TRANSPORT ASSET MANAGEMENT PLAN

Part B: Transport

30 JUNE 2018

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WHAKATĀNE District Council
Kia Whakatāne au i ahau

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Contents

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Contents 1

Executive Summary 3

Purpose and Structure of this Transportation Activity Management Plan 10

Strategic Context 11

1. Why does Whakatane District Council do Transportation? 12

2. Statutory and Policy Context 13

3. Network Context 29

4. Current State 35

5. Future State 43

6. Gaps 53

7. Risk Management 55

Strategic Assessment 73

8. Problems, Consequences & Benefits 74

9. Alignment with Strategic Objectives 77

10. Investment Assessment Framework 81

11. Strategic Overview – Linking Problems to Delivery 84

Programme Business Case 86

12. Summaries 87

13. Network and Asset Management, Transportation Planning 104

14. Pavements 119

15. Bridges 144
16. Retaining Walls 153
17. Drainage 159
19. Street Lighting 171
20. Cycleways 177
21. Footpaths 186
22. Traffic Services 191
24. Car Parks 201
Management Case 204
25. Delivery and Performance 205
Commercial Case 207
26. Procurement Context 208

Executive Summary

Purpose & Structure of This Transportation Activity Management Plan

This Activity Management Plan (AMP) has been developed to provide an evidence based case for the key stakeholders to invest in the Whakatane District Council (WDC) land transport network. To achieve this outcome this AMP will be structured to meet the requirements of the New Zealand Transport Agency's (The Agency) business case approach to road maintenance which includes the Strategic Case, Programme Business Case, Management Case and Commercial Case.

Strategic Case

Strategic Context

The transport network is a significant and essential physical resource in the District contributing to the social and economic well-being of residents, visitors and businesses. The roading network is essential to the continued growth and economic success of the Whakatāne District and must be managed, safely, efficiently and effectively, now and in the future.

Specifically, WDC do transportation to:

- Allow the 34,000 people of our district to connect for their social, economic, cultural and environmental well-being.
- Provide access to markets for producers and consumers of goods and services.
- Meet the legislative requirements of the Local Government Act which defines transportation as a core service.

Key enabling legislation includes:

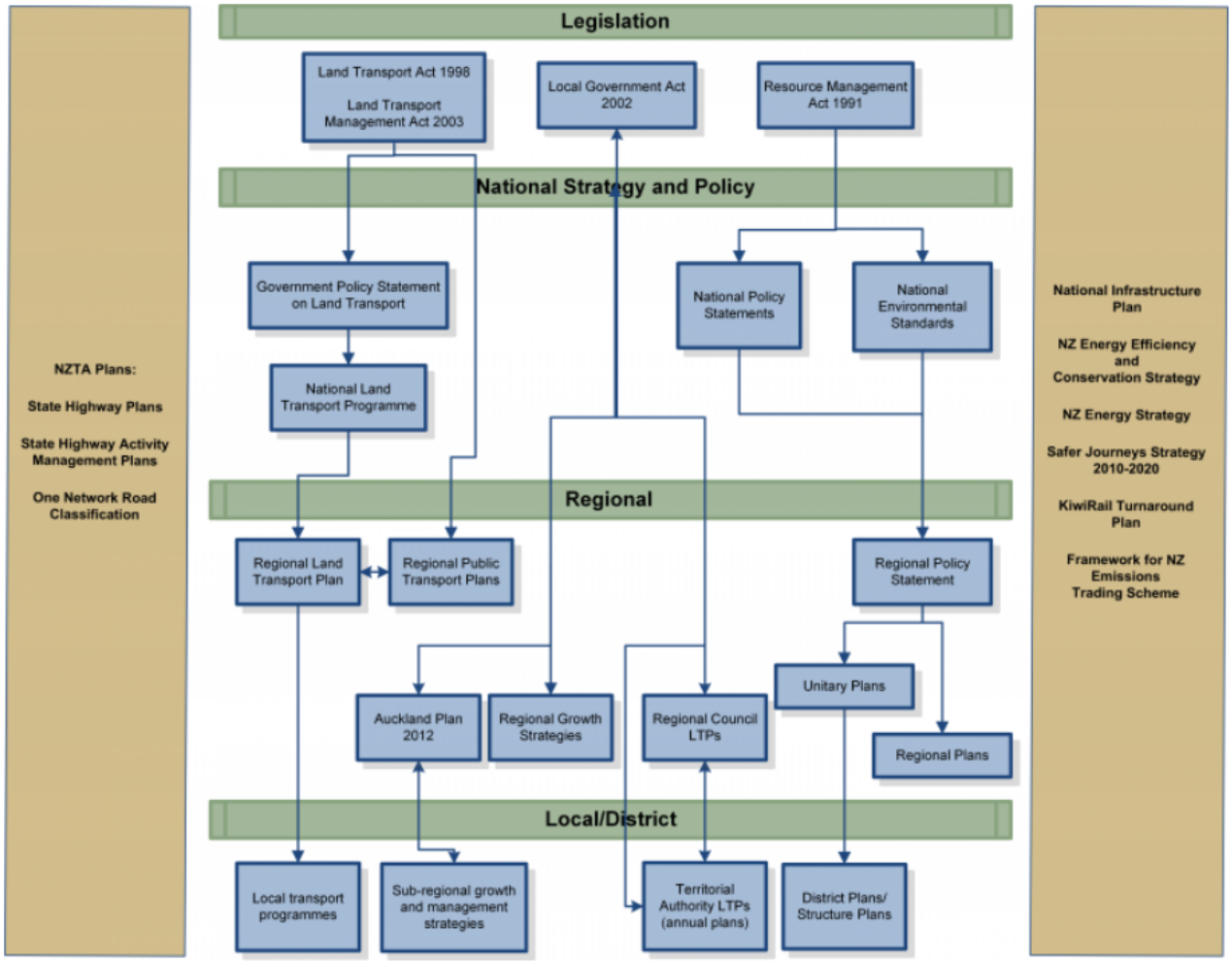
- Local Government Act
- Resource Management Act
- Land Transport Management Act

Key strategy and policy planning documents include

- Government Policy Statement on Land Transport
- Regional Land Transport Plan
- Whakatane District Long Term Plan.

Framework Diagram

Back to top



The current state, considering the trends, views and assumptions discussed under future state, highlight gaps in ONRC levels of service that will need to be addressed to ensure the network continues to provide acceptable outcomes. These gaps are categorised as:

- Knowledge, data and information gaps.
- ONRC Performance gaps
- Infrastructure GapsThe current

Strategic Assesment

The core problems or issues that need addressing to close the gaps identified in the Strategic Context section include:

Problem Statement 1: Maintenance and Renewals

Unless an adequate level of investment is maintained, roads will deteriorate and become unserviceable and unsafe, and the costs to restore to an appropriate level of service will increase

Problem Statement 2: Asset Management

Current asset management practices are at a basic to intermediate level (which has been fit for purpose to date) but need to be at an advanced level to enable the best long-term decisions to be made around future network investment requirements.

Problem Statement 3: Road Safety

Some roads and footpaths are not sufficiently forgiving.

Problem Statement 4: Growth

Increasing residential and industrial development on the western side of Whakatāne River is placing increasing pressure on road transport links

Problem Statement 5: Alternative Modes of Travel

The level of connectivity into and through town for alternative modes (walking, cycling, mobility scooters) is poor

Problem Statement 6: Resilience

Some of the most at risk communities within the district are vulnerable to having their lifeline access severed for unacceptable periods of time.

Problem Statement 7: Unsealed Roads

Some unsealed roads are not meeting core level of service requirements

The benefits realised from addressing the identified problems contribute to the outcomes of:

- The One Network Road Classification
- The Whakatane District Council Long Term Plan
- The Regional Land Transport Plan
- The Government Policy Statement on Transportation

The NZTA assess transport programmes against their Investment Assessment Framework for results alignment and cost/benefit. Whakatane's programme achieves a medium results alignment rating, which indicates the network is managed to largely meet appropriate customer levels of service. The cost/benefit appraisal achieves a high rating, which indicates above-band efficiency for cost effectiveness.

Program Business Case

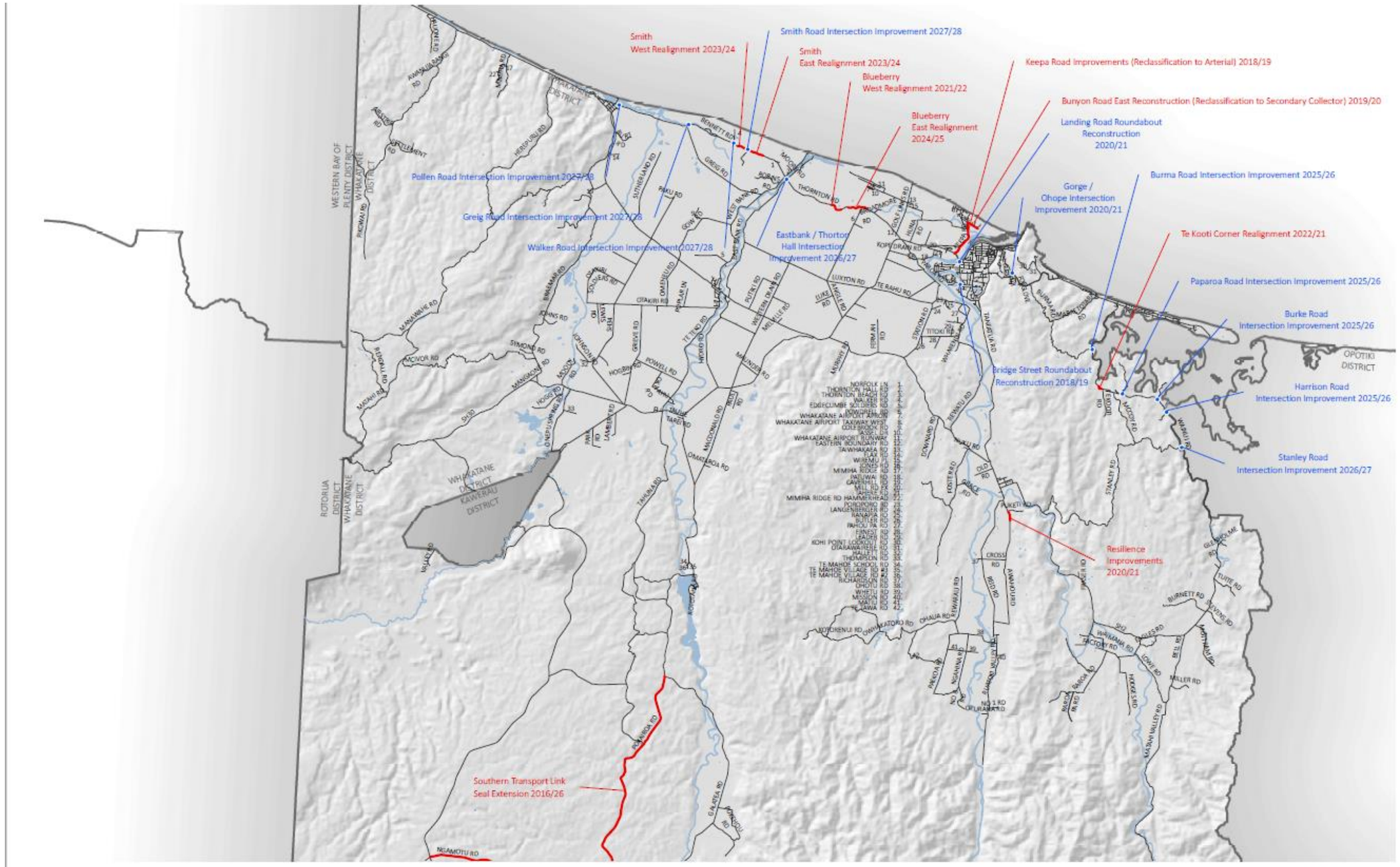
The Programme Business Case (PBC) identifies the programme of works that will deliver on the Strategic Case. The PBC is structured by asset group. For each asset group as appropriate the PBC will:

- Link to the strategic case;
- Define levels of service considering the ONRC and WDC desired outcomes;
- Compile and analyse evidence;
- Assess gaps;
- Develop and consider options considering levels of investment, risk, ONRC, and fit to Strategic Case;
- Identify the preferred programme of works, including co-funded and non-co-funded elements.
- Include an improvement plan.

The ten year financial program by cost centre is detailed on the following page:

Cost Centre	10 Year Programme									
	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Local Rd Maintenance	$ 4,470,576	$ 4,470,576	$ 4,470,576	$ 4,575,576	$ 4,575,576	$ 4,575,576	$ 4,575,576	$ 4,575,576	$ 4,575,576	$ 4,575,576
Local Rd Renewal	$ 4,434,000	$ 4,434,000	$ 4,434,000	$ 4,434,000	$ 4,434,000	$ 4,434,000	$ 4,434,000	$ 4,434,000	$ 4,434,000	$ 4,434,000
Local Rd Improvement	$ 1,795,000	$ 1,805,000	$ 4,255,000	$ 2,705,000	$ 1,905,000	$ 1,455,000	$ 2,030,000	$ 2,003,000	$ 1,755,000	$ 1,805,000
Special Purpose Rd Maintenance	$ 868,553	$ 868,553	$ 868,553	$ 868,553	$ 868,553	$ 868,553	$ 868,553	$ 868,553	$ 868,553	$ 868,553
Special Purpose Rd Renewal	$ 531,500	$ 531,500	$ 531,500	$ 531,500	$ 531,500	$ 531,500	$ 531,500	$ 531,500	$ 531,500	$ 531,500
Special Purpose Rd Improvement	$ 2,200,000	$ 2,200,000	$ 3,190,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
Non Financially Assisted Maintenance	$ 417,730	$ 417,730	$ 417,730	$ 441,730	$ 441,730	$ 441,730	$ 441,730	$ 441,730	$ 441,730	$ 441,730
Non Financially Assisted Renewal	$ 55,000	$ 55,000	$ 85,750	$ 55,000	$ 85,750	$ 55,000	$ 85,750	$ 55,000	$ 85,750	$ 55,000
Non Financially Assisted Improvement	$ 785,000	$ 1,070,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000
Transportation Planning	$ 220,000	$ 80,000	$ 50,000	$ 50,000	$ 50,000	$ 150,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
Administration	$ 566,066	$ 566,066	$ 566,066	$ 566,066	$ 566,066	$ 566,066	$ 566,066	$ 566,066	$ 566,066	$ 566,066
Totals	**$ 16,343,425**	**$ 16,498,425**	**$ 18,939,175**	**$ 14,497,425**	**$ 13,728,175**	**$ 13,347,425**	**$ 13,853,175**	**$ 13,795,425**	**$ 13,578,175**	**$ 13,597,425**

Major Capital Improvement Projects 2018-28



0 2 4 8 km

Proposed Capital Improvments 2018-2028 (North)

Whakatane Office
PO Box 800
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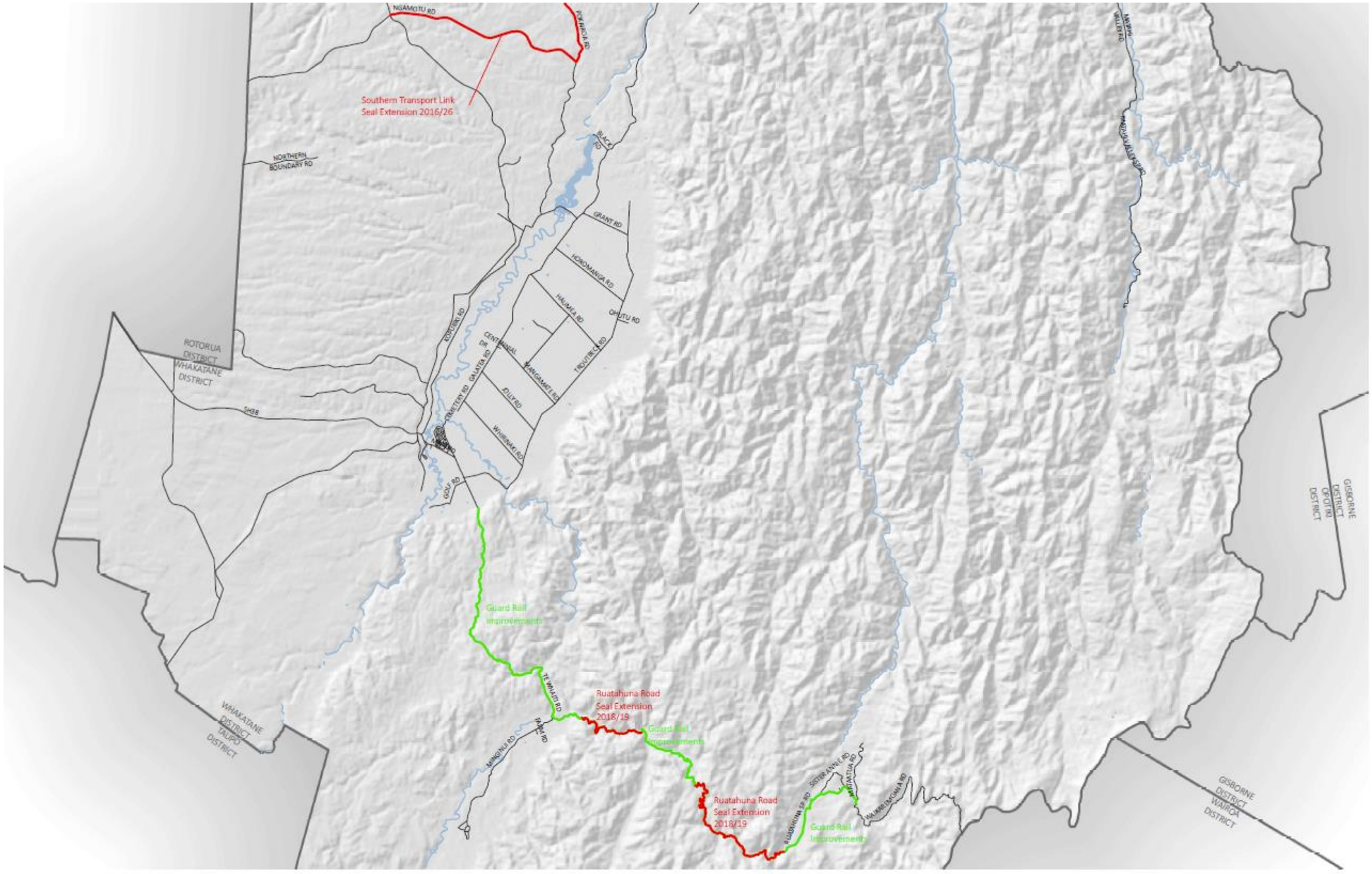

0 2 4 8 km

Proposed Capital Improvments 2018-2028 (South)

Whakatane Office
PO Box 800
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Management Case

The Management case describes management systems, capability and capacity of the Council that will be applied to manage the delivery the proposed programme.

Commercial Case

The Commercial Case describes the procurement systems and policy that will be used to engage a range of appropriate and competent suppliers in a way that delivers value for money.

Purpose and Structure of this Transportation Activity Management Plan

This Activity Management Plan (AMP) has been developed to provide an evidence based case for the key stakeholders to invest in the Whakatane District Council (WDC) land transport network. To achieve this outcome this AMP will be structured to meet the requirements of the New Zealand Transport Agency's (The Agency) business case approach to road maintenance which includes the Strategic Case, Programme Business Case, Management Case and Commercial Case.

The Strategic Case consists of two sections:

- Strategic Context. This section sets the rules and scope of the game. It describes statutory and policy context, WDC's objectives and demonstrates how they integrate with and contribute towards Regional and National strategic outcomes. Network Context provides an overview of the network and a setting against which the current and future states can be given context. Current State provides information about the network and how it is performing. Future state defines WDCs forecast's, views and assumptions on current and emerging trends and issues that may impact on the delivery of transportation services through the lifecycle of this AMP and into the future. It is the gaps identified between the current and future states that inform the Strategic Assessment.
- Strategic Assessment. This section identifies and prioritises the core problems or issues that need to be addressed to close the gaps identified in the Strategic Context section. Engagement with key stakeholders has helped to define the problems and consequences; and outcomes and benefits. Engagement with other stakeholders is also undertaken to seek and consider their views. The benefits will then be assessed against the outcomes sought by Council's Long Term Plan, The Regional Land Transport Plan, and the Governement Policy Statement on Transportation. The linkages from problem statements, through strategic cases and business cases, to delivery will be described.

The Programme Business Case (PBC) identifies the programme of works that will deliver on the Strategic Case. The PBC is structured by asset group. For each asset group as appropriate the PBC will:

- Link to the strategic case;
- Define levels of service considering the ONRC and WDC desired outcomes;
- Compile and analyse evidence;
- Assess gaps;
- Develop and consider options considering levels of investment, risk, ONRC, and fit to Strategic Case;
- Identify the preferred programme of works, including co-funded and non-co-funded elements.
- Include an improvement plan.

The Management case describes management systems, capability and capacity of the Council that will be applied to manage the delivery the proposed programme.

The Commercial Case describes the procurement systems and policy that will be used to engage a range of appropriate and competent suppliers in a way that delivers value for money.

Strategic Context

1. Why does Whakatane District Council do Transportation?

The transport network is a significant and essential physical resource in the District contributing to the social and economic well-being of residents, visitors and businesses. The transport system within the District provides for access across the Eastern Bay of Plenty and is the main connection between Opotiki, the East Coast, Gisborne, Rotorua and Tauranga. The roading network is essential to the continued growth and economic success of the Whakatāne District and must be managed, safely, efficiently and effectively, now and in the future.

Specifically, WDC do transportation to:

- Allow the 34,000 people of our district to connect for their social, economic, cultural and environmental well-being.
- Provide access to markets for producers and consumers of goods and services.
- Meet the legislative requirements of the Local Government Act which defines transportation as a core service.

Transport planning, policy and networks are all provided through the transportation activity. This includes transport infrastructure including roads, footpaths, cycleways, parking facilities and bridges; public transport infrastructure (such as bus shelters); and traffic control mechanisms (such as signage, lighting and road markings). This activity ensures a safe, efficient and affordable transport network that helps with the movement of people, goods and services.

2. Statutory and Policy Context

2.1. Local

The Local Government Act (LGA) is the enabling legislation for the Whakatane District Council. It sets out the purpose, role and powers of local government.

The Long-Term Plan describes Council's vision and purpose, the community outcomes being sought for the District, priorities for the next ten years, and the activities that WDC will undertake to deliver against those outcomes over a ten year horizon. The Long-Term Plan is a statutory requirement of the LGA.

The Vision and Purpose guides everything we do at Council. It sets out, at a high level, where we want to be and how we will get there. We identified the Vision and Purpose after careful consideration of the District's key issues.

2.1.1. Our Vision

To be known as the place of choice for people to live, work and play. In achieving our vision:

- Our community will be safe and surrounded by people who are friendly and caring
- Businesses will be thriving
- There will be respect for, and pride in our history
- We will be successful guardians of our natural environment.

2.1.2. Our Purpose

To lead the Whakatāne District to meet the current and future needs of our community. As a District Council we will achieve this through:

- Good governance, leadership and advocacy
- Integrated long term planning
- Effective and reliable community infrastructure
- Outstanding service delivery.

2.1.3. Community Outcomes

Effective Leadership

- *Striving for our future and well-being*
- Be visible, strong, have a clear vision and listen to all sectiors of the community.
- Work in partnership with Iwi and the community
- Ensure accountability to the community through transparent, open and inclusive decision making
- Respond and advocate on community issues

Sustainable Economic Development

- *Working in partnership*
- Facilitate an economy that is prosperous in both urban and rural areas
- Encourage business growth that builds on the region's assets
- Support Maori economic development
- Promote connected businesses through effective networks

Community Needs

- *A caring community*
- Create vibrant, connected and safe communities
- Support healthy, active communities
- Build inclusive communities
- Value, celebrate, promote and protect Maori culture

Quality Services

- *Excellent value for money*
- Provide services that meet the aspirations of the community
- Ensure all customers are dealt with in a timely, helpful and friendly way

Reliable & Affordable Infrastructure

- *Meeting current and future needs*
- Provide infrastructure that facilitates growth and development.
- Sustainably manage community assets.
- Ensure people, infrastructure and the environment are protected from natural disasters

Valuing our Environment

- *Sustaining for future generations*
- Sustainably manage the natural and physical resources
- Recognise and protect places of natural and cultural heritage
- Proactively plan for growth and ensure the effects and costs are managed

2.1.4. Priorities for the next ten years

- Delivering quality core services. Transport specific priorities include:
  - *Management, maintenance and renewal of existing assets to continue meeting LOS.*
  - *Improving road safety*
  - *Improvements to minimise flood risk to key (lifeline) routes.*
- Working together to meet the needs of our communities
- Encouraging communities and businesses to thrive. Transport specific priorities include:
  - *Supporting residential development including Bunyan Rd, Piripai, Huna/Shaw Rds.*
  - *Supporting industrial development at Mill Rd.*
- Keeping rates affordable

30 Year Infrastructure Strategy has been developed to scope and prioritise key, long-term infrastructure issues, and outline how the Council proposes to address those issues. This is also a statutory requirement of the LGA.

2.1.5. Other WDC Policy and Planning Documents Relevant to Transportation

2.1.5.1. Coastal Arterial Route Study

Investigation into the safety, capacity and reliability of the major arterial route through Whakatāne Township. This is an important strategic transport link between Whakatāne and the regional State Highway 2. The route is heavily trafficked, especially during the summer months by tourists and it is the primary alternate route when State Highway 2 becomes impassable, which happens frequently during adverse weather.

2.1.5.2. Walking and Cycling Implementation Plan

A 20year implementation plan to improve and increase the walking and cycling facilities in the Whakatāne District, namely in the Whakatāne and Ōhope urban wards. The proposed plan provides a comprehensive network for users, to improve walking and cycling as a preferred mode of transport for short trips.

2.1.5.3. Whakatane Access and Route Security Study

Joint investigation by NZTA and WDC into the security of the major routes across the eastern Bay of Plenty from Matatā in the west through to Kutarere in the East and Waimana in the south. The study identified actual and potential vulnerabilities and constraints on the existing road network, and potential future projects to provide access security over a 30year period. Particular focus was given to the Landing Road Bridge.

2.1.5.4. Eastern Bay of Plenty Cycleway Strategy

A predominantly off-road cycle trail network that links the Eastern Bay of Plenty's major regional communities (Whakatāne, Kawerau and Ōpōtiki), showcasing high amenity areas such as rivers, lakes and coastal reserves. The strategy provides improved safety for cyclists and encourages recreational tourists to the region.

2.1.5.5. Integrated Urban Growth Strategy

This strategy has been developed to provide ways of planning for and managing growth in a proactive manner. Planning for growth especially in the urban area is important to the district as it provides much of the economic, social and community infrastructure for the surrounding rural district.

2.1.5.6. Whakatane District Plan

Whakatāne District Plan was updated in June 2017, the Plan encompasses legislative and regional plan requirements in terms of developments, to allow growth to occur in a way that minimises negative impacts on the environment and surrounding community.

2.2. Regional

The Bay of Plenty Regional Council (BOPRC) have the statutory responsibility under the Land Transport Management Act (LTMA) to ensure the Regional Transport Committee prepare The Bay of Plenty Regional Land Transport Plan (RLTP). Activities within WDC's AMP will be assessed and prioritised against the regional strategic transport issues and objectives for inclusion into the National Land Transport Plan (NLTP) for funding.

2.2.1. Vision

The Bay of Plenty region's vision is:

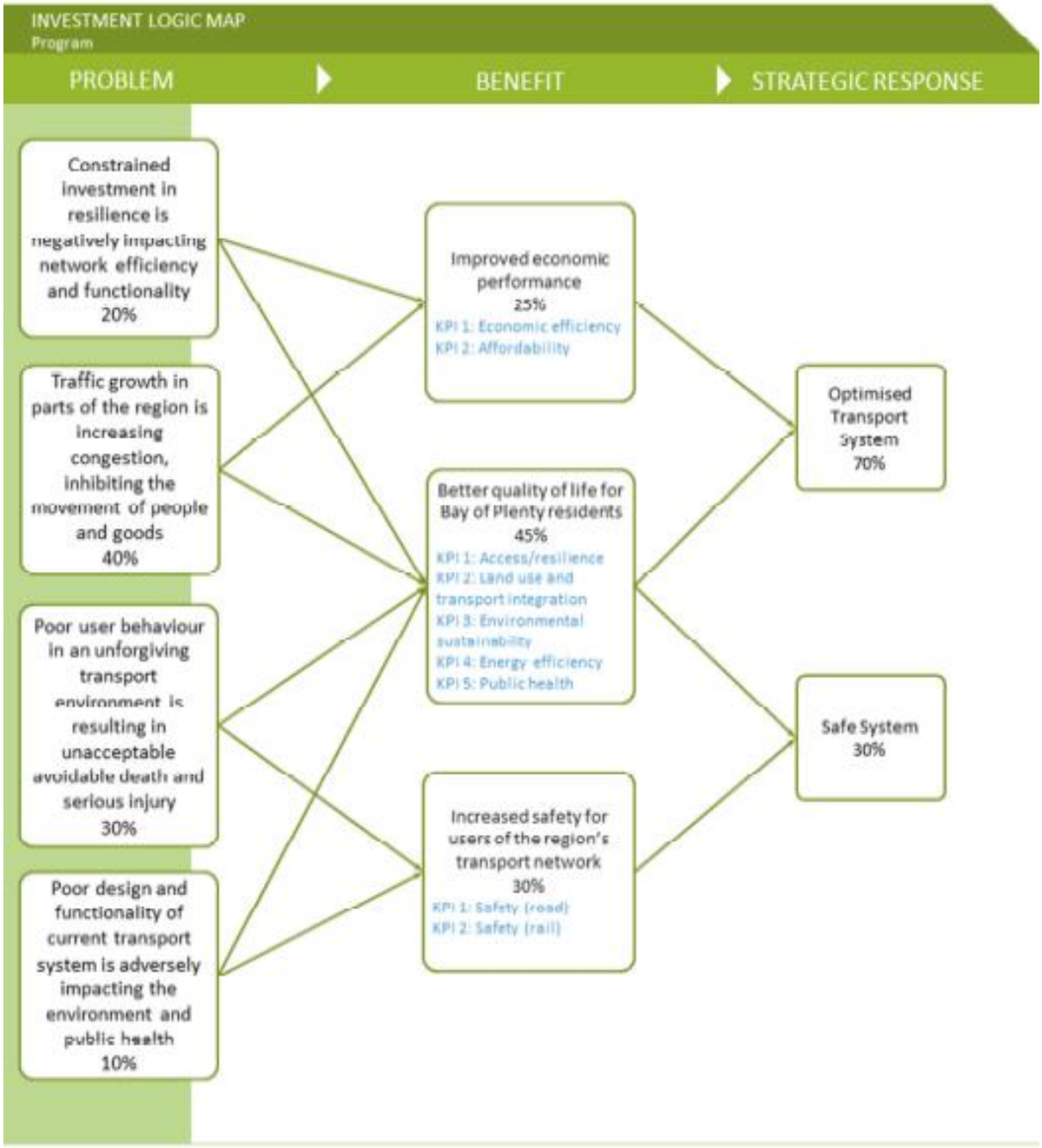
"Best transport systems for a growing economy and a safe, healthy and vibrant Bay lifestyle"

2.2.2. Regional Problems, Benefits and Strategic Response

Regional Investment Logic Mapping (ILM) workshops were held to identify the priority and transport problems, benefits and strategic response relevant to the Bay of Plenty.

Responding to the Bay of Plenty's Transport Needs

Regional Land Transport Plan



2.2.3. Objectives

2.2.3.1. Access and resilience (15%)

Communities have access to a resilient and reliable transport system that provides them with a range of travel choices to meet their social, economic, health and cultural needs.

2.2.3.2. Environmental sustainability (10%)

The social and environmental effects arising from use of the transport system are minimised.

2.2.3.3. Land use and transport integration (10%)

Long term planning ensures regional growth patterns and urban form reduce travel demand, support public transport and encourage walking and cycling.

2.2.3.4. Energy efficiency (5%)

People choose the best way to travel to improve energy efficiency and reduce reliance on non-renewable resources.

2.2.3.5. Public health (5%)

The transport system minimises the health damaging effects of transport for all members of society.

2.2.3.6. Safety (30%)

Deaths and serious injuries on the region's transport system are reduced.

2.2.3.7. Economic efficiency (20%)

The transport system is integrated with well planned development, enabling the efficient and reliable movement of people and goods to, from and throughout the region.

2.2.3.8. Affordability (5%)

Investment in the transport system maximises use of available resources and achieves value for money.

2.2.4. Other BOPRC Policy and Planning Documents Relevant to Transportation

- Eastern Bay Beyond Today. An Eastern BOP spatial plan.
- Bay of Connections. An economic strategy for the wider BOP region.
- BOP Freight Logistics Strategy.

Refer to the BOP RLTP for further information.

2.3. National

2.3.1. The Land Transport Management Act (LTMA)

The purpose of this Act is to contribute to an effective, efficient, and safe land transport system in the public interest.

The LTMA provides the legislative framework for managing and disbursing the land transport fund and developing the NLTP.

2.3.2. Government Policy Statement on Land Transport (GPS)

The GPS, a statutory requirement of the LTMA, outlines the Government's strategy to guide land transport investment over the next 10 years. It also provides guidance to decision-makers about where the Government will focus resources consistent with the purpose of the LTMA. The GPS identifies strategic priorities, objectives and results to be achieved through disbursement of the land transport fund.

2.3.2.1. Strategic Direction

The strategic direction for GPS 2018 sets out the strategic priorities and objectives for the land transport system as described below:

2.3.2.2. Results

GPS 2018 distinguishes between long term results and short to medium term results. Long term results are included to set the planning direction for 10+ years. Short to medium term results establish investment priorities for the next 3 to 6+ years.

The following table sets out the results being sought through GPS 2018 and the relationship with the strategic direction:

National land transport objectives	Long term results Planning direction 10+ years	Short to medium term results Investment priorities 3-6+ years	Example reporting measures Trends, tracking longer term results and reporting on progress in delivering the long, short and medium term results
Safety			
A land transport system that is a safe system, free of death and serious injury	Significant reduction in deaths and serious injuries (1)	• Renewed strategic focus to have the greatest impact on reducing death and serious injury (including developing a new road safety strategy and action plan in the next 12-18 months) (1) • State highways and local roads are safer for everyone (1) • Cycling and walking is safer (1) • Effective enforcement activity to promote safe behaviour by road users (1) • Safer road use through appropriate education and promotion activities, and regulatory changes (1)	**Examples of reporting areas may include:** • **System Safety:** How many people die or are seriously injured on roads
Access			
A land transport system that provides increased access for economic and social opportunities	Metropolitan and high growth urban areas are better connected and accessible (1) Better access to markets, business areas, and supporting tourism (2) Sustainable economic development of regional New Zealand is supported by safer and better transport connections (3)	• A more accessible and better-integrated transport network including public transport, walking and cycling (1) • Improved land use and transport planning to create more liveable cities (1) • Improved throughput of people and goods in major metropolitan areas (1) • Improved transport access to new and existing housing including provision of public transport services (1) • Nationally important transport connections are maintained or improved to support areas of growth, changes in population, freight and tourism, and to improve safety (2) Enhanced testing and deployment of intelligent transport systems and other technologies to make the best use of existing networks (1)(2)(3) • Regional networks (including key regional freight routes) are safer, better connected and more resilient (2)(3)Improved transport connections (including local roads, public transport and active modes) on key regional tourist routes to make these routes safer for all (2)(3)	**Examples of reporting areas may include:** • **Network throughput:** How much land transport system capacity is being used • **Network accessibility:** How many people can access major areas of activity within a reasonable timeframe
A land transport system that enables transport choice and access	Increased mode shift from private vehicle trips to walking, cycling and public transport in our towns and cities (1) More transport choice (including for people with less or limited access to transport) (2)	• A reduction in overall single occupant private vehicle travel in urban centres (1) • Improved good-quality, fit-for-purpose walking and cycling infrastructure (1) • Improved real and perceived safety for both pedestrians and cyclists (1) • Increased proportion of journeys made using public transport and active modes of travel (including children travelling to and from school) (1) • Expanded and better connected walking and cycling networks both in urban and rural areas (e.g. the Great Rides, Heartland Rides, and the Te Araroa Trail) (1) • Public transport is more accessible and affordable, especially for those reliant on it to reach social and economic opportunities (including people with disabilities, low-income people, and SuperGold cardholders) (2) • Specialised services provide better access to transport for people (including people with disabilities) unable to drive themselves or use scheduled public transport (2)	**Examples of reporting areas may include:** • **Travel Options:** What travel options are available to users that have limited access to a private vehicle • **Cycling:** How much of cycling infrastructure is utilised; How many children are walking and cycling to school

A land transport system that is resilient	Improved network resilience for the most critical connections (1)	• Improved resilience on routes where disruptions pose the highest economic and social costs (1) • Improved targeting of resilience risk and vulnerabilities through the use of an integrated whole-of-system approach which may include investment in non-transport infrastructure when this has clear transport benefits (1) • When disruption to the network occurs, impacts of disruption are reduced at the parts of the network that have the most economic and social importance (1)	**Examples of reporting areas may include:** • **Resilience:** Journeys affected by an unplanned event(s) on high risk routes • **Availability:** What is the duration of time taken for network performance to resume to pre-incident levels after unplanned disruptions
Environment			
A land transport system that reduces the adverse effects on the climate, local environment and public health	Reduce transport's negative effects on the global climate (1) Reduce transport's negative effects on the local environment and public health (2)	• Reduced greenhouse gas emissions from land transport using a whole-of-system approach (1) • Reduced significant harmful effects of land transport-related noise (2) • Reduced significant harmful effects of land transport-related air pollution (2) • Reduced significant negative effects on water quality and biodiversity from construction and ongoing use of transport infrastructure (2) • Increased uptake of active travel modes such as walking and cycling to support environmental and public health objectives (2)	**Examples of reporting areas may include:** • **Environmental Harm:** levels of harmful air pollution (including greenhouse gas emissions) and noise in affected areas
Value For Money			
A land transport system that delivers the right infrastructure and services to the right level at the best cost	Better informed investment decision-making (1) Improved returns (including for maintenance and better use of innovation and technology) (2)	• A more rigorous and transparent investment appraisal system (1)(2) • Enhanced reporting, monitoring and evaluation on GPS 2018 investment (1) • Better integrated transport research across government (1) • More effective and efficient investment from innovation in systems, standards, procurement and technology (2) • Improved returns from maintenance (2)	**Examples of reporting areas may include:** • **Effectiveness and efficiency of investment:** Costs and benefits of investing in the right results

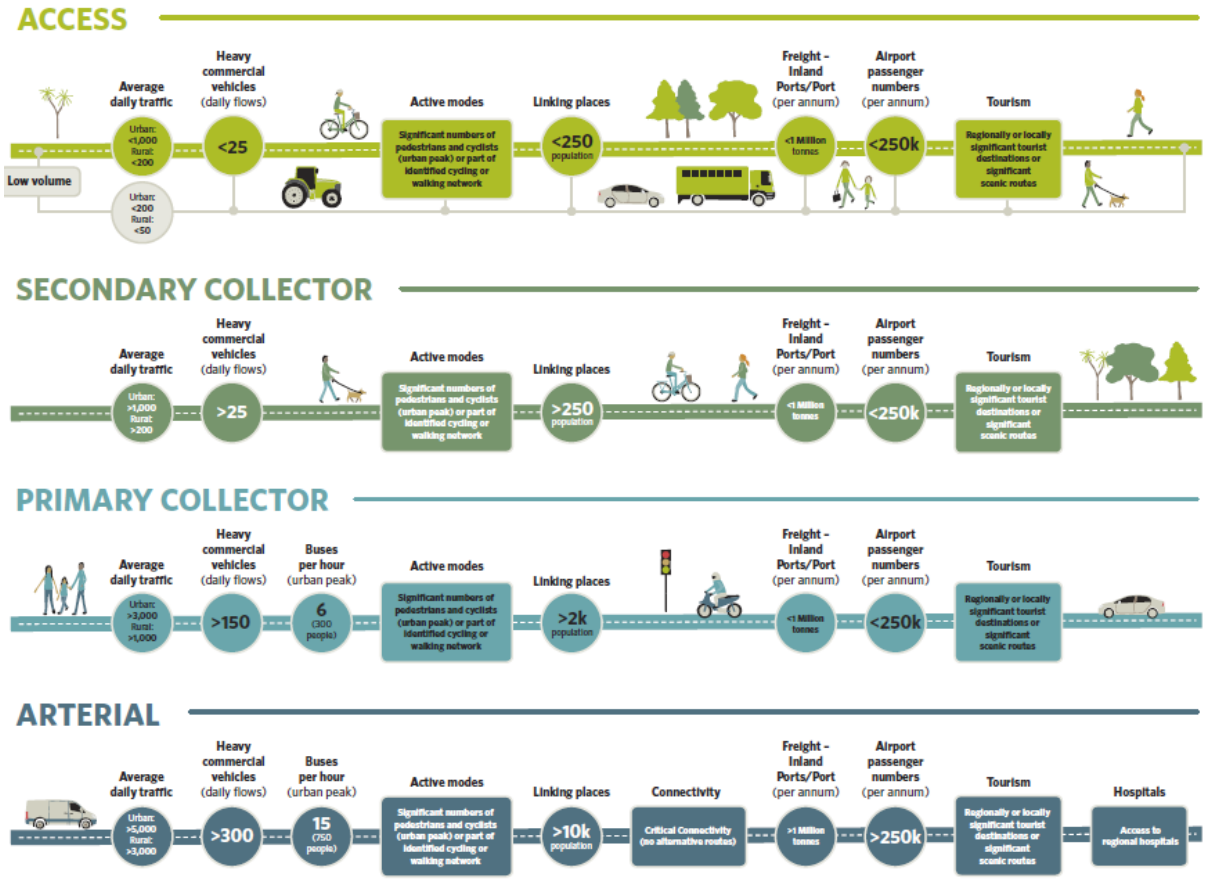
Themes have been included to assist understanding of how to effectively deliver on the priorities. The themes influence how the results should be delivered to ensure the best transport solutions for New Zealand are achieved. The themes for GPS 2018 are:

- a mode-neutral approach to transport planning and investment decisions,
- incorporating technology and innovation into the design and delivery of land transport investment,
- integrating land use and transport planning and delivery.

2.3.3. *One Network Road Classification*

The ONRC divides New Zealand's roads into six categories based on how busy they are, whether they connect to important destinations, or are the only route available:

- National – link major population centres and transport hubs (none in Whakatane District)
- Regional – major connectors between and within regions; often public transport routes (none in Whakatane District)
- Arterial – link regionally significant places and industries
- Primary collector – link significant local populations and industries
- Secondary collector – provide secondary routes, can be the only route to some places
- Access – small roads facilitating daily activites



Customer Level of Service (CLoS) are defined for each ONRC category. The Customer Levels of Service are:

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

Performance measures are set for each CLoS. There are three types of ONRC performance measures:

- Customer Outcome
- Technical Output
- Cost Efficiency

Together, they measure the efficiency and effectiveness at meeting the CLoS. The Performance Measures are a key tool for building the business cases for national funding.

2.3.4. Other Government Policies Relevant to Transportation

2.3.4.1. Safer Journeys Strategy: New Zealand's Road Safety Strategy 2010 – 2020

www.saferjourneys.govt.nz

Safer Journeys is the Government's road safety strategy to 2020. Safer Journeys establishes a vision of a safe road system increasingly free of death and serious injuries. Safer Journeys adopts the Safe Systems approach, which involves safe speeds, safe vehicles, safe road use, and safe roads and roadsides.

2.3.4.2. Regional Economic Development (RED)

www.mbie.govt.nz/www.mpi.govt.nz

Regional development and resilience are critical to the success of New Zealand as a whole. That is why the Government is committed to supporting productive, sustainable and inclusive growth in regional New Zealand through the recently established Provincial Growth Fund. This Fund seeks to support regions through investment in infrastructure, employment opportunities, and other proposals that lift capability and productivity potential of the regions. Although all regions will be eligible, key regions that will experience concentrated effort in the first instance are Tai Tokerau/Northland, Bay of Plenty, East Coast, Hawke's Bay, Manawatū-Whanganui, and the West Coast.

2.3.4.3. National Policy Statement on Urban Development Capacity 2016 (NPS-UDC)

www.mfe.govt.nz

National policy statements are issued by the government to provide direction to local government about matters of national significance which contribute to meeting the purpose of the Resource Management Act 1991. The NPS-UDC 2016 recognises the national significance of:

- urban environments and the need to enable such environments to develop and change

- providing sufficient development capacity to meet the needs of people and communities and future generations in urban environments.

The NPS-UDC directs local authorities to provide sufficient development capacity in their resource management plans, supported by infrastructure (including transport infrastructure), to meet demand for housing and business space.

Development capacity refers to the amount of development allowed by zoning and regulations in plans that is supported by infrastructure. This development can be 'outwards' (on greenfield sites) and/or 'upwards' (by intensifying existing urban environments).

Sufficient development capacity is necessary for urban land and development markets to function efficiently to meet community needs. In well-functioning markets the supply of land, housing and business space matches demand at efficient (more affordable) prices.

2.3.4.4. New Zealand Energy Efficiency and Conservation Strategy (NZEECS) 2017–2022

www.eeca.govt.nz

NZEECS contributes to the delivery of the Government's energy priorities set out in the New Zealand Energy Strategy. The NZEECS sets five year targets and objectives to provide consistency and certainty for investment. In terms of transport, the priority area is for "efficient and low emissions transport."

2.3.4.5. 2015 National Infrastructure Plan

www.infrastructure.govt.nz

The 2015 National Infrastructure Plan sets the vision that by 2045 New Zealand's infrastructure is resilient and coordinated, and contributes to economic growth and increased quality of life. The plan provides the framework for infrastructure development over the next 30 years and is focused on ensuring better use of existing infrastructure and allocating new investment to meet long term needs.

2.3.4.6. New Zealand Health Strategy: Future Direction 2016 and New Zealand Health Strategy: Roadmap of actions 2016

www.health.govt.nz

The New Zealand Health Strategy has two parts. Both parts of the Strategy together comprise the 'New Zealand Health Strategy'.

- Future Direction – this sets high level direction for New Zealand's health system from 2016 – 2026, "All New Zealanders live well, stay well, get well, in a system that is people-powered, provides services closer to home, is designed for value and high performance, and works as one team in a smart system."

- Roadmap of Actions 2016 – the New Zealand Public Health and Disability Act 2000 Section 8(1) requires the Minister of Health to 'determine a strategy for health services, called the New Zealand Health Strategy, to provide the framework for the Government's overall direction of the health sector in improving the health of people and communities.'

2.3.4.7. Public Transport Operating Model

www.transport.govt.nz

The Public Transport Operating Model sets the operating environment for the delivery of public transport. It is a fully contracted model with features designed to incentivise commercial behaviour, create efficient networks, encourage a partnership approach to growing use, and reduce the level of public subsidy. Under this model, public transport contracts will be awarded through a mix of direct negotiations and tendering. The legislative elements of the model are set out in Part 5 of the Land Transport Management Act 2003. The operational elements are in the NZ Transport Agency's Procurement Manual and Guidelines for preparing Regional Public Transport Plans.

2.3.4.8. Tourism Strategy

www.mbie.govt.nz

The Tourism Strategy supports the tourism sector to reap the benefits of growth in visitor numbers while managing the pressures this places on businesses, communities and infrastructure. It is designed to help the sector attract high value visitors and investment, not only to tourist hotspots during peak seasons, but also to a range of regions and throughout the year.

2.3.4.9. Intelligent Transport Systems (ITS) Technology Action Plan

www.transport.govt.nz

The ITS Technology Action Plan outlines the Government's strategic approach to encouraging and enabling ITS technologies in New Zealand. It covers ITS issues and opportunities and provides an outline of central government's ITS related work over the period of 2014 – 2018.

2.3.4.10. New Zealand Disability Strategy

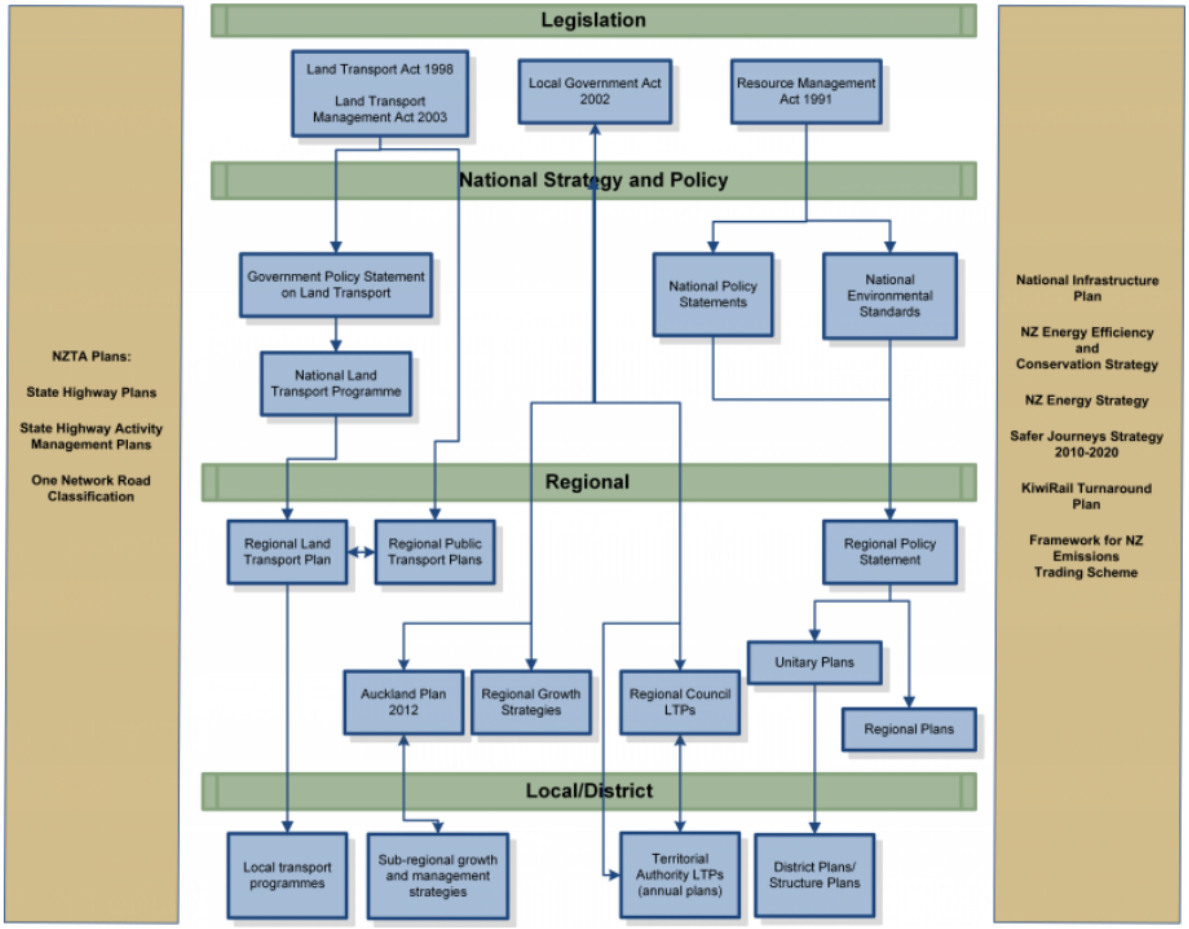
www.odi.govt.nz

The New Zealand Disability Strategy guides the work of government agencies on disability issues from 2016 to 2026. The Strategy's vision is New Zealand is a non-disabling society. It sets out eight outcome areas with goals and aspirations including Outcome 5: accessibility – we access all places, services and information with ease and dignity. Universal design is an approach used to implement the strategy, where accessibility for everyone is designed for at the beginning, rather than retrofitting for accessibility later. The Strategy is carried out through the existing Disability Action Plan which will be updated in 2018.

2.4. So How Does it all Fit Together?

Framework Diagram

Back to top



2.5. Strategic Alignment

The following table illustrates the alignment between the Whakatane Community Outcomes as set out in the LTP and the Objectives of the RLTP and GPS.

Objectives		WDC LTP					
		Effective Leadership	Sustainable Economic Development	Community Needs	Quality Services	Valuing our Environment	Reliable & Affordable Infrastruture
Regional Land Transport Plan	Communities have access to a resilient and reliable transport system that provides them with a range of travel choices to meet their social, economic, health and cultural needs.			■			■
	The social and environmental effects arising from use of the transport system are minimised.		■	■		■	
	Long term planning ensures regional growth patterns and urban form reduce travel demand, support public transport and encourage walking and cycling.	■	■		■	■	
	People choose the best way to travel to improve energy efficiency and reduce reliance on non-renewable resources.		■	■		■	
	The transport system minimises the health damaging effects of transport for all members of society.			■		■	
	Deaths and serious injuries on the region's transport system are reduced.			■			
	The transport system is integrated with well planned development, enabling the efficient and reliable movement of people and goods to, from and throughout the region.		■	■	■		
	Investment in the transport system maximises use of available resources and achieves value for money.		■	■			■
Government Policy Statement	A land transport system that is a safe system, free of death and serious injury			■			■
	A land transport system that provides imcreased access for economic and social opportunities		■	■	■		
	A land transport system that enables transport choice and access			■		■	
	A land transport system that is resilient			■			■
	A land transport system that reduces the adverse effects on the climate, local environment and public health		■			■	
	A land transport system that delivers the right infrastructure and services to the right level at the best cost		■		■		■

The following table illustrates the alignment between the Whakatane Community Outcomes as set out in the LTP and the ONRC Customer Outcomes

ONRC Customer Outcomes		WDC LTP Outcomes					
		Effective Leadership	Sustainable Economic Development	Community Needs	Quality Services	Valuing our Environment	Reliable & Affordable Infrastruture
Safety	Customer Outcome 1: the number of fatal and serious injuries on the network	■		■	■		■
	Customer Outcome 2: collective risk (fatal and serious injury rate per kilometre)	■		■	■		■
	Customer Outcome 3: personal risk (fatal and serious injury rate by traffic volume)	■		■	■		■
Resilience	Customer Outcome 1: the number of journeys impacted by unplanned events	■	■	■	■	■	■
	Customer Outcome 2: the number of instances where road access is lost	■	■	■	■	■	■
Amenity	Customer Outcome 1: Smooth Travel Exposure (STE) – roughness of the road (% of travel on sealed roads which are smoother than a defined threshold)				■		■
	Customer Outcome 2: peak roughness				■		■
Accessibility	Customer Outcome 1: proportion of network not available to Class 1 heavy vehicles and 50MAX vehicles		■		■		■
Travel Time Reliability	Customer Outcome 1: throughput at indicator sites	■	■	■	■	■	■
Cost Efficiency Performance Measures	These measures provide an indication of the relative costs and efficiency of your network, and can be compared with other networks. They relate to sealed road surfacing and pavements, unsealed roads, and National Land Transport Programme funded maintenance and renewal costs. These cost efficiency measures need to be considered alongside the customer outcome and technical output measures, as they provide a richer picture in combination than when considered individually.	■	■		■	■	■

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3. Network Context

The Whakatāne District is served by a network consisting of approximately 905 km of local authority roads, 150km of state highway, 196km of footpaths and 10km of off road cycle paths. The development of the network has largely been guided by the 'valleys and plains' type topography. In this context, bridge roads define the four major river valleys (Rangitaiki, Whakatāne, Tauranga and Tarawera Rivers).

