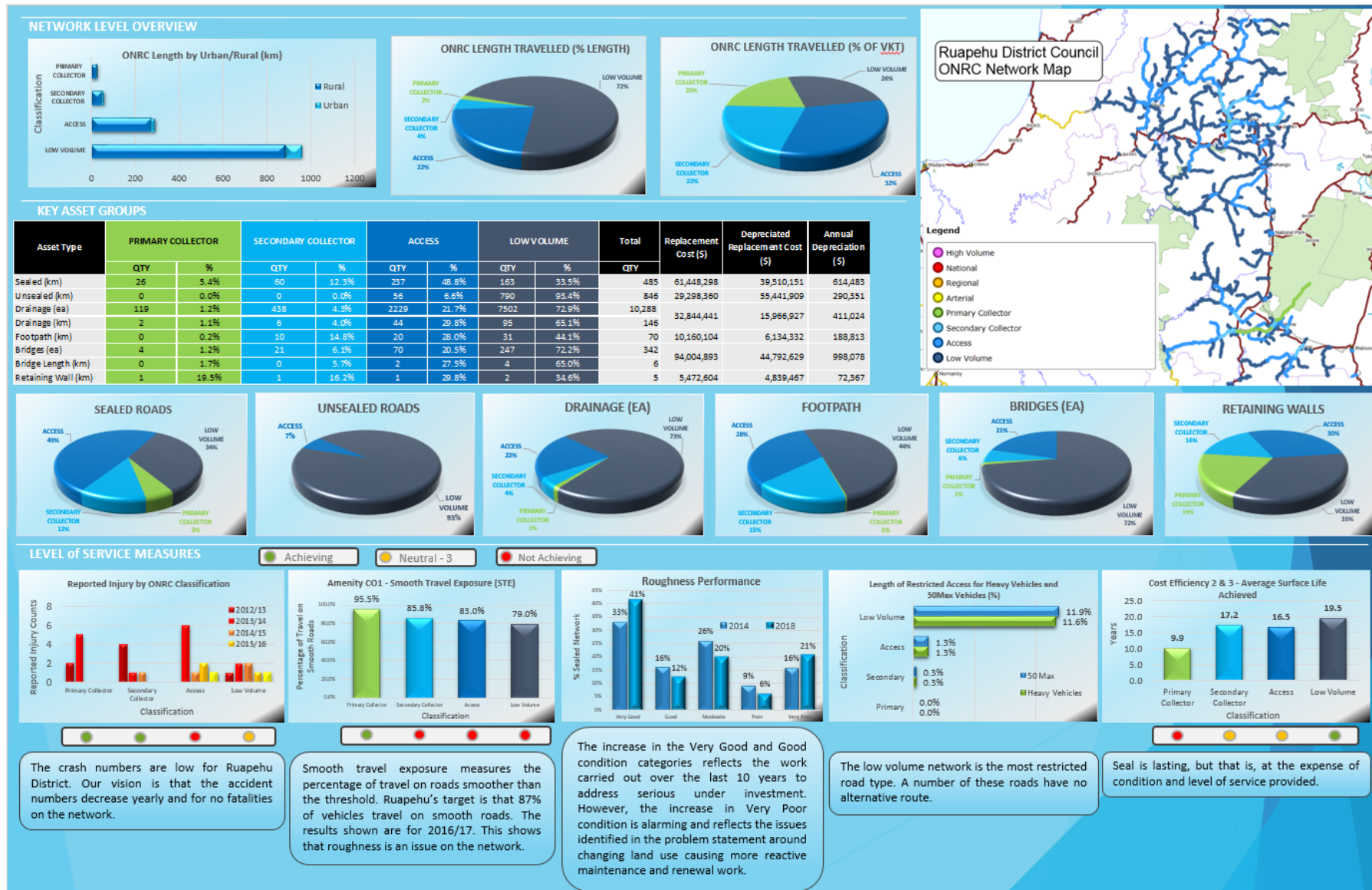
1. Land Under Roads is valued at \$43M but not included in table above.
2. Total ORC including land under roads is \$456,921,756, and note that pavement shoulders are valued as part of the pavement layers.
3. Minor Structures asset group includes two assets – Bluff Safety Netting and OMR Pedestrian Footbridge.

2.7.6 The Land Transport assets are recorded and managed in the Road Assessment and Maintenance Management Database (RAMM). Some asset types and associated information is not captured in RAMM (i.e. bridge condition due to the complexity of the assessment) but are maintained and managed in separate systems.

2.7.7 Figure 1 summarises Ruapehu District's (District) Land Transport assets.

# Part 3 – Land Transport Activity

Figure 1 – Ruapehu District's Land Transport Asset Summary



**SEALED ROADS**

**UNSEALED ROADS**

**DRAINAGE (EA)**

**FOOTPATH**

**BRIDGES (EA)**

**RETAINING WALLS**

### LEVEL OF SERVICE MEASURES

● Achieving   
 ● Neutral - 3   
 ● Not Achieving

**Reported Injury by ONRC Classification**

**Amenity CO1 - Smooth Travel Exposure (STE)**

**Roughness Performance**

**Length of Restricted Access for Heavy Vehicles and 50Max Vehicles (%)**

**Cost Efficiency 2 & 3 - Average Surface Life Achieved**

The crash numbers are low for Ruapehu District. Our vision is that the accident numbers decrease yearly and for no fatalities on the network.

Smooth travel exposure measures the percentage of travel on roads smoother than the threshold. Ruapehu's target is that 87% of vehicles travel on smooth roads. The results shown are for 2016/17. This shows that roughness is an issue on the network.

The increase in the Very Good and Good condition categories reflects the work carried out over the last 10 years to address serious under investment. However, the increase in Very Poor condition is alarming and reflects the issues identified in the problem statement around changing land use causing more reactive maintenance and renewal work.

The low volume network is the most restricted road type. A number of these roads have no alternative route.

Seal is lasting, but that is, at the expense of condition and level of service provided.

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- 2.7.8 The State Highways that pass through the District are owned and maintained by the 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.
- 2.7.9 The criticality of Land Transport assets is deemed to be high as it is an essential service that provides connectivity for the community. For this reason, it is intended that the AMP is a core plan that is useful and relevant to both internal and external stakeholders.
- 2.7.10 Asset management is the process of managing assets at a reasonable cost to achieve agreed service levels.
- 2.7.11 The Land Transport Asset Management Plan (AMP) covers the financial and technical aspects of providing and managing the assets. The AMP also covers the risks of ownership and how these might be addressed through mediation, mitigation or removal of the risk.

### **2.8 Setting Levels of Service and Measuring our Performance**

- 2.8.1 A number of meetings were held with community groups in 2014 to assist in the review of Levels of Service in the development of the AMPs 2018-28 and subsequently the LTP 2018-28. These meetings indicated that the current LoS being provided through the Land Transport activity was satisfactory or good, however some respondents require council to continue to extend the sealed network for lower volume roads.
- 2.8.2 Another measure of delivery of levels of service are Key Performance Indicators (KPIs) which have been developed against the strategic goals for Council outcomes of sustainability, responsive to communities, risk management and sustainable financial management developed for the 2018-28 Long Term Plan. In addition, the Department of Internal Affairs (DIA) has issued Mandatory Performance Measures and these have been integrated into Council's reporting framework.
- 2.8.3 One Network Road Classification Performance Measures are also reported on.

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## 3 The Need for Investment

### 3.1 The Business Case for Change

- 3.1.1 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.
- 3.1.2 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, time consuming, 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 District desires to build a network that is able to cater for the carrying capacity of the tourism assets as well as for the growing demands of the commercial developments such as forestry.
- 3.1.3 Taking into account the challenges faced by the transport network, Council has identified the following programmes which will be undertaken in the next ten years:

Table 2 - Programmes

Programme	Problem Statement			
	Forestry & Land Use	Needs & Expectations	Climate, Topography & Geology	Safety
Pavement Management Strategy	✓	✓		✓
Bridges and Structures Programme	✓	✓		✓
Roadside Drainage Programme			✓	✓
Minor Improvements to Safety	✓	✓		✓
Footpaths, Maintenance, Renewal and Reconstruction		✓		
Environmental Services and Emergency Works	✓	✓	✓	✓
Traffic Services				✓

- 3.1.4 In the past, Council has received significant investment subsidy from the National Land Transport Fund which has enabled the community to receive basic transport infrastructure services. However, past funding levels will not be enough to address the current and future operational and capital works demands upon the land transport network.

### 3.2 Business Case Approach Introduction

- 3.2.1 The Business Case Approach (BCA) 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.
- 3.2.2 NZTA/REG has brought in new BCA and Activity Management Plan requirements in line with NZ Treasury's initiative to improve public infrastructure investment decisions.
- 3.2.3 BCA demonstrates the degree to which the proposed programme of works is the right solution in which to invest. BCA seeks at the earliest stage of the process, to clearly define the problems and contextual state of the district, with engagement of key partners and stakeholders where necessary. This early engagement is to get consensus on and understanding of the cause, scale of consequences and scale of benefits of addressing the problems. This approach will help filter whether a problem is worth investing more time and resource.
- 3.2.4 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.

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- 3.2.5 NZTA requirements for BCA also include its Draft Investment Assessment Framework which is used to give effect to the Draft Government Policy Statement and Long Term Strategic View by prioritizing proposals from Approved Organisations for the 2018-21 National Land Transport Programme.
- 3.2.6 The latest IAF gives greater importance in prioritizing and allocating funding to AOs whose proposals demonstrate BCA and are in terms of value-for-money, 'Results Alignment' to GPS priorities and Cost-Benefit appraisals.
- 3.2.7 Underpinning this approach is good quality evidence to support the investment proposed in the AMP.
- 3.2.8 The above principles underpin the Business Case Approach.
- 3.2.9 The District applies a robust business case approach in the way it develops and justifies its programmes of work and Long Term Plan.
- 3.2.10 These nine steps form the Strategic and Programme Business Case for the District, and are further explained below:
1. What outcomes does the activity deliver and why is it important to the Community?
  2. Outline what services are currently delivered, and how they are delivered.
  3. Clearly articulate the problems on the network and the benefits of addressing them or the consequences of ignoring them.
  4. Assess the portfolios current state and level of service, as well as the desired state and level of service provided to customers.
  5. Compare the portfolios current state against the desired state, and identify any gaps or deficiencies. So this entails assessing stages 2, 3 and 4.
  6. Develop options (for programmes of work) to achieve the desired outcomes (this will be an iterative process). Note that options are to be coordinated across portfolios at this time.
  7. Including asset, economic, financial, commercial and management elements to substantiate and test the options.
  8. Recommend the preferred option for programmes of work and present this for LTP and RLTP consideration.
  9. The story is to be explained to Elected Members and the community such that they may make informed choices. Finalise the BCA Asset Management Plan and feed into LTP and RLTP.
- 3.2.11 This AMP demonstrates how Ruapehu District will achieve its goals and associated strategic targets to achieve its community outcomes through effective sustainable management of land transport infrastructure.
- 3.2.12 The AMP meets the IAF investment assessment criteria by showing:
- (a) The Strategic Case – “Why we have to invest”. That is aligned to and to address the particular problems of soft soils, hilly terrain and high rain fall; and of increasing forestry haulage impacting the condition and safety of our roads. Refer Section 4 Strategic Case
  - (b) The Programme Business Case - “What we have to invest”. That is, in road pavements, including bridges, drainage; and in road safety. Refer Section 5 Programme Business Case
  - 5 Programme Business Case (Developing the Programme)
  - (d) Also, Delivering the Programme - “How we have to invest”. Refer Section 6 Delivering the Programme

### 3.3 One Network Road Classification

- 3.3.1 The NZ Transport Agency and Local Government NZ have formed a joint Road Efficiency Group to develop the One Network Road Classification regime.
- 3.3.2 This new ONRC framework supports a BCA by Road Controlling Authorities to justify investment decisions, with the outcomes of realising efficiency savings and increasing value for money by better targeting investment.
- 3.3.3 Council has implemented the One Network Road Classification requirements by aligning its RAMM road classifications to ONRC. This has resulted in not only the establishment in the District of a new, nationally

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consistent road classification hierarchy, but also, as part of an ongoing process, the review of existing level of service and the development of associated customer focussed LoS, performance measures and targets.

- 3.3.4 In a constrained budget environment, the ONRC has helped the District to optimize available funds by prioritising and re-focussing investment to higher importance road categories in the network where it is needed the most.
- 3.3.5 In practice, ONRC helps the District target investment to the right treatments, in the right places, at the right times and for the right costs. It also helps the District to have the flexibility and mechanisms to optimise and re-direct investments to fit a constrained and changing financial environment.
- 3.3.6 A more detailed discussion of how the District has implemented ONRC is contained in Section 7.1 One Network Road Classification (ONRC).

### **3.4 Point of Entry**

- 3.4.1 Council has completed a Point of Entry review of its current 2015 Land Transport AMP and has compared it to the NZTA/REG BCA Guidelines and associated advisory notes. This review considered the information in the AMP and compared it to the principles and requirements of BCA.
- 3.4.2 The review showed that much of the BCA recommendations are already embedded in the current practices, processes and 2015 AMP.
- 3.4.3 Additional content has been added to the AMP to meet the full requirements of BCA.



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## 4 Strategic Case

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4.0 The Strategic Case states why we have to invest.

### 4.1 Introduction to Strategic and Programme Business Cases

4.1.1 The District is not anticipating any major capital improvement projects in the next ten years, and therefore programmes of work in this Asset Management Plan are for maintenance, renewals, and minor capital improvement only. Therefore, the Indicative and Detailed Business Cases are not necessary, and only the Strategic Case and the Programme Business Case are presented in the AMP.

4.1.2 Strategically, we have to invest in the road network.

### 4.2 Strategic Context

4.2.1 The context of this programme is the network of Council-owned land transport infrastructure that enables the conveyance of people and goods within and across Ruapehu District. This infrastructure includes road pavements, structures such as bridges and retaining walls, roadside drainage, street lighting, road marking, signs, footpaths, bus shelters and carparks.

4.2.2 AMPs are a key component of the strategic planning and management of Council with strong links to other Council strategies and policies, external agency strategies and policies, and to legislation and other regulatory instruments. The national, regional and local framework is described below.

<b>4.2.3 National Context</b>
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- (a) The strategic direction in the Draft Government Policy Statement on Land Transport (2018 – 2028), the framework of the One Network Road Classifications and the NZ Transport Agency Long Term Strategic View are important for this Plan.
- (b) Draft Government Policy Statement on Land Transport (2018 – 2028)
  - (i) The draft GPS 2018 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.
  - (ii) The Draft GPS 2018 has the following strategic direction:-
    - Key Strategic Priorities
      - Road Safety
      - Access
    - Supporting strategic priorities
      - Value for money
      - Environment
  - (iii) The first Draft GPS was released in February 2017 by National. It was replaced by the Labour/Green Draft GPS released on 14 March 2018. It is currently under review following the submission process and is expected to be released by 30 June 2018.
  - (iv) This AMP was developed under the March 2017 GPS and then reviewed against the 2018 Draft.
- (c) One Network Road Classification
  - (i) NZ Transport Agency and Local Government NZ formed a joint Road Efficiency Group and developed the One Network Road Classification regime.
  - (ii) The Classifications are used to categorise the roads around New Zealand based on volume and type of traffic and connection to important points.
  - (iii) There are six different categories, summarised in the Table below

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Table 3 – ONRC Categories

Classification	Description	Annual Average Daily Traffic (AADT)		Heavy Commercial Vehicles
		Urban	Rural	
National (High Volume)	As per National, with higher traffic volumes	>35,000	>20,000	> 1200
National	Link major population centres, ports or airports	>25,000	>15,000	> 800
Regional	Connect regionally significant places, industries, ports or airports	>15,000	>10,000	>400
Arterial	Link regionally significant places, industries, ports or airports. May be only route available (lifeline route)	>5,000	>3,000	>300
Primary Collector	Link significant local areas of population or economic areas	>3,000	>1,000	>150
Secondary Collector	Link significant local areas of population or economic areas and may be only route available	>1,000	>200	>25
Access	All other roads. Used for daily activities	<1,000	<200	<25
Access (Low Volume)	As above but with low traffic volumes	<200	<50	<25

- (iv) ONRC classifications will be used to compare roads throughout New Zealand, both local and State Highway, to achieve national consistency in the level of service provided. This helps to direct investment.
- (v) Council has implemented the One Network Road Classification classifications.
- (vi) Performance Measures have been developed for ONRC to provide benchmarking information. It is expected that targets will be introduced in the future.
- (vii) The Performance Measures are shown in the table below. These will be referred to throughout the AMP.

Table 4 – 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

- (d) Draft Transport Agency Investment Proposal (TAIP)
  - (i) The purpose of this Draft Transport Agency Investment Proposal (the TAIP) is to set out the 10-year programme of activities that the Transport Agency proposes for inclusion in the 2018-27 National Land Transport Programme (the NLTP), to give effect to the 2018-27 Government Policy Statement on Land Transport (the GPS). The activities in the TAIP will support the locally-led activities that councils also put forward for inclusion in the NLTP.
  - (ii) Ruapehu is part of the first tranche of RED zones. Regional economic development is supported by the government's Regional Growth Programme. Central government agencies and regional stakeholders such as businesses, iwi, Māori, councils and economic development agencies are working in partnership to identify opportunities to increase jobs, income and investment in selected regions. The Manawatū-Whanganui Regional Growth Study identifies transport and distribution as a key enabler of regional development because they go to the heart of the present and long term future of the region as an exporting area.
- (e) National Land Transport Programme

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- (i) Under the GPS, the NLTP contains all the land transport activities prioritised from the individual RLTPs, such as public transport services and road construction and maintenance, which are expected to receive funding from the NZ Transport Agency. The Agency is responsible for allocating funding to land transport. It is a three year programme.
- (ii) The NLTP must give effect to the GPS. Regional Land Transport Programmes must align with the NLTP.
- (f) Draft Investment Assessment Framework (IAF)
  - (i) The Draft Investment Assessment Framework has been developed to give effect to the engagement draft of the Government Policy Statement on Land Transport for 2018/19 to 2027/28.
  - (ii) It outlines the method that NZTA will use to ensure that Business Case AMPs align with the GPS.
  - (iii) Assessment criteria include the use of the Business Case approach and Results alignment, as well as cost-benefit appraisal.
- (g) Other Key Legislation
  - (i) Information about other key legislation documents can be found in Section 12.2 Key Legislation and Section 14.5 National Regional and Local Plans.

<b>4.2.4 Regional Context</b>
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- (a) Ruapehu sits at the northern end of the Horizons Manawatu-Whanganui Region.
- (b) 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 because of its central location, it has good land and air transport connections to the rest of New Zealand. While the Region is home to around 5% of New Zealand's population, it only accounts for 4% of national GDP. However, 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.
- (c) Regional Plans that provide strategic context for Ruapehu are the Draft Regional Land Transport Plan and the Accelerate 25 Regional Economic Action Plan
- (d) Draft Regional Land Transport Plan 2018-2028
  - (i) All Councils in the Region feed into the Regional Land Transport Plan. This plan lays out the strategic direction for the Region's land transport system for the next six years. The RLTP for 2018 is under development at present, which is why it is draft.
  - (ii) Regional issues are the identified pressures or problems that the region and the current regional land transport network are facing. The regional issues identified in the Draft RLTP are:
    - Issue 1: Land use pressures. Recent development throughout the Region has outpaced the planned strategic land transport network, resulting in a network that is no longer fit for purpose and does not function as effectively as intended.
    - Issue 2: Network efficiency. Access to and from other Regions linking North-South and East-West are under pressure, becoming less predictable, resulting in inefficiencies which could restrict anticipated future growth in the freight distribution logistics chain. Pressures on the roading network are further compounded by an under-utilised rail network that lacks integration.
    - Issue 3: Economic Development, Tourism and Growth. Predicted population and economic growth in the Central New Zealand sub area associated with the growth in freight, tourism and people movements will impact on the functioning of the transport network.
    - Issue 4: Road Safety. Parts of the current transport system, including poor user behaviour, are failing to achieve a safe road system resulting in high personal risk and death and serious injuries on our roads.
    - Issue 5: Local Roads and Freight. Different industry and land use pressures predicted for the Districts (including forestry harvesting, produce, defence operations), has resulted in increases and changes in the type and size of vehicles using the network. This has increased the deterioration of the local road network and the creation of pinch points due to conflicting vehicles types
    - Issue 6: Environmental. Increases in vehicle volumes, and construction work associated with the maintenance and development of new roads can potentially result in negative environmental impacts, such as increased carbon emissions, use of natural resources, and erosion and sediment discharge effects

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- Issue 7: Resilience. Access into and from key destinations are vulnerable to a range of potential events which can result in severe disruptions to certain parts of the land transport network
- (iii) Objectives - The Land Transport Management Act requires that the RLTP set out the Region's land transport objectives, policies and measures for at least ten years. The purpose of the objectives is to identify how the seven issues, identified above will be addressed. The objectives are considered to be the benefits that will be achieved, if the transport issues in the Region are addressed.
  - An optimised road, rail and public transport network that provides efficient, reliable access and movement for people and freight to and from key destinations, within and outside the region.
  - Maximise the strategic advantage of central New Zealand through efficient and well serviced hubbing and freight distribution activities, including better utilization of rail corridors.
  - A safe land transport system increasingly free of death and serious injury.
  - A reliable multimodal transport system with less modal conflict, including walking and cycling, that mitigates potential environmental effects and improves environmental outcomes.
  - A resilient transport network with secure inter and intra regional routes, that can perform following an unplanned event.
- (iv) Strategic Priorities - Along with objectives, the RLTP identifies five strategic priorities that will be the focus of the future work programme to achieve the objectives (benefits) and address the issues (problems). The strategic priorities guide investment in the land transport network and link back to the objectives. Projects addressing the strategic priorities will be given a higher ranking than those that do not.
  - Rank 1: Effective and efficient road maintenance and delivery
  - Rank 2: Improve connectivity, resilience and the safety of strategic routes to and from key destinations linking North-South and East-West while factoring in demographic changes and impacts on land use
  - Rank 3: An appropriate network of tourism routes
  - Rank 4: An integrated walking and cycling network
  - Rank 5: Effective, accessible and affordable multi-modal transport networks
- (e) Accelerate 25 Regional Economic Action Plan
  - (i) In 2015 a Government driven Regional Growth Study was undertaken to provide an in-depth look at the economic opportunities for the Manawatu-Whanganui Region. This study recommended eight key opportunities and three enablers. The subsequent Action Plan derived from the Growth Study findings provides the practical application for realising these opportunities, unlocking new levels of prosperity and growing our regional economy out to 2025. The Action Plan goes a step further than the Growth Study and has a total of nine key opportunities and four enablers for realising economic growth in the Region.
  - (ii) 'Distribution and Transport' has been identified as a key enabler in unlocking potential economic growth and realising all nine opportunities in the Accelerate 25 Action Plan. Transport as an 'enabler' of unlocking economic prosperity has huge potential to drive a lot of the work outcomes in the Action Plan, identified as immediate, medium term and future priorities for the region.

<b>4.2.4 Local Context</b>
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- (a) ***"Who are we? The Ruapehu Context for Asset Management"*** provides information about the Ruapehu District's strategic context. This is generic to all Council's Asset Management Plans and should be read in conjunction with this Plan.
- (b) Whether it is travelling to work, attending school, buying groceries or visiting friends, the ability to travel easily around the District is essential to our quality of life. Having an effective Land Transport network is fundamental to the viability of the economy of the Ruapehu District. The District's economy remains economically dependent on agriculture, horticulture and forestry despite tourism having a big impact on urban infrastructure. This sector provides 24% of the total employment (Infrastructure Strategy 2015-45)

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- (c) Growth of agriculture, tourism, commerce and industry is heavily reliant on the ability to move goods and visitors efficiently around the District. A well-designed and maintained Land Transport network secures the economic future of Ruapehu.
- (d) Not only are there challenges and problems maintaining a safe and working road network in difficult conditions of corrosive/sensitive soils, hilly terrain and high rain fall for the customers; the District is also facing an increase in the number of Heavy Commercial Vehicles (HCV) on rural roads in recent years. This has caused an increased deterioration of the District's rural road network and ageing rural bridges. This is because of a number of reasons such as forestry harvest around the central North Island, an increased in larger HCV's servicing farms, Council's own aggregate trucks and an increase in the number of tourists accessing remote locations such as cycleways.
- (e) As harvest of timber in the region gets underway, approximately 24 million tonnes of timber is anticipated to be transported out of the District. Loading from these logging trucks cause as much wear and tear on the rural road network during the harvesting period as dairying, sheep and beef farms do over a longer period. This highlights the sort of pressures that economic growth has on rural communities that have infrastructure in some cases nearing the end of its life. An increase in large haulage vehicles also presents a significant safety risk to all road users.
- (f) In addition, there is an increasing number and diversity of community and stakeholder groups that want better and safer roads to support local lifestyle and work, commerce such as tourism, farming and forestry.
- (g) This Land Transport Asset Management Plan (AMP) contains maintenance, renewals, and minor capital improvement programmes of work only.
- (h) A Point of Entry Gap Assessment revealed the need for development and documentation of investment logic mapping and benefits analysis to give robust evidence of the current transport infrastructure issues and problems that face the Ruapehu District.
- (i) Investment Logic Mapping was used to identify problems that need to be investigated and addressed; identify the benefits of investment to address the problems; and identify methods to measure the effectiveness of the investment.
- (j) A Strategic Assessment was completed for Ruapehu District using a series of workshops and sessions to develop and document its investment logic mapping to define problem statements and analyse benefits. The results are incorporated into this Land Transport AMP Executive Document and the main body of the Land Transport AMP.
- (k) Strategic Assessment included:
  - (i) Defining the Problem and Benefits that would result from solving the problems.
  - (ii) 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.
  - (iii) Status of Existing Evidence Base as a means of assessing the robustness of the problems and benefits from current information and stakeholder knowledge.
- (l) The resulting strategic assessment is described in the following sections.
- (m) Organisation Overview
  - (i) Council's role is to provide a road and pedestrian network that allows for the safe, reliable, efficient and effective movement of vehicles and people. Council's leadership and governance follows the role and principles of the local government as per the Local Government Act (LCA) 2002 and subsequent amendments namely:
    - 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.
  - (ii) Council manages the following transport infrastructure assets to provide services to its customers and stakeholders:
    - Local Roads (not State Highways)
    - Bridges on Local Roads
    - Drainage (including kerb and channels, culverts and catchpits)
    - Traffic Services (including street lighting, signs, railing, crossings, traffic facility such as speed bumps)
    - Footpaths (including alongside State Highways)
- (n) Organisational Outcomes, Impact, and Objectives – Strategies Outcomes
  - (i) The strategic outcomes of the business case are the community's aspirations for the District's future. Council consulted on these Outcomes with the community during the development of

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the 2012-22 LTP, which streamlined the Outcomes Council was trying to achieve to ensure it focused on areas to reflect on the community's views of what it was seeking from Council.

- (ii) Through the land transport activity, Council aims to achieve the following strategic goals (SG):

Figure 2 – Ruapehu District's Land Transport Strategic Goals

### Ruapehu District's Land Transport Strategic Goals:

SG 1 – All District roads provide continuous all weather travel.

SG 2 – Supporting road safety activities promoted by Horizons Regional Council.

SG 3 – Managing the Network with a strong focus on safety to avoid or mitigate significant hazards.

SG 4 – Providing an affordable transportation network that meets the reasonable needs of the wider community.

SG 5 – Encouraging the community to participate in decision making processes and to be informed about changes or initiatives within the community.

- (iv) The table below links the Outcomes and Strategic Goals through to the sections of the AMP addressing the transport objectives.

Table 5 – Outcomes and Strategic Goal Links

Community Outcomes	Outcome	Transport Objectives (from Strategic Goals)	Link to ONRC Customer Level of Service	Addressed In AMP Section
Strong Leadership and Advocacy	<ul style="list-style-type: none"> <li>Council advocates strongly for the provision of, and access to, affordable and effective health, welfare, law enforcement and education services.</li> <li>Council is proactive, transparent and accountable.</li> </ul>	<p>SG 4: Providing an affordable transportation network that meets the reasonable needs of the wider community</p> <p>SG 5: Encouraging the community to participate in decision-making processes and to be informed about changes or initiatives within the District</p>	<p>Accessibility</p> <p>Resilience</p> <p>Safety</p> <p>Amenity</p>	<p>Levels of Service</p> <p>Community Consultation</p> <p>Lifecycle Management</p>
Safe, Healthy Communities	<ul style="list-style-type: none"> <li>Quality regulation, regulatory services and infrastructure.</li> <li>Reduce the volume of waste to the landfill.</li> <li>Core infrastructure endeavours to keep pace with changing demand.</li> <li>Excellent standards of safety and welfare are promoted and respected.</li> <li>Preparation, planning and timely responses protect people and property from natural hazards.</li> </ul>	<p>SG 4: Providing an affordable transportation network that meets the reasonable needs of the wider community</p> <p>SG 2: Supporting road safety activities promoted by Horizon Regional Council</p> <p>SG 3: Managing the network with a strong focus on safety to avoid or mitigate significant hazards</p>	<p>Accessibility</p> <p>Resilience</p> <p>Safety</p> <p>Amenity</p>	<p>Growth and Demand</p> <p>Levels of Service</p> <p>Community Consultation</p> <p>Lifecycle Management</p>
Thriving Economy	<ul style="list-style-type: none"> <li>Regulatory services and reliable infrastructure help the economy prosper.</li> <li>Our transportation network is reliable, safe and endeavours to meet the needs of users.</li> <li>Economic diversity and core economic strengths are encouraged in partnership with others.</li> <li>Planning and regulatory functions balance economic growth and environmental protection</li> </ul>	<p>SG 1: All District roads provide continuous all weather travel</p>	<p>Safety</p> <p>Accessibility</p> <p>Resilience</p> <p>Reliability</p> <p>Amenity</p>	<p>Levels of Service</p> <p>Lifecycle Management</p>

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Community Outcomes	Outcome	Transport Objectives (from Strategic Goals)	Link to ONRC Customer Level of Service	Addressed In AMP Section
Vibrant and Diverse Living	<ul style="list-style-type: none"> <li>• Traditions, values and history of all ethnic groups are respected.</li> <li>• Activities, facilities and opportunities for youth are provided and supported.</li> <li>• Excellence and achievement in sport, arts/cultural pursuits, community service and business is supported.</li> <li>• Events and festivals are encouraged and supported.</li> </ul>	SG 4: Providing an affordable transportation network that meets the reasonable needs of the wider community	Accessibility Resilience Safety Amenity	Levels of Service  Lifecycle Management  Community Consultation.
Thriving, Natural Environment	<ul style="list-style-type: none"> <li>• Our environment is accessible, clean and safe and our water, soil and air meets required standards.</li> <li>• The promotion of our District includes focus on our natural rivers, bush and mountains, as well as the built heritage, agriculture and railways.</li> </ul>	SG 4: Providing an affordable transportation network that meets the reasonable needs of the wider community	Accessibility Resilience Safety Amenity	Levels of Service  Lifecycle Management  Community Consultation.

- (o) Council activities works and programmes are derived from the priorities that Council identified during the development of its Strategic Plans with its community. From the outcomes, the management of the land transport activity was determined to be driven by themes of:
- Supporting economic development through enhancing key transport links.
  - Ensuring safe and reliable usage of our land transport assets.
  - Efficient operation and management of our land transport assets.
  - Promoting tourism through enhancing land transport links.
  - Developing a strong sense of 'community' in the towns, through enhancing the main streets and commercial areas.

### 4.2.5 Alignment to Existing Strategies / Organisation Goals – Relationship with Other Planning Documents

- AMPs are a key component of the strategic planning and management of Council with strong links to other Council strategies and policies, external agency strategies and policies, and to legislation and other regulatory instruments. There is a strong relationship between the Land Transport AMP and the National and Regional Land Transport Strategies, and with other Council planning documents. AMPs are tactical plans which provide the link between community outcomes and work programmes.
- The key planning documents linked with the AMP are shown in the table below.

# Part 3 – Land Transport Activity

Table 6 – Key Planning Documents

Document	Frequency
<b>National Context</b>	
One Network Road Classification Guidelines 2014	Implemented from 2014/15 and reviewed every three years
Connecting New Zealand (2011)	Ten yearly
Government Policy Statement on Land Transport	Three yearly
National Land Transport Programme	Every three years
NZTA Investment Assessment Framework (IAF)	Three yearly
Safer Journeys	Three yearly action plan
National Infrastructure Plan	Three yearly work programmes
The Governments Business Growth Agenda Document	Three yearly
National Land Transport Programme	Every three years
<b>Regional Context</b>	
Horizon Regional Land Transport Strategy 2010-2040	Six yearly
Regional Land Transport Programme for Horizon region	Every three years
Horizons One Plan	Ten yearly
<b>Local Context</b>	
Long-Term Plan (LTP)	The LTP is updated every three years and is due for review in 2018.
Annual Plan	Produced in the intervening years between LTPs
District Plan	Ten Yearly
Land Transport Asset Management Plan	3 yearly – Financials updated every year
Safety Management System (SMS)	5 years
Road Safety Action Plan (RSAP)	Annual
Asset Management Policy	As required

- (c) Council ensures that all stakeholders have an opportunity to influence the LoS decisions by:
- (i) Producing an easily readable summary of the Asset Management Plans.
  - (ii) Making this AMP available on Council’s website.
  - (iii) Engaging with key stakeholders about any proposal for new development.
  - (iv) Undertaking periodic focus group consultation as part of the LTP development.
  - (v) Giving the public opportunity to provide submissions on strategic targets through Council’s LTP process.
  - (vi) Consulting with affected persons on specific projects (as required by the RMA).
  - (vii) Carrying out periodic LoS surveys and three yearly resident surveys to monitor customer satisfaction.
  - (viii) Monitoring and analyzing requests for service from customers recorded within Council’s customer service request system.
- (d) Our investment strategy in the road network aligns to and addresses government and regional priorities in the Government Policy Statement and NZTA’s Investment Assessment Framework for:
- (i) value for money
  - (ii) a consideration of supporting regional economy, and
  - (iii) a priority for safety.

## 4.2.6 Customers, Partners and Stakeholders

- (a) 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.
- (b) The following table lists the main partners (who share in the costs and benefits) and stakeholders (who help our planning efforts) who are affected by this business case:



# Part 3 – Land Transport Activity

**Table 7 – Customers, Partners and Stakeholders**

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

## 4.3 Strategic Assessment

- 4.3.1 This section outlines the problems facing the district, the benefits of investing in these problems and consequences of not doing so. It provides evidence for the problems.
- 4.3.2 Strategically, we have to invest in the road network.
- 4.3.3 Key Issues and Problem Statements
- (a) Apart from the routine challenges maintaining a safe and working road network in difficult conditions of soft soils, hilly terrain, high rain fall, ageing bridge structures, and a high demand for tourism; we are facing particular issues and problems.
  - (b) An increasing number of forestry trucks are already damaging our roads and bridges as they cater to a greater level of forestry harvesting, which is projected to increase even further over the next 10 years.
  - (c) An increase in large haulage vehicles also presents a significant safety risk to all road users. The District has high personal risk numbers and, although the collective risk is lower, the rating is higher than the region in some classifications.
  - (d) At the same time, there is an increasing number and diversity of community and stakeholder groups; and they want better and safer roads to support local lifestyle and work, and commerce such as tourism, farming and forestry.
  - (e) The following routine problems arise as the road network deteriorates over time:
    - (i) The sealed network requires resealing as the seal wears out causing loss of traction increasing the likelihood of accidents and further pavement deterioration;
    - (ii) Metal loss from unsealed roads creates unsafe situations for road users and exposes the road base to more rapid deterioration;
    - (iii) 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; and
    - (iv) Lighting, line marking and signs deteriorate over time increasing the accident risk to road users if they are absent.
  - (f) A facilitated Investment Logic Mapping workshop was held in November 2016, with key stakeholders. The purpose was to identify and consider the District’s key issues and problems, using NZTA’s

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## Part 3 – Land Transport Activity

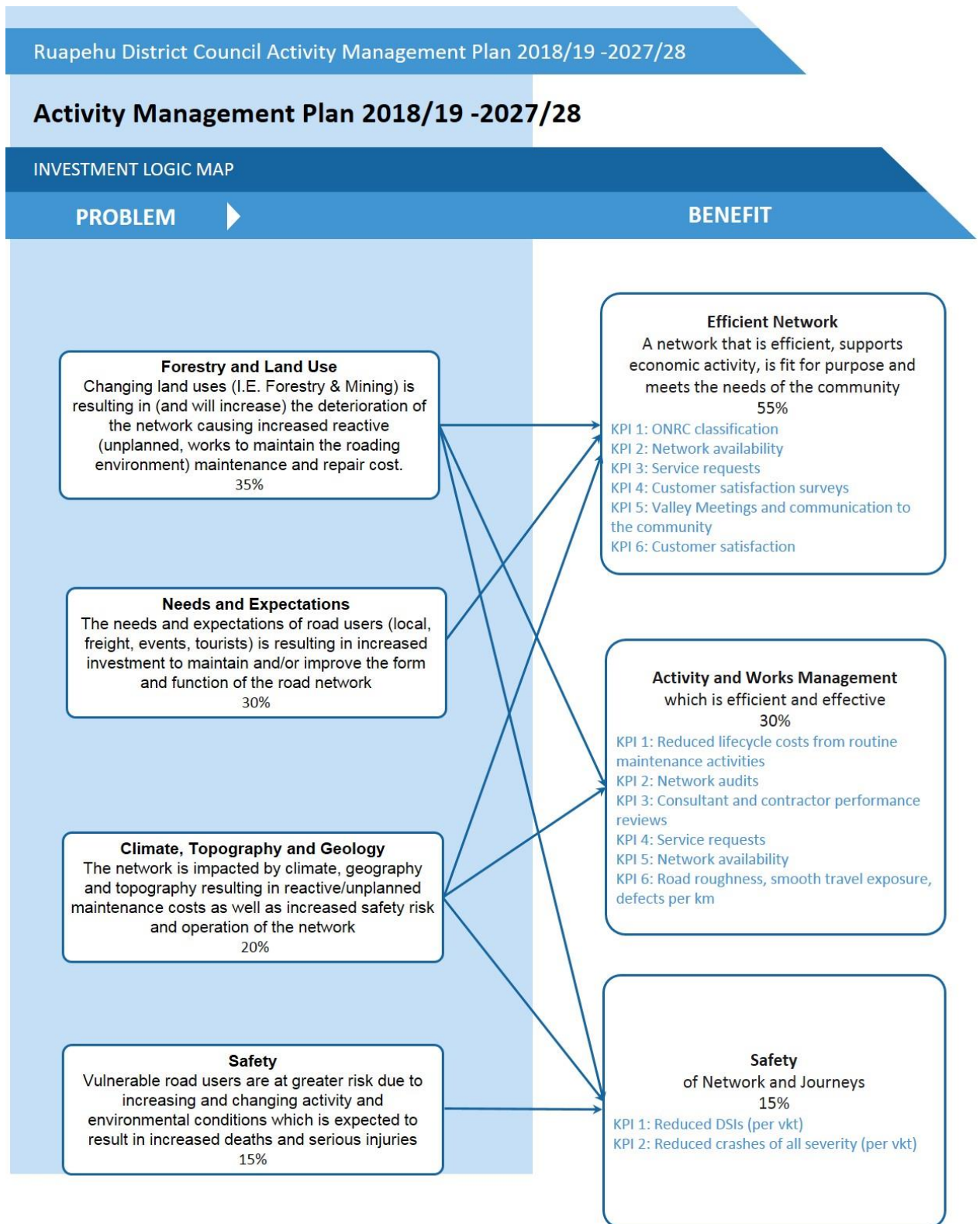
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recommended investment logic mapping framework. Stakeholders were representatives from the Councillors (Mayor and Deputy Mayor), NZ Police, NZ Transport Agency (Safety Manager), Road contractors, consultants, Land Transport business unit staff and Council accountant.

- (g) The key issues and problems relating to the management of the transport activities are as follows:
  - (i) Failure of ageing infrastructure from changing land uses
  - (ii) Needs and expectations
  - (iii) Climate, topography and geology
  - (iv) Safety
- (h) The benefits of addressing and solving the problems were identified as follows:
  - (i) A network that is efficient, supports economic activity, is fit for purpose and meets the needs of the community.
  - (ii) Activity and works management which is efficient and effective
  - (iii) Safe network and safe journeys
- (i) The problem statements and the benefits of solving the problems are shown in more detail by the investment logic map below.
- (j) Section 4.5 discusses how these benefits can be measured.

# Part 3 – Land Transport Activity

Figure 3 – Investment Logic Map with Problem Statements



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

Version no: Draft for discussion  
Initial Workshop: 08 November 2016  
Last modified by: Tim Eldridge, RDC, GHD 15/12/2016  
Template version: 0.2

# Part 3 – Land Transport Activity

## 4.3.4 Alignment of Problems with Strategic Objectives

(a) The table below shows how the Problem Statements align with the local, regional and national strategic objectives

**Table 8 - Alignment of Problems with Strategic Objectives**

Problem Statement	Alignment to Strategic Objectives		Long Term Strategic View	Government Policy Statement
	Council Outcomes	RLTP 2018 – 2028 Strategic Priorities		
<b>Changing Land Use</b> such as Forestry and 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 cost.	<p>Core infrastructure endeavours to keep pace with changing demand</p> <p>Excellent standards of safety and welfare are promoted and respected</p> <p>Our transportation network is reliable, safe and endeavours to meet the needs of users</p>	<p>Effective and efficient road maintenance and delivery</p> <p>Improve connectivity, resilience and the safety of strategic routes to and from key destinations linking North-South and East-West while factoring in demographic changes and impacts on land use</p> <p>Effective, accessible and affordable multi-modal transport networks</p>	<p>A safer system</p> <p>Better connectivity</p> <p>A resilient system</p> <p>Key inter-regional journeys</p> <p>Improving Economic Growth in Regional economic development (RED) areas</p>	<p>Economic Growth &amp; Productivity: addresses current and future demand for access to economic and social opportunities.</p> <p>Value for money: delivers the right infrastructure and services to the right level at the best cost</p>
<b>Needs and expectations of road users</b> (local, freight, events, tourists) are resulting in increased investment to maintain and/or improve the form and function of the road network, Increasing demand for limited resources	<p>Core infrastructure endeavours to keep pace with changing demand</p> <p>Excellent standards of safety and welfare are promoted and respected</p> <p>Our transportation network is reliable, safe and endeavours to meet the needs of users</p>	<p>Effective and efficient road maintenance and delivery</p> <p>An appropriate network of tourism routes</p> <p>Effective, accessible and affordable multi-modal transport networks</p>	<p>Better connectivity</p> <p>Improving Economic Growth in Regional economic development (RED) areas</p>	<p>Economic Growth &amp; Productivity: addresses current and future demand for access to economic and social opportunities and provides appropriate transport choices.</p> <p>Value for money: delivers the right infrastructure and services to the right level at the best cost</p>
<b>Network is impacted by climate, topography and geology:</b> resulting in reactive/unplanned maintenance costs as well as increased safety risk and operation of the network.	<p>Excellent standards of safety and welfare are promoted and respected</p> <p>Our transportation network is reliable, safe and endeavours to meet the</p>	<p>Improve connectivity, resilience and the safety of strategic routes to and from key destinations linking North-South and East-West while factoring in demographic changes and impacts on land use</p>	<p>A safer system</p> <p>Better connectivity</p> <p>A resilient system</p>	<p>Economic Growth &amp; Productivity: is resilient</p> <p>Environmental: increasingly mitigates the effects of land transport on the environment</p>
<b>Safety of road users:</b> vulnerable road users are at greater risk due to increasing and changing activity and environmental conditions which are expected to result in increased deaths and serious injuries.	<p>Excellent standards of safety and welfare are promoted and respected</p> <p>Our transportation network is reliable, safe and endeavours to meet the</p>	<p>Effective and efficient road maintenance and delivery</p> <p>Improve connectivity, resilience and the safety of strategic routes to and from key destinations linking North-South and East-West while factoring in demographic changes and impacts on land use</p>	<p>A safer system</p> <p>A resilient system</p>	<p>Road Safety: is a safe system, increasingly free of death and serious injury.</p>

### 4.3.11 Evidence, Benefits and Consequences for the Problem Statement

(a) Refer to the line of sight analysis with regards to the current asset performance in the problem space, how it links to the ONRC customer outcomes, benefits of addressing the problems, consequences of not addressing them, and their strategic responses:

## Part 3 – Land Transport Activity

Table 9 – Line of Sight Analysis

Line of sight for programme justification – Problem 1							
Problems	Current performance against the existing lifecycle management practices	Links to the ONRC Customer outcomes	Consequence of not addressing the problems	Benefits of addressing the problems	Gap analysis	Asset groups affected	Strategic response
<p><b>Forestry and Land Use</b> Changing land uses (ie forestry and 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 cost. (35%)</p>	<p><b>Pavements and surfacing:</b> Poor performance in rural network roughness when compared with peer group. Substantial increase of roughness since last measured in 2016 on forestry route - Ongarue-Waimiha Road.  Increased levels of renewal required in rural network to maintain long term affordability and amenity of the asset Substantial increase in defects on sealed and unsealed forestry routes in previous 12 months.  Most of the network has low HCV volumes so increases create noticeable effects.</p> <p><b>Structures:</b> Increased repetitive loading is resulting in increased strain on bridge structures, such as Poro-O-Tarao bridge, which needed emergency repair and then deck replacement.</p> <p><b>Environmental Services and Emergency Works</b> Vegetation control – increased mowing and blade work on forestry routes to ensure clear sight lines.</p>	<p><b>Accessibility:</b> of the transport networks available and network connectivity</p> <p><b>Amenity:</b> The level of travel comfort experienced by the road user and the aesthetic aspects of the road environment</p> <p><b>Safety:</b> How users experience the safety of the road</p>	<p>Increasing costs of maintaining the network  Increasing operating costs for road users  Increased dissatisfaction from customers  Not meeting Council outcome of providing a network that is safe, reliable and endeavours to meet the needs of the users.  Not meeting Council outcome of core infrastructure endeavours to keep pace with changing demand.  Not meeting key direction set by GPS</p>	<p>A network that is efficient, supports economic activity, is fit for purpose and meets the needs of the community</p> <p>Activity and Works Management which is efficient and effective</p> <p>Safety of network and journeys</p> <p>Provides an appropriate level of service in a safe affordable and cost effective manner</p> <p>Supporting current economic growth</p> <p>User satisfaction</p> <p>Meeting council outcomes</p> <p>Meeting key directives of GPS</p>	<p><b>Pavements:</b> <b>STE</b> – 15% of the vehicle kilometres travelled sealed network is providing a rougher ride than what is desirable</p> <p><b>Peak Roughness</b> - &gt;150 NAASRA 206 lane-km of the network has high peak roughness and 300 lane km are above 130 – 32% of sealed network above 130 and 22% above 150.</p> <p>Median and average roughness – Ruapehu District’s rural roads are performing poorly when compared with the peer group ( rougher than most of the peer group)</p> <p>Other parts of the network are suffering while prioritizing forestry routes.</p> <p>Difficulty in keeping up with pavement maintenance and renewal in response.</p> <p><b>Structures:</b> Identified need of Maintenance and Component replacement backlog of \$5.3 million over the next 5 years.</p>	<p>Sealed and unsealed surface and pavements Structures</p>	<p>Prioritisation of heavy maintenance and renewal on forest plantation haul roads</p>

## Part 3 – Land Transport Activity

Line of sight for programme justification – Problem 2							
Problem	Current performance against the existing lifecycle management practices	Links to the ONRC Customer outcomes	Consequence of not addressing the problems	Benefits of addressing the problems	Gap analysis	Asset groups affected	Strategic response
<p><b>Needs and Expectations</b></p> <p>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. (30%)</p>	<p><b>Pavements:</b></p> <p>Continue investment to provide the current level of service</p> <p>Many of Council’s road are narrow and windy and are shared by mixed modes.</p> <p>8 roads are restricted to truck use only.</p> <p>Poor performance in rural network roughness when compared with peer group</p> <p>Two thirds of the network is unsealed. Residents living on rural roads that are becoming semi-urban would prefer the roads to be sealed.</p> <p>Dust treatment requests are frequent.</p> <p>Flooding is experienced on some roads in moderate events.</p> <p><b>Structures:</b></p> <p>Continue investment to provide the current level of service</p> <p>79% of bridges that are one lane wide. This places restrictions on agricultural traffic, as well as having potential safety consequences.</p> <p>13.5% of the network is restricted to 50 Max vehicles and 13.2% to heavy vehicles, due to restricted bridges.</p>	<p><b>Amenity:</b> The level of travel comfort experienced by the road user and the aesthetic aspects of the road environment</p> <p><b>Accessibility:</b> The ease with which people are able to reach key destinations and the transport networks available to them</p> <p><b>Resilience</b></p> <p><b>Safety</b></p>	<p>Not meeting Council outcomes and strategic objectives of</p> <ul style="list-style-type: none"> <li>- providing a network that is safe, reliable and endeavours to meet the needs of the users</li> <li>- core infrastructure endeavours to keep pace with changing demand</li> <li>- managing the network with a strong focus on safety to avoid or mitigate significant hazards</li> </ul> <p>Not meeting ONRC CLOS for accessibility</p> <p>Not providing appropriate resilient connections</p> <p>Not minimising the risk of transport disruption</p> <p>Increase in bridge damage due to inappropriate use</p> <p>Increase in crash numbers</p>	<p>A network that is efficient, supports economic activity, is fit for purpose and meets the needs of the community</p> <p>Freight and passenger users can safely, efficiently and reliably get to their destinations as planned</p> <p>The network can respond to changing transport demands and expectations</p> <p>Meeting ONRC CLOS for accessibility</p> <p>Meeting Council outcomes and strategic objectives for:-</p> <ul style="list-style-type: none"> <li>- providing a network that is safe, reliable and endeavours to keep pace with demand and meet the needs of it’s users</li> <li>- Managing the network with a strong focus on safety to avoid or mitigate significant hazards</li> <li>- Providing appropriate resilient connections</li> <li>- Minimising the risk of transport disruption</li> </ul>	<p><b>STE</b> – 15% of the vehicle kilometres travelled sealed network is providing a rougher ride than what is desirable</p> <p><b>Peak Roughness</b> - &gt;150 NAASRA 206 lane-km of the network has high peak roughness and 300 lane km are above 130 – 32% of sealed network above 130 and 22% above 150.</p> <p><b>Median and average roughness</b> – Ruapehu District’s rural roads are performing poorly when compared with the peer group ( rougher than most of the peer group)</p> <p>242 bridges one lane wide</p> <p>16 Weight restricted bridges</p>	<p>Sealed surface and pavements</p> <p>Structures</p> <p>Drainage</p> <p>Signs</p> <p>Streetlights</p> <p>Footpaths</p> <p>Cycleways</p> <p>Bus shelters</p> <p>Facility Roads &amp; car parks</p>	<p>Continue investment to provide the current level of service</p> <p>Continue Pavement renewal programme and address minor alignment issues, widening and corner widening in conjunction</p> <p>Continue existing road maintenance and renewal programme.</p> <p>Additional signage on cycling tourism routes</p> <p>Continue Low Cost Low risk programme to address minor safety issues</p> <p>River Valley meetings</p> <p>Address bridge widening where necessary in conjunction with bridge renewal work</p> <p>Unsubsidised seal extension programme</p>

## Part 3 – Land Transport Activity

Line of sight for programme justification – Problem 3							
Problems	Current performance against the existing lifecycle management practices	Links to the ONRC Customer outcomes	Consequence of not addressing the problems	Benefits of addressing the problems	Gap analysis	Asset groups affected	Strategic response
<p><b>Climate, Geology and Topography</b></p> <p>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. (20%)</p>	<p><b>Resilience to respond to natural events:</b></p> <p>Limited availability of alternate routes in the rural network impacts on travel time reliability</p> <p>Several low level roads prone to flooding in moderate events with no alternate routes available</p> <p>Increase in number of road closures over previous 5 years due to storm damage.</p> <p>Emergency events occur each year. Number of dropouts on the network, with no alternative routes or long detours.</p> <p>Increase in number of potentially hazardous tree calls over previous 5 years</p>	<p><b>Resilience:</b> The availability and restoration of each road when there is a weather or emergency event</p> <p><b>Safety</b></p> <p><b>Accessibility</b></p>	<p>Not meeting Council outcomes and strategic objectives of</p> <ul style="list-style-type: none"> <li>- providing a network that is safe, reliable and endeavours to meet the needs of the users</li> <li>- managing the network with a strong focus on safety to avoid or mitigate significant hazards</li> </ul> <p>Not meeting ONRC CLOS for accessibility</p> <p>Not providing appropriate resilient connections</p> <p>Not minimising the risk of transport disruption</p> <p>Increase in crash numbers</p>	<p>A network that is efficient, supports economic activity, is fit for purpose and meets the needs of the community.</p> <p>Safety of network and journeys</p> <p>Minimise disruption when unplanned events occur</p> <p>Meeting ONRC CLOS for accessibility</p> <p>Providing appropriate resilient connections</p>	<p>Accept some roads will not be available in flood events</p> <p>181 road closures in 16/17</p> <p>176 sites on network with flood damage; 141 with either no alternative route or a major detour</p> <p>Average of \$2.4M expenditure on emergency works and minor events over previous 5 years</p> <p>Event in 14/15 was \$4.6M for one event – Pipiriki-Raetihi area</p>	<p>Bridges</p> <p>Road Corridor</p> <p>Drainage</p> <p>Sealed pavements</p> <p>Unsealed pavements</p>	<p>Implement table drain cleaning programme</p> <p>Have subcontractor presence around network for resilience response</p> <p>Maintain permanent flood hazard signs in flood hazard areas</p> <p>Work with Horizons regarding river channel maintenance</p> <p>Continue to hold River Valley meetings to identify hazardous areas</p> <p>Hazardous tree programme</p>

## Part 3 – Land Transport Activity

Line of sight for programme justification – Problem 4							
Problems	Current performance against the existing lifecycle management practices	Links to the ONRC Customer outcomes	Consequence of not addressing the problems	Benefits of addressing the problems	Gap analysis	Asset groups affected	Strategic response
<p><b>Safety</b> 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 (15%)</p>	<p><b>Fatal and serious injury crashes:</b> are trending upwards for access roads. Crash numbers are low but an increasing trend is undesirable</p>	<p><b>Safety</b>  <b>Accessibility</b>  <b>Resilience</b></p>	<p>Increasing trend of fatal and serious injury significantly impacting on the local community</p> <p>Council strategic objective for providing a safe transport network not being met</p> <p>GPS strategic directive for safer journeys not met</p>	<p>Increasing safety for users of the network – safety for network and journeys</p> <p>Freight and passenger users can safely, efficiently and reliably get to their destinations as planned</p> <p>The network can respond to changing transport demands and expectations</p> <p>Meeting ONRC CLOS for accessibility</p> <p>Meeting Council strategic objectives for:</p> <ul style="list-style-type: none"> <li>- providing a network that is safe, reliable and endeavours to meet the needs of the users</li> <li>- managing the network with a strong focus on safety to avoid or mitigate significant hazards</li> </ul> <p>Providing appropriate resilient connections</p>	<p>Council is performing poorly compared to peers for personal risk, with all roads except primary collectors being outliers. However, all road types score in high and above.</p> <p>For collective risk, all road types score as 'low' but Council is an outlier for all types except Primary.</p>	<p>Sealed surface and pavements Bridges Drainage Signs Footpaths Cycleways</p>	<p>Stop / Give Way controls at Intersection evaluations Hold River Minor Valley meetings Continue pavement renewal programme Continue low cost, low risk minor safety programme</p>



# Part 3 – Land Transport Activity

## 4.4 Additional Information to support the Line of Sight Analysis

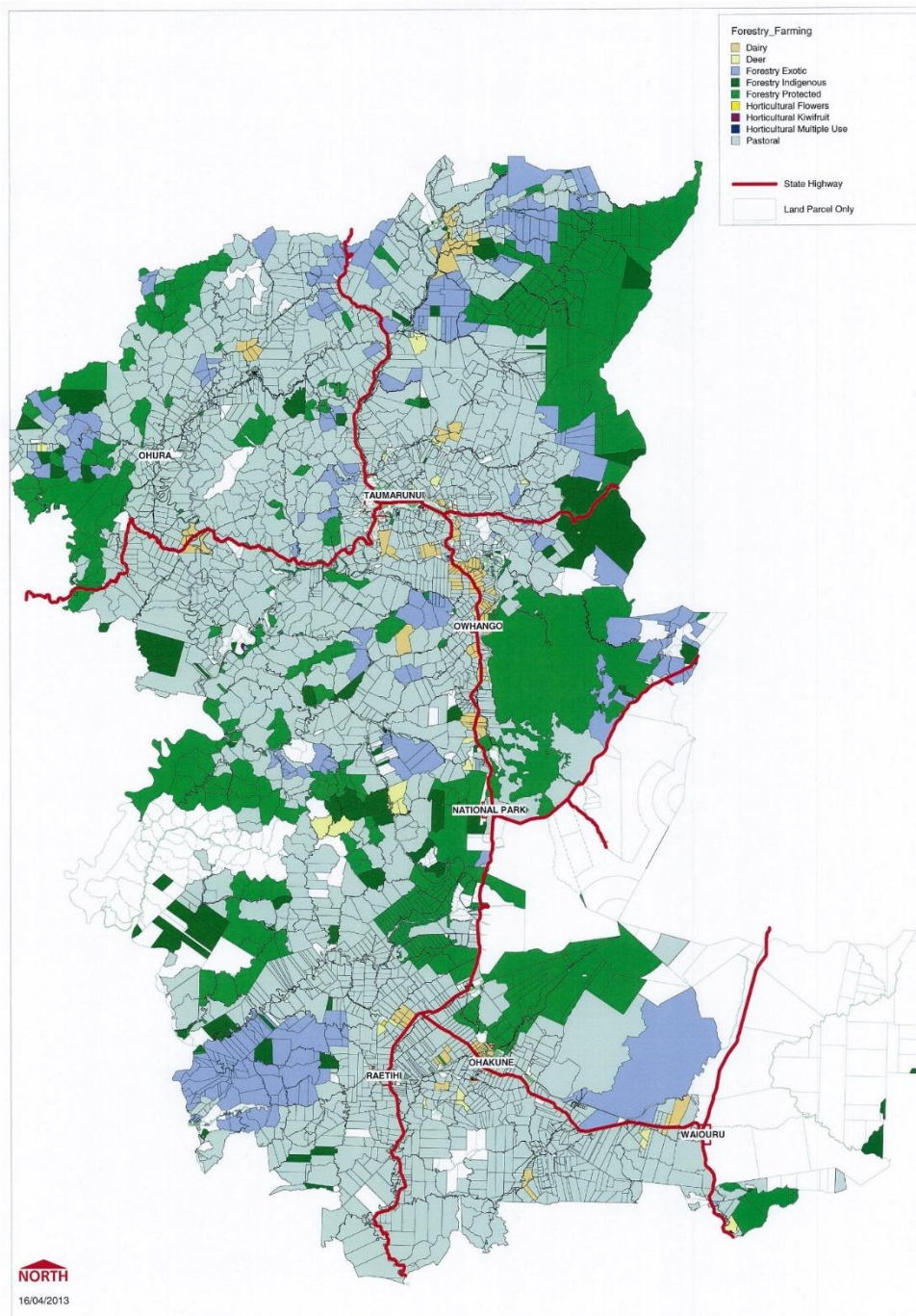
4.4.1 In support of the Line of Sight analysis, additional information on the Problem Statements is shown below.

### 4.4.2 Problem 1 – Changing Land Use

(a) Forestry

- (i) The harvesting of large areas of forestry throughout the District is having a major impact on the District roading network.
- (ii) The majority of planting occurred in 1989-90 and is maturing from 2014-20 onwards.
- (iii) The map below shows the location of exotic forests in the District. The majority are accessed from low volume or low volume access roads.

Figure 4 - Map of Exotic Forestry Locations



# Part 3 – Land Transport Activity

- (iv) Ministry of Primary Industries Wood Availability Forecast 2014 presents scenarios for harvesting for the Central North Island. The Central North Island wood supply region is shown in the map below

Figure 5 - Central North Island Wood Supply Region

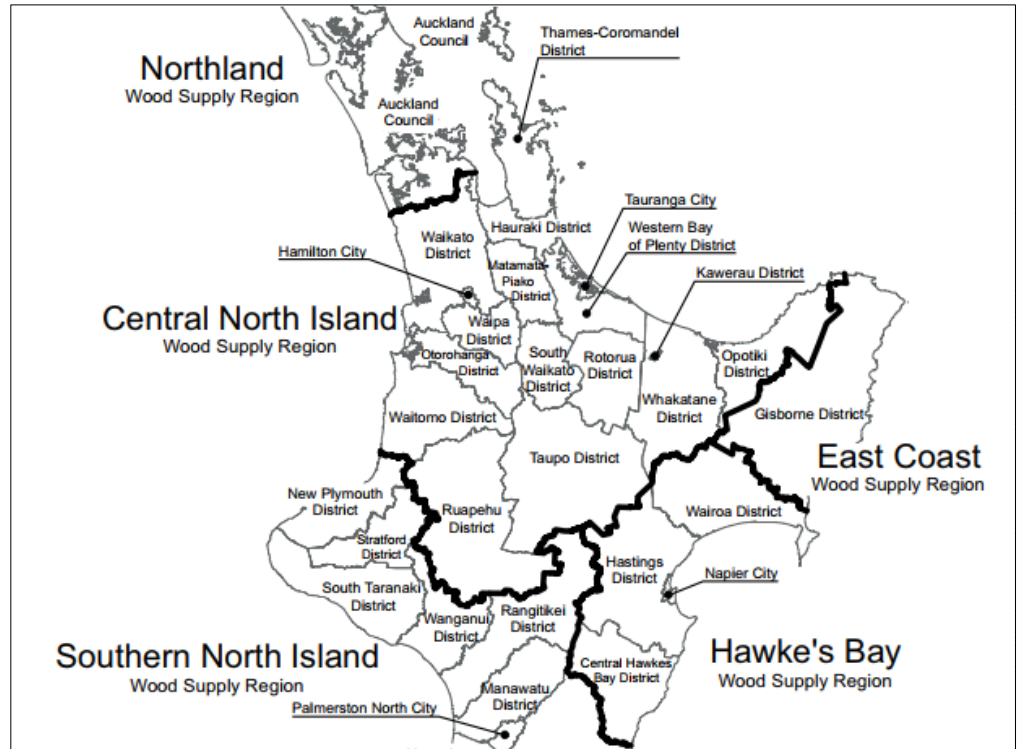


Figure 6 - Age-Class Distribution by Owner

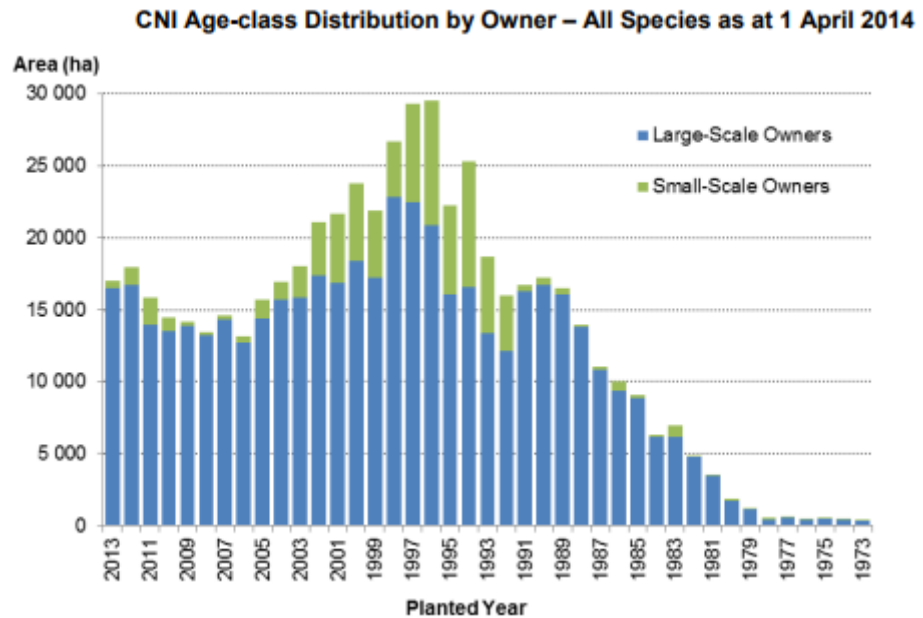
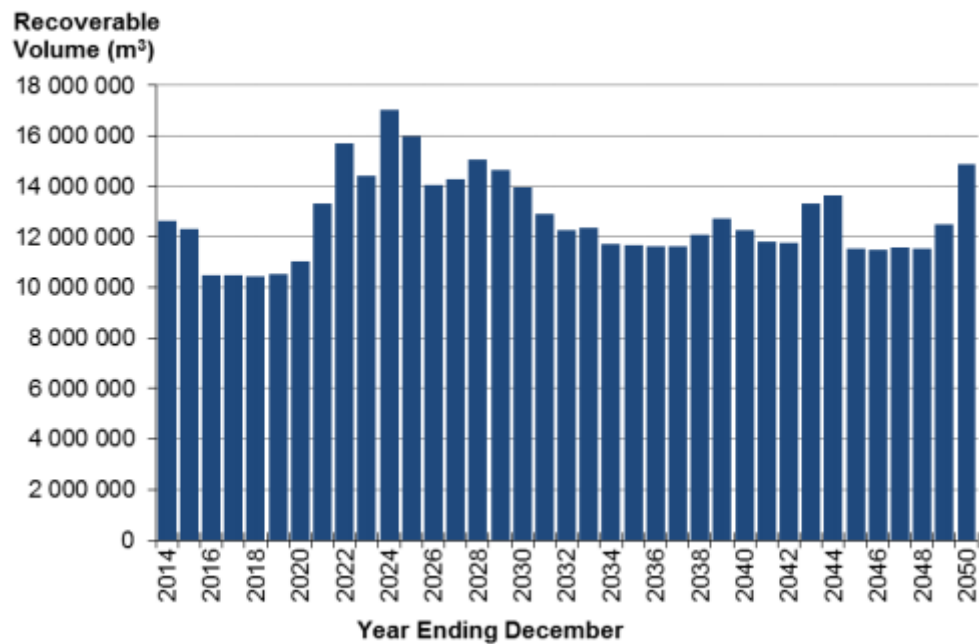


Figure 7 - CNI Harvest Predictions

## Part 3 – Land Transport Activity

Figure 2-1A: Scenario 1: Large-scale Owners Harvest at Stated Intentions, Small-Scale Owners Harvest at Age 28



- (v) The scenario shows that there will be logging carried out for a long period of time.
- (vi) Harvesting dates depend on the market and can be changeable.
- (vii) Small scale forest owners make up a proportion of the wood to be harvested and are difficult to predict harvesting dates for.
- (viii) Significant forestry is underway in the northern part of the District and will continue until at least 2034.
- (ix) Since harvesting began in Ongarue in 2015, \$300,000 of sealed pavement repairs have been identified on the logging route used (Ongarue-Waimiha Road and Poro-O-Tarao Road).
- (x) Metal roads that are used for forest harvest require additional attention with grading and pothole patching. An example is Mangaetuora North Road, which required grading 8 times over a 9 month period, in comparison with 4 – 5 times on the adjacent metal roads. Ongoing harvesting on Waitaanga Road has seen \$77,000 of unsealed pavement digouts undertaken in 2017/18 to address soft spots. This road requires frequent grading to address corrugations.
- (xi) On an NZ Transport Agency Technical Audit carried out in February 2017, the auditors noted that *“Council is following good practice in managing the road network, and the road network is in a condition that is generally fit for purpose...However, we found that Ruapehu’s rate of pavement rehabilitation activity reflects ratepayer affordability rather than network needs.... 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”*. This is a concern for Council as safety is paramount.
- (xii) Examples of the surface defects are shown in the photos below.

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## Part 3 – Land Transport Activity

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Figure 8 - Sealed Surface Defects on Ongarue Waimiha and Poro O Tarao Roads



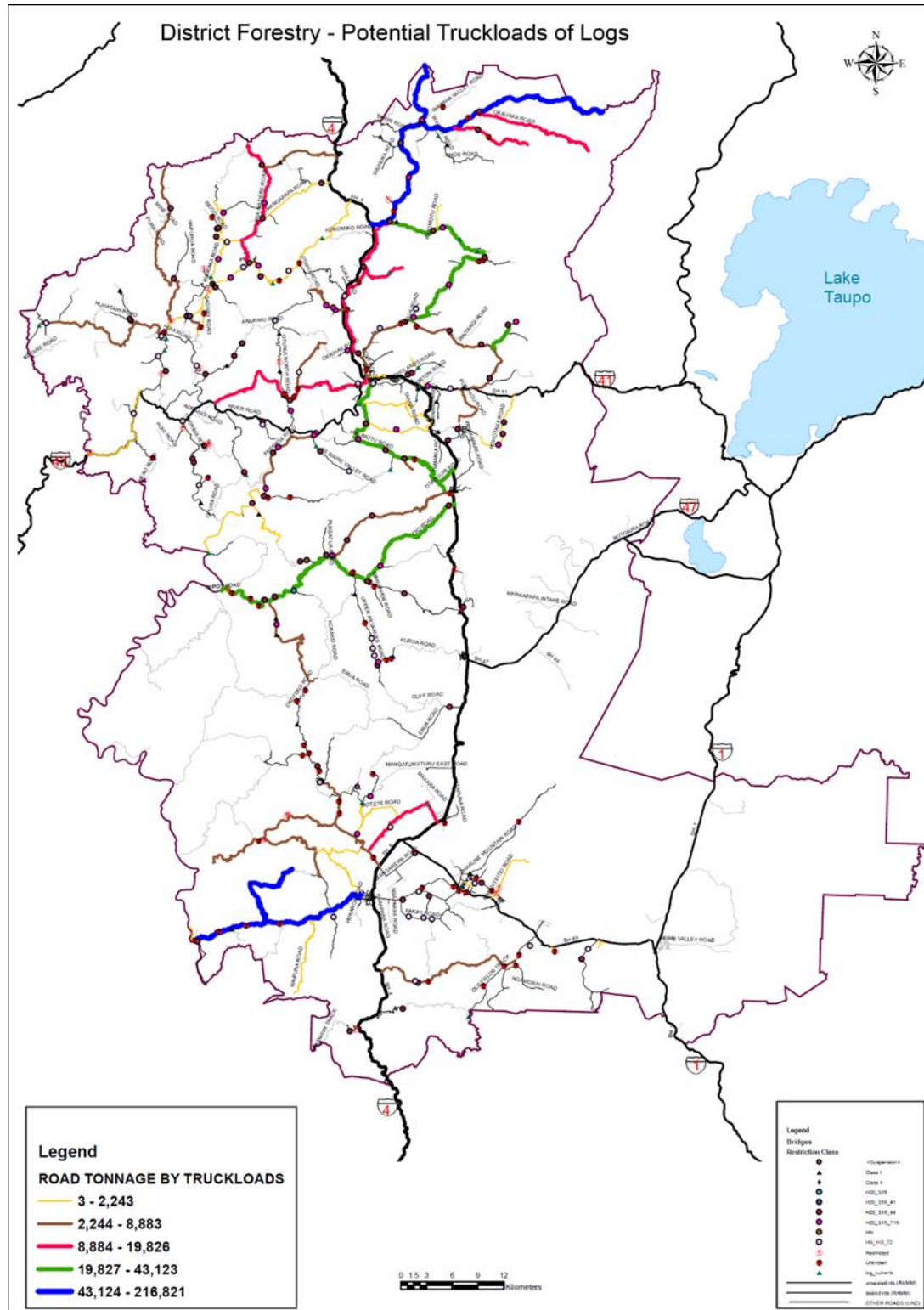
Figure 9 – Sealed Surface Defects on Mangaetuora North Road



# Part 3 – Land Transport Activity

- (xii) The map below was produced in 2006 to forecast road tonnage by truck load for forest harvests between 2008 and 2021. The roads with the highest logging tonnages have since been used for logging, as well as a number of the lower tonnage roads.

Figure 10 – District Forestry – Potential Truckloads of Logs



- (xiii) A standard trucks can take approximately 30 tonnes per load. This works out as the following additional truck movements. Most of the roads are low volume roads with low existing heavy vehicle numbers.

## Part 3 – Land Transport Activity

Tonnes	Truckloads
3 – 2,243	0 – 75
2,244 – 8,883	75 – 296
8,884 – 19,826	296 – 661
19,827 – 43,123	661 – 1,437
43,124 – 21,6821	1,437 – 7,227

(xiv) The key forestry routes are:

Road	Forestry Route	Pavement Renewal Strategy Road
Poro-O-Tarao (sealed)	Y	Y
Ongarue-Waimiha (sealed)	Y	Y
Pipiriki-Raetihi (sealed)	Y	
Ongarue-Stream (sealed)	Y	
Ngakonui-Ongarue (sealed & unsealed sections)	Y	
Oio (both)	Y	Y
Hikumutu (both)	Y	
Otapouri (unsealed)	Y	
Waituhi (unsealed)	Y	
Pokatea-Kokakonui (unsealed)	Y	

(b) Mining

- (i) Ruapehu has a variety of sources of aggregate throughout the District and coal deposits in the Ohura area. Traditionally most aggregate in the north of the District has come from river gravels, particularly from the Whanganui River at Taumarunui. However, over the last 20 years there has been a depletion of the gravel reserves in the river, and increasing resource management issues associated with the extraction of river gravels. In the south of the District gravel has generally come from pit sources, and it is expected that it will continue to do so.
- (ii) The increased extraction from pit sources in the north, and the continued extraction from pits in the south, means that the roading serving pits must be strengthened and maintained to an adequate standard. Vehicles carting aggregate are normally loaded to legal maximums, which have a substantial impact on under-strength rural roads.
- (iii) Fluctuating demand for coal may spark renewed interest in coal deposits that exist in the Ohura area. In particular, there has been renewed activity at the Tatu Mine at the end of Waro Road, off State Highway 43.
- (iv) If coal mining were to start, there may be approximately 40 truck and trailer loads of coal per day, which will travel on District Council roads. At this stage it is uncertain the specific roads that will be used. However, it is expected that the increased traffic will have a significant impact on the roading network. The uncertainties surrounding the operation make it difficult to plan for the road usage. Any response will of necessity need to be largely reactive.

(c) Measuring the benefit

- (i) It is crucial that we have a network that is efficient, supports economic activity, is fit for purpose and meets the needs of the community. The needs include those of both the heavy and light vehicle users.

Outcome	Key Performance Indicator	Measures	Baseline
A network that is efficient, supports economic activity, is fit for purpose and meets the needs of the community	Network availability	85% instances when local emergency sites are made safe within 1 hr plus travel time	100% of instances when local emergency sites are made safe within 2 hr plus travel time in 16/17
	Customer Satisfaction	Less than 1,000 service calls per annum	1,127 in 16/17

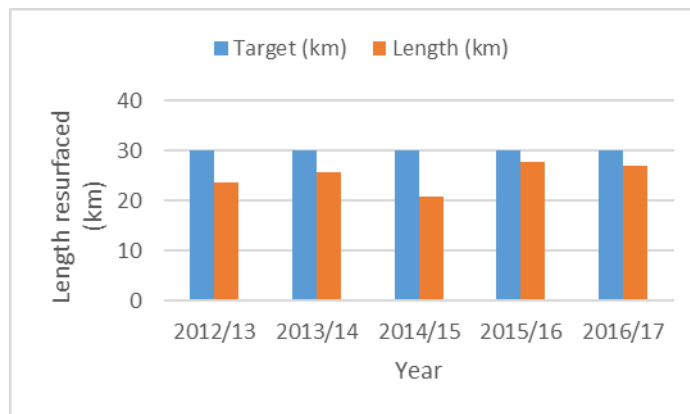
# Part 3 – Land Transport Activity

- (d) Improvements
  - (i) It is critical to have good data on projected forest harvests to enable forward planning. Council will carry out a project to improve its forestation information with input from forest stakeholders.

**4.4.3 Problem 2 – Needs and Expectations**

- (a) Investing in the current level of service is a key part of providing the land transport service for customers.
- (b) In addition, customers and users have expectations and needs that may require a change in the level of service, or may not be funded.
- (c) The Line of Sight table discusses many of these. Further discussion is provided below.
- (d) Pavements
  - (i) Pavement Renewals form 57.5% (\$5.7M) of the 2018/19 pavement budget. An end of life versus renewal cost graph for pavements indicates a backlog in renewals, where, if the budget allowed, approximately \$8M needs to be spent within the next year or \$2.7M yearly over the next 5 years. Pavement renewals including rehabilitation vary between \$5.3M and \$5.7M over the next 10 years. RAMM Treatment Selection Algorithm (TSA) analysis identifies 52km for reseal where the budget allows for 20 km. This has the potential to create a backlog of treatments. Backlogs are due to budget redirection to emergency works or increasing oil prices.

Figure 11 – Pavements



- (ii) The current level of investment in pavement renewals is \$4.5M. This is to address reseals, pavement rehabilitations and unsealed road metaling.
- (iii) The following form Council’s strategy roads as they are branch roads with several tributaries.

Road	ONRC category
Poro-O-Tarao	Access
Ongarue-Waimiha	Access
Oio	Access – Low Volume
Ohura	Access
Ohakune Mountain	Primary Collector
Whangaehu Valley	Access & Access – Low Volume
Okahukura Saddle	Access
Ruatiti	Secondary Collector, Access, Access – Low Volume
Paparoa	Access & Access – Low Volume

- (iv) Council is underperforming in peak and average pavement roughness compared to its peers. Council has been working to address significant under investment in rehabilitation over the last ten years, which is starting to have an effect. This needs to be increased to meet the demands of forest harvests.

# Part 3 – Land Transport Activity

Figure 12 - Peak Roughness - Urban

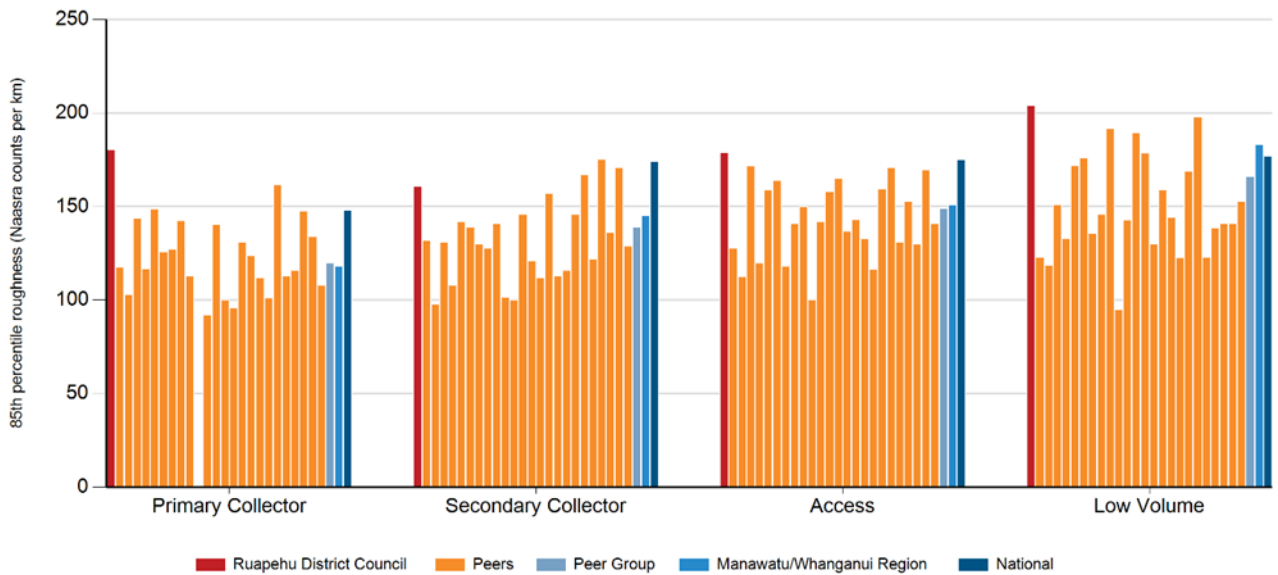


Figure 13 - Peak Roughness – Rural



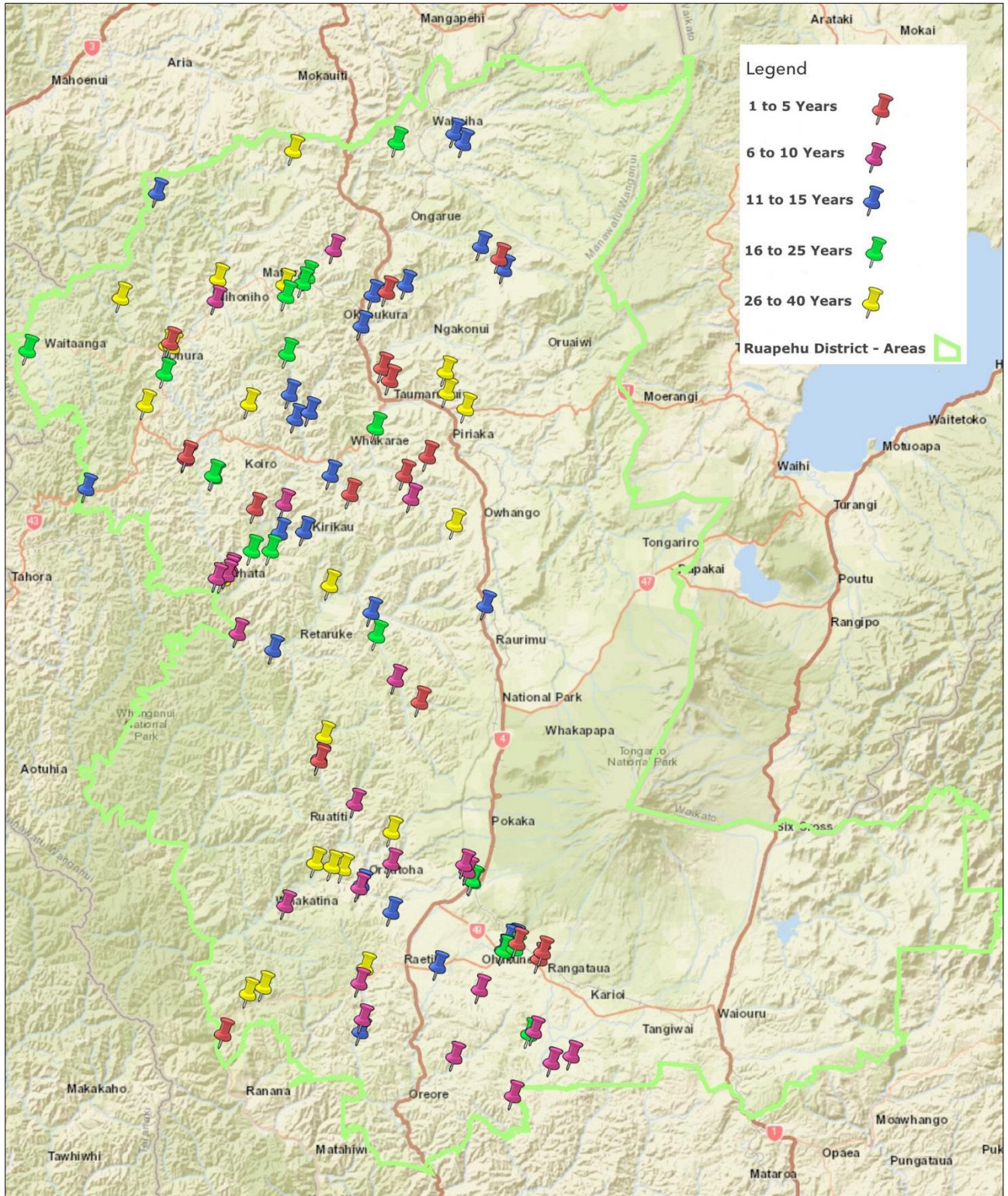
(e) Structures

- (i) 87.8% (\$1.0M) of the 2018/19 structures budget is for renewals. This varies between \$0.4M and \$1.4M over the next 10 years and depends on the timing of the bridge or culvert that has been identified for renewal based on condition and risk.
- (ii) This is a change in the expenditure over the past three years which varied between \$361K and \$955K and is a result of backlog from historical under-investment.
- (iii) Identified need of Maintenance and Component replacement backlog of \$5.3 million over the next 5 years.
- (iv) The following bridges and large culverts are identified for renewal over the next forty years.



# Part 3 – Land Transport Activity

Figure 14 - Structure Renewal Indicative Programme

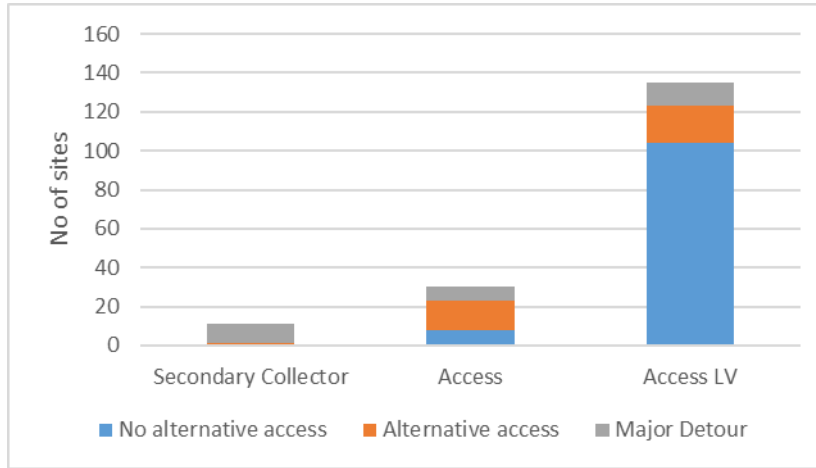


- (v) Two bridges (Ruapehu Road and Mangateitei) have been identified for complete renewal through Low Cost Low risk improvements while the remainder are component replacements only. Mangateitei and Ruapehu Road Rail Over Bridges are failing timber bridges crossing the North Island Main Trunk rail line.
- (vi) Measuring the benefit

Outcome	Key Indicator	Performance	Measures	Baseline
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# Part 3 – Land Transport Activity

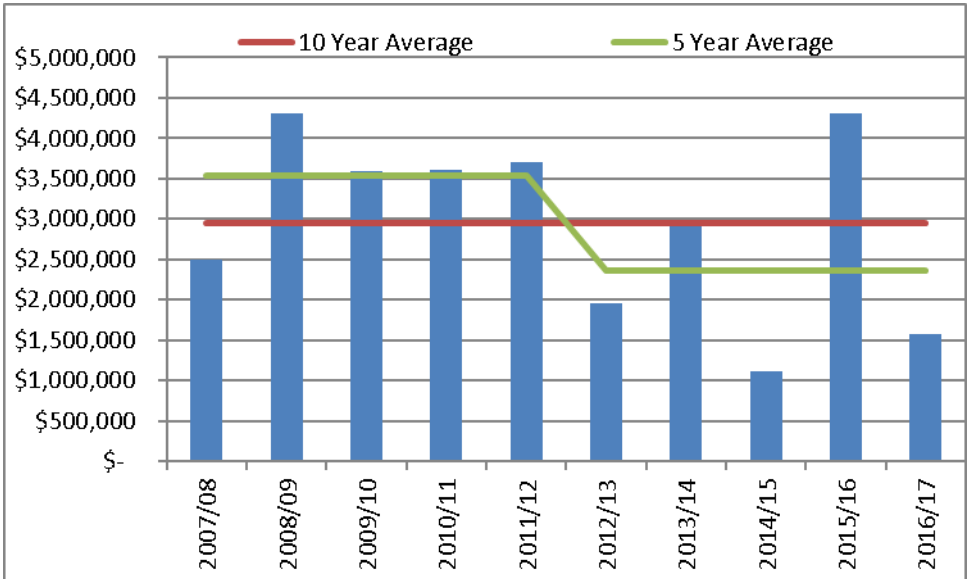
A network that is efficient, supports economic activity, is fit for purpose and meets the needs of the community	Weight Bridges	Restricted	15 or less	16 in 16/17
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## 4.4.4 Problem 3 – Climate, Topography and Geology

- (a) 35% (\$3.0M) of the 2018/19 operations and maintenance budget is for emergency works. The graph below shows the costs associated with emergency works. The scale of the event depends on it's severity. This makes it impossible to forecast the expenditure.
- (b) A significant issue for Council is managing this expenditure. The Land Transport 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 the over expenditure. This has a significant impact on forward works and asset condition. Emergency works expenditure is shown below.

Figure 15 – Emergency Work Expenditure

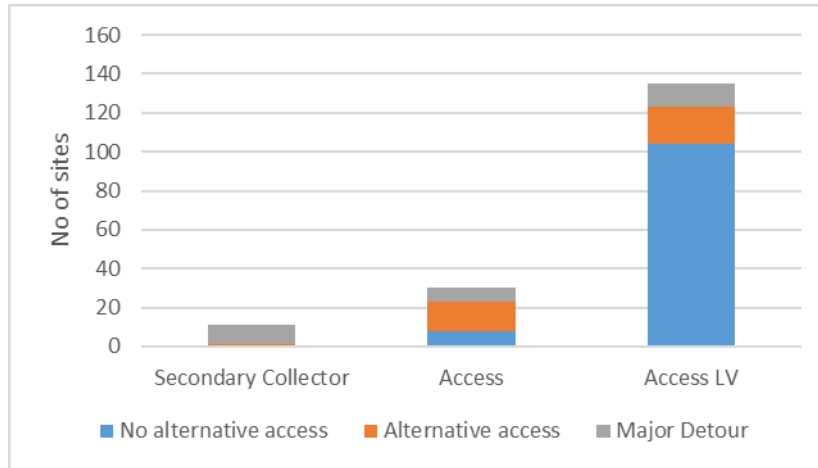


- (c) There are currently 176 emergency work sites on District roads. All roads are open. There is potential for access to be lost if conditions worsen, as many of the sites are on roads with no alternative access or with a major detour being required.

# Part 3 – Land Transport Activity

- (c) 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. In 2016/17, the full budget has been expended in four months. This is a concern as any additional minor events will have to be funded by reducing other budgets.

Figure 16 – Emergency Work Sites



- (d) Measuring the benefit

Outcome	Key Performance Indicator	Measures	Baseline
A network that is efficient, supports economic activity, is fit for purpose and meets the needs of the community	Network availability	85% instances when local emergency sites are made safe within 1 hr plus travel time	100% of instances when local emergency sites are made safe within 2 hr plus travel time in 16/17
	Customer Satisfaction	Less than 1,000 service calls per annum	1,127 in 16/17

## 4.4.5 Problem 4 – Safety

- (a) Collective risk is a measure of the total number of Serious Injuries and Fatalities (DSI) per km over a section of road. Due to low traffic volumes, the Ruapehu Collective Risk is low for all hierarchies.
- (b) Personal risk is a measure of the danger to each individual using the road being assessed. All hierarchies of road within the district have a high personal risk rating, associated with tortuous alignment, steep drop-offs and reduced clearance zones. The personal risk is generally greater than our peer group average, the Region and Nationally. Ruapehu District Council, through the Ruapehu Road Safety Action Plan and also its River Valley Community Engagement Programme, is actively working to identify, improve and mitigate risk within the network.
- (c) Ruapehu is concerned that increases on the network would see a rise in crash numbers, particularly with the mix of different users, such as cyclists, light vehicles and heavy vehicles. An increase in heavy vehicles on roads with usually low numbers of them would have an impact.

