WAIROA DISTRICT COUNCIL

2021-31 LONG TERM PLAN

LAND TRANSPORT

ACTIVITY MANAGEMENT PLAN

2021-2031

WAIROA DISTRICT COUNCIL

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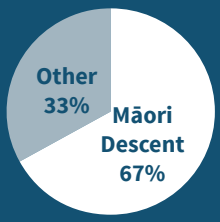
WAIROA AT A GLANCE

COMMUNITY



8,367
population

ENVIRONMENT

130KM
of coastline

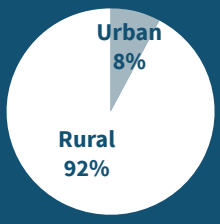
4,119KM²
Land area

ECONOMY

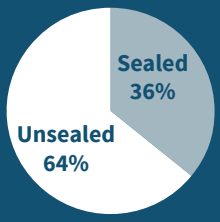
$32,778
GDP per capita

$284
GDP (M)

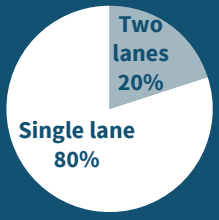
TRANSPORT ASSET



$336M
Asset Value



845KM
Road Length



176
Bridges

This Land Transport Activity Management Plan (LTAMP) acts as a route map for the future. It provides the reasoning and context behind how we propose to maintain, operate, renew and improve Wairoa's land transport network. We want to clearly show the value of any investment made in addressing our strategic transport problems and undertaking core business activities. Any investment needs to achieve the desired outcomes and benefits for our customers and represent value for money. It is also important that we show how we will meet regulatory requirements and environmental protection.

STRATEGIC FOCUSE

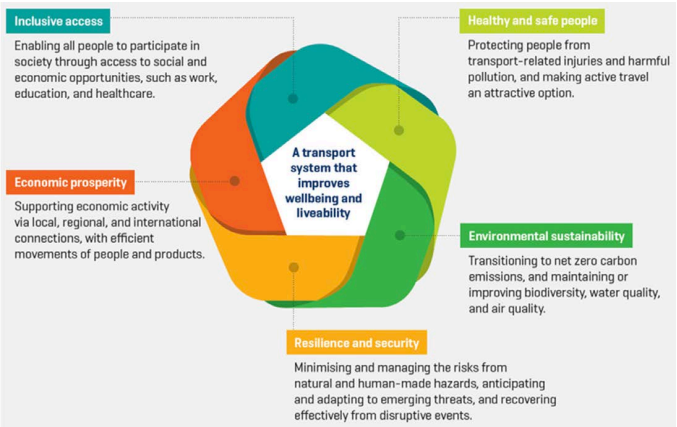
NATIONAL STRATEGIC FOCUSES

There are a number of key national documents that provide direction for our local Te Wairoa land transport decision making.

OUR VISION Desirable Lifestyles, Thriving Economy, Treasured Environments, Connected Communities

TRANSPORT OUTCOMES

The Ministry of Transport's Transport Outcomes Framework states that the key purpose of the national land transport system is to improve wellbeing and liveability. The Five Transport Outcomes that government is seeking to achieve through the transport system are shown below.



GOVERNMENT POLICY STATEMENT ON LAND TRANSPORT 2021 (GPS)

The GPS provides a 10 Year Plan investment guidance window for decision-makers about the Government's current strategic priorities, in line with the Transport Outcomes. The four strategic priorities and investments strategy in the GPS 2021:

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

ARATAKI STRATEGY 2021 - 2031

The Arataki Strategy is a link between the GPS and Council's investment proposal within this BCA AMP. It presents Waka Kotahi NZ Transport Agency's (Waka Kotahi) 10 year view of what is needed to deliver on the government's current priorities as set out in the GPS and other strategies.

Arataki identifies five step changes required to address the above key drivers:

	**Improve urban form** – enhance transport's role in creating land use and urban form that provide connections between people, product and places.
	**Transform urban mobility** – shift from our reliance on single occupancy vehicles to more sustainable transport solutions for the movement of people and freight.
	**Significantly reduce harms** – transition to a transport system that reduces deaths and serious injuries and improves public health.
	**Tackle climate change** – support the transition to a low-emissions economy and enhance communities' long term resilience to the impacts of climate change.
	**Support regional development** – optimise transport's role in enabling regional communities to thrive socially and economically.

HAWKE'S BAY REGIONAL STRATEGIC FOCUSES

The Hawke's Bay Regional Land Transport Plan (RLTP) sets out a picture of the Hawke's Bay community and the current state of the transport network, the context for developing the Plan, the key issues it addresses and the priorities for future investment.

The RLTP has identified the following key areas of focus for Hawke's Bay:

- A safe transport system for users
- A transport network that is resilient, reliable and efficient
- Providing transport choices to meet social, environmental, economic and cultural needs
- Planning and development that minimises travel demand.

The RLTP identifies the Nūhaka-Ōpoutama Road blowhole retreat and coastal erosion protection in the Wairoa District as key resilience projects for the region. The RLTP also identifies that safety is a key strategic focus for Wairoa as the district has an over-representation in the communities at risk register of crashes.

WAIROA STRATEGIC FOCUSES

HĀPAITIA - UPLIFTING OUR COMMUNITY

Wairoa has a rich cultural heritage which is an integral part of the community today. Promoting and encouraging Māori culture and values and ensuring this remains central to key decision making is a significant focus for Council and an important factor in transportation activity planning and delivery.

GREAT PLACE TO LIVE

Wairoa is a great place to live and we are working hard as a community to lift the demographic and economic performance of our district. We are developing our district's strength in land-based industries and encouraging diversification of business and attraction of new and returning residents. Our transportation network provides key linkages between our communities, giving communities access education, business and health services.

GREAT THINGS GROW HERE

This regional strategy to see an increase in the use of productive land is a key driver for Wairoa. Our transportation network provides access to large productive areas of land which contribute significantly economic growth in the Hawke's Bay. As the number of heavy vehicles and legal gross loading has increased, so too has the pressure for stronger bridges, safer, wider roads, with better traction characteristics and longer sight distances. Resilience of the entire roading network is key to getting product from the gate to Napier and Gisborne Ports. Forestry traffic, in particular, is forecast to grow as current wood lots mature around 2022-2024.

VALUABLE TOURISM

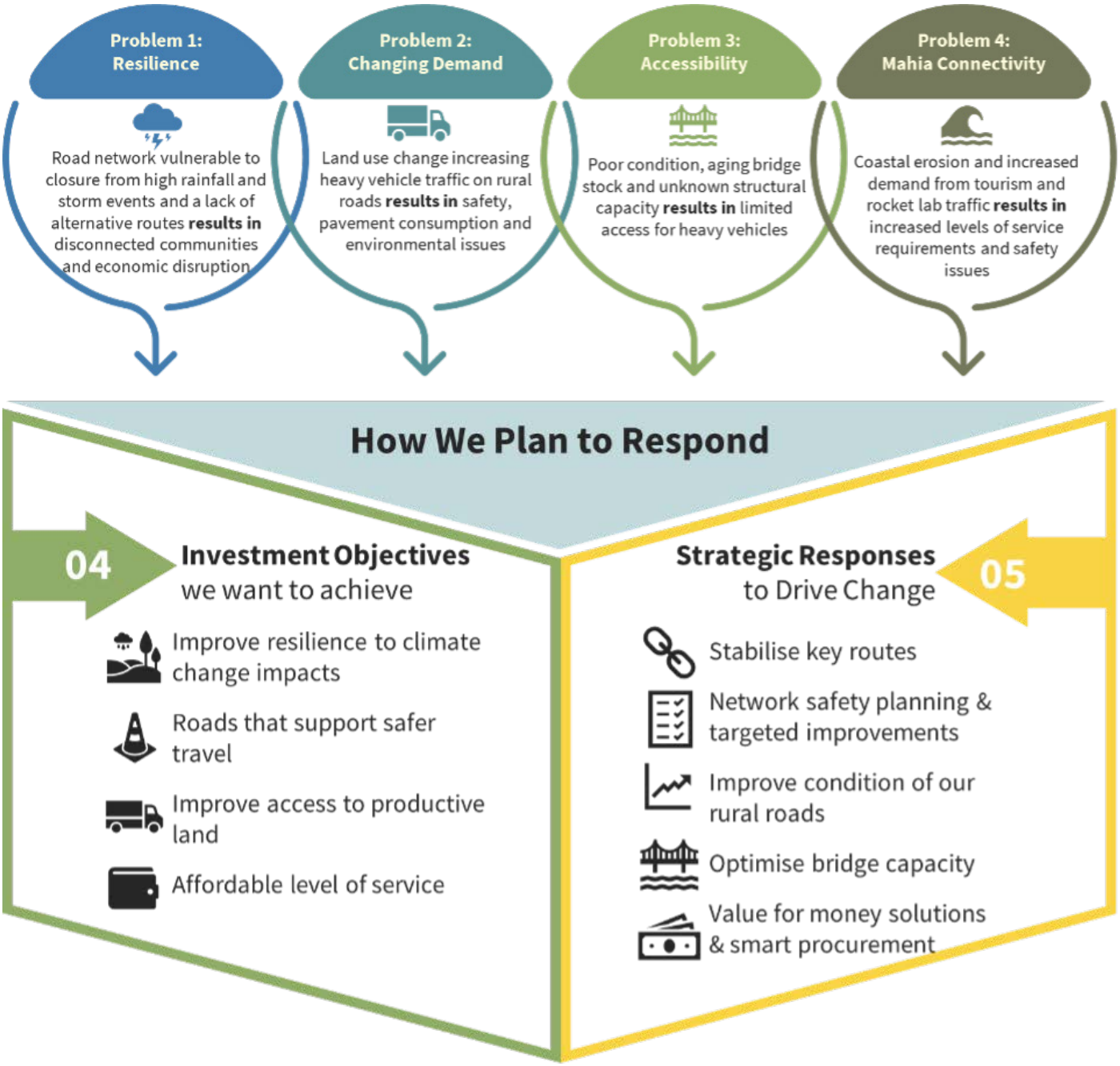
Wairoa is a key gateway to the Te Urewera Rainforest, Māhia beach areas and the Rocket Lab situated at the tip of the Māhia Peninsula, one of a kind in the southern hemisphere. We want to enhance these key tourism features and make Wairoa a place that visitors love to come to. These high tourist areas impact on the levels of service and safety needs for our road network.

PROTECTING OUR ENVIRONMENT

One of our key values is Tiakitanga, supporting and promoting the restoration and protection of our natural environment. Our role in protecting our green environment is critical to ensuring future generations get to use it and enjoy a clean, safe place to live. Wairoa is a key gateway to the Te Urewera Rainforest via Special Purpose road to Waikaremoana (SP38). This area is an environmentally sensitive, impacting on the maintenance and renewals strategies we use in this area.

OUR BIGGEST CHALLENGES & HOW WE PLAN TO RESPOND

Key problems identified for Wairoa's land transport activity are:



THE TRANSPORT OUTCOMES WE ARE INVESTING IN

Our investment going forward will address the problems identified for Wairoa within the context of the strategic directions for transport provided by the Transport Outcomes Framework, Government Policy Statement (GPS) on Land Transport Funding, the Regional Land Transport Plan (RLTP), and the One Network Road Classification (ONRC). Our key strategic response initiatives are outlined below.

Problem	Our Investment Objectives	Key Strategic Reponses
Resilience - Road network vulnerable to closure from high rainfall and storm events and a lack of alternative routes results in disconnected communities and economic disruption	Improve resilience to climate change impacts	**Stabilise key routes** • Proactive drainage maintenance & renewals • Retaining wall condition assessments & renewals in vulnerable areas • Riverbank stabilisation on key routes • Coastal erosion protection • Hazardous tree removal programme on key routes

Problem	Our Investment Objectives	Key Strategic Reponses
Changing demand - Land use change increasing heavy vehicle traffic on rural roads results in safety, pavement consumption and environmental issues	Roads that support safer travel	**Network safety planning & targeted improvements** • Network wide safety audit to better understand key safety issues • Speed management consistent with regional approach • Targeted improvements on high risk parts of the network
	Improve access to productive land	**Improve condition of our rural roads** • Demand management & stakeholder engagement to confirm harvesting projections and better plan future investment • Traffic Count Programme to better understand network usage • Improved Maintenance Intervention Strategy & data collection processes to inform decision making • Targeted pavement renewals (on secondary collector roads)
	Affordable level of service	**Value for money solutions & procurement** • Improved data management processes • Smart buying through packaging work. Delivering more for the same cost • Improve condition of our rural roads • Targeted renewals to meet level of service
		Improve condition of our rural roads • Review and development of a Dust Mitigation Strategy
Accessibillity - Poor condition aging bridge stock and unknown structural capacity results in limited access for heavy vehicles	Improve access to productive land	**Optimise bridge capacity** • Bridge condition assessments • Bridge capacity assessments • Targeted maintenance & renewals • Painting Screening • HPMV Permitting • Material Testing on key bridges • Improved data management processes • Targeted bridge strengthening works on key HPMV routes
Māhia connectivity - Coastal erosion and increased demand from tourism and rocket lab traffic results in increased level of service requirements and safety issues	• Improve resilience to climate change impacts • Roads that support safer travel • Affordable level of service	**Stabilise key routes** • Condition assessments to better understand condition of existing retaining structures • Coastal erosion protection **Improve condition of our rural roads** • High priority route for maintenance & renewals expenditure **Network safety planning & targeted improvements** • Network wide safety audit • Speed management consistent with regional approach • Targeted improvements safety improvements

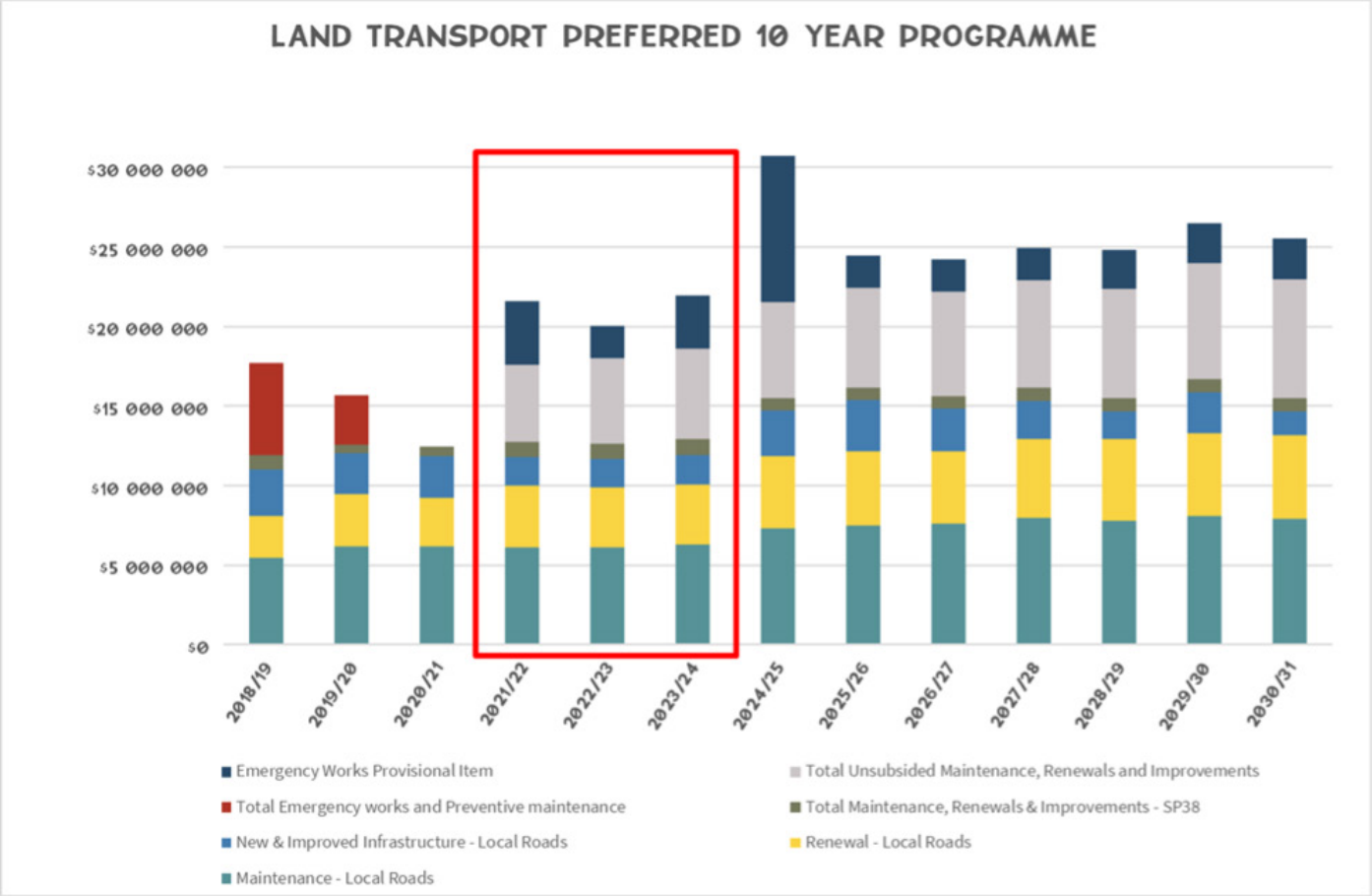
EXPENDITURE & REVENUE FORECAST HIGHLIGHTS

CORE PROGRAMME EXPENDITURE FORECAST

Our preferred programme to address these problems through our strategic responses and core maintenance programme is outlined below. The programme is largely based around a business as usual approach, with an emphasis on improving our understanding of the network assets through additional inspections and data capture. We have also allowed for some Low Cost-Low Risk improvement initiatives to address safety and bridge capacity concerns to allow for full accessibility to heavy commercial vehicles.

Some changes have been made to previous strategies and work programmes to provide better alignment with the GPS and address the specific problems identified through the business case process and as a result of COVID-19.

This represents a **'Core Programme'** (rather than an Enhanced Programme) when assessed against Waka Kotahi New Zealand Transport Agency's (Waka Kotahi) Investment Decision Making Framework for Road Maintenance Activities.



The table below shows the subsidised funding requirements for the 2021-24 NLTP for local roads, and the change in the requirements from the 2018-21 period.

Programme Component	Description	2021-24 NLTP Funding Requirement	Change from 2018-21 Period
Operations & Maintenance	Increased investment required above that approved for the 2018-21 NLTP to meet increased maintenance contract costs, as a result of re-tendering the contracts and provide additional emphasis on drainage and unsealed roads. This will ensure a safe and fit for purpose transportation network to meet customer expectations and to prevent network deteriorating to unacceptable condition. Through the maintenance work category 151 and activity management work category 003 we have allowed for the following asset management initiatives: • Network wide safety audit • Asset condition inspections • Additional bridge surveys	$18.5M or $8,165/km/yr	Increase of 4%

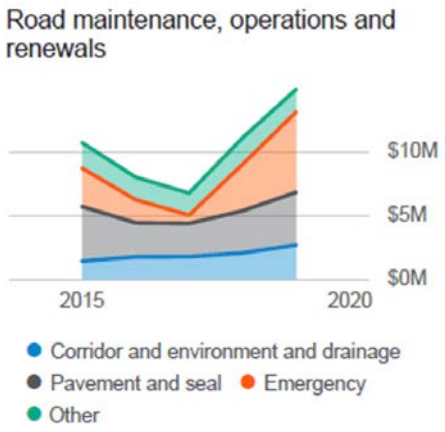
Programme Component	Description	2021-24 NLTP Funding Requirement	Change from 2018-21 Period
Renewals	Increased investment is required to maintain a safe and fit for purpose transportation network to meet customer expectations. The increases include additional proactive drainage renewals to provide network resilience, increased surfacing renewals to catch up on a historic backlog and increased traffic services renewals to address safety issues.	$11.4M or $4,498/km/yr	Increase of 27%
Capital Improvement	Low Cost-Low Risk improvement initiatives to address safety and bridge capacity concerns to expand High Productivity Motor Vehicle (HPMV) access to the network.	$5.4M or $2,127/km/yr	Decrease of 34%
Total Budget		**$35.3M or $13,937/km/yr**	**Increase of 1%**

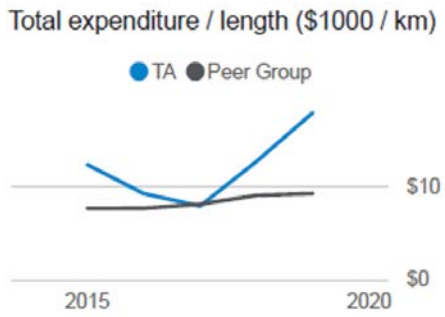
SIGNIFICANT CAPITAL PROJECTS

Further to the above 'Core Programme', two major improvements projects have been included in our financial forecasting to Waka Kotahi for the 2024/25 and 2025/26 years for the Nūhaka-Ōpoutama Road 'Blowhole' Retreat and Coastal Erosion Protection projects. These projects are considered unaffordable to Council, so have not been included in the core programme below. However the projects are included in the RLTP, and need to be included in this AMP to signal the need for funding for the projects.

EXPENDITURE COMPARATIVE TO PEER GROUP

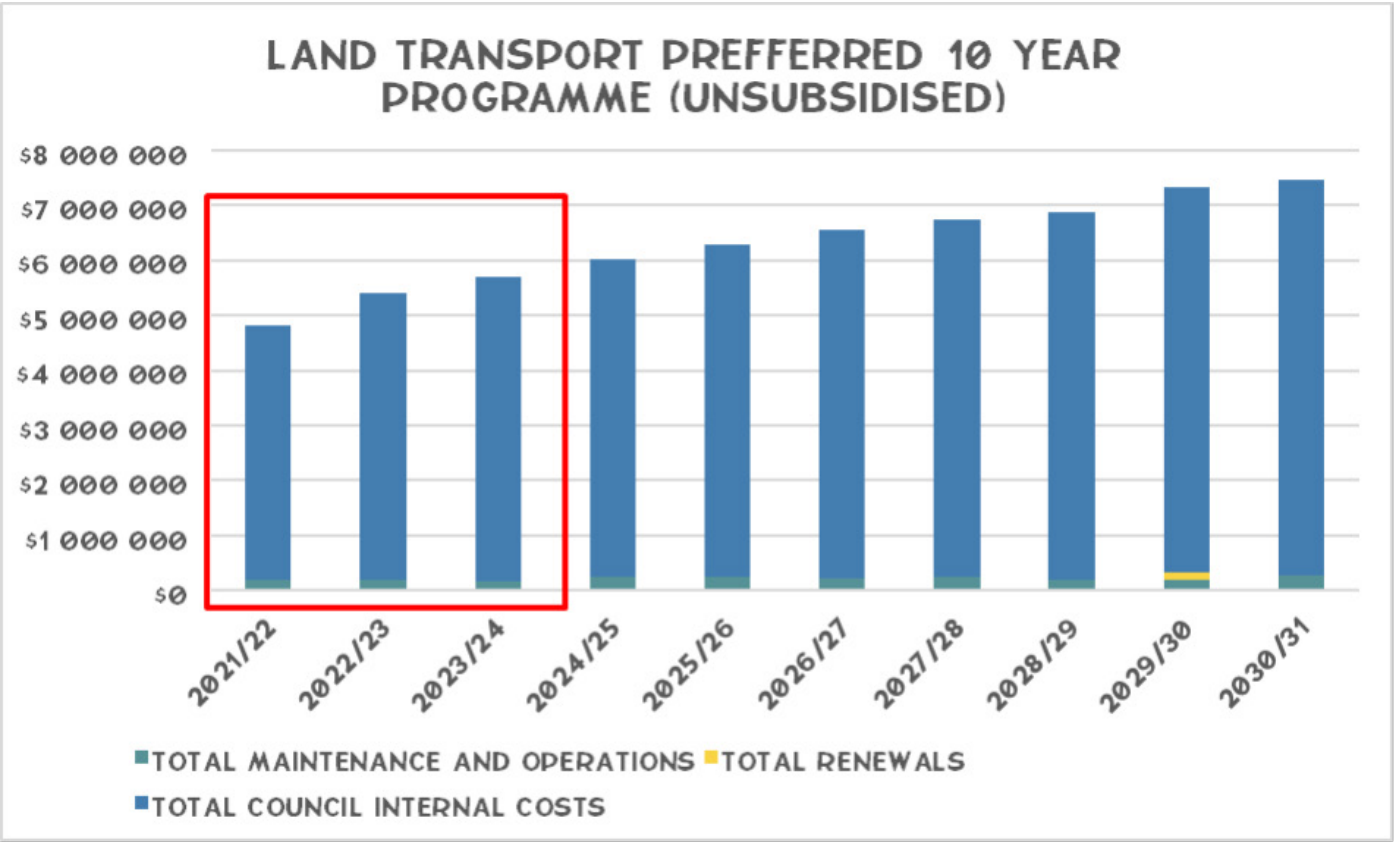
The comparative expenditure graphs adjacent, show our historic expenditure trends, with peer comparison of Total Expenditure per kilometre and Maintenance, Operations and Renewals Expenditure per kilometre. **Wairoa has spent significantly more than the peer group in 2018/19, however the key increase in expenditure was for emergency works.** The expenditure on programmed maintenance, operations and renewals was comparable with the peer group.





UNSUBSIDISED PROGRAMME EXPENDITURE FORECAST

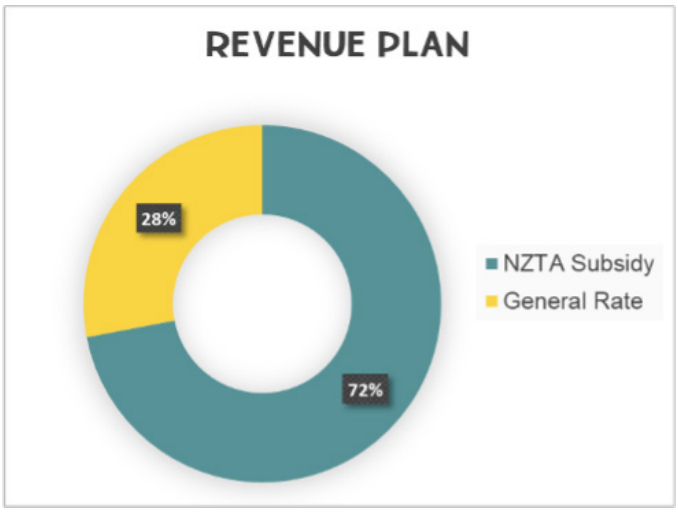
The graph on the next page shows the preferred unsubsidised programme for the land transport assets. The key items in the unsubsidised programme are carpark maintenance, renewals and expansion, Wairoa Infrastructure business unit expenses, drain clearing and other miscellaneous transport expenses not subsidised by Waka Kotahi.



FUNDING SOURCES

We pay for activities carried out on the land transport network by the following means:

- **Waka Kotahi funding subsidy:** For Wairoa this is provided as a Funding Assistance Rate of 75% of the cost of maintenance and renewals work for most activities. As some activities are unsubsidised, the effective subsidy is 72% as shown on the below graph.



- **District Rates:** The district's community funds the balance of the budget costs (e.g. 28%) through its local rates share. Funding for the local share comes from the Uniform Annual General Charge and the Targeted Rate – Roading.

  In line with Council's Revenue and Financing Policy, Council funded activities such as roading, are rated based on a property's land value. **Council works hard to keep within the rating thresholds planned and ensure that this is as affordable as possible.** This has not been an easy task due to the challenges created by COVID-19 with the long-term effects and impacts still uncertain.

  Based on the 2020/21 level of rates, the local rates share is sufficient to fund Wairoa's local share of the annual programmed Transport costs for the District.

- **Provincial Growth Fund (PGF):** Through the Provincial Growth Fund (PGF), we have been able to allocate funding to projects which have been deferred or are unbudgeted for to allow us to transform and improve our district without impacting on rates. We have received a $4.8 million cash injection to regenerate and revitalise the town centre creating a hub for new educational and employment pathways. We also received $8.3 million for the Māhia East Coast Road sealing and an investigation into the Nūhaka-Ōpoutama road alignment.

  We have submitted a number of other applications for PGF funding for transport related improvement projects, and will continue to seek additional funding through this, and other avenues, as long as it remains available.

KEY RISKS & ASSUMPTIONS

Key risk and assumptions made as part of this planning process and their likely consequence or impact are included below.

Risk/Assumption	Description	Consequence/Impact	Risk Level	Uncertainty Level
Climate Change	Climate change makes our weather more extreme and unpredictable leading to flooding and rising sea levels. Although we understand that change is occurring, it is unknown how fast change will occur or the full extent to which consequences will happen in future.	Increased rainfall intensity will stress our drainage and bridge assets causing flooding and potential loss of assets. Coastal erosion will also cause loss of assets. Road closures are likely to become more frequent and of longer durations. This will also result in the need for more reactive emergency work funding.	High	High
Sustainability of Aggregate Supply	Hawke's Bay Regional Council have significantly reduced the aggregate extraction allocations for the 2020/21 year for key Wairoa Rivers. There is uncertainty around future aggregate allocations.	Ongoing reduced river aggregate allocations have the potential to impact maintenance programmes specifically re-metalling, negatively impacting levels of service. Increased costs for aggregate could occur as new sources are established or aggregate is carted from outside the region or district, resulting in increased network maintenance costs for Council.	High	High
Waka Kotahi Funding Constraints	Initial indications from Waka Kotahi are that the funding requests for continuous programmes (Maintenance, Operations & Renewals) across the country exceed the upper funding limits of the GPS. It is therefore likely that further reductions in Wairoa District Council's funding request will be required, although the extents of this reduction unknown.	Constraints to Waka Kotahi funding will impact Wairoa District Council's ability to deliver the required programme of works, impacting levels of service, and increasing risk.	High	High
Procurement Challenges	Procurement has been challenging in the past with limited number of local suppliers and difficulty in attracting outside suppliers. Specialist skill sets are particularly difficult to procure.	Prices for programmed works come in at a higher cost than budgeted for.	High	Medium
Community Ability to Pay	Current predictions of a static (or decreasing) population base and socio-economic demographics mean makes it difficult to provide sustainable services that the community can afford. Ongoing COVID-19 impacts may also result in further impacts on the local economy, including possible income reduction.	Programmed works are not affordable in the long term for rate payers.	High	Medium
Funding from Waka Kotahi	It is assumed that the roading Funding Assistance Rate (FAR) of 75% will not change, however changes to the Government Policy Statement (GPS) and Investment Decision Making Framework (IDMF) may impact on future funding.	If the FAR reduces for any reason, this will impact on Council's ability to afford to planned programme.	Low	Medium
Emergency Works Funding	It is assumed Waka Kotahi will continue to fund emergency works for Wairoa District Council at 95% FAR (Wairoa District Council Standard FAR +20%).	Any reduction in this FAR, or inability to fund emergency works by Waka Kotahi will have a significant impact on Wairoa District Council's ability to respond to emergency events, and will impact network resilience and accessibility.	Low	Medium

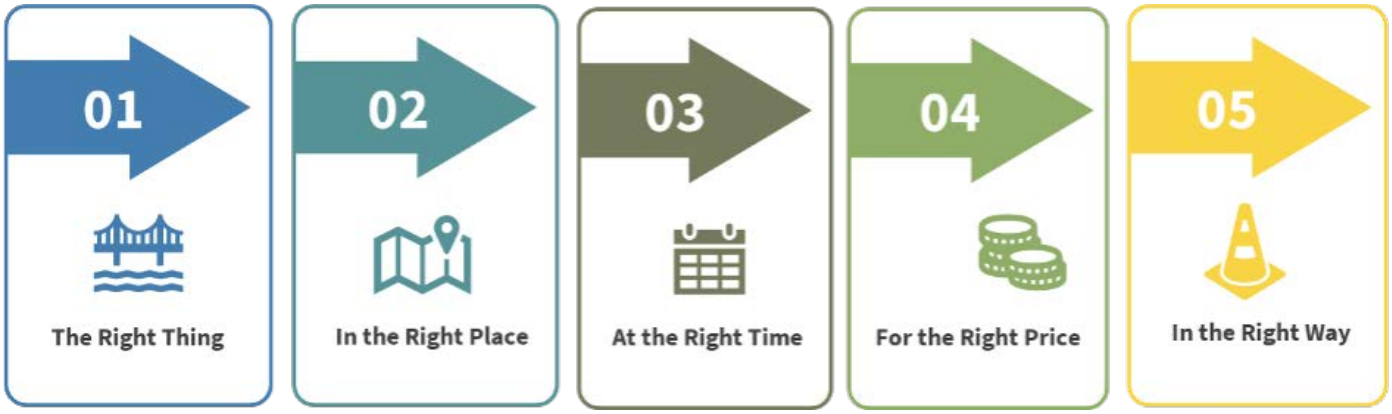
1.1 PURPOSE OF THIS PLAN

This Land Transport Activity Management Plan (LTAMP) acts as a route map for the future, by providing the logic, reasoning and context behind how we propose to maintain, operate, renew and improve Wairoa's land transport network.

It informs the development of Wairoa District Council's (Council's) 2021-31 Long Term Plan (LTP) and the National Land Transport Programme (NLTP).

We want to clearly show the value of any investment made in addressing our strategic transport problems and undertaking core business activities. Any investment needs to achieve the desired outcomes and benefits for our customers and represent value for money. It is also important that we show how we will meet regulatory requirements and environmental protection.

This LTAMP seeks to demonstrate that the proposed programme presents value for money by doing:



In demonstrating that the principles of the business case approach have been used, Council will also meet NZ Transport Agency (NZ Transport Agency) requirements for planning and investment.

1.2 PLAN FRAMEWORK

To achieve the above purposes, this LTAMP is divided into three key parts as shown below.

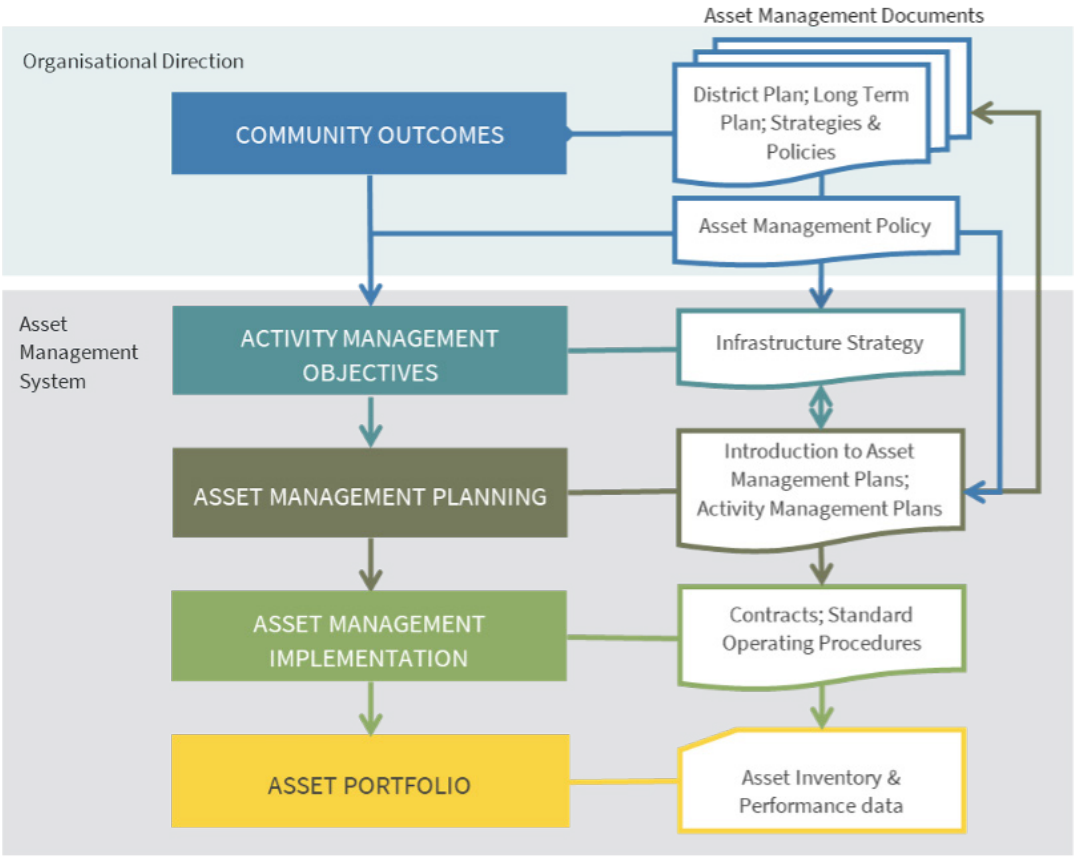
AMP Part	Key Focus	Audience
Part A - Strategic Case	This part of the plan answers the 'why invest' question. It outlines the strategic context, prioritises key issues and problems that Wairoa faces and the benefits to the customer of addressing these.	Investors (e.g. Waka Kotahi, Council, Community etc)
Part B - Programme Business Case	This part of the plan provides evidence to support the investment proposed, clearly linking the investment back to service outcomes, including the key issues we are facing and Customer Levels of Service. It explains what we are going to do and how we are going to do it.	Investors; Community; Council Reporting (Annual Plan, LTP)
Part C - Detailed Business Case	This part of the plan describes the detailed management approaches and options for asset portfolios and activity programmes. It is broken down into subsections by asset grouping and provides detailed evidence to support the investment proposed. It also demonstrates value for money by outlining the asset management processes used for managing our transportation assets, as well as how we will meet regulatory requirements.	Transportation Staff; Contractors

IMPROVEMENT PLAN

Throughout the development of this BCA AMP, there are aspects that have been identified for future improvement. These are identified throughout the document with this Improvement Item Symbol in the margin of the document. Detailed descriptions of each Improvement Item are included in the Programme Business Case.

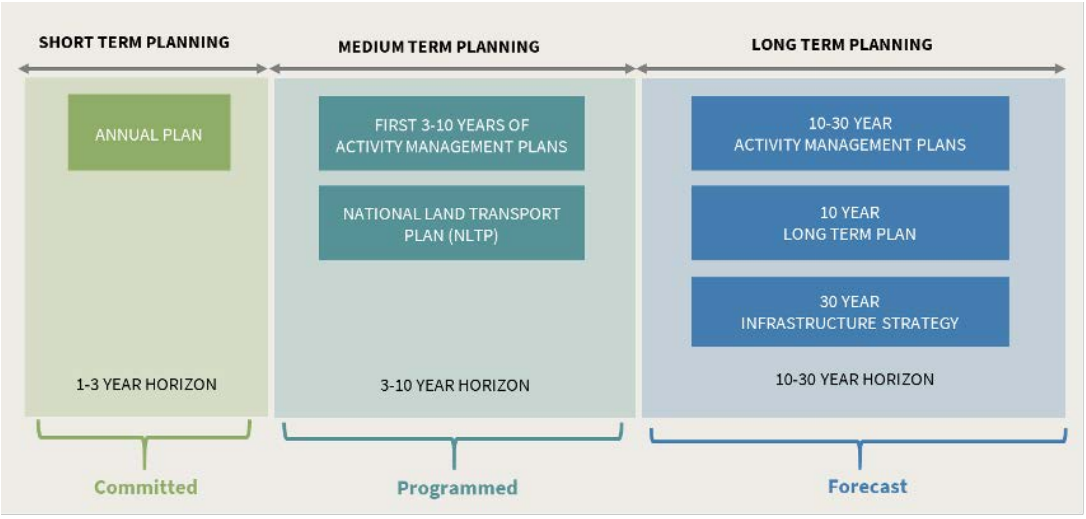
1.3 RELATIONSHIP WITH OTHER COUNCIL PLANS

This plan should be read in conjunction with Council's other key planning documents, including the "Introduction to Asset Management Plans". The diagram below shows "line of sight" between Council's objectives and our Activity Management planning through Council's various strategic and planning documents.



1.3.1 PLANNING PERIODS

We need to complete both short term and long term planning to make sure we achieve value for money.



Short Term: Reflects committed investment. Funding is locked in and programme should not be changed at this point.

Medium Term: Programmed work that should be completed. The planned investment should not be changed unless there is a clear reason or significant changes have occurred to impact Council's ability to meet programme (e.g. COVID-19).

Long Term: Provides a forecast of the likely future expenditure over the long term. While we do our best to give an accurate indication of what is to come based on likely transport drivers and asset replacement requirements, the plan can change over time.

1.4 WHY IS TRANSPORT IMPORTANT FOR WAIROA?

The Wairoa District Council exists so that residents and visitors alike can enjoy the community in which they live and visit, supported by local decision-making to promote the social, economic, environmental and cultural well-being of the Wairoa District in the present and for the future. Our community wellbeings are:

COMMUNITY OUTCOMES

Cultural Wellbeing
Valued and cherished community

Social Wellbeing
Safe, supported and well-led community

Economic Wellbeing
Strong and prosperous economy

Environmental Wellbeing
Protected and healthy environment

An effective land transportation network is a key element in the efficient functioning of Wairoa and its economy. As a community, Wairoa is highly dependent on people and goods being able to get where they need to go using this transport network, and a well-designed and maintained roading network is the primary means of doing this.

The Table below shows how Wairoa's transport network contributes to the community outcomes.

Community Wellbeing	Community Outcomes	Land Transport's Contribution
Ōhanga **Economic**	Strong and prosperous economy	By providing 24/7 access for businesses and consumers for the efficient movement of people and goods, and provision for local contract procurement options.
	Safe, supported and well-led community	By providing and maintaining the local roads that form a significant part of the regional transport system, and provision for local procurement options.
Ahurea **Cultural**	Valued and cherished culture	The land transport network will be protected, and all potential negative cultural and social effects will be identified and properly managed.
Oranga **Social**	Safe, supported and well-led community	By progressively and proactively improving safety features on the land transport network. The whole land transport system and its management will be properly integrated and consulted on. Council will lead initiatives to ensure communities are connected and desirable.
Taiao **Environmental**	Protected and healthy environment	The natural environment will be protected, and all potential negative environmental, social and cultural effects will be identified and properly managed. By progressively and proactively improving safety features on the land transport network. The planning of the land transport activity is sustainable into the future. The natural environment will be protected, and all potential negative environmental, social and cultural effects will be identified and properly managed.

1.5 WHAT WE DO TO MAKE IT HAPPEN?

This LTAMP covers all land-based transportation activities that Council pays for either fully or with assistance from the Waka Kotahi. It considers how Council assets can best be managed to deliver the required transportation activities to meet our community outcomes as well the five national Transport Outcomes. The table on the next page demonstrates how our transport activity helps to deliver these outcomes.

Transport Activity	Key Services we Provide	Link to Community Outcomes	Link to National Transport Outcomes
Movement of People & Goods	• Maintenance and renewal of: - Sealed roads - Unsealed roads - Bridges and other structures - Drainage - Traffic services including signage, road marking, and other road furniture - Street Lighting • Safety improvement works • Planning and management to ensure the transportation system able to cope with future needs • Development of the transportation and traffic networks	Strong and prosperous economy	**Resilience & security** – reducing the risk of interruption to travel as a result of high intensity rainfall events by providing drainage and road support structures **Economic prosperity** – supporting economic activity by providing bridges that allow for heavy vehicle access to productive land **Healthy & safe people** – reduction in accidents due to fit for purpose road surfaces, guardrails, lighting, road marking, signs **Inclusive access** – enabling people to access social and economic opportunities through a road network that is easy to navigate with well maintained guidance signage and comfortable journey provided by pavements
Active Transport (Cycling & Walking)	• Maintenance and renewal of: - Footpaths - Cycleways - Safety improvements	• Safe, supported and well-led community • Strong and prosperous economy • Protected and healthy environment	**Healthy & safe people** – protecting people from transport related injuries when using active transport modes by providing paths separated from other traffic **Inclusive access** – cycling and walking paths kept tidy and functional by keeping vegetation controlled, graffiti removal, roadside furniture maintenance
Protecting our Environment	• Maintenance of the road reserve including: - Mowing, weed spraying - Sweeping and cleaning (e.g. litter and graffiti removal) - Dust mitigation measures	Protected and healthy environment	**Environmental sustainability** – maintaining biodiversity, water quality and air quality by managing plant pests, roadside cleaning and dust control
Parking	• Maintenance and renewal of: - Car parks	• Strong and prosperous economy • Safe, supported and well-led community	**Healthy & safe people** – on and off-street parking facilities to ease the safe movement of passenger vehicles within the transport network **Inclusive access** – enabling people to access social and economic opportunities through availability of car parking within the CBD and community facilities

2. OUR KEY PARTNERS AND STAKEHOLDERS

Our **key partners** are those groups or organisations that we are aligned with as owners of the transportation issues in our region and district.

Our **key stakeholders** are those groups or individuals who can help us to focus our strategic planning on the right things. They have information and knowledge to help us make better decisions.

In terms of setting the strategic context and direction for the LTAMP our key partners and stakeholders and their reason for involvement are shown in the tables below.

2.1 OUR KEY PARTNERS

Partners	Knowledge/Involvement
Waka Kotahi (NZ Transport Agency)	Funding partner – Funding Assistance Rate (FAR) subsidy rate 75%. Sets out the activities that can receive funding from the National Land Transport Fund under the Land Transport Management Act. Provides a vital link between government policy making and the operation of the transport sector. Highways and Network Operations (HNO) division manages the maintenance, operations and renewals of State Highways that run through Wairoa, providing connectivity to other parts of the Hawke's Bay region and beyond.
Road Efficiency Group (REG)	Providing support and tools for implementing One Network Road Classification (ONRC) and Business Case Approach (BCA) Activity Management Plans.
Road Controlling Authorities Forum New Zealand (RCAF)	RCAF is a closed, non-political group with representatives from the 73 territorial local authorities, the Department of Conservation, Local Government New Zealand and Waka Kotahi. Its purpose is to assist Road Controlling Authorities (RCAs) to make informed decisions, through information exchange, working groups, legislation, standards and guidelines, highway and procurement strategies etc.
Hawke's Bay Regional Council	Sets the direction for the region's land transport system for the next 30 years through the Regional Land Transport Strategy. Strong focus on working together to deliver multiple projects that contribute to the Wairoa District. Allocate aggregate extraction quantities for Wairoa rivers.
Regional Land Transport Committee (RLTC)	Committee includes regional councillors and appointees from transport interests and other councils in the Hawke's Bay region. The aim is to prepare both the Regional Land Transport Strategy and the Regional Land Transport Programme for approval by the Hawke's Bay Regional Council, and consider other issues related to land transport which have a regional impact.
Hastings District Council, Gisborne District Council	Neighboring RCAs with whom we have a strong strategic alignment.
Napier City Council, Central Hawke's Bay District Council	Other RCAs within the Hawke's Bay region.

2.2 MĀORI STAKEHOLDERS

Stakeholder groups	Full list of stakeholders
Council acknowledges the inclusion and importance of mātauranga Māori in its infrastructure design and implementation processes. Council is committed to meaningful engagement with Māori on issues that are pertinent to all parties and working together to agree on the best pathway forward for the community and the environment.	
Iwi	Ngāti Kahungunu Ngāti Pāhauwera Ngāi Tūhoe Ngāti Ruapani Ngāti Rakaipaaka Rongomaiwahine
Post-Treaty Settlement Governance Entities (PSGE) – Treaty Partners	Ngāti Pāhauwera Development Trust Tu Uru Taumatua (Tūhoe) Tātau Tātau o Te Wairoa Trust (including Tripartite Agreement and Matangirau Reserve Board)
Mandated Iwi Authority (Resource Management Act 1991)	Ngāti Pāhauwera Development Trust Tātau Tātau o Te Wairoa Trust Te Rākatō Marae Te Iwi o Rakaipaaka Incorporated/ Trust Ngāti Kahungunu Iwi Incorporation (NKII) Te Uru Taumatua (Ngāi Tūhoe) Rongomaiwahine Iwi Trust (to be confirmed by TPK)
Mandated Iwi Organisation (Māori Fisheries Act 2004)	Ngāti Kahungunu Iwi Incorporation (NKII) Te Uru Taumatua (Ngāi Tūhoe)

Stakeholder groups	Full list of stakeholders
Māori Boards / Māori Committees / Tribal Authority	Wairoa Waikaremoana Māori Trust Board Waikaremoana tribal Authority – representing interests for Ngāi Tūhoe Ngāti Kahungunu (Wairoa Taiwhenua) Incorporated – representing the interests of NKII Ngāti Ruapani ki Waikaremoana – representing the interests of Ngāti Ruapani (Treaty Claim) Kahungunu Executive (Māori health and social services) Te Whare Māire o Tapuwae (Whānau Ora) Māhia Māori Committee (Rongomaiwahine) Rongomaiwahine Iwi Trust – representing the commercial interests of Rongomaiwahine Whakaki Lakes Trust Whakaki Lands Trust
Māori Land Blocks	Including Māori trusts, whānau trust (including Ahu Whenua Trusts), farm blocks (stations, etc.)
Marae	Wairoa District Council Māori Standing Committee (representing all 39-operational marae) Ngāti Kaungunu (Wairoa Taiwhenua) Incorporated Kahungunu Executive (Māori Executive Committee) Wairoa Waikaremoana Māori Trust Board Māhia Māori Committee (Representing all marae in Rongomaiwahine) All marae within the Wairoa district
Māori Community at Large	

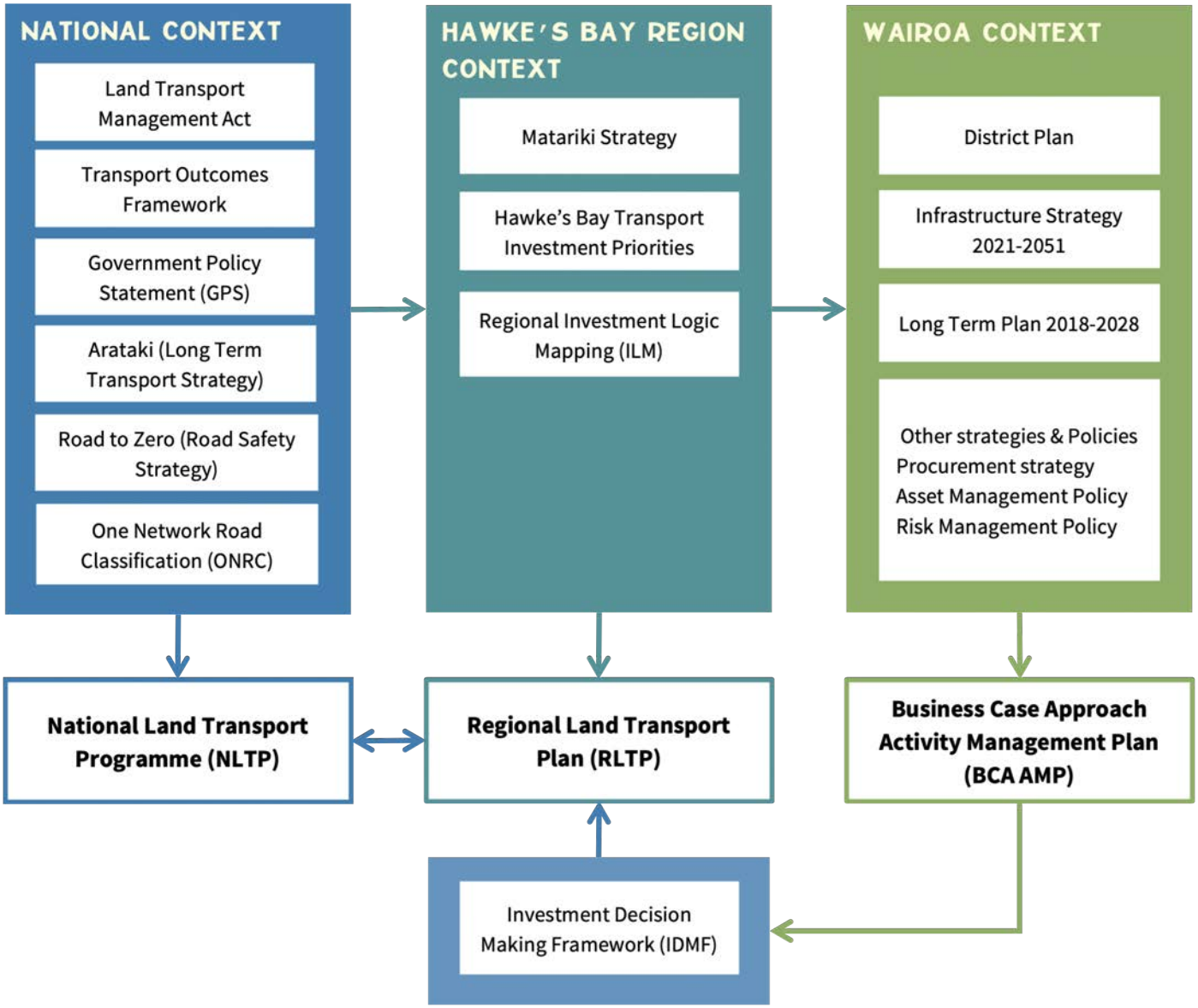
2.3 OTHER STAKEHOLDERS

Stakeholders	Knowledge/Involvement
Forestry companies: **Panpac Ltd** **Juken NZ** **PF Olsen** **Forest Management NZ** **Forest360** **Rayonier**	Harvest projections submitted to council for a 5 -10 year period. Weekly updates for current harvesting activity. Individual stakeholder meetings with transport team – 6 monthly.
Federated Farmers	Council attendance to AGM.
Single end users	Memorandum of understanding for road use and maintenance where they are the only end user. Forestry companies are the majority of single end users.
RocketLab	Provide information on any launches planned and work closely to secure funding for resilience of Māhia East Coast Road and Nūhaka-Ōpoutama Road.
Road Safe Hawke's Bay	The five Hawkes Bay councils contribute the local share for Hawke's Bay road safe. Quarterly meetings, includes RSAP (road safety action plan). Monthly meeting with Road Safe and Police in Wairoa.
NZ Police & other emergency service providers	Knowledge and management of safety issues and accident causes, also management of emergency events on the network.
Roading Contractors: **Quality Roading & Services** **Fulton Hogan**	Provide maintenance and management services to council. Have valuable history of knowledge of the network. Council are working to collaborate more with Contractors and involve them in planning and decision making to deliver the best outcomes.
Utility Owners (Chorus, Eastland Network, Crown Fibre Holdings etc)	Bi-monthly utility operations meetings, discussing FWP's & co-ordination of projects.
Department of Conservation	Co-located management i.e. Whakamahia Recreational Reserve.
NZ Heavy Haulage Association Inc.	Represent key users of the network and key transport links being used on the network.
Kiwi Rail	Maintenance of rail crossings over Council roads and provision of alternate land transport mode for some parts of the network (predominantly State Highway).
Up-Stream Wairoa Inc.	A business action group focused on Economic Development in Wairoa. Council & Up-Stream co-manage projects, which are initiated & fundraised by the group with the asset transferred to council once completed. Mainly Non-subsidised – items to date include, lighting upgrading, FlagTrax systems, future projects include - community playground (which includes off-street parking in scope of work).
Other recreational groups such as Fish and Game, Deer Stalkers Association etc.	

Improvement Plan - Engagement with small stakeholder groups of key community representation. These groups would be aligned with each Māori Standing Committee Nga Marae Onga Takiwa Area of Representation, but also include other community representatives such as famers, schools etc. These groups would be used to gather key feedback on transport needs in each community area.

3. THE STRATEGIC CONTEXT

This LTAMP has been prepared to align with the national and regional strategic context that it sits within. The diagram below shows how national and regional strategic documents provide strategic context feeding into Council's planning and activity management approach. The following section describes this strategic context in more detail.



3.1 NATIONAL CONTEXT

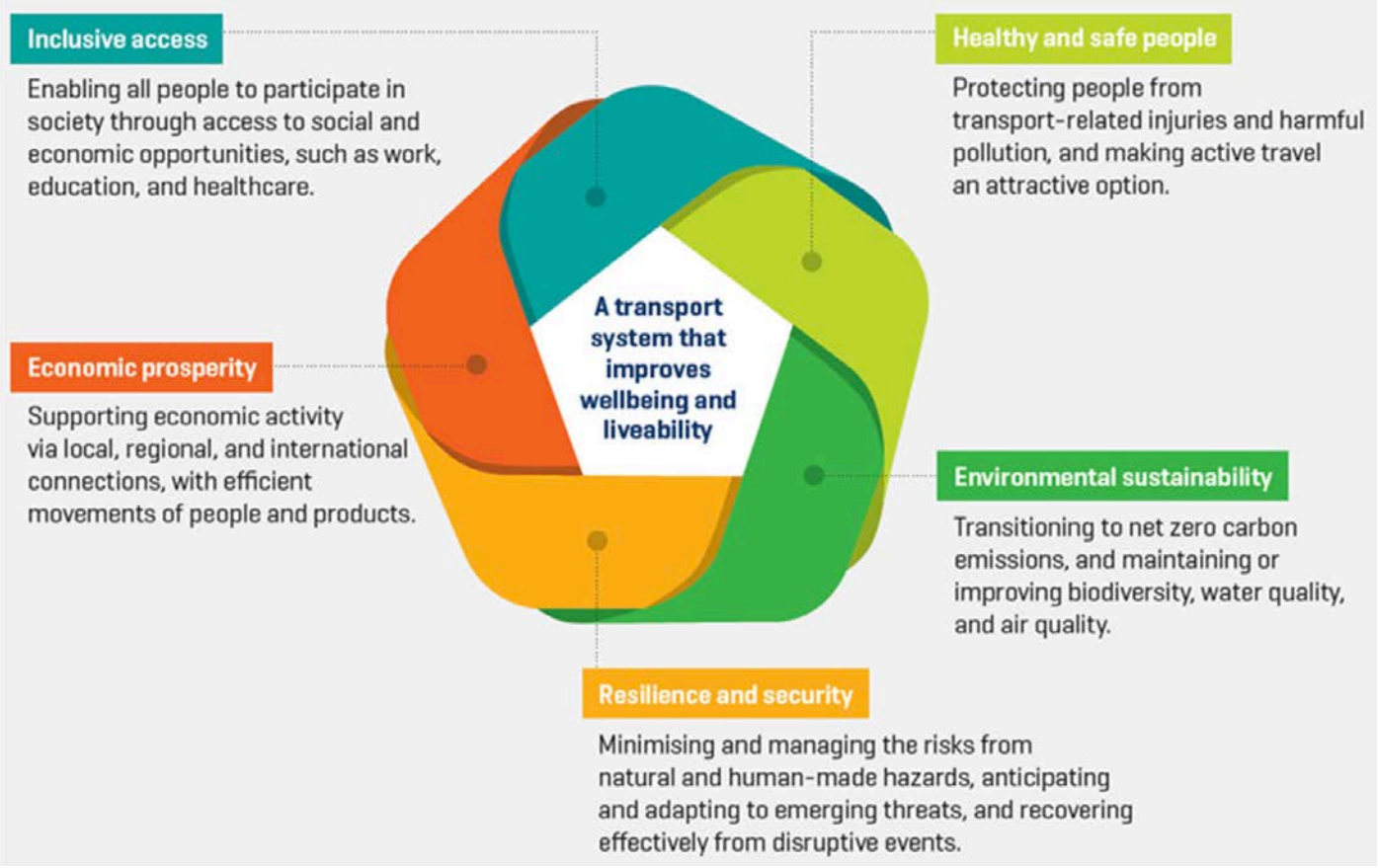
3.1.1 NATIONAL TRANSPORT OUTCOMES

The Ministry of Transport's Transport Outcomes Framework states the key purpose of the national land transport system.

LAND TRANSPORT PURPOSE

A transport system that improves wellbeing and liveability.

The Five Transport Outcomes that government is seeking to achieve through the transport system are shown below. The five outcomes provide an enduring framework to guide transport decisions and direction. All of these outcome are inter-related, and need to be met as a whole to improve intergenerational wellbeing and the quality of life in New Zealand's cities, towns, and provinces.



3.1.2 NATIONAL STRATEGIES AND PLANS

Other key documents providing national strategic direction for land transport are included in the following table. These play a key role in the development of this LTAMP.

National Strategic Documents	Providing Direction for Wairoa
Land Transport Act 1998 *Reprint as at 2 January 2020*	Key objectives that provide direction for Wairoa's Land Transport include: • Ensuring environmental sustainability • Assisting economic development • Assisting safety and personal security • Improving access and mobility • Protecting and promoting public health
Government Policy Statement (GPS) on Land Transport (2021-2031)	The GPS provides a 10 year investment guidance window for decision-makers about where Government will focus resources. While it is consistent with the Transport Outcomes Framework, it provides guidance on the current strategic priorities. The four strategic priorities and investments strategy in the GPS 2021: • **Safety** – developing a transport system where no-one is killed or seriously injured • **Better Travel Options** – providing people with better transport options to access social and economic opportunities • **Improving Freight Connections** – for economic development • **Climate Change** – developing a low carbon transport system that supports emission reductions, while improving safety and inclusive access The GPS 2021 also identified key areas of focus for regions to support regional New Zealand by reflecting the enabling role of regional transport to regional development. • **Freight Network** – Improving Freight network for primary industries • **Maintaining the Network** – Sufficient funding to maintain networks to the condition required to ensure a safe, resilient and accessible network. • **Road to Zero** – Implementing the Road to Zero Strategy

National Strategic Documents	Providing Direction for Wairoa
Arataki Strategy (2021-31)	The Arataki Strategy is a link between the GPS and Council's investment proposal within this BCA AMP. It presents Waka Kotahi's 10 year view of what is needed to deliver on the government's current priorities as set out in the GPS and other strategies. It shares the evidence base that informs their view and helps others to understand the impacts of choices and decisions that will shape the land transport system in to the future. Arataki identifies five step changes required to address the above key drivers: • **Improve urban form** – enhance transport's role in creating land use and urban form that provide connections between people, product and places. • **Transform urban mobility** – shift from our reliance on single occupancy vehicles to more sustainable transport solutions for the movement of people and freight. • **Significantly reduce harms** – transition to a transport system that reduces deaths and serious injuries and improves public health. • **Tackle climate change** – support the transition to a low-emissions economy and enhance communities' long-term resilience to the impacts of climate change. • **Support regional development** – optimise transport's role in enabling regional communities to thrive socially and economically.
Road to Zero	The Road to Zero Strategy has a vision of "a New Zealand where no one is killed or seriously injured in road crashes". The strategy acknowledges that people make mistakes on the road, but this should not result in death or injury. These national goals require shared responsibility between road controlling authorities, the vehicle industry, central and local governments, road users and employers. The Road to Zero marks a step change in road safety and builds on the previous Safer Journeys strategy. The strategy will focus on: • Infrastructure improvements and speed management • Vehicle safety • Work-related safety • Road user choices • System Management
Investment Decision Making Framework (IDMF)	The IDMF guides investment decisions and how activities are developed, prioritised and assessed for funding in the land transport system. Five principles of investment are: 1. Invest in the transport system to achieve multiple outcomes 2. Take a robust approach to delivering best value for money 3. Ensure solutions are future-focused and adaptable 4. Collaborate and engage with the local government sector to understand and reflect local, regional and national perspectives 5. Make decisions following a transparent, risk-based process informed by a strong evidence base
National Land Transport Program (NLTP)	The NLTP, developed by Waka Kotahi, sets out the activities that can receive funding from the National Land Transport Fund under the Land Transport Management Act. The NLTP must give effect to the GPS and this also extends to the Regional Land Transport Plans (RLTPs).

3.1.3 ONE NETWORK ROAD CLASSIFICATION (ONRC)

The One Network Road Classification (ONRC) has been adopted by the roading sector for national consistency of the level of service delivered by a network. ONRC has been embedded in our investment decision making for the 2021-2024 NLTP. The ONRC classifications are based on a number of different factors. A short description for each classification is included in the table below.

Classification	Description	Annual Average Daily Traffic (AADT)		Heavy Commercial Vehicles
		Urban	Rural	
National (High Volume)	As below but higher traffic volumes	> 35,000	> 20,000	> 1,200

Classification	Description	Annual Average Daily Traffic (AADT)		Heavy Commercial Vehicles
		Urban	Rural	
National	Link major population centres and transport hubs	> 25,000	> 15,000	> 800
Regional	Major connectors between regions; often public transport routes	> 15,000	> 10,000	> 400
Arterial	Link regionally significant places and industries	> 5,000	> 3,000	> 300
Primary Collector	Link significant local populations and industries	> 3,000	> 1,000	> 150
Secondary Collector	Provide secondary routes, can be the only route in some places	> 1,000	> 200	> 25
Access	Small roads facilitating daily activities	> 1,000	> 200	< 25
Access (Low Volume)	As above but low traffic volumes (Urban AADT < 200, Rural AADT < 50	> 200	> 50	< 25

Performance measures for the ONRC, along with Customer Levels of Service (CLoS), have been developed. These CLoS will vary based on the road classification, and are defined as follows:

Customer LoS	Description
Safety	How road users experience the safety of the road
Resilience	The availability and restoration of each road when there is a weather or emergency event (unplanned), whether there is an alternative route available and the road user information provided
Amenity	Travel Quality - The level of travel comfort experienced by the road user Travel Aesthetics - The aesthetic aspects of the road environment (e.g. cleanliness, comfort, convenience, security) that impact on the travel experience of the road users in the road corridor
Accessibillity	The ease with which people are able to reach key destinations and the transport networks available to them, including land use access and network connectivity (wayfinding)
Travel Time Reliability	The consistency of travel times that road users can expect

In future ONRC will be replaced with the One Network Framework (ONF), which takes into account place and transport mode as well as movement. As the ONF is formally developed and service outcomes and performance requirements are confirmed, we will review the need to adjust our investment and performance monitoring approach. At this stage our aim is to transition to ONF for the 2024-27 NLTP period.

3.1.4 OTHER KEY LEGISLATION

The legislative requirements that the Council is required to comply with when carrying out its services are extensive. There are a number of principal Acts which set out the need, the requirements and the standards for the provision of services. Key legislative requirements include:

- Local Government Act 2002 and 2014 amendment
- Local Government (Rating) Act 2002
- Land Transport (Road Safety and Other Matters) Amendment Act 2011
- Resource Management Act 1991
- Building Act 2004
- Health Act 1956
- Health & Safety at Work Act 2015
- Public Works Act 1981
- Civil Defence Emergency Management Act 2002
- Traffic Regulations Act 1976
- Utilities Access Act 2010 (ref. NZUAG National Code for Utility Operators' Access to Transport Corridors).

3.2 HAWKE'S BAY REGIONAL CONTEXT

3.2.1 OUR REGIONAL TRANSPORT NETWORK AT A GLANCE

The Hawke's Bay region covers 1.42 million hectares, lies on the east coast of the North Island and includes Wairoa, Hastings, Central Hawke's Bay District Councils and Napier City Council. The transport network for Hawke's Bay includes:

Hawke's Bay road network: The Region has around 4,700 km of roads, made up of 55% of local roads and 45% state highways. Traffic modelling demonstrates that while there is currently sufficient capacity to accommodate medium growth, recent predictions highlight that the region is growing faster than this.

	This is likely to impact on key strategic sections of the network, particularly around Napier Port, and between the growing urban centers of Napier and Hastings. The transport system across Hawke's Bay is dominated by private vehicle trips.
	Napier Port provides logistics services for the region and central New Zealand and is a significant destination for product and freight from Wairoa, particularly for logging.
	Hawke's Bay commercial airport: services the full Hawke's Bay area. Wairoa Airport owned by Council provides for small aircraft and is currently being reviewed for upgrade.
	Rail network: connects Napier Port to distribution hubs in Palmerston North and extends north to Wairoa. At present rail services are focused on freight movements, with container movements between Palmerston North and Napier Port. The line north to Wairoa is focused on transporting logs to Napier Port.
	Public Transport: Urban networks in Napier and Hastings provide public transport option for commuting, education and other daily travel needs. However, public transport usage is low accounting for only 1% of trips. Commercial public transport options are available using State Highways for regional and national transport. There is no public transport provision within Wairoa area.
	Cycling and walking: are becoming key focuses for active transport modes throughout Hawke's Bay, and are slightly above the national average in urban areas. Since 2002, Hawke's Bay has created over 200 kilometres of off-road cycle trails and 100 kilometres of on-road cycle facilities. These are predominantly located around the urban centers of Hastings and Napier.

3.2.2 KEY LINKS TO OTHER REGIONS

The Hawke's Bay region adjoins the Gisborne, Waikato and Manawatu-Whanganui regions by the following key transportation links:

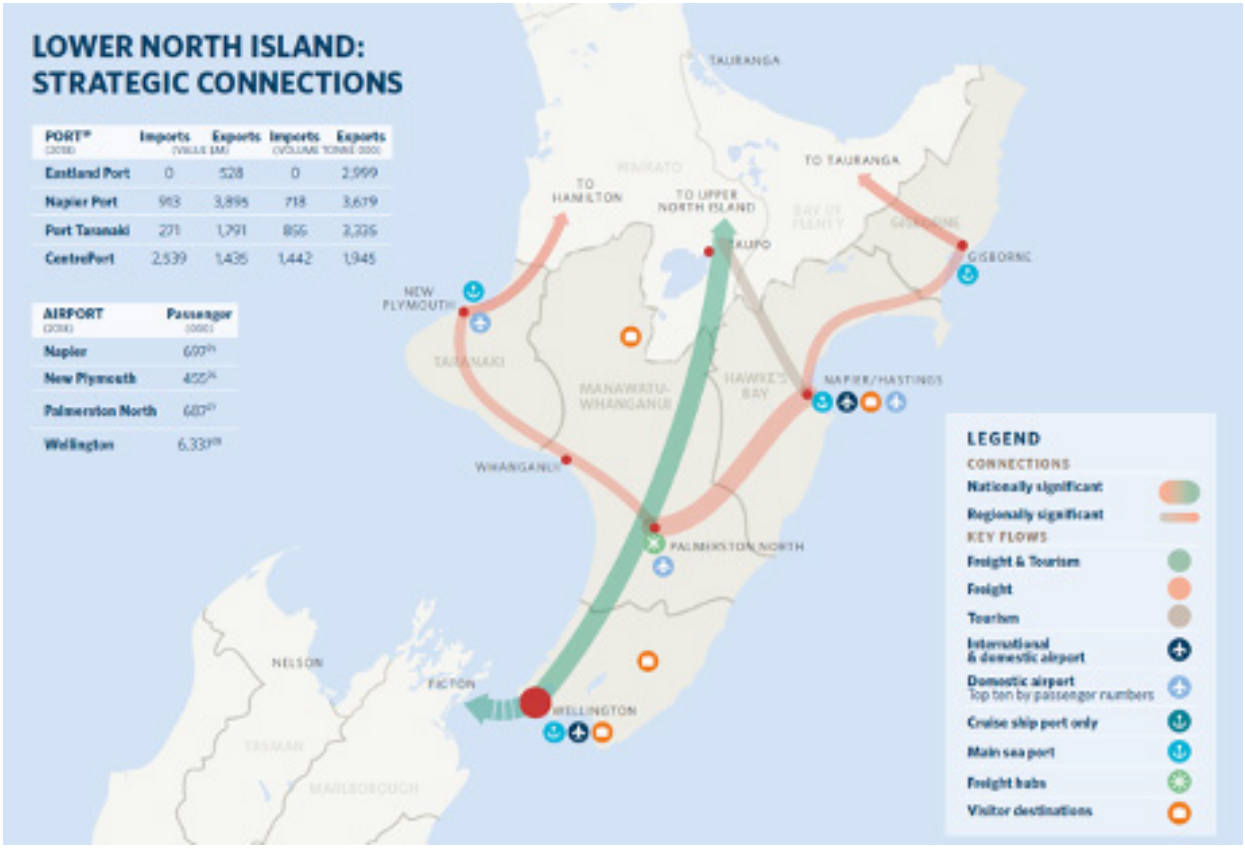
- NORTH: State Highway 2 to Gisborne and beyond to Bay of Plenty
- WEST: State Highway 5 to Taupō and the wider Waikato region, and State Highway 38 to Rotorua and the wider Bay of Plenty region
- SOUTH: State Highway 2 and KiwiRail Rail line to Manawatu-Wanganui regions.

3.2.3 WHAT IS GENERATING DEMAND FOR TRANSPORT IN HAWKE'S BAY?

Arataki (Version 2) outlines six key drivers that will shape the future land transport system, including:

1. Demographic change
2. Technology
3. Climate change
4. Customer desire
5. Changing economic structure
6. Funding and financing challenges

A summary of how these are likely to drive change in Hawke's Bay is included on the next page.



Driver	Current Situation	Future Change	Impact for Wairoa
Demographic Change	**Regional population**: 166,638 at 2018 census (3.5% of national population). Nearly 80% in Napier and Hastings. **Over 65 year olds**: 18% of population. **Māori**: 27% of population.	**Regional population**: Projected to increase to 191,500 (2043 high growth scenarios). Most growth in Napier and Hastings. **Over 65 year olds**: Projected to increase to 28% (2038). Older people are travelling more for physical and social activities. Accessible and reliable transport options, along with well-maintained urban spaces, footpaths and crossing points will be key as our population ages.	**District Population**: 5% of regional population. Forecast static or declining population growth. **Over 65 year olds**: Projected to increase from 17.2% (2018) to 24.5% (2038) resulting in an aging population. Drives changing patterns of housing, support services and travel needs.
	Income: Median Income is $77,700 in 2018 (national $89,100). **Unemployment**: 4.5% in 2019 (national 5.8%). **Social Deprivation Index**: Significant variation across the region, poorest in North.	**Unemployment**: Predicted to increase post-COVID-19 in the short term (through 2021) to 8.4%. Key employment sectors predicted to return close to BAU levels by 2025. Māori and low income households will be particularly vulnerable to job losses.	**Median Income**: $62,200 lowest in region **Unemployment**: 11.2% highest in region, but less impact from COVID-19. Good long-term recovery predicted. **Social Deprivation**: Decile 10, most deprived part of region Affects affordability of services
Technology	Technology is broadening the range of mobility options and available services. Technology is helping us to monitor and maintain the land transport system.	Travel options increasing e.g. e-bikes to autonomous vehicles. Customer service and engagement opportunities changing so can respond in real time to customer demand and information needs.	Customer service and engagement opportunities changing so can respond in real time to customer demand and information needs.
Climate Change	North of the region has unstable, highly erodible land and deeply incised by rivers and streams. Region is vulnerable to natural hazards and climate change impacts such as sea level rise. High temperatures causing drought conditions in parts of the region.	Sea level is expected to rise by an average of 20 to 30cm by 2040. Changing weather patterns with extreme weather, rainfall intensity, could lead to increased problems with erosion and flooding. Increased frequency and severity of drought. Increased stormwater flooding in urban areas.	Coastal areas, such as Māhia are susceptible to further erosion. Growing issues around increased stormwater flooding. Increased flooding particularly in already flood-prone areas.
Safety (Customer desire)	Key area of focus for Hawke's Bay is Safety. Currently have a relatively poor safety record. Run-off road crashes, speeding, impairment and not wearing seat belts are primary contributors. **Deaths & serious injuries (DSI)**: 146 in 2017/18 (5.6% of national total).	**Deaths & serious injuries (DSI)**: Without intervention, likely to continue to increase.	**Crashes**: In 2019, Wairoa District had New Zealand's highest levels of personal risk (measured as DSI/100MVKT) with particular issues around impairment, speeding, rural roads and not wearing restraints.
Changing Economic Structure[1]	**Regional Gross Domestic Product (GDP)**: $8.07b in 2019 (2.9% of NZ GDP). GDP per capita $48,887 (2018).	**GDP** has increased by 31.3% in the period 2014-2019. Largest drivers increase were: manufacturing, construction, agriculture (horticulture and sheep, beef, and grain farming) and forestry.	**GDP** $284M in 2019. GDP per capita $32,778. Limited growth for Wairoa in five year period 2014-2019 period.

1 Ministry of Business, Innovation & Employment, Regional Fact Sheet: Hawke's Bay, Generated 2020-06-03

Driver	Current Situation	Future Change	Impact for Wairoa
		The 2020 Covid-19 pandemic is forecast to contract the Hawke's Bay economy by 6.2%.	
	Freight Movement: 10.7M tonnes, (4.4% of national freight). 70% of freight is generated within the region. **Transport split**: Road carries 95% of region's freight, rail 5%.	Freight in and out of Hawke's Bay is projected to grow by 50% by 2042. Napier Port is New Zealand's 4th largest, expected growth.	Road freight likely to increase. Wairoa to Napier Rail unlikely to take pressure off future local road freight.
	Manufacturing: $1,035M RGDP. Primarily processing of horticulture and agriculture. Key processing centres at Hastings and Napier.	Main processing centres for rural produce are situated in Hastings and Napier. Post COVID-19 there should be little disruption to food manufacturing.	AFFCO meat processing plant in Wairoa continues to be key employer in the district.
Changing Economic Structure[1]	**Forestry**: 134,841 hectares in region. Majority concentrated in Hastings and Wairoa districts, with 55,400 ha and 60,400 ha respectively (as at 1 April 2013).	Doubling of log volume over the last three years. Almost half of the forestry within Hawke's Bay is owned by small scale owners, much of it planted in the 1990s. With a harvest age of 28 years, peak harvesting is will occur over the next 10 years.	Increases in forestry plantings as a result of the Climate Change Response (Zero Carbon) Amendment Act could have a particular effect in the Wairoa District, which has already seen 8,486 hectares of sheep and beef land converted to forestry. Latest forecasts indicate that one way logging truck movements on SH2 from Wairoa will increase from 171 (2017) to 278 (2023).
	Agriculture & Horticulture: $707M RGDP. Primarily Beef and Sheep farming. Highest employment sector in Hawke's Bay is Fruit and Tree Nut Growing.	Pipfruit industry per hectare production well above the global average and continuing to intensify. Post COVID-19 there should be little disruption to primary production.	Wairoa District has already seen 8,486 hectares of sheep and beef land converted to forestry. This of concern to many in the district due to the loss of jobs resulting from such conversion.
	Tourism: Domestic tourism $526M in 12 months to Feb 2020. Region is less reliant than many on international visitors, with domestic tourism contributing over ¾ of total tourism spend.	Likely to have slower recovery post COVID-19 than other industries as retail, food services and accommodation will be worst hit. Government's Strategic Tourism Assets Protection Programme may support future growth.	Māhia Peninsula and Te Urewera (Lake Waikaremoana) continue to be key tourism destinations for the Wairoa District.
Funding & Financing	Funding for transport heavily reliant on central government subsidy.	Local government funding for the land transport system may be constrained as the sector faces significant investment in three waters and other infrastructure during the next 10 years.	Three waters funding requirements likely to increase, may impact transport funding. Affordability challenge from potentially decreasing ratepayer base.

3.2.4 COVID-19 IMPACTS

The Arataki key drivers most impacted by COVID-19 are:

- Changing economic structure: with declining employment and economic activity in New Zealand and globally, and international tourism and related sectors impacted most negatively in the short to medium term.
- Funding and financing challenges: exacerbated as a result of reduced revenues.
- Demographic change: driven largely by a slowing of migration into and around New Zealand.
- Customer desire: with wider uptake of more flexible working arrangements and ongoing developments in e-commerce and delivery options, which will be monitored for their impact over the medium to longer-term.

Arataki Regional Summary for Hawke's Bay outlines that the regional economy is comparatively well-placed to recover from the COVID-19 pandemic, due to the scale of the primary production, healthcare

1 Ministry of Business, Innovation & Employment, Regional Fact Sheet: Hawke's Bay, Generated 2020-06-03

and manufacturing sectors. The region is less reliant than many on international visitors, with domestic tourism contributing over ¾ of total tourism spend. However, the Hawke's Bay economy does rely on temporary migrant employment, with above average use of migrant labour in the agriculture, horticulture and admin support sectors.

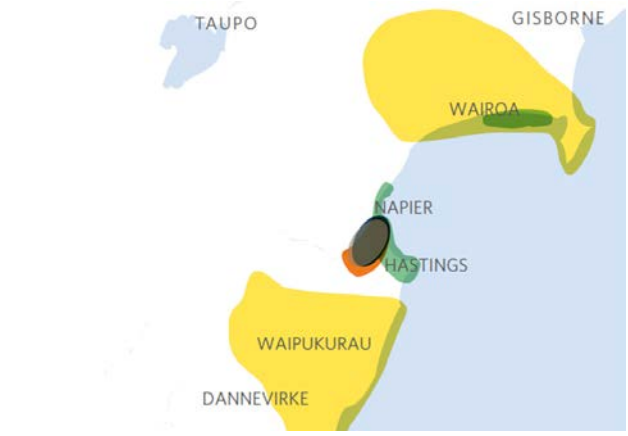
- Given the relative resilience of the Hawke's Bay economy, no significant changes are expected in the nature, scale and location of transport demand over the medium to long-term. The 10 year outlook remains largely unchanged.
- Maintaining safe and reliable connections to Napier Port and between Napier and Palmerston North remain critical to supporting recovery.
- There will be an ongoing need for transport services to support the COVID-19 recovery by improving access to employment and essential services for vulnerable communities.
- There will be ongoing pressure on transport revenue as a result of the COVID-19 lockdown levels.

3.2.5 REGIONAL TRANSPORT PRIORITIES & OBJECTIVES

Arataki outlines the focus in Hawke's Bay is to is to help create a safer, more resilient land transport system. One that supports economic recovery and regional growth, maintains critical connections, encourages increased use of public transport, walking and cycling in Napier and Hastings and provides appropriate levels of service across all transport networks. For Wairoa key focuses are:

Support Regional Development (medium priority)
Hawke's Bay is a priority for regional development support because of the long-term challenges it faces, such as high unemployment and low incomes, **particularly in Wairoa** and Central Hawke's Bay. To support regional growth, improved access to education and employment, and to help raise living standards, the focuses are:

- Support the development of regeneration plans for towns and villages in Wairoa and the Central Hawke's Bay making them a great place to live, work and play
- Support transport interventions that maximise industry development
- Support freight initiatives that are multi-modal, efficient and safe
- Support initiatives to increase visitor numbers, particularly in the north of the region
- Support improvements in social and economic outcomes in areas of high deprivation, particularly improving access to employment, education and essential services for isolated communities.



Tackle Climate Change (medium priority)
Sea level rise and more extreme weather events will increasingly impact communities and infrastructure, particularly in low-lying coastal areas, in particular Māhia area.

- Working with our partners and communities to prioritise interventions and responses to natural hazards in high-risk areas
- Engaging in local planning processes to avoid infrastructure and development in areas at increased risk of natural hazards and effects of climate change
- Enabling continuous improvement in network resilience through maintenance and renewals, and 'low cost/low risk' investments
- Enabling quick recovery following disruption to the land transport system. Investigate options for alternate routes that are less likely to be impacted by sea level rise.

Significantly Reduce Harms (medium priority)
Hawke's Bay has a relatively poor safety record. Run-off road crashes, speeding, impairment and not wearing seatbelts are primary contributors. Forecast growth in freight traffic could increase this. Focus is needed on the Napier to Hastings urban areas, SH2 between Napier and Waipukurau, and high-risk rural roads. In 2019 Wairoa District had New Zealand's highest levels of personal risk (measured as DSI/100MVKT) with particular issues around impairment and speeding.

Support implementation of Road to Zero: New Zealand's road safety strategy 2020–2030 and associated Action plan 2020-22, and regional safety strategies, with a particular emphasis on:

- Safety interventions targeting run-off road and head-on crashes on high-risk rural roads (rural roads are roads with speed limits >80km/h)
- Speed management to provide safe and appropriate speeds on high-risk rural roads. Targeted use of safety cameras to reduce speeding.

3.2.6 REGIONAL STRATEGIES AND PLANS

Regional Strategies & Plans	Key Regional Transport Priorities & Objectives
Regional Land Transport Plan (RLTP)	Statutory document that must be prepared every six years, as required by the Land Transport Management Act (LTMA). The RLTP is being fully updated in 2021 to reflect GPS and Arataki. This plan is the primary document guiding integrated land transport planning and investment for the Hawke's Bay. It sets out Hawke's Bay regional 30 year vision and the key objectives and policies to achieve these. The 2021 objectives are: • A safe transport system for all users. • A resilient, reliable network for journeys within Hawke's Bay, to Napier Port and connecting other regions. • A transport system that contributes to a carbon neutral Hawke's Bay. • Realistic transport choices for all users to meet social, economic and cultural needs. • Land use planning and development which minimizes travel demand.
Network Operating Framework (NOF)	• Provide a network for pedestrians that promotes walking as a safe and everyday mode of transport with permeability through the network and connections, both within and between, key origins and destinations. • Promote cycling as a safe everyday mode of transport and recreation with convenient networks that encourage use, reducing reliance on private vehicles. • Promote safe, direct and reliable connections to and within centres with appropriate supporting infrastructure and inter-modal hubs. • Facilitate and support a safe, connected region providing equitable access to a network that encourages multi-modal options with safe and legible routes that enable trade-offs in higher amenity areas. • Promote and facilitate direct and reliable connections between key origins and destinations. Prioritise safety and manage conflicts with modes in areas of high amenity.
Matariki - Hawke's Bay Regional Economic Development Strategy, December 2019 Update	The vision: 'Every household and every whānau is actively engaged in, contributing to and benefiting from, a thriving Hawke's Bay economy.' The strategy is linked with national economic development plans as it is part of the Government's Regional Growth Programme, which focuses on increasing jobs, income and investment in regional New Zealand. It also aligns with the Government's Māori Economic Development and Action Plan 'He kai kei aku ringa'. Key initiatives and strategies relevant to Wairoa include: • Work with Rocket Lab to develop opportunities to leverage business attraction off their Te Māhia initiative. • Ensure regional and district plans take a coherent and consistent approach to regulating common activities. • Investigate a common approach to consenting and regulatory approval. • Accelerate the deployment of Ultra Fast Broadband throughout the Region, in particular to rural communities and marae. • Identify land available to support new business growth by liaising with Councils. • Develop a targeted regional strategy for the attraction of businesses, investment and migrants.
Heretaunga Plains Urban Development Strategy 2017	The Heretaunga Plains Urban Development Strategy (HPUDS) is a collaboration between the Hastings District Council, Napier City Council and Hawke's Bay Regional Council to plan for urban growth on the Plains between 2015 and 2045. The HPUDS vision is: "In 2045, the Heretaunga Plains is a place where there are thriving communities, quality living environments with high levels of amenity, and where mana whenua values and aspirations are recognised and provided for, and where: • There is a growing and resilient economy which promotes opportunities to live, work, play and invest. • The productive value of its soil and water resources are recognised and provided for, and sustainable use is promoted. • The urban centres of Napier and Hastings have distinct identities and provide complementary living, working and learning opportunities.

Regional Strategies & Plans	Key Regional Transport Priorities & Objectives
	• Community and physical infrastructure is integrated, sustainable and affordable." • An integrated and accessible transport network will help to achieve this vision and provide connections from new developments to key destinations.
Regional Cycle Plan	The Hawke's Bay Regional Cycle Plan is a Ten Year Plan that sets out the region's priorities for cycling. The vision of the plan is "to normalise cycling in Hawke's Bay to such an extent that the region is nationally and internationally recognised as providing the most bike-friendly experience in New Zealand." The Regional Cycle Plan establishes a coordinated approach for the development and delivery of cycle network infrastructure and promotion across the region to ensure resources are pooled and actions prioritised to achieve the greatest gains for cycling in Hawke's Bay. The document sets out an infrastructure plan, as well as a marketing and promotions plan and actions aimed at influencing travel behaviour.

3.3 WAIROA LOCAL CONTEXT

OUR MISSION

To lead and support the Wairoa community through decision-making that promotes the social, economic, environmental and cultural well-being of the District now and in the future.

OUR VISION

Desirable Lifestyles, Thriving Economy, Treasured Environments, Connected Communities

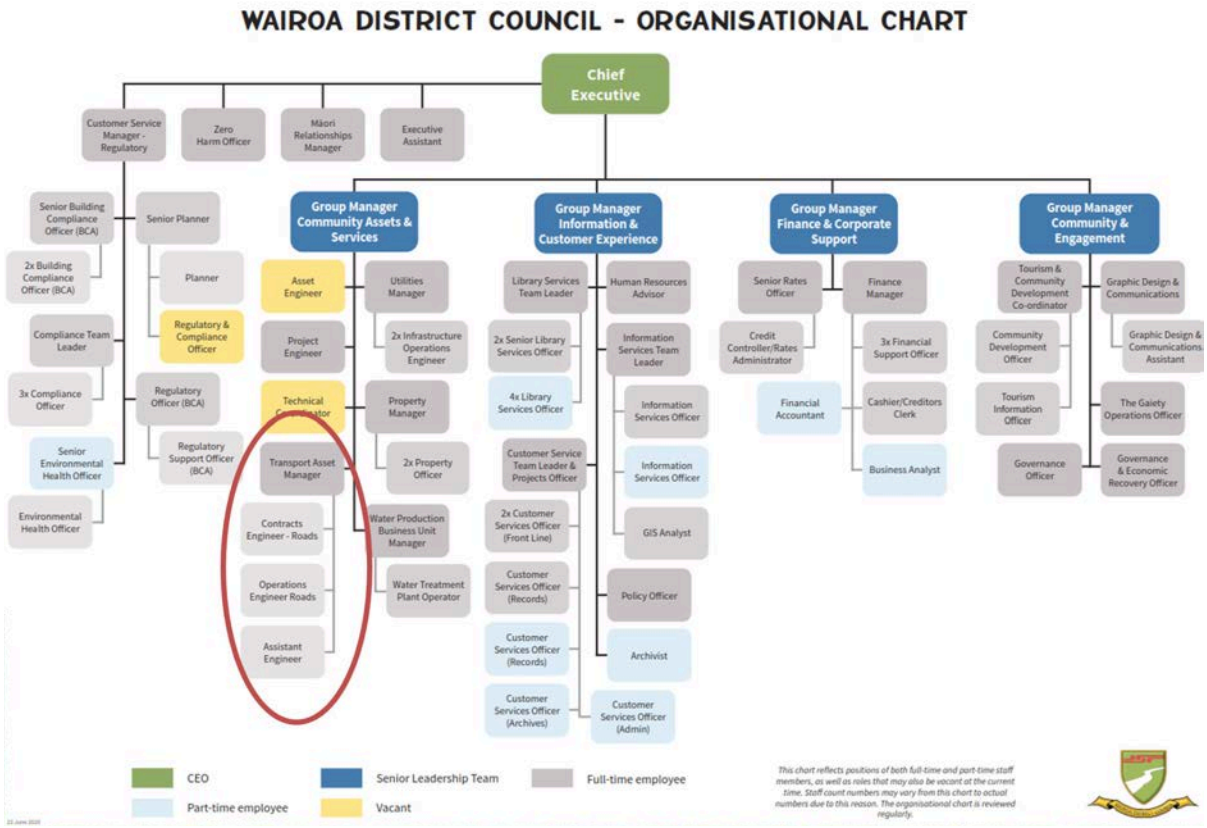
3.3.1 OUR TEAM

Our Community Assets & Services Team delivers core services, including land transport, to our community.

The Transportation Team report to the Group Manager, Community Assets & Services who is part of the Senior Leadership Team.

Our team provides management and engineering services to deliver all asset-based activities. We are supported by professional services providers who provide planning, technical design and asset management support. The physical works required to deliver the services and assets are completed through various short and long term physical works contracts.

Our transport team also work closely with other Council service areas, including three waters, open and built spaces, waste management and the airport, to deliver all community services in a coordinated and efficient way.



OUR LOCAL STRATEGIC FOCUSES

HĀPAITIA - UPLIFTING OUR COMMUNITY

Wairoa has a rich cultural heritage which is an integral part of the community today. Promoting and encouraging Māori culture and values and ensuring this remains central to key decision making is a significant focus for Council and an important factor in transportation activity planning and delivery.

GREAT PLACE TO LIVE

Wairoa is a great place to live and we are working hard as a community to lift the demographic and economic performance of our district. We are developing our district's strength in land-based industries and encouraging diversification of business and attraction of new and returning residents. Our transportation network provides key linkages between our communities, giving communities access education, business and health services.

GREAT THINGS GROW HERE

This regional strategy to see an increase in the use of productive land is a key driver for Wairoa. Our transportation network provides access to large productive areas of land which contribute significantly economic growth in the Hawke's Bay. As the number of heavy vehicles and legal gross loading has increased, so too has the pressure for stronger bridges, safer, wider roads, with better traction characteristics and longer sight distances. Resilience of the entire roading network is key to getting product from the gate to Napier Port. Forestry traffic, in particular, is forecast to grow as current wood lots mature around 2022-2024.

VALUABLE TOURISM

Wairoa is a key gateway to the Te Urewera Rainforest, Māhia beach areas and the Rocket Lab situated at the tip of the Māhia Peninsula, one of a kind in the southern hemisphere. We want to enhance these key tourism features and make Wairoa a place that visitors love to come to. These high tourist areas impact on the levels of service and safety needs for our road network.

PROTECTING OUR ENVIRONMENT

One of our key values is Tiakitanga, supporting and promoting the restoration and protection of our natural environment. Our role in protecting our green environment is critical to ensuring future generations get to use it and enjoy a clean, safe place to live. Wairoa is a key gateway to the Te Urewera Rainforest via Special Purpose road to Waikaremoana (SP38). This area is an environmentally sensitive, impacting on the maintenance and renewals strategies we use in this area.