Dairy and horticulture predominate on the Rangitaiki and Galatea Plains. The river valleys feature some dairy on the lower levels, with dry stock and forestry featuring in the foothills and ranges. The south east of the district is dominated by the ranges of Te Urewera and the south west incorporates the massive forest plantations of the central plateau.

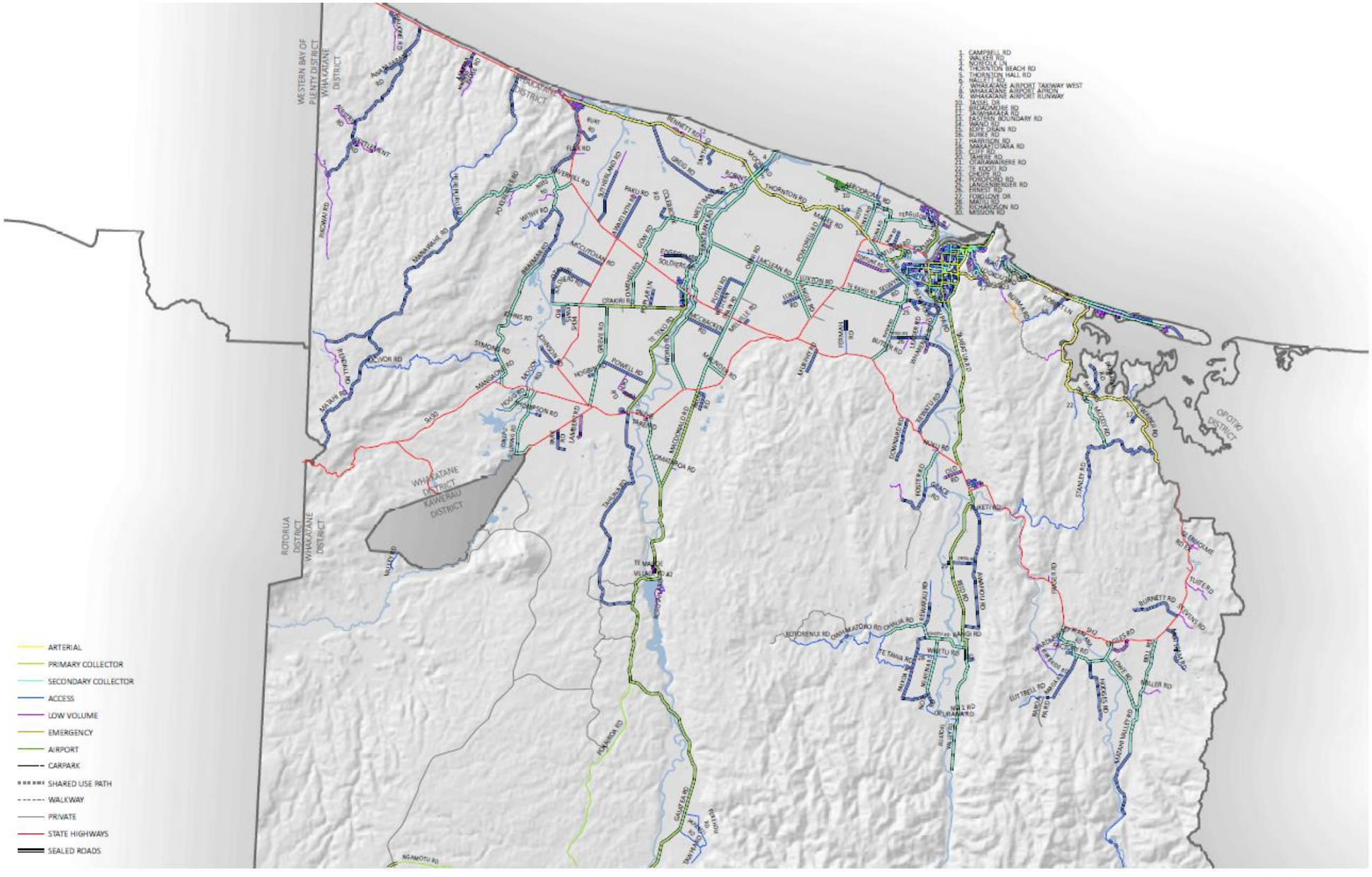
Significant industry includes the Fonterra dairy factory in Edgecumbe, The Board Mills in Whakatane, two of the country's largest aluminium boat builders one of New Zealand's largest Pulp and Paper Mills Kawerau's Norkse Skog and Carter Holt Harvey, Geothermal Resource and Power Station in Kawewrau. Emerging industry includes water bottling, aqua culture, and retirement care.

The main urban area is Whakatane. Whakatane is physically constrained by the escarpment to the east and the Whakatane River to the west. A number of smaller dormitory towns and suburbs are located around the district which predominantly rely on Whakatane for services and supply.

Whakatane enjoys an enviable climate, often clocking in with the highest sunshine hours of the country. Access to outdoor activities such as fishing, hunting, tramping surfing and adventure sports is a strong draw card. Tourists are also drawn to experience the strong Maori culture and identity of our District. Whakatane is also the base of operations for access to White Island, the jewel in the tourism crowd and often featuring in the lonely planet and other guides as a must do activity.

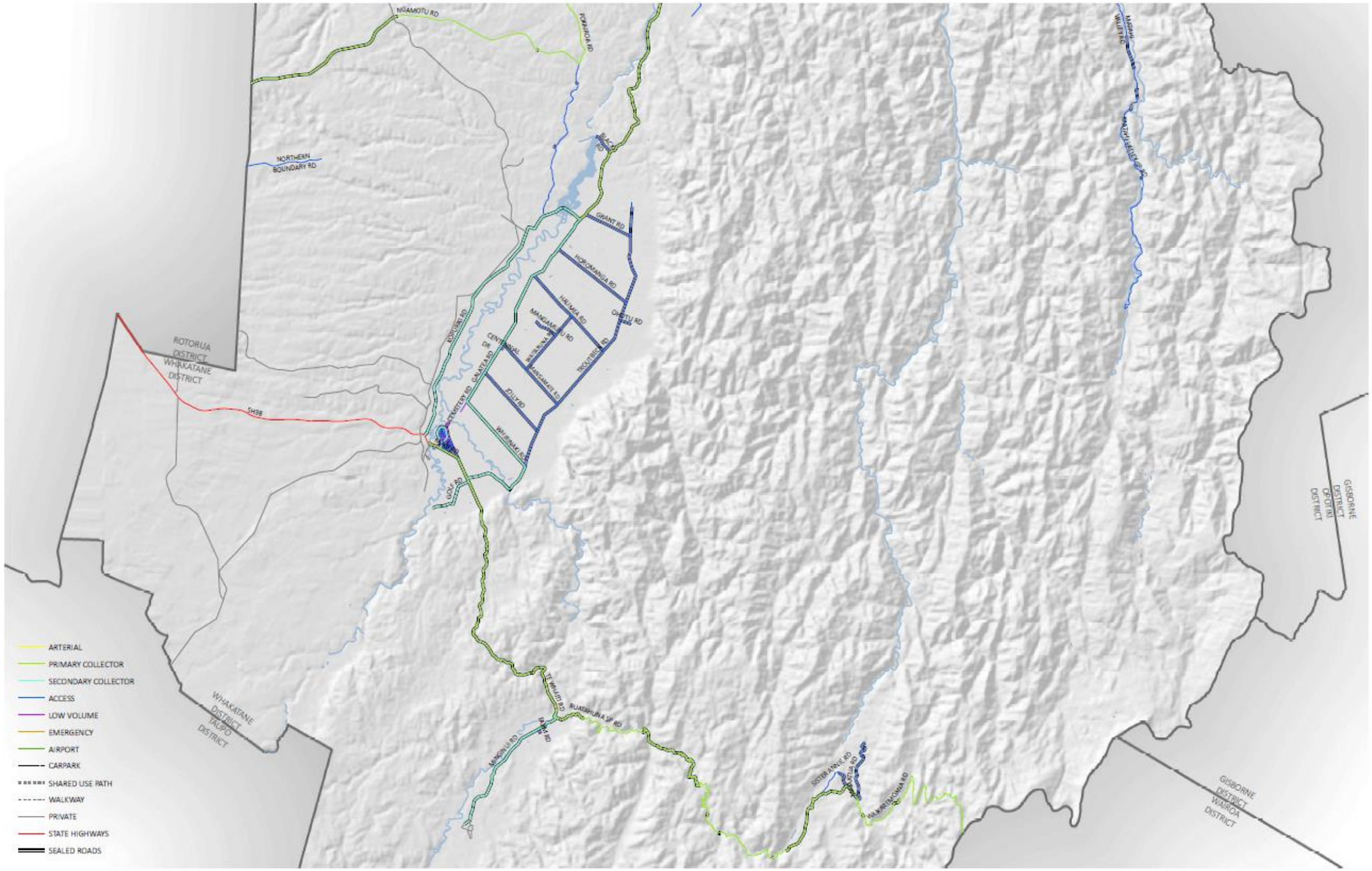
On the flip side, the same geographic location that delivers a lot of sun, also places Whakatane in the firing line for ex-tropical cyclones and depressions. The significant volumes and intensity of rain associated with these systems wreaks havoc on the steep and weathered sedimentary and volcanic soils that underlay much of the district causing devastating flooding and damage to the transport network – particularly in the western, eastern and southern hill country.

3.1. Roading Network Maps



RAMM Road Map North

Whakatane Office
PO Box 800
Whakatane, New Zealand
www.opus.co.nz
Tel: +64 7 308 0139
Fax: +64 7 308 4757



0 2 4 8 km

RAMM Road Map South

OPUS
Whakatane Office
PO Box 800
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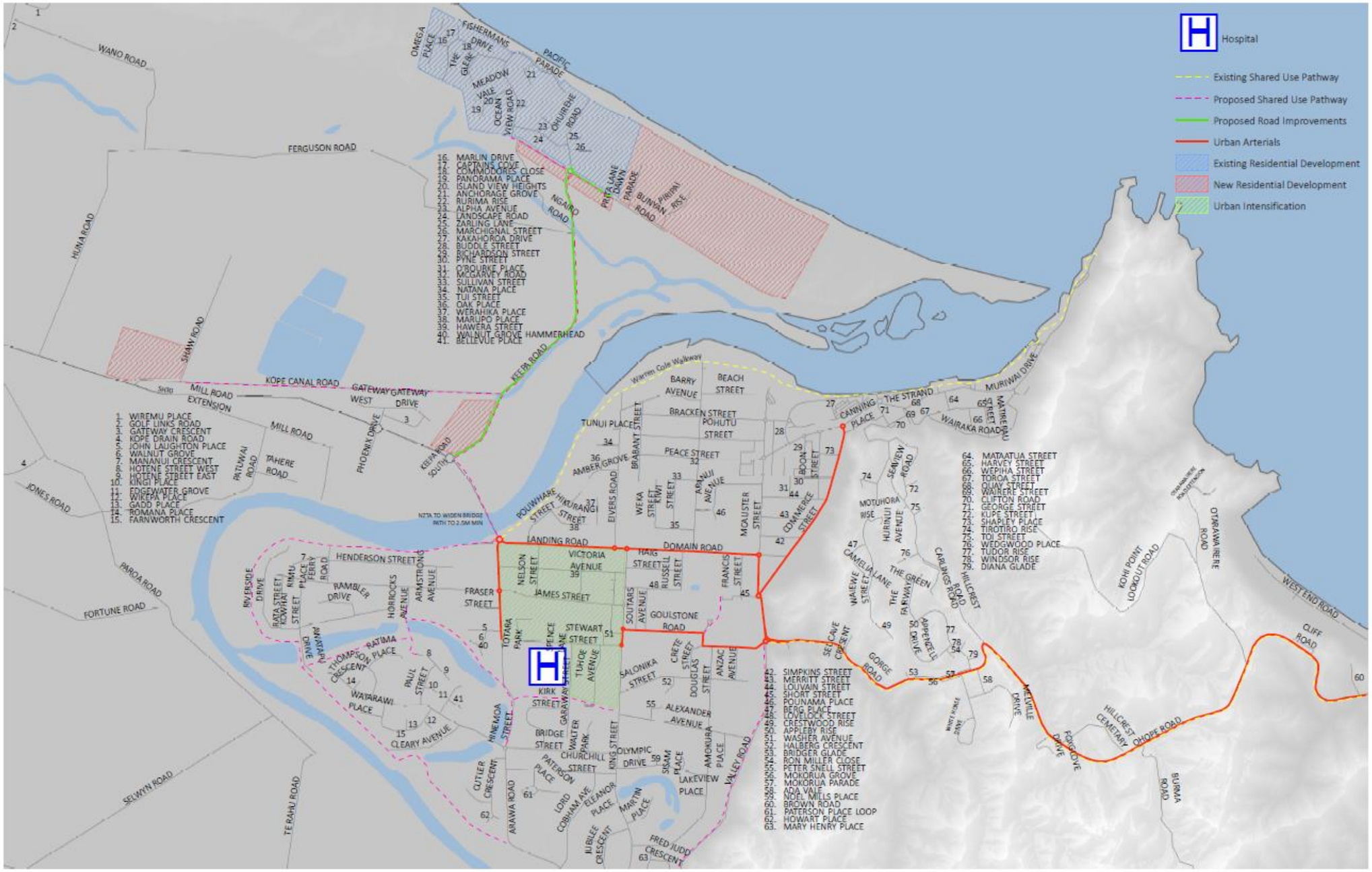
Fax: +64 7 308 4757



0 0.2 0.4 0.8 km

Urban Growth and Key Transport Links

Whakatane Office
PO Box 800
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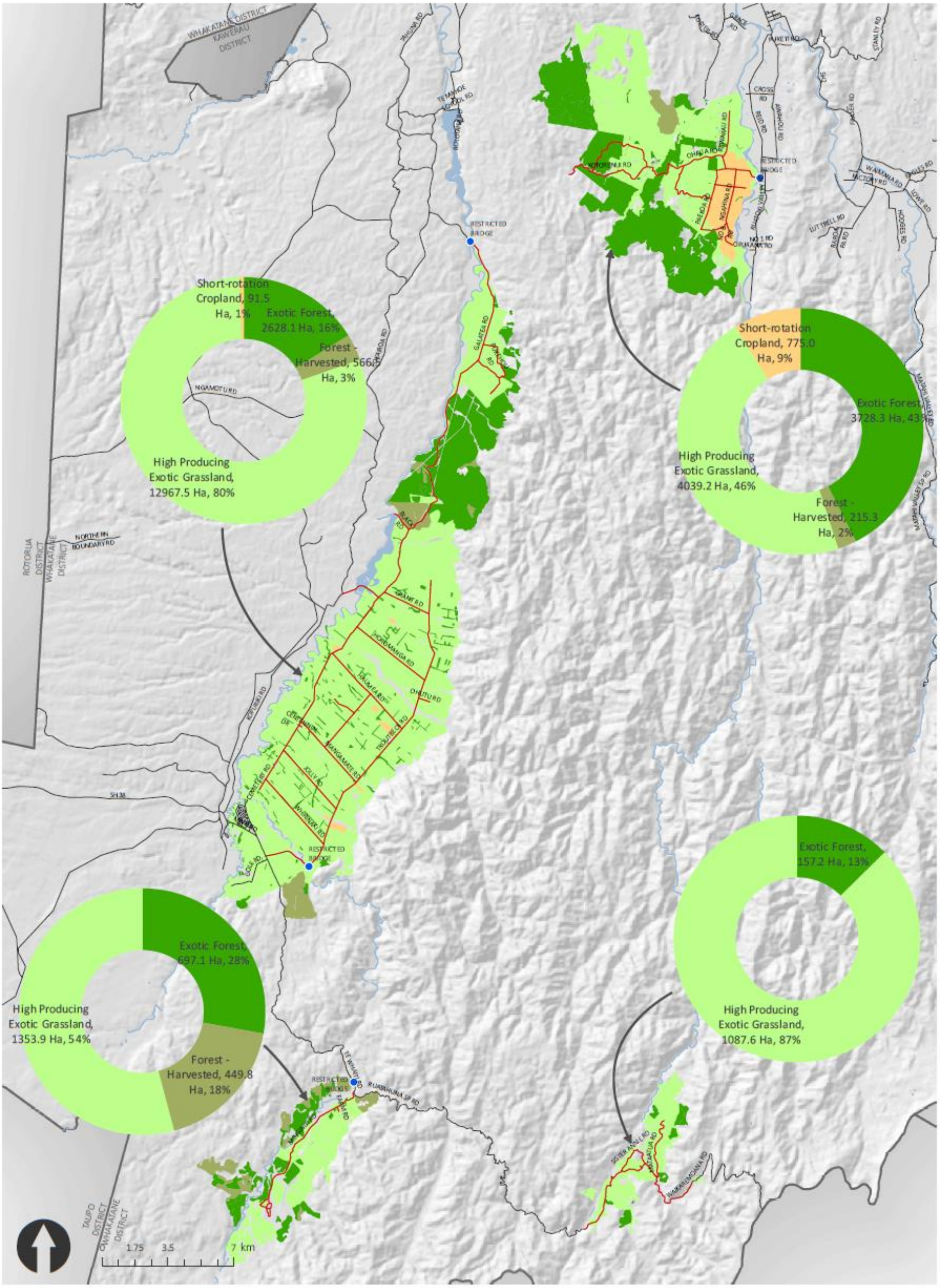

Class 1 & 50 Max Restrictions

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PO Box 800
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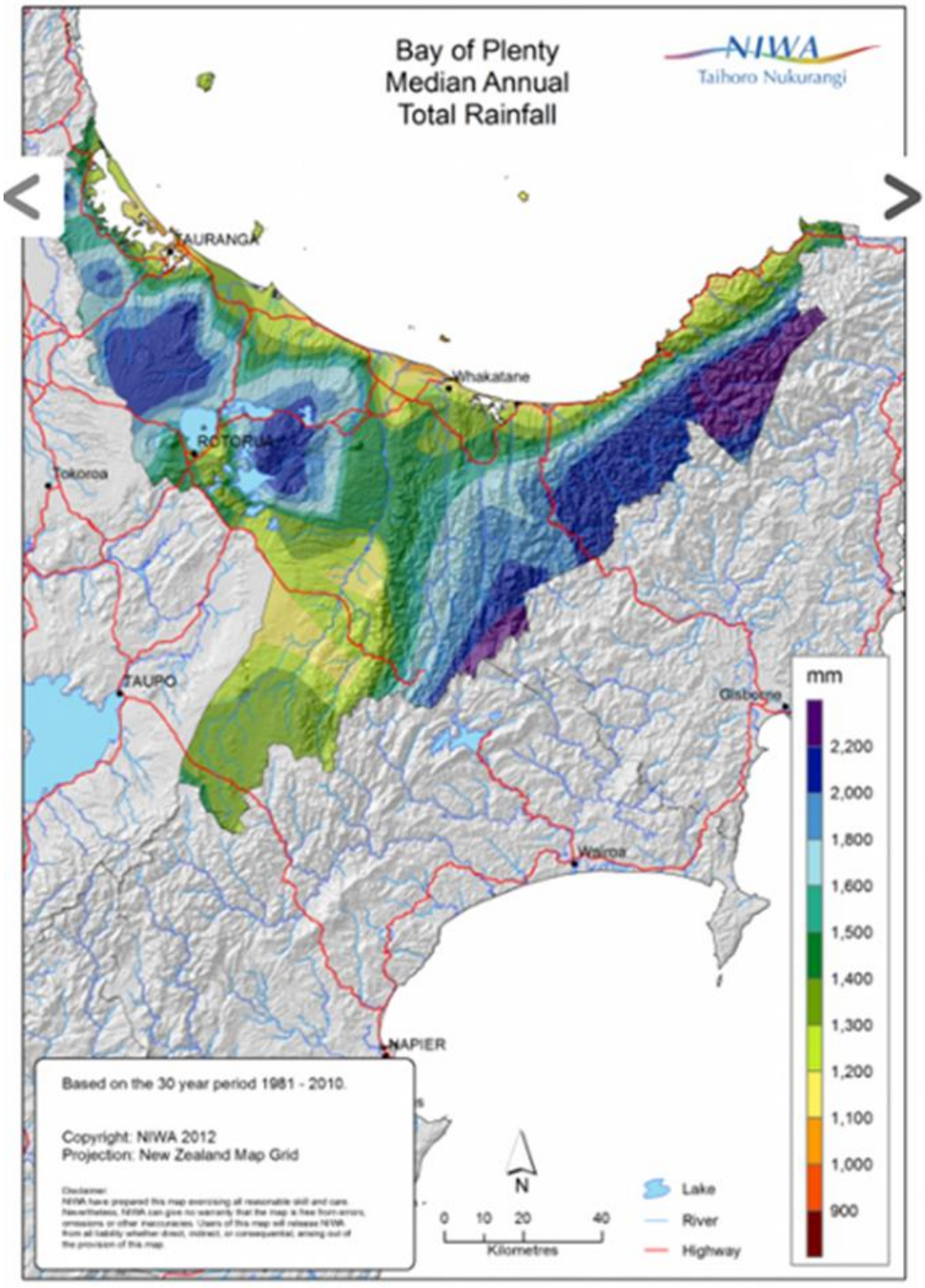
www.opus.co.nz
Tel: +64 7 308 0139
Fax: +64 7 308 4757


Bay of Plenty
Median Annual
Total Rainfall
NIWA
Taihoro Nukurangi
TAURANGA
Whakatane
ROTORUA
Tokoroa
TAUPO
Gisborne
Wairoa
NAPIER
mm
2,200
2,000
1,800
1,600
1,500
1,400
1,300
1,200
1,100
1,000
900
Based on the 30 year period 1981 - 2010.
Copyright: NIWA 2012
Projection: New Zealand Map Grid
N
0 10 20 40
Kilometres
Lake
River
Highway

4. Current State

This section describes what assets the Council own and manage, and how they are performing against key performance measures and benchmarked against their peers.

4.1. What Do We Have?

WDC manage and maintain 904.6km of road carriageway over five ONRC categories from Access to Low Volume – refer to following table:

Carriageway By ONRC	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Total
Total Length (km)	44.6	189.3	223.0	364.4	83.2	904.6
Length (%)	5%	21%	25%	40%	9%	100%
Sealed (km)	44.6	137.1	223.0	257.1	40.1	702.0
Unsealed (km)	0.0	52.2	0.0	107.3	43.1	202.6
Urban (km)	11.9	16.8	32.4	40.8	29.1	131.0
Rural (km)	32.7	172.5	190.6	323.6	54.1	773.6

Traffic distribution over the network by ONRC is shown on the following table:

Carriageway	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Total
Total VKT (000,0000)	87.3	64	43.9	18.2	2.1	215.6
VKT (%)	40%	30%	20%	8%	1%	100%
Sealed VKT (000,0000)	87.3	61.9	43.9	15.6	1.5	210.1
Unsealed VKT (000,0000)	0.0	2.2	0.0	2.7	0.6	5.4
Urban VKT (000,0000)	37.4	26.7	16.2	5.9	1.4	87.5
Rural VKT (000,0000)	49.9	37.3	27.8	12.4	0.7	128.1
HCV VKT (000,0000)	3.8	3.5	2.7	1.2	0.1	11.3
HCV %	4.4%	5.5%	6.2%	6.6%	4.8%	5.2%

Of note the arterial roads make up 5% of the network length but carry 40% of the traffic. At the other end the lowest two levels make up 49% of the total network length but only carry 9% of the traffic.

The average annual daily traffic density (Annual VKT/lane km/365) on the Whakatane network is 335vpd. This is considerably higher than the peer group average of 245vpd. The primary reason for this is that Whakatane's coastal arterial route to the east and west is shorter and quicker than the inland state highway 2 route. The coastal arterial route carries a higher total volume of traffic than state highway 2, though State Highway 2 carries approximately 3 times the number of heavy commercial vehicles.

The following key assets are provided to enable safe, reliable and efficient access to and along the carriageways:

Asset	Quantity (No.)	Length / Area	Units
Sealed Pavement	1823	5251677	m^2
Basecourse	1823	5663528	m^2
Unsealed Pavement	132	932702	m^2
Bridges	253	2675	m
Retaining Walls	258	4841	m
Off-Road Cycle Paths	4	9.8	km
Footpaths	1400	196.3	km
Carparks	58	61448	m^2
Kerb & Channel	2021	260.4	km
Catchpits	2165		ea
Culverts	4085	50665	m
Street Lighting	3454		ea
Railings	804	19627	m
Signage	7261		ea
Island (Traffic Control)	405	46508	m^2
Bus Shelters	18		ea

Asset valuation as of 1st July 2016:

- Optimised Replacement Cost: $372,503,938
- Optimised Depreciated Replacement Cost: $234,111,496
- Annual Depreciation: $6,420,855

Note that the annual depreciation is somewhat higher than the annual renewal programme value. In short this is due to the youngish age of the network. Many of the longer life assets have not yet reached the stage of requiring renewal. Refer to the programme business case section of this AMP for further detail.

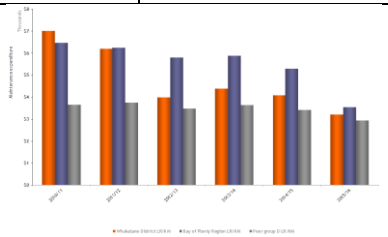
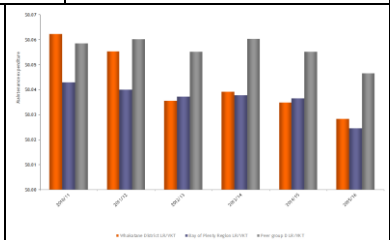
4.2. How are We Performing?

The ONRC Performance Measures are the main basis for assessing network performance and benchmarking across Local Authorities. The table below is a summary of the Customer Outcome measures. Refer to the Program Business Case for a full detailed breakdown of all measures.

Symbol	Description
	Above average performance or below average band cost
	Average performance or average band cost
	Below average performance or above average band cost

Customer Outcome		Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Comments
Safety	1: Number of serious injuries and fatalities (DSI)						Reflects high risk behaviours still prevalent in remote rural parts of the district on lower hierachy roads that are less forgiving
	2: Collective risk						Some sections of the coastal arterial route fall into the high risk rural road category due to out of context alignment, marginal geometry and road side hazards.
	3: Personal risk						Reflects high risk behaviours still prevalent in remote rural parts of the district on lower hierachy roads that are less forgiving.
Amenity	1 - Smooth Travel Exposure (STE)						Indicates maintenance intervention strategy could be fine-tuned to rebalance investment across the network.
	2 - Peak Roughness – **urban** sealed roads						Indicates maintenance intervention strategy could be fine-tuned to rebalance investment across the network.
	2 - Peak Roughness – **rural** sealed roads						Indicates maintenance intervention strategy could be fine-tuned to rebalance investment across the network.

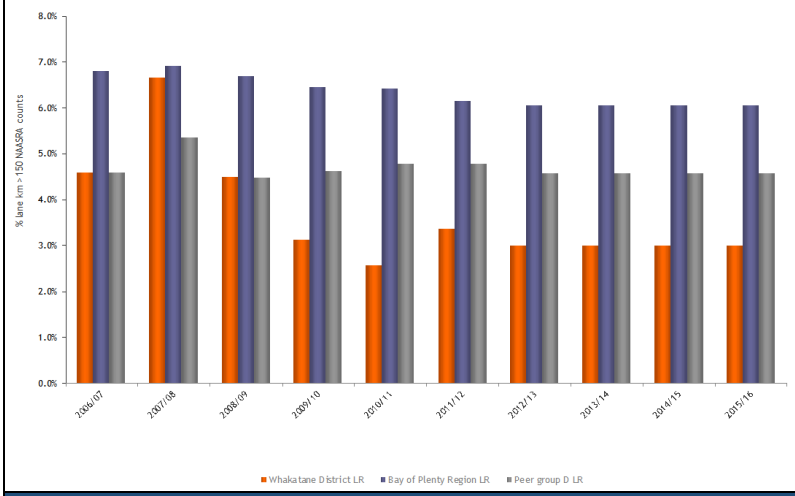
Customer Outcome		Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Comments
Accessibility	1 – Portion of network not available to class 1 heavy vehicles	0%	35%	16%	26%	3%	Based on new 46t/47t class 1 requirements. Mostly large primary producing areas of Galatea, Waiohou and Ruatoki. Dairy and forestry. Also remote communities of Minginui and Ruatahuna.
	1 – Portion of network not available to 50MAX	0%	35%	16%	26%	3%	Mostly large primary producing areas of Galatea, Waiohou and Ruatoki. Dairy and forestry. Also remote communities of Minginui and Ruatahuna.
TTR	1 – Throughput at indicator sites						Reflects urban arterial access. This is being addressed through a separate business case.
Cost Efficiency	Percentage of network renewed annually		**Surface**		**Pavement**		
	Sealed road maintenance: 3 year average annual costs per kilometre		**Maintenance**	**Resurfacing**	**Rehabilitation**		
			Maintenance		**Metalling**		

	Unsealed road maintenance: 3 year average annual costs per kilometre				Reflects high portion of unsealed primary collector roads with high maintenance costs
	Overall Network Cost (Excluding Emergency Works)	 Cost per lane km	 Cost per VKT		Whakatane (orange) costs are trending in the right direction and compare favourably against both the region (purple) and peer group (grey). (note this data comes from the NZTA road network trends wizard. The peer group is the old peer group D, not the new provincial centre peer group, though it includes many of the same LAs)
	Cost by Work Category	**Work Category**	**Whakatane**	**Cost Range for Provincial Centres**	
		111 sealed pavement maintenance	$1252	$780 - $3377	At the lower cost end of the band. Reflects young average age of the network and investment in drainage maintenance.
		212 sealed road resurfacing	$2517	$1021 - $5621	Below average cost.
		214 pavement rehabilitation	$806	$40 - $3049	At the lower cost end of the band. Reflects young average age of the network and investment in drainage maintenance.
		112 unsealed pavement maintenance	$1100	$414 - $5113	At the lower cost end of the band. Have been struggling to meet LOS though.
		211 unsealed road metalling	$3261	$389 - $3808	Reflects high portion of unsealed primary collector roads with high maintenance costs
		113 & 213 drainage maintenance & renewal	$1144	$283 - $1230	At higher end of cost band but contributes to lower pavement costs and reflects steep and actively eroding nature of large part of the network combined with heavy rain events.
		121 & 221 environmental maintenance & renewal	$698	$262 - $2517	

		122 & 222 traffic services maintenance & renewal	$1026	$375 - $1551	
		151 network & asset management	$1690	$415 - $1690	On the Whakatane network the professional services team (in-house staff & consultant) undertake a number of activities that are typically managed by the contractor on other networks including works programmes, inspections, audits, service requests. Whakatane also run a sizeable road legalisation programme. Without these the total would be closer to $1000/km.

Information on the trends of key performance indicators over time is available through the NZTA Road Network Performance Tool.

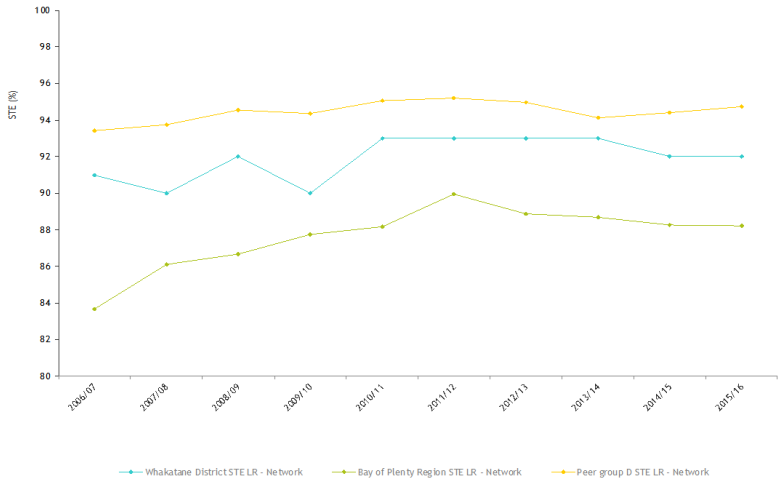
Roughness (% lane km > 150 NAASRA)



After a period of improvement this indicator has been steady for the last 7 years.

Whakatane (orange) compares favourably against the region and peers.

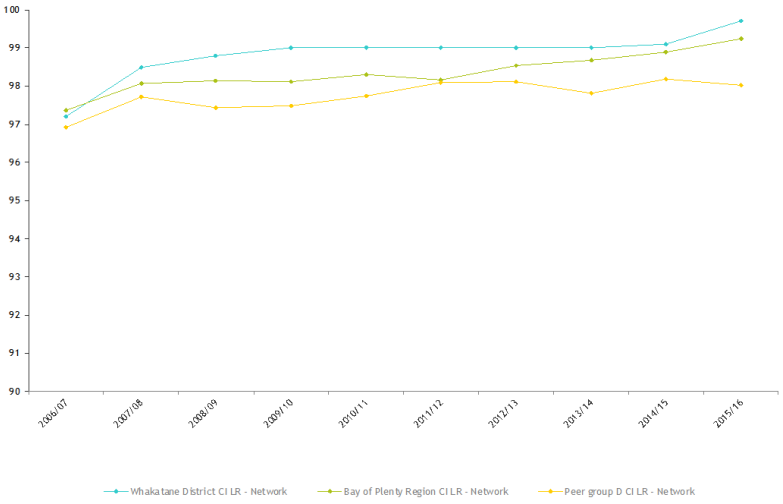
Smooth Travel Exposure



This indicator has been relatively steady over the past 10 years.

Whakatane (blue) is just below the peer group but above the region.

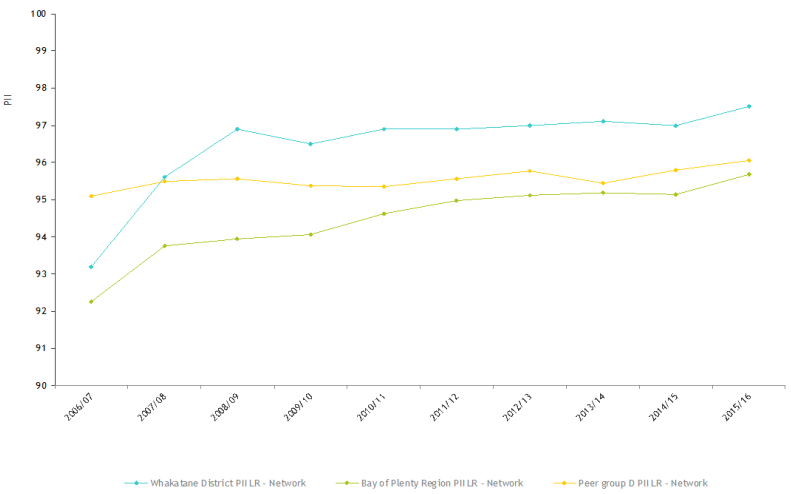
Condition Index



This indicator has been steady to slightly improving over the past ten years. This has been through a period when resurfacing cycles have been stretched from an average life of 12 years to 15 years. This indicates that the extended seal lives is not resulting in increasing surface faults.

Whakatane is just above the peer group and the region.

Pavement Integrity Index



After a period of improvement this indicator has been steady for the last 7 years. Over this period WDC have been including a heavy maintenance and reseal option in the npv analysis for rehabs which has resulted in fewer rehabs. To date this approach has not resulted in an increase in structural pavement faults.

Whakatane is just above the peer group and the region.

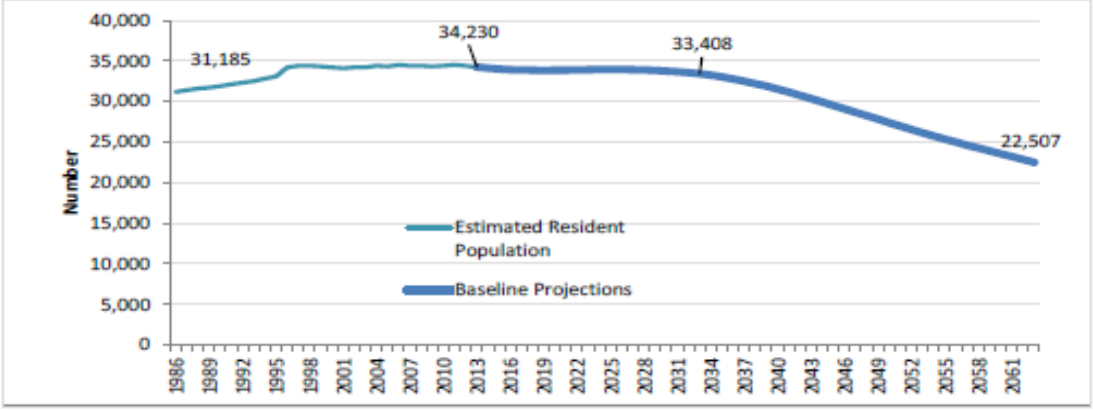
5. Future State

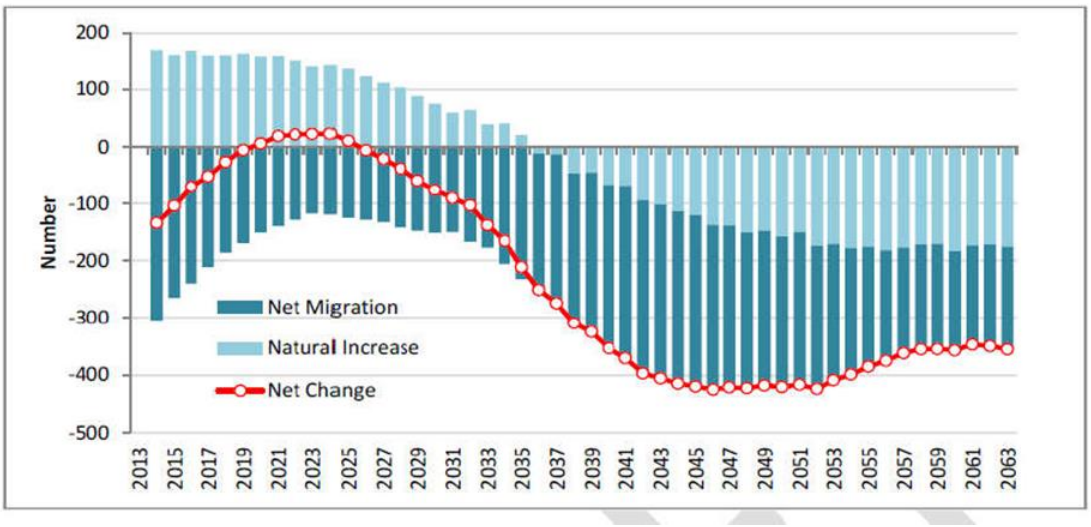
The demands placed on the network and state of the network itself are very dynamic and shift through time. It is important these are constantly assessed and planned for. This section defines WDCs forecast's, views and assumptions on current and emerging trends and issues that may impact on the delivery of transportation services through the lifecycle of this AMP and into the future.

5.1. Demographics

The population of the Whakatane District at the 2013 census was 34,200 people. In 2014 the National Institute of Demographic and Economic Analysis (University of Waikato) published an influential report entitled "2014 Review of Demographic and Labour Force Projections for the Bay of Plenty Region for the Period 2013-2063". The Executive Summary paints a bleak picture. Relevant findings are:

- The population of the Whakatane District is projected to remain approximately stable until around 2033, the population will then decline more rapidly to around 22,507 by 2063 (-30.1 per cent).
- The decline reflects both an accelerated shift from natural increase to natural decline, beginning around 2036, and negative net migration across the entire period.
- By 2033 over one-third of Whakatane's population will be aged 65+ years, up from 15.5 per cent in 2013. By 2063 that proportion is projected to reach 45.4 per cent. These data show the ratio of those aged 65+ years to those aged 0-14 years increasing from 69 elderly per 100 children in 2013 to 372 elderly per 100 children by 2063—Whakatane is ageing much faster than both Tauranga City and Western Bay of Plenty.
- Between 2013 and 2033, numbers aged below 65 years are projected to decline significantly. Growth at 65+ years is equally significant (5,918 persons) but will fail to offset the overall decline (-822 persons). The situation is projected to deteriorate between 2034 and 2063, with all age groups declining, even at 65+ years.





BUT!!!

This report projected the districts population would decline by 308 people in the 3 years to June 2016. According to Stats NZ the district's estimated resident population increased by 800 people to 35,000. The report forecast a net migration loss off 808 people vs an achieved net migration gain of 100. Natural increase also ran at a net gain of 100 more than forecast. The validity of the population projection models is largely reliant on the assumptions made. From the report:

"Demographic change assumptions, when applied to the current population, allow the calculation of possible future populations. Such calculations are referred to as population projections rather than population forecasts, because they depend on sets of assumptions and no explicit assessment is made of the relatively likelihood of the assumptions being correct in the future. Varying the assumptions across projections simply permits a sensitivity analysis that provides a relatively broad range of possible outcomes."

In other words this is simply one projection based on one set of assumptions made at a fixed point in time and relies on those assumptions remaining correct into the future to maintain any sort of validity. The reality is that the political, economic, demographic and migration landscapes are very fluid and dynamic; quickly making any set of assumptions redundant.

There is a significant body of economic activity either underway or in planning, and other items of evidence that suggest we may see continued growth for some time yet:

- In the 80 years from 1926 to 2006 Whakatane was New Zealand's second fastest growing town.
- Despite projections of widespread population decline amongst the regions, the majority of regions are currently experiencing population growth.
- Traffic numbers within in the Whakatāne District been steadily increasing.
- There are a number of subdivisions being developed on the western side of the Whakatāne River, which could potentially see upwards of 700 residential properties, including a substantial retirement village.
- Local Whakatāne and wider district industry growth and opportunities will see an increase in future populations. These growth industries include local marine boat

building, aquaculture and horticulture in Opotiki, geothermal energy, container storage, timber and dairy processing in Kawarau.

- Local Iwi are actively involved in a wide variety of economic development activities throughout the district and wider Bay of Plenty region, including the Ngāti Whare Native Nursery in Minginui and kiwifruit orchard development in Opotiki.

- The Tauranga Eastern Link has reduced travel times between Whakatāne and Tauranga, and together with the future development of the Rangiuru Business Park could see people choosing to live in Whakatāne and commute. This is further enhanced by living affordability in large cities forcing people to look at alternative living options.

- Significant expected industry growth for the Eastern Bay of Plenty over the coming five year period is forecast to create 3,000 jobs which would significantly influence population projections.

Population growth is not constant across our District. Some areas are facing decline already while others remain stable or continue to grow. Within our own district, 52% of the population (18,110 people) live in the Whakatāne Urban Ward including Whakatāne Town, Coastlands and Ōhope. This percent is expected to increase by 2030 with a continued decline of some rural areas and as planned residential developments in or adjacent to our main urban centre are realised.

The expected trend for rural areas is increased size and lower number of farms with increasing production. On-going mechanisation and automation will mean fewer on farm employees. Rural roads will see fewer cars, but an increase in HCV to deliver produce to processing plants and the markets.

Overall there is optimism for population growth for our district and the wider Eastern Bay of Plenty in relation to our lifestyle offering and economic development initiatives currently being progressed. At the same time, with some of our areas/ communities in decline we need to ensure that our planning is realistic and that services remain agile to adapt where needed.

5.2. Growth and urban congestion

5.2.1. Residential Growth

Council adopted the Whakatāne Integrated Urban Growth Strategy in 2010, which outlines ways of planning for and managing growth in the District in a proactive manner. *Further to this, a 'Strategy for Growth' is being developed later this year. The Strategy will look to provide a sustainable pathway for continued urban development alongside economic growth expectations for the Eastern Bay of Plenty.*

Within our District, specific areas continue to see demand for residential development. Current census figures indicate a 9.5% increase in dwellings over the 2001 – 2013 period, with this growth largely within Whakatane township, Ohope, Coastalnds and Orini. With the increase in economic/industry development within the Eastern Bay of Plenty, demand for further residential development is expected to increase.

The near future will see development of residential subdivisions at Shaw Road, Keepa Road and Piripai, which could potentially see upwards of 700 residential properties developed, including a substantial retirement village.

The Integrated Urban Growth Strategy outlines a plan for Kopeopeo housing intensification, which encompasses an area of 34.4 ha. This will allow for smaller sections with units and attached housing, and maximum heights to allow for 3 storey dwellings. This will enable an entry point for elderly, people wishing to downsize and

new home owners. This would envisage a population increase of approximately 1,500 people within this area.

5.2.2. *Urban Congestion*

At present, the pressure of pockets of growth is currently being experienced at peak hours at some of Whakatāne's major urban intersections. These include the Landing Road Bridge roundabout; Landing/Eivers Road roundabout, and the Domain Road/McAlister Street roundabout. The residential developments on the western side of the Whakatāne River are also expected to increase congestion levels further.

5.3. Asset Renewals

5.3.1. *Pavements*

The Whakatane network is relatively young, with an average pavement age of 30 years. Pavement life estimates range from 40 years for pavement use 6 (ADT 10000 – 20000) up to 90 years for pavement use 1 (ADT < 100). The implications of this are that many of the pavements are only part way through their useful life. As the network matures we could potentially see a significant increase in pavement renewal requirements. A pavement renewals forecast based on expected life was developed for the 30-year infrastructure strategy. The first 10 years (2015-2025) the rehab rate is 1.9km per annum (0.27%). The second 10 years (2025-2035) the rehab rate is 2.9km per annum (0.41%). The final 10 years (2035-2045) the rehab rate is 6.7km per annum (0.95%). The rehab rate once the network matures is 11.7km per annum (1.67%).

There are significant limitations to this forecast including:

- There is limited to no information on pavement structure or strength. This makes it impossible to verify pavement life estimates. Lower traffic volume pavements could potentially be considered as perpetual.
- It does not provide any information on how the roughness or condition profile of the network might change over time.
- It does not take into account anticipated future growth in freight demand

Pavement modelling can compare alternative budget scenarios and forecast expected condition over time. This would go a significant way to reducing the risk to council of over or under rating for this activity.

5.3.2. *Surfacing*

In connection with the relatively young pavement age, the average number of seal coats on the sealed road network is 2.2. Of the 1873 treatment lengths with chip seal surfacing, 1458 have 2 or 3 seal layers.

WDC are currently obtaining an average chip seal life of around 15 years. As the number of seal layers increase, the average life obtained decreases. Typically after 6 chip seal layers accumulate problems with seal layer instability and flushing reduce seal lives to the point where pavement recycling or rehabilitation becomes the least cost maintenance option.

Over time we are likely to see shorter seal lives resulting in increased renewals costs.

5.3.3. *Bridges*

Based on estimated useful lives bridge renewals also look like they will ramp up over the coming decades. Four bridges are due for renewal in the next ten years, 9 bridges the following decade, then 11 the decade after that.

Of those bridges, 16 are steel beam with timber or concrete decks and the state of the structural elements and rates of decay are easy to monitor, and a remaining useful life can be assessed with some certainty.

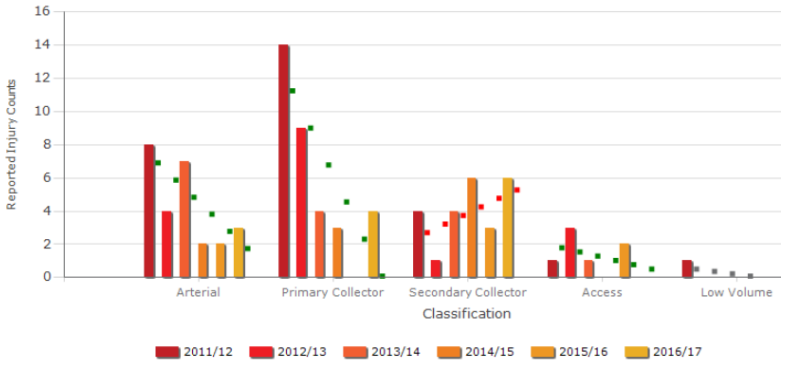
The majority are concrete bridges, and the design life is set at 100years in the database. Some of the coastal bridges are suffering from chloride attack and rusting reinforcing. Of the remainder, with no obvious decay, the question needs to be asked – how long will they last? 150 years, 200 years, or more?

Further investigation is required to get greater certainty around the remaining useful life of these bridges, although that comes at a price. Without developing some greater certainty around remaining life there is a risk that WDC could be over-rating on bridges.

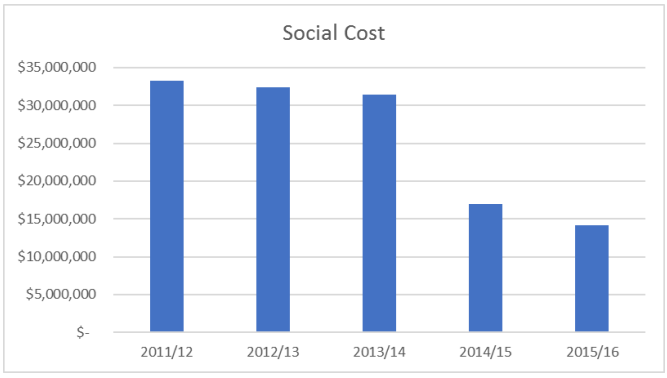
5.4. Road safety

Whakatane District have had significant success delivering improved road safety outcomes over the previous 5 years. Evidence includes:

- Total fatalities and serious injuries continues to trend down.



- Social cost of fatal and serious injuries has nearly halved.



- Our District no longer features at the top of the Communities at Risk Register.

Result	Number of Categories	
	2011	2017
More than 1 SD above mean	4	0
0.5 - 1.0 SD above mean	3	2
0.0 - 0.5 SD above mean	0	3
Below mean	6	10
Note: There were 13 categories in 2011 and 15 in 2017		

However within our District some areas are over-represented in the statistics including outlying rural areas which score low in the deprivation index. These areas are typically served by secondary collector and access roads which have less forgiving corridors. The cars in these communities tend to be older and less well maintained. Alcohol and drugs, speed, un-licensed drivers, youth and lack of restraint use tend to feature. This means the likelihood of crashing is higher, and the outcome of a crash is more severe. This is evidenced by a personal risk rating of high for secondary collector and access roads, and a severity ratio (the ratio of death and serious injury to all crashes) of 0.12, which is significantly higher than the national ratio of 0.06.

To continue the momentum of improvement and deliver improved safety outcomes to the entire district will require the continuation of the current integrated approach which targets two of the four pillars of the Safer Journeys Strategy – Safe Road Use, and Safer Roads.

- Safe Road Use is promoted by the Eastern Bay Road Safety Committee. This is a joint committee delivering for Whakatane, Opotiki and Kawerau districts. The Eastern Bay of Plenty Road Safety Strategy sets the direction and strategy for road safety in the Eastern Bay. The Strategy mirrors the vision of the Government's Safer Journeys Road Safety Strategy to 2020 and provides direction to the Road Safety Education Programme. Over the last three years innovative approaches to improve message penetration with notoriously hard-to-engage audiences in our region and, ultimately, improve road safety outcomes in the future, have meet with success. The Road Safety Programme will continue with this approach through this RLTP period, as well as continuing to explore other innovative means of delivery.

- Safer Roads are principally delivered via improvement projects funded through the RLTP. WDC will target a significant proportion of the minor improvement programme to this outcome. Maintaining levels of service through effective and targeted maintenance and renewals programmes is essential.

Through the integrated impact of both programmes WDC expect to see ongoing reductions in the total number of deaths and serious injuries, and a related reduction in social costs.

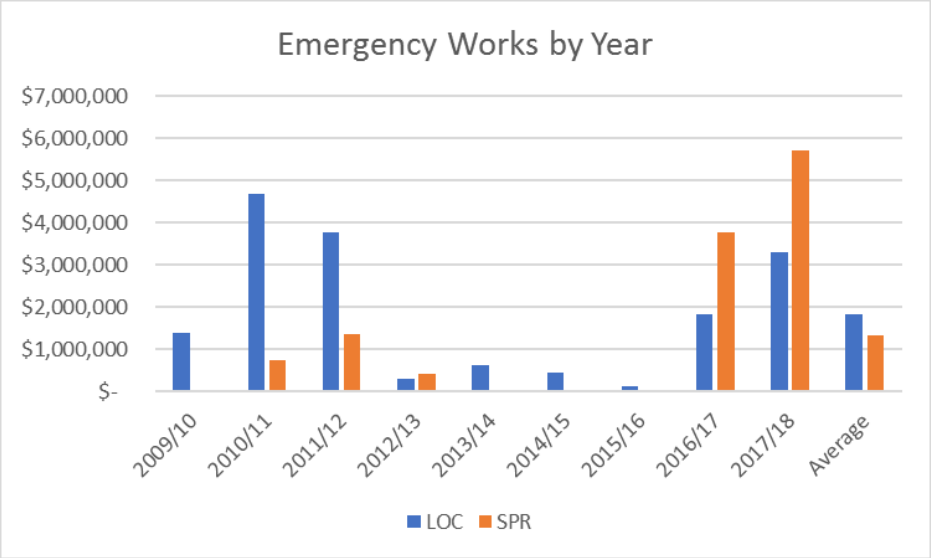
5.5. Natural hazards, climate change and community resilience

The Whakatane District is in an area where the threat of natural hazard events is reasonably high. These threats include flooding, storm surges, volcanic eruption, large earthquakes, land slips and tropical cyclones. Some events, flooding in particular, have a higher likelihood of occurring, while other events such as earthquakes, have a lower likelihood of occurrence but a potential to cause significant damage. All these events have the potential to adversely compromise accessibility and cause unplanned disruptions to the transport system.

Accordingly, a resilient transport network is an important economic, social, and safety component, particularly as there are areas within the District where roading network routes are few or there are no viable alternatives.

5.5.1. *Climate Change*

Climate change is already impacting how communities live and function and these impacts are expected to increase in magnitude and extent over time. Over the past decade the Whakatane District has been subjected to numerous heavy rain events resulting in widespread surface and river flooding, together with major slips, that disrupt transportation connectivity to other districts and regions. These events have resulted in the additional costs to the Council in the form of emergency works, as shown in the graph below.



Climate change predictions are for an increase in the number and size of extreme weather events over time. It is assumed that there will be a gradual increase in the frequency and size of events causing increased erosion and damage. Apart from Council potentially finding itself facing increased costs of flood and erosion events the related impacts must be factored in when determining route security.