# Part 3 – Land Transport Activity

Figure 17 – Deaths and Serious Injuries

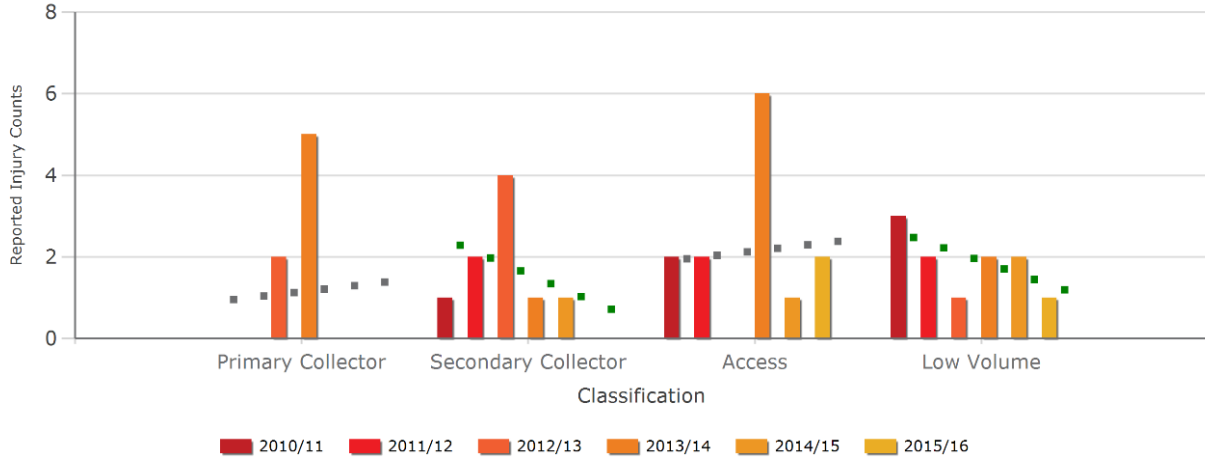


Figure 18 – Collective Risk

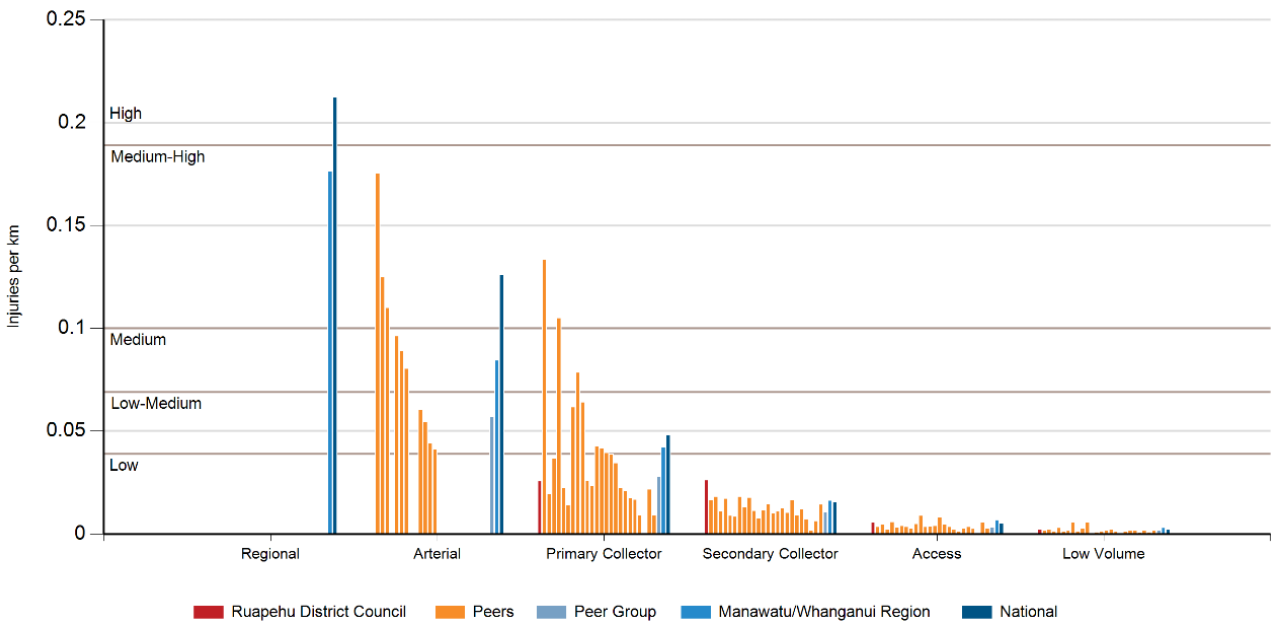
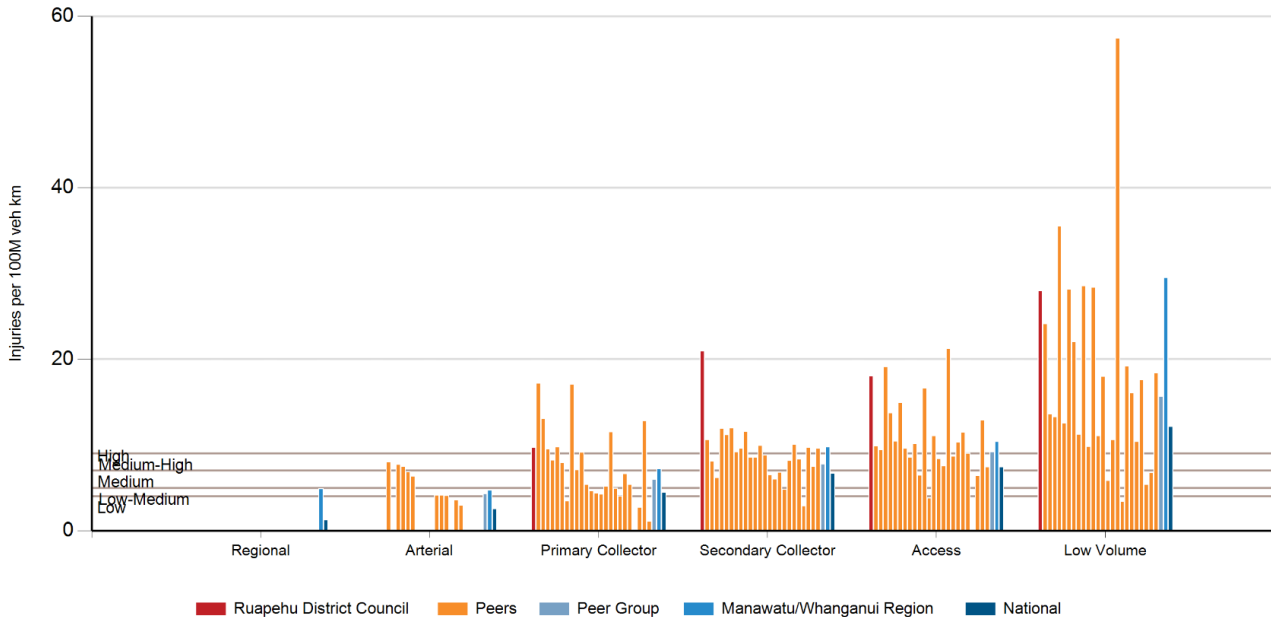


Figure 19 – Personal Risk



# Part 3 – Land Transport Activity

(d) Measuring the benefit

Outcome	Key Performance Indicator	Measures	Baseline
Excellent standards of safety and welfare are promoted and respected	Reduced fatal accidents per annum where road condition was a factor	0	0 fatal accidents in 2016/17
	Number of reported serious accidents per annum, where the condition of the road was a factor.	5 or less	0 serious accidents in 2016/17

## 4.5 Benefits of Investment

(a) In addition to the benefits listed above, the benefits of investment to solve the problems include financial, economic, environmental, and social benefits and were identified as:

Figure 20 – Benefits of Investment

**BENEFITS OF INVESTMENT**

**Efficient Network**

- Amenity – Road surface, footpath accessibility
- Fit for purpose – Right road, right user
- Clear link between cost and investment
- Economic Viability of forestry
- Informing communities about programmes

**Activity and Works Management**

- Planned/programmed works for forestry
- Clear communication of maintenance
- Efficient and effective maintenance programme
- Reduced lifecycle cost
- Traffic Management Plans

**Safety**

- Safe Network – therefore less crashes/injuries
- Safer journey

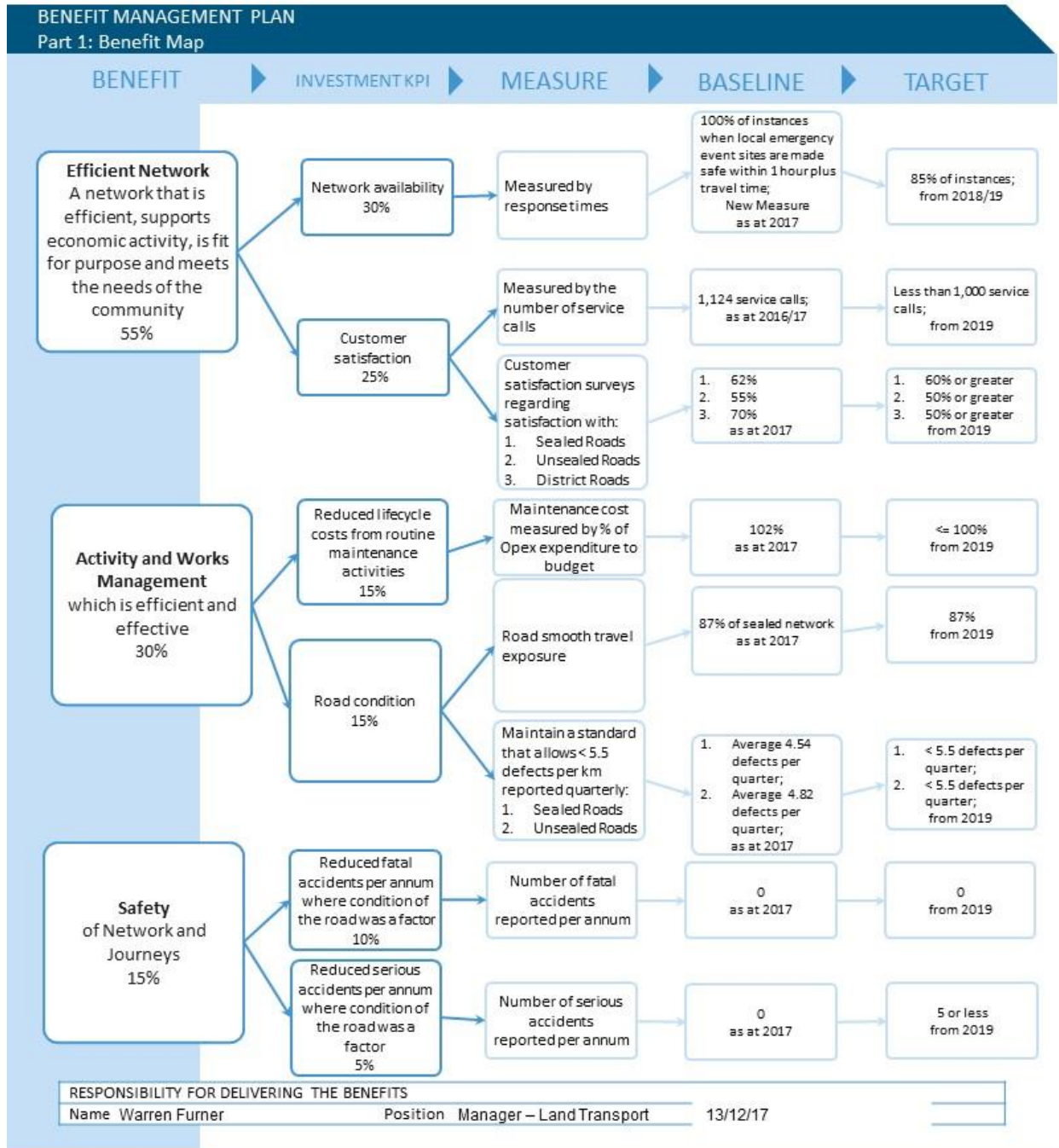
(b) The Benefits Management Plan is shown below. Further Key Performance Indicator information can be found in Section 11 – Levels of Service We Provide.

# Part 3 – Land Transport Activity

Figure 21 – Benefits Management Plan

Ruapehu District Council Activity Management Plan 2018/19 -2021/22

## Activity Management Plan 2018/19 -2021/22



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

Version no: 2  
 Initial Workshop: 08 November 2016  
 Last modified by: Andrea Nicol 13/12/17  
 Template version: 0.1

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# Part 3 – Land Transport Activity

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## 4.6 Performance Measures

4.6.1 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 Section 11 – Level of Service We Provide:

Figure 22 – Performance Measures and KPIs

### Performance Measures / KPIs

- Reduction in death/serious injuries (X%) v/kmt
- Customer satisfaction
- Road roughness, Smooth travel exposure, defects per km
- Network audits
- Network availability
- Service Requests
- Valley Meetings (maintain or increase meeting frequency)
- Response times – are they appropriate
- Public expectation of response and quality
- Sight clearing/vegetation control
- Perceived safety
- Crash Report

## 4.7 Investment Objectives

### 4.7.1 Levels of Service and ONRC

- (a) Council has implemented the One Network Road Classification (ONRC) requirements by aligning its RAMM road classifications to ONRC. This has resulted in not only the establishment in the District of a new, nationally consistent road classification hierarchy, but also, as part of an ongoing process, the review of existing level of service (LoS) and the development of associated customer focussed LoS, performance measures and targets.
- (b) In a constrained budget environment, the ONRC has helped the District to optimize available funds by prioritising and re-focussing investment to higher importance road categories in the network where it is needed the most.
- (c) In practice, ONRC helps the District target investment to the right treatments, in the right places, at the right times and for the right costs. It also helps the District to have the flexibility and mechanisms to optimise and re-direct investments to fit a constrained and changing financial environment.
- (d) A more detailed discussion of how the District has implemented ONRC is contained in Section 7.1 One Network Road Classification (ONRC)

### 4.7.2 Trends and Projections

- (a) The following table summarizes the effects of the identified growth and demand trends on the land transport activity.

# Part 3 – Land Transport Activity

Table 10 – Trends and Projections

Problem Statement	Growth/Demand Trend	Discussion	Impact
<ul style="list-style-type: none"> <li>Needs &amp; Expectations</li> </ul>	<ul style="list-style-type: none"> <li>Overall population and subdivisional growth patterns</li> </ul>	<ul style="list-style-type: none"> <li>Overall usually resident population declining in the District</li> </ul>	<ul style="list-style-type: none"> <li>Any decrease in the rating base to fund works is partially offset by increased holiday home development in specific locations.</li> </ul>
<ul style="list-style-type: none"> <li>Forestry and Land Use</li> </ul>	<ul style="list-style-type: none"> <li>Overall population and subdivisional growth patterns</li> </ul>	<ul style="list-style-type: none"> <li>Subdivisional activity and holiday home growth in:                             <ul style="list-style-type: none"> <li>Ohakune</li> <li>National Park</li> <li>Raetihi</li> <li>Rural Waimarino (Rangataua and Horopito)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Growth in asset base through adoption of third party infrastructure.</li> <li>Increasing community expectation regarding levels of service, in particular widening roads, and provision of footpaths, kerbing and stormwater channels.</li> <li>Increased rating base in specific locations may enable enhanced service levels there.</li> </ul>
<ul style="list-style-type: none"> <li>Needs &amp; Expectations</li> <li>Forestry and Land Use</li> </ul>	<ul style="list-style-type: none"> <li>Increasing visitor numbers</li> </ul>	<ul style="list-style-type: none"> <li>Growing tourism industry leading to increased visitor numbers and significant holiday home development in                             <ul style="list-style-type: none"> <li>Ohakune</li> <li>National Park</li> <li>Rural Waimarino (Rangataua and Horopito)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>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:                             <ul style="list-style-type: none"> <li>Ohakune Mountain Road – peak day tidal traffic exceeds capacity and is expected to continue to increase.</li> <li>Raetihi-Pipiriki Road – areas of poor geometry with increasing tourism traffic expected.</li> <li>Oio Road – unsealed, areas of poor geometry with increasing tourism traffic expected.</li> </ul> </li> <li>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.</li> <li>Increasing expectations regarding vehicular ride comfort and urban periphery pavement sealing.</li> <li>Increasing expectations regarding the amenity value of "visitor townships".</li> </ul>
<ul style="list-style-type: none"> <li>Forestry &amp; Land Use</li> <li>Needs &amp; Expectations</li> <li>Safety</li> </ul>	<ul style="list-style-type: none"> <li>Increasing heavy vehicle numbers and size</li> </ul>	<ul style="list-style-type: none"> <li>Harvesting of forests leading to significantly increased heavy vehicle traffic throughout the District, particularly from 2014 onwards when the majority of the plantations mature.</li> </ul>	<ul style="list-style-type: none"> <li>Accelerated pavement deterioration and shortened pavement lives on specific routes.</li> <li>Increased need to improve the geometrics and other manoeuvrability and safety aspects of pavements on specific routes to accommodate increased numbers of large vehicles.</li> <li>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</li> </ul>
<ul style="list-style-type: none"> <li>Forestry &amp; Land Use</li> <li>Needs &amp; Expectations</li> </ul>	<ul style="list-style-type: none"> <li>Increasing heavy vehicle numbers and size</li> </ul>	<ul style="list-style-type: none"> <li>Move to larger farming units and larger heavy vehicles.</li> </ul>	<ul style="list-style-type: none"> <li>Accelerated pavement deterioration and safety issues as above.</li> <li>Bridge capacity or geometry issues as above</li> </ul>
<ul style="list-style-type: none"> <li>Forestry &amp; Land Use</li> <li>Needs &amp; Expectations</li> </ul>	<ul style="list-style-type: none"> <li>Increasing heavy vehicle numbers and size</li> </ul>	<ul style="list-style-type: none"> <li>Increased aggregate extraction from pits in the north, and renewed interest in coal deposits in Ohura leading to increased heavy vehicle traffic.</li> </ul>	<ul style="list-style-type: none"> <li>Accelerated pavement deterioration and safety issues as above.</li> <li>Bridge capacity or geometry issues as above</li> </ul>
<ul style="list-style-type: none"> <li>Needs &amp; Expectations</li> </ul>	<ul style="list-style-type: none"> <li>Increasing vehicle ownership</li> </ul>	<ul style="list-style-type: none"> <li>Increasing vehicle ownership leading to increased vehicle trips.</li> </ul>	<ul style="list-style-type: none"> <li>Accelerated wear and tear on the Land Transport network, although this is minor in comparison to the deterioration caused by heavy vehicular traffic.</li> <li>Increased community expectations for improved ride comfort.</li> <li>Higher incidence of vehicular accidents.</li> </ul>



## Part 3 – Land Transport Activity

### 4.7.3 Constraints and Assumptions

- (a) The following contribute to the robustness of the growth and demand forecasting, and management processes.
  - (i) Traffic volumes and patterns on the identified critical routes are monitored.
  - (ii) Council works closely with NZTA and Horizons to ensure consistency is achieved in local, regional and national land transport strategies.
  - (iii) Council liaises with KiwiRail to explore alternative transportation modes and benefits in a local and regional context as required.
  - (iv) Council works closely with industry groups to better understand anticipated demand increases. These groups include forestry groups, farmers, quarrying and mining companies.
  
- (b) The following assumptions have been made for planning to manage practically the demand projection implications:
  - (i) 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.
  - (ii) The seasonal traffic generated by the ski 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.
  - (iii) 0% growth is indicated in NZTA's Economic Evaluation Manual for roads in the Manawatu-Whanganui Region.
  - (iv) Heavy vehicle movements on feeder roads from forestry areas to state highways will increase to an additional 800,000 vehicle movements in each direction throughout the district.
  - (v) If two potential mine sites open in the Ohura area, there could potentially be up to 40 truck and trailer loads of coal per day. The likelihood of the mines opening in the next 10 years is low.
  - (vi) 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.
  - (vii) Increasing light vehicle ownership and trips have negligible effect on the deterioration rate of the network.
  - (viii) There will be no HPMV routes opened in the next 10 years.

### 4.7.4 Programme Quality and Risk Management

- (a) Risks associated with providing maintenance and renewal programme activities are based on the risks detailed in Section 15 Managing Risk and Appendix D, and include the following:
  - (i) LT01 Collapse of non-maintained bridges
  - (ii) LT05 Collapse of maintained bridges
  - (iii) LT02 Increased pavement deterioration due to forestry haulage
  - (iv) LT03 One Network Road Classification (ONRC)
  - (v) LT04 Impact on local share affordability from changes to NZTA FAR
  - (vi) LT09 Changing road user trends – safety issues
  - (vii) LT11 Snow and Ice
  - (viii) LT13 Ability to deliver Asset Management Programme

### 4.7.5 Potential Consequences

- (a) The consequence for our Community if the programme is not approved is that the level of service would need to be reduced and safety may be compromised.
- (b) The goal for land transport is that our transportation network is reliable, safe and endeavours to meet the needs of users. Ruapehu does this by providing a fit for purpose programme that aims for just-in-time renewals.
- (c) Evidence is showing that the current programme is not keeping up with need. A reduction or loss of funding would severely limit our ability to provide a safe and sustainable road network and this would result in financial, economic, and social consequences. As road conditions deteriorate, efficiency would be impacted upon and it would become more difficult for farmers to get stock and produce to market, for residents to go about their normal lifestyles, and for roads to support the burgeoning tourist market in the District.

# Part 3 – Land Transport Activity

## 5 Programme Business Case (Developing the Programme)

- 5.1 The Programme Business Case states what we have to invest.
- 5.2 It provides the strategic response of the planned future state, identifies a programme of works or activities that deliver on the strategic case, with asset management information that identifies maintenance, operations, renewals and improvement/new works programmes.
- 5.3 In order to address the strategic issues and problems stated, our programme must address the key themes of road pavements, bridges and road safety.
- 5.4 Road pavements need re-surfacing, base rehabilitation, bridges to support them, and drainage to keep the water out. Road safety requires robust bridges, signage, street lighting, and an environment that maximizes driver visibility and pedestrian safety. Our investment strategy for road safety is cognizant of local issues raised by NZTA's road safety action planning and crash analysis systems.

### 5.5 Alternatives and Options

#### 5.5.1 Programme Alternatives and Options

- (a) Alternatives and options to the programmes, including Do-Minimum options are described below.

Table 11 – Alternatives and Options

Programme of Work - OM&R	Problem Statement	Customer Level of Service	Alternatives (non asset solution)	Options (renewal treatment types)
Pavement Base and Surfacing	Forestry & Land Use Needs & Expectations Safety	Resilience Safety Amenity	Close or cease public ownership of certain roads of very low or single property usage.  Reduce the renewals and allow for increased reactive maintenance such as pothole and digout repairs.  Dig up sealed roads and convert them back to unsealed roads.	Sealed pavements bases - rip and chemical stabilize existing road base  Sealed pavements bases - remove and replace existing road base.  Sealed pavements surfacing – chipseal or asphaltic concrete mill and replace or overlay
Bridges and Structures	Forestry & Land Use Needs & Expectations Safety	Resilience Safety	Close, demolish or cease public ownership of certain bridges of very low or single property usage.	Replace bridge components  Replace whole bridge
Roadside Drainage	Forestry & Land Use Needs & Expectations Climate, Topography & Geology Safety	Resilience Safety Accessibility	Allow more surface flooding	Roadside drains routine maintenance  Roadside drains re-shaping

## Part 3 – Land Transport Activity

Programme of Work - OM&R	Problem Statement	Customer Level of Service	Alternatives (non asset solution)	Options (renewal treatment types)
Minor improvements to improve driving visibility and road safety by drivers	Forestry & Land Use Needs & Expectations Safety	Resilience Safety Accessibility	Increase warning signage	Vegetation clearing Bank cutting road re-alignment to improve visibility
Footpaths Maintenance and Renewal	Needs & Expectations Safety	Accessibility Amenity	Reduce the length or width of footpaths.	Unformed, aggregate, asphaltic concrete or concrete footpaths
Traffic Services	Needs & Expectations Safety	Safety Accessibility	Reduce quantity of lighting, signage and roadmarking.	Reduce service levels for lighting, signage and roadmarking.

### 5.5.2 Core and Enhanced Programme

- The recent 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. Council concurs with this finding and has based this AMP around funding to the level of need and response to the Problem Statements.
- The Audit recommended that Council apply for the 2023/24 Financial Assistance rate for local roads be applied from 2018/19 to allow Council to carry out the work required while still being affordable to rate payers.
- Therefore, the two options considered for the AMP were a Core Programme and an Enhanced Programme.
- The Core programme is based on affordability if the Financial Assistance rate is left unchanged. The Strategic response to Problem statements would be the focus of investment but Council would only be able to address them in a limited way.
- The Enhanced Programme is based on need to meet the existing levels of service, address safety concerns and respond to the Problem Statements.

Table 12 - Core Programme

Asset	How Outcomes will be delivered	Level of Investment	Risk Impact	ONRC Customer Level of service Impacts
<b>O&amp;M</b>				
Pavement	<p><b>Maintenance:</b> Programme inputs same as previous three year average expenditure.</p> <p><b>Renewals:</b> Pavement renewals would be targeted at forestry haul routes. Construction: Low cost low risk budget will focus on minor safety improvements and improvements pavement renewals on local roads.</p>	<p>Maint: Decrease Renewal: Increase Construction: Increase for SPR, Decrease for LR</p>	<p>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)</p>	<ul style="list-style-type: none"> <li>• Higher roughness</li> <li>• Decreasing safety</li> <li>• Reliability and resilience may be impacted</li> </ul>

## Part 3 – Land Transport Activity

Asset	How Outcomes will be delivered	Level of Investment	Risk Impact	ONRC Customer Level of service Impacts
	Surface and safety improvements for SPR.			
Structures	Maintenance: Similar to existing. Maintain assets. Renewals increased but not to level required Construction: 5 bridges in Low cost Low risk	Maint: Similar Renewal: Increase Construction: Increase	Structures will deteriorate, increasing weight restricted bridge numbers (Problem Statement 1 & 2)	<ul style="list-style-type: none"> <li>Decreasing safety</li> <li>Limiting access to network (weight restrictions)</li> <li>Reduced reliability and resilience</li> </ul>
Drainage	Maintain existing network.	Similar	No improvements made to existing conditions.	<ul style="list-style-type: none"> <li>Reduction in reliability and resilience in emergency events</li> <li>Reduction in amenity as pavements affected by water</li> </ul>
Traffic Services	Maintain existing network	Similar	No improvements made to existing conditions.	<ul style="list-style-type: none"> <li>Current amenity and safety LOS are maintained</li> </ul>
Footpaths	Maintain existing network	Similar	Low	<ul style="list-style-type: none"> <li>Current amenity and safety LOS are maintained</li> </ul>
Cycleways	Maintain existing network	Increase	Low	<ul style="list-style-type: none"> <li>Current accessibility and safety LOS are maintained</li> </ul>
Facility Roads & Carparks	Maintain existing network	Similar	Low	<ul style="list-style-type: none"> <li>Current amenity and safety LOS are maintained</li> </ul>
Environmental Services and Emergency Works	Council emergency works provisions reduced below 5 year average to allow focus on maintenance and renewals. Increase in environmental for sightline maintenance. Minor events reduced	Decrease in Emergency works and Minor events; Increase in Environmental	If events occur that exceed the budget set aside, Council will have to lower maintenance and renewal expenditure to balance local share	<ul style="list-style-type: none"> <li>Decreasing safety</li> <li>Reduction in reliability and resilience in emergency events</li> </ul>
Asset Management Practices	Maintain existing network	Similar	No improvements to existing data collection methods	<ul style="list-style-type: none"> <li>No improvement to network information</li> </ul>

Note: Level of Investment is comparing 15/18 Average with 18/21 Average

# Part 3 – Land Transport Activity

Table 13 - Enhanced Programme

Asset	How Outcomes will be delivered	Level of Investment	Risk Impact	ONRC Customer Level of service Impacts
<b>O&amp;M</b>				•
Pavement	<p><b>Maintenance:</b> Programme inputs same as previous three year average expenditure.</p> <p><b>Renewals:</b> Pavement rehabilitations would be targeted at forestry haul routes. Reseals would increase to address backlog.</p> <p><b>Construction:</b> Increase in Low cost low risk budget will focus on minor safety improvements on forestry routes and improvements pavement renewals on local roads. Surface and safety improvements for SPR.</p>	<p>Maint: Decrease</p> <p>Renewal: Increase</p> <p>Construction: Increase</p>	<p>Ability to address pavement failures, increasing safety for users. (Problem Statement 4)</p> <p>Ability to keep up pavement renewal required within existing budget on forestry haul routes. (Problem Statement 1)</p> <p>Other pavements in need of renewal are not delayed, reducing reactive maintenance costs (Problem Statement 1)</p>	<ul style="list-style-type: none"> <li>• No deterioration of current roughness levels (amenity)</li> <li>• No decrease in safety</li> <li>• Better reliability</li> </ul>
Structures	<p><b>Maintenance:</b> Similar to existing. Maintain assets.</p> <p><b>Renewals</b> increased to level required</p> <p><b>Construction:</b> 5 bridges in Low cost Low risk</p>	<p>Maint: Similar</p> <p>Renewal: Increase</p> <p>Construction: Increase</p>	<p>Ability to address required bridge repairs (Problem Statement 1 &amp; 2)</p>	<ul style="list-style-type: none"> <li>• No decrease in safety</li> <li>• Maintain or improve access to network (weight restrictions)</li> <li>• Maintain and improve reliability and resilience</li> </ul>
Drainage	<p>Establish 8 year water channel cleaning programme to maintain and preserve pavement integrity. Maintain existing network.</p>	Increase	<p>Pavement integrity protected with ongoing programme. Incidences of flooding not increased (Problem Statement 2 &amp; 4)</p>	<ul style="list-style-type: none"> <li>• Improvement in reliability and resilience</li> <li>• No reduction in amenity for pavements affected by water</li> </ul>
Traffic Services	Maintain existing network	Decrease in maintenance; increase in renewals	Network maintained. Increased signage for safe use.	<ul style="list-style-type: none"> <li>• Current amenity and safety LOS are maintained and slightly improved</li> </ul>
Footpaths	Maintain existing network	Similar	Low	<ul style="list-style-type: none"> <li>• Current amenity and safety LOS are maintained</li> </ul>
Cycleways	Maintain existing network	Increase	Low	<ul style="list-style-type: none"> <li>• Current accessibility and safety LOS are maintained</li> </ul>
Facility Roads & Carparks	Maintain existing network	Similar	Low	<ul style="list-style-type: none"> <li>• Current amenity and safety LOS are maintained</li> </ul>

## Part 3 – Land Transport Activity

Asset	How Outcomes will be delivered	Level of Investment	Risk Impact	ONRC Customer Level of service Impacts
Environmental Services and Emergency Works	Council emergency works provisions budgeted at 5 year average. Increase in environmental for sightline maintenance. Minor events at similar level to existing	Increase in Minor Events and Environmental	If events occur that exceed the budget set aside, Council will have to lower maintenance and renewal expenditure to balance local share	<ul style="list-style-type: none"> <li>Decreasing safety</li> <li>Reduction in reliability and resilience in emergency events</li> </ul>
Asset Management Practices	Maintain existing network. Focus on asset data to address Audit recommendation	Increase	Improvements to existing data collection	<ul style="list-style-type: none"> <li>Improvement to network information and planning</li> </ul>

Note: Level of Investment is comparing 15/18 Average with 18/21 Average

### 5.6 Programme Assessment

#### 5.6.1 Draft Investment Assessment Framework (IAF)

- (a) Analysis supporting why the programme was selected is provided below, and includes sensitivity analysis, benefit cost ratio and life cycle analysis, as well as a summary of the assessment profile using NZTA's Investment Assessment Framework.
- (b) The latest IAF is used by NZTA to give effect to the Government Policy Statement by prioritizing proposals from Approved Organisations for the 2018-21 National Land Transport Programme.
- (c) The latest IAF gives greater importance in prioritizing and allocating funding to AOs whose proposals demonstrate BCA and are in terms of value-for-money, 'Results Alignment' to GPS priorities and Cost-Benefit appraisals.
- (d) Best-value has been defined as:
  - (i) Selecting the right things to do (results alignment)
  - (ii) Implementing them in the right way (business case approach)
  - (iii) Implementing them at the right time and for the right cost (cost-benefit appraisals)

#### 5.6.2 Results Alignment to Draft GPS and Draft IAF Priorities

- (a) Evidence-based, risk-based analysis supporting why the programme was selected included the following:
  - (i) Best value solutions to address the specific key problems and demands identified
  - (ii) Comparison of network condition trends with past expenditure levels
  - (iii) Benefit cost ratio (BCR),
  - (iv) Life cycle analyses including consideration of annual depreciation of asset
  - (v) Effectiveness of historical programmes and expenditures
  - (vi) Alignment to the priorities of the ONRC road categories, Community Outcomes, IAF and GPS
  - (vii) Considerations of the costs, benefits and risks of alternatives and options
- (b) The proposed programme also aligns with NZTA's IAF and GPS because it shows:
  - (i) **value for money** by targeting the right work in the right places at the right time to achieve least long-term costs;
  - (ii) **a consideration of supporting regional economy** by catering for heavy haulage and commercial traffic; and
  - (iii) **a priority for safety** by addressing tree hazards, pavement damage by logging trucks and other road and bridge safety improvements.
- (c) This Land Transport AMP 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 change includes the benefits of addressing the problems and the consequences of not.

## Part 3 – Land Transport Activity

- (d) There is a strong relationship between the AMP and the National and Regional Land Transport Strategies, and with other Council planning documents. This AMP is a tactical plan which provide the link between community outcomes and work programmes.

### 5.7 Recommended Programme of Works

- 5.7.1 Council has identified the Enhanced Programme as the preferred option and has been used in the document. The program for 2018/19 is shown below, 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:

Table 14 – Recommended Programme of Works

Programme of Work	Previous Programme Estimate Cost Per Year \$	2018/19 Recommended Programme Estimate Cost Per Year \$	Difference Proposed	Programme Alignment
<b>O&amp;M</b>	<b>\$8,417,841</b>	<b>\$8,653,604</b>	<b>\$235,763</b>	<b>3% Increase</b>
Pavements	\$1,794,317	\$1,675,743	-\$118,574	Maintaining levels of service; prioritisation of heavy maintenance on forest plantation haul roads.
Structures	\$115,989	\$133,567	\$17,578	Maintaining levels of service (structures on Special Purpose Roads); efficient and safe structures.
Drainage	\$518,782	\$614,842	\$96,060	Increasing levels of service (as well as drainage on Special Purpose Roads); sustained efficiency.
Traffic services	\$936,812	\$925,642	-\$11,170	Maintaining levels of service.
Footpaths	\$141,569	\$132,587	-\$8,982	Maintaining levels of service.
Cycleway	\$26,973	\$51,500	\$24,527	Maintaining levels of service.
Facility Roads and Carparks	\$12,025	\$10,299	-\$1,726	Maintaining levels of service.
Environmental Services and Emergency Works	\$4,182,148	\$4,246,712	\$64,563	Maintaining levels of service.
Asset Management Practices	\$689,225	\$862,713	\$173,488	Implement Asset Management improvements.
<b>Renewal</b>	<b>\$5,758,520</b>	<b>\$8,828,485</b>	<b>\$3,069,965</b>	<b>53% Increase</b>
Pavements	\$4,365,795	\$6,147,685	\$1,781,890	Increased Renewals Works on forest plantation haul roads and to target reseal backlog.
Structures	\$589,817	\$1,656,174	\$1,066,357	Efficient and safe structures, prioritising renewal of structures. Bridges reaching the end of its life (total replacement or replacement of significant parts of the

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Programme of Work	Previous Programme Estimate Cost Per Year \$	2018/19 Recommended Programme Estimate Cost Per Year \$	Difference Proposed	Programme Alignment
				structure). These works also accommodate the increase in size of trucks.
Drainage	\$344,521	\$405,719	\$61,199	Maintaining levels of service.
Traffic Services	\$273,133	\$395,370	\$122,237	Maintaining levels of service. Improvement in signage for safety
Footpaths	\$167,941	\$192,899	\$24,958	Maintaining levels of service.
Bus shelters	\$4,725	\$11,348	\$6,623	Maintaining levels of service.
Facility and Carparks	\$12,589	\$19,290	\$6,701	Maintaining levels of service.
<b>Development Works</b>	<b>\$1,626,891</b>	<b>\$2,441,863</b>	<b>\$814,972</b>	<b>50% Increase</b>
Pavements	\$1,013,862	\$1,872,397	\$858,535	Increased Capital Development Works on forest plantation haul routes.
Structures	\$258,573	\$292,266	\$33,693	Maintaining levels of service.
Traffic Services	\$36,696	\$127,309	\$90,614	Maintaining levels of service.
Drainage	\$120,255	\$116,985	-\$3,270	Maintaining levels of service.
Footpaths	\$28,616	\$29,501	\$885	Maintaining levels of service.
Facility Roads and Carparks	\$168,888	\$3,404	-\$165,484	Maintaining levels of service.
<b>TOTAL</b>	<b>\$15,803,252</b>	<b>\$19,923,952</b>	<b>\$4,120,700</b>	<b>26% Overall Increase</b>

### 5.7.2 2015/16 to 2017/18 Actual Achieved Average

- (a) Our 2015-18 actual achieved average programme of \$15.8M invests:
  - (i) \$8.4M in Operations and Maintenance (O&M) of roads, drainage and safety related works
  - (ii) \$5.8M in Renewals of roads, drainage and safety related works
  - (iii) \$1.6M in Development works
- (b) However, the clear evidence in our Strategic Case and Programme Business Case demonstrates that we also need more funds to meet these particular issues and problems.
- (c) The evidence shows that even with the current investment levels, there is an increasing damage, worsening condition and higher repair costs to roads especially on haulage routes; and what is worse is that forest harvesting and heavy traffic counts are projected to increase further over the next 10 years.
- (d) The previous budget allocations and activities will not fully cater to these new demands. We need to re-focus and increase our investment if we are to have sustained roading network over the long term.



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## 5.7.3 Programme Alignment to Problems

- (a) The District believes that the problems require the following programme responses:

Table 15 – Programme Response

Problem Statement	Programme Response
Forestry and Land Use	Re-direct pavement renewals to routes of current and known logging routes.
Needs and expectation of road users to maintain and improve the road network	Maintenance of levels of service in difficult conditions Status quo, re-allocate to improve form and function of road pavements and facilities.
Climate, Topography and Geology impacts	Council responses to climate, topography and geology impacts with the emergency works budget, response within the maintenance contract and in capacity when replacing bridges and culverts.
Safety risks due to changing use and conditions	Further capital improvement works address safety issues on routes with increasing tourists and commercial traffic.

- (b) The above programme responses have been quantified and developed into a proposed programme of works going forward for 2018/19 to 2020/21 as shown below.

## 5.7.4 Proposed 2018/21 Programme

- (a) We re-focused and increased the 2015-18 actual achieved programme of works to a new proposed 2019-21 programme to align and address the problems facing the District.
- (b) We recommend a necessary re-allocation and increase to our core annual programme by \$4.1M (26%) to \$19.9M, made up of:
- (i) \$8.7M Operations and Maintenance of roads, drainage and safety related works (an increase of \$0.2)
  - (ii) \$8.8M Renewals of roads, drainage and safety related works (an increase of \$3.1M)
  - (iii) \$2.4M in Capital development works (an increase of \$0.8M)
- (c) The breakdown details and alignment to the problem statements are as follows (showing annual 3-year average programme budgets).
- (d) The values are uninflated to base year 2017/18.
- (e) The proposed ongoing programme of work after 2021 is shown more detail in the Financial Summary Section 28 of the AMP.
- (f) Our programme also aligns with NZTA's Investment Assessment Framework (IAF) and the Government Policy Statement (GPS) because it shows:
- (i) **value for money** by targeting the right work in the right places at the right time to achieve least long-term costs;
  - (ii) **a consideration of supporting regional economy** by catering for heavy haulage and commercial traffic; and
  - (iii) **a priority for safety** by addressing tree hazards, pavement damage by logging trucks and other road and bridge safety improvements.
- (g) This Land Transport AMP 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 change includes the benefits of addressing the problems and the consequences of not.

## 5.7.5 Programme Risk

- (a) Risks associated with the Recommended Programme are identified in Section 15 Managing Risk and Appendix D.

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## Part 3 – Land Transport Activity

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<b>5.7.6 Programme Financial Case</b>
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- (a) The funding and affordability of the Recommended Programme is discussed in the Financial Summary Section 28 Financial Summary, indicating any agreements or understanding in place with commissioning bodies and/or any affordability gaps.
- (b) The proposed programme is fiscally responsible and includes evidence-based, risk-based supporting analyses, included the following:
  - (iv) Best value solutions to address the specific key problems and demands identified
  - (v) Comparison of network condition trends with past expenditure levels
  - (vi) Benefit cost ratio (BCR),
  - (vii) Life cycle analyses including consideration of annual depreciation of asset
  - (viii) Effectiveness of historical programmes and expenditures
  - (ix) Alignment to the priorities of the ONRC road categories, Community Outcomes, IAF and GPS
  - (x) Considerations of the costs, benefits and risks of alternatives and options
- (c) The proposed programme also aligns with NZTA's Investment Assessment Framework (IAF) and the Government Policy Statement (GPS) because it shows value for money by targeting the right work in the right places at the right time to achieve least long-term costs. This includes the optimum balance of maintenance and renewals for each asset type.

# Part 3 – Land Transport Activity

## 6 Delivering the Programme

### 6.1 Programme Governance, Monitoring and Reporting

- (a) The District maintains ownership and responsibility for managing the land transport activity, the associated infrastructure and the delivery of the total programme of works. Council has engaged a dedicated team of Network Consultants to provide specific expertise, to provide strategic, tactical and operational inputs and resources, to manage physical works contracts and to assist in the programme development and delivery as required.
- (b) Physical works contracts are let for the various aspects of roading maintenance.
- (c) Refer to Service Delivery Section 16.10 Service Delivery of this AMP for further details on programme governance, monitoring and reporting.

### 6.2 Procurement Capability and Smart Buyer Assessment

- (a) Council has assessed itself against the Smart Buyer guidelines of the Road Efficiency Group and is in the range “Our organisation has embraced Smart Buyer principles as still has some areas where it can improve”. Council employs best appropriate practice procurement, contracting, network management practices that comply and NZTA Procurement Manual requirements.

Figure 23 – Smart Buyer Assessment

Ruapehu District Council - Assessment statement Our Organisation	Score				
	1	2	3	4	5
1. Fully understands the different contracting models available. <i>RDC contracting strategy and consideration of maintenance contract options, use of Network Consultant.</i>					x
2. Holds meetings that updates the contracting industry on the forward works programme and any changes it is taking in approach and proactively engages with the contracting industry to ensure that gains optimal value out of any changes being implemented. <i>RDC with Network Consultant closer working relationships with contractors</i>				x	
3. Has sufficient robust data (or is in the process of gathering robust data) on our networks that enables optimal integrated decision-making. <i>RDC good data but could improve (see NZTA audit)</i>			x		
4. Has access to expertise that fully enables best use of the data available. <i>RDC good skills in analysing data to useful information and knowledge, and applying that.</i>				x	
5. Is open to alternative solutions to those proposed in the contract documents. <i>RDC contracting has performance and outputs to encourage alternative best value solutions.</i>				x	
6. Understands risk and how to allocate and manage it. <i>RDC PESTLE risk assessment and responsive culture to hazards and call centre requests. High focus on public safety.</i>				x	
7. Has a Council that is prepared to pay more now to achieve a lower whole of life cost. <i>RDC constant assessment of long-term value in contracts and works programmes</i>				x	
8. Actively pursues value for money & does not always award contracts to the lowest price. <i>RDC focus on contract specs, commercial drivers and performance criteria.</i>				x	
9. Is able to manage supplier relationships / contracts to ensure that expenditure is optimal and sustains infrastructural assets at appropriate levels of service. <i>RDC with Network Consultant closer working relationships with contractors and focus on long-term value</i>					x
10. Supports ongoing skill and competency training and development for its staff. <i>RDC staff attendance at courses, conferences and industry forum and training sessions</i>				x	
11. Actively participates in gatherings to share and gain knowledge within the sector. <i>RDC staff attendance at courses, conferences and industry forum and training sessions</i>				x	
12. Is effective in keeping up with best practice in procurement including best practice RFP / contract documentation. <i>RDC 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>RDC with Network Consultant closer working relationships with contractors</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>RDC with contracting strategy and Network Consultant closer working relationships with contractors. Joint tendering with neighbouring councils not a preferred option at this time.</i>				x	
Number of ticks in each column			1	10	3
Multiplying factor	x1	x2	x3	x4	x5
Total Score in Column			3	40	15
<b>Total Score</b>	<b>58 out of 70 (83%)</b>				
<b>Interpretation:</b> Our organisation has embraced Smart Buyer principles as still has some areas where it can improve					

- (b) Road Maintenance Contract Procurements 2014
  - (i) Council’s road maintenance contracts expired in June 2014 at the end of a one year extension to the original five year agreement.

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## Part 3 – Land Transport Activity

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- (ii) Key observations from previous procurements were:
- Establishment costs – a single master contractor needs to establish and manage a team of 30-35 people together with plant and infrastructure to support them. RDC sought to understand contact mobilisation costs through the pricing process to help ensure long term cost reductions are not lost through amortised mobilisation costs for a new contractor.
  - Cartage costs – the previous contract required rates that included cartage which meant that the contractors had to take a long term view as to where works would be required. This transfer of risk means that the contractor will either do well or badly depending on how accurate their forecast was. RDC would also do equally as badly or well in terms of the price paid and may get better long term value for money by de-risking the cartage and plant positioning element of any work through transparent per km unit rates.
  - Scale and capability – the master network contract is too small to sustain a high level of capability in all services. It also meant there was insufficient capacity which resulted in scheduled work being affected by response work (which is not unusual for smaller district councils). Disaggregating work into a number of smaller contracts should result in increased depth of capability and capacity but will require more coordination and supplier management from the RDC transport and professional services teams
  - The previous contract had one tenderer. There had been no significant changes in the supply market during the time since in terms of number and quality of suppliers. There have been minor changes in ownership and the performance of some suppliers but overall capability and capacity remains stable.
- (ii) Following a review of contract performance and outcomes, Council determined there could be greater value in restructuring the scope of the contracts to better reflect the regional capability and capacity of the various suppliers. The factors that influenced this review were:
- Capital Programme variability – the annual programme of capital works varies in terms of requirements and location. It's important to be able to utilise contractors whose capabilities match needs in terms of both skill set and location; e.g. reseals and bridge repairs require different competencies and cartage costs have a significant bearing on delivery of reseals and pavement rehabilitations across the district.
  - Regional niche suppliers – street lighting, road marking, aggregate supply and traffic management are all supported by regional and local suppliers who have developed capability in this area. This suggests there is value in either a regional approach to contracts to better match benefits of scale with capability (such as for road marking and street lighting) or a supply chain consolidation approach such as for quarried material.
  - Council's awareness of studies such as the 2012 NZTA Road Maintenance Task Force that suggested bundling services into large contracts yield value for clients, however this has not been RDC's experience. RDC's network dynamics, local and regional supply market and seasonal demand together with a review of supplier's performance have shown that there is no single contractor in the District capable of delivering all services to the required standard.
- (iii) All of the above led to Council considering procurement options for service delivery:
- Contract unbundling – breaking the contract into smaller packages
  - Staged procurement – utilising quality based short listing prior to a priced tender
  - Programme Procurement - procuring capital works and some scheduled maintenance on an annual or seasonal basis
  - Nominated sub-contracting and materials provision – RDC influencing or directing the master contractors supply chain
  - Performance incentives – only awarding seasonal or capital programme work to contractors that perform well
  - Direct negotiation – direct appointment of contractors who effectively have a local monopoly by being the only qualifying supplier RDC is aware of studies such as the 2012 NZTA Road Maintenance Task Force that suggest bundling services into large contracts yield value for clients, however this has not been RDC's experience. RDC's network dynamics, local and regional supply market and seasonal demand together with a review of supplier's performance have shown that there is no single contractor in the District capable of delivering all services to the required standard. This has led to RDC's decision to review and repackage its contracts.

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## Part 3 – Land Transport Activity

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- (iv) Following consideration of the above and discussions with suppliers, Council. opted to unbundle its maintenance activities in an attempt to stimulate the local economy by offering smaller parcels of work to the supplier market. In addition, the term of contracts was expanded to improve efficient plant and equipment consumption.
- (v) While the procurement process was complex, the market response was outstanding and Council has achieved a significant outcome for its community, with a range of tenders being received.
- (vi) The current contract delivery model is shown below.

Table 16: Impacts and risks of ONRC to Council

Contract	Contractor	Contract Period	Contract End Date
1730	Professional Services for Land Transport	4 + 1 + 1 + 1 + 1	June 2019
1667	Street lighting maintenance	2yrs 10 mths + 3	June 2019
1742	Ohakune Mountain Rd Traffic Management	3yrs	May 2018
1720	General & Sealed Pavement Maintenance	4 yrs 9 mths + 3 yrs	June 2019
1721	Unsealed Pavement Maintenance, Heavy Maintenance & Improvements & Pavement Rehabilitation	4 yrs 9 mths + 3 yrs 2 yrs 9 mths + 2 yrs +3 yrs (Pavement Rehabilitation)	June 2019
1722	District Reseals	2 yrs 9 mths + 2 yrs +3 yrs	June 2019
1723	Capital Bridge Repairs	4 yrs 9 mths + 3 yrs	June 2019
1724	Vegetation Control	4 yrs 9 mths + 3 yrs	June 2019
1725	Roadside Plant Pest Control	4 yrs 9 mths + 3 yrs	June 2019
1726-28	Aggregate Supply Contracts	Annual Quote	

### 6.3 Programme Improvement Plan

- (a) The District Council concurs with the findings of the NZTA investment audit report Feb/March 2017 – we need to “focus on improving RAMM data quality/completeness, which will provide improved information to Council and greater transparency to the Transport Agency.
- (b) Council is currently and has committed additional resources to improving the quality and completeness of its data in RAMM.

# Part 3 – Land Transport Activity

## 7 Planning Context

### 7.1 One Network Road Classification (ONRC)

#### 7.1.1 Ruapehu District Council's Response to ONRC Requirements

- (a) Ruapehu District Council is committed to spending only what it needs to; to make good investment decisions to sustain the transport network in the long term; by targeting the right treatments, to the right places, at the right times and for the right costs.

#### 7.1.2 One Network Road Classification

- (a) NZ Transport Agency and Local Government NZ formed a joint Road Efficiency Group and developed the One Network Road Classification regime.
- (b) The Classifications are used to categorise the roads around New Zealand based on volume and type of traffic and connection to important points.
- (c) The classifications will be used to compare roads throughout New Zealand, both local and State Highway, to achieve national consistency in the level of service provided. This helps to direct investment.
- (d) Council has implemented the classifications.

#### 7.1.3 Impacts and risks of ONRC to Council

- (a) The likely impacts and risks of ONRC to Council, and Council's response are summarised as follows:

Table 17: Impacts and risks of ONRC to Council

Impact or risk of ONRC to Council	RDC Response
Implementation of the ONRC requires the development of associated customer-focused levels of service and performance measures and targets. The One Network Road Classification (ONRC) implementation programme will potentially impact on the number, type, and performance targets associated with the Ruapehu District LOS.	Once targets are set in the future, Council will identify any item coverage gaps between the ONRC performance measures and Council's current LoS framework. Council will then populate ONRC performance measures with Council's own results or targets. Council will develop proposed new customer and technical LoS statements that are appropriate to Council customers and that are compliant and consistent with ONRC requirements. Council will also develop and implement performance monitoring programmes to enable reporting against ONRC performance targets.
The accumulated effects of road re-classifications may affect the expected LoS and funding for the road network, depending on how Council sits against it's peers in benchmarking reporting or against any performance targets set as a result. Levels of service standards or performance targets are likely to decrease for some roads. Road users may object to reduced service level standards or performance targets on roads re-classified to a lower classification.	Council will assess the likely impacts or risks of new road classifications, new LoS ONRC targets and likely funding implications. Council will consult as timely as possible with key stakeholders accordingly to manage expectations and inform them of risks and consequences of likely and possible reduced service levels and other impacts.

### 7.2 Relationship with Other Planning Documents

- 7.2.1 AMPs are a key component of the strategic planning and management of Council with strong links to other Council strategies and policies, external agency strategies and policies, and to legislation and other regulatory instruments.
- 7.2.2 There is a strong relationship between the Land Transport Asset Management Plan and the National and Regional Land Transport Strategies, and with other Council planning documents.

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7.2.3 Legislative requirements, policies and standards driving these planning processes and documents are discussed in *“Who are we? The Ruapehu Context for Asset Management”*.

7.2.4 AMPs are tactical plans which provide the link between community outcomes and work programmes.

7.2.5 The key planning documents linked with the AMP are discussed below in Table 18.

**Table 18 Key Planning Documents**

Document	Summary	Frequency
National Context		
Government Policy Statement on Land Transport	The Government Policy Statement on Land Transport sets out the government’s priorities for expenditure from the National Land Transport Fund. The GPS is the primary document for land transport decision makers. It is released every 3 years and provides a 10 year policy view. It is a guiding tool for the NZ Transport Agency to make funding decisions. The Draft GPS 2018 was first released in February 2017, then, with the election change, a new Draft GPS was released in March 2018. It is expected to be finalised for 30 June 2018.	Three Yearly
Draft Transport Agency Investment Proposal	The purpose of this Draft Transport Agency Investment Proposal (the TAIP) is to set out the 10-year programme of activities that the Transport Agency proposes for inclusion in the 2018-27 National Land Transport Programme (the NLTP), to give effect to the 2018-27 Government Policy Statement on Land Transport (the GPS). The activities in the TAIP will support the locally-led activities that councils also put forward for inclusion in the NLTP	
One Network Road Classification Guidelines 2014	Also refer to section 4.2.3. The NZ Transport Agency (NZTA) and Local Government NZ have formed a joint Road Efficiency Group (REG) to develop the One Network Road Classification (ONRC) regime. This aligns to the Draft GPS 2018 to drive efficiency and better value in the delivery of road services.	Implemented 2014/15 and reviewed every three years
One Network Road Classification Performance Measures 2016	This document sets out the ONRC Performance Measures	
National Land Transport Programme	The National Land Transport Programme (NLTP) is a statutory document prepared under the Land Transport Management Act 2003. The primary purpose of this document sets out those activities identified from the RLTPs that NZTA plans to fund over the next 3 years. It also contains a 10 years financial forecast.	Every Three years
Draft NZTA Investment Assessment Framework (IAF)	Council’s road funding is aligned with the NLTP priorities and criteria.	Three Yearly
Safer Journeys	Safer Journeys is the government's strategy to guide improvements in road safety over the period 2010 to 2020. The strategy's vision is a safe road system increasingly free of death and serious injury and introduces the Safe System approach to New Zealand.  The Safe System recognises that people make mistakes and are vulnerable in a crash. It reduces the price paid for a mistake so crashes don't result in loss of life or limb. Mistakes are inevitable - deaths and serious injuries from road crashes are not.  RDC gives effect to the Strategy with its road design and engineering standards.	Three Yearly Action Plan
National Infrastructure Plan	The National Infrastructure Plan (NIP) was released in July 2011. The NIP outlines the government’s 20 year vision for New Zealand’s infrastructure. The NIP outlines the government’s vision for New Zealand’s infrastructure and the role infrastructure will play in supporting our economic growth. The overall purpose is to improve investment certainty for businesses by giving confidence over current and future infrastructure provision.  RDCs transport expenditure is aligned with the high level documents above.	Three yearly work programmes
The Governments Business Growth	This report sets out four strategic priorities to drive Government Policy agenda for three years; finances, economy, public services and Christchurch. Infrastructure has been identified as one of the points under Economy.	Three Yearly

## Part 3 – Land Transport Activity

Document	Summary	Frequency
Agenda Document	Regional infrastructure projects are identified as being one of the key items for infrastructure.	
Regional Context		
Horizon Regional Land Transport Plan 2015-2025	The Regional Land Transport Plan (RLTP) sets out the strategic direction for the Region's land transport system and identifies proposed land transport activities for investment by local and central government over the next 6 years. Its scope includes policy and activities relating to our roading maintenance and improvements, public transport services and infrastructure, walking and cycling, road safety and transport planning across the Region.	Three Yearly
Horizons One Plan	The One Plan can be described as a “one-stop-shop” regional planning document that defines how the natural and physical resources of the Region (including fresh air, clean water, productive land and natural ecosystems) will be cared for and managed by the Regional Council in partnership with territorial authorities and the community. The four keystone issues identified in the Plan are Surface water quality degradation, Increasing Water Demand, Unsustainable Hill Country Land Use and Threatened Indigenous Biological Diversity. The One Plan became operative in its entirety on 10 Dec 2014. Council is required to take account of the One Plan when carrying out maintenance, renewal and capital work in the Transport programme.	Ten Yearly
Accelerate 25 Regional Growth	Identifies a number of key enablers and opportunities to help realise economic potential in the Manawatu-Whanganui region. Transport is an enabler.	
Local Context		
Long-Term Plan (LTP)	The LTP 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).	The LTP is updated every three years and is due for review in 2018.
Annual Plan	The works identified in the AMP should automatically become the basis on which future Long Term and Annual plans are prepared.	Produced in the intervening years between LTPs
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.	Ten Yearly
Land Transport Asset Management Plan	This document outlines the current context of the Land transport operations, including growth and demand factors, risk, levels of service and lifecycle planning to meet these factors.	3 yearly – Financials updated every year
Safety Management System (SMS)	It is the fundamental means of achieving the vision of a greater degree of consistency in how the national road environment appears to road users.	5 years
Road Safety Action Plan (RSAP)	The road safety action plan is an annually agreed list of priority actions targeting identified road safety risks on Ruapehu Roads. The RSAP Committee consists of RDC, NZ Police, ACC and NZTA representatives. Issues are based on NZTA Issues reports and “Communities at Risk” Register. These matters are also coordinated with National Transport Safety Campaigns reflecting local conditions.	Annual

7.2.6 Key ONRC and BCA Reference Documents that have been used in the AMP development are:

- Applying the One Network Road Classification: Guidelines, Road Efficiency Group July 2014
- One Network Road Classification: ONRC Provisional Performance Measures, Road Efficiency Group August 2014
- Fit for Purpose Customer Levels of Service (CLoS) Outcomes (Provisional), REG 2014
- Using Transport Investment Online, NZTA, September 2014
- Investment Assessment Framework, NZTA, July 2017



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## Part 3 – Land Transport Activity

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- (f) How the NZ Transport Agency Optimises the NLTP, NZTA, September 2014
- (g) Activity Management Planning and One Network Road Classification, NZTA, September 2014
- (h) AMP Business Case Development Guide v8 Draft 8 March 2016 (still draft)
- (i) Point-of-Entry-Assessment-Form-June-2016
- (j) Strategic-case-report-guidance-June-2016
- (k) Programme Business Case Report Guidance June 2016
- (l) GPS 2015, draft GPS 2018 (February 2017), and Draft GPS (March 2018)
- (m) Draft Transport Agency Investment Proposal
- (n) NZTA - Future State Investment Decision Making System, draft Feb 2017
- (o) NZTA - TIO changes and BCA assessment, draft Feb 2017
- (p) REG Smart Buyer Principles Organisation self-assessment RTU NZTA
- (q) Supporting Information Evidence for NLTP 2018-21, April 2017
- (r) Investment Decision Making - Assessment of the Business Case, April 2017
- (s) Assessment of the Business Case for Maintenance Continuous Programmes, May 2017
- (t) Investment Logic Map – Programme – Template (Problems)
- (u) Benefits Map – Template – Example
- (v) Workshop 5 – Customer Levels of Service (CLoS) Outcome Measures, and Communication and Engaging with Stakeholders
- (w) Workshop 6 – How Customer Levels of Service & (CLoS) & Performance Measures are Effectively Used in the BCA AMP, and Communicating and Engaging with Stakeholders (applying it to BCA AMPS)
- (x) Workshop 7 – Strategic Case and Business Case
- (y) Workshop 8 – Programme Business Case Development & GPS Transport Linkages
- (z) Workshop 9 – Dragons Den
- (aa) Draft Investment Assessment Framework, 16 April 2018

# Part 3 – Land Transport Activity

## 8 Assets Which Enable this Activity

### 8.1 Scope of Transport Services

8.1.1 In order to enable the land transport activity, Council owns and manages:

- A vehicular network, comprising 1,339 km of mainly unsealed roads, 256 bridges and 86 large culverts.
- A pedestrian network, comprising 69 km of footpaths.
- Enabling infrastructure, comprising 1,545 km stormwater channels (mainly shallow stormwater channels and kerb and channels), 142 km of small culverts and 154 km of retaining walls.
- Safety infrastructure comprising of 1,049 streetlights, 398 km of road marking and more than 6,500 road signs and miscellaneous traffic controls.

8.1.2 The Transport assets included in this AMP and their replacement values (as at 30 June 2017) are summarised below.

Table 19: Summary of asset groups, types, replacement cost and annual depreciation

Asset Group	Asset Type	Quantity	Optimised Replacement Cost ORC (\$)	Optimised Depreciated Replacement Cost ODRC (\$)	Annual Depreciation AD (\$)
Pavement	Road Formation	1,339 km	\$89,709,396	\$89,709,396	\$0
	Pavement Layers	1,339 km	\$122,716,353	\$94,952,061	\$904,833
	Road Surface	485 km	\$23,700,372	\$10,129,907	\$1,504,117
Structures	Bridge	255 number	\$85,309,954	\$41,517,393	\$898,056
	Large Culverts	86 number	\$8,694,939	\$3,275,236	\$100,022
	Retaining Walls	4 km	\$5,472,604	\$4,839,467	\$72,367
	Minor Structures • Pedestrian Footbridge • Bluff Safety Netting	1 number 150 m	\$1,291,208	\$1,046,810	\$35,675
Drainage	Kerb and Channels	1,545 km	\$23,136,758	\$10,417,891	\$289,209
	Small Culverts and Other Assets	142 km	\$32,844,441	\$15,966,927	\$411,024
Traffic Services	Street Lighting	1,049 lights	\$3,761,569	\$1,100,502	155,058
	Road Markings	398 km	\$442,045	\$442,045	\$-
	Road Signs and Other	5,232 number	\$1,058,047	\$372,002	\$105,762
	Crossings	450 number	\$3,290,782	\$578,543	\$43,877
	Islands	31 number	\$292,543	\$152,413	\$3,901
	Railing	15,515 m	\$1,870,710	\$304,855	\$50,394
	Traffic Facility	1,345 number	\$45,471	\$12,082	\$3,102
Footpaths	Footpaths	69 km	\$10,160,104	\$6,134,332	\$188,813
Cycleways	Cycleways	344 km	included above	included above	included above
Bus shelters	Bus shelters	16 number	not valued	not valued	not valued
Facility roads and carparks	Facility roads	44,666 m <sup>2</sup>	included above	included above	included above
	carparks	62 number	included above	included above	included above
<b>Total</b>			<b>\$413,797,295</b>	<b>\$281,062,690</b>	<b>\$4,766,209</b>

\*Note:

- Land Under Roads is valued at \$43M but not included in table above.
- Total ORC including land under roads is \$456,921,756. Also note that pavement shoulders are valued as part of the pavement layers.
- Minor Structures asset group includes two assets – Bluff Safety Netting and OMR Footbridge.

8.1.3 For detailed information of the asset groups refer to the Lifecycle Management sections.

# Part 3 – Land Transport Activity

## 8.2 Pavement

8.2.1 Pavements contribute to the ONRC Customer Levels of Service provided through **Safety** (Safety of the network), **Amenity** (road roughness) and **Accessibility** (the ease with which people are able to reach key destinations).



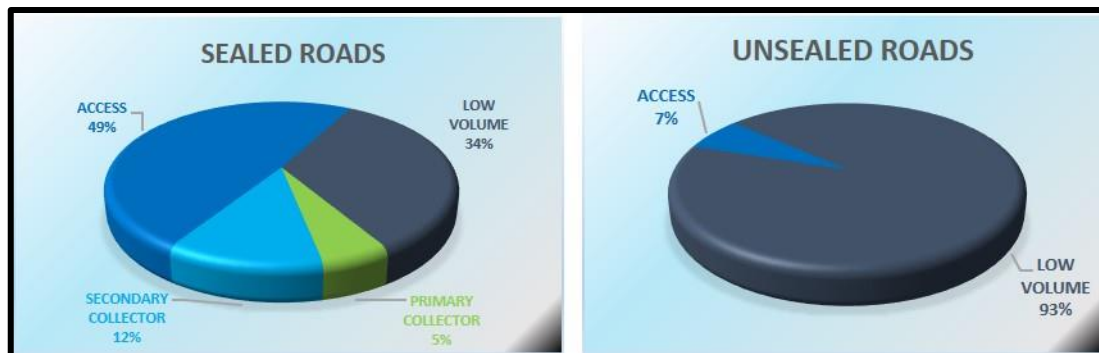
8.2.2 A total road network of 1,339 km of local roads services the District that covers 672 ha, 485 km or 37% is sealed with the remaining 846 km or 64% unsealed.

8.2.3 The average traffic on the District network is comparatively low. Only 15.9% of the network has an Average Annual Daily Traffic (AADT) of 100 or more vehicles per day (vpd).

8.2.4 Pavements are categorised into ONRC Classifications

8.2.5 Figure 24 below shows the road categories for sealed and unsealed roads as of June 2017.

Figure 24 – Road Categories for Sealed and Unsealed Roads



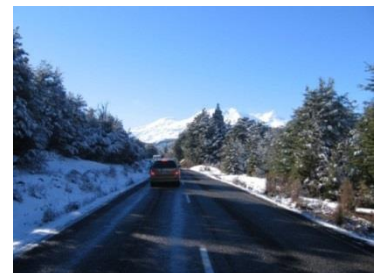
8.2.5 Council operates land under road including unmaintained roads, road edges and paper roads.

8.2.6 The purpose of land under road is:

*“To serve as the corridor for the road network and to accommodate services.”*

8.2.7 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 such as:

- (a) Telecommunications.
- (b) Power.
- (c) Gas.
- (d) Water.
- (e) Wastewater.
- (f) Stormwater.



## 8.3 Structures: Bridges, large culverts and retaining walls

8.3.1 Structures contribute to the **Reliability, Resilience** (whether key alternate routes have suitable structures for all traffic), **Accessibility** and **Safety** of the network.

8.3.2 Council maintains a total of 255 structural bridges, 86 large culverts and 1 pedestrian footbridge.



## Part 3 – Land Transport Activity

8.3.3 Bridges vary from high standard concrete structures to very low standard wooden structures with severe weight and capacity restrictions placed upon them.



8.3.4 Culverts are drainage tunnels/structures under roads. Large culverts are defined as those with a waterway area of greater than or equal to 3.5m<sup>2</sup>. They are treated as bridges.

8.3.5 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 which have become overgrown and are considered to be natural embankments. There are also numerous willow crib walls along river edges supporting the roads which are not measured or actively managed.

### 8.4 Drainage

8.4.1 Drainage is a key component in protecting pavement integrity. A well functioning drainage system contributes to the **accessibility** and **resilience** of the network in weather events and **safety**, to reduce incidents of ponding and flooding.



8.4.2 Drainage managed includes shallow and deep channels, kerb and channel, culverts and catchpits (managed under the stormwater activity). The purpose of drainage is to protect the road edge and substructure from stormwater erosion and divert runoff into the main stormwater system.

8.4.3 Council manages a total of 1,545 km of stormwater kerb and channels.

8.4.4 91% (1,394 km) of the channels are rural channels running alongside roads.

8.4.5 Urban stormwater is managed under the Stormwater and Flood Protection Asset Management Plan.

### 8.5 Traffic Services

8.5.1 Traffic Services contribute to the **reliability**, **amenity** and **accessibility** of the network, through providing wayfinding services and **safety**.



8.5.2 Street Lighting

8.5.3 The purpose of street lighting is:

***“To provide agreed lighting levels in streets for the safe and efficient movement of vehicles, cyclists and pedestrians.”***

8.5.4 Council manages approximately 1,049 council owned streetlights and 267 on behalf of NZTA. 665 of these are mounted on Council’s lighting poles, the remainder are on power poles. Most of the street lighting is in urban areas. Rural lighting is provided in the vicinity of major intersections.

8.5.5 Traffic Services

8.5.6 The purpose of traffic services is:

***“To aid the safe and orderly movement of traffic and indicate road use restrictions.”***



8.5.7 Council manages 5,232 road signs, 1,304 edge marker posts, 391 km of road markings and 3 speed humps.

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## Part 3 – Land Transport Activity

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8.5.8 Traffic services also include pedestrian refuges, crossings and traffic calming islands.

### 8.6 Footpaths

8.6.1 The purpose of footpaths is:

*“To provide an all-weather walkway for work and recreational purposes that is separated from motorised traffic, for the safety and convenience of pedestrians (and associated vehicles).”*



8.6.2 Footpaths contribute to the **safety, amenity** (The level of travel comfort experienced by the road user and the aesthetic aspects of the road environment) and **accessibility** of the network for pedestrians.

8.6.3 Council manages a total of 69 km of footpaths in urban areas, with more than 90% concrete or asphaltic concrete.

8.6.4 Footpath maintenance is managed by a combination of Parks and Reserves and Land Transport. Land Transport is responsible for repairing faults and carrying out renewal and development work, while Parks and Reserves ensure walkways are kept free of vegetation.

### 8.7 Cycleways

8.7.1 The purpose of cycleways is to:

*“provide opportunities for cyclists along the Ruapehu Great Bike Rides tracks.”*



8.7.2 Cycleways contribute to the **safety** of the network (by providing separated paths) and the **accessibility** (the ease with which people are able to reach key destinations).

8.7.3 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.

### 8.8 Bus Shelters

8.8.1 There are 16 bus shelters provided for the benefit of children waiting for school buses - nine of roofing iron or steel construction and three wooden shelters.



8.8.2 The provision of bus shelters services the **amenity** and **accessibility** ONRC customer levels of service.

# Part 3 – Land Transport Activity

## 8.9 Facility Roads and Carparks

8.9.1 Land Transport maintains 42 facility roads and 14 sealed car parking areas for off-street parking as well as a number of gravelled areas providing parking for facilities such as sports clubs.

8.9.2 The sealed parking areas vary from average to excellent condition, largely correlating with age.

8.9.3 Facility roads cover access roads to community facilities.

8.9.4 These roads and carparks provide **safe** access and **accessibility** for key destinations.



## 8.10 Key Issues We Are Managing

8.10.1 The following sections outline the key issues facing the Ruapehu District Land Transports activity.

### 8.10.2 Network Challenges

- (a) Ruapehu is one of the largest districts in New Zealand, yet has a very small with a dispersed population of fewer than two people per square kilometre.
- (b) Some of the challenges faced by the District include:

Table 20 – Network Challenges

Network Challenges	Changing Land Use	Needs & expectations	Climate, Topography & Geology	Safety
<i>Resulting in</i>	<i>Increasing reactive maintenance</i>	<i>Increased investment to maintain &amp; improve form and function</i>	<i>Reactive maintenance cost and increased safety risk</i>	<i>Vulnerable users at greater risk due to increasing and changing activity &amp; environmental conditions</i>
Two thirds of the transport network is unsealed		✓		
Many roads service only one property		✓		
Higher percentage of lower socio-economic residents, which constrains rating funds available.		✓		
Increasing community expectations with regards to sealing road		✓		
Providing better access for heavy vehicles, particularly with the nationwide trend towards larger, heavy trucks	✓	✓		
Enhancing urban centres		✓		
Roads that are windy and narrow creating safety issues		✓		✓
Low volumes of traffic				✓
Rapid development pressures in Ohakune and National Park could make it difficult to meet the communities and Council's best long-term interests within the timeframes desired by the developers.		✓		
Critical road Ohakune Mountain Road is at capacity during peak times during ski season. This can lead to difficulties in finding somewhere to fit chains if required, increases travel times for users, increases maintenance requirements on the road and decreases the life of the pavement		✓		✓

## Part 3 – Land Transport Activity

Network Challenges	Changing Land Use	Needs & expectations	Climate, Topography & Geology	Safety
<i>Resulting in</i>	<i>Increasing reactive maintenance</i>	<i>Increased investment to maintain &amp; improve form and function</i>	<i>Reactive maintenance cost and increased safety risk</i>	<i>Vulnerable users at greater risk due to increasing and changing activity &amp; environmental conditions</i>
Increasing logging traffic increases deterioration and maintenance requirements on the road and bridges, as well as increasing safety risks. We expect an increase in the size of heavy freight vehicles. This will impact on pavement deterioration as well as require a review of route suitability.	✓	✓		✓
Weight Restricted (Posted) and Aged Bridges may need to be upgraded to allow access to stock and forestry trucks. Operators of over-limit vehicles need to either find an alternative route or apply for a special permit to cross restricted bridges. There are 38 bridges restricted from 50 Max and above vehicles.		✓		✓
26 structural and large culvert bridges are nearing the end of their design lives.	✓	✓		✓
Uneconomic bridges on very low volume roads		✓		✓
Bridges not maintained by Council have high risk of failure and harm. Ownership of these bridges is uncertain	✓	✓		✓
Climate change is causing 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 across Council activities.		✓		✓
Limited contractor interest. The infrastructure industry in New Zealand is stretched with an abundance of work and a general shortage of experienced technical personnel, leading to limited contractor interest in provincial tenders and risk of uncompetitive prices		✓		

### 8.10.3 Transport Funding

- (a) Funding for the roading network is provided through rates, NZTA funding, development contributions and other funding sources.
- (b) Roothing Rate
  - (i) 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.
  - (ii) Work that does not qualify for NZTA funding is unsubsidised. This includes maintenance and renewal of footpaths and facility roads and car parks.
- (c) NZTA National Transport Fund
  - (i) The National 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 GPS to Road Controlling and Passenger Transport Authorities, the Police, Rail and Maritime Authorities.

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## Part 3 – Land Transport Activity

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- (ii) In 2017/18, NZTA contributes 66% toward the cost of eligible maintenance, renewals and improvement works on the local road network. This is the Financial Assistance Rate (FAR). The rate is increasing 1% per annum to 72% by 2023/24.
- (iv) Special Purpose Roads are funded at a different FAR rate. Council has one SPR - Ohakune Mountain Road . Ohakune Mountain Road is located in the Tongariro National Park, which is administered by Department of Conservation (DOC). There are no surrounding rate payers. It is currently funded at 100% FAR; however, this will also transition to 72% by 2023/24. The rate of transition is unknown as at December 2017. Funding the local share will have an impact on the rates.
- (v) Emergency works for qualifying events on local roads will be funded at the local road FAR rate until costs within a year above 10% of the organisation's road maintenance programme are incurred, in which case the FAR will be base FAR plus 20%, up to a maximum FAR of 95%. The definition of a qualifying event has been given as 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. Events have to reach a threshold of \$100,000 cost to qualify as emergency works. NZTA is currently working on completing an operational policy.
- (viii) Funding for Kiwirail level crossing warning device maintenance is split evenly between NZTA and Kiwirail currently. As Kiwirail are not an approved organisation, they claim the costs from Council, at base rate funding. Level crossing warning device maintenance is in the order of \$15 – \$20K per annum.
- (ix) Level crossing improvements will be funded at base rates for the 2018/2021 period.
- (x) Council must ensure that any expenditure meets one or more of the objectives of the Land Transport Management Act (LTMA) and GPS. The purpose of the LTMA is to contribute to the aim of achieving an integrated, safe, responsive and sustainable land transport system.
- (xi) Council is required by Schedule 1, Clause 4 of the LTMA to describe in its Regional Land Transport Programme what the objectives are for each project and how it contributes to the purpose of the LTMA. 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.
- (xii) In determining the capital projects to be undertaken, the Benefit Cost Ratio (BCR) is also an important criterion used in prioritising which projects are more worthy than others, with preference being given to projects which can be shown to be economically justified
- (d) Development Contributions: 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. Development contributions are discussed further in Section 28 Financial Summary
- (e) Other sources of funding include financial contributions and User fees.

### 8.11 Potential Negative Effects

- 8.11.1 Schedule 10 of the Local Government Act identifies the information required to be included in the Long Term Plan (LTP) relating to potential negative effects. Part 2 (1) (c) states that a long-term plan must, in relation to each group of activities of the local authority outline any significant negative effects that any activity within the group of activities may have on social, economic, environmental or cultural wellbeing of the local community.
- 8.11.2 This sub-section provides information in accordance with this legislative requirement. During the LTP consultation process, the community identified that a clean, unspoilt, scenic, beautiful, natural environment was a key strength of the community, and rated "an environment which has an excellent quality of water, soil and air" in the top five priority community outcomes.



## Part 3 – Land Transport Activity

- 8.11.3 The land transport activity is a fundamental “building-block” of our community, required to connect communities and allow access to and through our District. The activity has improved the quality of life within the District and led to increased life expectancy.
- 8.11.4 The land transport activity is vital for economic growth and for the District to continue to thrive and prosper. However, there is growing recognition of the potential negative effects resulting from the activity, which need to be managed. These are summarised in the table below.

Table 21: Potential Negative Effects

ONRC CLOS	Potential Negative Impact	Problem Statement				Strategic Response	Mitigation
		Changing Land Use	Needs & Expectations	Climate, topography & geology	Safety		
Amenity	Dust from unsealed roads causing nuisance to other road users and adjacent residents.	✓	✓			Monitor	Incidents of nuisance are monitored through the Customer Complaints System Ozone Request for Service. Alternative treatment will be investigated to minimise any adverse effects.
Amenity	Excessive noise from busy roads causing nuisance to other road users and adjacent residents and businesses in the town centres		✓			Asset Management and District Planning processes Regulatory control	Asset management planning processes, including traffic monitoring, forecasting and community consultation, identifying areas of potential conflict and route prioritisation or traffic calming measures implemented. Where appropriate, traffic bylaw processes to control such factors as engine braking will be implemented.
Amenity	Contaminated stormwater runoff can impact adversely on the receiving environments to which it discharges. Stormwater contaminants which affect the environment include sediments, oils, and greases washed from roads and other impervious areas. The presence of zinc is a particular concern in built up townships.	✓	✓			Continue ongoing stormwater monitoring Continue maintenance programmes	Council continues to monitor national investigations into the effects of urban stormwater runoff. Ongoing monitoring of watercourse water quality in conjunction with Horizons Regional Council. Sediment controls are used at large earthwork sites. Regular maintenance clearing of water courses, channels and catchpits. Council is currently applying for resource consent for Taumarunui stormwater outfalls.
Accessibility	Land-take for transport infrastructure, either to improve existing roads or to construct new routes	✓	✓			Follow legislative processes	Council processes include robust community consultation requirements for capital development projects such as those associated with land take.
Amenity	Exhaust emissions, particularly from poorly maintained vehicles, can adversely affect the air quality, with the potential to affect climate and the ozone layer. This is exacerbated by traffic congestion.		✓			Advocate with Regional Council  Monitor traffic patterns	The traffic volumes in the District are, and are forecast to remain, relatively light, although increase in logging trucks and peak congestion issues associated with the Ohakune Mountain Road are relevant. Council is encouraging the use of public transport to access mountain facilities and national park areas to relieve congestion and parking capacity.

## Part 3 – Land Transport Activity

ONRC CLOS	Potential Negative Impact	Problem Statement				Strategic Response	Mitigation
		Changing Land Use	Needs & Expectations	Climate, topography & geology	Safety		
Resilience	Use of non-renewable resources to fuel our vehicles.		✓			Advocate and support alternative options	This is a national and global issue requiring consideration of many factors including lifestyle and social convenience, alternative technologies, cost and sustainability. Electric vehicle charging station are being installed throughout New Zealand including within Ruapehu District. Council is supporting the process of electric vehicle charging station development.
Resilience	The cost of investment in infrastructure	✓	✓	✓	✓	Implement Business Case Approach	Council is committed to implementing cost-effective solutions as part of successful asset management. Levels of service have been set with consideration to community affordability and efficiencies are sought on an ongoing basis.
Safety	The economic cost to the community as a result of road accidents				✓	Continue road safety and minor safety improvement programme  Continue membership of Road Safety Action plan	Council is committed to reducing road accidents through monitoring its accident patterns, analysing individual crashes and required remedial actions as well as implementing its safety improvement programme.
Accessibility	The economic cost to the community as a result of road congestion on the Ohakune Mountain Road		✓			Continue ongoing traffic monitoring programme	The traffic volumes in the District are, and are forecast to remain, relatively light, although increase in peak congestion issues associated with the Ohakune Mountain Road (OMR) are relevant. Council is implementing a programme to match capacities of the OMR and the lower Turoa ski facilities.
Safety Amenity	Substantial increase of logging trucks due to forest maturity and the resulting ongoing effects on the pavement	✓	✓		✓	Increased renewal works on forest plantation haul roads	Council is planning for the impact of logging trucks and implementing changes to pavement design and maintenance of logging traffic routes. Route efficiency and optimisation procedures have been investigated.
Accessibility Resilience	Disruption caused by maintenance of transport linkages	✓	✓			Corridor Access Request system Contractor work practices	Maintenance and renewal works is undertaken in such a way as to minimise effects on road users and adjacent residents.

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# Part 3 – Land Transport Activity

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## 9 Rationale for Council Involvement

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### 9.1 Transport Activity

- 9.1.1 Council regards the land transport activity, which enables communities to travel safely, easily and efficiently through the district while maintaining good access to properties, businesses and other areas of interest, as an essential service for the public good. Roading assets are critical infrastructure that enable and support growth of the economy and connectivity of diverse communities.
- 9.1.2 Council ownership and management of these assets is the most affordable means of achieving these activity outcomes. Council staffs have the experience and skills to oversee the consulting and contracting service providers.

### 9.2 Strategic Assets and the Significance Policy

- 9.2.1 The Local Government Act 2002 section on Significance; Section 76AA Significance and Engagement Policy; requires that the Significance and Engagement Policy sets out:
- (a) The local authority's general approach to determining the significance of proposals and decisions in relation to issues, assets, and other matters.
  - (b) Any criteria, or procedures that are to be used by the local authority in assessing the extent to which issues, proposals, assets, decisions, or activities are significant or may have significant consequences.
  - (c) How the local authority will respond to community preferences about engagement on decisions relating to specific issues, assets, or other matters, including the form of consultation that may be desirable.
  - (d) How the local authority will engage with communities on other matters.
- 9.2.2 The policy identifies all of the assets the Council considers to be strategic, as defined in Section 5 of the Local Government Act 2002.
- 9.2.3 The land transport network has been identified as significant as defined in council's Significance Policy, due to its complexity, asset value and risk to the community. Council is expected to deliver this essential service in perpetuity and the asset is maintained and replaced as required to enable this. For significant services, the Office of the Auditor General defines a higher level of customer consultation. This includes evaluating level of service options, and undertaking consultation on level of service options with the community and other relevant stakeholders. Customer consultation is undertaken as detailed in Section 10 of this AMP.
- 9.2.4 The Significance Statement from LTP is as follows:
- Roading network as a whole but not any specific part of the network.

### 9.3 Outcomes

- 9.3.1 The Outcomes are the community's aspirations for the District's future and influence Council activities. Council's Outcomes for 2018-28 LTP are the same those set for the previous 2015-25 LTP. These outcomes were developed in consultation with the community. Table 22 links the Outcomes through to the sections of the AMP addressing the transport objectives.

# Part 3 – Land Transport Activity

Table 22: Community Outcomes

Community Outcomes	Outcome	Transport Objectives (from Strategic Goals)	Link to ONRC Customer Level of Service	These Have Been Addressed In....
Strong Leadership and advocacy	<ul style="list-style-type: none"> <li>Council advocates strongly for the provision of, and access to, affordable and effective health, welfare, law enforcement and education services.</li> <li>Council is proactive, transparent and accountable.</li> </ul>	<p>SG 4: Providing an affordable transportation network that meets the reasonable needs of the wider community</p> <p>SG 5: Encouraging the community to participate in decision-making processes and to be informed about changes or initiatives within the District</p>	<p>Accessibility</p> <p>Resilience</p> <p>Safety</p> <p>Amenity</p>	<p>Levels of Service</p> <p>Community Consultation</p> <p>Lifecycle Management</p>
Safe, Healthy Communities	<ul style="list-style-type: none"> <li>Quality regulation, regulatory services and infrastructure.</li> <li>Reduce the volume of waste to the landfill.</li> <li>Core infrastructure endeavours to keep pace with changing demand.</li> <li>Excellent standards of safety and welfare are promoted and respected.</li> <li>Preparation, planning and timely responses protect people and property from natural hazards.</li> </ul>	<p>SG 4: Providing an affordable transportation network that meets the reasonable needs of the wider community</p> <p>SG 2: Supporting road safety activities promoted by Horizon Regional Council</p> <p>SG 3: Managing the network with a strong focus on safety to avoid or mitigate significant hazards</p>	<p>Accessibility</p> <p>Resilience</p> <p>Safety</p> <p>Amenity</p>	<p>Growth and Demand</p> <p>Levels of Service</p> <p>Community Consultation</p> <p>Lifecycle Management</p>
Thriving Economy	<ul style="list-style-type: none"> <li>Regulatory services and reliable infrastructure help the economy prosper.</li> <li>Our transportation network is reliable, safe and endeavours to meet the needs of users.</li> <li>Economic diversity and core economic strengths are encouraged in partnership with others.</li> <li>That planning and regulatory functions balance economic growth and environmental protection</li> </ul>	<p>SG 1: All District roads provide continuous all weather travel</p>	<p>Safety</p> <p>Accessibility</p> <p>Resilience</p> <p>Reliability</p> <p>Amenity</p>	<p>Levels of Service</p> <p>Lifecycle Management</p>
Vibrant and Diverse Living	<ul style="list-style-type: none"> <li>Traditions, values and history of all ethnic groups are respected.</li> <li>Activities, facilities and opportunities for youth are provided and supported.</li> <li>Excellence and achievement in sport, arts/cultural pursuits, community service and business is supported.</li> <li>Events and festivals are encouraged and supported.</li> </ul>	<p>SG 4: Providing an affordable transportation network that meets the reasonable needs of the wider community</p>	<p>Accessibility</p> <p>Resilience</p> <p>Safety</p> <p>Amenity</p>	<p>Levels of Service</p> <p>Lifecycle Management</p> <p>Community Consultation.</p>

## Part 3 – Land Transport Activity

Community Outcomes	Outcome	Transport Objectives (from Strategic Goals)	Link to ONRC Customer Level of Service	These Have Been Addressed In....
Thriving Natural Environment	<ul style="list-style-type: none"> <li>Our environment is accessible, clean and safe and our water, soil and air meets required standards.</li> <li>The promotion of our District includes focus on our natural rivers, bush and mountains, as well as the built heritage, agriculture and railways.</li> </ul>	SG 4: Providing an affordable transportation network that meets the reasonable needs of the wider community	Accessibility Resilience Safety Amenity	Levels of Service  Lifecycle Management  Community Consultation.

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

### 9.4 Strategic Goals

9.4.1 From the outcomes, the management of the land transport activity was determined to be driven by themes of:

- Supporting economic development through enhancing key transport links.
- Ensuring safe and reliable usage of our land transport assets.
- Efficient operation and management of our land transport assets.
- Promoting tourism through enhancing land transport links.
- Developing a strong sense of 'community' in the towns, through enhancing the main streets and commercial areas.

9.4.2 These themes were then developed into strategic goals:

**Table 23: Strategic Goals**

All District roads provide continuous all weather travel
Supporting road safety activities promoted by Horizons Regional Council
Managing the Network with a strong focus on safety to avoid or mitigate significant hazards
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

9.4.3 The strategic goals have been aligned with the following Customer Values. The customer value categories have been developed by the National Asset Management Steering (NAMS) group. They are aligned with the following One Network Road Classification (ONRC) provisional performance measures customer values

**Table 24: Strategic Goals and NAMS & ONRC customer values**

Strategic Goal	Customer Value (NAMS)	Customer Value (ONRC)
All District roads provide continuous all weather travel	Quality Availability	Safety Resilience Amenity Travel Time Reliability Accessibility
Supporting road safety activities promoted by Horizons Regional Council	Safety	Safety
Managing the Network with a strong focus on safety to avoid or mitigate significant hazards	Safety	Safety Resilience Accessibility

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## Part 3 – Land Transport Activity

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Providing an affordable transportation network that meets the reasonable needs of the wider community	Affordability Sustainability	Safety Resilience Amenity Travel Time Reliability Accessibility
Encouraging the community to participate in decision making processes and to be informed about changes or initiatives within the community	Affordability Sustainability	Accessibility

# Part 3 – Land Transport Activity

## 10 Customer Service

### 10.1 Introduction

10.1.1 Council recognises there is a wide range of customers and stakeholders with an interest in how Land Transport is managed, including the resident community, iwi and specific interest groups within the community and regional and central government agencies.

### 10.1.2 Customer and Stakeholders

(a) The following table lists the customers and the main stakeholders in this activity.

Table 25: Customers and Stakeholders

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

### 10.2 Engaging Our Customers and Stakeholders

#### 10.2.1 Engagement

- (a) Pre consultation engagement meetings for the 2018-2028 LTP took place between August and November 2017. The public meetings took the form of 'Chat Spaces', where members of the public could drop in to an off site office and ask any questions they may have. They were held in all the town centres. Key issues raised were:- lowering speed limits through some towns, desire for more streetlighting, footpaths and parking, plant pest control, level crossing maintenance on unsealed roads, roadside tree hazards and the safety of an existing on road cycle path.
- (b) In addition, five LTP community meetings were held in Ruapehu towns, each varying significantly in attendance and theme. At the Ohura meeting, concern was raised around the damage logging trucks cause to the road. In Ohakune, issues raised included a truck bypass of the town and whether LED streetlighting was being investigated.
- (c) Council took a broader approach in connecting with its Māori community which resulted in eight Hui being held with respective Iwi/Hapū, all of whom are either directly or indirectly involved in Treaty settlement negotiations with the Crown. Of the eight Hui, four were held in Taumarunui and four in Ohakune. The representatives who participated in the Hui were from Ngāti Maniapoto (Te Ihingārangi Hapū/Te Koura Putaroa Hapū), Ngāti Tuwharetoa (Ngāti Hinemihi Hapū), Ngāti Haua Iwi Trust, Ngāti Rangatahi, Pipiriki Incorporation, Ngāti Rangī, Paraweka Marae and Uenuku. The Hui were positive

## Part 3 – Land Transport Activity

and highlighted the importance of ensuring Council’s business going forward gives recognition to the economic, environmental, cultural and social priorities and aspirations for Māori post-Treaty settlements. Council acknowledge Iwi/Hapū for taking the time to meet given the heavy workload and pressures they are all currently under, as they progress toward finalising their settlements.

- (d) The following is a summary of issues raised by Iwi:
- (i) Concerns over the state of roads and bridges caused by forestry activity.
  - (ii) Forestry industry should contribute more to roading impacts.
  - (iii) Concerns over the debris from forest harvesting as it is being collected in the Whanganui River.
  - (iv) Need to be mindful of how to protect cultural significant sites throughout the district i.e. wāhi tapu/urupa.
  - (v) Increased tourism raises concerns with road safety and the ability to slow traffic down in Pipiriki.
- (e) A full summary of the Long Term Plan engagement process can be found in the LTP.

### 10.2.2 River Valley Meetings

- (a) To work with the rural communities the District was divided into manageable zones, based on the communities situated in the river valleys. A series of public meetings was undertaken in local halls throughout the district. Along with the residents, Councillors, Council staff, consultants and contractors attended the meetings. This started in 2009 and has been a great success in understanding the community needs and priorities.
- (b) The River Valley meetings were an opportunity to explain the challenges and issues; the reasons the roads with little traffic could not be sealed; and most importantly, to allow the community to have input into how the small fund for minor improvements was spent. The meetings provide Council with feedback about safety concerns and areas where minor accidents have occurred. These are typically not reported to Police.
- (c) Council continues to meet with three river valleys annually to give local residents a chance to identify areas of concern that can be addressed through our minor improvement programme.

## 10.3 Resident Customer Satisfaction Survey

### 10.3.1 Customer Satisfaction Survey (NRB)

- (a) Council carries out the National Research Bureau Ltd Customer Satisfaction Survey as a means of measuring its effectiveness in representing the wishes and viewpoints of its residents. Understanding residents’ and ratepayers’ opinions and needs allows Council to be more responsive towards its citizens. This is carried out once every three years.
- (b) This survey utilises telephone interviews amongst residents of the Ruapehu District. The survey is framed on the basis of the Wards as the elected representatives are associated with a particular Ward.
- (c) Sampling and analysis were based on four Wards and the interviews spread as follows:

Table 26: Residents Survey Sample

Ward	2013 Survey		2016 Survey	
	No of Residents Interviewed	% of sample	No of Residents Interviewed	% of sample
Taumarunui	122	40%	123	41%
Waimarino-Waiouru	101	33%	99	33%
Ohura	40	13%	38	13%
National Park	39	13%	40	13%
<b>Total</b>	<b>302</b>	<b>100%</b>	<b>300</b>	<b>100%</b>

- (d) Residents are asked about their satisfaction with footpaths and 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.



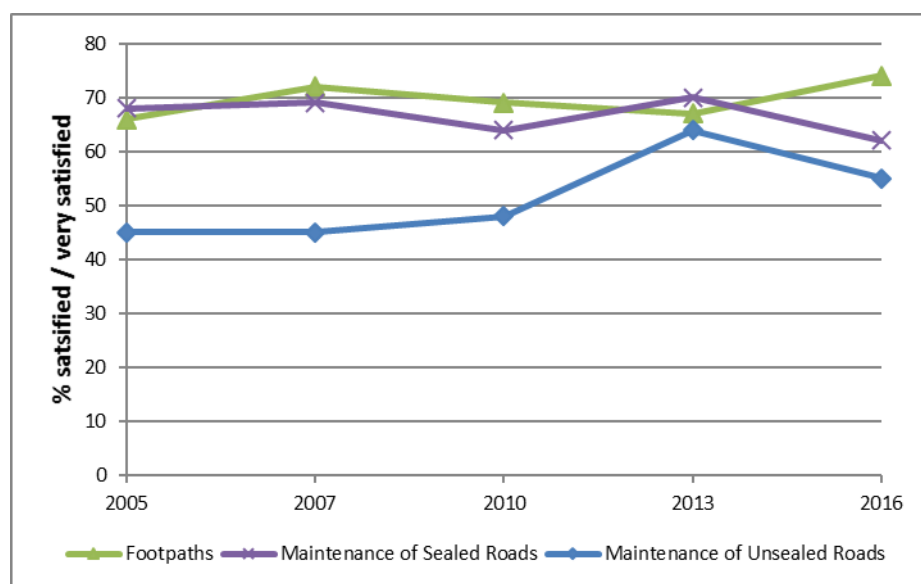
## Part 3 – Land Transport Activity

- (e) 62% of residents are satisfied or very satisfied with sealed roads, 55% with unsealed roads and 74% with footpaths. Roads are low in the results compared to the other Council services, apart from Economic Development and job promotion. Footpaths rank 3<sup>rd</sup> highest in Council and the results are in line with peer group and national results.

Table 27: Customer Survey Results

Percentage Satisfied / Very Satisfied	2005	2007	2010	2013	2016
Footpaths	66	72	69	67	74
Maintenance of Sealed Roads	68	69	64	70	62
Maintenance of Unsealed Roads	45	45	48	64	55

Figure 25: NRB Customer Survey Results



- (f) The main reasons residents were dissatisfied
- poor condition/need maintenance/upgrading
  - lots of potholes/rough/bumpy/uneven
  - poor quality of work/materials/patching
  - slips/washouts/dropouts not cleared/repared
- (g) 21% of the sealed road complaints related to issues on state highways.
- (h) An increase in footpath renewal works since 2015 has had a positive result in the ratings above.
- (i) The dissatisfaction issues provide direction for prioritisation of activities to address customers experience of the network. Timeliness of repairs and co-ordination between contractors will be a focus. Heavy maintenance will be directed to main unsealed roads used by forestry. Poor quality of workmanship is being addressed through the change of contractor in 2014 and will continue to be monitored.

### 10.3.2 Level of Service Survey

- (a) 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.
- (b) The results are shown below

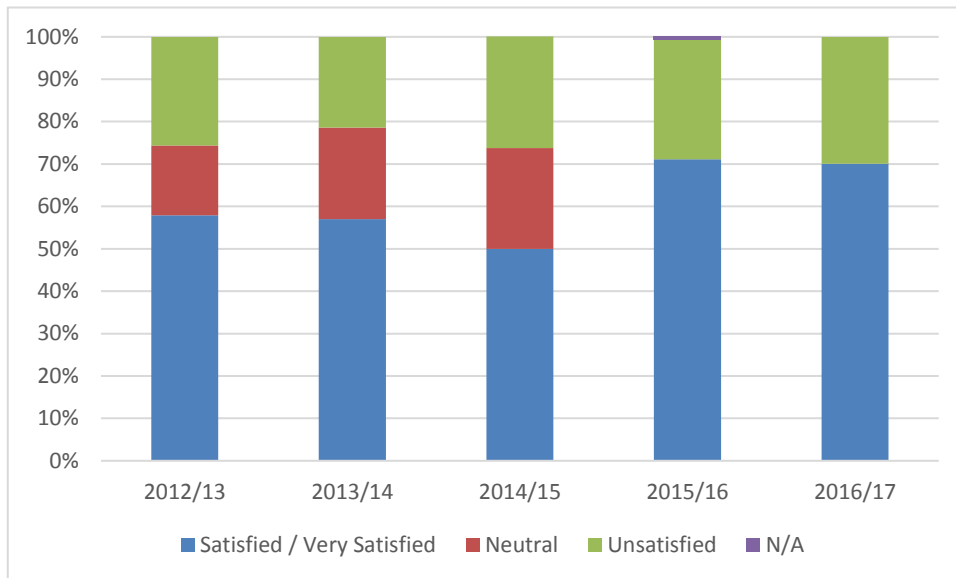
Table 28 - Level of Service Survey Results

Year	No of Responses	Satisfied / Very Satisfied	Neutral	Unsatisfied	N/A
2012/13	133	57.9%	16.5%	25.6%	

# Part 3 – Land Transport Activity

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%	

Figure 26 - Level of Service Survey Graph



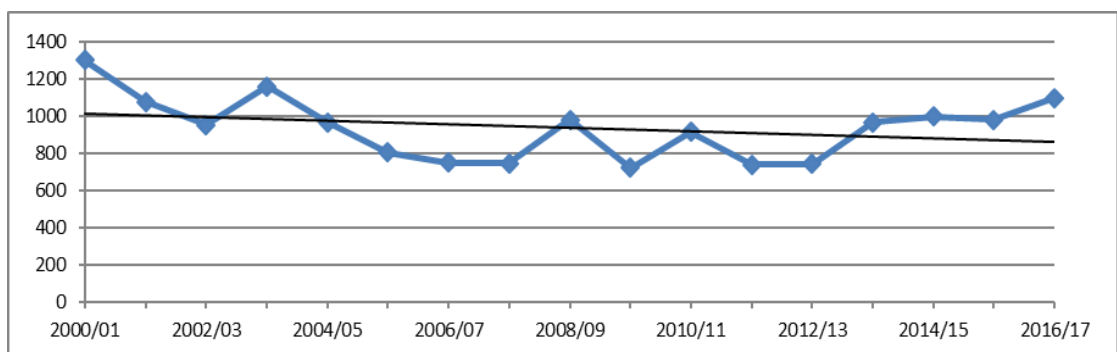
(c) The results show an increase in satisfaction in the last two years; however, dissatisfaction is still high.