3.3.2 OUR LOCAL STRATEGIES AND PLANS

Council Strategies & Plans	Linkages to Transportation
Long Term Plan (LTP)	The LTP is the key planning document for Council and describes how Council will fulfil its responsibilities under the Local Government Act (LGA) 2002 to promote the well-being of the district and enable democratic decision making. The LTP outlines the **Community Outcomes** and land transport **Level of Service (including associated customer performance measures)** the Council seeks to achieve, which this AMP links back to. The LTP is to be adopted by June 2021 with reviews triennially.
Infrastructure Strategy 2021-2051	The 2021-2051 Infrastructure Strategy provides guidance on key district infrastructure issues that need to be at the forefront of infrastructure planning and decision-making. They are: • Legislative and policy change • Land use change • Affordability • Economic development • Climate change • Servicing Māhia • Resilience Specific transport related infrastructure issues identified are: • The level of subsidy from Waka Kotahi may reduce. • Effects of climate change on roading and bridges. • Effects of land use change on expected levels of service. • Confidence in data related to location and condition of retaining structures is limited.
A Wairoa Journey Together: COVID-19 Economic Recovery	Tātau Tātau o Te Wairoa, Ngāti Pāhauwera Development Trust and Wairoa District Council have come together to develop a community driven, aligned, focused, and coordinated socio-economic response to COVID-19 supporting the Wairoa region, its communities, and peoples.
Procurement Strategy 2020	Outlines procurement objectives and legislative requirements to ensure value for money, transparency and fairness, accountability and integrity, and sustainability.
Long Term District Planning, Demographic and Economic Growth Directions, 2018-2048	This report completed by Economic Solutions Ltd was developed in December 2017 and provides key insights into economic development and growth over the 2018-2028 LTP period, and beyond. It provides context and direction for potential future Wairoa district transport impacts. This response focuses on immediate actions, employment, short and long-term projects, that address the current response and align with the aims of Wairoa.
Economic Development Strategy	This document provides key strategy for economic development in the district. It outlines Wairoa's current and future economic prospects and goals for further economic development and population growth.
Walking & Cycling Strategy 2020	Our Walking and Cycling Strategy Implementation Plan establishes actions, indicators and completion timeframes for achieving the goals of the Strategy. We align completion timeframes to our Long Term Plan timeframes.
Māori Policy 2012	This policy provides a foundation for establishing processes that provide for tangata whenua to contribute to Council's decision-making responsibilities. • Establish a relationship between Wairoa District Council and tangata whenua to achieve mutually beneficial outcomes for the community of Wairoa. • Set up processes and procedures that facilitate effective communication between Wairoa District Council and Tangata Whenua o te Wairoa. • Enable a Māori world view to be incorporated into local government decision making, policies and procedures. • Improve the degree to which Māori participate in Council/community consultation.

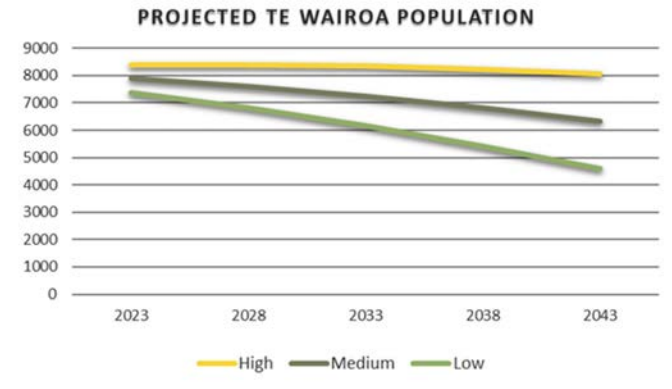
Council Strategies & Plans	Linkages to Transportation
District Plan	The Plan sets out the framework for the sustainable management of natural and physical resources in the Wairoa District. It gives key guidance on land use, changes and effects, as well as natural resource management impacting on land transport considerations.
Annual Plan	The Annual Plan provides details on the current year's financial predictions and budgets, in accordance with the current LTP. It primarily describes the projects for a single year, however, it may give some indication of projects for subsequent years.
Annual Report	The Annual Report details achievements against performance measures and targets set in the Annual Plan.

3.3.3 INFRASTRUCTURE CONTEXT

OUR PEOPLE

Wairoa is home to an estimated population of **8,670 people** (estimate as at 30 June 2020) and has the highest proportion of Māori of any local authority area in the country, with approximately **65.7% of the district's people being of Māori descent**. This is significantly higher than New Zealand average Māori population of 16.5%.

Statistics New Zealand have provided various prediction scenarios through to 2043, based off 2013 census data. These show general population decline. However, recent population data shows growth for Wairoa. It is expected that Wairoa's population will remain relatively static over the duration of this plan.



It is expected that growth, if any, will occur in Māhia, as that is a desirable location for holiday homes and more people are retiring and returning to the area. It is relatively affordable for coastal property.

An assessment of the change in demographics of the population will also need consideration. **Statistics suggest that by 2028, 1 in 5 Wairoa residents will be over the age of 65.**

As the workforce declines and people move to retirement incomes, the ability to fund cost increases can reduce.

Economic Solutions Ltd Report[2] includes an assessment of the average socio-economic deprivation score for each of Wairoa district's communities, based on the 2013 Census results for the area for the relevant indicators. Scores range from 7 to 10, with 1 representing the least deprived decile group and 10 the most deprived decile group.

Population and socio-economic depravity indicators have a significant impact on affordability of the transport activity, with limited ability for the ratepayers to finance any increases in road maintenance and renewals costs. Ecopnomic Solutions Ltd's 2017 Report outlines "In terms of the ability of district residents to meet Wairoa District Council rating requirements, it is noted that the current level of average residential rates ($2,500-$3,000 as advised by Council staff) represents approximately 6-7% of estimated annual median household income in the district at the present time. This compares to approximately 3-4% at the national level." Therefore, **Council will continue to rely on government subsidy (FAR) (currently 75% FAR in 2020)**.

OUR COMMUNITIES

While Wairoa township is the primary service area for the district there are a large number of other smaller rural communities throughout the district. These smaller communities provide an abundance of potential opportunities for the Wairoa community as a whole, and it is key that there is a reliable road network in order for them to fully add value and contribute to the wider community whether it be economic, social, cultural or environmental. Health services and other core services within the district are also limited, so for these communities to access key services they need for their wellbeing means that resilience of the road network is critical.

OUR CULTURE

Wairoa has a rich cultural heritage which is an integral part of the Wairoa community today. 20% of the population speak te reo Māori. Māori communities and Marae are located throughout the district, and **many of these communities are in isolated parts of the district, with limited access opportunities**.

The tangata whenua of Wairoa and their culture and traditions have special relationships with their ancestral lands, water, sites, wāhi tapu and other taonga. Some activities and developments can have significant adverse effects on these relationships. **Council plays an integral part in promoting and encouraging Māori culture and values and ensuring this remains central to key decision making, including within the transportation activity.**

The Māori Standing Committee acts as a check and balance on Council processes, especially on those matters requiring a Māori perspective. Recommendations from the Māori Standing Committee

[2]*Economic Solutions Ltd (4 December 2017), Wairoa District Council - Long Term District Planning - Demographic and Economic Growth Directions 2018-2048*

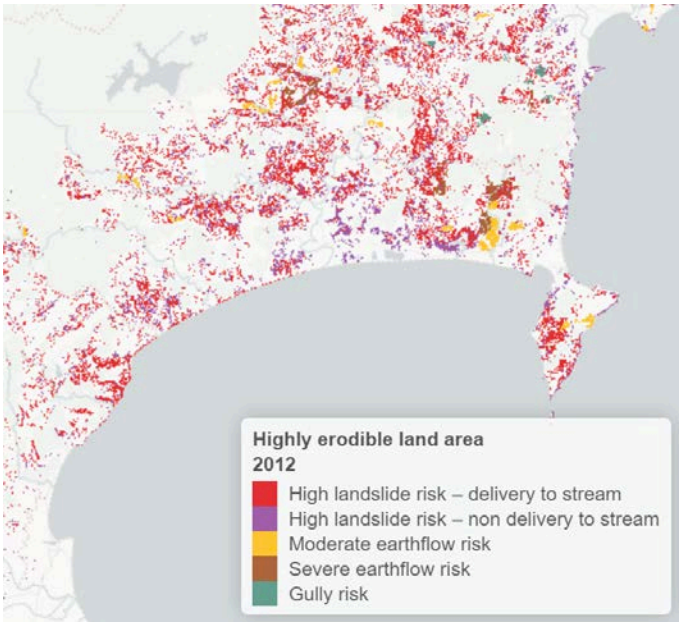
will be communicated through the Chair and will be given due consideration by the Council when making decisions that directly impact on Māori and on all matters that require the perspective of Māori.

OUR GEOGRAPHY

Area: 4,119 square kilometres, with approximately 130 kilometres of coastline.

Topography: The majority of the district is hill country merging with mountains in the west, often dissected with gorges. Areas of coastal and river flats of versatile soils give greater variety to the landscape.

Geology: Underlying geology is relatively unstable in many places. As shown in the adjacent figure from Statistics NZ[3] , Wairoa has significant amount of High landslide risk. This continues to present challenges for Wairoa roads which have been damaged as a result of land instability.



OUR CLIMATE

While Wairoa's weather has been predominantly sunny and warm, storm systems from the north and east affect the district seasonally and can cause significant rainfall events to occur. Flooding continues to be a major hazard in Wairoa with many lowland areas, including the Wairoa township, at risk.

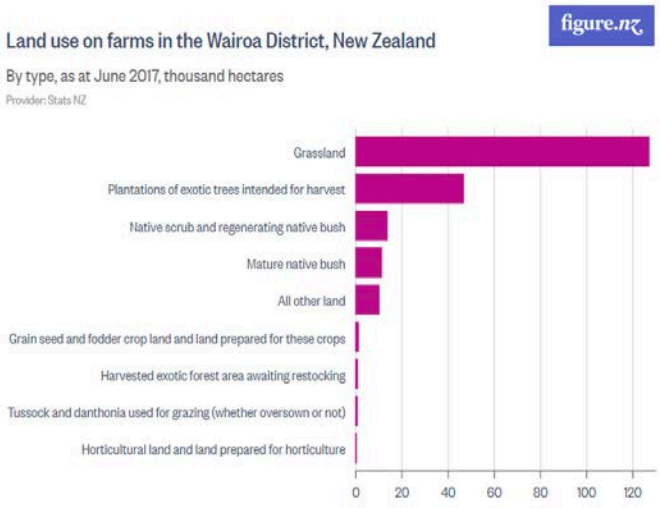
Climate change is already potentially irreversibly affecting our natural systems, and we can expect more severe effects on our transport network as the change continues. Key impacts on our land impacting transport include:

- **Rising sea levels** are projected to increase the risks of coastal flooding, erosion, and saltwater intrusion to groundwater, threatening low-lying infrastructure, cultural sites, and habitats. We can expect tides, waves, and storm surges to reach further inland more regularly. Coastal flooding, usually due to storm surges coinciding with very high tides, already causes disruption and damage along our coastline.
- **Increased frequency of intense rainfall events** is expected to increase erosion, predominantly in steep hill-country areas. Resulting soil loss is likely to impact the stability of our transport network, particularly in the rural areas of the district.

OUR ECONOMY

Economic Development is viewed as a vital element in keeping the Wairoa District alive and thriving, both now and into the future. The economy of Wairoa is based on the rural sector. Approximately 60% of the total land is in productive use, of which some 48% is in pasture. Sheep/beef farming and related processing, and forestry are the leading rural production industries in Wairoa district.

Economic Solutions Ltd 2017 report forecasts increased levels of GDP growth during the 2018-2028 period. The primary production and processing sector accounts for 56% of total industry GDP and employment in the district. Economic growth in the district has fluctuated markedly since 2000 but has averaged out at an underlying annual (growth) rate of 0.82%. This compares with the respective Hawke's Bay region and national growth rates of 1.66% and 2.54%. Wairoa contributes 5% or the Hawke's Bay regional GDP.



Council has embarked on an ambitious programme of attracting new businesses to the district and further developing our district's strength in land-based industries. An increased emphasis by the Wairoa District Council on economic development, particularly aimed at encouragement of diversification of agribusiness, ecotourism, digital creative industry attraction, and attraction of new and returning residents, has led to an increasingly positive community view of the district's future.

Key economic contributors are outlined below.

Industry	Description
Pasture Farming	Wairoa is known nationally as a leading producer of high quality, non-dairy cross beef, principally Angus. Pasture farming and associated meat processing continue to contribute significantly to the local economy. The largest employer in Wairoa is the AFFCO meat works.
Forestry	Increases in forestry plantings as a result of the Climate Change Response (Zero Carbon) Amendment Act could have a particular effect in the Wairoa District, which has already seen 8,486 hectares of sheep and beef land converted to forestry.

[3]*https://www.stats.govt.nz/indicators/highly-erodible-land*

Industry	Description
	This is of concern to many in the district due to the loss of jobs resulting from such conversion. The 2017 annual level of activity is approximately 0.6 million tonnes; this is forecast to increase to a peak level of 1.8 million tonnes in 2021/22 and then fall back gradually to approximately 0.7 million tonnes in 2027/28. The total harvest output for the period is approximately 12 million tonnes.
Horticulture	Wairoa has a high horticulture potential that has seen a number of crops grown here over the years. Further horticultural sector developments in the district, e.g. fruit-growing and vegetables, could contribute to economy.
Tourism	Since 2010, MBIE visitor spending data indicates total annual visitor spending in Wairoa district varying in the range $15 million to $18 million. Visitor spending for the year ended September 2017 was recorded at $17 million, up 13% on the previous year. ESL forecasts this to increase to approximately $25 million, by year 2028. Potential new tourism opportunities include Māori community/cultural tourism initiatives and tourism spinoffs from the Rocket Lab development. This may be impacted in the short term by post COVID-19 impacts.

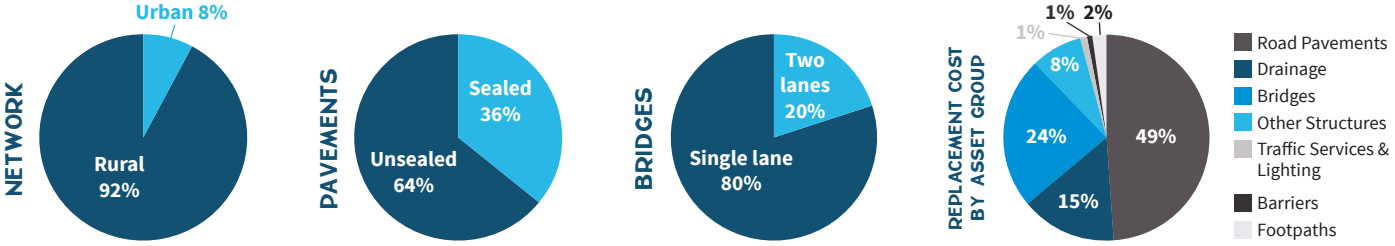
Industry	Description
Rocket Lab Launch Site	The establishment of a launch site on the Māhia Peninsula by Rocket Lab has opened up the opportunity for new economic contribution to the Wairoa District. In 2019, Rocket Lab announced that it was establishing a second launch site at its Launch Complex 1 site for its Electron Vehicle on the Māhia Peninsula.
Māori Community	Further Māori economic, business, employment and community/social development initiatives underpinned by local application of Treaty of Waitangi settlement claim monies. These are estimated to total in the order of $340 million.
Service Industry	Wairoa has a good range of service and retail industries with two vet clinics and a number of agriculture and construction supply companies (ITM, Carters, Farmlands, East Coast Lumber etc.). Wairoa Township also has available legal, accounting, medical and dental services, as well as the important vehicle and machinery servicing sector. The District is served by a range of agricultural and forestry contractors and transport companies. The public service sector is relatively large in Wairoa, comprising health (8.8% of all jobs), education (10.4% of all jobs), police and social services, along with local government.

POST COVID-19 RECOVERY

Wairoa has put considerable effort into proactively responding to COVID-19 through strategic planning. A Wairoa Journey Together: COVID-19 Economic Recovery sets out key recovery enablers and contribution to strategic focuses as outlined below. Where possible our transport planning and strategic responses look to utilise these recovery enablers.

OUR KEY TRANSPORT ASSETS

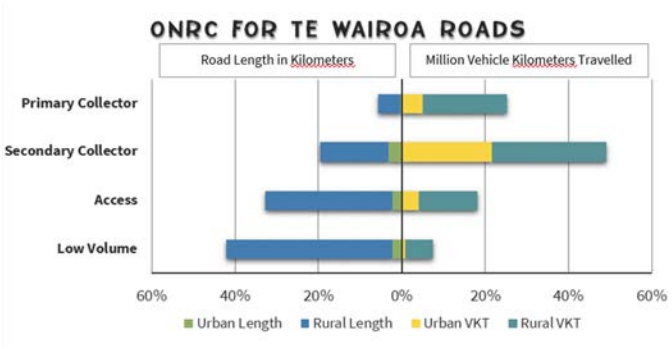
Council maintains **871km of roads**, of which **310km is sealed**. The roading network is highly rural and many roads traverse challenging terrain with numerous steep, winding, narrow sections. Within the formed road corridor, Council also owns **176 bridges, 447 retaining structures, 51km of footpaths**, car parks and numerous other drainage and furniture assets.



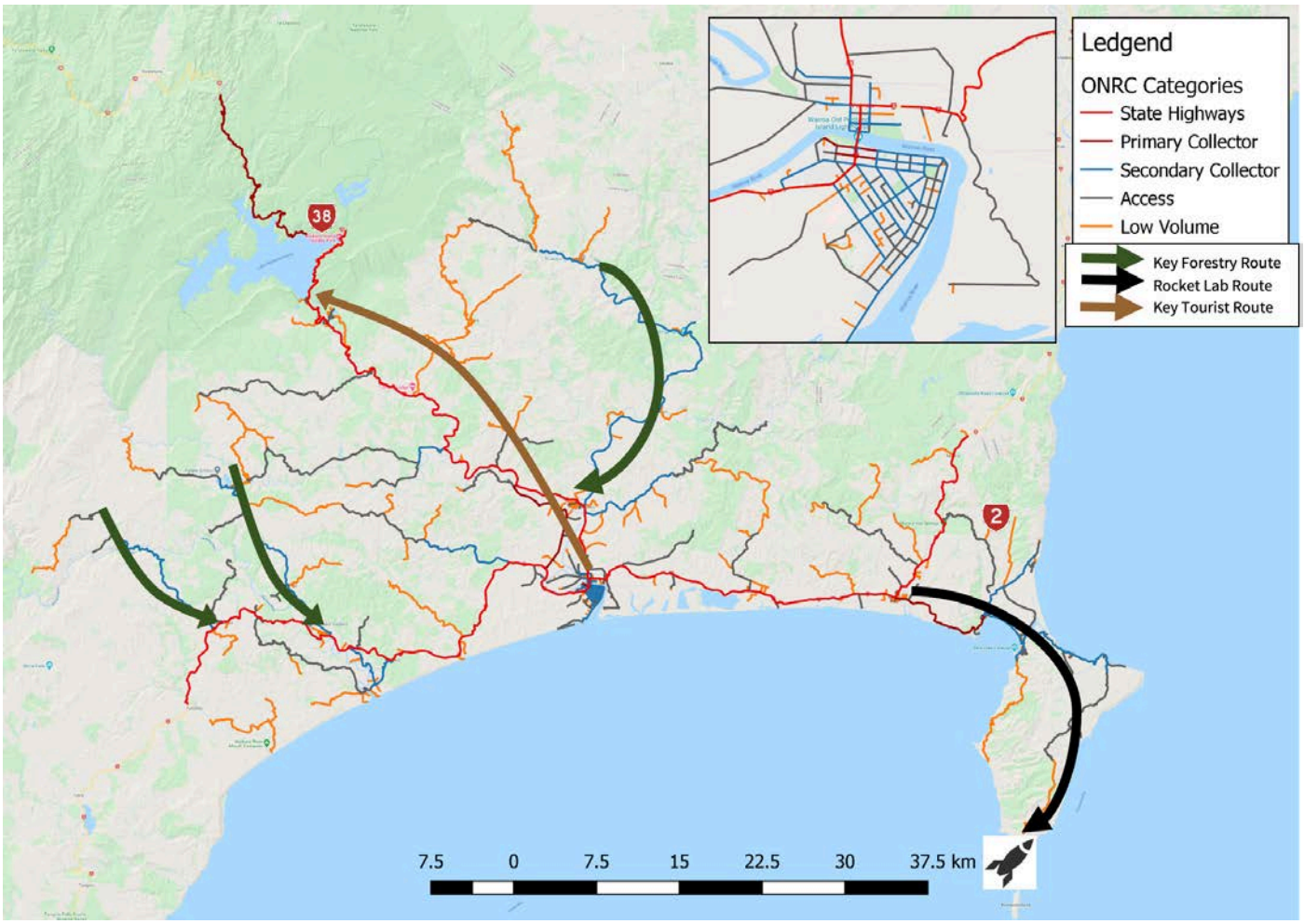
ONRC

In 2020, Council completed the desktop review of all roads and reclassified them in conjunction with the ONRC levels of service guidelines. Lengths for the ONRC within the Wairoa district and each ONRC as a percentage of the total network length are included in the adjacent figure.

The number of journeys travelled are measured by multiplying the volume of traffic on a road by its length (Vehicles Kilometres Travelled or VKT). This shows where most customer journeys are made. For Wairoa **primary and secondary collector routes make up 25% of the network by length, but carry more than 74% of the amount of travel undertaken** in the district due to the higher traffic volumes.



3.3.4 OUR LOCAL TRANSPORT NETWORK AT A GLANCE



KEY LINKAGES

Key linkages include **State Highway 2** and **State Highway 38**, which run through the district providing key access links between Wairoa and other districts, including Napier Port.

Hastings District Council is the neighbouring TLA to the south and **Gisborne District Council** is the neighbouring TLA to the north.

In terms of State Highway 38, there are a number of different maintenance and funding arrangements, based on the various sections of road as outlined in the table to the right.

SH38 Section	Description & Responsibility	Length
Wairoa to Mangapapa	**State Highway** – Sealed road section fully maintained and funded by Waka Kotahi	36.7 km
Mangapapa Bridge to Aniwaniwa	Delegated State Highway – Unsealed road section with maintenance and renewals responsibility delegated to Council to complete on behalf on Waka Kotahi – fully funded by Waka Kotahi	24.9 km

SH38 Section	Description & Responsibility	Length
Whakatāne Boundary to Aniwaniwa	Special Purpose road – Unsealed road section fully maintained by Council. Waka Kotahi has confirmed the FARs for Special Purpose Roads (SPRs). In the absence of an agreed transition plan, the rate for SPRs for the 2021-24 NLTP is 100%. From 1 July 2024, these roads will revert to normal FAR.	30.2 km

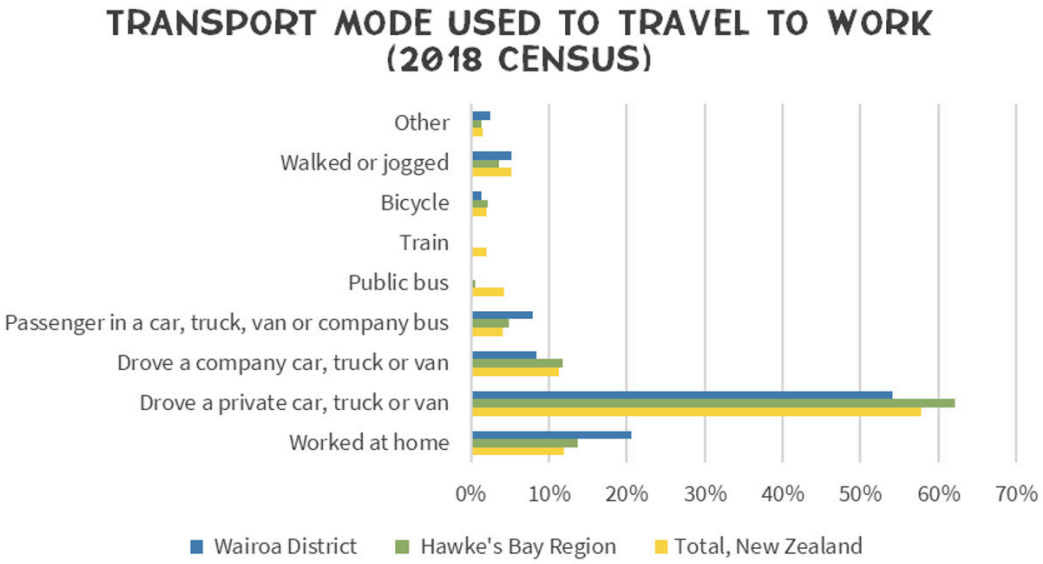
CURRENT TRAVEL BEHAVIOURS

Statistics NZ presents details of the mode of transport used by people travelling to work from 2018 Census data.

This data shows that the use of private and company vehicles for travel to work is lower in Wairoa than for Hawke's Bay and the rest of New Zealand. However, working from home and travelling as a passenger is higher for Wairoa than Hawke's Bay and New Zealand. As such, **Wairoa residents are heavily dependent on the road network to provide for the predominant mode of transport**.

Walking and Cycling: In Wairoa, a 7.7km riverside path has been constructed from the town's lighthouse to Whakamahia Beach. Wairoa District Council is currently developing a cycle plan.

Public Transport: No public transport or train transport is available for commuters in Wairoa. Public transport in the district primarily consists of long distance bus services, which operate through the district to Napier and Gisborne, and school bus transport.



This section outlines the need for investment. It defines the key issues and challenges facing our region and our district, the evidence base for these issues and the benefits of investing to address them.

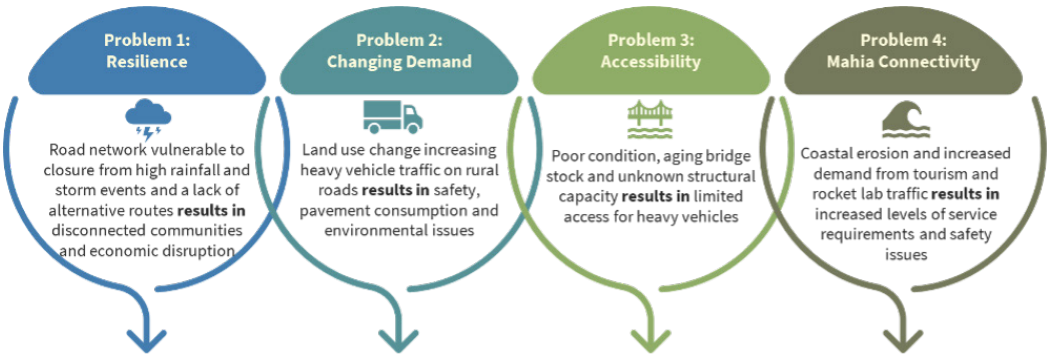
4.1 KEY ISSUES & CHALLENGES FACING OUR REGION

At a regional level Investment logic mapping (ILM) has been reviewed in 2020. The agreed problems facing the region, and the outcomes and benefits of dealing with these problems are detailed below. This guides regional investment decisions.

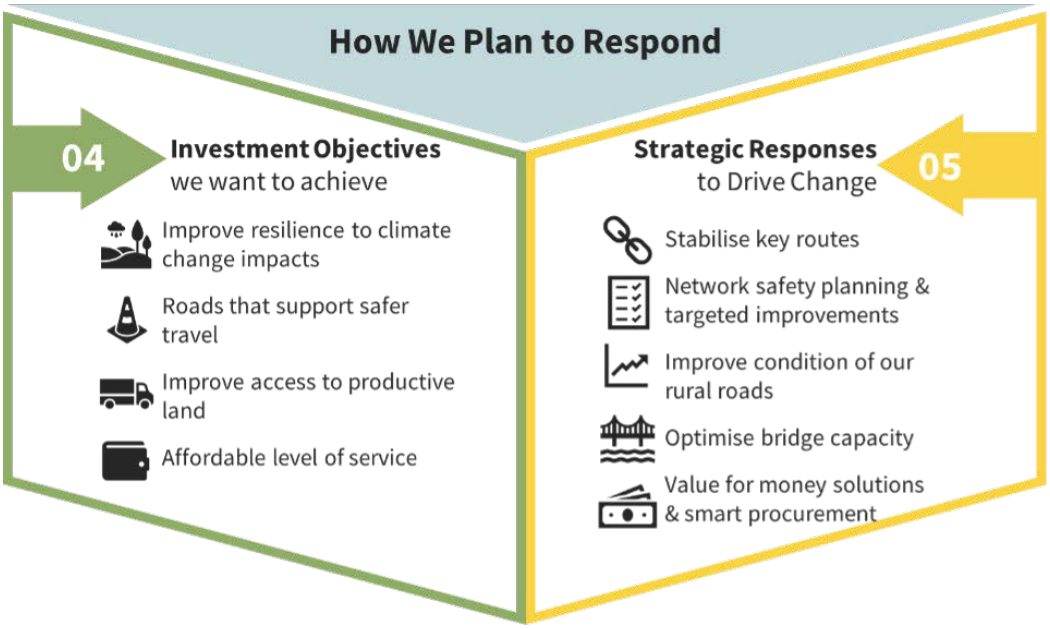
Problem	Benefit	Investment Objectives
Regional freight movement is constrained by vulnerable and ageing infrastructure, competing user demands and Port access limitations negatively impacting on supply chain reliability and economic productivity (30%)	Improve network resilience (15%)	Duration and frequency of road closures per year do not exceed acceptable thresholds (15%)
	Improved reliability and network efficiency (15%)	Reliable travel times (by time of day) (15%)
Existing transport networks and land use development has resulted in communities with limited transport choice leading to undesirable health, environmental and socio-economic outcomes (30%)	Improved transport choice (15%)	*xx%* of population have access to walking, cycling and public transport networks that meet defined LOS by *20xx* (15%)
	Enhanced community wellbeing to achieve health, environmental and socio-economic outcomes (15%)	*xx%* of population that walk, cycle and use public transport by *20xx* (15%)
Transport network deficiencies, and older vehicle fleet and poor road user behaviour contribute to crashes resulting in increased road deaths and serious injuries (40%)	Reduced deaths and serious injuries (40%)	*xx%* reduction in DSIs by *20xx* (moving towards Vision Zero) (20%)
		xx% reduction of incidents of road users undertaking risky behaviour by *20xx* (20%)

4.2 KEY ISSUES & CHALLENGES FACING WAIROA

Council carried out its own assessment of problems facing the district in 2017. This has been completed in consultation with key Stakeholders and a problem identification workshop including the Council Engineering Manager, Waka Kotahi P&I representative and key members of the Roading team. These problems have been reviewed in 2020. Although progress has been made in some areas, changing the relative priority of these problems, overall they remain. Key problems identified for Wairoa are:



In order to address the four key problems identified for Wairoa, we have identified a number of Strategic Objectives we want to achieve as an outcome of addressing these. We have also identified key Strategic Responses that we will use to drive change to achieve these objectives.



ALIGNMENT OF PROBLEMS WITH STRATEGIC OBJECTIVES

Overall alignment of Wairoa's problems with local, regional and national strategic objectives has been completed in the table below.

Wairoa Transportation Problem Statement	Local	Regional	National		
	Council Community Outcomes	Regional Problems	ONRC Customer Outcomes	Arataki	GPS - Strategic Priorities for Regions
Resilience Road network vulnerable to closure from high rainfall and storm events and a lack of alternative routes results in disconnected communities and economic disruption	Strong and prosperous economy	**Freight Supply Chain** Regional freight movement is constrained by vulnerable and aging infrastructure, competing user demands and Port access limitations negatively impacting on supply chain reliability and economic productivity	**Resilience** Limiting disruption to traffic affected by unplanned events and the impacts of closures that occur	**Support Regional Development** Optimise transport's role in enabling regional communities to thrive socially & economically **Tackle Climate Change** Enhance communities' long-term resilience to the impacts of climate change	**Freight Network** Improving the freight network for primary producers to markets **Maintaining the network** Sufficient funding to maintain networks to the condition required to ensure a safe, resilient and accessible network
Changing Demand Land use change increasing heavy vehicle traffic on rural roads results in safety, pavement consumption and environmental issues	Strong and prosperous economy Safe, supported and well-led community Protected and healthy environment	**Freight Supply Chain** **Safety** Transport network deficiencies, an older vehicle fleet and poor road user behaviour contributes to crashes resulting in increased road deaths and serious injuries	**Accessibility** Providing a transportation network that allows land use access and network connectivity **Safety** Maintaining roads in such a way as to ensure that people feel safe driving them **Amenity** Providing travel quality and comfort to road users	**Support Regional Development** **Significantly Reduce Harms** Transition to a transport system that reduces deaths and serious injuries & improves public health	**Freight Network** **Safety** Implementing the Road to Zero strategy **Maintaining the network**

Wairoa Transportation Problem Statement	Local	Regional	National		
	Council Community Outcomes	Regional Problems	ONRC Customer Outcomes	Arataki	GPS - Strategic Priorities for Regions
Accessibility Poor condition aging bridge stock and unknown structural capacity results in limited access for heavy vehicles	Strong and prosperous economy	**Freight Supply Chain**	**Accessibility** Providing a transportation network that allows access for HCVs (including 50Max vehicles) via key road transport links	**Support Regional Development**	**Freight Network**
Māhia Connectivity Coastal erosion and increased demand from tourism and rocket lab traffic results in increased levels of service requirements and safety issues	Strong and prosperous economy Safe, supported and well-led community Protected and healthy environment	**Freight Supply Chain** **Safety**	**Resilience** **Safety** **Amenity**	**Tackle Climate Change** Sea level rise and more extreme weather events impacting communities and infrastructure **Significantly Reduce Harms**	**Maintaining the network** **Safety**

4.3 BENEFITS OF INVESTING

4.3.1 MEASURING THE BENEFIT OF INVESTING

Key performance measures help Council to measure their investment performance. They help to answer the question: are the benefits actually being achieved? For each benefit statement, there are investment performance measures developed using Waka Kotahi's Investment Benefits Framework as shown below. There are twelve Benefit Clusters contributing to the five national Transport Outcomes.

The outcomes from this framework are detailed further in the individual problem sections in the table below.

The benefits of successfully investing to address the problems have been identified in the table below. These align to the Ministry of Transport's five key Transport Outcomes through Waka Kotahi's **Investment Benefits Framework**. Alongside the benefits we have also identified the consequences of not investing and key strategic responses. The benefits of investing, consequences of not investing and strategic responses are detailed further in the individual problem sections below.

Problem	Our Investment Objectives	Benefits of Investing	Performance Measures	Key Strategic Responses
Resilience Road network vulnerable to closure from high rainfall and storm events and a lack of alternative routes results in disconnected communities and economic disruption	Improve resilience to climate change impacts	**Benefit 4.1: Reduced impact on system vulnerabilities and redundancies** Reducing the risk of communities not being able to access social and economic opportunities due to unexpected outages.	BF 4.1.1: Availability of a viable alternative to high-risk and high-impact route ONRC Resilience CO1: No. of journeys impacted by closure ONRC Resilience CO2: The number of instances where road access is lost	**Stabilise key routes** • Proactive drainage maintenance & renewals • Retaining wall condition assessments & renewals in vulnerable areas • Riverbank stabilisation on key routes • Coastal erosion protection • Hazardous tree removal programme on key routes

Problem	Our Investment Objectives	Benefits of Investing	Performance Measures	Key Strategic Responses
Changing Demand Land use change increasing heavy vehicle traffic on rural roads results in safety, pavement consumption and environmental issues	Roads that support safer travel	**Benefit 1.1: Reduced social cost of deaths and serious injuries** The impact of reducing the number of deaths and serious injuries (DSIs) on the all land transport modes and their social costs.	BF 1.1.1 (ONRC Safety CO2): Collective Risk BF 1.1.2: Crashes by severity BF 1.1.3: Deaths and serious injuries BF 1.1.4 (ONRC Safety CO3): Personal risk	**Network safety planning & targeted improvements** • Network wide safety audit to better understand key safety issues • Speed management consistent with regional approach • Targeted improvements on high risk parts of the network
	Improve access to productive land	**Benefit 5.2: Improved network productivity and utilisation** Network productivity and utilisation is about efficient use of the land transport network. Optimising our part of the broader economic / social system to allow broader benefits to be gained.	BF 10.1.5 (ONRC Amenity CO1): Smooth Travel Exposure (STE) ONRC Amenity CO2: Peak Roughness ONRC Amenity TO1: Roughness of the road (median and average)	**Improve condition of our rural roads** • Demand management & stakeholder engagement to confirm harvesting projections and better plan future investment • Traffic Count Programme to better understand network usage • Improved Maintenance Intervention Strategy & data collection processes to inform decision making • Targeted pavement renewals (on secondary collector roads)
	Affordable level of service	**Benefit 10.1: Improved user experience of the transport system** How all people experience the transport system, including people with disabilities, school children, and the elderly, and how different modes are experienced	BF 10.1.5 (ONRC Amenity CO1): Smooth Travel Exposure (STE) ONRC Amenity CO2: Peak Roughness ONRC Amenity TO1: Roughness of the road (median and average) DIA PM4: Network condition - footpaths	**Value for money solutions & procurement** • Improved data management processes • Smart buying through packaging work. Delivering more for the same cost • Improve condition of our rural roads • Targeted renewals to meet level of service
		Benefit 3.2: Reduced impact of air emissions on health Land transport air emissions that impact on human health	BF 3.2.2: Ambient air quality – PM10	**Improve condition of our rural roads** • Review and development of a Dust Mitigation Strategy
Accessibility Poor condition aging bridge stock and unknown structural capacity results in limited access for heavy vehicles	Improve access to productive land	**Benefit 5.2: Improved network productivity and utilisation** Network productivity and utilisation is about efficient use of the land transport network.	BF 5.2.1 (ONRC Accessibility CO1): Spatial coverage - freight	**Optimise bridge capacity** • Bridge condition assessments • Bridge capacity assessments • Targeted maintenance & renewals • Painting Screening

Problem	Our Investment Objectives	Benefits of Investing	Performance Measures	Key Strategic Responses
		Optimising our part of the broader economic/social system to allow broader benefits to be gained.		• HPMV Permitting • Material Testing on key bridges • Improved data management processes • Targeted bridge strengthening works on key HPMV routes
Māhia Connectivity Coastal erosion and increased demand from tourism and rocket lab traffic results in increased level of service requirements and safety issues	Improve resilience to climate change impacts Roads that support safer travel Affordable level of service	**Benefit 4.1: Reduced impact on system vulnerabilities and redundancies** Reducing the risk of communities not being able to access social and economic opportunities due to unexpected outages. **Benefit 1.1: Reduced social cost of deaths and serious injuries** The impact of reducing the number of deaths and serious injuries (DSIs) on the all land transport modes and their social costs. **Benefit 5.2: Improved network productivity and utilisation** Network productivity and utilisation is about efficient use of the land transport network. Optimising our part of the broader economic/social system to allow broader benefits to be gained.	BF 4.1.1: Availability of a viable alternative to high-risk and high-impact route ONRC Resilience CO1: No. of journeys impacted by closure ONRC Resilience CO2: The number of instances where road access is lost BF 1.1.1 (ONRC Safety CO2): Collective Risk BF 1.1.2: Crashes by severity BF 1.1.3: Deaths and serious injuries BF 1.1.4 (ONRC Safety CO3): Personal risk BF 10.1.5 (ONRC Amenity CO1): Smooth Travel Exposure (STE) ONRC Amenity CO2: Peak Roughness ONRC Amenity TO1: Roughness of the road (median and average)	**Stabilise key routes** • Condition assessments to better understand condition of existing retaining structures • Coastal erosion protection **Improve condition of our rural roads** • High priority route for maintenance & renewals expenditure **Network safety planning & targeted improvements** • Network wide safety audit • Speed management consistent with regional approach • Targeted improvements safety improvements

4.3.2 EVIDENCE BASE

The evidence base for this strategic case assesses the robustness of the problems and benefits identified, using current information as well as stakeholder knowledge. This evidence helps to confirm that the problem statements are correct by looking at the following:

- **Cause** – what is causing the problem to occur?
- **Effect** – is the problem effecting customers or asset integrity? One of the key forms of evidence here are the ONRC performance measures. Council has reviewed the ONRC performance measures for the district's roads against a peer group of other Road Controlling Authorities (RCAs). These performance measures show Council's efficiency and effectiveness at meeting the Customer LoS. Through comparison, a gap analysis has been completed to identify where Wairoa is currently under performing compared to our peer group.

Cause and effect evidence supporting each of the problems identified is detailed further in the individual problem sections below.

4.3.3 LINKING OUR PROBLEMS TO ONRC CUSTOMER OUTCOMES

The ONRC customer outcomes are included below. For Wairoa, these are prioritised in order to meet key customer demand areas as identified through our problem statements. Priorities are as follows:

ONRC CLOS	Our Aim
Resilience	To limit disruption to traffic affected by unplanned events and to limit the impacts of closures that occur

High Priority Important Business as Usual

ONRC CLOS	Our Aim
Safety	To maintain the road and roadsides in such a way as to ensure that people feel safe driving them, by progressively eliminating hazards on local roads
Accessibility - Land Access	To provide a transportation network that allows full access to productive land, this includes full HCV (including 50Max vehicles) access via key road transport links
Amenity - Travel Quality	To provide a comfortable road user experience on sealed roads and to limit roughness on unsealed roads as much as possible
Amenity - Aesthetics	To provide a network that is pleasant to use, particularly for tourists
Accessibility - Wayfinding	To provide a road network with appropriate wayfinding and connectivity
Travel Time Reliability	To provide roads that allow for consistent travel times based on road classification

High Priority Important Business as Usual

4.4 PROBLEM 1 - RESILIENCE

Road network vulnerable to closure from high rainfall and storm events and a lack of alternate routes results in disconnected communities and economic disruption.

Resilience has been identified as a key issue for Wairoa. The Wairoa district has a history of being impacted by storm events causing flooding, slips and dropouts on the road network. This is exacerbated by the geology and poor soils in some areas of the network, resulting in erosion and sediment risks.

In order to ensure communities remain connected and to unlock the potential of Wairoa's land, providing a resilient network is critical. Specific impacts of road resilience include Lifeline Routes. These are critical routes where failure will have significant impact on communities access to health, education and economic opportunities.

4.4.1 PROGRESS & CHANGES

This problem was identified in the 2018 AMP and continues to be an issue for Wairoa. We have been employing strategic responses to address this issue and will continue to focus on these going forward. Progress made with strategic responses over the last two years is outlined below.

Issue/LOS	Key Strategic Response	Progress Made	Effectiveness	Adjustments
Inadequate drainage maintenance is resulting in dropouts impacting customer journeys	Drainage maintenance strategy for improved drainage maintenance reducing the number of dropouts on the network	Increased focus on proactive drainage maintenance and resilience Drainage Inspection programme commenced Surface Water Channel renewals in new contracts	 Strategic responses completed have been effective in mitigating stormwater issues in these areas	Carry on same approach, continued focus on proactive drainage maintenance
The current maintenance contracts do not promote proactive drainage maintenance practices	Review maintenance contract requirements and performance measures	Increased focus on drainage under new contracts. However, all proactive measures could not be included due to high tendered rates. Need to keep proactive focus.	 Focus on drainage has increased, needs to be implemented further	Strengthen drainage inspection and maintenance approach
Roads close to riverbanks are susceptible to dropout due to riverbank stability	Riverbank stabilisation on key route	Not completed. Budgets cut due to base maintenance costs being high.		Update register and target key areas

Issue/LOS	Key Strategic Response	Progress Made	Effectiveness	Adjustments
Fallen trees are the main cause of road closures, impacting customer access	Hazardous tree removal programme on key routes	Not completed. Budgets cut due to base maintenance costs being high.		Update register and target key areas

4.4.2 EVIDENCE

COMMUNITY ACCESS TO KEY SERVICES

Limited health services and other key facilities are available to the smaller communities located across the Wairoa District, so resilience of the transport network is critical to communities accessing these facilities.

Community	Population (2018 Census)	Services Provided			
		Emergency	Health Care	Education	Groceries/Supplies
Wairoa (township)	4,527	Police, Fire, Ambulance	Wairoa Hospital & Health Care, GPs	Primary & Secondary	Supermarket
Whakiki	675				
Māhia	1,119	Police, Fire, Ambulance	Health clinic	Primary	General store
Nūhaka		Fire		Primary	General store
Mōrere					General store
Frasertown	861	Police, Fire, Ambulance	Wairoa Hospital & Health Care, GPs	Primary	General store
Ruakituri		Fire		Primary	
Ohuka				Primary	
Tuai	1,188	Police, Fire		Primary	
Maungataniwha					
Raupunga					
Putere				Primary	
Mohaka				Primary	
Kotemaori		Police		Primary	

ISOLATED MĀORI COMMUNITIES

Within the Wairoa district there are 38 Marae. There are a number of particularly isolated Māori communities and Marae due to single access roads, as detailed below. These Marae are cut off from key services if these roads are not available.

Nga Marae O nga Takiwa

Nga Marae O nga Takiwa Area	Isolated Marae	Key Access Road
Area 1 - Māhia mai Tawhiti	Māhanga Marae	Māhanga Road
	Kaiuku Marae	Māhia East Coast Road
	Tuahuru Marae	Māhia East Coast Road
Area 6 - Waikaremoana	Putere Marae	Putere Road
Area 7 - Pahauwera	Te Maara a Ngata Marae	Putere Road
Area 8 - Ruakituri	Te Reinga Marae	Tiniroto Road (significant detour around Ruakitiri Road if Tiniroto closed)
	Erepeti Marae	Ruakitiri Road

STORM EVENTS IMPACTING THE NETWORK

Two storm events in 2017 and 2018 resulted in 85 new dropouts on the network. The total estimated cost of repairing these dropouts is $15.1M. A total of 21 of these are on key routes within the transportation network as shown on the next page.

Lifeline Route	ONRC	No. of Dropouts
Awamate Road	Primary Collector	2
SP38	Primary Collector	9
Tiniroto Road	Secondary Collector	2
Ruapapa Road	Secondary Collector	6
Tuai Main Road	Access	1
Piripaua Road	Low Volume	1

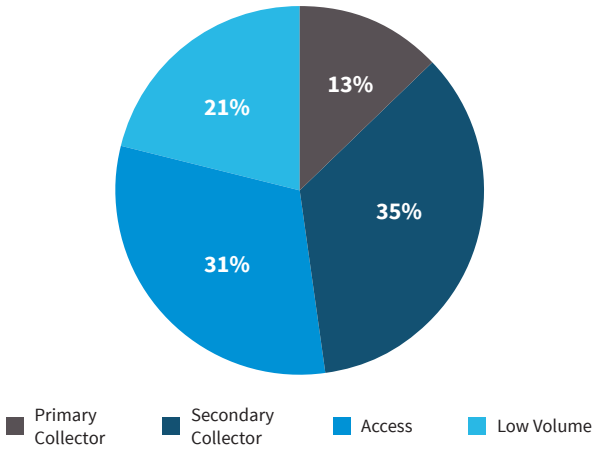
Evidence suggests that drainage maintenance issues (e.g. blocked culverts or surface water channels overtopping during high rainfall events) and erosion of riverbanks or coastlines adjacent to road are contributing to this problem.

within budgets. Further work will be undertaken to understand the frequency and extent of surface water channel renewal on the Wairoa District Council network, and investigate options for procuring and funding the work going forward.

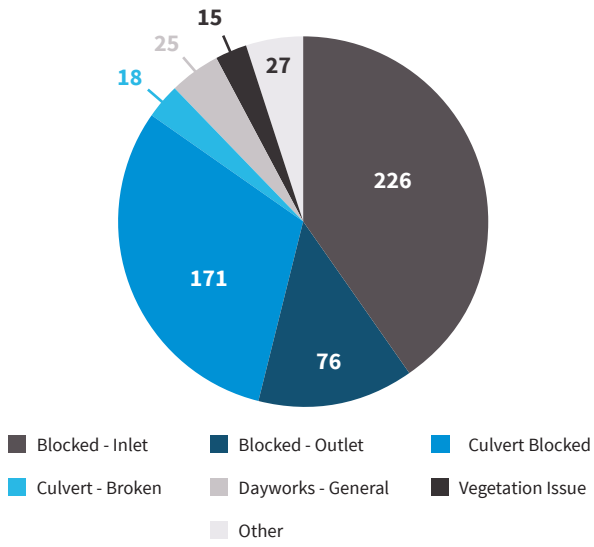
A full network culvert inspection was undertaken in 2019 to better understand the condition of culvert assets. The inspection will be repeated in 2020, with refined inspection criteria to further understanding of condition and priority of repairs. The inspection identified 558 faults, of which 85% are blocked culverts, inlets or outlets. These faults pose a high risk of causing dropouts and scour as the water finds an alternative route to clear.

305 helicoil (Armco/steel) pipes exist on the council network, and are approaching the end of their lives.

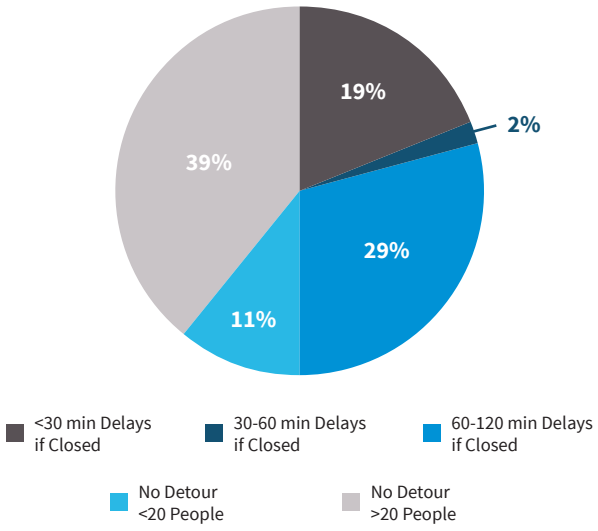
Dropouts by ONRC Category



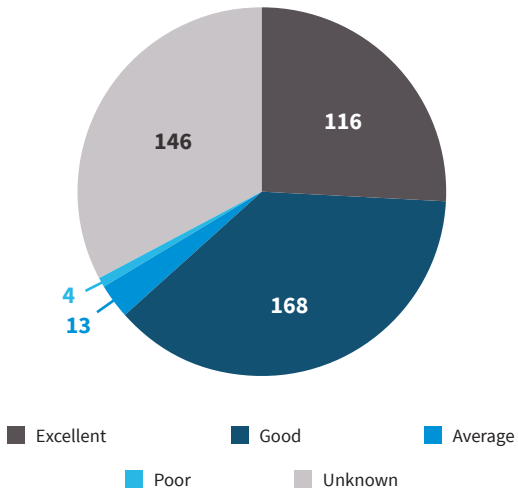
Culvert Faults



Dropouts by Alternate Route



Retaining Walls Condition



DRAINAGE MAINTENANCE IMPACTS

Under the new outcome based unsealed road maintenance contract, a minimum of 30kms of surface water channel must be renewed annually. Compared to previous contracts, this requirement has had a positive impact on pavement condition and consumption. The initial tender documents required a much higher amount of renewals per year, however this amount had to be reduced to fit

RETAINING WALL CONDITION

Currently very little information exists on the condition of Council's retaining walls. No condition data exists for many of the council retaining walls, and a significant inspection programme has not been completed for over 10 years. This lack of understanding of the condition of the existing retaining walls presents a large risk to council in ensuring network resilience.

CLIMATE CHANGE IMPACTS & RIVERS ADJACENT TO ROADS ON THE NETWORK

Climate change is affecting weather patterns, river flows, and runoff in the Wairoa District, putting increased pressure on the resilience of Council's network. Sea level rise is causing increased coastal erosion issues on coastal routes.

Based on GIS mapping[4], 37.6km of Wairoa's road are located adjacent to rivers or streams (road within 30m rivers and streams). These lengths are particularly susceptible to road side dropouts during high river flows caused by storm events.

NORTHERN HAWKE'S BAY SUSTAINABLE LAND MANAGEMENT STRATEGY[5]

Although not specifically aimed at resilience issues, this report details the poor erosion areas in northern Hawke' Bay. It outlines that *"According to Hawke's Bay Regional Council, approximately 34% (47,000 ha) of farmland in Northern Hawke's Bay (Māhia, Nūhaka and Wairoa catchments) is classified as 'high landslide risk'.*

The eroding steep-lands of the Wairoa District are eroding the natural capital of northern Hawke's Bay, as a result of land use that is not compatible with land use capability. This is increasing the risk of flood damage and water quality degradation, that in turn poses a threat to the region's prosperity."

34% of land in Northern Hawke's Bay is classified as 'High Landslide Risk'

4.4.3 CONSEQUENCE OF NOT INVESTING

The consequences of not investing to meet our investment objectives are detailed below.

Consequence	Description	0-3 Years	3-10 Years	10 Years +
Communities isolated, access to health and other services impacted	Many Wairoa communities rely on a single access road for access to health and other essential services. Failure to maintain access will impact community connectivity and well being.	→ Limited access impact	↓ Decreased access & connectivity	↓ Decreased access & connectivity
Not meeting key direction set by GPS for economic growth & productivity	If we allow our rural network and key urban roads to decline there is the risk that this would have a negative impact on the region's economic growth and productivity	→ Static productivity	↓ Decreased productivity	↓ Decreased productivity
Impact on strategic issues	Highly critical to overall regional and local strategies including "Good things grow here" and "Gate to the Port." Without resilience, it is unlikely that land owners will invest in further development and diversification of land, reducing export potential.	→ Limited change in land development	→ Limited change in land development	↓ Reduced Land development/ diversification
Increased network outage and costs to repair from storm events	A roading network that is not resilient to increasing rainfall intensity potentially places road users at risk, places the asset at risk of avoidable damage and reduces levels of service during storm events.	↑ Increases in emergency works costs	↑ Increases in emergency works costs	↑ Increases in emergency works costs

4.4.4 BENEFIT OF INVESTING

The Investment Objectives that we want to achieve include:

Improve resilience to climate change impacts

It is critical that access is made available to productive land within the Wairoa District. Network resilience leads to more confidence to invest in the district and utilise land to full potential. In turn, this will help boost job opportunities and increase population.

[4]*Utilising the LINZ topographical river centreline 1:250k and the RAMM road centreline*
[5]*Weaver S (July 2016). Norther Hawke's Bay Sustainable Land Management Strategy – Options Paper. Ekos, Takaka, NZ. Report prepared for the Hawkes Bay Regional Council and the Ministry for Primary Industries*

MEASURING THE BENEFIT

The table below outlines the specific Benefits that will result from investment, based on Waka Kotahi's Investment Benefits Framework.

Investment Objective	Benefit Cluster	Benefit	Description	Performance Measure
Improved resilience to climate change impacts **GPS2020: Maintaining the network**	4. Changes in impact of unplanned disruptive events on access to social and economic opportunities	4.1 Impact on system vulnerabilities and redundancies	Reducing the risk of communities not being able to access social and economic opportunities due to unexpected outages.	4.1.1 Availability of a viable alternative to high-risk and high-impact route
				ONRC Resilience CO1 measure – No. of journeys impacted by closure
				ONRC Resilience CO2 measure – The number of instances where road access is lost

4.4.5 STRATEGIC RESPONSE

To make the right investment decisions to improve the resilience of our key routes on our network, our strategic response to this problem is to: **stabilise key routes.**

We will avoid route closure where appropriate by focusing on the following initiatives over the next three years:

Strategic Response	Key Issue	Response Type	Response Description
Stabilise key routes	**Poor drainage** Maintenance and capacity in some parts of the network has been identified as an issue that may be contributing to dropouts and other resilience issues.	Adjust Programme	**Proactive Drainage Strategy** Focussed on maintenance being more proactive on high ONRC roads and proactive drainage renewals (e.g. Surface Water Channels), particularly on Lifeline Routes
	Retaining wall condition Inspections have not been undertaken for many years, so retaining wall condition is not well understood. Retaining wall failure poses a high risk to the resilience of the council network.	Policy Approach	**Retaining Walls Inspection Policy & Condition Assessments** A thorough assessment of condition will enable better planning of future maintenance and renewal requirements
		Adjust Levels of Service	**New retaining structures** on coastal routes to combat climate change impacts
	Unstable Riverbanks Rivers adjacent to the road have contributed to dropouts on key routes, subsequent to high rainfall and storm events which cause significant runoff.	Risk Based Approach	**Riverbank Stabilisation on Key Routes** Provision will be made for further investigation and physical works to complete riverbank stabilization through planting works.
	Hazardous Trees Although trees play in an important part in stabilising the Wairoa's poor soils, they also present a risk during storm events.	Risk Based Approach	**Hazardous Tree Removal Programme** To target removal of hazardous trees from key lifeline and forestry routes, to reduce the risk of road closure.

4.5 PROBLEM 2 - CHANGING DEMAND

Land use change increasing heavy vehicle traffic on rural roads results in safety, pavement consumption and environmental issues.

90% of Wairoa's roading network is rural and 64% of the network is unsealed. Providing a robust roading network is key to the district's economy. With increased demand predicted for the future, safety, pavement consumption and environmental impacts will need to be carefully managed.

The 2021-2051 Infrastructure Strategy recommendation: The district is seeing changes in land use. Farm conversions to forestry and fruit are impacting on the expectation of the level of service of Council's roads to get product / produce to market or the ports at Napier or Gisborne.

Council needs to review the levels of service across the roading network. This may require changes to Council's response to ensure funding is provided to support economic activities for the district.

4.5.1 PROGRESS & CHANGES

This problem was identified in the 2018 AMP and continues to be an issue for Wairoa. We have been employing strategic responses to address this issue and will continue to focus on these going forward. Progress made with strategic responses over the last two years is outlined below.

Issue/LOS	Key Strategic Response	Progress Made	Effectiveness	Adjustments
Increased forest harvesting is going to increase demand and asset consumption on key routes over the next 10 years.	Demand management including targeted stakeholder consultation to confirm harvesting projections and better plan future investment.	Regular meetings with forestry industry have been held. Some long term harvest data has been provided, but doesn't seem to reflect useage. Changes to programme not always communicated by forestry.	 Understanding forestry movements have allowed for targeting of maintenance and renewals to minimize impacts	Carry on same approach. Continue to develop relationships with forestry companies and plan investments based off forestry data.
Limited information exists on network trends and high growth areas	Traffic Count Programme to better understand network usage	Traffic Counts undertaken have significantly increased in the last 3 years. Still need to focus programme better to target key routes.	 Regular traffic counts are giving a better picture of changes in demand	Carry on same approach, review programme to target key routes.
Pavement maintenance strategies are not documented	Unsealed Pavement Maintenance Intervention Strategy including process for determining where to target dust suppression initiatives	Unsealed Heavy Metal Build Up programme completed. MIS in place, but needs to be refined and incorporated in to maintenance practices.	 FWP gives good forward view of investment levels. MIS has been developed but needs further review and implementation	Review and maintain FWP annually. Update MIS, and test to ensure it is appropriate and is being followed.
Secondary Collector roads have high peak roughness, and carry the majority of Wairoa District Council's traffic load.	Targeted pavement renewals on secondary collector roads.	Unsealed and Sealed pavement and surfacing renewals have been targeted at Primary and Secondary Collector Roads	 Investment is being targeted to Primary and Secondary Collector roads, but delivery is an issue.	Continue to prioritise renewals on Primary and Secondary Collector Roads. Increased investment may be required to meet demand. Need to ensure programmes are being delivered.
Unreported crashes are not recorded, so crash hot spots and trends may be missed.	Crash reporting on non-reported accidents (not attended by police) by maintenance contractors	Crash reporting was not included in the latest maintenance contracts		Include crash reporting in maintenance contracts. Set up table in RAMM to record crashes.
Changing demand is resulting in safety issues.	Targeted safety improvements – addressing unsealed roads issues, target Secondary Collector roads/ sections with high crash rates	Minimal safety improvements have bene undertaken. Wairoa District Council now top of Waka Kotahi communities at risk register.		Undertake network safety review. Review speed management. Identify crash hotspots and treat.

4.5.2 EVIDENCE

FORESTRY DEMAND

The increased demand will come primarily from forestry industry. Forecast predictions based on maturing age of forests in the Hawke's Bay Region indicate a "Wall of Wood" will be extracted and carted over the regions roads starting from 2020 for a 10 year timeframe.

Forestry companies with forestry blocks in Wairoa have been consulted and log cartage volumes have been collated to provide a 10 year forecast of logging tonnages.

This will increase demand on some roads significantly from their current heavy vehicle movements. 59% of the tonnage will be transported on Secondary Collector roads.

It is noted that this will be heavily based on the fickle log export market at the time of maturity. It is also noted that much of this future predicted harvest is from small-scale owners. There is a need to better understand when local small-scale forest owners are likely to harvest their wood lots, so that future investment can be targeted to the area's most likely to received increased traffic volumes.

The roads that will carry most of this increase in logging traffic area included below.

Road	ONRC	Forecast Log Trucks over 10 Years
Willowflat Road	Secondary Collector / Access	19,360
Putere Road	Secondary Collector / Access	18,728
Nūhaka-Ōpoutama Road	Primary Collector	14,292
Ormond Drive	Secondary Collector	14,292
Mohaka Coach Road	Access	12,133
Mangaone Road	Access	8,744
Cricklewood Road	Secondary Collector	8,103
Waiatai Road	Access	6,890
Preston Road	Access	6,549

54% of council roads have a width of 5m or less, insufficient for a log truck and another vehicle to safely pass. The increased number of forestry trucks travelling on council's narrow roads increases the risk of head on collisions. Substandard curve warning signage has also been identified as an issue on the council network, further increasing the risk of collisions.

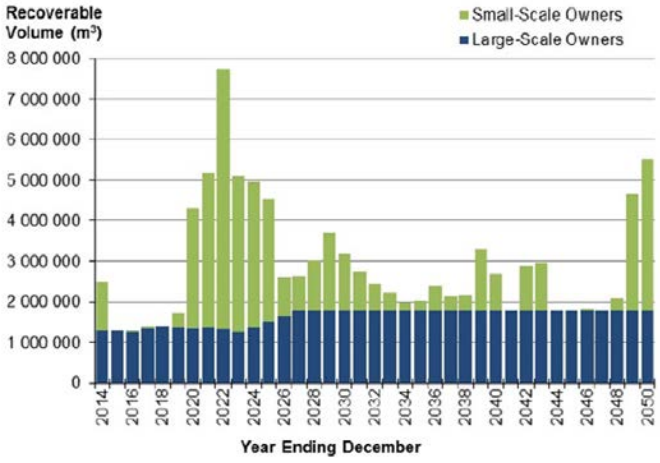
54% of Council roads have a width of 5 metres or less

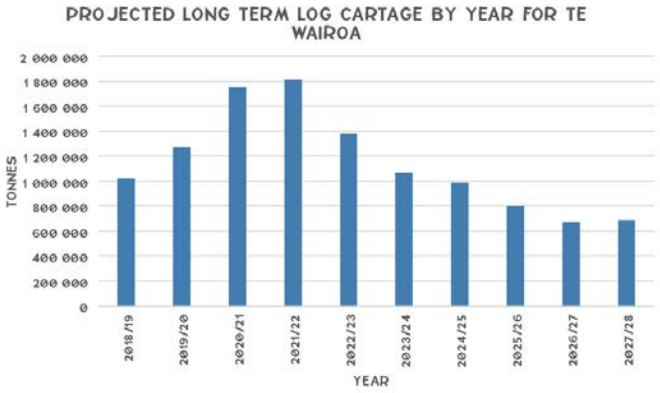
Current crash statistics are showing head-on crashes, particularly on curves are the highest crash type for Wairoa District Council roads, this is highlighted further in the safety section below.

SAFETY

The Waka Kotahi New Zealand Transport Agency 'Communities at Risk Register 2019' highlights personal risk to road users. Wairoa District Council has the highest overall personal risk in the country. Wairoa District Council has the highest personal risk ranking in the 'Rural road loss of control and/or head on' and 'Speed' crash categories.

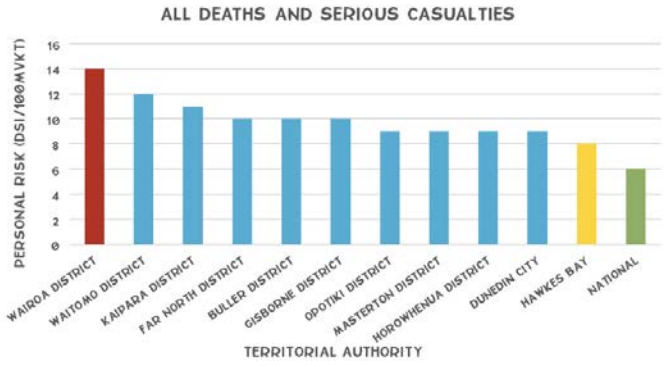
Figure 4-7: Hawke's Bay Radiata Pine Availability under Scenario 1 – All Owners

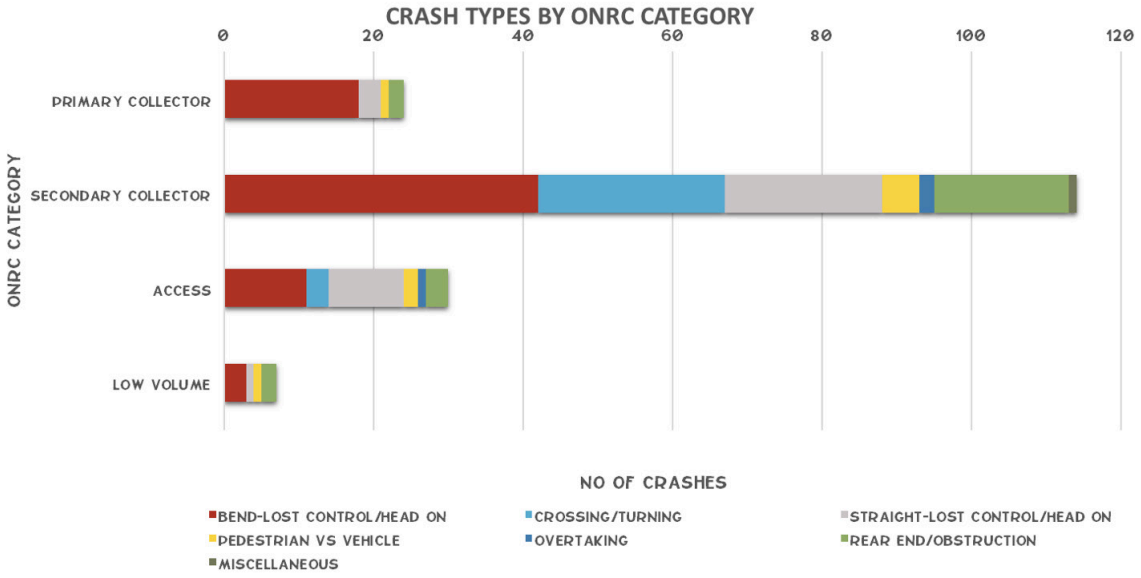




Wairoa District Council also rank highest for "Alcohol and/or drugs', 'Fatigue' and 'Restraints (seatbelt not worn)'. As these contributors are generally behavioural, and generally require non-asset-based solutions, the strategic responses to these crash types are not addressed in this activity management plan.

65% of crashes occur on Secondary Collector roads, and 42% of crashes occur on a bend resulting in loss of control or a head on crash.



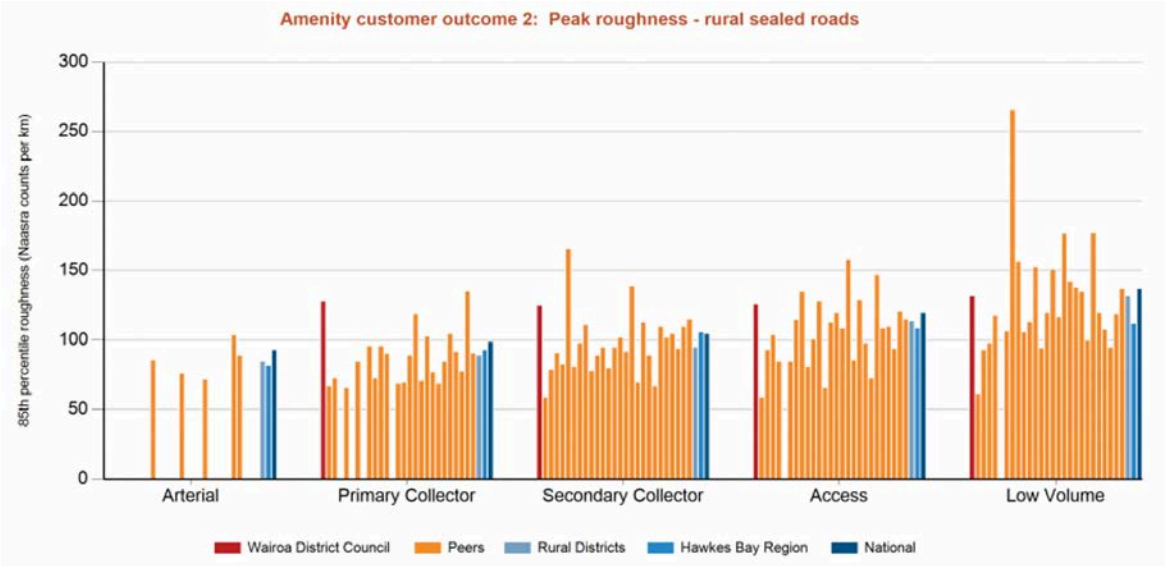


PAVEMENT CONSUMPTION

Indications of pavement consumption include:

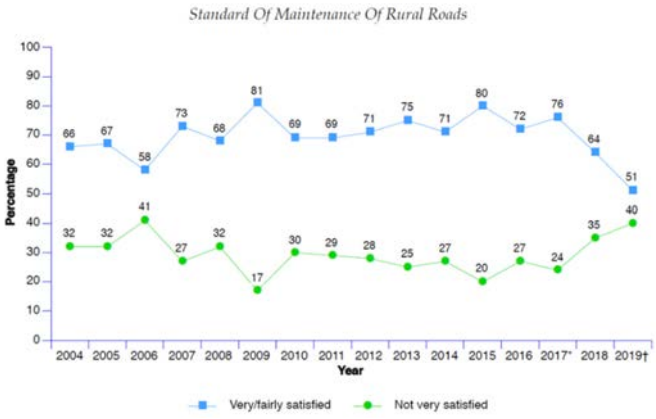
- Peak roughness ONRC measure – high for Wairoa on rural sealed roads compared to peer group for Primary and Secondary Collector Roads.

The graph below shows where Council is sitting compared to their peer group for Peak Roughness:



ROAD CONDITION – COMMUNITY FEEDBACK

Our most recent survey of residents in our community highlighted the standard of maintenance of rural roads in the District as the highest area of concern. 55% of residents surveyed were not very satisfied with rural roads maintenance, compared to 40% in 2019. The trend of dissatisfaction has continued to grow in recent years as we continue to grapple with providing the desired level of service in an affordable way.



ENVIRONMENTAL ISSUES

A significant environmental issue for Wairoa, is dust from unsealed roads. Dust affects safe visibility and impacts on health of adjacent residential households. Council has produced a prioritisation matrix for dust nuisance sites identified by submissions from stakeholders and general network awareness. The current matrix contains 57 sites, totalling 19.983km. The sites are prioritised for treatment by considering proximity to houses to the road, speed, traffic volumes and expected growth, heavy vehicles and the number of houses affected.

Of the 57 sites, 18 are on a route with greater than 10% heavy vehicles, and with traffic volumes set to increase on many routes, greater use of dust suppression treatments will be required. Of the sites currently identified, 12 (3.1km) are identified as being on a key growth route. 19 official complaints regarding dust have been received in the last five years.

4.5.3 CONSEQUENCE OF NOT INVESTING

The consequences of not investing to meet our investment objectives are detailed below.

Consequence	Description	0-3 Years	3-10 Years	10 Years +
Increasing trend in fatal and serious crashes	Increasing trend in deaths and serious injury (DSI) crashes comparative to the amount of traffic on the network (collective & personal risk – crashes per km/vkt).	↑ Increased DSI crashes	↑ Increased DSI crashes	↑ Increased DSI crashes
Not meeting key direction set by GPS – Improving freight connections	If we allow our rural network and key urban roads to decline there is the risk that this would have a negative impact on the region's economic growth and productivity.	→ Static productivity	↓ Decreased productivity	↓ Decreased productivity
Increasing costs of maintaining the network and future affordability	If key high use and poor condition sections of the network are not targeted for renewal, the maintenance costs in these areas will increase with increased traffic loading.	→ Static cost trend	↑ Increased cost trend	↑ Increased cost trend
Increasing operating costs for road users – especially forestry freight	Longer travel times for heavy vehicles traffic due to rougher roads.	→ Limited change	↑ Increased travel times	↑ Increased travel times
Community feedback on levels of services	Feedback from our community will continue to show dissatisfaction with the level of services provided.	↓ Less satisfaction	↓ Less satisfaction	↓ Less satisfaction
Dust complaints	Potential health risk for residents adjacent to unsealed roads.	→ Similar no. complaints	↑ More complaints	↑ More complaints

4.5.4 BENEFIT OF INVESTING

The Investment Objectives that we what to achieve include:

Roads that support safer travel
Improve access to productive land
Affordable levels of service

MEASURING THE BENEFIT

The table on the next page outlines the specific Benefits that will result from investment, based on Waka Kotahi's Investment Benefits Framework.

Investment Objective	Benefit Cluster	Benefit	Description	Performance Measure
Roads that support safer travel **GPS 2020: Road to Zero**	1. Changes in user safety	1.1 Impact on social cost of deaths and serious injuries	The impact of reducing the number of deaths and serious injuries (DSIs) on the all land transport modes and their social costs.	1.1.1 (ONRC Safety CO2) - Collective Risk
				1.1.2 – Crashes by severity
				1.1.3 – Deaths and serious injuries
				1.1.4 (ONRC Safety CO3) - Personal risk
	3. Changes in human health	3.2 Impact of air emissions on health	Land transport air emissions that impact on human health, limited to those arising from roads and rail.	3.2.2 Ambient air quality – PM10
Improve access to productive land **GPS 2020: Improving the freight network for primary producers to markets.**	5. System Reliability	5.2 Network productivity and utilisation	Network productivity and utilisation is about efficient use of the land transport network. Optimising our part of the broader economic/ social system to allow broader benefits to be gained.	5.2.1 (ONRC Accessibility CO1) – Spatial coverage - freight
Affordable level of service **GPS 2020: Maintaining the network**	10. Changes in access to social and economic opportunities	10.1 Impact on user experience of the transport system	How all people experience the transport system, including people with disabilities, school children, and the elderly, and how different modes are experienced.	10.1.5 (ONRC Amenity CO1) – Smooth Travel Exposure (STE)
				ONRC Amenity CO2 – Peak Roughness
				ONRC Amenity TO1 – Roughness of the road (median and average)
				DIA PM4 – Network condition - footpaths

4.5.5 STRATEGIC RESPONSE

In order to make the right investment decisions to provide for the increasing demand on the rural network, our strategic responses to this problem are:

- **Network safety planning & targeted improvements**
- **Improve condition of rural roads**
- **Value for money solutions & procurement**

We will use the following initiatives over the next three years:

Strategic Response	Key Issue	Response Type	Response Description
Network safety planning & targeted improvements	Safety is becoming a significant issue, with Wairoa topping the list of the Communities at Risk Register (CARR) for six factors including: Overall Deaths & Serious Injuries (DSIs), Alcohol and drugs, speed, rural roads, fatigue and not wearing restraints.	Policy Approach	**Network Safety Audit** To better understand locations with road safety issues, and target and prioritise high risk locations.
		Policy Approach	**Speed Management review and implementation** To address speed related crashes on the network
		Adjust Programme	**Targeted Safety Improvements** On Secondary Collector roads and sections with high crash rates and focus on corners/bends by improving signage and width.

Strategic Response	Key Issue	Response Type	Response Description
		Policy Approach	**Crash Reporting** Crash Reporting of non-reported accidents included as a requirement for maintenance contractors so areas of the network that have safety deficiencies can be better identified.
Improve condition of our rural roads	Forecast predictions based on maturing age of forests in the district indicate a "Wall of Wood" will be extracted and carted over Council roads starting from 2020 for a 10 year timeframe increasing demand on some roads significantly from their current heavy vehicle movements. 30 Year Demand Forecast is not based on robust data. Key inputs into this process will be gaining a better understanding of small wood lot land areas to be harvested over this period. Latest Communitrak survey (2020) shows that 55% of respondents are not very satisfied with the standard of maintenance of rural roads. Performance measures and past maintenance inputs indicate pavement consumption.	Demand Management	**Stakeholder Engagement** Targeted stakeholder engagement to provide a better connection with land owners to assess changes in land use impacting on demand and transport operators, particularly forestry, to better pre-plan which routes will be requiring investment ahead of harvesting.
		Policy Approach	**Robust Traffic Count Programme** Continuing implementation of a robust traffic counting programme to: • capture growth and monitor trends across areas of the network • obtain seasonal adjustment factors across areas of the network • collect enough data to produce traffic estimate data for the remainder of the network.
		Policy Approach	**Pavement maintenance intervention strategy** Has been developed but needs to be measured for effectiveness and further developed
		Adjust Programme	**Targeted Pavement and Surfacing Renewals** Target Secondary Collector roads/ sections with high maximum roughness. Review high use (forestry) roads - Tinroto, Willowflat / Putere, Ruakatere Roads. Evidence supports increased resurfacing, particularly for Secondary Collector roads.
	Environmental issues resulting from dust on high use unsealed roads	Policy Approach	**Dust Mitigation Strategy** To address priorities and treatments for dust issues
		Adjust Levels of Service	**Dust seals** On problems sections to ensure community health
Value for money solutions & procurement	Wairoa District Council have had a 25% increase in costs for Sealed and Unsealed Maintenance Contracts vs estimate in the 2018 procurement round. Wairoa District continues to have challenges with limited competitiveness in the local market.	Policy Approach	**Data Management Processes** Improved data collection processes need to be implemented to inform decision making and ensure appropriate treatments and timing.
		Procurement	**Smart buying** Through packing work. Delivering more for the same cost.

4.6 PROBLEM 3 - ACCESSIBILITY

Poor condition aging bridge stock and low structural capacity results in limited access for heavy vehicles.

This is a key problem for Wairoa, with 25% of the total network problem rating.

There are 176 bridges on the Wairoa transport network. In recent years, it has become apparent that a lack of historical maintenance and renewals on Wairoa's bridging stock has been leading to a decline in the integrity and capacity of these structures.

Since the completion of the 2015 AMP, we have engaged WSP NZ Ltd to provide specialist support for the asset management of our bridges. This has included completing capacity assessments of some key bridges, undertaking Principal inspections, developing maintenance management plans for key bridges and putting together a Bridge Criticality Matrix to help prioritise where to focus further structural assessments and maintenance and renewals investment.

4.6.1 PROGRESS & CHANGES

This problem was identified in the 2018 AMP and continues to be an issue for Wairoa. We have been employing strategic responses to address this issue and will continue to focus on these going forward. Progress made with strategic responses over the last two years is outlined below.

Issue/LOS	Key Strategic Response	Progress Made	Effectiveness	Adjustments
Poor understanding of bridge condition. No policy / programme in place for regular inspections	Bridge inspection policy to determine condition of full bridge stock	Inspection policy/ programme is in place. Routine (every 2 years) inspections – 95% complete. Prinicpal Inspections (every 6 years) – 50% complete	A good understanding of bridge condition has been achieved.	Good progress made. Focus on delivering physical works going forward.
Poor understanding of bridge capacity	Undertake bridge capacity inspections	Achieved assessments in line with programme. 90% done at the end of this 3-year block.	A good understanding of bridge capacity has been achieved.	Good progress made. Focus on delivering physical works going forward.
Key routes are not open for HPMV access	Targeted bridge maintenance & strengthening to open up key HPMV routes	PGF funding obtained for some works. Low cost – low risk for other work. Strengthening on target.	Strengthening of bridges on key routes is being undertaken	Continue to strengthen bridges on key routes. There will be increased pressure on Wairoa District Council to open routes for HPMV with SH2 now being fully open.

4.6.2 EVIDENCE

BRIDGE RESTRICTIONS FOR VEHICLE DIMENSION AND MASS (VDAM) REGULATION CHANGE

On 1 February 2017, the rules governing heavy vehicle size, weight and operation limits changed. A significant change if the increase in gross mass limits for some 7 axle (45 tonnes) and 8 axle (46 tonnes) combination vehicles (from 1 December 2017 available for general access).

Using the 50MAX screening as the default position for the screening review of current bridge capacity, there are **14 bridges that failed the 50MAX screening** that could potentially be restricted for 45 tonnes / 46 tonnes. Based on condition, recent assessments, span length, and route type this reduced **5 bridges in total that will not be able to carry the new VDAM loadings and will require bridge restriction posting**.

These restrictions impact on Council's ability to meet the ONRC Accessibility CLoS. In particular, ONRC performance measure OM1 Accessibility – proportion of the network not available to Class 1 heavy vehicles and 50 Max vehicles.

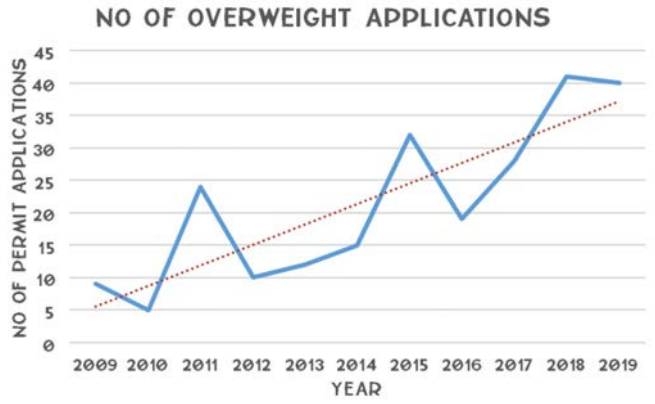
State Highway 2 from Napier to Gisborne has recently been fully opened for HPMV vehicles. As a result of this, **increased pressure will come on Council to open key local roads routes to HPMV vehicles**. Bridge condition and capacity assessments will be required to open key routes to HPMV vehicles.

Currently 141 bridges (80%) are restricted to full HPMV vehicles.

OVERWEIGHT AND HIGH PRODUCTIVITY MOTOR VEHICLE (HPMV) PERMIT APPLICATIONS

The trend for overweight permit applications made for each calendar year is increasing, as shown on the graph to the right.

Recently, some council roads have been opened for HPMV vehicles and anecdotally, HPMV permit numbers have been increasing. It is difficult to track HPMV permit numbers under the current system, but the move to OPermit will allow better tracking of permits.



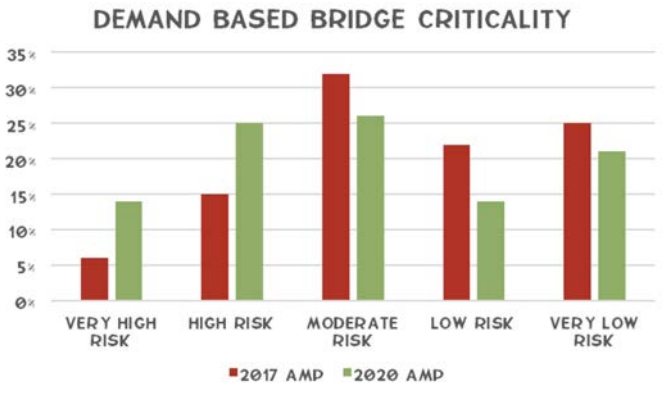
BRIDGE CRITICALITY MATRIX

For the 2018 AMP a Bridge Criticality Matrix was developed to assess critical bridge assets and is based on five factors:

- ONRC
- Predicted demand – future short to medium term demand (next 1 to 10 years)
- Route criticality – resilience capability (e.g. alternate route detour time or no detour available)
- Structure replacement cost
- Construction year.

The results of this matrix was used to develop an understanding of the structure in Wairoa. since it's implementation additional information has been recorded and processed for all structures. This information plays a critical role in determining the risk of the bridge inventory.

The matrix has been applied again for this AMP to offer a direct comparison, and the changes in criticality are shown below. The number of high and very high criticality bridges have increased, showing the impact of increased forestry demand from updated forestry data.

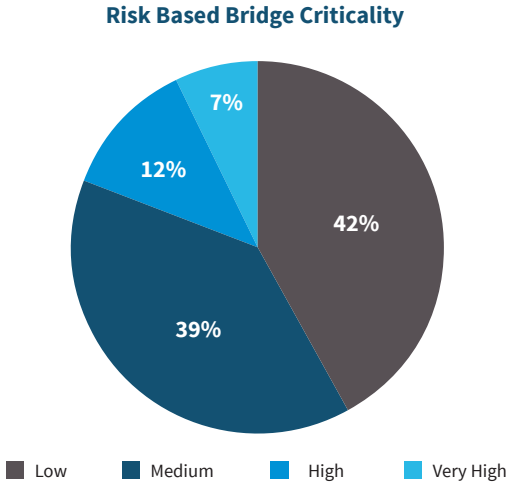


Basing bridge criticalitly solely on the usage of structures does not take into account the work undertaken as part of this years improvement items in identifying scour and seismic risks.

The Bridge Criticality Matrix has been further developed to include 2 distinct categories:

- Capacity
- Resilience

Once sufficient investigation works have been completed, condition will also be included in the matrix. Each of these categories factors the results of the bridge criticality matrix focusing on structures to develop a better understanding of at risk structures. The figure to the left shows the effect of results by including resilience in the bridge criticality matrix where 19% of council bridges have been assessed as high criticality on this basis.

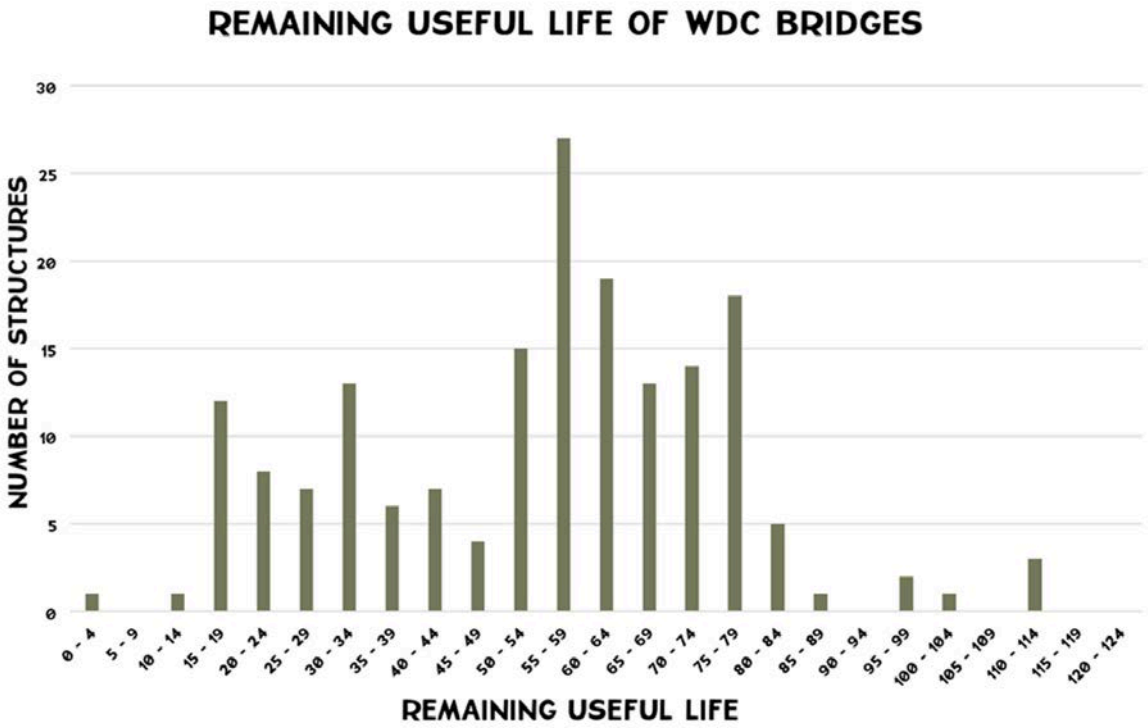


CONDITION AND CAPACITY

The condition and capacity of many of Council's bridges is not well understood. Only 38 out of 176 bridges have been assessed for capacity. Condition inspections are ongoing, and understanding of condition is improving, but in the last 6 years, only 113 bridges have been inspected. Over a 6-year period, all 176 council bridges should have received a Principal inspection.

21% of Council bridges have been assessed for capacity

An assessment of the remaining useful life of Council's bridges has been undertaken, based on the age of the structure, and expected useful life. In order to ensure an affordable and achievable forward renewals programme, continued investment in condition and capacity assessment is required to better understand remaining useful life. Ongoing maintenance and renewals is also required to extend the useful lives of bridges and produce a more balanced and affordable forward bridge renewals programme.



NETWORK RISKS

A risk register was developed for the Wairoa District Council network to target specific risks around Bridge Structures. The register is a live document and can be updated to ensure accurate risks are maintained. The register highlighted three critical areas for WDC Bridges:

- Inadequate Load Capacity
- Scour/Flooding
- Seismic

A single High risk was identified as Vehicle Barrier containment.

All these risks are manageable and can have the impact reduced by taking the appropriate actions. Risks around seismic and scour have already had developments with screening analysis highlighting priority structures. It is important to continue managing these risks by investing into regular maintenance and/or structural improvements.

4.6.3 CONSEQUENCE OF NOT INVESTING

The consequences of not investing to meet our investment objectives are detailed below.

Consequence	Description	0-3 Years	3-10 Years	10 Years +
Not meeting key direction set by GPS – Improving freight connections	If we allow our rural network and key urban roads to decline there is the risk that this would have a negative impact on the region's economic growth and productivity.	→ Static productivity	↓ Decreased productivity	↓ Decreased productivity
Uncertainty in future investment needs	Failure to monitor and understand condition will impact on our ability to accurately forecast future investment requirements leading to reactive maintenance and renewals programme. We won't be providing long term access for whole of life least cost.	→ Static cost trend	↑ Increased cost trend	↑ Increased cost trend

Consequence	Description	0-3 Years	3-10 Years	10 Years +
Affordability in future	Failure to monitor condition and programme appropriate maintenance, renewals and capital works to allow for increased heavy vehicle loads could impact on the integrity of bridges, leading to possible failure and more costly repairs in the long term. We won't be providing long term access for whole of life least cost. Further to this, funding additional costs may become unsustainable for the local community and possibly lead to a reduced CLoS for Accessibility.	 Static cost trend	 Increased cost trend	 Increased cost trend
Communities isolated, access to health and other services impacted	Many communities rely on a single access road for access to health and other essential services. Failure or closure of bridges will impact community connectivity and well being.	 Limited access impact	 Decreased access & connectivity	 Decreased access & connectivity

4.6.4 BENEFIT OF INVESTING

The Investment objectives that we want to achieve include:

Improve access to productive land

MEASURING THE BENEFIT

The table below outlines the specific Benefits that will result from investment, based on Waka Kotahi's Investment Benefits Framework.

Investment Objective	Benefit Cluster	Benefit	Description	Performance Measure
Improve access to productive land **GPS 2020: Improving the freight network for primary producers to markets.**	5. System Reliability	5.2 Network productivity and utilisation	Network productivity and utilisation is about efficient use of the land transport network. Optimising our part of the broader economic/ social system to allow broader benefits to be gained.	5.2.1 (ONRC Accessibility CO1) – Spatial coverage - freight

4.6.5 STRATEGIC RESPONSE

In order to make the right investment decisions to allow heavy vehicle accessibility on our network we need to better understand the current condition and capacity of our bridges.

Our strategic response to this problem is to: **optimise bridge capacity**.

We will do this by focusing on the following initiatives over the next three years:

Strategic Response	Key Issue	Response Type	Response Description
Optimise bridge capacity	**Unknown Bridge capacity** Bridges in unknown bridge capacity is restricting access for HPMVs.	Policy Approach	**Bridge Capacity Assessments** These will allow us to accurately assess the loading capacity of our bridges, so we can identify which can sustain 50Max and HPMV loading and which will need strengthening works to allow these heavier vehicles to cross.

Strategic Response	Key Issue	Response Type	Response Description
		Risk Based Approach	**Detailed seismic assessment** based on screening outcomes - high risk first
	Data quality Data is currently stored inconsistently and information for some bridges is incorrect.	Policy Approach	**RAMM Data Validation** Validation and updating of the RAMM database will ensure accurate information can be used in decision making processes.
	Demand for HPMV Routes As SH2 is now fully open for HPMVs, there will continue to be pressure for local roads to also be available to HPMVs	Demand Management	**HPMV Permitting** Undertaking bridge capacity assessments on key routes to open them for HPMV access will ensure economic growth and productivity can be achieved.
	Poor or Unknown Bridge Condition These bridges are restricting access for increased heavy vehicle loads and also means we may not be providing long term access for whole of life least cost.	Policy Approach	**Bridge Inspections** To continue to better understand bridge condition and allow preparation of a prioritised FWP of maintenance and renewals.
		Risk Based Approach	**Material Testing on Key Bridges** Will allow us to confirm the condition and remaining useful life of structures and prioritise repairs and renewals.
		Risk Based Approach	**Painting Screening** Screening steel bridges and prioritizing and programming bridges that require painting will extend the life of these bridges and reduce ongoing maintenance costs.

4.7 PROBLEM 4 - MĀHIA CONNECTIVITY

Coastal erosion and increased demand from tourism and Rocket Lab traffic results in increased LOS requirements and safety issues.

The route from Nūhaka to the Rocket Lab route needs to have appropriate road condition and safety for the transport of equipment to the launch site and sight seers to viewing locations.

There are significant issues with the current Level of Service on the route, including:

The 2021-2051 Infrastructure Strategy recommendation: The impacts of climate change, in particular coastal erosion, are damaging roads across the district. For example, the damage to access roads to Māhia from coastal erosion not only impacts residents but also the access to the Rocket Lab launch site. This needs to be addressed given the anticipated economic benefit to the district from Rocket Lab, and to maintain access to private properties in a part of the district that is expected to grow. Council has sought central government funding to seal the road to Rocket Lab and will undertake feasibility study to investigate alternative routes to the peninsula.

4.7.1 PROGRESS & CHANGES

This problem was identified in the 2018 AMP and continues to be an issue for Wairoa. We have been employing strategic responses to address this issue and will continue to focus on these going forward. Progress made with strategic responses over the last two years is outlined on the next page. While the key strategic responses in the 2018 AMP focussed on Rocket Lab activities, the focus of the problem statement for this AMP is much wider.

Issue/LOS	Key Strategic Response	Progress Made	Effectiveness	Adjustments
High use area, increased maintenance and renewals will be required to maintain LOS.	High priority route for maintenance & renewals expenditure	Route is programmed for increased renewals expenditure. Delivery of renewals on the route has been limited.	Delivery of renewal work has been limited	Continue to focus on renewals in the next 3-year block
Significant improvement works are required to provided the required LOS and ensure route resilience.	Complete detailed business case for improvement works	PGF funding obtained for traction sealing of 12.5kms of Māhia East Coast Road. PGF funding obtained for alternative route investigations for Nūhaka-Ōpoutama Road	Physical works for sealing of Māhia East Coast Road has commenced. While this improves part of the route, further resilience and safety improvement focus is required.	Focus needs to shift to addressing safety issues. Climate change resulting in coastal erosion is a significant issue, need to focus on retaining walls – new and existing.