Climate Change can affect Councils transportation activity functions in a number of ways. In designing its assets council will continue to use the latest guidance for the various design parameters. Climate change effects are built into the design of new assets and on replacement of existing assets. Some assets may need additional capacity as climate change effects become apparent, however climate change scenarios indicate there is sufficient time to plan ahead. It is assumed that guidance on increased rainfall or sea level parameters will continue to be readily available and council will continue to adapt as new predictions from credible sources become available.

5.5.2. *Removal of Special Purpose Road status – Te Urewera Road*

Te Urewera Road (previously known as State Highway 38) is currently unsealed and has Special Purpose Road (SPR) status that NZTA has recently proposed to remove. A key concern is that removal of this SPR status will result in transference of risk and maintenance costs from NZTA to the relevant local authorities – Wairoa and Whakatāne district councils. Given that there are high costs associated with frequent storm damage on the unsealed Te Urewera Road, the Council will be exposed to a significant increased funding risk. With such a small ratepayer base, this is likely to have significant negative impacts on route security, safety and resilience of Tūhoe communities within Te Urewera.

Tūhoe recently settled their treaty claims and are working to advance social, cultural and economic development through implementation of their tribal spatial priorities. Development of sustainable infrastructure and a range of other economic development pursuits are firmly on the agenda, the sealing and improvement of Te Urewera Road has been identified as a key requirement to create a vibrant, prosperous and living Te Urewera community and economy.

5.6. Freight

Forestry, forest products, dairy and dairy processing, kiwifruit and aquaculture are substantial in the economy and will be key economic drivers in changes to freight flows within the district (Eastern Bay Beyond Today, 2016). Other factors include:

- There is projected to be a significant reduction in logs flowing from the Opotiki District through Whakatāne District west to Kawerau and Mt Maunganui after 2015 due to forest age structure (predominantly planted in the 1980s). Log tonnages are projected to rise again beyond 2030 as the second rotation plantings reach maturity[1].

- Recent research has also identified a large volume of logs available from small scale owners (compared to large scale operators) from 2020 to 2034. As the majority of wood available is located in the Whakatane and Opotiki Districts, this could have significant roading implications.[2]

- Tonnages of kiwifruit, milk (and dairy product) and aquaculture product are projected to steadily increase .

A new generation of truck (50 MAX) allows for safe and more efficient transport of freight goods. These trucks are slightly longer than standard 44 tonne vehicles and have an additional axle and a weight of up to 50 tonnes. With no additional wear on roads per tonne of freight, this means more efficient freight movement and can lead to economic benefits for producers, customers and communities.

The proportion of heavy trucks on Bay of Plenty Roads has been rising steadily. This is shown by the proportion of heavy trucks taking up HPMV over the last few years (12% in 2012/13 Q1 to 32% in 2015/16 Q4) . Movement towards this new generation of truck does have implications for the roading network, particularly bridge structures. As advised by NZTA, the Council will review their bridge stock and any bridge restrictions.

Restricted bridges prohibit class 1 or 50Max access to approximately 290km2 of farm and forestry land.

5.7. Tourism

Tourism is New Zealand's largest export earner, contributing 20.7% of New Zealand's foreign exchange earnings. Positive impacts of tourism on New Zealand's economy and communities are far and wide. For example, there is a staggering 188,136 people employed directly in tourism (7.5% of the total employment in New Zealand) and just over 144,000 people employed indirectly in tourism (5.7% of the total employment in New Zealand).

Forecasts for the tourism sector are positive. The industry's Tourism 2025 growth framework has a goal of growing total tourism revenue to $41 billion a year by 2025. Both volume (visitor arrivals) and value (visitor spend) drivers contributed to overall reported growth in spending; that is, more people are coming to New Zealand and

[1] Rob van Rossen Consultants (2014): Bay of Plenty Regional Council Transportation Infrastructure Study Report

[2] John Galbraith (2016): Presentation to the BOP Road Infrastructure Managers Workshop (27 September 2016). *Bay of Plenty Forestry and Freight Logistics.*

spending more each trip.The importance of domestic tourism to Whakatāne is shown in the figure below, with $95M of the total $122M tourism spend being contributed by domestic tourism (over 75%).

Whakatāne tourism spend represents 15% of the total spend for Bay of Plenty and only 0.5% of the total New Zealand market share.

Domestic and international tourism spend in 2016 for New Zealand, Bay of Plenty region and Whakatāne District

Whakatāne has experienced a recent upswing in the district's popularity as a tourism destination with the number of guest nights in Whakatāne and Kawerau Districts rising by 8.5% from 2014 to 2016 and the average length of stay also rising. Although there are no available statistics on the indirect impacts, this must also be producing positive outcomes for employment.

Through stimulating tourism growth, Council can play a critical role in building the community's economy and community wellbeing. An important aspect of this is that tourism growth helps to create and preserve local jobs thereby ensuring a healthier local economy and increasing social returns to the community.

5.8. Other economic opportunities

Other economic opportunities for Whakatāne District identified include :

- High value horticulture and apiculture – kiwifruit, berry fruit, mānuka and honey.
- Specialist manufacturing (including aluminium boat building).
- Tourism based on environmental and cultural experiences, local events and recreation.
- Water bottling.
- Promoting solar renewable energy resources.
- Electric vehicle promotion through tourism and other avenues
- Partnering with iwi to facilitate economic and commercial aspirations.
- Geothermal Power

5.9. Unsealed Roads

- There are 67km of primary collector road that are unsealed. This is below the acceptable levels of service for this category of road. These roads either carry significant volumes of freight or are a lifeline link for remote communities.
- These primary collector roads have extremely high maintenance costs and the economic case for sealing them stacks up.
- Maintenance costs between sealed and unsealed roads for equivalent traffic levels are very similar.
- Other roads at access and low volume provide access to homes and farms. The dust generated has significant impacts on health (asthma etc) and production (especially horticultural), as detailed in NZTA Research Report 590.
- It is getting harder and more expensive to source suitable material for unsealed roads. Average haul lengths for the aggregate are getting longer which leads to increased green house gas contributons. Hauling aggregates around the network for unsealed pavement maintenance adds significantly to the loading on low strength low volume pavements significantly reducing their life expectancy.
- There is a strong political and community desire within the District to address these issues.

6. Gaps

The current state, considering the trends, views and assumptions discussed under future state, highlight gaps in ONRC levels of service that will need to be addressed to ensure the network continues to provide acceptable outcomes. These gaps are categorised as:

- Knowledge, data and information gaps.
- ONRC Performance gaps
- Infrastructure Gaps

6.1. Knowledge, Data and Information Gaps

- Move to advanced asset management practices (eg modelling) requires new data and tools including structural pavement information, condition data on 100% of network (eg high speed data, SCRIM, GPR or FWD, etc). This will give confidence that financial plans are appropriate and robust.
- Traffic model needs updating to inform timing and scope of future capacity improvements for the urban arterial access network.
- Walking and cycling strategy needs updating to reflect current growth patterns, priorities, trends etc. Scope needs t be widened to consider e-bikes and mobility scooters.
- The remaining useful life of the District's bridge stock requires a greater level of accuracy to give confidence that financial plans are appropriate and robust.

6.2. ONRC Performance Gaps

- Safety. High personal risk on secondary collector and access roads. High numbers of fatal and serious crashes on primary collector roads.
- Cost efficiency. Unsealed primary collector roads contributing to high metaling and unsealed pavement maintenance costs.
- Accessibility. A significant portion of the network that services significant dairy and forestry production is not accessible by 50max
- Travel time reliability. The urban arterial access into and through town is reaching capacity.

6.3. Infrastructure Gaps

- Growth on West side of river and intensification within Kope will at some point exceed capacity of main arterial route (SH30, Landing, Domain, McAlsiter, Commerce, Gorge,)
- Capacity over river will eventually need to be addressed to avoid severe congestion and negative impacts on economic growth and development.
- To facilitate modal change appropriate infrastructure required. Currently river and main urban arterial (Landing and Domain) create significant severance barriers.
- Walking and cycling infrastructure required to be in place to maximise uptake of these modes when new subdivisions on west side of river develop (1000+ sections), so as to minimise impact on already congested bridge.
- Footpaths will need upgrading to cater for increasing mobility scooter use as population ages.
- Unsealed primary collector roads need sealing to bring to acceptable LOS.
- Unsealed access and low volume roads need sealing to address health and productivity impacts.
- Keepa and Bunyan Rd are changing in form from rural to urban and need investment to facilitate this.

7. Risk Management

This section covers the risk management implemented by Whakatāne District and how these apply to the current and future transport activities.

The purpose of this risk plan is to identify the risks associated with the transport activity and assets. This requires approaching the risks from many perspectives including financial, operational, organisational and public health and safety.

These risks are pertinent to both a higher, corporate level, and to a more detailed asset –specific level, but do not substitute for more specific risk analysis at those levels.

7.1. Corporate Policy

The Council's risk management policy provides the context and framework for how risks to the Council are to be managed.

The objective is to identify realistic possible risks faced by Council, analyse and evaluate these risks. The outcome of this evaluation is to be used to:

- Emphasise the importance of continuing to provide Council's core services and manage inherent risks
- Continually identify improvements required to Council services to avoid risk events, or minimise their impact or to realise identified opportunities

This policy also defines the responsibilities of Council managers and staff to form and maintain the framework, and use it to make sound decisions in alignment with business objectives.

7.2. Risk Management Process

The following sections explain the key elements of the risk management process. The risk assessment process has been generally based upon the Australian New Zealand Risk Management Standard 4360:2004 to establish a Risk Matrix as shown in Table 4.4.3. This matrix provides a tool to quantify a risk by identifying the likelihood of the risk occurring and the outcomes, or consequences should the risk occur. The first step in the process is to identify all possible risks.

7.2.1. Identify All Possible Risks

All possible risks affecting the asset activity need to be identified. Risks can include financial, environmental, social, operational and health and safety considerations. Once identified, risks are entered into the risk register. The register is used to record and summarise each risk and to outline current mitigation measures and potential future management options.

7.2.2. Determine Likelihood and Consequence for Gross Risk Factor

Table and Table demonstrate the scales used to determine the likelihood and consequence levels, which are input into the risk calculation to consider the effect of a risk event.

The likelihood of occurrence and severity of consequences should be based on as much real data as possible, for example local knowledge or recorded events such as maintenance records, weather events etc. Some analysis may be required for verification.

The likelihood scales identify how likely, or often, a particular event is expected to occur, these are shown in the table below;

Table 7.1: Likelihood of Occurrence

Likelihood	Descriptor	Probability
Frequent	Continuous or will happen frequently.	5
Often	5 – 12 times per year	4
Likely	1 – 5 times per year	3
Possible	Once every 2 to 5 years	2
Rare	Less than once every five years	1

The Consequence descriptors in Table indicate the level of possible consequences for a risk.

Table 7.2: Consequence Rating

Consequence	Descriptor	Score
Catastrophic	Loss of life, major financial loss	5
Major	Major financial impact, widespread damage, serious harm	4
Moderate	Moderate financial impact, potential litigation, loss of image	3
Minor	Minor financial impact, involves management time	2
Insignificant	Negligible effects	1

After the likelihood and consequence factors have been determined, the level of risk is calculated by multiplying the Likelihood of Occurrence and Consequence Rating together.

Risk = the likelihood of an event occurring X the consequence of such an event.

The final outcome is a risk rating. The risk rating enables definition between those risks that are significant and those that are of a lesser nature. Having established the comparative risk level applicable to individual risks, it is possible to rank those risks. Four risk categories have been used: Extreme, High, Moderate, and Low.

Table 7.3: Risk Assessment Matrix

	Consequence				
Likelihood	**Insignificant (1)**	**Minor (2)**	**Moderate (3)**	**Major (4)**	**Catastrophic (5)**
Rare (1)	1	2	3	4	5
Possible (2)	2	4	6	8	10
Likely (3)	3	6	9	12	15
Often (4)	4	8	12	16	20
Frequent (5)	5	10	15	20	25

Once the impact has been ranked according to the relative risk level it poses, it is then possible to target the treatment of the risk exposure, by beginning with the highest risks and identifying the potential mitigation measures.

Table 7.4: Comparative Levels of Risk

15 - 25	Extreme Risk	Requires immediate remedial action
8 - 12	High Risk	Requires remedial planning and action via the AMP
4 - 6	Moderate Risk	Address via new procedures and/or modification of existing practices and training
1 - 3	Low Risk	No formal requirement for further action, unless escalation of risk is possible

Initially, the gross risk needs to be calculated, so likelihood and consequences need to be considered as if there were no measures in place to prevent or mitigate the risk occurrence. Essentially gross risk is an exercise to determine "What is the worst that could happen?" Once the gross risk is determined it is possible to investigate the current systems and processes to identify the net risk and then formulate an action plan to further reduce the likelihood or consequences of identified risks occurring.

7.2.3. Identify Current Systems & Processes, and their Effectiveness

Identifying current systems and processes are identified, and as far as resources allow, their effectiveness measured. It is often practical to identify these processes and systems initially, and rank the effectiveness conservatively until the audits and actual practice prove otherwise. Audits can be identified as part of the improvement process.

Effectiveness of existing systems and processes is expressed in the following categories:

Excellent	Fulfils requirements thoroughly, very robust and positive measurable effects
Good	Fulfils requirements, robust and measurable, room for improvement
Fair	Barely fulfils requirements, effects hard to measure (or haven't been audited or measured), improvement required
Poor	Not fulfilling requirements, little measurement or effect on overall risk
Very Poor	Totally ineffective in avoiding or mitigating associated risk events

7.2.4. Determine Net Risk

The net risk is the actual risk that exists considering the effective measures implemented. The measures in place reduce either, or both, the consequence and the likelihood of a risk occurrence. The revised factors are input into the same risk matrix to obtain the Net Risk Factor.

7.2.5. Prioritise Net Risks and Formulate Action Plan for Risk Management

A priority order of issues to be addressed is obtained by sorting Net Risk Factors by risk level. The most suitable actions are determined considering available options and resources. The costs and benefits of these actions need to be analysed. The best available techniques are required to analyse the options e.g. optimised decision-making (ODM).

Application of ODM applies a 'value chain' to the proposed actions rather than just working from the highest risk down regardless of cost, for example:

- A high risk may have to remain due to the inhibitive costs associated with avoidance or mitigation
- A medium risk event could be easily and cost-effectively avoided within resources available

From an Asset Management perspective, the options for mitigating risks considered to reduce the cause, probability or impact of failure, are typically:

Do nothing	**Accept the Risk**
Management Strategies	Implement enhanced strategies for demand management, contingency planning, quality processes, staff training, data analysis and reporting, reduce the target service standard, etc
Operational Strategies	Actions to reduce peak demand or stresses on the asset, operator training, documentation of operational procedures, etc
Maintenance Strategies	Modify the maintenance regime to make the asset more reliable or to extend its life
Asset Renewal Strategies	Rehabilitation or replace assets to maintain service levels
Development Strategies	Investment to create a new asset or augment an existing asset
Asset Disposal/ Rationalisation	Divestment of assets surplus to needs because a service is determined to be a non-core activity or assets can be reconfigured to better meet needs

7.2.6. Monitor, Measure, Report, Review Plan and Actions

The management structure needs to be in place to ensure that actions are monitored, reported on and reviewed regularly. It is important to identify and constantly review the following:

Responsibility	Nominated person responsible for ensuring the risks are managed and improvements carried out in accordance with the programme
Best Appropriate Practice	The practices that should ideally be carried out to manage risks to an acceptable level
Audit Trail	Date of entries and revisions, target date for actions to be taken and actual task completion dates

In addition, management options should be ranked via benefit / cost analysis using Net Present Value (NPV) calculations. The inputs considered in the NPV calculation are:

- Capital investment costs.
- Changes in operating and maintenance costs.
- Reduction in business risk exposure (BRE).
- Increase in effective asset life / value.
- Increase in level of service.

All capital development projects should be ranked corporately for inclusion in the LTP/ Annual Plan consultation process using benefit / cost analysis plus the following additional criteria;

- Contribution to Council's Strategic Plan objectives.
- Contribution to Whakatāne 's business objectives.
- Level of project commitment (contractual and legal issues).

The resulting action plan for risk treatment needs to be practical and achievable such that the necessary resources and time frames are realistically met. The actions also need to be able to be monitored and measured.

7.2.7. Review Risks

Most of the time, the risks identified will remain the same and reviews will occur in the context of these risks. However, it will be important to recognise when a new risk arises, or an existing risk changes in nature. In the latter case, the gross risk also needs to be re-evaluated

7.3. Risk Register

The risk registers provided in the following tables for the current and future transport activities of Whakatāne District Council have been developed in consultation with key staff.

Risk Reference	Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)		Net Risk (Considering measures in place)			Person(s) Responsible	Management Options
			Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor		
TRA 01	**Lack of resources** – the ability to attract key staff and or retain skilled staff.	Organisational Financial	4	4	**16**	◗ District promotion (lifestyle) ◗ Dedicated HR staff ◗ Recruitment consultancy used (senior staff) ◗ Benchmarked salary levels.	Good	4	1	**4**	◗ HR Manager ◗ W&S Director ◗ Roading Asset Manager	◗ Look at review of recruitment policy (current lack of policies) Family/Lifestyle friendly policies ◗ Look at improving Career development. Draft policy/programme needs completing ◗ Review salary levels and incentives ◗ Implement the Performance Development system ASAP
TRA 02	**Knowledge management** – inability to retain knowledge or have sufficient systems in place to manage data/information, especially regarding asset performance and condition. Loss of institutional knowledge. IT failure.	Organisational Financial Operational Etc	4	5	**20**	◗ Asset changes/updates –Information currently provided by contractors ◗ Condition surveys undertaken ◗ IT practices (backup, virus, security etc.) ◗ RAMM database in place ◗ RAMM managed by external consultant	Fair	3	3	**16**	◗ HR Manager ◗ Roading Asset Manager	◗ Responsibilities defined between WDC staff and RAMM consultant ◗ Suitable training for WDC staff so they have the ability to view snapshot summary report ◗ Protocols for update and ongoing auditing ◗ Development of Staff Retention Policy ◗ Develop clear processes for updating vested assets and new capital works into RAMM in conjunction with RAMM consultant
TRA 03	**Project Management** – projects inadequately scoped, budgeted, managed and documented, and reviewed, inadequate consultation with owners, resource consent issues etc resulting in time & cost, loss of image and other impacts.	Operational Financial Reputation/ Image Safety	4	5	**20**	◗ Project Management Training for key staff ◗ Annual Plan/LTP Process (is initial consultation) ◗ Use of trained external resource ◗ Have access to external specialists. ◗ Media Communication Plan ◗ Appropriate resources (e.g. software/information systems)	Good	3	3	**9**	◗ Roading Asset Manager ◗ HR Manager ◗ Manager Service Delivery	◗ Ensure adequate (quality) training for key staff ◗ Initial project information better communicated ◗ Project Closure/Reviews improved ◗ Define accountabilities and mapping organisation wide impacts and priorities ◗ Implement MCA process for CAPEX projects above $20,000
TRA 04	**Maintenance Contract Management –** unsatisfactory resulting in unnecessary or excessive costs and/or insufficient output or quality. Poor Contractor performance.	Operational Financial Reputation/ Image	4	5	**20**	◗ Maintenance Contracts (Fulton Hogan and Total Power Services) ◗ Contract procurement process ◗ Contracts managed by Professional Services - Opus ◗ Contract conditions (KPI's, penalties) ◗ Financial reporting	Good	3	3	**9**	◗ Roading Asset Manager ◗ W&S Director ◗ Manager Service Delivery	◗ Develop contract procedures manual ◗ Improve Auditing and Reporting (including performance) ◗ Contract review and improvement
TRA 05	**Capital Works Contract Management –** unsatisfactory resulting in unnecessary or excessive costs and/or insufficient output or quality. Poor Contractor performance.	Operational Financial Reputation/ Image	4	5	**20**	◗ Standard Capital Works Contracts ◗ Approved design and specification ◗ Contract procurement process ◗ Contracts managed by Professional Services - Opus ◗ Contract conditions (KPI's, penalties) ◗ Financial reporting	Good	3	3	**9**	◗ W&S Director ◗ Roading Asset Manager ◗ Manager Service Delivery	◗ Develop contract procedures manual (including closure review) ◗ Improve Auditing and Reporting (including performance) ◗ Contract review and improvement ◗ Strengthen reporting (including financial, performance, programme status) ◗ Implement MCA process for CAPEX projects above $20,000

Risk Reference	Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)		Net Risk (Considering measures in place)			Persons(s) Responsible	Management Options
			Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor		
TRA06	**Asset Management –** not up to date, or insufficient quality of process and output.	Operational Legislative Financial	4	4	16	◗ Asset Management processes and practices ◗ Asset Information System ◗ Professional Services – Opus, GHD etc. ◗ RAMM (managed by Opus)	Fair	4	4	16	◗ GM Infrastructure ◗ Roading Asset Manager	◗ Asset Management Plan - Improvement Plan ◗ Continuing Staff Development ◗ Ongoing external review ◗ Ongoing budget provision ◗ Ongoing input from network manager
TRA07	**Inadequate condition/performance assessments–** lack of reliable data for renewals/replacements and valuations.	Operational Financial	3	4	12	◗ Internal and external feedback ◗ Condition assessments ◗ Some annual audits and monthly inspections ◗ RAMM, SLIMS	Fair	3	3	9	◗ Roading Asset Manager	◗ Periodic assessments (as deemed appropriate) ◗ Staff training ◗ Staff continuity (internal and external) ◗ Develop a process to ensure that knowledge is transferred, stored and accessible. Define champions and successors. External backup.
TRA08	**Compliance with Legislation and legal requirements** – inability or failure to comply with consents, statute and national standards. Increase in requirements.	Legislative Financial	4	5	20	◗ Compliance with resource consents, RMA, funding requirements ◗ Contract Conditions ◗ Consents database ◗ Some internal audits ◗ Staff training and development ◗ Local government networking ◗ Use of external advice/resources ◗ Standard templates and some written Council procedures ◗ Some auditing of works contracts (e.g. traffic management, safety, OSH)	Good	4	2	8	◗ W&S Director ◗ Roading Asset Manager ◗ Director Environment & Policy	◗ Monitoring of expiring consents and identifying new consents to be improved (define responsibilities) ◗ Key staff to keep updated on current legislation ◗ Regular communications to staff ◗ Development of Council procedures ◗ Communicating effects of legislative change to Council/ LTP process
TRA09	**Extreme Natural Hazards** – (landslips/ earthquake/ tsunami/ volcanic/ major storm event) causing damage to assets and or hindering development.	Environmental Public Health Organisational Financial	5	4	20	◗ Emergency Response Plan – Network inspection and hazard identification ◗ RFS feedback ◗ Civil Defence ◗ Maintenance contracts ◗ Structure audits and renewals ◗ Engineering Code of Practice ◗ Building code/standards ◗ Variation 6 coastal hazards (District Plan)	Good	4	2	8	◗ Roading Asset Manager ◗ Manager Service Delivery	◗ Liaise with National and Regional policy makers to identify hazards and ensure emergency response mechanisms are in place in the event of a hazard occurring ◗ Increase effectiveness of current practices as a priority
TRA10	**Technology** – inability to track technology, engineering developments/techniques, local and national trends and to utilise where relevant.	Organisational	3	4	12	◗ Local government networking ◗ Some staff development and training ◗ Use of external advice/resources	Good	3	2	6	◗ W&S Director ◗ Roading Asset Manager	◗ IT Policy/ IT Roadmap ◗ Further staff development and training
TRA11	**Possible Political Interference**, or inability of elected members to fulfil roles and responsibilities or disregard for community views.	Organisational Reputation/ Image	3	5	15	◗ Councillors roles well defined and implemented ◗ Legislative requirements/ LTP process ◗ Reports to Council and Community boards ◗ Councillor induction/ handbook ◗ Councillors conferences	Good	2	3	6	◗ W&S Director ◗ Chief Executive ◗ Roading Asset Manager	◗ Manage process through Chief Executive

Risk Reference	Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)		Net Risk (Considering measures in place)			Persons(s) Responsible	Management Options
			Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor		
TRA12	**External Economic Influences (Cost Escalations)** – terrorism, rising costs (e.g. fuel), pandemic, worldwide incidents.	Economic	5	4	**20**	◗ Local government networking Responding to national directives ◗ Monitoring world events and reacting	Poor	5	4	**20**	◗ W&S Director ◗ Roading Asset Manager	◗ Track national and global trends. Monitor key economic developments and liaise with central government. ◗ Improve current practices
TRA13	**Decrease in Funding** – Both internal and including failure to acquire external subsidies.	Organisational Financial	3	2	**6**	◗ Asset management process ◗ Monitor other funding opportunities ◗ Prioritising projects/ LTP process ◗ Skill of staff/resources submitting external applications and reporting internally to Council	Good	3	2	**6**	◗ W&S Director ◗ Roading Asset Manager	◗ Maintain and manage clear lines of communication with key external agencies ◗ Forecast likely scenarios regarding effects of budget changes ◗ Using sustainable practices ◗ Increasing efficiency ◗ Rationalise spending
TRA14	**Lack of Planning and timing of funding applications: -** Risk of people not applying for funding on time or not identifying potential areas where funding is required.	Organisational Financial	4	4	16	◗ Asset management process ◗ Monitor other funding opportunities ◗ Prioritising projects/ LTP process ◗ Approved NZTA annual programme ◗ Skill of staff and external resources submitting external applications and reporting internally to Council ◗ Knowledge and awareness	Good	4	3	**12**	◗ Roading Asset Manager	◗ Maintain and manage clear lines of communication with key external agencies ◗ Forecast likely scenarios regarding effects of budget changes ◗ Using sustainable practices ◗ Increasing efficiency ◗ Rationalise spending ◗ Staff training
TRA15	**Diminishing Funding Allocation** – subsidy, rate, tax, and development contribution changes including change of roading status.	Organisational Financial	5	4	20	◗ NZTA criteria & agreement with Council ◗ Development contributions ◗ Asset management process ◗ Monitor other funding opportunities ◗ Prioritising projects/ LTP process ◗ Approved NZTA annual programme ◗ Skill of staff and external resources in applying for funding ◗ Knowledge and awareness ◗ Lobbying authorities ◗ Active involvement with funding authorities	Good	4	3	**12**	◗ Roading Asset Manager	◗ Maintain and manage clear lines of communication with key external agencies ◗ Forecast likely scenarios regarding effects of budget changes ◗ Using sustainable practices ◗ Increasing efficiency ◗ Rationalise spending ◗ Staff training
TRA16	**Council Owned Roads and Bridges on Private land.**	Operational Legal Financial	4	3	**12**	◗ Reactive and solutions on a case by case basis	Poor	4	3	**12**	◗ Roading Asset Manager	◗ *Possible Future Option*: Review and list all bridges not on Council land and report ◗ Review during next AMP Review

Asset Management Risks – Roads

Risk Reference	**Risk Descriptor –** details the main component and provides an example of a risk(s) that may be attributable	**Risk Type**	**Gross Risk** (No effective measures in place)			**Current Practice/Strategy (Avoidance and mitigation measures)**		**Net Risk** (Considering measures in place)			Person(s) Responsible	**Management Options**
			Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor		
TRA17	**Inadequate Road Design** - Sub standard geometry and low skid value surfaces resulting in inefficient or unsafe operating conditions (loss of control accidents).	Public Health Reputation/ Image	5	5	25	◗ Conformance with all Council design standards (Engineering Code of Practice, National Standards) for both Council work and vested works ◗ NZTA results analysed, crash reduction studies ◗ Professional Services - Opus ◗ Monitoring and reviewing annual capital works programme ◗ Contract supervision and performance monitoring?	Good	4	4	16	◗ Roading Asset Manager	◗ Develop and Implement Council Safety Management System ◗ Identify and remedy blackspots and develop improvement strategy for identification and monitoring of skid deficient sites. Field identification during reseal programme.
TRA18	**Inadequate Road Maintenance** - Low skid value surfaces resulting in inefficient or unsafe operating conditions (loss of control accidents, potholing, stone loss etc).	Public Health Reputation/ Image	5	5	25	◗ Maintenance Contract and specification monitored and reported ◗ Conformance with all Council design standards (Engineering Code of Practice, National Standards) for both Council work and vested works ◗ NZTA results analysed, crash reduction studies ◗ Professional Services - Opus ◗ Monitoring and reviewing annual capital works programme ◗ Contract supervision and performance monitoring	Good	4	4	16	◗ Roading Asset Manager	◗ Review Maintenance Contract and specifications
TRA19	**Network Capacity** - traffic volumes increase roading requirements.	Operational	4	5	20	◗ Developing Transportation Strategy and Model ◗ Asset Management ◗ Monitor traffic volumes and trends	Poor	4	4	16	◗ Roading Asset Manager	◗ Adoption of Transportation Strategy, Residential Growth Strategy, and Industrial Growth Strategy
TRA20	**Dust Nuisance** settling on adjacent property resulting in resident health issues, environmental effects and/or poor image.	Public Health Environmental Reputation/ Image	4	5	20	◗ Monitoring of Maintenance and Works Contracts ◗ Seal extension policy and programme ◗ Development contributions ◗ RFS feedback	Poor	4	4	16	◗ Roading Asset Manager	◗ Accelerate seal extension programme
TRA21	**Hazardous Materials** - Leakage from transporter damaged in an accident or with a slow leak, bitumen spill, stock effluent from truck, droving or herd movements.	Environmental Public Safety	4	2	**8**	◗ Bylaws and enforcement (stock movement) ◗ RFS feedback ◗ Maintenance Contract ◗ Encouragement of off road races and underpasses	Poor	4	2	**8**	◗ Roading Asset Manager	◗ Review regulations for transport of dangerous goods and assess whether it is consistent with WDC ◗ Continued promotion of stock races and underpasses based on traffic volume and funding assistance from NZTA
TRA22	**Hazardous Environmental conditions** - landslide, flooding, trees on roads, washouts causing traffic delay, injury, potential litigation.	Public Health Financial	4	4	16	◗ RFS feedback ◗ Routine inspections ◗ Maintenance Contract ◗ Reactive signage	Good	3	3	**9**	◗ Roading Asset Manager	◗ Continue to identify high risk zones and outline mitigation measures, remedial works, buttressing, dewatering, signage, sealing etc Identify potential trees that may be affected by old age, disease or prone to high winds
TRA23	**Low lying road** inundated by high tides, floods or heavy rainfall events.	Environmental Public Health Operational	4	3	**12**	◗ Identification of low lying assets ◗ Monitor during flooding ◗ Liaison with BOPRC ◗ Signage	Good	3	3	**9**	◗ Roading Asset Manager	◗ Identify at risk areas, carry out assessments (apply for funding) and remediate where necessary

Risk Reference	**Risk Descriptor –** details the main component and provides an example of a risk(s) that may be attributable	**Risk Type**	**Gross Risk** (No effective measures in place)			**Current Practice/Strategy (Avoidance and mitigation measures)**		**Net Risk** (Considering measures in place)			Person(s) Responsible	**Management Options**
			Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor		
TRA24	**Loss of amenity and visibility** caused by rank roadside vegetation, spread of noxious weeds and debris (within the road reserve).	Environmental Public Health Reputation/ Image	4	4	**16**	◗ RFS feedback ◗ Maintenance Contract (weed spraying programme, tree management and mowing ◗ Removal of debris and detritus	Good	3	2	**6**	◗ Roading Asset Manager	◗ Review maintenance contracts. ◗ Monitor complaints and feedback ◗ Liaise with Regional Council to organise noxious weed control ◗ Work with community groups (farmers) ◗ Review funding
TRA25	**Availability and cost of Road Materials and quality aggregate** – economic viability.	Operational Financial	4	3	**12**	◗ Good quarrying options available ◗ Testing	Good	3	2	**6**	◗ Roading Asset Manager	◗ Monitor availability and cost

Asset Management Risks – Footpaths & Accessways

Risk Reference	Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)		Net Risk (Considering measures in place)			Person(s) Responsible	Management Options
			Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor		
TRA26	**Pedestrian tripping or slipping** caused by uneven surface, damage, slippery surface.	Public Health Operational Reputation / Image	4	5	20	◗ Professional Services Contract ◗ Maintenance contract ◗ Annual audit of all existing footpaths ◗ Footpath replacement/ renewal programme ◗ New capital works programme ◗ RFS monitoring complaints ◗ Reactionary work ◗ Engineering Code of Practice ◗ Development/ subdivision/ building consent control ◗ Urban tree strategy ◗ Footpath policy	Fair	4	3	12	◗ Roading Asset Manager	◗ Implementing six-monthly inspection programme for the entire network with corresponding budget increase. ◗ Annual root pruning programme
TRA27	**Widespread footpath deterioration** caused by lack of funding.	Public Health Operational	4	5	20	◗ LTP consultation process ◗ Budgeting for community requests	Fair	3	4	12	◗ Roading Asset Manager	◗ Full audit and costing for footpath renewal ◗ Review of funding allocation based on community requests
TRA28	**Widespread footpath deterioration** caused by poor construction/materials.	Public Health Operational	4	4	16	◗ Professional Services ◗ Maintenance contract ◗ Annual audit of all existing footpaths ◗ RFS monitoring complaints ◗ Engineering Code of Practice ◗ Development/ subdivision/ building consent control ◗ Footpath policy	Good	3	1	3	◗ Roading Asset Manager	◗ Auditing of contractor and number of complaints regarding poor workmanship
TRA29	**Widespread footpath deterioration** caused by lack of utilities reinstatements.	Public Health Operational	4	5	20	◗ Road opening notices (audited) ◗ Reinstatements occur if identified via RFS or officers ◗ Informal communication between OBU and Professional Services provider	Fair	4	3	12	◗ Roading Asset Manager	◗ Feedback required from OBU to Professional Services provider (to be covered by Origin system?) ◗ Education of OBU staff ◗ Improve auditing of remedial works associated with road opening notices
TRA30	**Inadequate Accessibility** for physically and visually challenged persons/ wheelchairs/ strollers/ walkers/ prams/ mobility scooters.	Public Health Reputation/ Image	3	5	15	◗ Engineering Code of Practice ◗ Development/ subdivision/ building consent control ◗ Eastern Bay Access Group (Council, staff, community reps, disabilities resource centre reps) ◗ RFS/ complaints ◗ Disability fund	Good	3	1	3	◗ Roading Asset Manager	◗ Continue Councils commitment to Eastern Bay Access Group and Disability Fund

Asset Management Risks – Street Lighting

Risk Reference	**Risk Descriptor –** details the main component and provides an example of a risk(s) that may be attributable	**Risk Type**	**Gross Risk** (No effective measures in place)			**Current Practice/Strategy (Avoidance and mitigation measures)**		**Net Risk** (Considering measures in place)			Person(s) Responsible	**Management Options**
			Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor		
TRA31	**Inadequate Carriageway/Amenity/Under Veranda lighting** resulting in crime or accidents (e.g. tripping and falling).	Organisational Public Health Reputation/ Image	4	4	**16**	◗ Engineering Code of Practice ◗ Development/ subdivision/ building consent control ◗ SLIM system ◗ CPTED Principles (crime prevention through environmental design) ◗ Professional Services provider ◗ Maintenance contractor ◗ Upgrade/ renewals programme ◗ Eastern Bay Energy Trust programme (annual grant for under veranda lighting) ◗ RFS/ complaints ◗ Assessments in conjunction with urban/street upgrades	Good	4	3	**12**	◗ Roading Asset Manager	◗ Continued programme of under veranda lighting in conjunction with Eastern Bay Energy Trust ◗ Audit of bulb types ◗ Match bulb types to appropriate areas ◗ Identify high-risk areas ◗ Review Levels of Service. ◗ Review RFS resulting from poor or inadequate lighting.
TRA32	**Inadequate Intersection street lighting** resulting in accidents**.**	Organisational Public Health	4	4	**16**	◗ Engineering Code of Practice ◗ Requirements of NZTA ◗ Upgrade/ renewals programme ◗ RFS/ complaints ◗ SLIM system ◗ Professional Services provider ◗ Maintenance contractor (Total Power Services)	Good	4	1	**4**	◗ Roading Asset Manager	◗ Identify high-risk intersections ◗ Review Levels of Service ◗ Review RFS resulting from poor or inadequate lighting ◗ Review position of streetlights (distance from carriageway edge)
TRA33	**Damage to streetlights** due to vandalism and or vehicle damage, resulting in crime, replacement costs and safety considerations.	Operational Financial Public Health	4	4	**16**	◗ RFS/ complaints ◗ Engineering Code of Practice ◗ CPTED Principles (crime prevention through environmental design) ◗ Professional Services provider ◗ Maintenance contractor (Total Power Services) ◗ Accident reporting and response times ◗ CCTV strategy	Good	4	3	**12**	◗ Roading Asset Manager	◗ Review position of streetlights (distance from carriageway edge) ◗ Further implement CCTV strategy through installation of more cameras where required

Asset Management Risks – Signs, Markings and Controls

Risk Reference	**Risk Descriptor –** details the main component and provides an example of a risk(s) that may be attributable	**Risk Type**	**Gross Risk** (No effective measures in place)			**Current Practice/Strategy (Avoidance and mitigation measures)**		**Net Risk** (Considering measures in place)			Person(s) Responsible	**Management Options**
			Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor		
TRA34	Inadequate lane separation or definition, which may lead to vehicle accidents.	Operational Public Health	4	4	**16**	◗ Road marking programme as per contract ◗ Engineering Code of Practice ◗ Development/ subdivision control ◗ Minor safety works ◗ Professional Services Contract ◗ RFS/ complaints ◗ NZTA crash statistics	Good	4	2	**8**	◗ Roading Asset Manager	◗ Ensure that safety measures/ temporary traffic measures are implemented as part of all roadwork's ◗ Review of standards, and audit of controls and control works. Ongoing Crash reduction studies (in conjunction with police, NZTA & network manager).
TRA35	Inadequate Signage causing Accident/Damage – due to vandalism, non-compliant to standards, missing, deterioration. Including Sight Rails (chevrons, edge marker posts, bridge end markers, culvert markers) damaged and or missing.	Operational Public Health	4	4	**16**	◗ Road signs policy ◗ Sign programme as per contract ◗ Engineering Code of Practice Development/ subdivision control ◗ Professional Services Contract ◗ RFS/ complaints ◗ Specified response times in maintenance contracts ◗ RAMM updates ◗ NZTA crash statistics ◗ Minor safety works	Good	4	2	**8**	◗ Roading Asset Manager	◗ Ensure that safety measures/ temporary traffic measures are implemented as part of all roadwork's ◗ Continue safety audits
TRA36	Guard Rails/Medians damaged and or missing.	Operational Public Health	4	4	**16**	◗ Guard rail and median programme as per contract ◗ Engineering Code of Practice Development/ subdivision control ◗ Professional Services Contract ◗ RFS/ complaints ◗ Specified response times in maintenance contracts ◗ RAMM updates ◗ NZTA crash statistics ◗ Minor safety works	Good	4	2	**8**	◗ Roading Asset Manager	◗ Ensure that safety measures/ temporary traffic measures are implemented as part of all roadwork's ◗ Continue safety audits

Asset Management Risks – Drainage Facilities

Risk Reference	Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)		Net Risk (Considering measures in place)			Person(s) Responsible	Management Options
			Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor		
TRA37	**Flooding affecting roads** due to under capacity drainage, poorly located, or blocked drainage assets.	Operational Public Health Accessibility Financial	5	4	**20**	◗ Drainage maintenance programme as per contract ◗ Professional Services Contract ◗ Engineering Code of Practice Development/ subdivision control ◗ RFS/ complaints ◗ Specified response times in maintenance contracts ◗ RAMM updates ◗ Annual drainage improvements programme	Good	5	2	**10**	◗ Roading Asset Manager	◗ Identify at-risk assets ◗ Review Levels of Service in problem areas ◗ Review Levels of Service in accordance with seasonal changes (leaf dropping) ◗ Review RFS/ complaints and plan improvement works.
TRA38	**Overtopped table drain** causing surface flooding.	Operational Public Health Accessibility	4	4	**16**	◗ Drainage maintenance programme as per contract ◗ Professional Services Contract ◗ Engineering Code of Practice Development/ subdivision control ◗ RFS/ complaints ◗ Specified response times in maintenance contracts ◗ RAMM updates ◗ Annual drainage improvements programme	Fair	4	2	**8**	◗ Roading Asset Manager	◗ Increase auditing of contractor performance ◗ Identify at-risk drains and carry out options assessments ◗ Review Levels of Service in problem areas
TRA39	**Surface water contamination** during normal operation of the network caused by lack of environmental controls.	Environmental Operational Reputation/ Image	3	5	**15**	◗ Drainage maintenance programme as per contract ◗ Professional Services Contract ◗ Engineering Code of Practice Development/ subdivision control ◗ RFS/ complaints ◗ Specified response times in maintenance contracts ◗ Annual drainage improvements programme ◗ Silt control for physical works contracts ◗ Resource consent requirements for discharges	Poor	3	5	**15**	◗ Roading Asset Manager	◗ Identify known problem areas and implement upgrade programme within existing projects ◗ Monitoring of discharges via consent conditions and liaison with Environment Bay of Plenty ◗ Future possible central government legislation

Asset Management Risks – Minor Structures, Retaining Walls and Sea Walls

Risk Reference	Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)		Net Risk (Considering measures in place)			Person(s) Responsible	Management Options
			Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor		
TRA40	**Wall failure** resulting from natural hazard (e.g. landslide, undermining), vehicle impact.	Environmental Operational Public Health	5	2	**10**	◗ Compliance with building code/standards ◗ Approved by design engineer ◗ Roading maintenance programme as per contract ◗ Professional Services Contract ◗ Development/ subdivision control ◗ RFS/ complaints ◗ Specified response times in maintenance contracts	Very Poor	5	2	**10**	◗ Roading Asset Manager	◗ Update engineering code of practice ◗ Review RAMM data and update to include all retaining walls/ sea walls/ gabion walls etc, and make budgetary provision for this ◗ Implement annual wall inspection programme, and make budgetary provision for this ◗ Ensure compliance with Building code/standards and Councils Engineering Standards and issue certification at satisfactory completion. ◗ Monitor hazards frequency and implement inspection programme or testing of specific sites for stability.

Asset Management Risks – Bridges and Culverts

Risk Reference	**Risk Descriptor –** details the main component and provides an example of a risk(s) that may be attributable	**Risk Type**	**Gross Risk** (No effective measures in place)			**Current Practice/Strategy (Avoidance and mitigation measures)**		**Net Risk** (Considering measures in place)			Person(s) Responsible	**Management Options**
			Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor		
TRA41	Bridge Collapse/ damage/ deterioration/ erosion/ blockage – Accessibility, safety (excluding catastrophic events).	Structural Safety	5	4	**20**	◗ Annual Bridge Audit (170 bridges) leading to maintenance list. ◗ Bridge replacement schedule. ◗ Loading restrictions ◗ Bridge overweight permits ◗ All new bridges designed to NZ Standards and consented ◗ Maintenance Contract Fulton Hogan ◗ Professional Services Opus	Good	4	2	**8**	◗ Roading Asset Manager	◗ Review bridge replacement schedule on an annual basis.
TRA42	Private Bridges and Stock Underpasses on Road Reserve – Privately owned, but responsibility of Council (still working through – Brookfields legal advice).	Structural Safety Legal Financial	5	4	**20**	◗ *Initiative to assess the quantum and report to Council in light of Brookfields legal advice* ◗ *Revise as AMP is reviewed* ◗ *Develop policy* WORK IN PROGRESS: to be updated at the next AMP review	-	-	-		◗ Roading Asset Manager	
TRA43	Damage to services causing loss of water, electricity, phone etc.	Operational Financial Legal	4	3	**12**	◗ Annual Bridge Audit (170 bridges) leading to maintenance list. ◗ Bridge replacement schedule. ◗ Loading restrictions ◗ Bridge overweight permits ◗ All new bridges designed to NZ Standards and consented ◗ Maintenance Contract Fulton Hogan ◗ Professional Services Opus	Good	3	2	**6**	◗ Roading Asset Manager	◗ Assessment and audit of all services attached to bridges ◗ Maintain register of services attached to bridges
TRA44	Vehicle or pedestrians fall from bridge.	Public Health Reputation/ Image	5	4	**20**	◗ Conformance with design standards ◗ Sight rails, guard rails, handrail, signage, and delineation ◗ Annual bridge inspection	Good	4	2	**8**	◗ Roading Asset Manager	◗ Inspection of signage and safety barriers/ handrails etc, should be carried out in conjunction with the annual bridge inspection
TRA45	Structure damage from overloading.	Structural Organisational Administration	5	4	**20**	◗ Weight restrictions process, including signage ◗ Issuing and administration of permits ◗ Informal communication with logging companies to determine routes and loadings ◗ Bylaws	Fair	4	2	**8**	◗ Roading Asset Manager	◗ Enforcement of weight restrictions according to Bylaws ◗ Formalise communication with logging companies regarding routes and loadings ◗ Advertising and awareness ◗ Review current capacity of bridges, overweight permit process and communication of requirements
TRA46	Economic/Social Cost due to Bridge restrictions – access to emergency services, freight [further discussion required]. WORK IN PROGRESS: to be updated at the next AMP review	Economic	-	-	**-**	◗ Postings and advertising Alternative routes ◗ Review high risk bridges	-	-	-	**-**	◗ Roading Asset Manager	

Asset Management Risks – Car Parking

Risk Reference	**Risk Descriptor –** details the main component and provides an example of a risk(s) that may be attributable	**Risk Type**	**Gross Risk** (No effective measures in place)			**Current Practice/Strategy (Avoidance and mitigation measures)**		**Net Risk** (Considering measures in place)			Person(s) Responsible	**Management Options**
			Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor		
TRA47	**Inadequate number** of car parking facilities (including disabled carparks).	Operational Financial Reputation/ Image	3	3	**9**	◗ Parking restrictions and enforcement in CBD ◗ Annual audit in CBD ◗ Conformance with District Plan requirements for new developments and the receipt of development contributions ◗ Fines into parking fund ◗ Bylaw ◗ Parking controls (Pay & Display)	Good	2	2	**4**	◗ Roading Asset Manager	◗ Review car park inventory, number of spaces and Levels of Service annually. Review seasonal monitoring as required. ◗ Review and further investigate opportunities to extend the Pay & Display areas
TRA48	**Poorly marked or sign posted carparks.**	Operational Reputation/ Image	3	4	**12**	◗ Maintenance Contract (car parks are well sign posted)	Good	2	2	**4**	◗ Roading Asset Manager	◗ Monitor Contractor performance ◗ Inspect signage annually in conjunction with annual carpark utilisation audit

Strategic Assessment

8. Problems, Consequences & Benefits

This section identifies the core problems or issues that need addressing to close the gaps identified in the Strategic Context section. For each problem statement the consequence of not addressing the problem, and benefits arising from addressing the problems are identified.

8.1. Problem Statement 1: Maintenance and Renewals

Unless an adequate level of investment is maintained, roads will deteriorate and become unserviceable and unsafe, and the costs to restore to an appropriate level of service will increase

Consequence:

- Accessibility and comfort will decrease,
- crashes will increase and their consequences will be more severe,
- repair costs will increase
- Driver frustration and dissatisfaction will increase

Benefits

- Appropriate levels of service delivered into the future at an appropriate level of investment

8.2. Problem Statement 2: Asset Management

Current asset management practices are at a basic to intermediate level (which has been fit for purpose to date) but need to be at an advanced level to enable the best long-term decisions to be made around future network investment requirements.

Consequence:

- Unable to make fully informed decisions on levels of service and investment levels
- Could result in over or under investment

Benefits

- Stronger evidence base
- Informed decision making
- Value for money

8.3. Problem Statement 3: Road Safety

Some roads and footpaths are not sufficiently forgiving.

Consequence:

- Driver are more vulnerable to severe outcomes from poor driver decision making
- The crash severity ratio is twice the national average

Benefits

- Safer roads and roadsides
- Reducing deaths and serious injuries

8.4. Problem Statement 4: Growth

Increasing residential and industrial development on the western side of Whakatāne River is placing increasing pressure on road transport links

Consequence:

- Congestion on key arterial links into and through Whakatāne township
- Dampen economic activity and inhibit growth
- Travel time reliability is reducing
- Driver frustration and dissatisfaction is increasing

Benefits

- Congestion levels of service meet community expectations
- Thriving, growing, economy
- Satisfied community

8.5. Problem Statement 5: Alternative Modes of Travel

The level of connectivity into and through town for alternative modes (walking, cycling, mobility scooters) is poor

Consequence:

- Uptake and use of alternative transport modes is poor
- Forecast increase in mobility scooters will increase safety risks around their use
- Does not support cycling as a viable mode choice for school kids
- Contributes to congestion and vehicle emissions
- Without choice new residential developments will be locked in to vehicle use as the only mode choice

Benefits

- Increase uptake of alternative modes of transport
- Increased community and environmental health
- Reduced pressure on primary modes

8.6. Problem Statement 6: Resilience

Some of the most at risk communities within the district are vulnerable to having their lifeline access severed for unacceptable periods of time.

Consequence:

- Unable to access essential services (food, medical, welfare, employment, education etc)
- Increase costs associated with reinstatement of affected services

Benefits

- 24/7 access to essential services
- Improved route security

8.7. Problem Statement 7: Unsealed Roads

Some unsealed roads are not meeting core level of service requirements

Consequence:

- Environmental and health issues exist
- Primary collector roads don't meet ONRC levels of service (should be sealed)
- Maintenance costs are higher than average

Benefits

- Improved environmental and health benefits
- ONRC levels of service are met
- Whole of life maintenance costs are reduced

9. Alignment with Strategic Objectives

The following tables demonstrate how the benefits realised from addressing the identified problems contribute to the outcomes and objectives of:

- The One Network Road Classification
- The Whakatane District Council Long Term Plan
- The Regional Land Transport Plan
- The Government Policy Statement on Transportation.

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ONRC Customer Outcomes		Benefits																	
		1 Core Investment	2 Asset Management			3 Road Safety		4 Growth			5 Travel Modes			6 Resilience		7 Unsealed Roads		
		Appropriate levels of service delivered into the future at an appropriate level of investment	Stronger evidence base	Informed decision making	Value for money	Safer roads and roadsides	Reducing deaths and serious injuries	Congestion levels of service meet community expectations	Thriving, growing, economy	Satisfied community	Increase uptake of alternative modes of transport	Increased community and environmental health	Reduced pressure on primary modes	24/7 access to essential services	Improved route security	Improved environmental and health benefits	ONRC levels of service are met	Whole of life maintenance costs are reduced
Safety	Safety Customer Outcome 1: the number of fatal and serious injuries on the network					■	■											
	Safety Customer Outcome 2: collective risk (fatal and serious injury rate per kilometre)					■	■											
	Safety Customer Outcome 3: personal risk (fatal and serious injury rate by traffic volume)					■	■											
Resilience	Resilience Customer Outcome 1: the number of journeys impacted by unplanned events													■	■		■	
	Resilience Customer Outcome 2: the number of instances where road access is lost													■	■		■	
Amenity	Amenity Customer Outcome 1: Smooth Travel Exposure (STE) – roughness of the road (% of travel on sealed roads which are smoother than a defined threshold)	■															■	
	Amenity Customer Outcome 2: peak roughness	■															■	
Accessibility	Accessibility Customer Outcome 1: proportion of network not available to Class 1 heavy vehicles and 50MAX vehicles	■							■									
Travel Time Reliability	Travel Time Reliability Customer Outcome 1: throughput at indicator sites	■						■	■	■	■		■					
Cost Efficiency Performance Measures	Cost Efficiency 1: pavement rehabilitation	■	■	■	■													
	Cost Efficiency 2: chipseal resurfacing	■	■	■	■													
	Cost Efficiency 3: asphalt resurfacing	■	■	■	■													
	Cost Efficiency 4: unsealed road metalling	■	■	■	■													■
	Cost Efficiency 5: Overall network cost	■	■	■	■													■

Local & Regional Objectives		Benefits																	
		1 Core Investment	2 Asset Management			3 Road Safety		4 Growth			5 Travel Modes			6 Resilience		7 Unsealed Roads		
		Appropriate levels of service delivered into the future at an appropriate level of investment	Stronger evidence base	Informed decision making	Value for money	Safer roads and roadsides	Reducing deaths and serious injuries	Congestion levels of service meet community expectations	Thriving, growing economy	Satisfied community	Increase uptake of alternative modes of transport	Increased community and environmental health	Reduced pressure on primary modes	24/7 access to essential services	Improved route security	Improved environmental and health benefits	ONRC levels of service are met	Whole of life maintenance costs are reduced
WDC LTP	Effective Leadership		■	■	■													
	Sustainable Economic Development	■						■	■	■	■	■	■	■	■	■		■
	Community Needs					■	■	■		■	■	■	■	■	■	■	■	
	Quality Services	■	■	■	■			■		■		■	■	■	■	■	■	
	Valuing our Environment	■						■			■	■	■			■		
	Reliable & Affordable Infrastructure	■	■	■	■			■	■	■				■	■		■	■
RLTP	Communities have access to a resilient and reliable transport system that provides them with a range of travel choices to meet their social, economic, health and cultural needs.	■						■			■	■	■	■	■			
	The social and environmental effects arising from use of the transport system are minimised.					■	■	■		■	■	■		■		■		
	Long term planning ensures regional growth patterns and urban form reduce travel demand, support public transport and encourage walking and cycling.							■			■	■	■					
	People choose the best way to travel to improve energy efficiency and reduce reliance on non-renewable resources.	■									■							
	The transport system minimises the health damaging effects of transport for all members of society.					■	■			■	■	■		■				
	Deaths and serious injuries on the region's transport system are reduced.	■				■	■											
	The transport system is integrated with well planned development, enabling the efficient and reliable movement of people and goods to, from and throughout the region.	■	■	■	■			■	■		■		■		■		■	■
	Investment in the transport system maximises use of available resources and achieves value for money.	■	■	■	■						■					■		■

GPS Objectives	Benefits																
	1 Core Investment	2 Asset Management			3 Road Safety		4 Growth			5 Travel Modes			6 Resilience		7 Unsealed Roads		
	Appropriate levels of service delivered into the future at an appropriate level of investment	Stronger evidence base	Informed decision making	Value for money	Safer roads and roadsides	Reducing deaths and serious injuries	Congestion levels of service meet community expectations	Thriving, growing, economy	Satisfied community	Increase uptake of alternative modes of transport	Increased community and environmental health	Reduced pressure on primary modes	24/7 access to essential services	Improved route security	Improved environmental and health benefits	ONRC levels of service are met	Whole of life maintenance costs are reduced
A land transport system that is a safe system, free of death and serious injury	■				■	■											
A land transport system that provides imcreased access for economic and social opportunities	■						■	■		■		■	■	■		■	
A land transport system that enables transport choice and access	■						■			■	■	■		■			
A land transport system that is resilient	■												■	■		■	
A land transport system that reduces the adverse effects on the climate, local environment and public health					■	■	■			■	■	■			■		
A land transport system that delivers the right infrastructure and services to the right level at the best cost	■	■	■	■													■

10. Investment Assessment Framework

10.1. Results Alignment

The results alignment for this programme is High.