## 10.4 Customer Service Requests and Complaints 2000-2017

### 10.4.1 Total Roding Calls and Calls by Group

- (a) Council has a Service request system to log calls from the public. Calls can be issues identified on the network or requests for service. Analysis of the service call data captured within HEAT (Request for Service software) since 2000 and Ozone since 2009 indicates that the total service calls have lowered from the initial result and then stayed generally consistent to previous years. With the changeover of reporting systems, there has been a realignment of call type, which can result in anomalies of reporting. The best attempt has been made to reflect the correct categorisation for those calls.

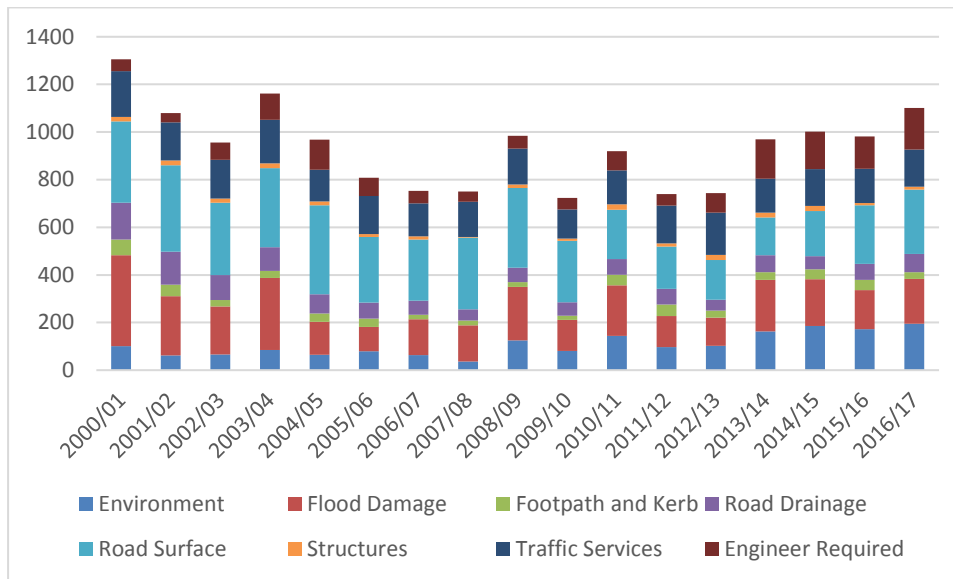
Figure 27: Total Roding Calls



- (b) Figure 28 below shows the call types over the previous 17 years. The proportions remain relatively steady, with the largest contributions from Road Surface call types, then flood damage and environment. The largest increase has been in Engineer required calls. This is for items that don't fall within normal contracted maintenance or require engineering design.

# Part 3 – Land Transport Activity

Figure 28 – Request for Service Call Types

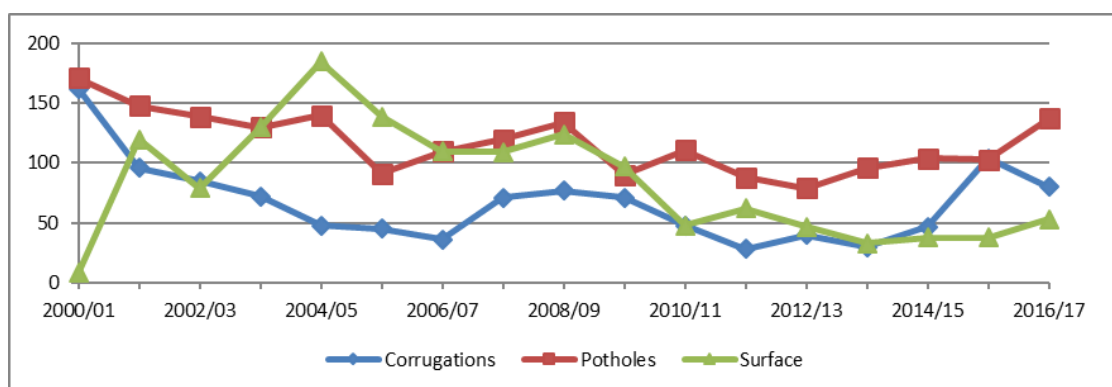


- (c) Total number of calls can be an indication of the level of satisfaction for network users. This is one of the Key performance indicators. However, as calls are a mix of complaints and / or requests for service or work instructions, it is indicative only.

## 10.4.2 Road Surface Service Calls

- (a) Road surface calls relate to Amenity ONRC customer service level. Surface calls relate to items spilled on the surface, more metal required, surface slippery or greasy, oil spills, soft spots, dust, grit required, ice, mud and so on.
- (b) All call types are trending downwards, although individually, corrugation and pothole call numbers have increased in the last 3-4 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. Calls regarding the surface of 'main' unsealed roads have risen since logging has been undertaken.
- (c) 'Surface' call types cover calls relating to items on the surface of the road such as oil spills, lack of metal, greasy surfaces, soft spots, flushing and mud on the road and so on.

Figure 29: Road Surface Service Calls

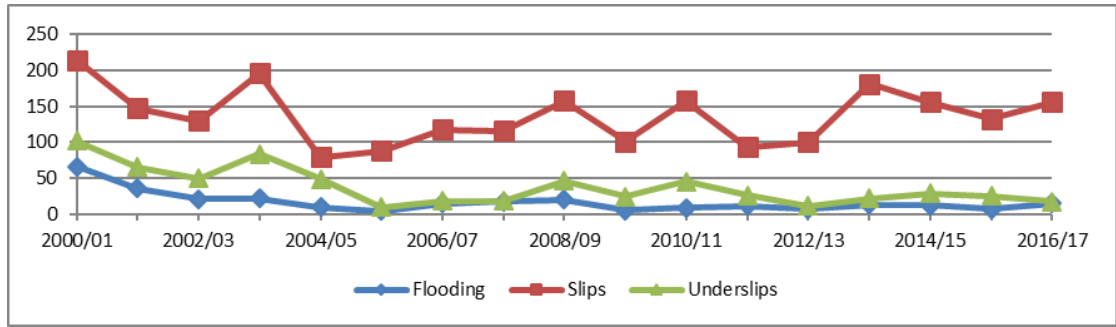


## 10.4.3 Flood Damage Calls

- (a) Flood damage calls are directly related to weather events. They can cover slips, dropouts, fallen trees and flooding. Flood damage is 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.
- (b) '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.

# Part 3 – Land Transport Activity

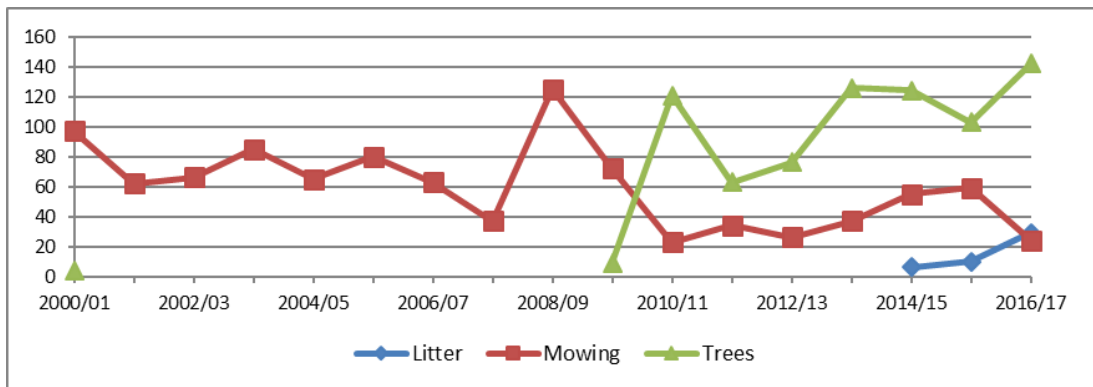
Figure 30: Flood Damage Calls



## 10.4.4 Vegetation Calls

- (a) Vegetation calls relate to both Amenity and Safety ONRC customer service levels. The category is made up of mowing, litter and hazardous trees.
- (b) 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. This began being recorded as a separate category in 2009/10.
- (c) 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.
- (d) Litter calls began being recorded in 2014/15. The calls relate to roadside rubbish, offensive dumping or waste near the road and flytipping.

Figure 31: Vegetation Calls

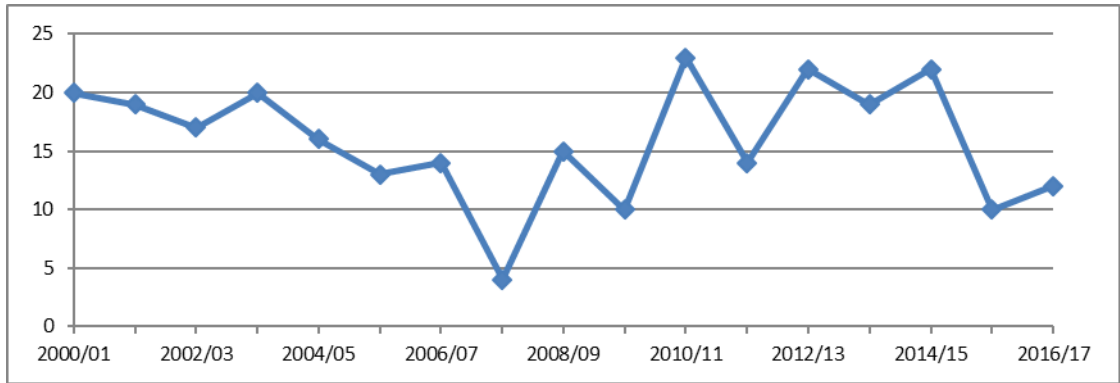


## 10.4.5 Structures Calls

- (a) Calls relate to issues on bridges such as ponding, scouring, bridge deck issues, vehicles damaging bridges or bridges being too narrow. The increase in calls over the last ten years reflects the ageing nature of the bridge network.
- (b) Structure provide for the ONRC customer service level of accessibility of the network.

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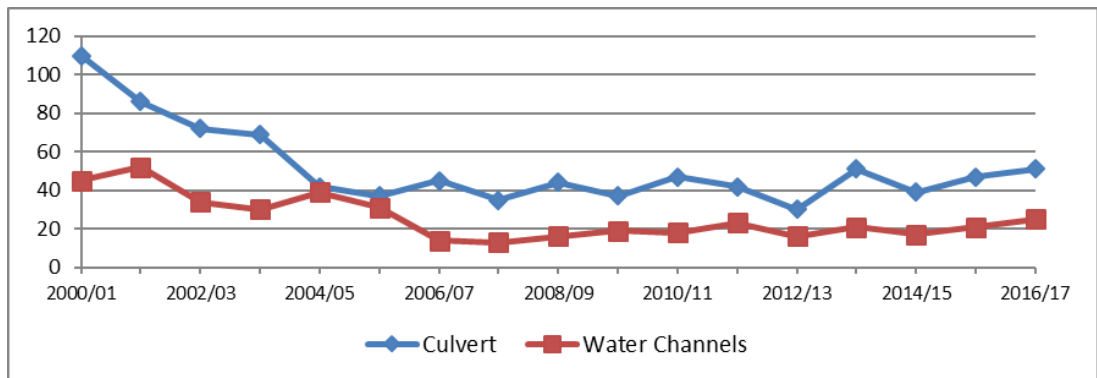
Figure 32: Structures Calls



## 10.4.6 Drainage Calls

- (a) The reduction in culvert calls in the early 2000s coincides with the implementation of a culvert renewal programme. Call numbers have stayed relatively steady since then. The increase in calls in 2013/14 corresponds with the increase in flood damage calls above. A culvert inspection programme informs forward work and this has had an impact on call numbers.
- (b) Drainage relates to ONRC customer service levels of accessibility, reliability and resilience.

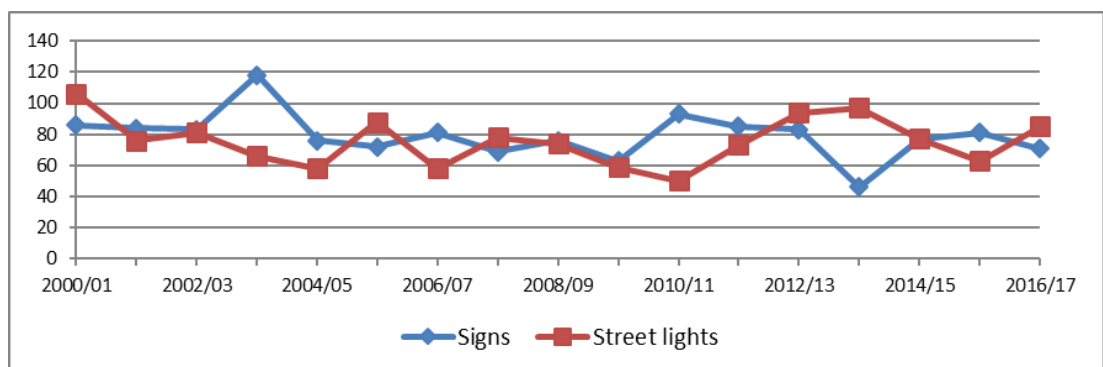
Figure 33: Drainage Calls



## 10.4.7 Traffic Service Calls

- (a) Traffic service calls are broken down into signs and streetlights. They relate to Accessibility ONRC customer service level.
- (b) Sign calls are a mix of issues - ranging 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
- (c) Streetlight calls have increased overall in the last seven years. A large number of streetlight calls relate to circuit faults, which are not part of the Streetlight maintenance contract.

Figure 34: Traffic Services Calls

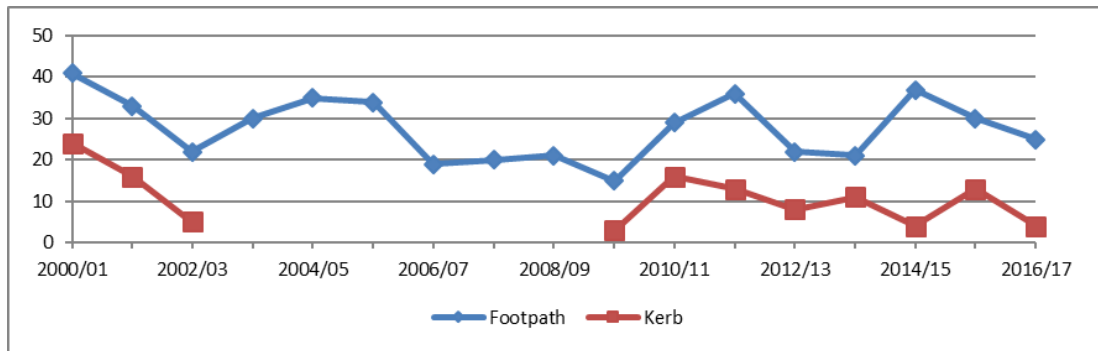


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### 10.4.8 Footpath and Kerb and Channel

- (a) 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 these the same period.
- (b) Kerb and Channel calls were not recorded separately in the period between 2003/04 and 2009/10. Land Transport provides and maintains kerb infrastructure. Urban drain maintenance is carried out by Parks and Reserves above ground and Stormwater below ground. Calls relate to both maintenance and infrastructure issues.

Figure 35: Footpath and Kerb and Channel



# Part 3 – Land Transport Activity

## 11 Levels of Service (LoS) We Provide

### 11.1 Introduction

11.1.1 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. *“Who are we? The Ruapehu Context for Asset Management”* provides information about the process used to set Levels of Service.

11.1.2 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.

11.1.3 Council does not intend to significantly extend the District’s road network, although it is maintaining or in some cases improving the performance of the existing network where the community has indicated that this is desirable and affordable.

11.1.4 Council operates several programmes that assist in these improvements including:

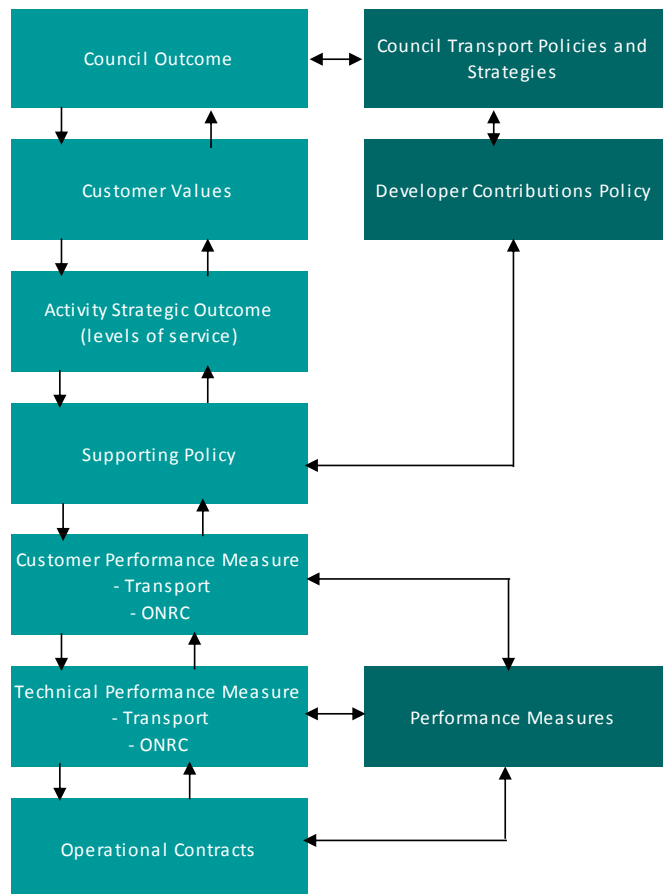
- (a) Sealed Pavement and Rehabilitation programme.
- (b) Minor Safety Project programmes.
- (c) Footpath safety improvement and development.
- (d) Kerb and channel development.
- (e) Bus shelters development.

11.1.5 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.

11.1.6 The One Network Road Classification customer levels of service are also linked. If performance targets are set in the future, this will potentially impact on the number, type, and performance targets associated with the Ruapehu District LoS, due to changes in funding and ability of RDC to deliver the current programmes.

11.1.6 Figure 36 outlines how the council outcomes are linked to the performance measures and transport policies and strategies.

Figure 36: Levels of Storage linkages



### 11.2 LoS Delivery Process

11.2.1 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. The key customers and stakeholders are discussed in Section 10 Customer Service

11.2.2 The key service providers for Ruapehu District for Transport are detailed in Section 16 Lifecycle Management Plans Overview

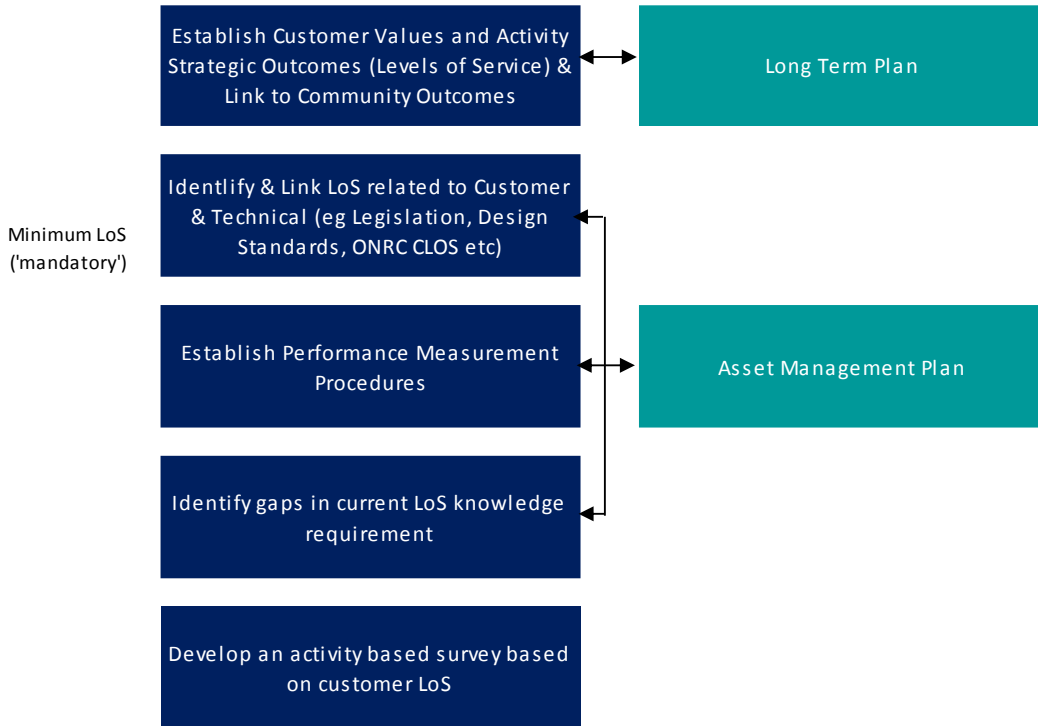
# Part 3 – Land Transport Activity

## 11.3 LoS Development Process

11.3.1 The best practice model for developing LoS statements is described below in three parts. Linkages to the AMPs and LTP are shown at each stage of the process

### (a) Part 1 – LoS Process

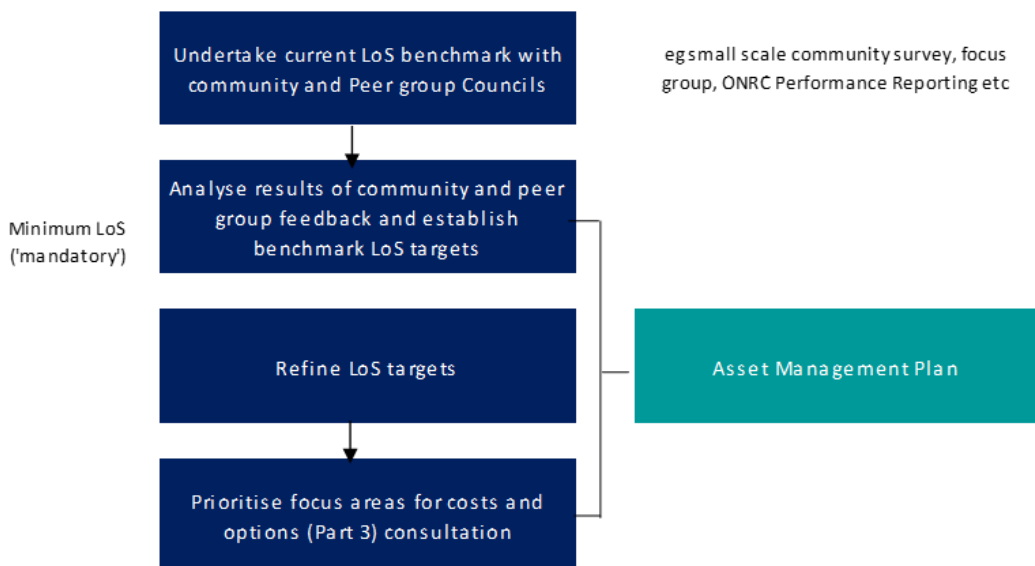
Figure 37: LoS Process – Part 1



### (b) Part 2 – Establish benchmarks

- (i) The next step is to establish LoS benchmarks for the Transport Facilities assets by way of benchmarking against other Councils (ONRC Performance Reporting), surveys and focus groups etc

Figure 38: LoS Process – Part 2



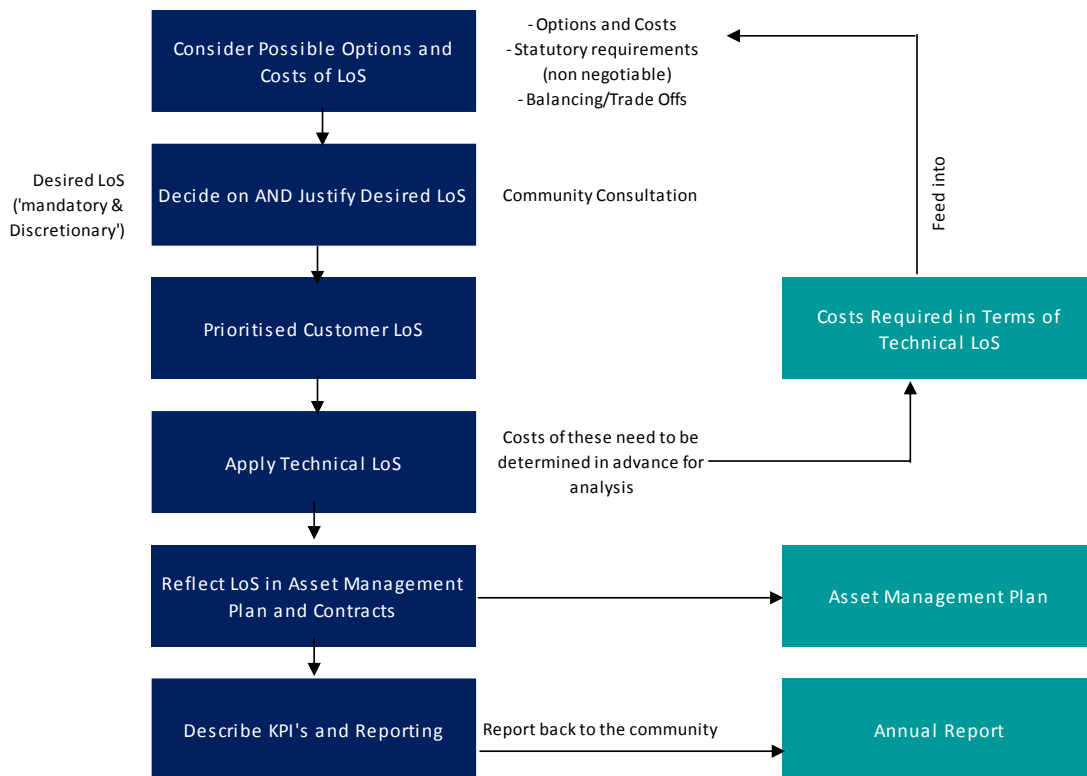
### (c) Part 3 – Consultation



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- (i) The third part is to consult with the community on service delivery options and their associated costs (as required under Schedule 10, Section 2(a) of the Local Government Act 2002).

Figure 39: LoS Process – Part 3



11.3.2 It should be noted that this process may be repeated in its entirety or specific parts, such as technical performance measures as contracts are updated. All changes must be reintegrated and linked back into the process.

- 11.3.3 Council ensures that all interested stakeholders have an opportunity to influence the LOS decisions by:
- Producing an easily readable summary.
  - Making this AMP available on Council's website.
  - Engagement with key stakeholders about any proposal for new development.
  - Undertaking periodic focus group consultation as part of the LTP development.
  - Public opportunity to provide submissions on strategic targets through Council's LTP process.
  - Consulting with affected persons on specific projects (as required by the RMA 1991).
  - Carrying out periodic levels of service surveys and three-yearly residents surveys to monitor customer satisfaction.
  - Monitoring and analysing requests for service from customers recorded within Council's customer service request system.

- 11.3.4 Performance Measures fall into two categories:
- Customer Performance Measures – these relate to **how** the customer receives the service in terms of:
    - Tangibles (customers are aware of service that RCA provides, information sheets, etc)
    - Empathy (understanding, individual attention, responding to needs of customers)
    - Responsiveness (customers' requests for service will be responded to)
    - Assurance (knowledge, trust, confidence. Demonstrates competence and capability)
    - Courtesy
  - Technical Performance Measures – these relate to the **outputs** the customer receives in terms of:
    - Quality
    - Quantity
    - Availability
    - Legislative requirements

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- (v) Maintainability
- (vi) Reliability/performance
- (vii) Capacity
- (viii) Environmental impacts
- (ix) Cost/affordability
- (x) Comfort
- (xi) Safety

### 11.3 Land Transport LoS

11.3.1 The levels of service Council provides are presented in the following tables. Performance against these targets will be reported quarterly unless specifically noted.

#### 11.3.2 Quality / Availability Levels of Service

Table 29 – Quality/Availability Levels of Service

Level of Service	Roads are managed to an acceptable level and the road network is available at all times									
Links to Strategic Goal	All District roads provide continuous all weather travel									
Links to Outcomes	Our transportation network is reliable, safe and endeavours to meet the needs of users.									
Customer Value	The core customer values this service aims to provide are: Quality / Availability									
ONRC Customer Outcome	Safety / Resilience / Amenity / Accessibility									
Customer Measure	Residents are satisfied with the condition of the road									
Targets	Frequency	Reported where	Current Performance 2016/17	Year 1 target 2018/19	Year 2 target 2019/20	Year 3 target 2020/21	Years 4-5 target 2021/22 – 22/23	Years 6-10 target 2023/24 – 27/28	Gap	
Customer satisfaction with Sealed roads	3 yearly	NRB Customer Survey	62% - 2016	60% or greater	Not measured	Not measured	60% or greater	Not measured	+2	
Customer satisfaction with Unsealed roads	3 yearly	NRB Customer Survey	55% -2016	50% or greater	Not measured	Not measured	50% or greater	Not measured	+5	
% of respondents satisfied/very satisfied with District Roads	Annually. New measure	RDC LOS Survey	70% - 16/17	50% or greater	50% or greater	50% or greater	50% or greater	50% or greater	+20	
Number of Service Calls	Annually	Ozone RFS system	1,124 - 16/17	Less than 1000	Less than 1000	Less than 1000	Less than 1000	Less than 1000	-124	
Response times: Percentage of instances when local emergency sites advised by service calls are made safe within 1 hours plus travel time.	Quarterly	GHD Report	New Measure	85%	85%	85%	85%	85%	New	
Technical Measure	Condition of Road									

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Targets	Frequency	Reported where	Current Performance 2016/17	Year 1 target 2018/19	Year 2 target 2019/20	Year 3 target 2020/21	Years 4-5 target 2021/22 – 22/23	Years 6-10 target 2023/24 – 27/28	Gap
Average NAASRA roughness index across the urban sealed pavement network	Biannual Inspections	Annual Report	139	150	150	150	150	150	+11
Average NAASRA roughness index across the rural sealed pavement network	Biannual Inspections	Annual Report	122	120	120	120	120	120	-2
Maintain the sealed roads to a standard that allows < 5.5 defects per km	Average per Quarter & per annum	Annual Report	4.54 defects for year	< 5.5 defects	< 5.5 defects	< 5.5 defects	< 5.5 defects	< 5.5 defects	+0.96
Maintain the unsealed roads to a standard that allows < 5.5 defects per km	Average per Quarter & per annum	Annual Report	4.82 defects for year	< 5.5 defects	< 5.5 defects	< 5.5 defects	< 5.5 defects	< 5.5 defects	+0.68

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Technical Measure		Actual vs Plan							
Targets	Frequency	Reported to	Current Performance 2016/17	Year 1 target 2018/19	Year 2 target 2019/20	Year 3 target 2020/21	Years 4-5 target 2021/22 – 22/23	Years 6-10 target 2023/24 – 27/28	Gap
Reduce the number of Weight Restricted Bridges	Annual		16 restricted	15 or less	15 or less	15 or less	15 or less	15 or less	
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								

## 11.3.3 Safety Levels of Service

Table 30 – 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 2016/17	Year 1 target 2018/19	Year 2 target 2019/20	Year 3 target 2020/21	Years 4-5 target 2021/22	Years 6-10 target 2022/23
All fatal and serious crashes are investigated	Annual	Annual Report	0% - serious crashes were reported late or changed from minor	100%	100%	100%	100%	100%
Improvement recommendations from fatal and serious crash reports implemented	Annual	Annual Report	N/A - No recommendations were made	100%	100%	100%	100%	100%
Number of reported fatal accidents per annum, where the condition of the road was a factor.	Annual	Annual Report	0	0	0	0	0	0
Number of reported serious accidents per	Annual	Annual Report	0	5 or less	5 or less	5 or less	5 or less	5 or less

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annum, where the condition of the road was a factor.								
Completing all the agreed annual actions of the relevant Road Safety Committee Action Plan that are RDC's responsibility	Annual	Annual Report	Not Reported at time of Final AMP	100%	100%	100%	100%	100%
We will achieve this level of service by:	<p>Inspecting and appropriately modifying fatal and serious accidents sites in accordance with the safety inspection report</p> <p>Maintaining signs and markings in accordance with RDC's "Report on RTS 5 standard roadmarkings – July 2010" (currently in draft).</p> <p>Ensuring compliance with all maintenance KPIs in Road Maintenance Contract</p> <p>Ensuring compliance with all response times specified in Road Maintenance Contract</p>							
We will measure whether this level of service is achieved by:	<p>Reporting NZTA CAS records of the number of reported accidents per quarter</p> <p>Monthly 10% network audit by network consultant</p> <p>Monthly maintenance audit reports for signs and markings</p> <p>Contractual KPI reporting</p>							
Planned improvements	Minor safety (low cost, low risk) works programme.							

### 11.3.4 Affordability/Sustainability Levels of Service

Table 31 – Affordability/Sustainability Levels of Service

Level of Service	Council's decisions and processes take into account affordability to the community							
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 2016/17	Year target 2018/19	Year target 2019/20	Year target 2020/21	Years 4-5 target 2021/22 – 22/23	Years 6-10 target 2023/24 – 27/28
% of Opex expenditure to budget	Quarterly	Finance System	102%	<= 100%	<= 100%	<= 100%	<= 100%	<= 100%
% of Capex expenditure to budget	Quarterly	Finance System	76%	<= 100%	<= 100%	<= 100%	<= 100%	<= 100%
% of emergency Works expenditure to NZTA budget	Quarterly	Finance System	100%	<= 100%	<= 100%	<= 100%	<= 100%	<= 100%
% of minor improvement expenditure to budget	Annually	Finance System	91%	<= 100%	<= 100%	<= 100%	<= 100%	<= 100%
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.							

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Planned improvements	
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## 11.3.5 Department of Internal Affairs (DIA) Levels of Service

- In addition to the Council specific 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.
- The aim was to help the public to contribute to discussions on future levels of service for their communities and to 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 32: DIA Levels of Service Targets

Targets	Frequency	Reported to	Current performance 2016/17	Year 1 target 2018/19	Year 2 target 2019/20	Year 3 target 2020/21	Years 4-5 target 2021/22	Years 6-10 target 2019/24
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	Not achieved. Number of serious injuries and fatalities = 5, an increase of 2 over previous financial year.	Target for reducing the number of serious injuries and fatalities $\geq 1$	Target for reducing the number of serious injuries and fatalities $\geq 1$	Target for reducing the number of serious injuries and fatalities $\geq 1$	Target for reducing the number of serious injuries and fatalities $\geq 1$	Target for reducing the number of serious injuries and fatalities $\geq 1$
The average quality of ride on a sealed local road network, measured by smooth travel exposure	Annually	Annual Report	Not achieved. 83%.	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	Not achieved. 7%.	$\geq 7.5\%$ $\geq 37\text{km}$ out of 486km	$\geq 7.5\%$ $\geq 37\text{km}$ out of 486km	$\geq 7.5\%$ $\geq 37\text{km}$ out of 486km	$\geq 7.5\%$ $\geq 37\text{km}$ out of 486km	$\geq 7.5\%$ $\geq 37\text{km}$ out of 486km
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	Achieved. 97.7% in average or greater condition & 1.3% 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	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	Not achieved. 90%	$\geq 90\%$	$\geq 90\%$	$\geq 90\%$	$\geq 90\%$	$\geq 90\%$

Note 1: The Request for Service targets are outlined in Table 33.

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Table 33: Request for Service (RFS) 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

(d) Footpath Condition Rating

- (i) Data collected over the 2015 – 18 period has enabled a base line to be established. The rating method has been revised since the 2015 AMP to reflect the methodology used.
- (ii) Defects include trip hazards
- Trip hazards ≤ 10mm for seal or concrete surface
  - Trip hazard ≤ 4mm for cobble surface
  - Scabbing
  - Depression / Potholes
  - Cracking
  - Loose cobbles
  - Missing cobbles
  - Footpath width ≥ 1.2m in compliance with Accessibility Standard - NZS4121: 2001 Design for access and mobility: Buildings and Associated facilities
  - Pram Crossings present if required
  - Pram crossings compliant with accessibility standards (eg ramp steepness not greater than 1 in 12)

Table 34: 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

## 11.3.6 Levels of Service Trends

- (a) The following figure provides the Levels of service trends since 2012/13, with and targets until 2022/23.

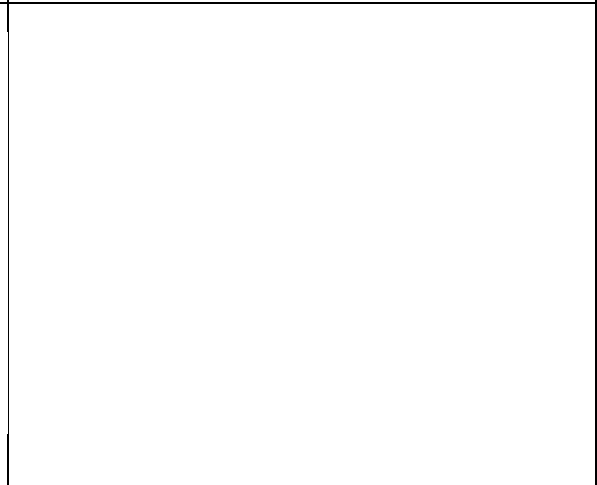
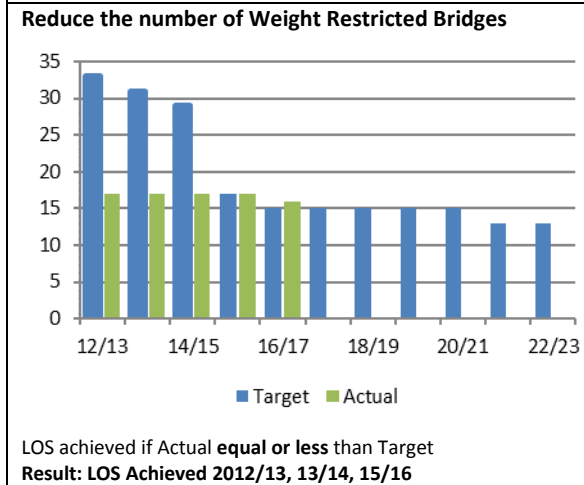
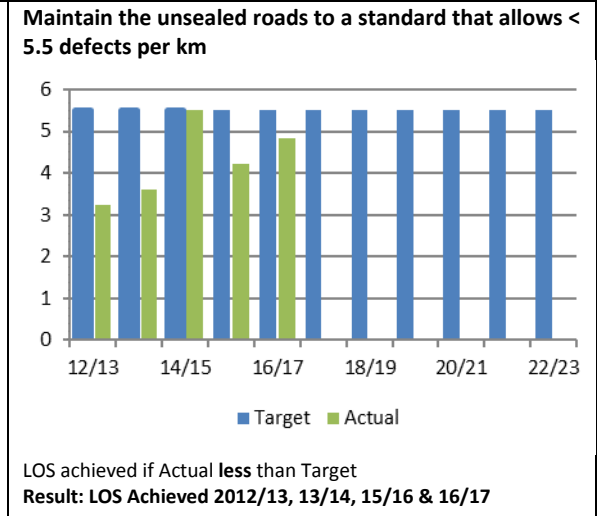
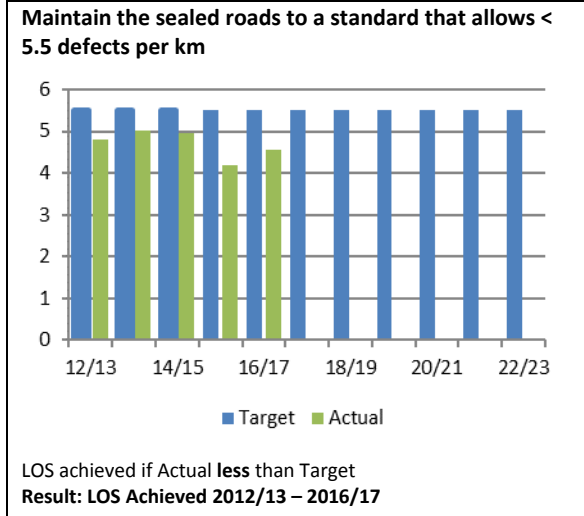
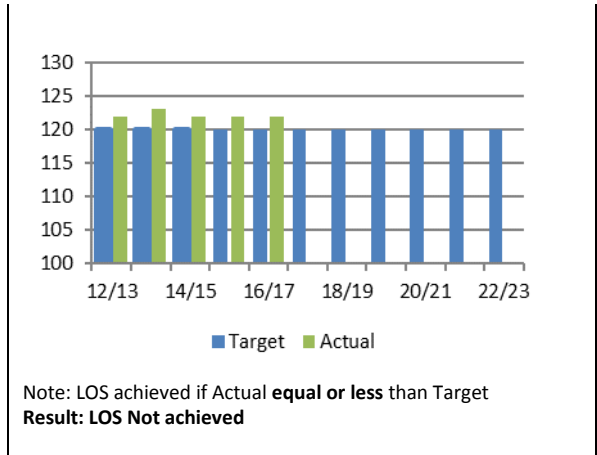
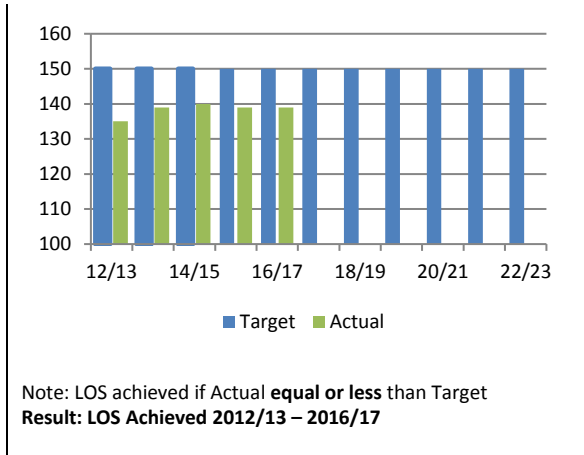
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Figure 40: Levels of Service Trends





# Part 3 – Land Transport Activity

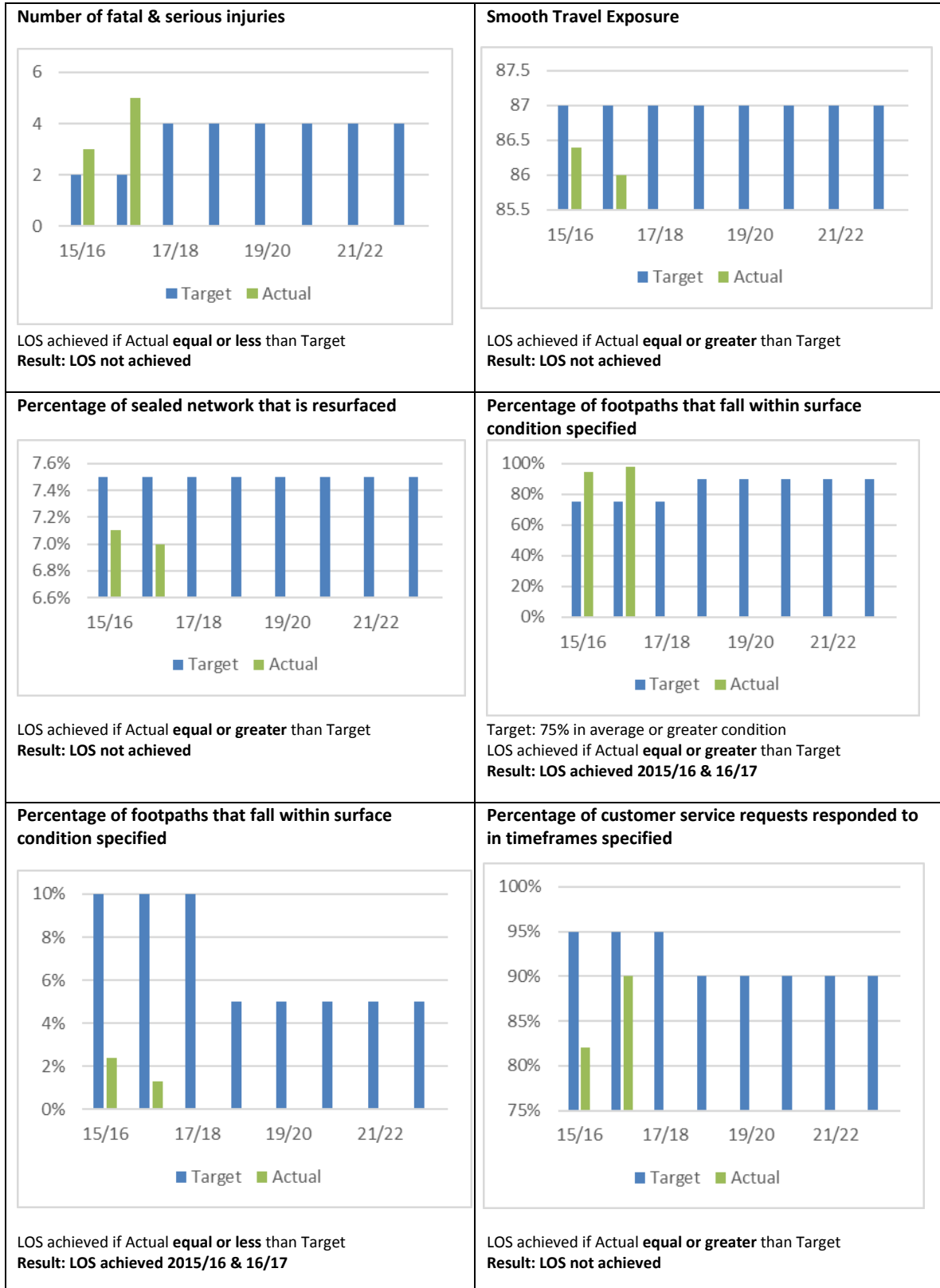


**11.3.7 DIA Level of Service Trends**

(a) The results for these KPI's have been reported on since 2015/16.

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Figure 41: Levels of Service Trends



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## 11.4 Expected Changes to Service Levels

11.4.1 The LoS tables indicate that service levels Council provides are not anticipated to increase.

## 11.5 Accelerated and Enhanced Development Plans

11.5.1 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:

- (a) An Accelerated Programme, which provides for an increase in the rate or priority of achievement of the standard features for specific locations.
- (b) 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.

## 11.6 Levels of Service Benchmarking

### 11.6.1 Benchmarking Background

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

Table 35 - Peer Group Councils

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

- (b) Sourced from the ONRC performance measures reporting tool, the table below shows the District's network characteristics. The table details the road network length and number of journeys by ONRC category. Journey 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 only 2% of the network by length but carry 22% of the amount of travel undertaken in the district due to the higher traffic volumes.

Table 36: Network Characteristics

ONRC Category	Urban (km)	Rural (km)	Total Length (km)	Urban Journeys	Rural Journeys	Annual Total Journeys Travelled (M Veh km)
Primary Collector	1	26	27		7	7
Secondary Collector	13	40	53	3	3	7
Access	18	341	359	2	10	12
Low Volume	78	824	902	2	6	7
<b>Total Network</b>	<b>110</b>	<b>1,231</b>	<b>1,341</b>	<b>7</b>	<b>25</b>	<b>33</b>

### 11.6.3 Benchmarking Results

- (a) The results of the Benchmarking categorised into the following:
  - (i) Safety

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- (ii) Amenity
- (iii) Cost Efficiency

Figure 42: Safety Customer Outcome 1 – Number of Serious Injuries and Fatalities (DSI) by ONRC Category

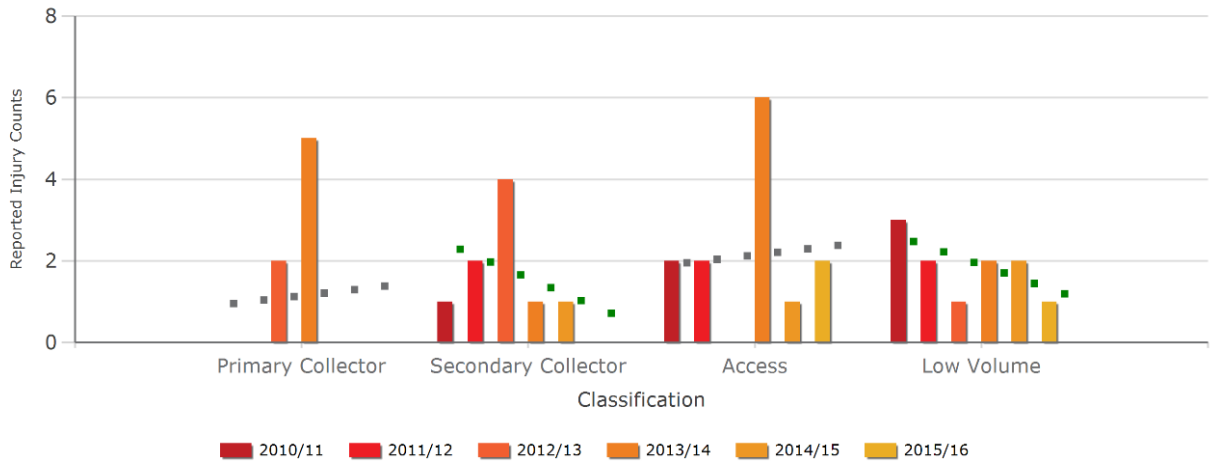
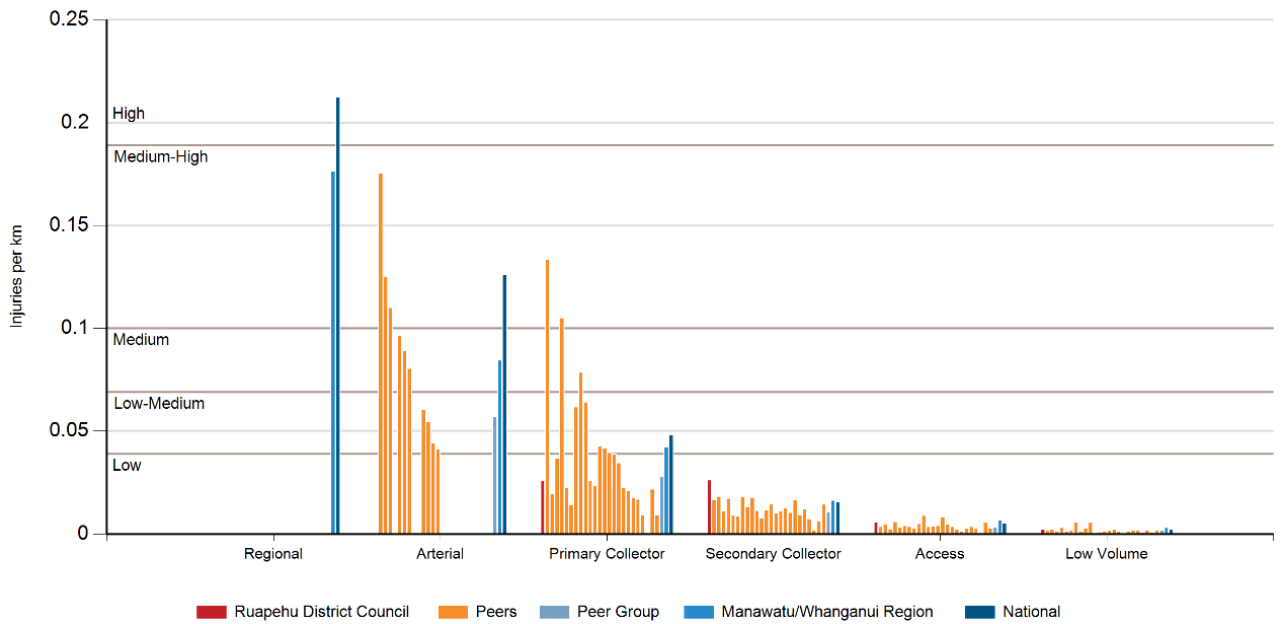


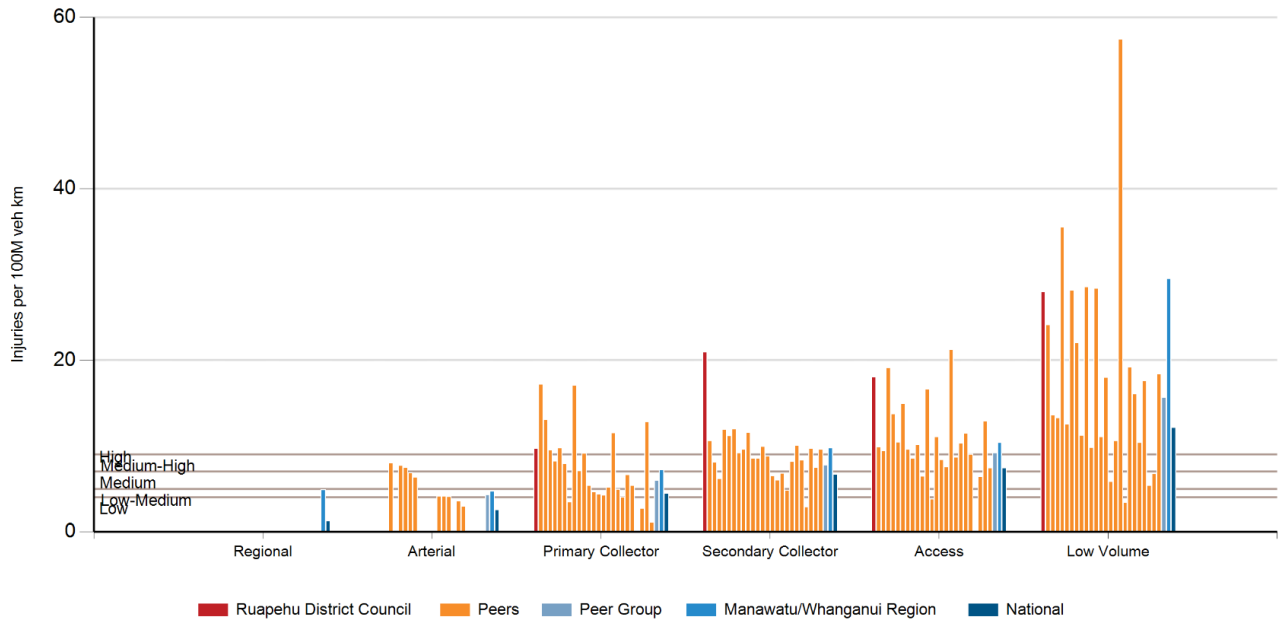
Figure 43: Safety Customer Outcome 2 – Collective Risk - Serious Injuries and Fatalities (DSI) per km of Road by ONRC Category



(b) Collective risk is a measure of the total number of Serious Injuries and Fatalities (DSI) per km over a section of road. These 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). Due to low traffic volumes the Ruapehu Collective Risk is low for all hierarchies.

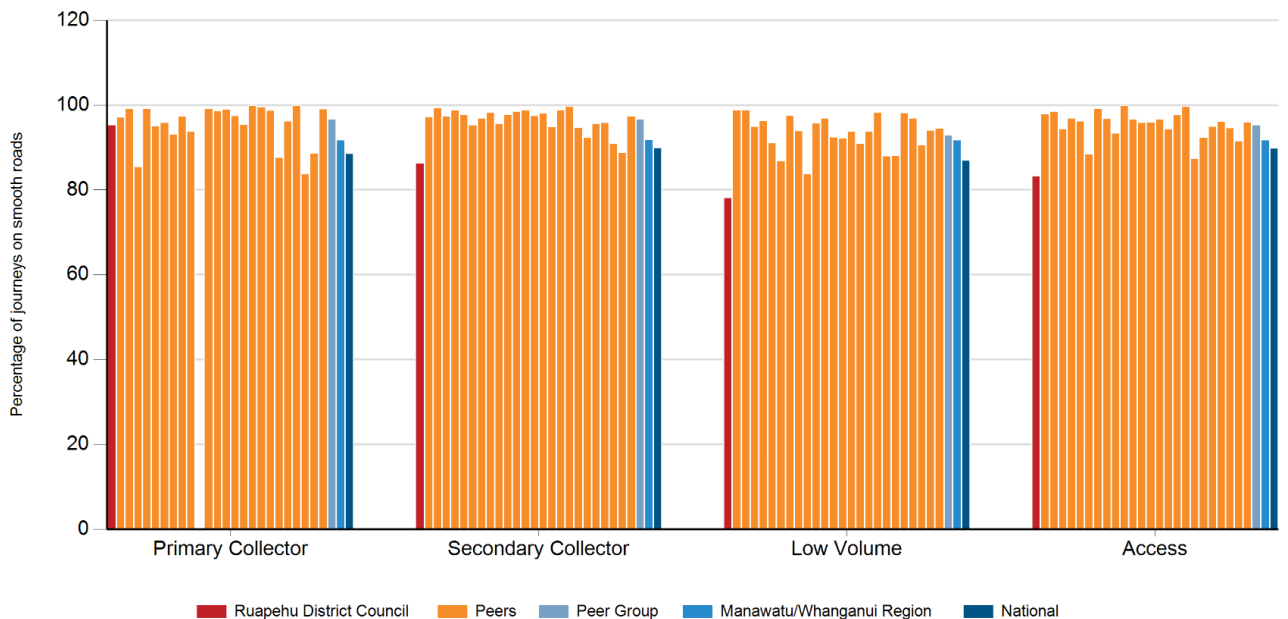
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Figure 44: Safety Customer Outcome 3 – Personal Risk - Serious Injuries and Fatalities (DSI) per 100 Million Vehicle km by ONRC Category



- (c) Personal risk is a measure of the danger to each individual using the road being assessed. These 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). All hierarchies of road within the district have a high personal risk rating, associated with tortuous alignment, steep drop-offs and reduced clearance zones. The personal risk is generally greater than our peer group average, the Region and Nationally. Ruapehu District Council, through the Ruapehu Road Safety Action Plan and also its River Valley Community Engagement Programme, is actively working to identify, improve and mitigate risk within the network.

Figure 45: Amenity Customer Outcome 1 – Smooth Travel Exposure (STE) by ONRC Category



- (d) Excepting Primary Collectors, the RDC Local Road Network has a lower Smooth Travel Exposure across all hierarchies than its peers, peer group, region and nationally. STE has declined recently due to the impact of logging traffic, resulting in an increased requirement for sealed (and unsealed) pavement

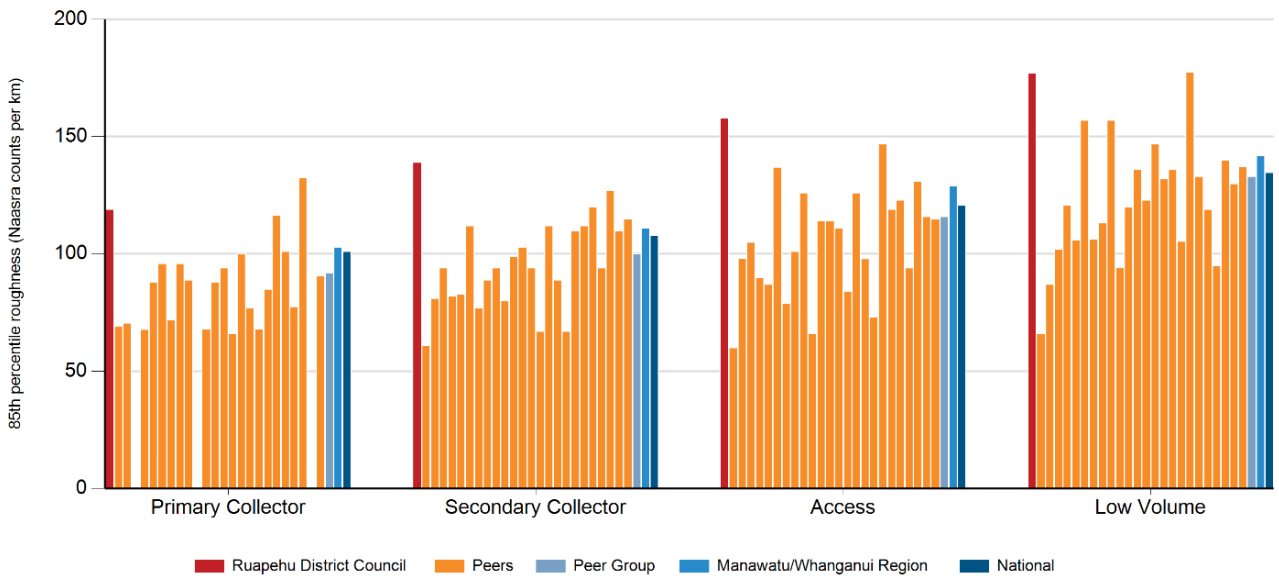
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maintenance and rehabilitation need. Current funding levels are not meeting the present need of the network resulting in a decline in serviceability.

Figure 46: Amenity Customer Outcome 2 – Peak Roughness – Urban Sealed Roads

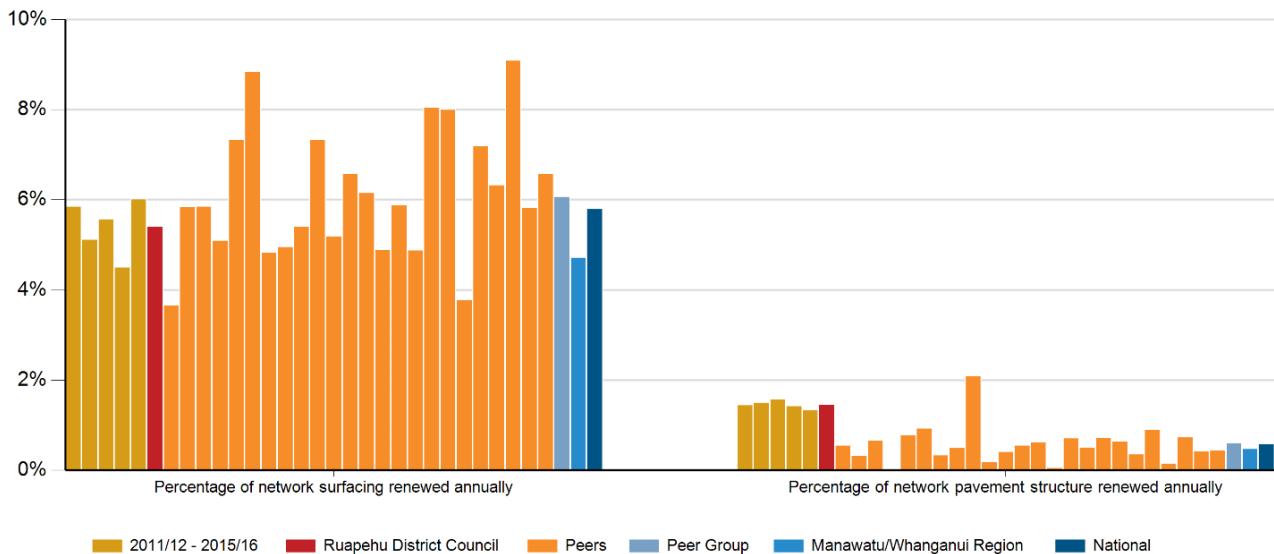


Figure 47: Amenity Customer Outcome 2 – Peak Roughness – Rural Sealed Roads



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Figure 48: Cost Efficiency 1 – Percentage of Network Surfacing Renewed Annually



- (e) Ruapehu has an Average Life Achieved for Chipseal Surfaces much greater than its peers, peer group, region and nationally despite having a large proportion of tortuous alignment, range in altitudes, extremes of temperature and weather and high ultraviolet radiation levels exacerbating bitumen oxidation rates. The high Life Achieved correlates to a backlog of reseals with budget not aligning to reseal need.
- (f) Percentage of network surfacing renewed is now in line with peers with further funding required to reduce the reseal backlog.
- (g) Ruapehu designs pavements to last 25 years, while 1.4% of the pavement structure is currently renewed annually, higher than it's peers and representing a 70-year return period or life achieved for pavement. 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 now showing signs of stress and fatigue. Additionally, key forestry routes are now showing signs of significant deterioration in terms of roughness, shoving, rutting and pothole formation. Pavement rehabilitation rates and budget will need to increase to reflect this.

## 11.7 Future Levels of Service Improvement

11.7.1 The following priority improvements have been identified that will contribute to the robustness of the service level processes described in this section:

- (a) Review and analyse benchmarking data against peers for items that are out of alignment.
- (b) Report on all ONRC Performance Reporting Tool measures.



## 11.8 Capital Works programmes associated with service level improvements

11.8.1 Capital works programmes and projects in place have multiple drivers including renewals, growth and levels of service. Specific projects and programmes that address levels of service, the percentage contribution to levels of services and the budget related to levels of service over the next three years is summarised in the table below. The total cost of service level improvement for the 10-year period 2018/19 to 2027/28 is \$18.6M.

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Table 37 – Capital Works Related To Levels of Service

Description	Growth	LOS	Renewal	Total Cost	10 year cost 2018/19 to 2027/28		
					Growth component	LOS component	Renewals component
<b>Pavement</b>							
Pavement Rehabilitation <sup>2</sup>	0%	15%	85%	\$28,000,000		\$4,200,000	\$23,800,000
Pavement Rehabilitation SPR <sup>2</sup>	0%	15%	85%	\$1,577,692		\$236,654	\$1,341,039
Low Cost Low Risk Improvements <sup>2, 4</sup>	0%	80%	20%	\$10,020,705		\$8,016,564	\$2,004,141
Low Cost Low Risk Improvements SPR <sup>2</sup>	0%	80%	20%	\$2,424,569		\$1,939,655	\$484,914
Low Cost Low Risk (SPR) - Hairpin Grade Improvement <sup>2</sup>	0%	15%	85%	\$300,000		\$45,000	\$255,000
Low Cost Low Risk (SPR) - A/C <sup>8</sup>	0%	15%	85%	\$2,100,000		\$315,000	\$1,785,000
OMR Capacity Improvement <sup>2</sup>	0%	60%	40%	\$1,161,530		\$696,918	\$464,612
Miscellaneous Minor Capital Projects <sup>2</sup>	0%	60%	40%	\$216,510		\$129,906	\$86,604
<b>Structures</b>							
Structures Components Replacements <sup>1</sup>	0%	15%	85%	\$6,810,689		\$1,021,603	\$5,789,086
Old Station Road Bridge 317 Safety Improvements <sup>1</sup>	15%	35%	50%	\$758,801	\$113,820	\$265,580	\$379,401
Low Cost Low Risk Mangateitei Rail Over Bridge Replacement	0%	15%	85%	\$990,000		\$148,500	\$841,500
Low Cost Low Risk Ruapehu Rail Over Bridge Replacement	0%	15%	85%	\$990,000		\$148,500	\$841,500
Low Cost Low Risk Kokopuiti Rail Over Bridge Replacement	0%	15%	85%	\$440,000		\$66,000	\$374,000
Low Cost Low Risk Pokatea - Kokakonui Road - Culvert #24 Culvert Replacement	0%	0%	100%	\$150,000			\$150,000
<b>Drainage</b>							
Drainage Renewals <sup>3</sup>	0%	15%	85%	\$4,500,000		\$675,000	\$3,825,000
Drainage Renewals SPR <sup>3</sup>	0%	15%	85%	\$273,166		\$40,975	\$232,191
Kerb and Channel Development <sup>5</sup>	0%	50%	50%	\$453,880		\$453,880	
<b>Traffic Services</b>							
Level Crossing Devices Upgrades	0%	85%	15%	\$335,193		\$284,914	\$50,279
Low Cost Low Risk - Taupo Rd Streetlight Upgrade <sup>4</sup>	0%	15%	85%	\$400,000		\$60,000	\$340,000
Motorist Service & Information Signs <sup>6</sup>	0%	50%	50%	\$306,363		\$153,182	\$153,182
<b>Footpaths</b>							
Pedestrian Safety Improvements - District wide <sup>7</sup>	0%	100%	0%	\$295,013		\$295,013	
<b>Facility Roads and Carparks</b>							
Facility Road & Car Park Renewals <sup>8</sup>	0%	15%	85%	\$226,940		\$34,041	\$192,899
<b>Total</b>				<b>\$62,731,051</b>	<b>\$113,820</b>	<b>\$19,226,885</b>	<b>\$43,390,348</b>

Notes:

- 1 The level of service component relates to reducing the number or severity of existing weight restrictions or increasing bridge width.
- 2 The level of service components relates to improving existing road width.
- 3 The level of service component relates to an increase in culvert capacity.
- 4 Includes a component of lighting improvements for safety.
- 5 Kerb and Channel development is for installing new kerb and channel.
- 6 The level of service component covers additional signage to help motorists find services in the district (outside of routine road signage).
- 7 The level of service component includes the provision of footpaths where none previously existed or increasing the width of existing footpaths.
- 8 The level of service component is to upgrade the existing surface type.



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# Part 3 – Land Transport Activity

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## 12 Business Drivers

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### 12.1 Introduction

- 12.1.1 The transport assets are the largest asset group owned by Ruapehu District Council, and accordingly the management of these assets is of critical concern to both the Council and the community alike.
- 12.1.2 The business drivers for the current operation of the Land Transport Activity are defined by:
- Key Legislation
  - The Long Term Plan, Annual Plan, District Plan and other core Council documents.
  - Council Policies including Health and safety.
  - Sustainability performance indicators.
- 12.1.3 An overview of these business drivers are outlined in the following section.

### 12.2 Key Legislation

- 12.2.1 Legislation plays a significant role in how Council undertakes its Transport Activities.
- 12.2.2 Council complies with the following standards and legislation when maintaining, operating, renewing and developing the land transport assets:
- This AMP.
  - Resource Management Act 1991.
  - Building Act 1991.
  - Relevant Technical Standards, including
  - Code of Practice for Working on the Road.
  - Code of Practice for Temporary Traffic Management.
  - Standards published by Standards Association of New Zealand including NZS 4404 – Code of Practice for Urban Subdivision.
  - Austroroads guidelines.
  - Manufacturer’s Specifications.
  - Emergency management plans and CDMA.
  - Health and Safety at Work Act.
- 12.2.3 Legislation, policy and planning documents affect multiple areas with the asset management.
- Legislative change can significantly affect Councils’ ability to meet minimum levels of service that have been agreed with the community, and may require improvements to infrastructure assets. This will affect the community if increased levels of service affect the community’s ability to pay for services (Schedule 10 (d)(i)(B)).
  - Council needs to be able to identify growth and demand needs over a long period of time (Schedule 10 (d)(i)(A) and (d)(iii)(iv)(v)). This requires robust knowledge of the network, past performance, network modelling and future growth strategies and policies.
- 12.2.4 The key legislation and how it affects the land transport activity are outlined below:

#### 12.2.5 Local Government Act 1974 and Local Government Act 2002 (including subsequent amendments) (LGA)

- The Local Government Act 2002 (LGA 2002) is based on a sustainable, effective, responsible, responsive and accountable local government being fundamental to achieving the long-term well-being of communities. The LGA 2002 outlines the responsibilities of local government and the decision making process for activities undertaken on behalf of the community, primarily through the adoption of the LTP. The LTP identifies all Council activities, including Transport (as a key issue) and prioritises projects for future development based on the expectant outcomes of the community.
- The LGA 2002 Amendment Act 2010 made the following changes
  - Introduces a focus on core business.
  - Requires the establishment of rules specifying the performance measures for core services.

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## Part 3 – Land Transport Activity

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- (iii) Reduces some of the consultation requirements
  - (iv) Requires additional financial reporting.
- (c) The retained sections of LGA 1974 provides for the formation, management, stopping, closing, and control of roads, limited access roads, and provision of public safety.
- (d) The enactment of the Local Government Act 2002 Amendment Act 2010 has changed the statutory basis for the community outcomes process. Community Outcomes are now to be merged with the long-term planning process with a focus on the Outcomes the council will achieve. The emphasis being on providing clearer links between the Outcomes a local authority is seeking for its community and how it proposes to achieve and pay for them
- (e) In March 2012 the Government announced an eight point reform programme for local government. This is part of the Government’s broader programme for building a more productive, competitive economy and better public services.
- (f) Significantly the purpose of local government has been changed. Parliament removed all references to “promoting the social, environmental, economic and cultural well-being of communities” and replaced it with a “new” purpose of local government which is “to meet the current and future needs of communities for good quality local infrastructure, local public services, and the performance of regulatory functions in a way that is most cost-effective for households and businesses”.
- (g) The enactment of the LGA 2002 Amendment Act 2010 has seen a focus towards improved transparency, accountability and financial management, with emphasis in Schedule 10 on financial reporting. Section 3 (1) of Schedule 10 requires that Council report in the LTP the capital expenditure budgets to:
  - (i) Meet additional demand for an activity; and
  - (ii) Improve the level of service; and
  - (iii) Replace existing assets.
- (h) The Local Government Act 2002 Amendment No 3 (2014) has redefined the Section on Significance. Section 76AA Significance and engagement policy, requires that the Significance and Engagement Policy sets out:
  - (i) The local authority’s general approach to determining the significance of proposals and decisions in relation to issues, assets, and other matters.
  - (ii) Any criteria, or procedures that are to be used by the local authority in assessing the extent to which issues, proposals, assets, decisions, or activities are significant or may have significant consequences.
  - (iii) How the local authority will respond to community preferences about engagement on decisions relating to specific issues, assets, or other matters, including the form of consultation that may be desirable.
  - (iv) How the local authority will engage with communities on other matters.
- (i) The Local Government Amendment (No 3) Act 2014 has increased the focus on Asset Management through setting out specific requirements including provisions for
  - (i) Requiring local authorities to undertake asset management planning.
  - (ii) Requiring local authorities to develop an infrastructure strategy for a minimum of 30 consecutive years for core infrastructure and include these in their long term plans from 2015.
  - (iii) Requiring local authorities to disclose risk management arrangements, such as insurance, for physical assets in their annual reports.
- (j) The purpose of the Infrastructure strategy is to identify significant infrastructure issues for the local authority over a 30 year period, the principal options for managing those issues, and the implications of those options. This is to address the lack of public information about investment needed beyond the current 10 year long-term planning horizon.

### 12.2.6 Resource Management Act 1991 (RMA)

- (a) The RMA 1991 is New Zealand’s primary legislation dealing with the management of natural and physical resources. It provides a national framework to manage land, air, water and soil resources, the coast, subdivision and the control of pollution, contaminants and hazardous substances.
- (b) The RMA has a single overarching purpose: To promote the sustainable management of natural and physical resources.
- (c) The RMA establishes a hierarchy of policy documents from national instruments to regional policy statements, and regional (and district) plans. This ‘hierarchy’ and requirement to ensure consistency

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## Part 3 – Land Transport Activity

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between plans, is to promote sustainable management and ensure integrated management of natural and physical resources at a national, regional and local level.

- (d) The land transport activity needs to be aware of the requirements of the RMA especially through:
  - (i) Safeguarding the life-supporting capacity of air, water, soil and ecosystems.
  - (ii) Avoiding, remedying or mitigating any adverse effects of activities on the environment.

### 12.2.7 Civil Defence Emergency Management (CDEM) Act 2002

- (a) The Civil Defence Emergency Management Act 2002 (CDEM Act 2002) came into force on December 1, 2002. The CDEM Act 2002 ensures that New Zealand has the resources to manage disasters.
- (b) Emergency Management focuses on 'the 4Rs':
  - (i) **Reduction** – identifying and analysing risks to human life and property.
  - (ii) **Readiness** – developing capabilities before an emergency occurs.
  - (iii) **Response** – taking action immediately before, during or directly after an emergency.
  - (iv) **Recovery** – initiating activities after impact, and extending them until the community's capacity for self-help is restored.
- (c) The CDEM Act 2002 requires:
  - (i) Ruapehu District to form a Civil Defence and Emergency Management Group (CDEM Group).
  - (ii) 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.
- (d) The CDEM 2002 requires that a risk management approach be taken when dealing with hazards. In considering the risks associated with a particular hazard, both the likelihood of the event and the consequence must be considered (Refer to Section 15: Risk Management in this AMP).

### 12.2.8 Health and Safety at Work (HSW) Act 2015

- (a) The objective of the Health and Safety at Work Act 2015 is to promote the prevention of harm to all people at work, and others in, or in the vicinity of, places of work. The Act applies to all New Zealand workplaces and places duties on employers, the self-employed, employees, principals and others who are in a position to manage or control hazards.
- (b) The emphasis of the law is on the **systematic** management of health and safety at work. It requires employers and others to maintain safe working environments, and implement sound practice. It recognises that successful health and safety management is best achieved through good faith co-operation in the place of work and, in particular, through the input of those doing the work.

### 12.2.9 Land Transport (LT) Act 1998

- (a) Controls aspects of road and traffic operations and includes traffic regulations, bylaws, and enforcement.

### 12.2.10 Land Transport Management (LTM) Act 2003, and Amendment 2008

- (a) 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.

### 12.2.11 Local Government (Rating) (LG[R]A) Act 2002

- (a) The Local Government (Rating) Act 2002 replaced the Rating Powers Act 1988 with updated and streamlined rating powers. The intention is to ensure that the community has the opportunity to be well informed about what its money is being spent on, and to express its views when major decisions are being made.
- (b) The three main purposes of the Act are to:
  - (i) Provide local authorities with flexible powers to set, assess and collect rates
  - (ii) Ensure that rates reflect decisions made in a transparent and consultative manner

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## Part 3 – Land Transport Activity

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- (iii) Provide for processes and information to ensure that ratepayers can identify and understand their liability for rates.

### 12.2.12 Traffic Regulations (TR) 1976 and Land Transport (Road User) Rules

- (a) 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.

### 12.2.13 Building Act 2004

- (a) In New Zealand, the building of houses and other buildings is controlled by the Building Act 2004. It applies to the construction of new buildings as well as the alteration and demolition of existing buildings. The Building Act 2004 has repealed the Building Act 1991 and introduces a number of changes to the law governing building work.

### 12.2.14 Public Works (PW) Act 1981

- (a) 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.

### 12.2.15 Hazardous Substances and New Organisms Act 1996 (HSNO)

- (a) The Hazardous Substances and New Organisms (HSNO) Act was enacted in 1996 with the hazardous substances related provisions of the Act coming into force in July 2001. Territorial authorities have an enforcement role in the following areas:
  - (i) Premises not covered by the other enforcement agencies (e.g. private dwellings and public spaces);
  - (ii) Dangerous goods licensing during the transitional period of the HSNO Act;
  - (iii) Enforcing the HSNO Act when enforcing the RMA;
  - (iv) Functions transferred by other enforcement agencies.
- (b) The first two enforcement roles are mandatory for territorial authorities and unitary authorities under the HSNO Act. The second two enforcement roles are voluntary, depending on any authority's preparedness and ability to take on such an enforcement role.

### 12.2.16 Telecommunications Act, Electricity Act, Gas Act, Railway Safety and Corridor Management Act

- (a) Provide utility operators and others with powers to use road corridors.

## 12.3 National Standards, Local Standards and Guidelines

12.3.1 The primary documents that guide service standards for the land transport activity are as follows:

- (a) The standards adopted for urban and rural streets and roads, identify the following aspects depending on roading hierarchy, topography, zoning and locality. These cover;
  - (i) Carriageway and shoulder widths.
  - (ii) Carriageway drainage type.
  - (iii) Footpath width and number, i.e. one or both sides of the street.
  - (iv) Streetlighting levels
  - (v) Materials standards.
- (b) *NZ Code of Practice for Working on the Road*: This covers management requirements and protocols for Road Controlling Authorities and utility operators working in the road corridors. This is proposed to become incorporated in the Traffic Control Devices Rule.
- (c) *NZ Code of Practice for Temporary Traffic Management*: Is recognised standard for maintenance and construction work on legal roads. This is proposed to become incorporated in the Traffic Control Devices Rule.

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- (d) *Standards Association of New Zealand*: provide a range of standards covering required or recommended practice and which may impact directly on assets or management of contracts, e.g. the NZS4404 Code of Practice for Urban Subdivision provides a range of roading standards.
- (e) Austroads guideline
- (f) One Network Road Classification (ONRC) developed by NZTA to standardise the classification Levels of Service and funding of NZ roads.

### 12.4 Bylaws

12.4.1 The purpose of the Land Transport Bylaw is to protect the roads, an important public asset, from nuisances and damage to enhance the safety of road users and to manage this asset for the wellbeing of the public at large. The Bylaw was last updated in February 2014 and is available on the Ruapehu District Council website.

12.4.2 The bylaw also sets the speed limits and parking restrictions in the District and sets penalties for offences against the Bylaw.

**Table 38: Relevant Bylaws**

Chapter No	Chapter Title	Purpose	Year	Status
11	Stock Movement on Public Roads	Establishes conditions governing the movement of stock on roads within the District	2014	Adopted
12	Speed Limits	Sets speed limits for District roads as set out in Schedules to the Bylaw. It provides that Council may, by resolution publicly notified, alter or change the Schedules.	2014	Adopted
13	Traffic Restrictions	Sets the requirements for parking, and the control of vehicular or other traffic on any road in the District, except State Highway corridors	2014	Adopted
14	Vehicle Accessways	Sets requirements for the construction of vehicle access ways	2014	Adopted
15	Working in the Road	Prescribes conditions and specification requirements for excavation and reinstatement works to be undertaken with Road Reserves under Council jurisdiction	2014	Adopted
16	Damage to Street Frontage during Property Development	Ensures that public assets, including but not limited to footpaths, kerb and channel, and road signs, are protected from damage by property development activities such as the relocation of buildings, or development of new buildings	2014	Adopted
17	Ohakune Mountain Road (OMR)	Controls the use of the OMR in order to protect the users	2014	Adopted
18	Use of Chains	Protects Council roads from damage by vehicles fitted with chains when the conditions do not require chains to be fitted	2014	Adopted
19	Use of Road	Sets requirements around use of the road, including fence encroachments, road reserve encroachments and gates and cattle stops to ensure that access and public health and safety are maintained and promoted.	2014	Adopted

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## 12.5 Policies and Strategies

### 12.5.1 Strategies and Guidelines

Table 39: Strategies and Guidelines

Strategy or Guideline	Purpose	Year	Status
Asset Management Plan	AMPs provide key input into the 10-Year Plan, supporting the functions and forecasts. The key objective of the AMP is to provide a desired level of service in the most cost effective manner while demonstrating responsible stewardship for present and future customers.	Year plan is adopted	Current
Group Emergency Management Plan	This Plan is a collaborative effort from the Councils of the Manawatu Whanganui region and has been devised to co-ordinate successful hazard management. As a result, it has focused on measures to avoid or mitigate the effects of hazards, the identification of key issues for this region, and the development of long term objectives to rectify these issues. The plan is reviewed annually and reissued five yearly. The plan is currently out for consultation as at 10 December 2014	2009	Current
Cycling Awareness Strategy	To promote the safe shared use of low volume rural roads	2010	Adopted

### 12.5.2 Policies

- Council has adopted the following policies relevant to the land transport activity into the consolidated Land Transport Policy 2010. The Policy is under review in 2017.
- In addition, the Health and Safety Policy and Asset Management Policy are overriding policies that affect the whole of Council.

Table 40 – Relevant Policies

Policy Name	Purpose	Year	Status
<b>Roading Policies</b>			
Trees on Road Reserve	Sets out the conditions under which Council can remove trees on the road reserve or will allow trees to be planted	2017	Adopted
Road Stopping (Permanent Closure of Roads)	Sets out the conditions under which road stopping applications will be considered	2017	Adopted
Temporary Closure of Roads for Public Events	Sets out the conditions under which road closures will be carried out	2017	Adopted
Structures on the Road Reserve	Sets out the conditions for permitted structures on the Road Reserve	2017	Adopted
Privately Funded Road Improvements	Sets out the criteria under which partially or fully privately funded road improvements may be allowed to proceed	2017	Adopted
Control of Roadside Vegetation and Plant Pests	Outlines Councils policy around roadside plant pests and sets out the conditions under which a no spray agreement can be reached	2017	Adopted
<b>Road Encroachments</b>			
Road Fences	Sets out the conditions for allowing fences on the road reserve	2017	Adopted
Memorial Symbols at Accident Sites	Sets out the process for applications to install memorial symbols	2017	Adopted
<b>Other Policies (policies relevant to but not actually forming part of the roading policies)</b>			
Organisation Procurement Strategy	Outlines the procedures Council will take and how Council will procure goods and services	2014	Under Review
Small & Local Supplier Policy	Outlines the conditions that will be given consideration in the choice of using small and local suppliers	2016	Adopted
Contracts Policy	Outlines the process for tendering out contracts	2016	Adopted
Policy & Delegations Manual 2014	Sets out all Council policies and bylaws and outlines the Financial and Non-financial delegations	2014	Under Review
Development Contribution Policy	Sets out the policy around how development contributions will be applied	2015	Adopted
Asset Management Policy	Provides a framework for guiding and integrating asset management practice within the Council	2017	Adopted
Health and Safety Policy	Sets out Council's Health and Safety at Work Commitments	2016	Adopted

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<b>12.5.3 Health and Safety Policy</b>
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- (a) Ruapehu District Council, its employees and contractors have responsibilities under the Health and Safety at Work Act 2015, which includes complying with the requirements of the Act and supporting regulations and codes of practice.
- (b) Ruapehu District Council is committed to providing and maintaining a working environment and systems of work which are free, as far as reasonably practicable, from physical or emotional harm for all our employees, visitors, contractors and members of public.

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# Part 3 – Land Transport Activity

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## 13 Managing Growth and Demand

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### 13.1 Introduction

- 13.1.1 This section outlines the Ruapehu District Council strategy for growth and demand related to the transport activity.
- 13.1.2 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 Section 12 Business Drivers.
- 13.1.3 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.

### 13.2 Growth versus Demand

- 13.2.1 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.
- 13.2.2 Growth in relation to the transport activity mainly refers to the growth/changes in
- (a) Population.
  - (b) Number of dwellings or business premises.
  - (c) Total size of economic activity.
  - (d) Total vehicle kilometres travelled (including % of heavy vehicles)
- 13.2.3 These changes can affect traffic flows due to commuting, increase in heavy commercial vehicles due to increased demand for goods and services etc. This essentially leads to an increase in the volume of traffic in the network and changes in the location of traffic movements.
- 13.2.4 Demand for Land Transport services can be influenced by growth, alternative modes of transport, type of developments, costs of transport.

### 13.3 Key Demand Drivers

- 13.3.1 Future demand for roading and transportation services is driven by:
- (a) Population and demographic patterns.
  - (b) New residential dwellings and subdivisional activity.
  - (c) Commercial, industrial and agricultural development.
  - (d) Vehicle ownership and usage.
  - (e) Climate Change.
  - (f) Legislative Demands.
  - (g) Community Expectations.

### 13.4 Population and demographic patterns

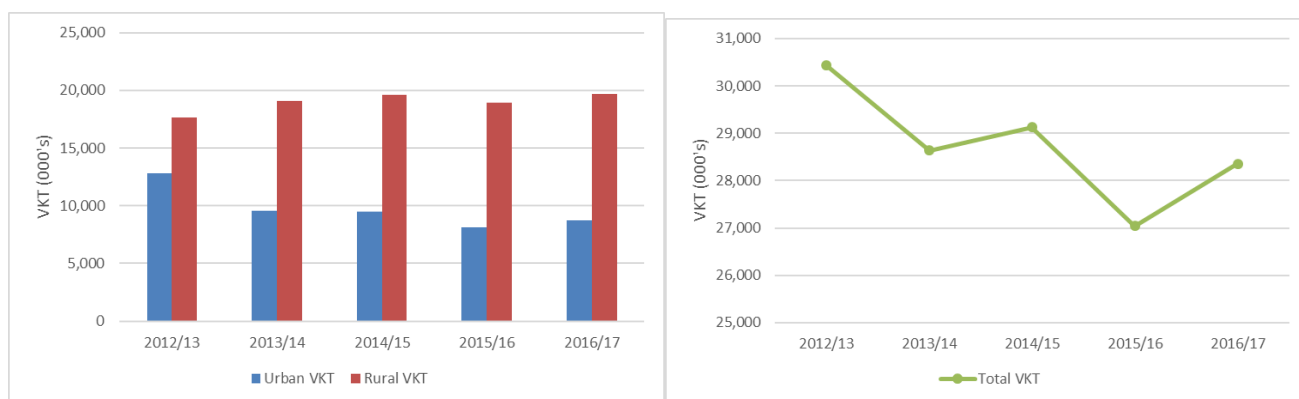
- 13.4.1 Detailed population and demographic pattern information is provided in the *Planning Assumptions* and document supporting this AMP. The following information relates specifically to Land Transport.
- 13.4.2 Traffic counts indicate that in the last five years, overall vehicle kilometres travelled (VKT) have been dropping.



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- 13.4.3 The seasonal peaks generated by ski and outdoor activity traffic in the area mainly contribute to traffic patterns on the State Highways. There is little overall effect on the local road network.
- 13.4.4 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 Pipiriki Road, Koromiko Road and Poro O Tarao route from Taumarunui to Bennydale). This will require ongoing safety-related improvement work to manage.

Figure 49: Vehicle km per annum (000's)



- 13.4.5 Council continues to work with the 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 to be developed to meet this increased demand.

### 13.5 New Residential Dwellings and Subdivisional Activity

- 13.5.1 Subdivisions increase traffic numbers. Detailed information is provided in the *Planning Assumptions* document supporting this AMP.
- 13.5.2 Currently, subdivisions that are due to come online in the near horizon are on Matapuna Road, Horopito and Old Station Road, Ohakune.
- 13.5.3 Council takes the following approach where new roads 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.
- 13.5.4 Subdivisional growth may result in upgrading the existing local road to meet this growth. Growth projects attract development contributions.

### 13.6 Sealing Urban and Urban Periphery Roads

- 13.6.1 There are a small number of unsealed roads in urban areas. There are also unsealed roads at the periphery of our small towns whose usage is growing, typically due to subdivisions occurring in their area. Residents and road users put pressure on Council to seal these roads to increase amenity values and in some cases, to reduce dust.

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13.6.2 A prioritised list has been established, based on the housing density in a 100m section and the traffic numbers per day. The priority is determined by the Traffic Housing Unit of Demand (THUD) number, with the largest number being the highest priority.

13.6.3 If residents wish to advance their place in the list, Council will consider this if the residents contribute in whole or in part. This was used to advance the seal extension of Kaha and Tau Street, Rangataua in 2016.

Table 41: Urban and Urban Periphery Seal Extension Priorities

Priority Order	Road	Locality	Unsealed Length	Proposed Width	AADT	Dwellings	Housing Density in 100m section (HD=D ÷ L)	Estimate	Traffic Housing Units of Demand AADT x HD (THUD)
1	Raurimu Road	Raurimu	513m	6m	63	17	0.33	\$257,000	21
2	Rimu Street	Ohakune	221m	6m	74	6	0.27	\$332,000	20
3	Pito Street	Raurimu	261m	6m	27	12	0.46	\$131,000	12
4	Ohoeka Street	Owhango	345m	6m	37	8	0.23	\$173,000	9
5	Onematua Road	Owhango	476m	6m	65	5	0.11	\$238,000	7
6	Owhango Road	Owhango	119m	6m	27	3	0.25	\$60,000	7
7	Poru Street	Raurimu	209m	6m	13	10	0.48	\$105,000	6
8	Tuka Street	Piriaka	130m	6m	14	4	0.31	\$65,000	4
9	Tanoa Street	Piriaka	257m	6m	20	5	0.19	\$129,000	4
10	Miharo Street	Rangataua	32m	6m	6	2	0.63	16000	4
11	Ward Street	National Park	112m	6m	10	4	0.36	\$56,000	4
12	Buddo Street	National Park	160m	6m	18	3	0.19	\$80,000	3

### 13.7 Tourism, Commercial, Industrial and Agricultural Activity

#### 13.7.1 Business Growth Agenda

- (a) The Business Growth Agenda has a target to increase the ratio of exports to GDP from 30% to 40% by 2025, doubling the value of exports. Currently, the GDP is around 30% of GDP. This will impact on the network, as connective roading and bridge infrastructure will be essential to transport more produce to market. The District is predominantly involved in primary industry with logging, dairying, farming and market gardening.

#### 13.7.2 Tourism

- (a) Tourism is one of the major industries in the District. Supporting tourism initiatives in the Central Plateau is identified as an objective in the Long Term Strategic View.
- (b) The seasonal peaks generated by ski and outdoor activity traffic in the area mainly contribute to traffic patterns on the State Highways. There is little overall effect on the local road network.
- (c) 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 Pipiriki Road, Koromiko Road and Poru O Tarao route from Taumarunui to Bennydale). This will require ongoing safety-related improvement work to manage.
- (d) More detailed information about tourism growth and demand is included in the **Planning Assumptions** document supporting this AMP.

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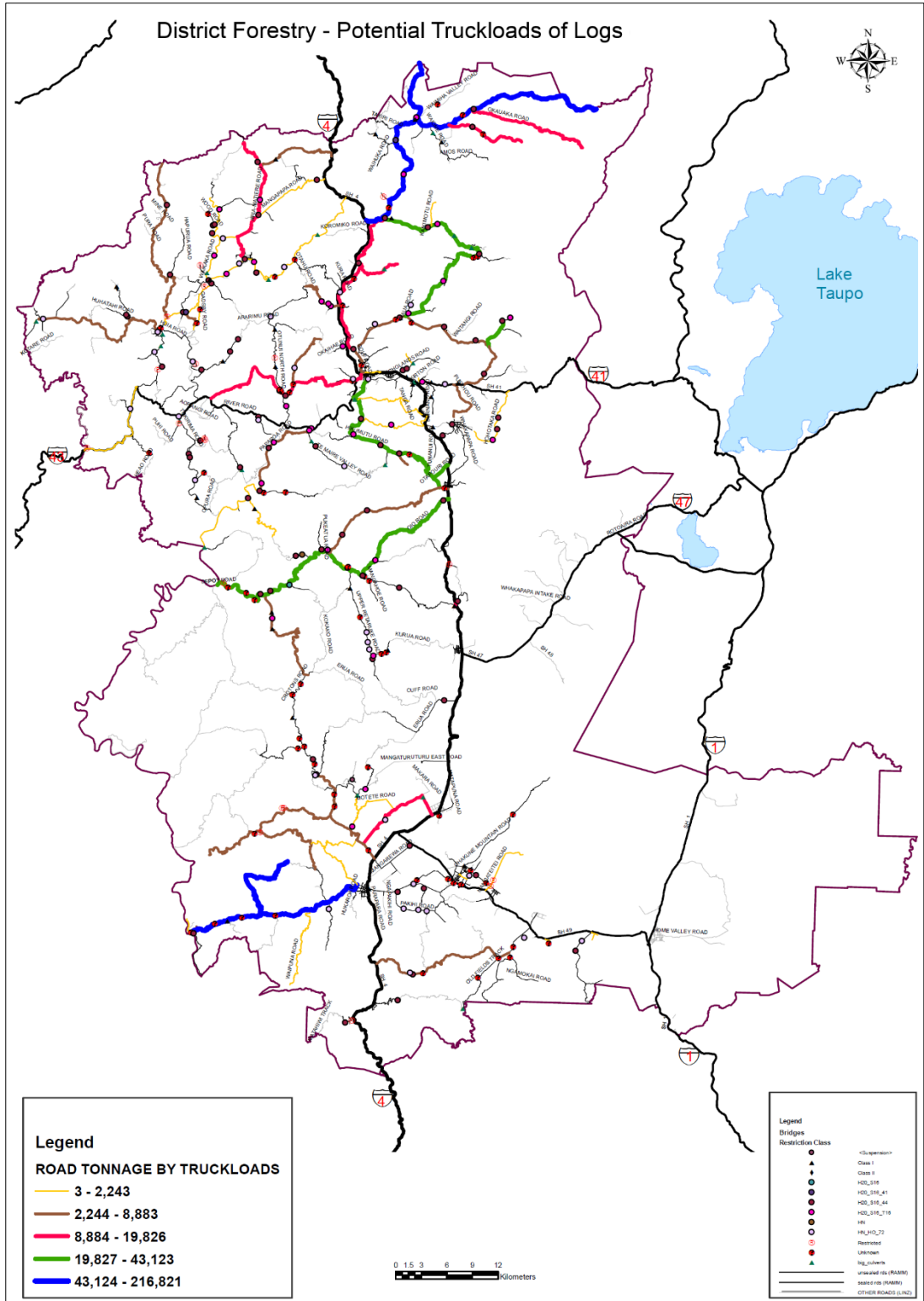
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<b>13.7.3 Forestry</b>
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- (a) The harvesting of large areas of forestry throughout the District is having a major impact on the District roading network. Currently, forestry is underway in the northern area of the District. This is forecast to continue for the next seven years.
- (b) In addition, small private forest blocks are being harvested around the district.
- (c) 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.
- (d) The majority of planting occurred in 1989-90 and is maturing from 2014 onwards. The map below was produced in 2006 to forecast road tonnage by truck load for forest harvests between 2008 and 2021. The roads with the highest logging tonnages have since been used for logging.
- (e) A project to update Council's forestation information will be included in the Improvement Plan.