4.7.2 EVIDENCE

REGIONAL LAND TRANSPORT PLAN – KEY STRATEGIC PRIORITY

The Nūhaka-Ōpoutama Road blowhole retreat and coastal erosion protection projects have been identified as key projects for addressing resilience problems in Hawke's Bay. While the projects are not able to be funded by Council, they have been included in the capital improvements programme for Years 4 & 5 of the upcoming RLTP in the hope of attracting external funding for these projects in order to ensure the resilience of the route and access to the Māhia Peninsula.

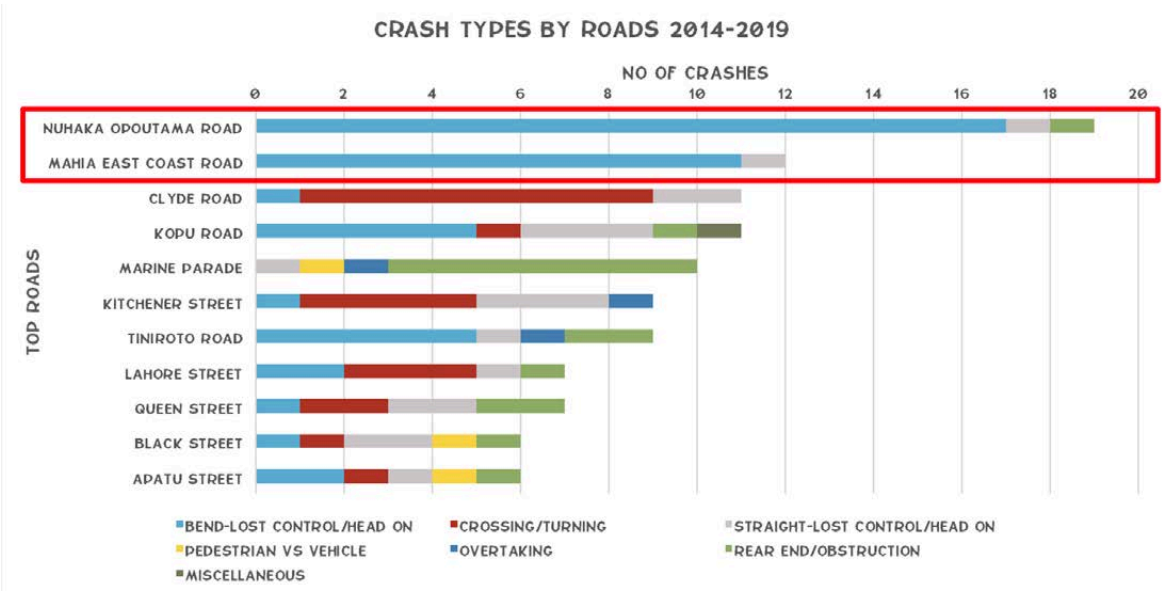
INCREASING DEMAND

The establishment of Rocket Lab launch complex 1 at the end of the Māhia Peninsula has resulted in increased demand on the route to Māhia to service launch complex. It is expected tourism numbers to the peninsula will grow as launches become more frequent, resulting in modal conflicts, and increased safety issues generated by tourists unaccustomed to the narrow and winding roads found on the Māhia Peninsula. The lower and upper bounds are one launch per week (52 launches per year) to close to two launches per week (120 launches per year).

120 launches per year represent the number of launches the Wairoa District Council has consented and therefore represents a natural upper limit in the base case scenario. 52 launches, or a launch a week, reflects current forward orders. Rocket Lab's first launch occurred in 2017, and as of July 2020, 13 launches have been completed. The likelihood of one launch per week or more is still some years away.

CRASHES

17% of all reported crashes on the Wairoa District Council in the period 2014-2019 occurred on Nūhaka-Ōpoutama and Māhia East Coast Roads alone. The majority of these crashes are attributed to bends, resulting in loss of control or head on crashes.



ACCESSIBILITY

- PGF funding obtained to seal 12.5kms of Māhia East Coast Road - 12.5km unsealed road with poor traction issues
- Existing sealed pavement has high roughness – the worst areas are programmed for AWPT in the next 3 years
- Poor alignment for oversized length heavy vehicles

COASTAL EROSION

The coastal section (6kms) of Māhia East Coast Road has **17 dropouts** within 1m of the edge of seal, most encroaching in to the roadway. The largest has required the temporary construction of a bailey bridge to ensure access to Te Māhia.

'The Blowhole' dropout on Nūhaka-Ōpoutama Road has seen this road reduced to one lane while a design solution is developed. **Funding the expensive repairs required for dropouts of this nature is an issue for Council.**

4.7.3 CONSEQUENCE OF NOT INVESTING

The consequences of not investing to meet our investment objectives are detailed below.

Consequence	Description	0-3 Years	3-10 Years	10 Years +
Communities isolated, access to health and other services impacted	Failure to invest in coastal protection with affect access to health and other essential services	→ Limited access impact	↓ Decreased access & connectivity	↓ Decreased access & connectivity
Increasing trend in fatal and serious crashes	Failure to invest in safety improvements will mean crashes will continue, which have a high social cost for the community.	↑ Increased DSI crashes	↑ Increased DSI crashes	↑ Increased DSI crashes
Project of National Significance	Should the Council not meet the Rocket Lab and local Māhia community's expectations for providing appropriate access, road condition and safety the Council will come under scrutiny nationally. The rocket Industry is new to New Zealand and central government is taking a strong interest in Rocket Lab's operations.	↑ Increased regional scrutiny	↑ Increased regional scrutiny	↑ Increased regional scrutiny

4.7.4 BENEFIT OF INVESTING

The Investment Objectives that we want to achieve include:

Improve resilience to climate change impacts
Roads that support safer travel
Affordable level of service

This route has many different user groups, so we want to ensure connectivity to benefit the resident community, as well as visitors and in particular the Rocket Lab. The potential for economic, social and cultural benefits to accrue to the Wairoa District and greater East Coast region through the rocket launch activities is potentially significant. A Rocket Launch Tourism Project Scope Report produced in August 2016 states that *"a recent Economic Impact Assessment by Sapere Group has modelled the expected economic benefits to New Zealand from the development of a rocket launch industry. From this modelling, which is based on a scenario of between 52 and 120 launches per year (after 5 years), Sapere estimates that Rocket Lab could contribute between $600 and $1,550 million of value-add to New Zealand over 20 years, of which direct, indirect and induced effects could be between $400-$1,150 million"*.

MEASURING THE BENEFIT

The table below outlines the specific Benefits that will result from investment, based on Waka Kotahi's Investment Benefits Framework.

Investment Objective	Benefit Cluster	Benefit	Description	Performance Measure
Improve resilience to climate change impacts **GPS2020: Maintaining the network**	4. Changes in impact of unplanned disruptive events on access to social and ec-onomic opportunities	4.1 Impact on system vulnerabilities and redundancies	Reducing the risk of communities not being able to access social and economic opportunities due to unexpected outages.	4.1.1 Availability of a viable alternative to high-risk and high-impact route

Investment Objective	Benefit Cluster	Benefit	Description	Performance Measure
				ONRC Resilience CO1 measure – No. of journeys impacted by closure
				ONRC Resilience CO2 measure – The number of instances where road access is lost
Roads that support safer travel **GPS 2020: Road to Zero**	1. Changes in user safety	1.1 Impact on social cost of deaths and serious injuries	The impact of reducing the number of deaths and serious injuries (DSIs) on the all land transport modes and their social costs.	1.1.1 (ONRC Safety CO2) - Collective Risk
				1.1.2 – Crashes by severity
				1.1.3 – Deaths and serious injuries
				1.1.4 (ONRC Safety CO3) - Personal risk
Affordable Level of Service	10. Changes in access to social and economic opportunities	10.1 Impact on user experience of the transport system	How all people experience the transport system, including people with disabilities, school children, and the elderly, and how different modes are experienced.	10.1.5 (ONRC Amenity CO1) – Smooth Travel Exposure (STE)
				ONRC Amenity CO2 – Peak Roughness
				ONRC Amenity TO1 – Roughness of the road (median and average)
				DIA PM4 – Network condition - footpaths

4.7.5 STRATEGIC RESPONSE

In order to make the right investment decisions to ensure robust connectivity to Māhia, including the Rocket Lab launch site, our strategic response to this problem is to:

- **Stabilise this key route**
- **Network safety planning & targeted improvements**
- **Improve condition of our rural roads**

We will do this by focusing on the following initiatives over the next three years:

Strategic Response	Key Issue	Response Type	Response Description
Stabilise key route	**Coastal Erosion** Coastline adjacent to the road contributes to dropouts from.	Adjust Programme	**Retaining Structures in Vulnerable Areas** Prioritization of new retaining structures to ensure resilience of the route and inspection of exiting retaining structures to understand maintenance and renewal needs.
		Policy Approach	**Regional Councils Consent requirements** Retaining walls - coastal routes
Network safety planning & targeted improvements	High Crash Rate	Adjust Programme	**Targeted Safety Improvements** To target Secondary Collector roads and sections with high crash rates and focus on corners/bends by improving signage and markings.
		Policy Approach	**Speed Management review and implementation** To address speed related crashes on the network

Strategic Response	Key Issue	Response Type	Response Description
Improve condition of our rural roads	Poor Condition Pavements	Adjust Programme	**Targeted Pavement and Surfacing Renewals** Prioritise expenditure, maintenance contract requirements etc. for this route.

5.1 THE TRANSPORT OUTCOMES WE ARE INVESTING IN

Our investment going forward will address the problems identified through the investment logic mapping process within the context of the strategic directions for transport provided by the Government Policy Statement on Land Transport Funding, the Regional Land Transport Plan, and the ONRC. Our key strategic response initiatives are outlined below.

Problem	Our Investment Objectives	Key Strategic Responses
Resilience Road network vulnerable to closure from high rainfall and storm events and a lack of alternative routes results in disconnected communities and economic disruption	Improve resilience to climate change impacts	**Stabilise key routes** • Proactive drainage maintenance & renewals • Retaining wall condition assessments & renewals in vulnerable areas • Riverbank stabilisation on key routes • Coastal erosion protection • Hazardous tree removal programme on key routes
Changing Demand Land use change increasing heavy vehicle traffic on rural roads results in safety, pavement consumption and environmental issues	Roads that support safer travel	**Network safety planning & targeted improvements** • Network wide safety audit to better understand key safety issues • Speed management consistent with regional approach • Targeted improvements on high risk parts of the network
	Improve access to productive land	**Improve condition of our rural roads** • Demand management & stakeholder engagement to confirm harvesting projections and better plan future investment • More focus on proactive heavy metal build ups ahead of increased forestry loading. • Traffic Count Programme to better understand network usage • Improved Maintenance Intervention Strategy & data collection processes to inform decision making
	Affordable Level of Service	**Value for money solutions & procurement** • Improved data management processes • Smart buying through packaging work. Delivering more for the same cost **Improve condition of our rural roads** • Targeted renewals to address backlog and improve condition and safety issues over the medium term. • Review and development of a Dust Mitigation Strategy
Accessibility Poor condition aging bridge stock and unknown structural capacity results in limited access for heavy vehicles	Improve access to productive land	**Optimise bridge capacity** • Bridge condition assessments • Bridge capacity assessments

Problem	Our Investment Objectives	Key Strategic Responses
		• Targeted maintenance & renewals • Painting Screening • HPMV Permitting • Material Testing on key bridges • Improved data management processes • Targeted bridge strengthening works on key HPMV routes
Māhia Connectivity Coastal erosion and increased demand from tourism and Rocket Lab traffic results in increased level of service requirements and safety issues	Improve resilience to climate change impacts Roads that support safer travel Affordable level of service	**Stabilise key routes** • Condition assessments to better understand condition of existing retaining structures • Coastal erosion protection **Improve condition of our rural roads** • High priority route for maintenance & renewals expenditure **Network safety planning & targeted improvements** • Network wide safety audit • Speed management consistent with regional approach • Targeted improvements safety improvements

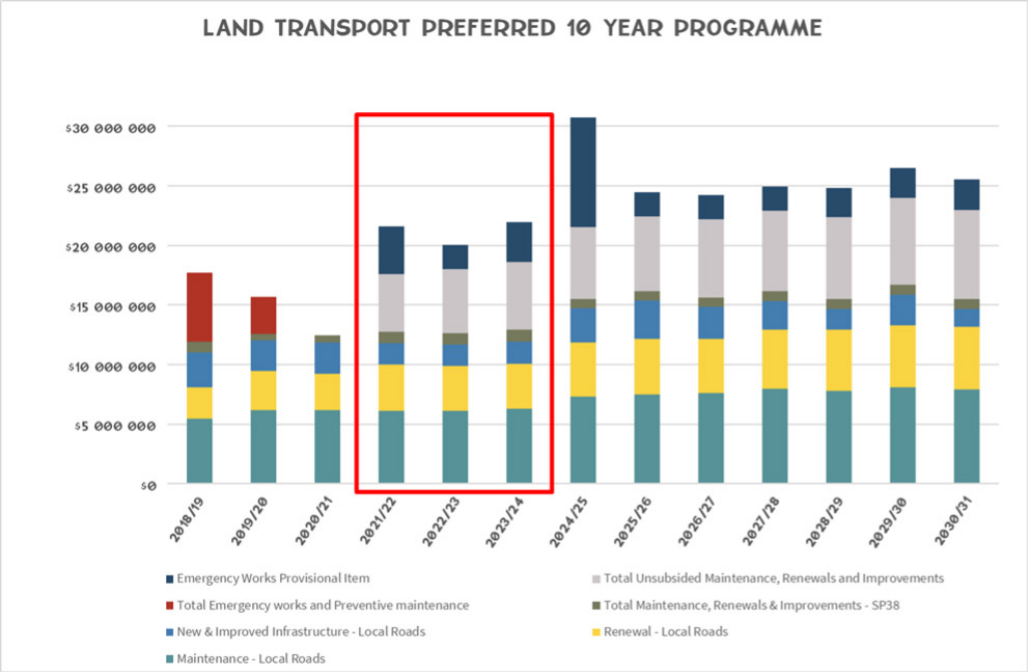
5.2 PREFERRED PROGRAMME

5.2.1 PROGRAMME EXPENDITURE FORECAST

Our preferred programme to address these problems through our strategic responses and core maintenance programme is outlined below. The programme is largely based around a business as usual approach, with an emphasis on improving our understanding of the network assets through additional inspections and data capture. We have allowed for some Low Cost-Low Risk improvement initiatives to address safety and bridge capacity concerns to allow for full accessibility to heavy commercial vehicles.

Some changes have been made to previous strategies and work programmes to provide better alignment with the GPS and address the specific problems identified through the business case process and as a result of COVID-19.

This represents a **'Core Programme'** (rather than an Enhanced Programme) when assessed against Waka Kotahi New Zealand Transport Agency's (Waka Kotahi) Investment Decision Making Framework for Road Maintenance Activities.

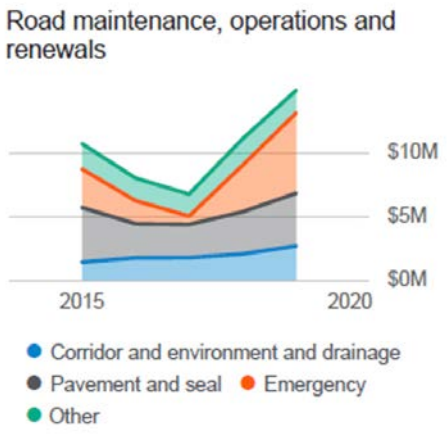


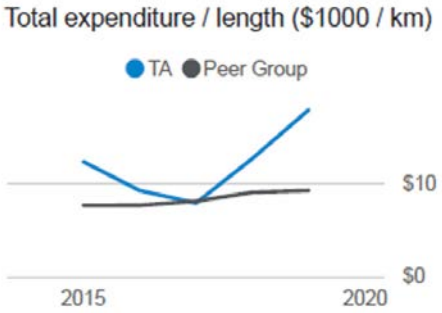
The table below shows the subsidised funding requirements for the 2021-24 NLTP for local roads, and the change in the requirements from the 2018-21 period.

Programme component	Description	2021-24 NLTP Funding Requirement	Change from 2018-21 Period
Operations & Maintenance	Increased investment required above that approved for the 2018-21 NLTP to meet increased maintenance contract costs, as a result of re-tendering the contracts and provide additional emphasis on drainage and unsealed roads. This will ensure a safe and fit for purpose transportation network to meet customer expectations and to prevent network deteriorating to unacceptable condition. Through the maintenance work category 151 and activity management work category 003 we have allowed for the following asset management initiatives: • Network wide safety audit • Asset condition inspections • Additional bridge surveys	$18.5M or $8,165/km/yr	Increase of 4%
Renewals	Increased investment is required to maintain a safe and fit for purpose transportation network to meet customer expectations. The increases include additional proactive drainage renewals to provide network resilience, increased surfacing renewals to catch up on a historic backlog and increased traffic services renewals to address safety issues.	$11.4M or $4,498/km/yr	Increase of 27%
Capital Improvement	Low Cost-Low Risk improvement initiatives to address safety and bridge capacity concerns to expand High Productivity Motor Vehicle (HPMV) access to the network.	$5.4M or $2,127/km/yr	Decrease of 34%
Total Budget		**$35.3M or $13,937/km/yr**	**Increase of 1%**

EXPENDITURE COMPARATIVE TO PEER GROUP

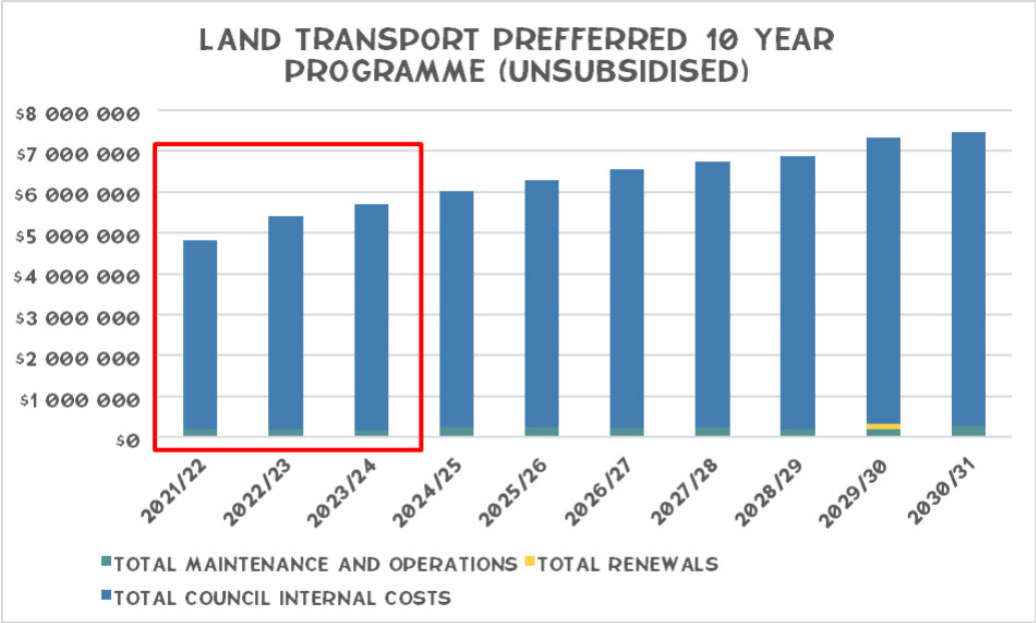
The comparative expenditure graphs adjacent, show our historic expenditure trends, with peer comparison of Total Expenditure per kilometre and Maintenance, Operations and Renewals Expenditure per kilometre. Wairoa has spent significantly more than the peer group in 2018/19, however the key increase in expenditure was for emergency works. The expenditure on programmed maintenance, operations and renewals was comparable with the peer group.





5.2.2 UNSUBSIDISED PROGRAMME EXPENDITURE FORECAST

The graph below shows the preferred unsubsidised programme for the land transport assets. The key items in the unsubsidised programme are carpark maintenance, renewals and expansion, Wairoa Infrastructure business unit expenses, drain clearing and other miscellaneous transport expenses not subsidised by Waka Kotahi.

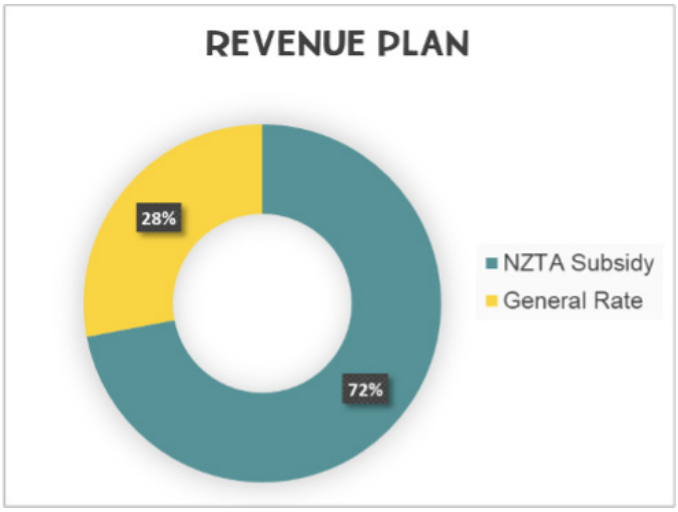


5.3 HOW WE WILL PAY FOR IT

We pay for activities carried out on the land transport network by the following means:

Waka Kotahi funding subsidy: For Wairoa this is provided as a Funding Assistance Rate of 75% of the cost of most maintenance and renewals work. As some activities are unsubsidised, the effective subsidy is 72% as shown on the adjacent graph.

District Rates: The district's community funds the balance of the budget costs (e.g. 28%) through its local rates share. Funding for the local share comes from the Uniform Annual General Charge and the Targeted Rate – Roading.



In line with Council's Revenue and Financing Policy, Council funded activities such as roading, are rated based on a property's land value. **Council works hard to keep within the rating thresholds planned and ensure that this is as affordable as possible.** This has not been an easy task due to the challenges created by COVID-19 with the long-term effects and impacts still uncertain.

Based on the 2020/21 level of rates, the local rates share is sufficient to fund Wairoa's local share of the annual programmed Transport costs for the District.

Provincial Growth Fund (PGF): Through the Provincial Growth Fund (PGF), we have been able to allocate funding to projects which have been deferred or are unbudgeted for to allow us to transform and improve our district without impacting on rates. We have received a $4.8 million cash injection to regenerate and revitalise the town centre creating a hub for new educational and employment pathways. We also received $7.3 million for the Māhia East Coast Road sealing and an investigation into the Nūhaka-Ōpoutama road alignment.

We have submitted a number of other applications for PGF funding for transport related improvement projects, and will continue to seek additional funding through this, and other avenues, as long as it remains available.

5.4 DELIVERY

5.4.1 OUR CAPACITY AND CAPABILITY

Our Activity Management Plan uses Business Case principles and Asset Management processes to provide strong support for future investment requirements.

Our transportation team have the capacity and capability to provide professional engineering and management services to all asset based activities, including: managing physical works contracts, collecting maintenance cost data, managing customer and stakeholder interface and future planning for the transportation activity.

PROFESSIONAL SERVICES SUPPORT

To support our in-house team, Council recently awarded a contract for Infrastructure Professional Services to WSP New Zealand. The contract is for a 3+1+1 period and includes management of Council's RAMM database, general asset management support, condition rating and roughness, valuations, FWP assistance, dTIMS and other technical and asset management tasks as required. A key focus of the contract is for WSP to work with Council as a team to develop in-house capability and ensure programmes are delivered.

CORE LEVEL ASSET MANAGEMENT

The International Infrastructure Management Manual (IIMM) uses an Asset Management (AM) Maturity Index to provide guidance to advancing asset management practices. Our current capability is assessed as providing Core Level Asset Management meeting minimum legislative requirements.

We have recently completed a full Asset Management Maturity Assessment, which has provided clear guidance on the areas to focus on improving to meet full Core Level requirements.

COMPLETING PHYSICAL WORKS

Physical works contractors are appointed to undertake both maintenance and renewal works on Wairoa's roads. We complete the bulk of our operations and maintenance work under two core contracts:

- **Sealed Road Network Maintenance** – Measure and value contract for maintenance, operations and renewals (surfacing and Area Wide Pavement Treatments) related to the sealed road network. The programme of work is developed by Council staff and delivered by contractor.
- **Unsealed Road Network Maintenance** – Outcome based contract with Lump Sum payment for maintenance of the unsealed road network. Unsealed pavement renewals are included as a separable portion under this contract.

Wairoa District Council have had a 25% increase in costs for sealed and unsealed maintenance contracts vs estimate in the 2018 procurement round.

A significant procurement review was completed prior to tendering these two contracts in 2018. This included reviewing contract inclusions and packaging of work to make these contracts as attractive as possible to the local and regional market. Expressions of Interest indicated a competitive market was likely, but actual tenders were limited to one per contract and pricing was above estimate. **Wairoa District continues to have challenges with the cost of physical works due to the limited competitiveness in the local market.**

5.4.2 SMART PROCUREMENT

Smart procurement remains a crucial focus for Council and there has been a raft of changes within the procurement sector since the previous AMP was adopted. These changes are embodied within several overarching or supporting documents which are listed below:

- Wairoa District Council Procurement Strategy March 2020
- Wairoa District Council Procurement Policy 2020
- NZ Government Procurement Rules 4th Edition October 2019
- NZ Transport Agency Procurement Manual Amendment 5 October 2019
- Construction Sector Accord April 2019
- NZ Transport Agency Road Efficiency Group Road Maintenance Procurement Guidelines March 2018.

These documents contain a number of important and interrelated themes concerning the procurement of services for the operation and maintenance of Council's transportation assets. These themes endeavour to support the following strategic outcomes:

- Increased recognition of secondary benefits of procurement outcomes which may include social and environmental benefits
- The Road Controlling Authority's (RCA) commitment to the Te Tiriti o Waitangi/ Treaty of Waitangi when undertaking procurement
- The incorporation of the Government Procurement Charter into their procurement policies
- Encouraging greater access to New Zealand businesses
- Encouraging greater commitment to related industry skills and training
- Improving conditions for New Zealand workers including the recognition of the strengthened workplace Health and Safety requirements
- Implementing policies to achieve "Best Value for Money" which aligns with Government procurement's concept of "public value"
- Improved understanding of the available procurement models and the selection of the most appropriate model based upon the "Smart Buyer" principles, the capability of the supplier market and Council's management capacity.
- Increased recognition and appropriate sharing of risk during the procurement process and subsequent contract delivery.

With the completion of the **Smart Buyer's Self-Assessment** and the update of Council's Procurement Strategy in 2020 to reflect the key criteria for successful procurement and delivery of services, Council is well placed to achieve the outcomes listed above.

A review of the procurement of key maintenance contracts will be a significant issue for the Transportation team. **The two principle road maintenance contracts (sealed and unsealed) are likely to extend through to 2023 and 2024 respectively if the full two 1-year extensions are granted.** Subject to the supplier's performance, a formal review will therefore be undertaken at least 18 months prior to the next procurement round commencing. The objectives of this review will be to confirm the following crucial procurement process steps:

1. Determine whether there is any need and value for Council in undertaking an LGA Section 17A review in advance of the next procurement round.

2. Review Council's current Procurement Policy and Procurement Strategy and confirm if any amendments may be necessary.
3. Review the service level delivery and best value for money outcomes that have been achieved through the existing contract models and identify where improvements are required.
4. Identify the most appropriate future contract model and packaging of the works to maximise the level of interest from the suppliers in tendering for this work (i.e. 2 or more tenderers for all tendered contracts), while also sustaining a locally based capable industry work force.
5. Identify any gaps that may exist through a supplier market analysis and implement strategies to mitigate any risks these gaps may present prior to the next procurement round. This analysis should include early discussions with the contractor industry to understand any issues or impediments that may potentially limit their level interest in tendering for future contracts
6. Identify any gaps in Council's capability to manage the procurement round and management of the future contracts along with appropriate mitigation strategies.
7. Liaise with, and gather information from, Waka Kotahi and adjacent Councils (Hastings, Gisborne and Whakatāne District Councils) to identify opportunities for increased collaboration around shared services, where this approach will better achieve the desired strategic outcomes.
8. Identify the most effective procurement process and selection criteria that will maximise the opportunity for Council to select the best supplier for the works tendered. The continued use of the Lowest Price Conforming method is appropriate for well-defined low risk contracts or where Council adopts a Supplier Panel in advance. However, where the works are more complex or where it is appropriate to value non-price elements in the tender evaluation, then the use of the Price Quality method with appropriate price weighting is encouraged.
9. Complete any outstanding business case justifications for Waka Kotahi endorsement.
10. Develop and implement a detailed procurement programme to track progress through to contract award for all required transportation asset maintenance contracts.

With regard to the two principle road maintenance contracts, steps **3**, **4** and **8** in particular require careful consideration to avoid any repeat of the single tenderer situation that was encountered during the 2018 procurement round. This undesirable situation resulted in significant difficulty in determining what the true competitive market values of the tendered works were and should therefore be avoided in the future. It is therefore desirable for Council to retain and support their existing CCO supplier (QRS) while also encouraging at least one, but preferably more, industry suppliers to bid for all major road maintenance contracts. It is also equally desirable to encourage and maintain the presence of a second large contractor within the district to enable Council to seek a competitive price for other work packages such as flood damage repairs and to have confidence around resource availability during large scale emergency events. The benefits of this were highlighted in the limited time required to jointly price and deliver the PGF Māhia East Coast road sealing project in 2020.

Access to suitable and sustainable road construction aggregates within the district is strategically important. Council should therefore encourage the presence of more than one quarry operator into the future, and that there is transparency in the aggregate supply pricing structure to both Council and the wider contracting industry. It is strongly recommended this aspect of the supply chain is regularly reviewed by Council and any risks to aggregate supply continuity and/or pricing are identified.

Liaison with Waka Kotahi and adjacent Councils under step **7** is strongly recommended as this will assist with benchmarking of competitive market prices and rates for equivalent work activities. This liaison will also assist in identifying opportunities to jointly engage specialist suppliers for critical activities (e.g. LED Street Light installation or minor road safety improvements) that can be aggregated into shared contracts. This collaborative approach may be particularly useful where the value or nature of the work makes it difficult for an individual RCA to procure at a competitive price, especially if there is limited interest by the industry in tendering.

With regard to step **5**, the results of most recent (2020) REG Smart Buyer Self-Assessment indicated that Council has embraced Smart Buyer principles but there was still room for improvement around aspects of collaboration, managing supplier relationships to ensure minimal expenditure, keeping up with procurement best practice and regularly seeking supplier feedback.

5.5 UNCERTAINTY & RISK

Key risk and assumptions made as part of this planning process and their likely consequence or impact are included below.

Risk/Assumption	Description	Consequence/Impact	Risk Level	Uncertainty Level
Climate Change	Climate change makes our weather more extreme and unpredictable leading to flooding and rising sea levels. Although we understand that change is occurring, it is unknown how fast change will occur or the full extent to which consequences will happen in future.	Increased rainfall intensity will stress our drainage and bridge assets causing flooding and potential loss of assets. Coastal erosion will also cause loss of assets. Road closures are likely to become more frequent and of longer durations. This will also result in the need for more reactive emergency work funding.	High	High
Sustainability of Aggregate Supply	Hawke's Bay Regional Council have significantly reduced the aggregate extraction allocations for the 2020/21 year for key Wairoa Rivers. There is uncertainty around future aggregate allocations.	Ongoing reduced river aggregate allocations have the potential to impact maintenance programmes specifically re-metalling, negatively impacting levels of service. Increased costs for aggregate could occur as new sources are established or aggregate is carted from outside the region or district, resulting in increased network maintenance costs for Council.	High	High
Waka Kotahi Funding Constraints	Initial indications from Waka Kotahi are that the funding requests for continuous programmes (Maintenance, Operations & Renewals) across the country exceed the upper funding limits of the GPS. It is therefore likely that further reductions in Wairoa District Council's funding request will be required, although the extents of this reduction unknown.	Constraints to Waka Kotahi funding will impact Wairoa District Council's ability to deliver the required programme of works, impacting levels of service, and increasing risk.	High	High
Procurement Challenges	Procurement has been challenging in the past with limited number of local suppliers and difficulty in attracting outside suppliers. Specialist skill sets are particularly difficult to procure.	Prices for programmed works come in at a higher cost than budgeted for.	High	Medium
Community Ability to Pay	Current predictions of a static (or decreasing) population base and socio-economic demographics mean makes it difficult to provide sustainable services that the community can afford. Ongoing COVID-19 impacts may also result in further impacts on the local economy, including possible income reduction.	Programmed works are not affordable in the long term for rate payers.	High	Medium
Funding from Waka Kotahi	It is assumed that the roading Funding Assistance Rate (FAR) of 75% will not change, however changes to the Government Policy Statement (GPS) and Investment Decision Making Framework (IDMF) may impact on future funding.	If the FAR reduces for any reason, this will impact on Council's ability to afford to planned programme.	Low	Medium

Risk/Assumption	Description	Consequence/Impact	Risk Level	Uncertainty Level
Emergency Works Funding	It is assumed Waka Kotahi will continue to fund emergency works for Wairoa District Council at 95% FAR (Wairoa District Council Standard FAR +20%).	Any reduction in this FAR, or inability to fund emergency works by Waka Kotahi will have a significant impact on Wairoa District Council's ability to respond to emergency events, and will impact network resilience and accessibility.	Low	Medium


SEE THE WHOLE PICTURE

LAND TRANSPORT

ACTIVITY MANAGEMENT PLAN

2021-2031

Part B

1. INTRODUCTION

This part of the Land Transport Activity Management Plan provides the proposed investment for the 2021-2031 period. It includes evidence to support the investment proposed, clearly linking the investment back to service outcomes, including the key issues we are facing and Customer Levels of Service. It explains what we are going to do and how we are going to do it.

The key audiences for this part of the AMP include:

- Investors
- Community
- Council Reporting (Annual Plan, LTP)

2. THE TRANSPORT SERVICES WE PROVIDE

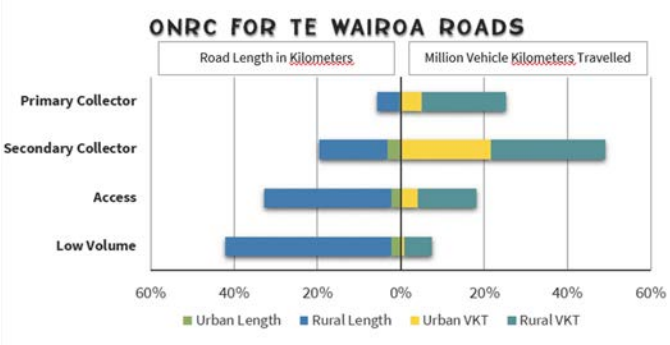
2.1 SCOPE OF THE TRANSPORT ACTIVITY

Council is responsible for most of the Land Transport system in the District other than state highways which are owned and operated by the Waka Kotahi (NZTA). Our transport system includes:

Transport Activity	Key Services we Provide	Link to Community Outcomes	Link to National Transport Outcomes
Movement of People & Goods	• Maintenance and renewal of: - Sealed roads - Unsealed roads - Bridges and other structures - Drainage - Traffic services including signage, road marking, and other road furniture - Street Lighting • Safety improvement works • Planning and management to ensure the transportation system able to cope with future needs • Development of the transportation and traffic networks	Strong and prosperous economy	**Resilience & security** – reducing the risk of interruption to travel as a result of high intensity rainfall events by providing drainage and road support structures **Economic prosperity** – supporting economic activity by providing bridges that allow for heavy vehicle access to productive land **Healthy & safe people** – reduction in accidents due to fit for purpose road surfaces, guardrails, lighting, road marking, signs **Inclusive access** – enabling people to access social and economic opportunities through a road network that is easy to navigate with well maintained guidance signage and comfortable journey provided by pavements
Active Transport (Cycling & Walking)	• Maintenance and renewal of: - Footpaths - Cycleways - Safety improvements	• Safe, supported and well-led community • Strong and prosperous economy • Protected and healthy environment	**Healthy & safe people** – protecting people from transport related injuries when using active transport modes by providing paths separated from other traffic **Inclusive access** – cycling and walking paths kept tidy and functional by keeping vegetation controlled, graffiti removal, roadside furniture maintenance
Protecting our Environment	• Maintenance of the road reserve including: - Mowing, weed spraying - Sweeping and cleaning (e.g. litter and graffiti removal) - Dust mitigation measures	Protected and healthy environment	**Environmental sustainability** – maintaining biodiversity, water quality and air quality by managing plant pests, roadside cleaning and dust control

Transport Activity	Key Services we Provide	Link to Community Outcomes	Link to National Transport Outcomes
Parking	• Maintenance and renewal of: - Car parks	• Strong and prosperous economy • Safe, supported and well-led community	**Healthy & safe people** – on and off-street parking facilities to ease the safe movement of passenger vehicles within the transport network
			Inclusive access – enabling people to access social and economic opportunities through availability of car parking within the CBD and community facilities

The national adoption of the One Road Network Classification (ONRC) has allowed us to work towards providing different levels of services for different roads, depending on their use and function. The distribution of roads in the District according to the ORNC is shown below:



- **Primary Collector**: locally important roads linking significant local economic areas or populations
- **Secondary Collector**: roads linking local areas of population and economic sites (may be the only route available)
- **Access**: all other roads but split further into the low volume subset below
- **Low Volume**: a further subset of access roads with less than 200 vehicles per day

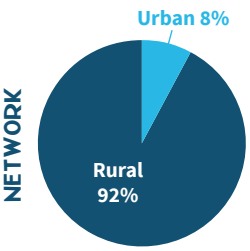
2.2 ASSETS CONTRIBUTING TO THIS ACTIVITY

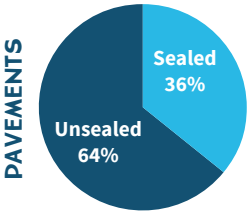
Council holds comprehensive asset inventories for all components of the land transport network and associated infrastructure. This information is retained in Council's RAMM database, which is updated monthly as required.

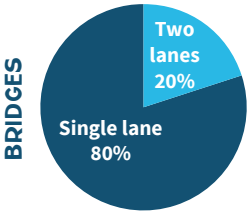
As at July 2020, Council's land transport network consists of approximately **871 kilometres of roads** covering the whole of Wairoa. The land transport asset has an **Optimised Replacement Cost (ORC) of $336M** and an Optimised Depreciated Replacement Cost (ORDC) of $204.6M as at July 2020.

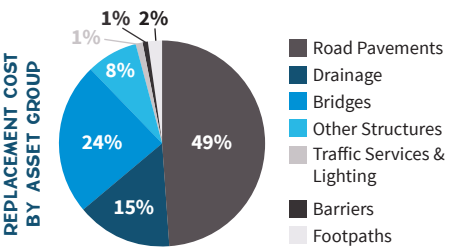
Further to this Council also has responsibility for managing an additional 30 kilometres of State Highway / Special Purpose Road 38 (SP38) that forms part of the unique Te Urewera Rainforest Route joining Wairoa to Rotorua and Whakatāne Districts along the edge of Lake Waikaremoana. There are a number of different maintenance and funding arrangements, based on the various sections of road as outlined in the table below.

SH38 Section	Description & Responsibility	length
Wairoa to Mangapapa	**State Highway** – Sealed road section fully maintained and funded by Waka Kotahi	36.7 km
Mangapapa Bridge to Aniwaniwa	Delegated State Highway – Unsealed road section with maintenance and renewals responsibility delegated to Council to complete on behalf on Waka Kotahi – fully funded by Waka Kotahi	24.9 km
Whakatāne Boundary to Aniwaniwa	Special Purpose road – Unsealed road section fully maintained by Council. Waka Kotahi has confirmed the FARs for Special Purpose Roads (SPRs). In the absence of an agreed transition plan, the rate for SPRs for the 2021-24 NLTP is 100%. From 1 July 2024, these roads will revert to normal FAR.	30.2 km









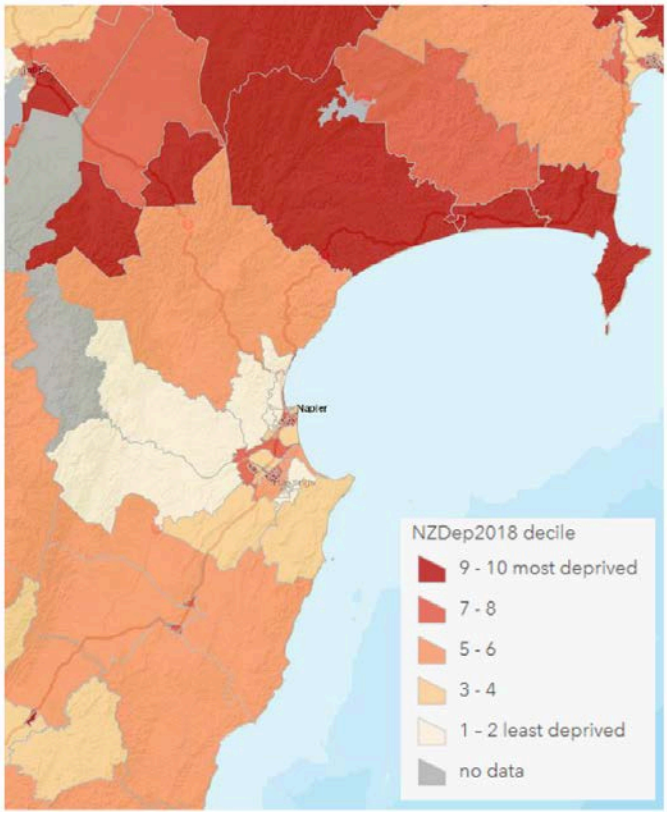
2.2.1 KEY ASSET GROUPS AND COMPONENTS

The Council-managed network consists of the following major components.

Core Asset Groups	Core Function	Assets	Measure	Quantity
Road Pavements	Providing access to social and economic opportunities and supporting economic activity with efficient movement of people and goods	Sealed Local Roads	km	301.3
		Unsealed Local Roads	km	541.5
		SP38 Sealed Length	km	7.0
		SP38 Unsealed Length	km	23.3
Bridges	Providing access to social and economic opportunities and supporting economic activity with efficient movement of people and goods	Bridges	ea	129
		Culverts	ea	40
		Fords	ea	7
		Railings	ea	706
Other Structures	Supporting the resilience of the road	Retaining Walls	ea	447
Drainage	Supporting the resilience of the road through storm water management	Culverts	ea	6,182
		Side Drains	ea	411
		Subsoil Drains	ea	40
		Kerb & Channel	km	39,750
		Sumps & Catch pits	ea	179
		Debris Grids	ea	806
		Manholes	ea	306
		Drainage Flumes	ea	10
		Surface Water Channels	km	1,754
Traffic Services	Supporting safety and access to social and economic opportunities	Signs	ea	4,440
		Road markings	km	377.4
		Barriers & Railings	ea	671
Street Lighting	Supporting safety and security of people using the transport system	Street lights	ea	886
Footpaths & Cycleways	Supporting active modes of transport	Footpaths	m	46,715
		Cycleways	m	0
		Both	m	46,715
Parking	Supporting access to social and economic opportunities	Car parks	m2	38,186

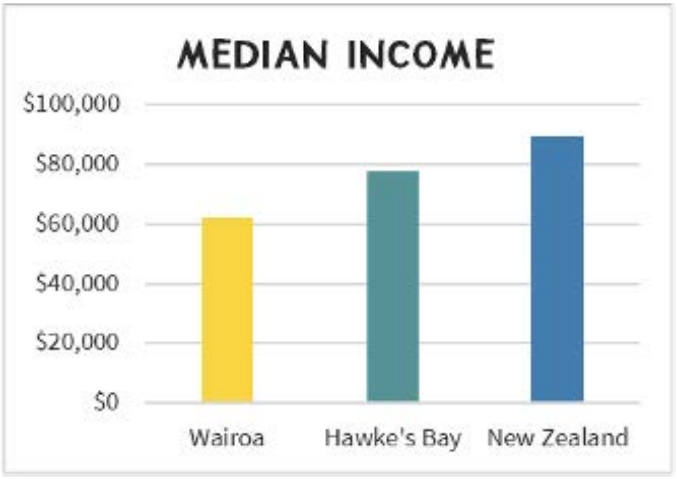
3.1 PROVIDING VALUE FOR MONEY

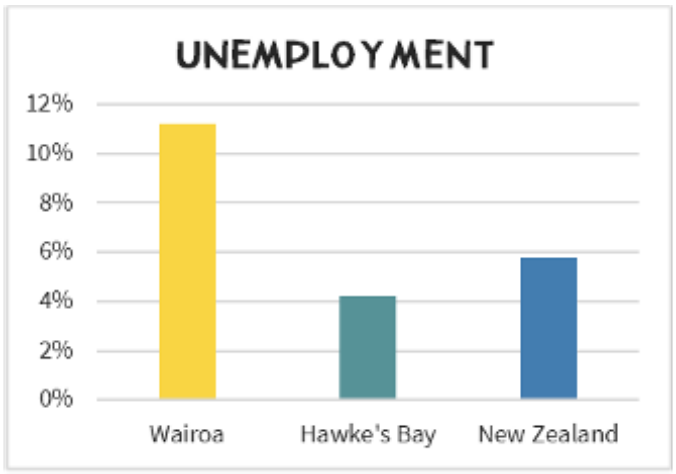
Affordability is a key issue for Wairoa District, so achieving value for money is critical. Population and socio-economic depravity indicators have a significant impact on affordability of the transport activity, with limited ability for the ratepayers to finance any increases in road maintenance and renewals costs.



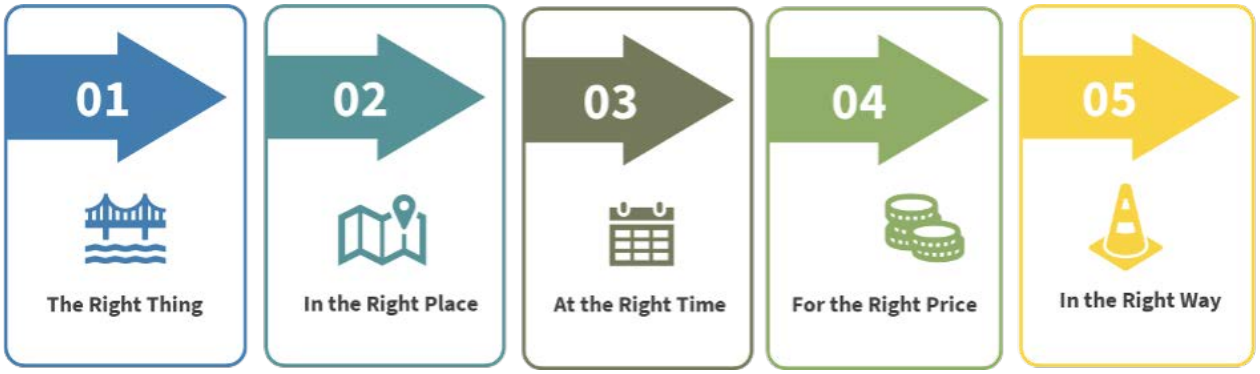
WAIROA COMMUNITY ABILITY TO PAY

Wairoa's low population base and median household income significantly impacts on the community's ability to pay for transport services. Wairoa is also has high unemployment and is the most deprived part of the Hawke's Bay region, with most of the district being Decile 9-10.





This LTAMP seeks to demonstrate that the proposed programme presents value for money by doing:



To achieve these value for money objectives we will:

- **Focus on outcomes** – we make sure we are doing the right thing to meet our community outcomes and national transport outcomes, including the GPS Strategic Priorities and ONRC Customer Levels of Service
- **Have a robust plan** – to identify an effective Forward Work Plan (FWP) over the long term so we can keep providing services for future generations
- **Practice smart buying** – appropriate, efficient and compliant supplier selection procedures help us make sure we get a quality outcome for the right price
- **Support local** – maintaining capacity and competitiveness in the local market means we have best access to the skills we need to do the work

This broad, long-term, perspective commits the Council to seeking sustainable options and not necessarily the lowest cost ones.

3.1.1 ASSET MANAGEMENT PRINCIPLES

As outlined in our Council 'Introduction to Asset Management Plans', key principles of infrastructure asset management practice that we are guided by are:

- Providing a defined level of service and monitoring performance
- Managing the impact of demand changes (growth as well as decline) through demand management, infrastructure investment and other strategies
- Taking a lifecycle approach to development cost-effective management strategies for the long-term that meet that defined level of service
- Identifying, assessing and appropriately controlling risks
- Having a long-term financial plan which identifies required expenditure and how it will be funded.

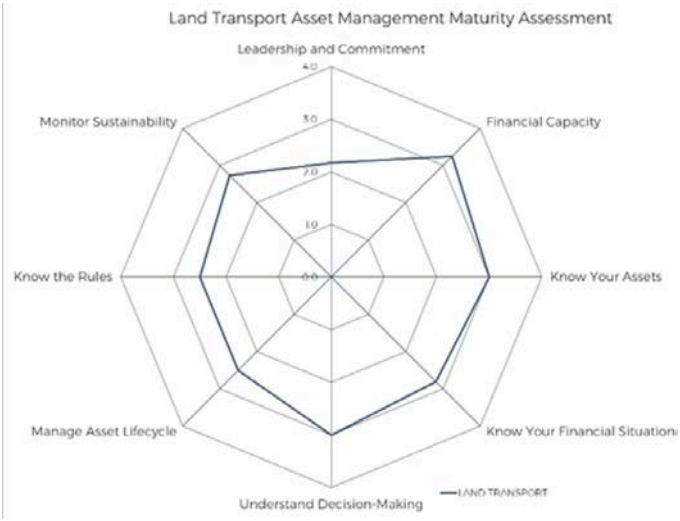
Our Asset Management Policy outlines that **a 'Core' level of asset management advancement is required for the land transport activity**. This approach is consistent with the guidance provided in the International Infrastructure Management Manual (IIMM, 2015).

ASSET MANAGEMENT MATURITY

In early 2020, we commissioned WSP to complete a review of our asset management maturity to assess how well we are delivering on our asset management policy, to achieve a 'Core' level of asset management practice. Our aim is to become 'Competent' within our adopted level of advancement as shown below.

Land Transport activity showed the highest level of maturity of all activities. In most areas the asset management practices are close to 'Competent' scoring (score of 3.0). These assets are well understood, with appropriate levels of data and good operational management practices in place. Financial planning for these assets is robust for the short to medium term. But there is less certainty of long-term requirements. Further improvement of lifecycle management and decision making will help provide a firmer long-term financial projection. This will help Wairoa District Council to better plan for the future and continue providing sustainable service to the community.

Key areas identified for improvement have been included in our Improvement Plan in Section 10.

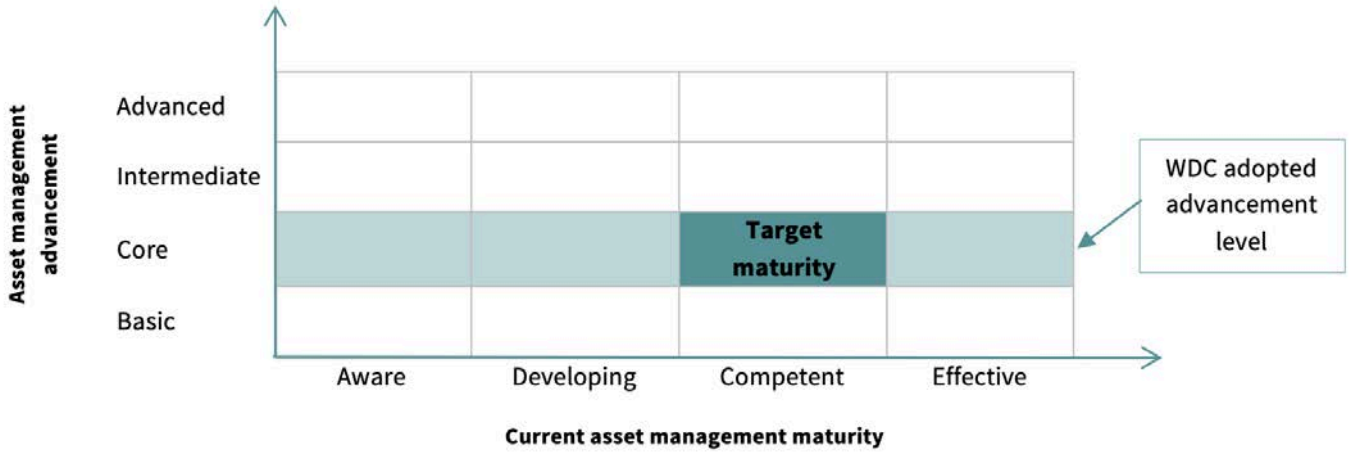


3.1.2 TAKING A LIFECYCLE MANAGEMENT APPROACH

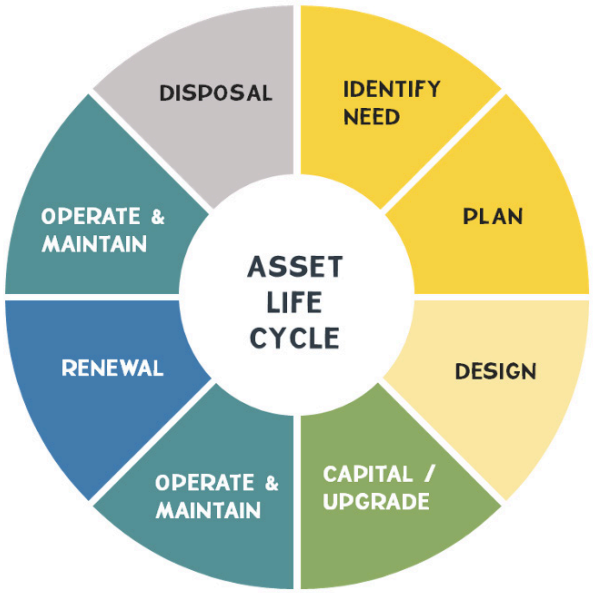
Further to ONRC Customer Level of Service, it is important to acknowledge that a key driver for investment in the transport network is ensuring asset integrity – through a **whole-of-life approach**, implementing good asset management planning including lifecycle management planning and modelling.

In the context of this plan, the lifecycle of an asset is "understanding the rate of change." The primary objective is to know when to maintain OR renew OR improve (upgrade through capital works) an asset or its component.

The Detailed Business Case outlines maintenance plans and the planning for the renewal, upgrade and creation of assets for activities and services delivered to the community. It describes Council's practices that are delivering current levels of service,



and explores opportunities to enhance the asset lifecycles through condition monitoring.



One of the keys to good lifecycle management is better data (confidence) and better interpretation of that data to enable more informed decisions. This enables us to 'get the best out of our infrastructure' and is of particular importance for mature and critical assets.

3.2 MANAGING RISK

3.2.1 RISK MANAGEMENT POLICY

Risk Management continues to be an area of learning and growth for Council. We are focussed on developing a consistent organisational approach to risk management.

Council's updated Risk Management Policy was adopted in December 2017. This is a Council-wide policy overseen by the Chief Executive Officer. Staff, contractors, and elected members have a shared role to play in the identification, reporting and management of risk through risk management processes being integrated with planning processes and embedded in management activities.

Since this time, Council has commissioned a Risk Management Framework Review by independent consultants in March 2018, which introduced a number of improvement recommendations for future implementation. Then in early 2020, we commissioned WSP to further review our risk management processes and develop a practical Risk Management Strategy to align risk management across the Community Assets and Services Group. A key component of the Risk Management Strategy is the provision of a process for identifying critical assets.

This section of the AMP highlights key Risk Management outcomes incorporated into the future planning included in this AMP. Further details of risk management practices used for the land transport activity are included in our Detailed Business Case.

3.2.2 CRITICAL ASSETS

Asset Criticality is the consequence arising from the sudden and total loss of an asset. The principal objective is to prevent the deterioration of critical assets to "very poor" condition where major and urgent replacement is required, to allow for service continuity and minimise disruption costs. To assess the criticality of an asset the following three factors are considered:

- **Service Importance**: The importance of core asset groups providing the service to the community. This answers the question: **What is the effect on the community of losing service provision?**
- **Functionality**: Reflects how important the specific asset is to the functionality of the core asset groups providing the service. It answers the question: **What is the impact on the service if the asset fails?**
- **Down-time**: Duration that the asset will be "down", until return of the asset to full capacity, if it fails. It answers the question: **How quickly can the asset be repaired/replaced?**

ASSET CRITICALITY

Using this assessment process from our Risk Management Strategy, the Service Importance of core asset groups within the land transport activity have been determined as follows.

Core Asset Group Delivering Key Services	Importance to Service Provision
Road Pavements	Extremely important
Bridges	Extremely important
Other Structures	Highly important
Drainage	Highly important
Traffic Services & Lighting	Important
Footpaths & Cycleways	Important
Car Parking	Important

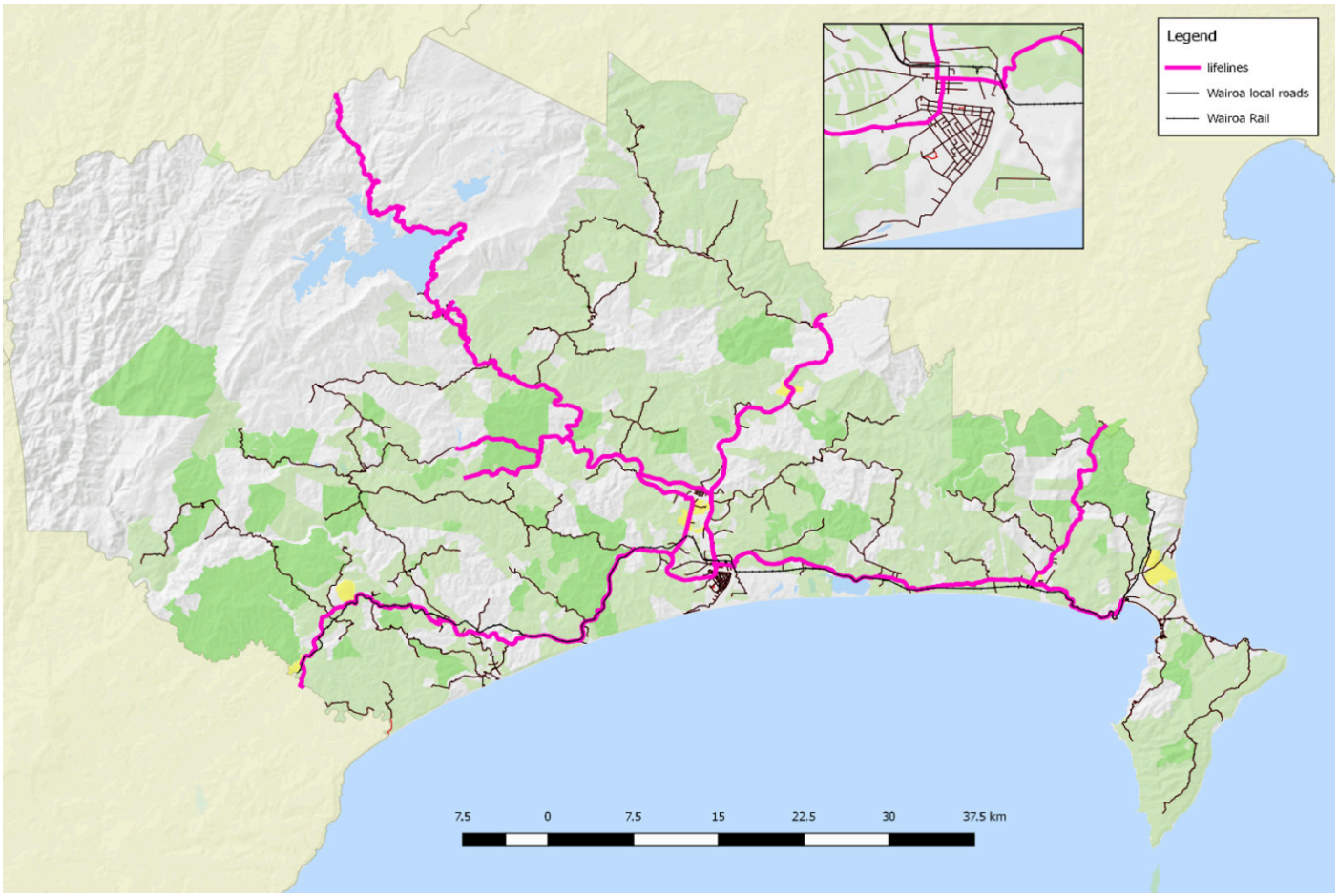
To further assess which particular assets are considered critical, the functionality has been aligned to ONRC to determine the roads and bridges that provide key links or have high traffic volumes.

LIFE LINE ROUTES

Lifelines routes provide key access to communities within Wairoa and:

- Maintenance of these routes is critical to ensure continued access to communities and key facilities (e.g. health services, power stations, quarries) in emergency events.
- Failure to maintain them may result in isolated communities during and following emergency event.
- Lack of maintenance may lead to higher cost renewal repairs after emergency events.

Wairoa's Lifelines routes are shown on the next page.



Road	ONRC	Criticality	Alternate Route	Current Issues	Maintenance Responsibility
Awamate Road	Primary Collector	Alternative route if Wairoa Bridge is impassable	SH38	2x Very High Risk (VHR) criticality bridges and 2x High Risk (HR) criticality bridges	Council
Nūhaka-Ōpoutama Road	Primary Collector	Access for a significant portion of the district's population as well as the newly developed Rocket Lab launch site	Tunanui Rd, but this is steep, winding and unsealed	Coastal erosion issues 1x VHR criticality bridges and 2x HR criticality bridges	Council
Tiniroto Road	Secondary Collector	Alternative route to Gisborne if SH2 is impassable	SH2	6x VHR criticality bridges and 2x HR criticality bridges	Council
Ruapapa Road (RP 0 to 4.05)	Secondary Collector	Access to aggregates required for post-event recovery	No alternate route		Council
Ruapapa Road (RP 4.05 to 12)	Secondary Collector	Access to Waihi power dam	Via Putere Road	1x Dropout identified as Extreme Risk to loss of access	Council
Patunamu Road	Access	Access to aggregates required for road reinstatement	No alternate route	High risk for river erosion, a number of dropouts	Council
Tuai Main Road	Access	Access to Tuai power station	No alternate route	1x dropout considered Extreme Risk to access	Council
Piripaua Road	Access	Access to Piripaua power station	Tuai / Piripaua Road		Council

Road	ONRC	Criticality	Alternate Route	Current Issues	Maintenance Responsibility
SH2 to Napier/ Gisborne	Regional		Some parts of this SH have no alternative route		Waka Kotahi
SH38 to Tuai/ Rotorua	Primary Collector		No alternate route		Waka Kotahi / Council / Whakatāne DC

CRITICAL BRIDGES

Our High Risk Criticality Bridges and routes are included below.

Route Name	Route Criticality	Strategic Case Link	High Risk Structures on Route
Mangaopoike Road	High	Forestry	Rotoparu No.2 Bridge Te Huikete Bridge
Hereheretau Road	High	Forestry	Hereheretau Bridge Mangapapa No.1 Bridge
Cricklewood Road	High	Forestry	Gibson Bridge
Rotoparu Road	High	Level of Service	Crispin Bridge
Waiatai No.2 Road	Medium	Level of Service	Taits Bridge
Poututu Road	Medium	Level of Service/ Condition	Poututu Bridge
Ngapikira Road	High	Level of Service	Ngapikira Bridge

3.2.3 RISK BASED APPROACH TO ONRC

A risk-based approach will be taken to optimise activity across the different ONRC. On higher classification roads, a lower risk approach will be taken i.e. earlier intervention with renewal treatments and robust maintenance repairs. For lower classification roads, more risk may be taken by deferring renewals where possible and using holding repairs. For unsealed roads, this may affect grading cycles as well as where Heavy Metal Build Up (HMBU) renewals are completed. It is important to note that safety will not be compromised through this process, and intervention with routine maintenance will be completed as necessary to keep the road safe.

By accepting greater risks on lower classification roads, a higher percentage of work will be reactive compared to the preventative and planned strategies on higher classification roads. This risk based approach will be implemented at all levels of maintenance and renewals delivery, including through:

- Strategy and planning development – e.g. Maintenance Intervention Strategy, traffic count programme etc.
- Network inspections
- Development of all maintenance programmes
- Forward Work Programming of renewals prioritisation.

3.2.4 RISK REGISTER

As a result of this Risk Management Strategy, we are currently completing a full review of our Risk Register. In the interim, our previously identified high risks have been included in the Detailed Business Case. At this point investment has been primarily been prioritised through our understanding of our critical assets and their condition / performance, particularly life line routes and critical structures.

Improvement Item - There is a need for full review of the Land Transport Risk Register to ensure risk issues have been adequately identified and ensure that current high risks are still relevant.

3.3 GETTING WORK DONE

3.3.1 CAPABILITY & CAPACITY TO DELIVER & MANAGE THE PROGRAMME

Our land transport services are delivered through a combination of in-house staff, external professional services consultants and external physical works contractors.

Our Activity Management Plan uses Business Case principles and Asset Management processes to provide strong support for future investment requirements.

Our Council transportation team undertakes the management of the asset and respond to stakeholder queries. Our team have the capacity and capability to provide professional engineering and management services to all asset-based activities, including: managing physical works contracts, collecting maintenance cost data, managing customer and stakeholder interface and future planning for the transportation activity.

Our in-house team are complemented by our Professional Services provider for technical input, design and investment planning capability. Council recently awarded a contract for infrastructure professional services to WSP New Zealand limited for a 3+1+1 period. This approach has allowed the formal sharing of knowledge and experience between both parties and the efficient delivery of services. This means of delivery has also allowed access to a larger resource base than the Council could afford to retain, allowing Council to access resources as required to ensure programmes are delivered.

3.3.2 MONITORING PROGRAMME DELIVERY

The Transportation team manage the day to day operations of the transport network as well as most contract management. Specialised contracts (such as structural repairs) will have technical input from our Professional Services provider.

Council have struggled historically with timely delivery of the maintenance and renewals components of the programme. Council staff are aware to the problems this creates, and have put systems and processes in place to ensure delivery of the programme for the next three-year period and beyond.

In terms of design and contract preparation, our Professional Services consultant will be used to ensure that all programmed works are designed and tendered to ensure completion of renewals as programmed. A significant input into the renewals programme for the 2021/22-2023/24 period will be the sealed road resurfacing, sealed road rehabilitation and bridge component replacements. Design of surfacing will be included in the physical works contract. All bridge capacity assessments and design will be completed by WSP New Zealand as part of the infrastructure professional services contract. Completion of the programme will be closely monitored by the Transport Asset Manager on a monthly basis. Where work appears to be lagging a review of any requirements for additional resources will be completed.

3.3.3 COMPLETING PHYSICAL WORKS

Physical works contractors are appointed to undertake both maintenance and renewal works on Wairoa's roads. We complete the bulk of our operations and maintenance work under two core contracts: Sealed Road Network Maintenance and Unsealed Road Network Maintenance. Details of the types of work completed for each asset group and our current contracts are shown below.

Transport Activity	Asset Group	Type of Work	Contract Type	Award Type	Contract Term
Movement of People & Goods	Sealed pavement	Maintenance & operations: pavement repairs	**Contract 18/01: Sealed Road Network Maintenance** Measure and value contract – programme developed by Council staff and delivered by contractor	1st October 2018	3+1+1 years
		Renewals: surfacing and area wide pavement treatment (AWPT)	**Contract 18/01: Sealed Road Network Maintenance** Resurfacing and AWPTs included as an annual separable portion on a measure and value basis	1st October 2018	3+1+1 years
	Unsealed pavement	Maintenance & operations: grading, wearing course, maintenance, vegetation control, emergency response	**Contract 18/02: Unsealed Road Network Maintenance** Outcome based contract – LS payment for maintenance based on performance.	1st March 2019	3+1+1 years
		Renewals: heavy metal build ups	**Contract 18/02: Unsealed Road Network Maintenance** HMBU's are included in this contract as an annual Separable Portion on a measure and value basis	1st March 2019	3+1+1 years
	Bridges & Other Structures	Routine maintenance	**Included in Contract 18/01 & 18/02**	As above	As above
		Specific structural maintenance & renewals	Measure and value contract		Annual
	Drainage	Maintenance & renewals	**Included in Contract 18/01 & 18/02**	As above	As above
	Traffic Services	Maintenance & renewals	**Included in Contract 18/02**	As above	As above
	Streetlighting	Maintenance & renewals, LED rollout	**Contract 19/04 Streetlight Maintenance** Measure and value contract.	August 2020	1 year +1+1
	Other	Improvement works: minor safety	Measure and value contract or completed as variation under maintenance contract		Annual
		Emergency works: flood damage repairs	Measure and value contract or completed as variation under maintenance contract		Annual
Active Transport (Cycling & Walking)	Footpaths & Cycleways	Routine maintenance: cleaning & edging	**Contract 18/05: Wairoa Reserves Maintenance** Measure and Value	1st October 2016	3+1+1 years
		Renewals	**Included in Contract 18/01**	1st October 2018	3+1+1 years

Transport Activity	Asset Group	Type of Work	Contract Type	Award Type	Contract Term
Protecting our Environment	Road reserve	Operations & maintenance: Sweeping, cleaning (e.g. litter & graffiti removal)	**Contract 18/08: Street Cleaning** Measure and value contract	1st October 2016	3+1+1 years
	Unsealed pavements	Improvement works: dust mitigation works	Measure and value contract or completed as variation under maintenance contract		Annual
Parking	On-street and off-street Car parks	Maintenance & renewals	Included in Contract 18/01: Sealed network maintenance contract	1st October 2018	3+1+1 years
		Improvement works	As required – annual contract or variation under maintenance contract		Annual

Work quality has improved in the last three years under a different maintenance regime than previously, through the combination of performance based unsealed roads maintenance and measure and value sealed roads maintenance. A large amount of effort was focussed on achieving quality work for the right price during the preparation and tender phases of the recently awarded network maintenance contracts. Further procurement reviews have been recommended as part of the contract extension negotiations and prior to the re-tendering of these contracts to ensure the best outcomes are achieved for council.

3.3.4 END USER AGREEMENTS

Where Council roads have one end user benefitting from access, Council has negotiated for that end user to be responsible for maintenance, as detailed in the table below.

Road	End User	Details
Maraenui Road	JNL	Unsealed road maintenance – entire length

3.3.5 LINKING OUR PROGRAMME TO OUR STRATEGIC PROBLEMS & TRANSPORT OUTCOMES

The following table shows how the problems identified will be addressed through the maintenance, operations and renewals funding Work Categories (WC), to produce appropriate transport outcomes and address the GPS Strategic Priorities.

An important factor in the delivery of the maintenance, operations and renewals programmes will be ensuring these activities are prioritised and optimised across the different road classifications and key transport routes. This should ultimately facilitate cost-savings by adjusting the Levels of Service across different ONRC. We aim to achieve this by:

- Ensuring funding requests are prioritised by ONRC where appropriate.
- Determining optimal timing of renewal treatments, which may mean 'sweating' the asset more on lower classification roads.
- Ensuring that risk and consequence are proactively managed on higher classification roads and identifying opportunities to accept more risk and consequence on lower classification roads.

Problems Identified	Investment Objectives	Related GPS Strategic Priorities	
Resilience Road network vulnerable to closure from high rainfall and storm events and a lack of alternative routes results in disconnected communities and economic disruption	Improve resilience to climate change impacts	**Freight Network** Improving the freight network for primary producers to markets **Maintaining the network** Sufficient funding to maintain networks to the condition required to ensure a safe, resilient and accessible network	
Changing Demand Land use change increasing heavy vehicle traffic on rural roads results in safety, pavement consumption and environmental issues	• Roads that support safer travel • Improve access to productive land • Affordable level of service	**Freight Network** **Safety** Implementing the Road to Zero strategy **Maintaining the network**	
Accessibility Poor condition aging bridge stock and low structural capacity results in limited access for heavy vehicles	Improve access to productive land	**Freight Network**	
Māhia Connectivity Coastal erosion and increased demand from tourism and rocket lab traffic results in increased level of service requirements and safety issues	• Improve resilience to climate change impacts • Roads that support safer travel • Affordable level of service	**Maintaining the network** **Safety** Implementing the Road to Zero strategy	

	Key Components of the Programme that Address our Problems		
	Maintenance & Operations	**Renewals**	**Improvements**
	WC113 – Drainage Maintenance WC114 – Structures Maintenance (retaining structures) WC121 – Environmental Maintenance WC141 – Emergency works WC151 – Network & Asset Management	WC213 – Drainage Renewals WC215 – Structures Component replacement (retaining structures) WC221 – Environmental Renewals	WC341 – Low Cost/Low Risk Improvements (Coastal Resilience, River Erosion Protection)
	WC111 – Sealed pavement maintenance WC112 – Unsealed Roads Maintenance WC113 – Drainage Maintenance WC122 – Traffic Services Maintenance WC151 – Network & Asset Management	WC211 – Unsealed Road Metaling WC212 – Sealed Road Resurfacing WC214 – Sealed road Pavement Rehabilitation	WC341 – Low Cost/Low Risk Improvements (Safety Improvements, Traction / Dust Sealing)
	WC114 – Structures Maintenance WC151 – Network & Asset Management	WC215 – Structures Component Replacement	WC341 – Low Cost/Low Risk Improvements (Bridge Strengthening)
	WC111 – Sealed Pavement Maintenance WC112 – Unsealed Roads Maintenance WC114 – Structures Maintenance WC151 – Network & Asset Management	WC211 – Unsealed Road Metaling WC212 – Sealed Road Resurfacing WC214 – Sealed road Pavement Rehabilitation	WC341 – Low Cost/Low Risk Improvements (Safety Improvements)

4.1 LEGISLATIVE REQUIREMENTS

Under the LGA 2002, Council is required to consult with the community and stakeholders to identify the outcomes (goals for the present and future economic, social, cultural and environmental well-being of the district) that the community wishes to have now and into the future. The LGA Amendment Act 2014 makes no reference to community outcomes, and so these are no longer a legislative requirement. However, Council has confirmed that the community outcomes remain relevant in the delivery of core services to the community.

The main legislation Council operates under in relation to land transport is:

- LGA 2002 and 2014 amendment
- Transit New Zealand Act 1989
- Resource Management Act 1991
- Building Act 1991
- Land Transport Management Act 2003
- Land Transport (Road Safety and Other Matters) Amendment Act 2011
- Health and Safety in Employment Act 2002
- Civil Defence Emergency Management Act 2002
- Traffic Regulations Act 1976
- Public Works Act 1981
- Utilities Access Act 2010 (ref. NZUAG National Code for Utility Operators' Access to Transport Corridors).

The AMP acknowledges Council's responsibilities to act in accordance with legislative requirements that impact on the goals and objectives for the maintenance and future development of Council's land transport assets. Compliance with all statutory requirements is essential for Council's integrity and continued access to government funding. Accordingly, a comprehensive knowledge and application of legislative requirements is vital to Council's business.

Various legislation (e.g. Resource Management Act and the LGA 2002) require Council to consult with tangata whenua and take into account the principles of the Treaty of Waitangi in the management of land transport's infrastructural assets. This is particularly relevant for Wairoa District where 59% of the population is of Māori descent.

The **"Introduction to Asset Management Plans 2017"** has complete details of the legislative requirements.

4.1.1 LOCAL GOVERNMENT MANDATORY PERFORMANCE MEASURES

In 2010, the Local Government Act 2002 was amended to require the Secretary for Local Government to make rules specifying non-financial performance measures for local authorities to use when reporting to their communities. The aim was to help the public to contribute to discussions on future levels of service for their communities and to participate more easily in their local authority's decision-making processes. Local authorities were required to incorporate the performance measures in the development of the 2015-2025 long-term plans.

The performance measures for roads and footpaths are intended to measure the major aspects of performance of the services concerned.

The performance measures cover the following key aspects of service delivery:

1. How safe are the local roads?
2. What is the overall condition of sealed roads in the local road network?
3. Is the sealed roads network being maintained adequately?
4. Are the footpaths that form part of the local road network being maintained adequately?
5. Does the local authority responsible for the service provide a timely response if there is a problem?

4.2 UNDERSTANDING OUR CUSTOMERS

Community and customer expectations are very important in determining future levels of service and in assessing how well Council is performing against current levels of service. Refer to the "Introduction to Asset Management Plans 2017" for complete details on the methods Council uses to obtain feedback on the levels of service and performance of the land transport activity.

CUSTOMER SERVICE REQUEST (CSR) SYSTEM

Council maintains a Customer Service Request System to allow customer comments and feedback to be recorded and managed. These results give Council some direction for prioritisation and targeted activities to undertake in their endeavour to improve public satisfaction and deliver an acceptable level of service.

ANNUAL COMMUNITY SURVEY

The latest NRB Communitrak survey was completed in August 2020, results from this survey are included below.

In 2020, only 45% of residents are satisfied with rural roads in the district, while 55% are not very satisfied. Compared to other services provided by council, roads are the service area where there is the most dis-satisfaction. The graph below tracking historic satisfaction and dissatisfaction shows a steadily worsening trend, with the dissatisfaction rate exceeding the satisfaction rate for the first time in 2020.

55% of respondents are not very satisfied with the standard of maintenance of rural roads (2020)

The survey results show that there is slightly more dissatisfaction than for Wairoa's peer group and the national average.

Aspect of Service	The Percent not very Satisfied with Service		
	Wairoa	Peer Group*	National Average*
Standard of maintenance of rural roads	55%	32%	27%

Aspect of Service	The Percent not very Satisfied with Service		
	Wairoa	Peer Group*	National Average*
Standard of maintenance of urban roads in the District	25%	32%	27%

**Note: Peer group and national average dissatisfaction is for roading in general, not split by urban/rural*

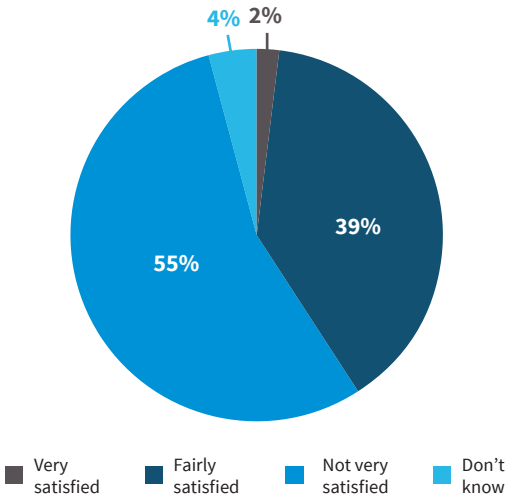
The main reasons that residents are not very satisfied with **rural roads** in Wairoa are:

- Poor condition/need maintenance/upgrading
- Potholes/rough/bumpy/corrugations
- Roads not graded enough/not graded properly
- Drop outs/slips not repaired

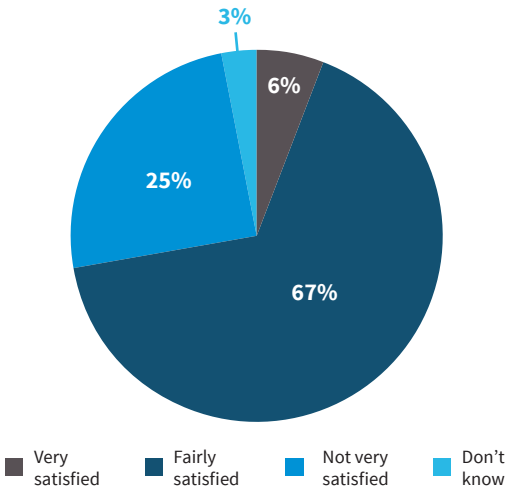
The main reasons that residents are not very satisfied with **urban roads** in Wairoa are:

- Potholes/rough/bumpy/corrugations
- Poor condition/need maintenance/upgrading

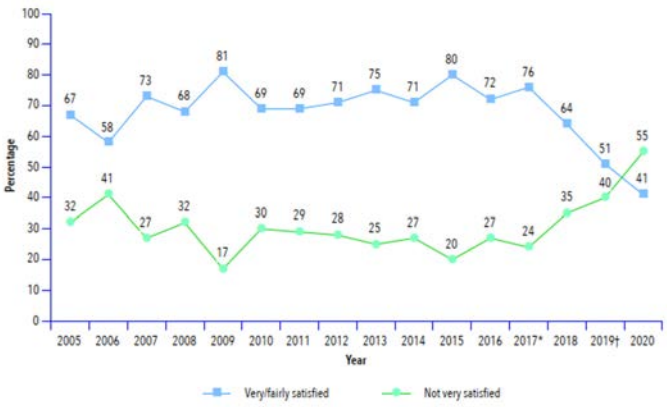
Rural Roads



Urban Roads

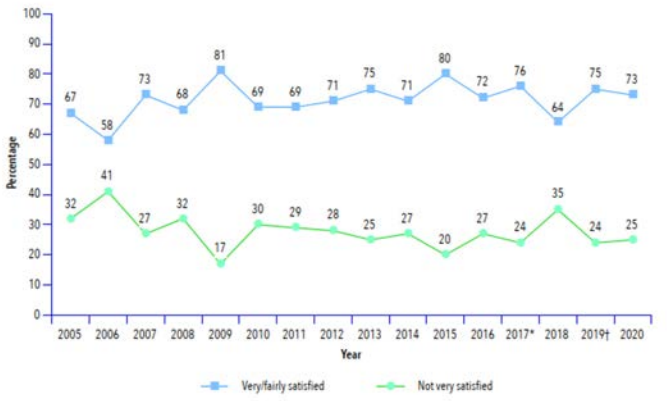


Standard of maintenance of rural roads



* prior to 2006, State Highways 2 and 38 were not specifically excluded. Readings prior to 2017 refer to roads in general
† 2017-2018 readings refer to standard of maintenance of roads in the District

Standard of maintenance of urban roads in the District

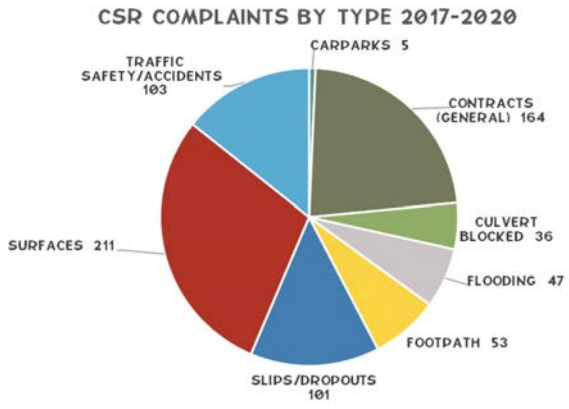


* prior to 2006, State Highways 2 and 38 were not specifically excluded. Readings prior to 2017 refer to roads in general
† 2017-2018 readings refer to standard of maintenance of roads in the District

Emphasis on improved communication with complainants, specific treatment of difficult, high cost unsealed road sections and better focussed utilisation of budgets, are areas where Council believes significant improvements can be achieved. Increased attention to quality workmanship beyond the initially completed work is also an area for increased focus by Council staff.

These results give Council some direction for prioritisation and targeted activities in the endeavour to improve public satisfaction and deliver an acceptable level of service.

CSR complaints related to land transport have been reviewed for the last three years, and the number of complaints by type are shown below. 720 complaints have been received in the last three years.



STAKEHOLDER ENGAGEMENT & FEEDBACK

Various engagement with stakeholders throughout the community identified the following significant land transport-related issues:

- Improvement pavement maintenance/management of inclines where vehicles get stuck.
- Safety improvements to narrow roads with poor visibility where a significant change in road use occurs i.e harvesting of forestry or a new quarry establishing.
- Perceived inefficiencies in contractor's operations in relation to timeliness of cleaning up flood damage.
- Access for HCVs post an event – especially during peak farming activities i.e. fertilizer, stock to market, shearing)
- Dust affecting safe visibility on unsealed roads and associated health and safety impacts to adjacent residential homes.

These findings are generally consistent with the results from CSRs and the Comminutrak surveys and provide Council direction for prioritisation and targeted activities in the endeavour to improve public satisfaction and deliver an acceptable level of service.

4.3 CURRENT LEVELS OF SERVICE

Levels of Service statements describe how Council intends to deliver the Transportation activity to the customer. These are then linked to specific performance measures with targets enabling annual reporting to demonstrate achievement or otherwise. **Our current Levels of Service have been developed to fulfil our Community Outcomes as outlined in our Infrastructure Strategy 2021 – 2051.**

The measures by which we assess performance against these Levels of Service are based on:

- Department of Internal Affairs mandatory performance measures (highlighted in light blue)
- ONRC Customer Levels of Service and associated performance measures (highlighted in orange)
- Other performance measures to show how our transport service contributes to community outcomes (white)

Performance measures are monitored and reported on annually. Those measures reported on through the Long Term and Annual Planning process are marked with an (*).
Where possible target levels are set for each performance measure. This is often a comparative analysis against a Peer Group of other local authorities. Any non-achievement of these targets, while not favourable, gives Council the ability to focus on specific issues for resourcing improvements where necessary.

National Transport Outcome	Wairoa Community Outcome	Customer Outcomes	Customer Levels of Service	
Healthy & Safe People Protecting people from transport related injuries and harmful pollution, and making active travel and attractive option	Safe, supported and well-led community	Safety	The land transport network is designed and maintained to be safe	
Inclusive Access Enabling all people to participate in society through access to social and economic opportunities	Strong and prosperous economy	Reliability / Quality	Road users will experience a fair ride quality on a well-maintained and managed sealed road network asset	

	Asset	Performance Measure (*Reported on in LTP)	Target
	Network	**ONRC Safety CO1**: Number of Deaths & Serious Injuries (DSI's) on the network	Less than or equal to Wairoa District Council peer group
	Network	**ONRC Safety CO2**: Collective Risk (DSI rate per kilometre)	Less than or equal to Wairoa District Council peer group
	Network	**ONRC Safety CO3**: Personal risk (DSI rate per kilometre)	Less than or equal to Wairoa District Council peer group
	Network	***DIA mandatory measure, Road Safety**: The change from the previous financial year in the number of fatalities and serious injury crashes on the local road network, expressed as a number	Change is less than or equal to 0
	Unsealed roads	Percentage of roads, by ONRC class, meeting width expectations	Increasing trend on previous year
	Signs	Percentage of signs complying with agreed standards	Increasing trend on previous year
	Sealed Roads	***ONRC Amenity TO1**: Average Roughness – sealed roads which meet smooth road standards for 'fair' ride quality	Average NAASRA of sealed road network < 110
	Sealed Roads	**DIA mandatory measure, Condition of sealed road network**: The average quality of ride on a sealed local road network, measured by Smooth Travel Exposure.	≥ 90% of sealed network smoother than specified threshold
	Footpaths	***DIA mandatory measure, Condition of footpaths**: The percentage of footpaths in average condition or better (measured against WDC condition standards)	≥ 95%
	Sealed Roads	**ONRC Amenity CO2**: Peak Roughness - 85th & 95th percentile	Less than or equal to Wairoa District Council peer group
	All Roads	*Road users (% survey respondents) that consider the land transport service to be "fairly good, very good or better"	≥ 75%

National Transport Outcome	Wairoa Community Outcome	Customer Outcomes	Customer Levels of Service	
Economic Prosperity Supporting economic activity via local, regional & international connections, with efficient movement of people and products	Strong and prosperous economy	Availability / Accessibility	The land transport network is managed in a manner that assists the economic development of the district	
		Financial sustainability	Road assets are managed prudently to ensure long term financial sustainability for current and future generations	
Resilience & Security Minimizing and managing the risks from natural and human made hazards, anticipating and adapting to emerging threats and recovering from disruptive events	Safe, supported and well-led community	Resilience	Council quickly restores access on key routes after natural event	
Environmental Sustainability Transitioning to net zero carbon emissions and maintaining or improving biodiversity, water quality and air quality	Protected and health environment	Environmental sustainability	Effects on the natural environment are minimised	

	Asset	Performance Measure (*Reported on in LTP)	Target
	Network	**ONRC Accessibility CO1**: Percentage of network unavailable to Class 1, % of network unavailable to 50 Max	Decreasing trend on previous year
	Bridges	*Number of Bridges not meeting HCV Class 1 requirements	Decreasing trend on previous year
	Sealed Roads	***DIA mandatory measure, Condition of sealed road network**: The percentage of the sealed local road network that is resurfaced annually (by area).	As programmed
	Network	***DIA mandatory measure, Response to service requests**: Percentage of customer service requests responded to within 5 days	≥ 90%
	Sealed roads	**ONRC Cost Efficiency 1**: Pavement Rehabilitation Cost ($)	Less than or equal to Wairoa District Council peer group
	Sealed roads	**ONRC Cost Efficiency 2**: Chipseal resurfacing cost ($)	Less than or equal to Wairoa District Council peer group
	Sealed roads	**ONRC Cost Efficiency 2**: Chipseal resurfacing Average Life achieved	Greater than or equal to Wairoa District Council peer group
	Sealed roads	**ONRC Cost Efficiency 3**: Asphalt resurfacing cost ($)	Less than or equal to Wairoa District Council peer group
	Sealed roads	**ONRC Cost Efficiency 3**: Asphalt resurfacing Average life achieved	Greater than or equal to Wairoa District Council peer group
	Unsealed roads	**ONRC Cost Efficiency 4**: Unsealed Metalling Cost ($)	Less than or equal to Wairoa District Council peer group
	Network	**ONRC Resilience CO1**: No. of journeys impacted by unplanned events	Decreasing trend on previous year
	Network	**ONRC Resilience CO2**: No. of instances where road access is lost	Decreasing trend on previous year
	Unsealed roads	CSR complaints related to dust	Decreasing trend on previous year
		Percentage of programmed dust reduction initiatives completed annually	As programmed

5.1 MANDATORY MEASURES

DIA Mandatory Measures are reported on through the Long Term Plan and Annual Reports. Performance against these and other key Council measures against target for the last three years is detailed below. The highlighted red, yellow and green cells indicate where Council has performed worse or better than target.

Red = worse, **yellow** = on/close to target, **green** = better.

Customer Outcomes	Customer Levels of Service	Asset	Performance Measure (*Reported on in LTP)	Target	2017/18 Actual	2018/19 Actual	2019/20 Actual
Safety	The land transport network is designed and maintained to be safe	Network	***DIA mandatory measure, Road Safety**: The change from the previous financial year in the number of fatalities and serious injury crashes on the local road network, expressed as a number	Change is less than or equal to 0	-6	0	-7
Reliability / Quality	Road users will experience a fair ride quality on a well-maintained and managed sealed road network asset	Sealed Roads	*Average Roughness – sealed roads which meet smooth road standards for 'fair' ride quality	Average NAASRA of sealed road network < 110	95	88	94
		Footpaths	***DIA mandatory measure, Condition of footpaths**: The percentage of footpaths in average condition or better (measured against Wairoa District Council condition standards)	≥ 95%	Not measured	Not measured	93%
		All Roads	*Road users (% survey respondents) that consider the land transport service to be "fairly good, very good or better" – Urban roads	≥ 75%	64%	75%	74%
			Rural roads	≥ 75%	64%	56%	43%
Availability / Accessibility	The land transport network is managed in a manner that assists the economic development of the district	Bridges	*Number of Bridges not meeting HCV Class 1 requirements	Decreasing trend on previous year	11	6	6
Financial sustainability	Road assets are managed prudently to ensure long term financial sustainability for current and future generations	Sealed Roads	***DIA mandatory measure, Condition of sealed road network**: The percentage of the sealed local road network that is resurfaced annually (by area).	As programmed – 7.5% per year	3%	0%	8%
		Network	***DIA mandatory measure, Response to service requests**: Percentage of customer service requests responded to within 5 days	≥ 90%	79%	Not measured	93%

5.2 ONRC CUSTOMER LEVELS OF SERVICE

ONRC Customer Levels of Service (CLoS) and performance measures are reported on through the Road Efficiency Group's (REG's) Performance Measures Reporting Tool (PMRT). Reporting is completed both individually for each Road Controlling Authority (RCA) and on a comparison basis against a Peer Group of other similar RCAs.

On the next page is a summary of the ONRC CLoS, associated performance measures and outcomes for Wairoa compared to our Peer Group. The following should be noted:

- The highlighted red, yellow and green cells indicate where Council is worse or better compared to the peer group. **Red** = worse, **yellow** = average, **green** = better.
- Where no data has been collected for a particular performance measure, this is indicated as Not Yet Assessed.
- Where there is no peer group comparison reporting available from the PMRT this is represented with N/A (Not Applicable).

ONRC Performance Measures			Council Current (19/20)			
			Urban			
Type	No.	Name	PC	SC	Ac	LV
Safety	SCO1	No. of Deaths & Serious Injuries (DSI's)	1	2	0	0
	SCO2	Collective Risk (DSI rate per kilometre)	0.074	0.042	0.009	0.006
	SCO3	Personal risk (DSI rate per kilometre)	18	15	8	21
	STO4	Loss of Control on wet road DSI's	0	1	0	0
	STO5	Loss of driver control at night DSI's	0	1	0	0
	STO6	Intersection DSI's	0	2	0	0
	STO9	Vulnerable user DSI's	0	2	0	0
Amenity	AMCO1	Smooth Travel Exposure (STE)	82.5	89.6	92.8	94.2
	AMCO2	Peak Roughness - 85th %ile	136.2	135.0	133.0	141.0
	AMCO2	Peak Roughness - 95th %ile	157.8	163.5	157.0	170.4
	AMTO1	The median Roughness of your Roads	103	100	90	99
	AMTO1	The Average Roughness of your roads	108	103	95	107
Accessibility	ACCO1	% of network not available to Class 1 HCV	N/A	N/A	N/A	N/A
	ACCO1	% of network not available to 50MAX vehicles	N/A	N/A	N/A	N/A
Cost Efficiency	CE2	Chipseal resurfacing cost (cost per lane km $)	N/A	N/A	N/A	N/A
	CE2	Chipseal resurfacing Average Life achieved	13.7	16.1	18.3	17.0
	CE3	Asphalt resurfacing cost (cost per lane km $)	N/A	N/A	N/A	N/A
	CE3	Asphalt resurfacing Average life achieved	N/A	N/A	N/A	N/A

Improvement Item - Data collection plan to be established for reporting against new level of service performance measures, where data is not currently being collected. Ensuring DIA & ONRC measures are collected and reported and road closure information are key items.