10.1.1. Strategic Priority: Safety

Significant gaps in customer levels of service for safety exist including:

- Collective risk for arterial roads
- Personal risk across the entire network, but particularly at secondary collector and access level.
- Loss of control and intersection crashes for arterial and collector roads
- Vulnerable users on arterial and collector roads.

The proposed programme addresses these gaps and contributes to the safety objective of GPS 2018 in the following ways:

- Local roads are safer for everyone.
  - The core road operations, maintenance and renewals program which ensures appropriate levels of service are maintained at the best cost.
  - Implementation of the Speed Management Guide. The first selection of sites are currently being adopted into Council's "Traffic and Speeds Bylaw". The bylaw has also been reviewed to facilitate the on-going implementation of the speed management guide.
  - A programme of engineering improvements on the coastal arterial route to make the road safe for its current speed limit including side barriers, localised widening, intersection improvements, realignment of out of context curves and active warning signs.
  - Implementation of a high speed data and SCRIM collection programme to ensure appropriate levels of skid resistance are provided across the network to address loss of control crashes.
  - A range of low cost low risk improvements across the rest of the network to address known crash locations.
- Cycling and Walking is Safer.
  - Updating the strategy, completing the programme business case, and implementing improvements to create a linked, safe, attractive walking and cycling network.
- Safer road use through appropriate education and promotion activities and regulatory changes
  - On-going investment is included for the proven and innovative education programmes delivered through the Eastern Bay Road Safety Committee.

10.1.2. *Strategic Priority: Access – thriving regions, liveable cities*

Significant gaps exist, or are developing, in customer levels of service for access including:

- Travel time reliability, throughput, for the urban arterial network.
- Barriers to uptake of active mode types.
- Proportion of network not available to class 1 or 50 max vehicles.
- Resilience. The number of journeys that are impacted or access is lost.

The proposed programme addresses these gaps and contributes to the access objectives of GPS 2018 in the following ways:

- A land transport system that provides increased access for economic and social opportunities.
  - Progressing the programme and detailed business case for Whakatane urban arterial access, and implementing short and mid-term improvements.
  - Bridge inspection and upgrades to enable class 1 and 50 max vehicle access to significant pastoral and forestry lands.
  - Progressing the programme business case, in partnership with Tuhoe and the New Zealand Transport Agency, and implementing improvements to the Ruatahuna and Waikaremoana special purpose roads.
  - Progressing the programme business case for improvements to the Whakatane District's southern link to central North Island to support a case for funding in a future RLTP.
- A land transport system that enables transport choice and access.
  - Extending walking and cycling links to substantial new greenfield development sites to ensure mode choice is available.
  - Updating the strategy, completing the programme business case, and implementing improvements to create a linked, safe, attractive walking and cycling network.
  - Partnering with the Bay of Plenty Regional Council to provide facilities enabling the expansion of the passenger transport network.
- A land transport system that is resilient.
  - The core road operations, maintenance and renewals program which ensures roading infrastructure is protected as well as it can be from environmental impacts.
  - Ongoing replacement of bridge and large culverts for condition or capacity reasons.
  - Developing strategic and programme business cases to establish the case for further resilience investment in the 2021-24 RLTP.

10.1.3. *Strategic Priority: Environment*

Significant gaps exist in customer levels of service for environment including:

- A lack of infrastructure acts as a deterrent to uptake of active modes or public transport.
- Impacts on public health, natural vegetation and horticultural activities from dust created by unsealed roads.

The proposed programme addresses these gaps and contributes to the environmental objectives of GPS 2018 in the following ways:

- A land transport system that reduces the adverse effects on the climate, local environment and public health.
    - Extending walking and cycling links to substantial new greenfield development sites to ensure mode choice is available.
    - Updating the strategy, completing the programme business case, and implementing improvements to create a linked, safe, attractive walking and cycling network.
    - Partnering with the Bay of Plenty Regional Council to provide facilities enabling the expansion of the passenger transport network.

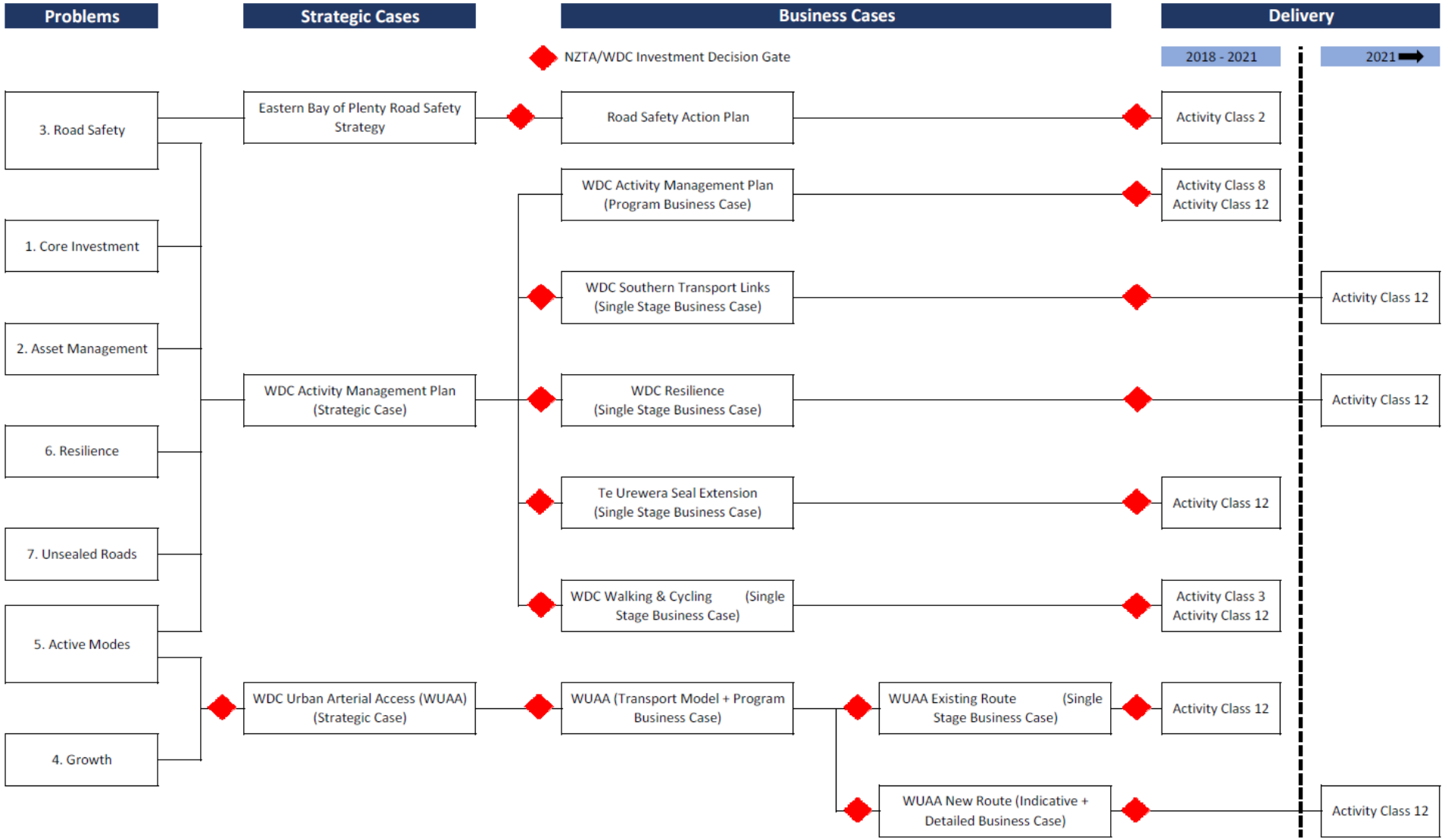
10.2. Cost Benefit Appraisal

The cost-benefit appraisal for this program is high.

The cost effectiveness on a per lane.km basis shows average band efficiency on an overall cost of network basis. Taking into consideration that the Whakatane network is more heavily trafficked than many of its peers, the cost effectiveness on a per vkt basis is well above-average band efficiency. Network cost trends are also improving at a greater rate than peer groups.

Network condition also shows above-average band efficiency for roughness (proportion of network over 150 NAASRA), pavement integrity index and surface condition index.

11. Strategic Overview – Linking Problems to Delivery



Programme Business Case

12. Summaries

12.1. Programme Links to Strategic Case

Asset Group		1 Core Investment	2 Asset Management			3 Road Safety		4 Growth			5 Travel Modes			6 Resilience		7 Unsealed Roads		
		Appropriate levels of service delivered into the future at an appropriate level of investment	Stronger evidence base	Informed decision making	Value for money	Safer roads and roadsides	Reducing deaths and serious injuries	Congestion levels of service meet community expectations	Thriving, growing, economy	Satisfied community	Increase uptake of alternative modes of transport	Increased community and environmental health	Reduced pressure on primary modes	24/7 access to essential services	Improved route security	Improved environmental and health benefits	ONRC levels of service are met	Whole of life maintenance costs are reduced
Pavements	Maintenance	X				X	X							X	X	X	X	X
	Renewals	X				X	X							X	X			
	Improvements					X	X	X	X	X				X	X	X	X	X
Bridges	Maintenance	X												X	X			
	Renewals	X												X	X			
	Improvements								X	X				X	X			
Retaining Walls	Maintenance	X												X	X			
	Renewals	X												X	X			
	Improvements													X	X			
Drainage	Maintenance	X												X	X			
	Renewals	X												X	X			
	Improvements													X	X			
Street Lighting	Maintenance	X				X	X											
	Renewals	X				X	X											
	Improvements					X	X											
Cycleways	Maintenance	X				X	X				X	X	X					
	Renewals	X				X	X				X	X	X					
	Improvements					X	X	X	X	X	X	X	X					
Footpaths	Maintenance	X				X	X				X	X	X					
	Renewals	X				X	X				X	X	X					
	Improvements					X	X	X	X	X	X	X	X					
Traffic Services	Maintenance	X				X	X											
	Renewals	X				X	X											
	Improvements					X	X	X	X	X								
Carparks	Maintenance	X																
	Renewals	X																
	Improvements							X	X	X								
Passenger Transport	Maintenance	X																
	Renewals	X																
	Improvements							X	X	X								
Network & Asset Management	Information	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
	Network Mgmt	X			X	X	X	X	X	X				X	X	X	X	X
	Asset Management	X	X	X	X				X					X	X		X	X

12.2. Financial Programme

12.2.1. Overview

The values in the financial program have a base date for escalation purposes of 1st July 2017.

These values require an estimate for future cost escalation when applied to the WDC Long Term Plan, or the RLTP. The rates used are sourced from BERLE.

The RLTP also requires the reasonable costs associated with program administration to be spread across each of the maintenance and renewal work categories. The reasonable cost for administration has been assessed as $566,066pa. Over an annual maintenance and renewal program of $10M, this equates to a multiplier of 1.0566.

The rates in the following table were applied to the figures entered into NZTA Transport Investment On-line for the RLTP:

	10 Year Programme									
	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Escalation - Annual	1.0110	1.0120	1.0130	1.0140	1.0150	1.0170	1.0180	1.0190	1.0200	1.0220
Escalation - Cumulative	1.0110	1.0231	1.0364	1.0509	1.0667	1.0848	1.1044	1.1254	1.1479	1.1731
Admin multiplier	1.0566	1.0566	1.0566	1.0566	1.0566	1.0566	1.0566	1.0566	1.0566	1.0566
Admin x Escalation	**1.0682**	**1.0810**	**1.0951**	**1.1104**	**1.1271**	**1.1462**	**1.1669**	**1.1890**	**1.2128**	**1.2395**

12.2.2. Financial Program by WDC Job Code

Work Category	WDC Job Number	10 Year Programme									
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Transportation Planning											
LOC002 Transportation Model	T36001	$100,000	$0	$0	$0	$0	$100,000	$0	$0	$0	$0
LOC003 Acitivity Management Planning - Urban Access, Coastla Arterial, Freight Links, Seal Extensions, Resilience, W&C	T36XX1	$120,000	$80,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Subtotal		**$220,000**	**$80,000**	**$50,000**	**$50,000**	**$50,000**	**$150,000**	**$50,000**	**$50,000**	**$50,000**	**$50,000**
Local Rd Maintenance											
LOC111 Sealed Pavement Maintenance RMC	T30251	$750,000	$750,000	$750,000	$750,000	$750,000	$750,000	$750,000	$750,000	$750,000	$750,000
LOC111 Sealed Pavement Maintenance RSC	T30252	$225,000	$225,000	$225,000	$225,000	$225,000	$225,000	$225,000	$225,000	$225,000	$225,000
LOC112 Unsealed Pavement Maintenance RMC	T30253	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000
LOC113 Routine Drainage Maintenance RMC	T30254	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000
LOC113 Routine Drainage Maintenance SSC	T30256	$55,000	$55,000	$55,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000
LOC114 Structures Maintenance Bridges	T30257	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000
LOC114 Structures Maintenance RW	T30220	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
LOC114 Structures Maintenance Signs & Rails	T30258	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000
LOC121 Environmntal Maintenance RMC	T30259	$165,000	$165,000	$165,000	$165,000	$165,000	$165,000	$165,000	$165,000	$165,000	$165,000
LOC121 Environmntal Maintenance VCC	T30260	$280,000	$280,000	$280,000	$280,000	$280,000	$280,000	$280,000	$280,000	$280,000	$280,000
LOC121 Environmntal Maintenance Tree Removal	T30261	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000	$60,000
LOC122 Traffic Services Maintenance SLMC	T30262	$145,000	$145,000	$145,000	$145,000	$145,000	$145,000	$145,000	$145,000	$145,000	$145,000
LOC122 Traffic Services Maintenance SMC	T30263	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000
LOC122 Traffic Services Maintenance LMC	T30221	$360,000	$360,000	$360,000	$360,000	$360,000	$360,000	$360,000	$360,000	$360,000	$360,000
LOC123 Operational Traffic Management	T30222	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
LOC124 Cycle Path Maintenance	T30268	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
LOC125 Footpath Maintenance	T34157	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000
LOC125 Footpath Cleaning	T34158	$55,000	$55,000	$55,000	$55,000	$55,000	$55,000	$55,000	$55,000	$55,000	$55,000
LOC125 Footpath Renewal	T35154	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
LOC131 Rail Level Crossing Warning Devices Maintenance	T30264	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
LOC140 Minor Events	T30269	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000
LOC151 Network and Asset Management Other	T30265	$350,000	$350,000	$350,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000
LOC151 Network and Asset Management PSBU	T30266	$800,576	$800,576	$800,576	$800,576	$800,576	$800,576	$800,576	$800,576	$800,576	$800,576
Subtotal		**$4,470,576**	**$4,470,576**	**$4,470,576**	**$4,575,576**	**$4,575,576**	**$4,575,576**	**$4,575,576**	**$4,575,576**	**$4,575,576**	**$4,575,576**

Work Category	WDC Job Number	10 Year Programme									
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Local Rd Renewal											
LOC211 Unsealed Road Metalling RMC	T31437	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000
LOC212 Sealed Road Resurfacing Chip Seal	T31438	$1,800,000	$1,800,000	$1,800,000	$1,800,000	$1,800,000	$1,800,000	$1,800,000	$1,800,000	$1,800,000	$1,800,000
LOC212 Sealed Road Resurfacing TAC	T31439	$400,000	$400,000	$400,000	$400,000	$400,000	$400,000	$400,000	$400,000	$400,000	$400,000
LOC213 Drainage Renewals Culverts	T31440	$180,000	$180,000	$180,000	$180,000	$180,000	$180,000	$180,000	$180,000	$180,000	$180,000
LOC213 Drainage Renewals K&C	T31441	$300,000	$300,000	$300,000	$300,000	$300,000	$300,000	$300,000	$300,000	$300,000	$300,000
LOC214 Sealed Road Pavement Rehabilitation	T31442	$914,000	$914,000	$914,000	$914,000	$914,000	$914,000	$914,000	$914,000	$914,000	$914,000
LOC215 Structures Component Replacements Bridges	T31443	$110,000	$110,000	$110,000	$110,000	$110,000	$110,000	$110,000	$110,000	$110,000	$110,000
LOC215 Structures Component Replacements RW	T31444	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000
LOC215 Structures Component Replacements Rails	T314X1	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
LOC222 Traffic Services Renewals SLMC	T31445	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
LOC222 Traffic Services Renewals Signs SMC	T31446	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000
LOC222 Traffic Services Renewals Power Undergrounding Replacements	T31447	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Subtotal		**$4,434,000**	**$4,434,000**	**$4,434,000**	**$4,434,000**	**$4,434,000**	**$4,434,000**	**$4,434,000**	**$4,434,000**	**$4,434,000**	**$4,434,000**
Local Rd Improvements											
LOC322 Replacement of Bridges & Structures	T31XX3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
LOC324 Road Improvements - Landing Road RAB	T31448	$200,000	$200,000	$2,300,000	$0	$0	$0	$0	$0	$0	$0
LOC341 LCLR Roading Improvements - Carriageways	T31455	$950,000	$300,000	$450,000	$1,000,000	$1,100,000	$800,000	$1,000,000	$1,150,000	$900,000	$1,150,000
LOC341 LCLR Roading Improvements - Bridges	T31XXX	$0	$500,000	$500,000	$0	$0	$0	$375,000	$198,000	$200,000	$0
LOC341 LCLR Roading Improvements - Stock Underpass	T31449	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000
LOC341 LCLR Roading Improvements - Retaining walls	T31XX4	$0	$0	$120,000	$0	$0	$0	$0	$0	$0	$0
LOC341 LCLR Roading Improvements - Drainage	T31450	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000
LOC341 LCLR Roading Improvements - SL and PUG	T31451	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000
LOC341 LCLR Roading Improvements - Traffic Services	T31452	$240,000	$220,000	$220,000	$220,000	$220,000	$220,000	$220,000	$220,000	$220,000	$220,000
LOC341 LCLR Roading Improvements - Walking Facilities	T31453	$30,000	$30,000	$30,000	$0	$0	$0	$0	$0	$0	$0
LOC341 LCLR Roading Improvements - New Footpaths	T31454	$170,000	$100,000	$180,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000
LOC341 LCLR Roading Improvements - Cycleways	T314XX	$0	$250,000	$250,000	$250,000	$250,000	$100,000	$100,000	$100,000	$100,000	$100,000
LOC341 LCLR Roading Improvements - Keepa Road	T314X2	$0	$0	$0	$900,000	$0	$0	$0	$0	$0	$0
LOC451 Walking Facilities		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
LOC452 Cycling Facilities		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal		**$1,795,000**	**$1,805,000**	**$4,255,000**	**$2,705,000**	**$1,905,000**	**$1,455,000**	**$2,030,000**	**$2,003,000**	**$1,755,000**	**$1,805,000**

Work Category	WDC Job Number	10 Year Programme									
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Special Purpose Rd Maintenance											
SPR111 Sealed Pavement Maintenance RMC	T32251	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000
SPR111 Sealed Pavement Maintenance RSC	T32252	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
SPR112 Unsealed Pavement Maintenance RMC	T32253	$70,000	$70,000	$70,000	$70,000	$70,000	$70,000	$70,000	$70,000	$70,000	$70,000
SPR113 Routine Drainage Maintenance RMC	T32254	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000
SPR114 Structures Maintenance Bridges	T32256	$13,000	$13,000	$13,000	$13,000	$13,000	$13,000	$13,000	$13,000	$13,000	$13,000
SPR114 Structures Maintenance RW	T32435	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000
SPR114 Structures Maintenance Rails	T32257	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000
SPR121 Environmntal Maintenance RMC	T32258	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000
SPR121 Environmntal Maintenance VCC	T32259	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
SPR121 Environmntal Maintenance Tree Removal	T32436	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000
SPR122 Traffic Services Maintenance SLMC	T32260	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000
SPR122 Traffic Services Maintenance SMC	T32261	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
SPR122 Traffic Services Maintenance LMC	T32437	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
SPR140 Minor Events	T32438	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000
SPR151 Network and Asset Management Other	T32262	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
SPR151 Network and Asset Management PSBU	T32263	$205,553	$205,553	$205,553	$205,553	$205,553	$205,553	$205,553	$205,553	$205,553	$205,553
Subtotal		**$868,553**	**$868,553**	**$868,553**	**$868,553**	**$868,553**	**$868,553**	**$868,553**	**$868,553**	**$868,553**	**$868,553**
Special Purpose Rd Renewal											
SPR211 Unsealed Road Metalling RMC	T33437	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000
SPR212 Sealed Road Resurfacing	T33438	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000
SPR213 Drainage Renewals	T33439	$110,000	$110,000	$110,000	$110,000	$110,000	$110,000	$110,000	$110,000	$110,000	$110,000
SPR215 Structures Component Replacements Bridges	T33440	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000
SPR215 Structures Component Replacements Rails	T33XX2	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SPR215 Structures Component Replacements RW	T33441	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
SPR222 Traffic Services Renewals Signs SMC	T33433	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000
SPR222 Traffic Services Renewals SLMC	T33442	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500	$1,500
Subtotal		**$531,500**	**$531,500**	**$531,500**	**$531,500**	**$531,500**	**$531,500**	**$531,500**	**$531,500**	**$531,500**	**$531,500**
Special Purpose Rd Improvements											
SPR325 Seal Extension	T33444	$1,500,000	$1,500,000	$1,500,000	$0	$0	$0	$0	$0	$0	$0
SPR341 LCLR Roading Improvements - Carriageways	T33445	$200,000	$200,000	$200,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000
SPR341 LCLR Roading Improvements - Traffic Services	T33446	$500,000	$500,000	$500,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$100,000
SPR341 LCLR Roading Improvements - Bridges	T33XX1	$0	$0	$990,000	$0	$0	$0	$0	$0	$0	$0
SPR341 LCLR Roading Improvements - Drainage	T33XX4	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SPR341 LCLR Roading Improvements - Streetlights	T33XX5	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal		**$2,200,000**	**$2,200,000**	**$3,190,000**	**$200,000**	**$200,000**	**$200,000**	**$200,000**	**$200,000**	**$200,000**	**$200,000**

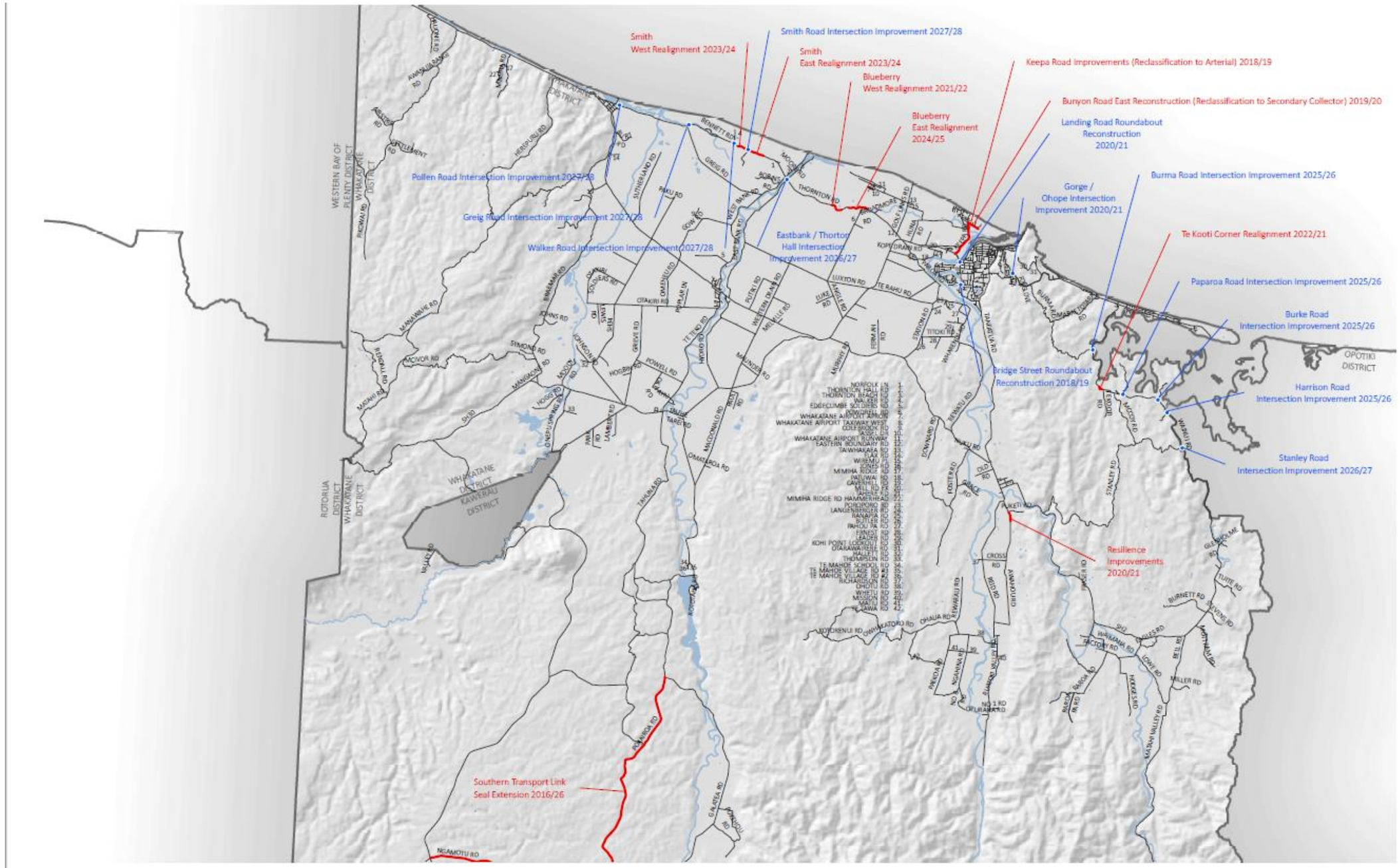
Work Category	WDC Job Number	10 Year Programme									
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
NFA Maintenance											
NFA Network and Asset Management Other	T34153	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
NFA Network and Asset Management PSBU	T34168	$75,730	$75,730	$75,730	$75,730	$75,730	$75,730	$75,730	$75,730	$75,730	$75,730
NFA Street Cleaning	T34154	$130,000	$130,000	$130,000	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000
NFA Amenity Lighting Maintenance SLMC	T34155	$55,000	$55,000	$55,000	$65,000	$65,000	$65,000	$65,000	$65,000	$65,000	$65,000
NFA Car Park Maintenance	T34160	$5,000	$5,000	$5,000	$9,000	$9,000	$9,000	$9,000	$9,000	$9,000	$9,000
NFA Bus Shelter Maintenance	T34162	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NFA Beach SW Outlet Mtc	T34210	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000
NFA Urban Tree Removal	T34221	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000
NFA Roading General - Misc	T34150	$28,000	$28,000	$28,000	$28,000	$28,000	$28,000	$28,000	$28,000	$28,000	$28,000
NFA Roading General - Road Closures	T34151	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000
NFA Roading General - Alleyway Closures	T34209	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Subtotal		**$417,730**	**$417,730**	**$417,730**	**$441,730**	**$441,730**	**$441,730**	**$441,730**	**$441,730**	**$441,730**	**$441,730**
NFA Renewal											
NFA Drainage Renewal	T35211	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
NFA Soakpit Renewal	T35212	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000
NFA Amenity Lighting Renewals SLMC	T35214	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
NFA Car Park Renewal	T35XX1	$0	$0	$30,750	$0	$30,750	$0	$30,750	$0	$30,750	$0
Subtotal		**$55,000**	**$55,000**	**$85,750**	**$55,000**	**$85,750**	**$55,000**	**$85,750**	**$55,000**	**$85,750**	**$55,000**
NFA Improvements											
NFA Buyan Road Seal Extension	T35219	$550,000	$0	$0	$0	$0	$0	$0	$0	$0	$0
NFA Cemetery Road Sealing	T35220	$15,000	$0	$0	$0	$0	$0	$0	$0	$0	$0
NFA Pedestrian Bridge From Piripai	T35XX2	$0	$1,000,000	$0	$0	$0	$0	$0	$0	$0	$0
NFA Drainage Improvements	T35216	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
NFA Walkway Lights to Info Centre	T35213	$150,000	$0	$0	$0	$0	$0	$0	$0	$0	$0
NFA Road Legalisation Land Purchase	T35195	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NFA Car Park Improvements	T35XX3	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NFA Bus Shelter Improvements	T35XX4	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
NFA Misc Projects	T35218	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Subtotal		**$785,000**	**$1,070,000**	**$70,000**	**$70,000**	**$70,000**	**$70,000**	**$70,000**	**$70,000**	**$70,000**	**$70,000**
TOTAL		**$15,777,359**	**$15,932,359**	**$18,373,109**	**$13,931,359**	**$13,162,109**	**$12,781,359**	**$13,287,109**	**$13,229,359**	**$13,012,109**	**$13,031,359**

12.2.3. Financial Program by NZTA Work Category

Work Category	NZTA Job Number	10 Year Programme									
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Transportation Planning											
LOC002 Transportation Model	LOC002	$100,000	$0	$0	$0	$0	$100,000	$0	$0	$0	$0
LOC003 Transportation Planning	LOC003	$120,000	$80,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Subtotal		**$220,000**	**$80,000**	**$50,000**	**$50,000**	**$50,000**	**$150,000**	**$50,000**	**$50,000**	**$50,000**	**$50,000**
Local Rd Maintenance											
LOC111 Sealed Pavement Maintenance	LOC111	$975,000	$975,000	$975,000	$975,000	$975,000	$975,000	$975,000	$975,000	$975,000	$975,000
LOC112 Unsealed Pavement Maintenance	LOC112	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000
LOC113 Routine Drainage Maintenance	LOC113	$505,000	$505,000	$505,000	$510,000	$510,000	$510,000	$510,000	$510,000	$510,000	$510,000
LOC114 Structures Maintenance Bridges	LOC114	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000
LOC121 Environmntal Maintenance	LOC121	$505,000	$505,000	$505,000	$505,000	$505,000	$505,000	$505,000	$505,000	$505,000	$505,000
LOC122 Traffic Services Maintenance	LOC122	$625,000	$625,000	$625,000	$625,000	$625,000	$625,000	$625,000	$625,000	$625,000	$625,000
LOC123 Operational Traffic Management	LOC123	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
LOC124 Cycle Path Maintenance	LOC124	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
LOC125 Footpath Maintenance	LOC125	$245,000	$245,000	$245,000	$245,000	$245,000	$245,000	$245,000	$245,000	$245,000	$245,000
LOC131 Rail Level Crossing Warning Devices Maintenance	LOC131	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
LOC140 Minor Events	LOC140	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000
LOC151 Network and Asset Management	LOC151	$1,150,576	$1,150,576	$1,150,576	$1,250,576	$1,250,576	$1,250,576	$1,250,576	$1,250,576	$1,250,576	$1,250,576
Subtotal		**$4,470,576**	**$4,470,576**	**$4,470,576**	**$4,575,576**	**$4,575,576**	**$4,575,576**	**$4,575,576**	**$4,575,576**	**$4,575,576**	**$4,575,576**
Local Rd Renewal											
LOC211 Unsealed Road Metalling	LOC211	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000	$500,000
LOC212 Sealed Road Resurfacing	LOC212	$2,200,000	$2,200,000	$2,200,000	$2,200,000	$2,200,000	$2,200,000	$2,200,000	$2,200,000	$2,200,000	$2,200,000
LOC213 Drainage Renewals	LOC213	$480,000	$480,000	$480,000	$480,000	$480,000	$480,000	$480,000	$480,000	$480,000	$480,000
LOC214 Sealed Road Pavement Rehabilitation	LOC214	$914,000	$914,000	$914,000	$914,000	$914,000	$914,000	$914,000	$914,000	$914,000	$914,000
LOC215 Structures Component Replacements	LOC215	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000
LOC222 Traffic Services Renewals	LOC222	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000
Subtotal		**$4,434,000**	**$4,434,000**	**$4,434,000**	**$4,434,000**	**$4,434,000**	**$4,434,000**	**$4,434,000**	**$4,434,000**	**$4,434,000**	**$4,434,000**
Local Rd Improvement											
LOC322 Replacement of Bridges & Structures	LOC322	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
LOC324 Road Improvements	LOC324	$200,000	$200,000	$2,300,000	$0	$0	$0	$0	$0	$0	$0
LOC341 Low Cost Low Risk Roading Improvements	LOC341	$1,595,000	$1,605,000	$1,955,000	$2,705,000	$1,905,000	$1,455,000	$2,030,000	$2,003,000	$1,755,000	$1,805,000
LOC451 Walking Facilities	LOC451	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
LOC452 Cycling Facilities	LOC452	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal		**$1,795,000**	**$1,805,000**	**$4,255,000**	**$2,705,000**	**$1,905,000**	**$1,455,000**	**$2,030,000**	**$2,003,000**	**$1,755,000**	**$1,805,000**

Work Category	NZTA Job Number	10 Year Programme									
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Special Purpose Rd Maintenance											
SPR111 Sealed Pavement Maintenance	SPR111	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000
SPR112 Unsealed Pavement Maintenance	SPR112	$70,000	$70,000	$70,000	$70,000	$70,000	$70,000	$70,000	$70,000	$70,000	$70,000
SPR113 Routine Drainage Maintenance	SPR113	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000	$90,000
SPR114 Structures Maintenance Bridges	SPR114	$29,000	$29,000	$29,000	$29,000	$29,000	$29,000	$29,000	$29,000	$29,000	$29,000
SPR121 Environmntal Maintenance	SPR121	$145,000	$145,000	$145,000	$145,000	$145,000	$145,000	$145,000	$145,000	$145,000	$145,000
SPR122 Traffic Services Maintenance	SPR122	$39,000	$39,000	$39,000	$39,000	$39,000	$39,000	$39,000	$39,000	$39,000	$39,000
SPR140 Minor Events	SPR140	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000
SPR151 Network and Asset Management	SPR151	$255,553	$255,553	$255,553	$255,553	$255,553	$255,553	$255,553	$255,553	$255,553	$255,553
Subtotal		**$868,553**	**$868,553**	**$868,553**	**$868,553**	**$868,553**	**$868,553**	**$868,553**	**$868,553**	**$868,553**	**$868,553**
Special Purpose Rd Renewal											
SPR211 Unsealed Road Metalling	SPR211	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000
SPR212 Sealed Road Resurfacing	SPR212	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000	$140,000
SPR213 Drainage Renewals	SPR213	$110,000	$110,000	$110,000	$110,000	$110,000	$110,000	$110,000	$110,000	$110,000	$110,000
SPR215 Structures Component Replacements	SPR215	$55,000	$55,000	$55,000	$55,000	$55,000	$55,000	$55,000	$55,000	$55,000	$55,000
SPR222 Traffic Services Renewals Signs	SPR222	$26,500	$26,500	$26,500	$26,500	$26,500	$26,500	$26,500	$26,500	$26,500	$26,500
Subtotal		**$531,500**	**$531,500**	**$531,500**	**$531,500**	**$531,500**	**$531,500**	**$531,500**	**$531,500**	**$531,500**	**$531,500**
Special Purpose Rd Improvement											
SPR325 Seal Extension	SPR325	$1,500,000	$1,500,000	$1,500,000	$0	$0	$0	$0	$0	$0	$0
SPR341 Low Cost Low Risk Roading Improvements	SPR341	$700,000	$700,000	$1,690,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000
Subtotal		**$2,200,000**	**$2,200,000**	**$3,190,000**	**$200,000**	**$200,000**	**$200,000**	**$200,000**	**$200,000**	**$200,000**	**$200,000**
TOTAL		**$14,519,629**	**$14,389,629**	**$17,799,629**	**$13,364,629**	**$12,564,629**	**$12,214,629**	**$12,689,629**	**$12,662,629**	**$12,414,629**	**$12,464,629**
NFA Program											
NFA Program	NFA	$1,257,730	$1,542,730	$573,480	$566,730	$597,480	$566,730	$597,480	$566,730	$597,480	$566,730
TOTAL		**$15,777,359**	**$15,932,359**	**$18,373,109**	**$13,931,359**	**$13,162,109**	**$12,781,359**	**$13,287,109**	**$13,229,359**	**$13,012,109**	**$13,031,359**

12.3. Major Capital Improvement Projects 2018-28



Proposed Capital Improvments 2018-2028 (North)

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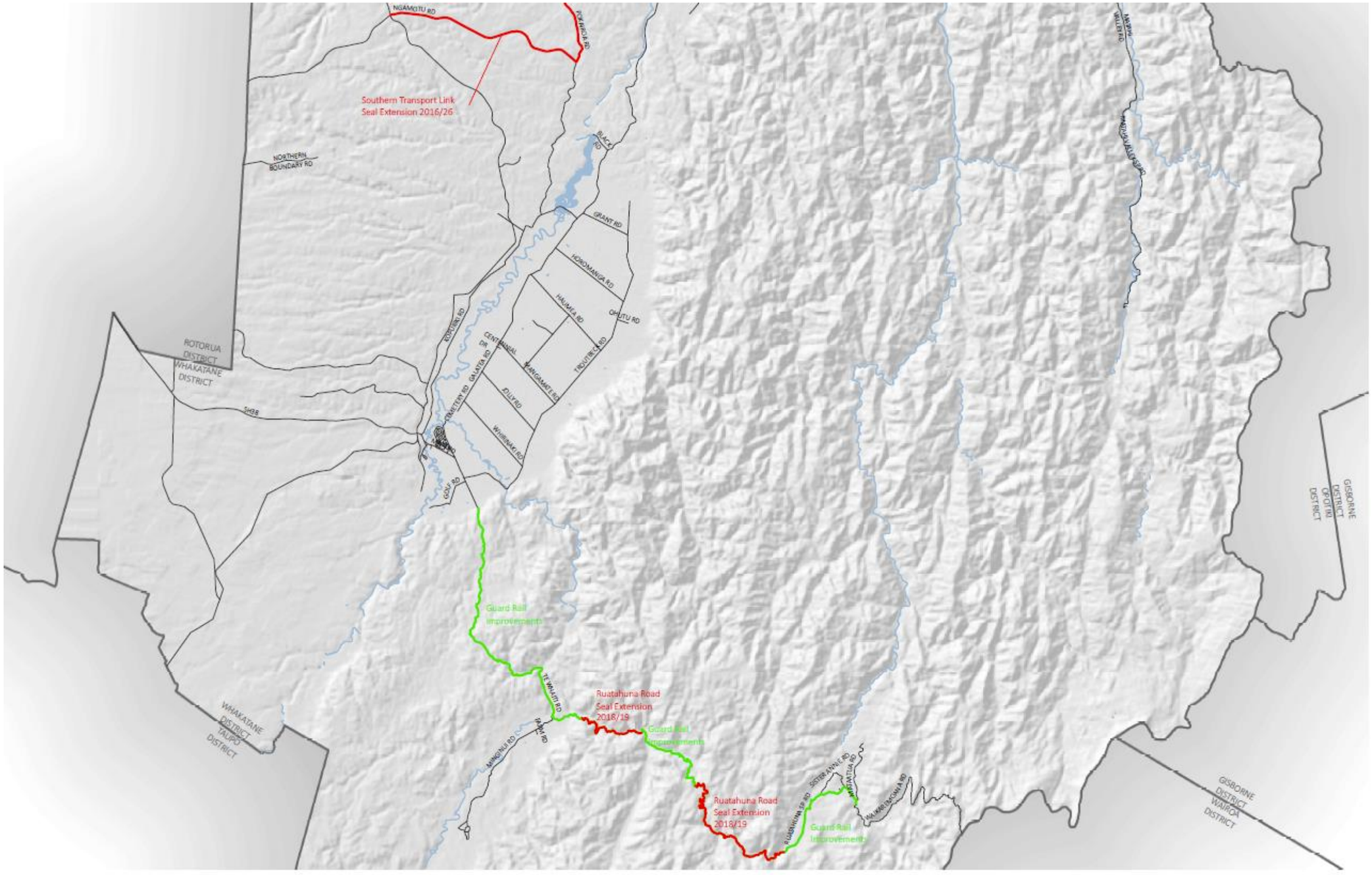

0 2 4 8 km

Proposed Capital Improvments 2018-2028 (South)

OPUS

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12.4. ONRC Performance Measures

General Legend:

Increasing Trend	⇧
Stable / Neutral Trend	⇔
Decreasing Trend	⇩
Favourable / Better than Target	
Average / On Target	
Unfavourable / Worse than Target	

Safety Outcomes C02 (collective risk) and C03 (personal risk), WDC performance for 2016/17, are reported and coloured in a manner consistent with KiwiRAP, the New Zealand Road Assessment Program, as follows:

RISK RATING	COLLECTIVE RISK Average annual fatal and serious injury crashes per km	PERSONAL RISK Average annual fatal and serious injury crashes per 100 million vehicle-km	COLOUR
Low	≤0.039	<4	
Low-medium	0.04 ≤ 0.069	4 ≤ 4.9	
Medium	0.07 ≤ 0.10	5 ≤6.9	
Medium-high	0.11 ≤ 0.189	7 ≤ 8.9	
High	0.19+	9+	

ONRC Performance Measures				Target (2018-21)					WDC Performance (16/17)					WDC Trend					WDC Vs Peer Group Performance					Asset Group											Comments
Outcome	No.	Measure		Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Pavements	Bridges	Retaining Walls	Drainage	Street Lighting	Cycleways	Footpaths	Traffci Services	Car Parks	Passenger Transport	NAM, TP	
Safety	CO1	The number of fatal and serious injuries on the network.	Rural	Decreasing all classes					2	4	4	0	0	⇩	⇩	⇧	⇩	⇔	-	-	-	-	-											Reflects high risk behaviours still prevalent in remote rural parts of the district on lower hierachy roads that are less forgiving
			Urban	Decreasing all classes					1	0	2	0	0	⇩	⇩	⇔	⇔	⇔	-	-	-	-	-											
			Combined	Decreasing all classes					3	4	6	0	0	⇩	⇩	⇧	⇩	⇔	-	-	-	-	-											
	CO2	Collective risk (fatal and serious injury rate per kilometre)	Rural	Decreasing all classes					0.043	0.016	0.018	0.004	0.000	-	-	-	-	-	0.094	0.032	0.013	0.005	0.002											Some sections of the coastal arterial route fall into the high risk rural road category due to out of context alignment, marginal geometry and road side hazards. Vulnerable users feature in the urban arterial performance.
			Urban	Decreasing all classes					0.184	0.078	0.019	0.010	0.003	-	-	-	-	-	0.169	0.070	0.038	0.013	0.007											
			Combined	Decreasing all classes					0.081	0.022	0.018	0.005	0.001	-	-	-	-	-	0.123	0.044	0.018	0.006	0.003											
	CO3	Personal risk (fatal and serious injury rate by traffic volume)	Rural	Decreasing all classes					4	8	12	11	0	-	-	-	-	-	6	7	9	12	15											Reflects high risk behaviours still prevalent in remote rural parts of the district on lower hierachy roads that are less forgiving.
			Urban	Decreasing all classes					6	5	4	6	10	-	-	-	-	-	6	6	9	9	21											
			Combined	Decreasing all classes					5	6	9	10	6	-	-	-	-	-	6	6	9	10	18											
	TO1	permanent hazards	Rural	1 max	3 max	5 max	7 max	10 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											Measures in place but not in format specified by ONRC. Proposed targets are provisional, based on the NZTA publication 'Maintenance Guidelines for Local Roads"
			Urban	1 max	1 max	2 max	2 max	3 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
	TO2	temporary hazards	Rural	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											Measures in place but not in format specified by ONRC. Proposed targets are provisional, based on the NZTA publication 'Maintenance Guidelines for Local Roads"
			Urban	100%	100%	100%	100%	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
	TO3	sight distances	Rural	100%	100%	95%	90%	80%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											Measures in place but not in format specified by ONRC. Proposed targets are provisional, based on the NZTA publication 'Maintenance Guidelines for Local Roads"
			Urban	100%	100%	95%	90%	80%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
	TO4	loss of control on wet roads	Rural	Decreasing all classes					1	2	5	0	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-											Rural collector roads feature.
			Urban	Decreasing all classes					2	2	0	0	0	⇩	⇔	⇔	⇔	⇔	-	-	-	-	-											
			Combined	Decreasing all classes					3	4	5	0	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-											
	TO5	loss of driver control at night	Rural	Decreasing all classes					1	0	4	1	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-											Rural collector roads feature.
			Urban	Decreasing all classes					0	2	0	0	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-											
			Combined	Decreasing all classes					1	2	4	1	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-											
	TO6	intersections	Rural	Decreasing all classes					0	1	3	0	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-											Arterials and collectors feature.
			Urban	Decreasing all classes					7	3	1	0	0	⇩	⇔	⇔	⇔	⇔	-	-	-	-	-											
			Combined	Decreasing all classes					7	4	4	0	0	⇩	⇩	⇔	⇔	⇔	-	-	-	-	-											
	TO7	hazardous faults	Rural	2 max	4 max	6 max	8 max	10 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											Not measured yet. Proposed targets are provisional, based on the NZTA publication 'Maintenance Guidelines for Local Roads"
			Urban	1 max	2 max	3 max	3 max	4 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
	TO8	cycle path faults	Rural	4 max	4 max	4 max	4 max	4 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											Not measured yet. Proposed targets are provisional, based on the NZTA publication 'Maintenance Guidelines for Local Roads"
			Urban	4 max	4 max	4 max	4 max	4 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
	TO9	vulnerable users	Rural	Decreasing all classes					2	2	5	2	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-											Particularly high on urban arterials and primary collectors, and rural secondary collectors.
			Urban	Decreasing all classes					7	4	3	1	1	⇩	⇔	⇔	⇔	⇔	-	-	-	-	-											
			Combined	Decreasing all classes					9	6	8	3	1	⇩	⇔	⇔	⇔	⇔	-	-	-	-	-											
	TO10	roadside obstructions	Rural	1 max	3 max	5 max	7 max	10 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											Not measured yet. Proposed targets are provisional, based on the NZTA publication 'Maintenance Guidelines for Local Roads"
			Urban	1 max	1 max	2 max	2 max	3 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
Resilience	CO1	the number of journies impacted by unplanned events	Rural	Improving all classes					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											Measures in place but not in format specified by ONRC.
			Urban	Improving all classes					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
	CO2	the number of instances where road access is lost	Rural	Improving all classes					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											Measures in place but not in format specified by ONRC.
			Urban	Improving all classes					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											

ONRC Performance Measures				Target (2018-21)					WDC Performance (16/17)					WDC Trend					WDC Vs Peer Group Performance					Asset Group											Comments
Outcome	No.	Measure		Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Pavements	Bridges	Retaining Walls	Drainage	Street Lighting	Cycleways	Footpaths	Traffci Services	Car Parks	Passenger Transport	NAM, TP	
Amenity	OM1	Smooth Travel Exposure (STE)	Rural	>93%	>93%	>93%	>93%	>93%	96%	97%	98%	96%	95%	⇔	⇔	⇔	⇔	⇔	91%	94%	94%	92%	89%												Urban arterial result due to roughness on Domain Rd. Smoothing delayed until year 6 or 7 as road form may change following outcomes of urban arterial business case.
			Urban	>85%	>85%	>85%	>85%	>85%	80%	86%	95%	96%	98%	⇔	⇔	⇔	⇔	⇔	81%	84%	86%	86%	88%											
	OM2	peak roughness (85%ile)	Rural	-	-	-	-	-	103	106	108	110	127	-	-	-	-	-	-	-	-	-	-											Indicates maintenance intervention strategy could be fine-tuned to rebalance maintenance investment across the network.
			Urban	-	-	-	-	-	121	123	122	126	120	-	-	-	-	-	-	-	-	-	-											
	OM2	peak roughness (95%ile)	Rural	110	120	130	150	180	124	129	131	140	151	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-											
			Urban	120	130	140	150	170	135	141	143	147	146	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-											
	TO1	roughness of the road (median)	Rural	-	-	-	-	-	74	76	72	74	90	-	-	-	-	-	-	-	-	-	-											
			Urban	-	-	-	-	-	82	91	89	91	90	-	-	-	-	-	-	-	-	-	-											
		roughness of the road (average)	Rural	100	100	110	120	140	76	79	78	80	92	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-											
			Urban	100	110	110	120	140	86	93	92	95	92	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-											
	TO2	asthetic faults	Rural	To be Developed					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											Measures in place but not in format specified by ONRC.
			Urban	To be Developed					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
Accessibility	CO1	proportion of network not available to Class 1 heavy vehicles	Combined	0%	0%	0%	2%	3%	0%	35%	16%	26%	3%	-	-	-	-	-	-	-	-	-	-											Based on new 46t/47t class 1 requirements. Impacts large areas of dairy and forestry.
		proportion of network not available to 50MAX vehicles	Combined	0%	0%	0%	2%	3%	0%	35%	16%	26%	3%	-	-	-	-	-	-	-	-	-	-											Impacts large areas of dairy and forestry.
	TO1	accessibility	Rural	To be Developed					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											Measures in place but not in format specified by ONRC. WDC policy is to mark roads in accordance with RTS2, MOTSAM and TCD Manual
			Urban	To be Developed					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-											
Travel Time Reliab	CO1	throughput at indicator sites	Rural	>80% capacity < 1 hour/day					-	-	-	-	-	⇔	N/A	N/A	N/A	N/A	-	-	-	-	-											Subject of Urban Arterial Route business case.
			Urban	>80% capacity < 1 hour/day						-	-	-	-	⇩	N/A	N/A	N/A	N/A	-	-	-	-	-											
Cost Efficiency	CE1	pavement rehabilitation	Length	6 ln.km per annum					3.3 ln.km per annum (3yr average)					⇧					-															2014-17 included more expensive urban rehabs hence lower ln.km achieved. 2018-21 is largely lower cost rural rehabs.
			Area	22,500m2 per annum					9,971m2 (3yr average)					⇧					-															
			Cost	$560/ln.km					$468/ln.km (3yr average)					⇔					$695															
			Achieved Life	-					-					-					-															
	CE2	chipseal resurfacing	Length	82-110 ln.km per annum					83 ln.km (3yr average)					⇔					-															A 3 year contract for 2015-18 received some incredibly sharp prices as a result of industry pressures at the time of tender. We don't believe the current rates are sustainable in the long term and the same industry pressures no longer exist. We have allowed for an increase in tendered rates for the next contract.
			Area	300,000 - 402,000 m2 per annum					304,790m2 (3yr average)					⇔					-															
			Cost	$1415/ln.km					$1181/ln.km (3yr average)					⇧					$1,321															
			Achieved Life	15 years					15.2 years					⇔					-															
	CE3	asphalt resurfacing	Length	2 ln.km per annum					2.5 ln.km (3yr average)					⇔					-															2014-17 included many high stress roundabouts which have shorter than average surface lives
			Area	12,000 m2 per annum					12,793m2 (3yr average)					⇔					-															
			Cost	$15,500/ln.km					$15,543/ln.km (3yr average)					⇔					-															
			Achieved Life	15 years					11.5 years					⇔					-															
	CE4	unsealed road metalling	Length	50km per annum					28.9 km (3yr average)					⇧					-															2016/17 program only 30% delivered due to impact of 2 ex-tropical cyclones, impacting current performance. High demand unsealed primary collector routes has meant suitable levels of service haven't been able to be maintained at existing levels of investment.
			Area	233,000 m2 per annum					134,000m2 (3yr average)					⇧					-															
			Cost	$3,448/km					$3007/km (3yr average)					⇧					$1,588															
			Achieved Life	-					-					-					-															
	CE5	overall network cost	$/km	$11,253					$9,634					⇧					$8,886															Overall network costs are on par with peers on a per km or lane-km basis. WDCs network has a higher traffic density than many of its peers and on a per vkt basis wdc shows better than average cost. Overall maintenance and renewal program proposed for 2018-21 is $771k/per annum higher than the approved allocation for 2015-18. Main components of this increase are resurfacing ($320k), rehab ($100k), metaling ($100k), administration ($300k) and price escalation (3%/$300k). These increase are partialy offset by decreases on other activities. Even with these increases WDC is still below peer group average on a per vkt basis.
			$/ln.km	$5,635					$4,824					⇧					$4,817															
			$/vkt	$0.048/vkt					$0.041/vkt					⇧					$0.051/vkt															

12.5. Improvement Plan

Asset Group	Improvements	Priority	IIMM Reference	5 Pillars of Success				
				Systems	Data	Communications	Approval Processes	Service Delivery
Network & Asset Management, Transportation Planning	Develop Asset Management Policy.	H	2.1					
	Review and modernise risk identification and management processes, and develop new risk register. Quantify risks financially and set targets for reducing level of exposure.	H	3.2					
	Modify inspections and auditing processes to accommodate information requirements for ONRC measure.	H	2.5					
	Develop a pavement skid policy detailing how SCRIM data will be applied (Keep based in NZTA T/10 as considered best practice, but will need to balance affordability). Hardwire SCRIM TLs into RAMM.	M	2.5					
	Monitoring of ONRC performance data should see network performance aligning with ONRC performance targets and measures over time.	L	2.2					
	Develop Network Operating Plan	M	3.3					

Asset Group	Improvements	Priority	IIMM Reference	5 Pillars of Success				
				Systems	Data	Communications	Approval Processes	Service Delivery
Pavements	Establish program to quantify pavement strength for each treatment length. This will provide significant improvements to the accuracy and reliability of the pavement model.	M	2.5					
	Revise the Maintenance Intervention Strategy to target level of service delivery to ONRC measures.	H	3.3					
	Develop a schedule and inspection regime for old and vulnerable surfacings	H	2.5					
Bridges	Undertake detailed investigations and analysis of bridge stock to provide improved understanding about remaining useful life.	M	2.5 3.2					
	Complete structural assessments of bridges not yet certified for 50Max and new 46/47 class 1 loading.	H	2.5 3.2					
	Set up a database for recording and reporting of the ONRC resilience customer outcome performance measures.	L	2.2					
Retaining Walls	No improvements have been identified	L						
Drainage	Use modelling techniques to identify and prioritise at risk pavements for drainage maintenance.	M	3.2 3.3					
Street Lighting	No improvements have been identified	L						

Asset Group	Improvements	Priority	IIMM Reference	5 Pillars of Success				
				Systems	Data	Communications	Approval Processes	Service Delivery
Cycleways	Develop counting program to establish base demand and growth.	M	2.3					
	Update RAMM with correct all as-built data for off road shared use paths.	M						
	Develop FWP for off-road cycle facilities.	M	4.4					
Footpaths	No improvements have been identified	L						
Traffic Services	Explore development of a more performance based asset replacement policy for signs and markings.	L	2.5					
Car Parks	Develop FWP for carparks	H	4.4					
Passenger Transport	No improvements have been identified	L						

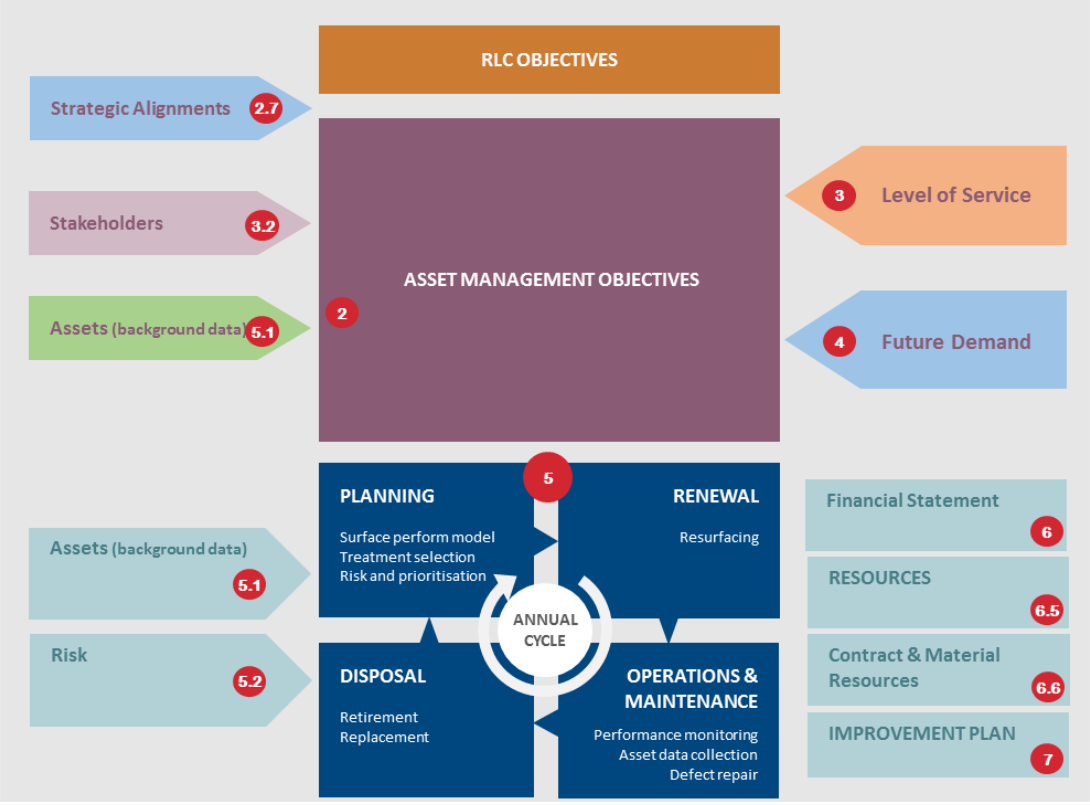
13. Network and Asset Management, Transportation Planning

13.1. Overview

Our goal is to contribute through the transportation activity to Whakatāne District's vision, purpose, community outcomes and statutory requirements. To do that Council adopts the principles of infrastructure asset management is to meet levels of service (refer section XXX) in the most cost-effective manner through the management of assets for present and future customers. The key elements of asset management and core to our approach are:

- Taking a lifecycle approach to asset investment, maintenance and renewal activities
- Developing cost-effective management strategies for the long-term
- Providing a defined level of service and monitoring performance
- Understanding and meeting the impact of growth through demand management and infrastructure investment
- Managing risks associated with asset failures
- Sustainable use of physical resources
- Continuous improvement in asset management practices.