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Figure 50: Potential truckloads of logs



## 13.7.4 Pastoral Farming

- Forestry is the prime driver for the rural roading network, but traditional pastoral farming of sheep, beef, and to a lesser extent deer, also places stress 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 results in increased pressure to improve the alignment of narrow rural local roads, in order to take larger truck and trailer units to the farm gate. The recent conversion of

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some farms to dairy farming may generate a slight change in traffic movement to accommodate daily milk tankers.

- (c) The trend towards larger vehicles also affects the connecting routes, many of which are still relatively narrow and winding and with inadequate foundations. The most direct impact is on safety. Bigger units drive as fast as practical on these roads, causing instances of conflict with light vehicles.

### 13.7.5 Market Gardening

- (a) The Ohakune area of the District grows approximately 40% of the carrots grown in New Zealand. This is expected to continue. This places heavy vehicle demands on the local road network.

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

### 13.7.6 Mining

- (a) Ruapehu has a variety of sources of aggregate throughout the District and coal deposits in the Ohura area. Traditionally, most aggregates in the north of the District have come from river gravels, particularly from the Whanganui River at Taumarunui. In the south, gravel has generally come from pit sources, and it is expected that it will continue to do so.
- (b) Demand for coal periodically sparks renewed interest in coal deposits in the Ohura area.
- (c) If coal mining were to go ahead, coal may be carted out of the District by road or rail. If it were carted by road, it would have a substantial impact on the network. The uncertainties around timing and destinations make it difficult to plan for the road usage. Any response will be largely reactive.

## 13.8 Changing Vehicle Use and Type

### 13.8.1 Vehicle ownership and usage

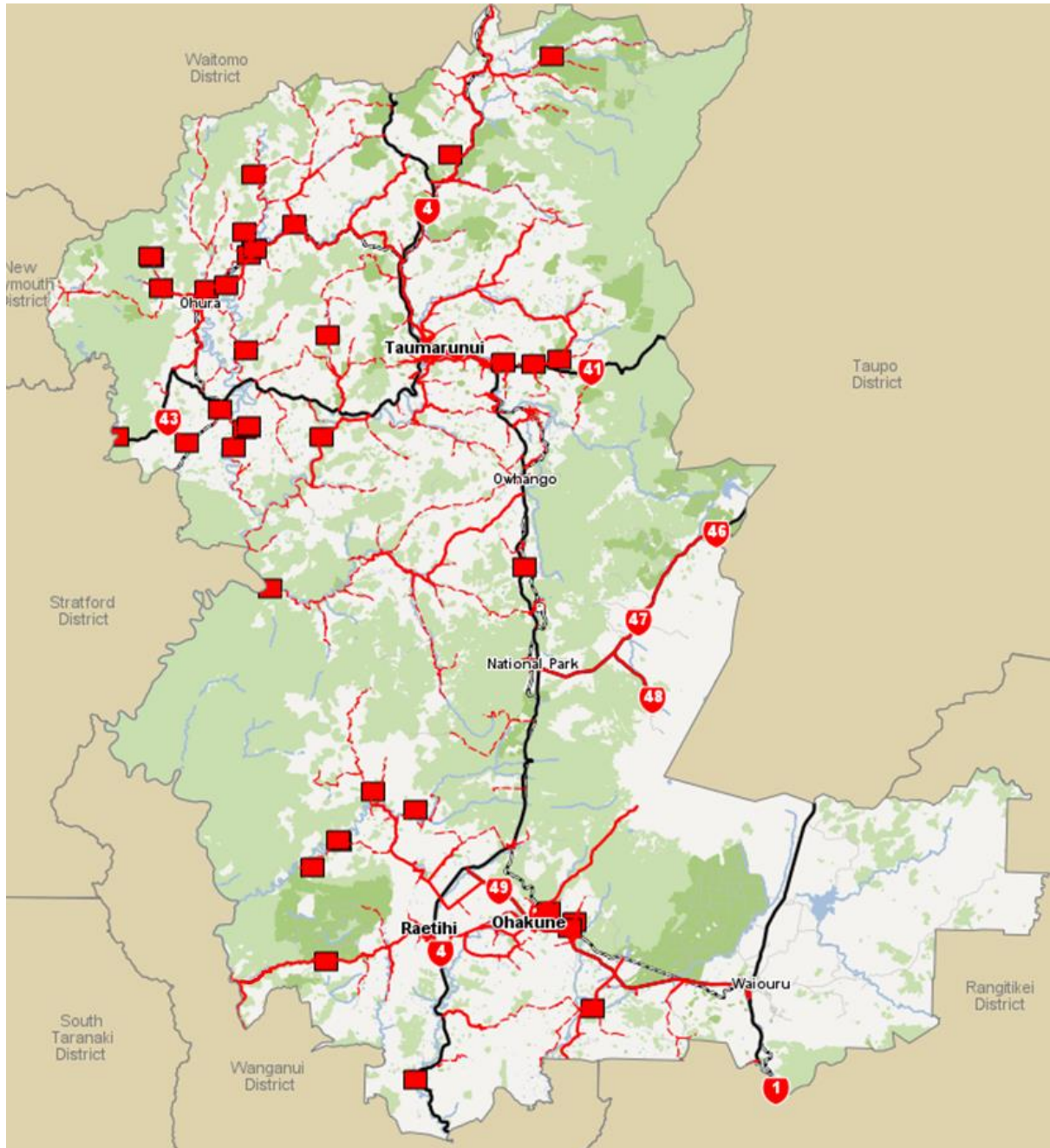
- (a) NZTA statistics indicate that nationwide car ownership levels are increasing. New Zealand's rate of light vehicles per population (767 per 1,000 persons) is one of the highest in the world.
- (b) Census data supports this trend in the Ruapehu District with the proportion of households owning more than one car increasing by 12% since 1996. More vehicle-trips are likely to be generated, leading to:
- Accelerated wear and tear on the Land Transport network, although this is minor in comparison to the deterioration caused by heavy vehicular traffic.
  - Increased community expectations for improved ride comfort.
  - Higher incidence of vehicular accidents.
- (c) Traffic congestion, which is not currently an issue in the district, also tends to increase with greater per-capita vehicle ownership.

13.8.2 The launch of 50Max trucks has impacted the District. 50Max vehicles have one more axle than conventional 47 tonne vehicle combinations, spreading the overall truck load further without increasing wear on the road. Bridges built prior to 1943 with spans greater than 25m or those built prior to 1961 with spans greater than 30m or bridges with an existing weight restriction are unable to take 50Max vehicles. Currently, 9% of the District network is restricted under these criteria. 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 and increase efficiency.

13.8.3 High Productivity Motor Vehicles (HPMV) are vehicles that can carry a load that either exceeds 47T or 20m in length. HPMV's are designed to carry large amounts of freight more efficiently. They can only move on permitted routes with enabling infrastructure. There are no current permitted routes in Ruapehu District. Upgrading roads and bridges to be suitable for the larger, heavier vehicles is costly. Applications are being evaluated for key routes including the Ongarue Waimiha and Poro-o-Tarao Roads, currently suffering ongoing deterioration due to forestry loadings.

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Figure 51: Map of bridges restricted to 50 Max Vehicles



### 13.8.4 Route Security

- (a) 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 very unstable country that suffers from major slips which are very difficult to prevent.
- (b) The majority of bridges within the District were designed and constructed prior to 1980 when the first national guidelines for seismic design of bridges were published.

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## 13.8.5 Walking and Cycling

- (a) 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.

Table 42 - Location of Footpaths

Area	Sub Area	Length (m)	Area (m <sup>2</sup> )
National Park	National Park	2,184	2,585
	Owhango	974	1,186
	Raurimu	22	29
Ohura	Ohura	1,031	2,113
	Rural	721	724
Taumarunui	Rural	452	491
	Taumarunui	38,931	66,139
Waimarino	Ohakune	14,870	24,090
	Raetihi	8,132	13,160
	Rural	549	1,112
	Ohakune Mountain Road	112	112
	Waiouru	616	903
<b>Total</b>		<b>68,594</b>	<b>112,644</b>

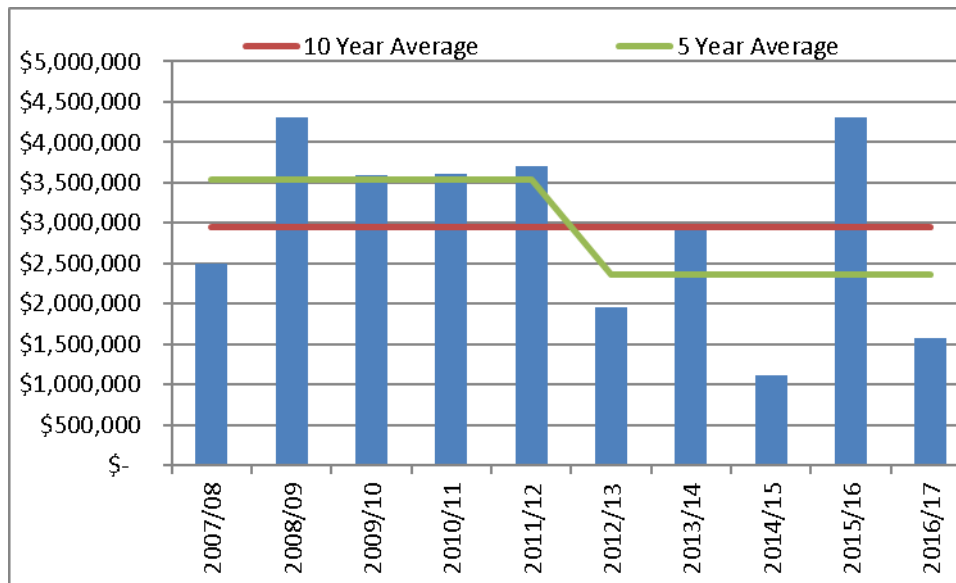
- (b) Council's focus is on recreational cycling rather than changing modes of transport or congestion relief. There are not any passenger transport services in Ruapehu.
- (c) Two National Cycle trails (Nga Haerenga – New Zealand Cycle Trail) were constructed in 2014. The 'Mountains to the Sea' is a three day ride from Ohakune to Whanganui via the Ohakune Old Coach Road, Mangapurua and Kaiwhakauka Tracks. The Timber Trail is a two day ride using old bush rail routes to traverse 77km of native bush between Pureora and Ongarue. There are now 144km of "off road" tracks and 237km of Heartland on road rides in the District. The cycleways have benefits for tourism and the District economy
- (d) The introduction of cycleways increased the number of cyclists on rural roads, raising concerns around safety. Ruapehu District has a Cycle Awareness Strategy.

## 13.9 Climate Change

- 13.9.1 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.
- 13.9.2 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.
- 13.9.3 The graph below shows the increase in emergency works expenditure, which is through the rise in emergency events over the previous 20 years.

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Figure 52: Emergency Works Expenditure 2007/08 – 2016/17



## 13.10 Legislative changes impacting on demand

13.10.1 Key regulations and legislation are discussed in Section 12.2 Key Legislation. The following legislative changes might have small incremental impacts on growth or decline in demand over time:

Table 43- Legislation that could impact on demand

Legislation	Change and potential impact
Health and Safety at Work Act	Introduction of the Health and Safety at Work Act in April 2015 is impacting contracts.
Resource Management Act	Changes in RMA could stimulate growth.

## 13.11 Community Expectations

13.11.1 The Transport activity growth and decline in demand contributes primarily to the following Council outcome:

Table 44- Growth and decline in demand contribution to Council Outcomes

Council Outcome	Growth Projects/initiatives over the next 10 years
Core infrastructure endeavours to keep pace with changing demand.	Seal extensions have been identified as a growth project over the next 10 years. As discussed in Section 17.10, network reduction can be considered by transferring management of very low volume unsealed rural no-exit roads to the adjacent landowners.

13.11.2 Information is gained from customers with regard to their expectations on the effectiveness of the delivery and costs associated with Transport services. This information is collected via a number of mechanisms that include (refer to Section 10 Customer Service for more information):

- Customer Survey.
- Submissions on the Annual Plan and LTPs.
- Analysis of customer calls.
- Community consultation.

13.11.3 Seal extensions for rural roads are often requested. Dust is often an issue for both safe road use and its impact on houses adjacent to the road. NZ Transport Agency released a methodology for assessing the merits of undertaking dust mitigation in General Circular Investment: No 16/04. Council will assess applications against this methodology.



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## 13.12 Impacts of Changing Demand on the Land Transport Activity

13.12.1 The following table summarises the effects of the identified growth and demand trends on the land transport activity.

Table 45 - Growth and Demand Trends

Growth/Demand Trend	Impact
<b>Overall population and subdivisional growth patterns</b>	
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.
Subdivisional activity and holiday home growth in: <ul style="list-style-type: none"> <li>▪ Ohakune</li> <li>▪ Rangataua</li> <li>▪ National Park</li> <li>▪ Horopito</li> </ul>	<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>
<b>Increasing visitor numbers</b>	
<p>Growing tourism industry leading to increased visitor numbers and significant holiday home development in</p> <ul style="list-style-type: none"> <li>▪ Ohakune</li> <li>▪ Rangataua</li> <li>▪ Horopito</li> </ul>	<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"> <li>▪ Ohakune Mountain Road – peak day tidal traffic exceeds capacity and is expected to continue to increase.</li> <li>▪ Raetihi-Pipiriki Road – unsealed and areas of poor geometry with increasing tourism traffic expected.</li> <li>▪ Oio Road – unsealed, areas of poor geometry with increasing tourism traffic expected.</li> </ul> <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>
<b>Increasing heavy vehicle numbers and size</b>	
Harvesting of forests leading to significantly increased heavy vehicle traffic.	<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>
Move to larger farming units and larger heavy vehicles.	<p>Accelerated pavement deterioration and safety issues as above.</p> <p>Bridge capacity or geometry issues as above</p>
Increased aggregate extraction from pits in the north, and renewed interest in coal deposits in Ohura leading to increased heavy vehicle traffic.	<p>Accelerated pavement deterioration and safety issues as above.</p> <p>Bridge capacity or geometry issues as above</p>
<b>Increasing vehicle ownership</b>	
Increasing vehicle ownership leading to increased vehicle trips.	<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>

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### 13.13 Demand Projections

- 13.13.1 The following assumptions have been made for planning to manage practically the demand projection implications:
- (a) 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.
  - (b) 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.
  - (c) Assumptions have been made on the following specific routes:
    - (i) Peak traffic flows on the Ohakune Mountain Road are expected to increase to 2,000 vehicles per day in each direction to align with carparking 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. It is anticipated that the increase in usage can be managed through the use of specific designs (such as wider pavements) within the current rehabilitation programme or by the provision of Park and Ride shuttle services.
    - (ii) 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.
  - (d) Heavy vehicle movements on feeder roads from forestry areas to state highways will increase to an additional 800,000 vehicle movements in each direction throughout the district.
  - (e) Heavy vehicle movements on feeder roads from aggregate mining areas to state highways will increase marginally over the next 10 years.
  - (f) 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.
  - (g) Increasing vehicle ownership and vehicular trips have negligible effect on the deterioration rate of the network.
- 13.13.2 Increasing visitor numbers implies more vehicular and pedestrian traffic, and an increased peak/low variation.

### 13.14 Meeting Growth and Changing Demand Needs

#### 13.14.1 Growth and Demand Forecasting

The following contribute to the robustness of the growth and demand forecasting, and management processes.

- (a) Traffic volumes and patterns on the identified critical routes are monitored.
- (b) RDC work closely with NZTA and Horizons to ensure consistency is achieved in local, regional and national land transport strategies.
- (c) RDC liaise with KiwiRail to explore alternative transportation modes and benefits in a local and regional context as required.
- (d) RDC work closely with industry groups to better understand anticipated demand increases. These groups include forestry groups, farmers, quarrying and mining companies.

#### 12.14.2 Demand Management Planning

- (a) As traffic growth on the majority of the District’s roads is not likely to lead to congestion, techniques used by Council are currently focussed on limiting damage to pavements caused by heavy vehicles:
  - (i) Discussion with transport operators to identify routes which are better suited for heavy vehicle use.
  - (ii) Regulation - Traffic bylaws (restricting traffic use on specified routes, use of air brakes, speed etc).

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- (iii) Key tourism routes will continue to be monitored for congestion during peak periods (for example Ohakune Mountain Road) and appropriate management strategies adopted.
- (b) Seasonal demand around the Tongariro Alpine Crossing in summer and Mt Ruapehu ski fields in winter has created a demand for car parking. In 2017, a trial Park and Ride shuttle service was run by the skifield operator. If it proves to be successful, parking facilities will be developed in Ohakune, National Park and Turangi to support this.

### 13.15 Capital works programmes related to growth

- 13.15.1 Specific projects and programmes for growth and / or demand, the % contribution budget related growth and / or demand over the next 10 years are summarised in the table below. The total cost of growth for the 10-year period 2018/19 to 2027/28 is \$1.2M.

Table 46 – Capital Development related to Growth

Description	Growth	Renewals	LOS	Total Cost of Growth for 10 year period 2018/19 to 2027/28
Future Residential Access Road Ohakune	100%	-	-	Outside of 10 year period-
Seal extensions	100%			\$437,090
Old Station Road Bridge 317 Safety Improvements	15%	35%	50%	\$758,801
<b>TOTAL</b>				<b>\$1,195,891</b>

### 13.16 Future improvements

- 13.16.1 No improvements to growth and demand planning have been identified.

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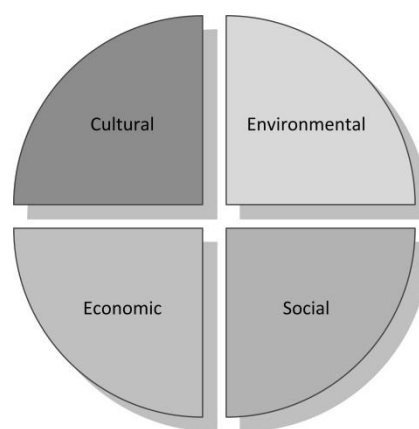
## 14 Environmental Stewardship

### 14.1 Overview

- 14.1.1 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.
- 14.1.2 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.

### 14.2 Sustainability Outcomes

- 14.2.1 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).
- 14.2.2 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".
- 14.2.3 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?
- 14.2.4 In other words:
- What needs to be done here, and why?
  - How are we going to do it?
  - What are the resources required?
- 14.2.5 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.
- 14.2.6 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.



### 14.3 Sustainability Context

- 14.3.1 Sustainability and Local Government in New Zealand
- Following the 2002 World Summit on Sustainable Development in Johannesburg, Central Government clearly signalled its intention to apply the principles of sustainability across government through all policy and decision-making processes. This 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.

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- (iii) 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.
- (iv) For local government, it is about planning and providing for the needs of individuals and communities, protecting ecosystems and their services and creating prosperity.
- (v) 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.

### 14.4 Legislation

14.4.1 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.

14.4.2 The role of Central Government is one of setting policy for asset management across New Zealand. Statutory requirements have been outlined in detail in Section 12: Business Drivers; however, specific requirements relating to environmental stewardship are covered in more detail in the following sub sections.

**Table 47 - 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 2010, 2012 and 2014 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.
Land Transport Management Act 2003, and Amendments 2008	The purpose of the Land Transport Management Act 2003 (LTMA) is to: <ul style="list-style-type: none"> <li>(a) Provide an integrated approach to land transport funding and management.</li> <li>(b) Improve social and environmental responsibility in funding, planning and management of land transport.</li> <li>(c) Improve long term planning and investment in land transport.</li> <li>(d) Ensure land transport funding is cost effective.</li> <li>(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.</li> <li>(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 Strategy (RLTS).</li> </ul>
Land Transport (Road Safety and Other Matters) Amendment Act 2011	This Act amends the Land Transport Act 1998. from an environmental impact aspect, the act allows the road controlling authorities to: <ul style="list-style-type: none"> <li>(a) Restrict heavy traffic on roads.</li> <li>(b) Make certain bylaws including: <ul style="list-style-type: none"> <li>(i) Restricting specified class of traffic.</li> <li>(ii) Restricting vehicles on unformed road</li> <li>(iii) Restricting planting of vegetation near corners</li> </ul> </li> </ul>

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Hazardous Substances and New Organisms Act 1996 (HSNO)	The HSNO Act and regulations control the import, manufacture or use (including disposal) of hazardous substances. 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.
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### 14.5 National Regional and Local Plans

14.5.1 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:

#### 14.5.2 Horizons One Plan

- (a) 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.
- (b) The One Plan became operative in its entirety in December 2014.
- (c) 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 rules that specify whether an activity is permitted and whether resource consent is needed.

#### 14.5.3 Ruapehu District Plan

- (a) The District Plan became fully into 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:
  - (i) Land use
  - (ii) Subdivision
- (b) Activities that need resource consent are classified as controlled restricted discretionary, discretionary and non-complying.

#### 14.5.4 Regional Land Transport Plan

- (a) The Horizons Regional Land Transport Plan (RLTP) 2015 - 2025 sets the strategic direction for transport in the Region and identifies activities for investment by local and Central government.
- (b) 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.
- (c) The Plan is currently being reviewed for the 2018 – 2028 period.

#### 14.5.5 Draft Government Policy Statement

- (a) The draft GPS 2018 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.
- (b) The Draft GPS 2018 has the following strategic direction:-
  - (i) Key Strategic Priorities
    - Road Safety
    - Access
  - (ii) Supporting strategic priorities
    - Value for money
    - Environment

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### 14.5.6 Draft Transport Agency Investment Proposal (TAIP)

- (a) The purpose of this Draft Transport Agency Investment Proposal (the TAIP) is to set out the 10-year programme of activities that the Transport Agency proposes for inclusion in the 2018-27 National Land Transport Programme (the NLTP), to give effect to the 2018-27 Government Policy Statement on Land Transport (the GPS). The activities in the TAIP will support the locally-led activities that councils also put forward for inclusion in the NLTP.
- (b) Ruapehu is part of the first tranche of RED zones. Regional economic development is supported by the government's Regional Growth Programme. Central government agencies and regional stakeholders such as businesses, iwi, Māori, councils and economic development agencies are working in partnership to identify opportunities to increase jobs, income and investment in selected regions. The Manawatū-Whanganui Regional Growth Study identifies transport and distribution as a key enabler of regional development because they go to the heart of the present and long term future of the region as an exporting area

### 14.5.7 National Land Transport Programme (NLTP)

- (a) Under the GPS, the NLTP contains all the land transport activities prioritised from the individual RLTPs, such as public transport services and road construction and maintenance, which are expected to receive funding from the NZ Transport Agency. The Agency is responsible for allocating funding to land transport. It is a three year programme.
- (b) The NLTP must give effect to the GPS. Regional Land Transport Programmes must align with the NLTP.

### 14.5.8 Draft Investment Assessment Framework (IAF)

- (a) The Draft Investment Assessment Framework has been developed to give effect to the engagement draft of the Government Policy Statement on Land Transport for 2018/19 to 2027/28.
- (b) It outlines the method that NZTA will use to ensure that Business Case AMPs align with the GPS.
- (c) Assessment criteria include the use of the Business Case approach and Results alignment, as well as cost-benefit appraisal.

## 14.6 Resource Consents

14.6.1 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.

14.6.2 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.

14.6.3 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.



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14.6.4 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.



14.6.5 The AEE process involves:

- (a) The effects of the proposal on other person(s), e.g. neighbours affected by dust or noise.
- (b) 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.
- (c) The visual impact of the proposed activity.
- (d) Proposed methods of how any identified adverse effects are minimised.

14.6.6 The critical environmental factors requiring consideration include:

- (a) Ecosystems and their constituent parts, including people and communities.
- (b) All natural and physical resources.
- (c) Amenity values.
- (d) The social, economic, aesthetic, and cultural conditions which affect the matters stated in the paragraphs above.

14.6.7 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.

### 14.7 Designation

14.7.1 The purpose of a designation:

- (a) Inform the community about the route and operation of existing and future transportation networks.
- (b) Allows 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.
- (c) Protects future routes from inappropriate development and can assist in strategic planning.
- (d) Allows land to be purchased for transportation purposes.
- (e) Needs to be implemented within a specific timeframe.
- (f) May be 'rolled over' by the designating authority into a new plan.
- (g) Although resource consent is not required for works on a designated site that are in accordance with the purpose and conditions of the designation, an Outline Plan is required instead. An Outline Plan is a plan or description of works that a requiring authority submits to Council when it intends to carry out works on the designated site. Outline Plans often contain details that were not available at the time the site was first designated in the district plan.
- (h) The District Plan contains designations that relate to the Transport activity as listed below:

**Table 48 - 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



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Plan Ref	Purpose
	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

### 14.8 Potential Issues

14.8.1 There are a number of adverse environmental effects that can occur in the process of undertaking Transport related activities, 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. The information provided below outlines some of these issues and associated mitigation measures that could be employed.

Table 49 - Potential Environmental Issues

Issue	Description	Mitigation Measures
Dust	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.	The following mitigation measures may be considered in the control of dust emissions: Wheel washing for trucks leaving development sites. Spraying down areas (with water) to control dust emissions. Monitoring at site boundaries
Sediment Runoff	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.	The following mitigation measures may be considered in the control of sediment runoff: 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	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: NZS 6806: 1993 Road Traffic Sound. “Guidelines for the Management of Road Traffic Noise – State Highway Improvements” by Transit New Zealand 1994.	The following mitigation measures may be considered in the control of noise emissions: Hours of permitted work Monitoring at site boundaries Compliance with standards Community consultation
Landscape Values	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.	The following mitigation measures can be considered when taking into account landscape values: Review District Plan maps Community consultation
Cultural Heritage	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	The following mitigation measures may be considered when taking into account cultural heritage values or sites: Consultation with key stakeholders Development of protocols Due diligence prior to development

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Issue	Description	Mitigation Measures
	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.	
Stormwater Discharge	Stormwater discharges need to be managed to prevent pollutants from entering waterways. Roads provide a number of 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. In addition, stormwater pipes/culvert outlets can cause scour during large flows.	The following mitigation measures may be considered in the control of stormwater discharges: 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

### 14.9 Climate Change

- 14.9.1 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.
- 14.9.2 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 principles should also be kept in mind when adapting to the effects of climate change.' 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/Kaitiakianga
  - Consultation and participation
  - Financial responsibility
  - Liability
  - Resilient communities
  - Spill
- 14.9.3 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

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- (ii) a low snow year is expected to be five times more likely by the 2090s.

- 14.9.4 The Ministry for the Environment’s analysis on what this will mean for Manawatu-Wanganui relevant to the Ruapehu District and the Land Transport Activity are:
- (a) 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.
  - (b) 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.
  - (c) Biosecurity – Warmer, wetter conditions could increase the spread of pests, weeds and diseases over time.
- 14.9.5 The following mitigation measures are considered when taking into account climate change:
- (a) Have regard to projections during planning phases
  - (b) Cognisance of areas located as being potential hazard zones
  - (c) Specialist advice

### 14.10 Hazards

- 14.10.1 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.
- 14.10.2 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.
- 14.10.3 The Horizon Regional Council’s One Plan sets out responsibilities for natural hazard management relevant to the Ruapehu District. The plan to minimise risks of natural hazards through:
- (a) Raising public awareness of the risks of natural hazards through education, including information about what natural hazards exist in the Region, what people can do to minimise their own level of risk, and what help is available.
  - (b) Making territorial authorities responsible for developing objectives, policies, and methods (including rules) for the control of the use of land. These rules avoid and mitigate natural hazards for all activities in all areas. With the exception of land-use activities in the coastal marine area erosion protection works that cross or adjoin mean high water springs and land-use activities in the beds of rivers and lakes.
  - (c) Identifying floodways and other areas known to be inundated by a 0.5% annual exceedance probability flood event in District Plans, and controlling land-use activities in these areas.
- 14.10.4 The following hazard types have been identified as being significant to the Land Transport activity. Monitoring of natural hazards and their impacts are ongoing.
- (a) Flooding
    - (i) 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
    - (ii) 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

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- (iii) Flooding hazards within the Ruapehu District have principally occurred within the Ohura area. This area has been affected by numerous large flooding events over many years, which has resulted in dwellings being made uninhabitable and many requiring extensive repairs.
- (iv) Horizons Regional Council has modelled flood risks for Ohakune and Taumarunui.
- (b) Landslides
  - (i) 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.
  - (ii) The risk of landslide is influenced by a number of factors such as:
    - Underlying geology.
    - Proximity to rivers, lakes and the coast.
    - Past and present land use including vegetation changes.
    - Infrastructure development.
  - (iii) Landslides can result in significant adverse effects on the road network including blocking roads by material dropping onto the road or loss of the road because the supporting country and the road slip away.
- (c) Snow and Ice
  - (i) Snow and ice on the roads can make driving conditions hazardous across the Region. CMA is used in areas known for ice during winter to help minimise the formation of ice.
- (d) Earthquakes
  - (i) New Zealand is considered amongst the most seismically active places on earth, as it is located on an active boundary of two tectonic plates.
- (e) Volcanic Activity
  - (i) 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 the volcanic mudflow called a lahar. 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.
  - (ii) 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 impacting upon the mountain (particularly the Western ski fields and Whakapapa Village).

### 14.10.5 Impacts on the Roding Network

- (a) The Region is a major corridor for road and rail transportation networks. There is an extensive network of both state highways and local roads throughout the area and the road network has been identified as being the most critical of the transportation networks.
- (b) 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, with isolation and restricted access being the main issues. Despite this, there is arguably more redundancy within the road network than any of the other lifeline utilities.
- (c) Plans to deal with a large scale failure are detailed in the CDEM Plans.



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### 14.11 Future Improvements

- 14.11.1 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.



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# Part 3 – Land Transport Activity

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## 15 Managing Risk

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### 15.1 Overview

- 15.1.1 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 "Who are we? The Ruapehu Context to Asset Management" document.
- 15.1.2 The risks are assessed from both external and internal contexts. The external (PESTLE) context categories are:
- (a) Political and Policy
  - (b) Economy
  - (c) Social
  - (d) Technological
  - (e) Legal and Regulatory
  - (f) Environmental
- 15.1.3 The internal (AM function) context categories for each asset type are:
- (a) Asset condition and performance
  - (b) Activity planning
  - (c) Activity management (operational)
- 15.1.4 The risk context and risk register was reviewed and updated in 2017.

### 15.2 Risk Context

- 15.2.1 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 3.

### 15.3 Risk Register

- 15.3.1 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 risk register that identified the medium, high and extreme risks. These are the identified risks that Council needs to action over and above the low risks. Low risks are dealt with by routine processes and were covered off in the workshop. These two documents can be found in Appendix D, Schedules 1 and 3.
- 15.3.2 The risk register was reviewed in 2017. Medium, high and extreme risks identified in these documents were inputted into the Risk Register (Appendix D, Schedule 2). The Risk Register analyses each risk, describes the current treatment, evaluates, advises tolerance treatment and reasons for this rating. Additional management options have been identified for specific risks rated as Medium, High or Extreme to treat the present risk and outlines additional management options. Actions that are required to achieve the desired improvements are indicated along with how progress on these actions will be monitored and reported. Where applicable, action tasks will detail timeframes for achievement, and responsibility for these actions.
- 14.3.3 The resulting risk matrix shows two risks identified as extreme treated risks and six high treated risks.

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Table 50 – Risk Matrix with number of risks identified

Likelihood	Consequence				
	Insignificant (1)	Minor (2)	Significant (3)	Major (4)	Catastrophic (5)
Almost Certain (5)	0	1 (LT04)	0	0	0
Likely (4)	0	0	2 (LT02, LT11)	0	0
Possible (3)	0	0	1(LT03)	0	1 (LT01)
Unlikely (2)	0	0	4	1 (LT13)	2 (LT05, LT09)
Rare (1)	0	0	0	0	0

Where:

Low
  Medium
  High
  Extreme

## 15.4 Extreme and High Residual Risk Land Transport Activity Risks

15.4.1 Of those specific risks listed in the Risk Action Plan the following remain with high residual risk and are worthy of particular note:

- (a) LT01 Collapse of non-maintained bridges
- (b) LT05 Collapse of maintained bridges
- (c) LT02 Increased pavement deterioration due to forestry haulage
- (d) LT03 One Network Road Classification (ONRC)
- (e) LT04 Impact on local share affordability from changes to NZTA FAR
- (f) LT09 Changing road user trends – safety issues
- (g) LT11 Snow and Ice
- (h) LT13 Ability to deliver Asset Management Programme

## 15.5 Risk Treatment Programme Exceptions

15.5.1 Any costs/resources needed to treat a specific risk are:

- (a) Listed in the Risk Register
- (b) Specified to be done by a determined date
- (c) Provided for in the Long Term Plan

## 15.6 Critical Assets

15.6.1 **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:

- (a) Impact on service delivery (i.e. levels of service)
- (b) Impact on compliance requirements
- (c) Impact on people (i.e. risk to life)
- (d) Impact on property and infrastructure (i.e. disruption to others)
- (e) Impact on the environment
- (f) Cost to repair

15.6.2 Although a formal criticality assessment has not been undertaken, the following assets have been identified as critical, with a greater level of management applied to them:

- (a) 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.
- (b) Raetihi-Ohakune Road - this is an important tourist road, heavily used during the ski season.
- (c) 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 five years on sealed sections to improve alignment, geometry and safety.
- (d) Raetihi-Pipiriki Road – this road leads to the Pipiriki Township, on the banks of the Whanganui River.
- (e) Oio Road – this important route is unsealed. It has areas of poor geometry, with increasing tourist traffic predicted.

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- (f) Okahukura Saddle Road – sealing was completed in 2010. This route sees farming and other commercial traffic and is one of the main routes into the Ohura hinterland.
- (g) Ohura Road – provides access to Ohura and Matiere and surrounding farmland.
- (h) Paparoa Road – provides only access to Kirikau and Tawata Valley across Te Maire Bridge.
- (i) Ongarue Waimiha Road – provides access from SH4 to Ongarue.
- (j) Poro O Tarao route from Taumarunui to Bennydale – this road is an important inter-district link to Bennydale, an employment base, and to the Pureora Forest 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.
- (k) Hekeawai Drive – provides alternative access to Taumarunui Hospital in emergency events should SH43 Hospital be closed or blocked.

### 15.7 Resilience

- 15.7.1 **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:
- (a) The performance of transport assets during a significant event such that they do not create a hazard to people.
  - (b) The availability of key transport assets and routes to support evacuation and emergency response following a significant event.
  - (c) The capacity to return assets or routes to service following an unplanned disruption.
- 15.7.2 The adverse events which are considered for the purposes of a resilience assessment are:
- (a) Major Earthquake
  - (b) Volcanic Eruption
  - (c) Extreme Wind
  - (d) Flooding
  - (e) Fire
  - (f) Land slip
- 15.7.3 Horizons has carried out work to identify lifelines within the region and three roads have been identified as providing critical local links. The Ruapehu District Council network predominantly is a spine network with valley roads forming sole access to properties from the state highway. This impacts on the resilience of the network.

### 15.8 Improvement Plan

- 15.8.1 The following improvements have been identified:
- (a) Improve information on assets and activity associated risks.
  - (b) Review PESTLE analysis and Asset Management functions
  - (c) Routinely examine untreated risk and existing controls.



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## 16 Lifecycle Management Plans Overview

### 16.1 Introduction

16.1.1 This Lifecycle Management (LCM) section provides the broad strategies and work programmes required to achieve the goals and objectives set out in the *“Who are we? The Ruapehu Context for Asset Management”* document accompanying this Plan.

16.1.2 These assets are covered in the following sections:

- (a) Pavements. Including Special Purpose road – Ohakune Mountain Road.
- (b) Structures (Bridges, large culverts and retaining walls).
- (c) Drainage.
- (d) Traffic services (street lighting, road markings, signs and traffic control).
- (e) Footpaths.
- (f) Cycleways.
- (g) Bus shelters.
- (h) Facility roads and carparks.

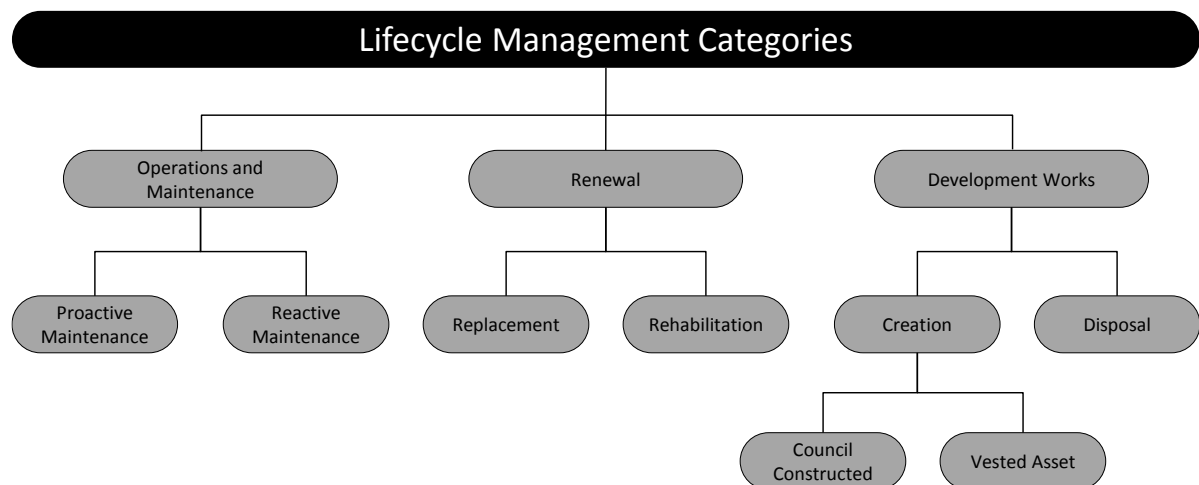


16.1.3 This Plan covers the lifecycle of the Transport activities including:

- (a) Overview
- (b) Key issues
- (c) Business Case
- (d) Asset Description
- (e) Replacement Cost and Annual Depreciation
- (f) Asset Age and Condition
- (g) Operations and Maintenance Plan
- (h) Renewal Plan
- (i) Development Works Plan
- (j) Disposal Plan
- (k) Expenditure

16.1.4 The figure below illustrates the following components of lifecycle management categories.

Figure 53: Land Transport Activity Lifecycle Management Categories



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16.1.5 The following work categories are used for asset maintenance, renewal and development. Work qualifying for NZTA investment has a Work Category number (WC). The remainder is unsubsidised work.

Table 51 - Work Categories

Asset	WC No	Work Category Name	ONRC CLoS				
			Reliability	Resilience	Safety	Amenity	Access-ibility
Pavement	111	Sealed Pavement Maintenance			✓	✓	✓
	112	Sealed Pavement Maintenance			✓	✓	✓
	211	Unsealed Road Metaling			✓	✓	✓
	212	Sealed Road Resurfacing			✓	✓	✓
	214	Sealed Road Pavement Rehabilitation			✓	✓	✓
	341	Low Cost Low Risk (formerly Minor Improvements)			✓	✓	✓
			Seal extension			✓	✓
Structures	114	Structures Maintenance	✓	✓	✓		✓
	215	Structures Component Replacements	✓	✓	✓		✓
Drainage	113	Routine Drainage Maintenance	✓	✓	✓		✓
	213	Drainage Renewals	✓	✓	✓		✓
		Kerb & Channel Maintenance		✓		✓	
		Kerb & Channel Development		✓		✓	
Traffic Services	122	Traffic Services Maintenance	✓		✓	✓	✓
	131	Level Crossing Warning Devices				✓	
	222	Traffic Services Renewal	✓		✓		✓
		Crossings and shelters					✓
		Amenity & Under Verandah Lighting Maintenance			✓	✓	
	Amenity & Under Verandah Lighting Renewal			✓	✓		
Footpaths		Footpath Maintenance			✓	✓	✓
		Footpath Renewals			✓	✓	✓
		Footpath Development			✓	✓	
Cycleways		Cycleway Maintenance			✓		✓
Bus Shelters		Bus Shelter Renewal				✓	✓
Facility Roads & Carparks		Facility Roads and Carparks Maintenance			✓	✓	
		Facility Roads and Carparks Renewal			✓	✓	
Environmental Services and Emergency Works	121	Environmental maintenance			✓	✓	✓
	151	Network and asset management	✓	✓	✓	✓	✓
	140	Minor Events	✓	✓	✓		✓
	141	Emergency Works	✓	✓	✓		✓

## 16.2 Operations and Maintenance

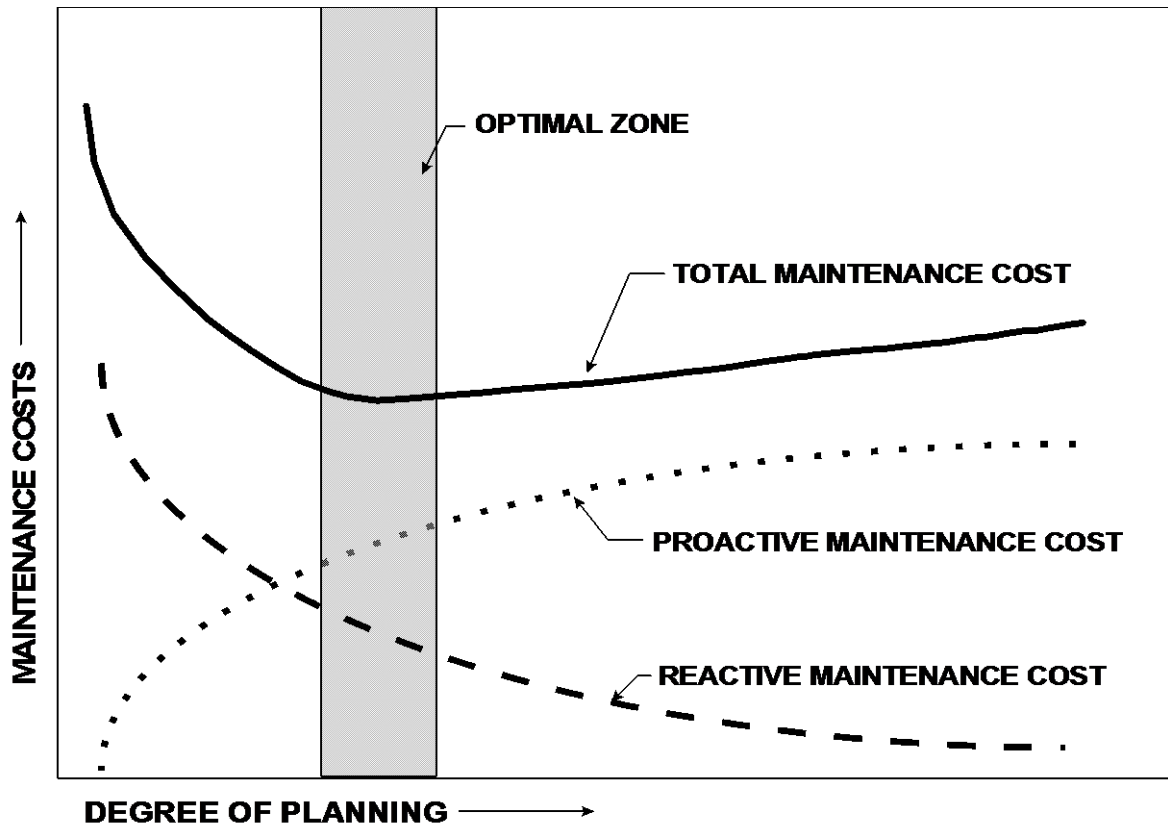
16.2.1 Operations and maintenance strategies cover the policies that will determine how the local transportation network will be operated and maintained on a day-to-day basis to consistently achieve the optimum use of the asset. Routine maintenance is the regular ongoing day-to-day work that is necessary to keep assets operating, including instances where portions of the asset fail and need immediate repair to make the asset operational again. This work falls into two broad categories as follows:

<b>Proactive</b>	Proactive inspection and maintenance works planned to prevent asset failure.
<b>Reactive</b>	Reactive action to correct asset malfunctions and failures on an as required basis.

16.2.2 A key element of asset management planning is determining the most cost-effective blend of proactive and reactive maintenance as illustrated below.

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Figure 54: Optimal Maintenance Zone



- 16.2.3 The short term maintenance strategy is intended to maintain the current levels of service standards. The long-term maintenance strategy will be modified to reflect the following factors:
- Risk of failure** -The risk associated with failure of critical assets.
  - Levels of service** - Changes in the current or agreed level of service.
  - Economic efficiency** -Asset condition assessment.
  - Extend the life of the asset component** -Asset improvements and development programme.
  - Legislative compliance** – eg, requirements of the LGA 2002, NZTA.

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## 16.3 Renewal Works

16.3.1 Renewal strategies are designed to provide for the progressive replacement of individual assets that have reached the end of their useful life. This is managed at a rate that maintains the standard and value of the network as a whole.

16.3.2 This programme must be implemented at adequate levels to maintain current levels of service and the overall quality of assets. Levels of expenditure on the cyclic asset replacement programme will vary from year to year, and will reflect:

- (a) The age profile of the assets.
- (b) The condition/performance profile of the assets.
- (c) The ongoing maintenance demand.
- (d) The differing economic/useful lives of individual assets comprising the overall system of assets.



16.3.3 Failure to implement an adequate cyclic renewal programme will be reflected in a decline in the overall standard of the network of assets. Where the actual programme falls below the cumulative budget target, the shortfall will be reflected in depreciation of the overall value of the network, resulting in a lower LoS and the need for more reactive maintenance.

16.3.4 Renewals are broken into two categories;

- (a) Replacement - involves renewing an asset by replacing it on a like with like basis. The deteriorated asset is removed and an equivalent asset replaced.
- (b) 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.

## 16.4 Development Works

16.4.1 This sub-section of the plan covers the creation of new assets (including those created through subdivision and other development) or works which upgrade or improve an existing asset beyond its existing capacity or performance in response to changes in usage or customer expectations. These works are either Council initiated, community initiated or developer initiated.

16.4.2 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.

16.4.3 Asset renewal is concerned with maintaining the condition of the assets and current service levels.

16.4.4 Asset development is concerned with the service improvements, measured by asset performance or asset extensions to provide for growth.

Table 52 –Development Types

Development Type	Description
Growth	Any asset development (council funded and development contributions) that is required as a result of growth.
Levels of Service	Any asset development that is required as a result of a change in service levels.
Legislative	Any asset developed out of legislative requirements
Vested	Any subdivision development that is required as a result of land development and vested in Council by the developers.

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## 16.5 Disposal

- 16.5.1 Disposal is the retirement or sale of assets whether surplus or superseded by new or improved systems. Assets may become surplus to requirements for any of the following reasons:
- Under-utilisation.
  - Obsolescence
  - Provision exceeds required level of service.
  - Asset replaced before its 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, vandalism).

## 16.6 Network Challenges

- 16.6.1 Ruapehu is one of the largest Districts in New Zealand at 6,733 km<sup>2</sup>, yet has a very small dispersed population of 11,838 (Census 2013), which equates to less than two people/km<sup>2</sup>. Some of the challenges faced by the District include:

- Two thirds of network unsealed.
- Some roads only service one property.
- Roads are windy and narrow creating safety issues.
- Low volumes of traffic.
- Higher percentage of lower socio-economic residents which constrains rating funds available.



## 16.7 Key Issues and Strategies

- 16.7.1 The key issues relating to the management of the transport activities are as follows:

Table 53: Key Issues and Strategies Relating to the Management of Transport Activities

Key Issue	Description	Strategies to Address Key Issues
Increasing community expectations	<p>The community's expectations are increasing with regards to:</p> <ul style="list-style-type: none"> <li>Sealing roads at the urban periphery</li> <li>Providing better access for heavy vehicles, particularly with the nationwide trend towards larger, heavy trucks</li> <li>Enhancing urban centres</li> </ul> <p>There is an increasing number and diversity of community groups with which Council consults.</p>	<p>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</p>
	<p>Requirements for new subdivisional development standards can influence community expectations. These requirements can be in excess of what Council continues to provide, .eg:</p> <ul style="list-style-type: none"> <li>Footpaths are desired on residential streets, although many streets have no footpaths.</li> <li>New pavement surfaces are provided in asphaltic concrete, but may be resealed with chip seal for cost effectiveness.</li> </ul> <p>Increasing expectations may result in a gap between service level delivered and service level expected. Closing these gaps may challenge affordability.</p>	<p>A Footpath Development and Renewal Policy lays out criteria for assessing new footpath requirements.</p>

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Key Issue	Description	Strategies to Address Key Issues
Increasing legislative requirements	Legislative requirements are increasing, particularly regarding transparency, and environmental and economic sustainability. Managing these increased requirements can incur additional cost.	Monitor legislative requirements.
Development pressure in Ohakune and National Park	The potential for rapid development in these centres could make it difficult to meet the communities and Council's best long term interests within the timeframes desired by the developers.	Develop partnerships with the community and developers.
Ohakune Mountain Road (OMR) at capacity during peak times	This critical road is at capacity during the peak morning and afternoon times during the ski season. This can lead to difficulties in finding somewhere to fit chains if required, increases travel times for users, increases maintenance requirements on the road and decreases the life of the pavement.	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.
Increasing logging traffic	Increased logging activity and the consequent increase in vehicle movements increases maintenance requirements on the road and decreases the life of the pavement. There is an increase in the size of heavy freight vehicles. This is impacting on pavement deterioration. . Non-restricted bridges on low volume roads may need structural improvement works to carry logging loads.	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. Refer Ministry of Primary Industries, and Forest Owners Group. Ensure sufficient resourcing to react to pavement wear on the unsealed network while increasing the sealed pavement renewal programme to have capacity to rehabilitate sealed pavements following harvests.
Weight Restricted (Posted) and Aged Bridges	There are 16 weight restricted bridges in the district, many of which need to be upgraded to allow access to stock and forestry trucks. 31 bridges are nearing the end of their design lives.	Funding for additional costs for bridge programme has come from savings from the pavement rehabilitation activity. However, this is not sustainable in the long term
Uneconomic Bridges	On very low volume roads or accessways. For example; Ruapehu rail overbridge.	Ensure inspections are carried out and risks assessed. Consider options on a case-by-case basis for: Retirement/ removal Maintain restrictions Renew/ replace (RDC fully funded) Divest, sell to landowner to manage risk
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: Retirement/ removal Maintain restrictions Renew/ replace (RDC fully funded) Divest, sell to landowner to manage risk
Uneconomic Roads	Many sealed and unsealed rural roads service only one or two properties and have very low traffic volumes.	Consider social and economic sustainability by 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:

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Key Issue	Description	Strategies to Address Key Issues
	However, some of these roads do service profitable commercial primary industries which generate revenue for the District and the nation.	converting very low volume sealed rural roads to unsealed roads, to reduce the long-term cost of maintenance and renewals. divesting very low volume unsealed rural cul-de-sac roads back to the adjacent landowners.
Non-maintained Roads	Not maintained by Council. Many on 'paper roads'. Paper roads are public property.	Establish maintenance agreements. Consider the options as for the 'uneconomic roads'
Climate change in increased awareness of the importance of sustainability	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 across Council activities.	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).
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.	This issue has been addressed for the 2015-2018 period through Council's procurement strategy and through unbundling of contracts.

### 16.8 Data Confidence and Reliability

- 16.8.1 The following provides the confidence framework (NAMS IIMM) used to determine the confidence in the asset data used in this AMP.

Table 54 –Confidence Grade Descriptions

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

- 16.8.2 The table below reflects the confidence in the asset data for the Transport assets, the overall completeness of the data and the confidence in the condition and performance data.

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Table 55 –Asset Confidence of Data, Completeness of Data and Confidence In Condition and Performance Data

Asset Type	Confidence of data (Age, material etc.)	Completeness of data <sup>(1)</sup>	Confidence in Condition and performance data
Pavements	A	Good	A
Pavements - SPR Ohakune Mountain Road	A	Very good	A
Structures - Bridges	A	Very good	A (Bridge inspections)
Structures - Large culverts	A	Very good	A
Structures - Retaining walls	A	Very good	B
Drainage - Culverts	A	Very good	B
Drainage - Kerbs and channels	A	Very good	B
Traffic Services (Street lighting, road markings, signs)	A (Street lighting)	Very good	A – (Street lighting)
	C (other)		B – (other)
Footpaths	B	Very good	C
Cycleways	B	Moderate	C
Bus Shelters	C	Moderate	C
Facility Roads and Carparks	C	Good	B

Note 1: Very good (80-100%), Good (60-80%), Moderate (40 – 60%), Poor (20-40%), Very Poor (0-20%)

16.8.3 The table below reflects overall confidence in asset attributes:

Table 56 - Data Quality Confidence Grades

Attribute	Confidence	Attribute	Confidence	Attribute	Confidence
Demand forecasts	C	<b>Quantities</b>		<b>Remaining lives</b>	
Service gap interpretation	B	Major asset groups	B	Major asset groups	B
Unit rates	B	Minor asset groups	B	Minor asset groups	B
Base lives	B	<b>Condition grades</b>		<b>Financial forecasts</b>	
Valuation and depreciation	B	Major asset groups	B	Short-term 1-3 years	B
		Minor asset groups	B	Mid-term 4-10 year	B

### 16.8.4 REG Data Quality Project 2016/17

- The quality of the RAMM data being used by the ONRC Performance Reporting tool is assessed annually by REG.
- Ruapehu's results for 2016/17 are shown below:-

Table 57 - RAMM Data Quality Report 16/17

Report	Grade 1 Expected Standard	Grade 2 Minor Issues Present	Grade 3 Major Issues Present
Results Overall	51%	28%	21%
Completeness	50%	21%	29%
Accuracy	61%	18%	21%
Carriageway	75%	25%	
Treatment Length	25%	75%	
Surfacing	25%	25%	50%
Maintenance Activity			100%
Roughness	67%		33%
Traffic Counts	80%	20%	
Traffic Estimates	100%		
Crash		100%	

- The data quality issues will be addressed in our Improvement Plan. Some items where we have achieved low grades are not currently mandatory or measure items that we are not required to measure for our network size. REG has asked that data be improved to the required standard by December 2018. Ruapehu will work through the issues and increase reporting where required.



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## 16.9 Asset Condition

### 16.9.1 Condition Assessment and Results

- (a) It is critical that Council has clear knowledge of the condition of their assets and how they are performing. Condition data has been captured over a number of years, which has enabled Council to understand future expenditure patterns and management decisions regarding maintenance, replacement and renewals. The development and continued use of condition assessment data will allow preparation of verifiable predictive decay curves for particular asset types and hence permit prediction of remaining life. Consideration will still be required to allow for economic influences in the adopted life for the asset type.
- (b) Some information is collected but not stored in RAMM i.e. detailed structural bridge condition assessments.
- (c) The condition assessment model in the table below is the basis of assessing the asset condition of Ruapehu's assets.

Table 58 – Condition Grade Descriptions

Grade	Condition	Description of Condition
1	Very Good	Sound physical condition. Asset 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 asset still functions safely at adequate level of service.
4	Poor	Failure likely in short-term. Likely need to replace most or all of assets within 5 years. No immediate risk to health or safety but works required within 3 years ensuring asset remains safe. Substantial work required in short-term, asset barely serviceable.
5	Very Poor	Failed or failure imminent. Immediate need to replace most or all of asset. Health and safety hazards exist which present a possible risk to public safety or asset cannot be serviced/operated without risk to personnel. Major work or replacement required urgently.

## 16.10 Service Delivery

- 16.10.1 Council maintains ownership and responsibility for managing the land transport activity and the associated infrastructure. Consultants are used to provide specific expertise and assistance as required. Council engages a network consultant to provide the day to day management of the network, including asset information capture, recommendations for strategies, programmes, projects and expenditure, and management of maintenance and capital development contracts.
- 16.10.2 New Zealand Treasury procedures for financial decision making are used to inform the Strategy Business Case using Treasuries Investment Logic Mapping disciplines. Programme Business Cases and Detailed Business Cases are used to inform Long Term Planning (LTP) under the Local Government Act and are widely consulted during development of the LTP. These processes are delivered by Councils Professional Service Business Unit with asset management advice and technical support from network consultants.
- 16.10.3 The transport team including network consultants and works contractors are described as operating as a virtual alliance where traditional contracting terms and conditions are enhanced by celebrated alliance behaviours. Delegations for expenditure are consistent with Councils Delegations Manual with decision making controls imbedded within approved Quality Systems forming part of contract terms and conditions.
- 16.10.4 Reporting structures include financial and non financial reports on a monthly basis. Performance scorecard systems are used to manage contractual performances and provide opportunity for regular open dialogue. These systems are well documented and form the primary basis for successful contract performance management systems.

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16.10.5 Council’s Management Structure for the Transport Group is shown below

Figure 55 - Organisational Structure (2017)

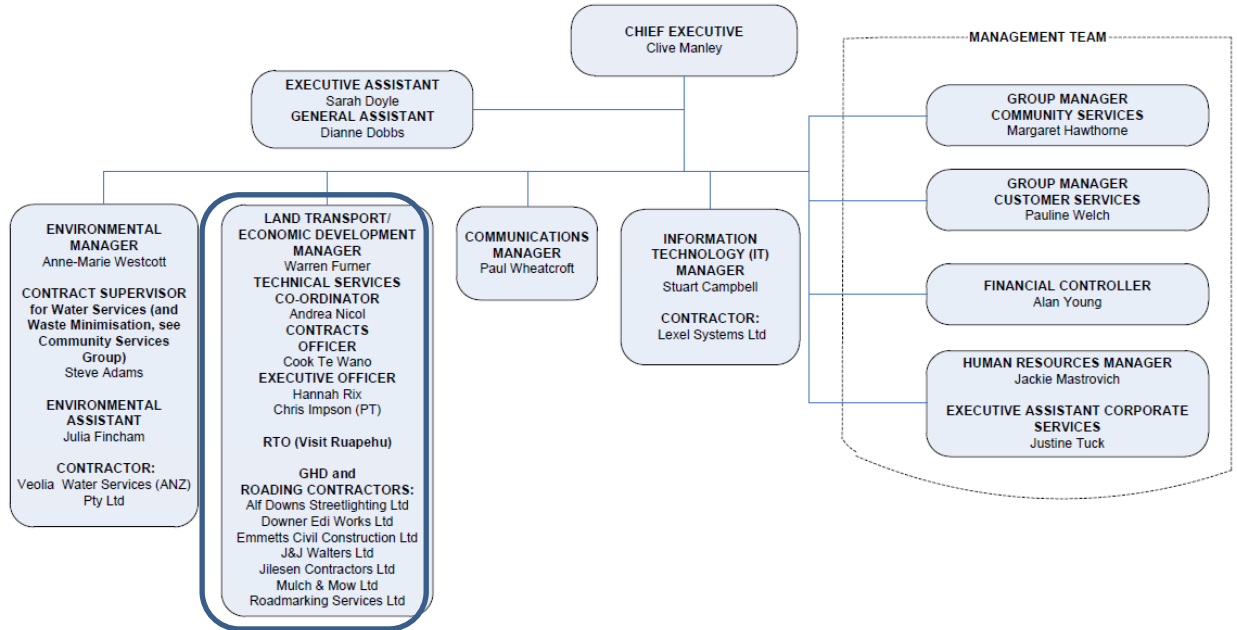


Table 59 – Roles and responsibilities of Key Service Providers

Party	Role	Specific Responsibilities
Transport Department	Responsibility for the management of Assets and services	(i) Financial control (ii) Performance monitoring (iii) Development of strategies and policies (iv) Customer service (v) Planning (vi) Asset Management Planning (vii) Liaise with Utilities and representatives
Network Management Professional Services Provider (GHD)	Provision of professional services to the Transport Manager	(i) Professional advice, design, project management, reports (ii) Network operations and management (iii) Maintenance contract administration and monitoring (iv) Implementation of Strategies and Policies (v) Design (vi) Review of new developments and assets
Maintenance Contractors and Capital Works Contractors (Various).	Responsible for implementation of capital new and renewal projects	(i) Physical construction of specified network improvements (ii) Renewal, operation and maintenance of assets according to contracts
RDC Customer Services Call Centre	Call Centre, Customer Contacts	(i) Pass on customer information
RDC Regulatory Department	Oversee new applications for developments affecting assets under the Resource Management Act	(ii) Manage access and transportation demands of new developments and subdivisions to ensure that traffic movement, growth and parking are provided for

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

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

- 16.10.7 All renewals and capital works are implemented through a variety of contracts. Current maintenance and renewals term contracts are listed below.

**Table 60 – Current Maintenance and Renewals Term Contracts**

Contract	Contractor	Contract Period	Contract End Date
1730	Professional Services for Land Transport	4 + 1 + 1 + 1 + 1	June 2019
1667	Street lighting maintenance	2yrs 10 mths + 3	June 2019
1742	Ohakune Mountain Rd Traffic Management	3yrs	May 2018
1720	General & Sealed Pavement Maintenance	4 yrs 9 mths + 3 yrs	June 2019
1721	Unsealed Pavement Maintenance, Heavy Maintenance & Improvements & Pavement Rehabilitation	4 yrs 9 mths + 3 yrs 2 yrs 9 mths + 2 yrs +3 yrs (Pavement Rehabilitation)	June 2019
1722	District Reseals	2 yrs 9 mths + 2 yrs +3 yrs	June 2019
1723	Capital Bridge Repairs	4 yrs 9 mths + 3 yrs	June 2019
1724	Vegetation Control	4 yrs 9 mths + 3 yrs	June 2019
1725	Roadside Plant Pest Control	4 yrs 9 mths + 3 yrs	June 2019
1726-28	Aggregate Supply Contracts	Annual Quote	

- 16.10.8 Professional services are obtained from a mixture of consultants and internal resources.

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## 17 Pavements

### 17.1 Overview and Strategic Case Link

- 17.1.1 The purpose of road pavements is to provide a network that is suitable for the effective and efficient movement of vehicles and people. The pavement includes a suitable all weather surface that is appropriate for its intended function in terms of skid resistance and smoothness. It must have a structure that is strong enough to carry the anticipated traffic.
- 17.1.2 Maintenance and renewal of pavements is a response to all four problem statements by addressing defects, safety concerns, alignment and geometry issues:-
- Forestry and Land Use:** - Changing land uses (ie forestry and 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 cost.
  - 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 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
  - 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
- 17.1.3 Key ONRC CloS delivered through pavement assets are:
- Amenity - the level of travel comfort experienced by the road user
  - Safety - how road users experience the safety of the road
  - Accessibility: - the ease with which people are able to reach key destinations and the transport networks available to them

### 17.2 Key Issues

- 17.2.1 Key issues associated with the Pavement assets are as follows:

Table 61 – Key Issues

Key Issue	Strategies to Address Key Issues
Sealed roads are generally rough leading to driver discomfort and fatigue.	The Pavement renewal programme addresses this.
Unsealed roads are narrow and windy with the opportunity for vehicle crashes high.	The Minor Improvements programme and targeted maintenance.
Increasing tourist and commercial traffic imposes demands for risk reduction on roads in difficult terrain.	Minor Improvements programme.
Future capacity problems with the Ohakune Mountain Road.	Capital improvements are planned with Ruapehu Alpine Lifts (RAL) to align road capacity to the capacity of the skifield.
Ohakune Mountain Road route safety and suitability issues.	Further capital improvement works address route suitability and safety issues on routes with increasing tourist and commercial traffic.
All Roads - Safety: Presence of Ice.	Daylight cuttings to minimise shaded areas and routine grit or Calcium Magnesium Acetate ice control operations are undertaken to address this issue.
Reseals are not keeping up with the target reseal re-surfacing.	Additional repairs will be required to maintain pavements, unless additional funding can be obtained for reseals.
Increasing logging traffic and the consequent increase in vehicle movements increases deterioration and maintenance requirements on the road pavements, as well as increasing safety risks.	Re-direct pavement renewals to routes of current and known logging routes.

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### 17.3 The Need for Investment

- 17.3.1 Council considers that it has a robust approach to pavement investment, although it has identified areas for improvement. This is demonstrated in the AMP which shows the thorough processes and methods that Council employs to justify investment decisions, including the development of its forward works programme (FWP) for pavement renewals.
- 17.3.2 Investment in pavements is required because:  
As the key asset of the land transport activity, pavements enable communities to travel safely, easily and efficiently 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.
- 17.3.3 An analysis of the current investment includes:
- (a) 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.
  - (b) Pavements is the asset group with the largest expenditure. Pavement assets form 57.1% (\$236.1M) of the total Land Transport Activity Optimised Replacement Cost and 50.5% (\$2.4M) of the annual depreciation. The 2018/19 pavement maintenance, renewal and improvements budget is 48.7% (\$9.7M) of the total Land Transport Activity Budget (\$19.9M).
  - (c) Operations and Maintenance (O&M) form 17.3% (\$1.7M) of the 2018/19 pavement budget. Approximately 57.6% (\$965k) of the O&M budget is for sealed pavement maintenance.
  - (d) Pavement Renewals form 63.4% (\$6.1M) of the 2018/19 pavement budget. An end of life versus renewal cost graph for pavements indicates a backlog in renewals, where, if the budget allowed, approximately \$8M needs to be spent within the next year or \$2.7M yearly over the next 5 years. Pavement renewals including rehabilitation vary between \$5.3M and \$5.7M over the next 10 years. RAMM Treatment Selection Algorithm (TSA) analysis identifies 52km for reseal where the budget allows for 20 km. This has the potential to create a backlog of treatments.  
Note: These percentage calculations are based on expenditure levels detailed in the Draft LTP budgets as at December 2017.
  - (e) Customer satisfaction survey results indicate that 62% of residents are satisfied with the maintenance of sealed roads and 55% 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 roads.
- 17.3.4 Processes and methods currently employed are described in the maintenance, renewals and capital works sections that follow and include:
- (a) Comprehensive condition data for analysis (confidence in quality and completeness of data). The confidence grade in pavement asset data including condition and performance data is highly reliable, which provides RDC with a good basis to support maintenance and renewal analysis and investment decisions.
  - (b) Focus and effort go into spending only what is needed to make better investment decisions to sustain the transport network in the long term; by targeting the right treatments, to the right places, at the right times and for the right costs.
  - (c) This is explained further in the maintenance and renewal strategies as well as the annual forward works programme (FWP) reports and prioritised site listings. The FWP's are jointly developed, challenged and validated by the key stakeholder groups; namely Council asset and network officers, together with their contractors and network consultants.
  - (d) Seal age data is an input.
  - (e) RAMM TSA analysis to provide candidate sites.
  - (f) Reconciliation is made with the previous FWP.
  - (g) Known high or low priority sites are identified by RDC network managers, together with their contractors and network consultants.
  - (h) Joint workshop and drive overs between RDC AM, their contractors and consultants to challenge and validate the candidate sites.
  - (i) Forecast of backlog

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- 17.3.5 Future enhancements to be considered to improve the business case include the following:
- Comparison of the renewal rate vs deterioration rate.
  - Top down check on historical trends for renewal quantities, costs, network LOS KPIs such as condition, performance and backlog.
  - Top down check by comparison with annual depreciation rates.
  - Top down check on the total asset type ratio of depreciated replacement cost with replacement cost (from the latest asset valuation). For example, in a stable, steady state network with no renewals backlog, one may expect to have a Depreciated Replacement Cost of half that of its Replacement Cost, and the annual renewals investment to match the Annual Depreciation. An explanation would be required if there was a large difference.
  - Investigate option of carrying out a full sealed network condition survey.

### 17.4 Asset Description

#### 17.4.1 Roothing Hierarchy

- Ruapehu District Council road network hierarchy has been adjusted in RAMM to match the One Network Road Classification. This was moderated by NZTA in March 2015, with an adjustment in the categories for Whanganui River Road and Raetihi Pipiriki being made.

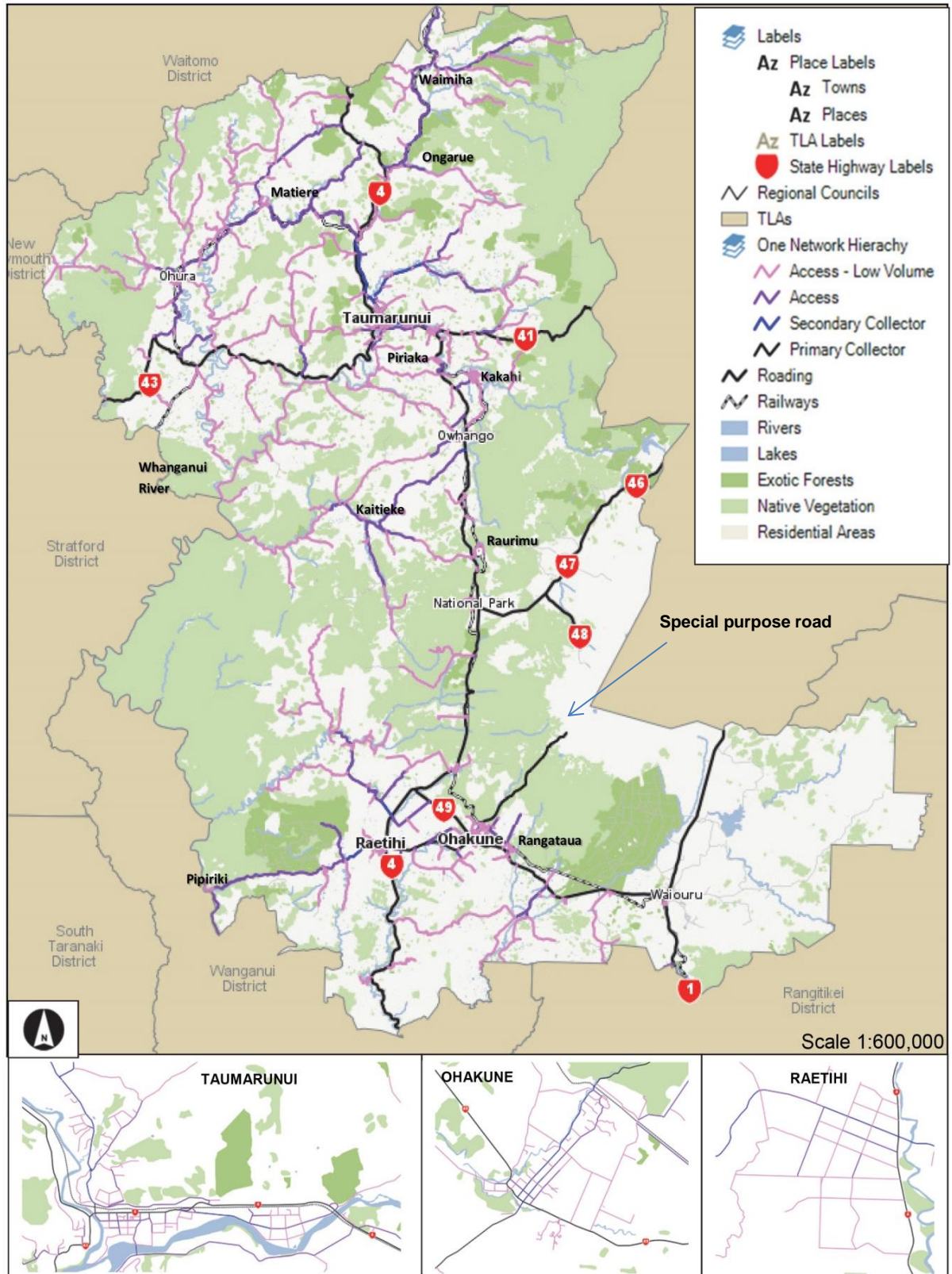
Table 62 – One Network Road Hierarchy (following moderation in March 2015)

One Road Network Hierarchy	Description	Length - km	Typical Daily Traffic (AADT)		
			Min	Average	Max
Primary Collector	These are locally important roads that provide a primary distributor/collector function, linking significant local economic areas or areas of population. They may be the only route available to some places within the region and in urban areas they may have moderate passenger transport movements and numbers of cyclists and pedestrians using the road.	10	1,000	1,830	5,000
Primary Collector (Special Purpose Road)	Road through National Park land whose primary purpose is to service the National Park and its visitors. These roads are discussed separately, but are identified as a primary collector due to the peak high level of traffic.	16		750	
Secondary Collector	These are roads that provide a secondary distributor/collector function, linking local areas of population and economic sites and may be the only route available to some places within this local area.	60	200	349	3,000
Access	Carry only local traffic, primary function is to provide access to private properties.	293	50	140	1,000
Access (Low Volume)	Carry only local traffic, primary function is to provide access to private properties but have low traffic volumes.	959	0	33	200
<b>Total</b>		<b>1,339</b>	<b>0</b>	<b>86</b>	<b>5,000</b>

- The following map outlines the extent of the roading network by RAMM Hierarchy.

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Figure 56: Map of Network Hierarchy



## 17.4.2 Ohakune Mountain Road (OMR)

- (a) The OMR provides the only vehicle access to the Turoa Ski Area within the World Heritage listed Tongariro National Park. The road is managed by Council, under a Memorandum of Understanding

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- (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.
- (b) 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).
- (c) 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
- (d) 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. As part of the 2014 FAR Review, the financial assistance rate will transition to that of local roads by 2023/24.. As the rate of transition has not been confirmed as yet, the existing rate has been assumed in budget calculations for the asset management plan.

### 17.4.3 Length of Network

- (a) The following table provides the length of the current network (as at 30 June 2017)

Table 63 - Network Distribution

	Rural	Urban	TOTAL (km)
Sealed/hard surfaced	390	104	494
Unsealed	839	7	846
Total	1,229	111	1,339

- (b) Carriageway pavements comprise three major asset components as follows:
- Formation:** The Formation layer is essentially the natural ground material upon which the carriageway structure is formed. Formation is considered to have an indefinite life and is therefore not depreciated over time.
  - Pavement Layers (Basecourse and Subbase):** The basecourse is the layer of material immediately beneath the surface layer. It provides load distribution and contributes to the sub-surface drainage. The subbase is the filler between basecourse and the road formation and the primary function of this layer is to provide structural support.
  - Top Surface:** This layer can comprise a variety of materials as explained below: The type of pavement surface used generally depends on the traffic volume and mix of traffic using the road (noise, dust, safety and appearance may also be significant factors).
- (c) 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, as shown below.

Table 64 – 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 dependent 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



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## 17.4.4 Rural Road Design Parameters

- (a) The required design parameters for capital renewal and projects are summarised in the table below:  
 (b) Standard NZS4404 is to be used for urban roads.

Table 65 – 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

## 17.5 Replacement Cost and Annual Depreciation

- 17.5.1 The valuation information provided for in this AMP is based on the Road Asset Valuation (provisional), as at 30 June 2017 undertaken by GHD Ltd Consultants.

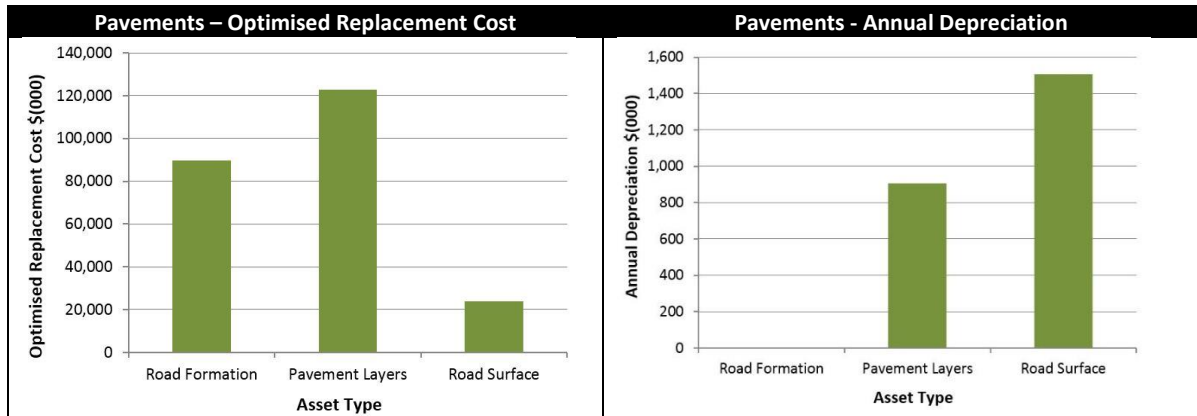
Table 66 –Asset Types and Valuation

Asset Type	Length - km	ORC - \$	ODRC - \$	AD - \$
Road Formation	1,339	\$89,709,396	\$89,709,396	\$-
Pavement Layers – Basecourse/Sub-base/Shoulders	1,339	\$122,716,353	\$94,952,061	\$904,833
Road Surface	485	\$23,700,372	\$10,129,907	\$1,504,117
<b>Total</b>		<b>\$236,126,121</b>	<b>\$194,791,364</b>	<b>\$2,408,951</b>

- 17.5.2 From the information provided in the table above, it is shown that pavement layers accounts for approximately 52% of the Optimised Replacement Cost (ORC), with Formation and Surface constituting approximately 38% and 10% respectively. The road surface accounts for 62% of the Annual Depreciation and this layer has a shorter useful life compared to the pavement layers.
- 17.5.3 The figures below show the ORC and Annual Depreciation costs for the pavements.

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Figure 57 - Road Carriageway ORC and Annual Depreciation



## 17.6 Asset Age and Condition

17.6.1 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 over a representative portion (10% of network) of the carriageway. Capturing condition at any one time is complex because of the constant wear, and it is more meaningful to chart the trends from year to year.

17.6.2 The most significant issues in terms of pavement condition are:

- Some reseal backlogs.
- The continuing need to monitor the performance of weak pavements under the impact of heavy traffic.
- Annual condition surveys are undertaken on 10% of the road network and does not represent the whole network.

17.6.3 The following information provides an overview of the condition data for the road network.

### 17.6.4 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 profilimeter being averages for every 100m for rural roads and 25m for urban roads and are 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.

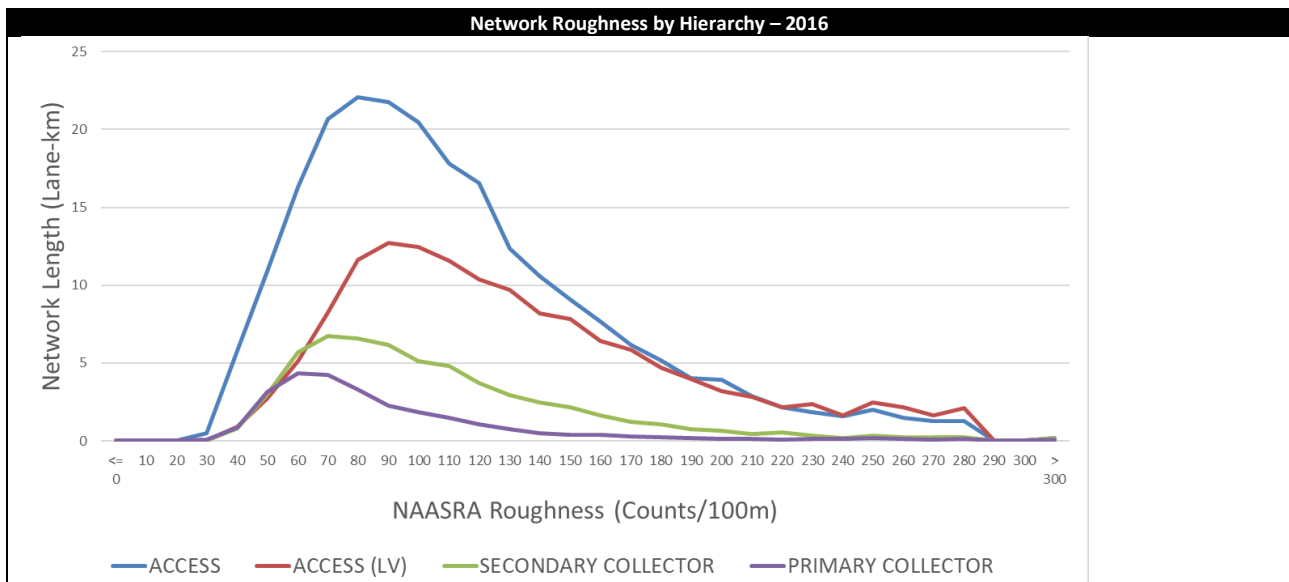
# Part 3 – Land Transport Activity

Table 67 : Current Roughness Parameters Adopted from ONRC Classifications with Actual Performance

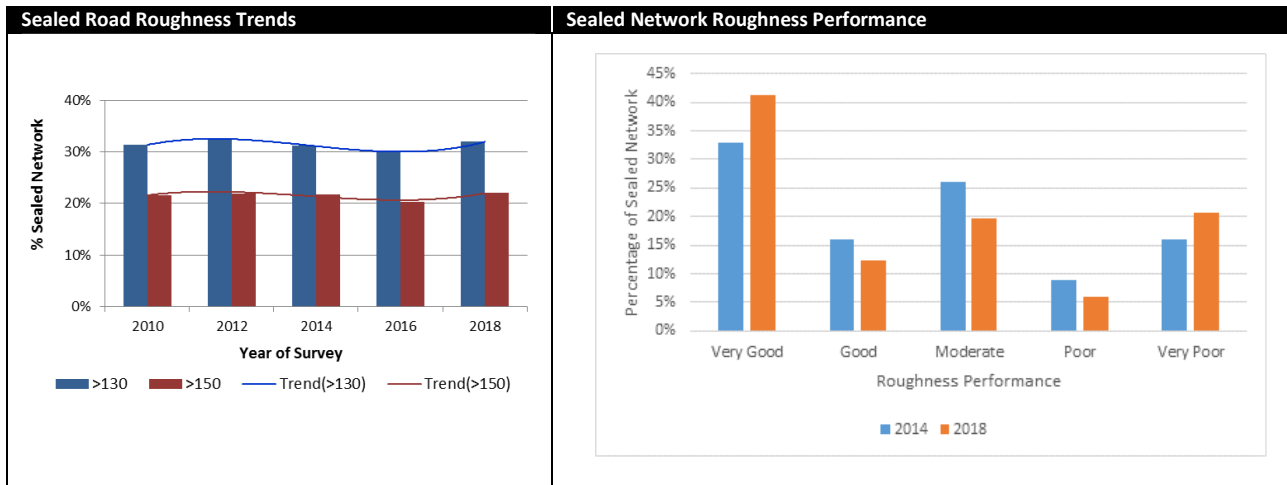
ONRC Road Category (km of road)	Rural / Urban	Average NAASRA				Current Sealed Roughness Parameters				
		Average NAASRA		95% below NAASRA		1	2	3	4	5
		ONRC Target	Actual	ONRC Target	Actual	Very Good	Good	Moderate	Poor	Very Poor
Primary Collector (0.3)	Urban	110	118	140	224	≤ 80	80-95	95-125	125-140	>140
Primary Collector (26.3)	Rural	100	79	120	165	≤ 80	80-90	90-110	110-120	>120
Secondary Collector (22.7)	Urban	110	109	140	218	≤ 80	80-95	95-125	125-140	>140
Secondary Collector (10)	Rural	110	111	130	221	≤ 90	90-100	100-120	120-130	>130
Access (20.9)	Urban	120	130	150	236	≤ 90	90-105	105-135	135-150	>150
Access (239.9)	Rural	120	110	150	220	≤ 90	90-105	105-135	135-150	>150
Access (LV) (70.7)	Urban	140	139	170	240	≤ 110	110-125	125-155	155-170	>170
Access (LV) (94.5)	Rural	140	119	180	233	≤ 100	100-120	120-160	160-180	>180

(f) The following graph provides an overview of the Network Roughness for 2016. It shows that a good majority of the network is comfortably within the Very Good. – Moderate range as described in the third graph.

Figure 58 - Carriageway Roughness



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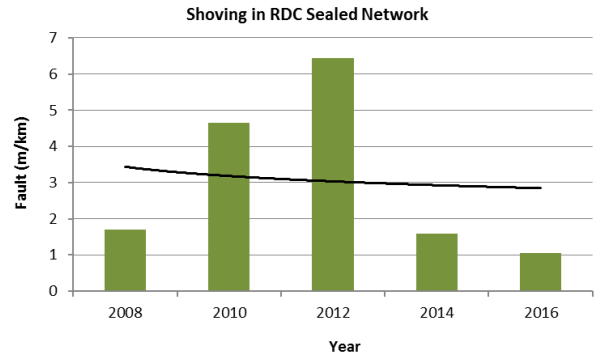


## 17.6.5 Pavement Performance

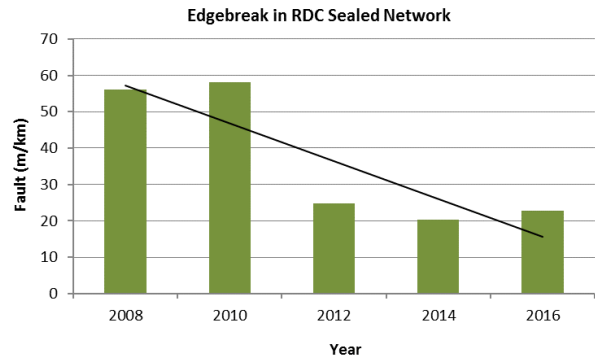
- (a) Based on the data above, it is shown that in 2017/18 approximately 22% of the sealed network had a NAASRA count >150 and nearly 31% of the network has a NAASRA count >130. This indicates that the pavement rehabilitation and seal maintenance programme is no longer sufficient to control the increase in roughness and will need to be markedly increased to cope with increased deterioration rates due to heavy vehicle usage.
- (b) The network is classed as rough because approximately 21% of the sealed network has a NAASRA count in the Very Poor range compared with an ONRC draft target of 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.
- (c) Understanding failure modes, their frequency and probability of occurrence is critical to the prediction of future costs and as the basis of optimised renewal decision making. Pavement condition and deterioration is measured by taking regular statistically representative consideration of factors that influence pavement deterioration.
- (d) In accordance with NZTA's requirements for RAMM rating, pavement condition surveys are 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 2000 vehicles per day, these sections are also carried out two-yearly. The network is broken into treatment lengths and 10% of each treatment length is inspected. The same treatment lengths are inspected in each survey, unless amended by new treatments.
- (e) 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 to 2016, Shaw's Consulting Services Ltd undertook it.
- (f) The rating surveys record the following information:
  - (i) Shoving (shear failure)
  - (ii) Edge break
  - (iii) Rutting
  - (iv) Potholes/pothole repair
  - (v) Scabbing
  - (vi) Flushing
  - (vii) Alligator cracking

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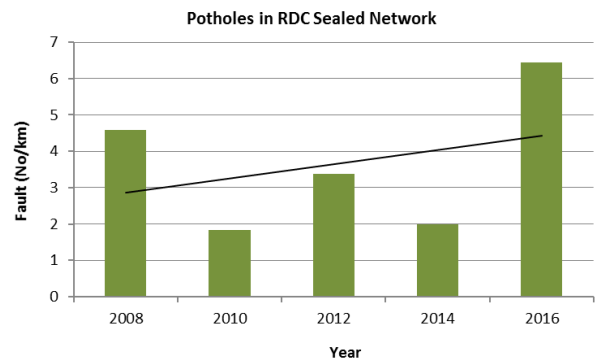
17.6.6 The graph shows the historical shoving faults that have been recorded on the network. Shoving, waving or bulging of the pavement is a sign of movement, usually failure along a shear surface at some depth within the road formation. High values indicate that the road pavement is inadequate to support 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. However, there is still a need for improvement in decreasing the roughness of roads.



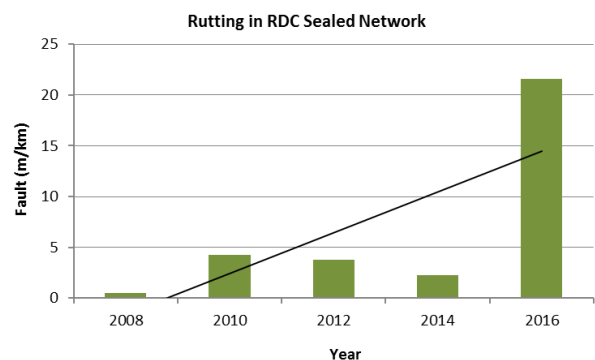
17.6.7 The graph shows the historical edge break defects that have been recorded on the network. The high values are an indicator that the road pavement width is inadequate and seal widening is required. Width improvements have resulted in improvements (decline) in this parameter from 2012.



17.6.8 The graph shows the number of potholes measure per km of network with the trend line showing a general increase in the number of potholes per km from 2008 to 2016 and a significant increase from 2014 due in large part to the significant deterioration on key logging routes.

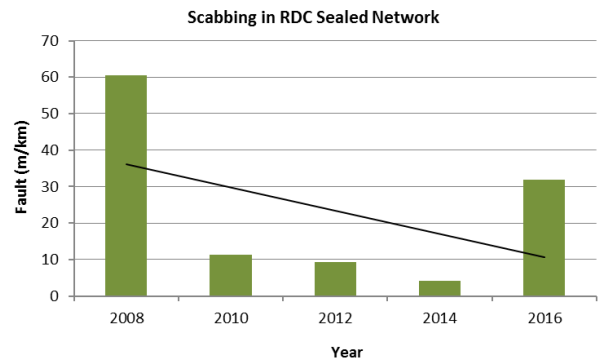


- 17.6.9
- (a) The graph shows that the length of rutting measured in the network has undergone a significant increase since 2008, indicating deterioration in this parameter particularly in the past two years.
  - (b) Rutting is the longitudinal depression in the wheel path of the traffic lane. There 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.
  - (c) Effect of 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.

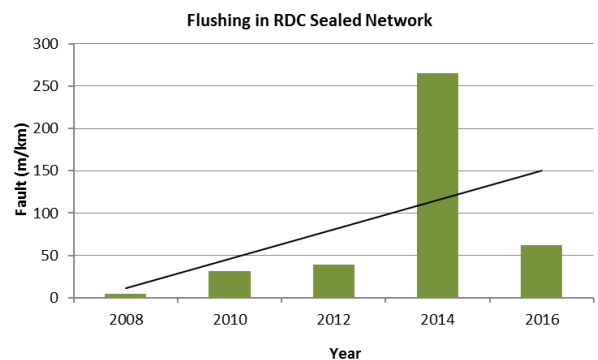


# Part 3 – Land Transport Activity

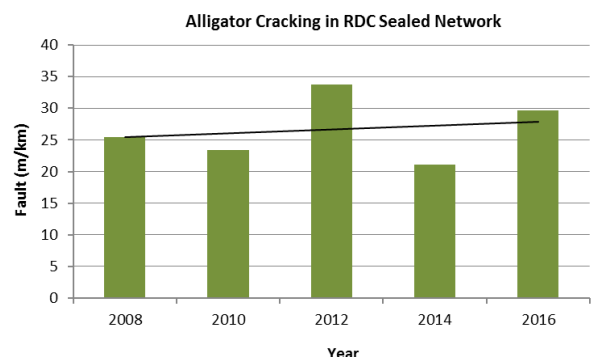
- 17.6.10 (a) The graph shows a declining trend in the historical measurements of scabbing within the network to 2014 and then an increase. Scabbing is the term used for sealing chip that becomes separated from the bitumen due to a lack of bond. The lack of bond can be caused by poor compaction, low 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.
- (b) Scabbing will also occur when a seal nears the end of its useful life, typically when the binder becomes brittle and the movement of traffic dislodges chip. The significant increase from 2014 to 2016 is symptomatic of binder failure where reseal budget is not sufficient to cover reseal need. This suggests that reseal budgets will need to be increased to match network requirements.



- 17.6.11 (a) The graph shows the historical measurements of flushing within the network. Flushing/bleeding results due to the following:
- Excess binder used during sealing
  - Hot weather causing the binder to melt
  - Surface chips getting pushed down by traffic into a softened basecourse.
- (b) The graph clearly shows that the amount of flushing (m/km) has increased substantially from 2008 to 2014, and then has declined significantly since 2014. This may in part be due to a number of road surfaces with 3 or more reseals coming to the end of their life and this is shown through excessive binder/stone ratio and flushing. Or may in part be due to a difference in focus on this aspect by different RAMM rating contractors or the splitting up and/or reversal of different roads changing inspection lengths.



- 17.6.12 This graph shows the extent of alligator cracking that has occurred in the network since 2008. Cracking typically occurs when pavements are subjected to repeated loadings causing flexing and ultimately cracking. Fine hair cracks are the first signs of failure, which, if not repaired will allow water to penetrate and weaken the pavement layer and or subgrade. There has been a slight but perceptible increase in cracking between 2008 and 2016, in line with increased loadings on key routes.



## 17.6.13 New Zealand Transport Agency KPIs

- (a) NZTA requires a number of key pavement condition KPIs annually based on RAMM data and Territorial Local Authorities returns. These are: Condition Index (CI) and Pavement Integrity Index (PII) and Smooth Travel Exposure (STE) and they are described further below.

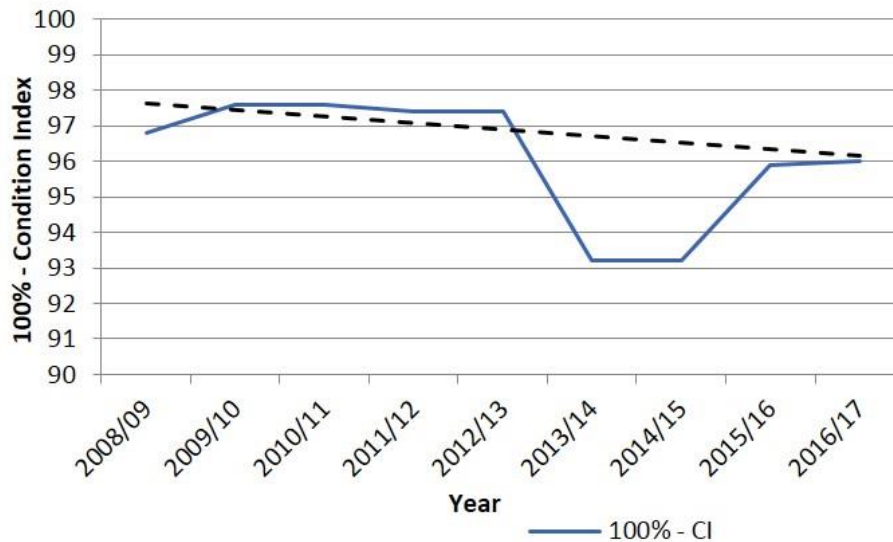
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- (b) The **Condition Index (CI)** is a single index that describes the network surface condition and allows easy comparison of historical and future surface conditions. CI values are calculated in RAMM based on visually measured condition defects. The index is commonly expressed as 100% - CI to give consistency with other parameters where good is higher on the graph and bad is lower

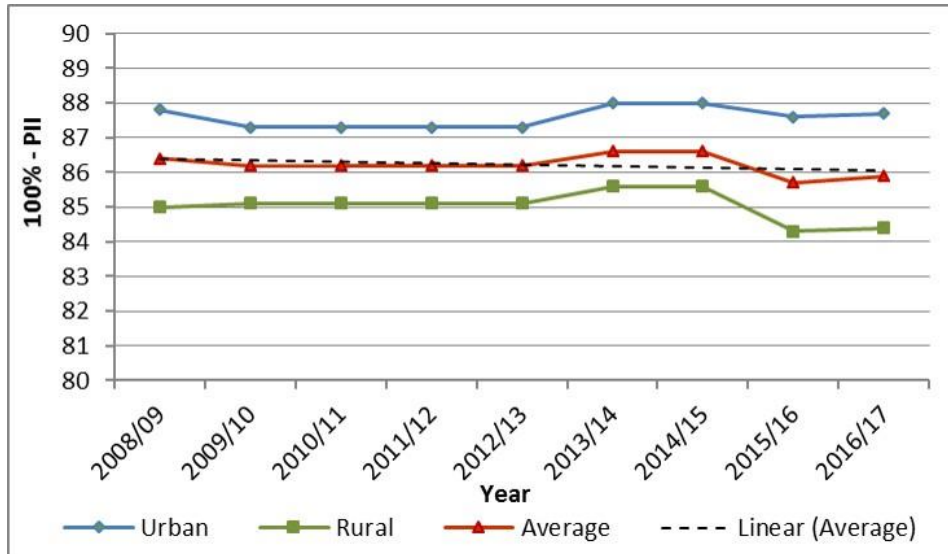
Figure 59 – Condition Index



- (c) The CI is a “weighted sum”, of the surface faults in sealed road surfaces. CI combines alligator cracking scabbing, potholes, pothole patches and flushing. The lower the CI value, the worse the condition of the pavement. CI is used to trigger resurfacing or reseal treatments.
- (d) The CI graph indicates a worsening of the surface condition between 2008/09 to 2016/17. Note that the significant drop in CI 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. The trendline nevertheless suggests a significant deterioration in performance since 2013 thought to be the result of increased logging traffic, and indicates repairs and renewals are not currently keeping pace with network deterioration.
- (e) The Pavement Integrity Index (PII) measures the health of the pavements and is generated from the RAMM condition data. It combines surface data (CI) 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. The PII graph indicates a decrease in the integrity of the pavement between 2008/09 to 2016/17.