Performance & Comparison with Peer Group									Comments/Level of Service Gaps
	Rural				Combined				
	PC	SC	Ac	LV	PC	SC	Ac	LV	
	0	2	1	0	1	4	1	0	Using 18/19 data. No peer group comparison
	0.011	0.010	0.003	0.001	0.016	0.015	0.004	0.001	Using 18/19 data
	14	15	14	7	15	15	12	9	Using 18/19 data
	0	1	0	0	0	2	0	0	Using 17/18 data. 18/19 data may not yet be completed in CAS
	2	1	0	0	2	2	0	0	
	0	0	0	0	0	2	0	0	
	0	0	1	0	0	2	1	0	Using 18/19 data
	94.5	95.1	93.5	87.2	90.2	92.7	93.0	91.1	Lower than peer group on higher classification roads and all rural roads.
	109.0	119.0	126.0	143.0	143.0	122.0	128	142.0	Higher than peer group on higher classifications
	133.6	140.0	157.0	175.0	159.6	144.0	157.0	175.0	
	78	86	89	101	83	88	90	101	Higher than peer group for all classifications, but particularly PC & SC
	82	89	94	107	86	92	94	107	
	N/A	N/A	N/A	N/A	0.0	0.0	0.0	1.0	No peer group comparison
	N/A	N/A	N/A	N/A	21.4	18.0	0.5	0.0	
	20,150	20,150	20,150	N/A	20,150	20,150	20,150	N/A	
	13.8	12.3	18.3	16.7	13.8	12.6	18.3	16.8	Achieving longer chip seal lives than peer group
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No Asphalt resurfacing completed
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

5.3 CONTRIBUTION TO TRANSPORT OUTCOMES

A review of performance against the Transport Outcomes is included below. ONRC performance against the peer group has been detailed above. However, in terms of performance trends key performance measure outcomes are included below.

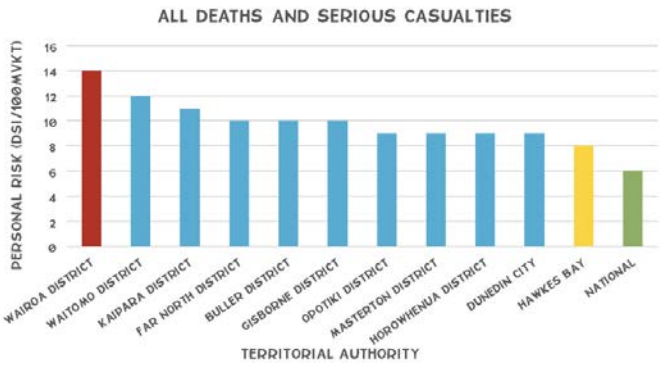
5.3.1 HEALTHY AND SAFE PEOPLE

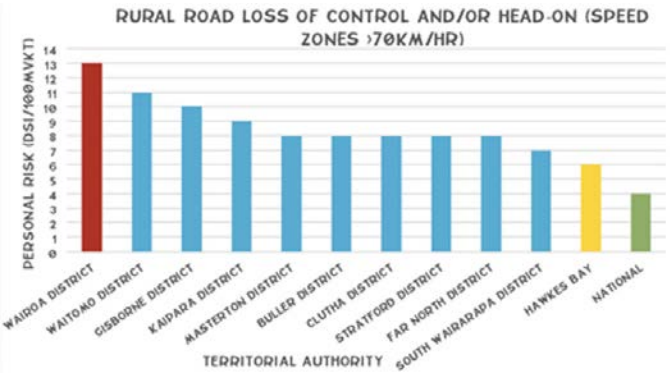
Protecting people from transport-related injuries and harmful pollution and making active travel an attractive option.

Investment Objective	Key Measure	Outcome	Comments/Level of Service Gaps
Roads that support safer travel	Personal Risk (DSI/100MVKT)	Wairoa has highest Personal Risk in New Zealand	Rural road loss of control and/or head on crashes are worst. Lack of signage on curves and narrow roads likely contributors. Speed is also a contributor, likely due to poor speed environment definition.

Over the last three years safety trends have worsened in the Wairoa District. Arataki's Regional Summary for Hawke's Bay identified the relatively poor safety record for the region. In particular, **"In 2019, Wairoa District had New Zealand's highest levels of personal risk (measured as DSI/100MVKT) with particular issues around impairment and speeding"**.

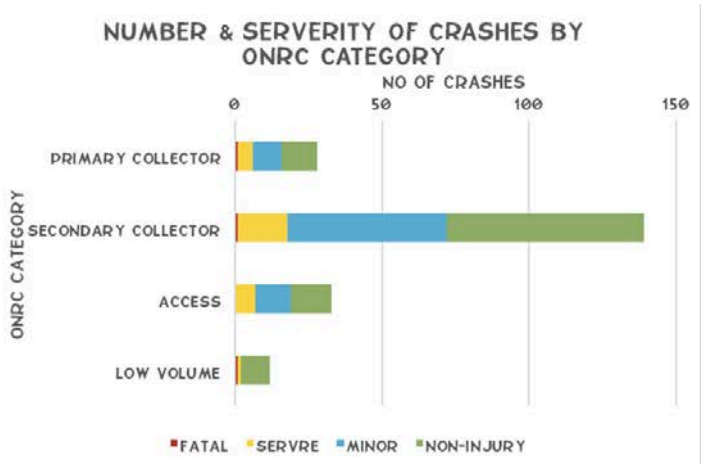
The Waka Kotahi Communities at Risk Register 2019 also highlights personal risk to road users. Of particular concern for our road network, is that Wairoa has the highest personal risk ranking in the 'Rural road loss of control and/or head on' and 'Speed' crash categories.

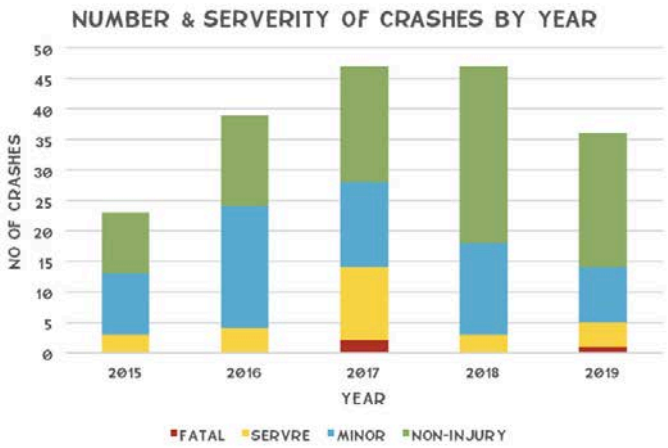


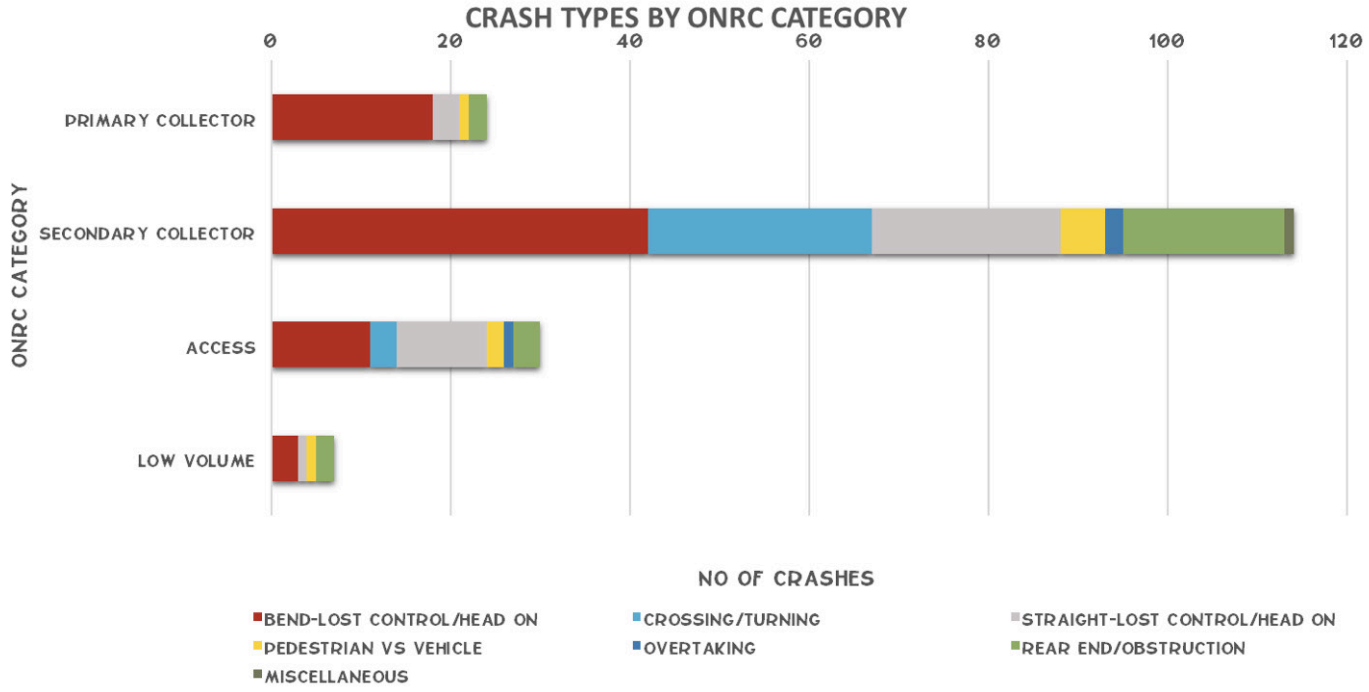


A summary of Wairoa's safety performance against key performance measures for safety and our ONRC peer group is included below.

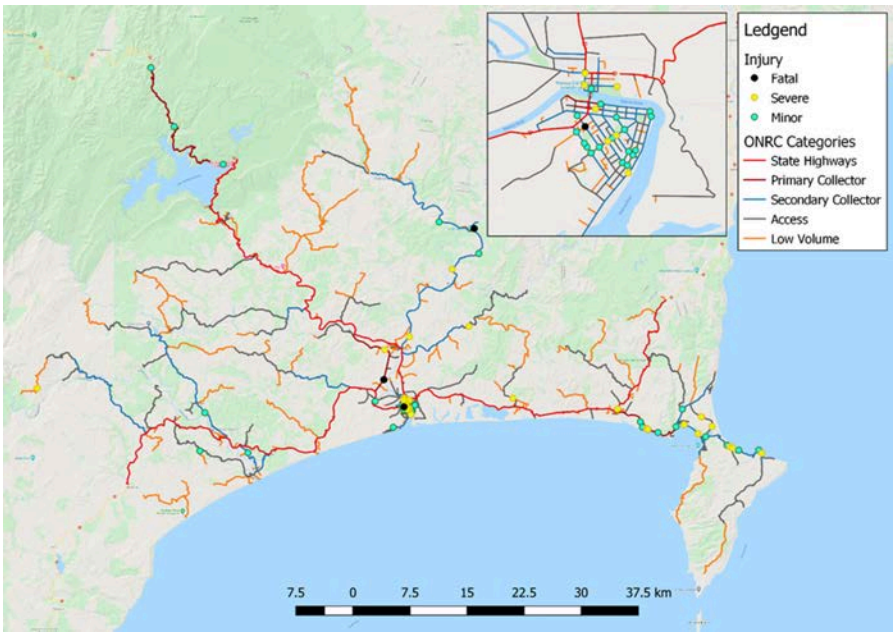
Over the last five years (2014 – 2019), 65% of crashes occur on Secondary Collector roads, and 42% of crashes occur on a bend resulting in loss of control or a head on crash.



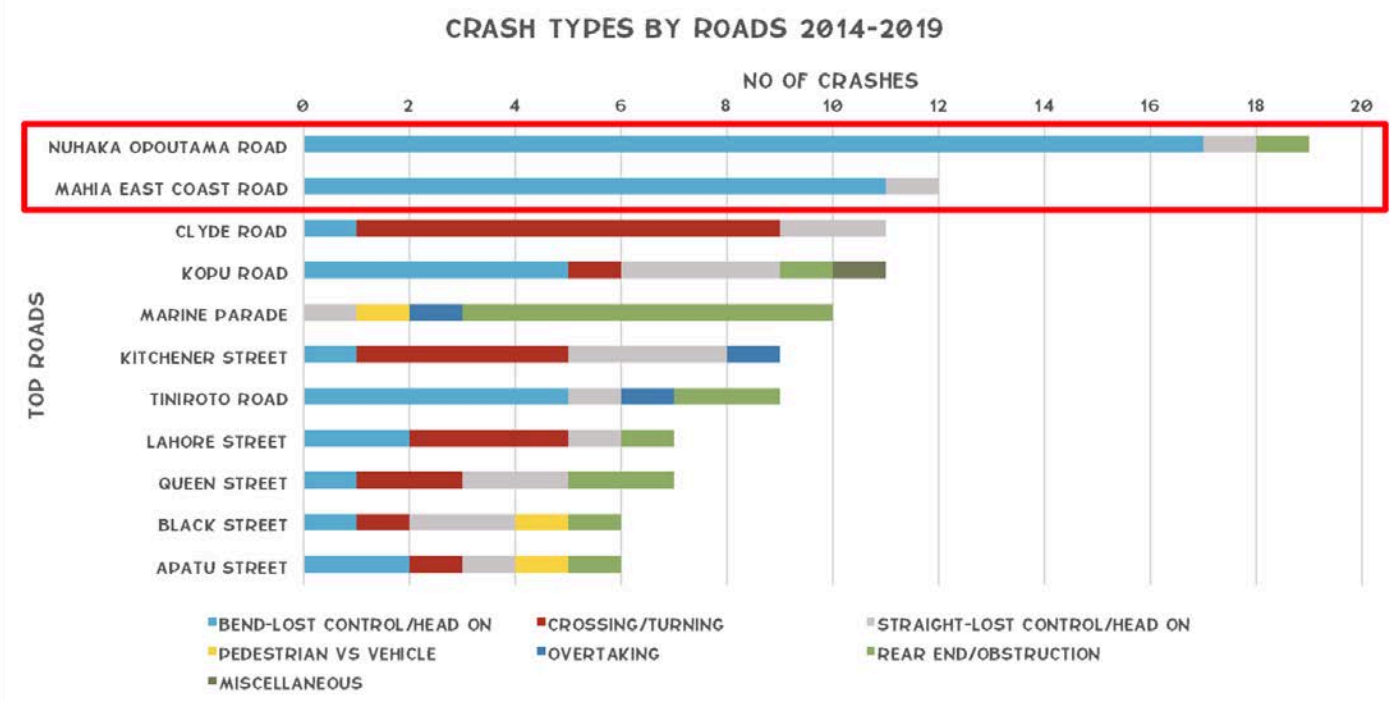




The location of all injury crashes for the last five years is shown on the map below.



Specific roads with a significant number of crashes include Nūhaka-Ōpoutama Road, Māhia East Coast Road, Kopu Road, Tiniroto Road and various urban streets in Wairoa. Crash types for these roads are shown below.



Improvement Item - Include crash reporting of non-reported accidents (i.e. crashes not attended by police) as a requirement for maintenance contractors so areas of the network that have safety deficiencies can be better identified.

5.3.2 ECONOMIC PROSPERITY

Encouraging economic activity via local, regional, and international connections, with efficient movements of people and products.

Investment Objective	Key Measure	Outcome	Comments/Level of Service Gaps
Improve access to productive land	Spatial coverage – freight capacity Percentage completion of the strategic High Productivity Motor Vehicle (HPMV) freight network	14 bridges failed the 50MAX bridge capacity screening. Based on condition, recent assessments, span length, and route type this reduced **5 bridges in total that will not be able to carry the new VDAM loadings**.	Key routes are not open for HPMV access. Bridge restriction posting required. State Highway 2 from Napier to Gisborne now fully open to HPMV vehicles. So increased pressure for Council to open key local road routes.

5.3.3 RESILIENCE AND SECURITY

Minimising and managing the risks from natural and human-made hazards, anticipating and adapting to emerging threats, and recovering effectively from disruptive events.

Investment Objective	Key Measure	Outcome	Comments/Level of Service Gaps
Improve resilience to climate change impacts	Availability of a viable alternative to high-risk and high-impact route	Two storm events in 2017 and 2018 resulted in 85 new dropouts on the network. Total estimated repair cost of $15.1M. **49% of dropouts on roads with no alternative route available**.	11 out of 13 rural communities do not have easy access to health care services. Only services are in Wairoa & Māhia. 9 out of 13 rural communities do not have easy access to groceries & supplies.

Investment Objective	Key Measure	Outcome	Comments/Level of Service Gaps
			Seven Marae within the District have only single road access. Currently limited / inconsistent data is collected regarding road closures. So it is uncertain how many road users were impacted by these events.

5.3.4 ENVIRONMENTAL SUSTAINABILITY

Transitioning to net zero carbon emissions, and maintaining or improving biodiversity, water quality, and air quality.

Investment Objective	Key Measure	Outcome	Comments/Level of Service Gaps
Roads that support safer travel	Ambient air quality – PM10	Dust affects safe visibility and impacts on health of adjacent residential households. Air quality (PM10) not measured by Council, however a dust register is maintained prioritising sites based on proximity, exposure, AADT and other factors.	Gap in understanding – need to better understand impact of the transport system on air quality. 19 dust complaints in last 3 years

5.3.5 INCLUSIVE ACCESS

Enabling all people to participate in society through access to social and economic opportunities, such as work, education, and healthcare.

Investment Objective	Key Measure	Outcome	Comments/Level of Service Gaps
Affordable level of service	Smooth Travel Exposure (STE)	This has been monitored over the last 10 years. The graph below shows that STE has remained relatively static over the last 10 years with slight improvement in recent years, in both urban and rural areas.	However, Wairoa's STE still remains lower than peer group on higher classification roads and all rural roads.
	Customer Feedback	Latest Communitrak survey (2020) shows that 55% of respondents are not very satisfied with the standard of maintenance of rural roads	No. of CSR complaints last 3 years by Type: Carparks – 5 Contracts (General) – 164 Culvert Blocked – 36 Flooding – 47 Footpath – 53 Slips/Dropouts – 101 Surfaces – 211 Traffic Safety/Accidents – 103 Gap in knowledge, need to understand why community are not satisfied and discuss level of service vs cost of service.
	Network condition - footpaths	93% of footpaths are in average or better condition (2019).	Council target is 95%, increased footpath maintenance and renewals required to meet target

5.4 MAINTENANCE, OPERATIONS & RENEWALS EXPENDITURE

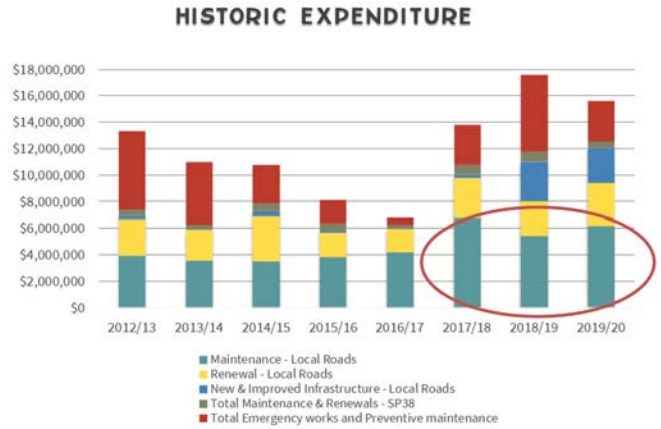
Forward work programmes and budgets for road operations, maintenance and renewals have been derived from:

- Network inventory and condition information
- A regular field inspection programme
- A robust treatment selection process, and
- Funding affordability considerations.

Overall expenditure over the last three years has significantly increased from the previous five-year period.

One of the contributions to this increase is increased maintenance costs. In 2018, we went through a thorough and robust procurement round to establish new road maintenance contracts. However, there was limited competition from the local and regional market. This has led to increased costs for core operations and maintenance activities, as shown in the graph below.

A further significant portion of the historic expenditure has been for emergency works. This shows the vulnerability of the network to unplanned events and resulting investment impacts. The increase in 'New and Improved Infrastructure' over the last two years has been primarily for bridge strengthening and capacity improvement works, to allow better access for Heavy Vehicles. It has also been previously noted that the higher maintenance and renewals costs from 2017/18 onwards reflect under spending compared to budget in the preceding few years.



In terms of maintenance costs compared to the peer group, the overall network cost (excluding emergency works) is higher than the majority of the peer group average, but below the Hawke's Bay and National average costs. Portions of the network have significant heavy vehicles due to forestry traffic that may also be contributing to higher maintenance costs.

In terms of expenditure on pavements, which are the highest value asset group within the transportation activity, Council spent:

- **More** than the peer group average for pavement **maintenance**, both sealed and unsealed pavement
- **Less** than the peer group average for pavement **renewals**, both sealed rehabilitation and unsealed road metalling. Spending on sealed road surfacing has been slightly higher than the peer group average.

The ratio of planned work (renewals) to reactive work (maintenance) across all asset groups for the 2015-2020 period is 32% renewals spend to 68% maintenance spend.

This comparison indicates that Council have had a **more reactive maintenance approach**, and are using reactive pavement maintenance and re-surfacing to maintain the integrity of the pavement. For low trafficked pavements this is often appropriate, however with increased HCV loading predicted in future, a more balanced approach to pavement lifecycle planning will be required in future.

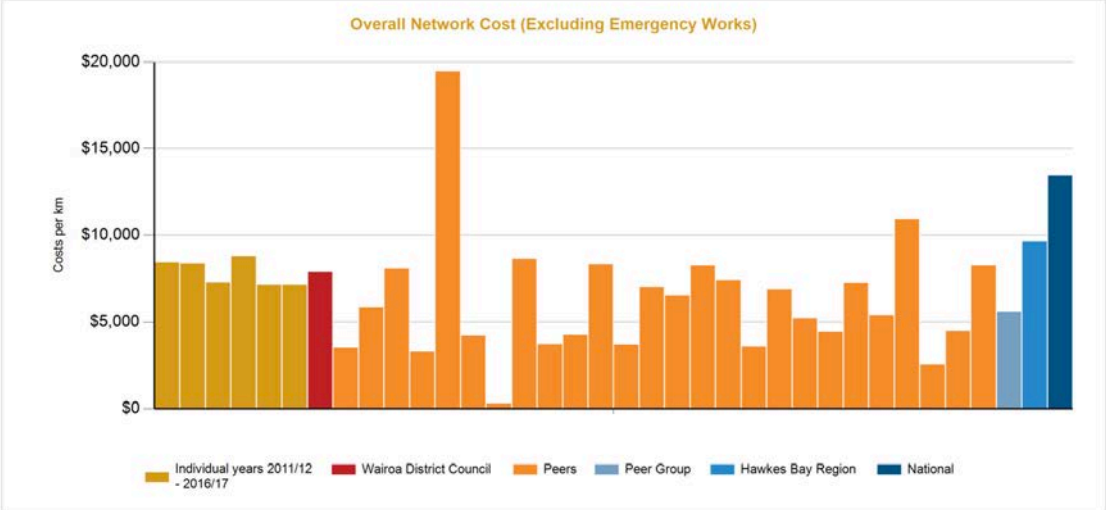


Figure 12: Overall network cost (excluding emergency works) per kilometre - Sourced from NZ Transport Agency TIO Work Category funding reports

5.5 DATA QUALITY

Council uses RAMM as its asset register for the recording and storage of its roading asset data. RAMM is continually updated as the inventory items change on the physical asset. This process is managed in-house, and also through a professional services contract where information is received from Council and updated in RAMM. RAMM also contains condition information for those assets that have been condition rated.

5.5.1 VALUATION REPORT

Details from the 2020 Valuation Report are included in the Detailed Business Case. Overall the confidence ratings are assigned to the source data and unit cost rates and to other items as appropriate. **Data from the RAMM database was generally considered to have a confidence rating of B, Reliable.**

This means that data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example some data is old. The dataset is complete and estimated to be accurate to ± 10%.

5.5.2 REG ONRC DATA QUALITY REPORT FOR 2018/19

The REG have produced Data Quality Reports for all RCAs for the 2018/19 year. This report outlines the quality of RAMM data used by the ONRC PMRT. It details the quality of network data based on a framework of 27 indicators and 33 data quality metrics. These metrics help to review data for completeness, accuracy and timeliness. The outcomes of this report for Council data shows:

Data Type	Accurate	Complete	Timeliness	Comments/Action
Carriageway			N/A	Data meets the expected standard and is generally better than most other RCAs
Treatment length				Minor issues identified for further review
Surfacing data			N/A	Minor issues with Work Origin recording to be resolved
Maintenance activity			N/A	No action required
Roughness			N/A	No action required
Traffic count	N/A			Improvements to targeting of the traffic count programme is required
Traffic estimates				Traffic estimates had not been updated since 2014, but have recently been reviewed (after publishing of this report). More regular updates will be undertaken, improvements to traffic count programme will result in more robust estimates.
Safety – Crash Data		N/A		Minor improvements required.

5.5.3 CONDITION DATA

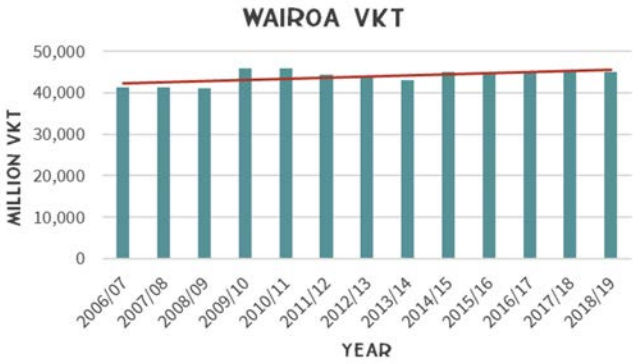
Condition data across the asset groups varies. A summary of the overall accuracy of condition data for each asset group is included below.

Data Type	Accurate	Complete	Timeliness	Comments/Action
Road pavements				Roughness completed annually. Visual condition rating survey completed every three years (last completed September 2020).
Bridges				Limited condition data held. Improvement item to continue implementing Bridge Inspection Policy to collect condition data.
Other Structures				Limited condition data held. Improvement item to collect condition data.
Drainage				Visual condition rating survey (last completed June 2017). Culvert condition data is older and less complete. Based on maintenance contractor also records inspection data.
Traffic Services				Condition data predominantly based on age. RAMM records updated to reflect maintenance updates required due to poor condition.
Street Lighting				Condition data predominantly based on age. RAMM records updated to reflect maintenance updates required due to poor condition.
Footpaths & Cycleways				Footpath condition database covers prioritized renewals.
Carparks				Limited condition data held.

Improvement items related to the condition data are included in the Detailed Business Case.

6.1 TRAVEL DEMAND

Travel demand can be measured using Vehicle Kilometres Travelled (VKT), which takes into account both traffic volumes and the length of the network. Travel demand has remained relatively static for Wairoa over the last 5 years as shown in the graph below.



As the length of the road network for Wairoa has not changed significantly, any changes are due to traffic changes. As the length of the network will not change significantly in future, the key aspect of determining travel demand will be our ability to accurately predict changes in the numbers of vehicles using our roads. The sections below outline significant influences on future traffic volumes.

6.2 POPULATION CHANGE

Statistics NZ population projections for the district show that our population is expected to decline over the next 30 years (to 6,310 in 2043)[1]. However, Economic Solutions Ltd Report[2] outlines more optimistic projection scenarios to reflect Wairoa District Council's commitment to significantly lifting the demographic and economic performance of the district and the considerable economic development opportunities that now present themselves in the area. **These revised projections show no decline in population growth through to 2043.**

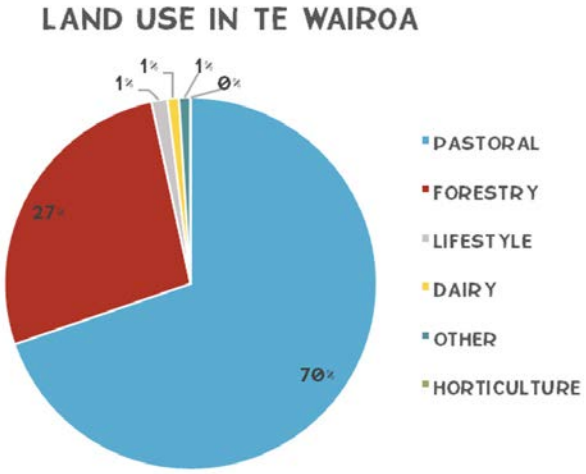
While the overall population in the district may not be growing, the level of service required of the land transport network is unlikely to reduce. It is not so much an overall change in population that will signal a shift in demand, rather the location within the district where the population is centred may contribute to changing level of service requirements at a local level. The key example is Māhia Peninsula where tourism and development pressures are signalling the need for increased levels of service to meet the demands of increased traffic.

An assessment of the change in demographics of the population will also need consideration. **Statistics suggest that by 2031, 1 in 4 Wairoa residents will be over the age of 65.** As the workforce declines and people move to retirement incomes, the ability to fund cost increases can reduce.

6.3 LAND USE CHANGES

For Wairoa, changing land use and the maturation of forests have a far greater effect on which areas of the land transport network receive increasing or decreasing use, than population changes.

The total land area within the Wairoa District is approximately 411,900 hectares. Of this, 282,650 hectares is classed as rateable land for economic use. The category groups of rateable land within the Council rating database and their associated land area are shown below.



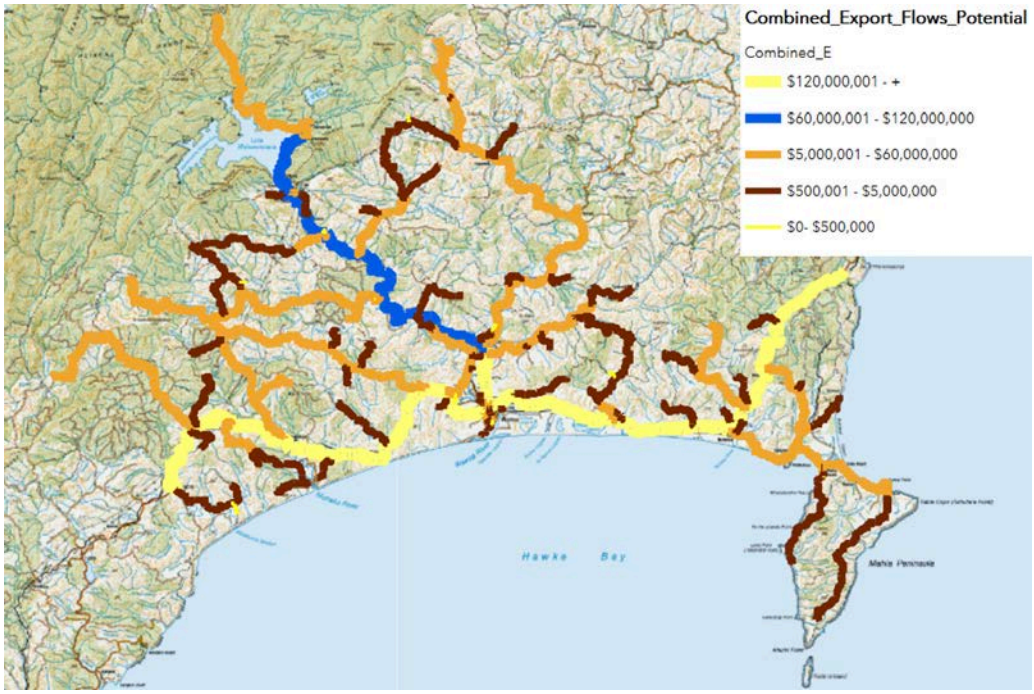
Improvement Item - Complete review of Wairoa land use and through stakeholder consultation establish any key changes to land use that may impact on future demand.

6.3.1 ECONOMIC GROWTH

ECONOMIC NETWORK PLAN (ENP)

Council has developed an Economic Network Plan (ENP) GIS map to collate information on export flow potential and identify key routes that contribute to the region's economy. This includes tourism, forestry, dairy, and pastoral economic drivers. On the next page is an output showing key routes with various potential export flows.

[1] *Subnational population projections, by age and sex, 2013(base)-2043 update*
[2] *Economic Solutions Ltd (4 December 2017), Wairoa District Council - Long Term District Planning - Demographic and Economic Growth Directions 2018-2048*



Significant Council roads that have potential export of $5-60M include:

Road	ONRC	Key Export
Awamate Road	Primary Collector	Forestry, Tourism, Dairy, Pastoral
Nūhaka-Ōpoutama Road	Primary Collector	Tourism, Pastoral, Forestry, Dairy
Cricklewood Road	Secondary Collector / Access	Forestry, Pastoral
Mangapoike Road	Secondary Collector / Access	Forestry, Pastoral
Putere Road	Secondary Collector / Access	Forestry, Pastoral
Ruakituri Road	Secondary Collector	Forestry, Pastoral
Ruapapa Road	Secondary Collector / Access	Forestry, Pastoral
Tiniroto Road	Secondary Collector	Forestry, Pastoral
Willowflat Road	Secondary Collector / Access	Forestry, Pastoral
Mangaone Road	Access / Low Volume	Forestry, Pastoral
Tunanui Road	Access	Forestry, Pastoral

FORESTRY

Wood Availability Forecasts have been produced on behalf of the Ministry for Primary Industries (MPI), covering the period from 2014 to 2050[3]. These forecasts are intended as a planning tool for the forest industry, councils, and infrastructure and service providers.

Wood availability from the Hawke's Bay wood supply region's planted forest resource is expected to increase in the near future. Between 2014 and 2018, moderate volume increases are possible and thereafter sustained radiata pine annual harvests of around 3.1 million m3 are can be achieved.

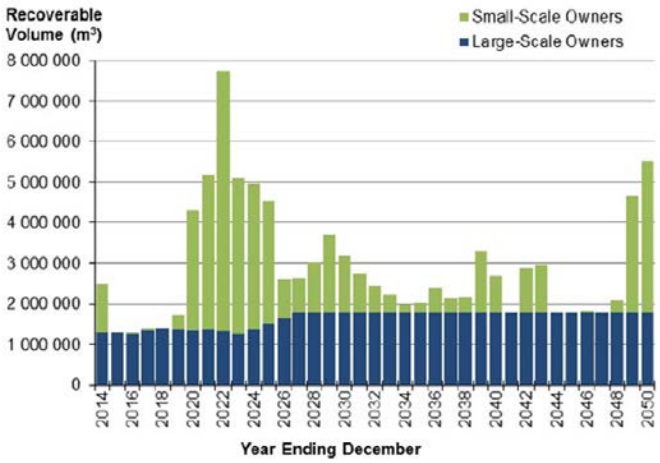
A significant portion of the potential increase in wood availability from 2015 onwards will come from the region's small-scale forest owners who established forests during the 1990s. Market conditions and logistical constraints will determine the actual rate of harvest increase, and to what level is reached.

The worst-case scenario including wood availability from all owners in Hawke's Bay is presented in Figure 4-7 (below). The fluctuation in the total annual forecast volumes reflects the variation in the areas in each age-class of the small-scale owners' estate, and the assumption that this estate is harvested at age 28.

The large increase in harvest volume after 2019 reflects the maturing of the small-scale owners' estate. For example, the increase in 2020 is a consequence of the 4,254 ha planted by small-scale owners in 1992 being harvested at age 28 years.

Fluctuations in harvest volumes of the magnitude shown in Figure 4-7 would be impractical due to operational constraints (for example: availability of harvest machinery, harvesting crews and transport operators) and market absorption constraints (for example: limited domestic wood processing capacity, levels of export demand).

Figure 4-7: Hawke's Bay Radiata Pine Availability under Scenario 1 – All Owners

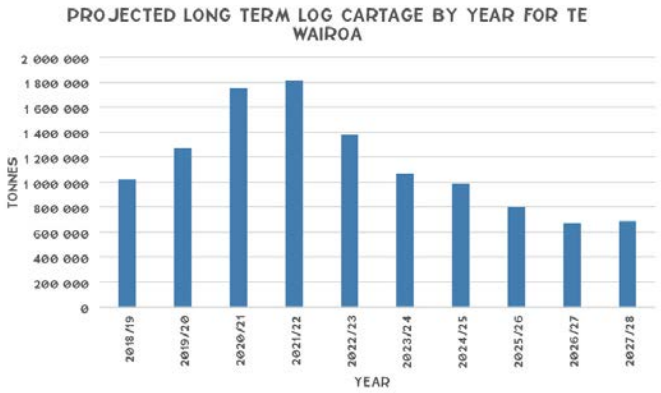


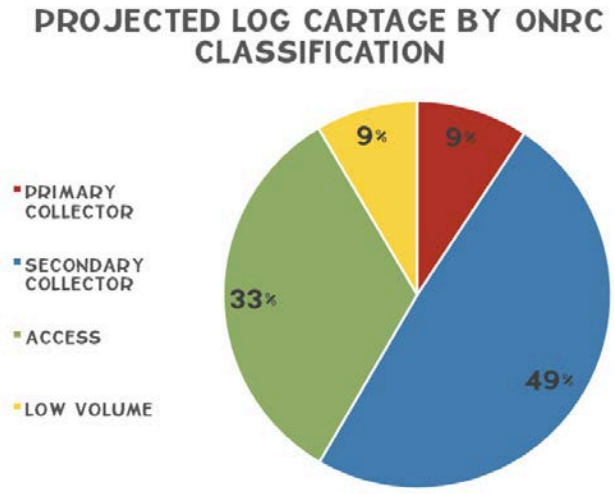
Forestry companies with forestry blocks in Wairoa have been consulted and log cartage volumes have been collated to provide a 10 year forecast of logging tonnages. This will increase demand on some roads significantly from their current heavy vehicle movements.

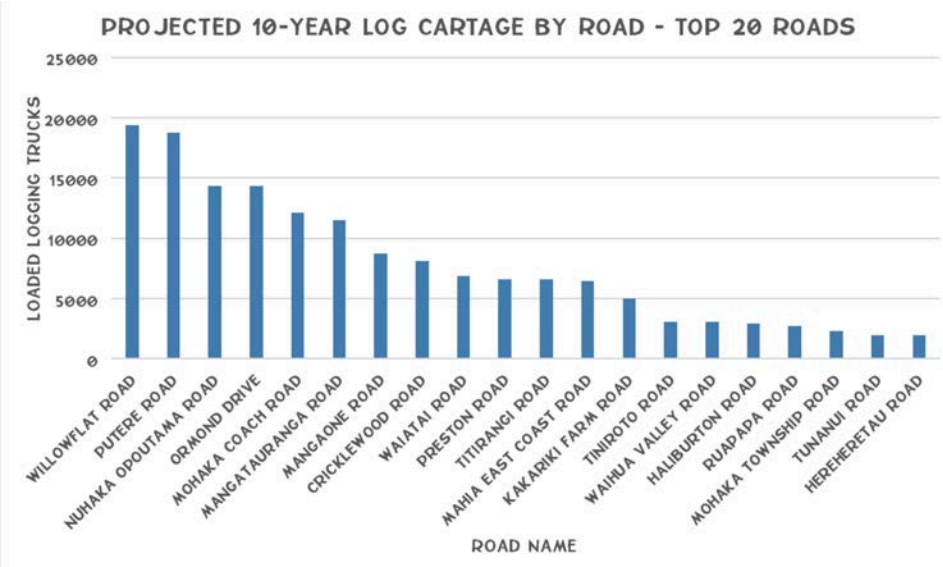
[3]*Ministry for Primary Industries (May 2015). Wood Availability Forecasts – Hawke's Bay 2014, Prepared for the Ministry for Primary Industries by Indufor Asia Pacific Limited.*

58% of the tonnage will be transported on Secondary Collector roads.

Council have found the data provided by forestry companies has limited accuracy and ongoing discussions must be held regarding harvest in the immediate future. At a high level this data provides good insight into future harvest at a network level however.







ROCKET LAB

Much of the rocket lab related traffic will be on State Highway, but key links on Council roads include Tiniroto Road (traffic from Gisborne region) and Nūhaka-Ōpoutama Road, Ormond Drive and Māhia East Coast Road (route to Rocket lab launch site).

TOURISM

Tourism in Wairoa is predominantly related to the National Parks in the district including Te Urewera National Park and Lake Waikaremoana, which is one of New Zealand's Great Walks. Wairoa provides the gateway to this area, though the main route to the park is predominantly State Highway. Key transport links associated with Tourism within Wairoa are shown on the map below and detailed in the table on the next page.

Road	ONRC	Tourism Link
Awamate Road	Primary Collector	Access to Lake Waikaremoana – Alternate route to SH38
SH38 / SP38	Delegated State Highway	Access to Lake Waikaremoana
Nūhaka-Ōpoutama Road	Primary Collector	Rocket Lab route
Ormond Drive	Secondary Collector	Rocket lab route, Māhia beach access
Māhanga Road	Secondary Collector	Māhia beach access
Māhia East Coast Road	Secondary Collector	Rocket Lab route
Tiniroto Road	Secondary Collector	Alternate route to SH2 to Gisborne
Tunanui Road	Access	Access to Māhia Peninsula – Alternate route to SH2 / Nūhaka-Ōpoutama Road

6.4 ENVIRONMENTAL IMPACTS

Key environmental impacts both on and from the transport network are outlined below.

Issue	Specific Level of Service Issues	Changes Required
Climate Change	The **Ministry of Environment's Coastal Hazards and Climate Change guidance** provides a minimum transitional sea level rise of 1 meter by 2120 for coastal development and asset planning. Council have coastal routes with no alternative route, or alternative routes with a significantly reduced Level of Service. 17 dropouts exist on a 6km coastal section of Māhia East Coast Road.	Coastal Hazard Assessment is required to review the areas expected to be impacted over the next 50 – 100 years. Ministry guidance suggests that in future the following approaches should be taken: • Restricting development in coastal erosion areas • Planning for managed retreat • Discouraging the construction of defences such as sea walls Further investment required in dropout repairs and protection on coastal routes to ensure route resilience
Unsealed Roads Dust	64% of the network is unsealed There are 54 sites on the Council 'Dust Sites Register' that are prioritised for treatment. Of the 54 sites, 33 sites are within 50m of the roadside, and a further 16 are within 100m. 25 sites are identified as either very exposed or exposed.	A recent Waka Kotahi Research report[4] has shown that a comparison of the PM10 concentrations monitored at the untreated and treated sites show the application of the suppressant significantly reduced the impact of dust discharged from the road. Measurements across the PM10 monitoring network show the effect of the untreated road PM10 dust plume extends further than 80m from the roadside, while the effect of the PM10 plume from the treated section of the road extends for less than 30m. The monitoring results indicate that the potential for adverse impacts on human health, due to the dust discharged from unsealed roads treated with dust suppressants, is relatively low compared with the effects of untreated road surfaces.

6.5 DEMAND MANAGEMENT

6.5.1 30 YEAR TRANSPORT DEMAND FORECAST

At this stage, a 30-year demand forecast in terms of VKT has not been developed. This is an important aspect for the management of the transport activity going forward. An accurate assessment of Wairoa's wood availability will be a significant input into this assessment.

Improvement Item - Complete review of Wairoa specific 30-year demand forecast model. Review predicted transport demand against existing transport capacity to determine when transport capacity upgrades are required.

6.5.2 HEAVY VEHICLE ACCESS

HEAVY COMMERCIAL VEHICLE (HCV) TRAFFIC COUNT TRENDS

HCV traffic count data for Wairoa's roads is proportionally high due to the rural commercial sector of our community (e.g. forestry, farming, cropping etc.) on these otherwise, low volume roads.

Improvement Item - As identified in Section 5.5 and in the Strategic Case while traffic count numbers have increased significantly over the 2018 AMP period, further refinement of the traffic count programme needs to be undertaken to better target key routes and improve trend monitoring and traffic estimating processes.

[4] *Jeff Bluett, Neil Gimson and Maria de Aguiar (2016) Impacts of exposure to dust from unsealed roads. Waka Kotahi research report 590. 104pp.*

DEVELOPMENT OF HIGH PRODUCTIVITY MOTOR VEHICLES (HPMV) ROUTES

The vehicle configuration for full HPMV (up to 62 tonnes) allows freight operators to carry increased payloads on parts of the network where bridges have been upgraded to carry heavier weights. **Wairoa currently has no approved HPMV routes.**

50MAX vehicle combinations have one more axle than conventional 44-tonne vehicles combinations, meaning the overall truck load is spread further and there is no additional wear on roads per tonne of freight. The increased payloads of 50MAX can lead to economic benefits for producers, customers and our communities. Allowing bigger trucks on our roads reduces the number of truck trips needed to move the same amount of freight.

50MAX screening of bridges has been carried out to assess any bridge capacity issues that may prohibit 50Max vehicles on Wairoa's roads. **14 bridges that failed the 50MAX screening**.

Restriction	No Structures Restricted
Posted	5
50MAX	15
HPMV	141

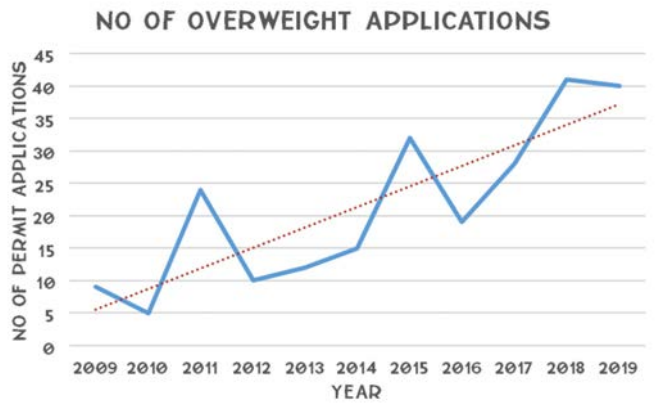
OVERWEIGHT, 50MAX AND HPMV PERMITS

The trend for overweight permit applications made for each calendar year is increasing, as shown on the graph to the right.

As Council has no approved HPMV routes, only one HPMV permit has been requested. However, anecdotal evidence suggests that transporters have been using HPMVs on some routes without a permit.

Future demand for these type of permits is unknown at this stage, but it is likely with the growing harvest volumes that forestry companies will look to maximise loading to increase productivity.

All permitting will be transferred to OPermit, Wairoa District Council are looking to move to route-based HPMV permitting in the future.



Improvement Item - Industry stakeholder consultation required to confirm likely future demand for 50Max and HPMV permits and routes.

VEHICLE DIMENSION AND MASS (VDAM) REGULATION CHANGE

On 1 February 2017, the rules governing heavy vehicle size, weight and operation limits changed. A significant change if the increase in gross mass limits for some 7 axle (45 tonnes) and 8 axle (46 tonnes) combination vehicles (from 1 December 2017 available for general access).

Using the 50MAX screening as the default position for the screening review of current bridge capacity, there are **14 bridges that failed the 50MAX screening** that could potentially be restricted for 45 tonnes / 46 tonnes. Based on condition, recent assessments, span length, and route type this reduced **5 bridges in total that will not be able to carry the new VDAM loadings and will require bridge restriction posting**. Council are currently in the process of posting these bridge restrictions. These bridges are in the following locations.

Road	ONRC	Key Use	Bridge Restrictions
Rotoparu Road	Primary Collector	Agriculture	Crispin Bridge
Ngapakira Road	Secondary Collector	Agriculture	Ngapakira Road
Spence Road	Low Volume	Agriculture	Spences Bridge
Waiatai No. 2	Low Volume	Forestry	Taits Bridge
Waihua Valley Road	Low Volume	Forestry	Ngamahanga Bridge

6.6 SUSTAINABILITY AND ENVIRONMENTAL MANAGEMENT

In order to ensure the long-term sustainability of the network, these issues will be considered alongside other key objectives such as safety, economic development to contribute to providing value for money. This will be done using the following initiatives:

- **Considering sustainability and environmental issues early** – Management is most effective when environmental constraints and opportunities are considered early in network planning, design and maintenance.
- **Protecting and enhancing the environment where appropriate** - Our role in protecting our green environment is critical to ensuring future generations get to use it and enjoy a clean, safe place to live. Wairoa is a key gateway to the Te Urewera Rainforest via Special Purpose road to Waikaremoana (SP38). This area is a high tourist area and environmentally sensitive, impacting on the maintenance and renewals strategies we use in this area.
- **Recycling** – Materials and energy are key resources and need to be used in a manner that recognises supply limitations and lifecycle costs. Where possible the use of recycling of materials for more sustainable road construction.
- **Aggregate usage** – A significant quantity of aggregate is used on the roading network, particularly for unsealed roads
  This can be managed through good grading and shaping techniques, using reclaimed metal and ensuring drainage is well maintained.
- **Having a strategic programme of renewals and preventative maintenance** in place. This will target higher classification roads to ensure pavement integrity and minimal asset consumption.

7.1 ASSET CAPACITY AND PERFORMANCE

7.1.1 ONRC PEER GROUP REVIEW SUMMARY

From the review of ONRC performance outcomes compared to the peer group, the significant areas where Council are under-performing compared to the peer group are detailed below. This indicates that the Customer Levels of Service (LoS) may not be provided to the appropriate level in these areas.

ONRC Customer LOS	Customer Outcome Measures	Wairoa Outcomes & Trends	Peer Group Comparison	LOS Responsse
Safety	SCO3: Personal risk (DSI rate per kilometre)	Deteriorating trend	Higher than peer group on higher classification roads	**Safety Improvements**: Review Primary and Secondary Collector roads for safety Level of Service improvements
Accessibility	ACCO1: Proportion of network not available to Class 1 heavy vehicles and 50Max vehicles	6 bridges restricted for Class 1 heavy vehicles Network not suitable for 50Max (14 bridge restrictions)	Not assessed – no peer group data	**Bridge strengthening**: based on capacity assessment outcomes
Amenity	AMCO1: Percentage travel on road network classified as smooth (STE)	Slight improving trend	Lower than peer group on higher classification roads and all rural roads	**Targeted Pavement Renewals**: Target Secondary Collector roads to continue to improve STE & roughness through pavement renewals
	AMCO2: Peak Roughness	Slight decreasing trend over last 5 years	Higher than peer group on higher classifications	
	AMTO1: Average / Median roughness	Slight decreasing trend over last 10 years	Higher than peer group for all classifications, but particularly PC & SC	
Cost Efficiency	CE2: Chipseal resurfacing Average Life achieved	Average seal life achieved of 12-18 years (based on ONRC)	Longer average seal lives than peer group	**Targeted Pavement Renewals**: Increase surfacing on higher classification roads to ensure asset integrity maintained and lives not stretched too far

CHANGES TO MEET ONRC FUNCTION

Based on outputs from the strategic assessment, future demand analysis and performance against peer group for ONRC Customer Levels of Service, there are some specific routes which will require a change in levels of service to both meet demand and ONRC functional requirements as outlined below.

Road	ONRC	Future Loading Changes	Specific LOS Issues	LOS Changes Required
Nūhaka-Ōpoutama Road	Primary Collector	Tourism and Rocket Lab route	High accident area Coastal erosion	Speed management initiatives New retaining structures

Road	ONRC	Future Loading Changes	Specific LOS Issues	LOS Changes Required
Māhia East Coast Road	Secondary Collector	Tourism and Rocket Lab route	Narrow and winding road causing safety issues Unsealed portion Structure capacity issues Coastal erosion	Signage upgrades Seal extension for the unsealed portion Structures renewals & strengthening New retaining structures to ensure route resilience
Mohaka Coach Road	Access	HPMV alternate route to State Highway Approximately 150,000-200,000 tonnes of logs to be harvested over the next 4-5 years	Bridge restriction – Mohaka Township bridge Unsealed narrow and winding road	Bridge strengthening to allow HPMV Improve safety including corner widening, shoulder widening, signage upgrades, culvert retentions etc
Rotoparu Road		Agriculture	Bridge Restriction – Crispin Bridge	Bridge strengthening for general HCV access
Putere Road	Secondary Collector	Key logging route for next 5 years	Very narrow and winding road Bridge restriction – Mangahopai Bridge	Safety improvements Bridge strengthening to allow HPMV
Willowflat Road	Secondary Collector	Significant forestry route	Narrow and winding road	Safety improvements
Ngapakira Road	Secondary Collector	Agriculture	Bridge Restriction – Ngapakira Road Bridge	Bridge strengthening to allow general HCV access
Waiatai Road	Access	Forestry	Bridge Restrictions – Connell Bridge, Jardin Bridge	Bridge strengthening to allow HPMV
Kakariki Farm Road	Access	Approximately 150,000-200,000 tonnes of logs to be harvested over the next 4-5 years	Unsealed narrow and winding road	Improve safety including corner widening, shoulder widening, signage upgrades, culvert retentions etc
Waiatai No. 2	Low Volume	Forestry	Bridge Restrictions – Taits Bridge	Bridge strengthening to allow HPMV
Waihua Valley Road	Low Volume	Forestry	Bridge Restrictions – Ngamahanga Bridge	Bridge strengthening to allow HPMV
Tiniroto Road	Secondary Collector	Alternative route to State Highway	Narrow and winding road causing safety issues	Improve safety including corner widening, shoulder widening & signage upgrades.
Kiwi Road	Access	HPMV alternate route to State Highway - bypass part of SH38 and SH2	Structure capacity issues	Bridge strengthening to allow HPMV

7.1.2 TRANSPORT OUTCOMES

Key gaps against national transport outcomes are included below.

Transport Outcome	Key Gaps	Response
Healthy & Safe People	Wairoa has highest Personal Risk in New Zealand. Rural road loss of control and/or head on crashes are worst. Lack of signage on curves and narrow roads likely contributors.	**Safety Improvements**: Review Primary and Secondary Collector roads for safety Level of Service improvements

Transport Outcome	Key Gaps	Response
	Speed is also a contributor, likely due to poor speed environment definition.	
Economic Prosperity	14 bridges in total that will not be able to carry the new VDAM loadings. Key routes are not open for HPMV access. Bridge restriction posting required. State Highway 2 from Napier to Gisborne now fully open to HPMV vehicles. So increased pressure for Council to open key local road routes.	**Bridge Inspections & Data Collection**: implement Bridge Inspection Policy to collect condition data. **Bridge strengthening**: based on capacity assessment outcomes
Resilience & Security	Lack of alternative routes available. Need a better understanding of closure impacts on road users.	**Road Closure Data Collection**: to be recorded consistently to meet performance reporting requirements.
Inclusive Access	STE has remained relatively static over the last 10 years with slight improvement in recent years, in both urban and rural areas, but still worse than peer group.	**Targeted Pavement Renewals**: Target Secondary Collector roads to continue to improve STE & roughness through pavement renewals
	Latest Communitrak survey (2020) shows that 55% of respondents are not very satisfied with the standard of maintenance of rural roads.	**Stakeholder Engagement**: to understand customers' desired level of service and allow for better understanding of cost of service vs Level of Service.

7.2 DATA QUALITY GAPS

There are a number of data quality issues that impact on investment decision making. The significant data quality gaps are summarised below.

Strategic Case Problem	Data Gap	Response
Resilience Road network vulnerable to closure from high rainfall and storm events and a lack of alternative routes results in disconnected communities and economic disruption	Retaining Structures asset inventory and condition data poor	**Inspections & Data Collection**: implement Inspection Policy to collect condition data for retaining walls.
Changing Demand Land use change increasing heavy vehicle traffic on rural roads results in safety, pavement consumption and environmental issues	Condition Data for many assets is not well understood, or of sufficient quality to inform investment decision making.	Various improvement items have been included to improve data quality to allow better decision-making processes.
	Traffic count and estimate data in RAMM is getting out of date. Traffic counts have been completed over last 1-2 years, but continued focus and updating required.	Traffic count programme: ensure regular and targeted traffic counts are completed. This will allow Council to track where traffic volumes are growing and demand increasing.
Accessibility Poor condition aging bridge stock and unknown structural capacity results in limited access for heavy vehicles	Bridges condition data not well understood.	**Bridge Inspections & Data Collection**: implement Bridge Inspection Policy to collect condition data.

7.3 RISK MANAGEMENT

An outcome from our latest Risk Management Strategy is to complete a full review of our Risk Register. At this point investment has been primarily been prioritised through our understanding of our critical assets and their condition / performance, particularly life line routes and critical structures.

Strategic Case Problem	Gap	Response
Resilience Road network vulnerable to closure from high rainfall and storm events and a lack of alternative routes results in disconnected communities and economic disruption	Management of emergency events is variable and impacted by available resources / competing demands at the time of the event. No data gathering for road closures.	**Emergency Event Management Procedure**: There is also a need for further review of emergency event management. This has a significant impact on the response to events ensuring closure timeframes on key routes are minimised. **Road Closure Data Collection**: to be recorded to meet performance reporting requirements.
	Risk Register is not currently up to date.	**Update Risk Register**: to ensure alignment of risk identification with Council process and identify key risk mitigation measures

7.4 DEMAND MANAGEMENT

Key gaps have been identified in the following areas in terms of demand management:

Strategic Case Problem	Demand Gap	Response
Changing Demand Land use change increasing heavy vehicle traffic on rural roads results in safety, pavement consumption and environmental issues	Need to better understand future demand for 50Max and HPMV permits and routes.	**Stakeholder Engagement**: particularly with forestry companies, but also other land owners wanting to maximise productivity through transportation. This consultation will allow Council to better plan investment to target the high demand areas.
	30 Year Demand Forecast is not based on robust data. Key inputs into this process will be gaining a better understanding of small wood lot land areas to be harvested over this period.	**Demand Forecasting**: Complete review of Wairoa specific 30-year demand forecast model. Review predicted transport demand against existing transport capacity to determine when transport capacity upgrades are required.
	Traffic count and estimate data in RAMM is getting out of date. Traffic counts have been completed over last 1-2 years, but continued focus and updating required.	**Traffic Count Programme**: ensure regular and targeted traffic counts are completed. This will allow Council to track where traffic volumes are growing and demand increasing.

7.5 OTHER EVIDENCE GAPS

Other evidence gaps that have been identified through the Detailed Business Case, which are not already included above are outlined below.

Strategic Case Problem	Evidence Gap	Response
Resilience Road network vulnerable to closure from high rainfall and storm events and a lack of alternative routes results in disconnected communities and economic disruption	Drainage & vulnerable network areas not well understood in terms of catchment areas and capacity. Need better understanding of vulnerable areas required – e.g. Rivers adjacent to road undermining road.	**Stakeholder Engagement**: particularly with forestry companies, but also other land owners wanting to maximise productivity through transportation. This consultation will allow Council to better plan investment to target the high demand areas.
Changing Demand Land use change increasing heavy vehicle traffic on rural roads results in safety, pavement consumption and environmental issues	Need better understanding of the right balance of planned vs reactive maintenance (i.e. maintenance vs renewal) to meet required levels of service. This has been done to some extent through dTIMS modelling for pavements, but not completed yet for other assets.	**Cost of Service Analysis**: Complete full review of maintenance and renewal costs and align with levels of service.
	Safety – non-reported crashes not in CAS so accident causes not well understood.	**Crash Reporting**: of non-reported accidents included as a requirement for maintenance contractors so areas of the network that have safety deficiencies can be better identified

Strategic Case Problem	Evidence Gap	Response
	Need better understanding of health implications of dust and how this can be best measured	**Dust Mitigation Strategy**: Review and develop full Dust Mitigation Strategy

8.1 INVESTMENT DECISION MAKING CRITERIA

Making sure we achieve value for money, while achieving the key outcomes required from our land transport, is a critical focus for us. Given that the Land Transport activity is heavily funded by Waka Kotahi, investment decisions must be carried out in accordance with Waka Kotahi's Investment Decision Making Framework (IDMF). We have also developed our own Draft Investment Decision Making criteria for use within the Community Assets and Services Group, to ensure consistent investment prioritisation of capital expenditure across all service areas. Our options analysis takes both of these approaches into account.

8.1.1 WAKA KOTAHI INVESTMENT DECISION MAKING FRAMEWORK

The IDMF sets out various investment assessment tools including Multi-Criteria Analysis (MCA). Appropriate criteria can be selected on a case-by-case basis, but investment objectives and critical success factors need to be included as part of all assessments. As part of this framework, decision making criteria include:

1. **Investment Objective and Relevant Transport Outcome**: Aligned with national Transport Outcomes, including the Government Policy Statement on land transport (GPS), which sets out the government's priorities for expenditure over a 10 year period
2. **Critical Success Factors**: Practical considerations that will dictate whether a project can be successfully implemented, including:
    - Achievability/ Feasibility
    - Potential affordability
    - Potential value for money
    - Supplier capacity and capability
    - Urgency
3. **Opportunities and Impacts: these can include**:
    - Environmental effects
    - Social and cultural effects
    - Climate change mitigation or adaption
    - Cumulative impacts
    - Impacts on Te Ao Māori
    - Property Impacts
4. **Economic Assessment**: Benefit–cost ratio (BCR) or end-of-life net present value (NPV)

8.1.2 COUNCIL'S PROJECT PRIORITISATION CRITERIA

In early 2020, we commissioned WSP to complete a review of our investment decision making processes. As part of this review a new Investment Decision Making Process has been developed for use across all Service Areas. This process includes the use of specific project 'criteria' to evaluate the relative priority of capital renewals and improvement projects. This is a form of Multi-Criteria Analysis. These criteria are meant to consistently score projects across all the things that are important to Wairoa District Council. This aids decision makers to prioritise projects for both the medium and short term.

The following four criteria have been identified for prioritising renewals and capital improvement projects:

Criteria	Questions Answered	Key Factors Assessed
Strategic Alignment	How strongly does this project align with Wairoa District Council's vision, community outcomes and/or strategic goals (where applicable)?	Ōhanga – Economic wellbeing Oranga – Social wellbeing Ahurea – Cultural wellbeing Taiao – Environmental wellbeing
Service Delivery	How important is this project in contributing to the delivery of Wairoa District Council's core activities and services? Will it contribute to service reliability and meeting customer service level expectations?	Compliance Safety Reliability Availability Sustainable management
Risk & Criticality	What is the risk to safety and service reliability if the project is not done?	Asset Criticality Asset Condition
Financial Impact	What is the return on investment or financial benefit? Does the project provide value for money?	Financial Benefit Debt Levels Rates

Full details of the factors considered for each of the four investment decision making criteria are included in the Detailed Business Case.

8.2 OPTIONS ASSESSMENT

8.2.1 INITIAL OPTIONS ASSESSMENT

From the Detailed Business Case a long list of alternative options or solutions has been developed to address the gaps identified in Section 7. These solutions include are based on the following approaches:

- **Baseline Strategy**: These solutions tend to be focussed on a more reactive operations and maintenance approach. It ensures that critical work is completed to meet minimum compliance standards.
- **Adjust Timing**: These solutions change the intervention response timing, either bringing work forward or pushing out to future years.
- **Adjust Levels of Service**: These solutions adjust the level of service (either increasing or decreasing it) to align with gaps or over-delivery identified.

- **Risk Based Approach**: These solutions use a risk based approach to focus investment on high risk aspects of the network i.e. by ONRC, asset criticality
- **Adjust Programme**: These solutions adjust between proactive and reactive strategies.
- **Policy Approach**: These solutions review management processes and improve them to enhance our asset knowledge and improve guidance for decision making.
- **Demand Management**: These solutions help us to better understand demand and manage use of the assets we already have to ensure service delivery meets expectation.
- **Procurement**: These solutions involve revising procurement options to ensure value for money.

Each solution will be reviewed using our Multi-criteria assessment process using the following criteria:

Criteria	High	Medium	Low
Strategic Alignment	Strongly contributes to applicable national Transport Outcomes (incl GPS) AND community outcomes	Some contribution with applicable national Transport Outcomes (incl GPS) AND community outcomes	Limited contribution to national Transport Outcome OR community outcome
Service Delivery	Will result in significant improvement in service delivery factors	Will result in moderate improvement in service delivery factors	Will result in minimal improvement in service delivery factors
Risk & Criticality	Extremely/Highly critical asset in very poor/poor condition OR risk level significantly decreased	Critical asset in poor condition OR risk level somewhat decreased	Moderate/low critical asset in very good / good condition OR risk level remains the same or increases
Financial Benefit	High financial benefit (e.g. High NPV for renewals). Lowest lifecycle cost option	Moderate financial benefit when whole of life costs are considered (e.g. positive NPV for renewals)	Limited financial benefit when whole of life costs are considered (e.g. neutral NPV for renewals)

8.2.2 LONG LIST OF OPTIONS

Core Asset Groups (Work Category)		Investment Objective	Options
	Sealed Road Pavements		
111	**Sealed pavement maintenance**	Affordable Level of Service	**Baseline Strategy**: Reactive maintenance approach
			Procurement: Smart buying through packaging work. Delivering more for the same cost
		Roads that support safer travel	**Risk Based Approach**: Planned monthly reactive maintenance, but focussed on being more proactive on high ONRC to address safety issues
			Policy Approach: Improved Maintenance Intervention Strategy - proactive maintenance approaches (e.g. pre-reseal repairs enhanced programme)
212	**Sealed road resurfacing**	Affordable Level of Service	**Baseline Strategy**: Hold with maintenance. Pavement Resurfacing occurs at a reduced level. Sealing backlog remains.
			Risk Based Approach: Deal with backlog on high ONRC roads over 3-year period, then spread rest of backlog over 10 year period
		Improve access to productive land	**Adjust Timing**: Spread sealing backlog over longer period – 28km/ year for next 3 years then continue
		Roads that support safer travel	**Adjust Timing**: Removal of full backlog of sealing over 3-year period – 33km / year for next 3 years
214	**Sealed road pavement rehabilitation**	Affordable Level of Service	**Baseline Strategy**: Minimum level of pavement rehabilitation work to hold pavement at existing condition levels
			Adjust Levels of Service: (down): Decreasing LoS on low ONRC roads (through increased roughness)

	Strategic Alignment	Service Delivery	Risk & Criticality	Financial Impact	Priority
					LOW
					HIGH
					MEDIUM
					HIGH
					LOW
					MEDIUM
					HIGH
					LOW
					LOW
					LOW

Core Asset Groups (Work Category)		Investment Objective	Options
	Sealed Road Pavements		
		Affordable Level of Service Roads that support safer travel	**Risk Based Approach**: Targeted pavement renewals to address condition and safety issues on secondary collector roads – Approx 1 km / year
		Improve access to productive land	**Adjust Levels of Service**: (up): Full proactive pavement renewal/ strengthening programme ahead of increased demand – Approx 3 km / year
341	**Low Cost / Low Risk Improvements**	Roads that support safer travel	**Adjust Levels of Service**: Associated improvements when completing renewals works to improve safety (e.g. shoulder widening, visibility improvements, minor geometric improvements, drainage improvements) for Secondary Collector roads
			Adjust Levels of Service: Targeted improvements works to improve safety for Secondary Collector roads (e.g. corner widening, geometric improvements)
	Unsealed Road Pavements		
112	**Unsealed pavement maintenance**	Affordable Level of Service	**Baseline Strategy**: Reactive Maintenance Approach
			Procurement: Smart buying through packaging work. Delivering more for the same cost
		Roads that support safer travel	**Risk Based Approac**h: Monthly reactive maintenance, but focussed on being more proactive on high ONRC roads and address safety issues
211	**Unsealed road metalling**	Affordable Level of Service	**Baseline Strategy**: Limited Heavy Metal Build Ups (HMBU) completed reactively after increased loading occurs.
		Improve access to productive land	**Adjust Programme**: Proactive targeted pavement renewals (on forestry roads) ahead of increased loading
151	**Network & asset management**	Roads that support safer travel	**Policy Approach**: Review and develop full Dust Mitigation Strategy
341	**Low Cost / Low Risk Improvements**	Roads that support safer travel	**Adjust Levels of Service**: Implement targeted safety improvements for unsealed roads and Secondary Collector roads (Curve widening to address loss of control on bends, adjust superelevation on high crash curves, sight benching and widening)
			Adjust Levels of Service: Dust seals on problems sections to ensure community health
		Improve access to productive land	**Adjust Levels of Service**: Traction seals on problems sections to reduce whole of life costs
			Adjust Levels of Service: Seal extensions on high use roads
	Bridges		
114	**Structures maintenance**	Affordable Level of Service	**Baseline Strategy: Targeted maintenance work based on superficial inspections**
		Improve access to productive land	**Risk Based Approach**: Targeted maintenance work on high criticality structures and key heavy vehicle routes
215	**Structures component replacement**	Affordable Levels of Service	**Baseline Strategy**: Structures renewals arising from predicted demand from haulier engagement for HPMV Vehicles
		Improve access to productive land	**Adjust Programme**: Structures renewals planned proactively based on capacity assessments
			Adjust Timing: Localised targeting of delivery for renewals - structures on one route

	Strategic Alignment	Service Delivery	Risk & Criticality	Financial Impact	Priority
					MEDIUM
					LOW
					MEDIUM
					LOW
					LOW
					HIGH
					MEDIUM
					LOW
					HIGH
					HIGH
					HIGH
					HIGH
					HIGH
					LOW
					LOW
					MEDIUM
					LOW
					HIGH
					LOW

Core Asset Groups (Work Category)		Investment Objective	Options
		Roads that support safer travel	**Risk based Approach**: Bridge Guardrail Approach screening on Key routes to protect end users
151	**Network & asset management**	Affordable Level of Service	**Policy Approach**: Material Testing on key bridges
			Policy Approach: Painting Screening (resilience based approach)
		Improve access to productive land	**Policy Approach**: Condition assessments to better understand condition of existing structures
			Policy Approach: Continue with bridge capacity assessments
			Risk based Approach: Detailed seismic assessment based on screening outcomes - high risk first
			Demand Management: HPMV Permitting
341	**Low Cost / Low Risk Improvements**	Roads that support safer travel	**Adjust Levels of Service**: Bridge Guardrail approach improvements
		Improve access to productive land	**Adjust Levels of Service**: Bridge Strengthening on key HPMV routes
	Other Structures		
114	**Structures maintenance**	Improve resilience to climate change impacts	**Baseline Strategy**: Targeted maintenance work
215	**Structures component replacement**		**Adjust Programme**: Retaining wall renewals in vulnerable areas
151	**Network & asset management**		**Policy Approach**: Retaining walls inspection policy & condition assessments
			Policy Approach: Complete full review of Regional Councils Consent requirements for retaining walls along coastal routes to expediate construction when it is required
341	**Low Cost / Low Risk Improvements**		**Adjust Levels of Service**: New retaining walls on coastal routes
113	**Routine drainage maintenance**	Affordable Level of Service	**Baseline Strategy**: Reactive drainage maintenance
			Procurement: Smart buying through packing work. Delivering more for the same cost
		Improve resilience to climate change impacts	**Policy Approach**: Maintenance Intervention Strategy - proactive maintenance approaches
			Risk Based Approach: Monthly reactive maintenance, but focussed on being more proactive on high ONRC roads and address resilience issues
213	**Drainage renewals**	Affordable Level of Service	**Baseline Strategy**: Continue with reactive drainage renewals
		Improve resilience to climate change impacts	**Adjust Programme**: Carry out proactive drainage renewals (e.g. Surface Water Channels), particularly on Lifeline Routes
151	**Network & asset management**	Improve resilience to climate change impacts	**Policy Approach**: Review catchments and drainage capacity requirements in areas where flooding is common.
341	**Low Cost / Low Risk Improvements**	Improve resilience to climate change impacts	**Adjust Levels of Service**: Culvert Capacity Upgrades
			Adjust Levels of Service: Associated improvements works to improve resilience for Secondary Collector roads when completing pavement renewals (e.g. drainage improvements, culvert retentions)

	Strategic Alignment	Service Delivery	Risk & Criticality	Financial Impact	Priority
	✓ (green)	✓ (green)	✓ (orange)	✓ (green)	HIGH
	✓ (orange)	✓ (orange)	✓ (orange)	✓ (green)	LOW
	✓ (green)	✓ (green)	✓ (orange)	✓ (green)	HIGH
	✓ (green)	✓ (green)	✓ (green)	✓ (orange)	HIGH
	✓ (green)	✓ (green)	✓ (green)	✓ (orange)	HIGH
	✓ (green)	✓ (green)	✓ (green)	✓ (orange)	HIGH
	✓ (green)	✓ (green)	✓ (orange)	✓ (green)	HIGH
	✓ (green)	✓ (green)	✓ (green)	✓ (orange)	HIGH
	✓ (green)	✓ (green)	✓ (green)	✓ (orange)	HIGH
	✓ (green)	✓ (orange)	✓ (orange)	✓ (green)	MEDIUM
	✓ (green)	✓ (green)	✓ (green)	✓ (orange)	HIGH
	✓ (green)	✓ (green)	✓ (green)	✓ (green)	HIGH
	✓ (green)	✓ (green)	✓ (green)	✓ (green)	HIGH
	✓ (green)	✓ (green)	✓ (green)	– (red)	LOW
	✓ (orange)	✓ (orange)	– (red)	✓ (orange)	LOW
	✓ (green)	✓ (green)	✓ (green)	✓ (green)	HIGH
	✓ (green)	✓ (green)	✓ (green)	✓ (green)	HIGH
	✓ (orange)	✓ (green)	✓ (green)	✓ (orange)	MEDIUM
	✓ (orange)	✓ (orange)	– (red)	✓ (orange)	LOW
	✓ (green)	✓ (green)	✓ (green)	✓ (orange)	HIGH
	✓ (green)	✓ (green)	✓ (green)	✓ (green)	HIGH
	✓ (green)	✓ (green)	✓ (orange)	✓ (orange)	MEDIUM
	✓ (green)	✓ (green)	✓ (orange)	✓ (orange)	MEDIUM

Core Asset Groups (Work Category)		Investment Objective	Options
		Roads that support safer travel	**Adjust Levels of Service**: Piping Open Drains to improve safety impacts
	Traffic Services & Lighting		
122	**Traffic services maintenance**	Affordable Level of Service	**Baseline Strategy**: Reactive traffic services maintenance.
			Procurement: Signage: Review where signage sits in maintenance contracts - currently under sealed roads maintenance
			Procurement: Lighting: maintenance contract review options/ alternatives for maintenance - short term contract in place. E.g. tie in with Waka Kotahi or neighbours
		Roads that support safer travel	**Adjust Programme**: Signage: cleaning - on high traffic routes
222	**Traffic services renewals**	Roads that support safer travel	**Baseline Strategy**: Signage: Carry on with reactive traffic services renewals. Upgrade signs from Engineering Grade to high Retro-reflective as they need to be replaced
			Risk Based Approach: Signage: Targeted programmes for upgrade from Engineering Grade to high Retro-reflective
			Risk Based Approach: Linemarking: Complete annual remark of high wear sites and full network remark bi-annually
			Adjust Levels of Service: Signage: Upgrade all signs from Engineering Grade to high Retro-reflective
151	**Network & asset management**	Roads that support safer travel	**Policy Approach**: Barriers: Policy to screen for upgrading sight rails to guardrails around culverts
341	**Low Cost / Low Risk Improvements**	Roads that support safer travel	**Adjust Levels of Service**: Signage: Implement targeted safety improvements for rural roads - curve signage
			Adjust Levels of Service: Signage & Linemarking: Safety treatments at schools and Maraes
			Adjust Levels of Service: Signage & Linemarking: Implement targeted safety improvements for urban streets - intersection signage & marking upgrades
			Adjust Levels of Service: Linemarking: Paint highly visible on-road cycle lanes at existing available sections to help connect community facilities
			Adjust Levels of Service: Barriers: on curves to reduce DSIs
			Adjust Programme: LED upgrades - complete programme
	Footpaths & Cycleways		
124	**Cycle path maintenance**	Affordable Level of Service	**Baseline Strategy**: Maintenance of existing cycleways.
125	**Footpaths maintenance**		**Baseline Strategy**: Maintenance of existing footpaths. Renew worst condition paths, identified through condition inspections.
			Adjust Programme: Enhanced programme of maintenance and renewals
341	**Low Cost / Low Risk Improvements**	Roads that support safer travel	**Adjust Levels of Service**: New footpath construction to increased meet levels of service requirements
	Parking		
	Carparks maintenance & renewals	Affordable Level of Service	**Baseline Strategy**: Maintenance of pavement & surfacing - off street

	Strategic Alignment	Service Delivery	Risk & Criticality	Financial Impact	Priority
					LOW
					LOW
					MEDIUM
					MEDIUM
					LOW
					LOW
					HIGH
					HIGH
					LOW
					LOW
					HIGH
					HIGH
					HIGH
					HIGH
					LOW
					LOW
					MEDIUM
					MEDIUM
					LOW
					MEDIUM
					LOW

Core Asset Groups (Work Category)		Investment Objective	Options
			Baseline Strategy: Signage - off street
	Carparks capital improvements	Roads that support safer travel	**Adjust Levels of Service**: Address capacity and safety issues – Clyde, Lambton Square
	Environmental/Emergency Works		
121	**Environmental maintenance**	Improve resilience to climate change impacts	**Baseline Strategy**: Reactive vegetation control and small slip removal
			Risk Based Approach: Hazardous tree removal programme on key routes
140	**Minor events**		**Baseline Strategy**: Reactive management and response to minor events ($100k)
			Risk Based Approach: Proactive cleanup and repair to ensure fast restoration of service after minor events on high ONRC routes
			Adjust Programme: Proactive cleanup and repair to ensure fast restoration of service after minor events
341	**Low Cost / Low Risk**		**Risk based Approach**: Riverbank stabilisation on key routes
			Risk based Approach: Coastal Erosion Protection
	Network & Asset Management		
151	**Network & asset management**	Affordable Level of Service	**Policy Approach**: Data management process improvements including centralising and validating all asset data - Inspections, maintenance records, Maintenance costs and asset data in RAMM
			Policy Approach: Data Collection programme for retaining walls, barriers, car parks
			Policy Approach: Further develop unsealed pavement Maintenance Intervention Strategy and improve data collection processes to inform decision making
			Adjust levels of Service: Cost of Service Analysis: Complete full review of maintenance and renewal costs and align with levels of service.
			Adjust Levels of Service: Stakeholder Engagement to understand customers' desired level of service and allow for better understanding of cost of service vs level of service
		Roads that support safer travel	**Policy Approach**: Network wide safety audit - review requirements, compliance, and key areas for improvement
			Policy Approach: Speed management review and implementation.
			Policy Approach: Crash Reporting of non-reported accidents included as a requirement for maintenance contractors so areas of the network that have safety deficiencies can be better identified
			Policy Approach: Policy to screen for upgrading sight rails to guardrails around culverts
		Improve resilience to climate change impacts	**Policy Approach**: Emergency Event Management Procedure to improve the response to events ensuring closure timeframes on key routes are minimised
			Policy Approach: Road Closure data collection to be recorded consistently to meet performance reporting requirements
			Policy Approach: Risk Management - risk registers to be updated to ensure alignment of risk identification with Council process and identify key risk mitigation measures

	Strategic Alignment	Service Delivery	Risk & Criticality	Financial Impact	Priority
	✓	✓	✓	✓	LOW
	✓	✓	✓	⛔	LOW
	✓	✓	✓	✓	MEDIUM
	✓	✓	✓	✓	MEDIUM
	✓	✓	✓	✓	LOW
	✓	✓	✓	✓	MEDIUM
	✓	✓	✓	⛔	LOW
	✓	✓	✓	✓	HIGH
	✓	✓	✓	✓	HIGH
	✓	✓	✓	✓	HIGH
	✓	✓	✓	✓	HIGH
	✓	✓	✓	✓	HIGH
	✓	✓	✓	✓	MEDIUM
	✓	✓	✓	✓	MEDIUM
	✓	✓	✓	✓	HIGH
	✓	✓	✓	✓	HIGH
	✓	✓	✓	✓	HIGH
	✓	✓	✓	✓	LOW
	✓	✓	✓	✓	HIGH
	✓	✓	✓	✓	HIGH
	✓	✓	✓	✓	HIGH

Core Asset Groups (Work Category)		Investment Objective	Options	
		Improve access to productive land	**Policy Approach**: Continue with Traffic Count Programme to better understand network usage	
			Demand Management: Continue Stakeholder Engagement with forestry companies and other land owners wanting to maximize productivity through transportation to inform investment planning	
			Demand Management: Complete review of Wairoa specific 30-year demand forecast model. Review predicted transport demand against existing transport capacity to determine when transport capacity upgrades are required.	

	Strategic Alignment	Service Delivery	Risk & Criticality	Financial Impact	Priority
					HIGH
					HIGH
					HIGH

8.3 MAINTENANCE, OPERATIONS & RENEWALS PROGRAMMES

Following the initial assessment, options from the long list have been packaged to form the basis of three programmes:

Programme	Description
Option 1 – Baseline Strategy & Policy Approach	This programme provides the lowest level of investment needed to ensure service delivery meets minimum compliance requirements. It aims to address the issues and problems across the network over the longer term, while also allowing for enhancement of asset knowledge and improvements in management processes.
Option 2 – Optimised Investment	This programme focuses on addressing Wairoa's problems over the medium term. delivering a mid-range and balanced level of investment/ intervention across our four investment objectives.
Option 3 – Enhanced Programme for Growth	This programme is focuses on a higher level of investment through improvement interventions and renewals to support and enable land use development, freight demands and traffic growth. It seeks to add additional capacity in the network where there are current constraints, particularly through our pavements and bridges renewal programmes. Wairoa's problems would be addressed over the short term.

Detailed below is a summary of the activities and programmes incorporated into each of the three options, from our long list of options.

8.3.1 OPTION 1 - BASELINE STRATEGIES & POLICY APPROACH

This option continues to **provide a generally reactive approach to maintenance, operations and renewals, while enhancing our knowledge of the network through a policy approach**.

The strategic problems would provide focus for investment, but would be addressed in a limited way. For low trafficked roads this is often appropriate, however with increased HCV loading predicted on key routes in future, this is unlikely to meet future CLoS requirements for all areas of the network.

Core Activity/Asset Group	How Desired Outcomes Will be Delivered	Indicative 3-year Expenditure	Change from 2018-21 NLTP
Sealed Road Pavements	**Baseline Strategy**: Maintenance and renewals similar to previous years, with risk-based approach based on ONRC (i.e. higher risk approach on Access & LV roads), where applicable. **Procurement**: Smart buying through packaging work at the re-tendering of maintenance contracts.	$6.5M	↑ Small increase
Unsealed Road Pavements	**Baseline Strategy**: Maintenance and renewals similar to previous years, with risk-based approach based on ONRC (i.e. higher risk approach on Access & LV roads), where applicable. **Procurement**: Smart buying through packaging work at the re-tendering of maintenance contracts.	$8.2M	→ No change
Bridges	**Baseline Strategy**: Targeted maintenance and renewals based on superficial inspections and predicted demand from haulier engagement for HPMV Vehicles. **Policy Approach**: Focussed condition and capacity assessments, seismic screening and HPMV permitting.	$2.0M	→ No change
Other Structures	**Baseline Strategy**: Targeted maintenance and renewals in vulnerable areas. **Policy Approach**: Retaining wall inspections, condition assessments and consenting requirements review.	$0.6M	↑ Small increase

Core Activity/Asset Group	How Desired Outcomes Will be Delivered	Indicative 3-year Expenditure	Change from 2018-21 NLTP
Drainage	**Baseline Strategy**: Reactive maintenance and renewals. **Policy Approach**: Review of drainage capacity to determine future capacity improvement needs.	$3.8M	 No change
Traffic Services & Lighting	**Baseline Strategy**: Reactive maintenance and renewals. Upgrade signs to retro-reflective as they are replaced. Increased pavement marking for high wear areas. **Procurement**: Review packaging and bundling of work and options for shared delivery with neighbouring AOs.	$1.6M	 Small increase
Footpaths & Cycleways	**Baseline Strategy**: Reactive maintenance and renewals.	$0.3M	 Small increase
Parking	**Baseline Strategy**: Reactive maintenance and renewals.	$0.1M	 No change
Environmental / Emergency Works	**Baseline Strategy**: Reactive maintenance and renewals. Hazardous tree removal programme to proactively limited road closures.	$2.2M	 No change
Network & asset Management	**Baseline Strategy**: Network & asset management and procurement changes. **Policy Approach**: Increased focus on data collection (where there are gaps) and management processes. Strategic focus on planning for safety improvement through network wide safety audit and speed management review. Continued focus on demand and risk management.	$3.5M	 Small increase

8.3.2 OPTION 2 - OPTIMISED INVESTMENT

This option allows for Wairoa District Council to have a **more proactive approach to maintenance, operations and renewals**, and focuses on addressing Wairoa's problems over the medium term. The strategic problems and ONRC CLoS provide the focus for all investment. It will result in an improvement in CLoS where there is current under performance compared to the peer group. With increased HCV loading predicted in future, a more balanced approach to lifecycle planning will be required. The future intent is to see the ratio of Planned work to Reactive work increased to 40% planned / 60% reactive.

Core Activity/Asset Group	How Desired Outcomes Will be Delivered	Indicative 3-year Expenditure	Change from 2018-21 NLTP
Sealed Road Pavements	**Risk Based Approach**: Proactive maintenance focussed on high risk areas. **Adjust Timing**: Targeted renewals to address backlog and improve condition and safety issues over the medium term. **Procurement**: Smart buying through packaging work at the re-tendering of maintenance contracts.	$8.4M	 Increase

Core Activity/Asset Group	How Desired Outcomes Will be Delivered	Indicative 3-year Expenditure	Change from 2018-21 NLTP
Unsealed Road Pavements	**Baseline Strategy**: Maintenance similar to previous years, with risk-based approach based on ONRC (i.e. higher risk approach on Access & LV roads), where applicable. **Adjust Programme**: More focus on proactive renewals ahead of increased forestry loading. **Procurement**: Smart buying through packaging work at the re-tendering of maintenance contracts.	$6.3M	 Increase
Bridges	**Baseline Strategy**: Targeted maintenance and renewals based on superficial inspections and predicted demand from haulier engagement for HPMV Vehicles. **Policy Approach**: Focussed condition and capacity assessments, seismic screening, HPMV permitting, materials testing and painting screening.	$1.5M	 Small increase
Other Structures	**Baseline Strategy**: Targeted maintenance and renewals in vulnerable areas. **Policy Approach**: Retaining wall inspections, condition assessments and consenting requirements review.	$0.9M	 Small increase
Drainage	**Risk Based Approac**h: Proactive maintenance focussed on high risk areas. **Adjust Programme**: More proactive drainage renewals, particularly on Lifeline routes. **Policy Approach**: Review of drainage capacity to determine future capacity improvement needs.	$4.2M	 Increase
Traffic Services & Lighting	**Risk Based Approach**: Targeted maintenance and renewals. Upgrade signs on high use routes to retro-reflective to improve safety. Increased pavement marking for high wear areas. **Procurement**: Review packaging and bundling of work and options for shared delivery with neighbouring AOs.	$1.8M	 Small increase
Footpaths & Cycleways	**Baseline Strategy**: Reactive maintenance and renewals.	$0.3M	 No change
Parking	**Baseline Strategy**: Reactive maintenance and renewals.	$0.1M	 No change
Environmental / Emergency Works	**Baseline Strategy**: Reactive maintenance and renewals. Hazardous tree removal programme to proactively limited road closures. **Risk Based Approach**: Increased focus on restoring service after minor events.	$2.4M	 Small increase
Network & Asset Management	**Baseline Strategy**: Network & asset management and procurement changes. **Policy Approach**: Increased focus on data collection (where there are gaps) and management processes. Strategic focus on planning for safety improvement through network wide safety audit and speed management review. Continued focus on demand and risk management.	$4.2M	 Small increase

Core Activity/Asset Group	How Desired Outcomes Will be Delivered	Indicative 3-year Expenditure	Change from 2018-21 NLTP
	Adjust levels of Service: Cost of service analysis and engagement with community to develop a clear understanding of affordable levels of service.		

8.3.3 OPTION 3 - ENHANCED PROGRAMME FOR GROWTH

This option focuses on a **higher level of investment in maintenance, operations and renewals to support and enable land use development, freight demands and traffic growth**. It seeks to address Wairoa's strategic problems in the short term by adding additional capacity in the network where there are current constraints, particularly through our pavements and bridges renewal programmes. This would see the ratio of planned work to reactive work for local roads increased from an average 32% renewals to 68% maintenance for the 2018-2021 period to an average 40% renewals to 60% maintenance for the 2021-2024 period.

Core Activity/Asset Group	How Desired Outcomes Will be Delivered	Indicative 3-year Expenditure	Change from 2018-21 NLTP
Sealed Road Pavements	**Risk Based Approach**: Proactive maintenance focussed on high risk areas. **Adjust Timing**: Removal of renewals backlog over a 3 year period to improve capacity, condition and safety issues. **Procurement**: Smart buying through packaging work at the re-tendering of maintenance contracts.	$10.2M	↑ Increase
Unsealed Road Pavements	**Baseline Strategy**: Maintenance similar to previous years, with risk-based approach based on ONRC (i.e. higher risk approach on Access & LV roads), where applicable. **Adjust Programme**: More focus on proactive renewals ahead of increased forestry loading. **Procurement**: Smart buying through packaging work at the re-tendering of maintenance contracts.	$10.2M	↑ Increase
Bridges	**Baseline Strategy**: Targeted maintenance and renewals based on superficial inspections and predicted demand from haulier engagement for HPMV Vehicles. **Policy Approach**: Focussed condition and capacity assessments, seismic screening, HPMV permitting, materials testing and painting screening.	$1.5M	↑ Small increase
Other Structures	**Baseline Strategy**: Targeted maintenance and renewals in vulnerable areas. **Policy Approach**: Retaining wall inspections, condition assessments and consenting requirements review.	$0.9M	↑ Small increase
Drainage	**Risk Based Approach**: Proactive maintenance focussed on high risk areas. **Adjust Programme**: More proactive drainage renewals, particularly on Lifeline routes. **Policy Approach**: Review of drainage capacity to determine future capacity improvement needs.	$6M	↑ Increase
Traffic Services & Lighting	**Adjust Levels of Service**: Targeted maintenance and renewals. Upgrade all signs to retro-reflective to improve safety. Increased pavement marking for high wear areas.	$1.8M	↑ Increase

Core Activity/Asset Group	How Desired Outcomes Will be Delivered	Indicative 3-year Expenditure	Change from 2018-21 NLTP
	Procurement: Review packaging and bundling of work and options for shared delivery with neighbouring AOs.		
Footpaths & Cycleways	**Baseline Strategy**: Reactive maintenance and renewals.	$0.3M	 No change
Parking	**Baseline Strategy**: Reactive maintenance and renewals.	$0.1M	 No change
Environmental / Emergency Works	**Baseline Strategy**: Reactive maintenance and renewals. Hazardous tree removal programme to proactively limited road closures. **Risk Based Approac**h: Increased focus on restoring service after minor events with higher level of investment	$2.4M	 Increase
Network & asset Management	**Baseline Strategy**: Network & asset management and procurement changes. **Policy Approach**: Increased focus on data collection (where there are gaps) and management processes. Strategic focus on planning for safety improvement through network wide safety audit and speed management review. Continued focus on demand and risk management. **Adjust levels of Service**: Cost of service analysis and engagement with community to develop a clear understanding of affordable levels of service.	$4.2M	 Small increase

For each of these three programmes we have completed a simplified Multi-criteria assessment process. The key criteria assessed align with Council's Draft Investment Decision Making project prioritisation criteria and Waka Kotahi's IDMF. The criteria used are:

Criteria	High	Medium	Low
			
Alignment with GPS / Transport Outcomes	Strongly aligns / contributes to GPS and national Transport Outcomes	Some alignment / contribution to GPS and national Transport Outcomes	Limited alignment / contribution to GPS and national Transport Outcomes
Addresses Strategic Problems	Significant improvement expected during the NLTP period (i.e. will address problems over the short term)	Some improvement expected during the NLTP period (i.e. will address problems over the medium term)	Limited improvement expected during the NLTP period (i.e. will address problems over the long term)
ONRC Level of Service Impact	Improved level of service	Maintains current level of service	Reduced level of service
Risk Impact	Risk level significantly decreased	Risk level somewhat decreased	Risk level remains the same or increases
Affordability	Provides value for money solution, with limited impact on rates and debt.	Provides moderate value for money solution. Potential minor increase in rates or debt.	Significant financial impact that is not sustainable. Contributes to significant rates increase or increased debt levels.

Criteria	High	Medium	Low
			
Critical Success Factors	Appropriate local supplier capacity & capability available and it is achievable / feasible to complete work within the required timeframe	Appropriate supplier capacity & capability available within the region and it is achievable / feasible to complete work within the required timeframe with focused, proactive management approach	Will be challenging to complete the work with available suppliers within the required timeframe

8.4 STRATEGIC FIT & PRIORITISATION

The table below shows overall strategic fit of each option based on the assessment criteria. Based on the strategic fit assessment above and the Risk and ONRC CLoS outcomes, the preferred option is OPTION 2 – Optimised Investment. While Option 2 is the preferred option, this option is unaffordable to Council in the short term due to funding constraints, so **Option 1 – Baseline Strategy & Policy Approach will be the selected option**.

Programme	GPS Alignment	Addresses Strategic Problems	ONRC LOS Impact	
Option 1 – Baseline Strategy & Policy Approach	Will limit freight network and may contribute to increased safety issues not meeting Road to Zero objectives	Will only partially address problems identified, over the long term	Will not address safety, accessibility, resilience & amenity (STE) likely to deteriorate	
Option 2 – Optimised Investment	Ensures maintenance of the network and contribute to improving the freight network & moving towards meeting Road to Zero objectives	Will address or limit the consequences of problems identified and seeks to address them fully over medium term	CLoS will improve in some areas. Safety, accessibility, resilience and amenity will be addressed over the medium term.	
Option 3 – Enhanced Programme for Growth	Ensures maintenance of the network and contribute to improving resilience, the freight network & meeting Road to Zero objectives	Will address problems identified over the short term	CLoS will be improved in the areas required	

8.5 LOW COST LOW RISK IMPROVEMENTS

A summary of the key Low Cost Low risk initiatives included in this LTAMP is included below. More detail supporting these initiatives is included in the relevant asset sections of the Detailed Business Case and in the Waka Kotahi Roading Related Low Cost Low Risk Activity List spreadsheet in Appendix J.