Asset management draws together several separate infrastructure planning processes demonstrated by the Asset Management Framework diagram below. The asset management framework shows the relationship between the various elements of the asset management process, including the Council's planning framework, infrastructure strategy, and asset management plan. This framework is aligned with the Asset Management Concept Model (ISO 55001) which is based on four principles: output focus, capabilities, level of assurance, and learning organisation.



13.2. Key Issues

Operating an asset management system aimed at meeting organisational goals, achieving agree service levels all in the cost-effective manner requires investment in people, processes and technology. This AMP includes a step-change in asset management for Whakatāne District and with that an increase in investment to ensure Council is achieving what it has set out.

The biggest area of impact is in data collection and technology. Data is the foundation of asset management as it is through the analysis of data, using systems, that we gain information and from that we make informed decisions seeking to maximise the impact we have on achieving Councils aspirations for the least cost.

Council have recently expanded their in house PSBU team to retain an increased level of network and operational knowledge which will flow through to better and more informed decision making. A Professional Services provider will be engaged to provide specialist services and support. Increasing the in-house capability has also resulted in savings that will be reinvested in:

- Additional data collection including SCRIM, high speed data collection and pavement strength.
- Advanced asset management tools including dTims and Juno viewer.

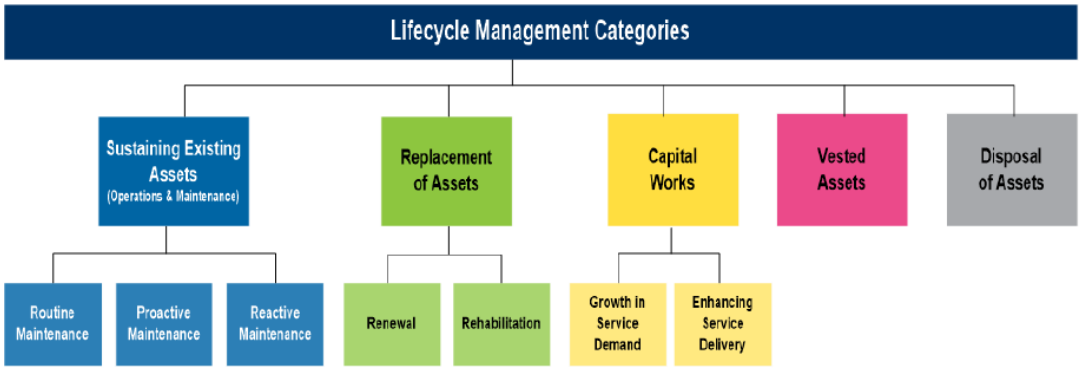
13.3. Link to Strategic case

Asset Group		1 Core Investment	2 Asset Management			3 Road Safety		4 Growth			5 Travel Modes			6 Resilience		7 Unsealed Roads		
		Appropriate levels of service delivered into the future at an appropriate level of investment	Stronger evidence base	Informed decision making	Value for money	Safer roads and roadsides	Reducing deaths and serious injuries	Congestion levels of service meet community expectations	Thriving, growing, economy	Satisfied community	Increase uptake of alternative modes of transport	Increased community and environmental health	Reduced pressure on primary modes	24/7 access to essential services	Improved route security	Improved environmental and health benefits	ONRC levels of service are met	Whole of life maintenance costs are reduced
Network & Asset Management	Information	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
	Network Mgmt	X			X	X	X	X	X	X				X	X	X	X	X
	Asset Mgmt	X	X	X	X				X					X	X		X	X

13.4. Life cycle management strategies overview

The lifecycle of the assets can be categorised into the five principal areas:

- Sustaining the existing assets
- Replacing the existing assets
- Growing the asset base through enhancing service delivery or service demand
- Vested assets from developers and
- Disposing of assets when they reach the end of their useful life or fail to deliver the level of service.



These items are discussed in summary below and in more detail in the respective Asset Summaries in the following sections.

13.4.1. *Key Issues & Strategies*

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

- The Whakatane network has relatively young pavements and many have not reached the age where they need rehabilitation. Accordingly the current rehabilitation rate is quite low at less than 0.5% of the network annually. Looking forwards based on a birthday renewal basis the rehabilitation rate looks to increase to 1.7% of the network over the next 30 years. Establishing a pavement modelling program (dTims) will be important to quantify and manage the extent of this problem.

- Related to the first bullet point, many sealed pavements are only on their 2nd or 3rd reseal and currently 15 year average seal lives are being achieved. As the number of seal layers accumulate average seal lives are likely to reduce. Establishing a pavement modelling program (dTims) will be important to quantify and manage the extent of this problem.

- Many of the reinforced concrete bridges were assigned an 80 or 100 year expected life when constructed. Based on birthday replacement many of them appear in the 30 year strategic view period. Anecdotal evidence suggests the life span of these bridges may be considerably longer. A program of invasive inspection is required to determine the rate of deterioration of these structures and determine a more accurate assessment of expected life.

- A considerable number of retaining structures have been constructed over the previous 30 years. As they age maintenance requirements are growing.

- Traffic volumes and growth rates on the urban arterial network are resulting in a developing congestion problem. A strategic case is being finalised to address the issue.

- Traffic volumes and growth rates on the rural arterial network are resulting in a developing safety problem. This was highlighted during the state highway closure at the Pekatahi Bridge which diverted additional traffic onto the District Arterials.

- Pavements in the Rangitaiki Plains and Whakatane Township areas are susceptible to accelerated damage following long periods of rain and high water-tables. Under current climate change scenarios this issue is likely to be exacerbated.

13.4.2. Data

13.4.2.1. Data Collection

All our asset management systems require data on the extent and condition of transport assets managed and maintained by Council. Data collection can be expensive and therefore it is necessary to strike a balance between the costs of data collection and the benefit derived from having access to data of appropriate quality to make informed asset maintenance and renewal decisions.

Council is committed to continuing to operate the RAMM inventory and data management system. This system is cost effective and proven for New Zealand road Controlling Authorities. Council will adopt the IDS NZ dTIMS system to better inform its medium and long-term road pavement and resurfacing decision-making processes. Juno Viewer will be sourced through a professional services provider to better inform the short term pavement and resurfacing treatment selection process and forward works program development.

The data requirements to operate these systems and produce quality information consistent with a network of the nature of Whakatane District is:

High Speed Data (Roughness, Rutting, Texture, Skid Resistance)	Arterial and Primary Collector	Annually
	All other sealed roads	Once every three years
	Unsealed Roads	?
RAMM Condition Rating	>2,000 AADT	Annually
	All other sealed Roads	Once every two years
Traffic Counting (1 week counts)	Across Network	100 per annum
Maintenance Activity Data	All roads and all activities via RAMM contractor for term maintenance contracts.	Monthly
Network Audits	10% of the network*	Monthly*
Crash Data (CAS)	Across Network	Continuous. Quarterly update to RAMM
Crash Reports	Across Network	All fatal and high profile serious crashes
Drainage	Plains / low risk	Annually
	Hill Country / high risk	4 monthly
Structures Condition (Bridges & Retaining Walls)	Superficial Inspection	10% per month
	General Inspection	Every 2nd year
	Detailed Inspection	Every 6th year
	Special Inspection	Following significant floods, earthquakes, overloads, public feedback

* Historic practice. Currently under review to align with requirements for ONRC performance measures

Experience has shown that inventory data tends to go “out of date” for several reasons. Therefore, a validation of RAMM inventory data will be undertaken each year coving 1/3 of inventory data.

Maintenance activity (cost) information is currently being collected on the network and entered into RAMM via RAMM Contractor for term maintenance contracts. For other renewal

and capital improvement projects the RAMM as built data is provided by the contractor in a prescribed format, checked and verified by the project manager (Council or Consultant staff) and then uploaded into RAMM. The availability of accurate maintenance cost data enables the development of more accurate maintenance cost prediction models that are used in both BCR and NPV analysis of various pavement maintenance, rehabilitation and capital works projects.

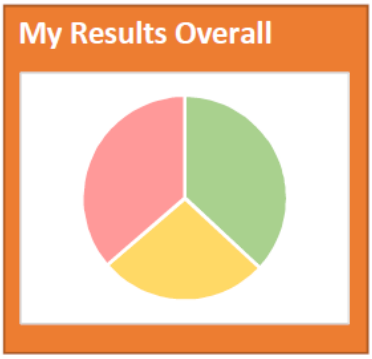
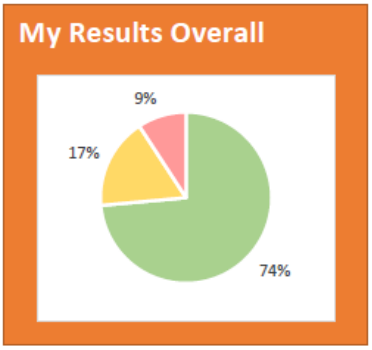
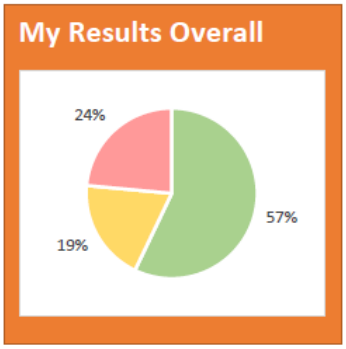
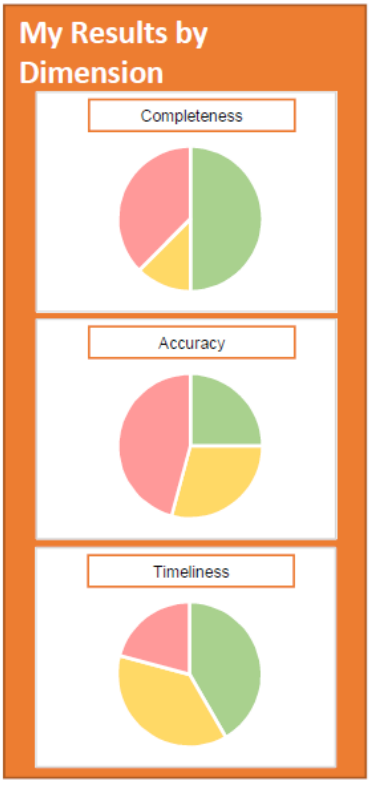
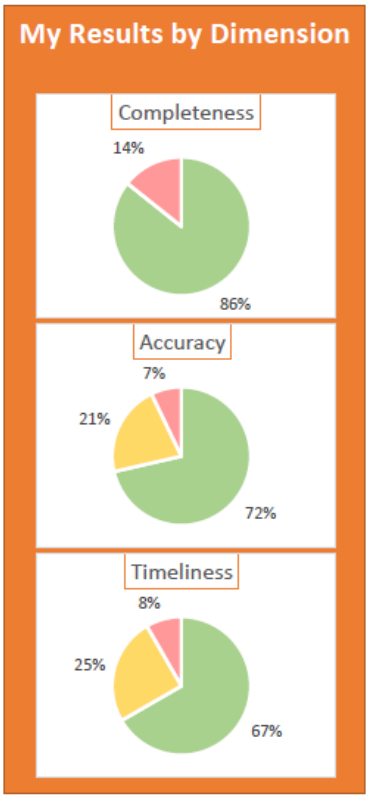
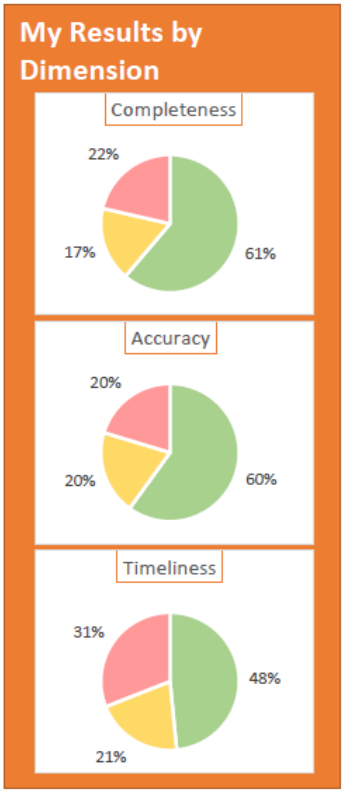
Crash records are collected and the information entered into NZTA's CAS system. This information is then used to review trends in crash rates at a network level as well at the project level when identifying or reviewing accident black spots. This information can then be summarised in RAMM (or transferred into a proprietary GIS system) that can assist in displaying trends or inter-relationships between various data sets.

Traffic count information collected and stored in RAMM is to be used in the following aspects of road asset management:

- Strategic transport planning
- Assignment of network hierarchies
- Risk management and the development of criticality plans
- Pavement deterioration modelling (dTIMS)
- Pavement and surfacing design
- Network safety analysis and design
- Total transport costs, road user costs and BCR analysis.

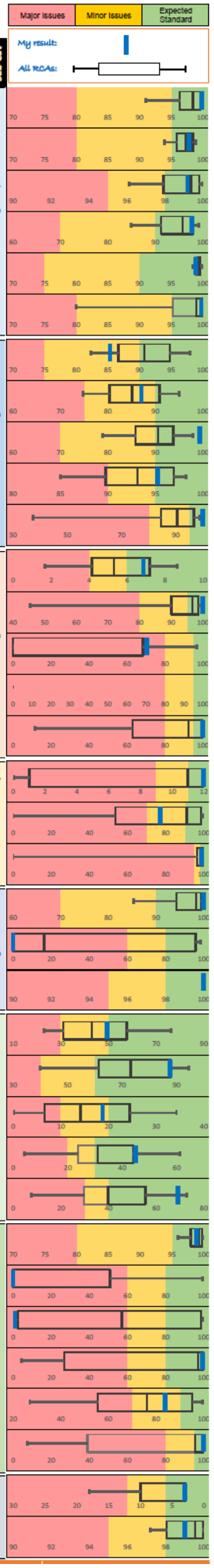
13.4.2.2. Data Quality

The Roading Efficiency Group have been producing RCA Data Quality Reports for the past three years now. The summary Results for Whakatane are shown below for 2014/15, 2016/17, and benchmarked against all RCA's for 2016/17. Full result for 2016/17 are on the next page.

Whakatane 2014/15	Whakatane 2016/17	All RCAs 2016/17
		
		

Road Controlling Authority	Whakatane District

Category	Sub-Cat	PM Influenced/ Affected	Ref[1]	Metric Descriptions	Type	My Metric Result	Trend[4]	Sub-Cat
Network	Carriageway	Safety, Amenity, Cost Efficiency	Ca1a[2]	**Rural number of lanes matches width** Percentage of Rural sealed network length with alignment between carriageway width and no. of lanes (No. lanes=1 & width<6m, No. lanes=2 & width>4m or <17m, No lanes>2 & width>9m) (excludes pavement type 'Bridge')	Completeness	99.9	▪	Carriageway
			Ca1b[2]	**Urban number of lanes matches width** Percentage of Urban sealed network length with alignment between carriageway width and no. of lanes (No. lanes=1 & width<6m, No. lanes=2 & width>4m or <17m, No lanes>2 & width>9m) (excludes pavement type 'Bridge')	Completeness	97.7	▪	
			Ca2	**ONRC categories are assigned** Proportion of carriageway section records with an assigned ONRC category (where road type = "L" and owner type "L") (excludes pavement type 'Bridge')	Completeness	99.2	▪	
			Ca3a[2]	**Rural carriageways are generally not short** Proportion of Rural sealed carriageway records greater than 50m in length (ie. not short) (excludes pavement type 'Bridge')	Accuracy	97.7	▪	
			Ca3b[2]	**Urban carriageways are generally not short** Proportion of Urban sealed carriageway records greater than 20m in length (ie not short) (excludes pavement type 'Bridge')	Accuracy	98.9	▪	
			Ca4	**Sealed/unsealed network correctly defined** Percentage of sealed network length with a surface record, or unsealed network with no surface record. (excludes pavement type 'Bridge')	Accuracy	99.7	New	
	Treatment Length	Amenity	TL1a	**Treatment Lengths are generally not short** Proportion of sealed Treatment Length records that are not very short (<20m Urban and 100m Rural) (excludes disabled TLs and pavement type 'Bridge')	Accuracy	85.3	▪	Treatment Length
			TL1b	**Treatment Lengths are not too long** Proportion of sealed Treatment Length records (excludes disabled TLs) that are not exceptionally long (>500m Urban and 1km Rural) (excludes disabled TLs and pavement type 'Bridge')	Accuracy	87.0	▪	
			TL2	**Treatment Lengths match major surfaces** Proportion of Treatment Length records with >= 80% coverage of the major surfacing (excludes disabled TLs and pavement type 'Bridge')	Accuracy	99.3	▪	
			TL4	**Network with STE reading** Proportion of sealed Treatment Length records with a Smooth Travel Exposure (STE) value (excludes disabled TLs and pavement type 'Bridge')	Completeness	95.3	▪	
			TL5.1	**Treatment Lengths match renewals** Proportion of Treatment Length records with >=80% coverage of the major surfacing with a surface date in the reported financial year (excludes disabled TLs and pavement type 'Bridge')	Timeliness	100.0	⬆	
Inventory	Surfacing	Cost Efficiency	Su1	**Last years' renewals as recorded in RAMM** Percentage of sealed network length surfaced and entered into RAMM for the reported financial year (excludes pavement type 'Bridge')	Timeliness	6.9	⬆	Surfacing
			Su2	**Surface records correctly located** Proportion of surface records loaded in reported financial year that are within the limits of the road and have a width no more than 2m wider than the carriageway width (excludes pavement type 'Bridge')	Accuracy	100.0	▪	
			Su3	**Surface records with original cost** Proportion of surface records with a surface date greater than 30 June 2016 with a cost recorded (excludes pavement type 'Bridge')	Completeness	70.3		
			Su4[3]	**Surface records with works origin** Proportion of surface records with a surface date greater than 30 June 2016 with a works origin/category recorded (excludes pavement type 'Bridge')	Completeness	0.0		
			Su5	**Surface records newer than pavement** Percentage of top surface length newer than underlying pavement layers in the last 3.5 years (excludes pavement type 'Bridge')	Completeness	100.0	▪	
Maintenance Activity	Maintenance Activity	Cost Efficiency	MA1	**Complete maintenance activity** Number months with at least one pavement (PA) or surfacing (SU) cost group record on sealed network in reported financial year	Timeliness	12	⬆	Maintenance Activity
			MA2	**Correctly located maintenance activity** Proportion of pavement (PA) and surfacing (SU) cost group records recorded at appropriate location on sealed network (Proportion of records not at the start of the road)	Accuracy	77.1	⬇	
			MA4	**Maintenance activity has a valid location** Proportion of pavement (PA) and surfacing (SU) cost group records on sealed network for the reported financial year located within the extents of the road as defined in the carriageway table	Accuracy	98.8	▪	
Condition	Roughness	Amenity	Ro1	**Roughness survey within 2.5 years** Percentage of sealed network length with a latest roughness reading less than 2.5 years old (from 30 June of reported financial year) (excludes pavement type 'Bridge')	Timeliness	99.9	▪	Roughness
			Ro2	**HSD Roughness survey within 2.5 years** Percentage of the sealed network length with latest HSD roughness data less than 2.5 years old (from 30 June of reported financial year) (excludes pavement type 'Bridge')	Accuracy	0.0	⬇	
			Ro3	**Roughness data has valid location** All latest roughness readings located within the extents of the road as defined in the carriageway table (excludes pavement type 'Bridge')	Accuracy	100.0	New	
Demand/Use	Traffic Count	Amenity, Cost Efficiency	TC1	**Well targeted traffic count programme** Proportion of sealed network VKT with latest traffic count less than 5 years old (from 30 June of reported financial year) (excludes pavement type 'Bridge')	Timeliness	49.4	⬆	Traffic Count
			TC2	**Historic count data coverage** Proportion of sealed network VKT with traffic count records (excludes pavement type 'Bridge')	Completeness	87.7	▪	
			TC3	**Traffic count programme activity** Proportion of sealed network VKT with traffic count record with a count date in reported financial year (excludes pavement type 'Bridge')	Timeliness	18.8	⬆	
			TC4	**Traffic loading understood** Proportion of network VKT with classified traffic count records less than 5 years old (from 30 June of reported financial year) (excludes pavement type 'Bridge')	Accuracy	45.0	New	
			TC5	**Historic traffic loading coverage** Proportion of network VKT with classified traffic count records (excludes pavement type 'Bridge')	Accuracy	69.0	New	
	Traffic Estimates	Amenity, Cost Efficiency	TE1	**Network has traffic estimates** Proportion of sealed carriageway records having a traffic estimate (excludes pavement type 'Bridge')	Completeness	98.9	▪	Traffic Estimates
			TE2a[2]	**Traffic estimates are maintained (High Volume to Arterial)** Proportion of traffic estimate records less than 1 year old on sealed High Volume, National, Regional and Arterial network (from 30 June of reported financial year) (excludes pavement type 'Bridge')	Timeliness	0.0	▪	
			TE2b[2]	**Traffic estimates are maintained (Primary and Secondary Collectors)** Proportion of traffic estimate records less than 3 years old on sealed Primary and Secondary Collector network (from 30 June of reported financial year) (excludes pavement type 'Bridge')	Timeliness	0.9	▪	
			TE2c[2]	**Traffic estimates are maintained (Access including Low Volume)** Proportion of traffic estimate records less than 5 years old on sealed Access including Low Volume Access network (from 30 June of reported financial year) (excludes pavement type 'Bridge')	Timeliness	99.5	▪	
			TE3	**Traffic estimates updated following counts** Proportion of estimate records newer than count records (excludes pavement type 'Bridge')	Accuracy	83.8	▪	
			TE4	**Considered traffic loading** Proportion of traffic estimate records with a loading estimate (ie not a default) (excludes pavement type 'Bridge')	Accuracy	99.8	New	
Crash	Crash Data	Safety	Cr1	**Crash data is recent** Age (in months) of crash data in terms of time difference between RAMM date_added field and date loaded to the PMRT	Timeliness	3	▪	Crash Data
			Cr2	**Crash records with valid location** Proportion of crash records located within the extents of the road for the five year period up to the end of the reported financial year	Accuracy	99.0	▪	



Whakatane have been using this information to drive data improvement which shows a pleasing improving trend over time. Whakatane's data quality is generally much better than the average for all RCAs. Further improvements have been delivered since the 2016/17 report was run. Specifically:

- Treatment lengths have been reviewed addressing measures TL1a and TL1b.
- Traffic estimates have been updated addressing measures TE2a and TE2b.

Further improvements will be addressed through the next 12 months including:

- Surface records will be updated with original costs – Su3
- Surface records will be updated with works origin – Su4
- Processes for recording maintenance activity will be reviewed to ensure correct locations are recorded – MA2.
- High Speed Data collection program will commence – Ro2.

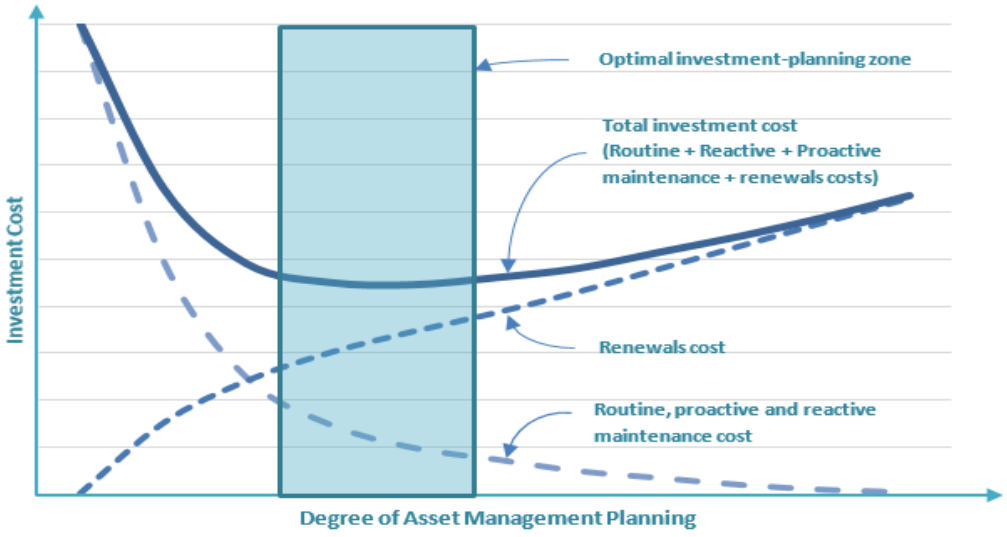
13.4.3. Operations and Maintenance

Physical works to sustain the asset is broken down into 3 sub-areas as outlined in the following table:

Maintenance Categories

Routine (General) Maintenance	Routine maintenance is the regular on-going 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:
Proactive	Proactive inspection and maintenance works planned to prevent asset failure.
Reactive	Reactive action to correct asset malfunctions and failures on an as required basis.

A key element of asset management planning is determining the most cost-effective blend of planned and unplanned maintenance as illustrated in the following figure:



13.4.4. Renewal Works

Council will adopt the IDS NZ dTIMS (dTIMS) system to undertake network level studies of road pavement and surfacing renewal and as an annual, first-cut, planning system for further on-site investigation to develop its Forward Works Programme. Council will not be using the RAMM Treatment selection algorithm.

dTIMS includes several analysis techniques to assist with identify cost-effective renewal option aimed at achieving service level targets for the least life cycle cost:

Trigger Model: Cause work to be programmed when condition limits are reached – suboptimal i.e. not necessarily the least life cycle cost approach.

Optimal Model: Cause work to be selected when it is the least life cycle cost over a 30-year analysis period for an allowable budget provision. Requires cross-checking to ensure the budget provision is sufficient to meet target service levels. This approach uses an objective to achieve target performance across a range of indicators.

Committed Model: Provides an analysis to verify the a defined programme of work will meet target service levels.

For the other assets that are replaced as part of proactive maintenance, lifecycle analysis is completed.

Focus is on progressive replacement of individual assets that have reached the end of their useful service life. Required levels of expenditure on the asset replacement programme will vary from year to year, and will reflect:

- The condition /performance profile of the assets with respect to required LoS and resilience.
- The ongoing reactive maintenance demand and hence reactive maintenance cost.

Renewal or replacement of an asset is focussed on restoring the asset to an equivalent performance capability. Renewal need is assessed in terms of the level of service provided, asset condition and a comparison between the ongoing maintenance costs and the costs of renewal. When renewing or replacing an asset, we will strive to comply with industry best practice. In general, and where appropriate, Council:

- Evaluates all other alternatives to confirm the need is justified
- Uses an optimized decision-making process for evaluating costs and benefits
- Ensures construction of the asset meets all relevant standards and specifications
- Ensures that acquiring the asset will serve to minimise lifecycle costs
- Ensures the asset will provide specified, satisfactory levels of service.

The timing of renewal is set to balance:

- The most economic time for replacement (as identified by detailed desktop analysis i.e. dTIMS).
- The least disruptive time or most opportune time. In some cases, upgrading or other significant works may be planned for the area. In these instances, deferred renewal and continued maintenance for the short-term may be proposed. Similarly, opportunities to undertake other works in the area may be identified which can be coordinated with the renewal works.

13.4.5. Development Works

Development works includes 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, customer expectations, or improved resilience. These works are either Council initiated or developer initiated.

Council recognises asset development and asset renewal can occur simultaneously to increase the performance capability of the existing asset. Development works may be in

response to customer expectation of increased level of service, growth or other increased demand on the asset, or for statutory, legal or environmental reasons.

Table 8: Development Work Categories

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

13.4.5.1. Benefit Cost Ratio (BCR)

Where development works projects, such as realignments or pavement smoothing, require justification or prioritisation based upon a BCR calculation, then the latest version of the NZTA Simplified Procedures and project economic evaluation software is used.

Where several options are evaluated, the calculated BCR for each, can assist in ranking and comparing these with other social and environmental considerations.

13.4.5.2. Net Present Value (NPV)

Comparison of projects based on Council cost savings is undertaken using a net present value analysis approach. With pavement projects, this approach requires future maintenance cost information relating to the various options being evaluated based upon historical trends, either at the project level or from a generic maintenance cost curve developed at a network level. Once the basis of the future maintenance costs for the project has been derived, then the options' comparison is undertaken through a relatively simple spreadsheet analysis.

13.4.5.3. Multi-Criteria Analysis (MCA)

Within the road sector land transport activity area, there is the opportunity to use MCA to rank options that are not easily quantified in terms of dollar values. Such situations are likely to arise where the road project will potentially have the following impacts:

- Long-term environmental degradation
- Non-renewable resource consumption
- Long-term community/social disruption
- Loss of amenity values
- Loss of historical or cultural values.

The comparison or ranking of several road-related project options across economic, social, cultural and environmental assessment criteria, especially in sensitive situations where a narrow economic focus would not result in the most acceptable outcome, will enable a more balanced approach to the management of the road asset.

The application of MCA also permits optimised decision making to be undertaken across a range of assets where it is necessary for Council to prioritise investment at a strategic level and to ensure that the management input and financial allocations are appropriately targeted.

Although there has been limited application of this tool within the land transportation sector, one example of its application has been the risk assessment process that has been undertaken and the development of the risk register. Opportunities to further extend the application of this technique across other Council assets exist.

13.4.6. *Disposal*

Once an asset becomes uneconomical to maintain or replace, the Council may dispose of it. For transport, renewal or upgrade will often consume the original asset (e.g. pavement resurfacing consumes the existing surface).

Where assets are not consumed in the renewal or upgrade process, Council's processes for considering the disposal/retirement of assets comply with industry best practice.

The process considers the following:

- Under utilisation
- Obsolescence
- Undeveloped (e.g. paper roads)
- Provision exceeds required level of service
- Assets replaced before its predicted economic life
- Uneconomic to upgrade or operate
- Policy changes
- Service provided by other means (e.g. private sector involvement)
- Potential risk of ownership (financial, environmental, legal, social, vandalism).

Council has no plans, at this time, to dispose of any transportation assets.

13.5. Transportation Planning

Several key issues require further investigation, collection of evidence, and assessment of options. To properly address these issues they will be progressed as standalone business cases outside of this business case AMP. These are detailed below.

13.5.1. *Whakatane Urban Arterial & Access*

The town has been experiencing congestion and delays on the arterial network from growth and development. To date a strategic case has been prepared focusing on the State Highway 30 and Landing Rd bridge and roundabout. The reality is that the entire urban arterial network is struggling with capacity and needs to be considered in its entirety to ensure solutions are robust and will not simply move the chock points elsewhere. Council will be re-scoping the strategic case and problem statements to encompass the entire urban arterial network.

The Programme Business Case will progress through year 1 of the LTP. A traffic model will also be developed to inform timing and effectiveness of proposed interventions.

13.5.2. *Whakatane Coastal Arterial Route*

The route features out of context alignment, substandard intersections and an unforgiving roadside environment not suitable for its arterial status. It has an important function with respect to network resilience as the alternative route for State Highway 2 which is regularly impacted by flooding and slips.

The Coastal Arterial Route Study was completed in 2011. This corridor study looked at the existing infrastructure and performance, considered growth, identified a fit-for-purpose standard, and recommended a range of improvements to meet that standard. To date a number of the low cost high impact improvements have been undertaken. Resilience improvements have also been completed to address flooding issues.

Recently the Safe Roads Alliance has been developing a business case for the route between Ohope and Opotiki, which includes Wainui Rd, a part of the Coastal Arterial route.

The proposed programme business case is to update the Coastal Arterial Route Study with more recent information, incorporate the outcomes from the Safe Roads Alliance work and present it in the form of a programme business case to support a programme of improvement works.

This will be completed in year 2 of the LTP with improvement works undertaken in years 4 to 10 of the LTP.

13.5.3. Whakatane Walking & Cycling

Whakatane has a high fatal and serious crash rate for vulnerable users on urban arterial and collector roads. Residential growth on the western side of the river will lead to increased pressure on the urban arterial access into town unless suitable infrastructure supporting mode choice is developed. An ageing population will see an increased demand for mobility scooters and e-bikes access. Shifting government attitudes and policy towards walking and cycling over time has resulted in an ad-hoc, dis-jointed development of these facilities. The facilities developed are good, but linkage is poor. Opportunities exist for shifting car users onto a different mode to relieve pressure on the arterial network and in the cycle tourism space.

The current WDC Walking and Cycling Strategy was completed in 2007, and latest implementation plan in 2013. Both are out of date with current policy, opportunities and issues.

Whakatane will be developing a new Walking and Cycling strategy to meet the requirements of a strategic case before July 2018. The proposed programme business case in year 1 of the LTP will develop an updated programme of projects to deliver on the strategic case. The majority of these projects will be delivered through the low cost low risk programme.

13.5.4. Whakatane Southern Transport Links

The shortest and quickest route from Whakatane through to the central North Island and all points south is via a local road route. This route is a primary collector and has 25km of unsealed pavements. It carries a significant volume of logging traffic and other HCV, and is our most expensive local road unsealed route to maintain.

The unsealed section of this route also links the two main bridge access points to Galatea which accesses around 200km^2 of dairy and forestry. Both of these bridges fail the screening for (the new) class 1 and 50max.

To date a point of entry conversation and memo have been produced. A strategic case will be developed during year 1 of the LTP. The programme business case is proposed for year 2 of the LTP with improvement works undertaken years 4 to 10 of the LTP.

13.5.5. Te Urewera Rainforest Route

This route provides the primary access to Te Urewera. It is mountainous country and 15km of this primary collector route through to the main settlement of Ruatahuna is unsealed. The unsealed section of road is the most expensive to maintain in the District.

WDC, NZTA and Tuhoe are currently working in partnership on a strategic business case addressing the merits and benefits of investing on that route. These benefits cross a diverse range of economic, social, cultural, environmental and health outcomes.

The proposed programme business case in year 1 will progress the strategic case to a programme of works proposed to be delivered through years 1 to 3 of the LTP. The indicative works costs are based on seal extension for the remaining 15km of unsealed route and may change depending on the outcomes of the strategic case.

13.5.6. Whakatane Network Resilience

The network is constantly subject to intense rainfall events generated in the tropics and these are expected to increase in intensity and frequency as a result of climate change. Access to many of the districts communities and key transport links is frequently severed.

To date the only body of work completed has focused around securing Wainui Rd as an alternative to State Highway 2. Further work is required to evaluate the impacts on the remainder of the network and establish whether a case exists for investment.

Subject to point of entry and a supportive strategic case, the programme business case will use NZTA Research Report 614 – Establishing the Value of Resilience, as a framework and benchmark any identified interventions against the resilience thresholds as defined in PIKB Assessment of Road Improvements to develop a programme of works for delivery beyond 2021.

13.6. Options Assessment

Option	Risks	ONRC Outcomes	Benefits Contributed to	Preferred
Asset Management				
Status Quo – Continue operating at current basic to intermediate level of asset management.	Increased levels of financial uncertainty with forecasts as network matures. Increasingly difficult to predict and deliver to target levels of service for given financial investment. Increasingly difficult to deliver and demonstrate optimised whole of life costing.	Safety – Negative Resilience – Negative Amenity – Negative Cost Efficiency – Negative	Nil	
Up the game – Invest in the knowledge, data collection and tools necessary to move towards an advanced level of asset management	Increased Asset management costs. Lower financial uncertainty. Lower performance risk. Lower political risk.	Safety – Positive Resilience – Positive Amenity – Positive Cost Efficiency - Positive	Core Investment Asset Management Road Safety Growth Travel Modes Resilience Unsealed Roads	✓

13.7. Preferred Programme of Works

Work Category	WDC Job Number	10 Year Programme									
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
LOC151 Network and Asset Management Other	T30265	$ 350,000	$ 350,000	$ 350,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000
LOC151 Network and Asset Management PSBU	T30266	$ 800,576	$ 800,576	$ 800,576	$ 800,576	$ 800,576	$ 800,576	$ 800,576	$ 800,576	$ 800,576	$ 800,576
SPR151 Network and Asset Management Other	T32262	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
SPR151 Network and Asset Management PSBU	T32263	$ 205,553	$ 205,553	$ 205,553	$ 205,553	$ 205,553	$ 205,553	$ 205,553	$ 205,553	$ 205,553	$ 205,553
NFA Network and Asset Management Other	T34153	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
NFA Network and Asset Management PSBU	T34168	$ 75,730	$ 75,730	$ 75,730	$ 75,730	$ 75,730	$ 75,730	$ 75,730	$ 75,730	$ 75,730	$ 75,730
LOC002 Transportation Model	T36001	$ 100,000					$ 100,000				
LOC003 Acitivity Management Planning - Urban Access, Coastla Arterial, Freight Links, Seal Extensions, Resilience, W&C	T36XX1	$ 120,000	$ 80,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
Administration		$ 566,066	$ 566,066	$ 566,066	$ 566,066	$ 566,066	$ 566,066	$ 566,066	$ 566,066	$ 566,066	$ 566,066
Total		**$ 2,282,925**	**$ 2,142,925**	**$ 2,112,925**	**$ 2,212,925**	**$ 2,212,925**	**$ 2,312,925**	**$ 2,212,925**	**$ 2,212,925**	**$ 2,212,925**	**$ 2,212,925**

13.8. Improvement & Monitoring

- Review and modernise risk identification and management processes, and develop new risk register. Quantify risks financially and set targets for reducing level of exposure.
- Establish program to quantify pavement strength for each treatment length. This will provide significant improvements to the accuracy and reliability of the pavement model.
- Revise the Maintenance Intervention Strategy to target level of service delivery to ONRC measures.
- Modify inspections and auditing processes to accommodate information requirements for ONRC measure.
- Develop a pavement skid policy detailing how SCRIM data will be applied (Keep based in NZTA T/10 as considered best practice, but will need to balance affordability). Hardwire SCRIM TLs into RAMM.
- Monitoring of ONRC performance data should see network performance aligning with ONRC performance targets and measures over time.
- Develop a Network Operating Plan

14. Pavements

14.1. Overview

The objective of pavements is to provide for the safe, effective and efficient movement of vehicles around the network. Pavements consist of the following components:

- Formation. The Formation layer is essentially the natural ground material that the carriageway structure is formed upon. Formation is considered to have an indefinite life and is therefore not depreciated over time.
- Basecourse. The basecourse is the compacted granular material that sits above the formation. Basecourse has a much longer life, and therefore the renewals profiles vary differently to that of the surface materials.
- Top Surface. A durable all-weather skid resistant top layer that traffic runs on.

14.2. Key Issues

- Safety:
  - Fatal and serious crash numbers and trend on rural secondary collector roads.
  - Collective risk on rural and urban arterial roads.
  - Personal risk across the network but principally on rural secondary collector and access roads, and urban low volume.
  - High rate of loss of control crashes on rural secondary collector roads, and to a lesser extent rural secondary collector and arterial roads.
  - High rate of urban arterial intersection crashes, and to a lesser extent all primary and secondary collectors.
  - High rate of crashes featuring vulnerable users on urban arterials and primary collectors, and rural secondary collectors.
- Resilience:
  - The network is constantly subject to intense rainfall events generated in the tropics and these are expected to increase in intensity and frequency as a result of climate change.
- Amenity:
  - Smooth travel exposure and peak roughness are below target for arterial and primary collector roads, while the lower levels of hierarchy comfortably exceed targets.
  - Unsealed rural primary collector roads do not provide an acceptable level of service.
- Travel Time Reliability:
  - The urban arterial network is suffering congestion and delays.
- Cost Efficiency:
  - There is upward pressure into the future on resurfacing and rehabilitation quantities.
  - Unsealed rural primary collector roads are expensive to maintain impacting on ability to meet target levels of service across all of the unsealed network.

14.3. Link to Strategic case

Asset Group		1 Core Investment	2 Asset Management			3 Road Safety		4 Growth			5 Travel Modes			6 Resilience		7 Unsealed Roads		
		Appropriate levels of service delivered into the future at an appropriate level of investment	Stronger evidence base	Informed decision making	Value for money	Safer roads and roadsides	Reducing deaths and serious injuries	Congestion levels of service meet community expectations	Thriving, growing, economy	Satisfied community	Increase uptake of alternative modes of transport	Increased community and environmental health	Reduced pressure on primary modes	24/7 access to essential services	Improved route security	Improved environmental and health benefits	ONRC levels of service are met	Whole of life maintenance costs are reduced
Pavements	Maintenance	X				X	X							X	X	X	X	X
	Renewals	X				X	X							X	X			
	Improvements					X	X	X	X	X				X	X	X	X	X

14.4. Levels of Service & Desired Outcomes

14.4.1. WDC LTP

Goal	Performance Measure	Performance	
		Current Performance	Target
Provide safe and reliable local transport networks to enable efficient and affordable transportation of people and goods	Satisfaction with roads in your District, excluding state highways	84%	>80%
	Average quality of ride on a sealed local road network –Smooth Travel Exposure	92%	89 – 93%
	Percentage of sealed local road network that is resurfaced	6.7%	6 – 8% Annually
	Percentage of footpaths within the Whakatāne district that fall within the level of service or service standard for the condition of footpaths that is set out in the Activity Management Plans	100%	100% of qualifying footpath faults will be scheduled for repair
	Percentage of customer service requests relating to roads and footpaths responded to within timeframes specified in LTP	81%	100% of emergency requests within 2hrs
		100%	100% of urgent requests within 1 day
		100%	100% of non-urgent requests within 7 days

14.4.2. ONRC

ONRC Performance Measures				Target (2018-21)					WDC Performance (16/17)					WDC Trend					WDC Vs Peer Group Performance				
Outcome	No.	Measure		Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume
Safety	CO1	The number of fatal and serious injuries on the network.	Rural	Decreasing all classes					2	4	4	0	0	⇩	⇩	⇧	⇩	⇔	-	-	-	-	-
			Urban	Decreasing all classes					1	0	2	0	0	⇩	⇩	⇔	⇔	⇔	-	-	-	-	-
			Combined	Decreasing all classes					3	4	6	0	0	⇩	⇩	⇧	⇩	⇔	-	-	-	-	-
	CO2	Collective risk (fatal and serious injury rate per kilometre)	Rural	Decreasing all classes					0.043	0.016	0.018	0.004	0.000	-	-	-	-	-	0.094	0.032	0.013	0.005	0.002
			Urban	Decreasing all classes					0.184	0.078	0.019	0.010	0.003	-	-	-	-	-	0.169	0.070	0.038	0.013	0.007
			Combined	Decreasing all classes					0.081	0.022	0.018	0.005	0.001	-	-	-	-	-	0.123	0.044	0.018	0.006	0.003
	CO3	Personal risk (fatal and serious injury rate by traffic volume)	Rural	Decreasing all classes					4	8	12	11	0	-	-	-	-	-	6	7	9	12	15
			Urban	Decreasing all classes					6	5	4	6	10	-	-	-	-	-	6	6	9	9	21
			Combined	Decreasing all classes					5	6	9	10	6	-	-	-	-	-	6	6	9	10	18
	TO4	loss of control on wet roads	Rural	Decreasing all classes					1	2	5	0	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-
			Urban	Decreasing all classes					2	2	0	0	0	⇩	⇔	⇔	⇔	⇔	-	-	-	-	-
			Combined	Decreasing all classes					3	4	5	0	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-
	TO6	intersections	Rural	Decreasing all classes					0	1	3	0	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-
			Urban	Decreasing all classes					7	3	1	0	0	⇩	⇔	⇔	⇔	⇔	-	-	-	-	-
			Combined	Decreasing all classes					7	4	4	0	0	⇩	⇩	⇔	⇔	⇔	-	-	-	-	-
	TO7	hazardous faults	Rural	2 max	4 max	6 max	8 max	10 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Urban	1 max	2 max	3 max	3 max	4 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TO9	vulnerable users	Rural	Decreasing all classes					2	2	5	2	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-
			Urban	Decreasing all classes					7	4	3	1	1	⇩	⇔	⇔	⇔	⇔	-	-	-	-	-
			Combined	Decreasing all classes					9	6	8	3	1	⇩	⇔	⇔	⇔	⇔	-	-	-	-	-
Resilience	CO1	the number of journies impacted by unplanned events	Rural	Improving all classes					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Urban	Improving all classes					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	CO2	the number of instances where road access is lost	Rural	Improving all classes					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Urban	Improving all classes					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ONRC Performance Measures				Target (2018-21)					WDC Performance (16/17)					WDC Trend					WDC Vs Peer Group Performance				
Outcome	No.	Measure		Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume
Amenity	OM1	Smooth Travel Exposure (STE)	Rural	>93%	>93%	>93%	>93%	>93%	96%	97%	98%	96%	95%	⇔	⇔	⇔	⇔	⇔	91%	94%	94%	92%	89%
			Urban	>85%	>85%	>85%	>85%	>85%	80%	86%	95%	96%	98%	⇔	⇔	⇔	⇔	⇔	81%	84%	86%	86%	88%
	OM2	peak roughness (85%ile)	Rural	-	-	-	-	-	103	106	108	110	127	-	-	-	-	-	-	-	-	-	-
			Urban	-	-	-	-	-	121	123	122	126	120	-	-	-	-	-	-	-	-	-	-
	OM2	peak roughness (95%ile)	Rural	110	120	130	150	180	124	129	131	140	151	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-
			Urban	120	130	140	150	170	135	141	143	147	146	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-
	TO1	roughness of the road (median)	Rural	-	-	-	-	-	74	76	72	74	90	-	-	-	-	-	-	-	-	-	-
			Urban	-	-	-	-	-	82	91	89	91	90	-	-	-	-	-	-	-	-	-	-
		roughness of the road (average)	Rural	100	100	110	120	140	76	79	78	80	92	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-
			Urban	100	110	110	120	140	86	93	92	95	92	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-
Travel Time Reliab	CO1	throughput at indicator sites	Rural	>80% capacity < 1 hour/day					-	-	-	-	-	⇔	N/A	N/A	N/A	N/A	-	-	-	-	-
			Urban	>80% capacity < 1 hour/day						-	-	-	-	⇩	N/A	N/A	N/A	N/A	-	-	-	-	-

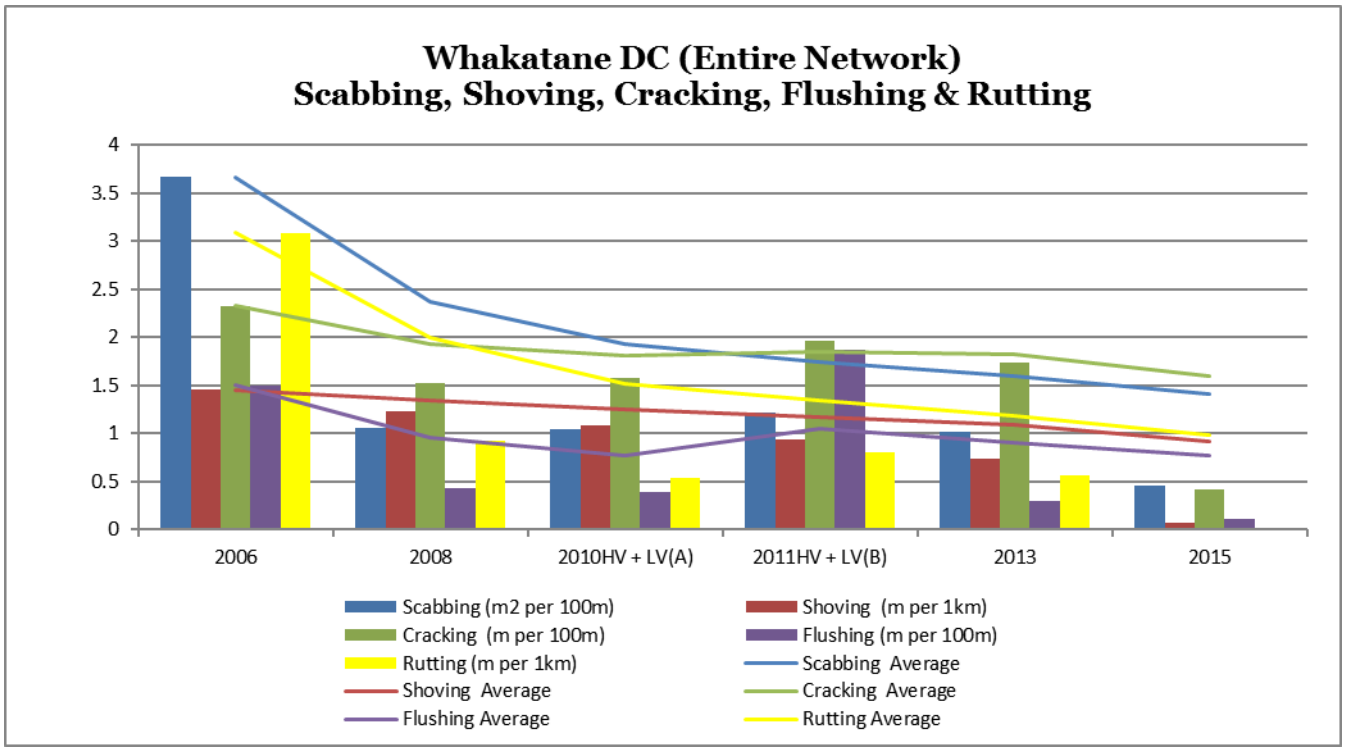
14.5. Evidence Base

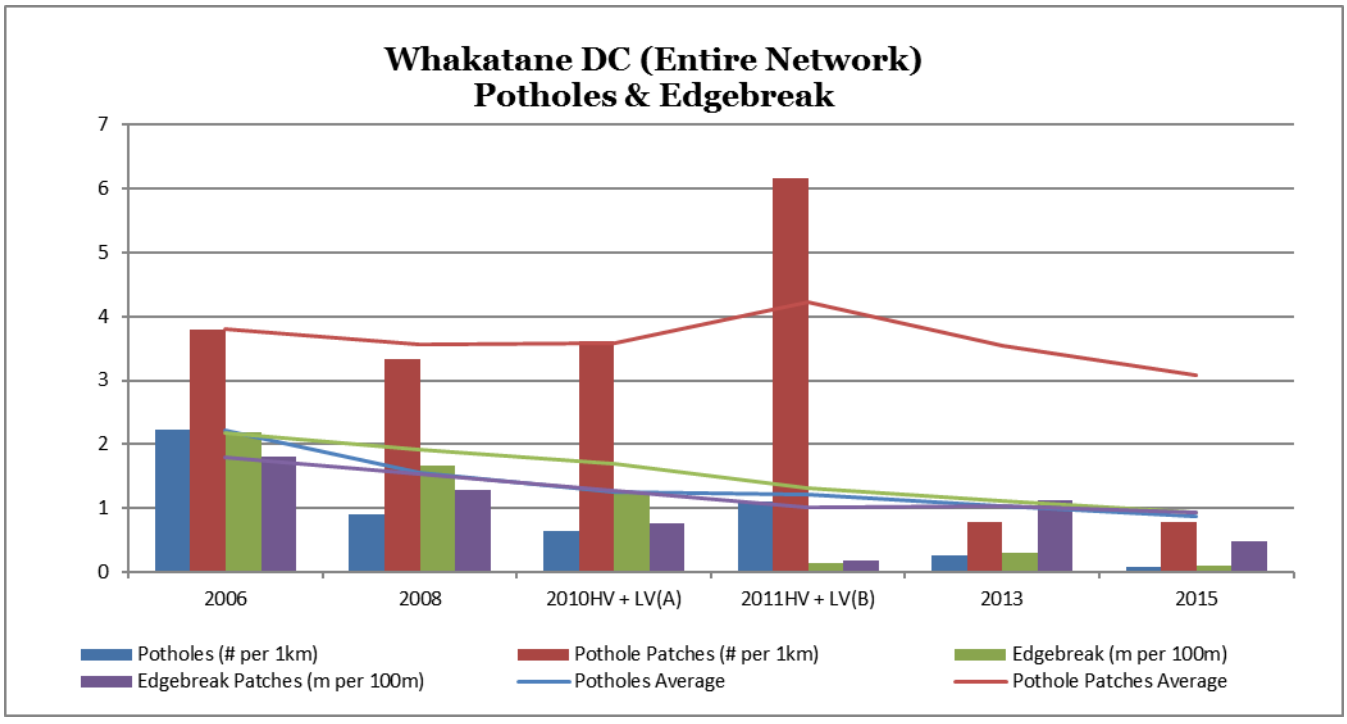
14.5.1. Pavement Assets

Assets by components, age, valuation

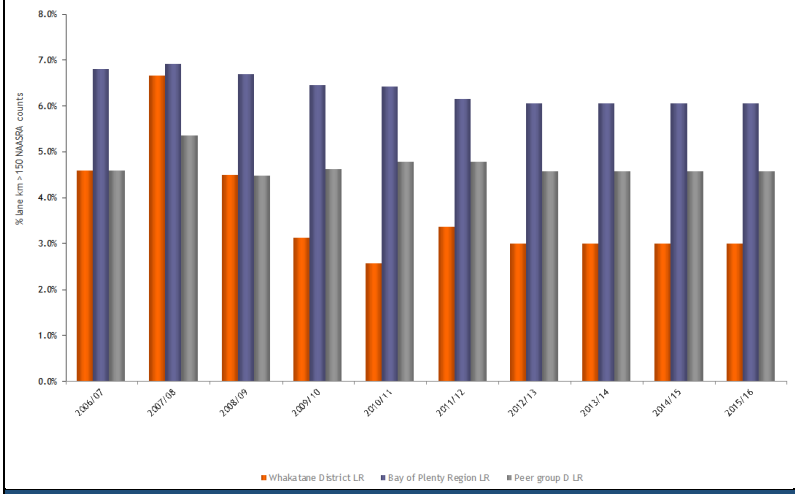
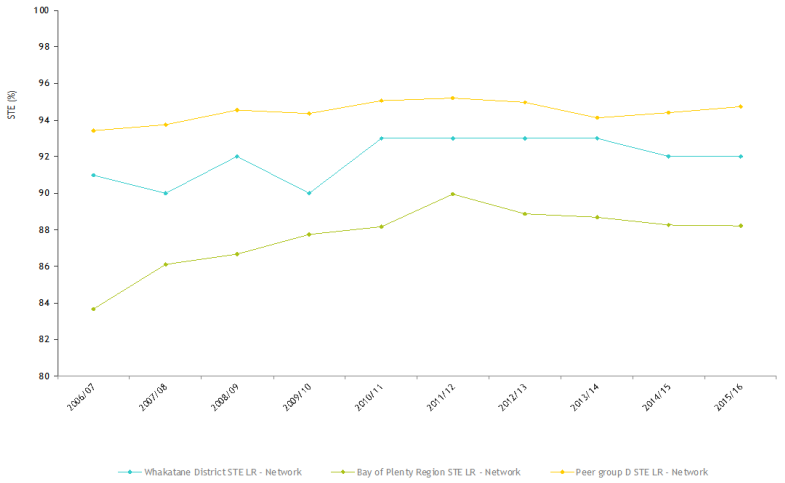
Component	Type	m2	RC	DRC	Ann DRC	base Life	Avg Age	Avg RUL
Formation		6077037	$67,757,203	$67,757,203	$0	N/A		
Sealed Pavements								
Basecourse	ADT < 100	525459	$13,227,359	$9,909,016	$126,069	90	30	60
	ADT 100-500	2671591	$67,251,817	$45,104,524	$721,094	80	34	46
	ADT 500-2000	1108088	$27,893,843	$11,010,840	$472,132	70	39	31
	ADT 2000-4000	446170	$11,231,414	$5,006,455	$189,355	60	34	26
	ADT 4000-1000	297869	$7,498,229	$2,877,210	$148,059	50	31	19
	ADT 10000-20000	47936	$1,206,683	$618,492	$17,251	40	41	-1
	Total	**5097113**	**$128,309,345**	**$74,526,537**	**$1,673,960**			
Top Surface	Chip Seal	4977777	$17,489,690	$9,256,910	$1,191,425	15	10	5
	AC	123715	$3,653,942	$1,445,750	$254,832	15	10	5
	Other Surfaces	4528	$246,640	$118,317	$5,434	40	16	24
	Total	**5106020**	**$21,390,272**	**$10,820,977**	**$1,451,691**			
Unsealed Pavements								
Basecourse	ADT < 100	756945	-	-	-	22	-	-
	ADT 100-500	219723	-	-	-	22	-	-
	Total	**976668**	**$0**	**$0**	**$0**			
Wearing Course	ADT < 100	756945	$11,261,362	$2,889,929	$506,405	4	-	-
	ADT 100-500	219723	$3,268,897	$822,870	$146,525	3	-	-
	Total	**976668**	**$14,530,259**	**$3,712,799**	**$652,930**			

14.5.2. Condition Rating data

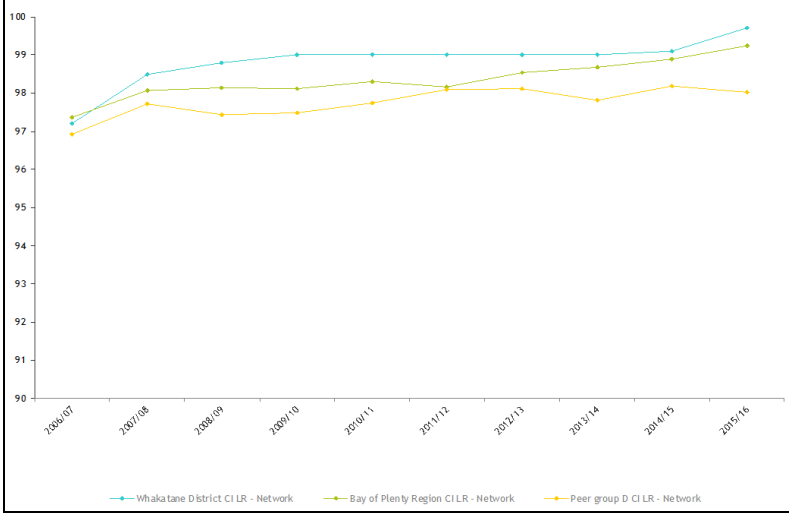




14.5.3. Condition Indicies

Roughness (% lane km > 150 NAASRA)	
	After a period of improvement this indicator has been steady for the last 7 years. Whakatane (orange) compares favourably against the region and peers.
Smooth Travel Exposure	
	This indicator has been relatively steady over the past 10 years. Whakatane (blue) is just below the peer group but above the region.