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Figure 60 – Pavement Integrity Index



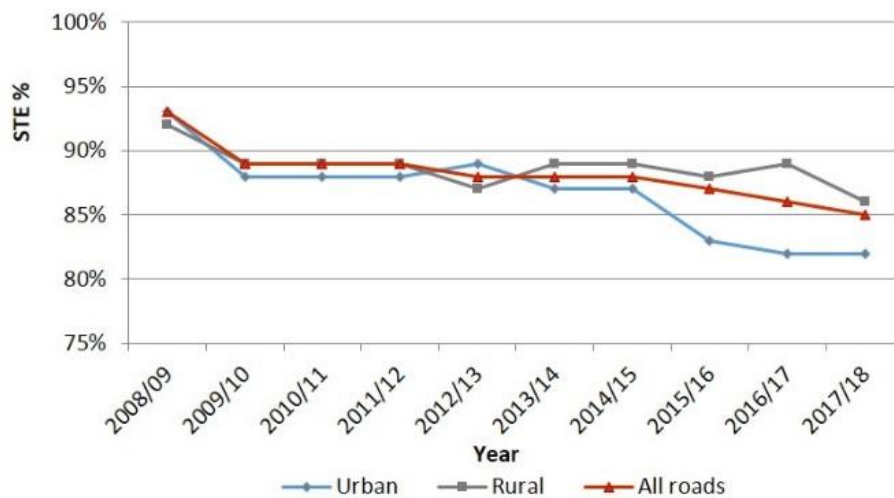
- (f) **Smooth Travel Exposure (STE)** is the proportion of vehicle kilometres travelled each year on roads smoother than a specified threshold. **The higher the result, the more vehicles are travelling on smooth roads.** STE affects the level of travel comfort experienced by the road use – ONRC CLOS of Amenity.

Ruapehu has a target that 87% of all vehicles kilometres travelled will be on smooth roads. The result below shows that Council isn't meeting our target and that the trend is decreasing for both urban and rural 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.

Logging and other heavy vehicle traffic is having a major impact on the local road network resulting in the need for a significant increase in renewal and maintenance activity.

Figure 61 – Smooth Travel Exposure





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## 17.7 Operations and Maintenance Plan

### 17.7.1 General Operations and Maintenance

- (a) Repairs are carried out as a result of routine inspections that feed into planned work that covers general maintenance as well as pre-reseal repairs ahead of sealed road surfacing programmes. Customer complaints are also investigated and remedies are fed into the planned works programmes. General maintenance of roads includes:
- (i) Planned inspections and condition assessments. The road network is audited at the rate of approximately 10% per month to ensure the contractor is delivering work to the required standard. Pavement evaluation and roughness surveying of the sealed network is also carried out biennially including validation and audit checks on information in RAMM.
  - (ii) Grading of unsealed roads.
  - (iii) Repair of potholes.
  - (iv) Repairing failed pavements by digging out and replacing, or stabilising, the existing pavement.
  - (v) Repair of surface openings and minor surface levelling.
  - (vi) Repair of surface defects.
  - (vii) Repair of edge breaks.
  - (viii) Adjusting surface covers.
  - (ix) Maintenance of unsealed shoulders.
  - (x) Frost and ice gritting.
  - (xi) Carriageway cleaning (including kerb and channels).
  - (xii) Emergency and call centre response.

### 17.7.2 Strategies

- (a) The following specific strategies are adopted, in addition to the general strategies discussed at the beginning of this section.
- (i) Service delivery
    - Council has endeavoured to make its contracts as effective as possible. To this end, it has separated all the services required for maintenance, emergency works and significant projects into several contracts. 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.
  - (ii) Maintenance priorities
    - General maintenance work is classed as priority work where:
      - The safety of road users may be compromised.
      - 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.
      - Subsequent maintenance or renewal work depends on the completion of the planned maintenance repair, such as pre-seal dig out repairs.
  - (iii) 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.
- (b) Council's 2014 procurement strategy is being reviewed.

### 17.7.3 Standards

- (a) 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.

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## 17.7.4 Deferred Maintenance

- (a) There is some history of deferred maintenance over past years due to Council's inability to fully fund its maintenance and renewals obligations. The maintenance budget is approximately 20% of the total amount identified by network inspections. The deferred work has been itemised and will be prioritised and addressed through pavement maintenance and renewals.

## 17.8 Pavement Renewal Plan

### 17.8.1 Renewal Options

- (a) Pavement renewal activities include:
- (i) Sealed road surfacing, including chip sealing, slurry sealing and asphaltic concrete resurfacing.
  - (ii) Pavement rehabilitation.
  - (iii) Unsealed road metalling includes the application of running and base course metal to strengthen unsealed roads.

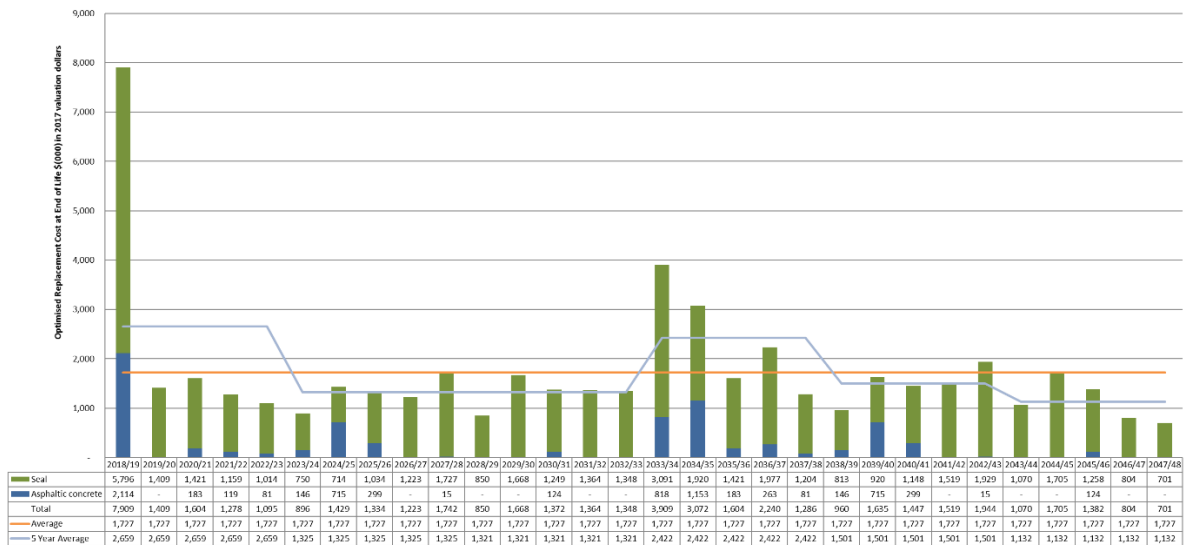
Work Type	Objective	Methods
Sealed road resurfacing (reseals)	To maintain a waterproof and skid-resistant road surface	Chip sealing or emulsified bitumen covered with a layer of stone chips, with the amount of bitumen being altered according to the chip size and vehicle usage. Slurry seal and emulsified bitumen laid ~6 mm thick. Friction Course and graded aggregate with hydrated lime filler which has a high volume of air voids and is laid in a 30-35 mm layer Asphaltic Concrete
Reconstruction	To repair the faults in a failing road by excavating the old one reconstructing it back to new condition.	Remove the existing basecourse and/ or subgrade and replacing with new material. This is usually done in urban areas where kerb lines determine the finished level. It is also carried out in areas that are particularly wet.
Rehabilitation/ Renovation	To repair the faults in a failing road by building a new road over the top of the old one, using the old one as a base.	Increase the strength of existing basecourse/ sub-base materials by adding granular basecourse and or a stabiliser (hydrated lime or cement) and recompacting.
Partial Rehabilitation	Used where only parts of the pavement are exhibiting distress and it is more cost-effective to repair these areas only.	In the rural area rehabilitation involves removing the existing chipseal and constructing an additional layer of road metal on top of the existing pavement construction

### 17.8.2 Methods of Renewals Analysis

- (a) 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:
- (b) Age- based method
- (i) The following graph provides an age based renewal profile with the optimised renewal cost forecast to the date of end of life. The peak in year 18/19 indicates items where the end of life date has passed and the remaining useful life has been reset as 1.

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Figure 62: Optimised Renewal Cost (ORC) forecast based on End of Life \$(000) based on 2017/18 valuation



(c) Condition based method

- (i) 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.
- (ii) 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.
- (iii) 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.
- (iv) 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 authorities is deterioration modelling (dTIMS). dTIMS is not considered appropriate for low volume networks such as Ruapehu District.
- (v) The TSA tool indicates there is currently a need for more reseals than are currently being completed at present, with “Reseal in budget” identified as 51.8km. There is a further 107.7km identified as “Reseal Next Time”

**17.8.3 Sealed Road Surfacing (Reseals)**

- (a) More commonly referred to as 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. With a sealed network of 486km, this equates to an average of 37km per year less those 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.
- (b) 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:

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- (i) 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).
  - (ii) The texture of the existing surface.
  - (iii) The condition of the existing surface, for example, cracking, stone loss, flushing, etc.
  - (iv) The need for waterproofing.
  - (v) The flexibility of the existing road formation (stiff surfacing coats will fail if they are applied to flexible pavements)
  - (vi) 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.
  - (vii) Safety and appearance.
- (c) 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.
- (d) 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.
- (e) 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).
- (f) First coat seals may be either a single coat grade 4 seal or a two coat grade 3/5.
- (g) 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.
- (h) 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.

### 17.8.4 Reseal strategies

- (a) 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.
- (i) 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.
  - (ii) 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.
  - (iii) 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).
  - (iv) 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.

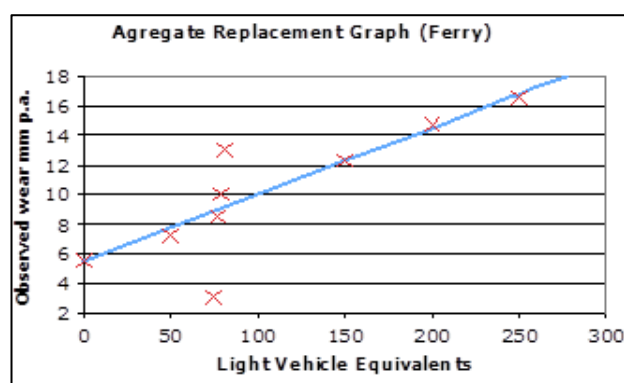
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### 17.8.5 Sealed Pavement Rehabilitation

- (a) 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.
- (b) 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. Currently a Benefit/Cost ratio of at least 4 would be necessary for these works.
- (c) The required level of pavement rehabilitation will vary depending on;
  - (i) The condition profile of the carriageway.
  - (ii) The level of ongoing maintenance demand.
  - (iii) The differing economic lives of the materials used.
  - (iv) The subgrade strength and type.
  - (v) The usage of the road.
- (d) NZTA requires a positive NPV for pavement rehabilitation works where the benefits are primarily maintenance savings to the Roding 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 30%. The target roughness value for those works is <70 NAASRA.
- (e) When rehabilitating roads, all drainage deficiencies including substandard culverts are rectified and road widths are brought up to the appropriate road standard.
- (f) 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.
- (g) 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:
  - (i) Resurfacing with a specified seal coat
  - (ii) Partial smoothing
  - (iii) Controlled deterioration where sufficient work is carried out to keep the road safe and usable until funding for rehabilitation can be secured.
  - (iv) Reverting to unsealed

### 17.8.6 Unsealed Road Metalling

- (a) 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 before winter. 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 31,000m<sup>3</sup> loose measure.

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- (b) Council has been applying approximately the target volume of 31,000m<sup>3</sup> of metal to the network per annum by way of maintenance metal/ metal strengthening since 2004, resulting in a gradual improvement to the unsealed road network.

### 17.8.7 Deferred Renewals

- (a) 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.
- (b) 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.
- (c) It is estimated that Council should be renewing approximately 30 km/year of surfacing per year, but is only achieving approximately 25 km/year.

## 17.9 Pavement Development Works

### 17.9.1 Activities

- (a) Development activities, driven by growth or level of service enhancement include:
  - (i) Seal widening.
  - (ii) Seal extensions.
  - (iii) Road strengthening works.
  - (iv) New road construction.
  - (v) Corridor improvement works.

### 17.9.2 Strategies

- (a) 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:
  - (i) The benefit to the road user for reducing delays in the time to travel along a given route.
  - (ii) Vehicle operating cost savings.
  - (iii) Safety benefits.
  - (iv) Intangible benefits including community dislocation, environmental issues (including noise and vibration) and other possible local, regional and national issues.
- (b) A Benefit/Cost of 1 or greater means that the benefits exceed the costs.

### 17.9.3 Seal Widening

- (a) 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 condition.
- (b) The following roads have been identified for seal widening:
  - (i) Ohakune Mountain Road – Council is progressively widening the sealed surface in conjunction with minor improvements
  - (ii) Ruatiti Road – Council is progressively widening the sealed surface in conjunction with minor improvements and pavement rehabilitations
  - (iii) Poro O Tarao – Council plans to widen the sealed surface progressively in conjunction with minor improvements and pavement rehabilitations
  - (iv) Taringamotu Road and Ngapuke Road – Council is progressively widening the sealed surface in conjunction with minor improvements and pavement rehabilitations
  - (v) Oio Road – Council is progressively widening the sealed surface in conjunction with minor improvements and pavement rehabilitations.

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## Part 3 – Land Transport Activity

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### 17.9.4 Seal Extensions

- (a) NZTA funding criteria sets a high threshold for sealing unsealed roads.
- (b) 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 generally based on the highest benefit cost ratio or NZTA seal extension criteria which also takes into account safety factors, and dust suppression. The reality is few of the roads will meet the funding criteria.
- (c) There are seal extensions planned for the 2018 to 2021 period. This is discussed further in Section 13 Managing Growth and Demand.

### 17.9.5 New Roads

- (a) Council will adopt third party assets in accordance with the District Plan.

### 17.9.6 Minor Improvements (Low Cost, Low Risk Improvements)

- (a) Each year, when Council is preparing its capital works programme for the following 12 month period, provision is made for minor improvements work, which includes:
  - (i) Visibility improvements.
  - (ii) Improved street lighting.
  - (iii) Road curvature realignment.
  - (iv) Signage.
  - (v) Road widening.
  - (vi) Intersection improvements.
- (b) The funding of these activities is outlined in NZTA's online Planning and Investment Knowledge Base.



### 17.9.7 Development Plan 2018/21

- (a) The following development projects are planned for 2018/21 period.

# Part 3 – Land Transport Activity

Table 68 – Development Project Alignment

Activity	Brief Scope	Work Category	ONRC Category	Problem	Main Benefit	Council Outcome
Seal Extensions	Carry out urban and semi urban seal extensions	Unsubsidised	Various	Increasing demand on unsealed roads due to safety, ride comfort and dust	Improved ride and reduced environmental impacts	Core infrastructure endeavours to keep pace with changing demand  Our Transportation network is reliable, safe and endeavours to meet the needs of our users  Excellent standards of safety and welfare are promoted and respected
Pavement Rehabilitation LR and SPR	Carry out pavement renewals – This part is for level of service improvements in road width	Pavement Rehabilitation	LR – Various, targeting forestry routes SPR – Primary collector	Roughness and safety	Improved ride, reduction in roughness, maintain safety levels	Our Transportation network is reliable, safe and endeavours to meet the needs of our users  Excellent standards of safety and welfare are promoted and respected
OMR Capacity Improvement	Install off road cycle path	Unsubsidised	Primary collector	Safety of vulnerable road users	Separating travel types and reducing environmental impacts in Dual heritage national park environment	As above
LR & SPR	Carry out minor improvement work. River valley meetings	Low cost low risk	Various	Safety	Improve safety on local roads	As above
OMR Hairpin Grade Improvement	Improve grade of road section with traction issues	Low cost low risk	Primary Collector	Safety as vehicles have traction issues on steep grade in winter	Improve safety for all users	As above
AC on Ohakune Mountain Road	Install 3km of AC above 11km mark	Low cost low risk	Primary Collector	Seal life length is shorter than average	Reduce long term reseal costs	As above

## 17.10 Disposal Plan

- 17.10.1 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.
- 17.10.2 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.

## 17.11 Pavement Expenditure

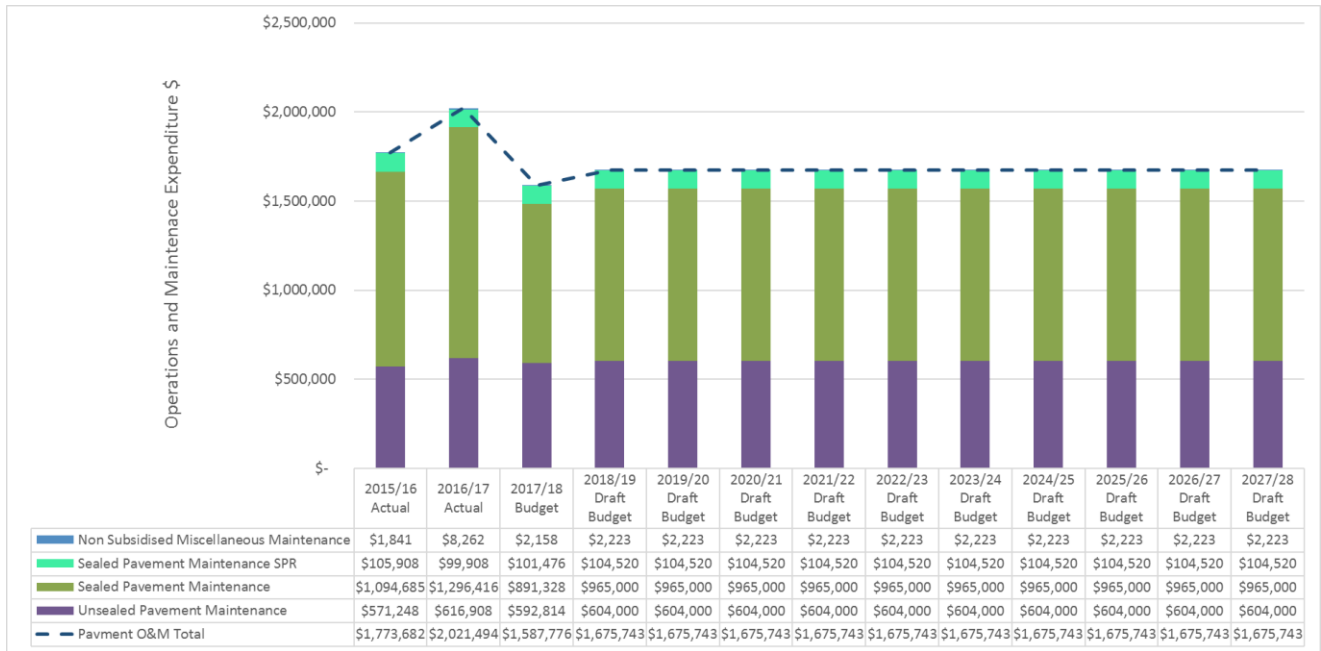
- 17.11.1 Council has identified the following programmes for 2018/19, which is indicative of the next 10 years to address the challenges faced by the transport network and deliver the District’s Strategy and Investment Outcomes.
- 17.11.2 The figures below sets out the historical actual expenditure and 2017/18 budget in actual dollars and the future draft budget figures in terms of 2018/19 base dollars.
- 17.11.3 The figure below sets out the historical and projected **operations and maintenance** expenditure for pavements. The information shows that expenditure has decreased from 2016/17 to 2017/18. This is mainly



# Part 3 – Land Transport Activity

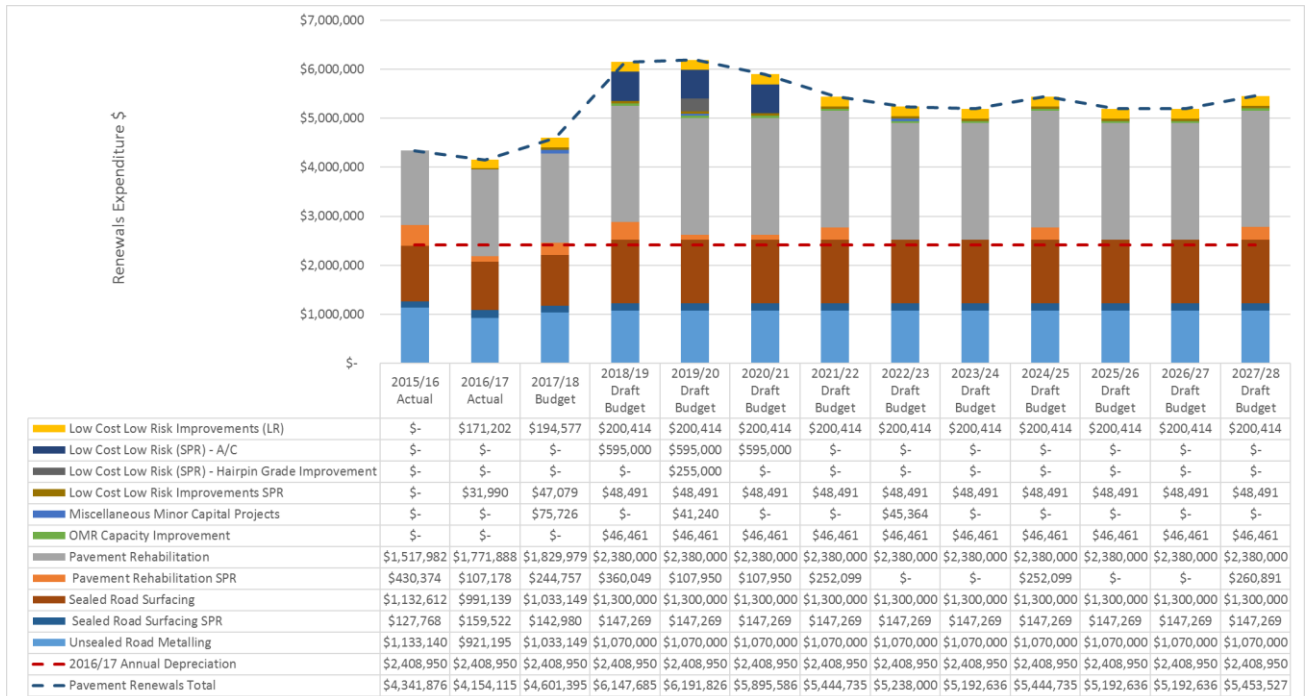
due to a decrease in sealed pavement maintenance. The proposed budgets allow for a slightly increased sealed pavement maintenance budgets as per 2018/19. The predicted expenditure for the period of 2018/19 to 2027/28 is approximately \$1.7 M per year.

Figure 63: Pavement Historical and Projected Operations And Maintenance Expenditure \$



17.11.4 The figure below sets out the historical and projected capital **renewal** expenditure component of pavement projects and programmes. (Refer to Section 16 for a breakdown of capital expenditure categories).

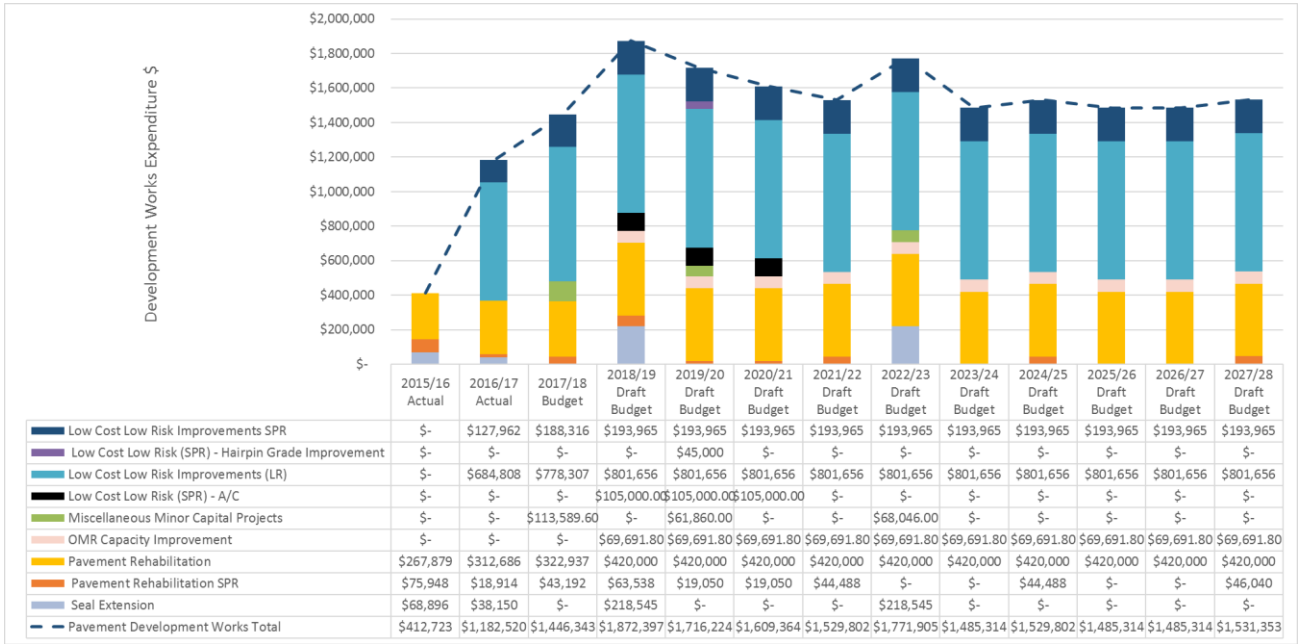
Figure 64 - Pavement Historical and Projected Capital Renewal Expenditure \$



17.11.5 The figure below sets out the historical and projected capital **development works** expenditure component of pavement projects and programmes. (This includes the growth and levels of service components of projects, refer to Section 16 for a breakdown of capital expenditure categories).

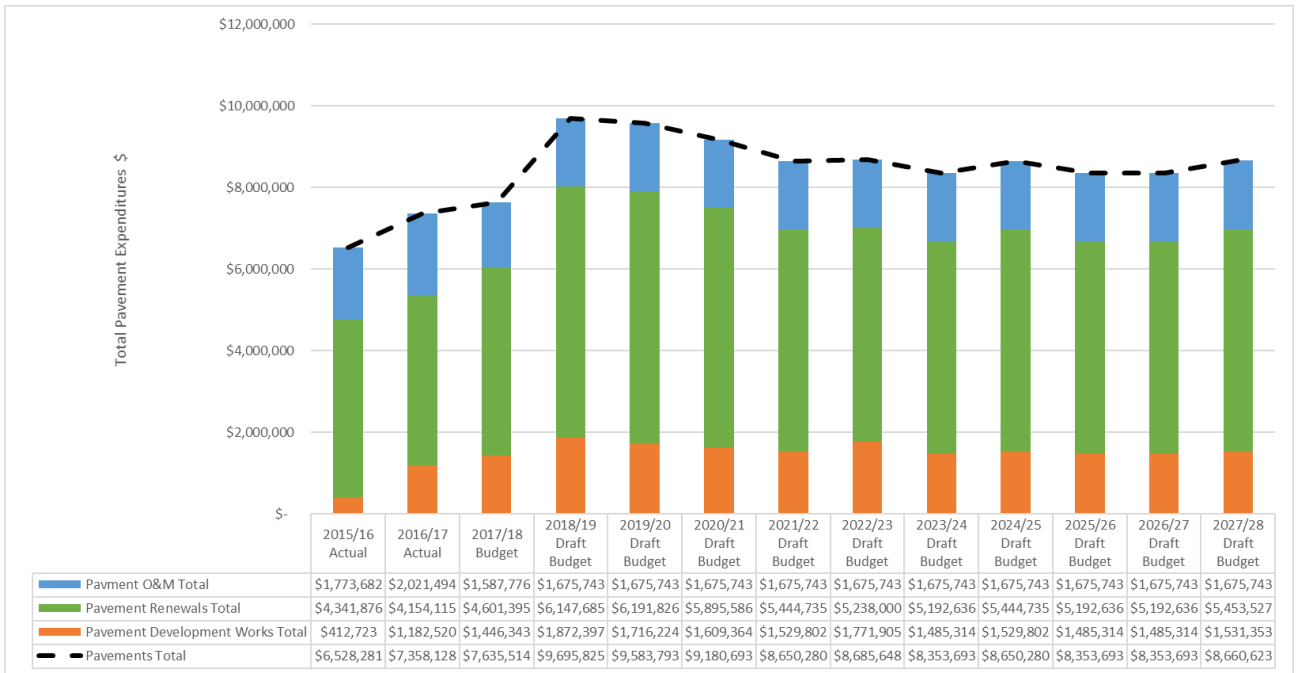
# Part 3 – Land Transport Activity

Figure 65 - Pavement Historical and Projected Capital Development Works Expenditure \$



17.11.6 The figure below sets out the historical and projected **combined** expenditure for pavement projects and programmes.

Figure 66 - Pavement Historical and Projected Combined Expenditure \$



17.11.7 Section 28 Financial Summary and Appendices A and B provide more detail on the funding sources for these programmes and projects.

# Part 3 – Land Transport Activity

## 18 Structures: Bridges, Large Culverts, Retaining Walls and Minor Structures

### 18.1 Overview & Strategic Case Link

- 18.1.1 The purpose of road bridges and culverts is to provide continuous all-weather roading over rivers, streams, railway lines and uneven terrain.
- 18.1.2 Retaining walls provide protection and support for road pavements. Most retaining walls are not actively maintained.
- 18.1.3 Minor structures include footbridges and bluff safety netting.
- 18.1.4 Maintenance and renewal of pavements is a response to three problem statements by ensuring access for different users (such as commercial and agricultural) around the network:-
- Forestry and Land Use:** - Changing land uses (ie forestry and 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 cost.
  - 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.
  - 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
- 18.1.5 Key ONRC CloS delivered through structures assets are:
- 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
  - Safety - how road users experience the safety of the road
  - Accessibility: - the ease with which people are able to reach key destinations and the transport networks available to them

### 18.2 Key Issues and Risks

- 18.2.1 Some of the key life cycle management issues that affect structures are:

Key Issue	Strategies to Address Key Issues
Non-maintained bridges	Bridges that serve single properties on unmaintained sections of the network will be considered for transfer to property owner or removal.
Structure replacements over rail	Rail protection and electrification requirement add significant cost to bridge renewal projects, particularly on mothballed lines. Establish a forward works plan and work with Kiwirail to ensure renewals are fit for purpose at least cost.
Aging bridge stock	Aging bridge stock is going to require a renewal programme to address weight restrictions and condition issues. Previously the main focus has been on structural component replacement.
Papa Drives in poor condition	Papa Drives are hand excavated tunnels in sedimentary rock ('papa'). As this is not an engineered solution it is unknown how strong the rock is and some have collapsed in the past. The 'papa' drives are inspected as part of the bridge inspection programme and scheduled for renewal with concrete culvert or repair.
ARMCO issues	The ARMCO culverts have a limited life of 35 years <sup>(1)</sup> which may be even further reduced in the region due to geology and corrosion. This life may be extended by lining the invert with concrete. RDC instituted a formal inspection regime of all large culverts and are programming culverts for replacement and/or repair.
Replacement funding for low traffic volume bridges	RDC have identified which bridges require strengthening or replacement and have prioritised these based on condition, freight load, traffic and availability of alternative routes. These are now included in the budget. There may still be bridges that may not meet the funding criteria and these may have to be maintained as restricted load bridges.

## Part 3 – Land Transport Activity

Key Issue	Strategies to Address Key Issues
HPMV and 50Max trucks	As discussed in Section 13.8.2 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. RDC have identified all the 50Max restricted bridges and will develop a strategy to consider freight volumes and prioritise improvements.
Resilience	All bridges fall within an inspection regime and some bridges have had seismic assessments. Faults are identified and prioritised as the budget allows. After major earthquakes and flood events the bridges are inspected and renewed as required.
Retaining Structures	The District does not have complete information on retaining structures. The District has been capturing new retaining structures into RAMM and where old structures are identified these will also be added to the asset register including condition information.

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.

### 18.3 The Need for Investment

- 18.3.1 Council considers that it has a robust approach to investments in structures.
- 18.3.2 Investment in structures is required:
- To provide continuous safe, all-weather roading over rivers, streams and uneven terrain.
  - To protect and support the road pavements.
- 18.3.3 An analysis of the current investment includes:
- Structures are the asset group with the third largest expenditure. Structures assets form 24.4% (\$100.8M) of the total Land Transport Activity Optimised Replacement Cost and 23.2% (\$1.1M) of the annual depreciation. The 2018/19 structures maintenance, renewal and improvements budget is 10.4% (\$2.1M) of the total Land Transport Activity Budget (\$19.9M).
  - The confidence grade in structure asset data including condition and performance data is highly reliable, with bridges inspected as per the NZTA bridge inspection policy.
  - Bridge collapse has been identified as a risk with high residual risk for RDC with mitigation measures identified as frequent inspections, maintenance, renewals and reporting.
  - 79.5% (\$1.7M) of the 2018/19 structures budget is for renewals. This varies between \$0.3M and \$2.0M over the next 10 years and depends on the timing of the bridge or culvert that has been identified for renewal based on condition and risk. This is a change in the expenditure over the past three years which varied between \$307K and \$826K and is a result of backlog from historical under-investment. The structures renewals budget (\$838k annually) is well below the 2016/17 annual depreciation (75.7% of \$1.1M).
- 18.3.4 Processes and methods currently employed include:
- Focus and effort go into spending only what is needed to make better investment decisions to sustain the transport network in the long term; by targeting the right treatments, to the right places, at the right times and for the right costs.
  - The life cycle maintenance and renewal strategies clearly detail Council strategies
- 18.3.5 Future enhancements to be considered to improve asset management and the business case include the following:
- Develop a strategy to consider freight volumes and prioritise improvements on all 50 Max restricted bridges.

### 18.4 Asset Description

#### 18.4.1 Maintained Bridges

- Council owns and manages a total of 341 bridges comprising 255 structural bridges and 86 large culverts (Culverts with a waterway area of greater than or equal to 3.5 m<sup>2</sup> are considered bridges). Composite steel beam/concrete deck and concrete bridges make up 59% of the total number of structural bridges. Armco (corrugated steel pipe) culverts make up 28% of all culverts with Papa Drives (tunnelled culverts) making up a further 17%.

## Part 3 – Land Transport Activity

- (b) Bridge renewals are critical to maintain the overall integrity and access across the network. Council has 41 timber bridges that are reaching the end of their design life over the next ten years and a number of other bridges and large culverts will also require renewal over this period. This is a key focus of this Plan.

### 18.4.2 Bridge Types

- (a) Bridges vary from high standard concrete structures to very low standard wooden structures with severe restrictions placed upon them due to weight restrictions.
- (b) In addition there are 25 bridges located on parts of the unmaintained network. These are bridges that give access to a single property only and can be seen as part of the access to that property. The Land Transport team maintain a list of these bridges and their issues and risks. These bridges have a structural inspection approximately every six years. These bridges are detailed in Appendix G.
- (c) Bridges includes concrete, timber and steel structures and have an overall value of \$85,309,954. The annual depreciation cost for this asset group is \$898,056. Behind pavements, this is one of the larger asset groups in the Transportation network.

Figure 67: Bridge and Culvert Construction Type

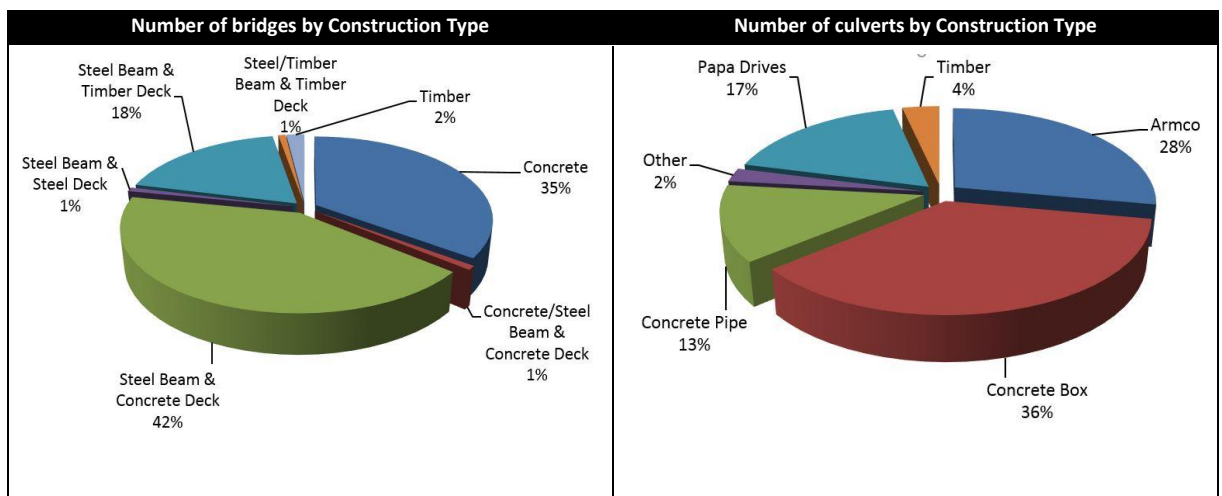


Table 69 – Bridges and Large Culverts Asset Summary

Asset Type	Quantity - No	Length - m	Average Base Life	Average Age	Average RUL*	ORC - \$	ODRC - \$	AD - \$
<b>Bridges</b>								
Concrete	90	1,809	100	47	53	36,004,485	19,361,137	360,053
Concrete/Steel Beam & Concrete Deck	1	64	100	56	45	936,436	496,311	9,364
Steel Beam & Concrete Deck	108	2,468	100	52	48	37,009,668	19,297,785	370,097
Steel Beam & Steel Deck	1	32	100	36	64	379,636	242,967	3,796
Steel Beam & Timber Deck	47	766	100	57	43	9,408,453	1,784,085	132,563
Steel/Timber Beam & Timber Deck	2	43	70	44	27	544,541	101,129	7,779
Timber	5	60	70	72	0	966,886	191,654	13,813
<b>Bridge - Total</b>	<b>255</b>	<b>5,242</b>				<b>85,250,105</b>	<b>41,475,068</b>	<b>897,466</b>
<b>Large Culverts</b>								
Culvert - ARMCO	24	81	70	38	32	2,676,189	1,136,589	36,941
Culvert - Concrete Box	31	120	100	58	42	2,403,055	1,038,755	24,122
Culvert - Concrete pipe	11	51	100	47	53	770,803	407,427	8,354

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Asset Type	Quantity - No	Length - m	Average Base Life	Average Age	Average RUL*	ORC - \$	ODRC - \$	AD - \$
Culvert - Other	2	4	100	66	34	200,614	46,970	2,006
Culvert - Papa Drives	15	34	100	76	24	2,293,034	530,430	23,316
Culvert - Timber	3	8	70	42	28	411,092	157,391	5,873
Large Culverts - Total	86	298				8,754,788	3,317,562	100,612
<b>Total</b>	<b>341</b>	<b>5,540</b>				<b>94,004,893</b>	<b>44,792,630</b>	<b>998,078</b>

\* Remaining useful life

### 18.4.3 Retaining Walls

- (a) Council owns and manages 209 retaining walls identified in RAMM, it is likely there are historical walls that are not captured in the system. These are maintained on an as required basis. The majority of these are rock walls that become part of the surrounding landscape.

Table 70 – Retaining Wall Asset Summary

Asset Type	Quantity - No	Length - m	Average Base Life	Average Age	Average RUL	ORC - \$	ODRC - \$	AD - \$
Block	2	26	80	3	77	26,149	25,168	327
Concrete	9	239	100	31	68	285,698	222,640	2,857
Concrete and Steel	1	10	100	9	91	11,886	10,816	119
Earth	15	309	100	7	93	569,138	522,723	5,691
Galvanised Steel	7	282	50	7	43	161,649	29,509	3,233
Railway Iron and Sleeper	1	20	70	67	3	23,772	1,019	340
Steel	1	17	50	11	39	6,735	5,254	135
Steel and Wood	110	2,239	80	9	71	2,480,358	2,216,776	31,004
Stone	1	16	50	48	2	4,437	178	89
Timber	19	296	50	14	38	414,067	340,084	8,155
Willow Logs	1	33	50	17	33	39,224	25,888	784
Wood	4	133	50	16	35	202,457	134,002	4,049
Unknown	38	402	80	8	72	438,987	406,903	5,483
<b>Total</b>	<b>209</b>	<b>4,022</b>				<b>4,664,558*</b>	<b>4,040,960*</b>	<b>62,266*</b>

\*Valuation at Oct 2017

### 18.4.4 Minor Structures

- (a) Minor Structure asset class has been included in the scope of the 2016/17 valuation, having previously not formed part of earlier asset valuations. The assets in the Minor Structure asset class include a pedestrian footbridge and bluff safety netting. The additional assets have contributed an additional \$1,291,208 to the total replacement costs, with an annual depreciation value of \$35,675 for the asset class.

Table 71 - Minor Structures Summary

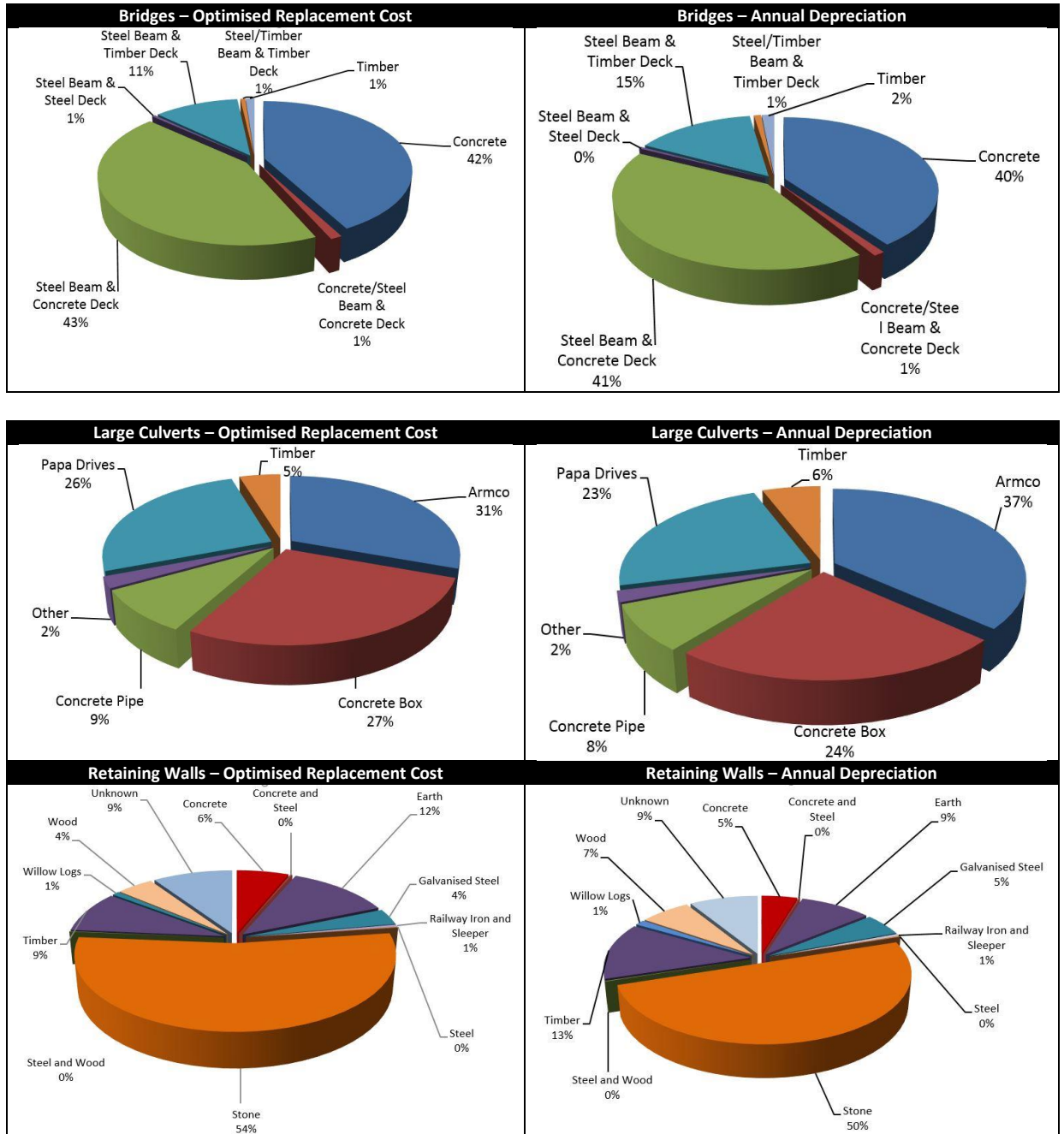
Asset Type	Quantity - No	Length - m	Average Base Life	Average Age	Average RUL*	ORC - \$	ODRC - \$	AD - \$
Minor Structures - Pedestrian Footbridge	1	53	100	36	64	1,291,208	1,046,810	35,675
Bluff Safety Netting	1	150	25	25	25			
<b>Total</b>	<b>2</b>	<b>203</b>				<b>1,291,208</b>	<b>1,046,810</b>	<b>35,675</b>

# Part 3 – Land Transport Activity

## 18.5 Replacement Cost and Annual Depreciation

18.5.1 The graphs below (and previous tables) show the optimised replacement costs (ORC) and Annual Depreciation costs for bridges, large culvert and retaining wall assets.

Figure 68 - ORC and Annual Depreciation - Bridges, Large Culverts and Retaining Walls



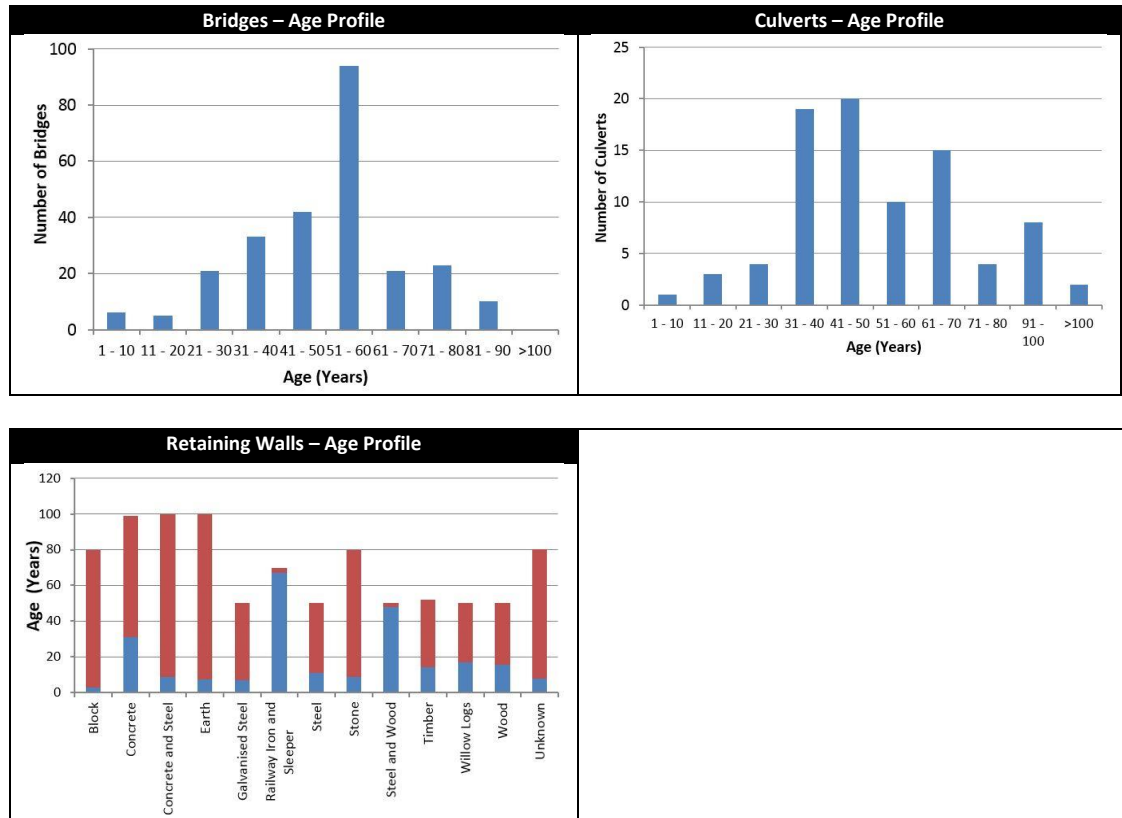
## 18.6 Asset Age and Condition

### 18.6.1 Asset Age

(a) The graphs show the age profiles of the bridges, large culverts and retaining walls.

# Part 3 – Land Transport Activity

Figure 69 - Age Profiles - Bridges, Large Culverts and Retaining Walls



Note: Construction dates for 44 of the Bridge/culvert assets are estimated.

## 18.6.2 Condition Assessment and Results

- (a) 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.
- (b) Currently there are 16 weight-restricted bridges. There are also a further six speed only restricted bridges. 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.
- (c) 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.
- (d) 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.
- (e) There are financial implications to upgrading these 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. Unfortunately because of the low traffic volumes on the roads the projects 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. Funding is allowed for in this plan under the Structural Component replacement category.
- (f) 31% of the recorded retaining wall assets have condition data, but these were recorded when the asset was first added to RAMM, with a condition grading 1. This does not provide a meaningful picture of asset condition at the present time.



# Part 3 – Land Transport Activity

## 18.7 Operations and Maintenance Plan

### 18.7.1 Activities

- (a) Operations and maintenance activities include:
  - (i) Annual routine surveillance bridge and culvert inspections.
  - (ii) General bridge inspections undertaken by a bridge inspector biannually on all bridges.
  - (iii) Six yearly principal bridge and culvert inspections undertaken by a structural engineer on all non-restricted bridges.
  - (iv) Special inspections on all restricted bridges every two years and after specific events such as earthquakes, severe floods or instances of overloading.
  - (v) 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:
    - (A) Repairing/ replacing damaged components, e.g. handrails and guardrails.
    - (B) Maintaining drainage.
    - (C) Watercourse training.
  - (vi) Emergency work - all immediate response emergency work on bridges and culverts for whatever reason.

### 18.7.2 Strategies

- (a) Bridges, culverts, and retaining structures will be inspected regularly and preventative maintenance work undertaken to:
  - (i) Prevent failure of the bridge.
  - (ii) Protect the investment in the asset by extending the life of the structure.
  - (iii) Minimise repair costs.
- (b) Maintenance programmes, or contracts, are prepared from the schedules of defects identified during the inspections. Repair treatments and priorities are determined by considering the impact on:
  - (i) Public safety (top priority).
  - (ii) Traffic movement.
  - (iii) Future costs if the work is not done.

### 18.7.3 Standards

- (a) Routine maintenance of bridges is included in the new road maintenance contract. Major work or work of a specialised nature is carried out by the structures contractor.
- (b) 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:
  - (i) Impact damage from vehicles, especially to guardrails and handrails.
  - (ii) Build-up of flood debris.
  - (iii) Adequacy of sign and road marking.
  - (iv) Erosion damage.
  - (v) Deck drainage function.
  - (vi) Approach settlement and condition of road surface.
  - (vii) Expansion joint function.
  - (viii) 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.

### 18.7.4 Deferred Maintenance

- (a) 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

## Part 3 – Land Transport Activity

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.

### 18.8 Renewal Plan

- 18.8.1 The overall objective is to steadily renew assets considering the following:
- (a) The age profile
  - (b) The condition profile
  - (c) The level of on-going maintenance
  - (d) The economic lives of the materials used
  - (e) Financial and customer risks.
- 18.8.2 Renewals are reviewed regularly, with any deferred work re-prioritised alongside new renewal projects and a revised programme established where required.
- 18.8.3 Bridges require ongoing maintenance to help ensure that they continue to perform and meet their design life expectancy. Ongoing maintenance 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 condition near the end of their design life. Table 72 outlines the life expectancy of bridge assets within the District.
- 18.8.4 Council has increased its structural component expenditure in this AMP period to address deferred works.

**Table 72 : Bridge and Culvert Type Life Expectancy**

Type	Life Expectancy (yrs)
ARMCO Culvert	35
Concrete Box Culvert	100
Concrete pipe Culvert	100
Other Culvert	100
Papa Drive Culvert	100
Timber Culvert	70
Concrete/Steel Beam – Conc. Deck Bridge	100
Concrete–Bridge	100
Steel Beam - Concrete Deck–Bridge	100
Steel Beam - Steel Deck–Bridge	100
Steel Beam - Timber Deck Bridge	100
Steel/Timber Beam - Timber Deck Bridge	70
Timber Bridge	70

### 18.9 Development Works Plan

- 18.9.1 Development works are generally initiated through triggers such as growth, Levels of Service, regulatory, operational efficiency, or vested (gifted) through subdivisions. See Section 18.11. for details.
- 18.9.2 There are two planned development projects for 2018-21.

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Table 73 – Development Project Alignment

Activity	Brief Scope	ONRC	Problem	Main Benefit	Council Outcome
Bridge replacements	Replace failing timber weight restricted bridges	Access (LV)	Accessibility for Class 1 HCVs	Provides efficient access and supports economic growth	Core infrastructure endeavours to keep pace with changing demand  Our Transportation network is reliable, safe and endeavours to meet the needs of our users
Large culvert replacements	Replace structural culverts	Access (LV)	Accessibility	Provides efficient access and supports economic growth	Our Transportation network is reliable, safe and endeavours to meet the needs of our users
Structural Component Replacement	Renew structural components of bridges to maintain integrity	Various	Accessibility and safety	As above	As above &  Excellent standards of safety and welfare are promoted and respected

Table 74 - Structure Development Projects 2018/21

Bridge	Project Description	Work Category	2018/19 Budget	2019/20	2020/21
Structural Component Replacements	The level of service component relates to reducing the number or severity of existing weight restrictions or increasing bridge width.	Structures Components	\$143,766	\$211,957	\$61,620
Mangateitei Rail Overbridge Replacement	Replace aging timber structure with a new single span structure Failing restricted bridge providing sole access to land valued at \$18,000,000 over the North Island Main Trunk Railway. Transferred from 15/18 block to allow additional time to address landowner issues from new alignment.	Low cost low risk	\$990,000		
Ruapehu Rail Overbridge Replacement	Renewal of the Ruapehu Road Rail Overbridge that carries a 40% (and reducing) restriction. Rapidly failing hardwood timber bridge crossing rail line. Timber stringers failing, splitting piers with rotten top beams and bottom plates. Alternative access to farm land is restricted by a rail over bridge which has insufficient clearance (50mm) for stock trucks. The bridge enables heavy commercial traffic to be kept out of the CBD. The replacement bridge will also be one lane, same as existing. Transferred from 15/18 block to allow additional time to research options for access.	Low cost low risk		\$990,000	
Kokopuiti Road Rail Overbridge replacement	Replace failing timber structure that carries 50% restriction	Low cost low risk			\$440,000
Pokatea Kokakonui Road - Cul #24 replacement	Replace failing structural culvert	Low cost low risk			\$150,000

## 18.10 Disposal Plan

18.10.1 Council has 25 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 that Council is unaware of.

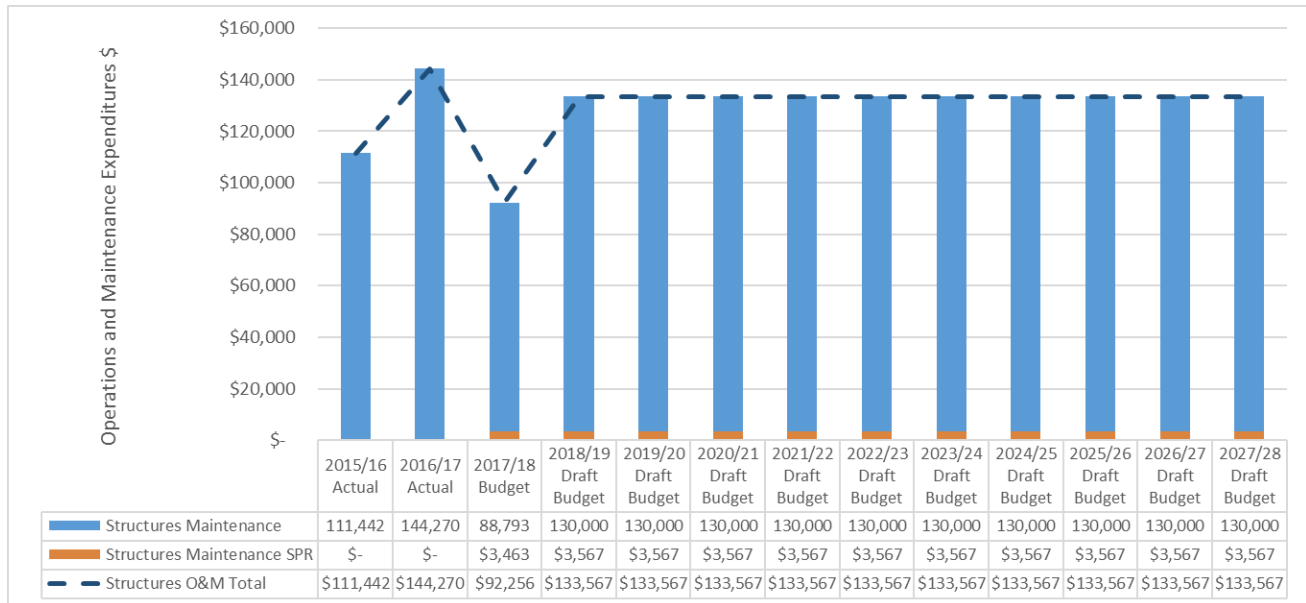
18.10.2 The bridges that Council are aware of are listed in Appendix G

# Part 3 – Land Transport Activity

## 18.11 Structures Expenditure

- 18.11.1 Council has identified the following programmes for 2018/19, 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.
- 18.11.2 The figures below sets out the historical actual expenditure and 2017/18 budget in actual dollars and the future draft budget figures in terms of 2018/19 base dollars.
- 18.11.3 The figure below sets out the historical and projected **operations and maintenance** expenditure for structures. The predicted expenditure for the period of 2018/19 to 2027/28 is approximately \$134,000 per year.

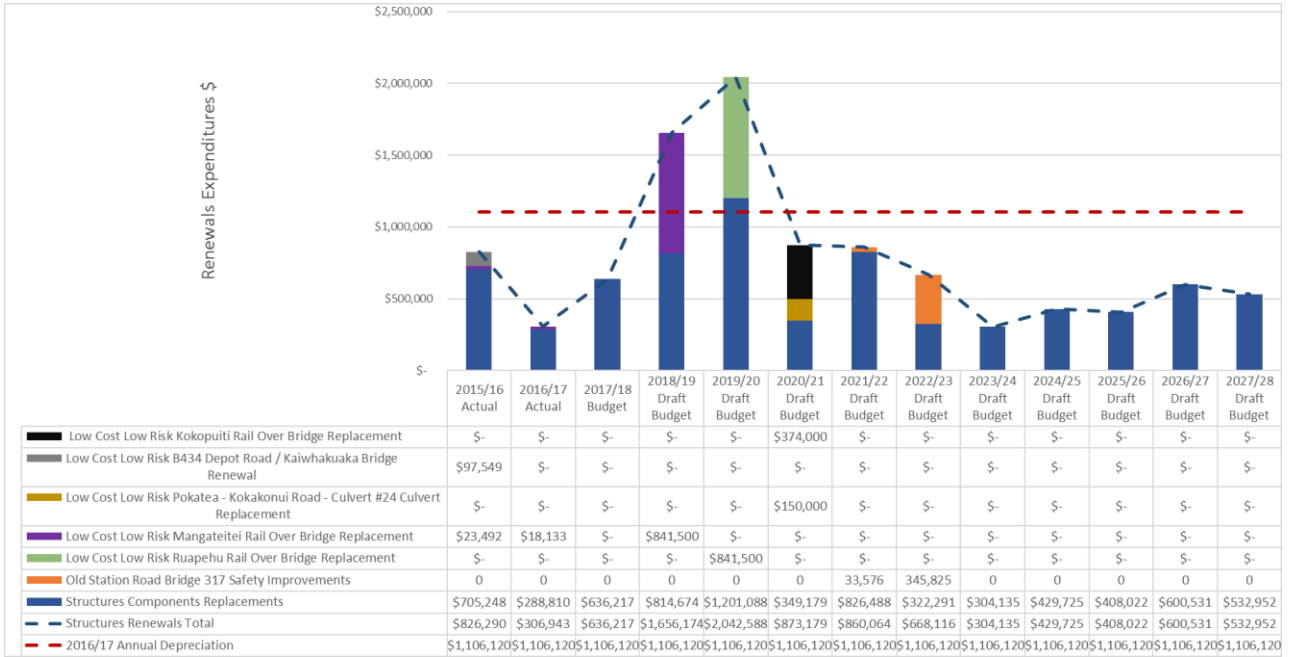
**Figure 70 - Structure historical and projected operations and maintenance expenditure \$**



- 18.11.4 The figure below sets out the historical and projected capital **renewal** expenditure component of structures projects and programmes as well as the 2016/17 annual depreciation. Note for Low Cost Low Risk Ruapehu Rail Over Bridge Replacement project, \$680,000 in 2017/18 was removed as it is replaced by \$841,500 in 2019/20.

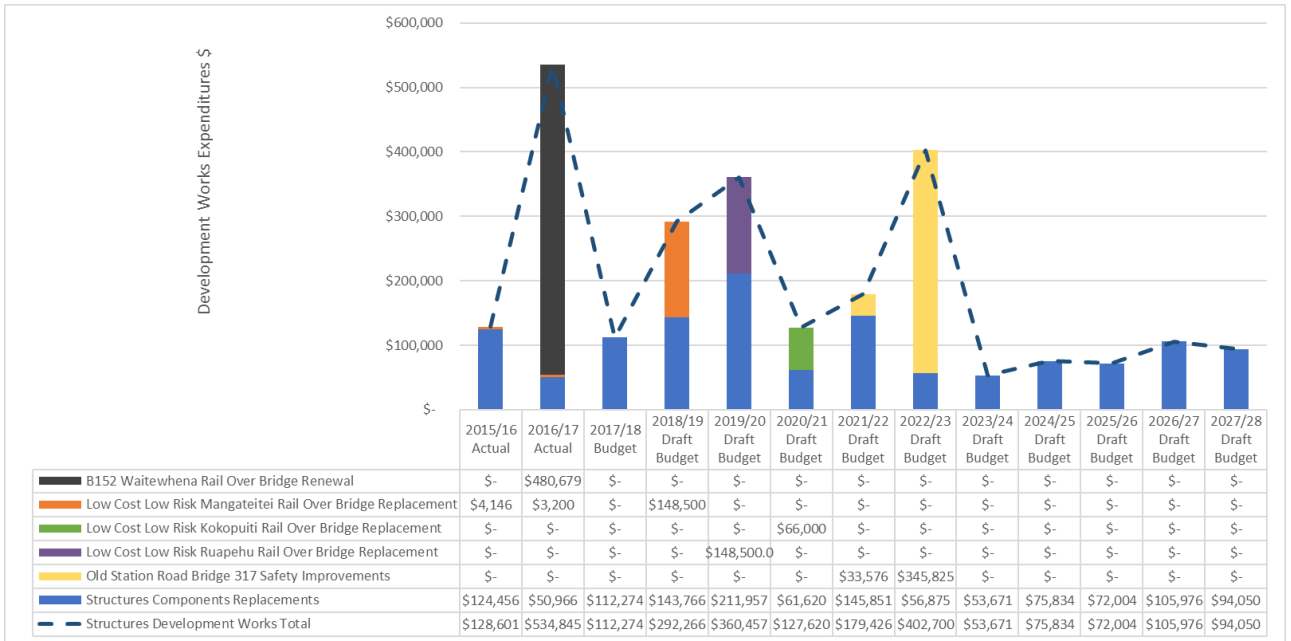
# Part 3 – Land Transport Activity

Figure 71 - Structures historical and projected capital renewal expenditure \$



18.11.5 The figure below sets out the historical and projected capital **development works** expenditure component of structures, projects and programmes. (This includes the growth and levels of service components of projects). No expenditure related to growth is projected over the next 10 years. Note for Low Cost Low Risk Ruapehu Rail Over Bridge Replacement project, \$120,000 in 2017/18 was removed as it is replaced by \$148,500 in 2019/20.

Figure 72 - Structures historical and projected capital development works expenditure \$



18.11.6 The figure below sets out the historical and projected **combined** expenditure for structures projects and programmes.

# Part 3 – Land Transport Activity

Figure 73 - Structures historical and projected combined expenditure \$



18.11.7 Section 28 Financial Summary and Appendices A and B provide more detail on the funding sources for these programmes and projects.

# Part 3 – Land Transport Activity

## 19 Drainage

### 19.1 Overview & Strategic Case Link

- 19.1.1 Drainage assets managed under the Land Transport Activity include culverts (less than 3.4m<sup>2</sup>, note larger culverts are referred to as structures), kerbs and channels and surface water channels. Catchpits, sumps, manholes and soak pits are managed under the Stormwater Activity with a small number in rural areas maintained under the Land Transport Activity.
- 19.1.2 Maintenance and renewal of drainage is a response to three problem statements by providing an essential service to the integrity of the pavement network and to provide a level of protection to property from flooding:-
- (a) 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.
  - (b) 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.
  - (c) **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
- 19.1.3 Key ONRC CloS delivered through drainage assets are:
- (a) Reliability: the consistency of travel times that road users can expect
  - (b) Resilience: the availability and restoration of each road when there is a weather or emergency event, whether there is an alternative route available
  - (c) Safety - how road users experience the safety of the road
  - (d) Accessibility: - the ease with which people are able to reach key destinations and the transport networks available to them

### 19.2 Key Issues

- 19.2.1 Some of the key life cycle management issues that affect drainage facilities are:

Key Issue	Strategies to Address Key Issues
Undersize Culverts	Increased capacity during renewals.
Deep drains adjacent to road edge	Repositioned in conjunction with and when adjacent to pavement renewals. It is noted that it will take a long time to address all deep drains.
Global Warming	Renewed structures to take into account increased rainfall or more heavy intensity events due to global warming.

### 19.3 The Need for Investment

- 19.3.1 Council considers that it has a basic approach to road drainage investment, and has identified areas for improvement.
- 19.3.2 Investment in drainage asset is required because:
- (a) Drainage assets provide an essential service to the integrity of the pavement network and to provide a level of protection to road infrastructure and property from flooding.
  - (b) Good drainage is one of the key aspects to ensuring the integrity and serviceability of the Districts pavement assets. The District's steep topography makes it prone to slip damage and washouts. Adequate drainage infrastructure is essential for reducing the networks vulnerability to flood damage.
  - (c) The reduction in culvert calls in the early 2000's (from 110 to average 40 per year) coincides with the implementation of a culvert renewal programme. Call numbers have stayed steady since then.
- 19.3.3 An analysis of the current investment includes:
- (a) Roadside drains are in poor shape and need re-shaping to both sealed and unsealed roads to effectively carry the water away from the pavements. This forms part of the ongoing drainage maintenance programme.

# Part 3 – Land Transport Activity

Some ageing piped culverts are also in poor condition as butt joints are starting to separate. Kerb and channels are renewed as part of urban pavement rehabilitation projects.

- (b) Drainage assets form 13.5% (\$56M) of the total Land Transport Activity Optimised Replacement Cost and 14.7% (\$0.7M) of the annual depreciation. Drainage is the Land Transport Activity asset group with the fifth largest capital expenditure and fifth largest (after Traffic Services) operational and maintenance expenditure. The 2018/19 drainage maintenance, renewal and improvements budget is 5.7% (\$1.1M) of the total Land Transport Activity Budget (\$19.9M).
- (c) The largest proportion (54.0% or \$0.6M) of the 2018/19 drainage budget is for operations and maintenance (O&M). The O&M budget is in line with actual historical expenditure. The drainage renewal budget (\$406,000 annually) is slightly above the 2016/17 annual depreciation (84.9% of \$406,000), it is in line with expenditure between 2015 and 2018 (which varied between \$289,000 and \$426,000).

19.3.4 Processes and methods currently employed are described in the maintenance, renewals and capital works sections that follow and include:

- (a) Improvements have systematically been made to surface water drainage over the last ten years through regular cleaning and re-profile programmes to the reduction in depth of deep water channels located close to road carriageways.
- (b) Deep drains and undersized culverts are systematically replaced in conjunction with pavement renewals.

19.3.5 Future enhancements to be considered to improve asset management and the business case include the following:

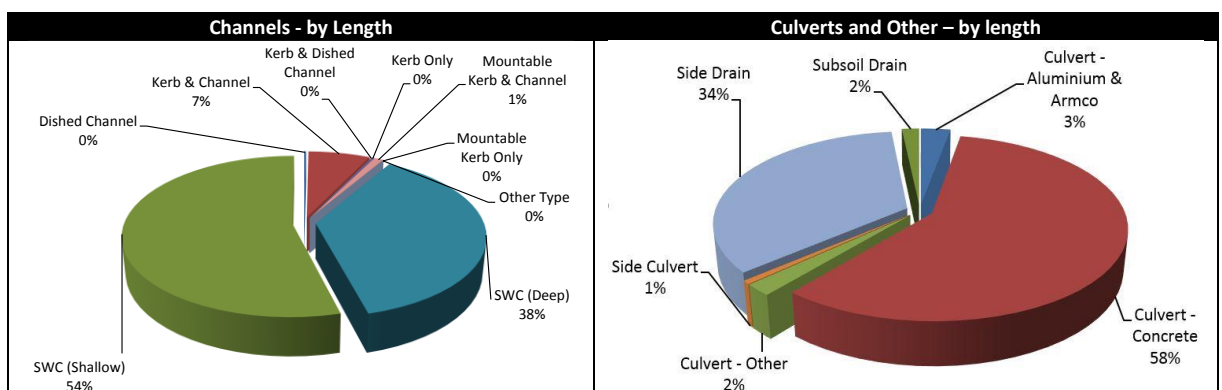
- (a) Compare the renewal rate and depreciation rate to assess the effectiveness of the District wide capital renewal plan.
- (b) Investigate the development of a reporting regime for the roving maintenance teams that is better aligned with maintenance and intervention strategies and allows early identification of failure.
- (c) Undertake an audit of the RAMM database and capture missing assets – between 1998 and 2007 drainage assets were collected irregularly.

## 19.4 Asset Description

19.4.1 Council owns and manages a total of 1,545 km of surface water channel. 92% of these channels managed as land transport assets are open channels, with more than 59% of these channels being less than 200 mm in depth below the pavement edge (Shallow Stormwater Channel (SWC)). There are approximately 131.7 km of constructed kerbs and/or channels, representing approximately 8% of all surface channels and they are mainly constructed of concrete.

19.4.2 Council also manages over 8,895 small (less than 3.5m<sup>2</sup> waterway area) stormwater culverts totalling 142.3 km.

Figure 74: Drainage assets as a percentage based on length

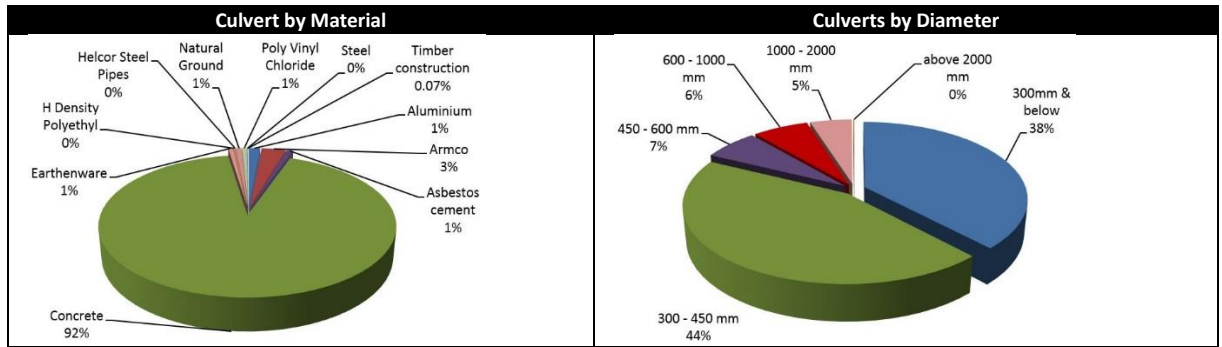


19.4.3 38% of the culverts are 300 mm in diameter or smaller and 91% of culverts are concrete pipes.



# Part 3 – Land Transport Activity

Figure 75: Culvert Material and Size



## 19.4.4 Replacement Cost and Annual Depreciation

Table 75 – Drainage Asset Information

Asset Type	Quantity - No	Length - m	Average Base Life	Average Age	Average RUL*	ORC - \$	ODRC - \$	AD - \$
<b>Kerb and Channels</b>								
Dished Channel	47	3,555	80	33	47	550,325	304,809	6,879
Kerb & Channel	738	107,382	80	44	36	13,722,024	6,092,196	171,525
Kerb & Dished Channel	1	175	80	10	70	25,795	22,571	322
Kerb Only	67	4,039	80	47	33	343,214	144,275	4,290
Mountable Kerb & Channel	123	16,462	80	38	42	2,103,630	1,199,104	26,295
Mountable Kerb Only	3	46	80	14	66	3,909	3,225	49
Other Type	1	35	80	47	33	2,974	1,227	37
SWC (Deep)	833	577,357	80	45	35	2,603,880	1,087,621	32,549
SWC (Shallow)	1,185	836,215	80	46	34	3,771,330	1,558,871	47,142
<b>Kerb and Channels - Total</b>	<b>2,998</b>	<b>1,545,266</b>				<b>23,127,080</b>	<b>10,413,898</b>	<b>289,089</b>
<b>Culverts and Other Assets</b>								
Culvert - Aluminum & Armco	380	4,116	50	13	37	1,625,579	691,496	20,320
Culvert - Concrete	7,859	82,830	50	7	43	27,767,766	13,471,592	347,100
Culvert - Other	246	2,898	60	20	40	1,741,742	794,759	21,772
Debris catching grid	7		20	7	13	11,100	7,295	555
Flume down batter	22		60	9	52	11,108	8,783	159
Side Culvert	95	892	70	8	62	0	0	0
Side drain	249	49,160	40	11	33	573,200	237,374	7,165
Sock	2		14	6	9	593	356	40
Subsoil drain	35	2,401	75	8	67	98,328	80,597	1,229
<b>Drainage - Total</b>	<b>8,895</b>	<b>142,298</b>				<b>31,829,415</b>	<b>15,292,251</b>	<b>398,339</b>
<b>Total</b>	<b>11,893</b>					<b>54,956,495**</b>	<b>25,706,150**</b>	<b>687,428**</b>

\* RUL = Remaining useful life

\*\* Valuation at Oct 2017

- (a) The Optimised Replacement Cost for drainage is \$54,956,495 at October 2017.
- (b) The Annual Depreciation for drainage is \$687,428 at October 2017. Kerb & Channel and concrete culverts account for approximately 93% of this total.

# Part 3 – Land Transport Activity

Figure 76: Channels ORC and Annual Depreciation Costs

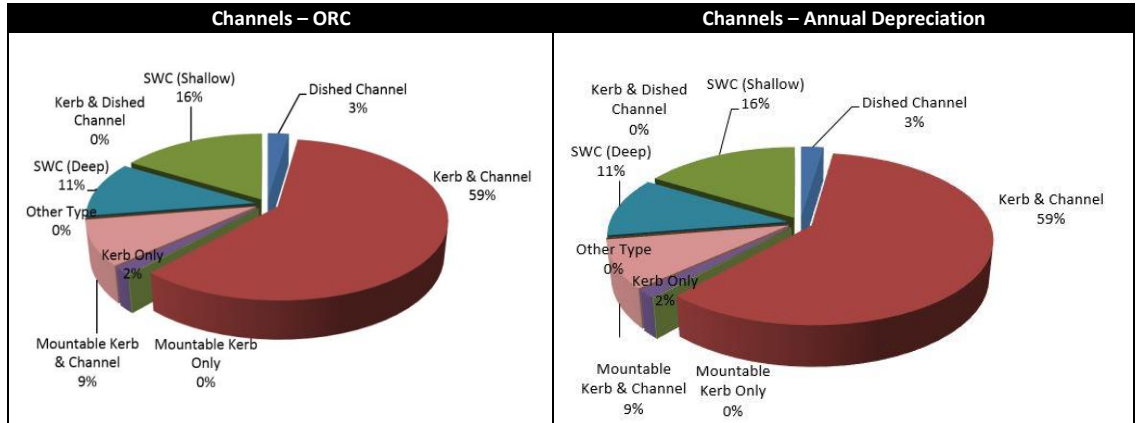
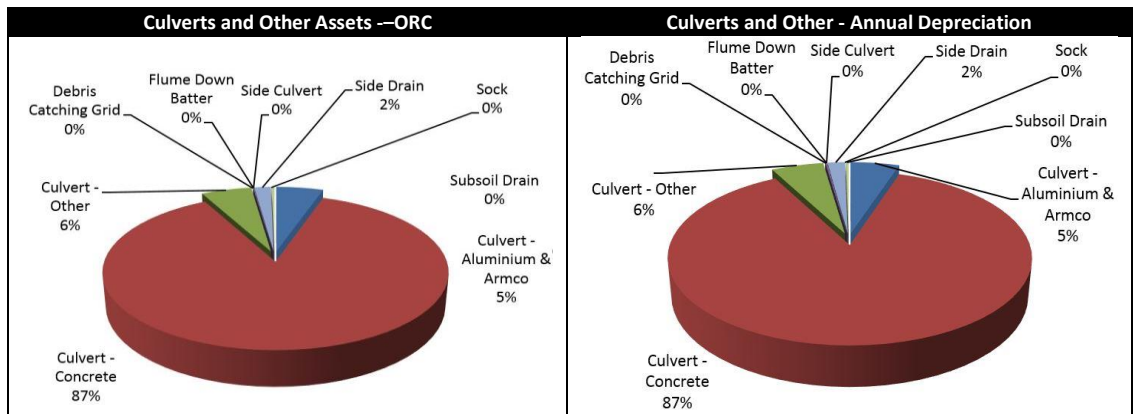


Figure 77: Culverts and other Assets ORC and Annual Depreciation Costs

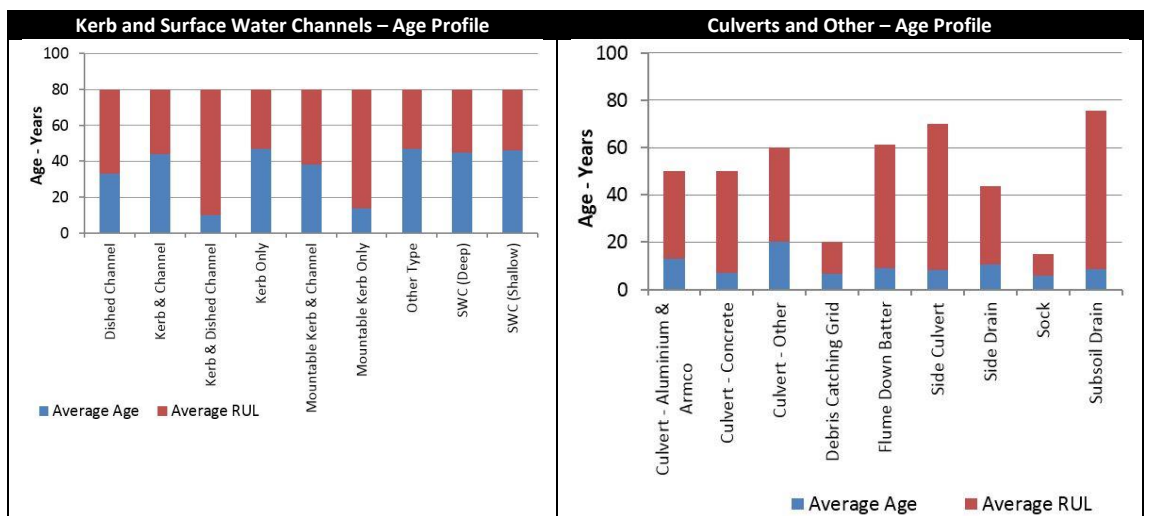


## 19.5 Asset Age and Condition

### 19.5.1 Asset Age

(a) The graphs below compare the average age and remaining useful lives of assets

Figure 78: Drainage Asset Age profiles



Note: As availability of construction date is not good for these asset types, average age was derived using Base Life and Remaining Useful Life (Valuation Output).

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## Part 3 – Land Transport Activity

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### 19.5.2 Condition Assessment and Results

- (a) RAMM condition rating has not been carried out across the entire drainage asset as a single condition rating survey. The roading contractor continually inspects and identifies necessary works as a function of the maintenance contract.

### 19.6 Operations and Maintenance Plan

19.6.1 The General Roding Maintenance Contractors are responsible for the following maintenance activities:

- (a) Culvert maintenance (typically reactive).
- (b) Detritus in water channels

19.6.2 The Unsealed Pavement Maintenance, Heavy Maintenance & Improvements & Pavement Rehabilitation Contractor is responsible for the following maintenance activities:

- (a) Cleaning and reshaping roadside water channels
- (b) Forming and reshaping cut-out drains.

19.6.3 The Urban Parks and Reserves Maintenance Contractor is responsible for the following maintenance activities:

- (a) Kerb and channel sweeping
- (b) Urban vegetation control

19.6.4 The Water and Stormwater Maintenance Contractor is responsible for the following maintenance activities:

- (a) Catchpit cleaning in urban areas

19.6.5 The Vegetation Control Contractor is responsible for the following maintenance activities:

- (a) Spraying of rural water channels

### 19.6.6 Deferred Maintenance

- (a) There is no deferred maintenance at this time.

### 19.7 Renewal Plan

19.7.1 The water channels on sealed rural roads are machine cleaned on an as required basis when either the level of the water channel is insufficient for the capacity required or the flow is blocked due to silting up over time. On average, sealed road water channels can be expected to last 8 years between cleaning.

19.7.2 The water channels on unsealed rural roads are required to be reprofiled annually as part of the grading component of the road maintenance contract.

19.7.3 Priority for the replacement of kerb and channel and cesspits is given to road sections in conjunction with other renewal programmes, such as resurfacing, reconstruction and rehabilitation.

19.7.4 The renewal of defective drainage facilities is generally managed within the annual budget and, as such, there is no deferred drainage renewal in the district.

### 19.8 Development Works Plan

19.8.1 Development works are generally initiated through triggers such as growth, Levels of Service, regulatory, operational efficiency, or vested (gifted) through subdivisions.

19.8.2 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.

19.8.3 The Kerb and Channel Development budget is used for amenity and drainage improvements in urban areas. The table below shows the alignment for development work.

19.8.4 There are no subsidised drainage development works planned for the 2018/21 block.

# Part 3 – Land Transport Activity

Table 76 - Kerb & Channel Alignment

Activity	Brief Scope	Work Category	ONRC Category	Problem	Main Benefit	Council Outcome
Kerb and Channel Development	Install new kerb & channel in urban areas	Unsubsidised	Various	Surface water causing safety and ponding issues	Protect pavement from water damage	Core infrastructure endeavours to keep pace with changing demand  Our Transportation network is reliable, safe and endeavours to meet the needs of our users
Drainage renewals	Replace or renew existing culverts. The level of service component relates to an increase in culvert capacity where required.	Drainage Renewals	Various	Flooding and pavement integrity	As above and flooding reduction	Our Transportation network is reliable, safe and endeavours to meet the needs of our users  Excellent standards of safety and welfare are promoted.

## 19.9 Disposal Plan

19.9.1 There are no assets to be disposed of at this time.

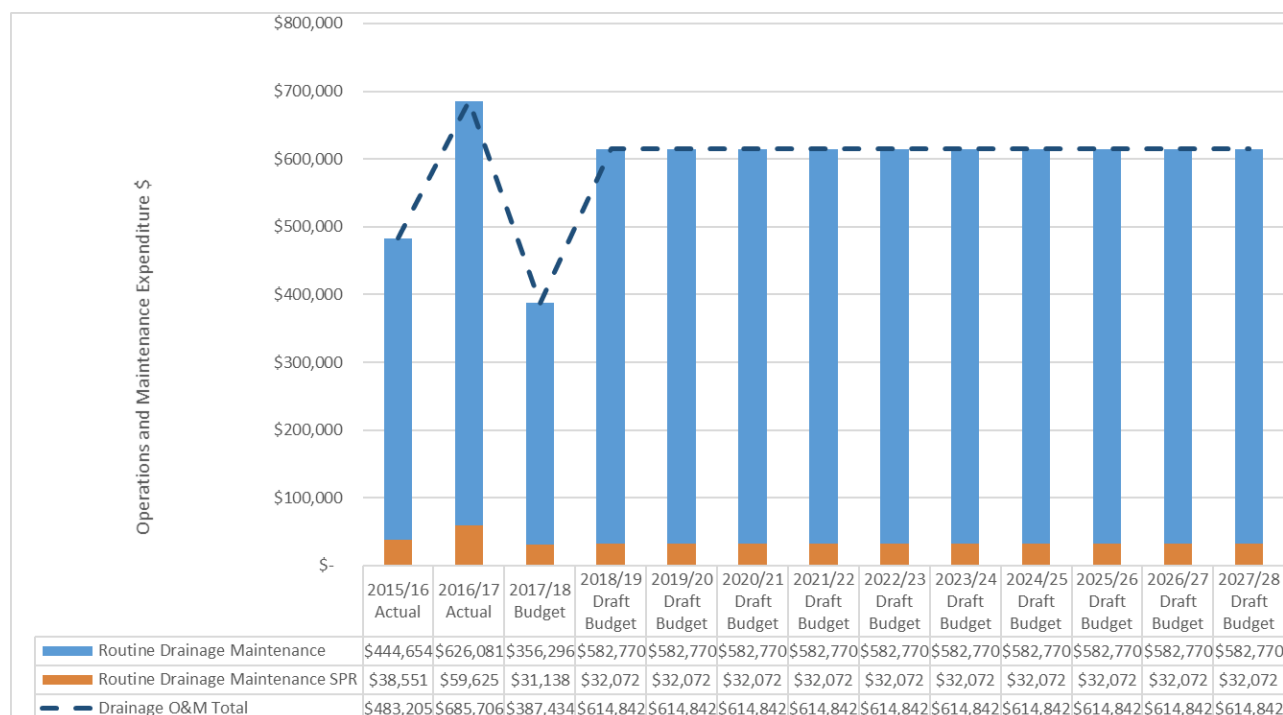
## 19.10 Drainage Expenditure

19.10.1 Council has identified the following programmes for 2018/19, 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.

19.10.2 The figures below sets out the historical actual expenditure and 2017/18 budget in actual dollars and the future draft budget figures in terms of 2018/19 base dollars.

19.10.3 The figure below sets out the historical and projected **operations and maintenance** expenditure for the land transport activity drainage. The predicted expenditure for the period of 2018/19 to 2027/28 is approximately \$615,000 per year.

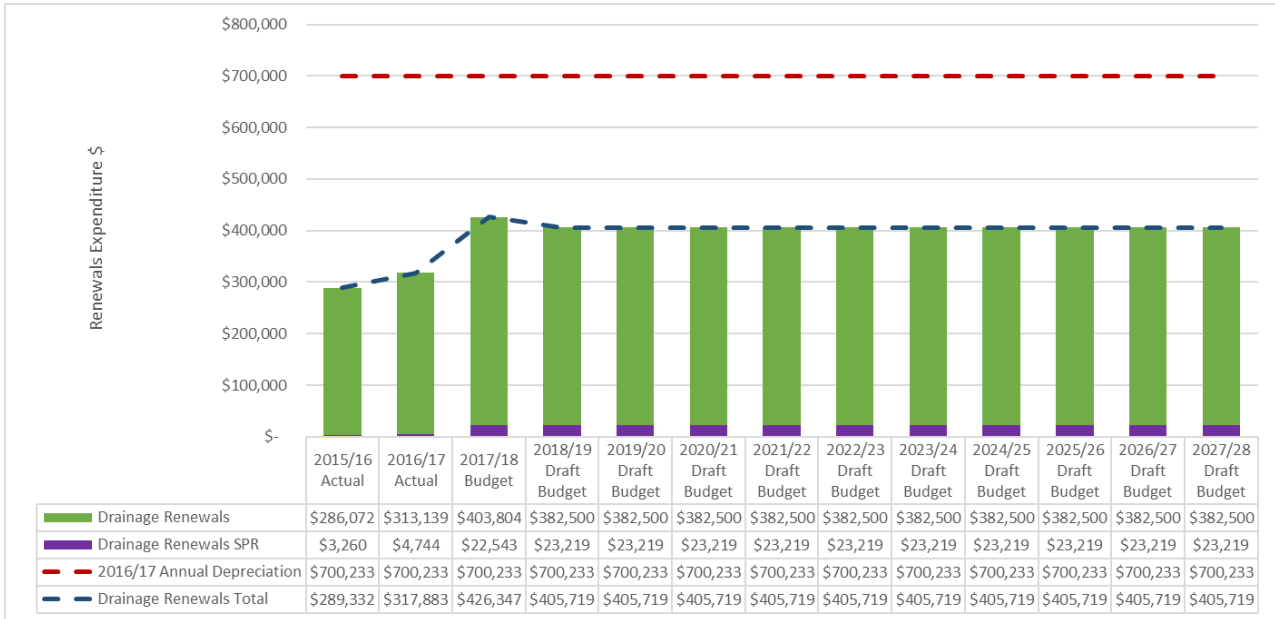
Figure 79 - Drainage historical and projected operations and maintenance expenditure \$



19.10.4 The figure below sets out the historical and projected capital **renewal** expenditure component of drainage projects and programmes as well as the annual depreciation.

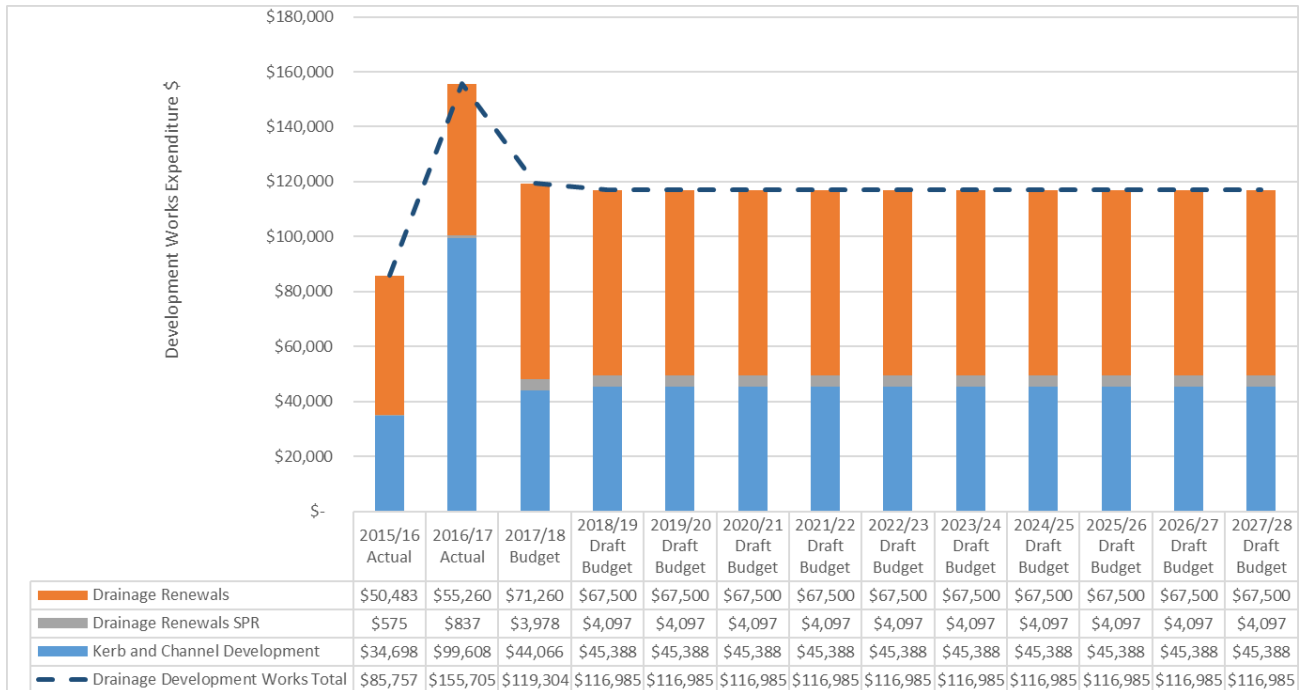
# Part 3 – Land Transport Activity

Figure 80 - Drainage historical and projected capital renewal expenditure \$



19.10.5 The figure below sets out the historical and projected capital **development works** expenditure component of structures, projects and programmes. (This includes the growth and levels of service components of projects). No expenditure related to growth is projected over the next 10 years.