RLTP Alignment		Activity	Brief Scope	
RLTP Outcome	Intervention Type			
Freight Supply Chain	Bridge Strengthening Programme	**Poututu Bridge Replacement**	Construction and design costs for deck replacement	
Freight Supply Chain	Bridge Strengthening Programme	**Taits Bridge Replacement**	Construction and design costs for beam & deck replacement	
Freight Supply Chain	Bridge Strengthening Programme	**HPMV Improvement Package 1**	Construction of a strengthening package	
Freight Supply Chain	Bridge Strengthening Programme	**Timber Deck Replacement Package 1**	Timber deck improvements based on results of timber deck testing - photo show ageing condition.	
Safety & Transport Choice	Accessibility Improvements	**New Footpath – Fraser-Grant Clyde & Rutherford Street**	New footpaths based on priority matrix	
Safety	Corridor Improvements	**Piping Open Drains – Ruataniwha Street**	Piping open drains based on priority matrix	
Safety	Corridor Improvements	**Piping Open Drains – Kitchener Street**	Piping open drains based on priority matrix	

	Affordability	Critical Success Factors	Comments
	 Short term is affordable, but reactive approach likely to result in unsustainable costs in the long term	 Programme is achieveable	The Baseline Strategy has a reactive approach to strategic planning. While it ensures that the network does not significantly deteriorate in the short term, it does not take into account future demand impacts, and some deterioration may be experienced. The Policy approach improvements will allow for enhancement of asset knowledge and will contribute to better strategic planning in future.
	 Proactive approach will ensure that will ensure long-term sustainability but is unaffordable in the short term due to funding constraints.	 Programme is achieveable with focussed programming & monitoring	This option seeks to balance levels of service requirements, risk mitigation and affordability. The strategic problems will be addressed over the medium term (up to 5 years). This option will ensure that investment provides: • the right thing • in the right place • at the right time • for the right price
	 Proactive approach, but may not be sweating the asset enough	 Will be challenging to achieve the full programme with current available resourcing (internal & external)	This option will ensure investment provides: • the right thing • in the right place • at the right time • for the right price However, will be difficult for council to deliver with current resources and capability.

	Investment Objective	Strategic Response	Preferred Programme Funding ($000)		
			2021/22	2022/23	2023/24
	Improve access to productive land	Optimise bridge capacity	$350		
	Improve access to productive land	Optimise bridge capacity		$325	
	Improve access to productive land	Optimise bridge capacity			$300
	Improve access to productive land	Optimise bridge capacity		$300	
	Roads that support safer travel	Network safety planning and targeted safety improvements			$175
	Roads that support safer travel	Network safety planning and targeted safety improvements	$175		
	Roads that support safer travel	Network safety planning and targeted safety improvements		$365	

RLTP Alignment		Activity	Brief Scope	
RLTP Outcome	Intervention Type			
Safety	Corridor Improvements	**Piping Open Drains – McLean Street**	Piping open drains based on priority matrix	
Safety	Corridor Improvements	**Dust sealing**	Road sealing to mitigate dust based on priority matrix. 1 site, 300m per year. Y1= Waihua Valley Road. Y2= Wai Station Road. Y3=Blucks Pit Road	
Safety	Corridor Improvements	**Traction Seals**	Traction sealing based on priority sites. 1 site, 300m approx. per year. Mohaka Coach Road (SH Alternative), Hereheretau Road, Ruapapa Road	
Safety	Corridor Improvements	**Nūhaka-Ōpoutama Safety Improvements**	Safety improvements from widening, corner signage and safety barriers. 1.5kms safety barrier, 20 corners over 3 years.	
Safety	Corridor Improvements	**Widenings/Sight Benching/Safety Improvements**	Safety improvements from widening and site benching corners on rural roads. Roads – Mohaka Coach Road (SH Alternative), Putere Road, Ruapapa Road, Mangapoike Road)	
Safety	Corridor Improvements	**Curve Safety Improvements**	Safety improvements on curves where no or minimal signage is present, based on network safety audit results. Targeting 40-50 high risk corners minimum over 3 years depending on final treatment.	
Safety	Corridor Improvements	**Urban Intersection Safety Improvements**	Minor improvements (signage, markings, kerbing/islands) on intersections with known crash statistics in urban environment, including speed management. 2 intersections per year. Clyde Rd, Queen St, Marine Parade town centre focussed.	
Safety & Transport Choice	Safer routes to school programme	**Speed Management – schools, Marae, etc.**	Focus on safer speeds around schools and Marae. Speed threshold treatments, markings, signage, traffic calming. 10 sites over 3 years.	
Safety & Transport Choice	Cycle network delivery	**On Road Cycle Lane Markings**	Focus on Walking and Cycling strategy to improve cycling around Wairoa. 2km/year new cycle lane.	
Resilience	Erosion Management	**River erosion protection**	Tree planting, retreats, bank stabilisation on key river routes. Awamate Road, Hereheretau Road.	
Resilience	Coastal Erosion Management	**Māhia Resilience Improvements**	Retreats, bank stabilisation & drainage improvements on Māhia East Coast Road & Nūhaka-Ōpoutama.	
Resilience	Corridor Improvements	**Culvert Capacity Upgrades**	Climate change increasing rainfall, need to upgrade culverts to an adequate size to deal with the volume of water. 20 culvert lines per year, targeted at lifeline and high classification routes.	
Resilience & Safety	Corridor Improvements	**Associated improvements**	Improvements for rehab, metal build up sites including widening, SWC & culvert improvements & safety improvements.	
Safety	Corridor Improvements	**Lucknow/Lahore Intersection Improvements**	Design and consultation for new roundabout and pedestrian facilities at Lucknow/Lahore/SH2 Intersection	
Freight Supply Chain	Corridor Improvements	**Professional Services for Improvement Design**	Support needed to implement projects, especially bridge design & MSQA.	
Resilience & Safety	Corridor Improvements		Nūhaka-Ōpoutama PM, Design & land purchase	

	Investment Objective	Strategic Response	Preferred Programme Funding ($000)		
			2021/22	2022/23	2023/24
	Roads that support safer travel	Network safety planning and targeted safety improvements			$185
	Increasing demand on unsealed roads	Reduced environmental impacts			$200
	Affordable Level of Service	Value for money solutions & smart procurement			$100
	Roads that support safer travel	Network safety planning and targeted safety improvements	$150	$50	$100
	Roads that support safer travel	Network safety planning and targeted safety improvements	$100	$100	$100
	Roads that support safer travel	Network safety planning and targeted safety improvements	$150	$50	$100
	Roads that support safer travel	Network safety planning and targeted safety improvements	$20	$20	$20
	Roads that support safer travel	Network safety planning and targeted safety improvements	$50	$100	$100
	Roads that support safer travel	Network safety planning and targeted safety improvements	$20	$20	$20
	Improve resilience to climate change impacts	Stabilise key routes			$90
	Improve resilience to climate change impacts	Stabilise key routes	$200	$100	
	Improve resilience to climate change impacts	Stabilise key routes	$150	$150	$150
	Affordable Level of Service	Value for money solutions & smart procurement	$50	$50	$50
	Roads that support safer travel	Network safety planning and targeted safety improvements			$60
	Affordable Level of Service	Value for money solutions & smart procurement	$70	$125	$60
	Improve resilience to climate change impacts	Stabilise key routes	$300		

8.6 HAWKE´S BAY REGIONAL PROJECTS

At a Hawke's Bay regional level there are a number of regionally significant projects that have been included in the RLTP options analysis for the 2021-2024 period. The majority of these projects are on the State Highway running through the Wairoa District and are to be delivered by our partner, Waka Kotahi. The table below provides a full list of projects being considered, which are being reviewed and prioritised through the RLTP process.

Transport Outcome	Project	Description	Investment Level	Partner Organisation
Safety	SH2/ Queen Street, Wairoa Upgrade	Safety upgrade to improve access	High	Waka Kotahi
	SH2/ Lucknow / Lahore Street, Wairoa Upgrade	Safety upgrade to improve access and simplify intersection	Medium	Waka Kotahi
	SH2 Safety Upgrades	Targeted safety and resilience issues on corridor e.g. Devil's Elbow, Tutira, Tongoio. Addressing low kiwirap star rated roads, high risk corridors and intersections and vulnerable road users	Medium	Waka Kotahi / Hastings District Council
	SH38 Wairoa to Murupara	Improve safety and resilience of SH38	High	Waka Kotahi
	Investment in Māhia East Coast Road / Nūhaka-Ōpoutama Road	Address safety deficiencies on the corridor	Medium	N/A
	SH2 Town Centres Improvements	Improving safety through Wairoa, Waipawa and Waipukurau main centres	Medium	Waka Kotahi
	SH2 Napier to Gisborne Passing Opportunities	Safety and efficiency improvements	Low	Waka Kotahi
Resilience	SH2 - Waikare Gorge realignment	Improve resilience and access to address ongoing slips and road closures	Low	Waka Kotahi
	Nūhaka-Ōpoutama Blowhole Retreat	Road realignment to reopen 2 lanes and protect from future dropout	High	
	Nūhaka-Ōpoutama Coastal Erosion Protection	Coastal protection structures to minimise the effect of coastal erosion on the road	High	
Economic Prosperity	Wairoa CBD Upgrade		High	N/A
	Regional bridge strengthening programme	Bridge Strengthening Programme to open up more of the network to 50MAX and HPMVs		
Inclusive Access	Wairoa Walking and Cycling Strategy	Complete Walking and Cycling Strategy and implement short term actions	Low	N/A

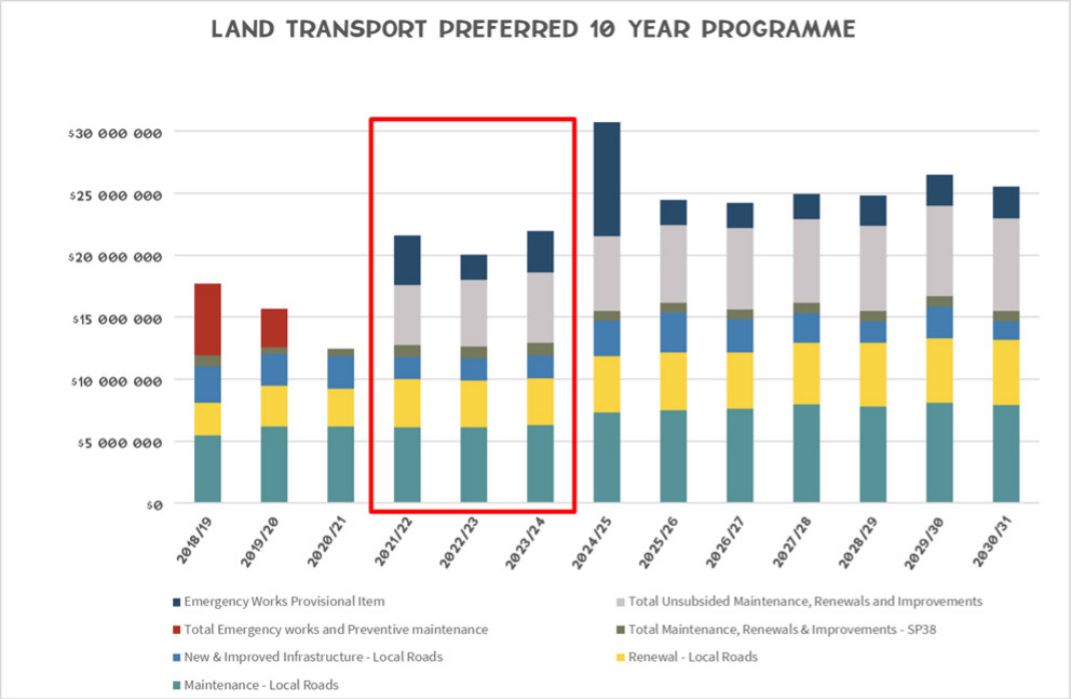
9.1 WHAT IT WILL COST

The 10 year programme of work based on Option 2 is included below. Years 1 to 3 (2021/22-2023/24) provide the key focus for this AMP and are detailed further in the Detailed Business Case.

The programme is largely based around a business as usual approach, with an emphasis on improving our understanding of the network assets through additional inspections and data capture. We have allowed for some Low Cost-Low Risk improvement initiatives to address safety and bridge capacity concerns to allow for full accessibility to heavy commercial vehicles.

Some changes have been made to previous strategies and work programmes to provide better alignment with the GPS and address the specific problems identified through the business case process and as a result of COVID-19.

This represents a **'Core Programme'** (rather than an enhanced programme) when assessed against Waka Kotahi New Zealand Transport Agency's (Waka Kotahi) Investment Decision Making Framework for Road Maintenance Activities.



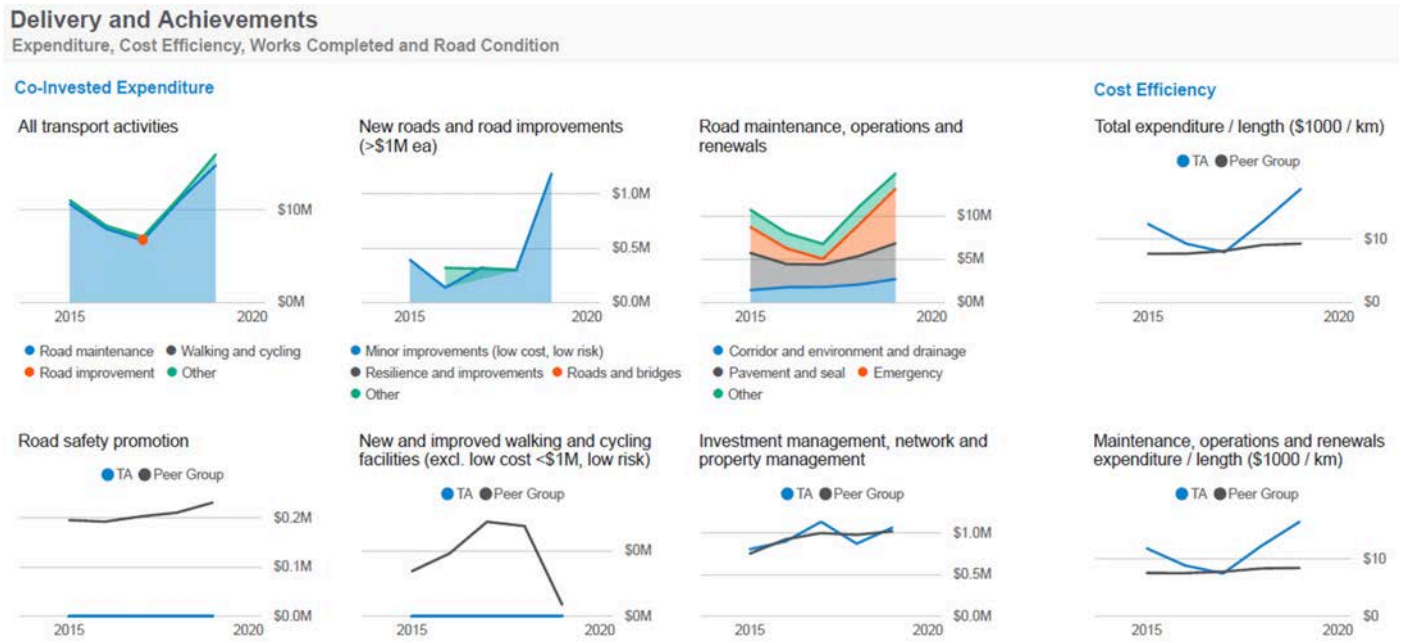
The table below shows the subsidised funding requirements for the 2021-24 NLTP, and the change in the requirements from the 2018-21 period.

Programme Component	Description	2021-24 NLTP Funding Requirement	Change from 2018-21 Period
Operations & Maintenance	Increased investment required above that approved for the 2018-21 NLTP to meet increased maintenance contract costs, as a result of re-tendering the contracts and provide additional emphasis on drainage and unsealed roads. This will ensure a safe and fit for purpose transportation network to meet customer expectations and to prevent network deteriorating to unacceptable condition.	$18.5M or $8,165/km/yr	Increase of 4%

Programme Component	Description	2021-24 NLTP Funding Requirement	Change from 2018-21 Period
	Through the maintenance work category 151 and activity management work category 003 we have allowed for the following asset management initiatives: • Network wide safety audit • Asset condition inspections • Additional bridge surveys		
Renewals	Increased investment is required to maintain a safe and fit for purpose transportation network to meet customer expectations. The increases include additional proactive drainage renewals to provide network resilience, increased surfacing renewals to catch up on a historic backlog and increased traffic services renewals to address safety issues.	$11.4M or $4,498/km/yr	Increase of 27%
Capital Improvement	Low Cost-Low Risk improvement initiatives to address safety and bridge capacity concerns to expand High Productivity Motor Vehicle (HPMV) access to the network.	$5.4M or $2,127/km/yr	Decrease of 34%
Total Budget		**$35.3M or $13,937/km/yr**	**Increase of 1%**

9.1.1 EXPENDITURE COMPARATIVE TO PEER GROUP

The comparative expenditure graphs below, show our historic expenditure trends, with peer comparison of Total Expenditure per kilometre and Maintenance, Operations and Renewals Expenditure per kilometre. **Wairoa has spent significantly more than the peer group in 2018/19, however the key increase in expenditure was for emergency works.** The expenditure on programmed maintenance, operations and renewals was comparable with the peer group. Looking forward, the Wairoa programmed expenditure is increased by additional 50% since 2018/19.



9.1.2 10 YEAR FINANCIAL SUMMARY

The table below shows the summary expenditure for subsidised and unsubsidised activities. A detailed breakdown of each activity is included in Part C: Detailed Business Case.

Work Category/Activity		10 Year Budget ($000)				
		18/19	19/20	20/21	21/22	22/23
003	Activity Management Plans				100	158
111	Sealed pavement maintenance	717	759	759	812	838
112	Unsealed pavement maintenance	1,579	2,048	2,048	1,750	1,813
113	Routine drainage maintenance	994	745	745	662	667
114	Structures maintenance	35	200	311	243	245
121	Environmental maintenance	700	819	800	745	702
122	Traffic services maintenance	341	322	307	350	392
123	Operational traffic management	-	-	-	-	-
124	Cycle path maintenance	5	20	8	9	9
125	Footpath maintenance	-	-	-	52	53
131	Level crossing warning devices	2	4	4	4	4
140	Minor events	21	99	102	100	94
141	Emergency works	-	-	-	-	-
151	Network & asset management	1,049	1,169	1,099	1,258	1,161
	Maintenance Total	**5,443**	**6,186**	**6,185**	**6,083**	**6,135**
211	Unsealed road metalling	470	920	940	952	934
212	Sealed Road Resurfacing	0	1,350	1,040	1,243	900
213	Drainage renewals	378	387	349	665	662
214	Sealed road pavement rehabilitation	1,179	-	-	305	305
215	Structures component replacement	485	510	499	510	733
221	Environmental renewals	-	-	-	-	-
222	Traffic services renewals	117	76	231	175	174
225	Footpath renewals				54	54
	Renewals Total	**2,629**	**3,243**	**3,057**	**3,904**	**3,761**
341	Low Cost/Low Risk Improvements	2,955	2,577	2,627	1,785	1,746
	Improvements Total	**2,955**	**2,577**	**2,627**	**1,785**	**1,746**
	Unsubsidised OPEX				188	197
	Unsubsidised Renewals				0	0
	Unsubsidised Totals				**188**	**197**
	Depreciation				3,587	3,784
	Overheads & Other Financial Costs				1,038	1,421
	Council Internal Costs Total				**4,625**	**5,205**
Provisional Items						
	Emergency Works OPEX				500	516
	Emergency Works Capital				3,486	1,521
	Total – Provisional Items				**3,986**	**2,037**
	GRAND TOTAL	**11,027**	**12,005**	**11,868**	**20,572**	**19,080**

10 Year Budget ($000)								
23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
204	33	51	230	153	55	222	38
877	994	1,020	981	1,090	996	949	880
1,878	2,235	2,294	2,353	2,413	2,472	2,532	2,591
723	878	899	794	812	830	848	865
247	264	271	278	285	292	300	307
756	758	946	798	995	838	1,044	879
335	491	392	517	412	543	432	569
-	-	-	-	-	-	-	-
9	16	17	17	18	18	19	19
53	50	51	53	54	55	57	58
4	4	4	4	4	4	4	4
89	218	224	230	235	241	247	253
-	-	-	-	-	-	-	-
1,143	1,392	1,344	1,329	1,501	1,442	1,423	1,457
6,317	**7,332**	**7,513**	**7,583**	**7,972**	**7,788**	**8,076**	**7,920**
892	1,121	1,172	1,148	1,225	1,261	1,261	1,195
925	1,208	1,240	1,084	1,372	1,447	1,482	1,517
659	834	856	878	900	923	945	967
305	332	341	350	359	368	377	386
731	751	771	791	811	831	851	871
-	-	-	-	-	-	-	-
173	234	241	247	253	259	266	272
54	33	34	34	35	36	37	38
3,740	**4,514**	**4,655**	**4,533**	**4,956**	**5,126**	**5,218**	**5,245**
1,861	2,889	3,178	2,698	2,413	1,749	2,532	1,492
1,861	**2,889**	**3,178**	**2,698**	**2,413**	**1,749**	**2,532**	**1,492**
172	249	240	222	255	192	202	277
0	0	0	0	0	0	124	0
172	**249**	**240**	**222**	**255**	**192**	**326**	**277**
3,940	4,104	4,286	4,461	4,633	4,791	4,972	5,128
1,584	1,658	1,766	1,878	1,857	1,898	2,030	2,044
5,524	**5,763**	**6,053**	**6,339**	**6,490**	**6,689**	**7,002**	**7,173**
531	545	560	574	589	603	618	632
2,827	8,637	1,444	1,442	1,438	1,833	1,877	1,921
3,357	**9,182**	**2,003**	**2,016**	**2,027**	**2,436**	**2,495**	**2,553**
20,971	**29,928**	**23,642**	**23,391**	**24,112**	**23,979**	**25,648**	**24,659**

9.1.3 10 YEAR FINANCIAL SUMMARY (SP38)

Special Purpose Road 38 is funded separately from the local roads budget provision. Details of funding requirements for SP38 are detailed below.

Work Category/Activity		10 Year Budget ($000)				
		18/19	19/20	20/21	21/22	22/23
111	Sealed pavement maintenance	9	9	9	10	10
112	Unsealed pavement maintenance	191	195	211	200	202
113	Routine drainage maintenance	53	55	57	80	81
114	Structures maintenance	-	-	-	57	58
121	Environmental maintenance	39	40	41	46	47
122	Traffic services maintenance	4	4	4	10	10
140	Minor events	26	26	27	50	50
151	Network & asset management	15	16	16	20	20
	Maintenance Total	**336**	**345**	**364**	**474**	**478**
211	Unsealed road metalling	108	113	122	120	120
212	Sealed Road Resurfacing	-	-	-	40	10
213	Drainage renewals	33	34	34	50	50
214	Sealed road pavement rehabilitation	-	-	-	0	0
215	Structures component replacement	250	-	-	0	0
221	Environmental renewals	-	-	-	-	-
222	Traffic services renewals	8	3	3	5	5
	Renewals Total	**399**	**149**	**159**	**215**	**185**
341	Low Cost/Low Risk Improvements	150	100	75	310	310
	Improvements Total	**150**	**100**	**75**	**310**	**310**
Provisional Items						
	Emergency Works Capital				75	77
	Total – Provisional Items				**75**	**77**
	GRAND TOTAL	**884**	**595**	**599**	**1,074**	**1,050**

10 Year Budget ($000)								
23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
10	11	11	11	12	12	12	13
204	206	206	207	207	208	208	209
82	87	90	92	94	97	99	101
58	62	64	66	67	69	71	72
47	51	52	53	55	56	57	59
10	11	11	11	12	12	12	13
50	55	56	57	59	60	62	63
20	22	22	23	24	24	25	25
482	**504**	**512**	**521**	**529**	**538**	**546**	**555**
120	131	134	138	141	145	148	152
9	0	0	0	0	0	0	0
50	55	56	57	59	60	62	63
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
-	-	-	-	-	-	-	-
5	5	6	6	6	6	6	6
184	**191**	**196**	**201**	**206**	**211**	**216**	**221**
310	75	75	75	75	75	75	75
310	**75**	**75**	**75**	**75**	**75**	**75**	**75**
80	82	84	86	88	90	93	95
80	**82**	**84**	**86**	**88**	**90**	**93**	**95**
1,057	**852**	**867**	**883**	**898**	**914**	**930**	**946**

9.2 HOW WE WILL PAY FOR IT

9.2.1 FUNDING SOURCES & AFFORDABILITY

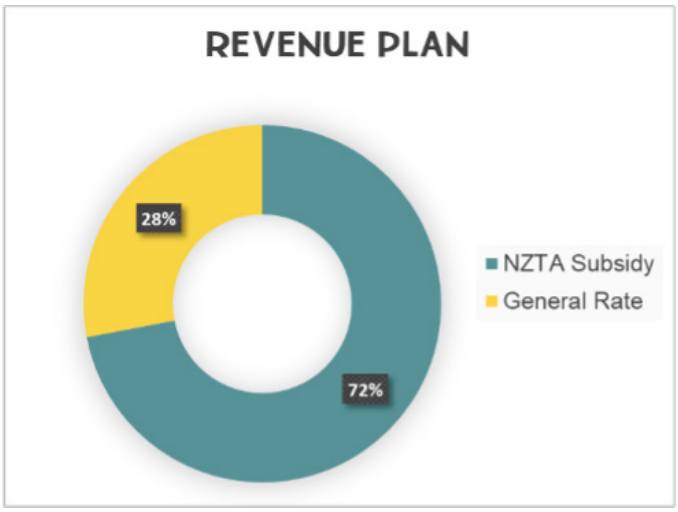
We pay for activities carried out on the land transport network by the following means:

WAKA KOTAHI FUNDING SUBSIDY

For Wairoa this is provided as a Funding Assistance Rate of 75% of the cost of maintenance and renewals work. Note, while the direct FAR rate from Waka Kotahi is 75%, the effective Waka Kotahi subsidy is 72% as shown on the revenue plan graph, reflecting that some land transport activities are not subsidized by Waka Kotahi.

Exceptions to this base FAR include SH38 and SP38; these are 100% funded until 2023/24; thereafter Waka Kotahi are indicating these parts of the roading network will also be funded at the relevant base FAR (subject to the agreed negotiation of revocation of highway and special purpose status).

An additional exception to the base FAR is emergency works that exceed a cumulative annual total of $440,000 per annum. Costs up to this figure will be funded at base FAR. Any costs incurred over this threshold will have an additional 20% FAR applied (i.e. in 2020/21 this would be 75% base FAR + 20% = 95% maximum emergency funding FAR). Historically Council has spent $2 million per year on flood damage restoration works.



DISTRICT RATES

In line with Council's **Revenue and Financing Policy**, Council funded activities such as roading, airport maintenance and environmental health costs are rated based on a property's land value. **Council works hard to keep within the rating thresholds planned and ensure that this is as affordable as possible.** This has not been an easy task due to the challenges created by COVID-19 with the long-term effects and impacts still uncertain.

The district's community funds the balance of the budget costs (e.g. 28%) through its local rates share. Funding for the local share comes from:

- **Uniform Annual General Charge**: The uniform annual general charge for 2020/2021 is $726.20 (incl. GST), raising $3,714,389 (incl. GST) compared with $3,622,273 (incl. GST) in 2019/2020. In 2020/21, $101,000 was assigned to the Transport activity.
- **Targeted Rate – Roading**: Council will assess a targeted rate for roading on the land value of all rateable land in the district, set differentially according to where land is situated, the use to which the land is put and the land value of the land.The roading targeted rate will raise $4,157,696 (including GST) in 2020/2021 [2019/2020: $3,982,566]. The roading rate will be used to fund the roading activity.

This level of rates is sufficient to fund Wairoa's local share of the annual programmed Transport costs for the District.

Council's general ledger has these set up under the three main categories:

- Roading Subsidised (RS)
- Roading Non-subsidised (RN)
- Parking (PA)

Works required beyond the immediate road corridor to achieve effective drainage etc., provide public parking and/or facilitate alternative non-motorised user access, do not typically qualify for central government funding. Such activities are provided for under budgets allocated in roading non-subsidised and parking funding plans.

OTHER FUNDING SOURCES

Wairoa District Council staff, through Central Government funding platforms, have brought millions of dollars into our local economy, which does not allow us to reduce rates but does allow us to transform and improve our district without impacting on rates. This funding will be allocated to projects which have been deferred or are unbudgeted for. With this funding injection, Council will be able to bring the projects forward without this being a burden on our ratepayers.

Through the Provincial Growth Fund (PGF), we have received a $4.8 million cash injection to regenerate and revitalise the town centre creating a hub for new educational and employment pathways. We also received $7.3 million for the Māhia East Coast Road sealing and an investigation into the Nūhaka-Ōpoutama road alignment.

We have submitted a number of other applications for PGF funding for transport related improvement projects, and will continue to seek additional funding through this, and other avenues, as long as it remains available.

9.3 ACHIEVING VALUE FOR MONEY

The strategic case for the procurement of services for the operation and maintenance of Council's transportation assets has been set out under Part A Section 5.4.2 of this AMP.

9.3.1 SMART BUYER SELF-ASSESSMENT

Completion of the Smart Buyer Self-Assessment shows that Wairoa District Council has strengths in the following areas:

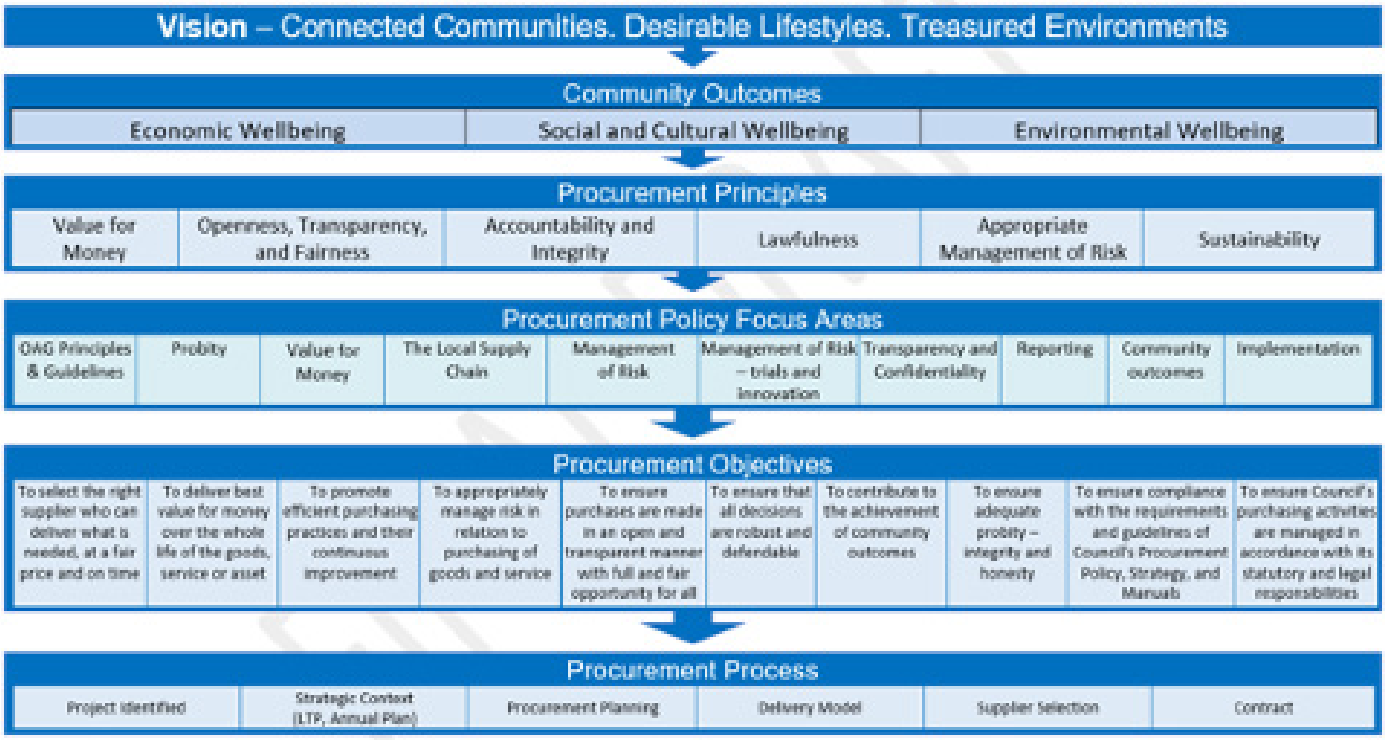
- Has access to expertise that fully enables best use of available data – through contracts with key consultant suppliers including WSP as well as other industry consultants.
- Is open to alternative solutions to those proposed in the contract documents – Council has implemented several different contract structures to try and achieve best fit for purpose, including a performance based unsealed roads maintenance contract
- Actively pursues value for money & does not always award contracts to the lowest price

- Supports ongoing skill and competency training and development of staff

However, overall the Self-Assessment indicated that although many Smart Buyer principles have been embraced there are still some opportunities for improvement to better pursue Value for Money.

9.3.2 2020 PROCUREMENT STRATEGY

Council's Procurement Policy and Procurement Strategy have been updated in March 2020. Subsequently the Strategy has been reviewed and endorsed by Waka Kotahi effective 31 March 2020. Key Procurement Policy Focuses and Objectives are detailed below:



The Strategy outlines the key criteria to successful procurement and the successful delivery of services requires a whole-of-life approach implementing good asset management planning including lifecycle management planning and modelling.

The key components of value for money are:

- Robust planning to identify an effective work plan
- Appropriate, efficient and compliant supplier selection procedures
- Maintaining capacity and competitiveness in the local market
- Successful delivery of works and services (the right outcome on time and within budget)

9.3.3 IMPLEMENTING OUR STRATEGY

While much of the procurement programme process must comply with the policies and procedures set out within the overarching or supporting documents, Council still has significant discretion around the following elements:

- Identifying and selecting the most efficient and best value for money procurement option from the range provided in the NZ Procurement Manual Sections 6.4 and 7.4.
- Identifying and selecting the best combination of work activities within and between contracts that will achieve the best outcome to Council, its rate payers and road users for the money spent.
- Develop and retain a high level of institutional understanding around procurement and delivery risks associated with the respective work activities.
- Encouraging, and if necessary, incentivising an adequate level of local contractor industry capacity and experience over the long-term.
- Determining the most appropriate tender evaluation criteria to maximise Council's opportunity to engage the best supplier within an acceptable price range.
- Ensuring Council has an experienced and well-resourced internal business unit capable of managing both the procurement and delivery phases.
- Engaging sufficient external professional services support where necessary to assist with additional or specialist technical requirements.
- Monitoring supplier performance against contractual requirements, community outcomes and Council objectives
- Identifying opportunities for improvement and incorporating these into future procurement processes.

The implementation the Procurement Strategy incorporating all of these elements will deliver significant benefits to Council and its stakeholders. These benefits will be a direct result of a healthy contracting industry being sustained within the district while also ensuring an adequate level of competition for the tendered works. This level of competition is essential for Council to have confidence around establishing market prices and transparency around best value for money outcomes.

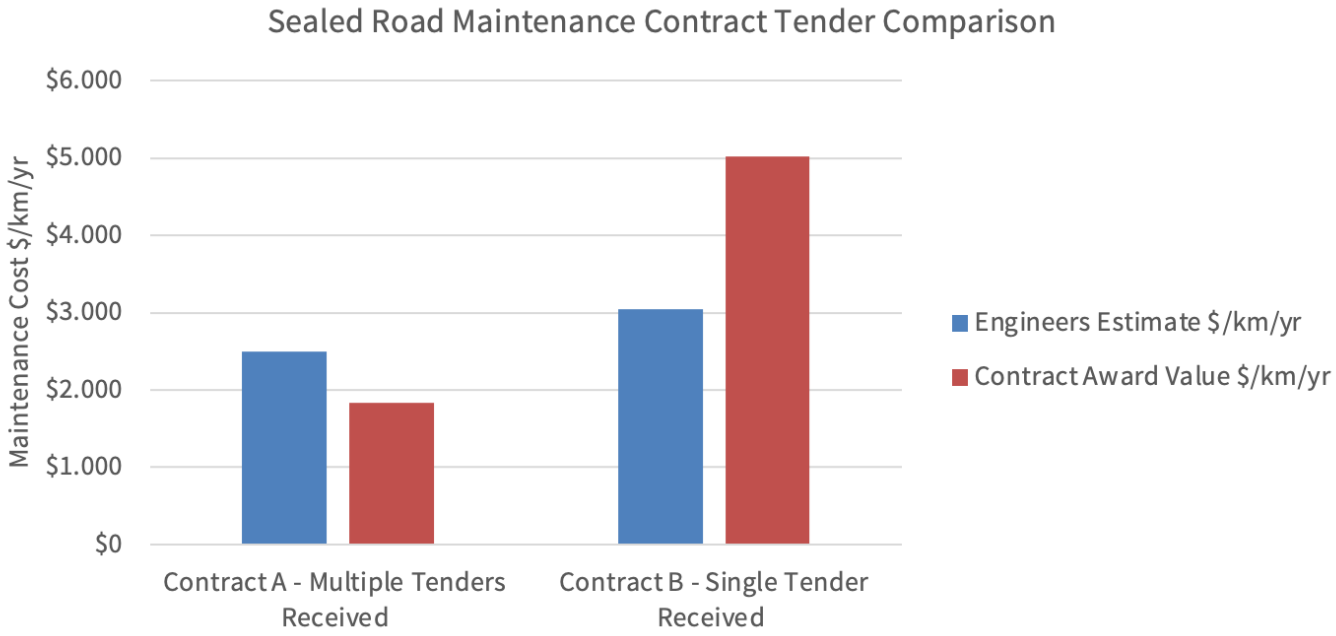
SUSTAINING A HEALTHY MARKET PLACE AND COMPETITIVE PRICING

Our Procurement Strategy sets out to maximise the level of interest from the contracting industry and ensure two or more tenders are received for all Council's tendered works. The value associated with a sustainable and healthy contracting marketplace is illustrated in

the following example, where two road maintenance contracts from different RCA's have been compared, with Contract A attracting multiple tenders and Contract B attracting only a single tender. Contract A was awarded based upon the outcome of a Price Quality evaluation while Contract B was awarded after price negotiation.

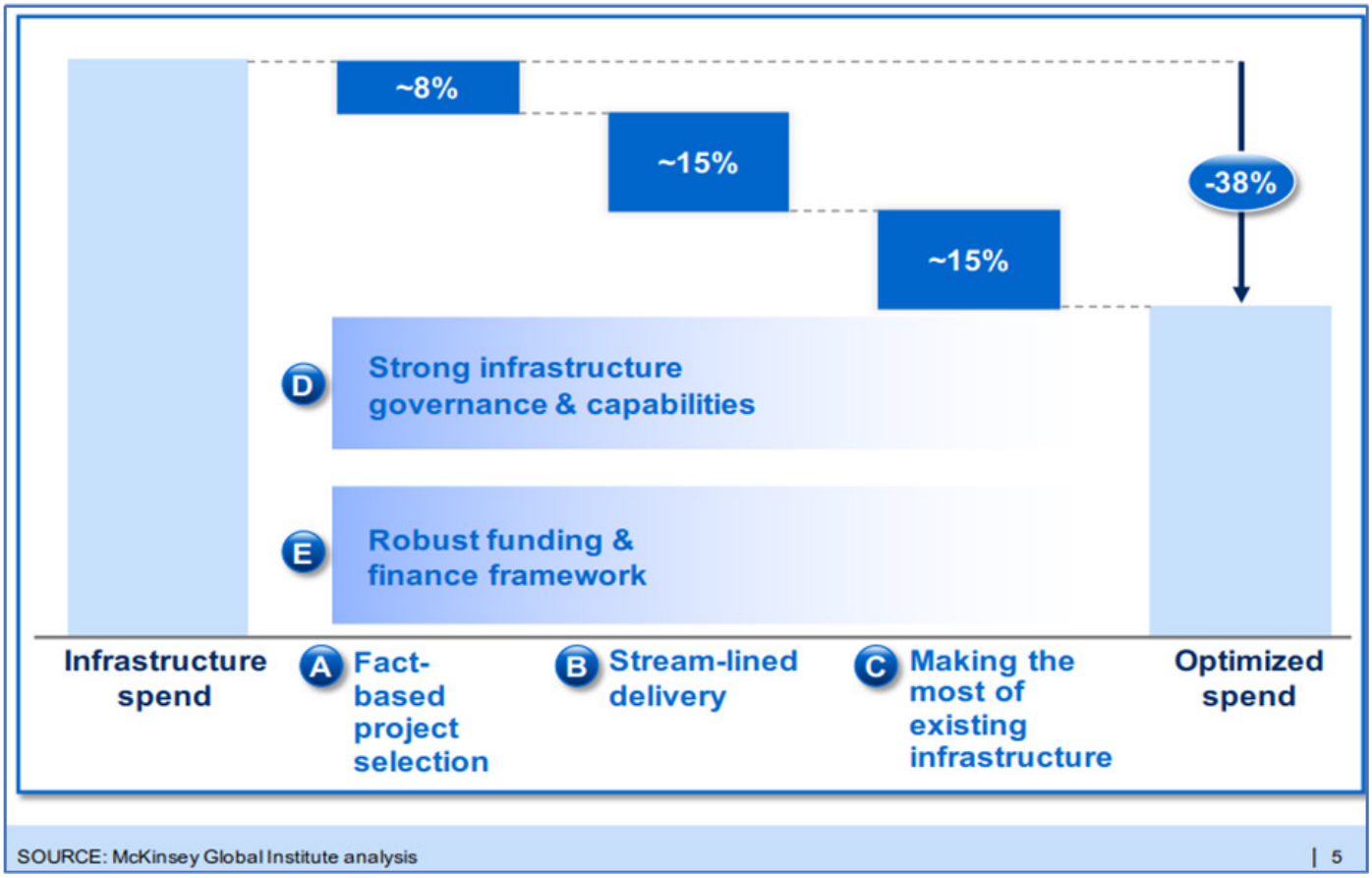
Even with price negotiation under Contract B the contract award price was still significantly more than the Engineers Estimate, compared to the benefit of increased price competition that was achieved with Contract A.

It is therefore essential that we continue to encourage multiple tenders to be submitted for its major work activities, with two or more major road maintenance contractors keeping depots in Wairoa and continuing to work sustainably within the district.



ENCOURAGING IMPROVED ASSET MANAGEMENT PRACTICES AND INCREASED ASSET LIFECYCLE PERFORMANCE

International studies have identified significant savings (~40%) are possible through the adoption of best practice asset management principles.



The two current road maintenance contracts incorporated incentives for the respective contractor to develop an increased level of asset management skills and understanding over the term of the contract. This was to be achieved through the engagement of dedicated asset management personnel who are responsible for data collection, analysis and forward work programme development which would result in the following long-term benefits:

- Increased understanding of asset performance and lifecycle analysis in support of Council's Transportation team
- Optimised programme development and maintenance expenditure
- Increased confidence around long-term investment and optimised cross asset expenditure requirements
- Improved Service Level delivery for the same level of expenditure
- Improved response to customer service requests.

To ensure these benefits will continue to be delivered as part of Councils Procurement Strategy, the principal road maintenance contracts will incrementally increase the level of responsibility of the contractors for asset management functions and for meeting target outcomes. This continuous improvement process will then support Council's own targets and compliance with ONRC performance measures.

Alongside the physical works contracts, we also have a **Professional Services contract recently commenced in August 2020, to deliver Asset Management Services**. A key aim of this contract is to work as "one team" with our Council staff and our key contractors to improve our asset management practices. The **Improvement Programme** in this AMP will form the basis for this.

BENEFITS OF SELECTING THE MOST APPROPRIATE DELIVERY MODEL AND TENDERER SELECTION CRITERIA

The model options provided for within Council's Procurement Strategy and the NZ Procurement Manual will be assessed prior to the tendering of future transportation contracts. The most appropriate model will then be selected based upon the following criteria:

- What is Council's Smart buyer capability?
- How strong is Council's desire to programme the work?
- How healthy is your supplier market, including the number of potential tenderers?
- How good is the availability of quality network data?
- How flexible, as opposed to stable, are Councils' funding levels and Level of Service?
- What's Council's risk appetite?
- What's Council's appetite for improved Value for Money & continuous improvement?
- What's Council's appetite for commercial tension?
- What's Council's appetite for a collaborative model?
- What's Council's appetite for sustainable pricing?
- What's Council's appetite for outstanding customer care?
- What's Council's appetite for Innovation?
- How stable is the Road Network for demand / condition / resilience?

The **REG Delivery Model Selection Tool** will be used to assist with evaluating the model options where necessary.

Many of the routine and well-defined work activities can be efficiently supplied through traditional measure and value contracts using either NZS 3910 or NZS 3917 conditions of contract, as usually delivery risks and outturn cost outcomes can be easily managed. However, as data accuracy and asset management capability continue to improve overtime there will be benefits in moving more of the contract delivery away from an input to an output (lump sum) based upon performance or outcome measures. **There have been significant service level improvements and asset resilience achieved through the Wairoa District Council unsealed road maintenance performance-based contract model, and further refinement of this approach will continue to be pursued.** Comparisons between traditional measure and value contracts and performance-based contracts based upon high data quality and asset management capability have demonstrated **savings of 30% can be achieved** while also achieving improved service level compliance (Reference: Outcomes from Western Bay of Plenty 10 Year Inroads Performance Based Contract Model).

Where Council is likely to require regular but intermittent delivery of standardised services such as flood damage repairs or minor safety improvements etc, then savings in procurement costs and time can be achieved by establishing an approved supplier panel. **Typically, procurement costs may equate to 2% to 3% of the contract value** (may be more for low value contracts) and so reasonable savings can be achieved under a supplier panel where work activities of this type are frequently sourced.

Potential cost savings are not always the sole measure of success, and the model selection must also consider other potential benefits such as improved collaboration, improved RCA and supplier relationships, improved health, safety quality, social, and environmental outcomes. Alternative supplier models such as Alliancing or NEC can offer a number of potential advantages with these aspects compared to the standard conditions of contract under NZS 3910 or NZS 3917. However, they may also conflict with Councils objectives around sustaining a healthy contracting industry market within the district and the long-term sustainability of local suppliers. These more sophisticated contract models usually require bundling of Council work activities to justify the higher level of management input, and their collaborative nature can reduce the level of price tension. Any potential move to these alternative procurement models will require a detailed business case analysis of the associated risks and benefits well in advance.

The development of appropriate selection criteria and price weighting (where a Price Quality Method is adopted) will play an important role in the selection of the preferred tenderer. The time and effort involved with developing appropriate evaluation criteria and non-price attribute weightings is well justified. However, care is required around setting the non-price weighting that gives sufficient emphasis to these attributes while ensuring any price premium that is paid is appropriate for the additional quality outcomes the preferred tenderer is going to actually provide.

THE BENEFITS OF SHARED SERVICES

The Wairoa District Council road network is relatively small and isolated compared to other RCA's. Therefore, the contracting industry may have limited interest in tendering for some work activities because of the limited scope of works, associated risks, existing local competition and/or the cost of establishment within the district.

One approach to counter these impediments is working collaboratively with adjacent RCA's to develop a shared services contract model to deliver these work activities. This approach may present the following benefits to Council:

- Bundling of the works across the collaborating RCA's can

increase contract value, contracting industry interest and more competitive pricing.

- Shared programmes can result in increased productivity, supplier efficiency and reduced overheads resulting in cost savings.
- The cost of bringing in specialist equipment or expertise can be justified by the contracting industry for larger contract values.
- Sharing of specialist investigation and design inputs by the RCA's can increase efficiency and reduce costs.
- Fixed tendering costs can be shared across the collaborating RCA's.

This approach has the potential for a number of transportation activities such as:

- LED Lighting upgrades
- Minor Safety Improvement Programmes
- Annual pavement Resealing and sealed Area Wide Pavement Treatments

A shared services approach will require a high level of collaboration between the RCA's to ensure the scope of the works is clearly demarcated and there is transparency around the separation of the work for payment purposes. Detailed programme development and timing will also be critical to enable the contractor to complete the work in the most cost-effective way and avoid any loss in productivity which then may counter any potential savings in price.

Early engagement between the respective RCA's will be necessary to work through the collaborative requirements, procurement programme timing, and contract development well before any tendering phase is reached. This will be necessary to establish the merits and savings of a shared services approach, the mitigation of any identified risks, and to ensure there is alignment in the respective delivery programmes.

9.4 BENEFITS OF INVESTING

A summary of how key asset investment areas contribute to the benefits identified through the Strategic Case is detailed below.

Investment Area	Benefit Cluster	Benefit	Description	Performance Measures
Sealed & Unsealed Pavements	1. Changes in user safety	1.1 Impact on social cost of deaths and serious injuries	The impact of reducing the number of deaths and serious injuries (DSIs) on the all land transport modes and their social costs.	1.1.1 (ONRC Safety CO2) - Collective Risk
				1.1.2 – Crashes by severity
				1.1.3 – Deaths and serious injuries
				1.1.4 (ONRC Safety CO3) - Personal risk
	10. Changes in access to social and economic opportunities	10.1 Impact on user experience of the transport system	How all people experience the transport system, including people with disabilities, school children, and the elderly, and how different modes are experienced.	10.1.5 (ONRC Amenity CO1) – Smooth Travel Exposure (STE)
				ONRC Amenity CO2 – Peak Roughness
				ONRC Amenity TO1 – Roughness of the road (median and average)
Unsealed Pavements	3. Changes in human health	3.2 Impact of air emissions on health	Land transport air emissions that impact on human health, limited to those arising from roads and rail.	3.2.2 Ambient air quality – PM10
Bridges	5. System Reliability	5.2 Improved network productivity and utilisation	Network productivity and utilisation is about efficient use of the land transport network. Optimising our part of the broader economic/ social system to allow broader benefits to be gained.	5.2.1 (ONRC Accessibility CO1) – Spatial coverage - freight
Other Structures	4. Changes in impact of unplanned disruptive events on access to social and economic opportunities	4.1 Impact on system vulnerabilities and redundancies	Reducing the risk of communities not being able to access social and economic opportunities due to unexpected outages.	4.1.1 Availability of a viable alternative to high-risk and high-impact route
				ONRC Resilience CO1 measure – No. of journeys impacted by closure

Investment Area	Benefit Cluster	Benefit	Description	Performance Measures
				ONRC Resilience CO2 measure – The number of instances where road access is lost
Drainage	4. Changes in impact of unplanned disruptive events on access to social and economic opportunities	4.1 Impact on system vulnerabilities and redundancies	Reducing the risk of communities not being able to access social and economic opportunities due to unexpected outages.	4.1.1 Availability of a viable alternative to high-risk and high-impact route
				ONRC Resilience CO1 measure – No. of journeys impacted by closure
				ONRC Resilience CO2 measure – The number of instances where road access is lost
Traffic Services	1. Changes in user safety	1.1 Impact on social cost of deaths and serious injuries	The impact of reducing the number of deaths and serious injuries (DSIs) on the all land transport modes and their social costs.	1.1.1 (ONRC Safety CO2) - Collective Risk
				1.1.2 – Crashes by severity
				1.1.3 – Deaths and serious injuries
				1.1.4 (ONRC Safety CO3) - Personal risk
Cycleways & Footpaths	10. Changes in access to social and economic opportunities	10.1 Impact on user experience of the transport system	How all people experience the transport system, including people with disabilities, school children, and the elderly, and how different modes are experienced.	DIA PM4 – Network condition - footpaths
Network & Asset Management	Contributes to all benefit areas outlined above.			

9.5 MEETING INVESTMENT ASSESSMENT CRITERIA

This investment proposal meets the assessment criteria in the following areas:

Assessment Criteria	How this is Being Met	AMP Section
Strategic Case		
Strategic Alignment	Contributes to all national Transport Outcomes and the strategic drivers in the GPS particularly, the key areas of focus for regions to support regional New Zealand by reflecting the enabling role of regional transport to regional development. • Freight Network – Improving Freight network for primary industries • Maintaining the Network – Sufficient funding to maintain networks to the condition required to ensure a safe, resilient and accessible network. • Road to Zero – Implementing the Road to Zero Strategy Full alignment with other key national and regional strategies has also been achieved including implement ONRC. ONRC has been applied throughout the AMP and funding development process. Renewals have been prioritised based on ONRC and in general a higher risk appetite has been accepted for maintenance on lower classification roads.	Part A Section 3
Strategic Direction	We have reviewed the national and regional Strategic Direction provided in Arataki and the Draft RLTP. This has been incorporated into the levels of service gap assessment.	Part A Section 3 & 4

Assessment Criteria	How this is Being Met	AMP Section
Problem Identification	Clear problem statements have been identified as well as our key Investment Objectives and Strategic Responses to drive change. We have outlined the consequences of not investing and the impact over 0-3 years, 3-10 years and 10+ years.	Part A Section 4
Objectives identified	Our key Investment Objectives provide firm direction for the development of our programme. We have clearly identified the Benefits aligned to our Problems and appropriate performance measures to track future achievement. We have also reported on performance against ONRC levels of Service.	Part A Section 4 Part B Section 9.4 Part B Section 5
Economic Case		
Core Programme	This Programme Business Case sets out the full list of options considered and provides Multi-Criteria Assessment of these options to achieve a preferred programme which optimises level of service and affordability.	Part B Section 8
Evidence	Evidence has been gathered to support the Strategic Case through the development of the Programme and Detailed Business Cases. In some areas, there are evidence gaps and these have been identified as improvement items.	Part A Section 4 Part B Part C
Alignment of Programme Expenditure	Our AMP document fully aligns with the our funding application to Waka Kotahi.	Part B Section 9
Financial Case		
Affordability	A review of funding sources and affordability has been completed for the proposed programme.	Part B Section 9.2
Commercial Case		
Procurement	Our latest Procurement Strategy (March 2020) has been fully endorsed by Waka Kotahi. We have completed the Smart Buyer Self-Assessment and developed key procurement implementation initiatives. These outline future risks and opportunities around sustaining a healthy and competitive market, incorporating asset management approaches, selecting appropriate contract models and shared services.	Part A Section 5.4 Part B Section 9.3
Management Case		
Integration / Partnering	We have taken into account other agencies programmes and activities through the RLTP development process. Our team has been fully involved in regional workshops and we have incorporated a list of regional projects that will impact on our district. We have also included details of our external delivery partners including contractors and professional services provides and how we work together to ensure delivery.	Part B Section 8.6 Part B Section 3.3
Performance Management	Our Improvement Programme provides key improvement initiatives along with proposed timing and resourcing for completion. We have also included details of our external delivery partners including contractors and professional services provides and how we work together to ensure delivery. We have also included details on how we will monitor programme delivery.	Part B Section 10 Part B Section 3.3
Confidence in Delivery / Risk Management	We have outlined our capability and capacity to deliver the programme, including details of our external delivery partners including contractors and professional services provides and how we work together to ensure delivery. We have provided details on our Asset Management Maturity and areas where we intend to focus on improving our internal expertise. Risk Management has been incorporated throughout the development of the programme, particularly from an asset criticality perspective.	Part B Section 3.3 Part B Section 3.2 Part C

10.1 CURRENT & DESIRED STATE OF AM PRACTICES

Our Activity Management Plan uses Business Case principles and Asset Management processes to provide strong support for future investment requirements.

Our transportation team have the capacity and capability to provide professional engineering and management services to all asset based activities, including: managing physical works contracts, collecting maintenance cost data, managing customer and stakeholder interface and future planning for the transportation activity. The in-house team are complemented when necessary by a range of professional services providers for technical input, design and investment planning capability.

10.1.1 CURRENT AM PRACTICES - CORE LEVEL ASSET MANAGEMENT

The International Infrastructure Management Manual (IIMM) uses an Asset Management (AM) Maturity Index to provide guidance to advancing asset management practices. Our current capability is assessed as providing Core Level Asset Management meeting minimum legislative requirements.

Core maturity represents custodial responsibilities identified in the National Asset Management Framework and the IIMM and comprises minimum requirements on:

- Record and report on the state of all assets to the community;
- Meet current statutory reporting requirements;
- To enable council through information to understand the cumulating impact of decisions;
- Ensure community safety

10.1.2 DESIRED LEVEL OF AM PRACTICES

Asset management processes need to be fit for purpose. For some aspects of the Transport Activity, Core level asset management is appropriate. However, with the predicted growth in demand on the network, and the tensions applied to achieve ONRC CLoS requirements, a more sophisticated level of asset management is warranted, particularly for higher value assets including pavements and structures. This would enable Council to better manage the sustainability and long term whole of life cost of providing a fit for purpose transportation the network.

Implementation of this improvement programme will contribute to meeting this desired increased asset management capability.

10.2 IMPROVEMENT PLAN

Details of future improvements required and a timeframe for these improvements is included in the table below. Implementation of this Improvement Plan will also provide a framework from which the AMP can be developed to meet all the requirements of a core asset management system. Key improvements from the Business Case are highlighted in red in the table on the next page.

Item No.	AMP Ref	Description	Action
Delivery			
1	DBC 2.5.3	Delivering the transport activity – Physical Works contracts procurement	The sealed and unsealed network maintenance contracts are at the end of their initial 3 year period in October 2021 and March 2022 respectively. A review of the existing contracts should be undertaken to identify opportunities to re-negotiate contract terms and costs as part of the roll-over negotiations to deliver better outcomes for Council.
2	DBC 2.5.3	Delivering the transport activity – Physical Works contracts procurement	All existing physical works maintenance contracts are due for completion by March 2024 (assuming both 1-year extensions are granted). Despite the best efforts of Council to bundle work and encourage competition for maintenance contracts, only 1 tender was received for each contract. In order to deliver the best outcomes for Council, a review of the procurement strategy is required to encourage competition and tension on contract pricing.
Road Safety			
3	DBC 6.8	Network Safety Audit	Undertake a network safety audit to identify safety issues on the Council network, and prioritise the issues for treatment.
4	DBC 6.8	Speed Management Review	Undertake a speed management review of Council's network with a particular focus on speeds around schools, marae and other community facilities
Levels of Service			
5	DBC 4.9	Level of Service performance measures reporting	Data collection plan to be established for reporting against new level of service performance measures, where data is not currently being collected. Ensuring DIA & ONRC measures are collected and reported and road closure information are key items.
Current State			
6	DBC 6.8 PBC 5.3.1	Crash Reporting	Include crash reporting of non-reported accidents as a requirement for maintenance contractors so areas of the network that have safety deficiencies can be better identified.
7	DBC 2.9.1	Data Quality – Traffic Count Programme Refinement	While traffic count numbers have increased significantly over the 2018 AMP period, further refinement of the traffic count programme needs to be undertaken to better target key routes and improve trend monitoring and traffic estimating processes.
Drivers for Change			
8	DBC 2.9.2	Future land use changes	Complete review of Wairoa land use and through stakeholder consultation establish any key changes to land use that may impact on future demand.
9	DBC 2.9.2	30 Year demand forecast	Complete review of Wairoa specific 30 year demand forecast model. Review predicted transport demand against existing transport capacity to determine when transport capacity upgrades are required.
10	PBC 6.5.2	Heavy Vehicle Access	Industry stakeholder consultation required to confirm likely future demand for 50Max and HPMV permits and routes.
Road Pavements			
11	DBC 2.6.1	Aggregate sustainability investigations	Council need to continue to engage with HBRC, Ngāti Pāhauwera, and contractors to understand and manage risks related to aggregate supply.
11	DBC 2.8.3	Unsealed roads Roughness condition measurement	Investigate roughness measurement for unsealed roads using RoadRoid. This is a low-cost roughness measuring device that can be used for 4-5 runs minimum through the network per annum - Pre-metalling (autumn), Post-metalling (pre-winter), Post winter and other times to tie in with significant change in traffic.

	Resource	Timing	Priority	Estimated Cost	Status
	External consultant, Transport Asset Manager	By June 2021	HIGH	$20k	New Item
	External consultant, Transport Asset Manager	By June 2023	HIGH	$100k	New Item
	External consultant, Transport Asset Manager	2021	HIGH	$100k	New Item
	External consultant, Transport Asset Manager	2021	HIGH	$40k	New Item
	Transport Asset Manager	2021	HIGH	nil	
	Network maintenance contractors	2021	HIGH	$10k pa	
	Transport Asset Manager - count programme, Assistant & Contracts Engineer – complete counts	2021	MEDIUM	$10k	New
	Transport Asset Manager	Ongoing	MEDIUM		Ongoing
	External Consultant	2022/23	MEDIUM	$20k	New item
	Transport Asset Manager	Ongoing	MEDIUM	nil	Ongoing
	Transport Asset Manager	Ongoing	HIGH		
	Transport Asset Manager	Review prior to next AMP 2020/21	MEDIUM	nil	New item

Item No.	AMP Ref	Description	Action
12	DBC 2.11.2	Unsealed pavement metal depths	Develop and implement a test pit programme to undertake test pits in advance of potential HMBU sites to confirm the necessity and extents of the HMBU treatment. It is recommended that a more extensive programme of metal depth testing on key roads be undertaken to better determine areas where there may be a lack of adequate metal depth. Ground Penetrating Radar (GPR) models may be used in future. Undertaking test pits in advance of Heavy Metal Build Ups allows council to confirm a HMBU is the appropriate treatment.
13	DBC 2.11.1	Unsealed Pavement Maintenance Intervention Strategy	A Maintenance Intervention Strategy has been developed for unsealed and sealed pavements. This needs to be continually measured, reviewed and refined to ensure it is delivering best outcomes for the unsealed network. A focus on proactive maintenance should be incorporated.
14	DBC 2.11.2, 12.7.1	Sealed Pavement Strength Testing	Undertake MSD or FWD testing on key routes to better understand pavement strength, and to provide input to the dTIMS model.
15	DBC 2.11.2	dTIMS Modelling of unsealed pavements	IDS have recently released a dTIMS model for unsealed roads. Council will review the input data requirements and outputs of the model to determine if modelling will be beneficial for the Wairoa network.
16	DBC 2.11.1	Review metal loss and preservation quantities as part of Procurement Review	A review of average metal loss on the unsealed road network and resulting preservation quantities will be completed as part of the Procurement Review for the future unsealed road maintenance contract.
Bridges			
17		HPMV Pre-approved routes	Pre-approved routes are being requested around the country. Requests for pre-approved routes will be discussed with Wairoa on an as come basis to ensure a more resilient network. With continued assessment and strengthening programmes on going in the region, pre-approved routes will simplify the permit process and offer financials savings in the future.
17		Bridge Capacity Assessments	Focus on opening key routes to HPMV vehicles to aid economic prosperity. Improve understanding of the future bridge replacement requirements, associated costs and any risk relating to available depreciated reserves.
18	DBC 3.3.5	Bridge Data Management	Implement procedures to ensure data from inspections and capacity assessments are maintained in RAMM to improve asset inventory accuracy and completeness.
18	DBC 3.4.1	Prioritisation Matrix Review	There is currently insufficient information to prioritise structures based solely on condition, over the next three years condition will be implemented into the prioritisation matrix to target condition poor structures.
18	DBC 3.9.1	Bridge Data Management	Work with Contractors to ensure maintenance costs for bridges are captured accurately and completely following completion of work. This will allow better understanding of problem areas on the network, and more accurate forecasting of future expenditure.
18		Bridge Data Management	Undertake data validation of the information in Council's RAMM database to ensure accuracy and consistency. Incorporate drawings and materials testing information to make RAMM the central location for all bridge asset data.
19	DBC 3.4.2	Guardrail screening	Many bridges in Wairoa have missing or dangerous guardrail on approaches. A desk top study Guardrail screening on all bridges can be undertaken to highlight the potential risks to road users.
20		Painting Screening	Undertake a screening of structural steel bridges to identify and prioritise bridges for painting to prolong bridge expected life and reduce ongoing maintenance costs.
21	DBC 3.4.2	Bridge Specific Management Plans	Structures with limited information and complex management issues or approaching the end of life may justify the preparation of specific management plans.

	Resource	Timing	Priority	Estimated Cost	Status
	Transport Asset Manager	Review prior to next AMP	MEDIUM		New item
	Maintenance Contractor, Transport Asset Manager	2021/22	MEDIUM		New item
	Transport Asset Manager/ External Consultant	Before next dTIMS model	LOW		
	Transport Asset Manager/ External Consultant	Before next AMP period	LOW		
	External consultant	Before next contract renewals	HIGH		New Item
	External consultant	Complete over a 3-year period 2021-2024	HIGH		Ongoing
	External consultant	Complete over a 3-year period 2021-2024	HIGH	$25,000 per bridge	Ongoing
	External Consultant	2023/24 – before next AMP	MEDIUM	Nili	New item
	External Consultant	2023/24 – before next AMP	MEDIUM	$25,000	New item
	External Consultant	2023/24 – before next AMP	MEDIUM		New item
	External Consultant	2023/24 – before next AMP	MEDIUM	$25,000	New item
	External consultant	2021/22	MEDIUM		New item
	External consultant	2021/22	HIGH	$100,000	New item
	External consultant		LOW	$10,000 ea.	New item

Item No.	AMP Ref	Description	Action
Other Structures			
23	DBC 4.8	Condition inspections	A detailed condition rating of these structures will be completed in conjunction with the bridge inspections under the new Bridge Inspection Policy, so that maintenance and renewal needs can be planned based on the actual condition of individual assets.
24	DBC 4.10.2	10 Year FWP for maintenance & renewals	A 10 year FWP for retaining wall maintenance & renewals will be developed based on condition inspections carried out over the next three years (2018/19-2020/21) as part of the new Bridge Inspection Policy requirements.
Drainage			
25	DBC 5.5.2	Procurement review	Focus on proactive drainage maintenance has increased in the last procurement round. However, the level of proactive maintenance had to be reduced due to high contract costs. The procurement review before the next contract round should include a focus on ensuring the required level of proactive drainage maintenance can be procured and delivered.
26	DBC 5.7	Asset Condition data	Develop and implement a condition monitoring programme for drainage assets, to understand condition and prioritise repairs and renewals. A 10 Year FWP will be put together based on the outcomes of these inspections to develop a forward programme for renewals. All data will be recorded in RAMM.
27	DBC 5.8	Capacity Assessments	Undertake catchment analysis of sample sections of the Council network to determine minimum pipe sizing. Identify sections with capacity issues and prioritise for culvert upgrades.
Traffic Services			
28	DBC 6.7	Inventory accuracy	There is limited data on the asset age and condition. Improve inventory accuracy for assets' age and condition (remaining useful life).
Lighting			
29	DBC 7.9.2	10 Year FWP for renewals	A 10 year FWP for lighting renewals could be developed based on condition inspections carried out over the next three years (2021/22-2023/24) as part of the proposed condition rating inspections detailed above.
Footpaths & Cycleways			
30	DBC 8.7	Asset Valuation Report Improvement Recommendations for data	Review Asset Valuation Report improvement recommendations and prioritise for completion. Key improvement items include ensuring the construction/replacement dates are recorded for all assets, ensuring owners are applied to all assets and ensuring length is recorded for retaining walls.
Car Parking			
31		Condition data and 10 year FWP for renewals	Carparks data has been added to RAMM, however there is limited data on the carpark asset age and condition. Improve inventory accuracy for assets age and condition (remaining useful life), include carparks in sealed network Forward Works Programme (FWP) inspections to ensure regular monitoring is undertaken and a carpark FWP can be developed.
Asset Management			
32	DBC 11.5	Asset Valuation Report Improvement Recommendations for data	Review Asset Valuation Report improvement recommendations and prioritise for completion. Key improvement items include ensuring the construction/replacement dates are recorded for all assets, ensuring owners are applied to all assets and ensuring length is recorded for retaining walls.

	Resource	Timing	Priority	Estimated Cost	Status
	Assistant & Contracts Engineer	Complete over a 3-year period 2017-2020	HIGH		New item
	Transport Asset Manager & External Consultant	Develop over a 3-year period 2019-2021	MEDIUM		New item
	Engineering & Transport Asset Manager		MEDIUM		Commenced
	Transport Asset Manager	2021 (inspections) 2022 (FWP)	HIGH		New item
	Transport Asset Manager	Ongoing	MEDIUM		New item
	Operations Engineer - Roads	Ongoing	LOW	nil	New item
	Property Manager	Before next AMP period	LOW		New Item
	Transport Asset Manager	2021/22	MEDIUM		New Item
	Transport Asset Manager, Property Manager	Develop with Above	LOW		New Item
	Transport Asset Manager	2021/22	MEDIUM	nil	Ongoing

Item No.	AMP Ref	Description	Action	
Risk Management				
33	PBC 3.2.4	Risk Management Review and Manual	There is a need for full review of the Land Transport Risk Register to ensure risk issues have been adequately identified and ensure that current high risks are still relevant.	

10.3 PERFORMANCE MANAGEMENT

10.3.1 PERFORMANCE MEASURES FOR AM SYSTEM

Refer to the "Introduction to Asset Management Plans 2017" for details.

10.3.2 HOW EFFECTIVENESS OF AMP WILL BE MEASURED

The Improvement Plan addresses short-term priorities because the effects of those actions must be monitored before medium and long-term improvement plans can be put in place.

Undertaking a review of the Improvement Plan, in terms of comparing progress to the proposed timeframes etc., will affect the introduction of a programme of performance reporting, auditing and reviews of the AMP.

While no extensive monitoring programme has been put in place at this time, it is proposed to review progress against the plan on a six-monthly basis with the mid-year report being an interim look at progress year to date, while the Annual Report will be a more formal review of the Improvement Plan.

The effectiveness of the AMP can also be measured through ONRC performance measures reporting and financial peer group comparison analysis.

	Resource	Timing	Priority	Estimated Cost	Status
	External Consultant, Transport, Utilities and Property Asset Managers	2021/22	HIGH		New item


SEE THE WHOLE PICTURE

LAND TRANSPORT

ACTIVITY MANAGEMENT PLAN

2021-2031

Part C

This part of the Land Transport Activity Management Plan describes the detailed management approaches and options for asset portfolios and activity programmes for the 2021-2031 period, and beyond where appropriate. It is broken down into subsections by asset grouping and provides detailed evidence to support the investment proposed.

It also demonstrates value for money by outlining the asset management processes used for managing our transportation assets, as well as how we will meet regulatory requirements.
The key audience for this part of the AMP includes:

- Wairoa District Council Transportation Staff
- Contractors
- Professional services providers

Each asset group section includes the following details.

1.1 LIFE CYCLE MANAGEMENT

Further to ONRC Customer Level of Service, it is important to acknowledge that a key driver for investment in the transport network is ensuring asset integrity – through a whole-of-life approach, implementing good asset management planning including lifecycle management planning and modelling.

In the context of this plan, the lifecycle of an asset is "understanding the rate of change." The primary objective is to know when to maintain OR renew OR improve (upgrade through capital works) an asset or its component.

The Detailed Business Case outlines maintenance plans and the planning for the renewal, upgrade and creation of assets for activities and services delivered to the community. It describes Council's practices that are delivering current levels of service, and explores opportunities to enhance the asset lifecycles through condition monitoring.

One of the keys to good lifecycle management is better data (confidence) and better interpretation of that data to enable more informed decisions. This enables us to 'get the best out of our infrastructure' and is of particular importance for mature and critical assets.

1.1.1 CAPITAL/NEW WORKS & IMPROVEMENT PLAN

Capital/new works are those works that create a new asset that did not previously exist, or works that upgrade or improve an existing asset significantly beyond its existing capacity. They may result from growth, social or environmental needs.

SELECTION PROCESS / CRITERIA

Knowing when and why to provide a new asset, or its component, is the key to successful capital/new programmes being sustainable through optimised decision making.

The following typical process is followed in evaluating new/capital works:

Process Step	Description
Scope	Define the objectives and project scope in accordance with Council's strategies. Identify the criteria for the project selection.
Research	Define the need for the new asset in terms of: nature of service service level location timing/duration cost/price
Test	Apply the better business case principles: 1. Is there a compelling case for change (Strategic Case)? 2. Does the preferred investment option optimise value for money (Economic Case)? 3. Is the proposed deal commercially viable (Commercial Case)? 4. Is the spending proposal affordable (Financial Case)? 5. How can the proposal be delivered successfully (Management Case)?
Select Preferred Option	Select preferred option and review full design and construction requirements.
Project Prioritisation	Complete Wairoa District Council's capital projects prioritisation process to determine: Strategic Alignment, Service Delivery, Risk & Criticality and Financial Impact priority.

Costs of new works are generally divided into those resulting in an improved LOS and capital activities:

Work Type	Description
Changed LOS	Based on the ongoing review by Council staff of asset performance and community demand.
Capital Activities	Generally service growth – including new assets and improved LOS to support increased demand. Generally based on Council staff assessments and through estimating levels of growth in the district and future needs

CAPITAL/NEW ASSETS STANDARDS

Required standards for all capital/new works will be determined at the time and will be based on best practice and relevant Council and other standards. Where new assets are provided, they are constructed to current legislative standards and relevant codes, with consideration for appropriateness in capacity and utilisation for the foreseeable future.

Maintenance Type	Description
Routine	Routine maintenance is the regular, ongoing day-to-day work that is necessary to keep assets operating (serviceable), including instances where portions of the asset fail and need immediate repair to make the asset safe and/or operational again.
Planned	Planned maintenance is the programmed, itemised and prioritised work necessary to keep assets at their required standards and prevent asset failure.
Reactive	Reactive maintenance is on-demand works to correct asset malfunctions and failures or disruption to LOS on an as-required basis. The major form of reactive maintenance for land transport assets is emergency works following storm events.

A risk-based approach will be taken to optimise maintenance across the different ONRC. On higher classification roads, a lower risk approach will be taken i.e. earlier intervention with renewal treatments and robust maintenance repairs. For lower classification roads, more risk may be taken by deferring renewals where possible and using holding repairs.

By accepting greater risks on lower classification roads, a higher percentage of work will be reactive compared to the preventative and planned strategies on higher classification roads.

It is important to note that safety will not be compromised through this process, and intervention with routine maintenance will be completed as necessary to keep the road safe.

INSPECTIONS

Council's maintenance contractor and Infrastructure Business Unit staff are tasked to regularly inspect the land transport network to identify routine maintenance needs. Enhancements are regularly introduced in consultation with Council in order to progressively correct deficiencies in the road network. As a need is identified and possible solutions are assessed, these are included in the ten-year FWP.

Due to the typically low traffic volumes (60% of the network has less than 250 vehicles per day) the rate of change in road condition is less critical (i.e. defects can exist for some time before "blowing out"). Understanding the "rate of change" and associated risks of deferred intervention is the key to a successful annual maintenance programme in a low volume network. However, a large volume of forestry heavy commercial vehicles are forecast to start using the Council network as a 'Wall of Wood' in the region is harvested, and logs are transported to Port. The rate of change on these roads occurs much faster, so works need to be programmed sooner to ensure cost effective repairs can be undertaken. For these roads proactive maintenance will typically be undertaken instead of reactive maintenance. Council's Maintenance Intervention Strategies (MIS) for the sealed and unsealed networks identify roads programmed for forestry and recommend a different (proactive) approach to these roads, compared to the remainder of the low volume network.

Experience in managing network maintenance contracts has shown contractors are not always best placed to identify and prioritise the needs of the network. In some instances, this behaviour is also driven by respective tendered rates that can motivate contractors to select/find certain work items that are commercially more favourable than the activities that are genuinely best for asset.

Council is exploring opportunities to assume more involvement and responsibility for the identification, preparation and implementation of work programmes with a view to ensure best-for-asset activities are prioritised accordingly.

ROUTINE MAINTENANCE STANDARDS

Council has developed a series of standard specifications to cover road maintenance activities.

In addition to these, relevant specifications from NZS4404: 2010 Land Development and Subdivision Infrastructure standards are applicable.

All maintenance activities must comply with current Maintenance Intervention Strategy and this AMP. It is also intended to develop a Maintenance Intervention Strategy as part of a Pavement Management Strategy. A further development will be the preparation of an Environmental Management Strategy to accompany the other documents.

RENEWALS PLAN

For pavements, Council actively manages a 10 year FWP, with annual validation completed to review this, with an emphasis on the three year programme. The FWP forecasts the renewal treatments, using optimised decision making based on condition data, current constrained budgets and latest visual site assessment of any specific use and demand impacts to the road.

For other assets, a 10 year minimum FWP is currently being developed and is generally based on age and condition of the assets. Council will look to prepare longer term (20-30 year or more) forward work programmes for some asset groups as appropriate to ensure future investment can be balanced and understood.

1.1.4 DISPOSAL PLAN

There are no plans at present to dispose of assets in the land transport activity. However, any future Asset disposal processes will comply with Council's legal obligations under the Local Government Act 2002, which covers:

- Public notification procedures required prior to sale
- Restrictions on the minimum value recovered
- Use of revenue received from asset disposal

2.1 STRATEGIC CASE LINK

2.1.1 ADDRESSING KEY NETWORK PROBLEMS

Primary problem contribution: Changing Demand

Maintenance and renewals of road pavements provides a direct response to the Strategic Case problem of Changing Demand on the transportation network, by ensuring that safety, pavement consumption and environmental issues are addressed.

Associated with this is the more specific demand increase of the route to the Rocket Lab, and so maintenance and renewals of pavements will also be critical in terms of response to the Strategic Case Māhia Connectivity problem, to meet increased Levels of Service and safety requirements.

The tables below highlight the key strategic responses and benefits, identified in the Strategic Case, that are delivered by the road pavements asset group.

STRATEGIC RESPONSES

In order to make the right investment decisions to provide for the increasing demand on the rural network, our strategic responses to this problem are:

Network safety planning & targeted improvements
Improve condition of rural roads
Value for money solutions & procurement

We will use the following initiatives over the next three years:

Strategic Response	Key Issue	Response Type	Response Description
Network safety planning & targeted improvements	Safety is becoming a significant issue, with Wairoa topping the list of the Communities at Risk Register (CARR) for six factors including: Overall Deaths & Serious Injuries (DSIs), Alcohol and drugs, speed, rural roads, fatigue and not wearing restraints.	Policy Approach	**Network Safety Audit** – to better understand locations with road safety issues, and target and prioritise high risk locations.
		Adjust Programme	**Targeted Safety Improvements** – on Secondary Collector roads and sections with high crash rates and focus on corners/ bends by improving signage and width.
		Policy Approach	**Crash Reporting** – Crash Reporting of non-reported accidents included as a requirement for maintenance contractors so areas of the network that have safety deficiencies can be better identified.
Improve condition of our rural roads	Forecast predictions based on maturing age of forests in the district indicate a "Wall of Wood" will be extracted and carted over Council roads starting from 2020 for a 10 year timeframe increasing demand on some roads significantly from their current heavy vehicle movements. Performance measures and past maintenance inputs indicate pavement consumption.	Policy Approach	**Pavement maintenance intervention strategy** – has been developed but needs to be measured for effectiveness and further developed. **Data Management Processes:** Improved data collection processes need to be implemented to inform decision making and ensure appropriate treatments and timing.

Strategic Response	Key Issue	Response Type	Response Description
		Adjust Programme	**Targeted Pavement and Surfacing Renewals** – Target Secondary Collector roads/ sections with high maximum roughness. Review high use (forestry) roads - Tinroto, Willowflat / Putere, Ruakatere Roads. Evidence supports increased resurfacing, particularly for Secondary Collector roads.
	Environmental issues resulting from dust on high use unsealed roads	Policy Approach	**Dust Mitigation Strategy** – to address priorities and treatments for dust issues
		Adjust Levels of Service	**Dust seals** – on problems sections to ensure community health
Value for money solutions & procurement	Wairoa District Council have had a 25% increase in costs for Sealed and Unsealed Maintenance Contracts vs estimate in the 2018 procurement round. Wairoa District continues to have challenges with limited competitiveness in the local market.	Policy Approach	**Data Management Processes**: Improved data collection processes need to be implemented to inform decision making and ensure appropriate treatments and timing.
		Procurement	**Smart buying** – through packing work. Delivering more for the same cost.

2.1.2 BENEFITS OF INVESTING

The Investment Objectives that we what to achieve include:

Roads that support safer travel
Affordable levels of service

MEASURING THE BENEFIT

The table below outlines the specific Benefits that will result from investment, based on Waka Kotahi's Investment Benefits Framework.

Investment Objective	Benefit Cluster	Benefit	Description	Performance Measures
Roads that support safer travel GPS 2020: Road to Zero	1. Changes in user safety	1.1 Impact on social cost of deaths and serious injuries	The impact of reducing the number of deaths and serious injuries (DSIs) on the all land transport modes and their social costs.	1.1.1 (ONRC Safety CO2) - Collective Risk
				1.1.2 – Crashes by severity
				1.1.3 – Deaths and serious injuries
				1.1.4 (ONRC Safety CO3) - Personal risk
	3. Changes in human health	3.2 Impact of air emissions on health	Land transport air emissions that impact on human health, limited to those arising from roads and rail.	3.2.2 Ambient air quality – PM10
Affordable Level of Service GPS 2020: Maintaining the network	10. Changes in access to social and economic opportunities	10.1 Impact on user experience of the transport system	How all people experience the transport system, including people with disabilities, school children, and the elderly, and how different modes are experienced.	10.1.5 (ONRC Amenity CO1) – Smooth Travel Exposure (STE)
				ONRC Amenity CO2 – Peak Roughness
				ONRC Amenity TO1 – Roughness of the road (median and average)
				DIA PM4 – Network condition - footpaths

2.1.3 DELIVERING CUSTOMER OUTCOMES

One of the key areas of focus for the regions in the Draft GPS 2020 is Maintaining the network. This means ensuring there is sufficient funding to maintain networks to the condition required to ensure a safe, resilient and accessible network.

The key Customer Service Statements associated with pavements are:

- The land transport network is designed and maintained to be safe
- Road users will experience a fair ride quality on a well-maintained and managed sealed road network asset
- The land transport network is managed in a manner that assists the economic development of the district
- Effects on the natural environment are minimised
- Road assets are managed prudently to ensure long term financial sustainability for current and future generations

Key ONRC CLoS delivered through the road pavements assets include:

- AMENITY – comfortable customer journey through reduced roughness
- SAFETY – the network is safe and feels safer for customers over time

Also in line with the intent of ONRC, we will ensure that we deliver the right road pavement assets and services to the right level at the best cost, by **taking higher risk on lower classification roads**.

Details of the ONRC performance measures outcomes related to pavements are included in the following sections.

2.1.4 ENSURING ASSET INTEGRITY

Road pavements not only deliver on ONRC CLoS, but also have the key function of providing long term access across the network, for the whole of life least cost, this is essentially the provision of asset integrity.

REG have also provided a suite of Case Studies that sit alongside the ONRC guidance material to assist with implementation of ONRC, including one directed at **Maintaining and renewing sealed pavement under ONRC**[1].

This Case Study helps to illustrate how the customer focused service levels of the ONRC require a modified approach to traditional asset management, to focus on outcomes, not on outputs, if they are to be delivered effectively and efficiently. It clearly outlines that "pavements are provided, maintained and renewed primarily to provide access for transport at the least long term cost".

The Case Study outlines: that there are only two reasons to intervene with maintenance or renewal works:

1. When there is a service level or performance failure (or too great a risk that there will be one), e.g. effective access is not possible, or it is unsafe or it is excessively rough at the appropriate speed for each road, and
2. When it is cheaper in the long run to intervene with maintenance or renewal works before there is a performance failure.

2.2 ACTIVITIES DELIVERED

Activities delivered through the road pavements assets and their respective Waka Kotahi funding works categories are included in the table below.

Transport Activity	WC No.	Work Category Name	Key Function	Example Work Activities
Movement of People & Goods	111	Sealed pavement maintenance	Remedy defects	Digouts, pothole repairs, pre-reseal repairs, crack sealing
	112	Unsealed pavement maintenance	Remedy defects	Grading, flanking, pothole repairs, spot metalling
	211	Unsealed road metalling	Restore functionality & asset integrity	Replacing wearing course, restoring pavement strength
	212	Sealed road resurfacing	Restore functionality & asset integrity	Chip sealing, AC resurfacing (for waterproofing pavement)
	214	Sealed road pavement rehabilitation	Restore functionality & asset integrity	Granular overlays, rip and re-make, stabilisations
	341	Low Cost/Low Risk Improvements	Increase capacity & function	Sight benching, seal widening, geometric improvements

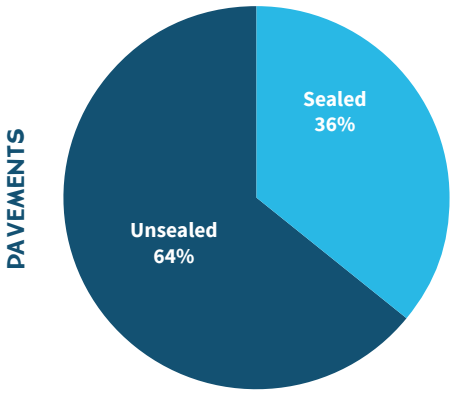
2.3 ASSET DESCRIPTION

Asset Group	Asset Component	Unit	Quantity
Sealed Road Pavements	Sealed Local Roads	km	301.3
	SP38 Sealed Length	km	7.0
Unsealed Road Pavements	Unsealed Local Roads	km	541.5
	SP38 Unsealed Length	km	23.3

[1]*REG Best Practice AMP Working Group (May 2015) – Maintaining and Renewing Sealed Pavements under ONRC. Initiative number 2015_04.*

2.3.1 SEALED ROAD PAVEMENTS

Council's sealed road network consists of 308.3km across the Wairoa District (includes a 7.0km seal on SP38). Sealed pavements within the district vary in width and are typically around 6.4m wide, ranging from as narrow as 3m (e.g. Kotemaori Road) to 17m wide in urban streets with parking on both sides (e.g. Marine Parade). The surfacing type is predominantly chip seal although a small quantity of slurry seal exists on Marine Parade in Wairoa, with a further new asphalt in the Blue Bay subdivision vested to Council in 2005.



2.3.2 UNSEALED ROAD PAVEMENTS

Council's unsealed road network consists of 564.8km across the Wairoa District (includes 23.3km on SP38). These unsealed road pavements vary in width and are typically around 5m wide, ranging from as narrow as 2.5m (Arakinihi Road) to 8.8m wide (Cricklewood Road).

2.4 ASSET CRITICALITY & RISK

2.4.1 CRITIAL ASSETS

Using the asset criticality assessment process developed as part of the Wairoa District Council Service Delivery Risk Management Strategy, Road Pavements assets have been assessed as having a Service Importance of 5 – Extremely Important, as shown below. Failure of Road Pavements Assets like retaining walls can have extreme economic and social impacts.

Service Area	Core Asset Group delivering Key Services	Importance Factors				Importance Score	Service Importance of Core Asset Group (Is)
		Economic	Social	Cultural	Environmental		
Land Transport	Road Pavements	5	5	3	3	16	5

The Wairoa District Council Risk Management strategy recommends the criticality of specific assets is calculated by multiplying the Service importance by the functionality of the core asset group in failure, and the downtime of the asset before functionality is restored, as shown below.

$$C_a = I_s * F_a * D_a$$

Where:

C_a *Criticality of an asset*
I_s *Importance of the core asset groups providing service to the community*
F_a *Functionality of core asset group providing service if the asset fails*
D_a *Downtime of the asset before functionality is restored if failure occurs*

The highest criticality road on Council's network are the lifeline routes. Lifeline routes have been identified through the 2001 HB Engineering Lifelines Project.

These routes provide key access to communities within Wairoa and:

- Maintenance of these routes is critical to ensure continued access to communities and key facilities (e.g. power stations, quarries) in emergency events.
- Failure to maintain them may result in isolated communities during and following emergency events
- Lack of maintenance may lead to higher costs for repairs after emergency events.

Wairoa's lifeline routes are:

Road	ONRC	Criticality	Alternate Route	Current Issues	Maintenance Responsibility
SH2 to Napier/ Gisborne	Regional		Some parts of this SH have no alternative route		Waka Kotahi
SH38 to Tuai/ Rotorua	Primary Collector		No alternate route		Waka Kotahi / Council / Whakatāne DC

Road	ONRC	Criticality	Alternate Route	Current Issues	Maintenance Responsibility
Awamate Road	Primary Collector	Alternative route if Wairoa Bridge is impassable	SH38	2x Very High Risk (VHR) criticality bridges and 2x High Risk (HR) criticality bridges	Council
Nūhaka-Ōpoutama Road	Primary Collector	Access for a significant portion of the district's population as well as the newly developed Rocket Lab launch site	Tunanui Rd, but this is steep, winding and unsealed	Coastal erosion issues 1x VHR criticality bridges and 2x HR criticality bridges	Council
Tiniroto Road	Secondary Collector	Alternative route to Gisborne if SH2 is impassable	SH2	6x VHR criticality bridges and 2x HR criticality bridges	Council
Ruapapa Road (RP 0 to 4.05)	Secondary Collector	Access to aggregates required for post-event recovery	No alternate route		Council
Ruapapa Road (RP 4.05 to 12)	Secondary Collector	Access to Waihi power dam	Via Putere Road	1x Dropout identified as Extreme Risk to loss of access	Council
Patunamu Road	Access	Access to aggregates required for road reinstatement	No alternate route	High risk for river erosion, a number of dropouts	Council
Tuai Main Road	Access	Access to Tuai power station	No alternate route	1x dropout considered Extreme Risk to access	Council
Piripaua Road	Access	Access to Piripaua power station	Tuai / Piripaua Road		Council

After lifeline routes, the next most critical routes for Council are identified by the One Network Roading Classification. Primary Collector Roads are the most critical followed by Secondary Collector, Access and Low Volume Roads.

2.4.2 KEY RISKS

The following Critical and High-risk items have been identified for Council's pavement assets.

Risk	Cause	Assessed Risk	Controls	Mitigation Strategies
Changes to gravel/ aggregate extraction allocations, and constraints to development of new sources result in a shortage of aggregate for road maintenance purposes.	HBRC have significantly reduced gravel allocation for the 20/21 year. If allocations continue to be at reduced levels and sufficient alternative sources are not able to be developed, aggregate shortages or increased costs to transport aggregate from outside the district may occur.	Extreme		Ongoing engagement with HBRC at all levels of Council. Ongoing engagement and collaboration with contractors to understand constraints and identify alternative aggregate sources.
Roading network experiences increased storm events and damage which exacerbates a deterioration in pavement and surface condition	Climate change is changing weather patterns in the district. Localised, high intensity events are becoming more frequent. Inadequate drainage asset condition and/or capacity to address storm flows.	Extreme		Culvert capacity assessments Drainage condition assessments and forward work programming Proactive drainage maintenance, renewals and upgrade

Risk	Cause	Assessed Risk	Controls	Mitigation Strategies
The age profile of sealed pavements and/or surfaces increases which may require increased investment to manage	Inadequate investment in pavement rehabilitation and resuracing creating a backlog of resurfacing. Inadequate knowledge of pavement and surface age/condition. Lack of condition forecasting and forward work programming	High	dTIMS modelling	Ensure appropriate investment in resurfacing and rehabilitation. Adequate condition assessment and monitoring Maintenance of a renewals forward works programme.
Sealed pavements experience increased volumes of heavy traffic, causing damage (cracking or potholing) allowing water ingress resulting in reduced pavement strength	Increased forest harvesting, changes to land use. Lack of communication with, or poor understanding of heavy traffic operations/ industries. Inadequate funding for proactive maintenance and repairs.	High	Close engagement with forestry and other heavy industries Proactive maintenance approach on key heavy vehicle routes	Proactive maintenance and renewals on heavy vehicle routes to limit impacts of increased loadings

2.5 DELIVERY

2.5.1 CURRENT DELIVERY MODEL

In order to deliver more cost effective, value-for-money outcomes, a detailed business case for the procurement of physical works contracts for the maintenance, operation and renewal of Council's land transport network in late 2017. The key objectives of the procurement business case were to deliver value for money for Council, meet Waka Kotahi's smart purchaser requirements, and ensure a healthy market place with local presence, but with adequate competition to keep costs sustainable.

The business case recommended the bundling of maintenance and renewals works in to 2 main Contracts for the unsealed and sealed networks respectively as per the table below, to produce contracts of sufficient value to attract multiple tenderers and put tension on tender pricing.

Contract	Delivery Model	Method of Payment	Supplier Selection	Contract Term	Notes
Sealed Road Network Maintenance Contract	Traditional contract with a Schedule of Rates for defined routine maintenance activities, traffic services (for both the sealed and unsealed network), resealing treatments, AWPT's, footpath & car park maintenance, and Emergency Works.	Measure and Value based upon a priced Schedule of Rates	Price Quality with a price weighting of 70% (Supplier Quality Premium value would equate to approximately 0.43% of the estimate value for every grade point change in the non-price attribute score reflecting a lesser importance around the bidders' non-price attributes).	3+1+1	Resealing and AWPT quantities would be based upon a 5 year Forward Works Programme. Quantities for years 4 and 5 would be reviewed at the end of year 3 and where necessary adjusted by Council. Council will remain in control of maintenance programming, thereby reducing the responsibility of the contractor

Contract	Delivery Model	Method of Payment	Supplier Selection	Contract Term	Notes
Unsealed Road Network Maintenance Contract	Performance based contract with a lump sum price for unsealed pavement maintenance, drainage maintenance and vegetation control (for both the unsealed and sealed network). A Schedule of Rates would be included for Heavy Metal Build Ups (HMBU's), and Emergency Works	Uniform monthly payment for routine maintenance activities. Measure and value for unsealed road HMBU's and Emergency Works	Price Quality with a price weighting of 50% (Supplier Quality Premium value would equate to approximately 1% of the estimate value for every grade point change in the non-price attribute score. This reflects the increased level of risk carried by the Contractor and therefore the importance of bidders' non-price attributes such as management systems, quality control and methodology).	3+1+1	Deductions from the uniform monthly payment will be based upon the assessed level of conformance with the specified service levels. The new contracts will require the Contractor to be held accountable for delivering against specific pledges in their submission. Rates for the HMBU's will be based upon a 5 year FWP. The quantities for years 4 and 5 would be reviewed during year 3 and where necessary adjusted by Council.

Smaller contracts for specialist works like pavement marking and street light maintenance would be tendered individually.

A staged approach for the network maintenance contract was recommended through an initial Expression of Interest stage. This would allow Council to gauge the true level of interest for the Contracts, and have some surety that Contractors who proceeded to the final request for tender (RFT) stage had sufficient resource to deliver the necessary outcomes for Council. The proposed approach was adopted by Council, and the contracts went to tender on this basis in 2018.

Despite the best intentions of the procurement strategy, only one expression of interest was received for the unsealed network maintenance contract. Two acceptable expressions of interest were received for the sealed network maintenance contract, however only one contractor proceeded to provide a tender during the RFT stage. The tenders received for each contract were significantly higher than estimate, and Council was required to negotiate with both tenderers to agree an appropriate scope of works and cost that could be afforded by Council. After prolonged negotiations, a final price was agreed for each contract, but the base maintenance costs for both the sealed and unsealed networks increased significantly.

The accepted price for the sealed network contract was 28% higher than the estimated cost, and 22% more for the unsealed network contract. Our minimum annual committed cost for the sealed and unsealed maintenance contracts is $3.5M, made up of establishment and Lump Sum items.

2.5.2 PHYSICAL WORKS DELIVERY CONTRACTS

Current contracts for the various land transport contract areas are shown in the adjacent table. The sealed and unsealed network maintenance contracts have a committed annual cost which council are contractually required to pay regardless of the quantum of work completed. For the unsealed maintenance contract, this amount reflects the lump sum amount for local roads maintenance. For the sealed maintenance contract, this amount is the establishment sum charged by Fulton Hogan. This is also shown in the table.