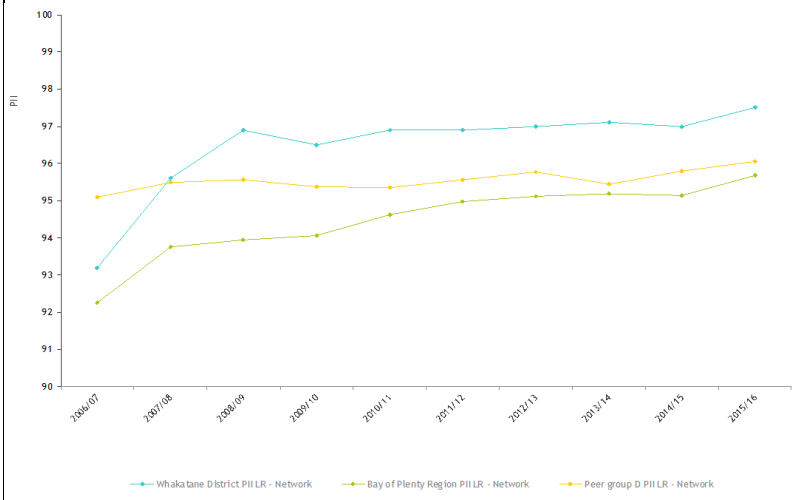
Condition Index



This indicator has been steady to slightly improving over the past ten years. This has been through a period when resurfacing cycles have been stretched from an average life of 12 years to 15 years. This indicates that the extended seal lives is not resulting in increasing surface faults.

Whakatane is just above the peer group and the region.

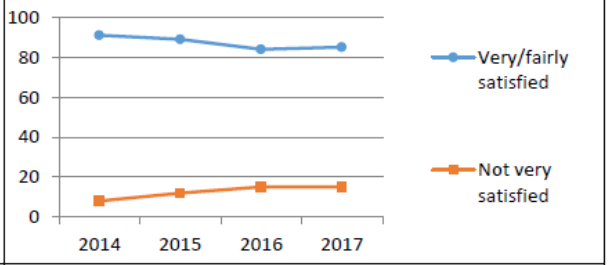
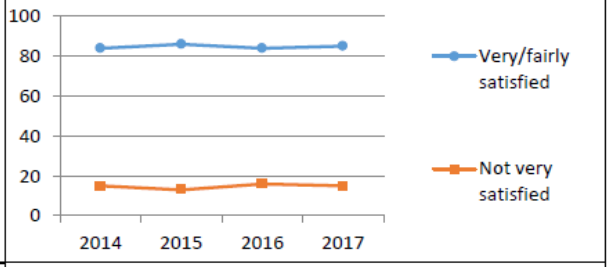
Pavement Integrity Index



After a period of improvement this indicator has been steady for the last 7 years. Over this period WDC have been including a heavy maintenance and reseal option in the npv analysis for rehabs which has resulted in fewer rehabs. To date this approach has not resulted in an increase in structural pavement faults.

Whakatane is just above the peer group and the region.

14.5.4. Communitrak survey

Service/facility	Result (%)	2014	2015	2016	2017	Graph of results 2014-2017
Satisfaction with Council roads overall (full sample)	*Very/fairly satisfied*	91	89	84	85	
	Not very satisfied	8	12	15	15	
Satisfaction with safety of Council roads (full sample)	*Very/fairly satisfied*	84	86	84	85	
	Not very satisfied	15	13	16	15	

14.5.5. Demand

Overall network demand in terms of vehicle kilometres travelled (VKT) by classification at 2015/16:

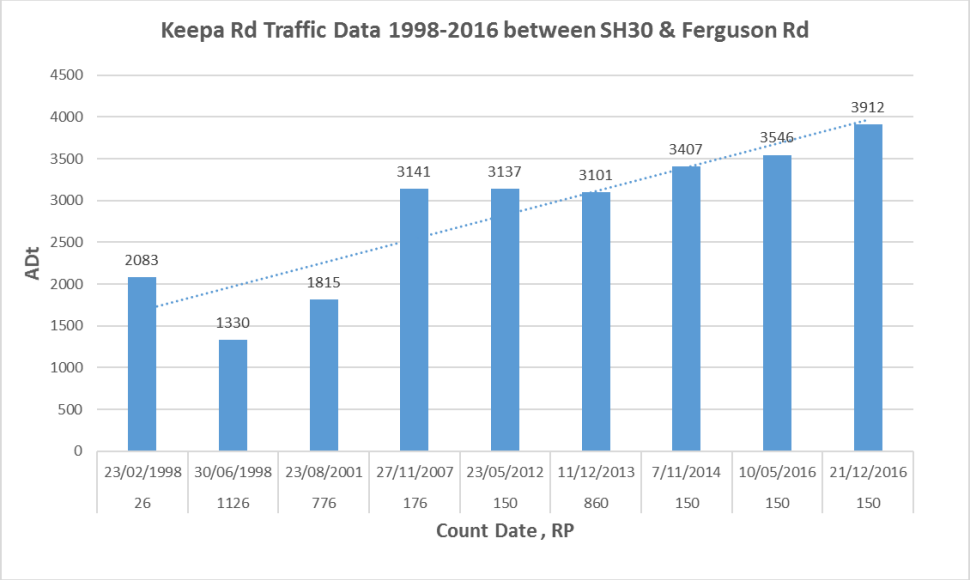
Carriageway	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Total
Total VKT (000,0000)	87.3	64	43.9	18.2	2.1	215.6
VKT (%)	40%	30%	20%	8%	1%	100%
Sealed VKT (000,0000)	87.3	61.9	43.9	15.6	1.5	210.1
Unsealed VKT (000,0000)	0.0	2.2	0.0	2.7	0.6	5.4
Urban VKT (000,0000)	37.4	26.7	16.2	5.9	1.4	87.5
Rural VKT (000,0000)	49.9	37.3	27.8	12.4	0.7	128.1
HCV VKT (000,0000)	3.8	3.5	2.7	1.2	0.1	11.3
HCV %	4.4%	5.5%	6.2%	6.6%	4.8%	5.2%

Over the past ten years, which includes the global financial crises, traffic has grown from 194M VKT in 2006/07 to 216M VKT in 2015/16. This represents a modest 1% annual growth overall.

14.5.5.1. Urban demand

The areas with highest traffic growth have been driven by residential development west of the Whakatane River in the Coastlands and Piripai areas. Developments underway or in the pipeline combined with current pressures on availability of residential land are likely to see this growth accelerate over the next 10 years.

This has seen an annual growth rate on Keepa Rd of over 4.5% year on year for the past 20 years. Keepa Rd now qualifies for classification as a rural arterial road and requires some investment to remain fit for purpose.



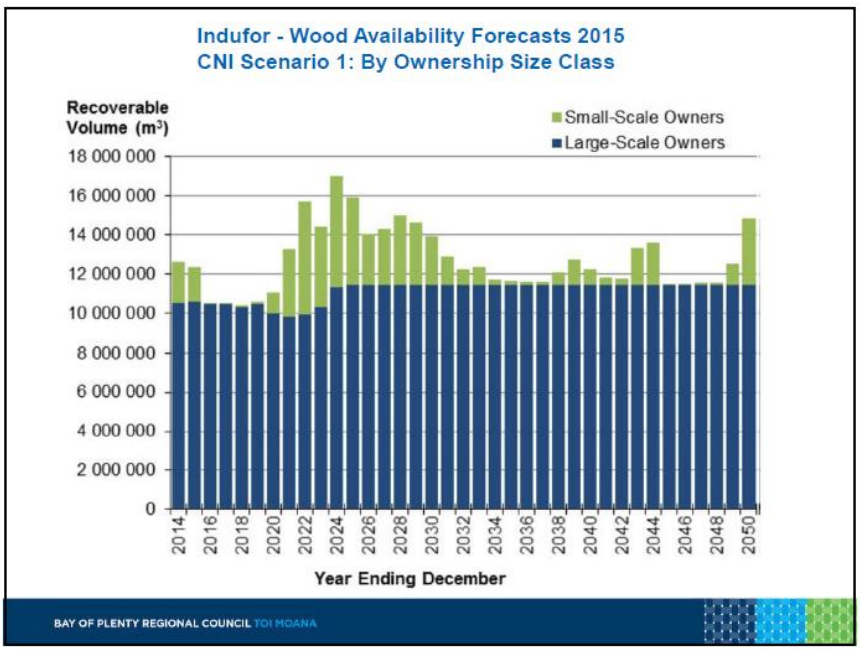
Bunyan Rd East also now qualifies for a change in classification from rural low volume to urban secondary collector.

The local roads urban arterial network and State Highway 30 link into town are now experiencing congestion and delays during peak traffic periods. This issue is being explored and addressed through the Whakatane Urban Arterials and Access business case.

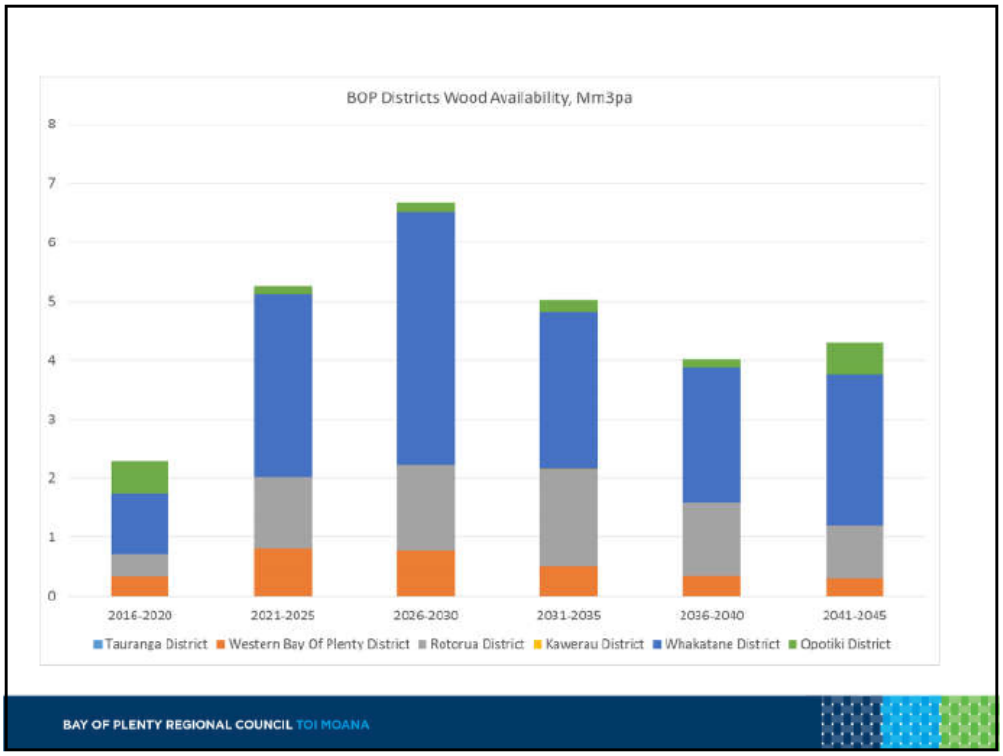
14.5.5.2. Rural Demand

Rural demand is driven by primary production including dairy, forest and horticulture and associated uptake in demand for HPMV access.

Over the next 15 years forestry production is forecast to increase. While there is a forecast drop in output from large scale forests, this is more than compensated for by an increase from small scale owners:



Large scale forests tend to have a well-developed network of internal roads that lead to railheads, timber processing facilities or access the state highway with minimal impact on local roading (Pokairoa Rd and Ngamotu Rds are the exception). By contrast many of the small scale forests tend to require access to the local roading network to make their journey to market, contributing to a significant impact on the low volume rural roading network. Many of these small scale owners are within the Whakatane District, contributing to approximately a 400% increase in wood availability from 2016 to 2030:



Council staff already work with forest owners to identify harvesting plans and develop strategies to manage the impacts.

Enhanced data collection and pavement modelling tools will be vital to forecast and manage the impacts from increased forestry output and the general uptake of HPMV.

14.6. Life Cycle Management

14.6.1. Operation & Maintenance

Routine pavement maintenance of the network is built around the programming, inspection and auditing activities of Council's PSBU staff. These include:

- Pavement Repair Program. This is an annual program that focusses on structural pavement and surfacing repairs for the sealed network. The primary guiding document for this program is the Maintenance Intervention Strategy which defines the priority, timing, repair type and dimension guidelines for each treatment length. The MIS requires updating to reflect the level of service differentiation across the ONRC hierarchy. The primary focus is first cut of repair work for the following years resurfacing sites. The repair types driven by this program include stabilisation, dig out and replace, rip and remake, crack sealing, rut filling, low shoulder and associated drainage improvements where this

has been a factor. RAMM contractor is used to develop and manage delivery of the program, and to record maintenance costs in RAMM.

- Routine Inspections. These are undertaken at various frequencies across the network from weekly to 3 monthly depending on road hierarchy and vulnerability. They are also undertaken in response to community feedback. These inspections are used to provide direction and focus to the road maintenance contractor's cyclic operations including the cyclic patrol truck (potholes, edgebreak, detritus, litter, incident response, etc) and grading of unsealed roads.

- Auditing. Auditing is undertaken monthly and covers 10% of the network. It is used to assess contractor performance and provide a snapshot of network performance. This is useful for monitoring the effectiveness and adequacy of work programs over time. Auditing processes require updating to enable reporting against the full range of ONRC performance measures.

The quantity or demand for repairs in any given year is influenced by a range of factors which are important to manage to minimise exposure to future maintenance cost increases. These include:

- Many pavements are thin/weak and rely on consolidated subgrade to perform. High ground water following periods of substantial rain can make these pavements vulnerable to heavy traffic. It is vital that functioning water table drains are maintained to adequate depth to minimise impacts on these pavements.

- Many pavements consist of basecourse material that does not meet the requirements of NZTA M/4. These materials can perform ok when dry, but most are moisture sensitive so when moisture is allowed in through a surface that has lost its water proofing, or water table drains are not maintained, they fail very quickly.

- The current drive to maximise surfacing life increases the risk that the optimal date for resealing is missed and unnecessary repairs result. It is important that pavements with aged or vulnerable surfaces are regularly monitored for signs of failure and addressed quickly.

- Rutting and or shoving tends to feature in the outer wheel track where there is no shoulder to speak of. Maintaining water table drains reduces the rate of rutting. Where pavement repairs are effected (rather than rut filling) consideration should be given to constructing additional pavement width alongside the repair. The trend for rutting and shoving appears stable and under control from condition rating data, but this does not accord with general network observation. Once the highspeed data program commences it will be possible to monitor and measure this indicator more accurately.

- Maintaining the correct crossfall on unsealed roads and utilising moisture and compaction to extend grading cycles and minimise occurance of potholes.

There is currently no deferred maintenance. Annual maintenance requirements are steady. All condition and performance indicators are steady and are either meeting target or trending towards target. Costs for sealed and unsealed pavement maintenance are at the lower end of the band on a cost/km and cost/vkt basis when compared to other provincial centres. Current funding levels appear appropriate.

14.6.2. Renewals

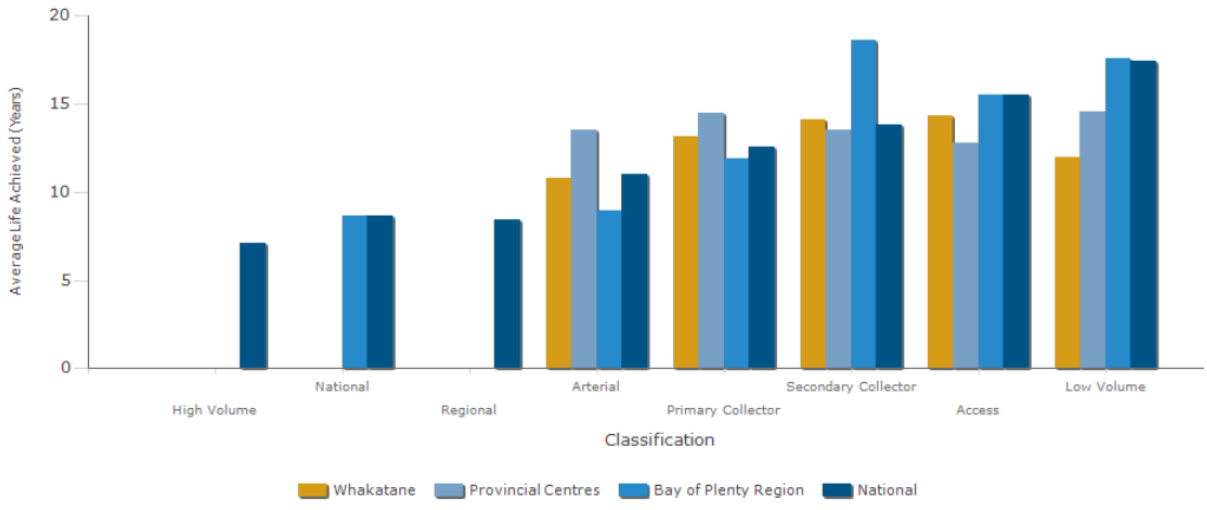
14.6.2.1. Resurfacing

In the past the resurfacing programme has been developed from desktop RAMM database interrogation followed by field verification/validation. It relied extensively on the experience and network knowledge of an experienced practitioner. Good results have been achieved with respect to costs and seal life achieved to date in comparison with peers (figures below), but to bring further efficiency, address current issues and meet the emerging challenges ahead requires a modern approach.

Chipseal resurfacing average life achieved, four year average to 2017/18

The overall network average life achieved for chip seals on the Whakatane network is 15.2 years. Whakatane outperforms other provincial centres and the region over all classifications except arterials. This lower result was driven by a SCRIM survey undertaken in 2014 on the rural arterial network which identified several out of context corners with chip polishing issues that have since been addressed.

Asphalt resurfacing average life achieved, four year average to 2016/17



Asphalt performance is on par with other provincial centres and the region except for low volume which is below. This result relates mainly to cul-de-sac heads which were all surfaced with slurry when it was in vogue some years ago. Slurry is recorded as a form of asphalt in RAMM. Many of these sites failed after 9 to 10 years and have been resurfaced with a DG7 or AC10 asphalt mix which should provide a surface life of up to 20 years.

From 2018 the resurfacing program will be developed from a combination of pavement modelling outputs from dTims and prioritised sites from the SCRIM exception report. The resulting program will be verified/validated in the field utilising Juno viewer as a decision support tool.

Council will develop a skid resistance management policy to provide guidance around the use and application of SCRIM data. This will likely take the form of NZTA T/10 with some additional limitations around affordability.

This new approach is expected to deliver a number of benefits including:

- A reduction in loss of control type crashes, which are over represented on the Whakatane network.
- Optimising whole of life costs.
- Allowing informed decisions around trade-offs between cost and condition.
- Providing assurance that the level of investment is sustainable and appropriate.

Treatment selection typically follows guidance from the Chip Sealing in New Zealand handbook. Further guidance and considerations for the Whakatane network includes:

- High traffic volumes on urban arterials are at limits of chip seal design. Landing, Domain, McAlister proposed for asphalt surfacing in future.
- Low volume urban cul-de-sac heads require asphalt to cope with modern service vehicle stresses, for example 4 axle rubbish trucks which will tear up a chip seal on a cul de sac.
- Resurfacing cycles are likely to shorten in the future as the number of seal layers on the network increases.

There is currently no deferred resurfacing. Annual resurfacing requirements are steady. All condition and performance indicators are steady and are either meeting target or trending towards target. Costs for resurfacing are at the lower end of the band on a cost/km and cost/vkt basis when compared to our peer group. Current resurfacing quantities appear appropriate.

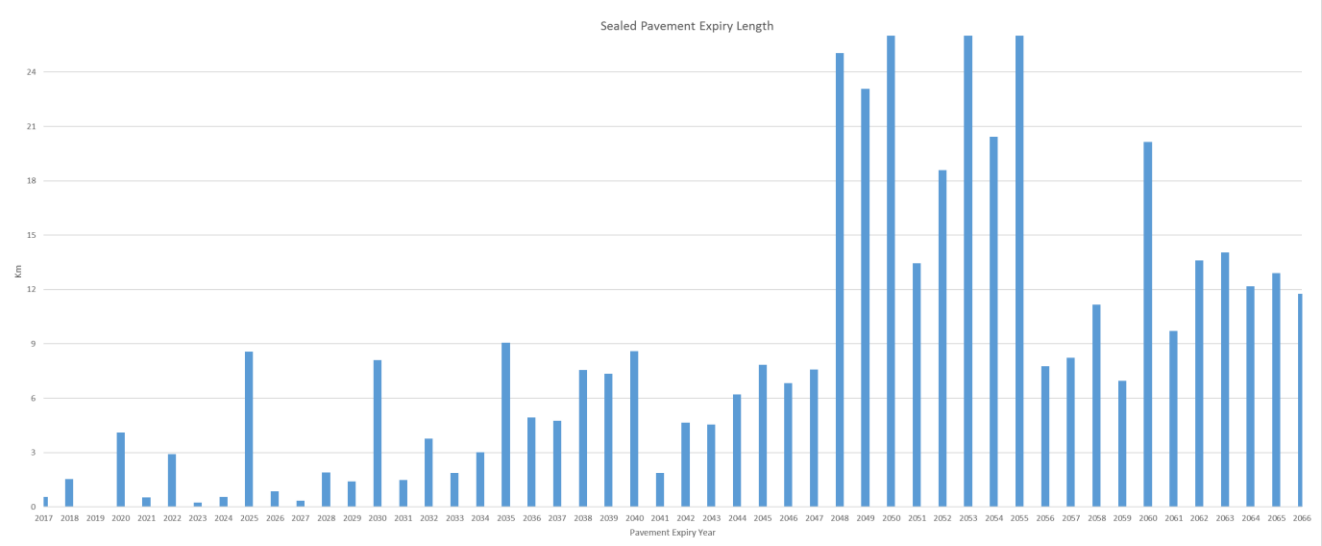
The current 3 year resurfacing contract expires at the end of the 2017/18 season. Market conditions at the time the current contract was procured resulted in a significantly discounted tender price. Those market conditions no longer exist. Within the region contracting resource is stretched and expected to remain that way for the foreseeable future. As such an increased allocation has been requested to allow for an expected increase in tender price.

14.6.2.2. Pavement Rehabilitation

Pavement rehabilitation on this network is primarily driven by either a change in heavy vehicle loading or the pavement and subgrade becoming saturated for an extended period, and sometimes a combination of both. Examples include dairy farm conversions, forestry harvesting operations from a new block, carting rock for river and flood protection works and repairs. Saturated pavements and subgrades can be the result of the exceptionally wet winters we get every 6 years or so, or poor drainage maintenance. This mode of failure is relatively sudden and makes it difficult to accurately forecast a reliable rehabilitation programme more than a few years out.

A secondary driver for pavement rehabilitation (recycling) is unstable seal layers. This is likely to become a more significant driver over time as the network ages and seal layers accumulate. A few of these sites are starting to appear in the FWP now.

The Whakatane network is relatively young, with an average pavement age of 30 years. Pavement life estimates range from 40 years for pavement use 6 (ADT 10000 – 20000) up to 90 years for pavement use 1 (ADT < 100). The implications of this are that many of the pavements are only part way through their useful life. As the network matures we could potentially see a significant increase in pavement renewal requirements. A pavement renewals forecast based on expected life was developed for the 30-year infrastructure strategy (see figure below). The first 10 years (2018-2028) the rehab rate is 1.9km per annum (0.27%). The second 10 years (20258-2038) the rehab rate is 2.9km per annum (0.41%). The final 10 years (2038-2048) the rehab rate is 6.7km per annum (0.95%). The rehab rate once the network matures is 11.7km per annum (1.67%).



High speed data collection and pavement modelling utilising dTims is expected to deliver a number of benefits including:

- Optimising whole of life costs.
- Allowing informed decisions around trade-offs between cost and condition.
- Providing assurance that the level of investment is sustainable and appropriate.

Pavement rehabilitation is only pursued when it demonstrably is the lowest whole of life NPV option. A minimum of three options are assessed and must include do minimum (ongoing maintenance), do something (typically heavy maintenance and reseal), and do rehabilitation.

This approach has been utilised over the past 6 years and resulted in a number of sites where the selected option was do something. This strategy has appeared to be successful with most sites performing better than or as expected. It would be useful to quantify maintenance costs at these sites and compare them to those forecast for the NPV analysis to help refine NPV analysis on future sites.

When rehabilitating roads, all drainage deficiencies including standard culverts are rectified and road widths are brought up to the appropriate road standard for those contained in the Engineering Code of Practice.

There is currently no deferred pavement rehabilitation. Annual rehabilitation requirements are steady. All condition and performance indicators are steady and are either meeting target

or trending towards target. Costs for rehabilitation are at the lower end of the band on a cost/km and cost/vkt basis when compared to our peer group. Proposed rehabilitation quantities appear appropriate.

14.6.2.3. Unsealed Road Metaling

The unsealed road metaling program is built around the programming, inspection and auditing activities of Council's PSBU staff, supplemented by feedback from the network maintenance contract grader driver. The program is entered and managed in RAMM FWP. The program attempts to cover long treatment lengths of similarly performing pavement to minimise cost per kilometre, but this is tensioned by the requirement to respond to smaller lengths and isolated sections which for whatever reason have failed.

The majority of Whakatane's unsealed roads are on good subgrades of weathered sedimentary rock or pumice. Those roads that are not subject to logging or other HCV use perform well with just a wearing course over a consolidated subgrade.

Council try to maintain regular communication with forest owners and operators around their harvesting plans to program unsealed pavement strengthening works and other improvements prior to the commencement of harvesting. Harvesting decisions are often made around current timber prices and exchange rates and often have very short lead times which can place considerable pressure on budget allocations. Council have been successful with obtaining contributions from operators towards any improvements required which helps offset these pressures.

Council have a local specification for unsealed basecourse aggregates that provides for lower cost locally sourced brown rock and river run aggregates. River run aggregates typically require basic processing either through a portable primary crusher, or spread and milled insitu to achieve the right size and broken faces.

Council also have a local wearing course specification based on the ARRB Unsealed Roads manual called Country Roads All Passing 30mm (CRAP30). This has proven to be the best material for providing a durable long lasting wearing surface with the lowest maintenance costs. Fully compliant material is only available from a few sources and can prove to be pricy for longer haul lengths.

Alternative wearing course materials have been experimented with. Two of which show promise:

- Local brown rock. Some sections of brown rock, particularly along the special purpose road through Ruatahuna, have very similar properties to CRAP30 when broken out, spread on the road, and smashed under a grid roller. This process has been used extensively along this route to good effect.

- River run aggregate. Recent trials spreading river run and milling in to the existing pavement to generate the fines required to bind the surface using a special pulverising mill has shown promise. The success of this option has been largely related to the skills and experience of the construction crew. It is likely to be further utilised in the future.

Other options such as polymer additives, eva glue, and cement/lime stabilising have also been trialled. Ultimately these have all proved either uneconomic, ineffective or environmentally unacceptable.

There are two main challenges affecting this activity:

- There are 61km of unsealed primary collector. These make up 29% of the network, but consume 45% of the budget. Two program business cases are being progressed through the 0218-21 LTP that will investigate the feasibility of seal extension, amongst other

options. These are the Te Urewera Rainforest Route, and the Whakatane Southern Transport Links

- Increasing levels of forest harvesting into the foreseeable future. Additional funding is being sought to assist in managing the impacts.

Whakatane is the third most expensive for unsealed road metaling when compare to other provincial centres. A large part of this can be attributed to the unsealed primary collector routes which have cost on average over the previous 5 years $3,728/km/yr. The unsealed low volume and access roads have cost on average $2,095/km/yr, which would place Whakatane mid-pack with respect to other provincial centres.

14.6.3. Improvements

Improvement works are proposed to address identified level of service gaps where planning interventions, demand management and maximising use of the existing network cannot address the gaps on their own. Projects are either supported by this BCA Activity Management Plan, or an external business case. Projects are described below in detail for years 1 to 3 (2018-21) where this BCA AMP provides the support, and summary only for years 4 to 10 (2021-2028) or where an external business case provides the support. Projects are grouped by business case.

14.6.3.1. WDC BCA Activity Management Plan

Bridge St / Awatapu Dr Roundabout Reconstruction	
Project Background	This roundabout is due for resurfacing and drainage renewals but suffers from a number of deficiencies including: • Poor shape and drainage resulting in regular flooding and severance of access. • Low deflection angles on entry and exit encourages high speeds combined with poor visibility on intersecting roads. • It is on a busy walking and cycling route between residential areas and schools. It is poorly laid out for pedestrians and high speeds as above are a safety issue. • It is on a route providing access to the industrial area at the south end of town and is problematic for HCV to traverse. • The roundabout requires raising approximately 0.5m to close the last low point in Whakatane's urban flood protection.
Project Solution	Redesign and reconstruct roundabout
Benefits Contribution	Road Safety; Travel Modes; Resilience
Estimate	$300k
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2019/20

Bunyan Rd East Reconstruction	
Project Background	This is a rural low volume road that provides sole access to the area known as Piripai. This area is going through a rapid urbanisation which will provide around 700 dwellings in the mid-term. The road will become an urban secondary collector. Storm water runoff form the road will need to be collected and disposed in manner that does not cause nuisance to private properties. This development will add further to the current congestion at the SH30 Whakatane River bridge. It will be important to have well established walking and cycling links into town to provide viable alternative modes and avoid "locking in" private cars as the only option.
Project Solution	Reconstruct Bunyan Rd East to urban secondary collector standard. Including a soft engineering approach to managing road stormwater.
Benefits Contribution	Growth; Travel Modes
Estimate	$950k
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2019/20

Awahou Rd Resilience Improvements	
Project Background	The Ruatoki valley is served by Reid Rd, a primary collector road. It is regularly impacted over significant lengths by flooding from the Whakatane River – typically once or twice annually. Awahou Rd provides an alternative route, but it is also affected by the same events. Securing Awahou Rd is a much lower cost option as only a short length is impacted.
Project Solution	Raise the affected section of Awahou Rd above 1 in 50 flood levels to provide secure access to the Ruatoki valley.
Benefits Contribution	Resilience
Estimate	$200k
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2019/21

Te Whaiti & Ruatahuna SP Rd Guardrail Improvements	
Project Background	Whakatane has high and very high levels of personal risk on the remote parts of the District served by collector roads. Crashes feature a high portion of loss of control type crashes. The route though Ruatahuna and on to Waikaremoana is mountainous and tortuous. The road is narrow, with blind corners and very high unprotected drops. This road is part of a promoted tourist route (Te Urewera Rainforest Route) and tourism is growing, especially for remote adventurous destinations off the beaten track. The current social crash cost on this route exceeds $1M per annum and is likely to grow with increased tourist numbers.
Project Solution	Guardrail construction to address the highest priority areas where 85% of the crashes occur.
Benefits Contribution	Road Safety
Estimate	$500k/yr over 3 years
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2018-21

Matahi Valley & Waikaremoana SP Roads Geometric Improvements	
Project Background	Whakatane has high and very high levels of personal risk on the remote parts of the District served by collector roads. Crashes feature a high portion of loss of control type crashes. The special purpose roads are mountainous and tortuous. The roads are narrow, with blind corners and very high unprotected drops. Waikaremoana road in particular is part of a promoted tourist route (Te Urewera Rainforest Route) and tourism is growing, especially for remote adventurous destinations off the beaten track. These roads are unlikely to be subject to seal extension in the near to mid term.
Project Solution	Sight benching and formation width improvements to allow traffic to safely pass in opposite directions, reducing the potential for loss of control type crashes and associated fatal or severe outcomes.
Benefits Contribution	Road Safety
Estimate	$200k/yr over next 3 years; $100k/yr for the following 7 years
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2018-21; 2021-28

14.6.3.2. Whakatane Urban Arterial & Access Business Case

Urban Arterial Capacity Improvements	
Estimate	$2,500k
Work Category	324 Road Improvements
Project Timing	2019-21

14.6.3.3. Whakatane Coastal Arterial Business Case

Gorge Rd /Ohope Rd Intersection Improvement	
Estimate	$250k
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2020/21
Thornton Rd / Blueberry Curves West Realignment	
Estimate	$1,000k
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2021/22
Wainui Rd / Te Kooti Corner Realignment	
Estimate	$700k
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2022/23
Wainui Rd / Harrison Rd Intersection Improvements	
Estimate	$400k
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2022/23
Thornton Rd / Smith Rd Curves West Realignment	
Estimate	$800k
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2023/24
Thornton Rd / Blueberry Curves East Realignment	
Estimate	$1,000k
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2024/25
Wainui Rd / Burma Rd, Paparoa Rd, Burke Rd Intersection Improvements	
Estimate	$1,150k
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2025/26
Thornton Rd / East Bank, Thornton Hall Rd Intersection Improvements	
Estimate	$500k
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2026/27
Wainui Rd / Stanley Rd Intersection Improvements	
Estimate	$400k
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2026/27

Thornton Rd / Pollen St, Greig Rd, Smith Rd, Walker Rd Intersection Improvements	
Estimate	$550k
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2027/28
Thornton Rd / Smith Rd Curves East Realignment	
Estimate	$600k
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2027/28

14.6.3.4. Te Urewera Rainforest Route Business Case

Ruatahuna SP Rd Seal Extension	
Estimate	$4,500k
Work Category	325 Seal Extensions
Project Timing	2018-21

14.6.3.5. Whakatane Southern Transport Links Business Case

Pokairoa & Ngamotu Rd Seal Extension	
Estimate	$7,500k
Work Category	325 Seal Extensions
Project Timing	2021-26

14.6.4. Asset Acquisition

Asset acquisition typically involves a developer investing assets constructed during development of sub divisions with the Council. The WDC Engineering Code of Practice sets out the policies and procedures for this process to ensure assets are constructed to the required standard and all relevant data is transferred and entered into RAMM.

Subdivisions currently underway or in the planning process that will result in assets being transferred to WDC include:

- Shaw Rd
- Bunyan Rd East Piripai Block
- Keepa Rd / SH 30 Corner
- Bunyan Rd East – Multiple

No allowance has been made in maintenance budgets for new assets in this RLTP round. The quantities of assets potentially being acquired are small in relation to the whole network, and new assets should require little to no maintenance. Budget adjustments will be made at each new RLTP period as assets are acquired.

14.6.5. Asset Disposal

There are no plans to dispose of any roads within the Whakatāne District.

14.7. Options Assessment

Option	Risks	ONRC Outcomes	Benefits Contributed to	Preferred
Operations & Maintenance				
Reduce Investment	Increases risks of asset failure. Reduced useful life. Increasing future maintenance cost risk	Safety – negative Resilience – negative Amenity – negative Cost efficiency - positive short term, negative long term	Nil	
Proposed Program	Neutral. Balances risk with cost	Safety – positive Resilience – positive Amenity – positive Cost efficiency – positive	Core Investment Road Safety Resilience Unsealed Roads	✓
Enhanced Investment	Reduces available funds for other investment priorities	Safety – positive Resilience – positive Amenity – positive Cost efficiency - negative	Road Safety Resilience Unsealed Roads	
Renewals				
Reduce Investment - complete fewer renewals	Increases risks of asset failure. Reduced useful life. Increasing future maintenance cost risk	Safety – negative Resilience – negative Amenity – negative Cost efficiency - positive short term, negative long term	Nil	
Proposed Program	Neutral. Balances risk with cost	Safety – positive Resilience – positive Amenity – positive Cost Efficiency - positive	Core Investment Road Safety Resilience Unsealed Rds	✓
Enhanced Investment - complete expanded programme of renewals	Reduces available funds for other investment priorities.	Safety – Positive Resilience – Resilience Amenity – Positive Cost Efficiency - negative	Road Safety Resilience Unsealed Rds	
Improvements (For projects supported by this BCA AMP only)				
Reconstruct Bridge/Awatapu Roundabout	Reduces safety risk for all mode users, Removes barriers to uptake of active modes, Provides Whakatane with an appropriate level of flood protection.	Safety – positive Resilience – positive	Road Safety Travel Modes Resilience	✓
Resurface Bridge/Awatapu Roundabout only	Safety risks will increase as traffic volumes grow, Level of flood protection lower than it could be.	Safety – negative Resilience – neutral	Nil	

Option	Risks	ONRC Outcomes	Benefits Contributed to	Preferred
Reconstruct Bunyan Rd East	Removes barrier to growth, Reduces safety risk for all mode users, Supports uptake of active modes	Safety – positive Travel Time Reliability – positive Cost Efficiency – short term negative, long term positive	Road safety Growth Travel Modes	✓
Maintain Bunyan Rd East only	Safety risk increases as traffic volumes grow, Locks residents into private motor vehicles as the only viable mode choice. Increases congestion on SH30/urban arterial access to town.	Safety – negative Travel Time Reliability – negative Cost Efficiency – short term positive, long term negative	Nil	
Improve Awahou Rd resilience	Reduces frequency and cost risk of unplanned loss of access	Resilience – positive	Resilience	✓
Maintain Awahou Rd only	Frequency and cost risk increases over time as intense rainfall events get more common under climate change	Resilience - negative	Nil	
Construct guardrail on Te Whaiti & Ruatahuna Rds	Significantly reduced severity for loss of control crashes	Safety – positive	Road Safety	✓
No new guardrail	Increased numbers of crashes with severe and fatal outcomes as traffic volumes grow	Safety - negative	Nil	
Construct geometric improvements and sight benching on Waikaremoana & Matahi Valley Rds	Reduced severity and frequency of loss of control crashes	Safety – positive	Road safety	✓
No geometric improvements	Increase numbers of crashes with severe and fatal outcomes as traffic volumes grow	Safety - negative	Nil	

14.8. Preferred Programme of Works

Work Category	WDC Job Number	10 Year Programme									
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
LOC111 Sealed Pavement Maintenance RMC	T30251	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000	$ 750,000
LOC111 Sealed Pavement Maintenance RSC	T30252	$ 225,000	$ 225,000	$ 225,000	$ 225,000	$ 225,000	$ 225,000	$ 225,000	$ 225,000	$ 225,000	$ 225,000
LOC112 Unsealed Pavement Maintenance RMC	T30253	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000
LOC121 Environmntal Maintenance RMC	T30259	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000	$ 165,000
LOC211 Unsealed Road Metalling RMC	T31437	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
LOC212 Sealed Road Resurfacing Chip Seal	T31438	$ 1,800,000	$ 1,800,000	$ 1,800,000	$ 1,800,000	$ 1,800,000	$ 1,800,000	$ 1,800,000	$ 1,800,000	$ 1,800,000	$ 1,800,000
LOC212 Sealed Road Resurfacing TAC	T31439	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000	$ 400,000
LOC214 Sealed Road Pavement Rehabilitation	T31442	$ 914,000	$ 914,000	$ 914,000	$ 914,000	$ 914,000	$ 914,000	$ 914,000	$ 914,000	$ 914,000	$ 914,000
LOC324 Road Improvements - Landing Road RAB	T31448	$ 200,000	$ 200,000	$ 2,300,000							
LOC341 LCLR Roading Improvements - Carriageways	T31455	$ 950,000	$ 300,000	$ 450,000	$ 1,000,000	$ 1,100,000	$ 800,000	$ 1,000,000	$ 1,150,000	$ 900,000	$ 1,150,000
SPR111 Sealed Pavement Maintenance RMC	T32251	$ 80,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000
SPR111 Sealed Pavement Maintenance RSC	T32252	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
SPR112 Unsealed Pavement Maintenance RMC	T32253	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000	$ 70,000
SPR121 Environmntal Maintenance RMC	T32258	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
SPR211 Unsealed Road Metalling RMC	T33437	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
SPR212 Sealed Road Resurfacing	T33438	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000
SPR325 Seal Extension	T33444	$ 1,500,000	$ 1,500,000	$ 1,500,000							
SPR341 LCLR Roading Improvements - Carriageways	T33445	$ 200,000	$ 200,000	$ 200,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
NFA - Bunyan Road Seal Extension	T35219	$ 550,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NFA - Cemetery Road Sealing	T35220	$ 15,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total		**$ 8,889,000**	**$ 7,674,000**	**$ 9,924,000**	**$ 6,574,000**	**$ 6,674,000**	**$ 6,374,000**	**$ 6,574,000**	**$ 6,724,000**	**$ 6,474,000**	**$ 6,724,000**

14.9. Improvement & Monitoring

- Establish program to quantify pavement strength for each treatment length. This will provide significant improvements to the accuracy and reliability of the pavement model.
- Revise the Maintenance Intervention Strategy to target level of service delivery to ONRC measures.
- Develop a schedule and inspection regime for old and vulnerable surfacings.

15. Bridges

15.1. Overview

The purpose of road bridges and culverts is to provide continuous all-weather road access over rivers and streams. Underpasses have also been constructed to allow the safe movement of livestock from one side of the road to the other.

15.2. Key Issues

Some of the key issues that affect bridge assets are:

- Access to the Galatea Plains area is via one of three bridges. None of these bridges are certified for 50max, and all are posted below class 1. The Galatea area has significant dairy and forestry operations. These three bridges require structural assessment to determine their capacity with respect to 50 Max and the new 46t/47t class 1 requirements. If improvements or replacements are required to enable 50Max access then this will have implications for the Whakatane Southern Transport Links business case. Options for improvements to the three bridges to enable 50max access will be assessed and considered within that business case.

- Many of the water courses in the Galatea area are aggrading with large volumes of aggregate being washed out of the ranges and being deposited on the plains. This is reducing the waterway area on a number of bridges. Combined with more frequent and intense rain events existing waterways are not adequate and bridge approaches have been damaged regularly severing access.

- A number of culverts on key links throughout the district are under capacity for storm flows. When these are overtopped it often severs access and damages roading assets. These will require replacement with large box culverts or bridges.

- Within the 30 year strategic view, the number of bridge replacements based on anticipated useful life is climbing rapidly. However, anecdotal evidence is suggesting that lifespans of concrete bridges may be well in excess of assumed lives.

- There is ongoing demand from farm owners for the installation of stock underpasses. WDC contribute to these in accordance with NZTA policy. Ownership and maintenance responsibility remains with the land owner.

15.3. Link to Strategic case

Asset Group		1 Core Investment	2 Asset Management			3 Road Safety		4 Growth			5 Travel Modes			6 Resilience		7 Unsealed Roads		
		Appropriate levels of service delivered into the future at an appropriate level of investment	Stronger evidence base	Informed decision making	Value for money	Safer roads and roadsides	Reducing deaths and serious injuries	Congestion levels of service meet community expectations	Thriving, growing, economy	Satisfied community	Increase uptake of alternative modes of transport	Increased community and environmental health	Reduced pressure on primary modes	24/7 access to essential services	Improved route security	Improved environmental and health benefits	ONRC levels of service are met	Whole of life maintenance costs are reduced
Bridges	Maintenance	X												X	X			
	Renewals	X												X	X			
	Improvements								X	X				X	X			

15.4. Levels of Service & Desired Outcomes

15.4.1. ONRC

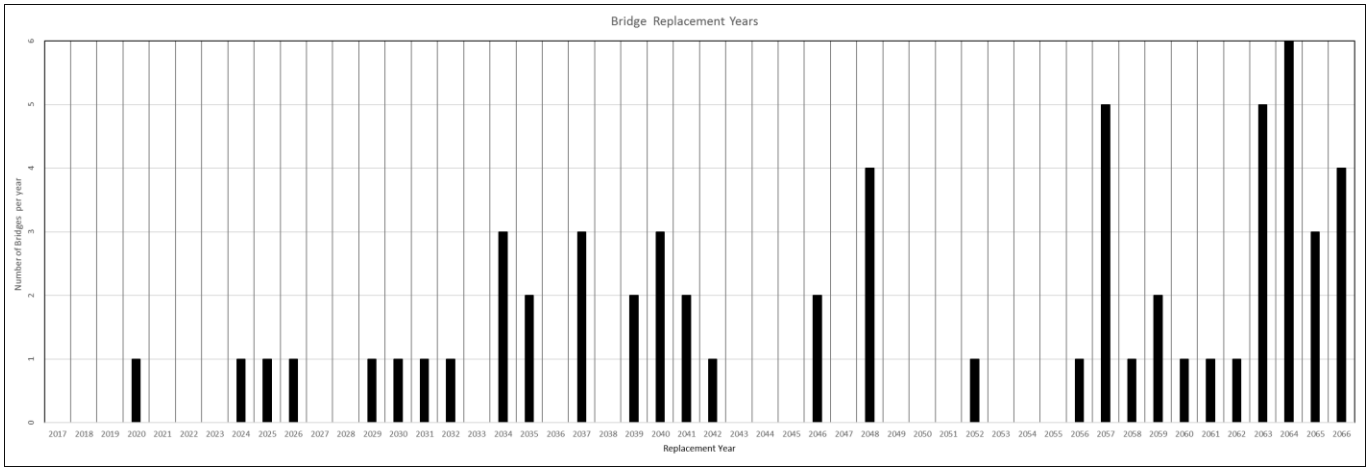
ONRC Performance Measures				Target (2018-21)					WDC Performance (16/17)					WDC Trend					WDC Vs Peer Group Performance				
Outcome	No.	Measure		Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume
Resilience	CO1	the number of journies impacted by unplanned events	Rural	Improving all classes					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Urban	Improving all classes					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	CO2	the number of instances where road access is lost	Rural	Improving all classes					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Urban	Improving all classes					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accessibility	CO1	proportion of network not available to Class 1 heavy vehicles	Combined	0%	0%	0%	2%	3%	0%	35%	16%	26%	3%	-	-	-	-	-	-	-	-	-	-
		proportion of network not available to 50MAX vehicles	Combined	0%	0%	0%	2%	3%	0%	35%	16%	26%	3%	-	-	-	-	-	-	-	-	-	-

15.5. Evidence Base

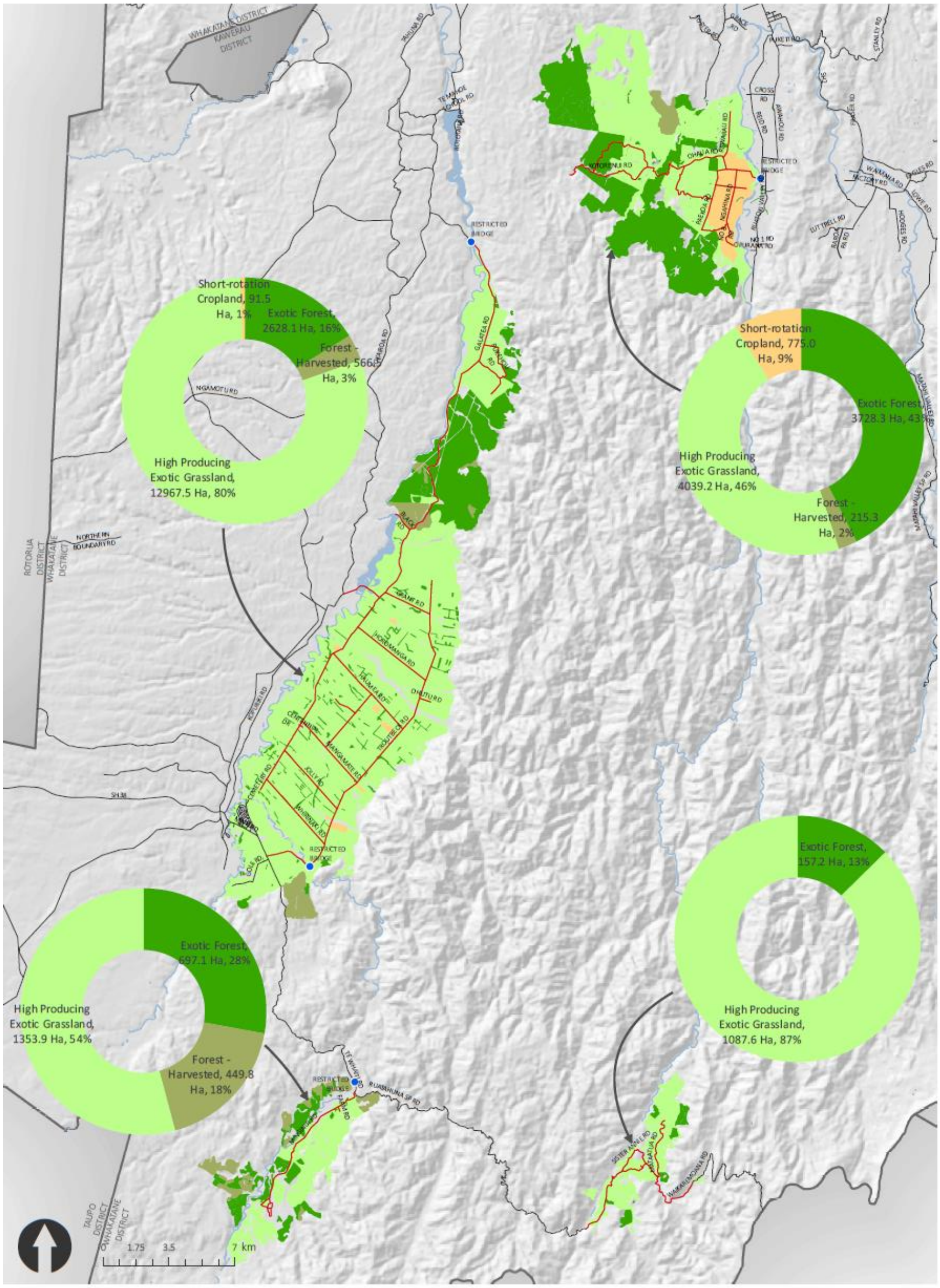
15.5.1. Asset by components, age, valuation:

Bridge Type	Length m	Quantity	Repalcement Cost	Depreciated Replacement Cost	Annual Depreciation	Average Life	Average Age	Average RUL	% Base Life consumed
Bridge	2588	125	$43,703,560	$23,730,084	$476,168	80	39	57	49
Large Culverts >3.4	300	29	$937,179	$604,719	$18,481	50	23	27	46
Total		154	$44,640,739	$24,334,803	$494,649				

15.5.2. Renewals profile:



15.5.3. Network not Available to Class 1 or 50Max:



Class 1 & 50 Max Restrictions

OPUS

Whakatane Office
PO Box 800
Whakatane, New Zealand
www.opus.co.nz
Tel: +64 7 308 0139
Fax: +64 7 308 4757

15.6. Life Cycle Management

15.6.1. Operation & Maintenance

Maintenance is derived through the following inspection programme in accordance with the Transit NZ Bridge Inspection Guide;

- Every year 50% of the bridges undergo a general inspection, and 1/3rd of these have more detailed structural inspection undertaken
- Annual superficial inspections co-ordinated with other routine maintenance work
- General inspections undertaken on a two year cycle
- Full structural inspections of all bridges and culverts undertaken on a six year cycle by a Bridge Inspection Engineer, taking into account such factors as structural integrity, defects, safety and appearance
- Special inspections after specific events such as earthquakes, severe floods or instances of overloading.