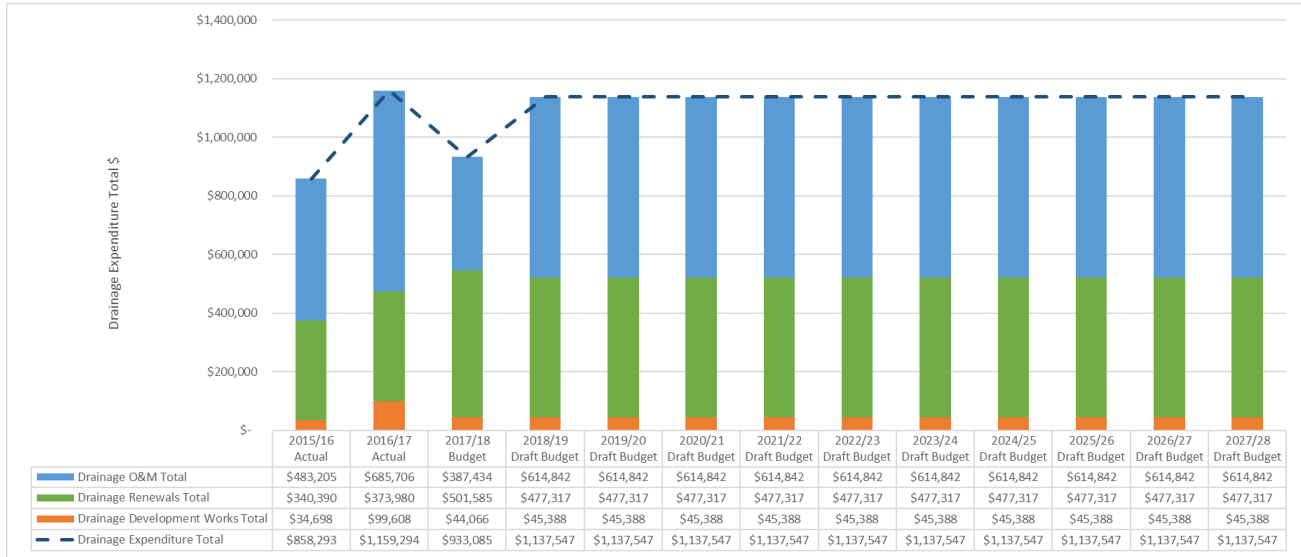
Figure 81: Drainage historical and projected combined expenditure \$



19.10.6 The figure below sets out the historical and projected **combined** expenditure for drainage projects and programmes.

# Part 3 – Land Transport Activity

Figure 82 - Drainage historical and projected combined expenditure \$



19.10.7 Section 28 Financial Summary and Appendices A and B provide more detail on the funding sources for these programmes and projects.

# Part 3 – Land Transport Activity

## 20 Traffic Services

### 20.1 Overview & Strategic Case Link

- 20.1.1 Traffic services are the assets that are designed to assist road users to use the road safely. Included in this asset category are signs, pavement marking, sight rails, traffic islands and street lights.
- 20.1.2 Maintenance and renewal of traffic services are a response to two problem statements by providing wayfinding and safety:-
- 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.
  - 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.
- 20.1.3 Key ONRC CloS delivered through traffic services are:
- Reliability: the consistency of travel times that road users can expect
  - Safety - how road users experience the safety of the road
  - Accessibility: - the ease with which people are able to reach key destinations and the transport networks available to them

### 20.2 Key Issues

- 20.2.1 Some of the key life cycle management issues that affect traffic services assets are:

Key Issue	Strategies to Address Key Issues
Signs are in poor condition due to age.	A concentrated renewal strategy.
Inconsistent presence of curve warning advisory signs across routes	Strategy to be developed to target route consistency as funds permit.
Inconsistent delineation across the network.	RDC developed a delineation strategy and is working to implementation of ONRC.
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. <sup>(1)</sup>	RDC will develop an LED strategy which will consider LED application both for new and renewal of existing installations, based on the lowest whole of life cost

Note 1: From NZTA and EECA joint statement 10 July 2014 entitled "Information about LED road lighting".

### 20.3 The Need for Investment

- 20.3.1 Council considers that it has a basic approach to traffic services investment, and has identified areas for improvement.
- 20.3.2 Investment in traffic services assets is required because:
- Traffic services are the assets that are designed to assist road users to use the road safely. Included in this asset category are signs, pavement marking, sight rails, traffic islands and street lights.
  - The average streetlight calls over the last nine years is 73. A large number of streetlight calls relate to circuit faults.
  - The average service request calls for signs over the last nine years is 98. These are a mix of issues with current signs and requests for additional directional or commercial signage.
- 20.3.3 An analysis of the current investment includes:
- Although Traffic Services assets form only 2.6% (\$10.8 M) of the total Land Transport Activity Optimised Replacement Cost, it is 7.6% (\$362,000) of the annual depreciation due to short average useful lives of traffic service assets compared to other asset groups.
  - Traffic Services is the Land Transport Activity asset group with the fourth largest expenditure. The 2018/19 maintenance, renewal and improvements budget is 7.3% (\$1.4M) of the total Land Transport Activity Budget (\$19.9M).

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## Part 3 – Land Transport Activity

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- (c) The largest proportion (63.9% or \$0.9M) of the 2018/19 traffic services budget is for operations and maintenance (O&M). 43.7% (\$0.6M) of the O&M budget is for Traffic Services Maintenance.
- (d) The renewal budget over the next 10 years (\$418,000) is slightly above the annual depreciation of \$362,000 and in line with historical expenditure.

20.3.4 Processes and methods currently employed are described in the maintenance, renewals and capital works sections that follow and include:

- (a) Routine inspections.
- (b) Repair/replacement of faulty/failed components within specified timeframes.
- (c) Identification, prioritisation and programming of improvements and ordered works.
- (d) Clear reporting requirements based on KPIs.

20.3.5 Future enhancements to be considered to improve asset management and the business case include the following:

- (a) Implementing the delineation strategy and ONRC measures to decrease inconsistency of delineation across the network.
- (b) Developing an LED strategy for changeover to LED lighting. This may achieve long term savings through reduced electricity consumption and longer lamp lives.

### 20.4 Asset Description

20.4.1 Traffic service assets include:

- (a) Street lighting
- (b) Road signs and road markings
- (c) Traffic controls

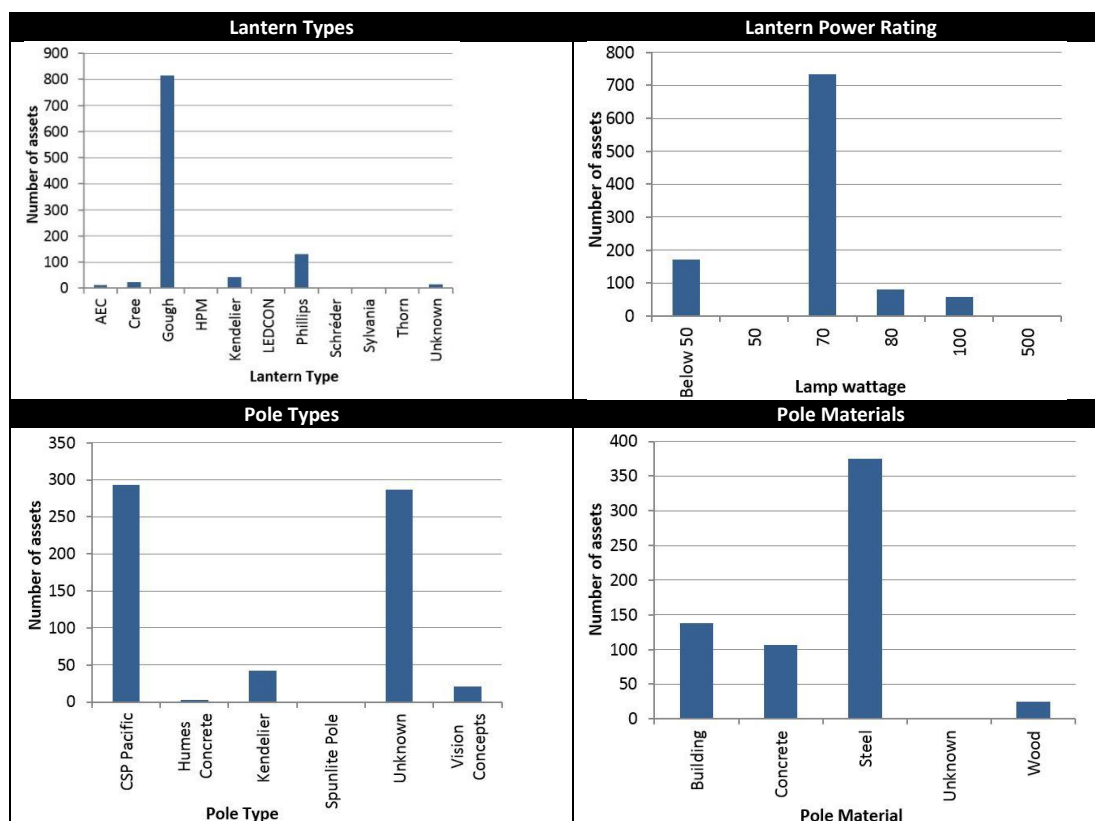
#### 20.4.2 Street Lighting

- (a) Council manages approximately 1,049 street lights and 647 lighting poles. The majority (95%) of streetlighting is provided in urban areas, with Taumarunui making up 55% of all lights. Rural lighting is provided in the vicinity of major intersections (flag lighting).
- (b) Where a pole solely supports a streetlight or other Council infrastructure it is the property of Council. Where poles also support overhead power supply wires, they may be the property of the power authority or the Council depending on the erection. Ownership of most of the poles is with either The Lines Company or Powerco.
- (c) Due to a lantern and gear replacement programme, sodium lanterns are now the predominant type.
- (d) Council manages maintenance of State Highway lights on behalf of NZTA in a Memorandum of Understanding, with costs recovered.
- (e) The following graphs show the breakdown of lantern types and the breakdown of power ratings. 70W and above lanterns make up 84% of all lanterns.



# Part 3 – Land Transport Activity

Figure 83: Street Lighting Asset breakdown



## 20.4.3 Road Signs and Road Markings

- (a) Council owns and manages 5,232 road signs and 398 km of road markings.
  - (b) 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.
  - (c) Signs are inspected at a minimum of monthly intervals.
  - (d) All markings will be remarked annually between December and May.
  - (e) Where there is a hazard, maintenance will be undertaken to the timeframes summarised below:
    - (i) All regulatory signs 24 hours
    - (ii) All other signs 4 weeks
    - (iii) Marker posts 8 weeks
    - (iv) Emergency Works 24 hours
  - (f) Obsolete, damaged, sub-standard and non-conforming signs identified during routine inspections will be programmed for replacement according to the following priority:
    - (i) Public safety
    - (ii) Traffic volumes
    - (iii) Convenience of road users
- (a) The following table summarises the road signs and markings managed by Council, although there is low confidence in this information, particularly for road signs. This is due to inventory data for signs in RAMM not being updated for a long time as it was not included in the maintenance contract approximately between 1998 and 2006. Hence there is a gap in data which will be addressed as part of the improvement plan. It is, however, included in the current contract with new and replaced assets captured in RAMM since 2010.

# Part 3 – Land Transport Activity

Table 77 –Asset Information – Road signs and road markings

Asset Type	Description	Quantity	
Road signs (generally aluminium substrate)	Regulatory signs which road users are required to obey	Regulatory General	1,330
		Regulatory Heavy Vehicle	63
		Regulatory Parking	75
	Chevron boards to indicate carriageway hazard areas	Hazard Markings (Advisory signs for relating to road condition or geometry)	1,321
		Permanent Warning	1,162
		Warning Miscellaneous	8
		Directional and distance signs	
		Guide	25
		Information General	154
		Information signs (Signs advising of road user services and tourist features/establishments)	983
		Information Miscellaneous	15
		Local Authority	4
		Motorist Services	7
		Tourist (Other information of general interest to road users)	58
		Miscellaneous	27
<b>Total</b>		<b>5,232</b>	
Road markings and raised pavement markers	Intersection markings: (iii) Centre lines/edge lines/lane lines. (iv) Lane arrows. (v) Wait lines/continuity lines. (vi) Cycle lanes. (vii) Border lines/diagonal lines. (viii) Stop lines. (ix) Give way lines.	398 km	

- (h) The level of service of signage installed on roads is related to the road hierarchy i.e. collector roads will have more than access roads. A strategy of ensuring the level of service is consistent for a route is also implemented.
- (i) Council's delineation standard requires all rural sealed roads over 5.1m wide with over 50 vehicles per day have centre lines. It is estimated that 90% of the rural roads are compliant.

## 20.4.4 Traffic Controls

- (a) Council owns and manages 31 traffic islands, 15.5 km of railings, 1,340 edge marker posts and 5 speed humps.

Table 78 –Asset Information – Traffic Controls

Asset Type	Description	Unit	Quantity
Traffic Islands	Median	No	1
	Rotary	No	1
	Splitter	No	19
	Throat	No	10
	<b>Total</b>		
Railings	Guard Rail	m	3,276
	W Section Guard Rail	m	2,721
	Hand Rail	m	1,757
	Sight Rail	m	4,593

# Part 3 – Land Transport Activity

Asset Type	Description	Unit	Quantity
	Barrier	m	848
	Other	m	1,332
	<b>Total</b>		<b>14,527</b>
Edge Marker Posts			<b>1,304</b>
Speed humps			<b>5</b>

## 20.5 Replacement Cost and Annual Depreciation

Table 79 – Traffic Services replacement cost and annual depreciation

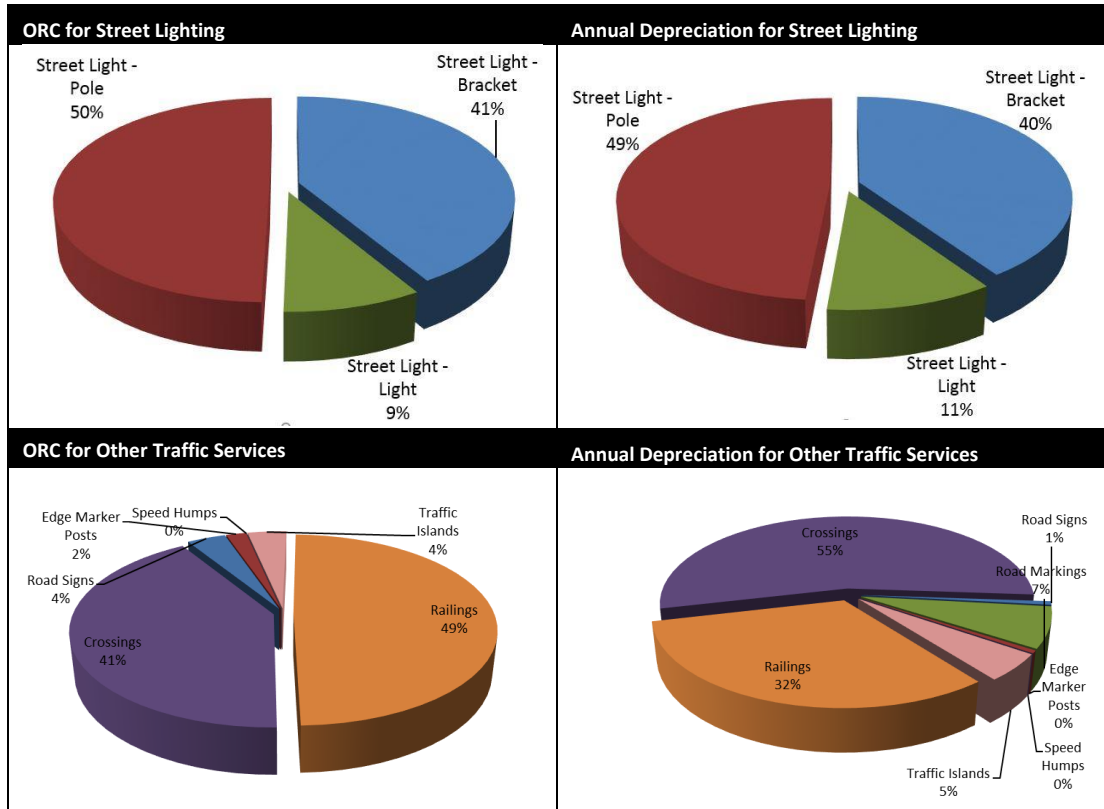
Asset Type	Quantity - No	Length - m	Average Base Life	Average Age	Average RUL*	ORC - \$	ODRC - \$	AD - \$
Street Light - Bracket	1,792	N/A	20	13	7	1,458,121	440,208	58,298
Street Light - Light	1,049	N/A	20	17	3	316,462	49,511	15,814
Street Light - Pole	647	N/A	20	11	9	1,749,184	610,782	69,967
Road Signs	5,232	N/A	8	4	2	37,877	15,407	3,788
Road Markings	2,605	397,718	1	1	N/A	432,441	464,222	-
Edge Marker Posts	1,304	N/A	15	11	4	29,554	8,146	1,970
Speed Humps	5	N/A	15	8	7			
Traffic Islands	31	N/A	75	40	35	286,287	152,972	3,817
Railings	1,176	15,515	50	46	4	1,873,746	268,152	51,078
Crossings	450	170	75	58	17	3,220,393	609,106	42,939
<b>Total</b>						<b>9,404,066**</b>	<b>2,618,506**</b>	<b>247,670**</b>

\* RUL = Remaining Useful Life

\*\* Valuation at Oct 2017

- (a) The graphs show the ORC and Annual depreciation for the Traffic Services. Overall Annual Depreciation for street lighting is \$144,078, approximately 58% of the annual depreciation for all traffic services.

Figure 84: GRC and Annual Depreciation for Traffic Services



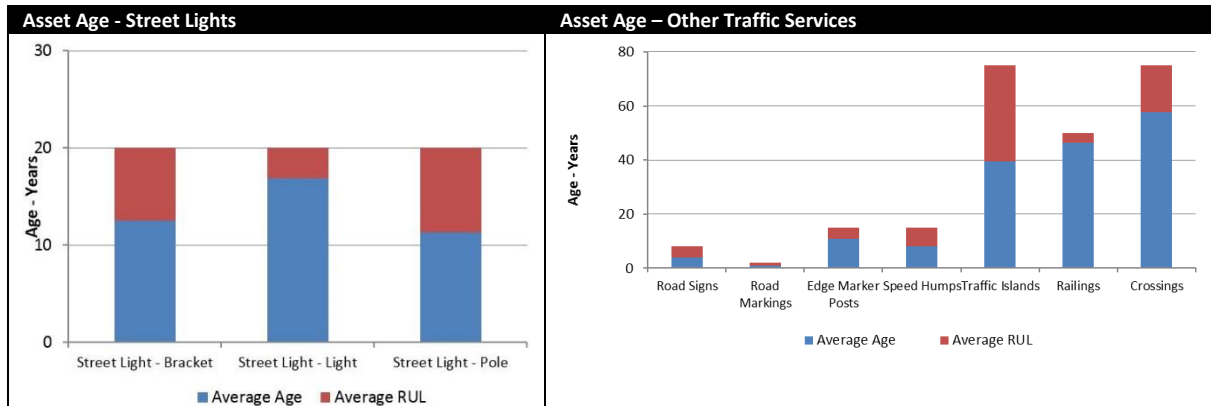
# Part 3 – Land Transport Activity

## 20.6 Asset Age and Condition

### 20.6.1 Asset Age

- (a) The graph compares the average age with the average remaining useful life for traffic services.

Figure 85: Asset Age - Traffic Services

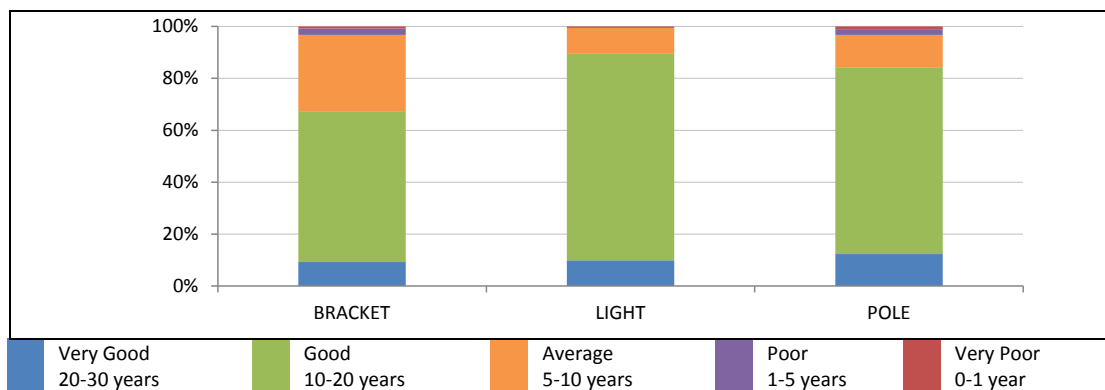


- (b) Based on the Remaining useful life (RUL) which, for the 2017 valuation was based on asset age, approximately 75% of streetlight poles needs to be replaced in 2018/19. However, only approximately 5% of the poles are owned by Council.

### 20.6.2 Asset Condition

- (a) However, the condition rating figure below shows that more than 65% brackets, 90% of lights and 85% of poles are in good or excellent condition, with a remaining life expectancy of more than 10 years.
- (b) The rating data on streetlights is gathered annually by the streetlight contractor and is stored in the RAMM Contractor module. As an improvement Council is considering using this data within RAMM to determine the remaining useful life and improve confidence in forecasted streetlight spending.

Figure 86 - Street Light Condition Rating



## 20.7 Operations and Maintenance Plan

### 20.7.1 Street Lighting

- (a) Operations and maintenance activities include:
- (i) Power costs.
  - (ii) Planned maintenance inspections.
  - (iii) Planned bulk bulb replacement and structural defects.
  - (iv) Repairing/replacing damaged or unsound components, e.g. lanterns, control gear, poles.

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## Part 3 – Land Transport Activity

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- (b) Lamps are replaced on a cyclic four year bulk replacement programme that has significantly reduced customer calls relating to light outages.
- (c) There are several energy providers in the District. A formal Electricity Supply Contract is in place with King Country Energy.
- (d) The maintenance of streetlights in the Ruapehu District is undertaken by the maintenance contractor Alf Downs Streetlighting Ltd.
- (e) Asset condition are monitored by undertaking the following planned inspections:
  - (i) Inspections of lighting in urban areas on a monthly cycle.
  - (ii) Inspections of lighting in rural areas on a monthly cycle.
  - (iii) 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. Council seeks to recover the cost of accident damage from those responsible.
- (f) Maintenance programmes are developed from the schedules of defects identified during the inspections. Repair options and priorities are determined by considering the impact on:
  - (i) Public safety (top priority).
  - (ii) Traffic movement.
  - (iii) Future costs if the work is not done.

### 20.7.2 Pavement Marking

- (a) Operations and maintenance activities include remarking centrelines, edge lines, no-passing line, intersection controls and parking controls.
- (b) Council has developed a delineation standard based on RTS5. This standard sets out the criteria and standard for markings.
- (c) The maintenance standard prescribes remarking of all lines annually.

### 20.7.3 Signs and Rails

- (a) Operations and maintenance activities include:
  - (i) Routine inspections of signage and rails.
  - (ii) Repairs to damaged signage and rails.
- (b) Maintenance will be undertaken under existing Roading Maintenance term contracts.

### 20.7.4 Deferred Maintenance

- (a) The street lighting stock is being gradually improved within available budgets. There is little deferred maintenance.
- (b) Signs - a number of poor condition signs and sight rails exists as noted in Key Issues. This is being addressed as funds permit.

## 20.8 Renewal Plan

### 20.8.1 Street Lighting

- (a) Renewal works generally involve the replacement of the lantern or individual components (lamps are replaced under operations and maintenance). While Council owns some poles, these are generally new and are not up for replacement. Wooden poles on which Council's streetlights are attached are owned by others and the renewal of these is carried out due to the pole being unserviceable for its primary purpose rather than being unsuitable to carry a lantern outreach arm. Council has therefore not programmed the funding of any pole replacements.
- (b) Renewal needs are identified from the planned inspection programme. Assets are replaced when:
  - (i) This is more economic than repair of faulty or damaged assets.
  - (ii) Faulty or damaged lanterns cannot be repaired because of obsolescence or replacement parts being unobtainable.

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## Part 3 – Land Transport Activity

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- (iii) The existing asset does not meet current design/safety standards.
- (c) Works are prioritised according to:
  - (i) Public safety.
  - (ii) Benefit/ cost savings available, eg, power efficiencies.
- (d) The required level of renewal will depend on:
  - (i) The age profile of streetlights.
  - (ii) The condition profile of streetlights.
  - (iii) The level of ongoing maintenance.
  - (iv) The economic lives of the materials and components used.

### 20.8.2 Pavement Marking

- (a) There is no renewal programme for Pavement Marking as remarking is done annually under operations and maintenance.

### 20.8.3 Signs and rails

- (a) Renewal needs are identified from the condition assessment and general knowledge of signs and rails.
- (b) Assets are replaced when:
  - (i) The existing asset does not meet current design/safety standards.
  - (ii) Budgets permit.

## 20.9 Development Works Plan

### 20.9.1 Street Lighting

- (a) Streetlights are acquired or upgraded by:
  - (i) Extensions constructed by Council where no streetlights previously existed.
  - (ii) Taking over new streetlights installed with subdivisional development (constructed at the developer's expense).
  - (iii) Upgrading work to improve the lighting levels of service provided
  - (iv) In association with the street upgrading programme.
  - (v) Minor safety works.
  - (vi) In association with power under-grounding work.
- (b) Lighting on major roads will be upgraded progressively where existing standards are less than desirable.
- (c) 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.
- (d) Design Standards
  - (i) The design standard for new works is AS/NZS 1158 and this is a requirement of the Engineering Code of practice for subdivisional development. The design work for major works is referred to lighting suppliers who have computerised design services. Their proposals are then reviewed and site checked by the installation contractor and Council staff.
  - (ii) Electrical safety statutes, regulations and codes of practice apply to any works on the streetlighting activity.
- (e) A development strategy for LED lighting upgrades will be considered.

### 20.9.2 Development Works Alignment

- (a) The table below shows the alignment for development work.

# Part 3 – Land Transport Activity

Table 80 - Traffic Services Development Works Alignment

Activity	Brief Scope	Work Category	ONRC Category	Problem	Main Benefit	Council Outcome
Level Crossing Device Upgrades	Install additional safety measures at Level crossings	Low cost low risk	Various	Safety issues with level of protection at existing crossings	Improve safety for users	Our Transportation network is reliable, safe and endeavours to meet the needs of our users.  Excellent standards of safety and welfare are promoted and respected
Street lighting improvements	Improve road lighting	Low cost low risk	Secondary collector	Street lighting is not sufficient to meet amenity LOS	Improve amenity for users	Our Transportation network is reliable, safe and endeavours to meet the needs of our users
Motorist Service & Information Signs	Install new signage for key destinations eg Welcome to District/Town signs	Unsubsidised	Various	Amenity values	Promote towns and District	The promotion of our District includes focus on our natural rivers, bush and mountains as well as built heritage, agriculture and railways.
Streetflags District	Supply decorative flags that are displayed on streetlights through our towns for events	Unsubsidised	State Highways	Amenity Values	Improve amenity values and visiting experience	Events and festivals are encouraged and supported

(b) The following traffic services development works are included in the 2018/21 block.

Table 81 - Structure Development Projects 2018/21

Project	Project Description	Work Category	2018/19 Budget	2019/20	2020/21
Level Crossing Device upgrades	Placeholder. Locations, timing and construction are controlled by Kiwirail.	Low cost low risk	\$111,731		

## 20.10 Disposal Plan

(a) 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.

## 20.11 Traffic Services Expenditure

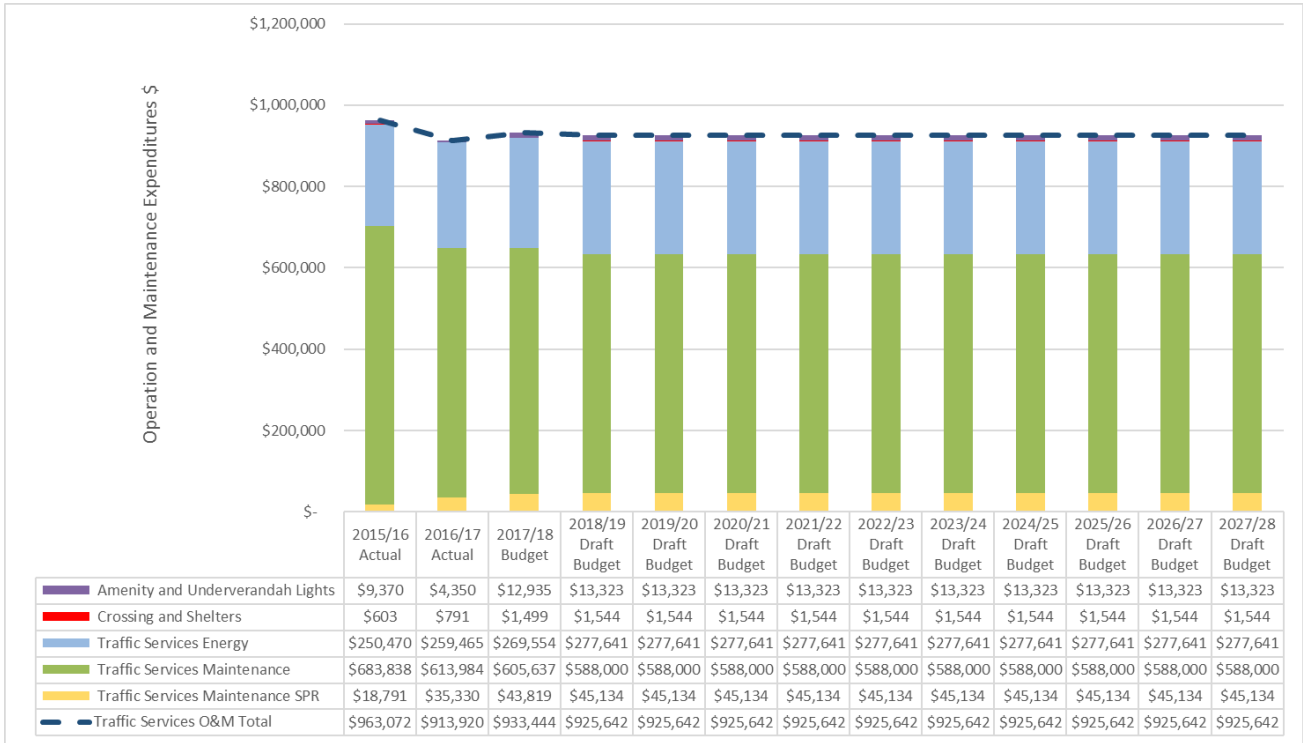
20.11.1 Council has identified the following programmes for 2018/19, which is indicative of the next 10 years to address the challenges faced by the transport network and deliver the District's Strategy and Investment Outcomes.

20.11.2 The figures below sets out the historical actual expenditure and 2017/18 budget in actual dollars and the future draft budget figures in terms of 2018/19 base dollars.

20.11.3 The figure below sets out the historical and projected **operations and maintenance** expenditure for traffic services. The predicted expenditure for the period of 2018/19 to 2027/28 is approximately \$0.9M per year.

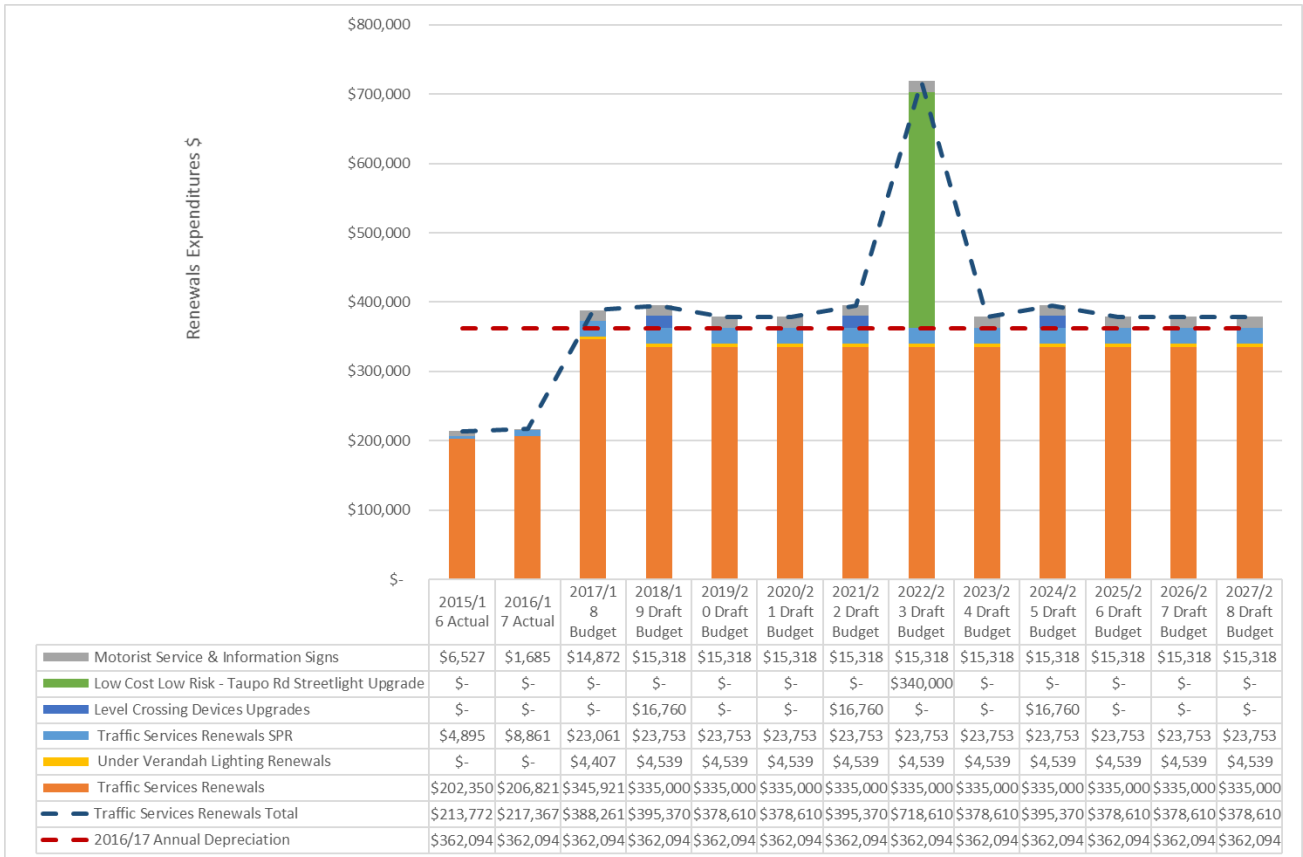
# Part 3 – Land Transport Activity

Figure 87 - Traffic Services Historical and Projected Operations and Maintenance Expenditure \$



20.11.4 The figure below sets out the historical and projected capital **renewal** expenditure component of traffic services projects and programmes as well as the 2016/17 annual depreciation.

Figure 88 - Traffic Services Historical and Projected Capital Renewal Expenditure \$

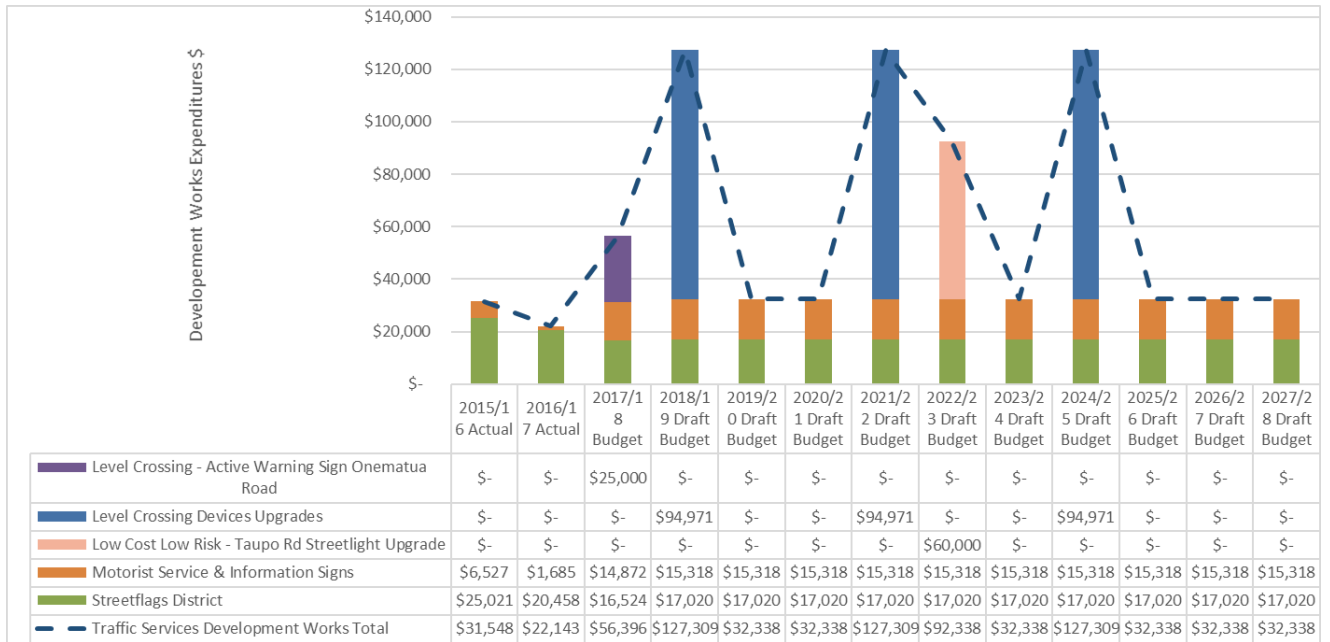




# Part 3 – Land Transport Activity

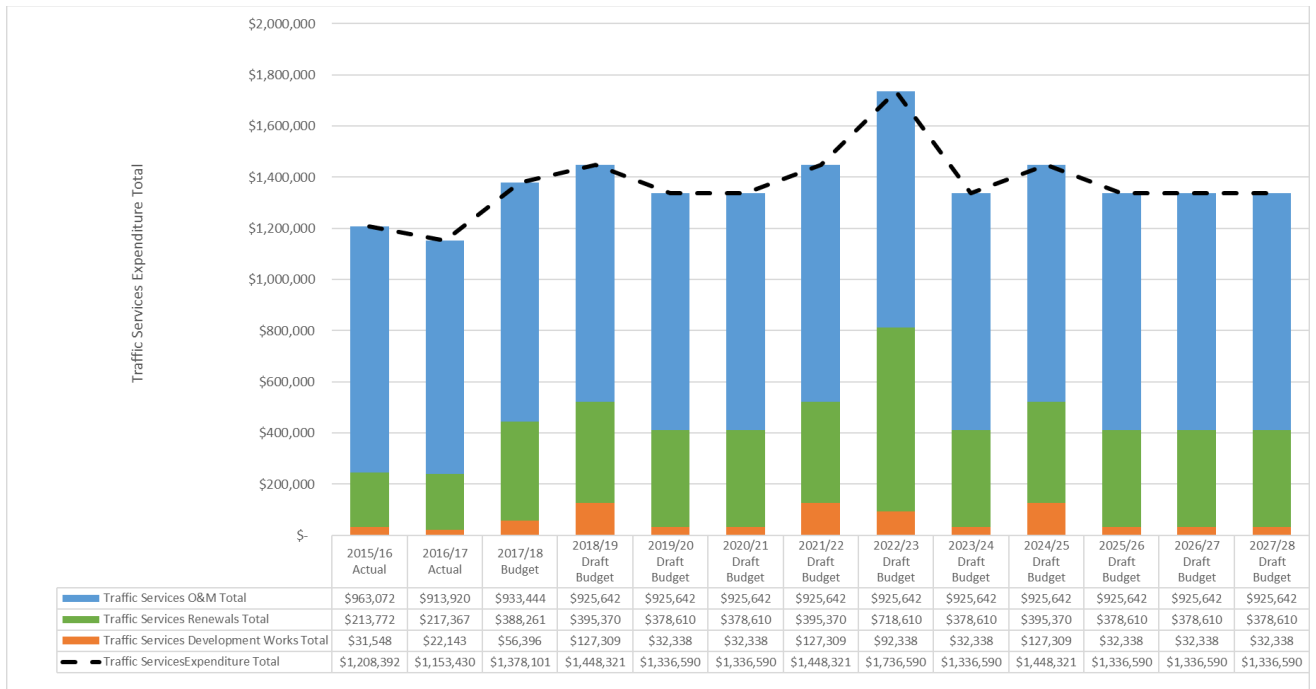
20.11.5 The figure below sets out the historical and projected capital **development works** expenditure component of traffic services projects and programmes. No expenditure related to growth is projected over the next 10 years.

**Figure 89 - Traffic Services Historical and Projected Capital Development Works Expenditure \$**



20.11.6 The figure below sets out the historical and projected **combined** expenditure for traffic services projects and programmes.

**Figure 90 - Traffic Services Historical and Projected Combined Expenditure \$**



20.11.7 Section 28 Financial Summary and Appendices A and B provides more detail on the funding sources for these programmes and projects.

# Part 3 – Land Transport Activity

## 21 Footpaths

### 21.1 Overview & Strategic Case Link

- 21.1.1 The purpose of footpaths and pedestrian ways is to provide a safe, convenient and defined means for pedestrian movement alongside and linking roadways and public space.
- 21.1.2 Maintenance and renewal of footpaths are a response to two problem statements by providing a safe passage for pedestrians separate from the carriageway:-
- 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.
  - 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.
- 21.1.3 Key ONRC CloS delivered through footpaths are:
- Safety - how road 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 (eg cleanliness, comfort/convenience, security)
  - Accessibility - The ease with which people are able to reach key destinations and the transport networks available to them

### 21.2 Key Issues

- 21.2.1 Some of the key life cycle management issues that affect footpath assets are:

Key Issue	Strategies to Address Key Issues
Changing land use can change appropriate renewal type.	Some footpaths were originally constructed to suit a larger population or different use – eg commercial has now become residential. Ensure replacement footpaths are adjusted to match the current use and assess the level of service needs

### 21.3 The Need for Investment

- 21.3.1 Council considers that it has a basic approach to footpath investment, and has identified areas for improvement.
- 21.3.2 Investment in footpath assets is required because:
- Footpaths and pedestrian ways provide a safe, convenient and defined means for pedestrian movement alongside and linking roadways and public space.
  - Customer satisfaction survey results indicate that 74% of residents are satisfied or very satisfied with the provision of footpaths. Dissatisfied residents (19%) 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.
  - Council has received between 18 and 49 service calls annually over the past ten years, with an increasing trend. Issues related to trip hazards, detritus and general condition.
- 21.3.3 An analysis of the current investment includes:
- Footpath assets form 2.5% (\$10.2 M) of the total Land Transport Activity Optimised Replacement Cost and 4.0% (\$188,000) of the annual depreciation.
  - The 2018/19 maintenance, renewal and improvements budget for footpaths is 1.8% (\$355,000) of the total Land Transport Activity Budget (\$19.9M).
  - The largest proportion (54.3% or \$193,000) of the 2018/19 footpaths budget is for renewals. This is slightly above the annual depreciation of \$189,000.
  - Part of the footpath maintenance in urban areas is carried out by Parks and Reserves.

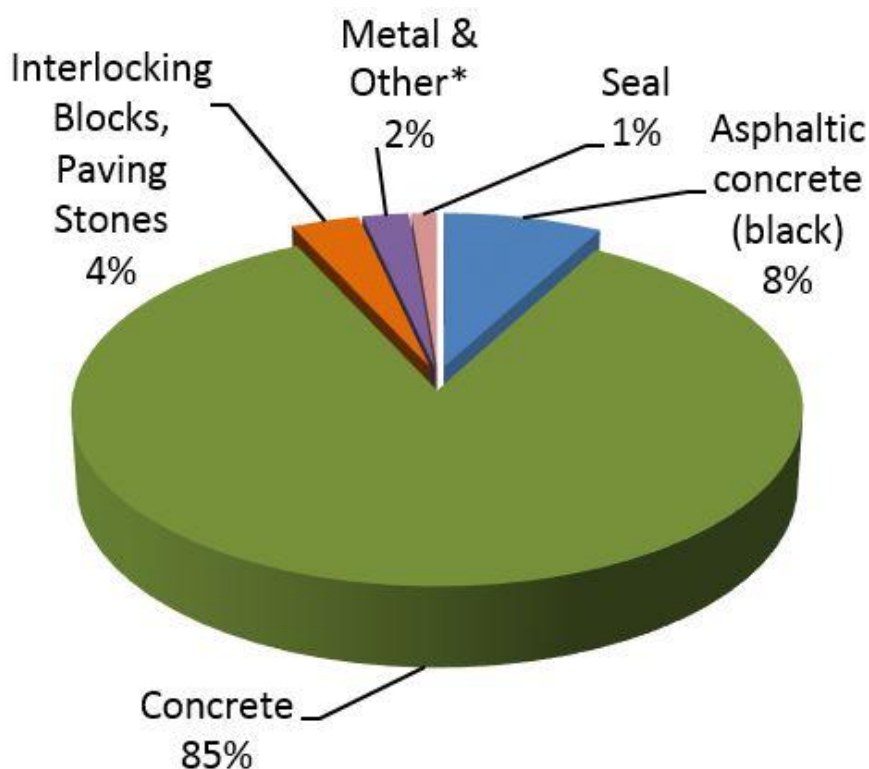
## Part 3 – Land Transport Activity

- 21.3.4 Processes and methods currently employed are described in the maintenance, renewals and capital works sections that follow and include:
- An intervention level for the repair of concrete footpaths has been set at a lip  $\geq 10$  mm, settled to a stage where the path is uneven, unsafe or the footpath is ponding water.
  - 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 professional services consultant inspect roadside footpaths three yearly to identify, prioritised and programme remediation of faults in the maintenance contract.
- 21.3.5 Future enhancements to be considered to improve asset management and the business case include the following:
- Produce a walking and cycling strategy to develop cycleways and walkways.

### 21.4 Asset Description

- 21.4.1 Council manages a total of 69 km of footpaths in urban areas, with over 85% of them being of concrete construction.

Figure 91 - Footpath Asset breakdown



### 21.5 Replacement Cost and Annual Depreciation

- 21.5.1 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.

Table 82 – Footpaths replacement cost and annual depreciation

Asset Type	Quantity - No	Length - m	Average Base Life	Average Age	Average RUL	ORC - \$	ODRC - \$	AD - \$
Asphaltic concrete (black)	58	5,463	25	15	10	1,941,378	416,085	74,341
Concrete	500	58,781	80	23	57	7,109,167	5,023,471	88,865

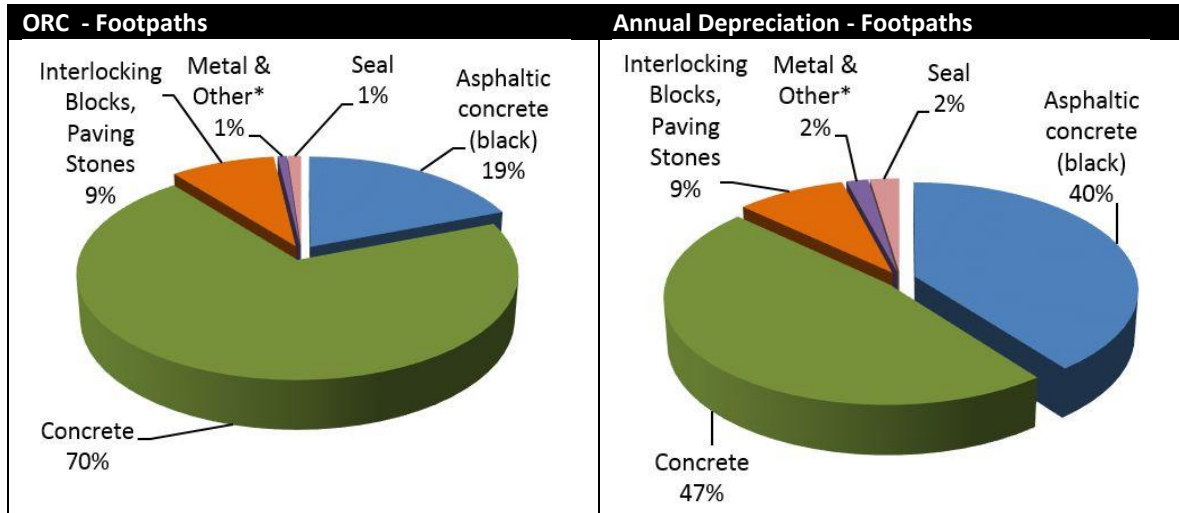
# Part 3 – Land Transport Activity

Interlocking Blocks, Paving Stones	36	2,339	60	14	46	891,370	542,816	16,761
Metal & Other*	16	1,586	5	19	0	77,132	28,965	3,329
Seal	8	875	15	22	0	114,626	17,403	4,459
<b>Total</b>	<b>618</b>	<b>69,044</b>				<b>10,133,678**</b>	<b>6,028,739**</b>	<b>187,755**</b>

\*Other includes Wooden and Unknown

\*\* Valuation at Oct 2017

Figure 92: ORC and Depreciation for Footpaths



## 21.6 Asset Age and Condition

### 21.6.1 Asset Age

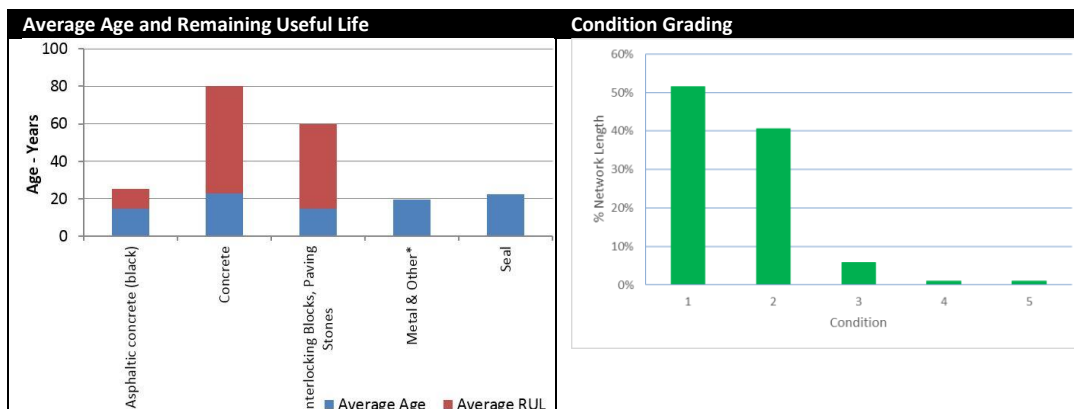
- The age information of about 40% of the Council footpath assets is known. This is because they were constructed or renewed following Council's use of the RAMM system and the requirement to record the asset data in this system. The age information for the other 60% is unknown.
- Most footpaths with AC and chip sealed surface type are nearing the end of their useful life. It is assumed that all the other types are approximately half way through their expected lives.

### 21.6.2 Condition Assessment and Results

- The condition of all footpaths was measured in 2016 and 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.
- In general, the footpath condition is considered to be good. Some subdivisional roading works which have been completed in the past have proved to be of a 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 "re-usable" and can be uplifted and relayed to access or lay services. Interlocking blocks are generally confined to the highly trafficked retail areas.

# Part 3 – Land Transport Activity

Figure 93: Footpaths – Age and Condition



Note: As availability of construction date is poor, average age in the graph was derived using Base Life and Remaining Useful Life (Valuation Output).

## 21.7 Operations and Maintenance Plan

- 21.7.1 The professional services consultant carries out two yearly inspections. This informs the contractor’s renewal programme. The majority of work is the grinding of trip hazards and replacement of broken concrete slabs, mostly caused by root damage. The spraying of vegetation on footpath edges, cracks, etc. is undertaken by Council’s Parks and Reserves contractor.
- 21.7.2 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. Urgent safety repairs are undertaken as a priority and are carried out as a first call on funding.
- 21.7.3 The intervention level for the repair of concrete footpath has been set at a  $\geq 10$  mm lip, settled to a stage where the path is uneven, unsafe or the footpath is ponding water. The major factor affecting footpath maintenance is the displacement of the footpath slabs by tree roots from both private garden trees and the Council roadside planting. 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 repair methodology is to remove the affected section of footpath, cut out the offending roots, install a 300 mm plastic strip called “Root Guard” adjacent to the footpath section and recast the footpath. Where approved by the tree owner, the tree is also cut and removed to prevent future damage.
- 21.7.4 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. Currently no footpath deposit is taken for minor alterations and other building works.
- 21.7.5 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.
- 21.7.6 To maintain levels of service, any increase in the footpath maintenance and renewal budget is inflation adjusted.

### 21.7.7 Deferred Maintenance

- (a) Footpath maintenance and renewals budgets were restricted over the years as a result of general financial restraints. There is a backlog of deferred maintenance has been prioritised for repair within existing budgets and it is expected that all of the identified works will be repaired or renewed within five years.

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## Part 3 – Land Transport Activity

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### 21.8 Renewal Plan

- 21.8.1 Footpath renewals are defined as the replacement of continuous sections exceeding 20m in length and include major upgrading works. Renewal expenditure is identified separately as it can be offset against asset depreciation.
- 21.8.2 The types of renewal work undertaken to restore footpaths to the required condition are:  
Resurfacing to provide a smoother surface by:
- (a) Overlaying of the existing surface with a similar material.
  - (b) Removing the existing surfacing and laying new surface (where the footpath profile is such that the surface level can't be built up with an overlay).
- Reconstruct when:
- (a) The footpath structure has deteriorated to an extent where resurfacing is not practical.
  - (b) Where the footpath is to be reconstructed on a new alignment.
  - (c) Where the footpath is to be upgraded in width.
  - (d) Where different construction materials are to be utilised.
  - (e) Where it is more economical to replace a section of footpath than to repair the individual failures.
- 21.8.3 The required level of renewal will vary depending on:
- (a) The age profile of footpaths.
  - (b) The condition profile of footpaths.
  - (c) The characteristics of the adjacent footpath network.
  - (d) Proximity to trees.
  - (e) The level of ongoing maintenance demand.
  - (f) The differing economic lives of the materials used.
- 21.8.4 Ongoing condition assessments assist with the knowledge and development of Forward work plans for footpath assets.
- 21.8.5 There is a backlog of deferred renewal. Previously the renewals budget has been reduced because of unaffordability.

### 21.9 Development Works Plan

- 21.9.1 The policy for footpath development is that 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 exceed 7.5 per 100m.
- 21.9.2 The emphasis is on addressing high-use areas to and from areas such as:
- (a) Marae
  - (b) Schools
  - (c) Community housing
  - (d) Retirement rest homes
  - (e) Central business districts (CBD)
- 21.9.3 The development of the footpath network is determined through Annual Plan submissions and reports received that identify high use/risk areas and pedestrian factors and facilities. A town revitalisation plan being developed at present will likely see some footpath renewals in District towns.

#### 21.9.4 Walking and Cycling Strategy

- (a) 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.

## Part 3 – Land Transport Activity

- (b) 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.
- (c) The plan is to develop a Forward Works Programme (inclusive of maintenance and renewals) in alignment with the above general policy. This will align with the Walking and Cycling Strategy and will have sufficient weighting to attract subsidy for footpath renewals.
- (d) Safety inspections will have sufficient focus on connectivity improvements.

### 21.9.5 New Assets Funding

- (a) Council is able to access funding from NZTA to undertake specific ‘minor safety improvements’ that help to ensure a safe cycling or walking environment. This funding is at present limited to projects of no more than \$1M, of which NZTA will fund at base rates. Most footpath improvements do not meet the criteria for this funding criteria.
- (b) Large sections of new cycle lane or footpath 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.
- (c) It is expected that the majority of requests for new footpaths in urban areas will not qualify for funding through the NZTA criteria and will therefore have to be 100% funded by Rates.

### 21.9.6 Development Works Alignment

- (a) The table below shows the alignment for development work.

Table 83 - Footpath Development Works Alignment

Activity	Brief Scope	Work Category	ONRC Category	Problem	Main Benefit	Council Outcome
Pedestrian Safety Improvements	Establish minor new footpaths	Unsubsidised	Various	Safety issues for pedestrians	Improve the ease with which people are able to reach key destinations and the comfort experienced by the user	Excellent standards of safety and welfare are promoted and respected

- (b) The following footpath development works are included in the 2018/21 block.

Table 84 – Footpath Development Projects 2018/21

Project	Project Description	Work Category	2018/19 Budget	2019/20	2020/21
No projects					

### 21.10 Disposal Plan

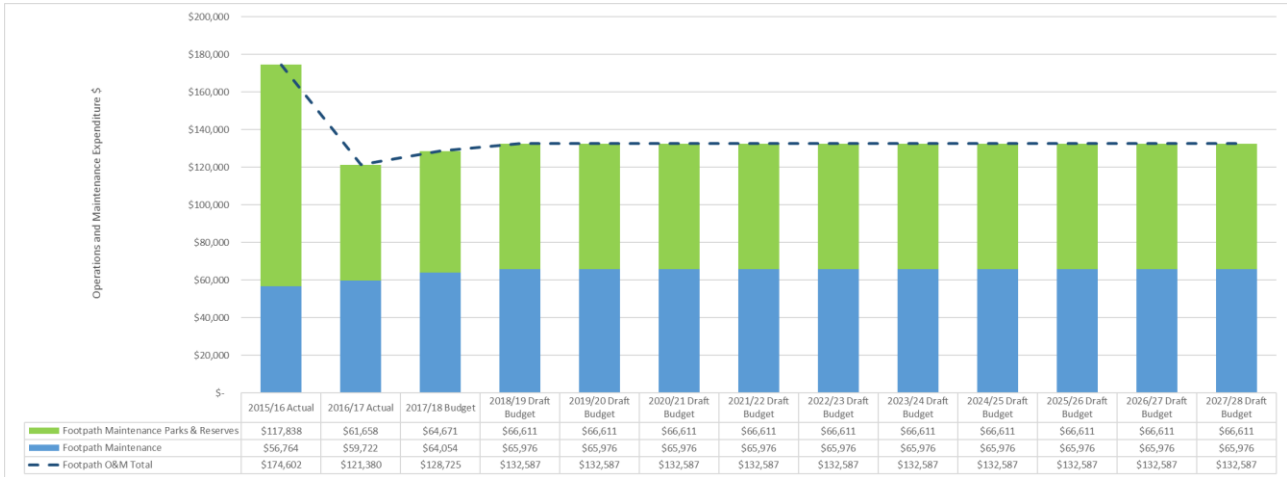
- 21.10.1 No assets are planned to be disposed of at this time.

### 21.11 Footpaths Expenditure

- 21.11.1 Council has identified the following programmes for 2018/19, 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.
- 21.11.2 The figure below sets out the historical actual expenditure and 2017/18 budget in actual dollars and the future draft budget figures in terms of 2018/19 base dollars.
- 21.11.3 The figure below sets out the historical and projected **operations and maintenance** expenditure for footpaths. The predicted expenditure for the period of 2018/19 to 2027/28 is approximately \$133,000 per year.

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Figure 94 - Footpaths historical and projected operations and maintenance expenditure \$



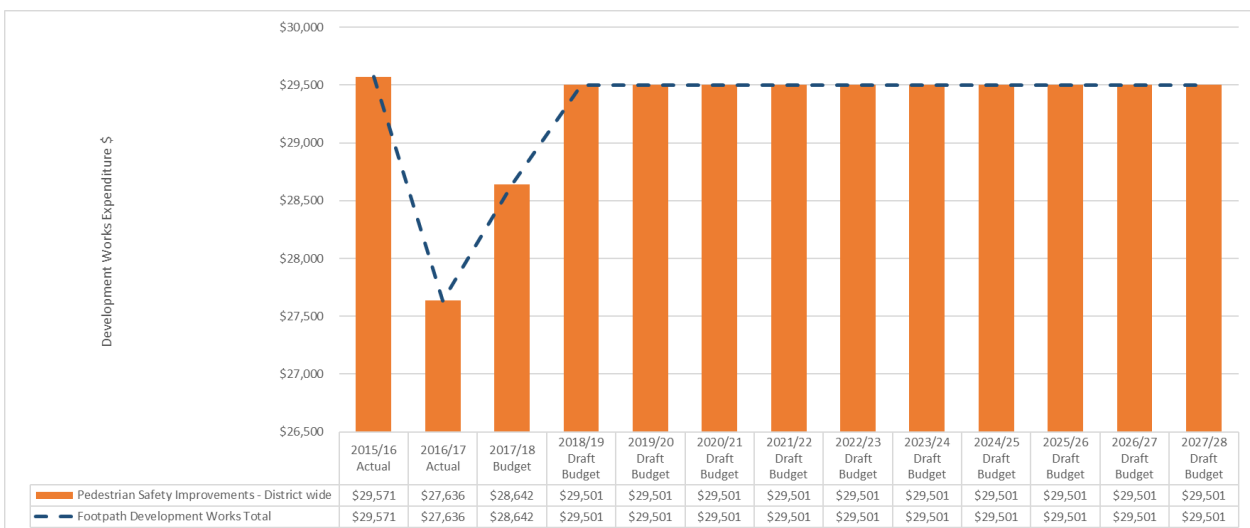
21.11.4 The figure below sets out the historical and projected capital **renewal** expenditure component of footpaths projects and programmes as well as the 2016/17 annual depreciation.

Figure 95 - Footpaths historical and projected capital renewal expenditure \$



21.11.5 The figure below sets out the historical and projected capital **development works** expenditure component of footpaths projects and programmes. No expenditure related to growth is projected over the next 10 years.

Figure 96 - Footpaths historical and projected capital development works expenditure \$

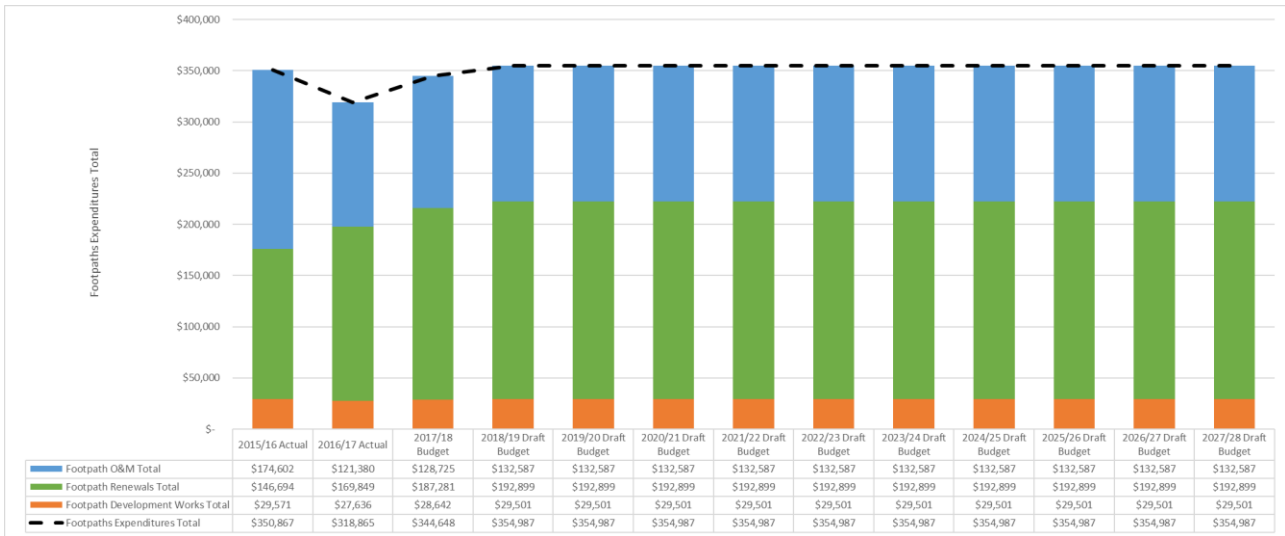




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21.11.6 The figure below sets out the historical and projected **combined** expenditure for footpaths projects and programmes.

**Figure 97 - Footpaths historical and projected combined expenditures \$**



21.11.7 Section 27 Financial Summary and Appendices A and B provides more detail on the funding sources for these programmes and projects.

# Part 3 – Land Transport Activity

## 22 Cycleways

### 22.1 Overview & Strategic Link

22.1.1 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. 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 using formed 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.

22.1.2 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 85 - Cycleways

Category	Mountains to Sea		Pureroa Timber Trail		Extension		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	92.7		1.8		64.6		159.1	0	159.1
RDC Paper Road	15.4						15.4	0	15.4
RDC Paper Road Maintained by DOC	51.1						51.1	0	51.1
DOC Reserve	15.0		35.0	37.0			50.0	37.0	87.0
Whanganui River	31.0						31.0	0	31.0
NZTA Maintained Road		11.0			51.0	129.0	51.0	140.0	191.0
Whanganui DC Maintained Road		68.9					0	68.9	68.9
<b>Total - Grand (km)</b>	<b>205.2</b>	<b>79.9</b>	<b>36.8</b>	<b>37.0</b>	<b>115.6</b>	<b>129.0</b>	<b>357.6</b>	<b>245.9</b>	<b>603.5</b>

22.1.3 Maintenance of cycleways are a response to two problem statements by providing a safe passage for cyclists:-

- 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.
- 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.

22.1.4 Key ONRC CloS delivered through cycleways are:

- Safety - how road users experience the safety of the road
- Accessibility - The ease with which people are able to reach key destinations and the transport networks available to them

### 22.2 Key Issues

22.2.1 Some of the key life cycle management issues that affect cycleway assets are:

Key Issue	Strategies to Address Key Issues
Safety for users	Will ensure cycling trends are monitored and action taken to raise cyclist and motorist awareness of new use trends on rural roads.
Renewal and Maintenance	Trails will require little renewal. Routine maintenance of trail surfaces will provide continuous investment in surface renewal. However, structures, bridges and board walks and drainage will require renewal over time. RDC is only responsible for cycle trails on roads maintained by Council.

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## Part 3 – Land Transport Activity

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Key Issue	Strategies to Address Key Issues
	Maintenance and renewal has to be funded and coordinated between a number of different controlling authorities including Ruapehu District Council, NZTA, Whanganui District Council and DOC.

### 22.3 The Need for Investment

- 22.3.1 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.
- 22.3.2 Investment in cycleway assets is required because:
- (a) 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 .
- 22.3.3 A separate budget has been identified for the cycleways for maintenance. Ministry of Business Innovation and Employment (MBIE) currently provides contestable fund for improving the Great Ride and to address emergency events.
- 22.3.4 Processes and methods currently employed are described in the maintenance, renewals and capital works sections that follow and include:
- (a) On-road cycleway sections are maintained in conjunction with routine road maintenance and renewals.
- (b) Responsibilities for off-road sections have been assigned to various stakeholders.
- 22.3.5 Future enhancements to be considered to improve the business case include the following:
- (a) Produce a specific Management Plan for the entire trail from Mt Ruapehu to The North Mole at Whanganui, this will include Ruapehu and Whanganui District Councils and DOC.
- (b) Council has a cycling awareness strategy and has identified the development of a walking and cycling strategy to develop cycleways and walkways as an improvement.

### 22.4 Asset Description

- 22.4.1 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 low volume roads.
- 22.4.2 The on-road sections of the cycleway are managed by Council under the Land Transport Activity.
- 22.4.3 Off road sections are managed by the organisation that maintains the section. Council (Land Transport) actively manages 15.4 km of off-road trail forming Fishers Track between National Park Village and Retaruke Valley. 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.
- 22.4.4 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.

### 22.5 Replacement Cost and Annual Depreciation

- 22.5.1 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.
- 22.5.2 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.

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## Part 3 – Land Transport Activity

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### 22.6 Age and Condition

- 22.6.1 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.
- 22.6.2 Condition assessments for on-road cycleways are undertaken as part of pavement inspections.
- 22.6.3 The condition assessment of the off-road cycle trail section maintained by Council is done annually or following notification of problems. DOC have responsibility for condition assessment and maintenance for trails constructed by them, regardless of their paper road status.
- 22.6.4 Condition assessment results (Trail Warrant of Fitness) and service requests are recorded and remedial works undertaken as a transport activity.

### 22.7 Operations and Maintenance Plan

- 22.7.1. 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.

### 22.8 Renewal Plan

- 22.8.1 There are no identified renewal works to be undertaken over the next ten years as the majority are through DOC Estate and funding is expected to be from their budgets.
- 22.8.2 There are no deferred renewals at this time. However, other assets will need to be incorporated into the inventory and a clear knowledge of ages and remaining useful lives will indicate whether or not renewals will need to be programmed.

### 22.9 Development Works Plan

- 22.9.1 It is proposed that any further development works carried out on the cycleways will be funded from National budgets and are not included in financial forecasting models or tables.

### 22.10 Disposal Plan

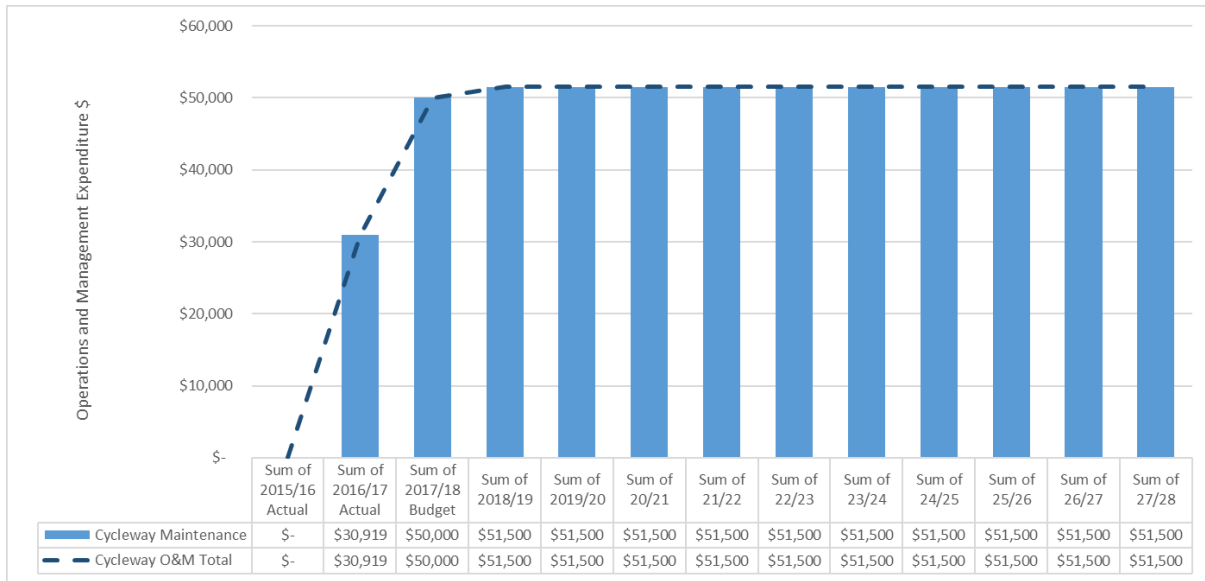
- 22.10.1 No assets are planned for disposal at this time.

### 22.11 Cycleway Expenditure

- 22.11.1 The figure below sets out the historical and projected **operations and maintenance** expenditure for cycleways. The predicted expenditure for the period of 2017/18 to 2027/28 is approximately \$52,000 per year.

# Part 3 – Land Transport Activity

Figure 98 - Cycleway historical and projected operations and maintenance expenditure \$



# Part 3 – Land Transport Activity

## 23 Bus Shelters

### 23.1 Overview & Strategic Link

- 23.1.1 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.
- 23.1.2 Renewal of bus shelters are a response to the following problem statement, by providing a safe and clean place for children waiting:-
- (a) 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.
- 23.1.3 Key ONRC CloS delivered through bus shelters are:
- (a) Amenity - the aesthetic aspects of the road environment (eg cleanliness, comfort/convenience, security)

### 23.2 Key Issues

- 23.2.1 Some of the key life cycle management issues that affect bus shelter assets are:

Key Issue	Strategies to Address Key Issues
Vandalism	Upgrading of shelters to vandal and graffiti resistant structures
Demographic changes	Population density and 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.

### 23.3 The Need for Investment

- 23.3.1 Council considers that it has a very basic approach to bus shelters investment, and has identified areas for improvement.
- 23.3.2 Investment in bus shelter assets is required because:
- (a) 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.
- 23.3.3 An analysis of the current investment includes:
- (a) The 2018/19 maintenance, renewal and improvements budget for bus shelters is 0.1% (\$11k) of the total Land Transport Activity Budget (\$19.9M).
- 23.3.4 Processes and methods currently employed are described in the maintenance, renewals and capital works sections that follow and include:
- (a) The routine maintenance of the bus shelters. Cleaning, graffiti removal, weed spraying and minor repairs is undertaken by the Parks and Reserves contractor when instructed by the Council.
- 23.3.5 Future enhancements to be considered to improve the business case include the following:
- (a) Develop a strategy for demand management for bus shelter use.

### 23.4 Asset Description

- 23.4.1 There are 16 school bus shelters provided for the benefit of children waiting for school buses - seven of roofing iron construction, three wooden shelters and two steel shelters. As there are limited scheduled bus services throughout the District, these shelters are almost exclusively used by children waiting for school buses.

## Part 3 – Land Transport Activity

### 23.5 Replacement Cost and Annual Depreciation

- 23.5.1 The bus shelters do not form a significant component of the total assets and therefore have not been included in the valuation at this stage.

Table 86: – Bus Shelter replacement cost and annual depreciation

Asset Description	Base Life	Age	RUL	Length	Quantity	Unit	GRC	ODRC	Annual Depreciation
No data available	TBC	TBC	TBC	TBC	16	TBC	TBC	TBC	TBC

### 23.6 Asset Age and Condition

- 23.6.1 There is no asset age data available for bus shelters.
- 23.6.2 Condition assessments have not been carried out on bus shelters.

### 23.7 Operations and Maintenance Plan

- 23.7.1 The routine maintenance of the bus shelters, cleaning, graffiti removal, weed spraying and minor repairs is undertaken by the Parks and Reserves contractor when instructed by the Council.
- 23.7.2 Deferred Maintenance  
(a) There is no deferred maintenance identified at this time.

### 23.8 Renewals

- 23.8.1 There are renewals programmed.

### 23.9 Development Works

- 23.9.1 There are no new bus shelters programmed.

### 23.10 Disposal Plan

- 23.10.1 No assets are planned for disposal at this time.

### 23.11 Bus Shelter Expenditure

- 23.11.1 The figures below set out the historical actual expenditure and 2017/18 budget in actual dollars and the future draft budget figures in terms of 2018/19 base dollars.
- 23.11.2 There is no historical and projected capital **operations and maintenance** expenditure component of bus shelters projects and programmes.
- 23.11.3 The figure below sets out the historical and projected capital **renewal** expenditure component of bus shelters projects and programmes as well as the 2016/17 annual depreciation.

# Part 3 – Land Transport Activity

Figure 99: Bus shelters historical and projected capital renewal expenditure \$



23.11.4 There is no historical and projected capital **development works** expenditure component of bus shelters projects and programmes.

23.11.5 Section 27 Financial Summary and Appendices A and B provide more detail on the funding sources for these programmes and projects.





# Part 3 – Land Transport Activity

## 24 Facility Roads and Carparks

### 24.1 Overview & Strategic Link

- 24.1.1 Facility Roads are the accessways which provide public access to Council owned and maintained facilities such as cemeteries, camping grounds, flats and Contractor access to facilities like sewage treatment plants. These roads are generally not on Road Reserve.
- 24.1.2 The provision 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.
- 24.1.3 Maintenance and renewal are a response to the following problem statement by providing a maintained passage for facility users:-
- (a) 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.
- 24.1.3 Key ONRC CloS delivered are:
- (a) Safety - how road users experience the safety of the road
- (b) Amenity - the level of travel comfort experienced by the road user and the aesthetic aspects of the road environment (eg cleanliness, comfort/convenience, security)

### 24.2 Key issues

- 24.2.1 Some of the key life cycle management issues that affect these assets are:

Key Issue	Strategies to Address Key Issues
No renewals strategy	Develop a renewals plan in line with the maintenance strategy
Inadequate historical maintenance and renewals funding	Addressed in asset management plan budgets

### 24.3 The Need for Investment

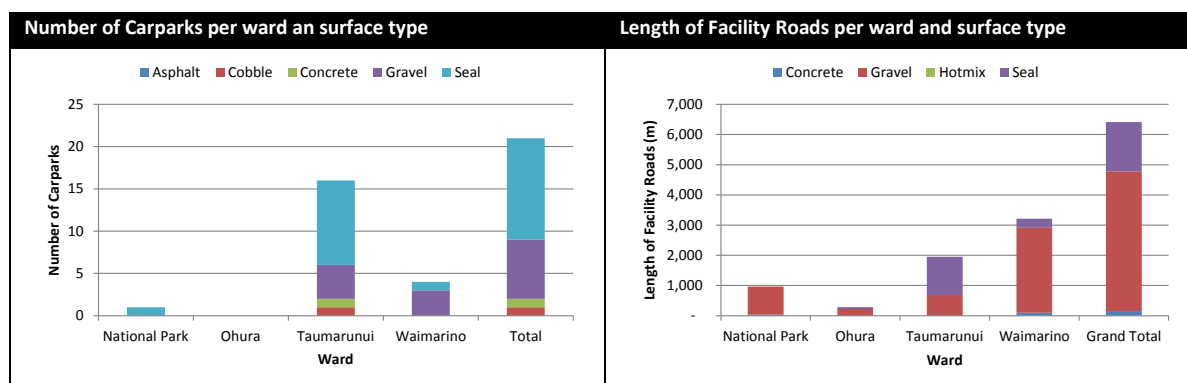
- 24.3.1 Council considers that it has a very basic approach to facility roads and carparks investment, and has identified areas for improvement.
- 24.3.2 Investment in facility assets is required because:
- (a) Facility roads and carparks provide an important service to residents and visitors.
- 24.3.3 An analysis of the current investment includes:
- (a) The 2018/19 maintenance, renewal and improvements budget for facility roads and carparks is 0.2% (\$33k) of the total Land Transport Activity Budget (\$19.9M).
- 24.3.4 Processes and methods currently employed are described in the maintenance, renewals and capital works sections that follow and include:
- (a) Annual inspections
- 24.3.5 Future enhancements to be considered to improve the business case include the following:
- (a) Develop a facility roads and carparks renewals plan.

### 24.4 Asset Description

- 24.4.1 Council looks after 34 facility roads, covering a length of 7.5km and 23 carparks. The finished surfaces vary between asphalt, seal, pavers and gravel surfaces.

# Part 3 – Land Transport Activity

Figure 100: Facility Roads and Carparks asset information (Source: Facility Road Master List.xls)



## 24.5 Replacement Cost and Annual Depreciation

23.5.1 Gross replacement cost is included in the pavements section.

## 24.6 Asset Age and Condition

24.6.1 There is limited information on the age of facility road and carpark assets.

24.6.2 There is no existing condition rating information. However, condition information is gathered to inform the programme at the annual inspections. RAMM condition rating is not considered to be necessary due to the small size of many of the assets.

## 24.7 Operations and Maintenance Plan

24.7.1 The facility roads and car parks are inspected annually to identify items for repair. 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.

## 24.8 Renewal Plan

24.8.1 Renewals activity restores an existing asset to its original capacity or required condition. The objective in rehabilitating and 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 life cycle costs. The key activities are:

- (a) Resealing/Resurfacing
- (b) Pavement Rehabilitation

24.8.2 The selection of surfacing type is typically based on the existing surface, how well that surface has lasted and knowledge of the engineer. Existing car parks that need resurfacing have been identified.

24.8.3 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.

## 24.9 Development Works Plan

24.9.1 There are no plans for developing new car parks or facility roads in this planning period.

## 24.10 Disposal Plan

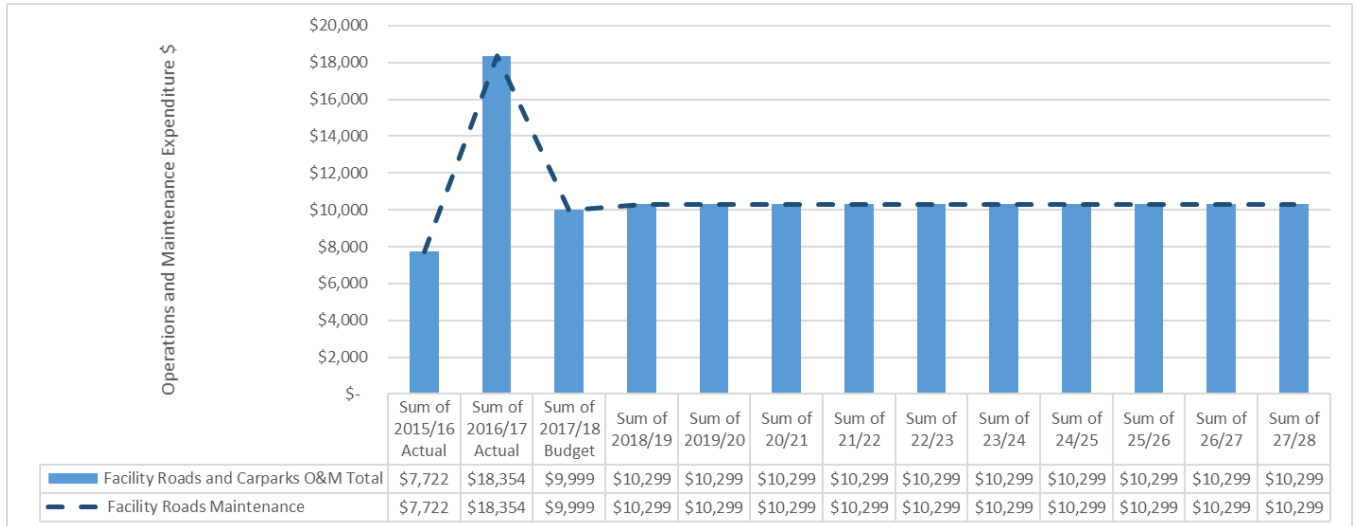
24.10.1 There are no assets to be disposed of at this time.

# Part 3 – Land Transport Activity

## 24.11 Facility Roads and Carpark Expenditure

- 24.11.1 The figures below set out the historical actual expenditure and 2017/18 budget in actual dollars and the future draft budget figures in terms of 2018/19 base dollars.
- 24.11.2 The figure below sets out the historical and projected **operations and maintenance** expenditure for facility roads and carparks. The predicted expenditure for the period of 2018/19 to 2027/28 is approximately \$10,000 per year.

Figure 101 - Facility roads and carparks historical and projected operations and maintenance expenditure \$



- 24.11.3 The figure below sets out the historical and projected capital **renewal** expenditure component of facility roads and carparks projects and programmes as well as the 2016/17 annual depreciation.

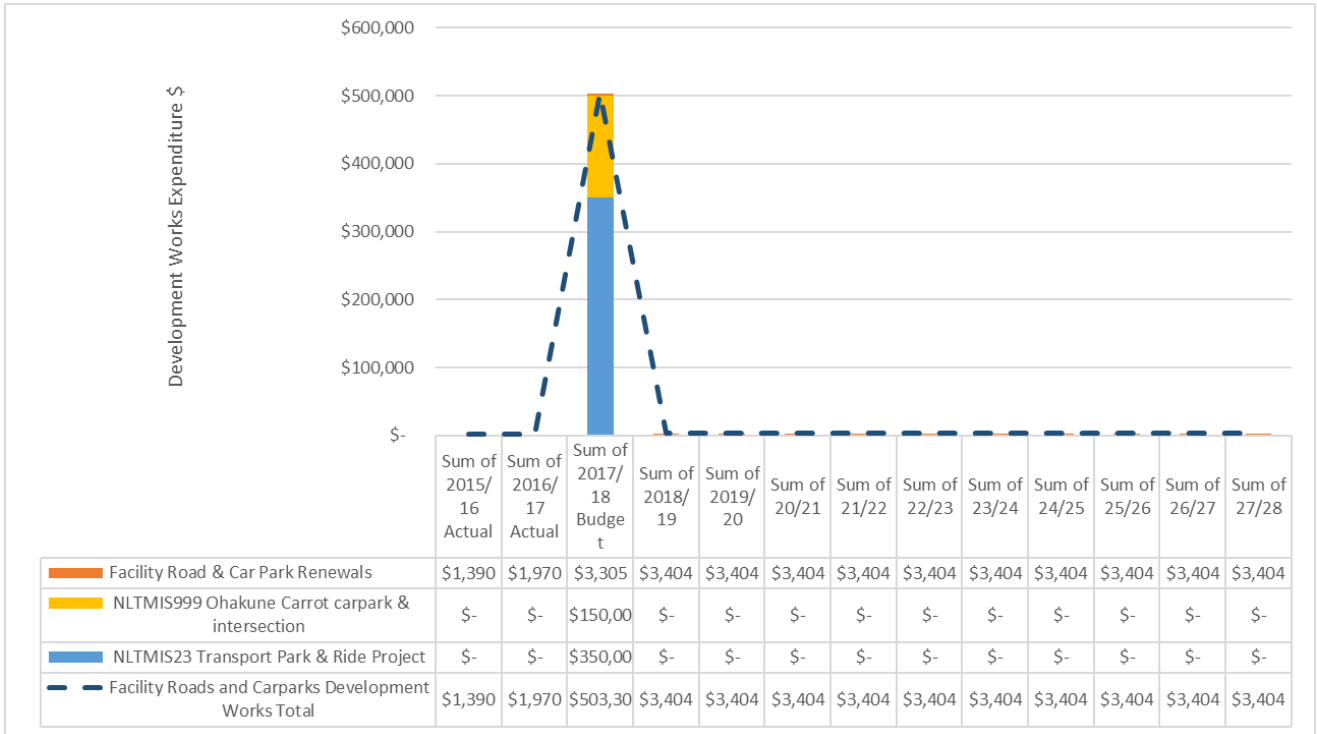
Figure 102 - Facility roads and carparks historical and projected capital renewal expenditure \$



- 24.11.4 The figure below sets out the historical and projected capital **development works** expenditure component of facility roads and carparks projects and programmes. (This includes the growth and levels of service components of projects). No expenditure related to growth is projected over the next 10 years.

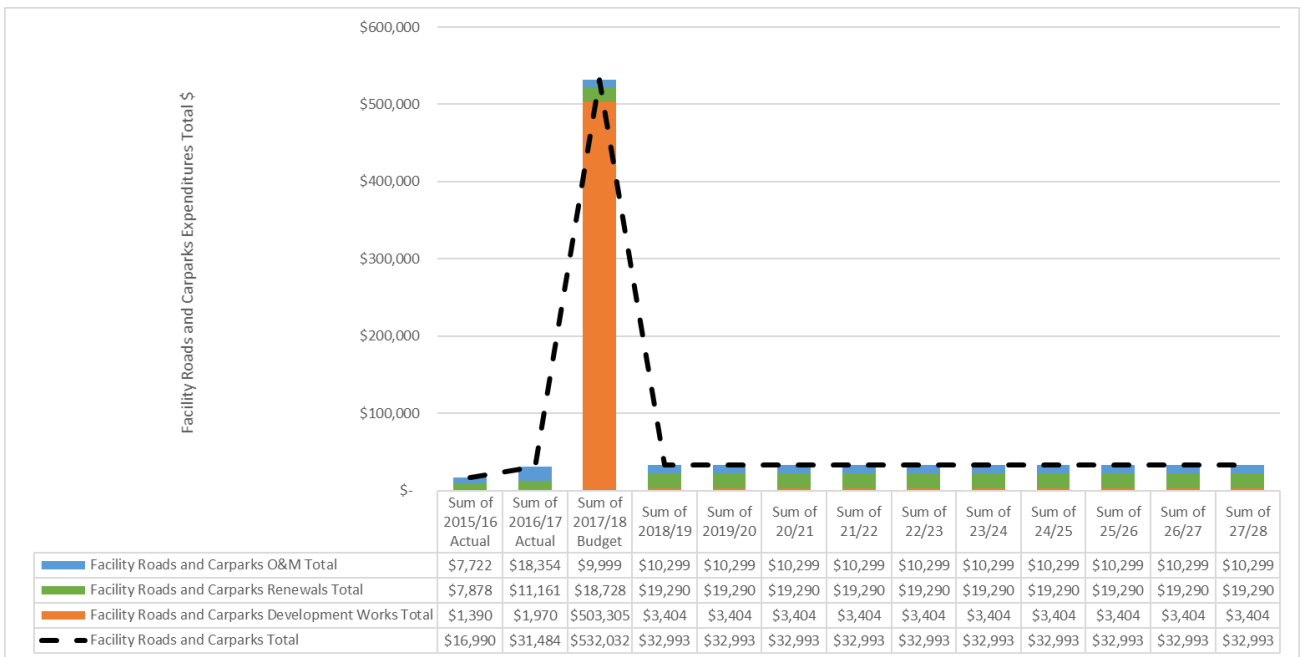
# Part 3 – Land Transport Activity

Figure 103 - Facility roads and carparks historical and projected capital development works expenditure \$



24.11.5 The figure below sets out the historical and projected **combined** expenditure for facility roads and carparks projects and programmes.

Figure 104 - Facility roads and carparks historical and projected combined expenditure \$



24.11.6 Section 27 Financial Summary and Appendices A and B provide more detail on the funding sources for these programmes and projects.

# Part 3 – Land Transport Activity

## 25 Environmental Services and Emergency Works

### 25.1 Overview & Strategic Case Link

- 25.1.1 Environmental Services and Emergency Works carried out to deliver Land Transport include:
- (a) Environmental Maintenance – maintaining the roadside vegetation and berms to keep the sightline window clear, including mowing, weed spraying, high cut saw blade work and removal of hazardous trees.
  - (b) Plant Pest maintenance – to target plant pest species in the roadside corridor
  - (c) Emergency Works and Minor Events – responding to weather events that cause damage or disruption to the road
- 25.1.2 These items are a response to the following problem statements:-
- (a) Environmental Maintenance – by providing sightlines
    - (i) **Forestry and Land Use:** - Changing land uses (ie forestry and 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 cost
    - (ii) 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.
    - (ii) **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
  - (b) Emergency Works and Minor Events – by responding to weather events that cause damage or disruption to the road
    - (i) 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.
    - (ii) **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
- 25.1.3 Key ONRC CloS delivered through these assets and services are:
- (a) Environmental Maintenance
    - (i) Amenity - the level of travel comfort experienced by the road user and the aesthetic aspects of the road environment (eg cleanliness, comfort/convenience, security)
    - (ii) Safety - how road users experience the safety of the road
    - (iii) Accessibility: - the ease with which people are able to reach key destinations and the transport networks available to them
  - (b) Emergency Works and Minor Events
    - (i) Reliability - the consistency of travel times that road users can expect
    - (ii) Resilience: the availability and restoration of each road when there is a weather or emergency event, whether there is an alternative route available
    - (ii) Safety - how road users experience the safety of the road
    - (iii) Accessibility: - the ease with which people are able to reach key destinations and the transport networks available to them

### 25.2 Key issues

- 25.2.1 Some of the key life cycle management issues that affect other assets and services are:

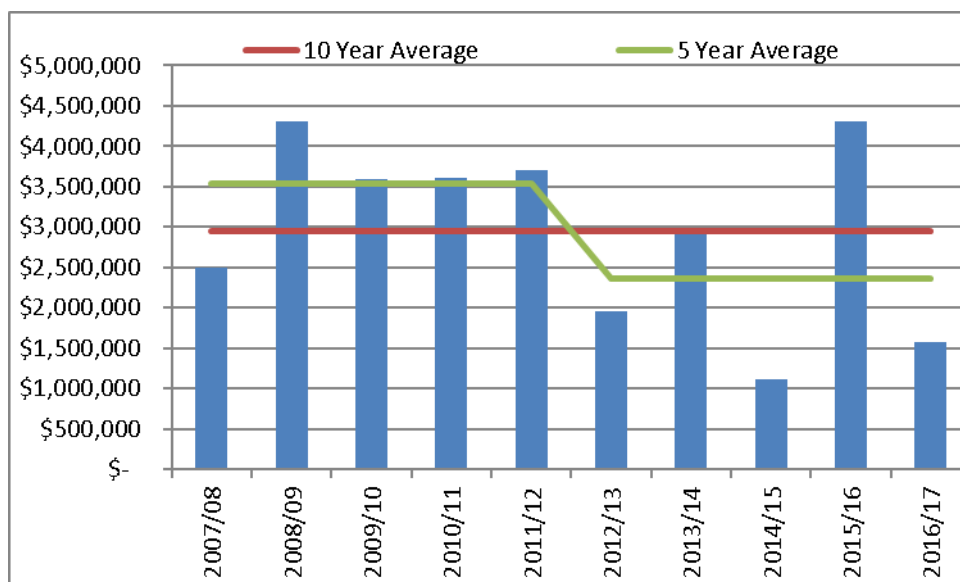
Service	Key Issue	Strategies to Address Key Issues
Environmental	Weather causing unseasonal growth or fire risk	Vegetation control contract terms are measure and value to allow a more flexible approach to target mowing when it is needed
	Hazardous trees	Record and monitor hazardous tree complaints; remove trees posing a safety risk
Emergency Works	Impact on network programme	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.

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## 25.3 The Need for Investment

- 25.3.1 Vegetation control is essential for safety as it maintains sightlines and keeps the vegetation window free of obstructions. Water channel spraying ensures channels are free of vegetation to keep them clear and free flowing. Removing water from the pavement helps ensure pavement integrity and reduces the likelihood of flooding causing premature failure.
- 25.3.2 Trees on the roadside are a safety concern. Trees reported through service requests are monitored and removed if they pose an immediate danger.
- 25.3.3 Emergency work is the response to a defined, major, short-duration natural event that has reduced or will reduce customer levels of transport service significantly below those that existed prior to the event. They restore the road to pre-existing levels of service.
- 25.4.4 Environmental Services and Emergency Works are the asset group with the second largest expenditure. The 2018/19 Environmental Services and Emergency Works maintenance, renewal and improvements budget is 21.3% (\$4.2M) of the total Land Transport Activity Budget (\$19.9M).
- 25.4.5 55.1% (\$2.3M) of the 2018/19 operations and maintenance budget is for emergency works. The graph below shows the costs associated with emergency works. The scale of the event depends on its severity. This makes it impossible to forecast the expenditure.

Figure 105 - Emergency Works expenditure



- 25.4.6 A significant issue for Council is managing this expenditure. The Land Transport 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 the over expenditure. This has a significant impact on forward works and asset condition.
- 25.3.7 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.

## 25.4 Asset Description

- 25.4.1 There are no assets associated with these services. However, vegetation control is carried out on the rural roadside network.
- 25.4.2 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,

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retaining walls (gabion, timber and rock), drainage, structures, pavement and surface replacement and traffic services (sight rails, signs, markings).

### 25.5 Operations and Maintenance Plan

25.5.1 Vegetation control is carried out by:

- (a) arm mowing
- (b) berm mowing
- (c) saw blades to remove high vegetation in the window
- (d) road side and plant pest spraying

25.5.2 Emergency Works

- (a) The General Maintenance contractor is responsible for Immediate response work is carried out to make sites safe.
- (b) The Professional Services Consultant is responsible for the investigation, design and estimate.
- (c) The consultant is also responsible for carrying out the NZTA approval process.
- (c) The Heavy Maintenance contractor is responsible for implementing the design and carrying out physical works..
- (d) Repairs can include
  - (i) Earthworks and retreats
  - (ii) Slip removal
  - (iii) Retaining structures such as timber, rock wall or gabion baskets
  - (iv) Culvert reinstatement
  - (v) Structure reinstatement
  - (vi) Pavement reinstatement
  - (vii) Surface reinstatement
  - (viii) Traffic services such as site rails, signs and markings

25.5.3 Minor Events are of a smaller scale than emergency works but use the same type of repairs.

### 25.6 Renewal Plan

25.6.1 There are no renewal works associated with these services

### 25.7 Development Works Plan

25.7.1 There are no development works associated with these services

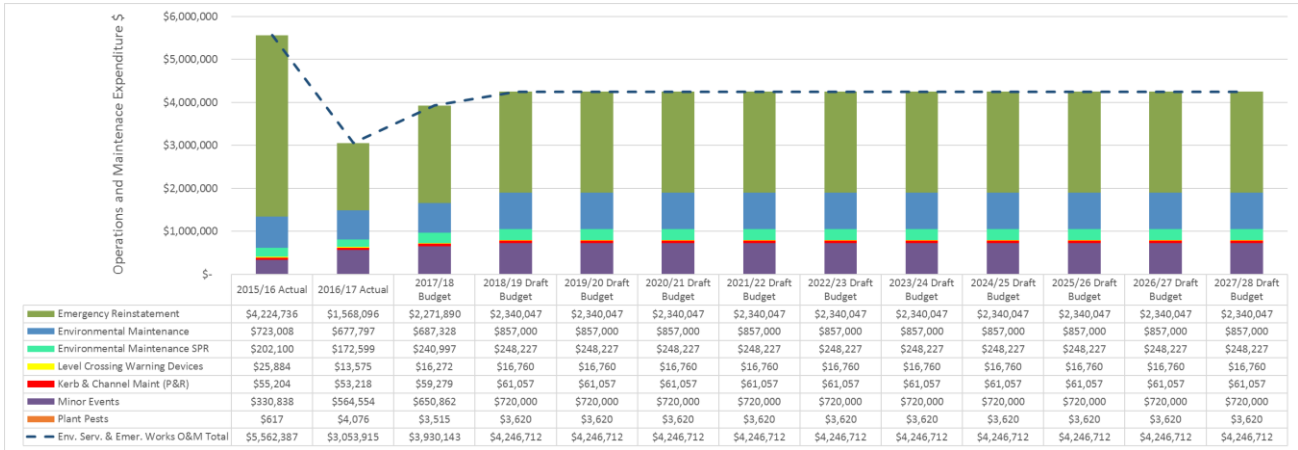
### 25.8 Environmental Services and Emergency Works Expenditure

25.8.1 The figures below set out the historical actual expenditure and 2017/18 budget in actual dollars and the future draft budget figures in terms of 2018/19 base dollars.