Contract No.	Name	Contract Term	Contractor	End Date
18/01	Sealed Road Network Maintenance	3+1+1	Fulton Hogan	1st October 2023
18/02	Unsealed Road Network Maintenance	3+1+1	Quality Roading and Services (Wairoa) Ltd	1st March 2024
19/05	Pavement Marking	1+1	Roadrunner	1st June 2022
18/08	Street Cleaning	3+1+1	T.Rob Contracting Ltd	1st October 2021
18/05	Wairoa Reserves Maintenance	3+1+1	WP & JM Halkett Partnership	1st October 2021

2.5.3 PROCUREMENT REVIEW

A review of the procurement of key maintenance contracts will be a significant issue for the Transportation team. The two principle road maintenance contracts (sealed and unsealed) are likely to extend through to 2023 and 2024 respectively if the full two 1-year extensions are granted. Subject to the supplier's performance, a formal review will therefore be undertaken at least 18 months prior to the next procurement round commencing.

Improvement Item - All existing physical works maintenance contracts are due for completion by March 2024 (assuming both 1-year extensions are granted). Despite the best efforts of Council to bundle work and encourage competition for maintenance contracts, only 1 tender was received for each contract. In order to deliver the best outcomes for Council, a review of the procurement strategy is required to encourage competition and tension on contract pricing, as per the following recommendations.

The objectives of this review will be to confirm the following crucial procurement process steps:

1. Determine whether there is any need and value for Council in undertaking an LGA Section 17A review in advance of the next procurement round.
2. Review Council's current Procurement Policy and Procurement Strategy and confirm if any amendments may be necessary.
3. Review the service level delivery and best value for money outcomes that have been achieved through the existing contract models and identify where improvements are required.
4. Identify the most appropriate future contract model and packaging of the works to maximise the level of interest from the suppliers in tendering for this work (i.e. 2 or more tenderers for all tendered contracts), while also sustaining a locally based capable industry work force.
5. Identify any gaps that may exist through a supplier market analysis and implement strategies to mitigate any risks these gaps may present prior to the next procurement round. This analysis should include early discussions with the contractor industry to understand any issues or impediments that may potentially limit their level interest in tendering for future contracts
6. Identify any gaps in Council's capability to manage the procurement round and management of the future contracts along with appropriate mitigation strategies.
7. Liaise with, and gather information from, Waka Kotahi and adjacent Councils (Hastings, Gisborne and Whakatāne District Councils) to identify opportunities for increased collaboration around shared services, where this approach will better achieve the desired strategic outcomes.
8. Identify the most effective procurement process and selection criteria that will maximise the opportunity for Council to select the best supplier for the works tendered. The continued use of the Lowest Price Conforming method is appropriate for well-defined low risk contracts or where Council adopts a Supplier Panel in advance. However, where the works are more complex or where it is appropriate to value non-price elements in the tender evaluation, then the use of the Price Quality method with appropriate price weighting is encouraged.
9. Complete any outstanding business case justifications for Waka Kotahi endorsement.
10. Develop and implement a detailed procurement programme to track progress through to contract award for all required transportation asset maintenance contracts.

With regard to the two principle road maintenance contracts, steps **3**, **4** and **8** in particular require careful consideration to avoid any repeat of the single tenderer situation that was encountered during the 2018 procurement round. This undesirable situation resulted in significant difficulty in determining what the true competitive market values of the tendered works were and should therefore be avoided in the future. It is therefore desirable for Council to retain and support their existing CCO supplier (QRS) while also encouraging at least one, but preferably more, industry suppliers to bid for all major road maintenance contracts. It is also equally desirable to encourage and maintain the presence of a second large contractor within the district to enable Council to seek a competitive price for other work packages such as flood damage repairs and to have confidence around resource availability during large scale emergency events. The benefits of this were highlighted in the limited time required to jointly price and deliver the PGF Māhia East Coast road sealing project in 2020.

Access to suitable and sustainable road construction aggregates within the district is strategically important. Council should therefore encourage the presence of more than one quarry operator into the future, and that there is transparency in the aggregate supply pricing structure to both Council and the wider contracting industry. It is strongly recommended this aspect of the supply chain is regularly reviewed by Council and any risks to aggregate supply continuity and/or pricing are identified.

Improvement Item - The sealed and unsealed network maintenance contracts are at the end of their initial 3-year period in October 2021 and March 2022 respectively. A review of the existing contracts should be undertaken to identify opportunities to re-negotiate contract terms and costs as part of the roll-over negotiations to deliver better outcomes for Council.

2.6 SUSTAINABILITY

2.6.1 AGGREGATE

Aggregate sourcing for unsealed roads maintenance is a key sustainability issue going forward. Aggregate resource studies note a steady decline of well-sized, quality, river aggregate metal deposits. This suggests, and has been reflected in the two maintenance contracts, that future aggregate costs will increase due to demand.

The unsealed maintenance contract is primarily priced on the Crarer's Red Metal on the outskirts of the Wairoa township. This is a privately-owned quarry, with the majority of the metal sold to the unsealed road contractor.

River extraction is co-managed with HBRC/Ngāti Pāhauwera in the Mohaka River. There are currently two operational land based (red aggregate) quarries in the Mohaka area for Council roading requirements – Nicholson's Quarry and Kakariki Pit. Resource supply for the next 50years+ at both will be based on successful negotiation with landowners. Council has one quarry site located on Kakariki Farm Road has been recently leased, with aggregate predominantly produced for the forestry roading programmes.

There are plans for privately owned quarry sites to be developed in the Mohaka area.

Māhia is isolated from river & red aggregate supply, so aggregate for unsealed maintenance and renewals has to be carted from Mohaka or the Waiau rivers, a distance of approximately 100km. Unsealed road construction in for the Māhia area currently utilises Limestone where possible however, the main road that has large aggregate consumption is the Mahia East Coast Road which is predominately Red/River based aggregate. This is part of the Rocket Lab route, which is currently having sections sealed through PGF projects, and is likely candidates for more sealing in the future due to the status of Rocket Lab.

The Waiau River is a key strategic resource for local contractors, and there are established extraction sites in multiple locations along this river, both sides. Due to the nature of this, it is heavily dependent on good floods to "re-stock" the beaches.

CASE STUDY

In 2020, 32,000m3 was applied for by QRS (Council's Unsealed road maintenance contractor) across 8 locations on the Waiau River. 500m3 was granted on 3 sites, 2 of which QRS cannot currently access. HBRC have cited slumping, erosion problems in increased adjacent road maintenance requirements as the reason for the reduction.

QRS currently have no access or allocation to the Mōhaka River.

Across all companies who applied for an aggregate allocation, only 63% of the requested volume was granted by HBRC for the Lower Mōhaka River, and 27% of the requested volume for the Waiau River

Council's unsealed maintenance contract required an average of 19,000m3 per year of aggregate for re-metalling per year over the next 10 years. This represents the base minimum aggregate quantity for re-metalling requirements, and does not allow for aggregate requirements for capital projects, emergency works and other requirements.

Aggregate sourcing represents a key strategic risk for Council. Ongoing investigations and discussions will be undertaken with HBRC, Ngāti Pāhauwera, Contractors and other stakeholders to understand the risks.

As can be seen from the case study above, aggregate sourcing represents a key strategic risk for Council. This issue has been documented at an Infrastructure Committee meeting as a way to elevate this issue and get the discussion happening at the elected member level. Discussions with HBRC and contractors will continue, with the intention to understand how widespread this issue is and how we can respond to this issue.

A partnering model may be needed, where Wairoa District Council take the lead in discussions with other Council's, Ngāti Pāhauwera, and contractors. This option would allow Wairoa District Council to have an active role and some control over this growing issue. A focus of getting the unsealed maintenance contractor allocation on the Mohaka is essential.

Improvement Item - Council need to continue to engage with HBRC, Ngāti Pāhauwera, and contractors to understand and manage risks related to aggregate supply.

Since the inception of the Sealed Road contract in 2018, new contractor Fulton Hogan have used aggregate from their Gisborne based quarries where suitable. Aggregate for sealing chip has always been sourced from outside the district, due to unsuitable sources within the district.

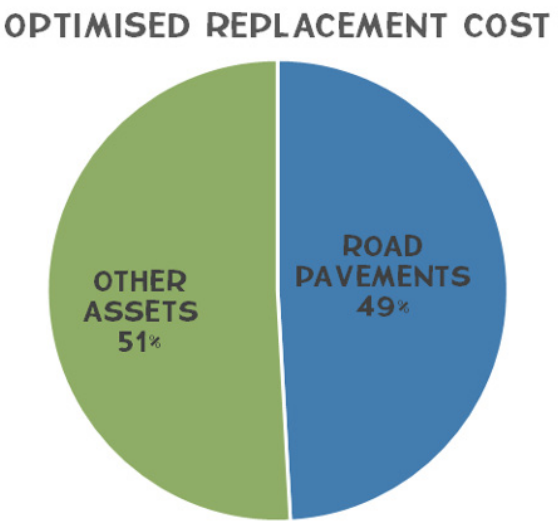
Initiatives that will be used to limit aggregate use in future are as follows:

- Focus on slowing aggregate attrition in the outcome based maintenance contract. The change to performance based contract for unsealed road maintenance has encouraged smarter pavement maintenance techniques. This has resulted in a lower frequency of grading, spot grading (only where needed), and encouraging keeping a bound pavement.
- Preference to do stabilisation maintenance repairs over dig-outs to reduce aggregate usage. This can extend to using recycling techniques for Area Wide Pavement Treatments.
- Long term sealing of high cost unsealed roads has long term cost benefits and will also require less aggregate in the long term.

2.7 ASSET VALUATION

Full details of the 2020 RAMM Asset Valuation are included in Section 12.6.

The road pavement assets on the Wairoa transportation network have an Optimised Replacement Cost of $163.9M and a Depreciated Optimised Replacement Cost of $125.9M as detailed below. This represents 49% of the total Optimised Replacement Cost of Council's transport assets. The components that make up the pavement asset and their relative ORC and ODRC are detailed in the table below.



Asset	Optimised Replacement Cost ($000)	Optimised Depreciated Cost ($000)
Formation	$66,336	$65,336
Unsealed Basecourse	$36233	$23,970
Unsealed Wearing Course	$0	$0
Sealed Basecourse	$32,898	$20,072
First Coat Seals	$18,404	$11,376
Surface Structure	$11,071	$5,121
TOTAL	**$163,943**	**$125,876**

2.7.1 CONFIDENCE LEVELS IN ASSET DATA

The asset inventory maintained in the RAMM database is comprehensive and while there are some deficiencies, there is continual improvement in the data which is updated monthly. The data confidence for the basis of valuing the asset is assessed as being Grade B for sealed and unsealed pavements and pavement surfacing.

2.7.2 ECONOMIC LIFE ASSESSMENT

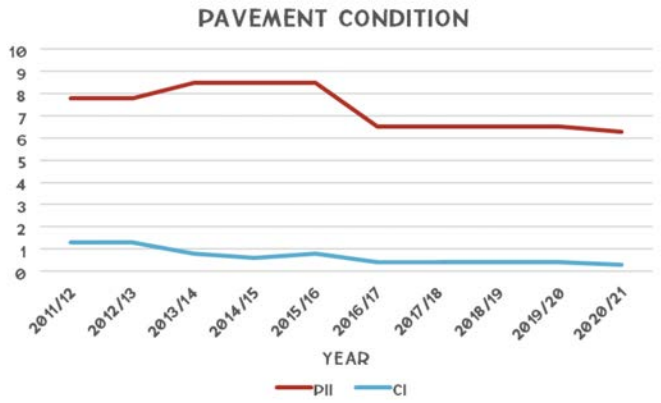
The useful economic life assessment for road pavements in Wairoa is based on the averaged life cycle values of the various components as follows:

Formation	100 years
Basecourse	100-150 years (dependent on traffic volumes and surfacing type)
Surface Seal	5-30 years (dependent on traffic volumes and surfacing type)

2.8 ASSET CONDITION & REMAINING LIFE

2.8.1 SEALED ROAD PAVEMENTS

Overall condition trends for the sealed pavement network can also be reviewed in terms of the surface Condition Index (CI) and the Pavement Integrity Index (PI). The CI is a function of visual condition faults including cracking, scabbing, potholes, pothole patches and flushing. Roughness is generally the main influencing factor for PII.



The condition of sealed road pavements is determined through both Roughness and Visual Condition Rating. Road condition is assessed in accordance with national best practice and is carried out by the same raters that assess the regional state highways and adjoining local authority roads. This information is then confirmed through drive overs during development of the Forward Work Programme (FWP).

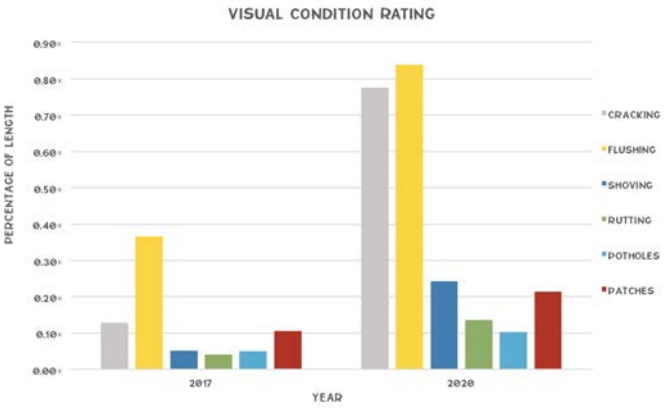
VISUAL CONDITION RATING

Visual Condition Rating is completed every three years with the most recent rating survey completed in September 2020.

The rating survey is completed taking a 10% sample of each treatment length, with a minimum sample size of 50m per treatment length. For the 2020 survey 16% of the total network length has been surveyed. It measures the condition of the road by the quantity of failures on the road, such as cracking, shoving, potholes etc.

The following table shows key trends in rating results since the last survey. All of the faults have increased since the last survey, with flushing and cracking showing significant increases.

Fault Type	20120 Result	10 Year Trend
Cracking	0.78%	↑
Flushing	0.84%	↑
Shoving	0.24%	↑
Rutting > 30mm	0.14%	↑
Potholes	0.10%	↑
Patches	0.21%	↑



ROUGHNESS

Roughness is a key performance measure for Council both in terms of both our own LoS and ONRC Amenity performance measures. The roughness (NAASRA) of the sealed road network is currently measured every 12 months.

Roughness provides a measure of the ride quality of the road. It does not provide absolute information on the structural integrity of a pavement but does give a broad indication of trends on the overall state of the sealed network.

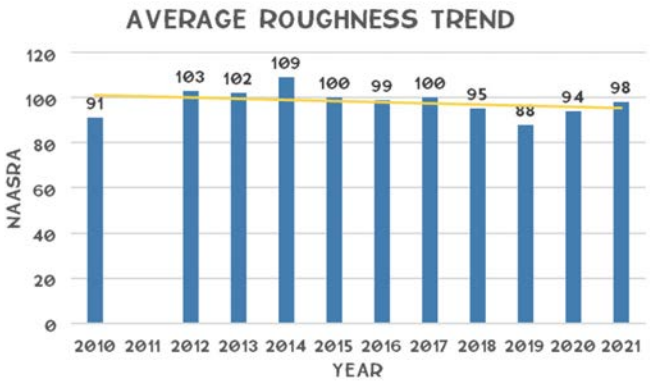
Roughness is measured using a response meter roughness vehicle by qualified laboratory specialists from Opus International Consultants. All sealed roads were surveyed in 2020.

AVERAGE ROUGHNESS

The average NAASRA Roughness across the sealed road network for 2021 is 98. Over the last 3 years, roughness has been trending down, after 10 years of trending down. The results from the 2021 survey by ONRC are included in the table below. This shows that **all roads are meeting Council's LoS of less than 110 average NAASRA, except for Urban Primary Collector and Access roads**.

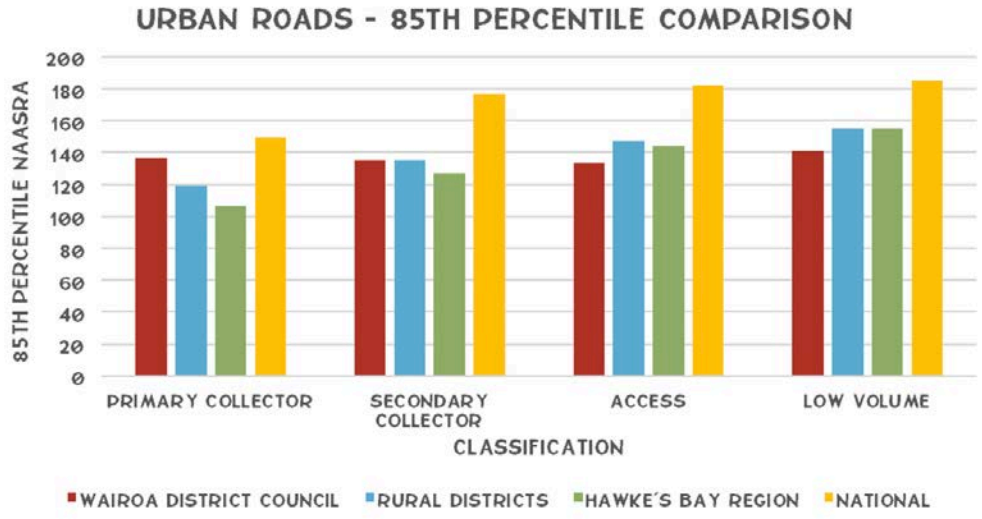
2020 Roughness Survey	Average Roughness (NAASRA)	
	Urban	Rural
Primary Collector	104	93
Secondary Collector	111	85
Access	109	111
Low Volume	96	98

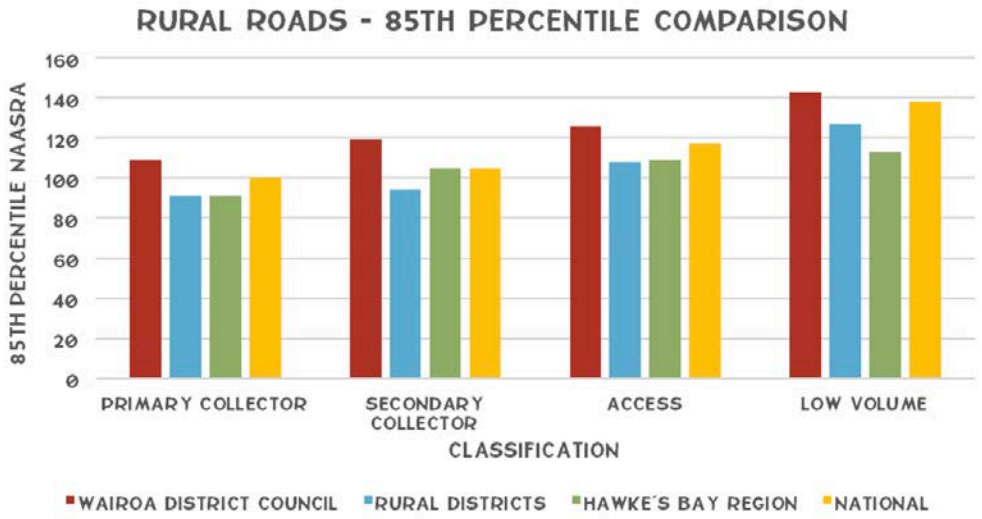
Average roughness is higher than the peer group average for all ONRC categories over both urban and rural sealed roads. The average roughness for the network had a slight decreasing trend over the period since initial measurement in 2004 until 2018. Roughness has increased from 2019 to 2021, perhaps reflecting the arrival of the expected forestry heavy vehicle traffic. Trends will continue to be monitored.



PEAK ROUGHNESS

Peak roughness against the Peer Group for each ONRC is shown in the graphs below. Wairoa has higher peak roughness than the peer group average for most rural roads including primary Collector, Secondary Collector and Access roads. Wairoa also has higher peak roughness than the peer group average for Urban Primary Collector roads.





2.8.2 SEALED ROAD SURFACING

Sealed road surfacing condition is assessed during the annual Forward Work Programme (FWP) drive over. This assessment includes a visual review of condition alongside the pavement condition information included above. Further to this, the remaining life of surfacings has been assessed based on comparison with the peer group average life for Asphaltic Concrete (AC) and Chipseal surfacing types. The rural districts peer group average surfacing lives are:

ONRC	Peer Group Average Surfacing Life (years)	
	AC	Chipseal
Primary Collector	12	13
Secondary Collector	12	13
Access	13	14
Low Volume	12	16

Reseal surfacing usually has a theoretical average life of 10-18 years, depending on the seal design, traffic loadings, environment etc. However, experience in the Wairoa District is that many surfaces are lasting longer than the theoretical life spans, in some cases considerably longer.

Analysis of the remaining useful life of Wairoa District surfaces by using the peer group average age shows 50km have zero or less years of remaining life with 236km having between 1 and 16 years life remaining. This shows Council have a large backlog of resurfacing required.

2.8.3 UNSEALED ROAD PAVEMENTS

The overall condition of the unsealed road network is currently measured by monthly visual inspections of the entire unsealed road network. Council's aim is to keep the roads in a condition that is not deteriorating and this is monitored by Council staff, professional service providers and contractors. However, condition is not formally reported on.

Contract management performance monitoring shows the overall condition of the unsealed road network is good and that current maintenance levels are appropriate.

Improvement Item - There is an opportunity to investigate roughness measurement for unsealed roads using RoadRoid. This is a low-cost, cell phone application roughness measuring device that can be used regularly and easily. As a minimum, 4-5 runs through the network per annum could be undertaken - Pre-metalling (autumn), Post-metalling (pre-winter), Post winter and other times to tie in with significant change in traffic.

Wairoa has a high proportion of unsealed roads, with 64% of the network being unsealed. Associated with this is the environmental impact of dust.

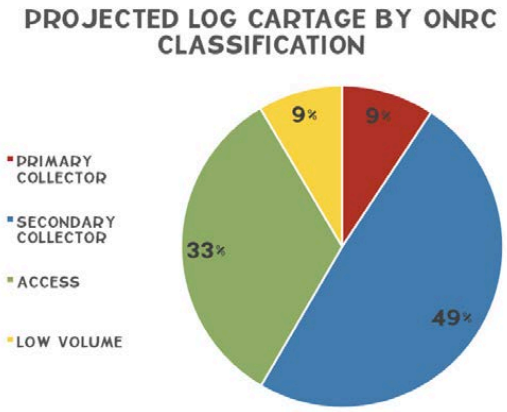
A recent Waka Kotahi Research report has shown that a comparison of the PM10 concentrations monitored at the untreated and treated sites show the application of the suppressant significantly reduced the impact of dust discharged from the road. Measurements across the PM10 monitoring network show the effect of the untreated road PM10 dust plume extends further than 80m from the roadside, while the effect of the PM10 plume from the treated section of the road extends for less than 30m.The monitoring results indicate that the potential for adverse impacts on human health due to the dust discharged from unsealed roads treated with dust suppressants is relatively low compared with the effects of untreated road surfaces.

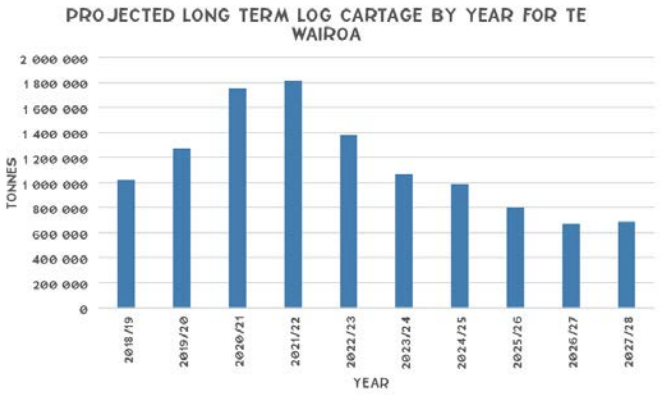
There are 54 sites on the Council 'Dust Sites Register' that are prioritised for treatment. Of the 54 sites, 33 sites are within 50m of the roadside, and a further 16 are within 100m. 25 sites are identified as either very exposed or exposed.

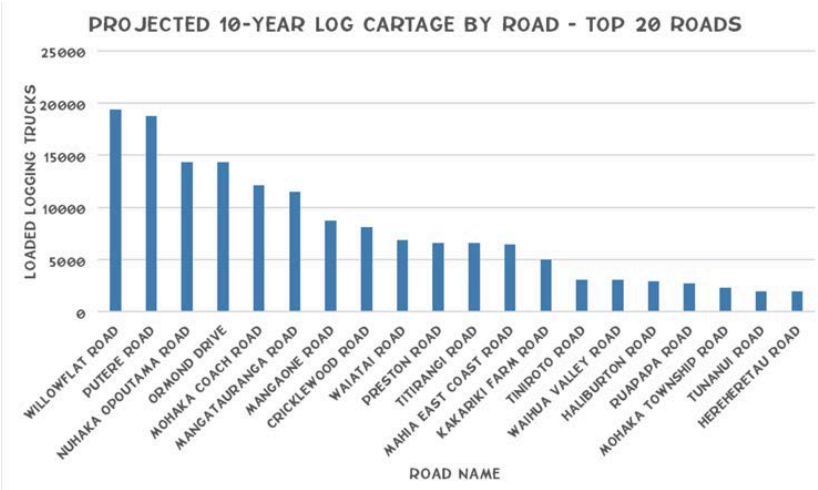
2.9 ASSET CAPACITY & UTILISATION

Forestry companies with forestry blocks in Wairoa have been consulted and log cartage volumes have been collated to provide a 10 year forecast of logging tonnages. This will increase demand on some roads significantly from their current heavy vehicle movements. 58% of the tonnage will be transported on Secondary Collector roads.

Council have found the data provided by forestry companies has limited accuracy and ongoing discussions must be held regarding harvest in the immediate future. At a high level this data provides good insight into future harvest at a network level however.







[2] *Jeff Bluett, Neil Gimson and Maria de Aguiar (2016) Impacts of exposure to dust from unsealed roads. NZ Transport Agency research report 590. 104pp.*

2.9.1 SEALED ROAD PAVEMENTS

Sealed roads generally have a typical carriageway width of 6m and were generally constructed several decades ago to cater for light to medium traffic volumes. While there is sufficient width for travel in each direction, very few sealed roads have traffic lanes identified by a centreline. For the most part roads are suitable for their current utilisation, with the exception perhaps of some that are subject to forestry traffic, State Highway detour traffic and some roads in the Māhia area that are being subjected to far higher traffic volumes than they were originally designed for.

Improvement Item - While traffic count numbers have increased significantly over the 2018 AMP period, further refinement of the traffic count programme needs to be undertaken to better target key routes and improve trend monitoring and traffic estimating processes.

The old National Roads Board guide to geometric standards for rural roads is applicable to most of Wairoa District's roads while Waka Kotahi's publication RTS5 provides guidance on delineation for safety. It is the intention of Council to work towards these standards where appropriate and cost-effective to do so in conjunction with the width quality LoS.

The pavement depths vary, with most recent roads having on average a 100-150mm thick basecourse layer constructed with premium grade crushed rock. The surfacing typically consists of thin bituminous material with two coats of stone.

2.9.2 UNSEALED ROAD PAVEMENTS

Generally unsealed roads have been constructed to provide a nominal 5m wide carriageway and carry low volumes of light traffic, the exceptions being:

- A few roads where logging traffic has increased rapidly over the last few years that have greater carriageway widths of up to 8m
- Some very low traffic volume roads have carriageway widths as narrow as 2.5m.

A significant number of test pits have been completed during the last AMP period, as shown on the graph below. The test pits focussed on roads with a current or anticipated demand from forestry HCV's that were programmed for maintenance metalling or heavy metal build ups. The test pits showed a large variation in existing pavement depths. It is Council's intention to maintain sufficient pavement depth on the unsealed roads, taking into account variations in traffic loading and terrain across the district. However, the variation in attrition rates (metal loss) for the types of metal historically used, and the difficult terrain that many unsealed road sections traverse, has meant that achieving a consistent pavement depth over the unsealed network is a challenge.

For each of the roads where test pits have been undertaken, a pavement depth design has been undertaken based on AustRoads Guide to Pavement Technology Part 6: Unsealed Pavements, figure 4.3, to determine the required depth. A subgrade CBR of 4 has been assumed for the design, which is typical for the Wairoa District. The results of these designs have been tabulated below, and the length of road below the required pavement depth has been calculated based on the test pit data. The traffic count figures are current, and do not reflect the significant increased growth expected on many of these roads due to forestry operations, which would increase the pavement depth requirements further. Considering the number of test pits with pavement depth below the required for current loadings, it can be seen that an increase in HCV's will quickly result in pavement failures.

69% of test pits had a pavement depth less than required

Road Name	ADT	%HCV's	ESA (25 yr Design Period DF=1)	Austroads Required Pavement Depth (mm)	Number of Test Pits Completed	Number of Test Pits with Depth Less than Required	% Test Pits Less than Required Depth
Kakariki Farm Road	67	18	3.68x105	260	237	156	66%
Māhia East Coast Road	160	10	4.88x105	265	322	298	93%
Mangaone Road	65	25	4.95x105	265	256	200	78%
Mangapoike Road	113	52	1.79x106	290	192	140	73%
Mokonui Road	13	64	2.54x105	250	255	168	66%
Ohuka Road	42	8	1.02x105	240	161	88	55%
Riverina Road	54	18	2.96x105	255	81	46	57%
Rohepotae Road	45	18	2.47x105	250	210	63	30%
Ruapapa Road	67	28	5.72x105	275	270	211	78%
Tunanui Road	19	6	3.48x104	220	253	147	58%
Waiatai Road	63	10	1.92x105	250	88	44	50%
Waihi Road	69	18	3.79x105	260	286	249	87%
Waihua Valley Road	56	18	3.07x105	260	190	144	76%
Willowflat Road	97	52	1.54x106	280	69	35	51%

CASE STUDY

In July 2019, Waihua Valley Road was subjected to unexpected logging activity. Council were advised logging had ceased for winter, however another crew established without Council knowledge. The forestry traffic rapidly deteriorated the condition of the road, 38 individual subgrade failures developed over a 7km section and CSR's were received regarding road condition.

The cost to reinstate the road to an acceptable standard was $111,000.

This case study shows the impact that forestry traffic can have on the network, and the importance of proactive renewals in advance of demand increases. Despite the best efforts of Council and its Contractors to engage with harvesting companies, harvesting can often commence without Council knowledge. This means appropriate works cannot be completed in advance of harvest, leaving Council with costly repair bills.

KEY LEARNING: Continued stakeholder engagement with forestry companies is crucial to understand future demand on the network, and allow proactive maintenance and renewals to occur, reducing costly reactive repairs.

Improvement Item - Complete review of Wairoa land use and through stakeholder consultation establish any key changes to land use that may impact on future demand.

Improvement Item - Complete review of Wairoa specific 30-year demand forecast model. Review predicted transport demand against existing transport capacity to determine when transport capacity upgrades are required.

A Maintenance Intervention Strategy has been developed for unsealed pavements. This needs to be continually measured, reviewed and refined to ensure it is delivering best outcomes for the unsealed network. A focus on proactive maintenance should be incorporated.

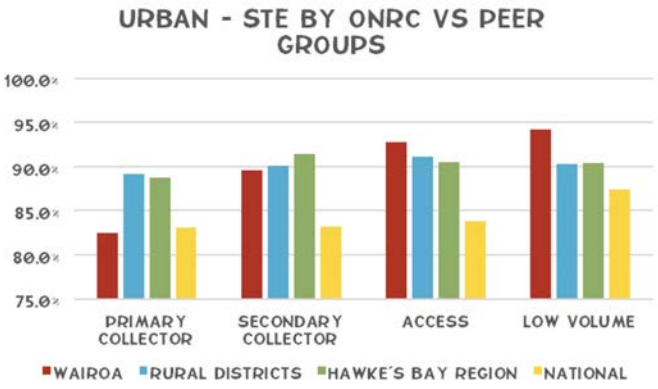
Changes in unsealed pavement strategies in the past few years, particularly grading frequencies and techniques have slowed attrition rates so that the structural pavement depth on unsealed roads can be economically maintained. Further metal depth testing combined with analysis of RAMM data indicating the quantity of metal placed on the road, will provide an indication of attrition rates across the network into the future.

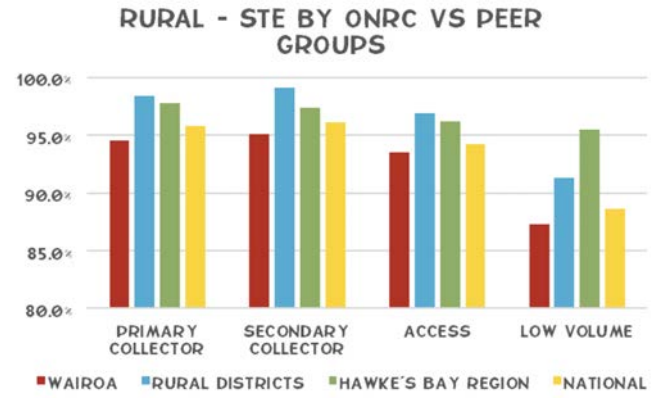
Maintenance interventions are appropriate to the utilisation of Council's unsealed roads and much of the low vehicle network has a fit-for-purpose lower than the recommended 'design' lives and standards.

2.10 ASSET PERFORMANCE

2.10.1 SMOOTH TRAVEL EXPOSURE (STE)

Smooth Travel Exposure (STE) gives the percentage of travel on roads smoother than a specified threshold for each classification. It is a key performance measure for ONRC. Comparison with the peer group shows that overall Wairoa has much lower STE than the peer group average for Primary and Secondary Collector Roads as shown in the graphs below. This means that more journeys are on rougher roads in Wairoa than for the peer group.





Overall the condition and performance of Wairoa's sealed pavements is worse than the peer group average, reflecting the reactive nature of Council's maintenance approach. In order to improve asset performance, a more proactive response to renewals will be undertaken on key routes with increased demand to address areas of high roughness.

2.11 LIFECYCLE PLANNING

Five-year average costs for maintenance and renewals compared to the peer group are shown in the Figures below. These graphs are from the REG PMRT, and are dated March 2018, but are the latest available to Council.

In terms of pavement maintenance, Council has spent more than the peer group average over the last five years for both sealed and unsealed pavement maintenance.

In terms of renewals, Council have spent less than the peer group average for pavement renewals, both sealed rehabilitation and unsealed road metalling. Spending on sealed road surfacing has been slightly higher than the peer group average.

This comparison indicates that Wairoa District Council **historically have a more reactive maintenance approach**, and are using reactive pavement maintenance and re-surfacing to maintain the integrity of the pavement. For low trafficked pavements this is often appropriate, however with increased HCV loading predicted in future, a more balanced approach to pavement lifecycle planning will be required by **increasing proactive renewals on high demand routes**.

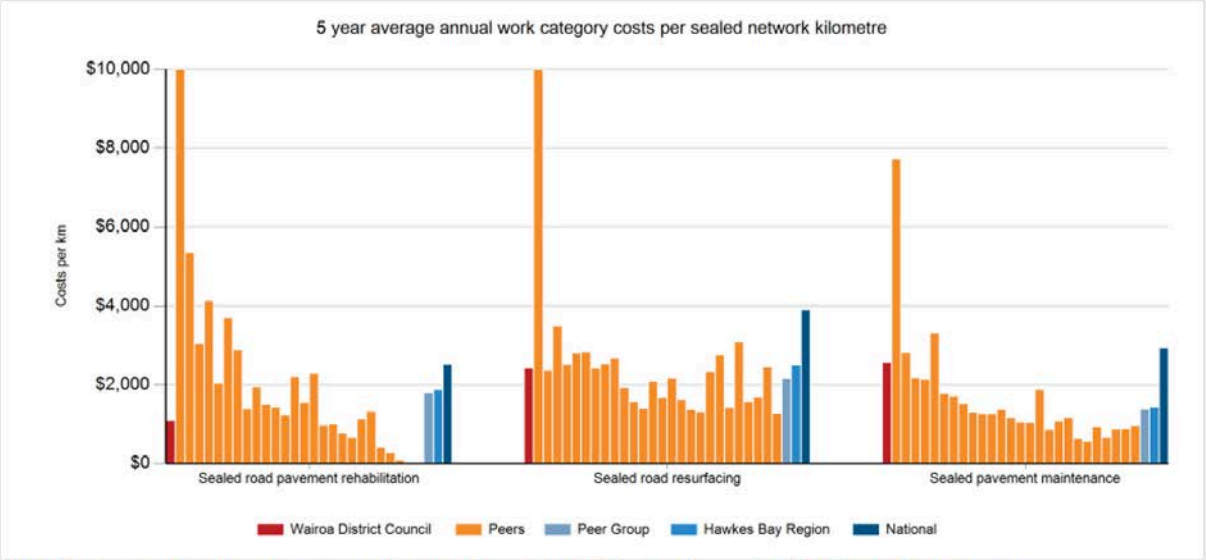


Figure 10: Sealed road maintenance costs per kilometre - Sourced from NZ Transport Agency TIO Work Category funding reports

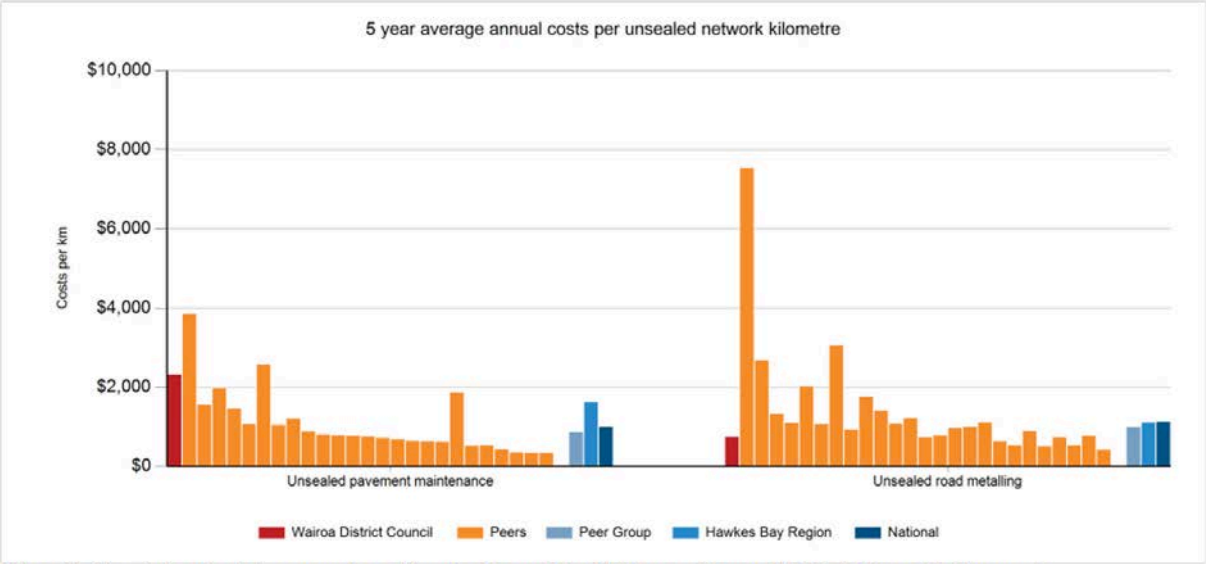
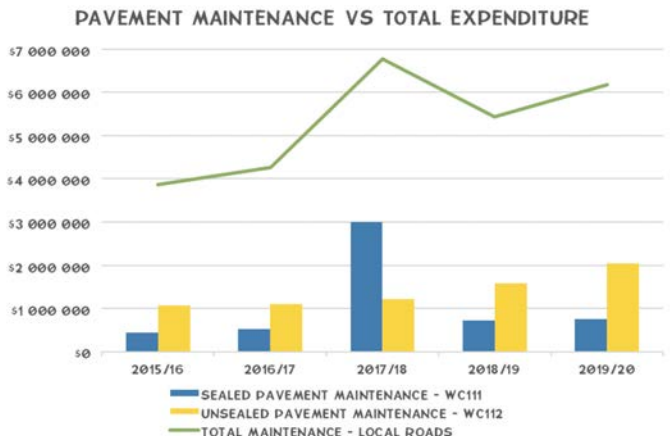


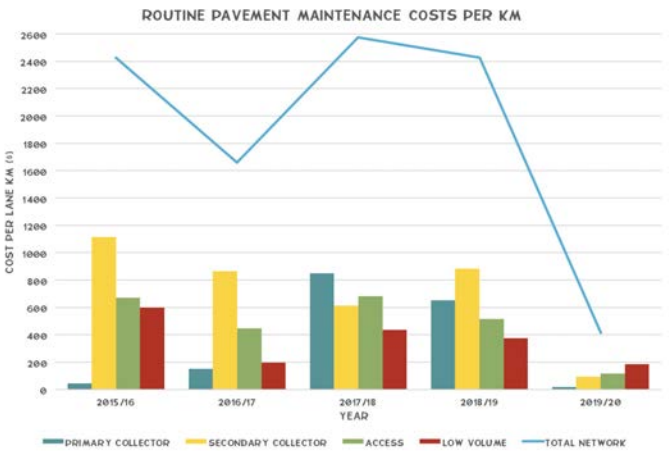
Figure 11: Unsealed road maintenance costs per kilometre - Sourced from NZ Transport Agency TIO Work Category funding reports

2.11.1 OPERATIONS & MAINTENANCE PLAN

The graph below shows the sealed and unsealed pavement maintenance costs of the total maintenance expenditure over the last five years. Combined these costs have represented 38-62% of the total maintenance budget over these years.



Routine pavement maintenance costs are also shown below broken down by ONRC as a per km cost from RAMM maintenance cost data (ie. These numbers do not reflect the total cost per km of maintaining the network). The graph shows that in recent years, maintenance has been prioritised on Primary and Secondary Collectors Roads. The low numbers in 2019/20 are a result of COVID-19 lockdown preventing completion of the sealed pavement maintenance repairs for that year.

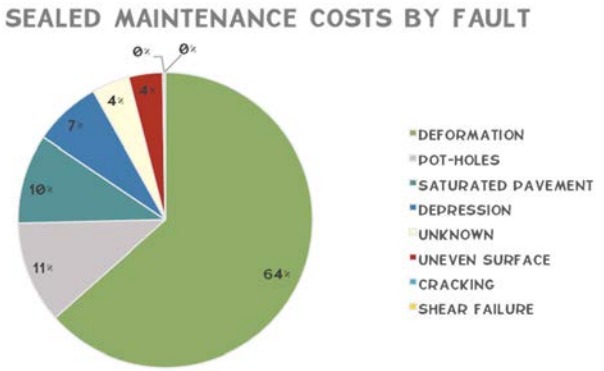


SEALED ROAD PAVEMENTS

The overall philosophy and approach to maintenance of the network's sealed pavement and surfacing assets has been a reactive approach in past years.

The maintenance repairs of these sealed roads are identified and scheduled by Council. These task details are provided to the contractor who is responsible for completing the programmed works in in two defined interventions over a calendar year: October-November and March-April respectively. Council assumes all responsibility for treatment selection and for management of sealed road failures that develop between these interventions.

The type of work undertaken for routine maintenance of sealed pavements includes pothole repairs, pavement stabilisation and digout repairs, rip and remake, pre-mix levelling repairs, edge break and low shoulder treatment. A breakdown of the fault reasons ins shown in the figure below. Generally, repairs on sealed roads are for pavement related faults, rather than surfacing related faults. **71% of faults appear to be related to more deep-seated structural pavement failure, while 29% appear to be related to failures in the top basecourse pavement layer.**



In endeavouring to prolong a sealed road's life cycle, the emphasis is on waterproofing through proactive sealing of cracks and provision of adequate drainage. Where a sealed surface defect is noted, the initial treatment for consideration is crack-sealing or similar. Where the defect is attributed to be the underlying pavement, then the initial treatment option is stabilisation of the in-situ pavement and reinstatement of a two-coat seal. The introduction of a suitable volume of make-up metal is also essential to reinstate the road shape. In instances where stabilisation is not considered appropriate (e.g. pavement material is already reconstituted/stabilised or the mode of the failure is beyond confidence to re-do this treatment) then pavement digout treatment may be appropriate.

Digout repairs are considered to be the premium quality repair activity, effectively fully replacing the failed area of pavement with new high-quality aggregates, any associated subsoil drainage and a two-coat seal. As this is a costly repair item, it should be applied with discretion and in alignment with the FWP plan for the respective road section. It is not cost effective to do an expensive digout repair that should last ten years, in a section of road planned for rehabilitation in a few years' time.

Where the FWP has upcoming pavement renewal works planned, it may be more appropriate to select a pre-mix levelling or rip and remake treatment, or even a high-risk crack-sealing, in an effort to hold the low level of service for that road section at a minimum cost, while not compromising road user safety.

Sealed road repair quality significantly influences the resealing programme. There are instances where recent seal repairs are performing worse than the older surrounding seal, reducing the optimum life cycle of these treatment lengths. More emphasis has been given to improving sealed road repair quality, including provision for second-coat sealing of patches.

Improvement Item - A Maintenance Intervention Strategy has been developed for unsealed and sealed pavements. This needs to be continually measured, reviewed and refined to ensure it is delivering best outcomes for the unsealed network. A focus on proactive maintenance should be incorporated.

FUTURE MAINTENANCE

A risk-based approach will be taken to optimise maintenance across the different ONRC. On higher classification roads, a lower risk approach will be taken i.e. earlier intervention with renewal treatments and robust maintenance repairs. For lower classification roads, more risk may be taken by deferring renewals where possible and using holding repairs.

By accepting greater risks on lower classification roads, a higher percentage of work will be reactive compared to the preventative and planned strategies on higher classification roads.

Overall the sealed pavement maintenance programmed for the next 10 years will increase for years 1-3 as pre-seal repairs increase with the enhanced renewals programme, then reduce to similar to historic levels.

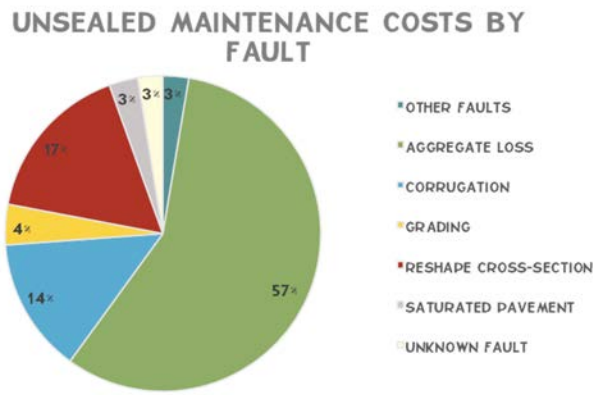
It is important to note that safety will not be compromised through this process, and intervention with routine maintenance will be completed as necessary to keep the road safe.

UNSEALED ROAD PAVEMENTS

The unsealed pavement represents 65% of the road network length, with significant associated maintenance costs.

With the development of the performance based unsealed pavement maintenance contract over the last five years, the focus on maintenance requirements has shifted to the Contractor. Performance of the unsealed pavements has fluctuated throughout this contract, and there is a need for review of the unsealed maintenance strategies applied through this contract.

Unsealed roads with unbound wearing courses require potholing, grading and spreading of metal together with heavy metal build-ups to keep them in a good serviceable condition. These are considered as the basic maintenance requirements for unsealed roads, along with complementary drainage. The reasons for maintenance completed in the last five years is shown in the figure below.



Council's typical unsealed road life cycle is as follows: build pavement with well sized river metal or AP100 limestone (for bearing strength), cap with smaller sized red metal and/or limestone (for wearing course). Potholing activities followed by intermittent grading works are then undertaken to maintain the surface ride and shape. Re-metalling of localised road sections is as required for bearing defects (weakness) and/or wearing course reinstatement.

Due to the typically very low traffic counts (i.e. 60% of roads with less than 250 vehicles per day), the weathering environment is considered to be the major influence on the unsealed road surface performance. It is evident that low volume unsealed roads have an element of "self-healing" (pot holes in dry weather can grind down and almost disappear) and as such, reactive maintenance must be tempered with an underlying awareness of the rate of change of unsealed surfaces, and interventions made accordingly (i.e. not rush out to find and fix treatments, or grade for convenience etc.).

Typically, there are three distinct types of aggregate sources available in Wairoa:

Aggregate Type	Source	General Description	Typical Negative Properties	Good Properties when Applied Correctly
River Metal	River-based quarry aggregate	Low in plastic fines, lacks broken faces unless well crushed, has high crushing strength, not moisture sensitive	Unravels and corrugates - problematic on steep, dry inclines	Provides good structure, strength and drainage for load-bearing capacity especially when there is a high moisture content in the subgrade
Red Metal	Land-based quarry aggregate	High in fines content, typically lacks broken faces, has good crushing strength, binds well, can be moisture sensitive.	Unravels and corrugates - problematic on steep, dry inclines	Provides a similar load-bearing capacity with more sensitivity to moisture, and contributes to maintaining bound unsealed surfaces due to the content of fines (although the silt fines unravel and cause corrugations)
Limestone	Land-based quarry aggregate	High in fines content, high in broken faces, has poor crushing strength, binds very well, fines are moisture sensitive	Breaks down and becomes slushy - not suitable under high HCV or wet areas. Relatively expensive – no local quarries, must be carted from out of region	Can provide good load-bearing and interlocking strength, and limestone AP65 – AP40 and fines provide a good wearing coarse to bind loose surfaces. Typically used on inclines with traction issues. Responds well to dust suppression products

Blended aggregates can deliver a balance of the benefits of each material's unique qualities. Delivering this continues to be a challenge for the local contracting industry due to economic inefficiencies in bringing these two products together.

Blending of aggregates is currently achieved through on-site blending by well-timed and layered applications of alternating river/red then limestone etc. With an understanding of the 'rate of change', an experienced practitioner can direct the best, suitable maintenance metal applications.

Development of an AP30 crushed river aggregate benefits including improved wearing course performance and reduced grading frequency. Applying this smaller crushed stone to broken-down limestone surfaces (creating 'slushy' surfaces when wet) is planned to mitigate complaints about slippery unsealed surfaces.

Retaining bound unsealed road surfaces for as long as possible between grading, complemented by well-timed pothole treatments and drainage cut-outs etc., is a viable alternative. Some recent successes in trials of bound-wearing course material applications to improve all-weather access and reduce grading and metalling requirements have been achieved. It is recommended that these techniques be applied to more sites on a cost/benefit basis and further analysis of this approach is required to understand any correlating reduced metal applications.

Since the introduction of the Lump Sum performance based unsealed roads maintenance contractor, the application of maintenance metal and recording of volumes applied has been managed by the contractor. In the last procurement round, a base preservation quantity of 13,000cum per annum of maintenance metalling was adopted. This amount was determined based on affordability, not a good understanding of aggregate attrition rates.

Improvement Item - A Maintenance Intervention Strategy has been developed for unsealed and sealed pavements. This needs to be continually measured, reviewed and refined to ensure it is delivering best outcomes for the unsealed network. A focus on proactive maintenance should be incorporated.

Improvement Item - A review of average metal loss on the unsealed road network and resulting preservation quantities will be completed as part of the Procurement Review for the future unsealed road maintenance contract.

FUTURE MAINTENANCE

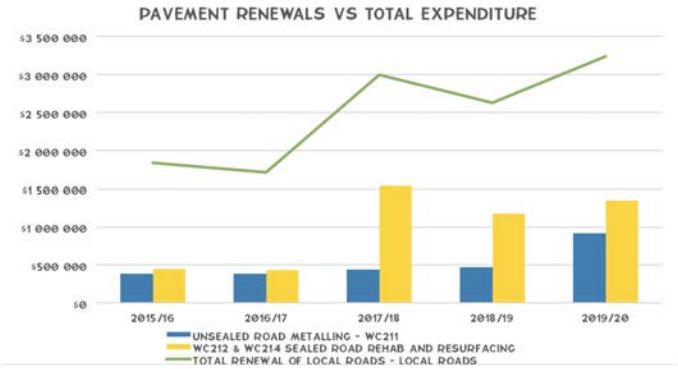
A risk-based approach will be taken to optimise maintenance across the different ONRC. On higher classification roads, a lower risk approach will be taken i.e. this may reduce grading cycles where Heavy Metal Build Up (HMBU) renewals are completed. For lower classification roads, more risk may be taken by deferring renewals where possible and increasing grading cycles.

Overall the unsealed pavement maintenance programmed for the next 10 years will remain relatively static, as more focus is put on renewals on high classification roads to meet increased demand requirements.

It is important to note that safety will not be compromised through this process, and intervention with routine maintenance will be completed as necessary to keep the road safe.

2.11.2 RENEWALS PLAN

The graph below shows the sealed and unsealed pavement renewal costs as a percentage of the total renewals expenditure over the last five years.



Sealed road resurfacing makes up a significant portion of all network renewals, while unsealed road metalling makes up a significantly lower portion of the costs. This is generally due to the higher proportion of Access and low volume roads that experience lower traffic volumes. It is also due to the fact that a higher proportion of the unsealed road spend through the unsealed pavement maintenance lump sum contract, which indicates a more reactive maintenance approach.

SEALED PAVEMENT RESURFACING

Resurfacing of a section of road is a genuine opportunity to meet LoS requirements. All preseal pavement repair works, including drainage and any associated improvements for suitable road width etc., must be thorough and of the highest quality to deliver this. This will also assist in achieving the desired life cycles.

As a significant portion of the whole-of-life costs of any sealed road life cycle, the decision to reseal provides an opportune time to review the investment strategy for a section of pavement – and to minimise the whole-of-life cost.

Reseals include the application of additional coat/s of bituminous surfacing to improve water proofing qualities and the skid resistance of the top surface. Maintenance reseals and second-coat seals on new projects are included in this category.

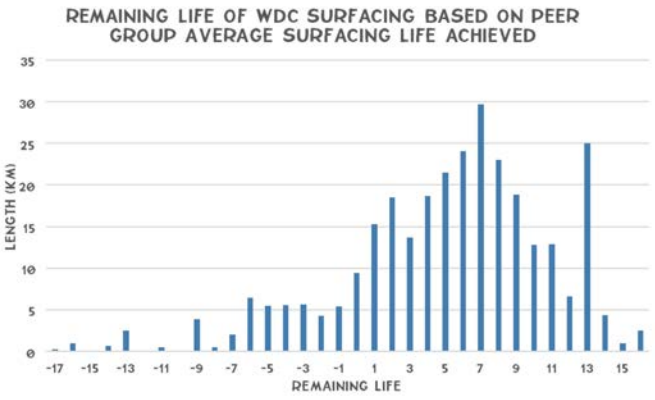
Second-coat sealing of rehabilitation sites is desirable the following year, however, in low volume areas these second coats have been applied up to three years later, optimising the life and use of the first coat seal, and deferring Council expenditure for allocation on higher demand sites.

AGE BASED – REMAINING USEFUL LIFE ASSESSMENT

Based on achieving the peer group average seal life for each ONRC, a total of 22.2 km of resurfacing would be required each year on the Wairoa network as shown below. **The table shows Wairoa District Council are currently achieving much longer lives than their peer group.**

ONRC	Peer Group Average Surfacing Life Achieved	Wairoa 4 year Average Surfacing Life Achieved	Council Sealed Road Length	Council km/ year Resurfacing Required (Peer Group)	Council km/ year Resurfacing Required (in Wairoa)
Primary Collector	13 years	14 years	26.8km	2.1km	1.9km
Secondary Collector	13 years	13 years	158.0km	12.2km	12.2km
Access	14 years	18 years	71.7km	5.1km	4.0km
Low Volume	16 years	17 years	45.2km	2.8km	2.7km
TOTAL			**301.7km**	**22.2km**	**20.7km**

Utilising the peer group average surfacing life achieved as the expected useful life of a surface, and the age of the existing surfaces on Council's network from RAMM, the following graph showing the remaining useful life of surfaces on the council's network. Currently a 50km backlog of surfacing exists. Based on this graph, 250kms of resurfacing is required over the next 10 years to clear the backlog, and address upcoming seals that require renewal.



DTIMS MODELLING

As an input to this AMP, dTIMS modelling has been completed for the sealed road network. However, as rating was unable to be completed as programmed due to COIVD-19 impacts, the data inputs to the model were limited. The model was primarily based off roughness data, so the outputs of the model need to be considered with caution, and these limitations in mind. The model has indicated that 15- 20km per year of resurfacing is required to maintain pavement and surfacing condition. This is lower than the amount indicated by the FWP, age assessment and previous dTIMS models, perhaps due to the downward or static trend of roughness on the network over the last few years. The amount of resurfacing proposed by the dTIMS model will mean the age-based surfacing backlog will remain and increase going forward.

The model showed investment should be focussed on Secondary Collector roads.

Improvement Item - Undertake MSD or FWD testing on key routes to better understand pavement strength, and to provide input to the dTIMS model.

FWP INSPECTIONS

Council actively manages a sealed network renewals FWP, with annual validation completed to review this, with an emphasis on the two-three-year programme. The FWP forecasts the renewal treatments, using optimised decision making based on condition data, current constrained budgets and latest visual site assessment of any specific use and demand impacts to the road.

The recent forward work inspections have highlighted that the condition of the network is deteriorating and there is a large backlog of surfaces that require resurfacing. The recommended programme to prevent further deterioration of the network is 33km/year for the four years following 2020/21.

RESURFACING PROGRAMME OPTIONS

Based on the above information, three options for the resurfacing programme for the next ten years have been developed.

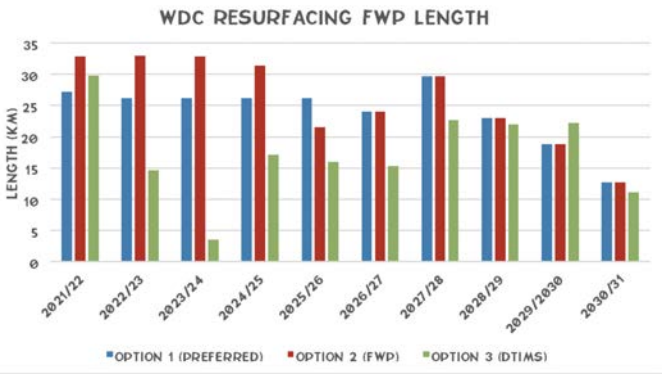
Option 1: Timing (26km/year) – Enhanced programme for five years to reduce backlog, prioritising high risk sites first, then reduce programme to minimum required to renew surfaces at the end of their expected lives.

Option 2: Timing (33km/year) – FWP inspection-based programme to clear backlog and improve network condition, then reduce programme to minimum required to renew surfaces at the end of their expected lives Greatly reduces or removes risk profile to Council. Unsustainable from a funding perspective.

Option 3: Baseline Strategy (20kms/year) – Resurfacing occurs at minimal levels, as indicated by dTIMS model, backlog of surfacing remains. Note, dTIMS is still forecasting higher (and unaffordable) expenditure for years 20/21 and 21/22, reflecting the backlog of surfacing that requires immediate addressing. This option presents a higher risk profile to Council, but represents lowest financial cost. Does not address Council's strategic issues and existing condition will be maintained, which will not meet community expectations.

The cost of each option is shown on the graph below. The costs for 2021/22 are high for all three options as the backlog on Primary Collector roads has been prioritised. These roads are generally wider, and required more robust and therefore costly surfaces. Resurfacings will be prioritised on Primary and Secondary collector routes.

While Option 1 is the preferred option, it is not affordable to Council, therefore a reduced option of 22km/year for the next 3 years has been adopted. This is a slight improvement on the baseline strategy (Option 3), but not as enhanced as Option 1.



SEALED PAVEMENT REHABILITATION

As part of the FWP inspections of sealed roads, potential pavement rehabilitation sites are identified. Sites programmed for rehabilitation are prioritised based on ONRC classification, anticipated future loadings and historic maintenance costs. Sites are programmed for rehabilitation based on a visual inspection when it is anticipated the pavement is at the end of its life and normal maintenance and reseals will provide the best value for money. The onsite assessment will be paired with and NPV assessment to check this assertion.

The table below lists the sites identified for rehabilitation in the three-year period 2021/22-2023/24. An assessment of the maintenance requirements for each site, and historic maintenance costs retrieved so an indicative NPV calculation can be carried out for each site. The results of the NPV calculation is shown in the table below, as well as an assessment of the site against Council's Investment Decision Making Criteria to determine the appropriateness of a rehabilitation treatment for each site.

Rehabilitation Site	Aligns with IDMF Criteria for?				Cost ($000)	Comments
	Strategic Alignment	Service Delivery	Risk & Criticality	Financial Impact (NPV)		
Tiniroto Road (RP 11253-11598)	✓	✓	✓	✓	$120	Key lifeline route – State Highway alternative.
Putere Road (RP 2081 – 3067)	✓	✓	✓	✓	$401	High future demand from forestry expected to accelerate pavement consumption.

Rehabilitation Site	Aligns with IDMF Criteria for?				Cost ($000)	Comments
	Strategic Alignment	Service Delivery	Risk & Criticality	Financial Impact (NPV)		
Putere Road (RP 3067 – 3985)	✓	✓	✓	✓	$373	High future demand from forestry expected to accelerate pavement consumption.
Mangapoike Road (RP 4995-5490)	✓	✓	✓	✓	$373	High future demand from forestry expected to accelerate pavement consumption.
Cricklewood Road (RP 3149-4420)	✓	✓	✓	✓	$170	
Māhia East Coast Road (RP 1810-5147)	✓	✓	✓	✓	$378	High future demand from forestry expected to accelerate pavement consumption.
Nūhaka-Ōpoutama Road (RP 527-1507)	✓	✓	✓	⛔	$1,137	Positive NPV cannot be obtained for full site. Doing smaller sections can achieve a positive NPV.
Nūhaka-Ōpoutama Road (RP 2891-4278)	✓	✓	✓	⛔	$458	Key strategic route for access to Māhia. Strong strategic alignment.
Nūhaka-Ōpoutama Road (RP 4608-5066)	✓	✓	✓	⛔	$157	Key strategic route for access to Māhia. Strong strategic alignment.
Nūhaka-Ōpoutama Road (RP 7037-8318)	✓	✓	✓	⛔	$479	Key strategic route for access to Māhia. Strong strategic alignment.

As shown in the table above, many of the identified sites do not achieve a positive NPV when assessed, however the sites align strongly with Council's strategic focuses and/or address service deliver and risk criteria. The NPV's are showing maintenance and resurfacing currently offers a more cost-effective solution to maintaining these sites. The dTIMS modelling is also recommending minimal rehabilitation over the next 10 year period, although this is primarily based on roughness data, and is not considering other drivers. Targeted FWD/MSD or test pitting will allow improved understanding of pavement capacity and renewal requirements. An improvement item has been included for this data collection.

A reduced AWPT and increased resurfacing and sealed maintenance programme has been shown as a result. While many of the sites are not indicating a positive NPV, targeting smaller sections in the worst condition achieves a positive NPV. Hence, an average of 1km of rehabilitation per year has been allowed to target these sections.

The 10 year FWPs for resurfacing and Area Wide Pavement Treatments (AWPTs) are shown below. These FWPs have prioritised based on ONRC, by taking a more proactive approach to pavement and surfacing renewals on higher classification roads and less so on lower classification roads.

On average 22km of road will be resurfaced per year for the next 5 years. This represents a slight increase from previous years but is insufficient to clear the backlog of surfacing. Careful management will be required to minimise network deterioration, and limit impacts to levels of service and risk.

On average 1km of road will be rehabilitated for the next 10 years. This total will be refined as the future demand changes and the impact of these changes are better understood. Pavement rehabilitation is focussed on key lifeline, forestry and the rocket lab routes over the next 10 years.

The revision and refinement of the 10 year FWP will continue annually to react quickly to changes in demand and condition. It will also be dependent on ensuring appropriate maintenance by the sealed maintenance contractor and Council's oversight managing the older surfaces in a timely and economic programme.

UNSEALED PAVEMENTS

UNSEALED ROADS –METALLING

Unsealed road metalling, also known as heavy metal build-up (HMBU), is a treatment to add additional basecourse metal on an unsealed road, to return the pavement depth to the thickness required to support the traffic loads on that section of road.

HMBU of a road section is a genuine opportunity to meet carriageway width LoS requirements. All preparatory works including drainage and any associated improvements must be thorough and of a high standard to deliver this. Surface water channel renewals are typically programmed in advance of HMBU's. This will also assist in achieving the desired life cycle.

Several road aggregate loss models have been used to examine the range of potential aggregate loss over the extent of the Wairoa network compared to the historical quantities of aggregate that have been applied. These models suggest that the total annual application quantities should not fall below a lower bound quantity of 51,000m3 to effectively maintain the current unsealed pavement condition. However, these are theoretical calculations and studies into the actual aggregate loss are been undertaken to fully understand the condition of the unsealed road network.

The current programming of HMBU's sites have been selected by historical maintenance costs (such as unsealed pavement digouts) or, where a significant increase of HV's is expected.

The prime motivator for HMBU treatments is an anticipation of increased demand from forestry traffic. The programme has undertaken as such to not undertake the HMBU too soon where the benefit of pavement strengthening will not be realised due to aggregate loss from maintenance activities but not too late where maintenance costs increase due to the deterioration of the pavement and subgrade layers. The FWP will be reviewed annually and adjusted where appropriate to ensure appropriate timing of treatments. Continued stakeholder engagement with forestry companies is crucial to ensuring treatments are timed appropriately and the overall success of the programme.

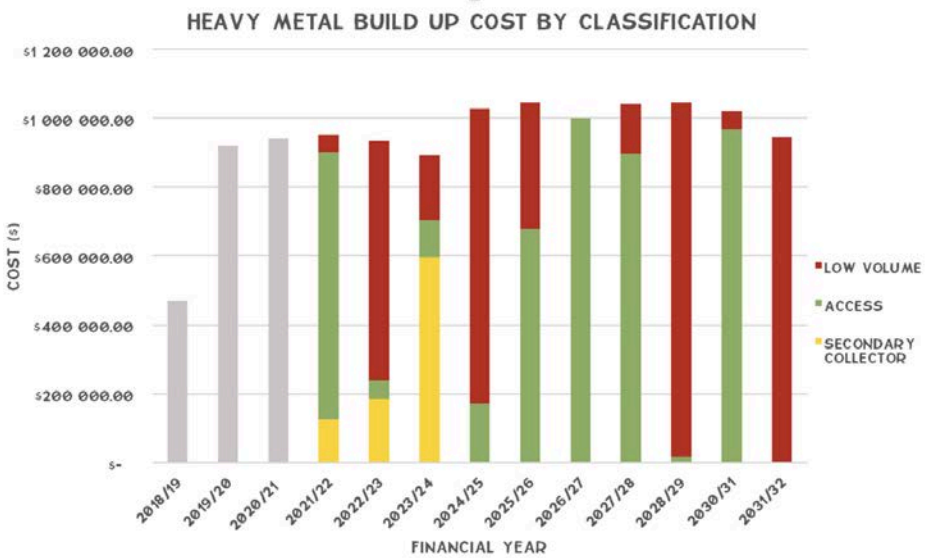
Improvement Item - Develop and implement a test pit programme to undertake test pits in advance of potential HMBU sites to confirm the necessity and extents of the HMBU treatment. It is recommended that a more extensive programme of metal depth testing on key roads be considered to better determine areas where there may be a lack of adequate metal depth. Ground Penetrating Radar (GPR) trials to establish metal depth and subgrade integrity have been undertaken for sealed pavements and it is intended to extend this to unsealed pavements when robust models have been developed elsewhere in the country and where there is some certainty as to the validity of those models.

Improvement Item - IDS have recently released a dTIMS model for unsealed roads. Council will review the input data requirements and outputs of the model to determine if modelling will be beneficial for the Wairoa network

FUTURE RENEWALS

The 10 year FWPs for heavy metal build-ups (HMBU) is shown below. This FWP has been prioritised based on ONRC, by taking a more proactive approach to unsealed pavement rebuilds on higher classification roads and less so on lower classification roads. The prime motivator for programming of HMBU's was anticipated future increased demand from forestry, i.e. the renewals are proactive, rather than reactive.

On average 8.05km of road will be treated per year for the next 3 years, at an average cost of $925,000. This will increase to 8.85km per year for the remaining years out to Year 10 at an average cost of $1.02M.



2.11.3 CAPITAL/NEW WORKS & IMPROVEMENTS PLAN

All pavement related capital/new works and improvements for the 2021/22-2023/24 period are included in the Low Cost Low Risk Improvement WC 341 and are outlined below.

Net Present Value calculations on all projects will be undertaken to ensure the projects are providing value for money for Council

Activity	Brief Scope	ONRC	Problem	Main Benefit
Dust sealing – various roads	Road seal extension to mitigate dust	Primary Collector	Increasing demand on unsealed roads	Reduced environmental impacts
Traction sealing – various roads	Road sealing to mitigate traction issues and reduce ongoing maintenance costs	Various	Increasing demand on unsealed roads	Reduced maintenance costs. Network is fit for purpose.
Targeted Safety Improvements – Forestry access roads	Sight benching, visibility improvements, corner widening	Access	Increasing demand on narrow, winding roads	Network is safe and fit for purpose

The financial outcomes from investing in these projects which will be included in WC 341 are shown below, along with an assessment of the alignment of the project with the Council Investment Decision Making Framework Criteria.

Improvement Project Name	Aligns with IDMF Criteria for?				2021/22 Cost ($000)	2022/23 Cost ($000)	2023/24 Cost ($000)
	Strategic Alignment	Service Delivery	Risk & Criticality	Financial Impact (NPV)			
Dust Sealing	✓	✓	✓	✓			$200
Traction Sealing	✓	✓	✓	✓			$100
Safety Improvements – sight benching/ widenings on key routes	✓	✓	✓	✓	$100	$100	$100
TOTAL					**$100**	**$100**	**$400**

2.11.4 NON-ASSET SOLUTION OPTIONS

NON-ASSET SOLUTIONS TO ENHANCE THE LIFECYCLE PLANNING FOR PAVEMENT ASSETS INCLUDE:

- TRAFFIC COUNTING PROGRAMME –Implementation of a robust traffic counting programme to:
  - Capture growth and monitor trends across areas of the network;
  - Obtain seasonal adjustment factors across areas of the network; and
  - Collect enough data to produce traffic estimate data for the remainder of the network.
- UNSEALED PAVEMENT MAINTENANCE INTERVENTION STRATEGY – A Maintenance Intervention Strategy (MIS) has been developed for the unsealed network, as part of the new maintenance contract. However, this MIS needs to be continually tested and refined to ensure it is driving appropriate outcomes for the network, this will include:
  - Better understanding root cause analysis for failures to ensure that maintenance interventions are appropriate
  - Balancing reactive vs planned maintenance
  - Addressing unsealed roads maintenance issues through safety improvements, such as seal extensions and road widening, where necessary to allow safe use of the rural unsealed road network.
  - Addressing the dust issues on high use unsealed pavements and where to target dust suppression initiatives.
- RAMM DATA VALIDATION AND REVIEW OF COLLECTION PROCESSES – A review of RAMM data collection needs to be undertaken to ensure data being collected is complete, accurate and consistent. This will ensure decision making is being made with the best information possible, and the best outcomes are being delivered.

2.12 PREFERRED PROGRAMME

The preferred programme based on the lifecycle management plan, prioritised by ONRC and strategic problems is included in the Section 12: Financial Summary.

3.1 STRATEGIC CASE LINK

3.1.1 ADDRESSING KEY NETWORK PROBLEMS

Primary problem contribution: Accessibility & Resilience

Maintenance and renewals of bridges provides a direct response to the Strategic Case problems of:

- ACCESSIBILITY, by ensuring that heavy commercial vehicles have access to all areas of the network they require
- RESILIENCE, by providing support to key life line routes

Associated with this is the more specific accessibility requirements of the route to the Rocket Lab, and so maintenance and renewals of bridges and structures along this route will also be critical in terms of response to the Strategic Case Māhia connectivity problem, to meet increased LoS requirements.

The tables below highlight the key strategic responses and benefits, identified in the Strategic Case, that are delivered by the road Bridges asset group.

STRATEGIC RESPONSE

In order to make the right investment decisions to allow heavy vehicle accessibility on our network we need to better understand the current condition and capacity of our bridges. Our strategic response to this problem is to:

Optimise bridge capacity

We will do this by focusing on the following initiatives over the next three years:

Strategic Response	Key Issue	Response Type	Response Description
Optimise bridge capacity	**Unknown Bridge capacity** – Bridges in unknown bridge capacity is restricting access for HPMVs.	Policy Approach	**Bridge Capacity Assessments** – these will allow us to accurately assess the loading capacity of our bridges, so we can identify which can sustain 50Max and HPMV loading and which will need strengthening works to allow these heavier vehicles to cross.
		Risk based Approach	**Detailed seismic assessment** based on screening outcomes - high risk first
	Data quality – Data is currently stored inconsistently and information for some bridges is incorrect.	Policy Approach	**RAMM Data Validation –** Validation and updating of the RAMM database will ensure accurate information can be used in decision making processes.
	Demand for HPMV Routes – As SH2 is now fully open for HPMVs, there will continue to be pressure for local roads to also be available to HPMVs	Demand Management	**HPMV Permitting** – undertaking bridge capacity assessments on key routes to open them for HPMV access will ensure economic growth and productivity can be achieved.
	Poor or Unknown Bridge Condition – These bridges are restricting access for increased heavy vehicle loads and also means we may not be providing long term access for whole of life least cost.	Policy Approach	**Bridge Inspections** – to continue to better understand bridge condition and allow preparation of a prioritised FWP of maintenance and renewals.
		Risk Based Approach	**Material Testing on Key Bridges** – will allow us to confirm the condition and remaining useful life of structures and prioritise repairs and renewals.

Strategic Response	Key Issue	Response Type	Response Description
		Risk Based Approach	**Painting Screening –** screening steel bridges and prioritizing and programming bridges that require painting will extend the life of these bridges and reduce ongoing maintenance costs.

3.1.2 BENEFITS OF INVESTING

The Investment objectives that we want to achieve include:

Improve access to productive land

MEASURING THE BENEFIT

The table below outlines the specific Benefits that will result from investment, based on Waka Kotahi's Investment Benefits Framework.

Investment Objective	Benefit Cluster	Benefit	Description	Performance Measures
Improve access to productive land GPS 2020: Improving the freight network for primary producers to markets	5. System Reliability	5.2 Network productivity and utilisation	Network productivity and utilisation is about efficient use of the land transport network. Optimising our part of the broader economic/ social system to allow broader benefits to be gained.	5.2.1 (ONRC Accessibility CO1) – Spatial coverage - freight

3.1.3 DELIVERING CUSTOMER OUTCOMES

The key Customer Service Statements associated with bridges are:

- The land transport network is managed in a manner that assists the economic development of the district
- Council quickly restores access on key routes after natural event
- Road assets are managed prudently to ensure long term financial sustainability for current and future generations

Key ONRC CLoS delivered through the bridge assets align with the problem response above by providing both accessibility and network resilience.

Also in line with the intent of ONRC, we will ensure that we deliver the right structures assets and services to the right level at the best cost, by PRIORITISING INVESTMENT ON HIGHER CLASSIFICATION ROADS.

However, it should be noted that due to the safety and resilience issues associated with structural failure, there is a lower risk appetite for all structures regardless of where on the network they are situated.

3.1.4 ENSURING ASSET INTEGRITY

Bridges not only deliver on ONRC CLoS, but also have the key function of providing long term access across the network, for the whole of life least cost, this is essentially the provision of asset integrity.

3.2 ACTIVITIES DELIVERED

Activities delivered through the bridge assets and their respective WAKA KOTAHI funding works categories are included in the table below.

Transport Activity	WC No.	Work Category Name	Key Function	Example Work Activities
Movement of People & Goods	114	Structures maintenance	Remedy defects, maintain condition	Handrail repairs, minor repairs to components, cleaning & painting, stream clearing & debris removal
	215	Structures component replacements	Remedy defects, maintain condition	Replacement of damaged & deteriorated components
	341	Low Cost/Low Risk Improvements	Increase Level of Service	Bridge strengthening works
	151	Professional Services	Develop and deliver strategic network improvements	Design of repairs, Inspections, Forward Works Planning, Permit Processing.

3.3 ASSET DESCRIPTION

3.3.1 INTRODUCTION

Wairoa District Council structures consist of various asset type and of varying conditions. RAMM records show there are 176 structures considered to be part of the Bridge asset management.

3.3.2 IDENTIFICATION

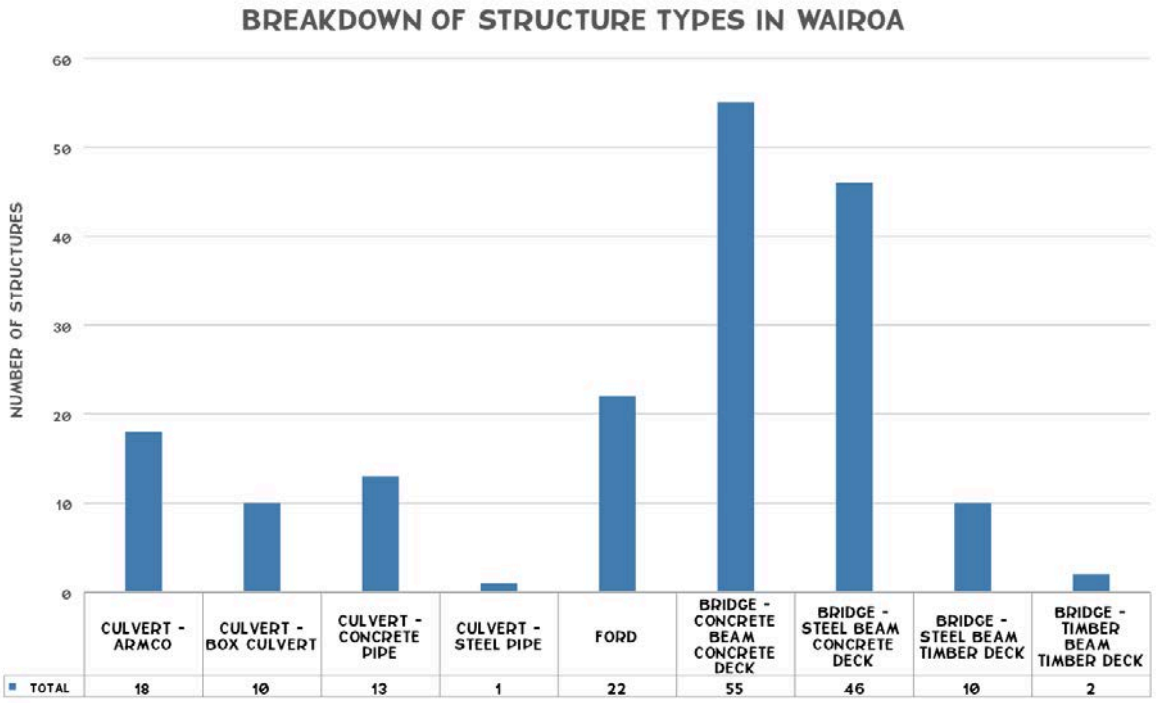
This section of the AMP covers structures supporting traffic on local roads in the Wairoa Region.

The term "Road Structure" includes all structures owned or managed by Wairoa District Council which directly supports traffic, including bridges, culverts and multiple culverts with a total waterway area greater than 3.4m^2 (refer S6).

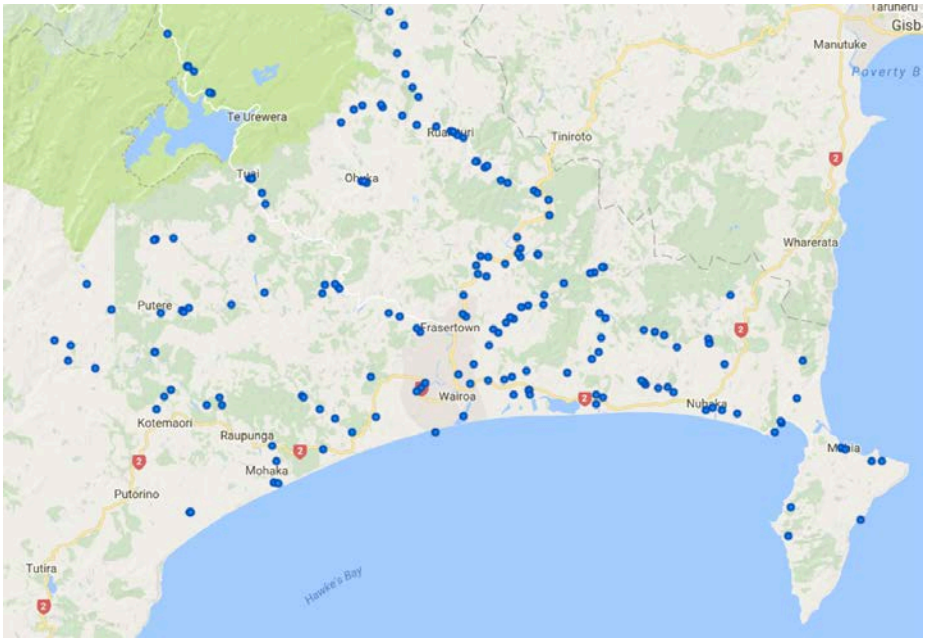
The total number includes seven bridges located on SP38 for which Wairoa has the maintenance responsibility.

Bridges	Quantity	Length(m)
Bridges	128	4,217
Culverts	41	546.4
SP38 Bridges	7	
TOTAL	**176**	

The bridge structures vary considerably throughout the district in terms of design, materials and deck type. The following graph is a summary of bridge type filtered into 9 main categories.

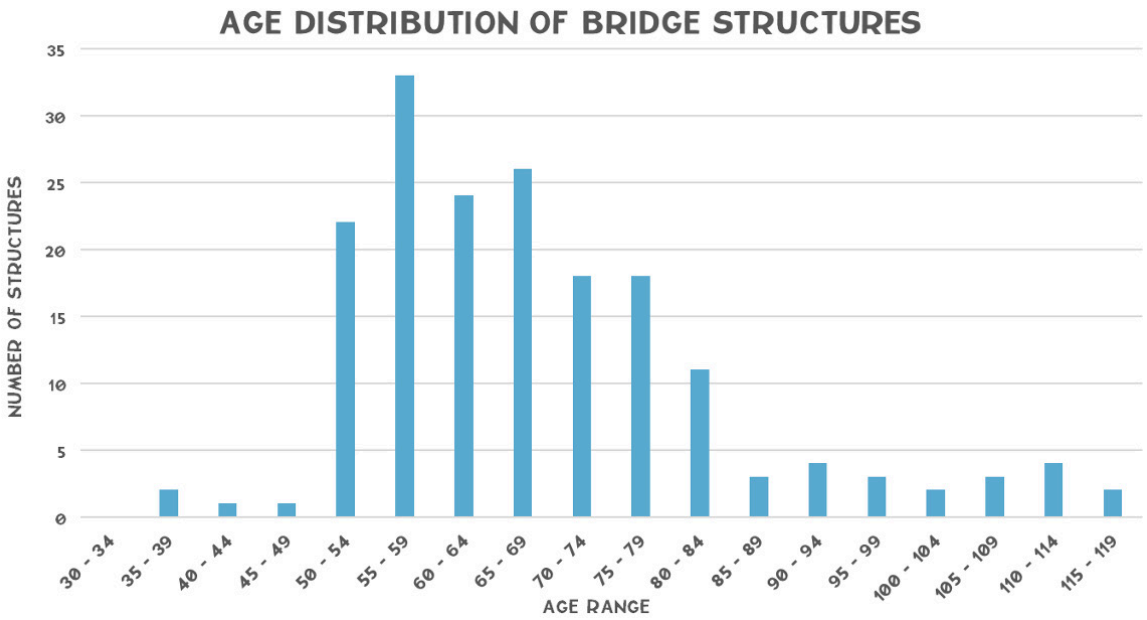


The location of bridges within Wairoa is shown on the map below.



3.3.3 AGE PROFILE

The distribution of age of structures in Wairoa shows the majority of Council's bridges are aged 50-85 years old. Targeting key maintenance items proactively will prolong the life of the structures so renewals are not focussed in a short period, ensuring the renewals programme will be affordable in the future.

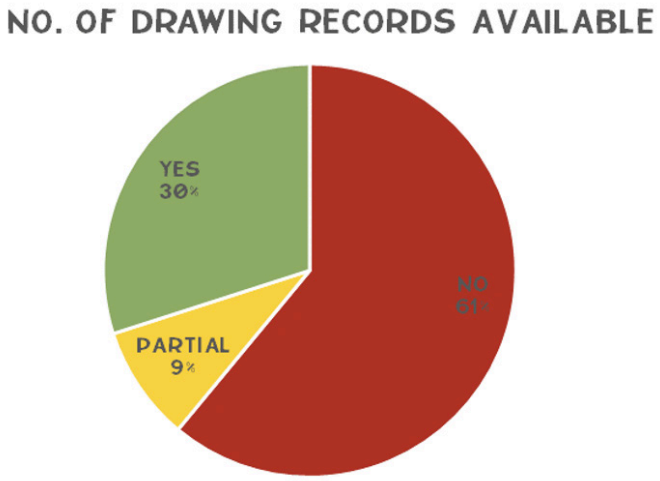


3.3.4 AS-BUILT DRAWINGS

As built drawing records have been categorised into 3 categories, Full Drawings, Partial Drawings and Missing Drawings.

Full drawings indicate there is enough information about the structure to ensure capacity assessments can be completed. Partial drawings indicate there will be a requirement of site investigation works to confirm details such as deck reinforcement layouts, or steel beam sizes. Missing drawings indicate that there is insufficient record available to complete capacity assessments.

Wairoa District Council have recently undertaken electronic scanning of their archived information which may highlight additional documentation allowing the easy assessment of structures.



3.3.5 DATA VALIDATION

Improvement Item - Implement procedures to ensure data from inspections and capacity assessments are maintained in RAMM to improve asset inventory accuracy and completeness.

RAMM data validation is required for maintaining accurate structure information. The Data validation process would see corrections made in structure type (as identified by site investigation works) or names changes to ensure structures site postings and database records match.

It is highly recommended that to prevent inaccurate data from being used in the future a centralised system (RAMM) is updated to the as now known information, this would include storing drawing and material testing information against the assets.

3.4 ASSET CRITICALITY & RISK

Structure information in Wairoa has been broken down into three district criticality categories.

1. Capacity/Demand
2. Resilience
3. Condition

The primary driver and key strategic driver remain opening routes to HPMV vehicles based on anticipated demands. As such the previous criticality matrix has been reused and updated with new haulier information. The two remaining categories offer insights into the region's future network needs and upcoming expenditure. These have been used to assist

3.4.1 CRITICAL ASSETS

NETWORK STRUCTURE RISK SCHEDULE

A Risk prioritisation matrix was developed to assist with undertaking routine and structural bridge repair work. The prioritisation was completed in 2016.

The prioritisation matrix has been updated based on revised forestry data.

As an additional improvement item completed, a network risk screening was undertaken over the Wairoa network. this highlighted that Seismic, Scour, and unknown levels of service are the 3 driving factors for risks on the Wairoa District Council network.

A full schedule of the risk ratings can be found in the section below.

DETERMINING WHICH ASSETS ARE CRITICAL

The criticality of the bridges on the network has been reviewed based on a number of factors outlined in the table below.

These results are shown in the following sections and compares the change in criticality from the previous AMP submission to this submission from new information.

Structure Criticality Factor	Risk Factor				
	1 Low Risk	2	3 Moderate Risk	4	5 High Risk
ONRC Classification	Access (Low Volume)	Access	Secondary Collector	Primary Collector	Arterial
Predicted Demand	No HCV Demand Increase Expected	Significant HCV Demand Increase Expected in Next 10 Years	Significant HCV Demand Increase Expected in Next 5 Years	Significant HCV Demand Increase Expected in Next 2 Years	Significant HCV Demand Increase Expected in Next 12 Months
Route Criticality	Alternative route exists with <30min delays if closed	Alternative route exists with 30-60min delays if closed	Alternative route exists with 60-120min delays if closed	Alternative route does not exist if closed. Links population <5 dwellings	Lifeline Route. Alternative route does not exist if closed. Links population >5 dwellings
Replacement Cost	Less than $100,000	$100,000 - $250,000	$250,000 - $500,000	$500,000 - $1,000,000	More than $1,000,000
Construction Year	<1995	1975-1994	1955-1974	1935-1954	<1935

The structure resilience factors have been assessed based on the below factors.

Structure Resilience Factor	Risk Factor				
	1 Low Risk	2	3 Moderate Risk	4	5 High Risk
Seismic Criticality	0%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scour Criticality	Not Critical	0-0.025	0.025-0.05	0.05-0.075	0.075-0.1

The bridge capacity matrices were also reviewed and are based on the following.

Structure Capacity Factor	Risk Factor			
	1 Low Risk	2 Moderate Risk	3 High Risk	4 Severe Risk
50MAX Capable	Yes			No
Fraction of Capacity (FOC)	<0.9	0.9-1.0	1.0-1.1	>1.1

The outcomes from these matrices have been used to prioritise the most critical bridges for capacity assessment, as follows:

Structure Criticality Score = ONRC Classification score x Predicted Demand score x Route Criticality score x Replacement Cost score x Construction Year score

The structure Criticality Score has been applied to both the Capacity Score and Resilience Score to provide feedback based on the usage of the structures. This allows money to be target to high use high priority structures and allow the optimal economic growth in the community.

Structure Resilience Score = Seismic Criticality Risk Score x Scour Criticality Risk Score x Structure Criticality Score

Structure Capacity Score = 50MAX Capable score x Fraction of Capacity score x Structure Criticality Score

Overall Resilience Criticality Score = Structure Criticality Risk Score + Resilience Score + Scour Screening Score + Seismic Screening Score

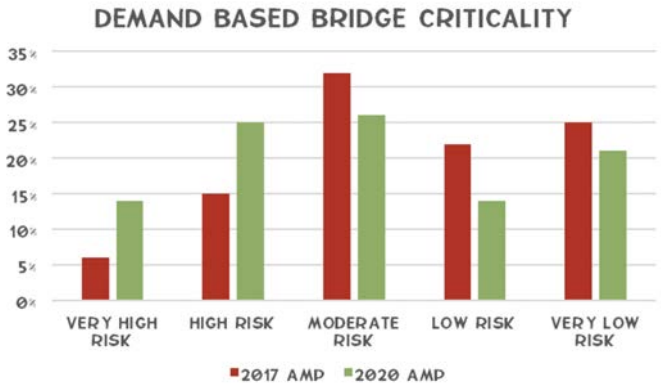
Structure Capacity Score	Risk Rating	Risk Score
<25	Very Low Risk	1
25-50	Low Risk	2
51-150	Moderate Risk	3
150-500	High Risk	4
>500	Very High Risk	5

Structure Resilience Score	Risk Rating	Risk Score
<8	Very Low Risk	1
9-11	Low Risk	2
12-14	Moderate Risk	3
15-18	High Risk	4
>18	Very High Risk	5

CAPACITY/DEMAND BASED CRITICALITY

The results of this matrix were used to develop an understanding of the structure in Wairoa. Since its implementation additional information has been recorded and processed for all structures. This information plays a critical role in determining the risk of the bridge inventory.

The matrix has been applied again for this AMP to offer a direct comparison, and the changes in demand criticality are shown below. The number of high and very high demand criticality bridges have increased, showing the impact of increased forestry demand from updated forestry data. This offers a direct comparison between the previous AMP submission and the current. This however does not offer a full picture of more recent information obtained from screening exercises and inspection data.



RESILIENCE CRITICALITY

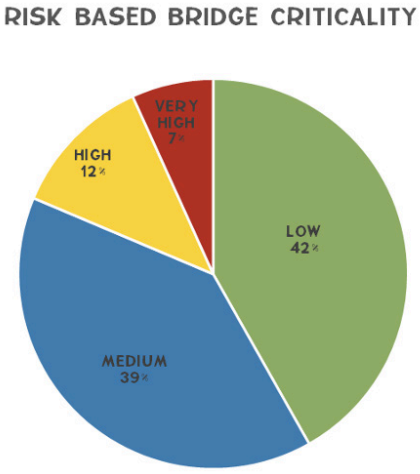
Basing bridge criticality solely on the usage of structures does not take into account the work undertaken as part of the AMP improvement items in identifying scour and seismic risks.

The Bridge Criticality Matrix has been further refined to include the following risks

- Seismic Risk
- Scour Risk

Seismic and scour screening of the Council's bridge inventory was undertaken to determine the risk factor for each structure. Both screenings were undertaken in line with Waka Kotahi's best practise policies.

19% of council bridges have been assessed as high or very high criticality on this basis.



CONDITION BASED CRITICALITY

Improvement Item - there is currently insufficient information to prioritise structures based solely on condition, over the next three years condition will be implemented into the prioritisation matrix to target condition poor structures.

Although there is insufficient information to a full condition criticality matrix, the results of ongoing screenings will be used in identification to ensure a continued safe to use network.

KEY ROUTES

The table below identifies key structures that have been highlighted by both the resilience risk assessment and the condition risk assessment.

Since forestry is the driving factor for the below routes, capacity assessments will be undertaken on structure that do not have information. The capacity assessments are required to determine the structural performance of the structure but can also be used to further investigate the results of the scour and seismic screenings, options to mitigate these effects will be highlighted on the assessment reports submitted.

Bridges previously assessed with posting restrictions on site are targeted as part of WC341 and will be strengthening/replaced to remove the restrictions.

Route Name	Route Criticality	Strategic Case Link	High Risk Structures on Route
Mangaopoike Road	High	Forestry	Rotoparu No.2 Bridge Te Huikete Bridge
Hereheretau Road	High	Forestry	Hereheretau Bridge Mangapapa No.1 Bridge
Cricklewood Road	High	Forestry	Gibson Bridge
Rotoparu Road	High	LoS	Crispin Bridge
Waiatai No.2 Road	Medium	LoS	Taits Bridge
Poututu Road	Medium	LoS/Condition	Poututu Bridge
Ngapikira Road	High	LoS	Ngapikira Bridge

3.4.2 NETWORK RISKS

This section of the report covers identified key engineering risks for Structure Assets. The key engineering risks can be broadly summarised as:

1. A Network risk analysis was undertaken identifying the high-risk considerations for the Wairoa Network.
2. The outcome of the analysis highlighted three critical areas which require addressing. And a single High rating which requires monitoring or actions.
    - Scour/Flooding Risk
    - Seismic Risk
    - Inadequate Load Capacity
    - Vehicle Barrier Containment.