Repair treatments and priorities are determined by considering the impact on the following:

- Public safety
- Future costs if the work is not undertaken
- Traffic movement

Generic faults typically highlighted during inspections include:

- Signs of corrosion on steel beams
- Localised and general scour
- Concrete cracking and spalling
- Deterioration in timber components
- Expansion joint problems
- Handrail and guardrail repairs
- Potholes in bridge approaches.

In addition, works relating to non-complying permanent warning signs, scour protection, concrete and timber repairs are also undertaken.

The BOPRC currently monitor many of the aggrading streams within the Galatea area. WDC will work with BOPRC to identify priority areas for gravel extraction activities to assist with managing this problem.

There is currently no deferred maintenance. Annual maintenance requirements are steady. Current funding levels appear to be appropriate.

15.6.2. Renewals

Renewals are identified through the bridge inspection regime. Renewals can be replacement of individual structural components, or replacement of the entire bridge. The decision on

whether to repair or replace follows the decision chart in the NZTA's Economic Evaluation Manual.

Structural component replacements typically include:

- Replacement of decayed timber piles or timber decks.
- Replacement of decayed steel beams.
- Replacement of damaged or decayed components such as bridge rails and deck joints.
- Replacement or modification of gabion baskets or rock armouring protecting the bridge form the watercourse.

There are currently no deferred component renewals. Annual renewal requirements are steady. Current funding levels appear to be appropriate.

Bridge replacement rates are currently low due to the overall young age profile of the bridge stock. There are four bridges identified for renewal in the 10 year horizon of this plan. These are detailed in the following table:

Road Name	RP	Name	Constructed	Age	RUL	Cost	Work Cat
RUATAHUNA SP ROAD	22423	#164 MIMIHA STREAM	1944	73	3	$ 990,000	SPR322
WAINUI ROAD	1406	#191 OHIWA HARBOUR	1957	60	7	$ 375,000	LR341
MOTTRAM ROAD	1509	#140 WEREKIHI STREAM	1960	57	8	$ 198,000	LR341
PAUL ROAD	590	#48 NGAKAUROA CANAL	1987	30	9	$ 200,000	LR341

These bridges are all suffering from decay to multiple structural elements. Posting is not an option as three of the bridges provide the only access on HCV routes and the fourth bridge is on an arterial road.

Investigation and analysis of the bridge stock is necessary to determine more reliable life expectancy and expected bridge replacement costs beyond the 10 years of this plan.

15.6.3. Improvements

Improvement works are proposed to address identified level of service gaps where planning interventions, demand management and maximising use of the existing network cannot address the gaps on their own.

New bridges identified in the 10 year horizon of this plan relate to replacing aging undersized culverts with large box culverts or bridges to improve resilience or reduce maintenance and emergency response costs. The proposed five new bridges are detailed in the following table:

Road Name	RP	Constructed	Age	RUL	Programme Year	Cost	Work Cat
STANLEY ROAD	15385	?	?	5	2022	$ 260,000	LR341
GALATEA ROAD	21536	1970	47	3	2019	$ 240,000	LR341
TROUTBECK ROAD	5517	1970	47	3	2020	$ 250,000	LR341
TROUTBECK ROAD	11818	1970	47	3	2021	$ 250,000	LR341

15.6.4. *Asset Acquisition*

Asset acquisition typically involves a developer investing assets constructed during development of sub divisions with the Council. The WDC Engineering Code of Practice sets out the policies and procedures for this process to ensure assets are constructed to the required standard and all relevant data is transferred and entered into RAMM. There are currently no known bridges in development associated with subdivision.

The BOP Regional Council are undertaking improvement works on the Reid Canal Floodway. This will include the construction of a new 40m long two-lane bridge over the floodway that will be vested with WDC on completion.

15.6.5. *Asset Disposal*

There are no plans to dispose of any bridge within the 10 year horizon of this plan.

15.7. Options Assessment

Option	Risks	ONRC Outcomes	Benefits Contributed to	Preferred
Data Collection				
Existing processes	Uncertainty around renewals funding remains.	Cost efficiency - neutral	Nil	
Existing + Investigate and analyse condition to refine RUL	Increased certainty around depreciation and value for money. Frees up limited funds for other priorities	Cost efficiency - positive	Core Investment Asset Management	✓
Operations & Maintenance				
Reduce Investment	Increases risks of asset failure. Reduced useful life. Increasing future maintenance cost risk	Cost efficiency - positive short term, negative long term Resilience - negative	Nil	
Proposed Program	Neutral. Balances risk with cost	Cost efficiency - positive Resilience - positive	Core Investment Resilience	✓
Enhanced Investment	Reduces available funds for other investment priorities	Cost efficiency - negative Resilience - positive	Resilience	
Renewals				
Reduce Investment - complete fewer component renewals and replacements	Increases risks of asset failure. Reduced useful life. Increasing future maintenance cost risk	Cost efficiency - positive short term, negative long term Resilience - negative	Nil	
Proposed Program	Neutral. Balances risk with cost	Cost efficiency - positive Resilience - positive	Core Investment Resilience	✓
Enhanced Investment - complete expanded programme of renewals	Reduces available funds for other investment priorities.	Cost efficiency - negative Resilience - positive	Resilience	
Improvements				
Reduce investment - do not undertake improvements	Future cost exposure to heavy rain events remains.	Cost efficiency - negative Resilience - negative	Nil	
Proposed Program	Reduced risk of future emergency works costs and maintenance costs. Improved route resilience.	Cost efficiency - positive Resilience - positive	Core Investment Resilience	✓

15.8. Preferred Programme of Works

Work Category	WDC Job Number	10 Year Programme									
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
LOC114 Structures Maintenance Bridges	T30257	$ 75,000	$ 75,000	$ 75,000	$ 75,000	$ 75,000	$ 75,000	$ 75,000	$ 75,000	$ 75,000	$ 75,000
LOC215 Structures Component Replacements - Bridges	T31443	$ 110,000	$ 110,000	$ 110,000	$ 110,000	$ 110,000	$ 110,000	$ 110,000	$ 110,000	$ 110,000	$ 110,000
LOC341 LCLR Roading Improvements - Bridges	T31XXX		$ 500,000	$ 500,000				$ 375,000	$ 198,000	$ 200,000	
LOC341 LCLR Roading Improvements - Stock Underpasses	T31449	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000
LOC322 Replacement of Bridges & Structures	T31XX3	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
SPR114 Structures Maintenance Bridges	T32256	$ 13,000	$ 13,000	$ 13,000	$ 13,000	$ 13,000	$ 13,000	$ 13,000	$ 13,000	$ 13,000	$ 13,000
SPR215 Structures Component Replacements Bridges	T33440	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000
SPR341 LCLR Roading Improvements - Bridges	T33XX1			$ 990,000							
NFA - Pedestrian Bridge From Piripai	T35XX2	$ -	$ 1,000,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total		**$ 263,000**	**$ 1,763,000**	**$ 1,753,000**	**$ 263,000**	**$ 263,000**	**$ 263,000**	**$ 638,000**	**$ 461,000**	**$ 463,000**	**$ 263,000**

15.9. Improvement & Monitoring

- Undertake detailed investigations and analysis of bridge stock to provide improved understanding about remaining useful life.
- Complete structural assessments of bridges not yet certified for 50Max and new 46/47 class 1 loading.
- Set up a database for recording and reporting of the ONRC resilience customer outcome performance measures.

16. Retaining Walls

16.1. Overview

The purpose of retaining walls is to either provide support to the road foundation, or provide support to land above the road. They are typically used in sidling cut and fill situations or where topography of the land creates a constrained environment.

16.2. Key Issues

- There is a growing stock of retaining walls constructed principally in response to storm damage across the network. As the asset increases and ages there will be an increasing maintenance and renewals requirement to ensure they remain safe.

- There are a number of unidentified ad-hoc retaining walls around the network constructed in years past and never recorded. These are constructed from a variety of re-purposed materials including railway irons, power poles, bridge beams, corrugated iron and so-on.

16.3. Link to Strategic case

Asset Group		1 Core Investment	2 Asset Management			3 Road Safety		4 Growth			5 Travel Modes			6 Resilience		7 Unsealed Roads		
		Appropriate levels of service delivered into the future at an appropriate level of investment	Stronger evidence base	Informed decision making	Value for money	Safer roads and roadsides	Reducing deaths and serious injuries	Congestion levels of service meet community expectations	Thriving, growing, economy	Satisfied community	Increase uptake of alternative modes of transport	Increased community and environmental health	Reduced pressure on primary modes	24/7 access to essential services	Improved route security	Improved environmental and health benefits	ONRC levels of service are met	Whole of life maintenance costs are reduced
Retaining Walls	Maintenance	X												X	X			
	Renewals	X												X	X			
	Improvements													X	X			

16.4. Levels of Service & Desired Outcomes

16.4.1. ONRC Performance Measures

ONRC Performance Measures				Target (2018-21)					WDC Performance (16/17)					WDC Trend					WDC Vs Peer Group Performance				
Outcome	No.	Measure		Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume
Resilience	CO1	the number of journies impacted by unplanned events	Rural	Improving all classes					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Urban	Improving all classes					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	CO2	the number of instances where road access is lost	Rural	Improving all classes					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Urban	Improving all classes					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

16.5. Evidence Base

16.5.1. Asset by components, age, valuation:

Wall Type	Length m	Quantity	Repalcement Cost	Depreciated Replacement Cost	Annual Depreciation	Average Life	Average Age	Average RUL	% Base Life consumed
Concrete	1353	42	$3,576,719	$2,619,413	$35,767	100	24	76	24%
Stone /Block	2244	155	$3,897,648	$2,968,720	$65,533	50	15	35	30%
Timber	1141	57	$1,717,237	$1,504,732	$22,897	75	21	54	28%
Steel	92	4	$159,758	$58,617	$2,992	75	30	47	40%
Total		258	$9,351,362	$7,151,482	$127,188				

16.6. Life Cycle Management

16.6.1. Operations & Maintenance

Maintenance is derived through the following inspection programme which is undertaken in conjunction with bridge inspections.

- Every year 50% of the retaining walls undergo a general inspection, and 1/3rd of these have more detailed structural inspection undertaken
- Annual superficial inspections co-ordinated with other routine maintenance work
- General inspections undertaken on a two year cycle
- Full structural inspections of all retaining walls undertaken on a six year cycle by a Structural Inspection Engineer, taking into account such factors as structural integrity, defects, safety and appearance
- Special inspections after specific events such as earthquakes, severe floods or instances of overloading.

Repair treatments and priorities are determined by considering the impact on the following:

- Public safety
- Future costs if the work is not undertaken
- Traffic movement

Generic faults typically highlighted during inspections include:

- Deterioration of wire mesh gabion baskets, particularly those located in streams with high bed-loads.
- Scour at either end of the wall form uncontrolled discharge of water.
- Growth of trees and shrubs on mechanically stabilised earth walls.
- Identification of previously un-identified ad-hoc walls.

There is currently no deferred maintenance. Annual maintenance requirements are low at present but may grow as the inventory of retaining structures grows and ages.

A specific budget item for maintenance of retaining walls has been introduced.

16.6.2. *Renewals*

Renewals are identified through the retaining wall inspection regime. Renewals can be replacement of individual structural components, or replacement of the entire wall.

Due to the young age of the inventory there are currently no identified or deferred component renewals.

There is only one wall identified for replacement in the 10 year horizon of this plan as detailed in the following table:

Road Name	RP	Constructed	Age	RUL	Cost	Work Cat
SEAVIEW ROAD	353	unknown	unknown	3	$120,000	LOC341

16.6.3. *Improvements*

Improvement works are proposed to address identified level of service gaps where planning interventions, demand management and maximising use of the existing network cannot address the gaps on their own.

Capital improvements or increases in the retaining wall inventory are typically associated with permanent reinstatement activities following storm events. Alternatives such as realigning the road are always considered in the mix of options when considering reinstatement.

The recent April 2017 ex-tropical cyclones caused a significant level of damage to the network and will result in 20 or more additions to the retaining wall inventory. At the time of preparing this plan this is still a work in progress and future revisions will take into account these additions.

Improvements (replacement) can also be required when previously unidentified ad-hoc walls are discovered. If possible these are entered into a future program. If the safety or security of the route is at risk and an immediate response is required, this will be accommodated within the low cost low risk program, and existing activities on this program will be reprioritised.

16.6.4. *Asset Acquisition*

Asset acquisition typically involves a developer investing assets constructed during development of sub divisions with the Council. The WDC Engineering Code of Practice sets out the policies and procedures for this process to ensure assets are constructed to the required standard and all relevant data is transferred and entered into RAMM. There are currently no known retaining walls in development associated with subdivision.

16.6.5. *Asset Disposal*

There are no plans to dispose of any retaining wall within the 10 year horizon of this plan.

16.7. Options Assessment

Option	Risks	ONRC Outcomes	Benefits Contributed to	Preferred
Operations & Maintenance				
Reduce Investment	Increases risks of asset failure. Reduced useful life. Increasing future maintenance cost risk	Cost efficiency - positive short term, negative long term Resilience - negative	Nil	
Proposed Program	Neutral. Balances risk with cost	Cost efficiency - positive Resilience - positive	Core Investment Resilience	✓
Enhanced Investment	Reduces available funds for other investment priorities	Cost efficiency - negative Resilience - positive	Resilience	
Renewals				
Reduce Investment - complete fewer component renewals and replacements	Increases risks of asset failure. Reduced useful life. Increasing future maintenance cost risk	Cost efficiency - positive short term, negative long term Resilience - negative	Nil	
Proposed Program	Neutral. Balances risk with cost	Cost efficiency - positive Resilience - positive	Core Investment Resilience	✓
Enhanced Investment - complete expanded programme of renewals	Reduces available funds for other investment priorities.	Cost efficiency - negative Resilience - positive	Resilience	
Improvements				
Reduce investment - do not undertake improvements	Complete loss of access	Cost efficiency - negative Resilience - negative	Nil	
Proposed Program	Reduced risk of future emergency works costs and maintenance costs. Improved route resilience.	Cost efficiency - positive Resilience - positive	Core Investment Resilience	✓

16.8. Preferred Programme of Works

Work Category	WDC Job Number	10 Year Programme									
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
LOC114 Structures Maintenance RW	T30220	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
LOC215 Structures Component Replacements RW	T31444	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
LOC322 Replacement of Bridges & Structures	T31XX3	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
LOC341 LCLR Roading Improvements - Retaining Walls	T31XX4			$ 120,000							
SPR114 Structures Maintenance RW	T32435	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000
SPR215 Structures Component Replacements RW	T33441	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
Total		**$ 64,000**	**$ 64,000**	**$ 184,000**	**$ 64,000**	**$ 64,000**	**$ 64,000**	**$ 64,000**	**$ 64,000**	**$ 64,000**	**$ 64,000**

16.9. Improvement & Monitoring

- No improvements have been identified

17. Drainage

17.1. Overview

Drainage assets include culverts (<3.5m2), lined and unlined surface water channels, sub-surface drainage systems and road stormwater collection and disposal systems.

As the old saying goes “the three most important aspects of roading are drainage, drainage and drainage”.

Well maintained and functioning drainage systems are essential for:

- achieving long pavement lives,
- keeping the road network safe to use in adverse weather,
- avoiding erosion in the environment and damage to road pavements,
- maintaining water quality,
- avoiding nuisance or damage to neighbouring property upstream or downstream,
- maintaining network resilience.

17.2. Key Issues

- Rural:
  - Some parts of the network, particularly the western hill country, are on highly erodible volcanic soils.
  - Many culverts are undersized and block or overtop regularly causing damage to the pavement and adjacent properties.
  - For a period around 20 years ago, galvanised corrugated culverts were extensively used. Many of these are rusting out and collapsing, particularly where stream bed loads are high.
  - More frequent, high intensity rain events are considered likely in the future due to climate change.
- Urban
  - A lot of the older kerb and channel was constructed using pre-cast pumice kerb blocks. These have badly deteriorated letting surface water into the pavement resulting in failures.
  - Some areas of town have many deciduous trees which block catchpit grates resulting in flooding during autumn months. The roots of these trees can lift and break kerb and channel.
  - Much of the storm water network that catchpits connect to is under capacity.
  - More frequent, high intensity rain events are considered likely in the future due to climate change.
  - Some urban streets do not have kerb and channel. In some of these cases road runoff is causing problems for adjacent properties. It also leads to pavement maintenance problems with edgebreak and low shoulder.

17.3. Link to Strategic case

Asset Group		1 Core Investment	2 Asset Management			3 Road Safety		4 Growth			5 Travel Modes			6 Resilience		7 Unsealed Roads		
		Appropriate levels of service delivered into the future at an appropriate level of investment	Stronger evidence base	Informed decision making	Value for money	Safer roads and roadsides	Reducing deaths and serious injuries	Congestion levels of service meet community expectations	Thriving, growing, economy	Satisfied community	Increase uptake of alternative modes of transport	Increased community and environmental health	Reduced pressure on primary modes	24/7 access to essential services	Improved route security	Improved environmental and health benefits	ONRC levels of service are met	Whole of life maintenance costs are reduced
Drainage	Maintenance	X												X	X			
	Renewals	X												X	X			
	Improvements													X	X			

17.4. Levels of Service & Desired Outcomes

17.4.1. ONRC Performance Measures

ONRC Performance Measures				Target (2018-21)					WDC Performance (16/17)					WDC Trend					WDC Vs Peer Group Performance				
Outcome	No.	Measure		Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume
Safety	TO7	hazardous faults	Rural	2 max	4 max	6 max	8 max	10 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Urban	1 max	2 max	3 max	3 max	4 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TO8	cycle path faults	Rural	4 max	4 max	4 max	4 max	4 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Urban	4 max	4 max	4 max	4 max	4 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Resilience	CO1	the number of journies impacted by unplanned events	Rural	Improving all classes					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Urban	Improving all classes					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	CO2	the number of instances where road access is lost	Rural	Improving all classes					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Urban	Improving all classes					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

17.4.2. Bay of Plenty Regional Council Regional Natural Resources Plan

Chapter 8, Beds of Water Bodies, sets out the performance standards for culverts and other structures over, under or in water bodies, and consent requirements. These are covered in section R12, R13, R14 and R36.

17.4.3. Whakatane District Plan

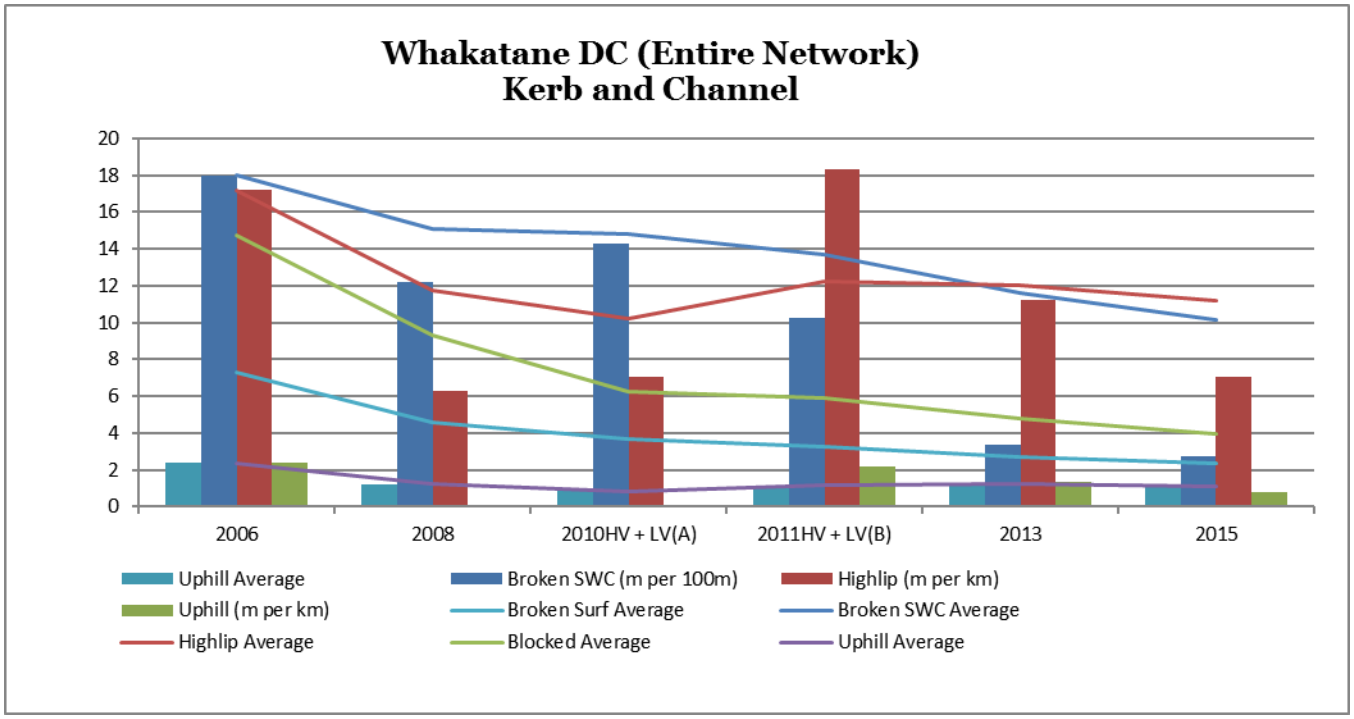
Chapter 13, Transportation and Services, sets out the performance standards for urban stormwater management and consent requirements. These are covered is section 13.2.28.

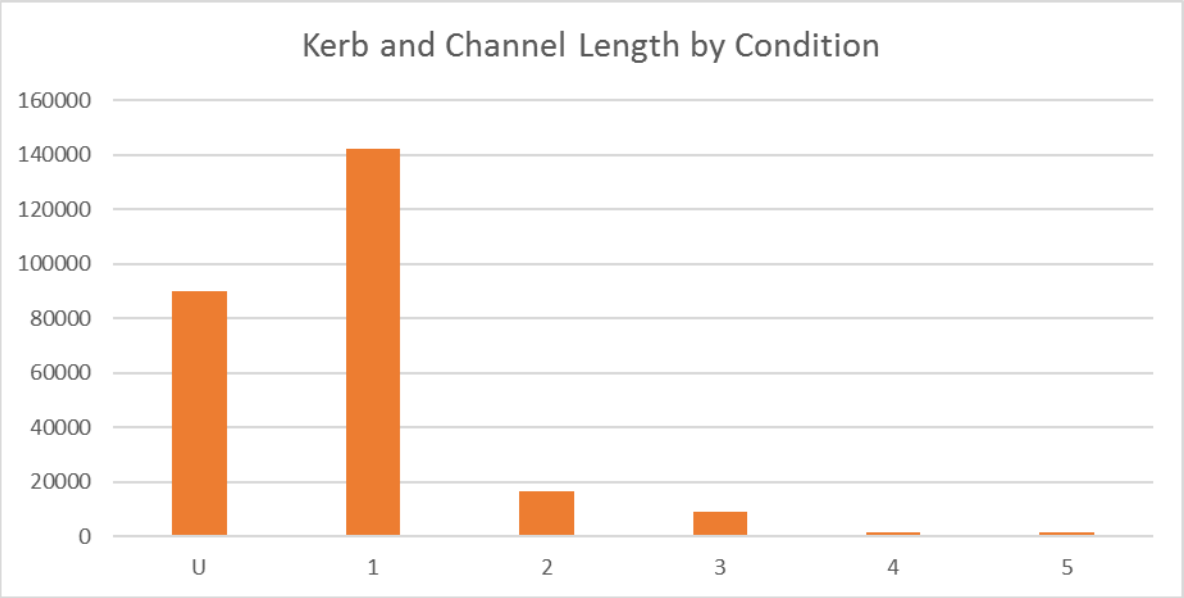
17.5. Evidence Base

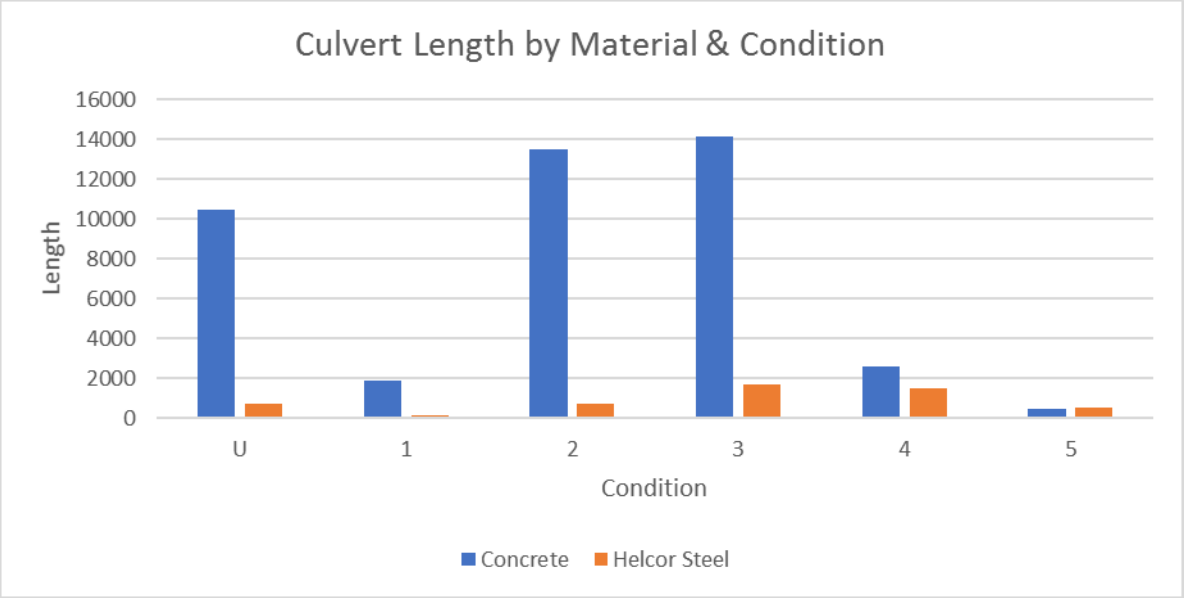
17.5.1. Asset by components, age, valuation:

Drainage Asset	Length m	Quantity	Repalcement Cost	Depreciated Replacement Cost	Annual Depreciation	Average Life	Average Age	Average RUL	% Base Life consumed
Cesspits		2132	$2,717,008	$1,411,955	$54,340	50	25	25	50
Culverts	36765	2642	$13,325,875	$6,812,623	$270,451	50	24	26	48
Other Assets		2133	$73,234	$51,937	$1,465	70	19	51	27
Kerb & Channel (Conc)	204735	1303	$25,216,545	$14,382,422	$469,016	50	23	31	46
Other Channels	55440	708	$4,657,020	$2,810,155	$90,530	50	19	31	38
Totals	**296940**	**6786**	**$43,272,675**	**$24,057,137**	**$831,463**				

17.5.2. Condition Rating:







Historically Council have only collected fault data for these asset types and responded reactively to fixing those. Over the last few years an overall condition has been assigned to each asset as part of the RAMM database validation process. Those assets with unknown condition relate primarily to sections of the network that remain to be validated.

17.6. Life Cycle Management

17.6.1. Operations & Maintenance

Drainage maintenance is built around the programming, inspection and auditing activities of Council's PSBU staff, supplemented by feedback from the maintenance contractor and community. These include:

- Drainage Inspections. The network is divided into six areas and include Rangitaiki Plains West, Rangitaiki Plains East, Galatea, Western Hill Country, Eastern Hill Country and Southern Hill Country. The higher risk hill country areas are inspected three times per year, and the remaining areas once per year. These inspections assess function and condition of all drainage assets. Any maintenance or replacement requirements are recorded along with a priority rating. These inspections form the basis of the monthly maintenance and renewals program provided to the contractor.

- Special Inspections. Critical culverts have been identified and recorded in RAMM. Critical culverts are those where significant damage to transport assets or private property is likely to occur if they are blocked or otherwise not functioning. These are inspected prior to heavy rain arriving following receipt of a warning, during the event if it is of long duration, and again following the event. Urban areas with high leaf fall in autumn are also inspected on a weekly basis.

- Auditing. Auditing is undertaken monthly and covers 10% of the network. It is used to assess contractor performance and provide a snapshot of network performance. This is useful for monitoring the effectiveness and adequacy of work programs over time. Auditing processes require updating to enable reporting against the full range of ONRC performance measures.

A large part of drainage maintenance is focused on maintaining the functionality of the system, rather than the system itself. Typical activities include:

- Kerb and channel sweeping
- Clearing culverts and other structures
- Removing high shoulders
- Redefining earth water channels
- Catchpit and soakpit cleaning

Other maintenance activities focussing on maintaining system components typically include:

- Repairs to catchpit aprons
- Repairs to rock riprap protection
- Repairs to collapsed headwalls
- Repairs to outlet flumes.

Substantial improvements to the function and condition of the drainage network have been observed since Council took back in-house responsibility and control over the maintenance programmes.

There is currently no deferred maintenance. Annual maintenance requirements are steady. All condition and performance indicators are steady and are either meeting target or trending

towards target. Costs for drainage maintenance are at the higher end of the band on a cost/km basis when compared to other provincial centres, but geology, topography and climate all play a large role in the differences. The unprecedented April 2017 cyclone is an example of this. The catchments up in Te Urewera were ripped out and now many gullies have been destabilised and no protective vegetation cover. This is expected to lead to an increase in drainage maintenance requirements for the immediate future.

The local roads requested funding for 2018-21 is slightly less than 2015-18 once escalation and administration are taken into account. The SP roads requested funding is higher to cover anticipated increased maintenance requirements form the April 2017 cyclones.

17.6.2. Renewals

17.6.2.1. Kerb & Channel

The kerb and channel asset is generally in reasonable condition. The main issues that drive kerb and channel renewal include:

- For a period in the past pumice concrete kerb blocks were used in all new kerb and channel installations. These have deteriorated significantly and let water through to the pavement layers causing damage. These are programmed for replacement in conjunction with either resurfacing or rehabilitation of the adjacent pavement.

- Street tree selection in the past was not always well thought through. Some tree species with shallow root systems were planted in narrow berms right next to the kerb and channel. Over time these have lifted and broken sections of kerb and channel, often preventing the channel from conveying water to the catchpit. These are generally also programmed for replacement in conjunction with either resurfacing or rehabilitation of the adjacent pavement. If the issue is impacting on access or private property then a stand alone replacement will be programmed earlier.

The quantity of kerb and channel replacement scheduled for 2018-21 relates closely to the quantity of kerb and channel at condition 4 or 5 and represents approximately 1.2% of the asset annually. Condition appears stable. The local roads requested funding for 2018-21 is slightly less than 2015-18 once escalation and administration are taken into account.

17.6.2.2. Culverts

The main issues that drive culvert renewal include:

- Older butt-jointed concrete pipes. Over time through differential settlement these pipes tend to move apart and allow water to flow into and through the bedding. It also allows fine grained soils used as fill over the pipe to drop through the gaps. As a result, support is either lost from under the pipe, or a tomo develops in the road above the pipe. For larger pipes this type of fault is easier to identify, but for smaller pipes often the first indication of a fault is a tomo appearing. The frequency of these failures requiring a reactive response is low enough that it can generally be accommodated for within the program. Old butt-joint pipes are proactively identified and replaced in conjunction with the pavement rehabilitation.

- Galvanised corrugated steel pipes. A lot of these culverts were installed in rural locations during the late 1990's and early 2000's. Many were installed on the special purpose roads between Murupara and Huiarau Summit. These have proven far less durable than anticipated, particularly in locations with a high bed load of gravel. Typically they rust or wear through on the bottom and then collapse. From the condition distribution table above it can be seen that these culverts are in much worse condition overall than concrete culverts, even though they are much younger. A large part of the culvert renewal

program is focussed on replacing these culverts, either in conjunction with pavement renewals, and as stand alone renewals.

- Undersized culverts causing damage to other roading assets or private property when they overtop. These are either identified from network observations or bought to the attention of Council by adjacent land owners. These often require a hydrological assessment to identify the appropriate culvert size. They are then prioritised and programmed.

Other considerations for culvert renewals are:

- Where there is evidence to suggest an existing culvert is too small, a hydrological analysis of the catchment is required.
- On long downhill sections consideration should be given to over-sizing every 3rd or 4th culvert. This will cut-off excess flow if any of the pre-ceding uphill culverts become blocked and prevent significant damage from uncontrolled run-off.
- In the hill country with mobile sediments the absolute minimum culvert size shall be 375mm (desirable minimum 450mm). Culverts smaller than this tend to block easily and quickly, and are difficult to clean out.
- Outlet flumes should be constructed from full round corrugated HDPE pipe such as farmtough. They are significantly more robust and maintenance free compared to half pipes, which are easily damaged or blocked with detritus falling on them.

Where a culvert replacement results in a culvert size greater than 3.5m2, these are included in the bridge programme and constructed as low cost low risk improvements.

The quantity of culvert replacement scheduled for 2018-21 relates closely to the quantity of culverts at condition 5 and represents approximately 1% of the asset annually. Condition appears stable. The local roads requested funding for 2018-21 is slightly less than 2015-18 once escalation and administration are taken into account. The SP roads request has a significant increase in response to the April 2017 cyclones. A number of culverts have been damaged or identified as being significantly undersized. It is also expected that the design size for replacement culverts will be larger than before as rainfall totals for a given return period will be revised upwards.

17.6.3. Improvements

17.6.3.1. Kerb and Channel

New kerb and channel assets are constructed in response to either an identified level of service deficiency or for cost efficiency reasons.

There are a number of urban streets without kerb and channel. In some of these the road runoff is causing a nuisance or damage to adjoining private property or resulting in damage to the pavement. These will be prioritised and programmed with input from effected communities. Where possible they are done the year before a road is scheduled for resealing, or in conjunction with pavement rehabilitation.

Rural kerb and channel is installed to manage runoff where it causes scour damage to the shoulder and pavement, and there is limited room for lower cost treatments such as rock armouring of earth channels.

There is an allocation in the low cost low risk program for these activities.

17.6.3.2. Culverts

New culverts or inlet/outlet structures are constructed in response to either an identified level of service deficiency or for cost efficiency reasons. These can include:

- In some locations around the network culverts can be too far apart, causing scour to the water table and road. New culverts are installed at intermediate locations.
- Inlet structures to prevent the water table scouring down to the culvert inlet. Where space is limited Council have been using traversable headwalls laid with the grate at the invert of the water table and connecting to the culvert through the sidewall. These remove the safety hazard associated with a deep hole beside the road, and have proven remarkably resistant to blockage.
- Outlet strucutres to control scouring on the downstream side of the road.

There is an allocation in the low cost low risk program for these activities.

17.6.4. Asset Acquisition

Asset acquisition typically involves a developer investing assets constructed during development of sub divisions with the Council. The WDC Engineering Code of Practice sets out the policies and procedures for this process to ensure assets are constructed to the required standard and all relevant data is transferred and entered into RAMM.

Subdivisions currently underway or in the planning process that will result in assets being transferred to WDC include:

- Shaw Rd
- Bunyan Rd East Piripai Block
- Keepa Rd / SH 30 Corner
- Bunyan Rd East – Multiple

No allowance has been made in maintenance budgets for new assets in this RLTP round. The quantities of assets potentially being acquired are small in relation to the whole network, and new assets should require little to no maintenance. Budget adjustments will be made at each new RLTP period as assets are acquired.

17.6.5. Asset Disposal

There are no plans to dispose of any roads within the Whakatāne District.

17.7. Options Assessment

Option	Risks	ONRC Outcomes	Benefits Contributed to	Preferred
Operations & Maintenance				
Reduce Investment	Significantly Increases risks of asset failure. Reduced useful life. Significantly increasing future maintenance cost risk Increased safety risks	Cost efficiency - positive short term, negative long term Resilience – negative Safety - negative	Nil	
Proposed Program	Neutral. Balances risk with cost	Cost efficiency - positive Resilience – positive Safety positive	Core Investment Resilience Road Safety	✓
Enhanced Investment	Reduces available funds for other investment priorities	Cost efficiency - negative Resilience – positive Safety positive	Resilience Road safety	
Renewals				
Reduce Investment - complete fewer component renewals and replacements	Significantly Increases risks of asset failure. Reduced useful life. Significantly increasing future maintenance cost risk Increased safety risks	Cost efficiency - positive short term, negative long term Resilience – negative Safety - Negative	Nil	
Proposed Program	Neutral. Balances risk with cost	Cost efficiency - positive Resilience – positive Safety positive	Core Investment Resilience	✓
Enhanced Investment - complete expanded programme of renewals	Reduces available funds for other investment priorities.	Cost efficiency - negative Resilience – positive Safety positive	Resilience	
Improvements				
Reduce investment - do not undertake improvements	Unrealised maintenance and renewal cost savings.	Cost efficiency - negative Resilience - negative	Nil	
Proposed Program	Reduced impacts on third parties Reduced risk of future emergency works costs and maintenance costs. Improved route resilience.	Cost efficiency - positive Resilience - positive	Core Investment Resilience	✓

17.8. Preferred Programme of Works

Work Category	WDC Job Number	10 Year Programme									
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
LOC113 Routine Drainage Maintenance RMC	T30254	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000	$ 450,000
LOC113 Routine Drainage Maintenance SSC	T30256	55,000.00	55,000.00	55,000.00	60,000.00	60,000.00	60,000.00	60,000.00	60,000.00	60,000.00	60,000.00
LOC213 Drainage Renewals Culverts	T31440	$ 180,000	$ 180,000	$ 180,000	$ 180,000	$ 180,000	$ 180,000	$ 180,000	$ 180,000	$ 180,000	$ 180,000
LOC213 Drainage Renewals K&C	T31441	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000
LOC341 LCLR Roading Improvements - Drainage	T31450	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
SPR113 Routine Drainage Maintenance RMC	T32254	$ 90,000	$ 90,000	$ 90,000	$ 90,000	$ 90,000	$ 90,000	$ 90,000	$ 90,000	$ 90,000	$ 90,000
SPR213 Drainage Renewals	T33439	$ 110,000	$ 110,000	$ 110,000	$ 110,000	$ 110,000	$ 110,000	$ 110,000	$ 110,000	$ 110,000	$ 110,000
SPR341 LCLR Roading Improvements - Drainage	T33XX4	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NFA Street Cleaning	T34154	$ 130,000	$ 130,000	$ 130,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000
NFA Beach SW Outlet Mtc	T34210	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000
NFA Drainage Renewal	T35211	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000
NFA Soakpit Renewal	T35212	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000
NFA Improvements New Drainage	T35216	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000
Total		**$ 1,505,000**	**$ 1,505,000**	**$ 1,505,000**	**$ 1,520,000**	**$ 1,520,000**	**$ 1,520,000**	**$ 1,520,000**	**$ 1,520,000**	**$ 1,520,000**	**$ 1,520,000**

17.9. Improvement & Monitoring

- Use modelling techniques to identify and prioritise at risk pavements for drainage maintenance.

18. Street Lighting

18.1. Overview

The purpose of street lighting is to provide adequate lighting on streets within urban areas that assist all road users at night; drivers, pedestrians and cyclists to see each other and to recognise possible dangerous situations. Lighting is also used on rural road intersections to assist drivers in recognising potential dangerous traffic situations.

18.2. Key Issues

- As the street light column asset ages there will be a renewals requirement to ensure they remain safe.
- Identify road crash sites where lighting is a factor and prioritising them for installation / upgrading.
- Amenity lighting has been identified as deficient along the Whakatāne River water front from the Whakatāne 'i' site through to the heads.
- The urbanisation of Keepa Road and Bunyan Road as a result of the sub divisional

18.3. Link to Strategic case

Asset Group		1 Core Investment	2 Asset Management			3 Road Safety		4 Growth			5 Travel Modes			6 Resilience		7 Unsealed Roads		
		Appropriate levels of service delivered into the future at an appropriate level of investment	Stronger evidence base	Informed decision making	Value for money	Safer roads and roadsides	Reducing deaths and serious injuries	Congestion levels of service meet community expectations	Thriving, growing, economy	Satisfied community	Increase uptake of alternative modes of transport	Increased community and environmental health	Reduced pressure on primary modes	24/7 access to essential services	Improved route security	Improved environmental and health benefits	ONRC levels of service are met	Whole of life maintenance costs are reduced
Street Lighting	Maintenance	X				X	X											
	Renewals	X				X	X											
	Improvements					X	X											

18.4. Levels of Service & Desired Outcomes

18.4.1. ONRC Performance Measures

ONRC Performance Measures				Target (2018-21)					WDC Performance (16/17)					WDC Trend					WDC Vs Peer Group Performance				
Outcome	No.	Measure		Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume
Safety	CO1	The number of fatal and serious injuries on the network.	Rural	Decreasing all classes					2	4	4	0	0	⇩	⇩	⇧	⇩	⇔	-	-	-	-	-
			Urban	Decreasing all classes					1	0	2	0	0	⇩	⇩	⇔	⇔	⇔	-	-	-	-	-
			Combined	Decreasing all classes					3	4	6	0	0	⇩	⇩	⇧	⇩	⇔	-	-	-	-	-
	CO2	Collective risk (fatal and serious injury rate per kilometre)	Rural	Decreasing all classes					0.043	0.016	0.018	0.004	0.000	-	-	-	-	-	0.094	0.032	0.013	0.005	0.002
			Urban	Decreasing all classes					0.184	0.078	0.019	0.010	0.003	-	-	-	-	-	0.169	0.070	0.038	0.013	0.007
			Combined	Decreasing all classes					0.081	0.022	0.018	0.005	0.001	-	-	-	-	-	0.123	0.044	0.018	0.006	0.003
	CO3	Personal risk (fatal and serious injury rate by traffic volume)	Rural	Decreasing all classes					4	8	12	11	0	-	-	-	-	-	6	7	9	12	15
			Urban	Decreasing all classes					6	5	4	6	10	-	-	-	-	-	6	6	9	9	21
			Combined	Decreasing all classes					5	6	9	10	6	-	-	-	-	-	6	6	9	10	18
	TO5	loss of driver control at night	Rural	Decreasing all classes					1	0	4	1	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-
			Urban	Decreasing all classes					0	2	0	0	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-
			Combined	Decreasing all classes					1	2	4	1	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-

18.5. Evidence Base

18.5.1. Asset by components, age, valuation:

St Light Poles	QTY ea	RC	DRC	Ann DRC	base Life	Avg Age	Avg RUL	% Base Life consumed
WDC Amenity	103	$126,906.68	$81,721.52	$3,973.03	30	12	22	40
WDC Parking	51	$67,343.56	$43,830.54	$2,068.72	30	13	23	43
WDC St Light	1778	$2,339,042.98	$139,705.02	$76,856.15	30	14	18	47
Whkatane DC	672	$570,668.27	$346,649.82	$13,380.03	30	15	27	50
Wdc Metered Amenity	94	$123,644.43	$89,694.58	$4,761.69	30	9	18	30
Wdc Metered St light	111	$146,092.29	$104,087.62	$4,295.12	30	11	26	37
Wdc Metered Parking	11	$14,525.08	$7,327.02	$406.37	30	19	19	63
Other pole owners	526	$606,671.42	$421,797.02	$13,197.46	30	14	30	47
Total	3346	$3,994,894.71	$1,234,813.14	$118,938.57				

St Light Brackets	QTY ea	RC	DRC	Ann DRC	base Life	Avg Age	Avg RUL	% Base Life consumed
WDC Amenity	103	$37,433.19	$25,052.37	$1,247.77	30	10	20	33
WDC Parking	51	$18,534.88	$11,666.07	$617.83	30	11	19	37
WDC St Light	1778	$646,176.76	$408,998.08	$21,433.80	30	11	19	37
Whkatane DC	672	$244,224.29	$122,891.88	$7,894.68	30	15	15	50
Wdc Metered Amenity	94	$34,162.33	$25,985.17	$1,138.74	30	7	23	23
Wdc Metered St light	111	$440,340.62	$27,669.06	$1,344.69	30	9	21	30
Wdc Metered Parking	11	$3,997.72	$1,851.85	$126.38	30	16	14	53
Other pole owners	526	$191,163.65	$119,861.83	$6,367.54	30	11	19	37
Total	3346	$1,616,033.44	$743,976.31	$40,171.43				

St Light Lights	QTY ea	RC	DRC	Ann DRC	base Life	Avg Age	Avg RUL	% Base Life consumed
WDC Amenity	103	$40,552.34	$19,341.99	$2,623.55	15	8	7	53
WDC Parking	51	$20,079.31	$7,629.26	$1,308.00	15	9	6	60
WDC St Light	1778	$700,019.94	$305,858.48	$45,025.95	15	8	7	53
Whkatane DC	672	$264,574.46	$76,743.95	$15,379.19	15	10	5	67
Wdc Metered Amenity	94	$37,008.93	$21,242.95	$2,419.14	15	6	9	40
Wdc Metered St light	111	$43,702.03	$20,787.99	$2,834.73	15	8	7	53
Wdc Metered Parking	11	$4,330.00	$1,166.24	$228.78	15	11	4	73
Other pole owners	526	$207,092.51	$81,613.27	133.91.17	15	10	5	67
Total	3346	$1,317,359.52	$534,384.13	$69,819.34				

18.6. Life Cycle Management

18.6.1. Operations & Maintenance

Street lighting energy is supplied by Genesis Energy and charged via an EECA approved Central Management System (CMS) meter.

The energy for amenity and under-veranda lighting in the Whakatane CBD is metered and charged on a kWh consumption basis.

With the network being 100% upgraded to LED in 2017/18, the only area that energy costs may be optimised in the future is through the tendering of energy supply that is carried every 3 years collectively by the 3 Eastern Bay of Plenty District Council, Regional Council and the NZ Transport Agency.

The CMS system enables the network of street lights to be controlled and monitored via the web-based software, providing real time control and monitoring negating the need to carry out night time patrols. Maintenance of the street light network will be delivered through a term streetlight maintenance contract to manage the reactive works associated with the CMS fault reports and periodic checks of streetlight columns and brackets to ensure they remain safe.

18.6.2. Renewals

Asset renewal is undertaken when a streetlight, or components of a light, have reached the end of their economic life. Renewal works involve the replacement of either the complete column and luminaire or individual components (e.g. luminaire, bracket, light point controller, cable / duct, or column). The renewal programme is based on the following priorities:

- The power undergrounding programme
- Crash reduction studies where lighting is a factor
- Rural flag lighting
- Pedestrian safety concerns
- Lighting deficiencies (large gaps between luminaires)
- Renewal programs will be delivered through the term streetlight maintenance contract.

18.6.3. Improvements

New assets are created at the time of sub divisional development or any urbanisation of public roads. A number of new sub divisions are coming on stream on the west side of the Whakatāne river which will require new street lights as well as the urbanisation of connecting roads, such as Keepa Road and Bunyan Road. The Engineering Code of Practice sets out the requirements for new lights in subdivisional developments, including rights of way which is expected to revised the 2018-21 period to align better with industry best practice.

Future priorities centre around WDC's rural flaglight programme. This programme is open-ended and has both navigational and safety benefits. The deficiencies are recorded in the Safety Deficiency Database and prioritised within that system. This programme will be funded through the Low Cost Low Risk Roading Improvements Programme.

A key part of the improvement programme is partnering with the lines company (Horizon) and the Eastern Energy Trust (EBET) to co-ordinate improvements with undergrounding works. New street lights will also arise from the undergrounding programme funded from the renewals programme.

Amenity lights have been identified as deficient along the Whakatāne River water front from the Whakatāne 'i' site through to the heads.

The design standard for new works is AS/NZS 1158 and NZTA M30. 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 WDC staff.

Electrical safety statutes, regulations and codes of practice apply to any works on the street lighting activity.

Improvement programs will be delivered through the either the term streetlight maintenance contract or the WDC Contract Panel arrangement.

18.6.4. Disposal

Whakatane District Council has no plans to dispose of any street lighting assets at this time.

18.7. Options Assessment

Option	Risks	ONRC Outcomes	Benefits Contributed to	Preferred
Data Collection				
				✓
Operations & Maintenance				
				✓
Renewals				
				✓
Improvements				
				✓

18.8. Preferred Programme of Works

Work Category	WDC Job Number	10 Year Programme									
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
LOC122 Traffic Services Maintenance SLMC	T30262	$ 145,000	$ 145,000	$ 145,000	$ 145,000	$ 145,000	$ 145,000	$ 145,000	$ 145,000	$ 145,000	$ 145,000
LOC222 Traffic Services Renewals SLMC	T31445	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
LOC222 Traffic Services Renewals Power Undergrounding Replacements	T31447	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
LOC341 LCLR Roading Improvements - Streetlights and power undergrounding	T31451	$ 80,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000
SPR122 Traffic Services Maintenance SLMC	T32260	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000
SPR222 Traffic Services Renewals SLMC	T33442	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500
SPR341 LCLR Roading Improvements - Streetlights	T33XX5	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NFA Amenity Lighting Maintenance SLMC	T34155	$ 55,000	$ 55,000	$ 55,000	$ 65,000	$ 65,000	$ 65,000	$ 65,000	$ 65,000	$ 65,000	$ 65,000
NFA Amenity Lighting Renewals SLMC	T35214	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
NFA Walkway Lights to Info Centre	T35213	$ 150,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total		**$ 545,500**	**$ 395,500**	**$ 395,500**	**$ 405,500**	**$ 405,500**	**$ 405,500**	**$ 405,500**	**$ 405,500**	**$ 405,500**	**$ 405,500**

18.9. Improvement & Monitoring

- No improvements have been identified.

19. Cycleways

19.1. Overview

The cycling network includes:

- On-road cycle lanes, which consist of space allocated through line marking and signs on existing carriageways. These are appropriate where traffic is slow moving or traffic volumes are lower. They are maintained with the rest of the carriageway under the pavements asset category. All traffic services and street lighting associated with these lanes are maintained within the respective asset categories.

- Off-road cycle paths and shared use paths which consist of a separate facility either adjacent to the road carriageway or away from the road through reserve or other space. These are appropriate in high speed and higher traffic volume locations. The path is maintained under this asset category. All traffic services and street lighting associated with these lanes are maintained within the respective asset categories.

Improvements to the cycling network are developed through this asset category, whether on-road or off-road.

19.2. Key Issues

- Whakatane has a high fatal and serious crash rate for vulnerable users on urban arterial and collector roads.

- Residential growth on the western side of the river will lead to increased pressure on the urban arterial access into town unless suitable infrastructure supporting mode choice is developed.

- An ageing population will see an increased demand for mobility scooters and e-bikes access.

- Shifting government attitudes and policy towards walking and cycling over time has resulted in an ad-hoc, dis-jointed development of these facilities. The facilities developed are good, but linkage is poor.

- Opportunities exist for shifting car users onto a different mode to relieve pressure on the arterial network and in the cycle tourism space.

- The current WDC Walking and Cycling Strategy was completed in 2007, and latest implementation plan in 2013. Both are out of date with current policy, opportunities and issues.

- The RAMM data for existing lanes and paths is not complete or accurate. Fortunately, the number of assets involved is small and a relatively minor task to correct.

19.3. Link to Strategic case

Asset Group		1 Core Investment	2 Asset Management			3 Road Safety		4 Growth			5 Travel Modes			6 Resilience		7 Unsealed Roads		
		Appropriate levels of service delivered into the future at an appropriate level of investment	Stronger evidence base	Informed decision making	Value for money	Safer roads and roadsides	Reducing deaths and serious injuries	Congestion levels of service meet community expectations	Thriving, growing, economy	Satisfied community	Increase uptake of alternative modes of transport	Increased community and environmental health	Reduced pressure on primary modes	24/7 access to essential services	Improved route security	Improved environmental and health benefits	ONRC levels of service are met	Whole of life maintenance costs are reduced
Cycleways	Maintenance	X				X	X				X	X	X					
	Renewals	X				X	X				X	X	X					
	Improvements					X	X	X	X	X	X	X	X					

19.4. Levels of Service & Desired Outcomes

19.4.1. ONRC Performance Measures

ONRC Performance Measures				Target (2018-21)					WDC Performance (16/17)					WDC Trend					WDC Vs Peer Group Performance				
Outcome	No.	Measure		Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume
Safety	CO1	The number of fatal and serious injuries on the network.	Rural	Decreasing all classes					2	4	4	0	0	⇩	⇩	⇧	⇩	⇔	-	-	-	-	-
			Urban	Decreasing all classes					1	0	2	0	0	⇩	⇩	⇔	⇔	⇔	-	-	-	-	-
			Combined	Decreasing all classes					3	4	6	0	0	⇩	⇩	⇧	⇩	⇔	-	-	-	-	-
	CO2	Collective risk (fatal and serious injury rate per kilometre)	Rural	Decreasing all classes					0.043	0.016	0.018	0.004	0.000	-	-	-	-	-	0.094	0.032	0.013	0.005	0.002
			Urban	Decreasing all classes					0.184	0.078	0.019	0.010	0.003	-	-	-	-	-	0.169	0.070	0.038	0.013	0.007
			Combined	Decreasing all classes					0.081	0.022	0.018	0.005	0.001	-	-	-	-	-	0.123	0.044	0.018	0.006	0.003
	CO3	Personal risk (fatal and serious injury rate by traffic volume)	Rural	Decreasing all classes					4	8	12	11	0	-	-	-	-	-	6	7	9	12	15
			Urban	Decreasing all classes					6	5	4	6	10	-	-	-	-	-	6	6	9	9	21
			Combined	Decreasing all classes					5	6	9	10	6	-	-	-	-	-	6	6	9	10	18
	TO8	cycle path faults	Rural	4 max	4 max	4 max	4 max	4 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Urban	4 max	4 max	4 max	4 max	4 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TO9	vulnerable users	Rural	Decreasing all classes					2	2	5	2	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-
			Urban	Decreasing all classes					7	4	3	1	1	⇩	⇔	⇔	⇔	⇔	-	-	-	-	-
			Combined	Decreasing all classes					9	6	8	3	1	⇩	⇔	⇔	⇔	⇔	-	-	-	-	-
Travel Time Reliab	CO1	throughput at indicator sites	Rural	>80% capacity < 1 hour/day					-	-	-	-	-	⇔	N/A	N/A	N/A	N/A	-	-	-	-	-
			Urban	>80% capacity < 1 hour/day						-	-	-	-	⇩	N/A	N/A	N/A	N/A	-	-	-	-	-

19.5. Evidence Base

19.5.1. On-Road Cycle Lanes

- College Rd, Edgecumbe. From Shops through to Edgecumbe College. 0.6km, chip seal.
- Commerce St, Whakatane, Full length from The Strand through to Gorge Rd. 1.35km, AC and chip seal.
- Pohutukawa Ave, Ohope, Full length from Ohope Rd to Harbour Rd. 3.3km, AC and chip seal, One bridge.