25.8.2 The figure below sets out the historical and projected **operations and maintenance** expenditure for environmental services and emergency works. The predicted expenditure for the period of 2018/19 to 2027/28 is approximately \$4.2M per year.

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Figure 106: Environmental Services and Emergency Works Historical and Projected Operations and Maintenance Expenditure \$('000)



25.8.3 There is no historical and projected capital **renewal** expenditure component of Environmental Services and Emergency Works projects and programmes.

25.8.4 There is no historical and projected capital **development works** expenditure component of Environmental Services and Emergency Works projects and programmes.



# Part 3 – Land Transport Activity

## 26 Asset Management Practices

### 26.1 Overview

#### 26.1.1 Business Process and Tools

- (a) This section covers the key Business Processes in place to assist Council in delivering Asset Management and Transport services.
- (b) An asset management system is a combination of processes, data and software applied to provide the essential outputs for effective asset management. The Transport activity utilise a number of these aspects for the effective management of their assets.
- (c) Ruapehu District Council uses the RAMM system to manage information on the assets. However, some data i.e. detailed structural assessments on bridges are not contained in RAMM.
- (d) 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.
- (e) Information contained in this plan will be used in the preparation of the LTP, 30 year Infrastructure Strategy and subsequent Annual Plans, as well as in the preparation of insurance schedules and valuations.
- (f) Information obtained from public consultation on levels of service, updated construction rates and data reflecting the changing of condition or performance will be used to keep this plan current.
- (g) Advanced asset management techniques such as Optimised Decision Making, will be further integrated into the system as asset management in the Transport activity evolves.
- (h) Specific detail is provided on the following aspects:

Table 87 - Business Process Elements

Element	Description
Accounting/Financial Systems	Details the computer software systems used to manage accounting and finance functions at Ruapehu District Council
Asset Management Systems	Describes the computer software systems used to aid in asset management decision making processes
Health and Safety	Details Ruapehu District's approach to Health and Safety.
Business Systems	Tabulates all of the business support systems used by Ruapehu District Council in its day to day activities.
Continuous Process Improvements	Describes the processes to be adopted to improve the standards of asset management at Ruapehu District Council.
Lifelines	Lifelines groups are typically voluntary groups of utilities working together to improve the resilience of infrastructure to hazards, often operating under the auspices of the regional council.
Plan Review and Monitoring	Provides guidance on the long term sustainability of this document.

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### 26.2 Accounting / Financial Systems

- 26.2.1 Council's financial accounting system is delivered via a software package entitled Origen Ozone. Ozone is a fully integrated Customer Service, Financial and Regulatory suite designed exclusively for Local Government in New Zealand.
- 26.2.2 RAMM holds all pertinent financial information relating to an asset on an asset-by-asset basis including purchase or commissioning date, asset value, and depreciation charged. The financial information held in the register allows financial transactions such as depreciation to be calculated. Depreciation is worked out from the Asset values that are calculated from the information held in RAMM. RAMM also stores records of changes to existing assets that occur over their life, such as revaluations and disposals. RAMM also holds non-financial information for the management of the assets.

#### 26.2.3 Accounting Standards and Guidelines

- (a) 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.

### 26.3 Asset Management Systems

#### 26.3.1 RAMM

- (a) There is a need to record detailed asset management and maintenance information to support the asset lifecycle process.
- (b) An asset management system is a combination of processes, data and software applied to provide the essential outputs for effective asset management. Ruapehu District Council utilise a number of these aspects for the effective management of their assets.
- (c) The primary support system Council has to manage the assets is RAMM. The customer service request system is used mainly to log in complaints or requests, but is also used as a management tool in flagging future works for consideration.

#### 26.3.2 Types of Data

- (a) Information on age, condition, risk factors, material, cost, and location is captured within the RAMM system for all assets including streetlights. Information gained from the maintenance contract is utilised for AM decision making. Spatial representation of the transport network is located within RAMM and Council's GIS system which allows for spatial analysis.

#### 26.3.3 Data Quality

- (a) Data is valued annually. The valuation conducted for the assets contained within this plan has been undertaken in compliance with generally accepted accounting standard NZ IAS 16 and with New Zealand local authority asset management practice.
- (b) Confidence grades have been assessed as set out in Section 16.8 Data Confidence and Reliability.

### 26.4 Asset Management Processes

#### 26.4.1 RAMM Data

- (a) RAMM was implemented in 1991. The 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.

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## Part 3 – Land Transport Activity

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- (b) Council uses the RAMM treatment selection process for decision making and long term planning.

### 26.4.2 RAMM Treatment Selection Process

- (a) Council uses performance modelling through the RAMM treatment selection process. This includes the use of historical data when identifying possible sites for resurfacing.
- (b) 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.
- (c) 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.

### 26.4.3 Operations: Customer Service Requests

- (a) 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.
- (b) 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 the monitoring of the response times and work standard of the Contractor.

### 26.4.4 Maintenance

- (a) Each of Council's maintenance contractors has significant experience in road fault data collection for their area of responsibility.
- (b) 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 Maintenance Consultant.

## 26.5 Business Continuity Plan

26.5.1 A Business Continuity Plan (BCP) is a documented set of procedures and information that enables critical services or products to be continually delivered to clients. Rather than focusing on resuming a business after critical operations have ceased or are in recovery mode after a disaster, a business continuity plan endeavours to ensure that critical operations can continue to be available.

26.5.2 At present, the Council has a medium term goal to develop a Business Continuity Plan.

## 26.6 Civil Defence Emergency Management

### 26.6.1 Why is a Plan Needed?

- (a) Emergency management deals with the response to severe events. The Civil Defence Emergency Management (CDEM) Act 2002 stipulates that Lifeline Utilities must plan for continuity of service, be capable of managing its own response to emergencies, and establish CDEM Groups across regions consistently.
- (b) There is a dedicated Council emergency management resource to coordinate these activities across Council and with neighbouring Councils and Horizons Regional Council.

### 26.6.2 Lifelines

- (a) Lifelines are the essential 'utility' services, which support the life of the community. These services include water, wastewater, stormwater, power, gas, telecommunications and transportation networks.
- (b) Council participates in the Manawatu Whanganui Regional Lifelines Group. A Civil Defence Emergency Management Group Plan has been prepared and it identified the natural hazards for the region, the likelihood and the consequences and assigned responsibilities.

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### 26.6.3 The Purpose of the Plan

- (a) This CDEM Group Plan 2016 – 21 seeks to:
  - (i) Strengthen relationships between agencies involved in CDEM.
  - (ii) Encourage co-operative planning and action between the various emergency management agencies and the community.
  - (iii) Demonstrate commitment to deliver more effective CDEM through an agreed work programme—detailed in the CDEM Group Business Plan.
  - (iv) Provide information on the hazards and risks in the CDEM Group, and document the principles of operation within which agencies involved in CDEM agree to cooperate.

### 26.7 Health and Safety

- 26.7.1 Ruapehu District Council is committed to providing and maintaining a working environment and systems of work which are free, as far as reasonably practicable, from physical or emotional harm for all our employees, visitors, contractors and members of public.
- 26.7.2 Through its Health and Safety Management Manual, Ruapehu District Council provides a number of policies and guidelines to ensure that staff are provided with a safe working environment.

### 26.8 Department Functions

#### 26.8.1 Finance

- (a) Corporate Services is responsible for financial reports, forecasts and budgets and to provide support and advice to the Land Transport team.

#### 26.8.2 Human Resources (HR)

- (a) Provides recruitment and selection services for the Council. HR has also implemented a performance development programme to ensure that individual employees contribute towards achievement of the organisations objectives.

#### 26.8.3 Information Technology (IT)

- (a) IT manages the computers and software used by the Land Transport team. They provide support and training programmes to council staff for the software applications.
- (b) Ruapehu District Council has a daily backup-to-tape schedule in place. This backs-up all the critical data onto tapes that are stored off-site.

### 26.9 Business Systems

- 26.9.1 From the initial decision to proceed with asset management through to the final operational phases, Council needs systems to support a management decision-making structure with accurate asset information. The information systems necessary to support this type of programme are often based around information technology (IT) systems.
- 26.9.2 It is critical that the IT system is accurately specified to meet the asset management requirements. The needs analysis to accomplish this involves understanding:
- (a) The full ramifications of lifecycle asset management for Council;
  - (b) The benefits to be derived;
  - (c) What is required from the IT systems
- 26.9.3 The resources required will include project management, implementation and ongoing support staff, software, hardware, data collection, and system operation and maintenance. The cost can represent a

## Part 3 – Land Transport Activity

substantial business investment and this warrants a dedicated project management team to ensure satisfactory implementation and completion.

26.9.4 Information systems of this magnitude should be driven from the bottom-up; if the information meets the requirements at the workforce level, then the systems will have a high level of ownership and will produce data that is valid and up to date. By aggregating this data, the information can be fed upwards to provide accurate and critical information to the management of the unit, and Council as a whole.

26.9.5 Ruapehu District Council has developed its IT infrastructure around a number of key products that provide a platform for all IT applications. The table below sets out Council's cornerstone IT applications used by the Land Transport group.

26.9.6 The primary support system Council has to manage pavements is the Road Assessment and Maintenance Management System (RAMM). The customer service request system Ozone Origen is used mainly to log in requests for service, but is also used as a management tool in flagging future works for consideration.

25.9.7 The table below sets out Council's cornerstone IT applications used by the Transport group.

**Table 88 - Business Systems**

Function	Product	Version (current and planned upgrades)	Group Responsible	Primary users
Word, spreadsheets, email, project, access	Microsoft Office	Current – 2016	IT	All RDC
Financial accounting and reporting	Origen Ozone	Current – Version 3.0.1701.18	Business Analyst	All RDC
Corporate Planning	Excel based macro run funding model tool for both OPEX and CAPEX		Finance	All RDC
Geographical Information System	Intramaps	Version 8.2	IT	All RDC
Asset Management System	Road Asset Management Maintenance System (RAMM)	Version 6.1 New versions released periodically by RAMM	RAMM Software	GHD, Downers and RDC
Enquiries/complaints / Request for service (RFS)	Origen Ozone	Current – Version 3.0.1701.18	Business Analyst	GHD, Maintenance contractors and RDC

26.9.8 RAMM is a hosted application. Backups of RAMM are managed by RAMM Software.

26.9.9 Other systems are hosted internally. Disc to disc backups are taken locally and the entire infrastructure is replicated to a hosted disaster recovery site in Auckland 2 hourly.

### 26.10 New Zealand Transport Agency Audits

26.10.1 As part of the New Zealand Transport Agency's (NZTA) quality processes they carry out a number of audits within New Zealand across all Road Controlling Authorities. 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. These audits form a significant part of the business processes that determine how well the Council's assets are performing and how well they are being managed, maintained and renewed.

#### 26.10.2 Procedural Audits

- (a) Procedural audits are carried out in terms section 95(1)(e)(ii), of the Land Transport Management Act 2003. A procedural audit of each approved organisation is carried out every two to four years. The objectives of the audits are generally as follows:
- (i) To review any issues arising from previous procedural audit(s).
  - (ii) To review final claims for the period being audited.
  - (iii) To assess the audit trail of transactions for financially assisted works.

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- (iv) To assess compliance with NZTA's approved procurement procedures.
- (v) To review contract management procedures.
- (vi) To review Council's professional services provider/network manager/business unit for compliance with NZTA's requirements.
- (vii) To recommend measures for improved practice if appropriate.

### 26.10.3 Technical Reviews

- (a) Technical audits are carried out on at least a four-year cycle. Factors that determine the frequency include the size of NZTA's financial contribution, the complexity of each organisation's programme, network condition (pavement and safety) and the outcome of previous audits. Each approved organisation will be advised at least a month in advance of the audit commencing. The objectives of the audits are generally as follows:
  - (i) To review any issues arising from previous technical audit(s)
  - (ii) To assess whether the level and quality of roading maintenance being carried out by the Council is realistic and acceptable
  - (iii) To determine the extent to which Council's structural and corridor maintenance programme is meeting (not exceeding) maintenance needs
  - (iv) To determine the extent to which Councils RAMM database is able to provide reliable reports and treatment selections
  - (v) To determine in light of the answers to the above, that there is progress towards achieving a least cost, long term, maintenance programme

### 26.10.4 Theme Audits

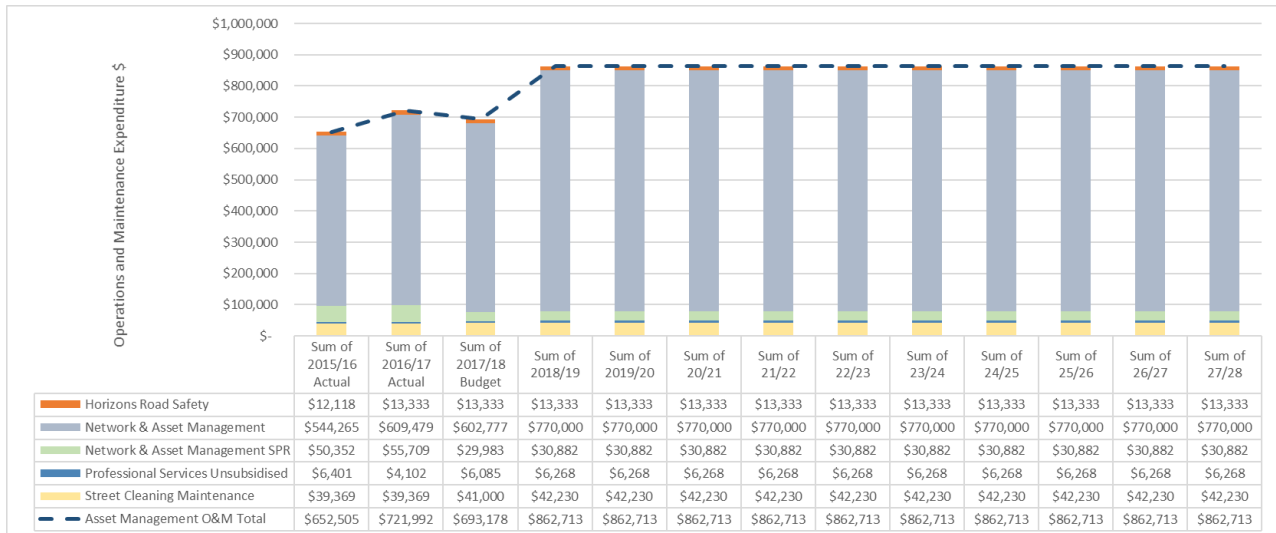
- (a) Theme Audits each address a specific topic that is common to/affects many approved organisations. The topics may vary considerably. The choice of topic is made by limited survey involving NZTA auditors as well as representatives from approved organizations.
- (b) Between 1 and 4 theme audits are carried out each year. The results are published in individual theme audit reports for the purposes of:
  - (i) Informing approved organisations about issues that have been encountered, current good practice and future direction.
  - (ii) Feeding into policy development by the NZ Transport Agency or others in the sector such as Ministry of Transport, Local Government NZ, or the RCA Forum.

## 26.11 Asset Management Expenditure

- 26.11.1 Council has identified the following programmes for 2018/19, 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:
- 26.11.2 The figure below sets out the historical actual expenditure and 2017/18 budget in actual dollars and the future draft budget figures in terms of 2018/19 base dollars.
- 26.11.3 The figure sets out the historical and projected operations and maintenance asset management practices expenditure. The predicted expenditure for the period of 2018/19 to 2027/28 is approximately \$863,000 per year.

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Figure 107 - Asset Management Practices historical and projected operations and maintenance expenditure \$



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## 27 Plan Improvement and Monitoring

### 27.1 Improvements Achieved

- 27.1.1 Council has adopted a strategic management approach to improvement planning, continually developing Asset Management plans, and implementing improvement processes and practices. This Improvement Plan is integral to that approach, quantifying current business practice and measuring progress toward an identified future position.
- 27.1.2 Council has progressively reviewed and made improvements to its asset management planning since the first AMP was prepared in 1996. This version style has changed to be consistent with other council asset management plans. Key improvements listed in the table below.

Table 89 - Key Improvement of this plan

Key Improvement Objectives	Source	Achieved
Maintenance Cost History – Maintenance cost histories are being compiled for recording in RAMM and when implemented can be used as an input to forecast renewals.	2012-2022 AMP Improvement Plan	In Process
A risk management process and corporate risk policy, framework and assessment have been developed. This is in the process of being formally adopted by Council.	2012-2022 AMP Improvement Plan	Achieved
Continue implementation of Transition plan for implementing the new One Network Road Classification (ONRC) requirements.	2012-2022 AMP Improvement Plan	Transition plan has been produced; implementation underway
<ol style="list-style-type: none"> <li>Review and implement LoS and performance targets as resulting from the ONRC programme. (Also review whether or not there was a comment on LOS improvements in previous AMP audits).</li> <li>Routinely capturing and trending performance achieved against the key levels of service targets and potentially benchmarking across other Territorial Authorities across New Zealand.</li> </ol>	2012-2022 AMP Improvement Plan	Yes  Yes
Tracking of resource consents and the conditions that they may contain.	2012-2022 AMP Improvement Plan	Yes
<p>Develop a pavement renewal strategy. There are a number of documents related to pavement renewals but the strategy is not formally recorded. Other improvements identified for pavements includes:</p> <ul style="list-style-type: none"> <li>Comparison of the renewal rate vs deterioration rate.</li> <li>Top down check on historical trends for renewal quantities, costs, network LOS KPIs such as condition, performance and backlog.</li> <li>Top down check by comparison with annual depreciation rates.</li> <li>Top down check on the total asset type ratio of depreciated replacement cost with replacement cost (from the latest asset valuation). For example, in a stable, steady state network with no renewals backlog, one may expect to have a Depreciated Replacement Cost of half that of its Replacement Cost, and the annual renewals investment to match the Annual Depreciation. If these ratios are significantly different from these then there may be a story that needs explaining.</li> </ul>	2012-2022 AMP Improvement Plan	No
RDC developed a strategy to target route consistency as funds permit (still in draft 2014), this will stay in draft pending ONRC process. The strategy has remained in draft as the ONRC standards have yet to be finalised.	2012-2022 AMP Improvement Plan	No



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Key Improvement Objectives	Source	Achieved
The condition rating data on streetlights is gathered annually by the streetlight contractor and is stored in the RAMM Contractor module. As an improvement RDC is considering using this data within RAMM to determine the remaining useful life and improve confidence in forecasted streetlight spending.	2012-2022 AMP Improvement Plan	No
Review data and asset condition collection methods and strategies considering the three end uses of the data namely: (a) Maintenance requirements (b) Renewals and Asset Management requirements (c) Asset Management Reporting requirements There is low confidence in this information, particularly for road signs. This is due to inventory data for signs in RAMM not being updated for a long time as it was not included in the maintenance contract until 2008. Hence there is a gap in data which is currently not addressed through the network contract. RDC tend not to have a 1-5 condition scale for most of the assets, although it is not necessarily required or a cost effective asset management requirement. Also review the effectiveness of the current 10% audit and whether or not a full pavement condition survey may be required at intervals (eg. every 5 years). Or to supplement current 10% audit with high speed data collection method.	2012-2022 AMP Improvement Plan	Partially
Develop a strategy to develop recreational cycleways and walkways for the region. Funding available through Horizon.	2012-2022 AMP Improvement Plan	No
Produce a specific Asset Management Plan for the entire trail from Mt Ruapehu to The North Mole at Whanganui, this will include Ruapehu and Whanganui District councils and Department of conservation.	2012-2022 AMP Improvement Plan	No
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.	2012-2022 AMP Improvement Plan	Yes - Ongoing
Develop a maintenance and renewals plan for Facility Roads and Carparks.	2012-2022 AMP Improvement Plan	No
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.	2012-2022 AMP Improvement Plan	No
Move the improvement programme into an excel data base and actively manage the improvement initiatives noted in this plan over the next three years. Establish an Asset Management Steering Team and meet six monthly to review progress against improvement plan.	2012-2022 AMP Improvement Plan	No

\*\* Project to be completed with other stakeholders

### 27.2 Improvement Programme

- 27.2.1 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 intended that the development of this plan is part of an ongoing process and that the document will be reviewed and updated regularly. This review process involves using improved knowledge of customer expectations (community consultation) and information from Asset Management Systems and databases. This will enable Council to optimise decision-making, review outputs, develop strategies, improve risk management and extend the planning horizon.
- 27.2.2 The purpose of the Improvement Programmes is to:
- Identify and prioritise ways to cost-effectively improve the quality of the AMP, and therefore decision making and service delivery.

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- (b) Identify indicative time-scales, priorities, human and financial resources required to achieve Asset Management planning objectives.

27.2.3 The detailed Improvement Programme is attached in Appendix C. The table below provides a list of projects and their priority.

**Table 90 – Improvement Projects and Priority**

Project Number	Improvement Project	Priority
3.5.2	Changing Land Use – Impact of Forestry	H
5.3	Delivering the Programme – RAMM Data Quality	H
6.1	ONRC Transition Plan Project IP1501	H
10.8	Future Levels of Service Improvement Project IP1502	M
13.11.1	Resource consent tracking Project IP1503	M
14.8	Managing Risk	M
16.3.3	Pavement Management Strategy and renewals business case improvements Project IP1506	M
19.4.3 (g)	Data and Condition Collection Strategy and Improvements Project IP1510	L
19.6.2 (b)	SL Asset Condition Project IP1509	L
19.2.1 19.3.5	Curve warning signs and delineation strategy Project IP1508	M
20.3.5	Footpath Strategy Project IP1511	L
21.3.1	Cycleway Standard	H
21.3.5	Cycleway Asset Management Plan	M
22.2.1	Bus shelter Needs	L
23.3.5	Facility Roads and Carparks Maintenance and Renewals Plan	M
25.5, 25.9.9	Business Continuity Plan	M
26.2	Improvement Programmes Datasheet	H

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## 28 Financial Summary

### 28.1 Overview

28.1.1 Asset management planning translates the physical aspects of planned operational, maintenance, renewal and development works into financial terms.

28.1.2 The assets groups and activities that provide the delivery of service and which require operational, maintenance, renewal and new/ improvement works expenditures are summarised as follows for 2018/19:

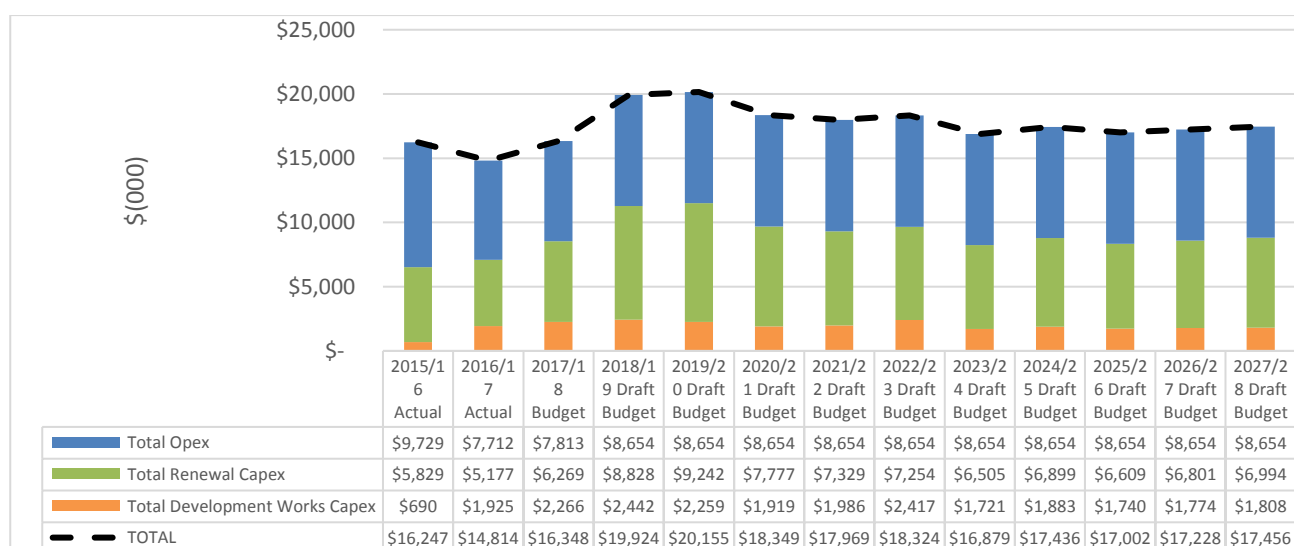
Table 91 – 2018/19 Draft Budget per asset group/activity and expenditure type

Assets group/ activities	O&M budget 2018/2019	Capex Renewal budget 2018/19	Capex new/ improvement works 2018/19	Total budget 2018/19
Asset Management Practices	\$862,713			\$862,713
Bus Shelters		\$11,348		\$11,348
Cycleway	\$51,500			\$51,500
Drainage	\$614,842	\$405,719	\$116,985	\$1,137,547
Facility Roads and Carparks	\$10,299	\$19,290	\$3,404	\$32,993
Footpaths	\$132,587	\$192,899	\$29,501	\$354,987
Pavements	\$1,675,743	\$6,147,685	\$1,872,397	\$9,695,825
Structures	\$133,567	\$1,656,174	\$292,266	\$2,082,007
Traffic services	\$925,642	\$395,370	\$127,309	\$1,448,321
Environmental Services and Emergency Works	\$4,246,712			\$4,246,712
<b>Total</b>	<b>\$8,653,604</b>	<b>\$8,828,485</b>	<b>\$2,441,863</b>	<b>\$19,923,952</b>

28.1.3 The 10 year Forecast Funding Impact Statement can be found in Appendix B.

28.1.4 The following figure provides the overall actual (2015/16 and 2016/17), approved budget (2017/18) and draft proposed budget (2018/19 to 2027/28) for operations and maintenance, capital expenditure and combined for the land transport activity. The historical actual expenditure and 2017/18 budget is in actual dollars and the future draft budget figures in terms of 2018/19 base dollars.

Figure 108 - Overall Actual and Budget expenditure for all asset groups and all expenditure types 2009/10 to 2024/25



28.1.5 Changes that are made as a result of the consultation process will be documented in Appendix A.

28.1.6 The management and maintenance of the roading network is funded from the roading rate collected by Council and financial assistance received from NZTA from dedicated transport funding.

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28.1.7 There are also different criteria for different categories of road. The road categories and criteria are:

Table 92 – NZTA Subsidy Rates criteria

Road Category	Work Type	Current	From 2018/19 onwards
Local Road	Maintenance and Renewals	Subsidised at base rates	Subsidised at base rates
	Capital	Subsidised at base rate	Subsidised at base rates
Special Purpose Roads (SPR)	Maintenance and Renewals	Subsidised at 100%	Subsidised at 100% for 18-21, transitioning to 72% by 23/24.

28.1.8 The roads Ruapehu District Council is responsible for all Local Roads and Ohakune Mountain Road which is a special purpose road.

28.1.9 The following table shows the subsidy rates for 2018/19 onwards:

Table 93 – NZTA Subsidy Rates

Year	Local Roads & Emergency Works Base Rate		Special Purpose Roads		Emergency Works Elevated Rate	
	Current at time of writing	AMP Modelling	Current at time of writing	AMP Modelling	Current at time of writing	AMP Modelling
2018/19	67%	67%	100%	100%	87%	92%
2019/20	68%	72%	100%	100%	88%	92%
2020/21	69%	72%	100%	100%	89%	92%
2021/22	70%	72%		90.67%*	90%	92%
2022/23	71%	72%		76.67%*	91%	92%
2023/24	72%	72%	72%	72%	92%	92%

\*Assumed FAR levels as FAR levels have not been advised at time of writing this document.

28.1.10 The unsubsidised component of the roading programme is funded from rates and or debt, as per the Revenue and Finance policy. Rates funding for roading is received from the District Land Transport Rate Capital Value, development contributions and targeted rates.

28.1.11 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). Council is required by Schedule 1 Clause 4 of the LTMA to describe in its Land Transport Programme (LTP) what the objectives are for each project and how it contributes to the purpose of the LTMA.

## 28.2 Operations and Maintenance Programme

28.2.1 The main focus of the operations and 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 since the pavements were constructed. Standards are set and monitored by NZTA from which the level of subsidy is determined.

28.2.2 The RAMM system contains a treatment selection programme 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 programme are utilised at a network level in developing maintenance and renewal strategies and also at an individual project level to identify specific sections of road to undergo resealing or rehabilitation.

28.2.3 All proposed treatments are verified in the field to ensure they are the most suitable and cost-effective treatment for the specific section of road.

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## 28.2.4 Operations and Maintenance Forecasts

- (a) Anticipated operational and maintenance works required to ensure delivery of the defined levels of service over the next 10 years include:
  - (i) Improve the asset management systems and use this knowledge to improve asset condition data.
  - (ii) Ensure a review of each asset’s operational and maintenance requirements on a cyclical basis.

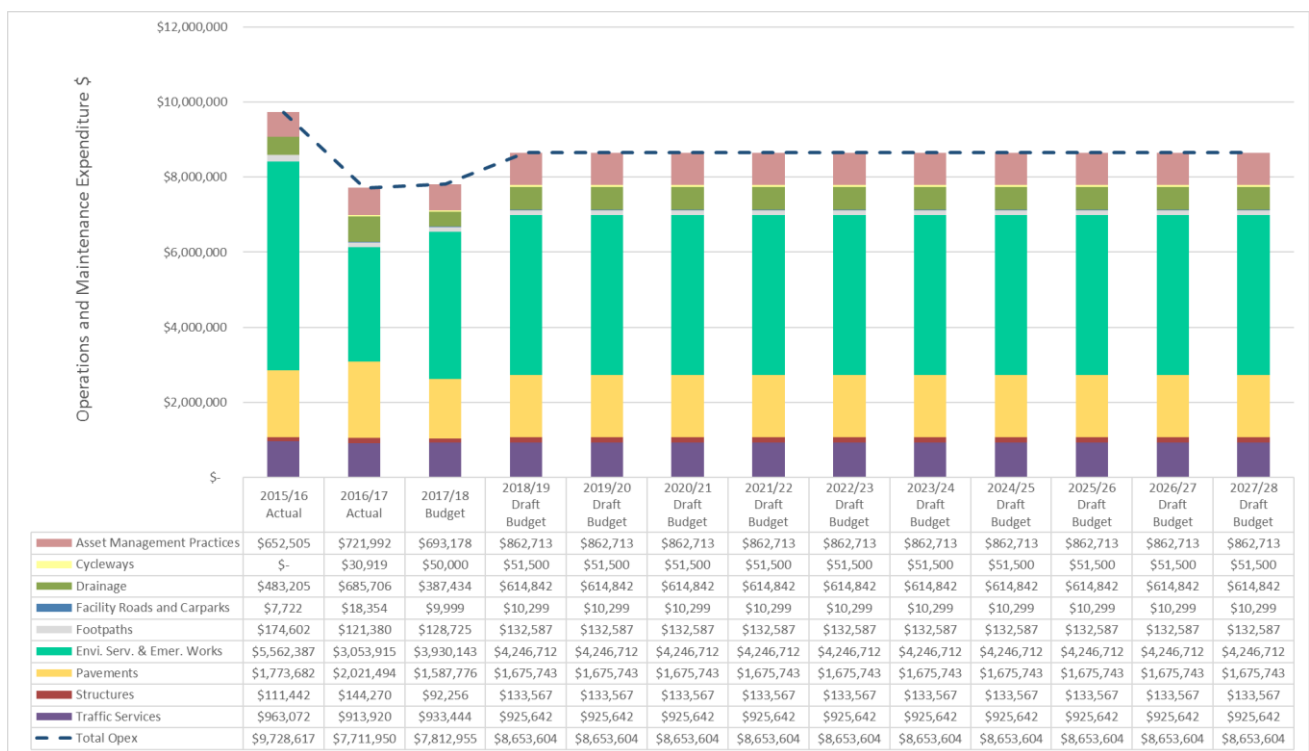
## 28.2.5 Maintenance Deferrals

- (a) Maintenance deferrals are detailed in the Life Cycle Management sections.

## 28.2.6 Financial Summary

- (a) 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 109 - Combined historical and projected operations and maintenance expenditure for all asset groups \$



## 28.3 Capital and Renewal Planning

### 28.3.1 Renewal Works

- (a) Renewal expenditure is work that restores an existing asset to its original level of service, ie, capacity or the required condition. These broadly fit into the following work categories as follows:
  - (i) Rehabilitation - Involves the repair of an existing asset, or asset component. Rehabilitation does not provide for a planned increase in the operating capacity or design loading. It is intended to enable the assets to continue to be operated to meet the current levels of service.
  - (ii) Replacement - Some minor increase in capacity may result from the process of replacement, but a substantial improvement is needed before asset development is considered to have occurred. Replacement does not provide for a planned increase to the operating capacity or design loading. An example would be replacing a 600mm diameter culvert that is cracked with a new 600mm culvert.

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## 28.3.2 Renewal Strategy

- (a) Renewal strategies provide for the progressive replacement or rehabilitation of individual assets that have reached the end of their useful life. This is managed at a rate that maintains the standard and value of the assets as a whole. This programme must be maintained at adequate levels to maintain current levels of service and the overall quality of assets.
- (b) Failure to maintain an adequate cyclic replacement programme will be reflected in a decline in the overall standard of the network of assets.
- (c) Where the actual programme falls below the cumulative budget target, the shortfall will be reflected in depreciation of the overall value of the network, resulting in a lower LOS and the need for reactive maintenance.
- (d) The general strategy is to rehabilitate or replace assets when justified by one of the following areas:

Table 94 – Renewal General Strategy

Item	Description
Risk	The risk of failure and associated environmental, public health, financial or social impact justifies proactive action. Where such assets are identified (critical assets), proactive inspection is undertaken to determine asset condition at a frequency appropriate to the risk and rate of asset decay.
Asset Performance	An asset is renewed where it fails to meet the required LOS. 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
Economics	When it is no longer economic to continue repairing the asset (i.e. the annual cost of repairs exceeds the annualised cost of its renewal). An economic consideration is the co-ordination of renewal works with other planned works such as road reconstruction.
Efficiency	<ul style="list-style-type: none"> <li>(a) New technology and management practices relating to increased efficiencies and savings will be actively researched, evaluated and, where applicable, implemented.</li> <li>(b) Capital replacement needs 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. Capital works will be prioritised and programmed in accordance with the following criteria, or in urgent cases undertaken immediately due to: <ul style="list-style-type: none"> <li>(i) Public safety risk.</li> <li>(ii) Criticality of assets to network operation.</li> <li>(iii) Criticality of assets to achievement of service standards and community outcomes.</li> <li>(iv) Financial risk of deferring work.</li> <li>(v) Intensity of usage.</li> <li>(vi) Environmental risk.</li> <li>(vii) Cost and the ability to gain subsidies.</li> <li>(viii) Political preference.</li> </ul> </li> </ul>
Lifecycle	<ul style="list-style-type: none"> <li>(a) The current lifecycle expectations for the Transport assets are outlined later in this section under 'Asset Valuation'.</li> <li>(b) Capital works identified in accordance with the capital work 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. When capital 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 capital works may not impact significantly on the short-term operation of assets, repeated deferrals will create a liability in the longer term.</li> </ul>
Renewal Works Summary	<ul style="list-style-type: none"> <li>(a) Replacement assets are identified through analysis of the Transport Asset Register (RAMM) which takes into account factors such as age, condition and performance. Transport engineers then make an assessment of the analysis data and prioritise a replacement programme taking into account risk and criticality.</li> <li>(b) Assets are renewed when it is determined to be more cost effective in the long term to replace rather than continue to maintain them. Longer term asset renewal needs are identified through analysis of condition assessments. More detailed,</li> </ul>

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Item	Description
	shorter term prioritised programmes are developed with reference to condition assessments and site inspection information. (c) The replacement (renewal) programme and expenditure projections for 2018/19 – 2027/28 are summarised later in this section.
Deferrals	(a) Replacement works identified may be deferred if the cost is beyond the community'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 rating base exists. (b) When replacement works are deferred, the impact of the deferral on economic inefficiencies and the system's ability to achieve the required levels of service will be assessed. Although the deferral of some replacement works may not impact significantly on short-term operation of assets, repeated deferral will create a liability in the longer term. (c) It is believed that the deferred replacements in this AMP will not significantly lower service levels over the term of this plan. However, repeated deferral may create a greater requirement in terms of maintenance funding to retain levels of service. (d) Renewal Maintenance deferrals are detailed in the Life Cycle Management sections. (e) The financial projections for 2018/19- 2027/28 are summarised below.

### 28.3.3 New Works

- (a) New works are the creation of new assets or works, which upgrade or improve an existing asset beyond its existing capacity or performance in response to changes in usage or customer expectations.

### 28.3.4 Disposals

- (a) As part of the whole life cycle management of assets, it is vital to consider the costs of asset disposal in the long term financial forecasts for an asset. The cost of asset disposal is expected to be incorporated within the capital cost of new works, or asset renewals.
- (b) Disposal is the retirement or sale of assets whether surplus or superseded by new or improved systems. Assets may become surplus to requirements for any of the following reasons:
- (i) Under-utilisation.
  - (ii) Obsolescence.
  - (iii) Provision exceeds required level of service.
  - (iv) Assets replaced before their predicted economic life.
  - (v) Uneconomic to upgrade or operate.
  - (vi) Policy changes.
  - (vii) Service provided by other means (eg, private sector involvement).
  - (viii) Potential risk of ownership (financial, environmental, legal, social).

### 28.3.5 Financial Summary

- (a) The figure below provides a summary of the capital (renewal and new works) actual and budget forecasts per asset group as discussed in the previous sections.

# Part 3 – Land Transport Activity

Figure 110 - Combined historical and projected capital renewal expenditure for all asset groups \$

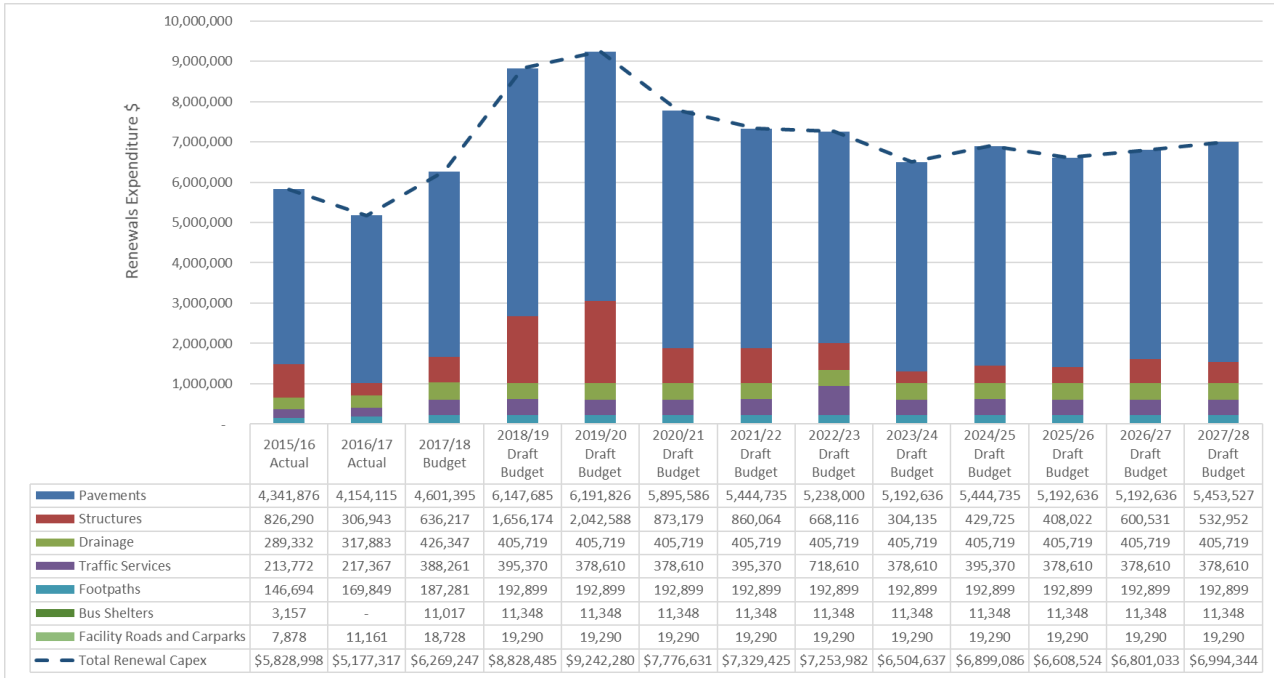
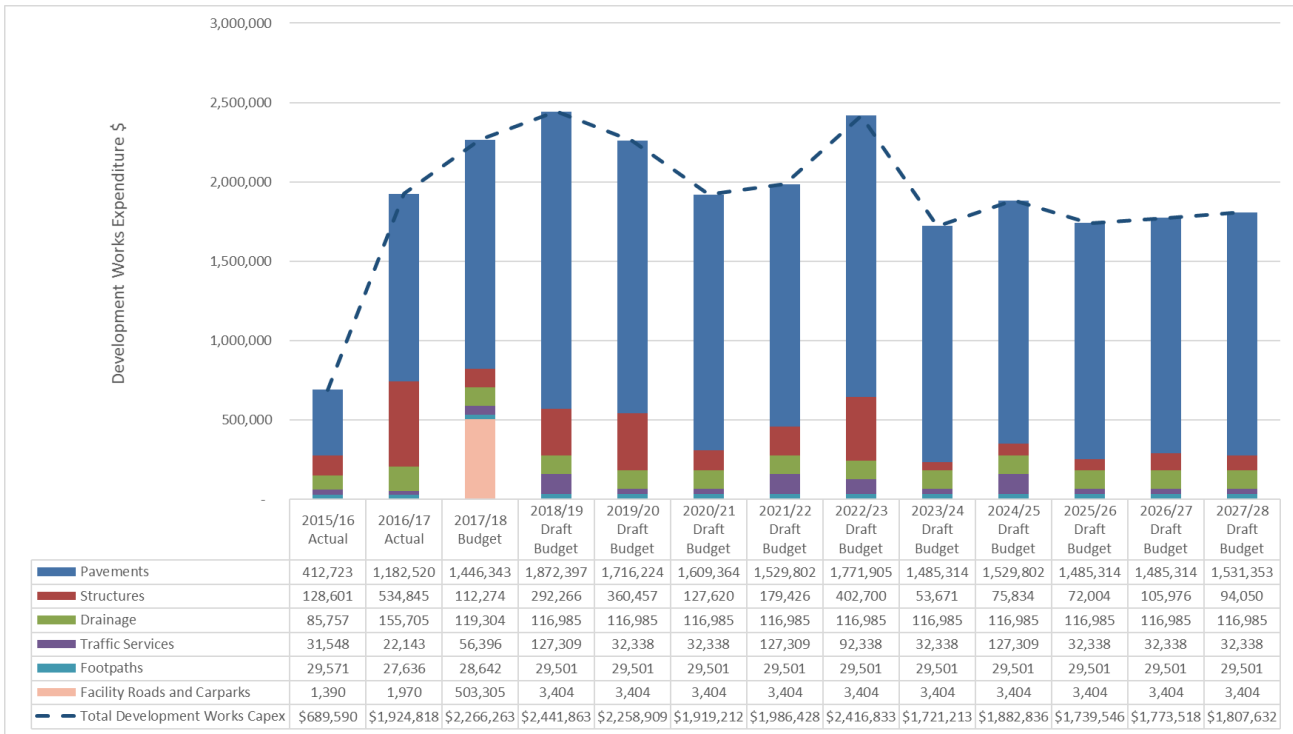


Figure 111: Combined historical and projected capital development works expenditure for all asset groups \$



## 28.4 Development Contributions

- 28.4.1 There are growth driven projects in the Land Transport Activity projects over the next 10 years, therefore development contributions will be received.
- 28.4.2 The procedure for setting Development Contributions is outlined in the Development Contribution Policy. It has been reviewed and adopted for the 2018/28 LTP.
- 28.4.3 The value of the Land Transport DC is shown in the Policy.



# Part 3 – Land Transport Activity

## 28.5 Asset Valuation

### 28.5.1 Introduction

- (a) 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. 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.

### 28.5.2 Accounting Standards

- (a) The transportation asset revaluation 2017 has been 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.

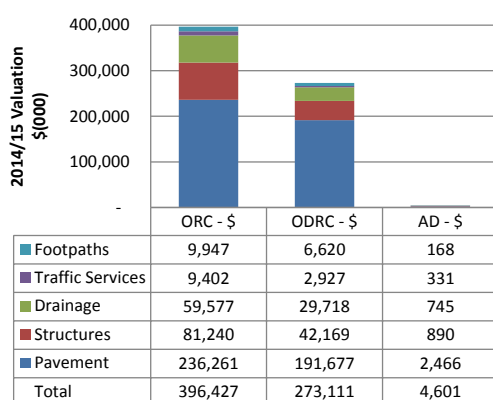
### 28.5.3 Valuation Terminology

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.
Optimised Replacement cost (ORC)	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.
Optimised Depreciation Replacement Cost (ODRC)	The optimised 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).
Annual Depreciation (AD)	Annual depreciation is the rate of depreciation per year and is the optimised replacement cost divided by the estimated useful life.

### 28.5.4 Valuation 2016/2017

- (a) The transport assets have been valued by GHD for Ruapehu District Council. The most recent valuation of Council's transport assets occurred in 2017. The graph shows the 2017 Gross Replacement Cost (GRC), Optimised Depreciated Replacement Cost (ODRC), and the Annual Depreciation (AD) per asset group.

Figure 112: 2016/17 Valuation per asset group



### 28.5.5 Valuation Methodology

- (a) The assets have been valued based on the Optimised Depreciated Replacement Cost (ODRC) approach for depreciable assets as outlined in the New Zealand Infrastructure Asset Valuation and Depreciation Guidelines. Valuation methodology is outlined below:

## Part 3 – Land Transport Activity

- (b) 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.
- (c) 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.
- (d) 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.
- (e) 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.
- (f) Valuation Tool: RAMM Valuation Module was used to carry out the valuation.
- (g) Deriving Asset Values: Optimised Depreciated Replacement Cost (ODRC) and Annual Depreciation were calculated based on the formulae:

$$\text{ODRC} = \text{Optimised Replacement Cost} \times \frac{\text{Remaining Useful Life (RUL)}}{\text{Remaining Useful Life} + \text{Age}}$$

$$\text{AD} = \text{Annual Depreciation} = \frac{\text{Optimised Replacement Cost}}{\text{Remaining Useful Life} + \text{Age}}$$

- (h) Optimisation: No opportunities for any optimisation were identified during 2017 valuation for any assets listed. The default optimisation rate has been set at 100%.

### 28.5.6 Useful Lives

- (a) The base lives used in the valuation are based on previous valuations and are within the ranges specified in the NZ Infrastructure Valuation and Depreciation Guidelines.
- (b) Remaining Useful Lives (RUL) was calculated based on asset installation date.  
RUL = Remaining Useful Life = Asset Base Life – Asset Ages as at valuation date
- (c) A condition and performance based RUL calculation has not been used for this valuation as condition and performance data availability is low.
- (d) These are the Average Useful Lives used in 2017 valuation.

Table 95 - Average useful lives

Asset Type	Asset Component	Average Useful Life (Yrs)
Road Corridor	Formation	100
	Subbase	100
	Basecourse	100
	Road Surface	15
Bridges	Bridge Deck	70 - 100
	Bridge Culvert	70 - 100
Crossing		75
Drainage	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
Footpath		5-80 <small>Note 1</small>
Island		75
Marking		1
Railing		30-50
Retaining Wall		50-100

# Part 3 – Land Transport Activity

Asset Type	Asset Component	Average Useful Life (Yrs)
Sign		9-10
Street Light	Bracket	25
	Light	20
	Pole	25
Traffic Facility		15

Note 1: Based on material type, Metal footpaths AUL=5 years

## 28.5.7 Valuation Assumptions

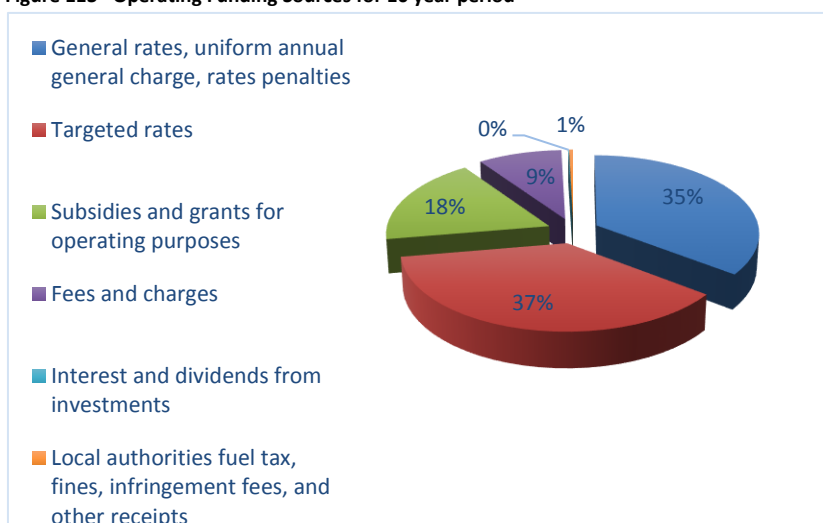
- (a) Assumptions made in compiling the 2017 asset valuations are:
- The confidence and accuracy level of the asset register is sufficient to carry out the valuation and there are no issues that materially affect the total valuation.
  - The component level of the data used for the valuation was sufficient 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 2017 revaluation and it was assumed there is no significant change to 2014 value.

## 28.6 Revenue and Financing Policy

### 28.6.1 Introduction

- (a) 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.
- (b) Community outcomes are discussed in Section 9.4 Strategic Goals.
- (c) The Revenue and Financing Policy has been reviewed for the 2018-28 LTP.
- (d) Given the funding policy, the estimated funding source allocation for this ten-year planning period is presented in the graphs below. The development contributions received each year will not necessarily match development expenditure. Further, actual funding proportions will vary annually, reflecting the variations in expenditure.

Figure 113– Operating Funding Sources for 10 year period

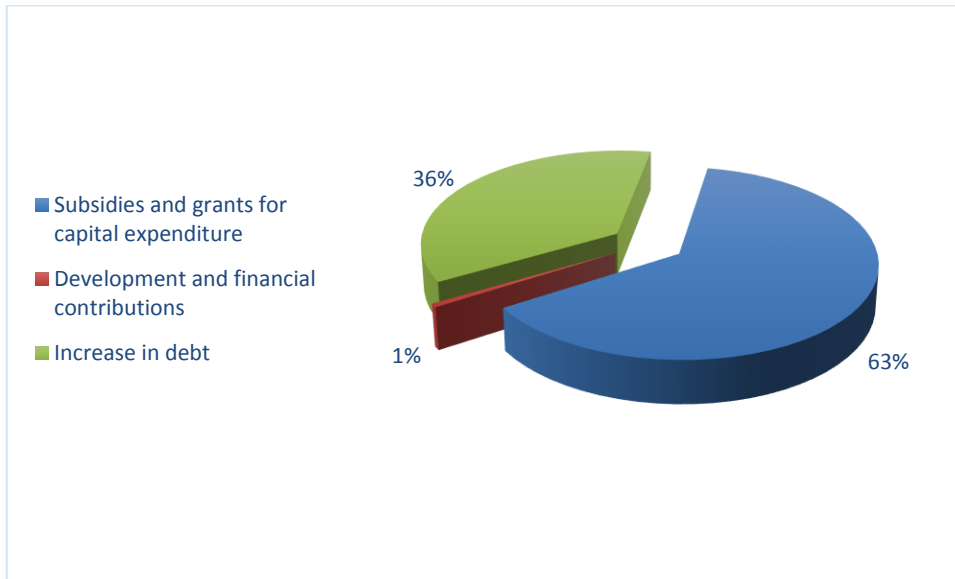


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# Part 3 – Land Transport Activity

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Figure 114– Capital Funding Sources for 10 year period



## 28.6.2 Future Improvements

- (a) The improvements summarised throughout this plan will contribute to making the financial forecasts more robust.

**Land Transport**  
**Asset Management Plan 2018-28**

**Part 4 - Appendices**

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# Part 4 - Appendices

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# Part 4 - Appendices

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## Appendix A – Revisions to Asset Management Plan

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### **A1 Summary of 2018 Long Term Plan Process**

- A1.1 The AMPs are developed with prudence in mind, but must follow best practice and current ideas on the life of assets. Council finds that in practice the life of assets is very hard to predict and has spent some effort collecting and analysing its data on infrastructure. This future cost components is a mix of uncertainty around renewal types, timeframes and appropriate technologies and, therefore, a healthy tension 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.
- A1.2 The body of the AMP contains material and forecasts submitted to NZ Transport Agency as at 16 December 2017. The financial forecasts are summarised in Appendix B.
- A1.3 The external NZTA deadline occurred prior to the completion of the LTP workshops and the Long Term Plan being released for consultation.
- A1.4 Any changes made in these workshops or to the AMP will be detailed in Appendix A. The Appendix is reflective of the decisions Council has made after the workshops on Asset Management Planning, Council Policies and Strategies.
- A1.5 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.
- A1.6 The LTP sets out what Council is going to do and how it is going to pay for it in meeting the purpose of the Local Government Act 2002.
- A1.7 The draft Infrastructure Strategy 2018-2048 provides an overview of the infrastructural management over the next ten years with predictions for the next 30 years.
- A1.8 There are a significant number of drivers to increase the LOS signalled by legislative frameworks. This in turn drives some renewal works which are associated with LoS. Government has also released clear signals that Council must reduce debt and ensure rates are set at affordable levels. The two requirements set the opposite ends of a spectrum.
- A1.9 The LTP and Infrastructure Strategy documents are reviewed 3 yearly. IN between these reviews, Council conducts an Annual Plan 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 around 30 June annually.
- A1.10 Changes made from the review process will be shown in Appendix A.

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# Part 4 - Appendices

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## **A2 Changes from 16 December 2018**

### **A2.1 NZTA Indicative Funding**

- (a) On 1 May 2018, NZTA advised Council of the indicative funding levels for the maintenance and renewal budgets applications for 2018 – 2021. NZTA also advised that the investment assistance rate would be set at 72% for local roads from 2018/19 onwards. The indicative budget approvals will be finalised by NZTA in August 2018.

### **A2.2 National Park – Park and Ride**

- (a) The National Park Park and Ride project has been transferred in to the Land Transport Asset Management Plan from Recreation and Community Facilities AMP.
- (b) The project is to construct a 227 car park facility at National Park for a park and ride service. The facility will include a bus shelter with a pull off area for three buses. It will also include a shower, toilet, dump station and cloth washing facility.
- (c) Partial funding has been obtained from Ministry of Business and Innovation’s Tourism Infrastructure Fund.
- (d) The project is 100% growth driven. It is in Year 2 of the budgets shown in Appendix A. The budget is for the local share. As the project is a tourism driven project it has not been identified in the list of 10 year list of capital projects identified in the Development Contributions Policy. Table 1, Step 3 in the Policy states *“All of the allocation of capital expenditure to growth will be funded by DCs unless...Council chooses for other policy reasons to modify the amounts to be collected through DCs, eg, encouraging investment and economic development.”* Council has decided that this project is to help with Tourism Transport and does not in effect have an overall increase in demand on infrastructure, as the purpose of the project is to divert existing traffic from the mountain.



# Part 4 - Appendices

## A3 Final Budgets as at 30 June 2018

### A3.1 Maintenance and Operations Budget

A3.1.1 The table below contains the budgeted maintenance and operational expenditure for the next 10 years (2018/19 – 2027/28).

Description	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
<b>Emergency Work -Emergency Reinstatement</b>	<b>380,987</b>	<b>390,079</b>	<b>381,834</b>	<b>381,265</b>	<b>369,402</b>	<b>368,974</b>	<b>371,929</b>	<b>371,419</b>	<b>375,948</b>	<b>374,358</b>
Consultants Expenses	257,405	257,405	257,405	257,405	257,405	257,405	257,405	257,405	257,405	257,405
Metal	304,206	304,206	304,206	304,206	304,206	304,206	304,206	304,206	304,206	304,206
NZTA Subsidy- Operations	-1,909,059	-1,899,967	-1,908,212	-1,908,781	-1,920,644	-1,921,072	-1,918,117	-1,918,627	-1,914,098	-1,915,688
Roading Maintenance	1,728,435	1,728,435	1,728,435	1,728,435	1,728,435	1,728,435	1,728,435	1,728,435	1,728,435	1,728,435
<b>Kerb &amp; Channel - District</b>	<b>61,057</b>	<b>61,057</b>	<b>61,057</b>	<b>61,057</b>	<b>61,057</b>	<b>61,057</b>	<b>61,057</b>	<b>61,057</b>	<b>61,057</b>	<b>61,057</b>
Mainstreet Contract (from P&R)	61,057	61,057	61,057	61,057	61,057	61,057	61,057	61,057	61,057	61,057
<b>Local Roads - Level Crossing Devices</b>	<b>16,760</b>	<b>16,760</b>	<b>16,760</b>	<b>16,760</b>	<b>16,760</b>	<b>16,760</b>	<b>16,760</b>	<b>16,760</b>	<b>16,760</b>	<b>16,760</b>
Roading Maintenance	16,760	16,760	16,760	16,760	16,760	16,760	16,760	16,760	16,760	16,760
<b>Local Roads - Minor Events</b>	<b>720,000</b>	<b>720,000</b>	<b>720,000</b>	<b>720,000</b>	<b>720,000</b>	<b>720,000</b>	<b>720,000</b>	<b>720,000</b>	<b>720,000</b>	<b>720,000</b>
Consultants Expenses	0	0	0	0	0	0	0	0	0	0
Metal	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Roading Maintenance	700,000	700,000	700,000	700,000	700,000	700,000	700,000	700,000	700,000	700,000
<b>Local Roads - Network &amp; Asset Management</b>	<b>660,242</b>	<b>660,242</b>	<b>660,242</b>	<b>660,242</b>	<b>660,242</b>	<b>660,242</b>	<b>660,242</b>	<b>660,242</b>	<b>660,242</b>	<b>660,242</b>
Petrol Tax Received	-136,000	-136,000	-136,000	-136,000	-136,000	-136,000	-136,000	-136,000	-136,000	-136,000
Consultants Expenses	720,410	720,410	720,410	720,410	720,410	720,410	720,410	720,410	720,410	720,410
Legal Fees	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Miscellaneous Expenses	54,122	54,122	54,122	54,122	54,122	54,122	54,122	54,122	54,122	54,122
Refreshments	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Software Charges	17,710	17,710	17,710	17,710	17,710	17,710	17,710	17,710	17,710	17,710

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Description	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
<b>Local Roads - Pavement Mtce Sealed</b>	<b>-2,833,547</b>	<b>-2,833,547</b>	<b>-2,833,547</b>	<b>-2,833,547</b>	<b>-2,833,547</b>	<b>-2,833,547</b>	<b>-2,833,547</b>	<b>-2,833,547</b>	<b>-2,833,547</b>	<b>-2,833,547</b>
NZTA Subsidy- Operations	-3,798,547	-3,798,547	-3,798,547	-3,798,547	-3,798,547	-3,798,547	-3,798,547	-3,798,547	-3,798,547	-3,798,547
Roading Maintenance	965,000	965,000	965,000	965,000	965,000	965,000	965,000	965,000	965,000	965,000
<b>Local Roads - Pavement Mtce Unsealed</b>	<b>604,000</b>	<b>604,000</b>	<b>604,000</b>	<b>604,000</b>	<b>604,000</b>	<b>604,000</b>	<b>604,000</b>	<b>604,000</b>	<b>604,000</b>	<b>604,000</b>
Roading Maintenance	604,000	604,000	604,000	604,000	604,000	604,000	604,000	604,000	604,000	604,000
<b>Local Roads - Routine Drainage Mtce</b>	<b>582,770</b>	<b>582,770</b>	<b>582,770</b>	<b>582,770</b>	<b>582,770</b>	<b>582,770</b>	<b>582,770</b>	<b>582,770</b>	<b>582,770</b>	<b>582,770</b>
Roading Maintenance	582,770	582,770	582,770	582,770	582,770	582,770	582,770	582,770	582,770	582,770
<b>Local Roads - Structures Mtce</b>	<b>130,000</b>	<b>130,000</b>	<b>130,000</b>	<b>130,000</b>	<b>130,000</b>	<b>130,000</b>	<b>130,000</b>	<b>130,000</b>	<b>130,000</b>	<b>130,000</b>
Roading Maintenance	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000
<b>Local Roads -Environmental (Vegetation) Maint</b>	<b>857,000</b>	<b>857,000</b>	<b>857,000</b>	<b>857,000</b>	<b>857,000</b>	<b>857,000</b>	<b>857,000</b>	<b>857,000</b>	<b>857,000</b>	<b>857,000</b>
Roading Maintenance	857,000	857,000	857,000	857,000	857,000	857,000	857,000	857,000	857,000	857,000
<b>Local Roads -Street Cleaning</b>	<b>42,230</b>	<b>42,230</b>	<b>42,230</b>	<b>42,230</b>	<b>42,230</b>	<b>42,230</b>	<b>42,230</b>	<b>42,230</b>	<b>42,230</b>	<b>42,230</b>
Roading Maintenance	42,230	42,230	42,230	42,230	42,230	42,230	42,230	42,230	42,230	42,230
<b>Local Roads -Traffic Services Maint</b>	<b>659,280</b>	<b>659,280</b>	<b>659,280</b>	<b>659,280</b>	<b>659,280</b>	<b>659,280</b>	<b>659,280</b>	<b>659,280</b>	<b>659,280</b>	<b>659,280</b>
Highway Streetlights	74,000	74,000	74,000	74,000	74,000	74,000	74,000	74,000	74,000	74,000
Power	252,600	252,600	252,600	252,600	252,600	252,600	252,600	252,600	252,600	252,600
Signs & Markings	204,980	204,980	204,980	204,980	204,980	204,980	204,980	204,980	204,980	204,980
Streetlights	127,700	127,700	127,700	127,700	127,700	127,700	127,700	127,700	127,700	127,700
<b>Non-Subsidised - Cross &amp; Shelters</b>	<b>1,500</b>	<b>1,500</b>	<b>1,500</b>	<b>1,500</b>	<b>1,500</b>	<b>1,500</b>	<b>1,500</b>	<b>1,500</b>	<b>1,500</b>	<b>1,500</b>
Roading Maintenance	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
<b>Non-Subsidised - Cycleway Maintenance</b>	<b>51,500</b>	<b>51,500</b>	<b>51,500</b>	<b>51,500</b>	<b>51,500</b>	<b>51,500</b>	<b>51,500</b>	<b>51,500</b>	<b>51,500</b>	<b>51,500</b>
Roading Maintenance	51,500	51,500	51,500	51,500	51,500	51,500	51,500	51,500	51,500	51,500
<b>Non-Subsidised - Facility Parking</b>	<b>10,299</b>	<b>10,299</b>	<b>10,299</b>	<b>10,299</b>	<b>10,299</b>	<b>10,299</b>	<b>10,299</b>	<b>10,299</b>	<b>10,299</b>	<b>10,299</b>
Roading Maintenance	10,299	10,299	10,299	10,299	10,299	10,299	10,299	10,299	10,299	10,299
<b>Non-Subsidised - Miscellaneous</b>	<b>-124,077</b>	<b>-124,077</b>	<b>-124,077</b>	<b>-124,077</b>	<b>-124,077</b>	<b>-124,077</b>	<b>-124,077</b>	<b>-124,077</b>	<b>-124,077</b>	<b>-124,077</b>
User Charges & Fees	-26,300	-26,300	-26,300	-26,300	-26,300	-26,300	-26,300	-26,300	-26,300	-26,300

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Description	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Roading Maintenance	2,223	2,223	2,223	2,223	2,223	2,223	2,223	2,223	2,223	2,223
Streetlight Cost Recovery NZTA	-100,000	-100,000	-100,000	-100,000	-100,000	-100,000	-100,000	-100,000	-100,000	-100,000
<b>Non-Subsidised - Network &amp; Asset Management</b>	<b>6,223</b>	<b>6,223</b>	<b>6,223</b>	<b>6,223</b>	<b>6,223</b>	<b>6,223</b>	<b>6,223</b>	<b>6,223</b>	<b>6,223</b>	<b>6,223</b>
Consultants Expenses	3,723	3,723	3,723	3,723	3,723	3,723	3,723	3,723	3,723	3,723
Legal Fees	0	0	0	0	0	0	0	0	0	0
Refreshments	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Roading Maintenance	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
<b>Non-Subsidised - Plant Pest Control</b>	<b>54,620</b>	<b>54,620</b>	<b>54,620</b>	<b>54,620</b>	<b>54,620</b>	<b>54,620</b>	<b>54,620</b>	<b>54,620</b>	<b>54,620</b>	<b>54,620</b>
Consultants Expenses	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Roading Maintenance	53,620	53,620	53,620	53,620	53,620	53,620	53,620	53,620	53,620	53,620
<b>Non-Subsidised - Under Verandah Lighting</b>	<b>13,323</b>	<b>13,323</b>	<b>13,323</b>	<b>13,323</b>	<b>13,323</b>	<b>13,323</b>	<b>13,323</b>	<b>13,323</b>	<b>13,323</b>	<b>13,323</b>
Roading Maintenance	13,323	13,323	13,323	13,323	13,323	13,323	13,323	13,323	13,323	13,323
<b>Pedestrian - District</b>	<b>132,587</b>	<b>132,587</b>	<b>132,587</b>	<b>132,587</b>	<b>132,587</b>	<b>132,587</b>	<b>132,587</b>	<b>132,587</b>	<b>132,587</b>	<b>132,587</b>
Consultants Expenses	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Mainstreet Contract (from P&R)	66,611	66,611	66,611	66,611	66,611	66,611	66,611	66,611	66,611	66,611
Roading Maintenance	60,976	60,976	60,976	60,976	60,976	60,976	60,976	60,976	60,976	60,976
<b>Special Purpose Roads - Network &amp; Asset Management</b>	<b>30,882</b>	<b>30,882</b>	<b>30,882</b>	<b>30,882</b>	<b>30,882</b>	<b>30,882</b>	<b>30,882</b>	<b>30,882</b>	<b>30,882</b>	<b>30,882</b>
Consultants Expenses	30,882	30,882	30,882	30,882	30,882	30,882	30,882	30,882	30,882	30,882
<b>Special Purpose Roads - Pave Mtce Sealed</b>	<b>-359,882</b>	<b>-359,882</b>	<b>-359,882</b>	<b>-229,850</b>	<b>-229,850</b>	<b>-229,850</b>	<b>-229,850</b>	<b>-229,850</b>	<b>-229,850</b>	<b>-229,850</b>
NZTA Subsidy- Operations	-464,402	-464,402	-464,402	-334,370	-334,370	-334,370	-334,370	-334,370	-334,370	-334,370
Roading Maintenance	104,520	104,520	104,520	104,520	104,520	104,520	104,520	104,520	104,520	104,520
<b>Special Purpose Roads - Routine Drainage Mtce</b>	<b>32,072</b>	<b>32,072</b>	<b>32,072</b>	<b>32,072</b>	<b>32,072</b>	<b>32,072</b>	<b>32,072</b>	<b>32,072</b>	<b>32,072</b>	<b>32,072</b>
Roading Maintenance	32,072	32,072	32,072	32,072	32,072	32,072	32,072	32,072	32,072	32,072
<b>Special Purpose Roads - Structures Mtce</b>	<b>3,567</b>	<b>3,567</b>	<b>3,567</b>	<b>3,567</b>	<b>3,567</b>	<b>3,567</b>	<b>3,567</b>	<b>3,567</b>	<b>3,567</b>	<b>3,567</b>
Roading Maintenance	3,567	3,567	3,567	3,567	3,567	3,567	3,567	3,567	3,567	3,567
<b>Special Purpose Roads -Environmental (Vegetation) Maint</b>	<b>248,227</b>	<b>248,227</b>	<b>248,227</b>	<b>248,227</b>	<b>248,227</b>	<b>248,227</b>	<b>248,227</b>	<b>248,227</b>	<b>248,227</b>	<b>248,227</b>

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## Part 4 - Appendices

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Description	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Roading Maintenance	248,227	248,227	248,227	248,227	248,227	248,227	248,227	248,227	248,227	248,227
<b>Special Purpose Roads -Traffic Services Mtce</b>	<b>45,134</b>	<b>45,134</b>	<b>45,134</b>	<b>45,134</b>	<b>45,134</b>	<b>45,134</b>	<b>45,134</b>	<b>45,134</b>	<b>45,134</b>	<b>45,134</b>
Roading Maintenance	45,134	45,134	45,134	45,134	45,134	45,134	45,134	45,134	45,134	45,134
<b>Grand Total</b>	<b>2,026,754</b>	<b>2,035,846</b>	<b>2,027,601</b>	<b>2,157,064</b>	<b>2,145,201</b>	<b>2,144,773</b>	<b>2,147,728</b>	<b>2,147,218</b>	<b>2,151,747</b>	<b>2,150,157</b>

# Part 4 - Appendices

## A3.2 Capital Expenditure

A3.2.1 The table below contains the budgeted capital expenditure for the next 10 years (2018/19 – 2027/28).

Description	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	Grand Total
<b>Growth</b>	<b>218,545</b>	<b>384,000</b>		<b>23,503</b>	<b>460,623</b>						<b>1,086,671</b>
Old Station Road Bridge 317 safety improvements				23,503	242,078						<b>265,581</b>
Seal Extensions	218,545				218,545						<b>437,090</b>
National Park – Park & Ride (Station Parking / Roading)		384,000									384,000
<b>LOS</b>	<b>2,057,797</b>	<b>2,241,889</b>	<b>1,902,192</b>	<b>1,945,905</b>	<b>1,939,191</b>	<b>1,704,193</b>	<b>1,865,815</b>	<b>1,722,526</b>	<b>1,756,498</b>	<b>1,790,612</b>	<b>18,926,618</b>
B404 Ruapehu Rail Over bridge Renewal (Ruapehu Road)		148,500									<b>148,500</b>
Drainage Renewals	67,500	67,500	67,500	67,500	67,500	67,500	67,500	67,500	67,500	67,500	<b>674,999</b>
Drainage Renewals SPR	4,098	4,098	4,098	4,098	4,098	4,098	4,098	4,098	4,098	4,098	<b>40,978</b>
Facility Road & Car Park Renewals	3,404	3,404	3,404	3,404	3,404	3,404	3,404	3,404	3,404	3,404	<b>34,043</b>
Kerb and Channel Development	45,388	45,388	45,388	45,388	45,388	45,388	45,388	45,388	45,388	45,388	<b>453,880</b>
Kokopuiti Rail Overbridge replacement (LCLR)			66,000								<b>66,000</b>
Level Crossing Devices Upgrades	94,971			94,971			94,971				<b>284,914</b>
Low Cost Low Risk - Taupo Rd Streetlight Upgrade					60,000						<b>60,000</b>
Low Cost Low Risk (SPR) - A/C	105,000	105,000	105,000								<b>315,000</b>
Low Cost Low Risk (SPR) - Hairpin Grade Improvement		45,000									<b>45,000</b>
Minor & Assoc Improvements SPR	193,965	193,965	193,965	193,965	193,965	193,965	193,965	193,965	193,965	193,965	<b>1,939,653</b>
Minor & Associated Improvements	801,656	801,656	801,656	801,656	801,656	801,656	801,656	801,656	801,656	801,656	<b>8,016,560</b>
Miscellaneous Minor Capital Projects		61,860			68,046						<b>129,906</b>
Motorist Service & Information Signs	15,318	15,318	15,318	15,318	15,318	15,318	15,318	15,318	15,318	15,318	<b>153,182</b>
Old Station Road Bridge 317 safety improvements				10,073	103,748						<b>113,821</b>
OMR Capacity Improvement	69,692	69,692	69,692	69,692	69,692	69,692	69,692	69,692	69,692	69,692	<b>696,922</b>
Pavement Rehabilitation	419,999	419,999	419,999	419,999	419,999	419,999	419,999	419,999	419,999	419,999	<b>4,199,993</b>
Pavement Rehabilitation SPR	63,538	19,050	19,050	44,488			44,488			46,039	<b>236,652</b>
Pedestrian Safety Improvements - District wide	29,501	29,501	29,501	29,501	29,501	29,501	29,501	29,501	29,501	29,501	<b>295,013</b>

## Part 4 - Appendices

Description	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	Grand Total
Structures Components Replacements	143,766	211,957	61,620	145,851	56,875	53,671	75,834	72,004	105,976	94,050	1,021,604
<b>Renewal</b>	<b>8,004,006</b>	<b>9,259,301</b>	<b>7,793,652</b>	<b>7,346,446</b>	<b>7,271,003</b>	<b>6,521,658</b>	<b>6,916,107</b>	<b>6,625,545</b>	<b>6,818,053</b>	<b>7,011,365</b>	<b>73,567,135</b>
B404 Ruapehu Rail Over bridge Renewal (Ruapehu Road)		841,500									841,500
Bus Shelter Renewals	11,348	11,348	11,348	11,348	11,348	11,348	11,348	11,348	11,348	11,348	113,475
Drainage Renewals	382,500	382,500	382,500	382,500	382,500	382,500	382,500	382,500	382,500	382,500	3,825,001
Drainage Renewals SPR	23,219	23,219	23,219	23,219	23,219	23,219	23,219	23,219	23,219	23,219	232,188
Facility Road & Car Park Renewals	19,290	19,290	19,290	19,290	19,290	19,290	19,290	19,290	19,290	19,290	192,897
Footpath Renewals	192,899	192,899	192,899	192,899	192,899	192,899	192,899	192,899	192,899	192,899	1,928,994
Kokopuiti Rail Overbridge replacement (LCLR)			374,000								374,000
Level Crossing Devices Upgrades	16,760			16,760			16,760				50,279
Low Cost Low Risk - Taupo Rd Streetlight Upgrade					340,000						340,000
Low Cost Low Risk (SPR) - A/C	595,000	595,000	595,000								1,785,000
Low Cost Low Risk (SPR) - Hairpin Grade Improvement		255,000									255,000
Minor & Assoc Improvements SPR	48,492	48,492	48,492	48,492	48,492	48,492	48,492	48,492	48,492	48,492	484,916
Minor & Associated Improvements	200,415	200,415	200,415	200,415	200,415	200,415	200,415	200,415	200,415	200,415	2,004,146
Miscellaneous Minor Capital Projects		41,240			45,364						86,604
Motorist Service & Information Signs	15,318	15,318	15,318	15,318	15,318	15,318	15,318	15,318	15,318	15,318	153,182
Old Station Road Bridge 317 safety improvements				33,576	345,825						379,401
OMR Capacity Improvement	46,461	46,461	46,461	46,461	46,461	46,461	46,461	46,461	46,461	46,461	464,608
Pavement Rehabilitation	2,380,001	2,380,001	2,380,001	2,380,001	2,380,001	2,380,001	2,380,001	2,380,001	2,380,001	2,380,001	23,800,007
Pavement Rehabilitation SPR	360,050	107,950	107,950	252,100			252,100			260,891	1,341,041
Pokatea Kokakonui Rd Culvert 24 replacement (LCLR)			150,000								150,000
Sealed Road Surfacing	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	13,000,000
Sealed Road Surfacing SPR	147,269	147,269	147,269	147,269	147,269	147,269	147,269	147,269	147,269	147,269	1,472,694
Streetflags District	17,020	17,020	17,020	17,020	17,020	17,020	17,020	17,020	17,020	17,020	170,197
Structures Components Replacements	814,674	1,201,088	349,179	826,488	322,291	304,135	429,725	408,022	600,531	532,952	5,789,086

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## Part 4 - Appendices

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Description	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	Grand Total
Traffic Services Renewals	335,000	335,000	335,000	335,000	335,000	335,000	335,000	335,000	335,000	335,000	<b>3,350,000</b>
Traffic Services Renewals SPR	23,753	23,753	23,753	23,753	23,753	23,753	23,753	23,753	23,753	23,753	<b>237,528</b>
Under Verandah Lighting Renewals	4,539	4,539	4,539	4,539	4,539	4,539	4,539	4,539	4,539	4,539	<b>45,392</b>
Unsealed Road Metalling	1,070,000	1,070,000	1,070,000	1,070,000	1,070,000	1,070,000	1,070,000	1,070,000	1,070,000	1,070,000	<b>10,700,000</b>
<b>Grand Total</b>	<b>10,280,348</b>	<b>11,885,190</b>	<b>9,695,844</b>	<b>9,315,854</b>	<b>9,670,817</b>	<b>8,225,851</b>	<b>8,781,922</b>	<b>8,348,071</b>	<b>8,574,552</b>	<b>8,801,977</b>	<b>93,580,423</b>

# Part 4 - Appendices

## A3.3 Funding Impact Statement

A3.3.1 The final Funding Impact Statement for Land Transport for the next 10 years (2018/19 – 2027/28) is shown below.

	Annual plan 2017/2018 (\$000)	LTP 2018/2019 (\$000)	LTP 2019/2020 (\$000)	LTP 2020/2021 (\$000)	LTP 2021/2022 (\$000)	LTP 2022/2023 (\$000)	LTP 2023/2024 (\$000)	LTP 2024/2025 (\$000)	LTP 2025/2026 (\$000)	LTP 2026/2027 (\$000)	LTP 2027/2028 (\$000)
<b>Sources of Operating Funding</b>											
General rates, uniform annual general charges, rates penalties	7,155	1,668	1,722	1,814	1,970	2,096	2,219	2,468	2,664	2,745	2,963
Targeted rates	70	3,892	4,019	4,234	4,596	4,892	5,179	5,759	6,216	6,406	6,908
Subsidies and grants for operating purposes	5,142	6,172	6,299	6,458	6,456	6,623	6,783	6,949	7,131	7,317	7,524
Fees and charges	112	126	129	132	135	138	142	145	149	153	157
Internal charges and overheads recovered	-	-	-	-	-	-	-	-	-	-	-
Local authorities fuel tax, fines, infringement fees, and other receipts	168	136	139	142	145	149	152	156	160	165	169
<b>Total Operating Funding (A)</b>	<b>12,647</b>	<b>11,994</b>	<b>12,308</b>	<b>12,780</b>	<b>13,302</b>	<b>13,898</b>	<b>14,475</b>	<b>15,477</b>	<b>16,320</b>	<b>16,786</b>	<b>17,721</b>
<b>Applications of Operating Funding</b>											
Payments to staff and suppliers	7,530	9,305	9,509	9,714	9,931	10,162	10,401	10,657	10,926	11,213	11,519
Finance costs	619	646	693	676	793	874	958	1,004	1,016	1,028	1,005
Internal charges and overheads applied	2,378	290	303	316	325	328	320	324	333	341	342
Other operating funding applications	-	-	-	-	-	-	-	-	-	-	-
<b>Total applications of operating funding (B)</b>	<b>10,527</b>	<b>10,241</b>	<b>10,505</b>	<b>10,706</b>	<b>11,049</b>	<b>11,364</b>	<b>11,679</b>	<b>11,985</b>	<b>12,275</b>	<b>12,582</b>	<b>12,866</b>
<b>Surplus (deficit) of operating funding (A-B)</b>	<b>2,120</b>	<b>1,753</b>	<b>1,803</b>	<b>2,074</b>	<b>2,253</b>	<b>2,534</b>	<b>2,796</b>	<b>3,492</b>	<b>4,045</b>	<b>4,204</b>	<b>4,855</b>
<b>Sources of capital funding</b>											
Subsidies and grants for capital expenditure	5,732	7,344	8,490	7,309	6,805	6,985	6,256	6,873	6,683	7,061	7,463
Development and financial contributions	16	16	17	17	17	18	18	19	19	20	20
increase (decrease) in debt	1,468	1,168	1,836	727	879	1,044	148	227	206	245	285
Gross proceeds from sale of assets	-	-	-	-	-	-	-	-	-	-	-
Lump sum contributions	-	-	-	-	-	-	-	-	-	-	-
<b>Total sources of capital funding (C)</b>	<b>7,216</b>	<b>8,528</b>	<b>10,343</b>	<b>8,053</b>	<b>7,701</b>	<b>8,047</b>	<b>6,422</b>	<b>7,119</b>	<b>6,908</b>	<b>7,326</b>	<b>7,768</b>
<b>Applications of capital funding</b>											
Capital expenditure											
- to meet additional demand	350	219	392	-	25	504	-	-	-	-	-
- to improve the level of service	1,717	2,058	2,291	1,987	2,079	2,122	1,909	2,143	2,030	2,126	2,228
- to replace existing assets	7,269	8,004	9,463	8,140	7,850	7,955	7,307	7,942	7,807	8,251	8,722
Increase (decrease) in reserves	-	-	-	-	-	-	2	526	1,116	1,153	1,673
Increase (decrease) of investments	-	-	-	-	-	-	-	-	-	-	-
<b>Total applications of capital funding (D)</b>	<b>9,336</b>	<b>10,281</b>	<b>12,146</b>	<b>10,127</b>	<b>9,954</b>	<b>10,581</b>	<b>9,218</b>	<b>10,611</b>	<b>10,953</b>	<b>11,530</b>	<b>12,623</b>



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	Annual plan 2017/2018 (\$000)	LTP 2018/2019 (\$000)	LTP 2019/2020 (\$000)	LTP 2020/2021 (\$000)	LTP 2021/2022 (\$000)	LTP 2022/2023 (\$000)	LTP 2023/2024 (\$000)	LTP 2024/2025 (\$000)	LTP 2025/2026 (\$000)	LTP 2026/2027 (\$000)	LTP 2027/2028 (\$000)
Surplus (deficit) of capital funding (C-D)	(2,120)	(1,753)	(1,803)	(2,074)	(2,253)	(2,534)	(2,796)	(3,492)	(4,045)	(4,204)	(4,855)
Funding Balance ((A-B)+(C-D))	-	-	-	-	-	-	-	-	-	-	-

# Part 4 - Appendices

## A3.4 NZTA Indicative Approval for Budgets 2018/21

A3.4.1 On 1 May 2018, NZTA advised Council of the indicative funding levels for the 2018/21 funding block. The indicative approvals cover maintenance, operations and renewal for Local and Special Purpose Roads. Indicative approvals for footpath maintenance and Low cost low risk budgets have not been received yet at the time of writing.

A3.4.2 The tables below show the requested and indicative budgets for the three year block.

Local Roads Activity	Status	2018/19	2019/20	2020/21	Total 18/21
111 - Sealed pavement maintenance	Application	965,000	993,951	1,023,769	<b>2,982,720</b>
	<i>Indicative Approval</i>	<i>965,000</i>	<i>994,000</i>	<i>1,020,000</i>	<b>2,979,000</b>
	Difference	0	49	-3,769	-3,720
112 - Unsealed pavement maintenance	Application	604,000	622,120	640,784	<b>1,866,904</b>
	<i>Indicative Approval</i>	<i>604,000</i>	<i>622,000</i>	<i>640,000</i>	<b>1,866,000</b>
	Difference	0	-120	-784	-904
113 - Routine drainage maintenance	Application	625,000	643,750	663,063	<b>1,931,813</b>
	<i>Indicative Approval</i>	<i>625,000</i>	<i>643,000</i>	<i>663,000</i>	<b>1,931,000</b>
	Difference	0	-750	-63	-813
114 - Structures maintenance	Application	130,000	133,900	137,917	<b>401,817</b>
	<i>Indicative Approval</i>	<i>130,000</i>	<i>133,000</i>	<i>137,000</i>	<b>400,000</b>
	Difference	0	-900	-917	-1,817
121 - Environmental maintenance	Application	857,000	882,710	909,191	<b>2,648,901</b>
	<i>Indicative Approval</i>	<i>857,000</i>	<i>882,000</i>	<i>909,000</i>	<b>2,648,000</b>
	Difference	0	-710	-191	-901
122 - Traffic services maintenance	Application	588,000	605,640	623,809	<b>1,817,449</b>
	<i>Indicative Approval</i>	<i>588,000</i>	<i>605,000</i>	<i>623,000</i>	<b>1,816,000</b>
	Difference	0	-640	-809	-1,449
131 - Level crossing warning devices	Application	16,760	17,263	17,781	<b>51,804</b>
	<i>Indicative Approval</i>	<i>16,700</i>	<i>17,000</i>	<i>17,800</i>	<b>51,500</b>
	Difference	-60	-263	19	-304
140 - Minor events	Application	720,000	741,600	763,848	<b>2,225,448</b>
	<i>Indicative Approval</i>	<i>720,000</i>	<i>730,000</i>	<i>740,000</i>	<b>2,190,000</b>
	Difference	0	-11,600	-23,848	-35,448
151 - Network and asset management	Application	770,000	793,100	817,893	<b>2,380,993</b>
	<i>Indicative Approval</i>	<i>770,000</i>	<i>792,000</i>	<i>816,000</i>	<b>2,378,000</b>
	Difference	0	-1,100	-1,893	-2,993
<b>Subtotal for Road operations and maintenance:</b>	<b>Application</b>	<b>5,275,760</b>	<b>5,434,034</b>	<b>5,598,055</b>	<b>16,307,849</b>
	<b><i>Indicative Approval</i></b>	<b><i>5,275,700</i></b>	<b><i>5,418,000</i></b>	<b><i>5,565,800</i></b>	<b><i>16,259,500</i></b>
	<b>Difference</b>	<b>-60</b>	<b>-16,034</b>	<b>-32,255</b>	<b>-48,349</b>
211 - Unsealed road metalling	Application	1,070,000	1,102,100	1,135,163	<b>3,307,263</b>
	<i>Indicative Approval</i>	<i>1,070,000</i>	<i>1,102,000</i>	<i>1,135,000</i>	<b>3,307,000</b>
	Difference	0	-100	-163	-263
212 - Sealed road resurfacing	Application	1,300,000	1,339,000	1,379,170	<b>4,018,170</b>
	<i>Indicative Approval</i>	<i>1,300,000</i>	<i>1,339,000</i>	<i>1,379,000</i>	<b>4,018,000</b>
	Difference	0	0	-170	-170
213 - Drainage renewals	Application	450,000	463,500	477,405	<b>1,390,905</b>
	<i>Indicative Approval</i>	<i>450,000</i>	<i>463,500</i>	<i>477,000</i>	<b>1,390,500</b>

# Part 4 - Appendices

Local Roads Activity	Status	2018/19	2019/20	2020/21	Total 18/21
	Difference	0	0	-405	-405
214 - Sealed road pavement rehabilitation	Application	2,800,000	2,884,000	2,970,520	<b>8,654,520</b>
	<i>Indicative Approval</i>	<i>2,800,000</i>	<i>2,884,000</i>	<i>2,970,000</i>	<i><b>8,654,000</b></i>
	Difference	0	0	-520	-520
215 - Structures component replacements	Application	958,400	1,413,045	410,799	<b>2,782,244</b>
	<i>Indicative Approval</i>	<i>958,400</i>	<i>1,413,000</i>	<i>410,000</i>	<i><b>2,781,400</b></i>
	Difference	0	-45	-799	-844
222 - Traffic services renewals	Application	335,000	345,050	355,402	<b>1,035,452</b>
	<i>Indicative Approval</i>	<i>335,000</i>	<i>345,000</i>	<i>355,000</i>	<i><b>1,035,000</b></i>
	Difference	0	-50	-402	-452
<b>Subtotal for Road renewals:</b>	<b>Application</b>	<b>6,913,400</b>	<b>7,546,695</b>	<b>6,728,459</b>	<b>21,188,554</b>
	<i>Indicative Approval</i>	<i>6,913,400</i>	<i>7,546,500</i>	<i>6,726,000</i>	<i><b>21,185,900</b></i>
	Difference	0	-195	-2,459	-2,654
<b>Total budget:</b>	<b>Application</b>	<b>12,189,160</b>	<b>12,980,729</b>	<b>12,326,514</b>	<b>37,496,403</b>
	<i>Indicative Approval</i>	<i>12,189,100</i>	<i>12,964,500</i>	<i>12,291,800</i>	<i><b>37,445,400</b></i>
	Difference	-60	-16,229	-34,714	-51,003

Special Purpose Road Activity	Status	2018/19	2019/20	2020/21	Total 18/21
111 - Sealed pavement maintenance	Application	104,520	107,656	110,886	<b>323,062</b>
	<i>Indicative Approval</i>	<i>104,500</i>	<i>107,000</i>	<i>110,000</i>	<i><b>321,500</b></i>
	Difference	-20	-656	-886	-1,562
113 - Routine drainage maintenance	Application	32,072	33,034	34,025	<b>99,131</b>
	<i>Indicative Approval</i>	<i>32,000</i>	<i>33,000</i>	<i>34,000</i>	<i><b>99,000</b></i>
	Difference	-72	-34	-25	-131
114 - Structures maintenance	Application	3,567	3,674	3,784	<b>11,025</b>
	<i>Indicative Approval</i>	<i>3,500</i>	<i>3,500</i>	<i>3,500</i>	<i><b>10,500</b></i>
	Difference	-67	-174	-284	-525
121 - Environmental maintenance	Application	248,227	255,674	263,344	<b>767,245</b>
	<i>Indicative Approval</i>	<i>248,000</i>	<i>255,000</i>	<i>263,000</i>	<i><b>766,000</b></i>
	Difference	-227	-674	-344	-1,245
122 - Traffic services maintenance	Application	45,134	46,488	47,882	<b>139,504</b>
	<i>Indicative Approval</i>	<i>45,000</i>	<i>46,000</i>	<i>47,000</i>	<i><b>138,000</b></i>
	Difference	-134	-488	-882	-1,504
151 - Network and asset management	Application	30,882	31,809	32,763	<b>95,454</b>
	<i>Indicative Approval</i>	<i>30,000</i>	<i>32,000</i>	<i>33,000</i>	<i><b>95,000</b></i>
	Difference	-882	191	237	-454
<b>Subtotal for Road operations and maintenance:</b>	<b>Application</b>	<b>464,402</b>	<b>478,335</b>	<b>492,684</b>	<b>1,435,421</b>
	<i>Indicative Approval</i>	<i>463,000</i>	<i>476,500</i>	<i>490,500</i>	<i><b>1,430,000</b></i>
	Difference	-1,402	-1,835	-2,184	-5,421
212 - Sealed road resurfacing	Application	147,269	151,687	156,238	<b>455,194</b>
	<i>Indicative Approval</i>	<i>147,000</i>	<i>150,000</i>	<i>156,000</i>	<i><b>453,000</b></i>
	Difference	-269	-1,687	-238	-2,194
213 - Drainage renewals	Application	27,317	28,316	28,980	<b>84,613</b>
	<i>Indicative Approval</i>	<i>27,000</i>	<i>28,000</i>	<i>29,000</i>	<i><b>84,000</b></i>
	Difference	-317	-316	20	-613
214 - Sealed road pavement rehabilitation	Application	423,587	130,810	130,810	<b>685,207</b>

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Special Purpose Road Activity	Status	2018/19	2019/20	2020/21	Total 18/21
	<i>Indicative Approval</i>	423,500	130,000	130,000	683,500
	Difference	-87	-810	-810	-1,707
222 - Traffic services renewals	Application	23,753	24,465	25,199	73,417
	<i>Indicative Approval</i>	23,700	24,000	2,500	50,200
	Difference	-53	-465	-22,699	-23,217
<b>Subtotal for Road renewals:</b>	<b>Application</b>	<b>621,926</b>	<b>335,278</b>	<b>341,227</b>	<b>1,298,431</b>
	<i>Indicative Approval</i>	621,200	332,000	317,500	1,270,700
	Difference	-726	-3,278	-23,727	-27,731
<b>Total budget:</b>	<b>Application</b>	<b>1,086,328</b>	<b>813,613</b>	<b>833,911</b>	<b>2,733,852</b>
	<i>Indicative Approval</i>	1,084,200	808,500	808,000	2,700,700
	Difference	-2,128	-5,113	-25,911	-33,152

# Part 4 - Appendices

## Appendix B - Summary Financial Tables

### B1 Summary Budgets as at 16 December 2017

#### B1.1 Maintenance and Operations Budget

B1.1.1 The table below contains the inflated maintenance expenditure budgets for the next 10 years (2018/19 – 2027/28).