SCOUR FLOODING RISK

Scour assessment completed, the results of the scour assessment will be used to ensure scour issues are primitively targeted before effecting the level of service on structures. The issues surrounding scour will be targeted through the usually structural bridge maintenance funding categories WC114 and WC215.

SEISMIC RISK

Seismic risk screening has been undertaken on all structural assets in Wairoa. The results of the report will be used to prioritise inspections after a significant earthquake event and to highlight mitigation measures that can be implemented for each at risk structure to increase the resilience of the Network. these mitigation measures will be implemented on bridges in conjunction with Routine maintenance aspects to allow for the best value for money to be obtained from the works. Typical mitigation measure would include additional Hold down bolts and seismic linkage bolts.

SAFETY RISKS

Safety risks associated specifically with the road structures stock include issues such as substandard or defective barriers, insecure deck components, fatigue prone expansion joints, or inadequate load capacity. The information has been collated from inspection data available over the last 3 years.

Improvement Item - Many bridges in Wairoa have missing or dangerous guardrail on approaches. A desk top study Guardrail screening on all bridges can be undertaken to highlight the potential risks to road users.

ASSET MANAGEMENT RISK

Historical data management poses a high risk to Wairoa District Council assets. It is currently known that only 30% of structures have as built information available. Although not critical to identifying structure that require routine or structural maintenance

There is an additional 10% of structures that have partial drawing or written information available.

Improvement Item - Structures with limited information and complex management issues or approaching the end of life may justify the preparation of specific management plans. There are currently no management plans in place for Wairoa structures.

However recent complex and costly repairs to structures such as Willowflat Bridge and Mohaka Township Bridge may justify that similar large or complex structure are each considered a priority in the development of specific management plans.

Bridges that may require investigation into the requirement of management plans include:

SH	BSN	Bridge	Reason for Management Plan
559	75	Mohaka Township Bridge	Key forestry Bridge with significant and continually management required.
529	84	Nūhaka Bridge	Coastal bridge providing key access for Rocket Lab and the Māhia Peninsular
440	128	Te Kura Bridge	Old concrete arch bridge on a key HPMV lifeline.
440	88	Opoiti Bridge	Key large span structure prone to high water levels.
451	32	Homeleigh Bridge	Key Alternative bypass route with large spans and steel beams that will require painting in the short to medium term.

3.5 DELIVERY

3.5.1 PROFESSIONAL SERVICES

Asset management and technical input for Bridge assets is completed by our Bridging consultant, WSP International Consultants.

Work carried out by the bridging consultants includes:

- Bridge Routine Maintenance and Structural Repair Designs
- Priorotisation ranking
- Bridge Assessment and Strengthening Designs
- Requests for tender and contract specifications.
- Principal Bridge Inspections
- Bridge Vehicle Permitting
- Forward Works Planning

Deliveries undertaken by Wairoa District Council include:

- General Bridge inspections
- Routine Maintenance Delivery

3.5.2 INSPECTIONS

In January 2018 Council updated and revised their inspection policy to include the references to the new standard inspection template produced by Waka Kotahi, the "S6 Template" the inspection policy outlines the requirements for Wairoa District Council to inspect the structures.

The policy document sets out the requirements for the inspection of bridges and critical minor structures in the Wairoa District road network.

These requirements state that:

- A principal inspection is completed by the contracted infrastructure professional service provider at least once on all structures in a 6 year period.
- A Routine Inspection is completed by Wairoa District Council every 1 or 2 years depending on the criticality of the structure.

3.5.3 PHYSICAL WORKS DELIVERY CONTRACTS

OPERATIONS & MAINTENANCE

Council's maintenance contracts (and associated standard specifications) clearly define the scope of works and are generally short to medium term contracts. Some contracts have right of renewal clauses allowing extensions at Council's discretion.

Current relevant contracts for bridge related maintenance are:

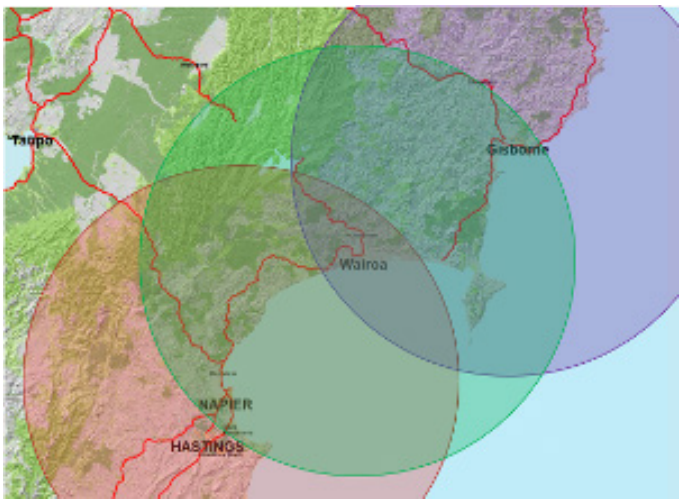
Contract No.	Name	Scope of Work Covered	Contract Term	End Date
18/01	Sealed Road Network Maintenance	Signs Bridge Washing Drainage	3+1+1	1st October 2023
18/02	Unsealed Road Network Maintenance	Bridge Washing Channel Clearing Guardrail Repairs	3+1+1	1st March 2024

STRUCTURAL REPAIRS & IMPROVEMENT WORKS

Currently structural improvement contracts are tendered on GETS. These are specific contracts for a set scope of works that typically allow for a variation based on performance.

Generally, procured contracts are close to the engineers estimate. Delivery improvements by geographic location could assist in time delivery of projects and reduce costs further. This benefit would only be realised if the contract value remains high enough to attract sufficient tenders to the region.

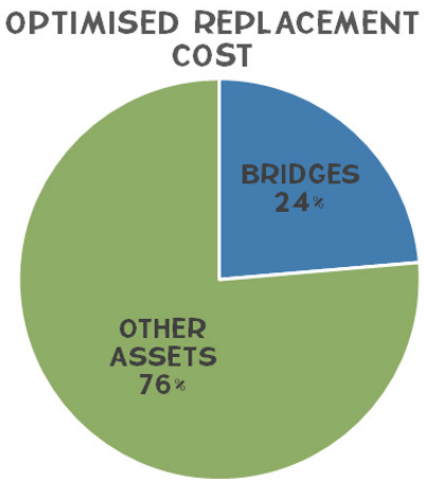
Council will investigate delivery of projects based on geographic location to encourage contractors to pool resources and offer best value for money by reducing the travel times between sites. Where appropriate, contracts of different work groups may be able to group together to ensure an optimal cost in delivery.



For example, a south Wairoa structural contract would include retaining wall repairs and bridge repairs to increase the overall contract value. The map above shows approximate 2 hour travel distance from each of the three centres(Wairoa, Gisborne and Napier) , Wairoa is situated in the centre of each of the three regions offering them an opportunity to acquire contractors from each of the regions.

3.6 ASSET VALUATION

Full details of the 2020 RAMM Asset Valuation are included in Section 12.6. The Bridge assets on the Wairoa transportation network have an **Optimised Replacement Cost of $79.4M** and a Depreciated Optimised Replacement Cost of $26.4M.



This represents 24% of the total Optimised Replacement Cost of Council's transport assets. It should be noted that bridges are significantly depreciated compared to other asset groups due to their older age, and represent 13% of the total Optimised Depreciated Replacement Cost of all Council's transport assets.

An Improvement Item was included in the 2017 AMP to review the unit rates for bridges. This review has been completed, and the unit rates updated to match national rates, with some input from local Bridge Engineers. This review resulted in a significant increase in unit rates. As a result, the Optimised replacement cost of bridges has increased 86% on the 2017 valuation.

3.6.1 CONFIDENCE LEVELS IN ASSET DATA

The asset inventory maintained in the RAMM database is comprehensive and while there are some deficiencies, there is continual improvement in the data which is updated monthly. The data confidence for the basis of valuing the asset is assessed as being Grade B for bridges.

Information on widths of structures are inaccurate or unreliable, as such a lane width of 3.5m has been assumed for valuation purposes. Plan areas of culverts are inaccurate due to the way culvert data is stored in RAMM and extracted and summarised. This is primarily associated with width data not being recorded for many culverts; as such areas are under reported. The evaluations of the structures missing this data have been completed separately (nationally) and will be a better indicator of the culvert stock's value.

3.6.2 ECONOMIC LIFE ASSESSMENT

The useful economic life assessment for bridges in Wairoa is based on the averaged life cycle values of the various components as follows:

- BRIDGE DECK CONCRETE 110 years
- BRIDGE DECK TIMBER 60 years

Increased understanding of the structural assets on Councils network is suggesting these useful lives are lower than what is being achieved on Council's network. It should be noted that the location of the assets and the quality of workman ship has a significant impact on the overall Economic life of the structure.

Improvement Item - Review useful lives assumptions utilised in the asset valuation prior to the next valuation to confirm appropriateness for Council's network

3.7 ASSET CONDITION & REMAINING LIFE

The term "End of Life" is categorised into two distinct sub categories.

- **End of Life (Level of Service)** – The point at which a structure no longer meets the demands.
- **End of Life (Condition)** – Identifies when a structure should be replaced based on condition. It is driven by the total cost of repair exceeding that of the replacement value.

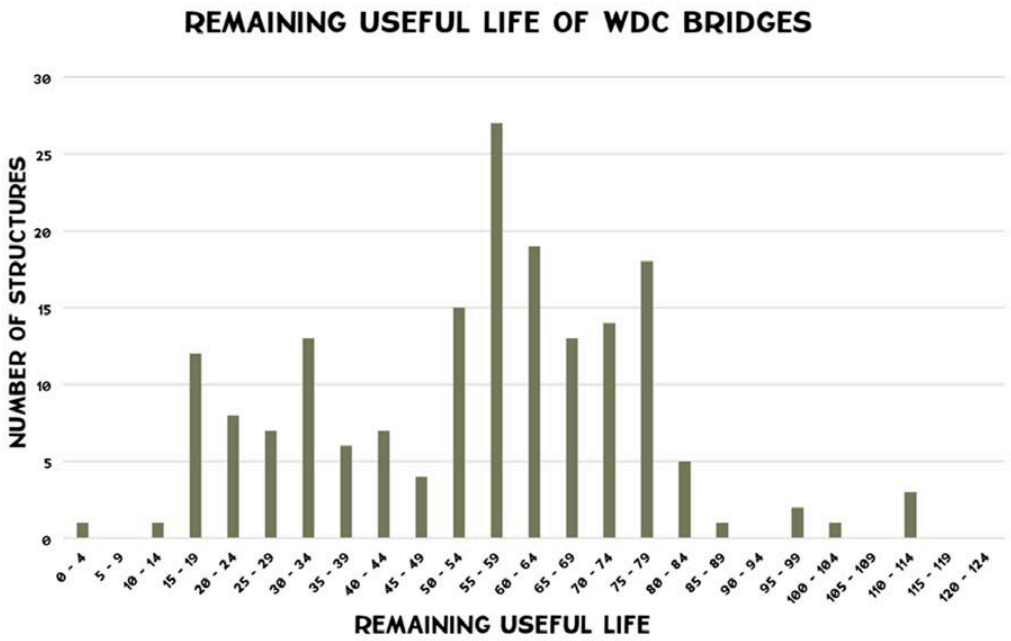
Generally, Wairoa Bridges have sufficient condition with minimal structures deuterated beyond the point of repair. However, bridge in Wairoa can fall short on level of service requirements, where this is identified through assessments an options report for strengthening/ replacement is considered.

The current average age of the network is 51 Years Old. Typically, structures require Higher maintenance expenditure around the 40-60 year mark indicating that Wairoa should be in a period of higher maintenance costs to maintain the structures and prevent them from entering a condition which would limit the remaining useful life.

Generally steel bridges require a high early maintenance cost in the form of structural steel painting when compared to concrete bridges. Within Wairoa there are 56 bridges with steel beam elements.

3.7.1 REMAINING USEFUL LIFE

An assessment of the remaining useful life of Council's bridges has been undertaken, based on the age of the structure, and expected useful life. In order to ensure an affordable and achievable forward renewals programme, continued investment in condition and capacity assessment is required to better understand remaining useful life. Ongoing maintenance and renewals is also required to extend the useful lives of bridges and produce a more balanced and affordable forward bridge renewals programme.



3.7.2 CONDITION

The prioritisation of maintenance in the Wairoa District Council region is undertaken based on the criticality of identified defects from trained inspectors. Following the Waka Kotahi S6 proforma for the last three-year period. Previous years have followed a different scoring system.

The details of each defect have been ranked based on a risk matrix The risk matrix considers:

- The likelihood of a threat
- Rating the consequence

This identification has been ranked on all identified structural defects ranked by the inspectors as medium or higher and then had the appropriate scoring system applied.

Total Risk Rating Score = likelihood of a threat x the consequence

The results of the screening have been ranked highest to lowest, and then the urgent or high maintenance items are targeted for treatment first under both WC 114 and WC215.

3.8 ASSET PERFORMANCE

The key Performance measures for the Bridge Asset and how we are performing are as follows:

LOS	Performance Measure	Current Performance
ONRC Accessibility	CO 1: proportion of network not available to Class 1 heavy vehicles and 50Max vehicles	5 Class 1 bridge restrictions
ONRC Accessibility	CO 1: proportion of network not available to 50Max vehicles	14 50MAX bridge restrictions

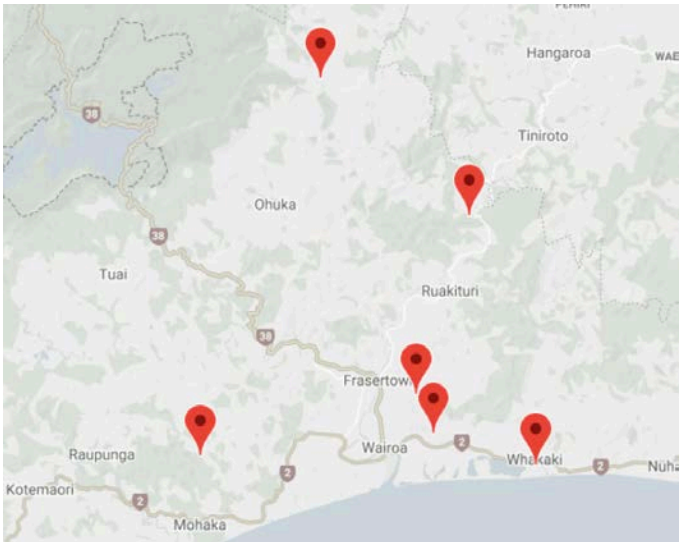
In terms of opening up key routes to HPMVs, the aim for the prioritised Capacity Assessment Programme is to complete approximately five assessments per year on key routes. In doing so, we can confirm those bridges that already have capacity to carry HPMVs and those that will require strengthening work. This process will allow us to get a network of the key routes open for HPMV in the next 3 to 10 years, assisting in the economic productivity of the district.

Restriction	No. Structures Restricted
POSTED	5
50MAX	14
HPMV	141

POSTED RESTRICTED BRIDGES

Below is a current list of POSTED bridges within the Wairoa District Council network.

Bridge Name	Restriction	Length of Restricted Access
Crispin Bridge	19.5T	0.2km
Ngamahanga Bridge	40T	3.0km
Spences Bridge	12T	0.1km
Taits Bridge	40T	0.1km
Ngapakira Bridge	38T	0.1km



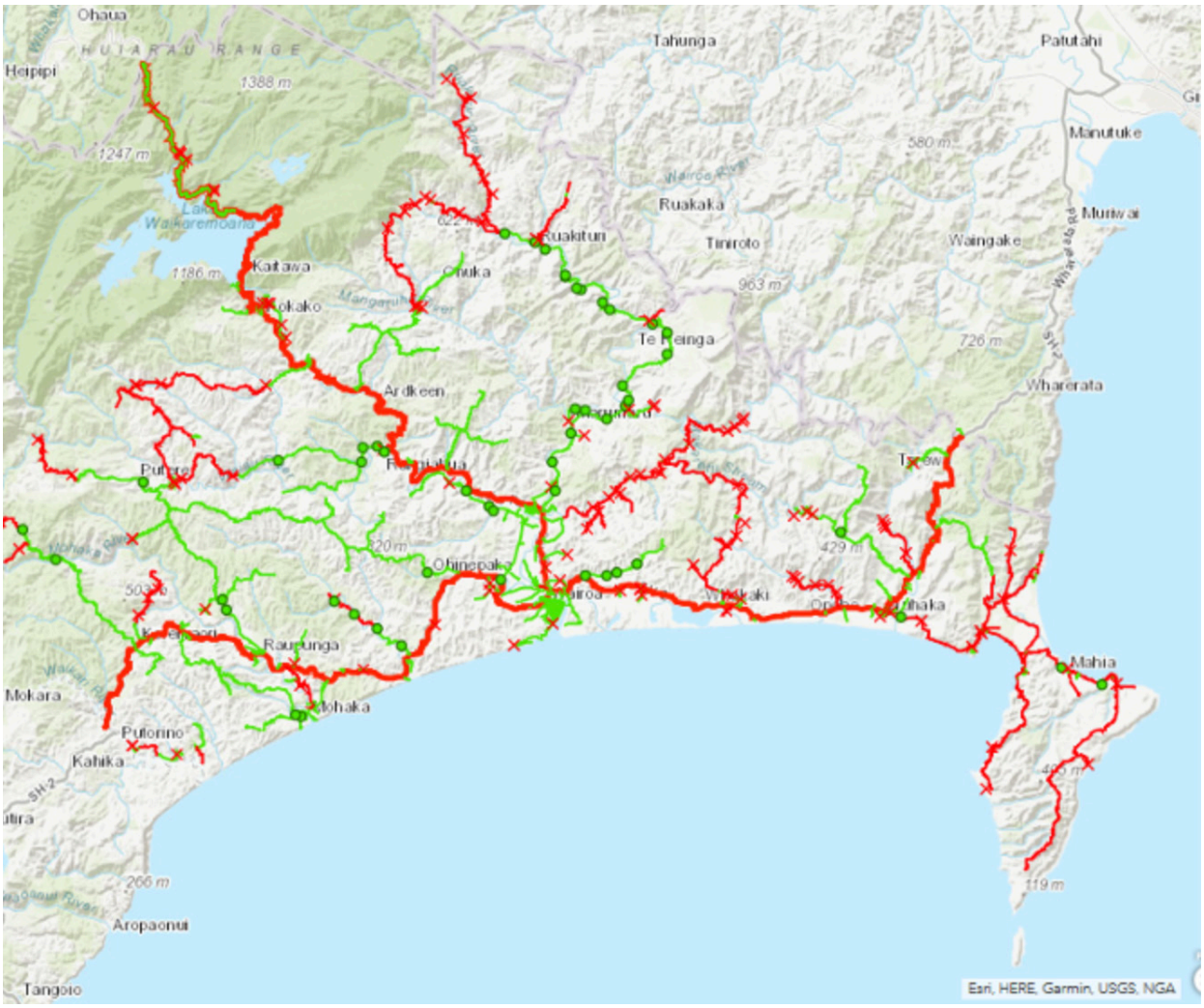
50MAX RESTRICTED BRIDGES

Below is a list of current 50MAX restricted bridges on the Wairoa Network.

Bridge Name	Length of Restricted Access
Barker Bridge	10.5km
Crispin Bridge	0.2km
Spence Bridge	0.2km
Papa Creek Bridge	4.5km
Taits Bridge	0.1km
Ngamahanga Bridge	3.0km
Patangata Bridge	0.0km
Mangahopai Bridge	2.0km
Kauhauroa Bridge	17.4km
Makaretu Bridge	12.2km
Ngapakira Bridge	0.1km
Mohaka Township Bridge	18.3km
Nūhaka Bridge	37.0km
Te Puna Bridge	0.1km

HPMV RESTRICTED BRIDGES

This map shows the location of assessed HPMV capable structures and highlights the areas of the network which are not restricted based on structure capacity for HPMV as per the Waka Kotahi Bridge Manual Section 7.



3.8.1 HPMV AND OVERWEIGHT PERMIT PROCESSING

Currently as of 19-08-2020 41 of 176 (23%) structures have been assessed and had details entered into the Waka Kotahi permitting system, OPermit. By the end of the financial year an additional 10 structure will have been added to the assessed list.

This information is used in the delivery of permits across the state highway network with a strong focus from Waka Kotahi on further developing the system to include all New Zealand assets.

HPMV AND OVERWEIGHT PERMIT PROCESSING

Until September 2020 Overweight and HPMV permits were treated manually with the requests being placed direct to Wairoa District Council. By the end of 2020 Overweight permitting will take place using the OPermit system. HPMV permits will also follow once agreed routes can be opened to the use of HPMV vehicles and a memorandum of understanding is in place with Waka Kotahi.

HPMV PRE-APPROVED ROUTES

Improvement Item - Pre-approved routes are being requested around the country. Requests for pre-approved routes will be discussed with Wairoa on an as come basis to ensure a more resilient network. With continued assessment and strengthening programmes on going in the region, pre-approved routes will simplify the permit process and offer financials savings in the future.

HPMV EMERGENCY DETOUR ROUTES

Waka Kotahi is actively looking to add resilience to the SH network, after an event, a section of SH may become closed for vehicles, in this situation, there may be an alternative route available. Currently all requests to travel on this route need to be addressed with the local road controlling authority. The emergency pre-approved routes would bypass this step and give direct powers to Waka Kotahi, with the agreement of Wairoa, to allow vehicles to bypass after an incident more efficiently.

Wairoa is in ongoing discussions to approve such routes, currently identified routes with structures are:

- Awamate Road
- Tiniroto Road

3.9 LIFECYCLE PLANNING

3.9.1 OPERATIONS & MAINTENANCE PLAN

Prior to 2018 records for bridge inspections had been poorly or inaccurately recorded leading to missing or inaccurate information when undertaking forward works programmes. The implementation of the Wairoa District Council inspection and maintenance plan in January 2018 has seen a marked improvement in data collection and recording.

Data is now collected using the Waka Kotahi S6 template, allowing for easy comparisons on a standardised format. Inspection training has been undertaken with Wairoa District Council personnel to assist in data collection. Further training is required to ensure newer Wairoa District Council team members gain the appropriate knowledge to undertake bridge inspections.

Detailed 10+ year forecasting is still difficult to implement with principal inspection currently only completed on approximately 50% of the bridge and large culvert stock in Wairoa.

The next three-year cycle will see the remining bridges have a principal inspection completed and allow for future ready planning and decisions to be made more accurately.

Although maintenance items are now being recorded, there is still missing information on feedback from contractors when work items are completed. It is important moving forward to maximise communication between parties to supply completed information back to WSP and Wairoa in order to develop future ready programmes.

Improvement Item - Work with Contractors to ensure maintenance costs for bridges are captured accurately and completely following completion of work. This will allow better understanding of problem areas on the network, and more accurate forecasting of future expenditure.

Current data and knowledge of the network suggest there is a significant backlog of maintenance items to be completed. This backlog on the network needs to be considered over the next three-year period. Future years will see a continued reduction in funding as asset condition information improves.

IDENTIFIED MAINTENANCE BACKLOG

The below figure shows the identified inspection items for the previous 7 years. The graph shows an anomalous year with minimal defects identified in 2016.

The backlog in maintenance items requires additional funding to tackle all repairs. Verification of maintenance records along with photographic evidence has suggest that the following structures require outstanding structural repairs:

	Rough Order Maintenance Cost (±30%)
Total Estimated Backlog	$1,042,000

This backlog is required to be fixe don a priority basis, due to contract resources, it is not practical to undertake all backlogged maintenance items in a single year, therefore the costs of undertaking backlog work is to be spread over the three-year AMP period to allow for better distribution of resources.

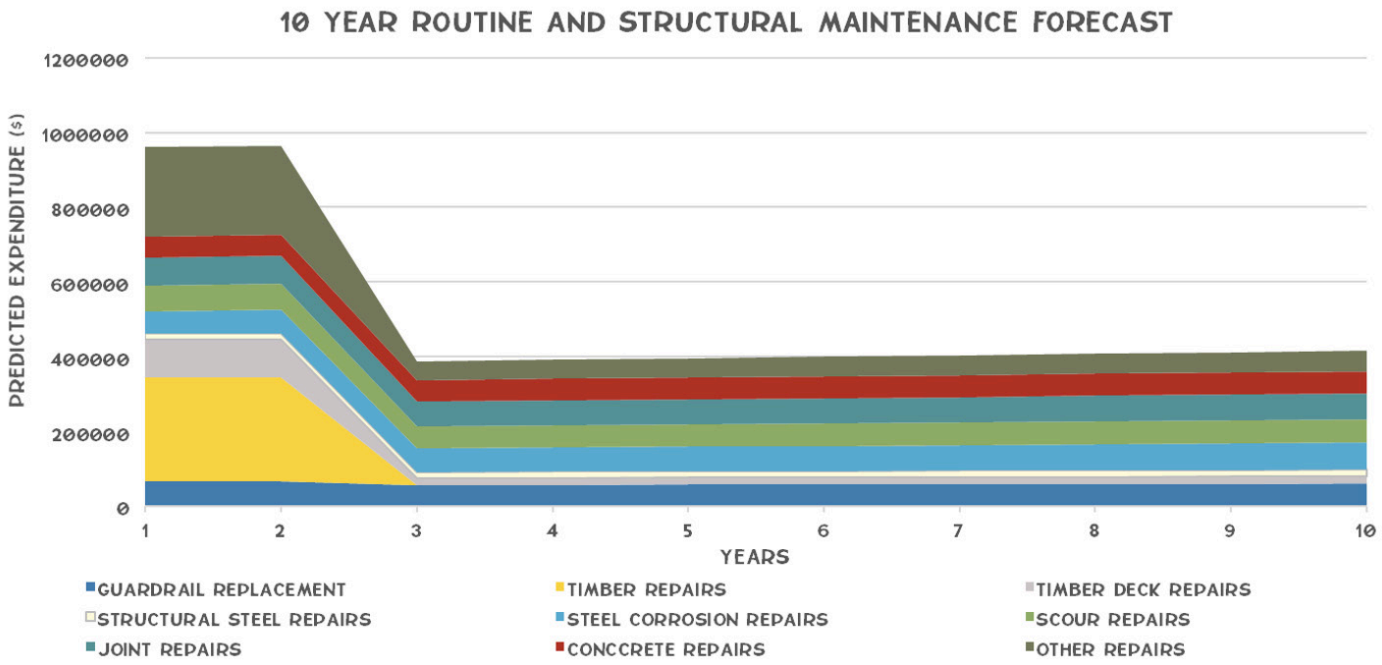
MAINTENANCE FORECAST

Inspection data has been used in conjunction with engineering knowledge to develop a future maintenance forecast for the Wairoa network.

Investigations works have suggested that there are 8 key factors driving the maintenance of Bridges. Engineering judgement can proportionate a cost of each item to the overall cost of maintenance in the region. A forecast has been produced to highlight the expenditure of the bridges

The forecast has highlighted that the timber beam bridges will pose a significant level of maintenance in the coming 10 year period. Replacement of Potutu Bridge will see a significant drop in the anticipated maintenance of structures as shown in the below figure.

This forecast is an idealistic version of what should be spent on the Wairoa Network, the forecast does not incorporate the existing backlog mentioned in the adjacent table.



ROAD STRUCTURES REQUIRING CONDITION RELATED INVESTIGATION

Wairoa still has information that is required to ensure the continued safe and economical use of their structural assets. Two key screening areas have been identified as part of this improvement programme:

- **Safety** – Bridge Guardrail Approach Screening
- **Future Proofing** – Painting Screening of structural steel bridges.

The results from these investigation items will assist in the delivery of forward works planning and highlight key structures which will require large investment in the future to keep them safely operational.

BRIDGE INSPECTION POLICY

The data collected based on the Bridge Inspection Policy will be used to prioritise the structures needing maintenance and generate the forward work programme for structure maintenance in future. The costs associated with these inspections are between $40k - $50k per annum and have been included in WC151.

PRINCIPAL INSPECTIONS WITH SPECIAL ACCESS

WSP undertake structure inspections regularly using a Mobile Elevated Working Platform (MEWP). These inspections have already been incorporated into the bridge inspection programme. With 50% of bridge now having had a principal inspection completed WSP are still confirming the requirements for the remaining Structures. Some structures are inaccessible with even the MEWP and require additional inspection techniques such as Rope Access.

Makaretu Bridge has been identified as requiring a special inspection. Access to the structure is limited to rope access trained personnel only with the bridge deck width being too narrow for MEWP Access.

Principal Inspection (Special Requirements)	Number Required
ROPE ACCESS	1
MEWP ACCESS	46

BRIDGE ASSET MANAGEMENT PLANS (BAMP)

Specific Bridge Asset Management Plans may be developed for key bridge assets with significant condition and capacity issues once these have been fully identified. At this stage one BAMP is currently being produced for the Nūhaka Bridge on the Nūhaka-Ōpoutama Road, which forms a key part of the route to the Rocket Lab launch site.

This plan outlines the required asset management activities for the Nūhaka Bridge. It has been developed as an operational guide and scheduling tool for use by Council, providing a framework around which the inspection, maintenance, refurbishment and upgrading of the bridge can be assessed and undertaken. When implemented, these will aid in efficiently managing the physical and operational attributes of the structure so as to prolong its life whilst maintaining defined levels of service.

FUTURE MAINTENANCE

Based on the above forecasts, and condtion assessments completed to date, the annual forecast for maintenance has been set at $200k per annum. Alongside this is the cost for external consultants to complete Principapal condition inspections of $45k per annum, and design and contract preparation, which is estimated at $20k per contract and will be included in WC151.

Overall the bridge maintenance programmed for the next 10 years will remain relatively static, as more focus is put on bridge strengthening works to meet increased demand requirements.

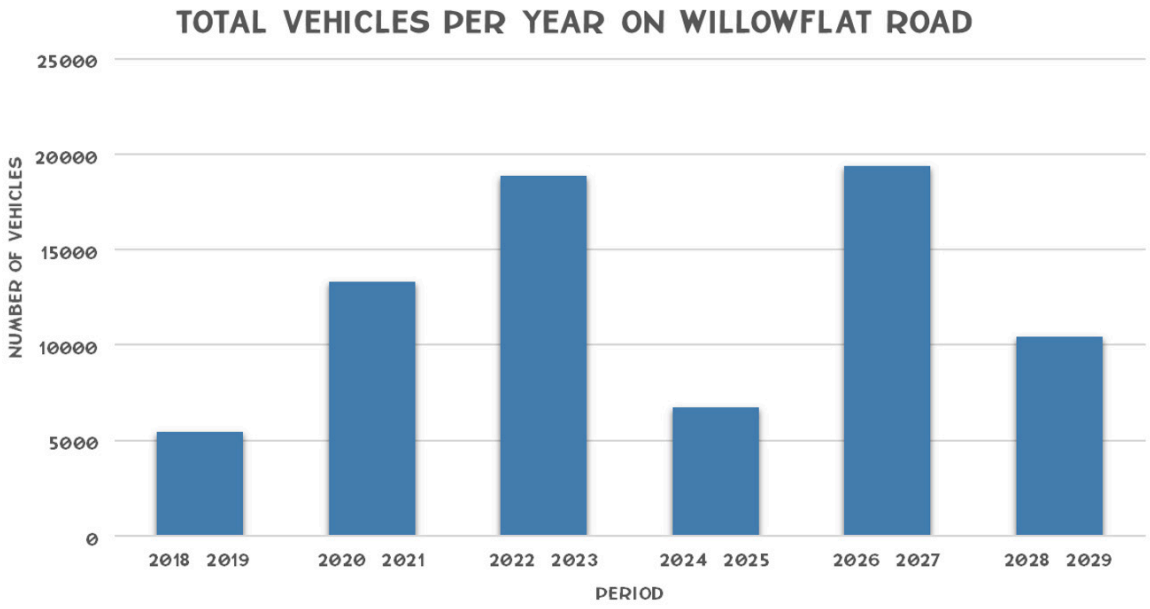
3.9.2 RENEWALS PLAN

FORECASTING FUTURE NEEDS

Emerging HPMV routes are communicated directly from forestry groups (the predominant HPMV users in Wairoa). Regular meetings and engagements with the forestry companies ensure that future forecast demands are met and that routes can be assessed and maintained efficiently.

Due to the nature of the export market, harvesting plans change regularly, and regular engagement must be undertaken to ensure the latest plans are understood.

The graph below shows the predicted forestry demand for Willowflat road over the next 10 year period.



BRIDGE STRENGTHENING PROGRAMME

From the bridge assessment programme above, bridges that do not meet General access vehicle or 50Max strength requirements will be included in the bridge strengthening programme. It is expected that a single bridge will require strengthening in each three-year period. This work will be completed as Improvement works as requested in WC341.

FORECASTING FUTURE NEED

WSP (Formally Opus) have developed a capacity criticality score for each of the Council structures collaboratively Council using a risk based and asset criticality approach. The capacity criticality score takes into account a range of factors, including: ONRC Classification, Predicted demand, route criticality, replacement cost, construction year, Fraction of capacity and 50MAX capability.

The goal of this approach is to improve the safety and reliability of bridges by focussing efforts where most needed, optimising the use of resources and available funding.

This option has become less relevant with increasing information about the Wairoa network. the focus of this AMP is to collect further data to enable the prediction of routine maintenance based on condition, as opposed to usage. The previous AMP seen data collected for both scour and seismic resilience risks which has been used to assist in identifying the criticality of Wairoa District Council structures.

The capacity criticality score is then used to prioritise the live load assessment forward work programme. This means the bridges with a severe risk capacity criticality score will be assessed first.

The assessment will be focused on complete roads, so even if only 1 bridge is considered “severe risk”, all the bridges on that road will be assessed. The objective being to develop a system of routes capable for HPMV on the Council network.

Following the assessments, the bridges that are found not to have adequate capacity to carry full HPMV loadings will be considered for strengthening.

The Bridge Assessment Programme for the 3-year period 2021/22-2023/24 are included in the table on the next page.

Year	Roads to be Assessed	ONRC	Route Priority	Specific Bridges
2021/22	Hereheretau Road	Secondary Collector / Access	Key forestry route	Hereheretau Bridge Mangapapa No.1 Bridge
	Cricklewood Road	Secondary Collector / Access	Key forestry route	Gibson Bridge
2022/23	Mangaopoike Road	Secondary Collector / Access	Key forestry route	Rotoparu No.2 Bridge Te Huikete Bridge
2023/24	Strengthening Design to be completed			

FUTURE RENEWALS

The 10 year FWP for bridge strengthening designs is based on information obtained from hauliers in the region and there requirements for HPMV vehicles. These routes have been prioritised on this forecast and the outcome of the structures .

Overall the bridge renewals programmed for the next 10 years will remain relatively static, as more focus is put on bridge strengthening works to meet increased demand requirements.

3.9.3 CAPITAL/NEW WORKS & IMPROVEMENTS PLAN

ROAD STRUCTURE REPLACEMENT PROGRAMME

Key network performance measure for Wairoa include:

- Number of Posted Structures
- Number of Speed Restricted Structures
- Number of 50MAX restricted structures
- Number of structures with timber decks

It is generally considered that the levels of service can be improved with funding requests, where possible level of service improvements utilise the existing structure and require minimal work to increase the capacity of the structures.

With requests from hauliers for HPMV permitted vehicles it is desirable that any strengthening/replacement works of below capacity structures stated above reach HPMV capability.

Investigation work has highlighted structures for both capacity and condition reasons to be replaced/ reconditioned.

Further analysis in the form of options reports will be undertaken to determine the most cost effective programme of strengthening/ replacement for the stated bridges below.

Bridge	Reason	Cost	Condition (from Inspection Data)	Estimated Replacement Timeframe
Crispin Bridge	Posted structure	$350,000	Good	3-10 Years
Taits Bridge	Timber deck/ Posted Structure	$300,000	Poor	1-5 Years
Poututu Bridge	Timber beams / Timber Deck	$400,000	Poor	1-5 Years
Ngapakira Bridge	Posted	$400,000	Good	3-10 Years

CAPITAL/NEW WORKS & IMPROVEMENTS 10 YEAR PLAN

All bridge related capital/new works and improvements for the 2021/22-2023/24 period is included in the Low Cost Low Risk Improvement WC 341 and are outlined below. These provide strengthening works to bridges with insufficient capacity offering or offer an increase in the level of service provided by Wairoa.

Activity	Brief Scope	ONRC	Problem	Main Benefit	Outcome Class
Bridge Strengthening	Bridge strengthening to increase loading capacity	Primary & Secondary Collectors	Accessibility for Class 1 HCVs, 50Max & HPMVs	Provides efficient access and supports economic growth	Network performance & capability
Seismic Resilience	Seismic Strengthening of structures	Primary & Secondary Collectors	Inaccessible routes post-earthquake.	Provides resilience to key lifeline routes along the network.	Network performance & capability
Timber Deck Replacement	Timber deck replacement and renewals	Primary & Secondary Collectors	Increasing Maintenance costs	Provides efficient access and supports economic growth	Network performance & capability

The roads to be included in the strengthening programme and associated costs are included in the table below.

Roads to be Strengthened	No. of Bridges	20218/229 Cost ($)	20122/23 Cost ($)	2023/24 Cost ($)
Mangaopoike Road	12		$50,000	
Hereheretau Road	5	$50,000		
Cricklewood Road	1	$25,000		
Strengthening Works				$300,000
TOTAL		**$75,000**	**$50,000**	**$300,000**

3.9.4 NON-ASSET SOLUTION OPTIONS

Key non-asset solutions for bridges that are being used or will be implemented as part of the Improvement Programme include:

- SPEED RESTRICTIONS – Sub-standard bridges are posted to restrict the weight and the speed of vehicles traversing these bridges.
- HPMV ROUTES – Understanding the demand for HPMV routes and the affected bridges on these routes, is a priority for future bridge management. Bridge assessments are being completed on key routes as a priority, which will allow specific routes to be opened up to HPMVs, thereby improving economic productivity.

3.10 PREFERRED PROGRAMME

The preferred programme based on the lifecycle management plan, prioritised by ONRC and strategic problems is included in the Section 12: Financial Summary.

4.1 STRATEGIC CASE LINK

4.1.1 ADDRESSING KEY NETWORK PROBLEMS

Primary problem contribution: Resilience

Maintenance and renewals of other structures provides a direct response to the Strategic Case problem of:

- RESILIENCE - by providing support to key life line routes and land access

Associated with this is the more specific accessibility requirements of the route to Māhia and so maintenance and renewals of structures along this route will also be critical in terms of response to the Strategic Case Māhia connectivity problem, to meet increased Level of Service requirements.

STRATEGIC RESPONSES

To make the right investment decisions to improve the resilience of our key routes on our network, our strategic response to this problem is to:

Stabilise key routes

We will avoid route closure where appropriate by focusing on the following initiatives over the next three years:

Strategic Response	Key Issue	Response Type	Response Description
Stabilise key routes	**Retaining wall condition –** inspections have not been undertaken for many years, so retaining wall condition is not well understood. Retaining wall failure poses a high risk to the resilience of the council network.	Policy Approach	**Retaining Walls Inspection Policy & Condition Assessments –** A thorough assessment of condition will enable better planning of future maintenance and renewal requirements
		Adjust Levels of Service	**New retaining structures** on coastal routes to combat climate change impacts
	Coastal Erosion – Coastline adjacent to the road contributes to dropouts	Adjust Programme	**Retaining Structures in Vulnerable Areas** – Prioritization of new retaining structures to ensure resilience of the route and inspection of exiting retaining structures to understand maintenance and renewal needs.
		Policy Approach	**Regional Councils Consent requirements** - retaining walls - coastal routes

4.1.2 BENEFITS OF INVESTING

The Investment Objectives that we are investing in include:

Improve resilience to climate change impacts

MEASURING THE BENEFIT

The table below outlines the specific Benefits that will result from investment, based on Waka Kotahi's Investment Benefits Framework.

Investment Objective	Benefit Cluster	Benefit	Description	Performance Measures
Improved resilience to climate change impacts GPS2020: Maintaining the network	4. Changes in impact of unplanned disruptive events on access to social and economic opportunities	4.1 Impact on system vulnerabilities and redundancies	Reducing the risk of communities not being able to access social and economic opportunities due to unexpected outages.	4.1.1 Availability of a viable alternative to high-risk and high-impact route

Investment Objective	Benefit Cluster	Benefit	Description	Performance Measures
				ONRC Resilience CO1 measure – No. of journeys impacted by closure
				ONRC Resilience CO2 measure – The number of instances where road access is lost

4.1.3 DELIVERING CUSTOMER OUTCOMES

The key Customer Service Statements associated with pavements are:

- The land transport network is managed in a manner that assists the economic development of the district
- Council quickly restores access on key routes after natural event

Key ONRC CLoS delivered through the other structures assets aligns with the problem response above by providing network RESILIENCE. Also in line with the intent of ONRC, we will ensure that we deliver the right road pavement assets and services to the right level at the best cost, by PROPRITISING INVESTMENT ON HIGHER CLASSIFICATION ROADS. However, it should be noted that due to the safety and resilience issues associated with structural failure, there is a lower risk appetite for all structures regardless of where on the network they are situated.

4.1.4 ENSURING ASSET INTEGRITY

Retaining walls not only deliver on ONRC CLoS, but also have the key function of providing long term access across the network, for the whole of life least cost, this is essentially the provision of asset integrity.

4.2 ACTIVITIES DELIVERED

Activities delivered through the other structures assets and their respective Waka Kotahi funding works categories are included in the table below.

Transport Activity	WC No.	Work Category Name	Key Function	Example Work Activities
Freight Movement Passenger Vehicle Travel	114	Structures maintenance	Defect repairs	
	215	Structures component replacements	Resilience	Replacement of damaged and deteriorated components
	151	Network and Asset Management	Financial management	Condition inspections and forward works planning
	341	Low Cost/Low Risk Improvements	Resilience	Nūhaka-Ōpoutama & Māhia East Coast Road Resilience Improvements

4.3 ASSET DESCRIPTION

4.3.1 RETAINING WALLS

There are 447 retaining walls and two underpasses included in the July 2020 valuation and recorded in RAMM. Retaining walls include, and are not limited, to the following structure types:

- crib walls
- gabion structures
- concrete walls
- rock walls
- shoring (various material types)

Prior to 2005 only very limited inventory information was held regarding retaining structures. As a result of the 2010 surveys to locate and identify such structures, the RAMM database listed 179 structures in 2011. Since then, an additional 268 retaining walls have been added to the inventory. This significant change in assets was related to three years of flood damage restoration works across the district where drop-outs affecting public safety and road integrity required some form of retaining structure to reinstate safe road width.

Retaining Wall Type	Quantity	Area (m^2)
Earth Walls	44	4,110
Stone Walls	147	8,664
Timber Walls	72	1,493
Concrete Walls	22	2,324
Other Walls	10	717
Walls owned by others	56	3,047
Wall with missing dimensions	96	
TOTAL	447	20,355

Minor Structures	Quantity	Area (m^2)
Underpass	2	22

4.4 ASSET CRITICALITY & RISK

4.4.1 CRITICAL ASSETS

Using the asset criticality assessment process developed as part of the Wairoa District Council Service Delivery Risk Management

Strategy, Other Structures assets have been assessed as having a Service Importance of 4 – Highly Important, as shown below. Failure of Other Structures Assets like retaining walls can have large economic and social impacts.

Service Area	Core Asset Group delivering Key Services	Importance Factors				Importance Score	Service Importance of Core Asset Group (Is)
		Economic	Social	Cultural	Environmental		
Land Transport	Other Structures	4	4	2	2	12	4

The Wairoa District Council Risk Management strategy recommends the criticality of specific assets is calculated by multiplying the Service importance by the functionality of the core asset group in failure, and the downtime of the asset before functionality is restored, as shown below.

$$C_a = I_s * F_a * D_a$$

Where:

C_a *Criticality of an asset*
I_s *Importance of the core asset groups providing service to the community*
F_a *Functionality of core asset group providing service if the asset fails*
D_a *Downtime of the asset before functionality is restored if failure occurs*

A full risk assessment at an asset level will be undertaken as part of the new other structures inspections to prioritise inspections and frequency of inspections going forward. Other Structures assets located on lifeline routes are considered to be the most critical Other structures assets on Council's network. Other Structures assets adjacent to coastlines and riverbanks will be considered critical assets as climate change impacts are likely to put strain on these assets.

4.4.2 KEY RISKS

The following Critical and High-risk items have been identified for Council's Other Structures assets.

Risk	Cause	Assessed Risk	Controls	Mitigation Strategies
Retaining wall or other structure failure resulting in road closures, inaccessibility and/or delays due to partial closures.	Inadequate investment in other structures maintenance and renewals. Inadequate knowledge of other structures condition. Inadequate forward work programming and forecasting	Critical		Ensure appropriate investment in other structures maintenance and renewals. Complete other structures condition assessments to understand condition. Prepare a maintenance and renewals forward works programme based on inspections

4.5 DELIVERY

Asset management and technical design input for Other Structures assets has not been specifically assigned to an external consultant. As the need for technical input and design is required this will either be delivered by the council's professional services consultant, or by other consultants if required.

Physical works maintenance and renewals work is tendered and completed through Annual measure and value contracts, or completed under the existing network maintenance contracts as appropriate. These contracts are managed in house by the Council Engineering team, but with specialist input from the external consultants where necessary to ensure quality construction.

4.6 SUSTAINABILITY

Gabion rock is scarce in the Wairoa District. The design of structures for renewal/maintenance needs to be considered carefully. Favour designs where low quantities of rock are required. Preferred selection is mechanically stabilised earth (MSE) walls or timber pole retaining walls. Ability to use localised materials – resulting in lower construction costs.

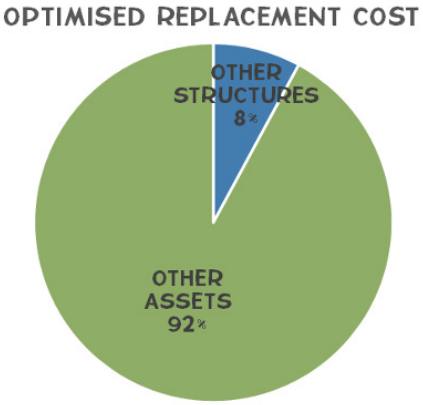
4.7 ASSET VALUATION

Full details of the 2020 RAMM Asset Valuation are included in Section 12.6. The Other Structures assets on the Wairoa transportation network have an Optimised Replacement Cost of $26.9M and a Depreciated Optimised Replacement Cost of $18.7M. This represents 8% of the total Optimised Replacement Cost of Council's transport assets.

4.7.1 CONFIDENCE LEVELS IN ASSET DATA

The asset inventory maintained in the RAMM database is comprehensive and while there are some deficiencies, there is

continual improvement in the data which is updated monthly. The data confidence for the basis of valuing the asset is assessed as being Grade B for retaining walls and other structures.



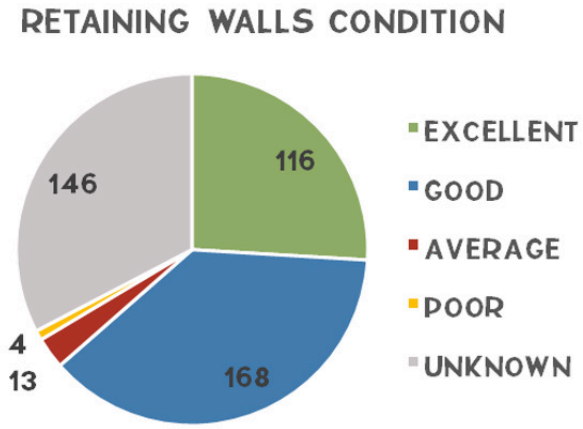
4.7.2 ECONOMIC LIFE ASSESSMENT

The useful economic life assessment for other structures in Wairoa is based on the averaged life cycle values of the various components as follows:

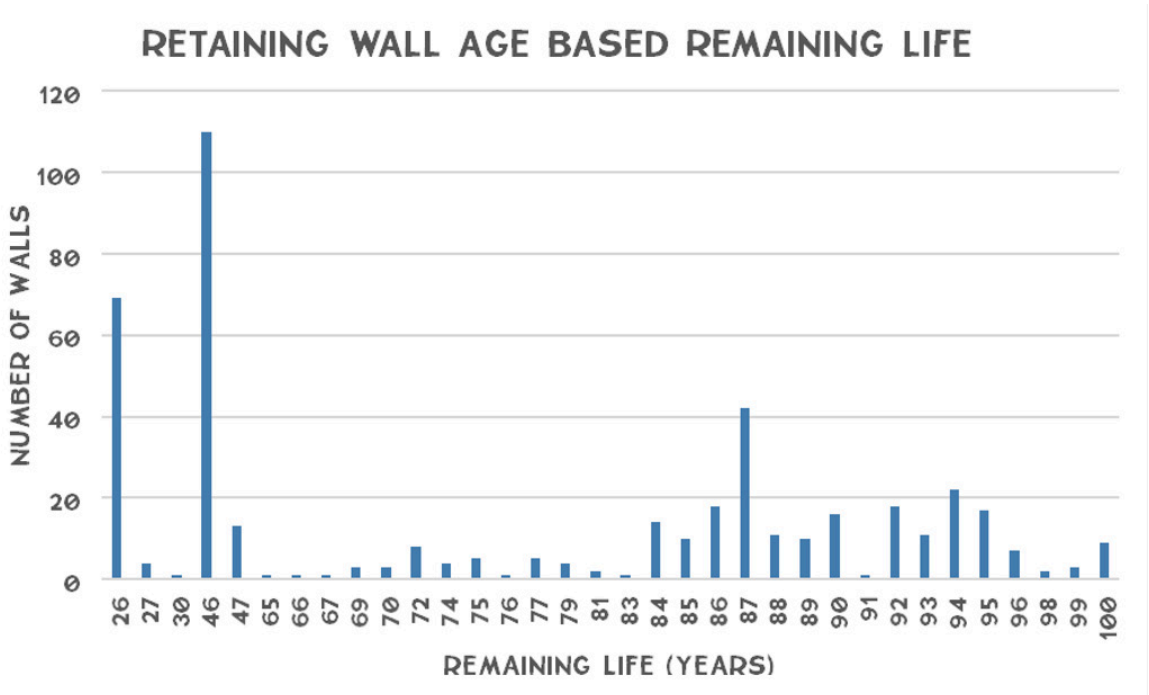
- CONCRETE WALLS 100 years
- EARTH WALLS 100 years
- STONE WALLS 100 years
- TIMBER WALLS 80 years
- OTHER WALLS 100 years
- UNDERPASS 150 years

4.8 ASSET CONDITION & REMAINING LIFE

Information on the condition and remaining life for retaining walls is held in RAMM. Condition inspections have not been completed since 2014. The graphs below show the number of retaining walls inspected each year and the resulting condition rating, along with the latest condition rating for all retaining walls. 32% of all retaining walls in RAMM do not have a condition inspection date. Of the 213 walls with an unknown condition rating, 67 have been constructed in within the last 10 years, so for the purposes of estimating condition for this AMP, have been assumed as having good or excellent condition rating depending on the construction date.

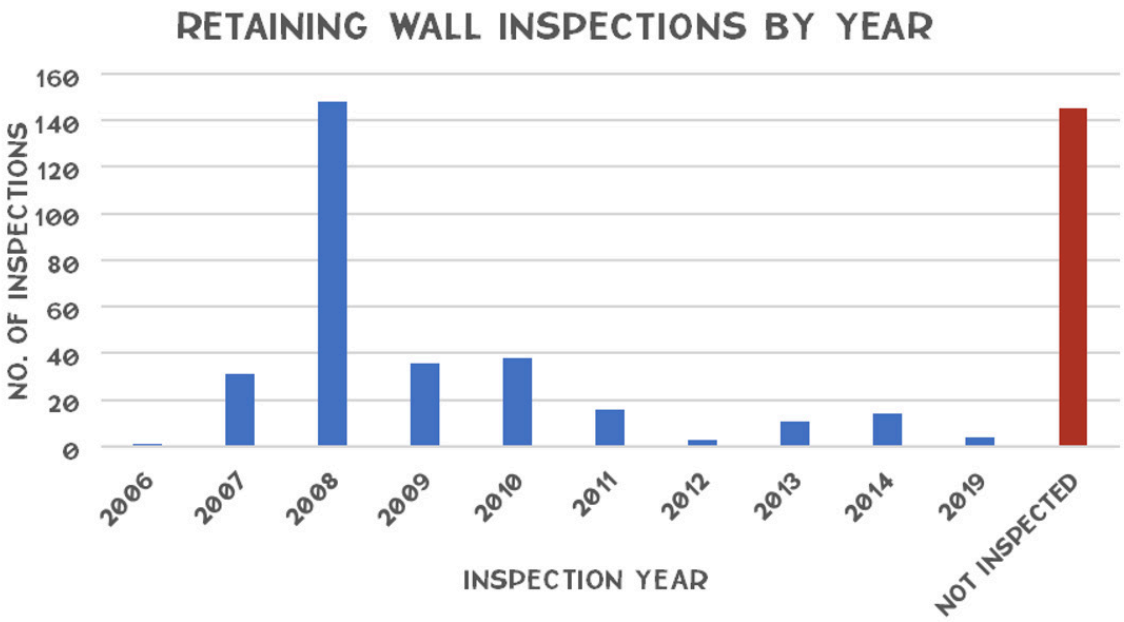


In terms of remaining life, 40% of all retaining walls have a default construction date of 1965, the actual age of these walls is unknown. An assessment of the remaining useful lives of Wairoa District Council's retaining walls has been made using the useful economic lives adopted for the valuation, as detailed in the valuation section above.



BRIDGE INSPECTION POLICY

Alongside the lack of condition data for bridges on the Wairoa transport network, condition inspections have not been regularly completed for retaining walls and so current condition is also not well understood.



An improvement item under the 2017 AMP was to develop a bridge inspection policy to set clear, consistent and bespoke requirements for the inspection of the bridges and minor structures on the Council road network. The bridge inspection policy has been developed, and its requirements followed for bridge structures. However, the requirements for other structure inspections have not been followed. Revision of the policy may be required to prioritise and spread other structure inspections over a period of a few years to ensure inspections can be undertaken. External support for council staff from consultants or contractors may be required to ensure inspections are undertaken.

Systematic bridge and minor structure inspections provides the data required to assist in the effective management of the network and allow for the identification of defects at an early stage. This ensures public safety, investment protection and optimised repair costs.

The data collected will be used to prioritise the structures needing maintenance and generate the forward work programme for structure maintenance.

Improvement Item - A detailed condition rating of these structures has not formally been regularly carried out. This will be completed in conjunction with the bridge inspections under the new Bridge Inspection Policy, so that maintenance and renewal needs can be planned based on the actual condition of individual assets.

4.9 ASSET CAPACITY & PERFORMANCE

Based on the limited condition and age information presented above, there is currently limited understanding of the capacity and performance of retaining walls within Wairoa.

Improvement Item - Data collection plan to be established for reporting against new level of service performance measures, where data is not currently being collected. Ensuring DIA measures are collected and reported and road closure information are key items.

4.10 LIFECYCLE PLANNING

4.10.1 OPERATIONS & MAINTENANCE PLAN

As outlined above, retaining structures need to be included in the inspection programme for bridges undertaken by Council staff or consultants to ensure some formal monitoring of these sites. With little current information to base maintenance requirements on, an assumption of maintenance requirements has been made based on the 49% of assets that have unknown or poor condition.

At this stage maintenance requirements have been developed based on a percentage of the replacement value of the retaining assets with poor or unknown condition. International best practice indicates that a benchmark expenditure of 0.45% of replacement value is appropriate for highway structures on average. Based on 32% of the current valuation in RAMM of $26.9M, the cost of retaining wall maintenance for the next three years should be approximately $40k.

FUTURE MAINTENANCE

Maintenance for the next 10 years has been set at $40k per annum. Costs for external consultants to complete design and contract preparation, is included within the Structures Maintenance under (WC151).

Overall the bridge maintenance programmed for the next 10 years will remain relatively static, however with the introduction of 117 new retaining structures over the past 10 years, the cost for maintenance is expected to increase in years 10-30.

4.10.2 RENEWALS PLAN

A 10 year FWP for renewals has not yet been developed. Therefore, no renewals are planned for the three years 2018/19-2020/21.

Improvement Item - A 10 year FWP for retaining wall renewals will be developed based on condition inspections carried out over the next three years (2020/21 – 2022/23) as part of the new Bridge Inspection Policy requirements. The data collected will be used to prioritise the structures needing renewals and generate the forward work programme for other structures renewals.

4.10.3 CAPITAL/NEW WORKS & IMPROVEMENTS PLAN

Capital and new works are generally completed in response to emergency events when dropouts adjacent to the road occur. When events occur, Council apply for Waka Kotahi funding to complete Emergency and Preventive works under WC 141.

4.10.4 NON-ASSET SOLUTION OPTIONS

No non-asset solutions have been identified for the lifecycle management of other structures at this stage.

4.11 PREFERRED PROGRAMME

The preferred programme based on the lifecycle management plan, prioritised by ONRC and strategic problems is included in the Section 12: Financial Summary.

5.1 STRATEGIC CASE LINK

5.1.1 ADDRESSING KEY NETWORK PROBLEMS

Primary problem contribution: Resilience

Maintenance and renewals of drainage provides a direct response to the Strategic Case problem of:

RESILIENCE, by providing support to key life line routes and overall land access.

Associated with this is the more specific resilience requirements of the route to the Rocket Lab, and so maintenance and renewals of drainage along this route will also be critical in terms of response to the Strategic Case Māhia connectivity problem, to meet increased LoS requirements.

The tables below highlight the key strategic responses and benefits, identified in the Strategic Case, that are delivered by the road Drainage asset group.

STRATEGIC RESPONSES

To make the right investment decisions to improve the resilience of our key routes on our network, our strategic response to this problem is to:

Stabilise key routes

We will avoid route closure where appropriate by focusing on the following initiatives over the next three years:

Strategic Response	Key Issue	Response Type	Response Description
Stabilise key routes	**Poor drainage** maintenance and capacity in some parts of the network has been identified as an issue that may be contributing to dropouts and other resilience issues.	Programme Adjustment	**Proactive Drainage Strategy** – Focussed on maintenance being more proactive on high ONRC roads and proactive drainage renewals (e.g. Surface Water Channels), particularly on Lifeline Routes

5.1.2 BENEFITS OF INVESTING

The Investment Objectives that we want to achieve include:

Improve resilience to climate change impacts

The table below outlines the specific Benefits that will result from investment, based on Waka Kotahi's Investment Benefits Framework.

Investment Objective	Benefit Cluster	Benefit	Description	Performance Measures
Improved resilience to climate change impacts GPS2020: Maintaining the network	4. Changes in impact of unplanned disruptive events on access to social and economic opportunities	4.1 Impact on system vulnerabilities and redundancies	Reducing the risk of communities not being able to access social and economic opportunities due to unexpected outages.	4.1.1 Availability of a viable alternative to high-risk and high-impact route
				ONRC Resilience CO1 measure – No. of journeys impacted by closure
				ONRC Resilience CO2 measure – The number of instances where road access is lost

5.1.3 DELIVERING CUSTOMER OUTCOMES

The key Customer Service Statements associated with pavements are:

- The land transport network is managed in a manner that assists the economic development of the district
- Road assets are managed prudently to ensure long term financial sustainability for current and future generations

Key ONRC CLoS delivered through the road pavements assets include:

- RESILIENCE – drainage contributes significantly to the resilience of the network by reducing the instances of flooding, dropouts, washouts and limiting disruption to traffic of unplanned events.
- SAFETY – keeping water from running across and ponding on the road ensures that the network is safe and feels safer for customers over time.

Prioritisation of drainage maintenance is not completed based on ONRC as drainage of all roads provides a significant contribution to the overall road asset integrity.

5.1.4 ENSURING ASSET INTEGRITY

Drainage not only delivers on ONRC CLoS, but also has a significant contribution to the KEY FUNCTION OF PROVIDING LONG TERM ACCESS ACROSS THE NETWORK, FOR THE WHOLE OF LIFE LEAST COST, this is essentially the provision of asset integrity.

5.2 ACTIVITIES DELIVERED

Activities delivered through the drainage assets and their respective Waka Kotahi funding works categories are included in the table below.

Transport Activity	WC No.	Work Category Name	Key Function	Example Work Activities
Freight Movement	113	Routine drainage maintenance	Remedy defects, ensure pavement integrity	Channel sweeping, sump cleaning, channel repairs/re-grading
Passenger Vehicle Travel	213	Drainage renewals	Restore functionality & asset integrity	Culvert renewals, K&C replacement

5.3 ASSET DESCRIPTION

The drainage structures vary considerably throughout the district. The following table is a summary of drainage type by area.

Drainage Type	Quantity	Area (m²)
Culverts		
Bridge Culvert - ARMCO	16	299
Bridge Culvert - Concrete	21	247
Culvert 1050	26	315
Culvert 1200	63	847
Culvert 1350	6	133
Culvert 1500	49	805
Culvert 1650	3	29.1
Culvert 1800	46	717
Culvert 2050	3	30
Culvert 250 - 350	2,386	21,321
Culvert 375 - 450	2,073	22,057
Culvert 525 - 600	235	3,022
Culvert 675	2	13.6
Culvert 750	68	1,000
Culvert 900	136	1,582
Culvert 975	1	17
Culvert <=225	1,048	7,384
TOTAL	**6,182**	**59,819**
Surface Water Drainage Assets		
Bunds		346
Dished Channels		2,238
Earth SWC - NIL		1,753,988
Kerb Only		4,608
Kerb & Channel		39,750
SWC owned by others		46,393
TOTAL		**1,847,323**

Drainage Type	Quantity	Area (m²)
Other Drainage Assets		
Debris Grid	806	12515
Flumes	10	60.3
Manhole	306	14126
Side Drain	411	55330
Subsoil	40	657
Sumps and Catchpits	179	223
Drainage Unknown	58	335.6
Drainage owned by others	290	3303.3
TOTAL	**2,100**	**86,550**

5.4 ASSET CRITICALITY & RISK

5.4.1 CRITICAL ASSETS

Using the asset criticality assessment process developed as part of the Wairoa District Council Service Delivery Risk Management Strategy, Drainage assets have been assessed as having a Service Importance of 4 – Highly Important, as shown on the next page. Failure of Other Structures Assets like retaining walls can have large economic and social impacts.

Service Area	Core Asset Group delivering Key Services	Importance Factors				Importance Score	Service Importance of Core Asset Group (Is)
		Economic	Social	Cultural	Environmental		
Land Transport	Drainage Assets	4	4	2	2	12	4

The Wairoa District Council Risk Management strategy recommends the criticality of specific assets is calculated by multiplying the Service importance by the functionality of the core asset group in failure, and the downtime of the asset before functionality is restored, as shown below.

$$C_a = I_s * F_a * D_a$$

Where:

C_a *Criticality of an asset*
I_s *Importance of the core asset groups providing service to the community*
F_a *Functionality of core asset group providing service if the asset fails*
D_a *Downtime of the asset before functionality is restored if failure occurs*

A full risk assessment at an asset level will be undertaken as part of the new drainage inspections to prioritise inspections and frequency of inspections going forward.

Drainage assets located on lifeline routes are the most critical drainage assets on Council's network, it is important they are in good condition and have appropriate capacity to ensure the resilience of these routes in storm events. An initial assessment of the criticality of the remaining drainage assets can be made by using the ONRC Classifications. Drainage assets on Primary Collectors will generally be most critical, followed by those on Secondary Collectors, Access and least critical those on Low Volume Roads.

5.4.2 KEY RISKS

The following Critical and High-risk items have been identified for Council's drainage assets.

Risk	Cause	Assessed Risk	Controls	Mitigation Strategies
Roading network experiences increased storm events and damage which exacerbates a deterioration in drainage condition and results in insufficient capacity	Climate change is changing weather patterns in the district. Localised, high intensity events are becoming more frequent. Inadequate drainage asset condition and/or capacity to address storm flows.	High		Culvert capacity assessments Drainage condition assessments and forward work programming Proactive drainage maintenance, renewals and upgrade
Flooding affects roads due to under capacity, poorly located or blocked drainage assets causing inaccessibility or unsafe driving conditions.	Inadequate knowledge of drainage condition Inadequate knowledge of drainage capacity	High	Ongoing drainage inspections to improve understanding of asset condition	Drainage capacity assessments Proactive drainage renewals and upgrades

5.5 DELIVERY

5.5.1 PHYSICAL WORKS DELIVERY CONTRACTS

Drainage maintenance is delivered through Council's two main road maintenance contracts for sealed and unsealed roads as detailed below. This includes culvert inspections and clearing as well as side drain regrading and clearing.

Contract No.	Name	Contract Term	Contractor	End Date
18/01	Sealed Road Network Maintenance	3+1+1	Fulton Hogan	1st October 2023
18/02	Unsealed Road Network Maintenance	3+1+1	Quality Roading and Services (Wairoa) Ltd	1st March 2024

5.5.2 PROCUREMENT REVIEW

In order to deliver more cost effective, value-for-money outcomes, Council prepared a detailed business case for land transport procurement which recommended a delivery model which included Performance Based maintenance of unsealed roads. The initial RFT document required that all surface water channels in the district be renewed over the contract period. However, due to financial constraints, this amount was reduced down to 30km of surface water channel renewals per year. Overall this contract model has resulted in improved maintenance on unsealed roads, but further work is still required to ensure the best outcomes for the asset.

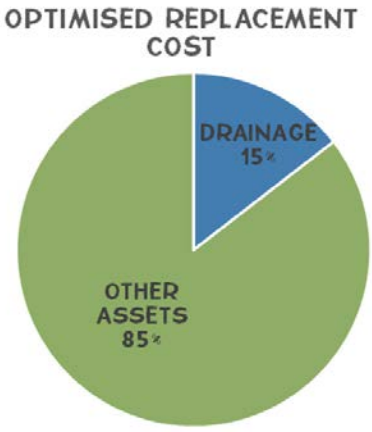
To ensure the best value for money outcomes for Council, a full review of all physical works contracts required to maintain and renew the transport network will be undertaken in advance of the next procurement round.

Drainage maintenance is a crucial component of the resilience provision for the network going forward and will require specific review as part of this process, particularly LoS requirements and performance outcomes as outlined above.

Improvement Item - Focus on proactive drainage maintenance has increased in the last procurement round. However, the level of proactive maintenance had to be reduced due to high contract costs. The procurement review before the next contract round should include a focus on ensuring the required level of proactive drainage maintenance can be procured and delivered.

5.6 ASSET VALUATION

Full details of the 2020 RAMM Asset Valuation are included in Section 12.6. The Drainage assets on the Wairoa transportation network have an Optimised Replacement Cost of $49.5M and a Depreciated Optimised Replacement Cost of $26.5M. This represents 15% of the total Optimised Replacement Cost of Council's transport assets.



5.6.1 CONFIDENCE LEVELS IN ASSET DATA

The asset inventory maintained in the RAMM database is comprehensive and while there are some deficiencies, there is continual improvement in the data which is updated monthly. The data confidence for the basis of valuing the asset is assessed as being Grade B for drainage.

5.6.2 ECONOMIC LIFE ASSESSMENT

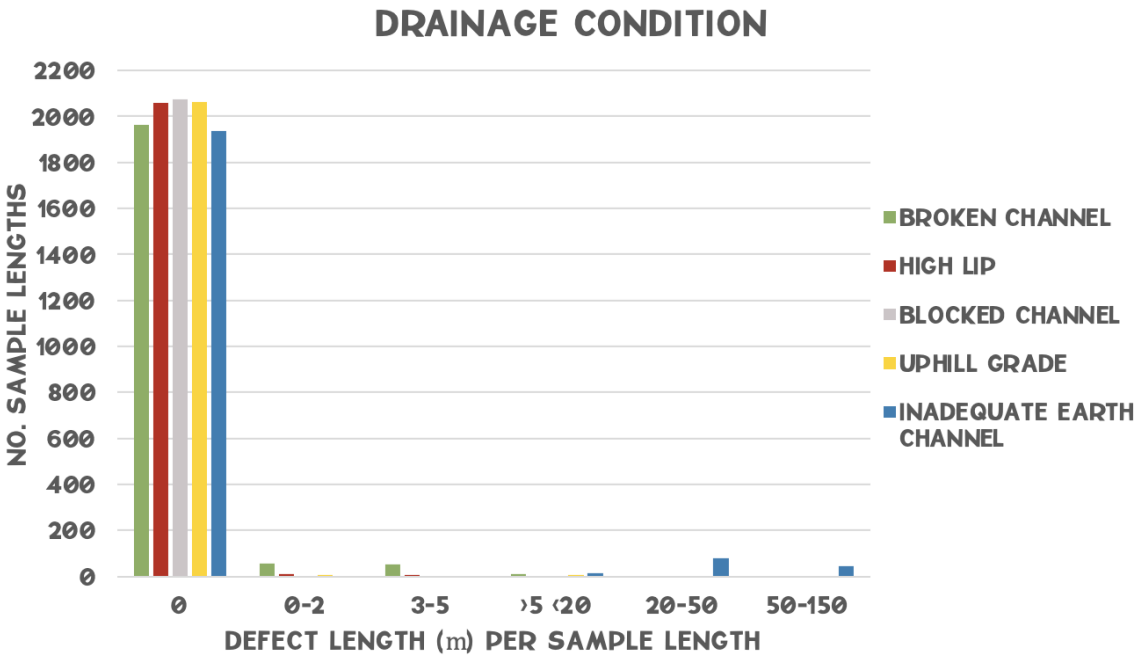
The useful economic life assessment for drainage in Wairoa is based on the averaged life cycle values of the various components as follows:

- CULVERTS 100 years
- HEADWALLS 100 years
- SIDE DRAIN 80 years
- SUBSOIL 50 years
- FLUMES 50 years
- MANHOLES 100 years
- SUMPS & CATCHPITS 100 years
- EARTH SWC 100 years
- KERB & CHANNEL 80 years
- DISH CHANNEL 80 years

5.7 ASSET CONDITION & REMAINING LIFE

Condition of surface water drainage assets was reviewed as part of the Visual Condition Rating Survey carried out in June 2017. Drainage defects recorded during the survey included:

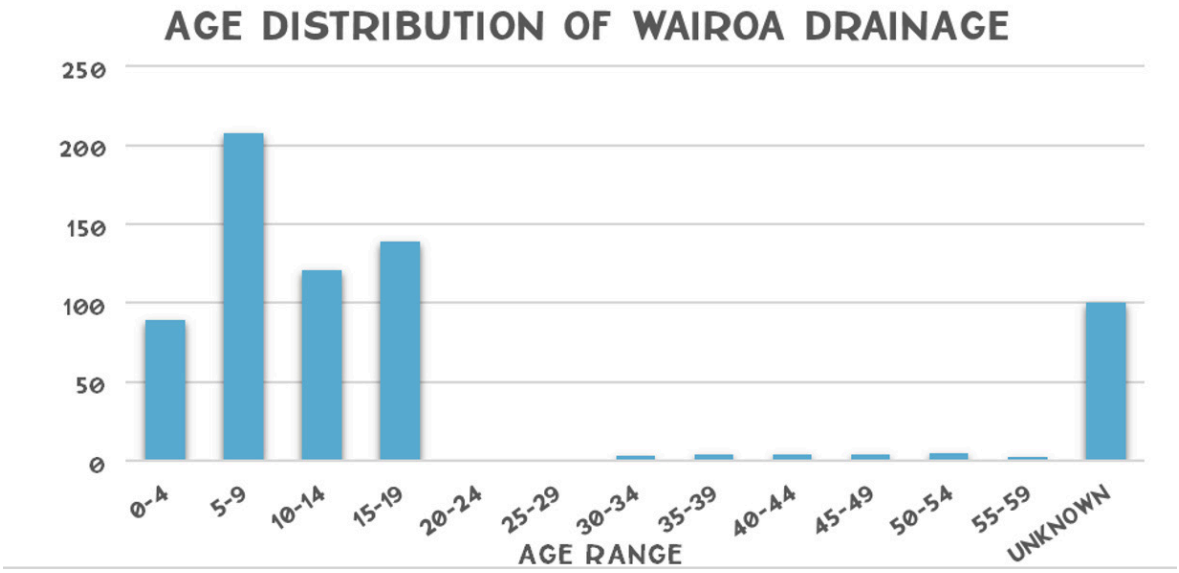
- Broken Surface Water Channel (SWC)
- High lip
- Blocked SWC
- Uphill SWC
- Inadequate earth SWC



As shown in the graph below, very few defects were found during the rating survey. The majority of 50m sample lengths had no defects, or very few defects (defect length <5m). Inadequate earth channel was the defect type with the most defect length. A total of 8.95km (9.2%) of earth channel was found to be defective out of a total 97.12km (both LHS and RHS) inspection sample.

Condition of culverts and other drainage structures is not as well understood. In the last few years, failure of helicoil (steel/Armco) pipes have become more common as these assets reach the end of their useful lives. Rusting of the bottom of the pipes is the most common failure mechanism, and often leads to scour and other issues. Renewal of these pipes will be a priority over the upcoming years.

In terms of remaining life, 5477 out of 6417 drainage items in RAMM have a default construction date of 25/12/1974, and therefore it is generally accepted that the age of these assets is unknown. Therefore, remaining life for the network drainage assets cannot be accurately calculated. The age distribution of the remaining assets is shown below.



Because condition rating is not currently carried out for most drainage assets, both the age and condition are unknown for the majority of drainage assets.

Culvert maintenance inspections are completed for entire network every three years. These are focussed on maintenance requirements, such as whether culverts need clearing, rather than condition. They were last completed in November 2015.

Improvement Item - Develop and implement a condition monitoring programme for drainage assets, to understand condition and prioritise repairs and renewals.

A 10 year FWP will be put together based on the outcomes of these inspections to develop a forward programme for renewals. All data will be recorded in RAMM.

5.8 ASSET PERFORMANCE

In terms of drainage on the sealed portion of the network, performance has significantly increased over the period of the current sealed roads maintenance contract. Drainage defects have been identified by the transportation team and the contractor has been tasked to resolve these. This work has focussed on improving surface water channels to allow water to flow away from the pavement and clearing culverts to ensure better stormwater drainage.

Under the new unsealed road network, 30km of surface water channel renewals is required to be completed annually as part of the Contractors Lump Sum. This has resulted in excellent outcomes for the unsealed pavements, preventing scour and aggregate loss. However, the amount is still below the annual amount required. As part of the contract renegotiations and eventual re-procurement of the contracts, Council will investigate increasing the focus on and quantum of proactive drainage renewals.

Issues with under capacity pipes has become more common in recent history as global warming changes weather patterns, and isolated, short duration but high intensity weather events impact Council's network, as shown in the case study below.

CASE STUDY

In June 2019 Wairoa District Council spent $147,440 on drainage renewals on the Mangapoike Road from approximately the RP 8km area through to the 28km area. In March 2020 an isolated weather bomb hit the Mangapoike through to Tunanui region. There was a short but heavy downpour which was isolated to this small region on the network. Despite the recent renewals, this resulted in damage being caused on Mangapoike Road from approx. 11.5km area through to 25.5km. The value of this storm event to Council was roughly 22K. The type of damage that occurred was blocked culverts, dropouts, slips and scouring. Council believe that culvert diameter played a role in the amount of damage that was caused.

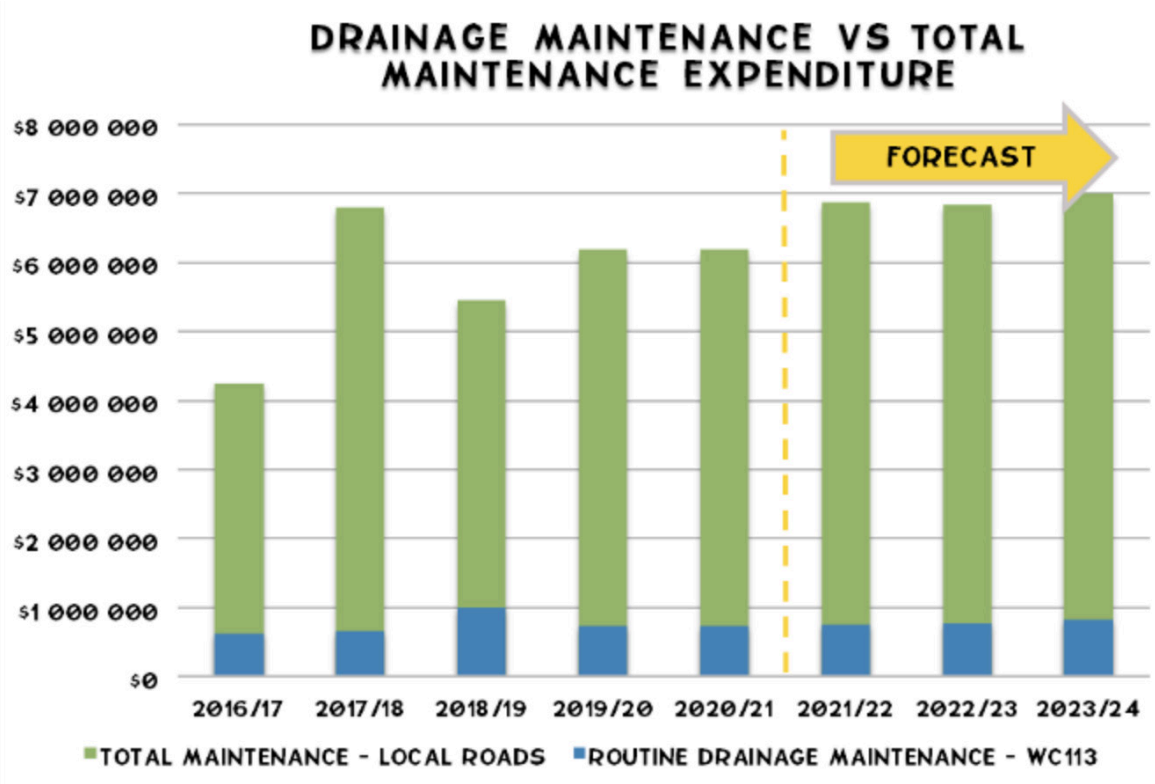
Key Learning: Drainage Asset Capacity should be considered as part of the renewals process and increased where required. While this requires greater up-front expenditure, it delivers better whole of life outcomes

Improvement Item - Undertake catchment analysis of sample sections of the Council network to determine minimum pipe sizing. Identify sections with capacity issues and prioritise for culvert upgrades.

5.9 LIFECYCLE PLANNING

5.9.1 OPERATIONS & MAINTENANCE PLAN

The graph below shows the drainage maintenance costs as a percentage of the total maintenance expenditure over the last five years and the three years 2021/22 – 2023/24. Forecast drainage maintenance is remaining relatively static compared to historic expenditure as the focus shifts to drainage renewals going forward.



FUTURE MAINTENANCE

For the sealed network drainage, future maintenance will remain static as previous focussed maintenance has improved the overall performance of the drainage asset, and it is now a matter of maintaining this LoS. Future maintenance for sealed roads will focus on high shoulder removal and surface water channel regrading ahead of planned reseals. The annual budget for sealed network drainage, including urban drainage, is $200k per annum.

For the unsealed network, an increase in focus on drainage maintenance is a requirement of the new maintenance contract. The annual budget has been increased to approximately $450k per annum to reflect this.

Overall, the drainage maintenance programmed for the next 10 years will remain relatively static.

5.9.2 RENEWALS PLAN

From 2021/22 financial year onwards, inspections will be completed to capture a condition rating and record any maintenance issues to be programmed for completion. A 10 year FWP will be put together based on the outcomes of these inspections to develop a forward programme for renewals. All data will be recorded in RAMM Contractor, so it can be recorded in RAMM database.

The current 10 year renewal forecast has been based around increased renewals of surface water channels, culverts and other drainage structures on high demand routes, particularly ahead of HMBUs on unsealed roads.

FUTURE RENEWALS

Funding for drainage renewals will be $650k per year on average over the next 10 years.

This represents an increase from previous years as more focus is put on renewals on higher classification roads to meet increased demand requirements and improve the CLoS on Secondary Collector roads.

5.9.3 CAPITAL/NEW WORKS & IMPROVEMENTS PLAN

Works to improve the capacity of drainage structures on high priority routes have been planned for the upcoming period 2021/22 – 2023/24. Allowance has been made to upgrade 20 culvert lines per year.

Piping of open drains in urban Wairoa has also been included. While these works offer some safety benefits, they do not align strongly with Council's strategic objectives and are costly, but the works are highly important to the community and elected members.

An assessment of the alignment of these improvement works with the Council's IDMF criteria has been made below.

Improvement Project Name	Aligns with IDMF Criteria for?				2021/22 Cost ($000)	2022/23 Cost ($000)	2023/24 Cost ($000)
	Strategic Alignment	Service Delivery	Risk & Criticality	Financial Impact (NPV)			
Culvert Capacity Upgrades	✓	✓	✓	✓	$150	$150	$150
Piping Open Drains	✓	✓	✓	⛔	$175	$365	$185
TOTAL					$325	$515	$335

5.9.4 NON-ASSET SOLUTION OPTIONS

A key aspect of the lifecycle management for future will be the review of drainage performance requirements as part of the procurement review for network maintenance contracts. New requirements will be focussed on ensuring improved resilience of the network.

5.10 PREFERRED PROGRAMME

The preferred programme based on the lifecycle management plan, prioritised by ONRC and strategic problems is included in the Section 12: Financial Summary.

6.1 STRATEGIC CASE LINK

6.1.1 ADDRESSING KEY NETWORK PROBLEMS

Primary problem contribution: Changing Demand

Maintenance and renewals of traffic service provides response to the Strategic Case problem of:

CHANGING, by providing safety AND WAYFINDING

Associated with this is the more specific increasing LoS requirements of the route to the Rocket Lab, and so maintenance, renewals and upgrade of traffic services along this route will also be critical in terms of response to the Strategic Case Māhia connectivity problem, to meet increased LoS requirements.

STRATEGIC RESPONSES

In order to make the right investment decisions to provide for the increasing demand on the rural network, our strategic responses to this problem are:

Network safety planning & targeted improvements

We will use the following initiatives over the next three years:

Strategic Response	Key Issue	Response Type	Response Description
Network safety action plan	Safety is becoming a significant issue, with Wairoa topping the list of the Communities at Risk Register (CARR) for six factors including: Overall Deaths & Serious Injuries (DSIs), Alcohol and drugs, speed, rural roads, fatigue and not wearing restraints.	Policy Approach	**Network Safety Audit** – to better understand locations with road safety issues, and target and prioritise high risk locations.
		Policy Approach	**Speed Management review and implementation** – to address speed related crashes on the network
		Programme Adjustment	**Targeted Safety Improvements** – on Secondary Collector roads and sections with high crash rates and focus on corners/ bends by improving signage and width.

6.1.2 BENEFITS OF INVESTING

The Investment Objectives that we what to achieve include:

Roads that support safer travel

MEASURING THE BENEFIT

The table below outlines the specific Benefits that will result from investment, based on Waka Kotahi's Investment Benefits Framework.

Investment Objective	Benefit Cluster	Benefit	Description	Performance Measures
Roads that support safer travel GPS 2020: Road to Zero	1. Changes in user safety	1.1 Impact on social cost of deaths and serious injuries	The impact of reducing the number of deaths and serious injuries (DSIs) on the all land transport modes and their social costs.	1.1.1 (ONRC Safety CO2) - Collective Risk
				1.1.2 – Crashes by severity
				1.1.3 – Deaths and serious injuries
				1.1.4 (ONRC Safety CO3) - Personal risk

6.1.3 DELIVERING CUSTOMER OUTCOMES

The key Customer Service Statements associated with pavements are:

- The land transport network is designed and maintained to be safe

Key ONRC CLoS delivered through the road pavements assets include:

- SAFETY – the network is safe and feels safer for customers over time. Adequate warning of hazards is provided to road users.
- WAY FINDING – the wayfinding signage or markings are in accordance with National Standards RTS-2, MOTSAM and the TCD manual to best guide road users to their destination

Also in line with the intent of ONRC, we will ensure that we deliver the right traffic services to the right level at the best cost, by PROPRITISING INVESTMENT ON HIGHER CLASSIFICATION ROADS. However, it should be noted that due to the safety issues associated with asset failure, there is a lower risk appetite for safety related traffic services regardless of where on the network they are situated.

6.2 ACTIVITIES DELIVERED

Activities delivered through the traffic services assets and their respective Waka Kotahi funding works categories are included in the table below.

Transport Activity	WC No.	Work Category Name	Key Function	Example Work Activities
Freight Movement **Passenger Vehicle Travel**	114	Structures Maintenance (barriers)	Remedy Defects	Repairs to guardrail
	122	Traffic services maintenance	Remedy defects	Sign component replacements, pavement marking, edge marker posts
	222	Traffic services renewals	Restore functionality & asset integrity	Large sign replacement

6.3 ASSET DESCRIPTION

The asset groups included under the Traffic Services category include:

- Traffic signs
- Pavement marking
- Barriers

Details of the asset types and quantities are included in the table below.

Asset Type	Quantity	Length
Traffic Signs		
Guide Signs	676	
Hazard Markings	735	
Information General	430	
Motorist Services	9	
Permanent Warning	673	
Regulatory General	810	
Regulatory Heavy Vehicle	5	
Regulatory Parking	22	
Tourist	5	
Information Signs	3	
Information Miscellaneous	21	
Information Motorway	3	
Miscellaneous	1041	
Warning Miscellaneous	7	
TOTAL	**4,440**	
Pavement Marking		**Length (km)**
Bus stop		0.13
Centreline 100mm 3 x 7		84.4
Centreline 100mm continuous		15.8
Edge 75mm continuous		258.6
Intersection continuity lines		1.1
No overtaking 100mm continuous		3.9
No overtaking advance 100mm 13 x 7		2.9
No stopping line (yellow) 100mm 1 x 1		8.2
Painted shoulder		0.37
Park bays angle		0.61
Park limit lines parallel		1.5
Disabled Parking	11	
Fire Hydrant	276	
Limit Lines	230	
Give Way	161	
Give Way Triangle	2	
Keep Clear	2	
No Parking	5	
Pedestrian Crossing	5	
Pedestrian Crossing Diamond	6	
Railway Crossing	10	
One Lane Bridge Words	12	
Stop	35	
Arrows	16	
Speed circle 50km/h	10	
Speed circle 70km/h	7	

Asset Type	Quantity	Length
Miscellaneous Words (IN/OUR/EXIT etc.)	9	
Miscellaneous Markings	13	
TOTAL	**810**	**377.41**
Barriers		**Length (m)**
Barrier	2	54
Railings - Concrete Post & Tubing	8	190
Railings - Concrete	10	450
Railings - Guard Rail	135	4161
Railings - Hand Rails	27	516
Other	3	390
Unknown	2	20
Steel Post with Timber Rails	10	494
Sight Rail	363	4208
Steel Tube and Post barrier	76	3274
Railings - Timber	35	1123
Grand Total	**671**	**14,880**

Typically edge line widths are 75mm, with wider markings only introduced for specific safety measures. For roads with centrelines only, the minimum sealed lane width is 5m (5.5m desirable seal width). For roads with edgelines only, the markings must provide a marked 6m wide carriageway width. For roads with centrelines and edgelines (typically arterial routes), the nominal lane width is 3m, with 2.5m the absolute minimum (6.6m desirable seal width).

Note that the pavement markings are not valued in three-yearly valuations as the work is considered to be a maintenance-only activity.

6.4 ASSET CRITICALITY & RISK

6.4.1 CRITICAL ASSETS

Using the asset criticality assessment process developed as part of the Wairoa District Council Service Delivery Risk Management Strategy, Traffic Services assets have been assessed as having a Service Importance of 3 – Important, as shown below. Failure of traffic services assets like signage are important for ensuring safety which is a social factor.

Service Area	Core Asset Group delivering Key Services	Importance Factors				Importance Score	Service Importance of Core Asset Group (Is)
		Economic	Social	Cultural	Environmental		
Land Transport	Traffic Services	2	3	2	1	8	3

The Wairoa District Council Risk Management strategy recommends the criticality of specific assets is calculated by multiplying the Service importance by the functionality of the core asset group in failure, and the downtime of the asset before functionality is restored, as shown below.

$$C_a = I_s * F_a * D_a$$

Where:

C_a *Criticality of an asset*
I_s *Importance of the core asset groups providing service to the community*
F_a *Functionality of core asset group providing service if the asset fails*
D_a *Downtime of the asset before functionality is restored if failure occurs*

Within the asset group, regulatory and permanent warning (for example curve warning) signage, pavement markings and barriers and railings have been identified as the most critical assets. Asset Criticality will also be higher for roads with higher traffic volumes or ONRC classification. Traffic services assets on Primary Collector roads will be most important, followed by Secondary Collector, Access and Low Volume roads.

6.4.2 KEY RISKS

The following Critical and High-risk items have been identified for Council's traffic services assets.

Risk	Cause	Assessed Risk	Controls	Mitigation Strategies
Inadequate signage/ markings – due to vandalism, non-compliance with standards, missing or deterioration – causes crashes/damage. This includes sight rails, chevrons, edge marker posts, bridge end markers, culvert markers etc.	Vandalism/Damage to signs Inadequate maintenance and renewals Signage and other traffic services not installed in compliance with standards and manuals Lack of understanding of signage/safety inadequacies on the networks	High	Regular network inspections to identify damage and repair promptly	Road safety assessment to identify safety deficiencies, including signage and traffic services Adequate understanding of maintenance and renewals requirements to inform asset management and financial planning Proactive renewals and upgrades to target high priority locations

6.5 DELIVERY

6.5.1 PHYSICAL WORKS DELIVERY CONTRACTS

Current contracts for the various traffic services maintenance and renewals components are:

Contract No.	Name	Contract Term	Contractor	End Date
18/01	Sealed Road Network Maintenance	3+1+1	Fulton Hogan	1st October 2023
19/05	Pavement Marking	1+1	Roadrunner	1st June 2022

Delivery of signs and guardrails maintenance and renewals is currently delivered through the Sealed Road Network Maintenance Contract for the sealed and unsealed networks.

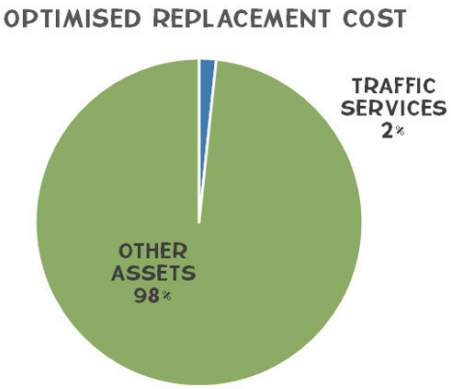
6.5.2 PROCUREMENT REVIEW

To ensure the best value for money outcomes for Council, a full review of all physical works contracts required to maintain and renew the transport network will be undertaken in advance of the next procurement round.

Traffic services maintenance and renewals are the key drivers for provision of safety on the transport network. Review of LoS requirements and performance outcomes will be completed to ensure requirements are being met.

6.6 ASSET VALUATION

Full details of the 2017 RAMM Asset Valuation are included in Section 12.6. The Traffic Services assets on the Wairoa transportation network have an Optimised Replacement Cost of $5.7M and a Depreciated Optimised Replacement Cost of $1.4M. This represents 2% of the total Optimised Replacement Cost of Council's transport assets.



6.6.1 CONFIDENCE LEVELS IN ASSET DATA

The asset inventory maintained in the RAMM database is comprehensive and while there are some deficiencies, there is continual improvement in the data which is updated monthly. The data confidence for the basis of valuing the asset is assessed as being **Grade B** for signs and railings.

6.6.2 ECONOMIC LIFE ASSESSMENT

The useful economic life assessment for traffic services in Wairoa is based on the averaged life cycle values of the various components as follows:

- SIGNS 15 years
- RAILINGS – GUARDRAILS, HANDRAILS, TIMBER 30 years
- RAILINGS - CONCRETE 80 years
- RAILINGS – CONCRETE POST & TUBING 80 years

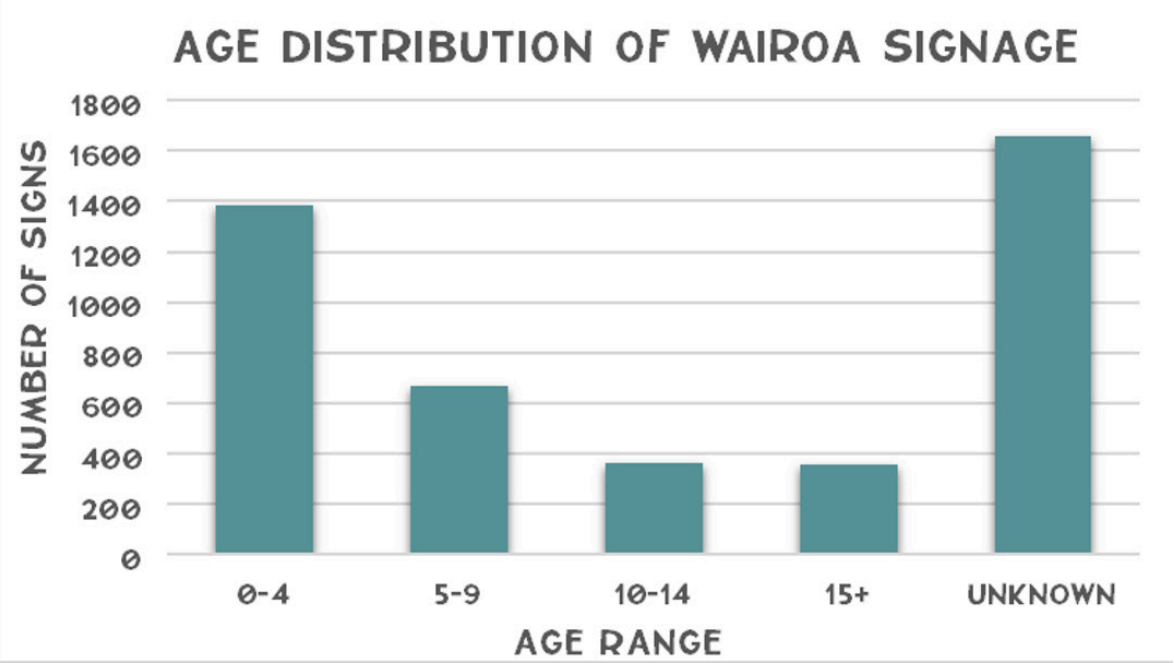
6.7 ASSET CONDITION & REMAINING LIFE

6.7.1 SIGNS

Information regarding the numbers, locations, types, signage materials, posts, fixings and ownership is comprehensive and retained in the RAMM database.