19.5.2. Off-Road Cycle & Shared Use Paths

- Galatea Rd, Waiohau, Full length of village, 0.8km, unsealed.
- Gorge Rd, Whakatane, Full length, 1.52km, Concrete.
- Keepa Rd. Whakatane, Full length, 1.96km, Chipseal, One bridge.
- Ohope Rd, Whakatane, Full length, 3.46km, Concrete & unsealed.
- Ruatoki Valley Rd, Ruatoki, From village to school, 1.26km, Concrete.
- Wainu Te Whara Path, Whakatane, From King St to Hinemoa St, 620m, Concrete (under construction)
- Warren Cole, Whakatane, Landing Rd Bridge to Info Centre, 3.14km, Concrete

19.6. Life Cycle Management

19.6.1. Operations & Maintenance

Maintenance requirements are currently quite low as most of the paths are relatively new. Typical maintenance requirements include:

- Ohope Rd path. Minor redressing of the unsealed surface with crusher dust. Sweeping the concrete section from detritus build up, mostly chip flicked up by vehicles from the road. A section between Foxglove and Burma Rd is problematic with a fretting pumice bank leaving detritus on the path and ground water oozing out over the path.
- Keepa Rd path. Maintenance on this path is being deferred. Only the minimum maintenance necessary to keep it serviceable is programmed until a planned improvement project is completed. This is discussed further under 20.6.3 below.
- College Rd cycle lane. Maintenance on this path is being deferred as it was substantially damaged by the Edgecumbe flood wall breach. Only the minimum maintenance necessary to keep it serviceable is programmed until a planned improvement project is completed. This is discussed further under 20.6.3 below.

19.6.2. Renewals

There are no renewals requirements identified through the 10 year period of this plan.

19.6.3. Improvements

The current WDC Walking and Cycling Strategy was completed in 2007, and latest implementation plan in 2013. Both are out of date with current policy, opportunities and issues.

Whakatane will be developing a new Walking and Cycling strategy to meet the requirements of a strategic case before July 2018. The proposed programme business case in year 1 of the LTP will develop an updated programme of projects to deliver on the strategic case. The majority of these projects will be delivered through the low cost low risk programme.

Further to what may come from the Walking and Cycling PBC, there are four projects where a case for investing exists now and these have been included in the low cost low risk programme for 2018-21. These are detailed below:

Keepa Rd Shared Use Path Reconstruction	
Project Background	The existing path is due for resurfacing. However the path itself is substandard width and the interface with the road causes safety and maintenance problems. Traffic is growing on this road and it now meets the requirements as a rural arterial. The BOPRC are undertaking canal remediation works adjacent to a section of this path and have advised those works may cause some significant damage which they will contribute to the reinstatement of. The stormwater runs directly off the road and into the canal and this presents a contamination problem.
Project Solution	Reconstruct the path to suitable width. Construct kerb and channel to provide a safe interface between road and path, and collect road runoff for treatment before discharging into the canal. Construct in conjunction with guardrail project to prevent loss of control crashes ending in the canal.
Benefits Contribution	Road Safety, Growth; Travel Modes
Estimate	$900k (+$100k for guardrail project)
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2020/21

College Rd Shared Use Path	
Project Background	The existing cycle lane runs past the section where the flood wall collapsed in the April 2017 floods. Prior to the flood it was already well overdue for renewals. Reconstruction of the stop bank will require relocation of the road and cycle lane. The BOPRC are funding this work. During discussions with BOPRC it was agreed that reconstructing as an off road shared use path would be a much better outcome. BOPRC will fund and construct the section where they are doing the reconstruction. This leaves the links either end, to the SH and shops one end, and the college at the other end, to be reconstructed to the same standard.
Project Solution	Construct new off-road cycle lane to link BOPRC section to town and college. Will require relocation of kerb & channel.
Benefits Contribution	Safety; Travel Modes; Cost Efficiency.
Estimate	$200k
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2018/19

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Bunyan Rd East Shared Use Path	
Project Background	This is a rural low volume road that provides sole access to the area known as Piripai. This area is going through a rapid urbanisation which will provide around 700 dwellings in the mid-term. The road will become an urban secondary collector. Storm water runoff form the road will need to be collected and disposed in manner that does not cause nuisance to private properties. This development will add further to the current congestion at the SH30 Whakatane River bridge. It will be important to have well established walking and cycling links into town to provide viable alternative modes and avoid "locking in" private cars as the only option.
Project Solution	Construct a shared use path linking to the Keepa Rd path into town.
Benefits Contribution	Growth; Travel Modes
Estimate	$300k
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2018/19

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Wainui Rd Shared Use Path	
Project Background	Wainui Rd is a substandard rural arterial. It is currently subject to a business case through the safe roads alliance. They are not considering cycling in the mix of solutions. The section from Ohope through to Burma Rd is heavily used by tourists, it provides access to the local mountain bike park, and forms part of a popular recreation cycle and running loop. The stormwater runs directly off the road and into the canal and this presents a contamination problem for the Harbour. The strip between the road and Harbour margin is dominated by invasive noxious weeds and scrub and is a major rubbish problem.
Project Solution	Construct an off-road path alongside the Harbour. Construct kerb and channel to provide a safe interface between road and path where it crosses the causeways and collect road runoff for treatment before discharging into the Harbour. This will address safety problems. It will also enable access to the Harbour margins for major overdue environmental enhancement works. The estimate below is Councils proposed share. The plan is to deliver this project in partnership with a collection of community groups and other agencies. Council will be developing a strategic case to support this project over the coming months.
Benefits Contribution	Road Safety, Travel Modes
Estimate	$500k
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2020/21

19.6.4. *Asset Acquisition*

Asset acquisition typically involves a developer investing assets constructed during development of sub divisions with the Council. The WDC Engineering Code of Practice sets out the policies and procedures for this process to ensure assets are constructed to the required standard and all relevant data is transferred and entered into RAMM.

Subdivisions currently underway or in the planning process that will result in assets being transferred to WDC include:

- Shaw Rd

No allowance has been made in maintenance budgets for new assets in this RLTP round. The quantities of assets potentially being acquired are small in relation to the whole network, and new assets should require little to no maintenance. Budget adjustments will be made at each new RLTP period as assets are acquired.

19.6.5. *Asset Disposal*

There are no plans to dispose of any cycle assets within the Whakatāne District.

19.7. Options Assessment

Option	Risks	ONRC Outcomes	Benefits Contributed to	Preferred
Data Collection				
Timely, accurate as-built data				✓
Operations & Maintenance				
Do not maintain paths	Reduce active modes share Increase safety risk as cyclists choose to ride on road instead of badly maintained paths.	Safety – negative	Nil	
Maintenance as proposed		Safety – positive	Core Investment Road Safety Travel Modes	✓
Improvements				
Reconstruct Keepa Rd Shared Use Path	Reduces safety risk for all mode users, Supports uptake of active modes	Safety – positive Travel Time Reliability – positive Cost Efficiency – short term negative, long term positive	Road safety Growth Travel Modes	✓
Maintain existing Keepa Rd path only	Safety risk increases as traffic volumes grow, Locks residents into private motor vehicles as the only viable mode choice. Increases congestion on SH30/urban arterial access to town.	Safety – negative Travel Time Reliability – negative Cost Efficiency – short term positive, long term negative	Nil	
Construct College Rd Shared Use Path	Reduces safety risk for all mode users, Supports uptake of active modes	Safety – positive	Road safety Travel Modes	✓
Maintain existing College Rd lane only	Safety risk increases	Safety – negative	Nil	

Option	Risks	ONRC Outcomes	Benefits Contributed to	Preferred
Construct Bunyan Rd East Shared Use Path	Removes barrier to growth, Reduces safety risk for all mode users, Supports uptake of active modes	Safety – positive Travel Time Reliability – positive Cost Efficiency – short term negative, long term positive	Road safety Growth Travel Modes	✓
Do not Construct Bunyan Rd East Shared Use Path	Safety risk increases as traffic volumes grow, Locks residents into private motor vehicles as the only viable mode choice. Increases congestion on SH30/urban arterial access to town.	Safety – negative Travel Time Reliability – negative Cost Efficiency – short term positive, long term negative	Nil	
Construct Wainui Rd Shared Use Path	Reduces safety risk for all mode users, Supports uptake of active modes	Safety – positive	Road safety Travel Modes	✓
Do not Construct Wainui Rd Shared Use Path	Safety risk increases as traffic volumes grow,	Safety – negative	Nil	

19.8. Preferred Programme of Works

Work Category	WDC Job Number	10 Year Programme									
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
LOC124 Cycle Path Maintenance	T30268	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
LOC341 Low Cost Low Risk Roading Improvements - Cycleways	T314XX	$ -	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
LOC341 Low Cost Low Risk Roading Improvements Keepa Rd Upgrade K&C, Cycle Path	T314X2	$ -	$ -	$ -	$ 900,000	$ -	$ -	$ -	$ -	$ -	$ -
LOC452 Cycling Facilities											
Total		**$ 15,000**	**$ 265,000**	**$ 265,000**	**$ 1,165,000**	**$ 265,000**	**$ 115,000**	**$ 115,000**	**$ 115,000**	**$ 115,000**	**$ 115,000**

19.9. Improvement & Monitoring

- Update RAMM with correct all as-built data for off road shared use paths.
- Develop a counting program on key cycleway routes to establish base demand and growth.
- Develop a forward work program for off-road cycle facilities.

20. Footpaths

20.1. Overview

The purpose of a footpath is primarily to provide a safe and unobstructed place on which pedestrians can walk. With legislation changes, children aged 14 and under will be able to ride a cycle on the footpath. Footpaths are also the approved space for the use of mobility scooters. Footpaths for commercial purposes helps create a vibrant atmosphere in the urban town centres.

20.2. Key Issues

- Damage to footpaths as a result of vehicles driving over them and from tree roots, both breaking the concrete and creating trip hazards.
- Changing user demands and potential for increased conflicts as a result of legislation changes and uptake of mobility scooters from the aging population.
- Incomplete network and poor linkages at some locations.

20.3. Link to Strategic case

Asset Group		1 Core Investment	2 Asset Management			3 Road Safety		4 Growth			5 Travel Modes			6 Resilience		7 Unsealed Roads		
		Appropriate levels of service delivered into the future at an appropriate level of investment	Stronger evidence base	Informed decision making	Value for money	Safer roads and roadsides	Reducing deaths and serious injuries	Congestion levels of service meet community expectations	Thriving, growing, economy	Satisfied community	Increase uptake of alternative modes of transport	Increased community and environmental health	Reduced pressure on primary modes	24/7 access to essential services	Improved route security	Improved environmental and health benefits	ONRC levels of service are met	Whole of life maintenance costs are reduced
Footpaths	Maintenance	X				X	X				X	X	X					
	Renewals	X				X	X				X	X	X					
	Improvements					X	X	X	X	X	X	X	X					

20.4. Levels of Service & Desired Outcomes

20.4.1. ONRC Performance Measures

ONRC Performance Measures				Target (2018-21)					WDC Performance (16/17)					WDC Trend					WDC Vs Peer Group Performance				
Outcome	No.	Measure		Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume
Safety	CO1	The number of fatal and serious injuries on the network.	Rural	Decreasing all classes					2	4	4	0	0	⇩	⇩	⇧	⇩	⇔	-	-	-	-	-
			Urban	Decreasing all classes					1	0	2	0	0	⇩	⇩	⇔	⇔	⇔	-	-	-	-	-
			Combined	Decreasing all classes					3	4	6	0	0	⇩	⇩	⇧	⇩	⇔	-	-	-	-	-
	CO2	Collective risk (fatal and serious injury rate per kilometre)	Rural	Decreasing all classes					0.043	0.016	0.018	0.004	0.000	-	-	-	-	-	0.094	0.032	0.013	0.005	0.002
			Urban	Decreasing all classes					0.184	0.078	0.019	0.010	0.003	-	-	-	-	-	0.169	0.070	0.038	0.013	0.007
			Combined	Decreasing all classes					0.081	0.022	0.018	0.005	0.001	-	-	-	-	-	0.123	0.044	0.018	0.006	0.003
	CO3	Personal risk (fatal and serious injury rate by traffic volume)	Rural	Decreasing all classes					4	8	12	11	0	-	-	-	-	-	6	7	9	12	15
			Urban	Decreasing all classes					6	5	4	6	10	-	-	-	-	-	6	6	9	9	21
			Combined	Decreasing all classes					5	6	9	10	6	-	-	-	-	-	6	6	9	10	18
	TO9	vulnerable users	Rural	Decreasing all classes					2	2	5	2	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-
			Urban	Decreasing all classes					7	4	3	1	1	⇩	⇔	⇔	⇔	⇔	-	-	-	-	-
			Combined	Decreasing all classes					9	6	8	3	1	⇩	⇔	⇔	⇔	⇔	-	-	-	-	-
Travel Time Reliab	CO1	throughput at indicator sites	Rural	>80% capacity < 1 hour/day					-	-	-	-	-	⇔	N/A	N/A	N/A	N/A	-	-	-	-	-
			Urban	>80% capacity < 1 hour/day						-	-	-	-	⇩	N/A	N/A	N/A	N/A	-	-	-	-	-

20.5. Evidence Base

20.5.1. Asset by components, age, valuation:

Footpath Asset	Length m	QTY ea	RC	DRC	Ann DRC	base Life	Avg Age	Avg RUL	% Base Life consumed
Concrete	179068	1186	$15,830,872.25	$6,948,073.25	$316,517.22	50	27	23	54
AC	7696	97	$1,732,597.78	$787,359.30	$55,326.67	50	20	13	40
Other Surfaces	10372	128	$2,289,866.03	$1,244,330.89	$54,499.36	50	22	31	44
Total	197136	1411	$19,853,336.06	$8,979,763.44	$426,343.25				

20.6. Life Cycle Management

20.6.1. Operations & Maintenance

Works are identified and programmed for repair by a Footpath Inspection company every 2 years. The inspection method includes prioritising, taking photographs and GPS locating all faults. A programme of repair work in accordance with the Engineering Code of Practice is then procured. Work that is identified outside of this programme, either through customer services requests or other inspections is also prioritised and repaired.

Footpath edges are sprayed under the in-house Places and Open Spaces vegetation control contract unit.

Council staff manage the complaints received on footpath condition and approve the location and construction of vehicle crossings.

Footpaths in the CBD areas are subject to a higher rate of inspection because of the higher pedestrian traffic they are subject to. These are generally constructed in cobbles or exposed aggregate concrete.

The intervention level for the repair of concrete footpath has been set at a > 10 mm lip, settled to a stage where the path is uneven, unsafe or ponding water.

Replacement of a length of footpath not exceeding 10 metres is deemed to be maintenance.

CBD Footpath cleaning is done annually prior to the Xmas break which is done in a non-damaging manner so as not to disturb the jointing sand between cobbles.

Maintenance programs will be delivered through the WDC Contract Panel arrangement.

20.6.2. Renewals

Replacement of a length of footpath exceeding 10 metres is deemed to be renewal.

Renewal programs will be delivered through the WDC Contract Panel arrangement.

20.6.3. Improvements

New assets are created at the time of sub divisional development. They are also created where a street has no footpaths on either side of the street or on one side only, and the Council has determined that a footpath would be of benefit to the community.

With the changes to legislation and the uptake in mobility scooter use, there is a need to widen some of the higher use footpaths around schools, hospitals and rest homes to accommodate this increased mode use. Many requests have been received and endorsed by the Disabilities Resource Centre to provide pedestrian crossing facilities across some of our high trafficked streets; Landing Rd, Harbour Rd, Pohutukawa Ave and Ocean Rd, and to provide better transitions (pedestrian let-downs) from the footpath to the road. This programme will be funded through the Low Cost Low Risk Roading Improvements Programme.

Improvement programs will be delivered through the WDC Contract Panel arrangement.

20.6.4. Disposal

Whakatane District Council has no plans to dispose of any foot path assets at this time.

20.7. Preferred Programme of Works

Work Category	WDC Job Number	10 Year Programme									
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
LOC341 LCLR Roading Improvements - Walking Facilities	T31453	$ 30,000	$ 30,000	$ 30,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
LOC341 LCLR Roading Improvements - New Footpaths	T31454	$ 170,000	$ 100,000	$ 180,000	$ 130,000	$ 130,000	$ 130,000	$ 130,000	$ 130,000	$ 130,000	$ 130,000
LOC451 Walking Facilities											
LOC125 Footpath Maintenance	T34157	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000	$ 140,000
LOC125 CBD Footpath Cleaning	T34158	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000	$ 55,000
LOC125 Footpath Renewal	T35154	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
Total		**$ 445,000**	**$ 375,000**	**$ 455,000**	**$ 375,000**	**$ 375,000**	**$ 375,000**	**$ 375,000**	**$ 375,000**	**$ 375,000**	**$ 375,000**

20.8. Improvement & Monitoring

- No improvements have been identified.

21. Traffic Services

21.1. Overview

Traffic services encompasses a range of assets and activities that facilitate the safe use of the transportation system.

- Road signs provide this assistance by giving advance warning, by highlighting hazards or other obstructions, by providing information about road names, place names and distances, advise safe cornering speeds and maximum speed limits.
- Delineation (line marking, RRPMs, edge marker posts) allows road users to position their vehicles in the correct location on the road to avoid collisions and allows the user to read the road ahead.
- Guardrails reduce the severity of a crash by preventing an errant vehicle from a drop, a solid object, or submersion in a water body that would otherwise likely result in death.
- Vegetation control ensures adequate sight distance is maintained, noxious weeds in the road corridor are managed, fire risk is contained, and that it is safe for a vehicle to pull onto the verge if necessary.
- Traffic islands channelize traffic at busy intersections to improve efficiency and reduce crash risk by minimising conflict areas.

21.2. Key Issues

- Vandalism of signs.
- Increase in road marking costs
- Increase in environmental maintenance costs
- Some bridges and drop off areas have no guardrail
- Increasing inventory of active/smart warning signs.

21.3. Link to Strategic case

Asset Group		1 Core Investment	2 Asset Management			3 Road Safety		4 Growth			5 Travel Modes			6 Resilience		7 Unsealed Roads		
		Appropriate levels of service delivered into the future at an appropriate level of investment	Stronger evidence base	Informed decision making	Value for money	Safer roads and roadsides	Reducing deaths and serious injuries	Congestion levels of service meet community expectations	Thriving, growing, economy	Satisfied community	Increase uptake of alternative modes of transport	Increased community and environmental health	Reduced pressure on primary modes	24/7 access to essential services	Improved route security	Improved environmental and health benefits	ONRC levels of service are met	Whole of life maintenance costs are reduced
Traffic Services	Maintenance	X				X	X											
	Renewals	X				X	X											
	Improvements					X	X	X	X	X								

21.4. Levels of Service & Desired Outcomes

21.4.1. ONRC Performance Measures

ONRC Performance Measures				Target (2018-21)					WDC Performance (16/17)					WDC Trend					WDC Vs Peer Group Performance				
Outcome	No.	Measure		Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume
Safety	CO1	The number of fatal and serious injuries on the network.	Rural	Decreasing all classes					2	4	4	0	0	⇩	⇩	⇧	⇩	⇔	-	-	-	-	-
			Urban	Decreasing all classes					1	0	2	0	0	⇩	⇩	⇔	⇔	⇔	-	-	-	-	-
			Combined	Decreasing all classes					3	4	6	0	0	⇩	⇩	⇧	⇩	⇔	-	-	-	-	-
	CO2	Collective risk (fatal and serious injury rate per kilometre)	Rural	Decreasing all classes					0.043	0.016	0.018	0.004	0.000	-	-	-	-	-	0.094	0.032	0.013	0.005	0.002
			Urban	Decreasing all classes					0.184	0.078	0.019	0.010	0.003	-	-	-	-	-	0.169	0.070	0.038	0.013	0.007
			Combined	Decreasing all classes					0.081	0.022	0.018	0.005	0.001	-	-	-	-	-	0.123	0.044	0.018	0.006	0.003
	CO3	Personal risk (fatal and serious injury rate by traffic volume)	Rural	Decreasing all classes					4	8	12	11	0	-	-	-	-	-	6	7	9	12	15
			Urban	Decreasing all classes					6	5	4	6	10	-	-	-	-	-	6	6	9	9	21
			Combined	Decreasing all classes					5	6	9	10	6	-	-	-	-	-	6	6	9	10	18
	TO1	permanent hazards	Rural	1 max	3 max	5 max	7 max	10 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Urban	1 max	1 max	2 max	2 max	3 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TO3	sight distances	Rural	100%	100%	95%	90%	80%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Urban	100%	100%	95%	90%	80%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TO4	loss of control on wet roads	Rural	Decreasing all classes					1	2	5	0	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-
			Urban	Decreasing all classes					2	2	0	0	0	⇩	⇔	⇔	⇔	⇔	-	-	-	-	-
			Combined	Decreasing all classes					3	4	5	0	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-
	TO5	loss of driver control at night	Rural	Decreasing all classes					1	0	4	1	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-
			Urban	Decreasing all classes					0	2	0	0	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-
			Combined	Decreasing all classes					1	2	4	1	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-
	TO6	intersections	Rural	Decreasing all classes					0	1	3	0	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-
			Urban	Decreasing all classes					7	3	1	0	0	⇩	⇔	⇔	⇔	⇔	-	-	-	-	-
			Combined	Decreasing all classes					7	4	4	0	0	⇩	⇩	⇔	⇔	⇔	-	-	-	-	-
	TO9	vulnerable users	Rural	Decreasing all classes					2	2	5	2	0	⇔	⇔	⇔	⇔	⇔	-	-	-	-	-
			Urban	Decreasing all classes					7	4	3	1	1	⇩	⇔	⇔	⇔	⇔	-	-	-	-	-
			Combined	Decreasing all classes					9	6	8	3	1	⇩	⇔	⇔	⇔	⇔	-	-	-	-	-
	TO10	roadside obstructions	Rural	1 max	3 max	5 max	7 max	10 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Urban	1 max	1 max	2 max	2 max	3 max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ONRC Performance Measures				Target (2018-21)					WDC Performance (16/17)					WDC Trend					WDC Vs Peer Group Performance				
Outcome	No.	Measure		Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume	Arterial	Primary Collector	Secondary Collector	Access	Low Volume
Amenity	TO2	asthetic faults	Rural	To be Developed					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Urban	To be Developed					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accessibility	TO1	accessibility	Rural	To be Developed					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Urban	To be Developed					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

21.4.2. *Provision of Delineation*

Council have adopted a tiered approach to the provision of delineation across the network by ONRC category. NZTA's RTS 5 publication Guidelines for Rural Road Delineation were referenced in developing Council's approach which follows below:

21.4.2.1. Delineation Matrix:

	1. REFLECTORISED CENTRELINES	2. REFLECTORISED EDGELINES	3. REFLECTORISED RAISED PAVEMENT MARKERS (CENTRE)	4a. EDGE MARKER POSTS	4b. REFLECTORISED RAISED PAVEMENT MARKERS (EDGELINES)
ARTERIAL	YES	YES	YES	YES	CBC_1
PRIMARY COLLECTOR	YES	YES	YES	CBC_2	CBC_1
SECONDARY COLLECTOR	YES	YES	CBC_3	NO	NO
ACCESS	YES	CBC_4	NO	NO	NO
LOW VOLUME	CBC_5	NO	NO	NO	NO
CBC_1	Case by Case - A subsititute only for when edge marker posts would otherwise be expected, but due to road side structures or pull-off areas they cannot be installed				
CBC_2	Case by Case - Where vertical geometry makes it difficult or unsafe to read road				
CBC_3	Case by Case - Where horizontal geometry makes it difficult or unsafe to read road				
CBC_4	Case by Case - seal width ≤ 6.0m				
CBC_5	Case by Case - seal width ≤ 5.5m				

21.5. Evidence Base

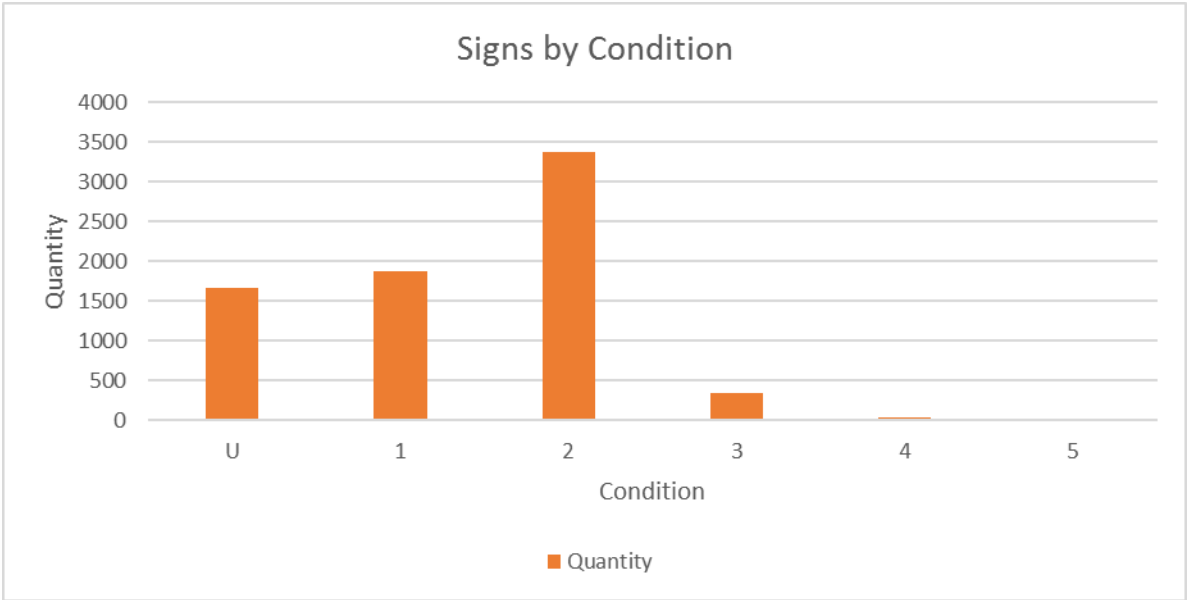
21.5.1. Asset by components, age, valuation:

Signs Asset	QTY ea	RC	DRC	Ann DRC	base Life	Avg Age	Avg RUL	% Base Life consumed
Directional	136	$202,725.51	$155,489.66	$10,129.60	20	5	15	25
Fingerboards	1229	$236,862.87	$108,230.62	$15,362.62	15	8	7	53
Information	398	$78,573.79	$45,749.99	$5,175.73	15	6	9	40
Markers	301	$5,943.52	$1,195.07	$944.96	3	2	1	67
Miscellaneous	17	$5,460.56	$3,038.26	$361.52	15	7	8	47
Non Standard	20	$5,952.12	$2,292.74	$392.79	15	9	6	60
Permanent warning	2218	$460,405.08	$270,979.54	$30,235.13	15	6	9	40
Regulatory	2202	$465,987.68	$242,739.04	$30,277.61	15	7	8	47
Total	6521	$1,461,911.13	$829,714.92	$92,879.96				

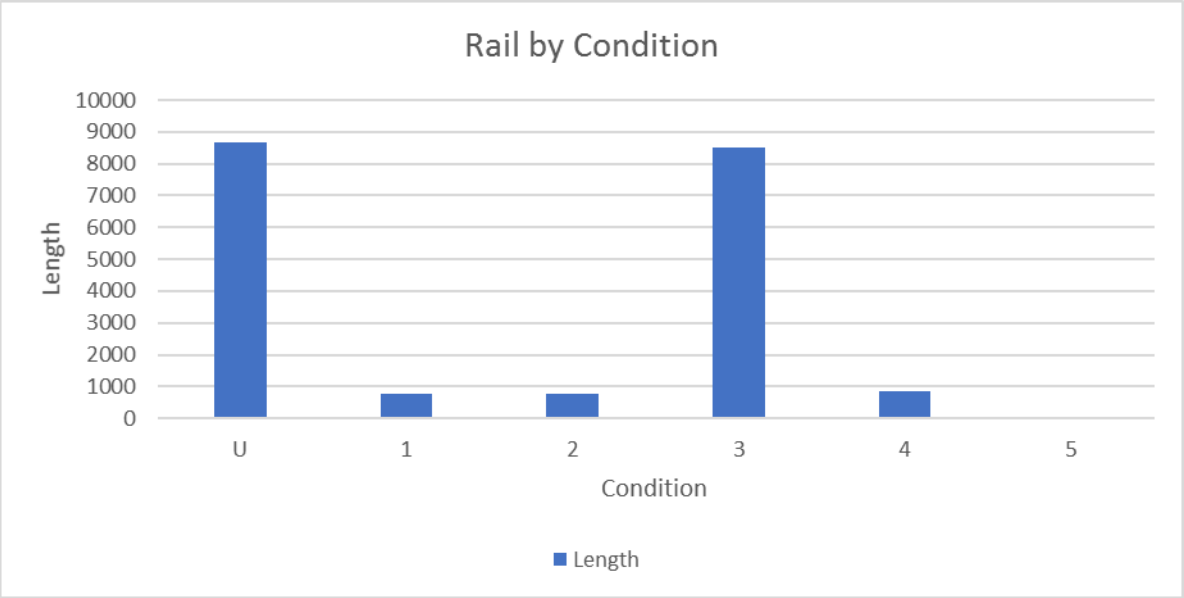
Railing Asset	Length m	QTY ea	RC	DRC	Ann DRC	base Life	Avg Age	Avg RUL	% Base Life consumed
Guardrail W	9169	216	$3,023,119.42	$164,249.43	$134,665.79	20	18	6	90
Sight Rail	6189	447	$370,846.06	$61,586.05	$22,509.06	10	21	2	210
Other	3819	145	$1,204,094.07	$528,411.47	$56,066.37	20	8	15	40
Total	19177	808	$4,598,059.55	$754,246.95	$213,241.22				

Island Asset	QTY ea	RC	DRC	Ann DRC	base Life	Avg Age	Avg RUL	% Base Life consumed
Concrete	163	$1,775,403.14	$1,290,817.96	$35,508.06	50	15	35	30
Landscaped	190	$3,576,836.26	$1,810,859.21	$71,536.72	50	18	32	36
Paved	39	$409,475.67	$303,207.57	$8,189.51	50	12	38	24
Total	392	$5,761,715.07	$3,404,884.74	$115,234.29				

21.5.2. Signs Condition



21.5.3. Guardrail Condition



Historically Council have only collected fault data for these asset types and responded reactively to fixing those. Over the last few years an overall condition has been assigned to each asset as part of the RAMM database validation process. Those assets with unknown condition relate primarily to sections of the network that remain to be validated.

21.6. Life Cycle Management

21.6.1. Operations, Maintenance & Renewal

21.6.1.1. Delineation

Delineation is provided in accordance with the delineation matrix above. And the NZTA Manual or Traffic Signs and Markings Part 2 – Markings.

Line marking is reapplied annually to all traffic lane, centreline and priority controls. Urban medians, cycle lanes, no stopping and car park markings are reapplied every second year. Application is completed in accordance with NZTA P/22 Specification for Reflectorised Pavement Marking. Applicators must be NZTA T/8 certified and operators trained and qualified for type A and type B markings as appropriate.

Historically only arterials were marked annually and the remainder of the network every 2nd year. It was noted that by the time two years rolled around markings on the lower classification roads were getting quite faded. Compounding this issue the lower classifications do not have EMP or RRPMs to provide additional guidance. When considered alongside the loss of control crash history for the lower classifications an annual remarking cycle was considered appropriate.

RRPM are assessed visually during an annual night inspection and a replacement programme developed. RPMs must comply with NZTA M/12 Specification for Raised Pavement Markers.

Edge marker posts are installed in qualifying locations in accordance with NZTA P/16 – Specification for the Installation of Edge Marker Posts. EMP have proved problematic on several fronts. They are used by local hunters regularly for target sighting, the mowing contractor often runs over them, the road maintenance contractor routinely removes them during drainage maintenance and then neglects to reinstate them, and contracting staff who actually understand and can install EMP in accordance with MOTSAM are as rare as hens teeth.

21.6.1.2. Signs

Council has adopted the NZTA Traffic Control Devices Manual for signs which is a means of compliance with the Traffic Control Devices Rule 2004 and subsequent amendments.

Signs maintenance is driven by patrols undertaken by the signs contractor and audits completed by PSBU staff, supplemented by community feedback. PSBU staff directly instruct the contractor were to focus patrols and what activities to focus on. Arterials are patrolled weekly, and other classifications at lesser frequencies, with the lowest volume roads patrolled every 3 months. An annual night inspection identifies any signs that may have survived long enough to have degraded reflectivity. PSBU staff audit 10% of the network every month.

Vandalism continues to be a major maintenance and renewals cost driver with bent over posts, stolen signs and graffiti featuring the most. Strategies employed to combat vandalism include:

- Using stronger fluted aluminium posts that vandals cannot bend. Each post is more expensive, but very few ever have to be replaced.
- Using tamper proof bolts on signs where theft is high. These are a last resort as it makes future maintenance replacements difficult.
- Currently running a trial using anti graffiti coatings. These will be continued if found cost effective.
- Using steel or aluminium poles in remote rural areas where theft of wooden posts is prevalent.

The other main driver of replacement is vehicle damage. Between vehicle damage and vandalism very few signs ever require replacement for condition. This is indicated on the sign condition graph above with the vast majority either at 1 or 2 on the condition rating scale.

In recent years Council have been installing a growing number of active warning signs including for school zones, out of context corners, and concealed intersections. Council have also entered into an agreement with the Tauranga TOC for video monitoring of the urban arterials. These installations have growing maintenance needs and a new funding application for work category 123, Operational Traffic Management, is included

21.6.1.3. Rails

Guardrail and sight rail maintenance is typically reactive and based on vehicular damage and environmental damage (flooding). Guardrail and sight rail maintenance inspections are carried out 6-monthly on all roads except on Arterial and Primary Collector roads where they are inspected quarterly. These inspections identify non-compliances and ensure remedial works are carried out in a timely manner.

When guardrail is replaced it is designed and installed in accordance with NZTA M/23 Specification for Road Barrier Systems by experts trained and certified by NZTA.

Sight rail is a target for theft and vandals. It is also a relatively expensive measure to install and maintain. Sight rail is generally installed to provide visual guidance, often where there is a lack of backdrop or other visual clues. Sight rails are not recognised by MOTSAM or the TCD Manual as a delineation device. In a number of locations it appears to have been installed in lieu of guardrail, which is completely inappropriate, as it gives a false sense of security to the motorist. When sight rail requires replacing, the need for it in the first place is considered. If possible it is removed and other forms of recognised delineation installed.

21.6.1.4. Vegetation Control

Mowing and chemical control are completed to an annual schedule on a measure and value basis. Operators for chemical control must have the appropriate chemical handlers qualification.

The annual high cut (control of the tree canopy encroaching into the vegetation free zone) is identified and programmed from inspections undertaken by PSBU staff.

Planted or self-sown trees that present a safety issue are identified and programmed from inspections by PSBU staff. Small individual tress and scrub is taken care of by the road maintenance contractor. Council work with various land owners and forestry operators to encourage them to take responsibility for planted trees.

Vegetation control has come under increasing cost pressure over the past few years. This pressure has resulted from a rationalisation of suppliers driven in part by the NZTA NOC contracts, a growing noxious weed problem, increasing numbers of self-sown trees in road reserve, and increasing regulatory compliance costs. This has lead Council to re-structure their approach to this activity. This includes:

- Recognising that the extent of seasonal growth is a risk to the contractor that they have no control over so attracts a significant level of risk in the pricing of performance based vegetation control contracts (confirmed by contractors). Council are better placed to manage the level of service / cost trade offs.
- Revisiting mowing standards viewed through the objective lens of the ONRC performance measures.
- Working with contractors to establish mowing widths and control envelopes to enable efficient application of plant. For example, reducing the width from 1.8m to 1.5m allows a single pass with a smaller lower cost plant item, instead of requiring two passes or a larger more expensive plant item.
- Separating the high cut (canopy) maintenance from mowing. This item adds significant cost risk to the contractor and often requires more specialist plant. It is more efficient to manage as a separate activity.
- Working with forest harvesting operators and private property owners to control planted or self sown trees and scrub in the road reserve.
- Only managing weed pests where the adjacent property owner is managing the problem.

21.6.1.5. Funding Levels for Maintenance, Operations and Renewals

Across the traffic services and street lighting categories there are some ups and downs when assessed against previous funding levels. Overall the 2018-21 program for traffic services is lower than 2015-18. Evan more so when escalation and administration changes are taken into account. Whakatane is in the mid-range of costs when compared to other provincial centres. Condition is stable and there is no backlog of maintenance and renewals. The requested funding is appropriate.

21.6.2. Improvements

Improvements are entirely safety related and delivered through the low cost low risk improvement program.

Deficiencies are identified and recorded through routine inspections by PSBU and contractors, annual day and night safety inspections, and feedback from the community. They are entered into a safety deficiency database and prioritised. Identified improvements typically include:

- New guardrail to protect from roadside drops and other hazards.
- Improved delineation to allow the road user to safely negotiate hazards.
- New or improved curve warning signs for out of context curves.

Through 2018-21 a targeted program will address a significant drop hazard on the Te Whaiti and Ruatahuna SP roads. Details as follows:

Te Whaiti & Ruatahuna Rd Guardrail Improvements	
Project Background	Whakatane has high and very high levels of personal risk on the remote parts of the District served by collector roads. Crashes feature a high portion of loss of control type crashes. The route though Ruatahuna and on to Waikaremoana is mountainous and tortuous. The road is narrow, with blind corners and very high unprotected drops. This road is part of a promoted tourist route (Te Urewera Rainforest Route) and tourism is growing, especially for remote adventurous destinations off the beaten track. The current social crash cost on this route exceeds $1M per annum and is likely to grow with increased tourist numbers.
Project Solution	Guardrail construction to address the highest priority areas where 85% of the crashes occur.
Benefits Contribution	Road Safety
Estimate	$500k/yr over 3 years
Work Category	341 Low Cost Low Risk Improvements
Project Timing	2018-21

21.6.3. Asset Acquisition

Asset acquisition typically involves a developer investing assets constructed during development of sub divisions with the Council. The WDC Engineering Code of Practice sets out the policies and procedures for this process to ensure assets are constructed to the required standard and all relevant data is transferred and entered into RAMM.

Subdivisions currently underway or in the planning process that will result in assets being transferred to WDC include:

- Shaw Rd
- Bunyan Rd East Piripai Block
- Keepa Rd / SH 30 Corner
- Bunyan Rd East – Multiple

No allowance has been made in maintenance budgets for new assets in this RLTP round. The quantities of assets potentially being acquired are small in relation to the whole network, and new assets should require little to no maintenance. Budget adjustments will be made at each new RLTP period as assets are acquired.

21.6.4. Asset Disposal

Whakatane District Council has no plans to dispose of any traffic services assets at this time.

21.8. Preferred Programme of Works

Work Category	WDC Job Number	10 Year Programme									
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
LOC114 Structures Maintenance Signs & Rails	T30258	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000
LOC121 Environmntal Maintenance VCC	T30260	$ 280,000	$ 280,000	$ 280,000	$ 280,000	$ 280,000	$ 280,000	$ 280,000	$ 280,000	$ 280,000	$ 280,000
LOC121 Environmntal Maintenance VCC Tree Removal	T30261	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000	$ 60,000
LOC122 Traffic Services Maintenance SMC	T30263	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000
LOC122 Traffic Services Maintenance LMC	T30221	$ 360,000	$ 360,000	$ 360,000	$ 360,000	$ 360,000	$ 360,000	$ 360,000	$ 360,000	$ 360,000	$ 360,000
LOC123 Operational Traffic Management	T30222	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000
LOC215 Structures Component Replacements Rails	T314X1	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
LOC222 Traffic Services Renewals Signs SMC	T31446	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
LOC341 LCLR Roading Improvements - Traffic Services	T31452	$ 240,000	$ 220,000	$ 220,000	$ 220,000	$ 220,000	$ 220,000	$ 220,000	$ 220,000	$ 220,000	$ 220,000
SPR114 Structures Maintenance Rails	T32257	$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000	$ 12,000
SPR121 Environmntal Maintenance VCC	T32259	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000	$ 40,000
SPR121 Environmntal Maintenance Tree Removal	T32436	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000
SPR122 Traffic Services Maintenance SMC	T32261	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
SPR122 Traffic Services Maintenance LMC	T32437	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000	$ 20,000
SPR215 Structures Component Replacements Rails	T33XX2	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
SPR222 Traffic Services Renewals Signs SMC	T33433	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000
SPR341 LCLR Roading Improvements - Traffic Services	T33446	$ 500,000	$ 500,000	$ 500,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
NFA Urban Tree Removal	T34221	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
Total		**$ 1,887,000**	**$ 1,867,000**	**$ 1,867,000**	**$ 1,467,000**	**$ 1,467,000**	**$ 1,467,000**	**$ 1,467,000**	**$ 1,467,000**	**$ 1,467,000**	**$ 1,467,000**

21.9. Improvement & Monitoring

- Explore the development of a more performance based asset renewal/replacement policy for signs and markings.

23. Car Parks

23.1. Overview

The provision of car parks is to ensure the adequate supply of car parking for residents and visitors (both able and disabled) to commercial, recreational and business areas.

23.2. Key Issues

- Ownership of the assets: currently the asset inventory lies within the RAMM database and Maintenance and renewal is deemed a Transport responsibility. Therefore the transportation group manages this function. However, funding responsibility lies with the asset owner be it Transport, community Services or Utilities.

- Inventory and condition Data: capture of all carpark assets into RAMM and condition assessments of the assets to develop robust maintenance and renewals programmes.

23.3. Link to Strategic case

Asset Group		1 Core Investment	2 Asset Management			3 Road Safety		4 Growth			5 Travel Modes			6 Resilience		7 Unsealed Roads		
		Appropriate levels of service delivered into the future at an appropriate level of investment	Stronger evidence base	Informed decision making	Value for money	Safer roads and roadsides	Reducing deaths and serious injuries	Congestion levels of service meet community expectations	Thriving, growing, economy	Satisfied community	Increase uptake of alternative modes of transport	Increased community and environmental health	Reduced pressure on primary modes	24/7 access to essential services	Improved route security	Improved environmental and health benefits	ONRC levels of service are met	Whole of life maintenance costs are reduced
Carparks	Maintenance	X																
	Renewals	X																
	Improvements							X	X	X								

23.4. Levels of Service & Desired Outcomes

23.5. Evidence Base

23.5.1. Asset by components, age, valuation:

Carparks Asset	m2	RC	DRC	Ann DRC	base Life	Avg Age	Avg RUL	% Base Life consumed
Formation		$739,669.00	$523,617.00	$9,342.00	100	0	0	0
Basecourse	54325	$1,667,713.00	$1,180,090.00	$21,070.00	80	19	61	24
Surfacing	43063	$469,086.00	$205,026.00	$29,707.00	12	14	-2	117
Unsealed	1490	$1,328.00	$903.00	$60.00	22	7	15	32
Total	98878	$2,877,796.00	$1,909,636.00	$60,179.00				

23.7. Life Cycle Management

23.7.1. Operations & Maintenance

The maintenance of carparks is included in the scope of the roading maintenance contract. Maintenance repairs are carried out as a result of customer complaints, routine inspections or planned work in preparation for maintenance reseals. General maintenance of car parks comprises the following work activities:

- Pavement patching and repairs
- Metalling and grading of unsealed car parks
- Repair of potholes
- Repair of surface openings and minor surface levelling
- Repair of surface defects (rutting, scabbing, flushing etc)
- Drainage maintenance
- Repairs to concrete kerb and channel, sumps and leads
- Maintenance of signs and markings

23.7.1.1. Deferred Maintenance

There is not considered to be any deferred car parking maintenance.

23.7.2. Renewals

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:

- Resealing/Resurfacing
- Pavement Rehabilitation

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.

23.7.2.1. Deferred Renewals

It is noted that there are some gaps in the current inventory and it is unclear as to whether or not deferred renewals exist.

23.7.3. Improvements

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

23.7.4. Disposal

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

23.8. Preferred Programme of Works

Work Category	WDC Job Number	10 Year Programme									
		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
NFA Car Park Maintenance	T34160	5,000.00	5,000.00	5,000.00	9,000.00	9,000.00	9,000.00	9,000.00	9,000.00	9,000.00	9,000.00
NFA Car Park Renewal	T35XX1	-	-	30,750.00	-	30,750.00	-	30,750.00	-	30,750.00	-
NFA Car Park Improvements	T35XX4	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total		**$ 5,000**	**$ 5,000**	**$ 35,750**	**$ 9,000**	**$ 39,750**	**$ 9,000**	**$ 39,750**	**$ 9,000**	**$ 39,750**	**$ 9,000**

23.9. Improvement & Monitoring

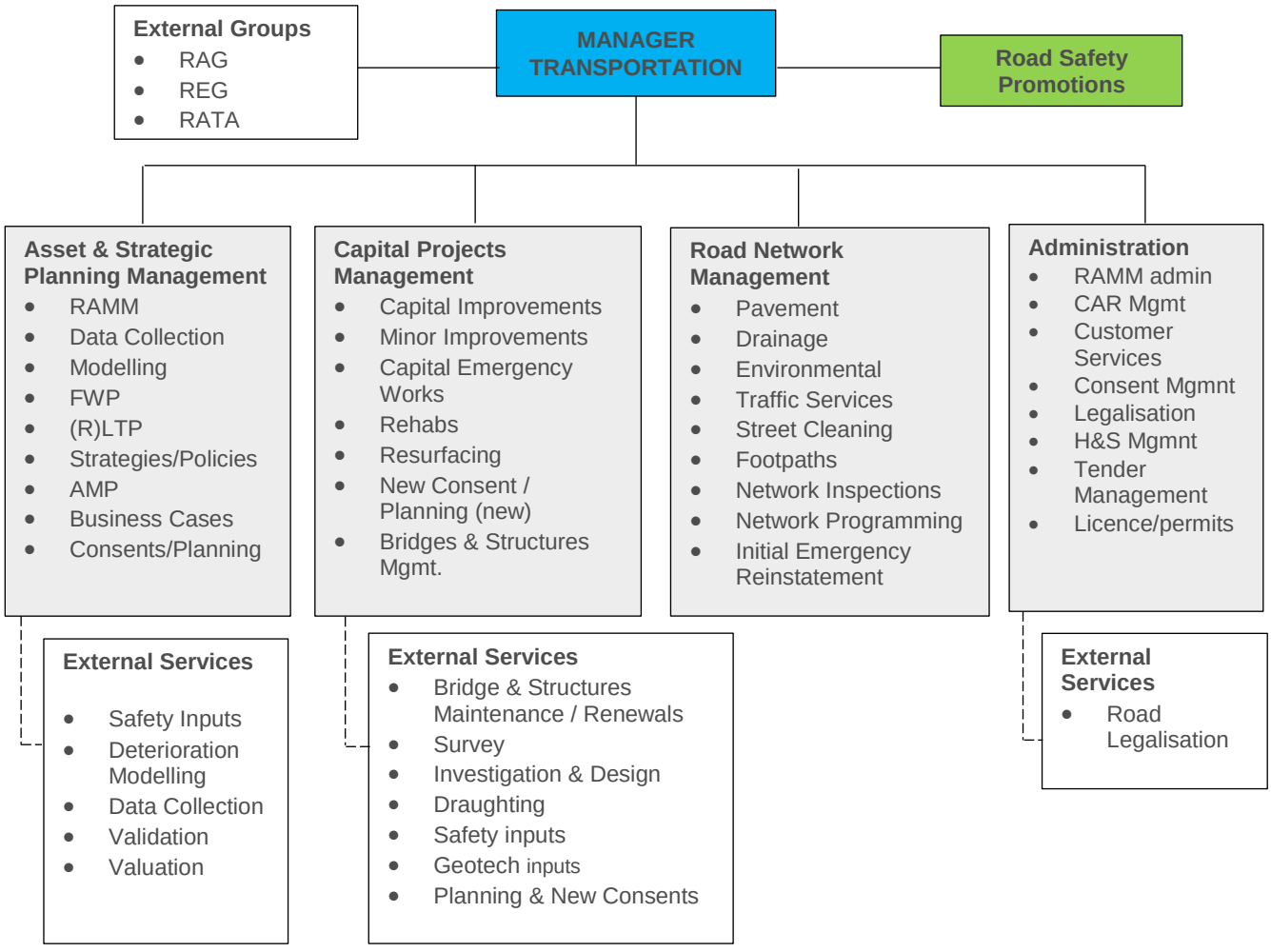
- Develop a forward works program for car parks.
-

Management Case

24. Delivery and Performance

24.1. Integration and Partnering

The Whakatāne District Council Transportation Team has incorporated a new structure to manage transportation activities and assets. The new structure brings the core elements in house; Asset Management, Strategic Planning, Capital Projects, Network Management and General Administration.



Through the development of the new team, two new cadet roles have been established to allow for succession planning in the future.

Strong relationships remain in place with external professional service providers for tasks that are more efficiently delivered through specialists, and to provide a seamless transition while the new team establishes. This also allows for secondment opportunities if required to meet workload demands.

The Transport Team has staff involved in external groups such as the Regional Advisory Group (RAG), and Road Efficiency Group (REG), and also has informal liaison with Road Asset Technical Accord (RATA).

24.2. Testing of Evidence

The organisation has solid data collection, rated well above average when compared to peers and nationally in the REG Data Reports. We also have a robust traffic count program in place to keep traffic information regularly updated. We have recently established pavement and performance modelling and when used in conjunction with our sound data it assists in informed decision making

24.3. Performance Management

KPIs at a network level are monitored through monthly inspections. They are tracked to ensure network condition remains above the minimum required standard and can be benchmarked against previously recorded data to demonstrate that the same and/or improved levels are being achieved.

An item included in the AMP Improvement Plan is to amend the monthly inspection criteria to better align with ONRC Levels of Service outcomes. This will then demonstrate that the different hierarchy of road levels are achieving their necessary standards.

Contract level KPIs will continue to be monitored through the contract management processes set out in the various transportation contracts.

24.4. Confidence in Delivery and Risk Management

We are confident that the organisation can deliver the program. We have a good record of delivering the program on time. We have established a diverse, capable and experienced team as set out above, to ensure all aspects of delivering the program are covered.

Our biggest risk affecting the delivery of program is large weather events. Our district has suffered a fair few events over the years and this can stretch all resources, both management and physical works.

To manage this risk in terms of the managing delivery of the program we will maintain the existing relationships we have with external professional service providers, allowing us to draw on additional external resources if required to deal with weather events as well as deliver the normal program.

(Explained in further detail in the Commercial Case) We have also started the process of establishing a Contract Panel which when established, will allow WDC to efficiently engage resources for both physical works and professional services when required to meet demands.

Commercial Case

25. Procurement Context

25.1. Smart Buyer

We have identified a procurement opportunity, to improve our ability to efficiently engage contractors and consultants through establishment of a contract panel.

25.2. Background

During the multiple significant weather events experienced on the network during April 2017, the widespread and significant damage that resulted was far too demanding to effectively be managed through the existing Road Maintenance Contract. Whakatāne District Council directly engaged multiple local contractors to assist in the initial response to the events. This proved to be an efficient way to manage the large scale and widespread works, allowing large amounts of resource to be deployed to the areas of most significance and get the network operational as quickly as possible.

Other benefits seen through this process was allowing local contractors a chance to carry out this kind of work for the Whakatāne DC. The Eastern Bay of Plenty has many competent local contracting companies that often don't win major contracts through WDC, and this can be related to the onerous tender process that makes it hard for them to win the work when competing against large national/multi-national firms.

25.3. Proposed Procurement Process

The procurement process that WDC are currently establishing will enhance our ability within the Transport Team to directly engage contractors through a Contract Panel. This process is still under development, but the following outlines the basic idea of what we were wanting to achieve from this process:

Various suppliers will apply to be selected onto the Contract Panel under different activity groups. The Contract Panel will cater for both physical works and professional services. Application's to be on the panel will include similar information required in a Request for Tender; Health and Safety information, insurances, conditions of contract, relevant history, and the submission of rates for standard personnel/resource items. Contractors/consultants will then be approved to carry out certain types of work depending on their application strengths.

Once suppliers are approved onto the panel work can be put out to them to price/carry out depending on the size and scope. Details around this are still to be finalised. Balancing the need to keep work competitively priced, along with minimising workload for all involved (WDC staff and supplier).

25.4. Expected Benefits

- Reduced time/cost for both WDC staff members and the supplier. Upfront information (attributes/insurance/H&S etc) need only be supplied once and from then on only need to complete a specification/schedule.
- This reduced administration will also encourage and allow more local contractors to have a chance at the work, as they often have the man power and skills to carry out the work, but not necessarily to complete the traditional tender process.
- Allows WDC to easily engage additional resource when required to meet program demands or respond to further large scale weather events.
- Encourages completion and clever pricing as the market is opened up to a wider variety of suppliers through the easier process.

25.5. Procurement Risk

The biggest risk we have in terms of delivering the physical works side of the program is the availability of resources in the area. Following the April 2017 storms, a significant amount of storm repairs work will be coming to the market, not just through WDC proposed program, but also through the Bay of Plenty Regional Council.

We believe through the establishment of the contract panel, making it for achievable for local contractors to bid and win work, we will be able to share the work load amongst the available resources efficiently.

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