Inflation		2.20%	2.20%	2.20%	2.30%	2.30%	2.40%	2.50%	2.50%	2.60%	
Description	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	10 years
<b>Maintenance</b>											
<b>Local Roads Maintenance</b>											
Level Crossing Devices	16,760	17,129	17,506	17,891	18,302	18,723	19,172	19,652	20,143	20,667	185,944
Minor Events	720,000	735,840	752,028	768,573	786,250	804,334	823,638	844,229	865,335	887,833	7,988,061
Network & Asset Management	797,061	814,596	832,517	850,833	870,402	890,421	911,791	934,586	957,951	982,858	8,843,017
Pavement Maintenance Sealed	965,000	986,230	1,007,927	1,030,101	1,053,794	1,078,031	1,103,904	1,131,501	1,159,789	1,189,943	10,706,221
Pavement Maintenance Unsealed	604,000	617,288	630,868	644,747	659,577	674,747	690,941	708,214	725,920	744,794	6,701,096
Routine Drainage Maintenance	582,770	595,591	608,694	622,085	636,393	651,030	666,655	683,321	700,404	718,615	6,465,559
Structures Maintenance	130,000	132,860	135,783	138,770	141,962	145,227	148,712	152,430	156,241	160,303	1,442,289
Environmental (Vegetation) Maintenance	857,000	875,854	895,123	914,815	935,856	957,381	980,358	1,004,867	1,029,989	1,056,768	9,508,012
Street Cleaning	42,230	43,159	44,109	45,079	46,116	47,176	48,309	49,516	50,754	52,074	468,522
Traffic Services Maintenance	659,280	673,784	688,607	703,757	719,943	736,502	754,178	773,032	792,358	812,959	7,314,401
<b>Total Local Road Maintenance</b>	<b>5,374,101</b>	<b>5,492,331</b>	<b>5,613,163</b>	<b>5,736,652</b>	<b>5,868,595</b>	<b>6,003,573</b>	<b>6,147,659</b>	<b>6,301,350</b>	<b>6,458,884</b>	<b>6,626,815</b>	<b>59,623,122</b>
<b>Special Purpose Roads Maintenance</b>											
Network & Asset Management	30,882	31,561	32,256	32,965	33,724	34,499	35,327	36,210	37,116	38,081	342,621
Pavement Maintenance Sealed	104,520	106,819	109,169	111,571	114,137	116,762	119,565	122,554	125,618	128,884	1,159,600
Routine Drainage Maintenance	32,072	32,778	33,499	34,236	35,023	35,829	36,688	37,606	38,546	39,548	355,824

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Inflation		2.20%	2.20%	2.20%	2.30%	2.30%	2.40%	2.50%	2.50%	2.60%	
Description	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	10 years
Structures Maintenance	3,567	3,645	3,726	3,808	3,895	3,985	4,080	4,182	4,287	4,398	39,574
Environmental (Vegetation) Maintenance	248,227	253,688	259,269	264,973	271,067	277,302	283,957	291,056	298,333	306,089	2,753,962
Traffic Services Maintenance	45,134	46,127	47,142	48,179	49,287	50,421	51,631	52,921	54,244	55,655	500,740
<b>Total SPR Maintenance</b>	<b>464,402</b>	<b>474,619</b>	<b>485,060</b>	<b>495,732</b>	<b>507,134</b>	<b>518,798</b>	<b>531,249</b>	<b>544,530</b>	<b>558,143</b>	<b>572,655</b>	<b>5,152,322</b>
<b>Non Subsidised Maintenance</b>											
Kerb & Channel - District	61,057	62,400	63,773	65,176	66,675	68,209	69,846	71,592	73,382	75,290	677,399
Crossings & Shelters	1,500	1,533	1,567	1,601	1,638	1,676	1,716	1,759	1,803	1,850	16,642
Cycleway Maintenance	51,500	52,633	53,791	54,974	56,239	57,532	58,913	60,386	61,895	63,505	571,368
Facility Parking	10,299	10,526	10,757	10,994	11,247	11,505	11,781	12,076	12,378	12,700	114,263
Miscellaneous	2,223	2,272	2,322	2,373	2,428	2,483	2,543	2,607	2,672	2,741	24,663
Network & Asset Management	6,223	6,360	6,500	6,643	6,796	6,952	7,119	7,297	7,479	7,674	69,041
Plant Pest Control	54,620	55,822	57,050	58,305	59,646	61,018	62,482	64,044	65,645	67,352	605,983
Under Verandah Lighting	13,323	13,616	13,916	14,222	14,549	14,884	15,241	15,622	16,012	16,429	147,812
Pedestrian - District	132,587	135,504	138,485	141,532	144,787	148,117	151,672	155,464	159,350	163,493	1,470,990
<b>Total Non Subsidised Maintenance</b>	<b>333,332</b>	<b>340,665</b>	<b>348,160</b>	<b>355,819</b>	<b>364,003</b>	<b>372,375</b>	<b>381,312</b>	<b>390,845</b>	<b>400,616</b>	<b>411,032</b>	<b>3,698,162</b>
<b>Emergency Reinstatement</b>											
Emergency Reinstatement	2,340,046	2,391,527	2,444,141	2,497,912	2,555,364	2,614,137	2,676,876	2,743,798	2,812,393	2,885,515	25,961,709
<b>Total Emergency Reinstatement</b>	<b>2,340,046</b>	<b>2,391,527</b>	<b>2,444,141</b>	<b>2,497,912</b>	<b>2,555,364</b>	<b>2,614,137</b>	<b>2,676,876</b>	<b>2,743,798</b>	<b>2,812,393</b>	<b>2,885,515</b>	<b>25,961,709</b>
<b>Total Maintenance</b>	<b>8,511,881</b>	<b>8,699,142</b>	<b>8,890,524</b>	<b>9,086,115</b>	<b>9,295,096</b>	<b>9,508,883</b>	<b>9,737,096</b>	<b>9,980,523</b>	<b>10,230,036</b>	<b>10,496,017</b>	<b>94,435,315</b>

LR = Local Roads, SPR = Special Purpose Road

## Part 4 - Appendices

### B1.2 Capital Budget

B1.2.1 The table below contains the uninflated capital expenditure budgets for the next 10 years (2018/19 – 2027/28).

Year	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	Grand Total
<b>Growth</b>	<b>218,545</b>			<b>23,503</b>	<b>460,623</b>						<b>702,671</b>
Old Station Road Bridge 317 safety improvements				23,503	242,078						265,581
Seal Extensions	218,545				218,545						437,090
<b>LOS</b>	<b>2,057,797</b>	<b>2,241,889</b>	<b>1,902,192</b>	<b>1,945,905</b>	<b>1,939,191</b>	<b>1,704,193</b>	<b>1,865,815</b>	<b>1,722,526</b>	<b>1,756,498</b>	<b>1,790,612</b>	<b>18,926,618</b>
B404 Ruapehu Rail Over bridge Renewal (Ruapehu Road)		148,500									148,500
Drainage Renewals	67,500	67,500	67,500	67,500	67,500	67,500	67,500	67,500	67,500	67,500	674,999
Drainage Renewals SPR	4,098	4,098	4,098	4,098	4,098	4,098	4,098	4,098	4,098	4,098	40,978
Facility Road & Car Park Renewals	3,404	3,404	3,404	3,404	3,404	3,404	3,404	3,404	3,404	3,404	34,043
Kerb and Channel Development	45,388	45,388	45,388	45,388	45,388	45,388	45,388	45,388	45,388	45,388	453,880
Kokopuiti Rail Overbridge replacement (LCLR)			66,000								66,000
Level Crossing Devices Upgrades	94,971			94,971			94,971				284,914
Low Cost Low Risk - Taupo Rd Streetlight Upgrade					60,000						60,000
Low Cost Low Risk (SPR) - A/C	105,000	105,000	105,000								315,000
Low Cost Low Risk (SPR) - Hairpin Grade Improvement		45,000									45,000
Minor & Assoc Improvements SPR	193,965	193,965	193,965	193,965	193,965	193,965	193,965	193,965	193,965	193,965	1,939,653
Minor & Associated Improvements	801,656	801,656	801,656	801,656	801,656	801,656	801,656	801,656	801,656	801,656	8,016,560
Miscellaneous Minor Capital Projects		61,860			68,046						129,906
Motorist Service & Information Signs	15,318	15,318	15,318	15,318	15,318	15,318	15,318	15,318	15,318	15,318	153,182
Old Station Road Bridge 317 safety improvements				10,073	103,748						113,821
OMR Capacity Improvement	69,692	69,692	69,692	69,692	69,692	69,692	69,692	69,692	69,692	69,692	696,922
Pavement Rehabilitation	419,999	419,999	419,999	419,999	419,999	419,999	419,999	419,999	419,999	419,999	4,199,993
Pavement Rehabilitation SPR	63,538	19,050	19,050	44,488			44,488			46,039	236,652
Pedestrian Safety Improvements - District wide	29,501	29,501	29,501	29,501	29,501	29,501	29,501	29,501	29,501	29,501	295,013

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Year	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	Grand Total
Structures Components Replacements	143,766	211,957	61,620	145,851	56,875	53,671	75,834	72,004	105,976	94,050	1,021,604
<b>Renewal</b>	<b>8,004,006</b>	<b>9,259,301</b>	<b>7,793,652</b>	<b>7,346,446</b>	<b>7,271,003</b>	<b>6,521,658</b>	<b>6,916,107</b>	<b>6,625,545</b>	<b>6,818,053</b>	<b>7,011,365</b>	<b>73,567,135</b>
B404 Ruapehu Rail Over bridge Renewal (Ruapehu Road)		841,500									841,500
Bus Shelter Renewals	11,348	11,348	11,348	11,348	11,348	11,348	11,348	11,348	11,348	11,348	113,475
Drainage Renewals	382,500	382,500	382,500	382,500	382,500	382,500	382,500	382,500	382,500	382,500	3,825,001
Drainage Renewals SPR	23,219	23,219	23,219	23,219	23,219	23,219	23,219	23,219	23,219	23,219	232,188
Facility Road & Car Park Renewals	19,290	19,290	19,290	19,290	19,290	19,290	19,290	19,290	19,290	19,290	192,897
Footpath Renewals	192,899	192,899	192,899	192,899	192,899	192,899	192,899	192,899	192,899	192,899	1,928,994
Kokopuiti Rail Overbridge replacement (LCLR)			374,000								374,000
Level Crossing Devices Upgrades	16,760			16,760			16,760				50,279
Low Cost Low Risk - Taupo Rd Streetlight Upgrade					340,000						340,000
Low Cost Low Risk (SPR) - A/C	595,000	595,000	595,000								1,785,000
Low Cost Low Risk (SPR) - Hairpin Grade Improvement		255,000									255,000
Minor & Assoc Improvements SPR	48,492	48,492	48,492	48,492	48,492	48,492	48,492	48,492	48,492	48,492	484,916
Minor & Associated Improvements	200,415	200,415	200,415	200,415	200,415	200,415	200,415	200,415	200,415	200,415	2,004,146
Miscellaneous Minor Capital Projects		41,240			45,364						86,604
Motorist Service & Information Signs	15,318	15,318	15,318	15,318	15,318	15,318	15,318	15,318	15,318	15,318	153,182
Old Station Road Bridge 317 safety improvements				33,576	345,825						379,401
OMR Capacity Improvement	46,461	46,461	46,461	46,461	46,461	46,461	46,461	46,461	46,461	46,461	464,608
Pavement Rehabilitation	2,380,001	2,380,001	2,380,001	2,380,001	2,380,001	2,380,001	2,380,001	2,380,001	2,380,001	2,380,001	23,800,007
Pavement Rehabilitation SPR	360,050	107,950	107,950	252,100			252,100			260,891	1,341,041
Pokatea Kokakonui Rd Culvert 24 replacement (LCLR)			150,000								150,000
Sealed Road Surfacing	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	13,000,000
Sealed Road Surfacing SPR	147,269	147,269	147,269	147,269	147,269	147,269	147,269	147,269	147,269	147,269	1,472,694
Streetflags District	17,020	17,020	17,020	17,020	17,020	17,020	17,020	17,020	17,020	17,020	170,197



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## Part 4 - Appendices

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Year	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	Grand Total
Structures Components Replacements	814,674	1,201,088	349,179	826,488	322,291	304,135	429,725	408,022	600,531	532,952	5,789,086
Traffic Services Renewals	335,000	335,000	335,000	335,000	335,000	335,000	335,000	335,000	335,000	335,000	3,350,000
Traffic Services Renewals SPR	23,753	23,753	23,753	23,753	23,753	23,753	23,753	23,753	23,753	23,753	237,528
Under Verandah Lighting Renewals	4,539	4,539	4,539	4,539	4,539	4,539	4,539	4,539	4,539	4,539	45,392
Unsealed Road Metalling	1,070,000	1,070,000	1,070,000	1,070,000	1,070,000	1,070,000	1,070,000	1,070,000	1,070,000	1,070,000	10,700,000
<b>Grand Total</b>	<b>10,280,348</b>	<b>11,501,190</b>	<b>9,695,844</b>	<b>9,315,854</b>	<b>9,670,817</b>	<b>8,225,851</b>	<b>8,781,922</b>	<b>8,348,071</b>	<b>8,574,552</b>	<b>8,801,977</b>	<b>93,196,423</b>

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### B2 Forecast Funding Impact Statement as at 16 December 2017

	Annual Plan	LTP	LTP	LTP	LTP	LTP	LTP	LTP	LTP	LTP	LTP
	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028
	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)
<b>Sources of Operating Funding</b>											
General rates, uniform annual general charges, rates penalties	7,155	5,571	5,750	6,054	6,550	6,944	7,320	8,153	8,784	9,048	9,747
Targeted rates	70	-	-	-	-	-	-	-	-	-	-
Subsidies and grants for operating purposes	5,142	6,172	6,299	6,446	6,594	6,765	6,929	7,098	7,284	7,475	7,686
Fees and charges	112	126	129	132	135	138	142	145	149	153	157
Internal charges and overheads recovered	133	-	-	-	-	-	-	-	-	-	-
Local authorities fuel tax, fines, infringement fees, and other receipts	35	136	139	142	145	149	152	156	160	165	169
<b>Total Operating Funding (A)</b>	<b>12,647</b>	<b>12,005</b>	<b>12,317</b>	<b>12,774</b>	<b>13,424</b>	<b>13,996</b>	<b>14,543</b>	<b>15,552</b>	<b>16,377</b>	<b>16,841</b>	<b>17,759</b>
<b>Applications of Operating Funding</b>											
Payments to staff and suppliers	7,530	9,305	9,507	9,713	9,929	10,161	10,401	10,654	10,925	11,212	11,518
Finance costs	619	659	721	716	852	938	1,028	1,075	1,084	1,094	1,065
Internal charges and overheads applied	2,378	290	303	316	325	328	320	324	333	341	342
Other operating funding applications	-	-	-	-	-	-	-	-	-	-	-
<b>Total applications of operating funding (B)</b>	<b>10,527</b>	<b>10,254</b>	<b>10,531</b>	<b>10,745</b>	<b>11,106</b>	<b>11,427</b>	<b>11,749</b>	<b>12,053</b>	<b>12,342</b>	<b>12,647</b>	<b>12,925</b>
<b>Surplus (deficit) of operating funding (A-B)</b>	<b>2,120</b>	<b>1,751</b>	<b>1,786</b>	<b>2,029</b>	<b>2,318</b>	<b>2,569</b>	<b>2,794</b>	<b>3,499</b>	<b>4,035</b>	<b>4,194</b>	<b>4,834</b>
<b>Sources of capital funding</b>											
Subsidies and grants for capital expenditure	5,732	6,854	7,926	6,834	6,674	6,892	6,256	6,873	6,683	7,061	7,463
Development and financial contributions	16	16	17	17	17	18	18	19	19	20	20
increase (decrease) in debt	1,468	1,658	2,027	1,247	944	1,102	148	168	150	192	236
Gross proceeds from sale of assets	-	-	-	-	-	-	-	-	-	-	-
Lump sum contributions	-	-	-	-	-	-	-	-	-	-	-
<b>Total sources of capital funding (C)</b>	<b>7,216</b>	<b>8,528</b>	<b>9,970</b>	<b>8,098</b>	<b>7,635</b>	<b>8,012</b>	<b>6,422</b>	<b>7,060</b>	<b>6,852</b>	<b>7,273</b>	<b>7,719</b>
<b>Applications of capital funding</b>											
Capital expenditure											
- to meet additional demand	1,717	219	-	-	25	504	-	-	-	-	-
- to improve the level of service	350	2,058	2,291	1,987	2,079	2,122	1,909	2,143	2,030	2,126	2,228

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	Annual Plan	LTP	LTP	LTP	LTP	LTP	LTP	LTP	LTP	LTP	LTP
	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028
	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)
- to replace existing assets	7,269	8,004	9,463	8,140	7,850	7,955	7,307	7,942	7,807	8,251	8,722
Increase (decrease) in reserves	-	-	-	-	-	-	-	474	1,051	1,091	1,602
Increase (decrease) of investments	-	-	-	-	-	-	-	-	-	-	-
<b>Total applications of capital funding (D)</b>	<b>9,336</b>	<b>10,281</b>	<b>11,754</b>	<b>10,127</b>	<b>9,954</b>	<b>10,581</b>	<b>9,216</b>	<b>10,559</b>	<b>10,888</b>	<b>11,468</b>	<b>12,552</b>
<b>Surplus (deficit) of capital funding (C-D)</b>	<b>(2,120)</b>	<b>(1,753)</b>	<b>(1,784)</b>	<b>(2,029)</b>	<b>(2,319)</b>	<b>(2,569)</b>	<b>(2,794)</b>	<b>(3,499)</b>	<b>(4,036)</b>	<b>(4,195)</b>	<b>(4,833)</b>
<b>Funding Balance ((A-B)+(C-D))</b>	<b>-</b>	<b>(2)</b>	<b>2</b>	<b>-</b>	<b>(1)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>(1)</b>	<b>(1)</b>	<b>1</b>

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## B3 Risk to Significant Forecasting Assumptions

The table below outlines the risks to significant forecasting assumptions. Should these assumptions prove to be incorrect there could be a significant effect on the level of rates to be collected from the community.

Assumption	Consequence of Risk	Likelihood of Risk	Degree of Total Risk	Likely Financial Effect	Consequence/ Mitigation Strategy
	Low = 1 Low/Moderate = 2 Moderate = 3 Moderate/High = 4 High = 5	Likely = 3 Possible = 2 Unlikely = 1	Low = 1 – 5 Medium = 6 –10 High = 11 – 15		
<b>Projected Growth Change Factors</b>					
Growth Forecasting	2	1	2	Redistributed priorities	Reactive Maintenance
Potential Social Changes	3	1	3	Less income	Revised Budget Forecast
Potential Climate Change Impacts	3	3	9	Increased cost	Reprioritise outputs
Rating Base	3	1	3	Less income	Reprioritise outputs
<b>Major Cost Components</b>					
Borrowing And Expected Interest Rates	3	2	6	Less output in capital projects	LTP Adjustment
<b>Cost Factors</b>					
Levels of Service	3	2	6	Increased rate requirement	Maintain LOS
Revaluation and Future Revaluation of Non-Current Assets	3	2	6	Increased overhead and rates	
Depreciation Rates on Assets	As above				
Funding Growth Related Development	2	2	4	Increase Debt	DC calculations
Resource Consents / Designations	1	2	2	Minor	Status Quo
Service Delivery Options	3	1	3	Increased Contract costs	Procurement Strategy
Failure of Contractor Services	3	1	3	Increased Contract costs	Procurement Strategy

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Assumption	Consequence of Risk	Likelihood of Risk	Degree of Total Risk	Likely Financial Effect	Consequence/ Mitigation Strategy
	Low = 1 Low/Moderate = 2 Moderate = 3 Moderate/High = 4 High = 5	Likely = 3 Possible = 2 Unlikely = 1	Low = 1 – 5 Medium = 6 –10 High = 11 – 15		
Preliminary Cost Estimates	3	2	6	Increased Contract costs	Procurement Strategy
<b>Major Income Components</b>					
Roading Subsidy Rates	3	2	6	Increase rate funding for Special Purpose Roads. Decreased funding available for local roads if rapid transition to 72% not approved.	LOS change
Alternative Funding Sources	1	1	1	Increase rate funding	LOS change
<b>Statements Of Fact</b>					
Natural Hazards	4	2	8	Increased costs	Insurance/ Govt Support
Fundamental Business Viability	4	1	4	Increased costs	Poor performance / procurement strategy
Business Continuity	4	2	8	Increased costs	Poor performance / procurement strategy
Estimates Of Commitments And Contingencies	3	1	3	Increased costs	Reliable financial data
Creation and Realisation of Investments, Reserves and Assets	N/A				
Governance	3	1	3	Increased costs	N/A

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## Appendix C – Detailed Improvement Plan

AMP Ref	Description	Action	Resource	Timing	Priority	Status
<b>Strategic Case</b>						
3.5.2	Changing Land Use – Impact of Forestry	Further develop good data on projected forest harvests to enable forward planning. Council will carry out a project to improve its forestation information with input from forest stakeholders.	Consultant Council GIS Stakeholder Engagement	Ongoing	H	In Process
<b>Delivering the Programme</b>						
5.3	Delivering the Programme – RAMM Data Quality	Maintenance Cost History – Maintenance cost histories are being compiled for recording in RAMM and when implemented can be used as an input to forecast renewals. The District Council concurs with the findings of the NZTA investment audit report Feb/March 2017 – we need to “focus on improving RAMM data quality/completeness, which will provide improved information to Council and greater transparency to the Transport Agency	Consultant Contractors	June 2018	H	In Process
<b>Planning Context</b>						
6.1	ONRC Transition Plan  Project IP1501	Continue implementation of One Network Road Classification (ONRC) reporting requirements.	Manager Land Transport Network Consultant	Ongoing	H	In Process
<b>Levels of Service</b>						
10.8	Future Levels of Service Improvement Project IP1502	a) Review and analyse benchmarking data against peers for items that are out of alignment. b) Report on all ONRC Performance Reporting Tool measures. c) Work with REG to improve their reporting tool and improve Ruapehu Data Quality d) Review and implement LoS and performance targets as resulting from the ONRC programme. (Also review whether or not there was a comment on LOS improvements in previous AMP audits) e) Routinely capturing and trending performance achieved against the key levels of service targets and potentially benchmarking across other Territorial Authorities across New Zealand. f)	Network Consultant	June 2019	M	In Process
<b>Environmental Stewardship</b>						
13.11.1	Resource consent tracking Project IP1503	Tracking of resource consents and the conditions that they may contain.	Network Consultant	June 2019	M	Pre-implementation Phase
<b>Managing Risk</b>						
14.8	Managing Risk	The following improvements have been identified: (a) Improve information on assets and activity associated risks. (b) Review PESTLE analysis and Asset Management functions (c) Routinely examine untreated risk and existing controls.	Manager Land Transport	Ongoing	M	Pre-implementation Phase
<b>Pavements</b>						

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AMP Ref	Description	Action	Resource	Timing	Priority	Status
16.3.3	Pavement Management Strategy and renewals business case improvements Project IP1506	Refine pavement renewal strategy. There are a number of documents related to pavement renewals but the strategy is not formally recorded.  Other improvements identified for pavements includes: <ul style="list-style-type: none"> <li>• Comparison of the renewal rate vs deterioration rate</li> <li>• Top down check on historical trends for renewal quantities, costs, network LOS KPIs such as condition, performance and backlog.</li> <li>• Top down check by comparison with annual depreciation rates,</li> <li>• Top down check on the total asset type ratio of depreciated replacement cost with replacement cost (from the latest asset valuation). For example, in a stable, steady state network with no renewals backlog, one may expect to have a Depreciated Replacement Cost of half that of its Replacement Cost, and the annual renewals investment to match the Annual Depreciation. If these ratios are significantly different from these then there may be a story that needs explaining.</li> </ul>	Network Consultant	June 2018	M	In Process
<b>Traffic Services</b>						
19.4.3 (g)	Data and Condition Collection Strategy and Improvements Project IP1510	Review data and asset condition collection methods and strategies considering the three end uses of the data namely: <ol style="list-style-type: none"> <li>Maintenance requirements</li> <li>Renewals and Asset Management requirements</li> <li>Asset Management Reporting requirements</li> </ol> <p>There is low confidence in this information, particularly for road signs. This is due to inventory data for signs in RAMM not being updated for a long time as it was not included in the maintenance contract until 2008. Hence there is a gap in data which is currently not addressed through the network contract.</p> <p>RDC tend not to have a 1-5 condition scale for most of the assets, although it is not necessarily required or a cost effective asset management requirement. Also review the effectiveness of the current 10% audit and whether or not a full pavement condition survey may be required at intervals (eg. every 5 years). Or to supplement current 10% audit with high speed data collection method.</p>	Network Consultant	June 2019	L	In Process
19.6.2 (b)	SL Asset Condition Project IP1509	The condition rating data on streetlights is gathered annually by the streetlight contractor and is stored in the RAMM Contractor module. As an improvement Council is considering using this data within RAMM to determine the remaining useful life and improve confidence in forecasted streetlight spending.	Network Consultant	June 2020	L	Pre-implementation Phase
19.2.1 19.3.5	Curve warning signs and delineation strategy Project IP1508	RDC developed a strategy to target route consistency as funds permit (still in draft 2014), this will stay in draft pending finalisation of ONRC standards / LoS.	Network Consultant	June 2019	M	In Process
<b>Footpaths</b>						
20.3.5	Footpath Strategy Project IP1511	Produce a walking and cycling strategy to develop cycleways and walkways.	Manager Land Transport	June 2021	L	Pre-implementation Phase
<b>Cycleways</b>						

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AMP Ref	Description	Action	Resource	Timing	Priority	Status
21.3.1	Cycleway Standard	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.	Manager Land Transport	June 2019	H	In Process
21.3.5	Cycleway Asset Management Plan Project IP1512	Produce a specific Asset Management Plan for the entire trail from Mt Ruapehu to The North Mole at Whanganui, this will include Ruapehu and Whanganui District councils and Department of conservation.	Manager Land Transport	June 2020	M	Pre-implementation Phase
<b>Bus Shelters</b>						
22.2.1	Bus shelter Needs Assessment Project IP1513	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.	Manager Land Transport	June 2021	L	Yes - Ongoing
<b>Facility Roads and Car Parks</b>						
23.3.5	Facility Roads and Car Parks Maintenance and Renewals Plan Project IP1514	Develop a facility roads and car parks maintenance and renewals plan.	Manager Land Transport	June 2020	M	Pre-implementation Phase
<b>Asset Management Practices</b>						
25.5, 25.9.9	Business Continuity Plan	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.	Information Manager	June 2020	M	Pre-implementation Phase
<b>Improvement Programmes</b>						
26.2	Improvement Programmes Datasheet Project IP1515	Move the improvement programme into an excel data base and actively manage the improvement initiatives noted in this plan over the next three years. Establish an Asset Management Steering Team and meet six monthly to review progress against improvement plan.	Manager Land Transport	June 2018	H	Pre-implementation Phase



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## Appendix D - Risk Register – Land Transport

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

The following trends or issues provide the external context for the management of risks for the Land Transport activity, and their anticipated impacts. This table has not been updated since the previous version of Appendix 4 in AMP Version dated 27 February 2015. This informs the Risk Register (Schedule 2). Risks with no impact identified were not included in the Register.

Category	Trends, Issues or Factors	What is the Trend, Issue or Factor?	What are the anticipated impacts on RDC Land Transport Activity?			
			Levels of Service	Growth and Demand	Revenue and Funding	Regulatory or Stakeholder Requirements or Constraints
Political and Policy	Government Policy Statement on Land Transport Funding (2015)	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. The GPS (2015) continues to focus on the same outcomes. A change in the way regional projects are prioritised may impact on the number and size for projects undertaken in the region.	If projects are not a priority with the new regional context then the stated levels of service may need to change on the outputs monitored.	No impact identified	The regional improvements activity class is contestable, meaning that the best projects will receive funding rather than a guaranteed minimum amount of improvement funding. This may impact on what percentage level of the fund RDC is able to access.	No impact anticipated
Political and Policy	Regionalisation: Single regional authority	There is the potential that in the longer term local government bodies may request or be legislated to amalgamate or reorganise. This is not currently under investigation.	Reorganisation or amalgamation would require significant rework of levels of service across the different regions.	Additional growth and demand factors would become apparent under a reorganisation or amalgamation.	Prioritisation of funding would be required within a reorganisation or amalgamation of local authorities which could affect the funding allocated to the RDC land transport assets.	Stakeholder requirements would be affected with differing priorities and understanding.
Political and Policy	Land Transport Regionalisation	Greater coordination of regional transport is emerging. However RDC is a large and isolated network and there is likely to be less advantage from regionalisation.	Reorganisation or amalgamation would require significant rework of levels of service across the different regions.	Additional growth and demand factors would become apparent under a reorganisation or amalgamation.	Prioritisation of funding would be required within a reorganisation or amalgamation of local authorities which could affect the funding allocated to the RDC land transport assets.	Opportunities will be investigated where it is efficient and effective to do so, such as in energy and procurement.

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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
Economy	Infrastructure delivery capacity	The infrastructure industry in New Zealand is stretched with a general shortage of experienced technical personnel.	No impact anticipated	No impact anticipated	No impact anticipated	Limited contractor interest in provincial tenders and risk of uncompetitive prices. RDC has worked to mitigate this risk by splitting the main contract up into smaller ones to suit the local contractor community and increasing the contract term for stability.
Economy	Oil prices	Volatility in global crude oil prices affecting resale prices. The global crude oil price has collapsed to under US\$50 per barrel due to oversupply. The World Bank is forecasting a long-term recovery with prices potentially not returning to 2014 levels until after 2020.	No impact anticipated	No impact anticipated	May translate into a drop in contract resale rates (depends on what happens to the NZ dollar). This will be addressed by annual rate adjustments.	No impact anticipated

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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
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> <ul style="list-style-type: none"> <li>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 (outputs expected mid-2015)</li> <li>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.</li> <li>Progression to larger farming units and transport vehicles</li> <li>Potential for conversion of some forestry land to sheep/deer/dairy following harvesting.</li> <li>Conversion of sheep &amp; deer farms to dairy</li> <li>Continued increase in area of land under market gardening.</li> <li>Increasing aggregate extraction in north of the district, potential opening of coal mines</li> </ul>	<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). Key routes likely to be affected are: Oio, Poro-O-Tarao, Paparaoa, Pipiriki Raetihi Road. 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. RDC is currently developing an Economic Development Strategy. 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. However, a rating differential is under consideration by Council in Long Term Plan to recover forestry costs from forest owners</p>	<p>No impact anticipated</p>

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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
Economy	Tourism Trends	<p>Tourism is an important contributor to the Ruapehu economy. Key trends are:</p> <ul style="list-style-type: none"> <li>• Overall annual visitor numbers to the district are increasing.</li> <li>• There are peaks in visitor numbers in both winter and summer.</li> <li>• Winter visitor numbers are declining, while summer visitor numbers are increasing.</li> <li>• The number of holiday homes in the district is increasing, reflecting Ruapehu as a domestic holiday destination.</li> <li>• Government initiative Tourism 2025 is active within the district.</li> <li>• National cycle trails are driving recreational cyclist numbers (237km of rural roads in the district are included in the National Cycleway network).</li> </ul> <p>Also, following trends are perceived (but not yet quantified):</p> <ul style="list-style-type: none"> <li>• Increasing numbers of motor homes.</li> <li>• Increasing numbers of Te Araroa / Freedom walkers.</li> <li>• Increasing numbers of recreational road users (e.g. adventure bikers).</li> </ul>	<p>There could be pressure on Council for seal extensions on tourist routes to accommodate camper vans. Routes have been identified.</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> <p>Minor improvements required to some roads which are part of the National Cycle Network (e.g. Kokomiko Road).</p>	<p>Overall vehicle kms travelled in the district is decreasing due to the decline in the usually resident population. Visitor trends are driving demand at peak times (summer and winter) for both vehicle and pedestrian traffic in specific locations. The following routes have been identified as having capacity-related issues during peak visitor times:</p> <ul style="list-style-type: none"> <li>• Ohakune Mountain Road – peak day tidal traffic exceeds capacity and is expected to continue to increase.</li> </ul> <p>Isolated widening of roads is not justifiable based on traffic volumes alone. Widening is undertaken in conjunction with renewal/rehabilitation works where economically viable.</p> <p>Potential for increased risk of injury/death arising from accidents involving cyclists on the network. RDC is addressing this through the Cycle Awareness Strategy.</p>	<p>Additional funding required for seal extensions on urban periphery roads. Limited opportunities for RDC to capture funding from tourism:</p> <ul style="list-style-type: none"> <li>• Co-funding for improvement works on Ohakune Mountain Road may be available where it is of benefit to the main commercial operator.</li> <li>• Holiday homes trend is sustaining rates base in the district despite declining normally resident population.</li> </ul>	No impact anticipated

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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
Legal / Regulatory	One Network Road Classification (ONRC) & Performance Indicators	<p>The ONRC implementation has implications for RDC:</p> <ul style="list-style-type: none"> <li>• Changes to the asset hierarchy</li> <li>• Potential changes to LoS</li> <li>• Reclassification of roads</li> <li>• Ability of RDC to demonstrate business case</li> </ul> <p>RDC is developing ONRC Transition Plan.</p>	<p>ONRC has resulted in reclassification of 437km of RDC roads (86.4 km Arterial + 350.3 km Collector reclassified as Access).</p> <p>The ONRC implementation will potentially impact on the number type, and performance targets associated to the Ruapehu District Levels of Service.</p> <p>Key areas include:</p> <ul style="list-style-type: none"> <li>• Emergency Works – response times to road blockages</li> <li>• Road roughness</li> </ul> <p>This has not yet been assessed, but will be addressed by the ONRC Transition Plan. LoS may have to be revisited in 2018 LTP.</p>	No impact anticipated	There is no impact on funding in 2015/18 block allocation. It is likely to have an impact in 2018/21 onwards.	<p>Implementation of the ONRC requires the establishment of a new, nationally consistent road classification hierarchy. RDC has modified its asset database (RAMM) to align to the new road classifications. This is in moderation by NZTA. The ONRC supports a better business case approach by road controlling authorities. This will require RDC to more clearly demonstrate its business case approach to investment decisions. RDC's business cases for investments in pavements and bridges are considered adequate with respect to Better Business Case requirements. Improvements are proposed for RDC's business case processes and documentation for other road asset groups.</p>

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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
Legal / Regulatory	Changes to NZTA Funding	<p>NZTA has advised certain funding changes from 2015 onwards, including changes to:</p> <ul style="list-style-type: none"> <li>• The Financial Assistance Rate (FAR) for local road maintenance, renewals and improvements</li> <li>• Funding of Special Purpose road maintenance and renewals</li> <li>• Funding of Emergency Works</li> <li>• Funding of level crossing maintenance</li> </ul>	Reduced funding may impact services provided.	No impact anticipated	The changes to NZTA funding levels will primarily impact Emergency Works and works on Ohakune Mountain Road (which is a Special Purpose Road). Impacts will be significant for SPR but if introduced in a staged approach, funding impacts can be managed.	No impact anticipated
Legal / Regulatory	Health and Safety Reform Bill / Health and Safety at Work Act	<p>The new Act will impose:</p> <ul style="list-style-type: none"> <li>• A primary duty on a person conducting a business or undertaking (PCBU), to ensure the health and safety of the PCBU's workers and other people associated with the work carried out by PCBU.</li> <li>• A positive due diligence duty on Officers of PCBUs (i.e., those in governance roles) to ensure the PCBU complies with its health and safety duties.</li> <li>• Duties on workers and other people in workplaces.</li> <li>• Duties which provide for better levels of participation by workers in matters of health and safety.</li> </ul>	No impact anticipated	No impact anticipated	Increasing cost of doing business.	Increased liability for Council and staff. Council is supporting contractors (inc. financially) to upskill with respect to H&S management where necessary. Increased monitoring requirements in order to demonstrate compliance.

# Part 4 - Appendices

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
Legal / Regulatory	Increasing environmental standards: <ul style="list-style-type: none"> <li>• Horizons One Plan</li> <li>• National Environmental Standards (NES)</li> </ul>	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.
Legal / Regulatory	Co-Management with Iwi	Recent treaty settlements have increased Iwi expectations re co-management of land under the RMA and Settlement Agreements.	No impact anticipated.	No impact anticipated	Increased costs of doing business.	Increasing difficulty of obtaining Iwi consent for works and potential for stakeholder conflicts (e.g. between DOC and Iwi for works in National Parks).
Social	Changing demographics – Usually Resident Population	The usually resident population is declining across the district. This is predicted to continue over the next ten years. The usually resident population is also aging.	Potential shift in LoS priorities e.g. demand for wider footpaths to accommodate mobility scooters.	The decline in the usually resident population is the primary driver of an overall 37% decline in total vehicle kms travelled in the district over the last 8 years.	Potential decline by rating base, but is partially offset by subdivision growth driven by holiday home trend (see below).	No impact anticipated

# Part 4 - Appendices

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
Social	Changing demographics – Holiday Homes	<p>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:</p> <ul style="list-style-type: none"> <li>• Ohakune</li> <li>• Rangataua</li> <li>• National Park</li> <li>• Horopito</li> </ul> <p>No significant new residential and subdivisional activity is forecast for the district over the next 12 years (annual growth is forecast at 1.3% over this period).</p>	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) compared to normally resident households (2.5).	The increase in holiday homes in the district has been sustaining the District's rates base despite the gradual decline in the usually resident population. However, the forecast growth in rateable assessments for the district is low (~5% over the next ten years).	No impact anticipated
Social	Increasing vehicle ownership and usage	The proportion of households owning more than one car has increase 12% since 1996.	No impact anticipated	This trend is not considered to have significant impact relative to other trends in the district (i.e. overall declining population driving decline in total vehicle kms travelled)	No impact anticipated	No impact anticipated
Technological	50Max Trucks	50MAX trucks have been introduced to the NZ road network. 50MAX High Productivity Motor Vehicles (HPMVs) 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.	50MAX HPMVs 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.	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



## Part 4 - Appendices

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
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"> <li>• Increase in overall rainfall, with increase in rainfall intensity</li> <li>• Number and strength of ex-tropical cyclones reaching NZ also likely to increase</li> <li>• Decrease in winter temperatures and snowfall. Places which currently receive snowfall likely to see shift to rainfall or sleet.</li> </ul>	Potential increase in number of rainfall-induced landslips affecting route availability.	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	Increased need for robust emergency management and business continuity plans.

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# Part 4 - Appendices

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## **Schedule 2 – Land Transport Activity Risk Register**

The risk register provided in the following tables for the current and future Land Transport activities of Ruapehu District Council have been developed in consultation with key staff. It is informed by the PESTLE analysis (Schedule 1) and Asset Management Function Review table (Schedule 3) from 2015. The Risk Register was updated in August 2017. 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 2 Section 14 - Managing Risk.

# Part 4 - Appendices

## Risk Register

### Guidance – Tolerance Definitions:

**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.

Last updated 28  
August 2017

Risk ID	Risk Name	Risk Description	Current Actions / Controls addressing the risk	Evaluation			Tolerance	Comments	Additional Management Options	Ownership	Reporting	Review
				Consequences	Likelihood	Risk Score						
	Short risk name	What is the risk (inc. causes and impacts)?	What actions or controls are already in place to reduce or mitigate the risk?				Reduce Tolerate Accept	Explain the risk evaluation and tolerance rating.	What specific management actions are required? <b>Reduce:</b> Risk reduction required. <b>Tolerate:</b> Risk must be monitored. Reduce if cost-effective. <b>Accept:</b> Periodic review.	Who owns this risk?	Where is this risk reported? Council Chief Exec. Strategy Team	Next Review Due
LT1	Collapse of unmaintained bridges	Potential failure of unmaintained bridges leading to injury, death and/or environmental impact. Full extent of exposure is unknown as total number of unmaintained structures is unknown. Currently 25 unmaintained bridges have been identified. Although inspections of the 25 identified bridges are carried out every 2 years, RDC has so far been unable to reduce this risk. Some bridges have significant (> 5m) drops beneath them.	2-yearly inspections of the 25 known bridges.	Catastrophic	Possible	Extreme	Reduce	Potential for loss of life from bridge collapse. Potentially low likelihood as unmaintained network has very low volumes but full extent of exposure unknown. Potentially decreasing tolerance for this risk due to changing H&S requirements.	Gain legal opinion where required Develop and resource a strategy for dealing with these risks (e.g. remove, close, upgrade or other solution). Add bridges to the register as they are discovered	Land Transport Manager	Strategy Team	June 2018

## Part 4 - Appendices

LT2	Increased pavement deterioration due to forestry haulage	<p>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.</p> <p>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.</p> <p>Increased costs for pavement rehab as need to design for increased HCV loads (expect most plantations to be replanted).</p>	<p>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.</p> <p>Due to difficulty of predicting pavement deterioration, typically respond reactively to forestry industry requests for works on roads.</p>	Significant	Likely	High	Tolerate	<p>Forestry harvesting is a certainty in the district. Consequences are potentially significant but magnitude, timing and location are uncertain. Forestry driven renewals alone could be &gt; 100% of current annual district-wide renewal budget. Next 10-20 years will require increased reactive renewals. Risk may be tolerable but need greater understanding of timing and magnitude of impacts on RDC expenditure over next 20 years.</p>	<p>Improve knowledge about forestry harvest programme to input into pavement renewal forecasts. Longer-term consider options for alternative sources of funding for forestry road renewals.</p>	Land Transport Manager	Chief Executive	June 2018
LT3	One Network Road Classification (ONRC)	<p>Implementation of ONRC and Better Business Case approach impacts LoS and ability to secure funding from NZTA. 95% of RDC network is classified as Access or Access (Low Volume) under ONRC. Potential for widening gap between RDC LoS and LoS which are subsidisable by NZTA resulting in reduced NZTA funding from 2018/21. Full</p>	<p>ONRC transition period is 2015 – 2018. Implications on LoS and funding will be worked out over this period. An ONRC Transition Plan was developed in 2015. RDC is part of a peer group of local authorities with similar road networks and issues. Peer group will support the case to NZTA to minimise</p>	Significant	Possible	Medium	Accept	<p>ONRC is being implemented. Impacts are potentially significant but appear to be manageable. Risk may be acceptable, but need to monitor progress during</p>	<p>Focus on building relationships with NZTA Investment Advisors and ways to demonstrate business case to stakeholders and NZTA (e.g. network drive-overs). Focus on strengthening evidence base for the</p>	Land Transport Manager	Chief Executive	June 2020

# Part 4 - Appendices

## Risk Register

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Last updated 28  
August 2017

Risk ID	Risk Name	Risk Description	Current Actions / Controls addressing the risk	Evaluation			Tolerance	Comments	Additional Management Options	Ownership	Reporting	Review
				Consequences	Likelihood	Risk Score						
	Short risk name	What is the risk (inc. causes and impacts)?	What actions or controls are already in place to reduce or mitigate the risk?				Reduce Tolerate Accept	Explain the risk evaluation and tolerance rating.	What specific management actions are required? <b>Reduce:</b> Risk reduction required. <b>Tolerate:</b> Risk must be monitored. Reduce if cost-effective. <b>Accept:</b> Periodic review.	Who owns this risk?	Where is this risk reported? Council Chief Exec. Strategy Team	Next Review Due
		implications of ONRC on LoS and funding are more certain and attract lower risk in 2017..	impacts of reclassifications under ONRC. BBC approach is opportunity to demonstrate investment needs to stakeholders and NZTA. Lifecycle management section of the AMP provides cornerstone of business case. RDC has developed a Pavement Renewal Strategy and is modifying this as forest harvest impact require reactive intervention. .					2018-2021 and review response accordingly.	business case (especially data on trends driving growth and demand). This should be addressed by the Pavement Renewal Strategy. Engage professional services to assist with implementing BBC approach and support investment case to NZTA. Utilise REG support:			

# Part 4 - Appendices

## Risk Register

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Last updated 28  
August 2017

Risk ID	Risk Name	Risk Description	Current Actions / Controls addressing the risk	Evaluation			Tolerance	Comments	Additional Management Options	Ownership	Reporting	Review
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	Short risk name	What is the risk (inc. causes and impacts)?	What actions or controls are already in place to reduce or mitigate the risk?				Reduce Tolerate Accept	Explain the risk evaluation and tolerance rating.	What specific management actions are required? <b>Reduce:</b> Risk reduction required. <b>Tolerate:</b> Risk must be monitored. Reduce if cost-effective. <b>Accept:</b> Periodic review.	Who owns this risk?	Where is this risk reported? Council Chief Exec. Strategy Team	Next Review Due
LT4	Impact on local share affordability from changes to NZTA FAR	Changes to NZTA Financial Assistance Rates (FAR) will primarily impact Special Purpose Roads (Ohakune Mountain Road) and Emergency Works (EW) during the transition period.	Impacts can be managed if introduced in a staged approach.  Local Road FAR is increasing over the same period which will help to offset impact on local share	Minor	Almost Certain	Medium	Tolerate	Risk is adequately managed through current practices. However, any opportunities for external funding should be investigated.	Investigate options for co-funding of improvement works on Ohakune Mountain Road where it is of benefit to the ski field operator.	Land Transport Manager	Chief Executive	June 2018

# Part 4 - Appendices

LT5	Collapse of maintained bridges	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.	All bridges are structurally inspected every 6 years. However, programmed seismic survey has 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.	Catastrophic	Unlikely	High	Reduce	Risk is managed through current practices. The likelihood has been chosen as the bridge stock is degrading and aging. At least 1 bridge that is restricted to 50% loading is known to have trucks at 100% loading using the bridge. Additional signage has been installed to give advanced warning on sites where there is known to be potential for abuse.	Increased investment in Bridge and Component Renewals in 2018-28 AMP  Advocate for increased compliance monitoring of weight restricted bridges by Commercial Vehicle Investigation Unit (CVIU)  Education and community liaison in affected communities	Land Transport Manager	Strategy Team	June 2018
LT6	50MAX Bridge Upgrades	Reprioritisation of district expenditure to enable upgrades of 50MAX restricted bridges. 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	Some weight restricted bridges will be upgraded in 2018/28 AMP to 100% of Class 1 RDC is not currently planning to upgrade any additional 50MAX restricted bridges. All 50MAX restricted bridges have been identified and mapped on GIS.	Significant	Unlikely	Medium	Accept	This risk has been rated as medium and 'Accept' as any additional upgrades, outside of those to existing restricted bridges, will need to be planned in advance to	Monitor this risk with respect to identified trends in the primary sector. Bridges to be assessed for 50 Max requirements and prioritised	Land Transport Manager	Strategy Team	June 2018

# Part 4 - Appendices

## Risk Register

### Guidance – Tolerance Definitions:

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Last updated 28  
August 2017

Risk ID	Risk Name	Risk Description	Current Actions / Controls addressing the risk	Evaluation			Tolerance	Comments	Additional Management Options	Ownership	Reporting	Review
				Consequences	Likelihood	Risk Score						
	Short risk name	What is the risk (inc. causes and impacts)?	What actions or controls are already in place to reduce or mitigate the risk?				Reduce Tolerate Accept	Explain the risk evaluation and tolerance rating.	What specific management actions are required? <b>Reduce:</b> Risk reduction required. <b>Tolerate:</b> Risk must be monitored. Reduce if cost-effective. <b>Accept:</b> Periodic review.	Who owns this risk?	Where is this risk reported? Council Chief Exec. Strategy Team	Next Review Due
		upgrade 50MAX restricted bridges in the district. NZTA funding for 50MAX upgrades may be restricted on low volume roads.						receive funding from NZTA. Additional pressure from stakeholders will be managed or reviewed as it arises.				
LT7	Footpaths – pedestrian trip/fall hazards	Pedestrian injury caused by unidentified trip hazards on footpaths. Footpaths generally in good condition.	Footpath inspections Annual Lip grinding programme	Significant	Unlikely	Medium	Tolerate	Risk can be tolerated provided high risk trip/fall hazards can be identified and addressed. Opportunities to reduce overall risk exposure through asset disposal should be realised.	Prioritise footpaths for reactive maintenance/renewal based on risk assessment. Identify opportunities to dispose of footpath assets where justified based on reduced population/usage.	Land Transport Manager	Strategy Team	June 2018



# Part 4 - Appendices

## Risk Register

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August 2017

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				Consequences	Likelihood	Risk Score						
	Short risk name	What is the risk (inc. causes and impacts)?	What actions or controls are already in place to reduce or mitigate the risk?				Reduce Tolerate Accept	Explain the risk evaluation and tolerance rating.	What specific management actions are required? <b>Reduce:</b> Risk reduction required. <b>Tolerate:</b> Risk must be monitored. Reduce if cost-effective. <b>Accept:</b> Periodic review.	Who owns this risk?	Where is this risk reported? Council Chief Exec. Strategy Team	Next Review Due
LT8	Deep drains – safety hazards	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.	Deep drains are repositioned / re-profiled in conjunction with pavement renewals. It is noted that it will take a long time to address all deep drains.	Significant	Unlikely	Medium	Accept	Risk is adequately managed through current practices.	Repositioning or reprofiling of drains during renewals should take into consideration any effects on stormwater capacity and potential flooding issues.	Land Transport Manager	Strategy Team	June 2018

# Part 4 - Appendices

## Risk Register

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Risk ID	Risk Name	Risk Description	Current Actions / Controls addressing the risk	Evaluation			Tolerance	Comments	Additional Management Options	Ownership	Reporting	Review
				Consequences	Likelihood	Risk Score						
	Short risk name	What is the risk (inc. causes and impacts)?	What actions or controls are already in place to reduce or mitigate the risk?				Reduce Tolerate Accept	Explain the risk evaluation and tolerance rating.	What specific management actions are required? <b>Reduce:</b> Risk reduction required. <b>Tolerate:</b> Risk must be monitored. Reduce if cost-effective. <b>Accept:</b> Periodic review.	Who owns this risk?	Where is this risk reported? Council Chief Exec. Strategy Team	Next Review Due
LT9	Changing road user trends – safety issues	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	Currently only \$15,000 per year safety education budget Consider temporary warning signs on routes with forestry harvesting as required. Cycle Awareness Strategy Draft Delineation Policy MOTSAM	Catastrophic	Unlikely	High	Tolerate	Risk is currently tolerable. However, needs to be monitored with respect to identified demand trends.	Monitor road safety incidents and trends Consider safety awareness campaign at tourist information sites (highlight hazards in the district) Connect up with national road safety campaigns targeting tourists. Engage with forestry / trucking companies on driver awareness of hazards in the district. Potentially verge mowing on roads which are key freedom walking routes	Land Transport Manager	Strategy Team	June 2018

# Part 4 - Appendices

LT10	Hazardous substance incident	Environmental impacts, road closures, and potential impacts on RDC rivers and water supplies, resulting from hazardous substance spill following vehicle crash (local road or State Highway), or derailment. Exposure is unknown in terms of frequency and types of substances being transported. But distribution 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).	There are currently no route restrictions in place regarding transport of hazardous substances. RDC does not currently have a response plan for hazardous substance incidents. 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 Provide initial response where suitable	Significant	Unlikely	Medium	Accept	This risk has been rated as acceptable because there are existing and effective controls for carriers in place for the transport of hazardous substances.  The roading team is able to respond to small scale spills on roads.  The Regional Civil Defence emergency management planning is well established and practiced.	Continue to support Emergency Management structures within Council and Region	Land Transport Manager	Strategy Team	June 2018
LT11	Snow and Ice	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.	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	Likely	High	Tolerate	Snow and ice are a routine hazard on district roads due to location and altitude. However, there may be opportunities to improve RDC response (if cost-effective).	Review response plan with respect to clearing main roads between urban centres and State Highways.	Land Transport Manager	Strategy Team	June 2018
LT12	New H&S Requirements	Changes to H&S regulations came into effect in April 2016 with increased liability to RDC (especially personal liability for officers).	RDC is aware of requirements and is implementing compliance measures. This includes supporting contractors to upskill to meet new H&S requirements.	Significant	Unlikely	Medium	Reduce	Risk is tolerable with actions underway to ensure RDC fulfils the new obligations.	Continue to implement current H&S improvement practices. Monitor improvements to	Land Transport Manager	Strategy Team	June 2018

# Part 4 - Appendices

## Risk Register

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Risk ID	Risk Name	Risk Description	Current Actions / Controls addressing the risk	Evaluation			Tolerance	Comments	Additional Management Options	Ownership	Reporting	Review
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	Short risk name	What is the risk (inc. causes and impacts)?	What actions or controls are already in place to reduce or mitigate the risk?				Reduce Tolerate Accept	Explain the risk evaluation and tolerance rating.	What specific management actions are required? <b>Reduce:</b> Risk reduction required. <b>Tolerate:</b> Risk must be monitored. Reduce if cost-effective. <b>Accept:</b> Periodic review.	Who owns this risk?	Where is this risk reported? Council Chief Exec. Strategy Team	Next Review Due
		Primary risk is potential for non-compliance (including contractors) through failure to implement necessary improvements. There is also a financial risk associated with achieving compliance.						However, the implementation of these actions needs to be closely monitored to ensure they are effective.	ensure improvements are effective.			

# Part 4 - Appendices

LT13	Ability to deliver Asset Management Programme	<p>Current and future climate is characterised by:            Increasing costs (e.g. due to increasing H&amp;S and environmental requirements)            Increasing renewal requirements (e.g. due to introduction of forestry haulage)            Increasing constraints on funding (ONRC / NZTA FAR, flat line rating base)            Changing LoS expectations            Risk is that Council is unable to fulfil agreed LoS or manage growing renewals backlog, resulting in loss of confidence in Council as an effective asset manager by community and Elected Representatives.</p>	<p>Key trends and risks have been identified and are being monitored. Management actions are being implemented.            AMP and LTP processes are in place. These include community and stakeholder consultation processes.            Consequences of budget levels vs asset management needs are demonstrated to Elected Representatives (Appendix 4 of AMP).            Opportunities for LoS reductions or asset disposals are considered as part of life cycle management.</p>	Major	Unlikely	High	Tolerate	<p>Risk is tolerable within current practices and planned improvements.            Opportunities to improve understanding of long-term impacts on LoS, or effectiveness of communication with community and Elected Representatives should be considered as these are critical controls.</p>	<p>Continue with current Business as Usual practice and planned improvements.            Consider improved ways to demonstrate long-term implications of budget constraints on levels of service geospatially.            Forestry differential introduced in 16/17 to offset additional costs of pavement renewal</p>	Land Transport Manager	Strategy Team Council	June 2018
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# Part 4 - Appendices

## Schedule 3 – Land Transport Activity Review of Asset Management Functions

This table shows the internal risks for the Asset Management Function. This table, along with the PESTLE analysis was used to inform the Risk Register (Schedule 2). The table was produced in 2015 for the previous AMP.

<b>1. Asset Condition and Performance</b>					
<b>Assessment Questions</b>	<b>Pavements (Sealed and Unsealed)</b>	<b>Structures (Bridges, Large Culverts, Retaining Walls)</b>	<b>Drainage (Channels, Small Culverts)</b>	<b>Traffic Services</b>	<b>Other Assets (Footpaths, Cycleways, Bus Shelters, Facility Roads and Carparks)</b>
<b>Typical Failure Modes</b>	Loss of skid resistance (e.g. flushing, polishing, ravelling / stripping, accumulation of loose material) Loss of structural or surface integrity (e.g. cracking, rutting, potholes) Loss of shape (e.g. camber, corrugations) Slips (under- and over-slips)	Loss of structural integrity Degradation of appearance and super structure	Blockage (leading to excess surface water, flooding) Loss of shape Loss of structural integrity (kerb and channel)	Loss of structural integrity Signs, markings, railings not visible/missing Failure of supporting structures (e.g. lighting columns or brackets) Loss of illumination Non-conformance with standards	Loss of structural or surface integrity Loss of amenity Pavement deformation (trip hazards)
<b>Typical Drivers / Causes of Failure</b>	Age-related deterioration Cumulative traffic loading Over-weight vehicle loading 3 <sup>rd</sup> party contractor damage Scour Water penetration of the pavement base Cumulative surfacing treatments Incorrect bitumen content (too high / too low) Ice Excess summer temperatures	Over-weight vehicle loading Collision or impact Seismic loading Scour Age-related deterioration (e.g. concrete cancer, metal corrosion) Sedimentation or obstruction by debris (for bridges spanning water bodies / channels) Fire Overpressure (walls) Vandalism Vegetation growth	Sedimentation or obstruction by debris Vegetation growth or root penetration Age-related deterioration 3 <sup>rd</sup> party contractor damage	Age-related deterioration Dirt, grime, rubbish build up Collision/ impact damage or vandalism 3 <sup>rd</sup> party contractor damage Vegetation growth (obstruction, overgrowth, root damage) Wind loading or damage Component failure (e.g. bulbs) Power failure Obsolescence	Age-related deterioration Vegetation growth, including root intrusion Dirt, grime, rubbish build up Vandalism 3 <sup>rd</sup> party contractor damage
<b>Current Practices</b> What practices does RDC currently have in place to operate, maintain, and monitor transport assets?	Pavement construction and maintenance specifications (based on NZTA HM specifications) HPMV Route restrictions (no HPMV routes in RDC) Corridor Access Request procedure	HPMV Route restrictions (no HPMV routes in RDC) Weight and speed restricted bridges. 50MAX restrictions on some bridges and narrow roads.	Routine visual inspection of assets as part of maintenance contract. Culvert maintenance (typically reactive). Removal of detritus in water channels	Draft Delineation standard developed. To be finalised and put in place for markings Annual remarking of all road markings.	<b>Bus Shelters:</b> Maintenance of bus shelters, including cleaning, graffiti removal, weed spraying and minor repairs is undertaken by the Parks and Reserves contractor on a reactive basis.

# Part 4 - Appendices

1. Asset Condition and Performance					
Assessment Questions	Pavements (Sealed and Unsealed)	Structures (Bridges, Large Culverts, Retaining Walls)	Drainage (Channels, Small Culverts)	Traffic Services	Other Assets (Footpaths, Cycleways, Bus Shelters, Facility Roads and Carparks)
	<p>Pavement Condition and Roughness Assessments (carried out 2 yearly)</p> <p>Grading of unsealed roads</p> <p>Maintenance of unsealed shoulders</p> <p>Repairs (inc. potholes, pavement failures, surface openings and levelling, defects, edge breaks)</p> <p>Frost, ice gritting and snow clearing</p> <p>Carriageway cleaning (including kerb and channels).</p> <p>Renewals (including Reseals, Sealed Road Rehabilitation or Reconstruction, Unsealed Road Re-Metalling)</p>	<p>Annual general bridge inspections undertaken by a bridge inspector on all bridges in accordance with NZTA bridge inspection policy</p> <p>Six yearly principal bridge and culvert inspections undertaken by a bridge inspector on all non-restricted bridges.</p> <p>Special inspections on all restricted bridges every two years and after specific events such as earthquakes, severe floods or instances of overloading.</p> <p>Six yearly structural inspections of unmaintained bridges.</p> <p>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, maintaining drainage, watercourse training.</p> <p>Formal inspection regime for all large culverts, including papa drives, as part of bridge inspections, and culverts programmed for repair or replacement based on assessed condition.</p>	<p>Cleaning and reshaping rural water channels.</p> <p>Forming and reshaping cut-out drains.</p> <p>Kerb and channel sweeping.</p> <p>Urban vegetation control.</p> <p>Spraying of rural water channels (weed control).</p> <p>Renewal in conjunction with pavement renewals (as required).</p> <p>High Pressure water blasting</p>	<p>Routine inspections for signs and rails (4-weekly on sealed roads, 8-weekly on unsealed roads).</p> <p>Routine inspections for lighting (monthly in urban and rural areas). Obsolete, damaged or non-conforming signs are replaced on a reactive basis.</p> <p>Lamps are replaced on a cyclic four year bulk replacement programme. LED replacement policy for lighting being developed.</p> <p>Defined response times to identified sign and lighting repairs or issues.</p>	<p><b>Facility Roads and Carparks:</b> Six monthly inspections to identify defects. Renewals on as required basis, subject to budget constraints.</p> <p><b>Footpaths:</b> Reactive maintenance carried out on isolated sections. Reactive renewal is carried out on sections &gt; 20m in length. Annual lip grinding programme. Cleaning in CBD areas carried out by Parks and Reserves. Debris cleared reactively.</p> <p><b>Facility Roads &amp; Carparks:</b> reactive maintenance and periodic renewal. Backlog of renewal works.</p>
<p><b>Current Asset Condition and Performance</b></p> <p>What is the current state of the asset base?</p>	<p>In 2014 approximately 21.7% or 206 lane km of the sealed network had a NAASRA count &gt;150.</p>	<p><b>Aging bridge stock:</b> Around 10% of bridges are nearing the end of their design lives.</p> <p><b>Seismic Vulnerability:</b> Majority of the bridge stock was constructed</p>	<p>The roading contractor continually inspects and identifies necessary works as a function of the maintenance contract.</p>	<p><b>Signs:</b> Signs stock is generally in average condition due to overall age of stock.</p> <p><b>Lighting:</b> more than 65% brackets, 90% of lights and 85% of poles are</p>	<p><b>Footpaths:</b> In general the footpath condition is considered to be good.</p> <p><b>Bus Shelters:</b> Condition assessments have not been carried out on bus shelters.</p>

# Part 4 - Appendices

1. Asset Condition and Performance					
Assessment Questions	Pavements (Sealed and Unsealed)	Structures (Bridges, Large Culverts, Retaining Walls)	Drainage (Channels, Small Culverts)	Traffic Services	Other Assets (Footpaths, Cycleways, Bus Shelters, Facility Roads and Carparks)
Are there any significant known issues with asset condition or performance?	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. The sealed network is classed as rough using the One Network Road Classification Provisional Performance Measures, because approximately 16% of it has a NAASRA count in the Very Poor range, compared with the draft target of 5% or less.	prior to 1972, before introduction of modern seismic standards. Some seismic issues identified out of 6-yearly structure inspections, but a programmed seismic survey has not been undertaken. Strengthening works depend on available budget and NZTA funding. <b>ARMCO Culverts:</b> Around 33% of all large culverts are ARMCO which is known to have a short lifespan (~25 years, depending on geology and corrosion rates). <b>Papa Drives:</b> Papa drives are hand excavated tunnels in sedimentary rock (‘papa’), and make up around 20% of all large culverts. These drives are not engineered and some have collapsed in the past. <b>Unmaintained Bridges:</b> most of the 25 unmaintained bridges which are currently inspected are known to be in poor condition.	RAMM Condition rating assessments are not undertaken specifically on the drainage assets. <b>Undersize Culverts:</b> Many culverts are undersized and are under pressure during rain events. <b>Deep drains:</b> Some culverts are very deep next to the road edge and are a potential hazard for road users. Improvements have systematically been made to surface water drainage over the last eight years through regular cleaning and re-profile programmes to reduce the depth next to the carriageway.	in good or excellent condition, with a remaining life expectancy of more than 10 years	
<b>Identified Weaknesses or Gaps in Current Practices</b> Are there any weaknesses or gaps in RDC’s current practices due to any of the following: <ul style="list-style-type: none"> <li>Staff not having the required skills and knowledge?</li> <li>Supporting asset and activity information</li> </ul>	<b>Deferred maintenance and renewals:</b> The total network faults identified exceed the current maintenance budget by approximately 20%. Additionally, the reseal rate is less than target (37km). (Last 5 years - 09/10 - 23km, 10/11 - 26km, 11/12 32km , 12/13 – 30km, 13/14 – 33km achieved, including pavement rehabilitation seal). This will impact network levels of service, especially roughness over the longer term.	<b>Unmaintained bridges:</b> There is approx. 1,300km of unmaintained roads within the district (including paper roads or road reserve). Structures (including bridges and large culverts) located on unmaintained roads are not currently maintained. Council is currently inspecting the 25 unmaintained bridges that we are aware of on a 2 yearly basis. However the total number of	None identified.	<b>Signage:</b> There is some backlog of deferred maintenance. <b>Road Marking:</b> Council’s Draft Delineation Standard requires all rural sealed roads over 5.1m wide with over 50 vehicles per day to have centre lines. It is estimated that 80% of the rural roads are compliant.	<b>Footpaths:</b> <b>Inspections:</b> Footpaths were inspected annually in the previous maintenance contract. It has not been included in the new C1720 Sealed Pavement Maintenance Contract; however, this will be reinstated. The inspections will identify footpath defects and trip hazards and rate the condition. <b>Maintenance and Renewal:</b> Footpaths are maintained and renewed on a reactive basis.



# Part 4 - Appendices

1. Asset Condition and Performance					
Assessment Questions	Pavements (Sealed and Unsealed)	Structures (Bridges, Large Culverts, Retaining Walls)	Drainage (Channels, Small Culverts)	Traffic Services	Other Assets (Footpaths, Cycleways, Bus Shelters, Facility Roads and Carparks)
<p>is not complete, reliable or up-to-date?</p> <ul style="list-style-type: none"> <li>Supporting systems and technology are not fit for purpose?</li> <li>Business processes are not adequately defined, implemented, and controlled?</li> <li>Resources are insufficient (including budgets, staffing levels)?</li> </ul>	<p>There is currently a backlog of reseals and this is being investigated</p>	<p>unmaintained structures is not known.</p> <p>RDC has previously intended to investigate transferring ownership of unmaintained bridges to adjacent landowners; however this plan has never been actioned due to resource constraints.</p> <p>Most of the 25 unmaintained bridges should be weight restricted due to their condition. However, resourcing has so far not been made available to put up signs / barriers.</p> <p><b>Deferred maintenance (bridges):</b> As a result of previous budget constraints, there is a significant backlog of work, ranging from bridge structure painting to upgrading under strength structural components. However, this is now being addressed with budget funded from savings in other programmes.</p> <p><b>Retaining Wall Inspections:</b> Are generally rock walls that become part of the surrounding landscape. Retaining walls are visually inspected rather than structurally.</p>			<p>However, budget constraints have created a backlog of deferred work. It is noted that footpath maintenance and renewal is usually the “low hanging” fruit when it comes to budget cuts. It would take ~240 years to renew all footpaths in the district at current rates of investment.</p> <p><b>Facility Roads / Carparks:</b> <b>Renewal:</b> There is a backlog of deferred renewal work, due to the lack of a renewal budget prior to 2012. This is being incrementally addressed.</p>

# Part 4 - Appendices

2. Activity Planning			
Assessment Questions	Capacity & Service Levels	Road User Safety	Resilience (Hazard Readiness, Response, Recovery)
<b>Contributing Factors or Drivers</b>	Road geometry (alignment and width) Road side environment and hazards Surface type (sealed vs unsealed) Pavement condition Driver familiarity and experience Traffic volumes User expectations ONRC	The road alignment and speed environment The safety standard (e.g. lane and shoulder widths, proximity of road side hazards, presence of signs, lighting and barriers) The condition of transport assets The driving conditions (e.g. weather conditions, traffic volumes, night time) Vehicle condition User behaviour (including drivers, pedestrians, cyclists)	Snow and ice Flooding Landslips Traffic incident involving hazardous substances release Volcanic eruption Lahar Earthquake Wildfire
<b>Critical Locations</b> What are the critical locations on the network?	Main roads. Network consists of a number of river valleys serviced by spine roads. Key tourist routes (e.g. Ohakune Mountain Road) Bottlenecks or pinch-points (e.g. one-lane bridges or intersections) Roads near town centres, schools, community facilities Unsealed Urban periphery roads (these have been identified)	Intersections (including pedestrian crossings) Schools Speed Advisory Curves Level Crossings (vehicle or pedestrian) Bridges (esp. 50MAX restricted bridges, unmaintained bridges) High speed environments Narrow, unsealed rural roads High HCV volume routes Cyclist routes (National Cycleway Routes) High pedestrian volume public spaces (e.g. town centres) Tourist view points (i.e. popular stopping places for photos) Stock droving routes and crossing points	<b>Critical routes are:</b> <ul style="list-style-type: none"> <li>• Oio Road</li> <li>• Ruatiti Road</li> <li>• Ohura Road and Okahukura Saddle Road</li> <li>• Paparoa Road</li> <li>• Ongarue Waimiha Road</li> <li>• Hekeawai Drive and access track (alternative emergency access to Hospital if SH 43 Hospital Hill is closed or blocked)</li> <li>• Ohakune Mountain Road</li> <li>• Raetihi Ohakune Road</li> <li>• Raetihi-Pipiriki Road</li> <li>• Poro-O-Tarao Route</li> </ul> <b>The following roads are vulnerable to lahars:</b> <ul style="list-style-type: none"> <li>• Strachans Access</li> <li>• Ngamokai Rd</li> <li>• Whangaehu Valley Rd</li> </ul>

# Part 4 - Appendices

## 2. Activity Planning

Assessment Questions	Capacity & Service Levels	Road User Safety	Resilience (Hazard Readiness, Response, Recovery)
<p><b>Current Practices</b> What practices does RDC currently have in place for:</p> <ul style="list-style-type: none"> <li>• Planning for future growth, demand and levels of service</li> <li>• Identifying and addressing safety issues</li> <li>• Hazard readiness, response, and recovery</li> </ul>	<p><b>Network Demand and Condition:</b></p> <ul style="list-style-type: none"> <li>• Traffic counts</li> <li>• Condition Monitoring (roughness etc)</li> <li>• Service Request system</li> </ul> <p><b>Community / Stakeholder Consultation:</b></p> <ul style="list-style-type: none"> <li>• Valley Meetings</li> <li>• Consultative Processes (eg Annual Plan and Long Term Plan submissions)</li> <li>• Key urban periphery roads have been identified and community views on LoS for these roads (e.g. seal extensions) are monitored.</li> </ul> <p><b>Optimised Decision Making:</b> Opportunities to reduce levels of service are identified. This is looked at as assets come up for renewal and may include removing seal (700m of road were unsealed in 2014). Road closures (stopping) may be considered or discontinuing maintenance. Permanent road closures are governed by the Local Government Act 1974 and have to meet certain legislated requirements.</p> <p><b>Road Design (Sealed Road Renewals / Rehabs):</b> Pavement design for renewal or rehab of sealed roads takes into account all relevant factors in accordance with applicable design standards, including future traffic loading.</p> <p><b>Asset Management Plan</b> The AMP provides the cornerstone of business case for investment in the land transport activity. A pavement renewal strategy is being developed.</p>	<p><b>Policy Controls:</b></p> <ul style="list-style-type: none"> <li>• Speed limits</li> <li>• Speed / Weight restrictions on bridges</li> </ul> <p><b>Education Controls:</b></p> <ul style="list-style-type: none"> <li>• Cycle Awareness Strategy</li> </ul> <p><b>Asset Controls:</b></p> <ul style="list-style-type: none"> <li>• Signs and Markings (Draft Delineation Strategy being developed)</li> <li>• Pavement surfacing</li> <li>• Pavement alignment and camber</li> <li>• Lighting</li> <li>• Barriers, guard rails, sight rails</li> </ul> <p><b>Asset Management Controls:</b></p> <ul style="list-style-type: none"> <li>• Road design standards</li> <li>• Construction and maintenance specifications</li> <li>• Maintaining assets through operational, maintenance and renewal activities</li> <li>• Road Infrastructure Safety Assessments</li> <li>• Planned and Urgent safety improvements</li> <li>• Route improvement strategies</li> <li>• Investigation of Serious and Fatal Crashes</li> </ul>	<p><b>Co-ordination</b></p> <ul style="list-style-type: none"> <li>• Member of Manawatu-Whanganui CDEM Group (run through Horizons Regional Council)</li> <li>• Member of Central Plateau Volcanic Advisory Group</li> </ul> <p><b>Readiness</b></p> <ul style="list-style-type: none"> <li>• MW CDEM Group Plans. A 5-year review of CDEM Plans is currently underway.</li> <li>• RDC Response Plans have been developed for landslips, flooding, earthquake, volcanic eruption, wildfire.</li> <li>• Call centre procedures in place</li> <li>• Emergency Procedures Manual is included in Road Maintenance contracts</li> <li>• Participation in regional major events exercises (last one was 2014)</li> </ul> <p><b>Hazard Alerts</b></p> <ul style="list-style-type: none"> <li>• Civil Defence Emergency Alert Service</li> <li>• Ruapehu Lahar Alarm and Warning System: there are 3 systems on the mountain.</li> <li>• MetService Severe Weather Warnings</li> <li>• Alarms on river levels (monitored by Horizons Regional Council)</li> <li>• GNS monitoring of volcanic activity (alerts via Civil Defence)</li> </ul> <p><b>Response</b></p> <ul style="list-style-type: none"> <li>• Snow and ice gritting and CMA pre-treatment</li> <li>• Pre-qualified maintenance contractors: can act as sub-contractors to main contractor and authorised to commence work independently.</li> <li>• Local knowledge: RDC staff and contractors have extensive local knowledge and know the recurrent 'trouble locations'</li> </ul>

# Part 4 - Appendices

## 2. Activity Planning

Assessment Questions	Capacity & Service Levels	Road User Safety	Resilience (Hazard Readiness, Response, Recovery)
<p><b>Current Issues</b> What issues have been identified?</p>	<p><b>Peak Tourist Traffic:</b> Visitor trends are driving demand at peak times (summer and winter). The following road has been identified as having capacity-related issues during peak visitor times:</p> <ul style="list-style-type: none"> <li>• Ohakune Mountain Road – peak day tidal traffic exceeds capacity and is expected to continue to increase.</li> </ul> <p><b>Changing LoS Expectations:</b> Changing community, industry and visitor levels of service expectations due to changing demographics and economy in the district. These include:</p> <ul style="list-style-type: none"> <li>• Routes with increasing tourist traffic - Oio, Ruatiti, Ongarue Waimiha and Koromiko Roads – partly unsealed, areas of poor geometry with increasing tourism traffic expected. Widening of these roads is not justifiable based on traffic volumes alone. Widening is undertaken in conjunction with renewal/rehabilitation works where economically viable</li> <li>• Sealing roads at the urban periphery</li> <li>• Enhancing urban centres</li> <li>• Providing better access for heavy vehicles, particularly with the nationwide trend towards larger trucks. May be pressure in future to upgrade 50MAX restricted bridges.</li> <li>• Desire for new footpaths, mainly on residential streets.</li> <li>• Some areas may see LoS decreases (inc. asset disposals) where no longer viable due to declining populations.</li> </ul>	<p><b>Safety Hazards (General)</b> Due to the nature of the road network, a number of hazards are prevalent on RDC roads:</p> <ul style="list-style-type: none"> <li>• Narrow, unsealed rural roads</li> <li>• Road side environments are unforgiving (proximity of trees, deep drains, steep drop-offs)</li> <li>• Snow and ice on alpine roads during winter season</li> </ul> <p><b>Increasing Safety Risks from Road User Trends</b> Changing road user trends results in increase in fatal/serious accidents on the road network. Trends include:</p> <ul style="list-style-type: none"> <li>• HCV movements</li> <li>• Motor homes</li> <li>• Cyclists</li> <li>• Unfamiliar or inexperienced drivers (tourists)</li> <li>• Recreational road users (e.g. adventure bikers)</li> <li>• Te Araroa / Freedom walkers</li> </ul> <p><b>Condition of unmaintained bridges (on unmaintained roads)</b> Unmaintained bridges present a potentially significant safety risk due to condition and lack of resourcing to address.</p> <p><b>Lost or Misdirected Tourists and Truckies</b> Perceived trend in tourists and truckies being misdirected by GPS navigation systems which are less accurate in Ruapehu District than in urban areas. Primarily a frustration issue for road users, but also safety issues where large trucks or motor homes can't turn around on narrow roads (e.g. Fisher Road).</p>	<p>Volcanic region Earthquakes Civil Defence Response Recovery set up Flooding (eg Ohura) Resilience: Accessibility to network as a result of flooding, slips, lahar, earthquake etc</p>

# Part 4 - Appendices

## 2. Activity Planning

Assessment Questions	Capacity & Service Levels	Road User Safety	Resilience (Hazard Readiness, Response, Recovery)
	<p><b>Implementation of ONRC &amp; Better Business Case Approach</b>            Implementation of ONRC impacts LoS and ability to secure funding from NZTA. 95% of RDC network is classified as Access or Access (Low Volume) under ONRC. There is a potential for a widening gap between RDC LoS and LoS. This will become apparent as the network is assessed against ONRC's provisional Performance measures, released in August 2014. A Transition Plan is being developed at the time of writing this report. ONRC Performance Measures will be used to support maint and renewal funding applications from 2018/21 under the Business Case Approach. Until the network assessment has been completed, the full implications of ONRC on LoS and funding are unknown at this time.</p>		

# Part 4 - Appendices

## 2. Activity Planning

Assessment Questions	Capacity & Service Levels	Road User Safety	Resilience (Hazard Readiness, Response, Recovery)
<p><b>Identified Weaknesses or Gaps in Current Practices</b></p> <p>Are there any weaknesses or gaps in RDC's current practices due to any of the following:</p> <ul style="list-style-type: none"> <li>• Staff do not have the required skills and knowledge?</li> <li>• Supporting asset and activity information is not complete, reliable or up-to-date?</li> <li>• Supporting systems and technology are not fit for purpose?</li> <li>• Business processes are not adequately defined, implemented, and controlled?</li> <li>• Resources are insufficient (including budgets, staffing levels)?</li> </ul>	<p><b>Knowledge of future demand:</b></p> <p>A number of trends have been identified in the external environment driving demand and changing levels of service expectations (Refer PESTLE Analysis for a summary). However, a number of these trends have not yet been quantified or translated into demand forecasts. These include:</p> <ul style="list-style-type: none"> <li>• Changes in HCV movements from forestry haulage and other primary sector changes</li> <li>• Perceived increases in non-traditional road users, including motor homes, freedom walkers and adventure bikers.</li> </ul> <p><b>Community Consultation</b></p> <p>Community consultation processes are recognised as critical with respect to making explicit changing LoS expectations and communicating LoS changes (especially for LoS decreases and asset disposals).</p>	<p><b>Budget constraints</b></p> <p>RDC works to ensure that NZTA funding is maximised and used efficiently and economically for its maintenance, emergency work, and renewal and improvement programs. Unsubsidised work program can often be constrained due to affordability.</p>	<p><b>Hazardous Substance Incidents</b></p> <p>There are currently no restrictions in place regarding transport of hazardous substances by road or rail. Exposure is unknown in terms of frequency and types of substances being transported. But distribution includes State Highways, rail and local roads (e.g. fuel deliveries to farms, chemicals to water treatment plants). Current frequency is approx. 1 incident per year (most likely to occur on a state highway). RDC does not currently have a response plan for hazardous substance incidents. Fire service provides initial containment, RDC maintenance contractors provide traffic and detour management. Nearest hazmat cleanup team is Palmerston North (3 hours away). CIMS responses can be enacted in large scale events between agencies.</p> <p><b>Snow and Ice</b></p> <p>Ice: High frequency hazard impacting Central Plateau and mountain roads. Snow can also block roads (E.g. roads through National Park are closed on average 3 days per year). RDC implements pre-treatment (CMA) and gritting, but contractors do not have dedicated equipment for clearing roads (i.e. snow ploughs). Local centres can remain isolated after State Highways are opened because local roads still blocked/iced.</p>

# Part 4 - Appendices

3. Activity Management			
Assessment Questions	Contract and Project Management	Health and Safety	Environmental Management
<p><b>Current Practices</b> What practices does RDC currently have in place?</p>	<p><b>Procurement</b> External consultants prepare contract documents. New maintenance contracts in place from 1 October 2014. Contracts have been unbundled to suit local contractor community skill base. The majority of contracts have 7 year terms, broken down into periods of 4 yrs 9mths + 3 yrs to incentivise contractor commitment to RDC. The Contracts for Pavement rehabilitations, Reseals and Capital Bridge Repairs also have 7 year terms, but broken down into periods of 2 yrs 9mths + 2 yrs + 3yrs. Change from lowest price conforming to price and quality has improved confidence in supplier capabilities.</p> <p><b>Governance and Management</b> Maintenance and professional services contracts have collaborative approach. RDC maintains close relationships with consultants and contractors. Performance appraisal framework is currently the legacy framework from the old contracts and needs to be redeveloped to suit the new contracts. There is a plan to complete this by 30 June 2015. Maintenance contracts do not have specific provision for bonds. However, RDC implements retentions in the last 3 months of the contract. Formal project management in Council is mostly outsourced. Most renewal/rehabs/reseals are delivered through the maintenance contracts. External consultant provides project management services under professional services contract.</p> <p><b>Cost Management</b> Have changed from performance-based approach to measure and value (except for grading of unsealed roads) using tendered (market tested) rates. Maintenance cost controls are used.</p>	<p><b>Upcoming Health &amp; Safety Legislation Changes:</b> Council will assess changes required under the new Act (due in September 2015) and implement changes required.</p> <p><b>Contractor Upskilling:</b> Council supports upskilling of previous subcontractor firms to meet main contractor H&amp;S requirements. Council will also support contractors to upskill their H&amp;S management for the new Act.</p>	<p><b>Resource Consents:</b> Council has an established, positive working relationship with Horizons Environmental Officers and Management. Council applies for consents where required according to the One Plan and District Plan and ensures that contractors adhere to the conditions placed upon them. Council has a presence on Transport Committee in Horizons Region and has a good working relationship with Horizons Regional Council.</p> <p><b>Global Resource Consent:</b> RDC is in process of applying for a global resource consent from Horizons Regional Council for working in and around streams. This will provide a set of procedures and strategies to for managing environmental impacts and enable consistent approach to environmental stewardship.</p> <p>Council actively consults with iwi and Te Kaunihera Maori a Rohe o Ruapehu (Ruapehu District Maori Council) as a part of the process for applying for resource consents.</p>

# Part 4 - Appendices

<b>3. Activity Management</b>			
<b>Assessment Questions</b>	<b>Contract and Project Management</b>	<b>Health and Safety</b>	<b>Environmental Management</b>
<p><b>Current Issues</b> Have any issues been identified?</p>	<p><b>Construction Industry Capacity / Interest:</b> Previous shortage of capacity in construction industry resulted in limited interest from larger national contractors in provincial tenders, which brought a risk of uncompetitive pricing. RDC responded in latest contract round by unbundling contracts to suit the local contractor community and offering longer term contracts for stability.</p>	<p><b>New H&amp;S Legislation:</b> Expected to come into effect mid-2015. Increased liability for Council. Council is aware of requirements and is preparing to implement compliance measures. This includes increased monitoring of contractors – likely to require more hands-on role until contractors are demonstrating consistent practice.</p>	<p><b>Increased Environmental Standards</b> Increasing standards driven by NES, Horizons One Plan. Potential for significantly 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. Co-Management with Iwi is an area of increased focus as Treaty Settlements are worked through in this region.</p>
<p><b>Identified Weaknesses or Gaps in Current Practices</b> Are there any weaknesses or gaps in RDC's current practices due to any of the following:</p> <ul style="list-style-type: none"> <li>• Staff do not have the required skills and knowledge?</li> <li>• Supporting asset and activity information is not complete, reliable or up-to-date?</li> <li>• Supporting systems and technology are not fit for purpose?</li> <li>• Business processes are not adequately defined, implemented, and controlled?</li> <li>• Resources are insufficient (including budgets, staffing levels)?</li> </ul>	<p>Succession planning can be an issue in remote communities</p>	<p>Understanding impact of changes in new H&amp;S legislation.</p>	<p>Knowledge and understanding of implications of co-management of protected areas and Crown Lands subject to Treaty Settlements.</p>



# Part 4 - Appendices

## Appendix E - Resource Consents

Below is a list of all the current consents Land Transport holds with Horizons.

Consent No	Consent Status	Type	Sub Type	River	Location	Volume	Description	Commence	Expire	Review
ATH-2015200219.00	Current	Land Use Consent	River and Lake Beds	Mangawhero River Left Bank	River Road, Taumaranui		Mangawhero Rip Rap Erosion Protection (Site 5)	5/08/15	14/07/20	
ATH-2015200220.00	Current	Land Use Consent	River and Lake Beds	Mangawhero River Left Bank	River Road, Taumaranui		Mangawhero River Channel Disturbance (Site 5)	5/08/15	14/07/20	
ATH-2015200348.00	Current	Land Use Consent	River and Lake Beds	Mangawhero River Left Bank	River Road, Taumaranui		Vegetation and Debris Clearance (Site 5)	5/08/15	14/07/20	
ATH-2015200099.00	Current	Land Use Consent	River and Lake Beds	Mangawhero River	Mangawhero River, Ohakune Township		Gravel Extraction	26/03/15	27/03/20	
ATH-2015200101.00	Current	Land Use Consent	River and Lake Beds	Mangawhero River	Mangawhero River, Ohakune Township		Site 2 & 6 Land Disturbance and Vegetation Clearance	27/03/15	28/03/20	
ATH-2015200100.00	Current	Land Use Consent	River and Lake Beds	Mangawhero River	Mangawhero River, Ohakune Township		Site 2 & 6 River Bed Construction	28/03/15	29/03/20	
ATH-2015200098.00	Current	Land Use Consent	River and Lake Beds	Mangawhero River	Mangawhero River, Ohakune Township		Site 2 & 6 River Bed Disturbance	29/03/15	30/03/20	
102962	Current	Water Permit	Non-consumptive	Whanganui River	Marsack Road, Taumaranui		Water Diversion	5/08/04	5/08/39	
101592	Current	Land Use Consent	River and Lake Beds	Whanganui River	Matapuna Bridge, Taumaranui		Erosion Protection Works	1/06/01	11/05/31	
101593	Current	Water Permit	Non-consumptive	Whanganui River	Matapuna Bridge, Taumaranui		Water Diversion	2/06/01	12/05/31	

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Consent No	Consent Status	Type	Sub Type	River	Location	Volume	Description	Commence	Expire	Review
101594	Current	Land Use Consent	River and Lake Beds	Whanganui River	Matapuna Bridge, Taumaranui		Erosion Protection Works	3/06/01	13/05/31	
101595	Current	Water Permit	Non-consumptive	Whanganui River	Matapuna Bridge, Taumaranui		Water Diversion	4/06/01	14/05/31	
100585	Current	Land Use Consent	River and Lake Beds	Piopiotea Strea,	Raurimu Road and Uwaha Road		River Control Works	27/04/99	6/04/34	
100627	Current	Water Permit	Non-consumptive	Piopiotea Strea,	Raurimu Road and Uwaha Road		Water Diversion	28/04/99	7/04/34	
101040	Current	Land Use Consent	River and Lake Beds	Waitaanga Stream	Waitaanga North Road, Waitaanga		Culvert Construction	26/04/00	31/03/35	
101150	Current	Water Permit	Non-consumptive	Waitaanga Stream	Waitaanga North Road, Waitaanga		Temporary Waterway Diversion	26/04/00	31/03/35	
105581	Current	Land Use Consent	River and Lake Beds	Mangawhero River	Mangawhero Terrace, Ohakune		Pedestrian Bridge Construction	17/02/11		
105635	Current	Land Use Consent	River and Lake Beds	Mangawhero River	Mangawhero Terrace, Ohakune		Land Disturbance	17/02/11		
104900	Current	Land Use Consent	River and Lake Beds		Pukehou Road, Kakahi		Stopbank Construction	15/03/10		
105227	Current	Land Use Consent	River and Lake Beds		Pukehou Road, Kakahi		Stopbank Construction	15/03/10		
105107	Current	Land Use Consent	Land		Raetihi Ohura Road, Shorts Hill, Raetihi	13,890m3 of cleanfill	Recontouring and Earthworks	10/12/09	19/11/14	S.124 Existing Use
105108	Current	Discharge Permit	Land		Raetihi Ohura Road, Shorts Hill, Raetihi	13,890m3 of cleanfill	Cleanfill Discharge	10/12/09	19/11/14	S.124 Existing Use
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		

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Consent No	Consent Status	Type	Sub Type	River	Location	Volume	Description	Commence	Expire	Review
6391	Current	Land Use Consent	Land		Raetihi to Pipiriki Road		Road Construction	23/01/1996	6/12/2030	
6388	Current	Land Use Consent	Land		Raetihi-Pipiriki Road, Raetihi		Road Construction	23/01/1996	6/12/2030	
101046	Current	Land Use Consent	River and Lake Beds	Mangawhero Stream	Ohakune		River Control Works	17/07/2000	26/06/2035	
6531	Current	Water Permit	Non-consumptive	Whangaehu River	Whangaehu Valley Road		Stormwater Diversion	15/05/1996	23/04/2031	
6087	Current	Land Use Consent	River and Lake Beds	Pipiriki Raetihi Road, RD 6, Raetihi			Culvert Construction	6/06/1995	17/05/2030	
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
102074	Current	Land Use Consent	River and Lake Beds	Makara Stream	Middle Road, Horopito West		Culvert Construction	1/02/2002	17/12/2036	
101267	Current	Land Use Consent	River and Lake Beds	Tutara Stream	Ohakune		Municipal Water Abstraction Structure	2/10/2000	11/09/2025	
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	
104542	Current	Water Permit	Non-consumptive	Makotuku River	Ruapehu District Council Road Reserve		Waterway Diversion Construction	4/11/2008	1/07/2043	
101400	Current	Land Use Consent	River and Lake Beds	Makotuku River	Raetihi Ohakune Road, Raehiti		Bridge Construction	17/10/2000	26/09/2035	
103970	Current	Land Use Consent	River and Lake Beds	Ohura River			Multiple Bridge Construction and Maintenance	25/05/2007	2/04/2042	

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Consent No	Consent Status	Type	Sub Type	River	Location	Volume	Description	Commence	Expire	Review
4335	Current	Land Use Consent	River and Lake Beds		Oio Road, Retaruke		Culvert Construction and Maintenance	22/04/1994	30/03/2029	
103862	Current	Land Use Consent	River and Lake Beds	Maukuroa Stream	Miro Street , Manunui, Taumaranui		Culvert Construction	6/12/2006	15/11/2042	
103876	Current	Land Use Consent	River and Lake Beds	Maukuroa Stream	Miro Street , Manunui, Taumaranui		Land Disturbance and Excavation	6/12/2006	15/11/2042	
103708	Current	Land Use Consent	River and Lake Beds	Whanganui River	Pukehou Road, Kakahi		Stopbank Construction	13/10/2006	22/09/2041	
7008	Current	Land Use Consent	River and Lake Beds	Mangoihe Stream	Raetihi to Pipiriki Road		Road Construction	3/03/1997	10/02/2032	
100330	Current	Land Use Consent	River and Lake Beds	Ongarue River	Ongarue Back Road Bridge		River Control Works	1/12/1998	10/11/2032	

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## Appendix F – Cycleway Maintenance Responsibility Table

Note: All lengths in kilometres (km)

Trail / 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
<b>Mountains to Sea</b>														
<b>Old Coach Road</b>	<b>Horopito</b>	<b>Ohakune</b>	<b>15.0</b>			<b>DOC</b>	<b>DOC</b>		<b>Y</b>				<b>15.0</b>	
<b>Connecting Roads</b>														
Clydes Access	Old Coach Road	Matapuna Rd			0.4	RDC	RDC	Gravel & 2 fords		0.4				
Old Station Rd	Thames St	Marshalls Rd			1.4	RDC	RDC	Seal with off road gravel cycle path	Y	1.4				
Marshalls Rd	Old Station Rd	Old Coach Road			1.5	RDC	RDC	Gravel		1.5				
<b>Horopito - Mangapurua</b>	<b>Horopito</b>	<b>Mangapurua</b>												
<b>Connecting Roads</b>														
Matapuna Rd	Clydes Access	SH4			0.2	RDC	RDC	Gravel		0.2				
SH4	Clydes Access	Hutiwai Road			0.3	NZTA	RDC	Gravel off road trail	Y	0.3				
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			13.2	RDC	RDC	Gravel		13.2				
Ruatiti Rd	Middle Rd	Makino Rd			16.6	RDC	RDC	Seal		16.6				
Ruatiti Rd	Makino Rd	Mangapurua Rd			12.3	RDC	RDC	Gravel		12.3				
<b>Mangapurua Trail</b>	<b>Mangapurua Rd</b>	<b>Mangapurua Landing, Whanganui River</b>	35.5			DOC	DOC		Y			35.5		
<b>Whanganui River</b>	<b>Mangapurua Landing</b>	<b>Pipiriki</b>		31.0		N/A	N/A	Whanganui River	Y					31.0
<b>Connecting Roads</b>														
Whanganui River Road	Pipiriki	District Boundary			6.4	RDC	RDC	Seal		6.4				
Whanganui River Road	District Bdy	SH4			58.6	WDC	WDC		N					58.6
SH4	Whanganui River Rd	Whanganui			11.0	NZTA	NZTA		N					11.0
Wanganui	SH4	North Mole (Trail end)			10.3	WDC	WDC		Y					10.3

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Trail / 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
<b>Kaiwhakauka Trail</b>	<b>End of Oio Road</b>	<b>Mangapurua Trig</b>	<b>15.6</b>			<b>DOC</b>	<b>DOC</b>		<b>Y</b>			<b>15.6</b>		
<b>Connecting Roads</b>														
Oio Road	Upper Retaruke Rd	End of Oio Rd			6.9	RDC	RDC	Seal		6.9				
Oio Road	Upper Retaruke Rd	End of Oio Rd (Whakahoro)			18.6	RDC	RDC	Metal		18.6				
<b>Fisher Track</b>	<b>National Park</b>	<b>Kurua Road</b>	<b>15.0</b>			<b>RDC</b>	<b>RDC</b>	Gravel / Grass	<b>Y</b>		<b>15.0</b>			
<b>Connecting Roads</b>														
Kurua Road	Fisher Track	Upper Retaruke Rd			3.3	RDC	RDC	Metal		3.3				
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				
<b>Mountains to Sea Trail Total</b>			<b>81.1</b>	<b>31.0</b>	<b>173.0</b>			<b>Total</b>	<b>285.1</b>	<b>92.7</b>	<b>15.4</b>	<b>51.1</b>	<b>15.0</b>	<b>110.9</b>
<b>Timber Trail</b>														
<b>Timber Trail</b>	<b>Pureora</b>	<b>Ongarue</b>	<b>72.0</b>			<b>DOC</b>	<b>DOC</b>	35km in District	<b>Y</b>				<b>35.0</b>	<b>37.0</b>
<b>Connecting Roads</b>														
Ngakonui Ongarue Rd	Timber Trail Car park	Ongarue			1.8	RDC	RDC	Seal		1.8				
Ongaure Back Rd	Ongarue	Okahukura Bridge Rd			12.7	RDC	RDC	Metal		12.7				
Ongaure Back Rd	Okahukura Bridge Rd	Taumarunui			7.5	RDC	RDC	Seal		7.5				
<b>Timber Trail Total</b>			<b>72.0</b>	<b>0.0</b>	<b>22.0</b>			<b>Total</b>	<b>94.0</b>	<b>22.0</b>	<b>0.0</b>	<b>0.0</b>	<b>35.0</b>	<b>37.0</b>
<b>Cycle Trail Extension</b>														
SH43	Taumarunui	District Boundary			180.0	NZTA	NZTA	Seal. 51km in District						180.0
Hikumutu Rd	Taumarunui	Kawautahi Rd			9.6	RDC	RDC	Seal		9.6				
Hikumutu Rd	Taumarunui	Kawautahi Rd			14.4	RDC	RDC	Metal		14.4				

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Trail / 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
Kawautahi Rd	Hikumutu Rd	Oio Rd			1.9	RDC	RDC	Seal		1.9				
Kawautahi Rd	Hikumutu Rd	Oio Rd			18.5	RDC	RDC	Metal		18.5				
<b>Cycle Trail Extension Total</b>					<b>224.4</b>			<b>Total</b>	<b>224.4</b>	<b>44.4</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>180.0</b>
<b>TOTALS</b>			<b>153.1</b>	<b>31.0</b>	<b>419.4</b>				<b>603.5</b>	<b>159.1</b>	<b>15.4</b>	<b>51.1</b>	<b>50.0</b>	<b>327.9</b>

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## Appendix G– Non Maintained Bridges

Council has 25 bridges on the unmaintained sections of the network. They are structurally inspected approximately every six years. Bridges in italics are no longer in place.

Bridge #	Bridge Name	Road Name	Ward	Comment
8	Couchmans Access	Waitangi	Taumarunui	
34	<i>Kaikimotu No.4</i>	<i>Kaikimotu</i>	<i>Ohura</i>	<i>Not found</i>
67	Maungaroa No.4	Maungaroa	National Park	
149	Kaikimotu No.1	Kaikimotu	Ohura	
187	Tangarakau Road No.2	Tangarakau	Ohura	
199	Te Whakarae	Te Whakarae	Ohura	
227	Kaikimotu No.2	Kaikimotu	Ohura	
276	Gillets No.2	Otautau	Waimarino	
277	Gillets No.3	Otautau	Waimarino	
325	Ongangana Stream	Owairua	Waimarino	
408	Chasm	Mangaeturoa South Rd	Waimarino	
416	Meyer Footbridge	Off Pukekaha	Waimarino	
419	Cornelius's Bridge	Mangatiti	Waimarino	
425	Tuahu Stream (Small Banana)	Off S.H.4 Parapara's	Waimarino	
434	<i>Depot Bridge</i>	<i>Depot Road</i>	<i>National Park</i>	<i>Doc bridge over old bridge – on road reserv. Bridge no longer in place as at Jun 1. To be replaced</i>
439	Steeles Bridge (Retaruke River)	Off Oio Road	National Park	
442	Mangawhero River	Burns/ Mangawhero River	Waimarino	
445	Makahiwī	Off Kawautahi	National Park	
447	Tapuiwahine No 2	Tapuiwahine	Ohura	
447A	Tapuiwahine No 3	Tapuiwahine	Ohura	
448	<i>Rakautangi No 2</i>	<i>Rakautangi (Symes)</i>	<i>Waimarino</i>	<i>Old suspension footbridge, only cables in place</i>
452	Waikaka	Waikaka	Ohura	
446	Pura Pit	Pura Road, off Waitewhena	Ohura	