While no formal condition assessments have been undertaken, general inspections by Council staff, consultants and contractors confirm that many of Council's signs are aging and no longer up to specifications, also many signs are dirty and increased cleaning of signs by the maintenance contractor will be programmed going forward. A backlog of signs maintenance currently exists, with Council and its Contractor trying to get on top of the backlog. Ensuring delivery of identified and programmed maintenance will be important for Council going forward.

Age data is only held for approximately half of the signs in RAMM. The age distribution of the signs with a known construction data shows that these signs are all well below economic life as defined in the asset valuation, as shown on the next page. It should be noted that the 50-year economic life is unlikely to be achieved for most signs in reality.



Improvement Item - There is limited data on the asset age and condition. Improve inventory accuracy for assets' age and condition (remaining useful life).

6.7.2 PAVEMENT MARKING

Pavement marking involves the painting (water-borne with reflective beading) of centre lines, edge lines and other markings on sealed roads for safety and road user information. Between 2000 and 2010, annual repainting of the entire network was undertaken. Increased cost across most services saw this as an opportunity to miss a season's remarking and no issues arose from this decision. The subsequent year, only the intersections and key routes were repainted.

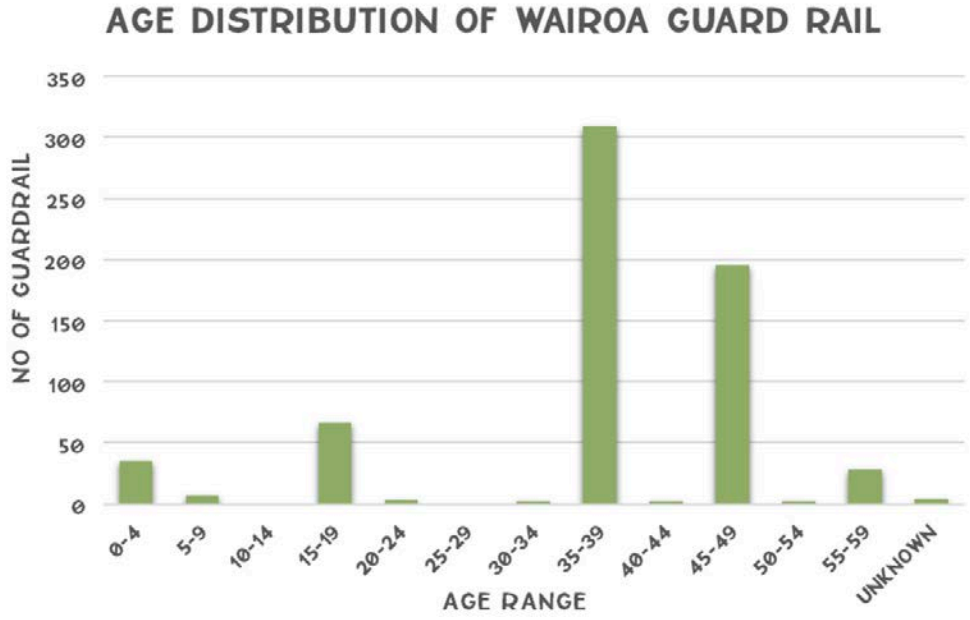
Recently, Council has been repainting every two years, but this has resulted in a lot of faded markings in urban and high use areas like intersections. Council will prioritise markings to produce a schedule of markings to be renewed annually, with the balance of the markings being renewed every two years.

6.7.3 BARRIERS

The structural condition of safety barriers is generally good; however, most do not meet the current required standard for breakaway terminal ends. Safety barrier on bridge approaches in particular, must be reviewed against current performance standards, this is discussed further in the Bridges Lifecycle Management Plan.

Sight rails are generally in good condition. Where sight rails in locations that often receive damage, Council will consider replacement with safety barrier in order to address safety issues. The network safety audit may recommend the installation of safety barrier in key locations to address the key strategic problem of road safety Where sight rails exist because culverts are too close to the road, consideration should be given to extending the culvert so that the sight rail can be removed.

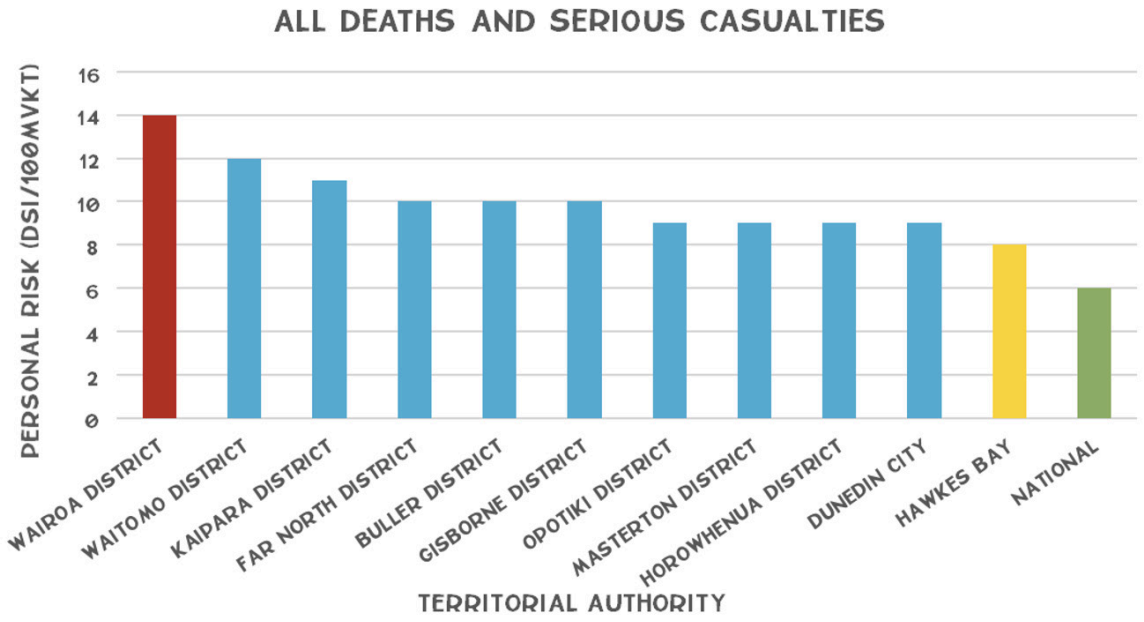
The age distribution of guardrails in RAMM shows that 538 guardrails are approaching their end of economic life as defined in the asset valuation, as shown below.



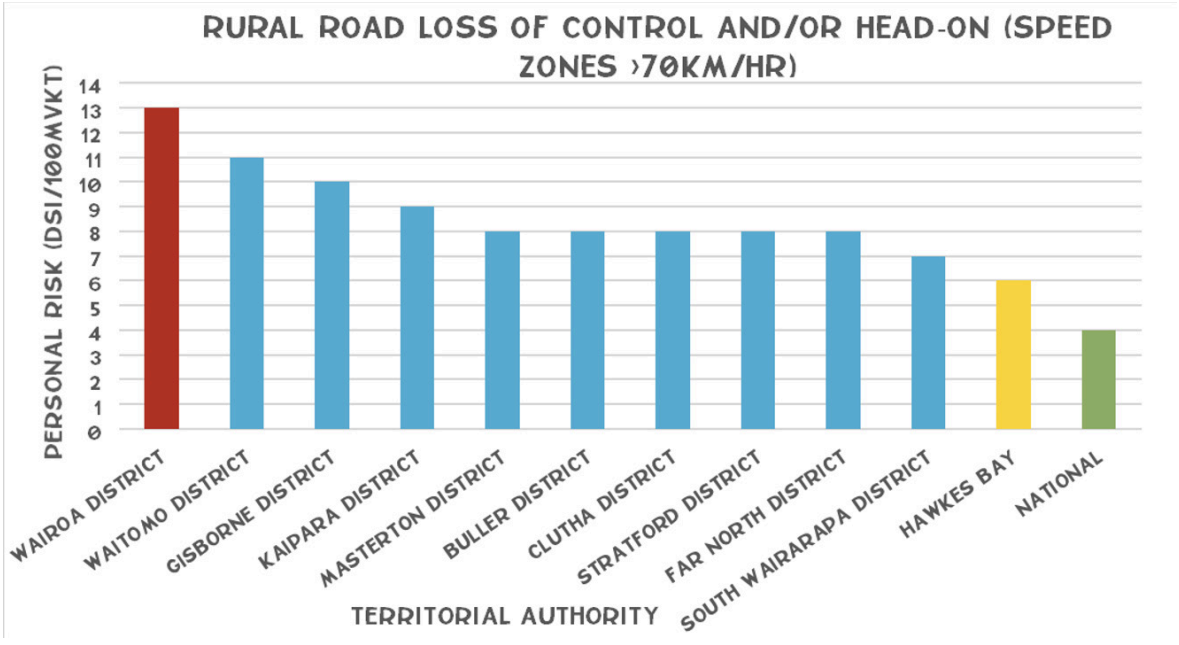
Improvement Item - There is limited data on the asset age and condition. Improve inventory accuracy for assets' age and condition (remaining useful life).

6.8 ASSET PERFORMANCE

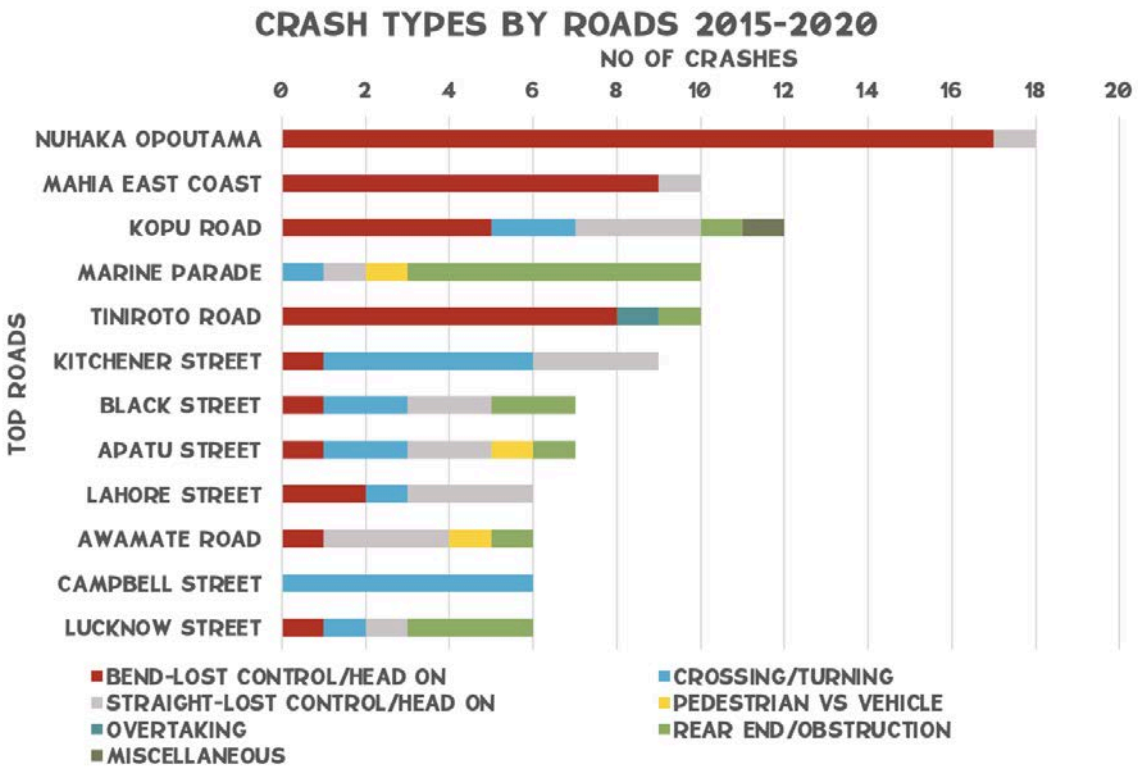
The 2018/19 Communitites at risk register ranks Wairoa District Council as having the highest personal risk (DSI/100MVKT) in the country.



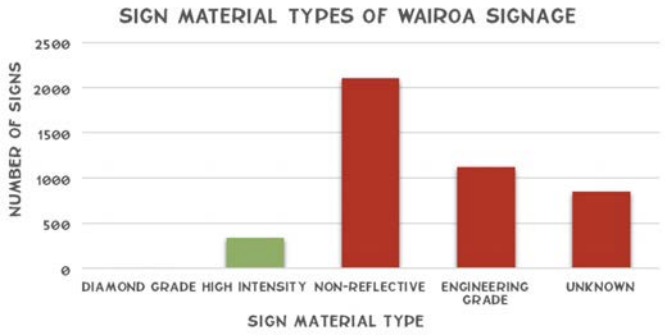
Council feature at the top of the list is many categories, most relevant to the traffic services asset group is the rural road loss of control crashes. Analysis of these crashes suggests inadequate corner signage may have been a contributor in many of these crashes.



Inadequate permanent warning signage, particularly on curves has been identified as a key issue contributing to the high number of loss of control and head on crashes on bends on the Council network. From the graph below, it can be seen that loss of control on bends is the leading crash type on Council's roads. Nūhaka-Ōpoutama, Māhia East Coast Road and other rural roads have loss of control on bends as the highest crash type. Other than by analysing crash data, areas of safety deficiency on the network have not been identified. A full network safety audit is to be undertaken to identify and prioritise areas with safety issues for treatment.



Many signs on the Councils network are Engineering Grade or non-reflective and don't meet reflectivity requirements, creating visibility and safety issues, particularly at night and in poor weather.



Improvement Item - Undertake a network safety audit to identify safety issues on the Council network, and prioritise the issues for treatment.

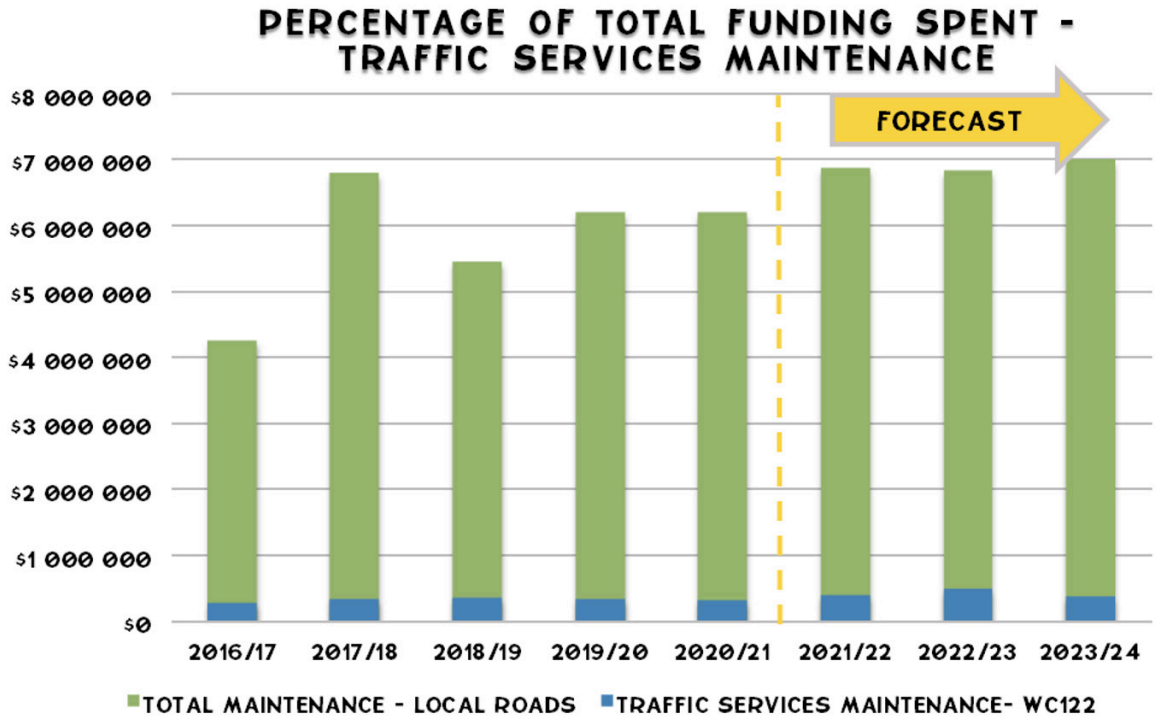
Improvement Item - Undertake a speed management review of Council's network with a particular focus on speeds around schools, marae and other community facilities.

Improvement Item - Undertake a speed management review of Council's network with a particular focus on speeds around schools, marae and other community facilities.

6.9 LIFECYCLE PLANNING

6.9.1 OPERATIONS & MAINTENANCE PLAN

Traffic services has historically been Council's most reactive work area. The current focus is on maintaining the current assets, not identifying gaps in the network. The graph on the next page shows the traffic services maintenance costs as a percentage of the total maintenance expenditure over the last five years and the three years 2021/22-2023/24. Traffic services maintenance has represented approximately 5.5% of the total maintenance budget over the three years 2018/19-2020/21.



PAVEMENT MARKING

Pavement markings have generally been completed every 2 to 3 years over the full sealed pavement network. However, it has been found that when pushed out to 3 yearly intervals, the level of service provided drops significantly. For future maintenance pavement markings will be remarked every two years, with high demand markings for example at intersections, remarked annually. Ensuring adequate visibility, particularly on corners, is important for addressing the safety issues on the network.

BARRIERS

The Wairoa network has a very limited quantity of existing barriers, with a total length of 14.54km. Over the past 10 years, $18.400 has been spent on maintenance of barriers. The age data indicates that a limited number of barriers are approaching the end of their economic life within the next 10 years. As there is no condition information currently collected for guardrails, it is assumed that only assets approaching the end of their economic life will require replacement over the next 10 years. Therefore, a limited budget of $5k per annum has been allowed for maintenance of guardrails over the next 10 year period.

Maintenance of barriers is funded from Structures Maintenance Work Category 114.

SIGNS

Signs are maintained and replaced on a reactive basis, by the Sealed network maintenance contractor, for both the sealed and unsealed network.

Inspections by Council staff have highlighted a backlog of signs maintenance work, which Contractors are working to catch up on. Inspections have also shown a lack of cleaning signs is starting to impact visibility, so increased cleaning of signs will be programmed for the maintenance contractor to implement.

FUTURE MAINTENANCE

The annual budget for traffic services is an average of $350k per annum for the next three years.

This includes pavement marking and street lighting maintenance but does not include barrier maintenance which is funded from WC114 Structures Maintenance.

6.9.2 RENEWALS PLAN

Limited condition data is held for traffic services; therefore, the current 10 year renewal forecast has been based around improving traffic services, particularly signage, on high demand routes and improve road safety outcomes. No holistic safety review of Council's network has been undertaken to identify road safety issues. A full network safety audit will be undertaken to identify and target key areas of improvement. Waka Kotahi safety tools will be used to inform decision making as appropriate.

SIGNS

New installations will be focussed on key routes where there is a safety deficiency i.e. 35km corners not marked with PW or chevron boards. Corners will be upgraded per year, as identified and prioritised in the network safety audit. Initial crash data investigations have shown Nūhaka-Ōpoutama Road, Māhia East Coast Road, Tiniroto and Kopu Roads have been identified as having high loss of control on bend crashes.

Engineering grade signs will be upgraded to compliant reflective signs on an ongoing basis to ensure signs are visible in all conditions.

BARRIERS

No safety barrier renewals are programmed over the next three years. Sight rails will be renewed on a reactive basis as required.

OTHER TRAFFIC SERVICES

Damage to traffic islands has been recorded as an issue during road inspections. Traffic islands will be renewed as required to ensure safe and inclusive access for all road users.

FUTURE RENEWALS

Funding for traffic services renewals will be $175k per year on average over the next 10 years.

This provides an increased level of investment to previous years, as focus is put on renewals on higher classification roads to meet increased demand requirements and improve the CLoS on Primary and Secondary Collector roads. Allowance for upgrading Engineering Grade signage to high reflectivity has been made to improve safety outcomes. Increased lighting renewals and conversion to LED has also been allowed for.

6.9.3 CAPITAL/NEW WORKS & IMPROVEMENTS PLAN

The following capital/new works and improvements have been identified for the 2021/22-2023/24 period. Each project has been assessed against Council's IDMF criteria as shown below to confirm suitability.

Improvement Project Name	Aligns with IDMF Criteria for?				2021/22 Cost ($000)	2022/23 Cost ($000)	2023/24 Cost ($000)
	Strategic Alignment	Service Delivery	Risk & Criticality	Financial Impact (NPV)			
Curve Safety Improvements	✓	✓	✓	✓	$150	$50	$100
Safety Treatments (Speed Management) – Schools Marae	✓	✓	✓	✓	$50	$100	$100
Nūhaka-Ōpoutama Safety Improvements	✓	✓	✓	✓	$150	$50	$100
Urban Intersection Safety Improvements	✓	✓	✓	✓	$20	$20	$20
On Road Cycle Lane Markings	✓	✓	✓	✓	$20	$20	$20
TOTAL					**$390**	**$240**	**$340**

6.9.4 NON-ASSET SOLUTION OPTIONS

Signs data in RAMM is reasonably complete and accurate. A better understanding of age and condition will allow better decision making and forecasting.

Pavement marking data in RAMM is not complete and accurate. Validation and updating of RAMM data will allow for more accurate forecasting. Identifying high priority sites that require annual remark should also be undertaken in RAMM.

6.10 PREFERRED PROGRAMME

The preferred programme based on the lifecycle management plan, prioritised by ONRC and strategic problems is included in the Section 12: Financial Summary.

7.1 STRATEGIC CASE LINK

7.1.1 ADDRESSING KEY NETWORK PROBLEMS

Primary problem contribution: Changing Demand

Maintenance and renewals of lighting provides response to the Strategic Case problem of:

CHANGING DEMAND, by providing wayfinding and safety

Associated with this is the more specific increasing LoS requirements of the route to the Rocket Lab, and so maintenance and renewals of lighting along this route will also be important in terms of response to the Strategic Case Māhia connectivity problem, to meet increased LoS requirements.

STRATEGIC RESPONSES

In order to make the right investment decisions to provide for the increasing demand on the rural network, our strategic responses to this problem are:

Network safety planning & targeted improvements

We will use the following initiatives over the next three years:

Strategic Response	Key Issue	Response Type	Response Description
Network safety action plan	Safety is becoming a significant issue, with Wairoa topping the list of the Communities at Risk Register (CARR) for six factors including: Overall Deaths & Serious Injuries (DSIs), Alcohol and drugs, speed, rural roads, fatigue and not wearing restraints.	Policy Approach	**Network Safety Audit** – to better understand locations with road safety issues, and target and prioritise high risk locations.
		Policy Approach	**Speed Management review and implementation** – to address speed related crashes on the network
		Programme Adjustment	**Targeted Safety Improvements** – on Secondary Collector roads and sections with high crash rates and focus on corners/ bends by improving signage and width.

7.1.2 BENEFITS OF INVESTING

The Investment Objectives that we what to achieve include:

Roads that support safer travel

MEASURING THE BENEFIT

The table below outlines the specific Benefits that will result from investment, based on Waka Kotahi's Investment Benefits Framework.

Investment Objective	Benefit Cluster	Benefit	Description	Performance Measures
Roads that support safer travel GPS 2020: Road to Zero	1. Changes in user safety	1.1 Impact on social cost of deaths and serious injuries	The impact of reducing the number of deaths and serious injuries (DSIs) on the all land transport modes and their social costs.	1.1.1 (ONRC Safety CO2) - Collective Risk
				1.1.2 – Crashes by severity
				1.1.3 – Deaths and serious injuries
				1.1.4 (ONRC Safety CO3) - Personal risk

7.1.3 DELIVERING CUSTOMER OUTCOMES

The key Customer Service Statements associated with pavements are:

- The land transport network is designed and maintained to be safe

Key ONRC CLoS delivered through the road pavements assets include:

- SAFETY – the network is safe and feels safer for customers over time.
- WAY FINDING – providing lighting to assist road users to their destination

Also in line with the intent of ONRC, we will ensure that we deliver the right lighting to the right level at the best cost, by PROPRITISING INVESTMENT ON HIGHER CLASSIFICATION ROADS. However, it should be noted that due to the safety issues associated with asset failure, there is a lower risk appetite for safety related lighting regardless of where on the network they are situated.

7.2 ACTIVITIES DELIVERED

Activities delivered through the drainage assets and their respective NZTA funding works categories are included in the following table.

Transport Activity	WC No.	Work Category Name	Key Function	Example Work Activities
Freight Movement	113	Traffic services maintenance	Remedy defects	Lamp replacement, re-torque bolts
Passenger Vehicle Travel	211	Traffic services renewals	Restore functionality & asset integrity	
	341	Low Cost/Low Risk Improvements	Safety improvement	LED upgrade works

7.3 ASSET DESCRIPTION

A total of 796 streetlights are maintained by Council and included in the road network assets. This includes the state highway lighting through urban areas (defined by a memorandum of understanding between Waka Kotahi and Council as areas less than, or equal to, 70km posted speed limits). Lights on state highways throughout the remainder of the district are Waka Kotahi's responsibility. The power charges related to lighting through urban state highway areas can be charged back to Waka Kotahi.

Lighting Type	Quantity
Betacom	36
Cree	6

Lighting Type	Quantity
Gough	58
Kendelier	4
Rexel	41
Sylvania	638
Other	12
Unknown	1
TOTAL	**796**

The location of streetlights throughout the District is shown on the map below. Streetlights are predominantly within the urban areas of Wairoa, Māhia, and Tuai.

7.4 ASSET CRITICALITY & RISK

7.4.1 CRITICAL ASSETS

Using the asset criticality assessment process developed as part of the Wairoa District Council Service Delivery Risk Management Strategy, Lighting assets have been assessed as having a Service Importance of 3 – Important, as shown below. Failure of Lighting assets like signage are important for ensuring safety which is a social factor.

Service Area	Core Asset Group delivering Key Services	Importance Factors				Importance Score	Service Importance of Core Asset Group (Is)
		Economic	Social	Cultural	Environmental		
Land Transport	Lighting	2	3	2	1	8	3

The Wairoa District Council Risk Management strategy recommends the criticality of specific assets is calculated by multiplying the Service importance by the functionality of the core asset group in failure, and the downtime of the asset before functionality is restored, as shown below.

$$C_a = I_s * F_a * D_a$$

Where:

C_a	*Criticality of an asset*
I_s	*Importance of the core asset groups providing service to the community*
F_a	*Functionality of core asset group providing service if the asset fails*
D_a	*Downtime of the asset before functionality is restored if failure occurs*

Within the lighting asset group, light poles that provide lighting to intersections are considered the most critical. Asset Criticality will also be higher for roads with higher traffic volumes or ONRC classification. Lighting assets on Primary Collector roads will be most important, followed by Secondary Collector, Access and Low Volume roads.

7.4.2 KEY RISKS

No high or critical risk items have been identified for Council's Street Lighting assets. Several low and medium risk items have been identified, along with appropriate mitigation strategies. These risks are included in the full risk register included in the appendices, and will be reviewed regularly to ensure they are being appropriately monitored and managed.

7.5 DELIVERY

7.5.1 PHYSICAL WORKS DELIVERY CONTRACTS

The current contract for streetlighting is:

Contract No.	Name	Contract Term	Contractor	End Date
SFA	Wairoa LED Installation and Maintenance 2020	1+1+1	Eastland Network Ltd	August 2023

Council went to tender twice for the installation of the LED lights on the network, but were not able to get a contract in place due to limited tenders received and high tender prices. As a result, Council proceeded to purchase the hardware while procurement issues were resolved. Recently, Council have been able to negotiate a Short-form contract with its former supplier for installation of the LED lights and network maintenance and renewals on a 1+1+1 basis.

7.5.2 PROCUREMENT REVIEW

Procurement of street light maintenance and renewals going forward is a risk to Council, due to the small work load. As part of the review of the network maintenance contracts, procurement of smaller, specialist packages of work needs to be undertaken to deliver the best value for money for council. As part of this review, the levels of service for lighting should be considered, for example how quickly we respond to light failure will impact the cost of the service. Coordinating with other Councils or Waka Kotahi to coordinate maintenance and renewals work or procurement could be a way to improve the volume of work and associated cost to Council.

7.6 ASSET VALUATION

Full details of the 2020 RAMM Asset Valuation are included in Section 12.6. The Street Lighting assets on the Wairoa transportation network have an Optimised Replacement Cost of $2.5M and a Depreciated Optimised Replacement Cost of $1.2M. This represents 1% of the total Optimised Replacement Cost of Council's transport assets.

7.6.1 CONFIDENCE LEVELS IN ASSET DATA

The asset inventory maintained in the RAMM database is comprehensive and while there are some deficiencies, there is continual improvement in the data which is updated monthly. The data confidence for the basis of valuing the asset is assessed as being Grade B for street lighting.

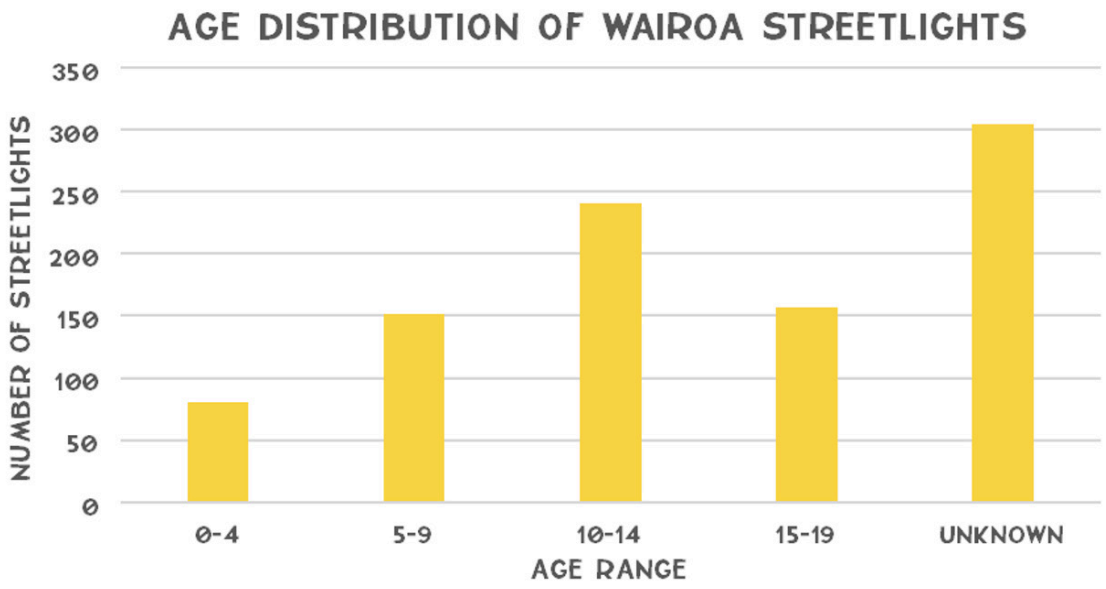
7.6.2 ECONOMIC LIFE ASSESSMENT

The useful economic life assessment for street lighting in Wairoa is based on the averaged life cycle values of the various components as follows:

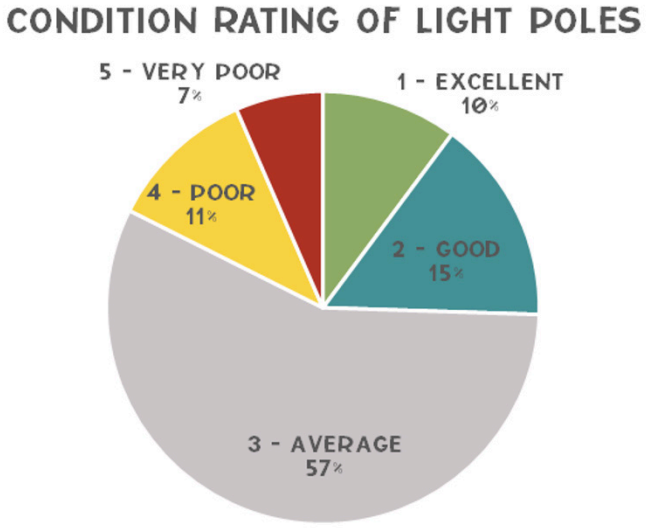
- LIGHT POLES & BRACKETS 50 years
- STREET LIGHT 10 years

7.7 ASSET CONDITION & REMAINING LIFE

Age data for streetlighting assets appears to be related to the lights rather than poles and brackets. The age distribution of these lights indicates that 43% of lights are over their economic life as defined in the asset valuation, as shown below. The age of 33% of the lights in the database is unknown.



A condition rating inspection was carried out in 2019 by Xyst Consultants. The condition rating data from that survey is shown in the graph below. 140 poles have been identified as being in poor or very poor condition.



7.8 ASSET PERFORMANCE

Performance of lighting contributes to the ONRC Safety Technical Output Measure: loss of driver control at night. Based on the latest CAS crash data in the ONRC PMRT, 35% of crashes (64 crashes total) have occurred at night time in the last 5 years.

One customer service request for a streetlight not working has been received in the last three years.

35% of crashes in the last 5 years have occurred in darkness

7.9 LIFECYCLE PLANNING

7.9.1 OPERATIONS & MAINTENANCE PLAN

Because of the LED conversion programme, the operating (power) and maintenance costs for Street Lighting is expected to decrease over the three-year period 2018/19-2020/21.

FUTURE MAINTENANCE

Current power costs are approximately $110k per annum, and this is expected to reduce as the network is converted to LED each year. Current maintenance costs are also expected to decrease due to the reduction in lamp replacements from $85k per annum to $70k per annum.

From 2021/22 onwards maintenance costs for lighting are expected to remain relatively static.

7.9.2 RENEWALS PLAN

A 10 year FWP for renewals has not yet been developed. Therefore, no specific renewals have been planned for the three years 2021/22-2023/24.

Improvement Item - A 10 year FWP for lighting renewals could be developed based on condition inspections carried out over the next three years (2021/22-2023/24) as part of the proposed condition rating inspections detailed above.

7.9.3 CAPITAL/NEW WORKS & IMPROVEMENTS PLAN

No street-lighting improvement works have been programmed for the next 10 year period. LED bulbs have been purchased and 33% of the network upgraded by 2021/22. The remaining bulbs will be replaced as required as part of the lighting/traffic services renewals.

7.9.4 NON-ASSET SOLUTION OPTIONS

No non-asset solutions have been identified for the lifecycle management of lighting at this stage.

7.10 PREFERRED PROGRAMME

The preferred programme based on the lifecycle management plan, prioritised by ONRC and strategic problems is included in the Section 12: Financial Summary.

8. FOOTPATHS & CYCLEWAYS

8.1 STRATEGIC CASE LINK

8.1.1 ADDRESSING KEY NETWORK PROBLEMS

The provision of footpaths and cycleways does not specifically meet any of the Strategic Case problems. It does however contribute to community outcomes:

Safe, supported and well-led community

STRATEGIC RESPONSES

In order to make the right investment decisions to provide for the increasing demand on the rural network, our strategic responses to this problem are:

Network safety planning & targeted improvements

We will use the following initiatives over the next three years:

Strategic Response	Key Issue	Response Type	Response Description
Network safety planning & targeted improvements	Safety is becoming a significant issue, with Wairoa topping the list of the Communities at Risk Register (CARR) for six factors including: Overall Deaths & Serious Injuries (DSIs), Alcohol and drugs, speed, rural roads, fatigue and not wearing restraints.	Policy Approach	**Network Safety Audit** – to better understand locations with road safety issues, and target and prioritise high risk locations.
		Adjust Levels of Service	New footpath construction to meet increased Levels of Service requirements

8.1.2 BENEFITS OF INVESTING

The Investment Objectives that we what to achieve include:

Investment Objective	Benefit Cluster	Benefit	Description	Performance Measures
Roads that support safer travel GPS 2020: Road to Zero	1. Changes in user safety	1.1 Impact on social cost of deaths and serious injuries	The impact of reducing the number of deaths and serious injuries (DSIs) on the all land transport modes and their social costs.	1.1.1 (ONRC Safety CO2) - Collective Risk
				1.1.2 – Crashes by severity
				1.1.3 – Deaths and serious injuries
				1.1.4 (ONRC Safety CO3) - Personal risk

8.1.3 DELIVERING CUSTOMER OUTCOMES

The key Customer Service Statements associated with pavements are:

- The land transport network is designed and maintained to be safe

Key ONRC CLoS delivered through the road pavements assets include:

- SAFETY – vulnerable user accidents reduced by providing paths separated from other traffic.
- AMENITY – cycling and walking paths kept tidy and functional by keeping vegetation controlled, graffiti removal, roadside furniture maintenance

8.2 ACTIVITIES DELIVERED

Activities delivered through the footpath and cycleway assets are funded fully by Council. The key activities delivered are walking and cycling.

Transport Activity	WC No.	Work Category Name	Key Function	Example Work Activities
Walking & Cycling	124	Cycle path maintenance	Remedy defects	Cycle path pothole repairs, cracking repairs, lighting repairs
	N/A	Footpath maintenance	Remedy defects	Pothole repairs, cracking repairs
	N/A	Footpath renewals	Restore functionality & asset integrity	Upgrade mobility crossings, upgrade footpaths, replace section of footpath
	N/A	New footpaths	Accessibility & Safety	Construct new footpath

8.3 ASSET DESCRIPTION

There are approximately 51km of footpaths and cycleways within the district that are included in the road network assets. The maximum footpath width is 4.6m, the minimum 0.6m and average 1.7m. The footpaths are typically chip seal or concrete with some hot mix footpaths within the Wairoa urban area as summarised in the following table.

Footpath Type	Length
Asphaltic concrete (black)	2,760
Concrete	37,381
Interlocking blocks	788
Chip seal	4,836
Limestone	3,575
TOTAL	**49,340**

8.4 ASSET CRITICALITY & RISK

8.4.1 CRITICAL ASSETS

Using the asset criticality assessment process developed as part of the Wairoa District Council Service Delivery Risk Management Strategy, footpath & cycleway assets have been assessed as having a Service Importance of 3 – Important, as shown below.

Service Area	Core Asset Group delivering Key Services	Importance Factors				Importance Score	Service Importance of Core Asset Group (Is)
		Economic	Social	Cultural	Environmental		
Land Transport	Footpaths & Cycleways	2	3	2	1	8	3

The Wairoa District Council Risk Management strategy recommends the criticality of specific assets is calculated by multiplying the Service importance by the functionality of the core asset group in failure, and the downtime of the asset before functionality is restored, as shown below.

$$C_a = I_s * F_a * D_a$$

Where:

C_a	*Criticality of an asset*
I_s	*Importance of the core asset groups providing service to the community*
F_a	*Functionality of core asset group providing service if the asset fails*
D_a	*Downtime of the asset before functionality is restored if failure occurs*

Within the footpaths & cycleways asset group, footpath and cycleway criticality will be higher for assets that cater to higher usage volumes, or provide access to critical services and connect communities. Pram crossings are also critical assets, providing access for vulnerable users including prams, wheelchairs and scooters.

8.4.2 KEY RISKS

No high or critical risk items have been identified for Council's footpath and cycleway assets. Several low and medium risk items have been identified, along with appropriate mitigation strategies. These risks are included in the full risk register included in the appendices, and will be reviewed regularly to ensure they are being appropriately monitored and managed.

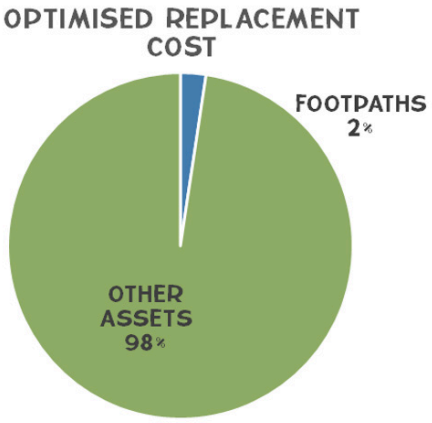
8.5 DELIVERY

Cleaning of streets and footpaths is completed under the Street Cleaning – Wairoa Township Contract. Renewals and repairs are carried out by a contractor under an existing network maintenance contract, or an annual renewals contract as appropriate.

New footpaths are prioritised by council and a contract tendered for construction of the footpaths.

8.6 ASSET VALUATION

Full details of the 2020 RAMM Asset Valuation are included in Section 12.6. The Street Lighting assets on the Wairoa transportation network have an Optimised Replacement Cost of $8.1M and a Depreciated Optimised Replacement Cost of $4.6M. This represents 2% of the total Optimised Replacement Cost of Council's transport assets.



8.6.1 CONFIDENCE LEVELS IN ASSET DATA

The asset inventory maintained in the RAMM database is comprehensive and while there are some deficiencies, there is continual improvement in the data which is updated monthly. The data confidence for the basis of valuing the asset is assessed as being **Grade B** for footpaths.

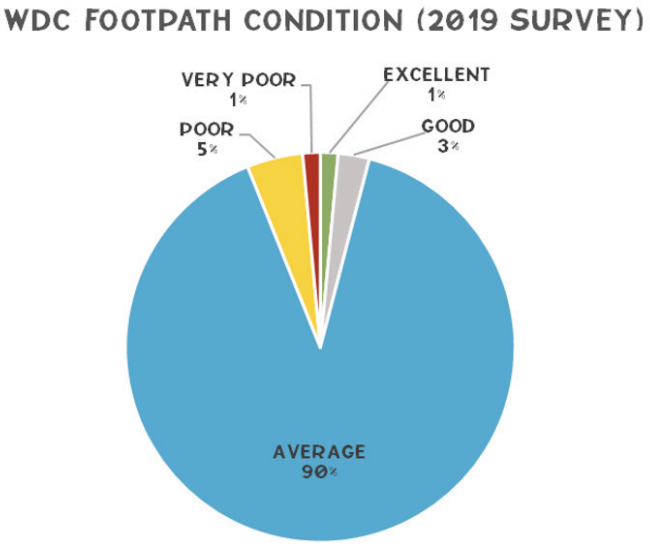
8.6.2 ECONOMIC LIFE ASSESSMENT

The useful economic life assessment for footpaths in Wairoa is based on the averaged life cycle values of the various components as follows:

- ASPHALT FOOTPATH 35 years
- CHIPSEAL FOOTPATH 25 years
- CONCRETE FOOTPATH 75 years
- PAVERS & BLOCKS 75 years

8.7 ASSET CONDITION & REMAINING LIFE

A full network visual condition inspection was undertaken in 2019. The results of the inspections are shown on the below graph.



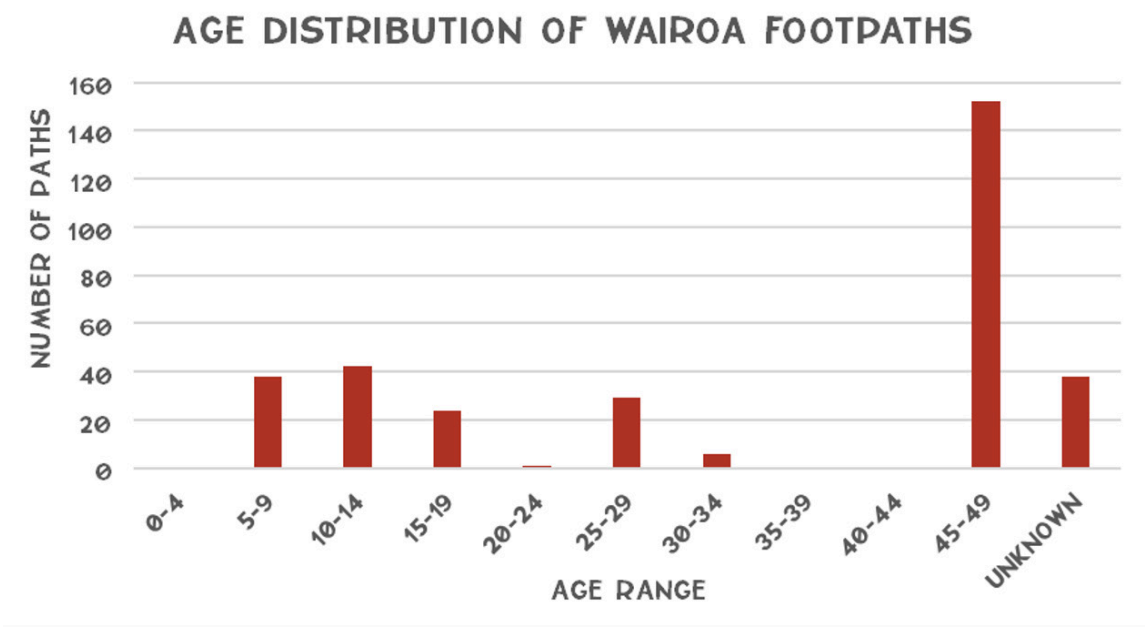
The inspections showed 93% of Council's footpaths were in average or better condition, with 6% of the network being asessesed as having poor or very poor condition.

A list of the footpaths identified as being in poor or very poor condition is provided below. These sites will be programmed for maintenance and renewals first.

Road	Start	End	Side	Material	Condition
HUNTERBROWN STREET	128	149	Left	Concrete	Very poor
HUNTERBROWN STREET	305	730	Left	Concrete	Poor
CRARER STREET	6	45	Left	Concrete	Poor
MACKLEY STREET	9	87	Left	Seal	Very poor
MACKLEY STREET EAST	0	70	Left	Seal	Very poor
MACKLEY STREET WEST	5	102	Left	Seal	Very poor
CARROLL STREET (WAIROA)	0	114	Left	Seal	Very poor
CARROLL STREET (WAIROA)	260	364	Left	Asphaltic concrete (black)	Poor
QUEEN STREET	454	625	Left	Concrete	Poor
KARAKA STREET	308	339	Left	Concrete	Very poor
RIVER PARADE	8	104	Left	Asphaltic concrete (black)	Poor
HUNTERBROWN STREET	301	727	Right	Concrete	Poor
MACKLEY STREET	9	87	Right	Seal	Very poor
MACKLEY STREET EAST	6	70	Right	Seal	Very poor
MACKLEY STREET WEST	0	102	Right	Seal	Very poor
RIMU DRIVE	8	121	Right	Concrete	Poor
MĀHIA AVENUE (SH2)	300	572	Right	Concrete	Poor
MĀHIA AVENUE (SH2)	10	80	Left	Seal	Very poor

Road	Start	End	Side	Material	Condition
ORMOND ROAD	27	317	Right	Concrete	Poor
RUATANIWHA ROAD	160	436	Right		Poor
RIVER PARADE EAST	146		Right		Poor
FLAXMILL ROAD	564	564	Right		Poor
CLYDE ROAD	1162	1198	Left	Concrete	Poor

The age profile of footpaths indicates that most footpaths were constructed over 40 years ago.



Regular footpath inspections have historically not been carried out by council. Limestone pathways have been identified as being generally not in good condition.

Improvement Item - Data collection plan to be established to better understand asset inventory, condition, age and for reporting against new level of service performance measures, where data is not currently being collected. Ensuring DIA measures are collected and reported and road closure information are key items.

8.8 ASSET CAPACITY & UTILISATION

Existing footpaths are currently well utilised, and there are no areas where footpaths are underutilised. Footpath width has been identified as an issue on parts of the footpath network.

Council's network contains a lot of footpaths that aren't integrated, they stop and have no connectivity, to the rest of the network. Many footpaths have no drop kerb or pram crossing to allow access from the footpath to other parts of the network.

Areas where footpaths are insufficient, or there are no footpaths, are added to the Council's prioritisation list and programmed for new footpaths based on the criteria in Section 8.10.3 below.

8.9 ASSET PERFORMANCE

Footpaths address the important transport outcome of healthy and safe people and inclusive access by ensuring vulnerable users have safe access to the transport network. In the last 5 years, 8 pedestrian vs vehicle crashes have occurred on the Council network, 6 of which resulted in injuries. Ensuring there is adequate footpaths and associated facilities for vulnerable users is important for reducing these numbers.

The latest CSR results show 31 complaints in 2019 related to footpaths, compared to 12 complaints the previous year.

The **DIA mandatory measure, Condition of footpaths**: The percentage of footpaths that fall within the Level of Service or standard of condition of footpaths set out in Council's relevant document, expressed as a number. Council's Long Term Plan specifies a target of 95% of footpaths achieving average or better condition. This was not achieved for 2019/ with 93% of footpaths achieving average or better condition. This reflects a lack of historic maintenance and renewals, and a backlog of maintenance required on Council's footpath network.

8 pedestrians vs vehicle crashes have occurred in the last 5 years

8.10 LIFECYCLE PLANNING

8.10.1 OPERATIONS & MAINTENANCE PLAN

Maintenance and renewals of footpaths is programmed on both a reactive and proactive basis. Where complaints from the public are received, the footpath will be inspected, and if appropriate, programmed for repair. Footpaths are also programmed for repair based on an annual visual inspection undertaken by Council staff, and prioritised based on the following selection criteria:

- Proximity to facilities - schools, halls, shops or sports grounds
- Safety
- Pedestrian volumes.
- Fit for Purpose.

These selection criteria are used as part of a matrix to prioritise footpaths for construction. The total priority score = Proximity (P) x Safety (S) x Pedestrian Volume (V) x Fit for Purpose (F)

Proximity to Facilities		Safety		Pedestrian Volumes		Fit for Purpose	
Description	Score	Description	Score	Description	Score	Description	Score
Right outside	5	High	50	50+ people per day	5	Yes	1
On same street	4	Medium	40	20-50 ppd	4	No – Fair	3
Main route to	2	Low	20	<20 ppd	2	No – Totally Inappropriate	5
Other	1	V. Low	10				

Maintenance of vegetation over footpaths is currently delivered through the parks and reserves contract, on a reactive basis, regular inspections are currently not carried out.

FUTURE MAINTENANCE

Based on the recent inspections, and the prioritisation matrix, $36,000 per year has been programmed for maintenance of the footpath network in the period 2021/22-2023/24. This will reduce to $20,000 per year beyond 2023/24 as the backlog of maintenance is addressed. Maintenance will be prioritised based on the criteria above.

8.10.2 RENEWALS PLAN

Footpath renewals are programmed and prioritised with maintenance repairs, utilising the approach outlined above. The difference between a maintenance repair and a renewal is not clearly defined. For the purposes of this AMP, a repair over 10m2 has been classified as a renewal, with repairs less than this being classified as maintenance.

Renewals works will be packaged to encourage suitable competition and cost efficiencies from the procurement process.

FUTURE RENEWALS

Based on the recent inspections, and the prioritisation matrix, $54,000 per year has been programmed for the renewal of the footpath network in the period 2021/22-2023/24. This will reduce to $40,000 per year beyond 2023/24 as the backlog of maintenance is addressed. Maintenance will be prioritised based on the criteria above.

8.10.3 CAPITAL/NEW WORKS AND IMPROVEMENTS PLAN

Council currently have an application for funding with the Provincial Growth Fund (PGF) to upgrade existing footpaths, or construct new footpaths in the following locations. It appears unlikely Council will be granted this funding.

- Ruataniwha footpath - replace limestone with concrete
- Whakamahia walkway - extension & replace limestone with concrete
- James Carroll walkway - replace limestone with concrete
- Install new footpath from Clyde Road to Kopu Rd along Fraser St

Council policy for footpaths is to have a footpath on at least one side of each urban street. Locations for new footpaths are selected based on the following selection criteria, similar to the procedure for maintenance and renewals:

- Proximity to facilities - schools, halls, shops or sports grounds
- Safety
- Pedestrian volumes.

These selection criteria are used as part of a matrix to prioritise footpaths for construction. The total priority score = Proximity (P) x Safety (S) x Pedestrian Volume (V)

Proximity to Facilities		Safety		Pedestrian Volumes	
Description	Score	Description	Score	Description	Score
Right outside	5	High	50	50+ people per day	5
On same street	4	Medium	40	20-50 ppd	4
Main route to	2	Low	20	<20 ppd	2
Other	1	V. Low	10		

Footpath capital/new works and improvements for the 2021/22-2023/24 period are outlined below.

Year	Road Name	ONRC	Description	Length (m)	Estimated Cost
2021/22	Fraser-Grant Street – Kopu Street	Access	New Footpath	832	$110,000.00
2022/23	Rutherford Street	Access	New Footpath	406	$55,000.00
2023/24	McLean Street	Secondary Street	New Footpath	220	$30,000.00
	Nūhaka-Ōpoutama Road	Primary Collector	New Footpath	230	$35,000.00

Footpaths and cycle paths are a relatively low cost but highly emotive subjective for the local community. While the prioritization matrix provides clear guidance on capital/new works, these decisions often impacted by political drivers. Council are trying to be proactive, but priorities from community can make it more reactive.

8.10.4 NON-ASSET SOLUTION OPTIONS

No non-asset solutions have been identified for the lifecycle management of footpaths at this stage.

8.11 PREFERRED PROGRAMME

The preferred programme based on the lifecycle management plan, prioritised by ONRC and strategic problems is included in the Section 12: Financial Summary.

9. CAR PARKING

9.1 STRATEGIC CASE LINK

9.1.1 ADDRESSING KEY NETWORK PROBLEMS

The provision of car parks does not specifically meet any of the Strategic Case problems. It does however contribute to community outcomes:

- A safe, supported and well-led community
- A strong and prosperous economy

9.1.2 DELIVERING CUSTOMER OUTCOMES

The key Customer Service Statements associated with pavements are:

- The land transport network is designed and maintained to be safe
- SAFETY – on and off-street parking facilities to ease the safe movement of passenger vehicles within the transport network.
- ACCESSIBILITY – Car parking availability within the CBD is a key factor in ensuring access to local businesses and viability of the local economy

Key ONRC CLoS delivered through the road pavements assets include:

9.2 ACTIVITIES DELIVERED

Previously the funding of the maintenance, renewals and management of carpark assets have been delivered through the Council's property budgets. These assets have now been transferred to the Transport group for management and funding.

Maintenance and renewals of carparks are delivered through the sealed network maintenance contract.

Activities delivered through the car park assets are funded fully by Council. The key activity delivered is parking.

Transport Activity	WC No.	Work Category Name	Key Function	Example Work Activities
Parking	N/A	Car park maintenance	Remedy defects	Pothole Repairs, Sweeping
	N/A	Car park resurfacing	Restore functionality & asset integrity	Chip sealing, AC surfacing (for waterproofing)
	N/A	New car parks	Safety & Accessibility	Construct new carparks

9.3 ASSET DESCRIPTION

Carpark	No. of Parks	Area (m²)
Alexandra Park (Comm. Arts)	6	220
Black Street	Unknown	733
Clyde Court	48	2749
Clyde Domain	Unknown	1044
Clyde Road Dairy	Unknown	216
College	Unknown	2887
Community Centre	Unknown	591
Dehli Street	Unknown	420
Kitchener Street Dairy	Unknown	314
Lambton Square (Mansfield)	Unknown	430
Lambton Square (Outram)	Unknown	1808
Locke Street	Unknown	470
Māhia Avenue Dairy	Unknown	280
Māhia Beach Store	Unknown	300
Māhia Beach Store (opposite)	Unknown	205
Māhanga	Unknown	959
Marine Parade	Unknown	3739
Marine Parade (opposite Rowing Club)	Unknown	350
Marine Parade Club	Unknown	351
Marine Parade Westpac	Unknown	607
McLean Street Dairy	Unknown	73
Memorial Hall	35	337
Memorial Park	Unknown	2294
Mokotahi Hall	Unknown	368
Museum	16	512
Ōpoutama (Fuel Station)	Unknown	508
Ōpoutama Lookout	Unknown	523
Pilot Hill	Unknown	589
Pohutukawa Reserve	Unknown	436
Queen Street (New World On road)	Unknown	476
Queen Street (Council)	Unknown	1500
Raupunga Toilets	Unknown	242
River Parade West	Unknown	181
Riverside Camp Ground	Unknown	1326
Standring Park (Netball Courts)	55	2160
Sunset Point Bar and Bistro	23	548

Carpark	No. of Parks	Area (m²)
Surfies Corner	Unknown	1014
Tuai Church	Unknown	165
Tuai Toilets	Unknown	214
Wairoa Cemetery (new)	Unknown	2902
Wairoa District Council	Unknown	1267
Wairoa District Council (entrance)	2	33
Old Wairoa Power	53	1966
Wairoa Star	86	1268
Whakamahia	Unknown	531
TOTAL		**40,106**

Carpark	No. of Parks	Area (m²)
Airport	unknown	1323
Lambton Square Internal	unknown	744
TOTAL		**2067**

The following carparks fall under either the airport or parks and reserves assets of Council and are maintained by the road maintenance contractor as and when required.

9.4 ASSET CRITICALITY & RISK

9.4.1 CRITICAL ASSETS

Using the asset criticality assessment process developed as part of the Wairoa District Council Service Delivery Risk Management Strategy, Car Parking assets have been assessed as having a Service Importance of 3 – Important, as shown below.

Service Area	Core Asset Group delivering Key Services	Importance Factors				Importance Score	Service Importance of Core Asset Group (Is)
		Economic	Social	Cultural	Environmental		
Land Transport	Car Parking	2	2	2	2	8	3

The Wairoa District Council Risk Management strategy recommends the criticality of specific assets is calculated by multiplying the Service importance by the functionality of the core asset group in failure, and the downtime of the asset before functionality is restored, as shown below.

$$C_a = I_s * F_a * D_a$$

Where:

C_a	*Criticality of an asset*
I_s	*Importance of the core asset groups providing service to the community*
F_a	*Functionality of core asset group providing service if the asset fails*
D_a	*Downtime of the asset before functionality is restored if failure occurs*

An asset specific criticality assessment will be undertaken go consider the functionality and downtime of each asset as part of the carparks forward works programme development.

The following carparks are currently identified by Council as being critical to providing safety and accessibility benefits to Wairoa.

- Clyde Court Carpark
- Lambton Square Carpark
- Marine Parade West Carpark

9.4.2 KEY RISKS

No high or critical risk items have been identified for Council's Car Parking assets. Several low and medium risk items have been identified, along with appropriate mitigation strategies. These risks are included in the full risk register included in the appendices, and will be reviewed regularly to ensure they are being appropriately monitored and managed.

9.5 DELIVERY

All maintenance and renewals works are completed through the sealed network maintenance contract. Work is programmed by the Council transportation team.

9.6 ASSET VALUATION

Full details of the 2020 RAMM Asset Valuation are included in Section 12.6. Previous valuations included parking assets as recorded in a spreadsheet outside of RAMM. This register included quantities of formation, pavement, surfacing, drainage, surface water channel and railings within the bounds of parking areas. The spreadsheet was recognised as out of date and incomplete. Unit rates and useful lives used for this part of the valuation were inconsistent with the RAMM valuation and were also out of date.

As per the recommendations of the previous valuation, carparking assets have now been added to RAMM. The assets have been valued according to asset type in the same way as all other assets and are now included in the totals for each component type.

9.6.1 CONFIDENCE LEVELS IN ASSET DATA

The confidence levels in asset data for carparking assets is as per the confidence level for the various components, as outlined in the previous sections

9.6.2 ECONOMIC LIFE ASSESSMENT

The useful economic life assessment for car parks in Wairoa is based on the averaged life cycle values of the various components as outlined in the previous sections.

9.7 ASSET CONDITION & REMAINING LIFE

Currently, the Council RAMM database does not contains very little condition data, or remaining useful life information. An improvement item will be added to the Improvement Plan for this.

Improvement Item - Carparks data has been added to RAMM, however there is limited data on the carpark asset age and condition. Improve inventory accuracy for assets age and condition (remaining useful life), include carparks in sealed network Forward Works Programme (FWP) inspections to ensure regular monitoring is undertaken and a carpark FWP can be developed.

9.8 ASSET CAPACITY & UTILISATION

In general, the carparks in Wairoa are currently meeting demand. Some carparks are currently underutilised, although future development of nearby facilities should see demand for these parks rise in the future.

There is a potential parking deficiency on Marine Parade West, with the construction of a new adventure playground currently underway, right next to the Wairoa Community Centre. Council have considered many options for improving parking at this location, and for the time being, opted for the status quo. The situation will be monitored and an appropriate solution found when and if necessary. There is a potential to utilise nearby carparks for large community centre events to meet demand.

Lambton Square carpark has been identified as being under capacity. The carpark is used for Junior sports at Lambton Park, and only 20 carparks approximately exist for 200 plus kids. The lack of parking leads to safety issues as parking occurs in inappropriate locations.

Clyde court is a popular central parking location and is a designated area for freedom camping. Capacity of this carpark may become a problem in future, but this will be monitored and improvements programmed as appropriate.

9.9 ASSET PERFORMANCE

The current carpark assets are meeting demand, although there is concern future demand may not be met in certain locations, this will be monitored and addressed once better understood.

9.10 LIFECYCLE PLANNING

9.10.1 OPERATIONS & MAINTENANCE PLAN

The total area of existing off-street carparks within the district, falling under the land transport area of responsibility, is 22,009m^2. Pavement condition of these non-critical assets is monitored by the contractor, consultant and Council staff and repairs are undertaken on a reactive basis.

9.10.2 RENEWALS PLAN

Some of Council's carparks have been included in the FWP driveover schedule for sealed roads so their condition can be monitored and treatements programmed as required. An improvement item has been included in this AMP to validate the carparking assets and include all sealed carparks in the FWP schedule.

9.10.3 CAPITAL/NEW WORKS AND IMPROVEMENTS PLAN

Lambton Square carpark has been identified as being under capacity, and Council will investigate upgrades if budgets allow. Clyde Court is reaching capacity and future expansion may be required. At this stage, expansion is not expected to be required in the upcoming ten-year period, but capacity will be monitored, and improvements programmed if required.

9.10.4 NON-ASSET SOLUTION OPTIONS

No non-asset solutions have been identified for the lifecycle management of car parks at this stage.

Network & Asset Management encompasses management activities; people, processes, data and systems required to manage and control the transport network and transport assets. These activities are delivered as professional services, either in-house (Council's Roading Unit) or by Council's external Professional Services provider, WSP, in specialised areas such as road design, RAMM, dTIMS and asset management.

Council's Roading Unit currently has a total of 5 staff which includes the Transport Asset Manager, Project Manager and Contract Engineers.

Other professional services, such as those required for design and delivery of renewals or new infrastructure, are provided and funded through the relevant activity classes and work categories.

10.1 STRATEGIC CASE LINK

10.1.1 ADDRESSING KEY NETWORK PROBLEMS

Primary problem contribution: Resilience & Increasing Demand

Management of emergency events and hazardous tree removal provides a direct response to the Strategic Case problem of Resilience by ensuring key life line routes and land access remains available during and after emergency events.

Network and asset management provides a response to the strategic case problem of increasing demand on the transportation network, by ensuring that safety, pavement consumption and environmental issues are addressed.

Associated with this is the more specific accessibility requirements of the route to the Rocket Lab, and so emergency works along this route will also be critical in terms of response to the Strategic Case Māhia connectivity problem, to meet increased LoS requirements. The provision of other assets and services also contribute to community outcomes:

- A safe, supported and well-led community
- A strong and prosperous economy
- A protected and health environment
- A valued and cherished culture

STRATEGIC RESPONSES

In order to make the right investment decisions to provide for the increasing demand on the rural network, our strategic responses to this problem are:

- Network safety planning & targeted improvements
- Improve condition of rural roads
- Value for money solutions & procurement

We will use the following initiatives over the next three years:

Strategic Response	Key Issue	Response Type	Response Description
Network safety planning & targeted improvements	Safety is becoming a significant issue, with Wairoa topping the list of the Communities at Risk Register (CARR) for six factors including: Overall Deaths & Serious Injuries (DSIs), Alcohol and drugs, speed, rural roads, fatigue and not wearing restraints.	Policy Approach	**Network Safety Audit** – to better understand locations with road safety issues, and target and prioritise high risk locations.
		Policy Approach	**Speed Management review and implementation** – to address speed related crashes on the network
		Adjust Programme	**Targeted Safety Improvements** – on Secondary Collector roads and sections with high crash rates and focus on corners/ bends by improving signage and width.
		Policy Approach	**Crash Reporting** – Crash Reporting of non-reported accidents included as a requirement for maintenance contractors so areas of the network that have safety deficiencies can be better identified.
Improve condition of our rural roads	Forecast predictions based on maturing age of forests in the district indicate a "Wall of Wood" will be extracted and carted over Council roads starting from 2020 for a 10 year	Demand Management	**Stakeholder Engagement** – targeted stakeholder engagement to provide a better connection with land owners to assess changes in land use impacting on demand and

Strategic Response	Key Issue	Response Type	Response Description
			transport operators, particularly forestry, to better pre-plan which routes will be requiring investment ahead of harvesting.
	Timeframe increasing demand on some roads significantly from their current heavy vehicle movements. 30-Year Demand Forecast is not based on robust data. Key inputs into this process will be gaining a better understanding of small wood lot land areas to be harvested over this period. Latest Communitrak survey (2020) shows that 55% of respondents are not very satisfied with the standard of maintenance of rural roads. Performance measures and past maintenance inputs indicate pavement consumption.	Policy Approach	**Robust Traffic Count Programme** – continuing implementation of a robust traffic counting programme to: • capture growth and monitor trends across areas of the network • obtain seasonal adjustment factors across areas of the network • collect enough data to produce traffic estimate data for the remainder of the network.
		Policy Approach	**Pavement maintenance intervention strategy** – has been developed but needs to be measured for effectiveness and further developed.
		Adjust Programme	**Targeted Pavement and Surfacing Renewals** – Target Secondary Collector roads/ sections with high maximum roughness. Review high use (forestry) roads - Tinroto, Willowflat / Putere, Ruakatere Roads. Evidence supports increased resurfacing, particularly for Secondary Collector roads.
	Environmental issues resulting from dust on high use unsealed roads	Policy Approach	**Dust Mitigation Strategy** – to address priorities and treatments for dust issues
		Adjust Levels of Service	**Dust seals** – on problems sections to ensure community health
Value for money solutions & procurement	Wairoa District Council have had a 25% increase in costs for Sealed and Unsealed Maintenance Contracts vs estimate in the 2018 procurement round. Wairoa District continues to have challenges with limited competitiveness in the local market.	Policy Approach	**Data Management Processes**: Improved data collection processes need to be implemented to inform decision making and ensure appropriate treatments and timing.
		Procurement	**Smart buying** – through packing work. Delivering more for the same cost.

10.1.2 BENEFITS OF INVESTING

The Investment Objectives that we what to achieve include:

- Improve resilience to climate change impacts
- Roads that support safer travel
- Improve access to productive land
- Affordable levels of service

MEASURING THE BENEFIT

The table on the next page outlines the specific Benefits that will result from investment, based on Waka Kotahi's Investment Benefits Framework.

Investment Objective	Benefit Cluster	Benefit	Description	Performance Measures
Improved resilience to climate change impacts GPS2020: Maintaining the network	4. Changes in impact of unplanned disruptive events on access to social and economic opportunities	4.1 Impact on system vulnerabilities and redundancies	Reducing the risk of communities not being able to access social and economic opportunities due to unexpected outages.	4.1.1 Availability of a viable alternative to high-risk and high-impact route
Roads that support safer travel GPS 2020: Road to Zero	1. Changes in user safety	1.1 Impact on social cost of deaths and serious injuries	The impact of reducing the number of deaths and serious injuries (DSIs) on the all land transport modes and their social costs.	ONRC Resilience CO1 measure – No. of journeys impacted by closure
				ONRC Resilience CO2 measure – The number of instances where road access is lost
				1.1.3 – Deaths and serious injuries
				1.1.4 (ONRC Safety CO3) - Personal risk
	3. Changes in human health	3.2 Impact of air emissions on health	Land transport air emissions that impact on human health, limited to those arising from roads and rail.	3.2.2 Ambient air quality – PM10
Improve access to productive land GPS 2020: Improving the freight network for primary producers to markets.	5. System Reliability	5.2 Network productivity and utilisation	Network productivity and utilisation is about efficient use of the land transport network. Optimising our part of the broader economic/ social system to allow broader benefits to be gained.	5.2.1 (ONRC Accessibility CO1) – Spatial coverage - freight
Affordable Level of Service GPS 2020: Maintaining the network	10. Changes in access to social and economic opportunities	10.1 Impact on user experience of the transport system	How all people experience the transport system, including people with disabilities, school children, and the elderly, and how different modes are experienced.	10.1.5 (ONRC Amenity CO1) – Smooth Travel Exposure (STE)
				ONRC Amenity CO2 – Peak Roughness
				ONRC Amenity TO1 – Roughness of the road (median and average)
				DIA PM4 – Network condition - footpaths

10.1.3 DELIVERING CUSTOMER OUTCOMES

The key Customer Service Statements associated with network and asset management are:

- The land transport network is designed and maintained to be safe
- Road users will experience a fair ride quality on a well-maintained and managed sealed road network asset
- The land transport network is managed in a manner that assists the economic development of the district
- Effects on the natural environment are minimised
- Road assets are managed prudently to ensure long term financial sustainability for current and future generations

Key ONRC CLoS delivered through the road pavements assets include:

- RESILIENCE – ensuring that customer journeys are not significantly affected by unplanned events by ensuring road access is restored as soon as possible after an event
- AMENITY – the road network kept tidy and functional by keeping vegetation controlled, graffiti removal, roadside furniture maintenance
- SAFETY – the network is safe and feels safer for customers over time

Planning and asset management functions fully contribute delivering all ONRC CLoS, but also have the KEY FUNCTION OF PROVIDING LONG TERM ACCESS ACROSS THE NETWORK, FOR THE WHOLE OF LIFE LEAST COST, this is essentially the provision of asset integrity.

10.2 ACTIVITIES DELIVERED

Other activities delivered for the management of network assets and services and their respective Waka Kotahi funding works categories are included in the Table below.

Transport Activity	WC No.	Work Category Name	Key Function	Example Work Activities
	151	Network and asset management	Planning and asset management	Maintenance contract doc prep, tender, management, inspections, condition surveys

10.3 ACTIVITY DESCRIPTION

The table below summarises the key activities included in the Network and Asset Management Group.

Activity	Key Tasks
 **Management of the road network**	• Managing activity delivery • Managing contracts • Road network inspections and field validation of proposed programmes • Managing activities with community groups • Meeting statutory responsibilities
 **Activity Management Planning**	• Regular, routine updates to the activity management plan • Approving, administering and monitoring activity management plans, policy and standards, risk and levels of service • Preparing and administering funding assistance claims, Long Term Plans (LTPs), annual plans, longer-term programmes, and communications plans and strategies • Preparing plans and strategies for the management of activities or assets, safety, the environment, projects, customer education, etc • Reporting on project feasibility, project development, contract performance, asset management systems, asset service condition and service performance, etc. • Evaluating proposed activities including data collection, outcome evaluation, assessment of risks • Routine refreshing of the asset deterioration model • Special road maintenance, renewal or improvement related studies
 **Communication and Consultation**	• Investigating and resolving public enquiries related to activity planning, investigation, design and delivery • Promotion and information activities which influence transport choices that contribute to the effectiveness and efficiency of the network • Servicing democracy, including providing customer/ratepayer interface • Consulting with affected parties
 **Asset information**	• Implementation and operation of road asset management information systems • Gathering information for activity management systems • Gathering / managing asset and service condition information
Asset information management and data collection	• Roughness and condition rating surveys • Traffic count surveys
Procurement	• Preparing contracts and evaluating tenders for works and services
 **Other Management and Reporting**	• Reporting and providing data and information to the NZ Transport Agency, Audit NZ, etc. • Undertaking financial processes, management accounting and reporting • Developing and operating land transport business support systems • Obtaining building and resource consents • Legalisation of existing road reserves

10.4 RISK MANAGEMENT

The following Critical and High-risk items have been identified for Council's network and asset management services.

Risk	Cause	Assessed Risk	Controls	Mitigation Strategies
Procurement – Lack of competition in tendering resulting in the work programme becoming unaffordable	Isolation of Wairoa District Lack of interest from contractors in tendering local contracts Inadequate procurement strategies and tendering processes Lack of consultation and engagement with contractors	High		Regular engagement with Contractors on upcoming work programmes Completion of a further procurement review/ business case for maintenance contracts to encourage competition
Contractor's are not available to complete the required work programmes	Lack of resource availability for local contractors due to high work loads Inadequate engagement with contractors for forward works programmes Lack of interest from contractors in tendering local contracts	High		Regular engagement with Contractors on upcoming work programmes Coordination of procurement with other nearby council's and Waka Kotahi Smart packaging of work to encourage multiple tenderers

10.5 DELIVERY

10.5.1 WAIROA DISTRICT COUNCIL IN-HOUSE ROADING TEAM

Wairoa District Council have an in-house team of 5 full time employees who deliver network and asset management tasks, as detailed below.

- Managing activity delivery
- Managing road maintenance & capital construction contracts
- Forward Work Programming of sealed network maintenance tasks for implementation by the Contractor
- Road network inspections and field validation of proposed programmes for the unsealed network
- Renewals forward works programming, with assistance from Consultants and Contractors.
- Managing activities with community groups
- Meeting statutory responsibilities
- Investigating and resolving public enquiries related to activity planning, investigation, design and delivery
- Promotion and information activities which influence transport choices that contribute to the effectiveness and efficiency of the network
- Servicing democracy, including providing customer/ratepayer interface
- Consulting with affected parties
- Traffic count surveys
- General and Superficial Bridge Inspections
- Footpath Condition Rating Surveys/Inspections

10.5.2 PROFESSIONAL SERVICES CONTRACT

Wairoa District Council have historically struggled to attract and retain staff capable of undertaking the required network and asset management activities. Delivery of physical works programmes have historically been a problem for Wairoa District Council due to resourcing constraints.

As a result, Wairoa District Council have engaged WSP as a professional services provider to provide technical advice and supplement in house resourcing. Ad-hoc support has been provided in the past by WSP, however this contract provides continuity and allows the two organisations to work closely together as a team to ensure delivery of future programmes. A key objective of the contract is for WSP to mentor and develop council's in-house team to deliver improved processes and outcomes for the assets.

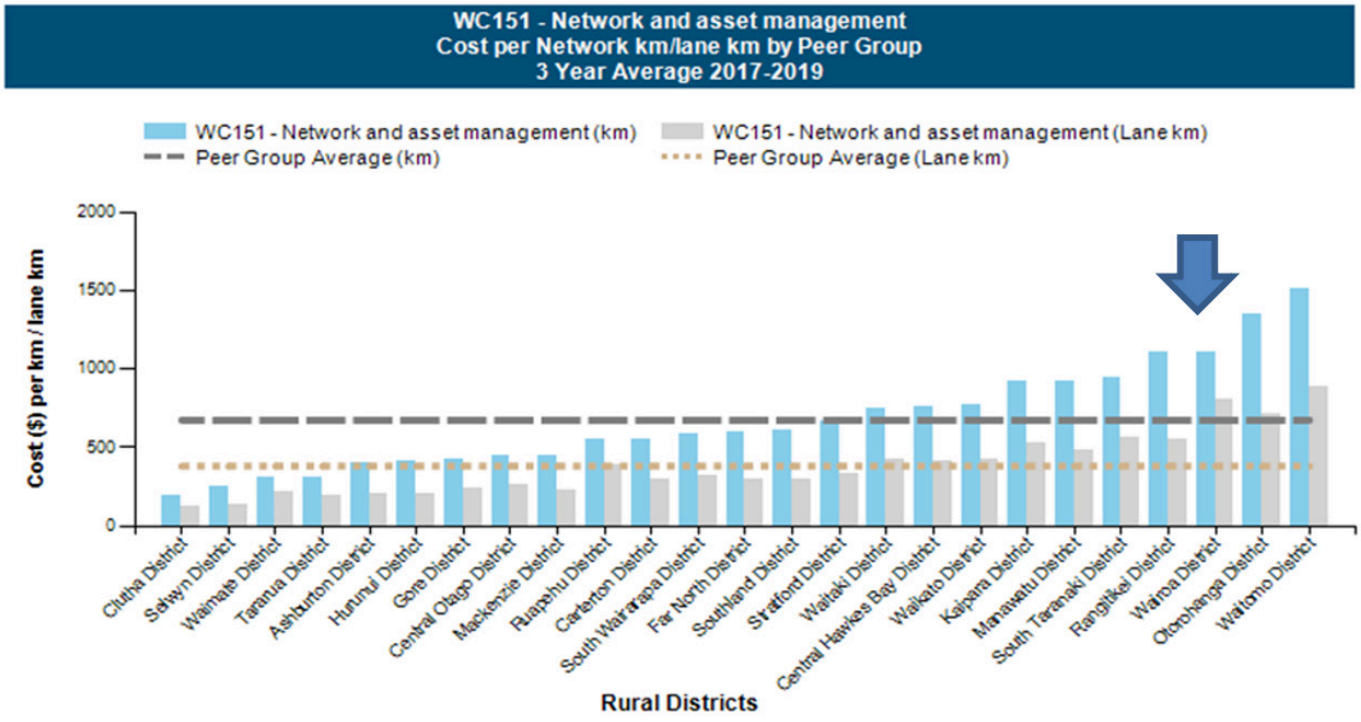
Contract No.	Name	Contract Term	Consultant	End Date
20/04	Infrastructure Professional Services	3+1+1	WSP	1st August 2025 (with extensions)

The following activities are included within the scope of the Infrastructure Professional Services Contract and are addressed under Work Category 151 in the next 3 year period. Design and other professional services associated with renewals, capital and emergency works are included under the relevant work category for the physical works.

- **Land Transport Activity Management Plan Updates** - This AMP and associated documents are updated triennially in line with Waka Kotahi three-yearly funding block requirements and legislated long term planning requirements.
- **Procurement Strategy Updates** - The Procurement Strategy is updated at least every 3 years to ensure that it complies with Council's organisation-wide procurement policies, as well as Waka Kotahi and legislative requirements. As procurement is a key risk and challenge for Council, a review will be undertaken prior to maintenance contract extension discussions to identify opportunities for delivering cost savings for Council. A full procurement review, specific to the Land Transport Maintenance Contracts will be undertaken prior to the re-tendering of these contracts with the aim of avoiding the single tenderer scenario of the last procurement round.
- **Transport Asset Management Advice** – General transportation asset management advice and support to the Council's in-house team, not specifically listed elsewhere in this list.
- **Network Safety Inspection** – A full network safety inspection has been planned for Year 1 to identify and prioritise safety deficiencies on Council's network and address the poor safety statistics being achieved.
- **Speed Management Review** – Related to the network safety inspection is a full network speed management review, which will identify potential speed limit changes to deliver improved road safety outcomes, particularly around schools, marae and other facilities. Council's bylaws will be updated to reflect any speed limit changes.
- **Roughness Surveys** – Are completed annually on the Council's sealed network utilising a response meter roughness vehicle. Roughness is measured at 20m intervals in each direction. Roughness trends are analysed and reported, and provide a good indication of the effectiveness of the maintenance and renewals programmes, and can be used to identify problem areas.
- **Pavement Condition Rating** - These are to be completed every 2 years and provide Council with information on a sample of the sealed road network. A Condition Rating Report from the surveys is completed which gives Council a snapshot of the condition of the network and identifies trends in rutting, shoving, scabbing, flushing, various forms of cracking, potholes and edge break.
- **Treatment Selection Algorithm (TSA)** - This an algorithm in RAMM which uses the information from the condition rating and roughness surveys and produces candidate maintenance and renewal programmes for the year.
- **Pavement Forward Works Programme Inputs** – Annual network drive overs of Council's network are completed to review and confirm the appropriateness of the renewals forward works programme. WSP provide technical inputs and RAMM support to the drive overs as required.
- **dTIMS Modelling** - Pavement performance modelling is undertaken 3-yearly. This modelling is an important exercise to support investment decisions as the output includes the impact of different 30-year financial scenarios on overall performance of the asset and by ONRC classification.
- **Road Asset Valuation** - Every 3 years a full asset valuation is completed with updated rates. This gives an updated replacement cost of all the assets in the district, the depreciated replacement cost and the annual depreciation. The annual depreciation is used to calculate the annual council rates requirement. Each year an interim valuation is completed so that the finance department and Audit NZ are able to assess whether there is a significant movement or an update in rates is required.
- **Principal and Special Bridge Inspections** - The bridge stock is subject to planned inspections on a three-year cycle. Timber bridges and posted bridges are inspected annually. The inspection policy broadly follows Waka Kotahi Policy S6: 2014. Council staff undertake routine and superficial inspections, however consultants undertake Principal and Special bridge inspections to provide a higher level of expertise. Where more frequent inspections are considered necessary these are adopted on a case-by-case basis.
- **Retaining Wall and Other Structures Inspections** – Council currently has very limited understanding of the condition of their retaining and other structures. Due to resourcing constraints, inspections have not been undertaken for many years.
- **Bridge/Structures Asset Management** – Other bridge asset management functions include general technical advice, overweight and HPMV permitting, forward works programming, capacity assessments, seismic and resilience assessments and bridge RAMM data management. Renewals, maintenance and capital works designs are included under the relevant work category for the physical works.
- **RAMM Database Management** – WSP are responsible for management of Council's RAMM database. This includes inventory updates, data validation and improvement, QA of Contractors inputs and other general database management functions. Various improvements to Council's RAMM data have been identified in preparation of this AMP.
- **AWPT Assessment & Pavement Design** – Sites identified for Area Wide Pavement Treatment (AWPT) in the Sealed Renewals Forward Works Programme will be assessed, and Net Present Value calculations to confirm renewal is the appropriate treatment. A pavement design report will be included to ensure a robust pavement is constructed for the lowest whole of life cost to Council.

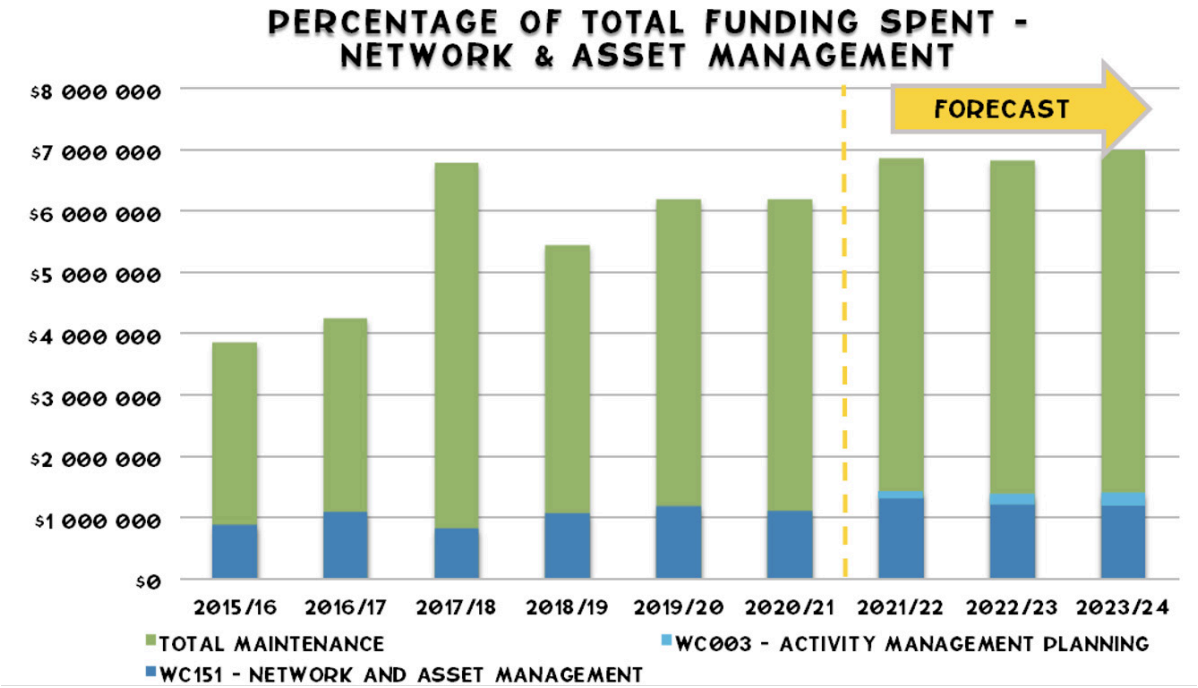
10.6 SERVICE PERFORMANCE

The chart on the bottom right represents Network and Asset Management, Cost per Network km/lane km by Peer Group for the period 2017-2019. Wairoa District Council is above the peer group average. As previously mentioned, this is primarily due to difficulties for Council in attracting and retaining staff in house. Council therefore rely on consultants to provide additional resourcing for many network and asset management tasks.



10.7 LIFECYCLE PLANNING

The graph below shows the percentage of the total maintenance budget spent on Works Category 151, Network and Asset Management. An increase in the funding request for WC151, in order to address safety deficiencies on the network, and implement policy approach changes to minimise the physical works costs



10.7.1 OPERATIONS PLAN

The following table provides a detailed breakdown of the tasks and expenditure included in the next 3-year period for Work Category 151.

Item/Task	Comment	2021/22	2022/23	2023/24
Infrastructure Business Unit	Includes all network inspections, data collection for ONRC PMs, traffic count programme implementation	$650,000	$650,000	$650,000
Asset management support	General Advice/ Management	$80,000	$60,000	$70,000
RAMM Management	General RAMM database management and data improvements to better inform next AMP	$70,000	$70,000	$70,000
Roughness & condition surveys	Condition rating every 3 yrs-$23,500 and Roughness annually-$12500	$12,500	$36,000	$12,500
Drainage Inspections/ FWP/Catchment Reviews	Produce a FWP. Investigate catchments etc. Drainage network inspections	$40,000	$20,000	$20,000
Roadroid subscription		$5,000	$5,000	$5,000
Sealed and Unsealed FWP	Renewals forward work programme development and maintenance	$20,000	$20,000	$20,000
Annual Rehab Reports	Design and testing	$20,000	$20,000	$20,000
WC114 maintenance Walls + Bridges	$10k per contract - allow for one contract per year (15% of both)	$20,000	$20,000	$20,000
Bridge condition inspections		$45,000	$40,000	$50,000
Special needs Inspections	Abseil Inspection	$10,000		
Input of inspection Data	Includes inputting of bridge and retaining wall inspections into RAMM - based on 100 Principal inspections only.	$10,000	$10,000	$10,000
Retaining walls inspections	Support Wairoa District Council in completing retaining wall inspections to better understand condition	$20,000	$20,000	$20,000
RAMM Validaiton	One off item to confirm RAMM information for bridge structure and idetify issues based on revised information from assessments			$25,000
Bridge capacity assessments	Undertake capacity assessments based on predicted forestry routes.	$75,000	$50,000	
General Advice	Generic Bridge Questions from Mike	$25,000	$25,000	$25,000
Permitting	ongoing permitting technical support	$10,000	$10,000	$10,000
Project Management	Delivery of fortnightly meetings, update reports, health and safety, forward works	$15,000	$15,000	$15,000
Forward works planning	Forward works planning	$10,000	$10,000	$10,000

Item/Task	Comment	2021/22	2022/23	2023/24
Bridge seismic assessments/resilience	Undertake a seismic assessment of a key high priority structure to identify maintenance works that can be completed	$50,000		
RAMM Management	Ongoing database updates in RAMM - confirm with brendon if this does not have a fixed fee alrready inthe new contract.	$5,000	$5,000	$5,000
Road legalisation		$15,000	$15,000	$15,000
Consultancy - Other services		$50,000	$50,000	$50,000

The following table provides a detailed breakdown of the tasks and expenditure included in the next 3-year period for Work Category 003.

Item/Task	Comment	2021/22	2022/23	2023/24
Asset management support	General Advice/ Management	$20,000	$41,000	$30,000
dTIMS modelling	Tri-annual modelling			$20,000
Procurement review, maintenance contract preparation & tendering	Review and retender every five years for network maintenance contracts		$100,000	
Network Safety Inspection	Inspect network to prioritise safety issues & treatments	$40,000		
Speed Management Review	Review speed limits and update bylaws	$40,000		
LTAMP Update	No AMP WC in TIO spreadsheet, so have left in here			$150,000
Valuations	Full land transport assets valuation		$16,000	

10.7.2 RENEWAL/CAPITAL/NEW WORKS AND IMPROVEMENTS PLAN

Network and asset management functions including design and procurement for specific renewal and capital improvements projects are included in the relevant work category with the physical works.

10.7.3 NON-ASSET SOLUTION OPTIONS

The majority of network and asset management costs provide non-asset solutions.

10.8 PREFERRED PROGRAMME

The preferred programme based on the lifecycle management plan, prioritised by ONRC and strategic problems is included in the Section 12: Financial Summary.

11. OTHER ASSETS & SERVICES

Other services and activities completed in order to deliver the land transportation activity include:

- ENVIRONMENTAL MAINTENANCE
  - Vegetation and road berms and the associated operational maintenance of these including mowing and weed spraying
  - Hazardous tree removal and stabilization planting
  - Small slip removal
- EMERGENCY WORKS AND MINOR EVENTS
  - Management of emergency events
  - Initial response during emergency events to ensure minimal disruption to traffic
  - Reinstatement of full road width, restoration of road to previous condition
- STREETSCAPES AND ROADSIDE FURNITURE
  - Streetscapes operational maintenance including sweeping and cleaning (e.g. litter and graffiti removal)
  - Roadside furniture including bollards, crossings and island areas
  - Level Crossings

11.1 STRATEGIC CASE LINK

11.1.1 ADDRESSING KEY NETWORK PROBLEMS

Primary problem contribution: Resilience & Increasing Demand

Management of emergency events and hazardous tree removal provides a direct response to the Strategic Case problem of

Resilience by ensuring key life line routes and land access remains available during and after emergency events.

Associated with this is the more specific accessibility requirements of the route to the Rocket Lab, and so emergency works along this route will also be critical in terms of response to the Strategic Case Māhia connectivity problem, to meet increased LoS requirements.

The provision of other assets and services also contribute to community outcomes:

- An environment that is appreciated, protected and sustained for future generations
- A safe and integrated transport system
- Safe and accessible recreational facilities
- A strong, prosperous and thriving economy

STRATEGIC RESPONSES

In order to make the right investment decisions to provide for the increasing demand on the rural network, our strategic responses to this problem are:

- Network safety planning & targeted improvements
- Improve condition of rural roads
- Value for money solutions & procurement

We will use the following initiatives over the next three years:

Strategic Response	Key Issue	Response Type	Response Description
Stabilise key routes	**Unstable Riverbanks** – Rivers adjacent to the road have contributed to dropouts on key routes, subsequent to high rainfall and storm events which cause significant runoff.	Risk Based Approach	**Riverbank Stabilisation on Key Routes** – provision will be made for further investigation and physical works to complete riverbank stabilization through planting works.
	Hazardous Trees – Although trees play in an important part in stabilising the Wairoa's poor soils, they also present a risk during storm events. Environmental issues resulting from dust on high use unsealed roads	Risk Based Approach	**Hazardous Tree Removal Programme** – to target removal of hazardous trees from key lifeline and forestry routes, to reduce the risk of road closure.
		Policy Approach	**Dust Mitigation Strategy** – to address priorities and treatments for dust issues
		Adjust Levels of Service	**Dust seals** – on problems sections to ensure community health

11.1.2 BENEFITS OF INVESTING

The Investment Objectives that we what to achieve include:

- Improve resilience to climate change impacts
- Roads that support safer travel
- Improve access to productive land
- Affordable levels of service

MEASURING THE BENEFIT

The table below outlines the specific Benefits that will result from investment, based on Waka Kotahi's Investment Benefits Framework.

Investment Objective	Benefit Cluster	Benefit	Description	Performance Measures
Improved resilience to climate change impacts GPS2020: Maintaining the network	4. Changes in impact of unplanned disruptive events on access to social and economic opportunities	4.1 Impact on system vulnerabilities and redundancies	Reducing the risk of communities not being able to access social and economic opportunities due to unexpected outages.	4.1.1 Availability of a viable alternative to high-risk and high-impact route
Roads that support safer travel GPS 2020: Road to Zero	1. Changes in user safety	1.1 Impact on social cost of deaths and serious injuries	The impact of reducing the number of deaths and serious injuries (DSIs) on the all land transport modes and their social costs.	ONRC Resilience CO1 measure – No. of journeys impacted by closure
				ONRC Resilience CO2 measure – The number of instances where road access is lost
				1.1.3 – Deaths and serious injuries
				1.1.4 (ONRC Safety CO3) - Personal risk

11.1.3 DELIVERING CUSTOMER OUTCOMES

The key Customer Service Statements associated with pavements are:

- The land transport network is designed and maintained to be safe
- Road users will experience a fair ride quality on a well-maintained and managed sealed road network asset
- The land transport network is managed in a manner that assists the economic development of the district
- Effects on the natural environment are minimised
- Road assets are managed prudently to ensure long term financial sustainability for current and future generations

Key ONRC CLoS delivered through the other assets and services assets include:

- RESILIENCE – ensuring that customer journeys are not significantly affected by unplanned events by ensuring road access is restored as soon as possible after an event
- AMENITY – the road network kept tidy and functional by keeping vegetation controlled, graffiti removal, roadside furniture maintenance
- SAFETY – the network is safe and feels safer for customers over time

Planning and asset management functions fully contribute delivering all ONRC CLoS, but also have the KEY FUNCTION OF PROVIDING LONG TERM ACCESS ACROSS THE NETWORK, FOR THE WHOLE OF LIFE LEAST COST, this is essentially the provision of asset integrity.

11.2 ACTIVITIES DELIVERED

Other activities delivered for the management of network assets and services and their respective Waka Kotahi funding works categories are included in the Table below.

Transport Activity	WC No.	Work Category Name	Key Function	Example Work Activities
Movement of people & goods	121	Environmental maintenance	Remedy defects	Vege mowing/clearing/spraying, litter, graffiti and abandoned vehicle removal, carriageway sweeping Hazardous tree removal
	123	Operational traffic management	Restore functionality	Incident response, crash traffic management
	131	Level Crossing Warning Devices	Maintenance & Renewal	Maintenance & Renewal of barriers & other warning devices
	140	Minor Events	Restore functionality	Slip removal (<$100k)
	141	Emergency works	Restore functionality	Large slip/s initial response, traffic management, clean-up, protection

Transport Activity	WC No.	Work Category Name	Key Function	Example Work Activities
	221	Environmental renewals	Improve functionality	Rock fall fences
	341	Improvements - Resilience	Resilience	River erosion protection planting

11.3 ASSET DESCRIPTION

11.3.1 VEGETATION, BERMS AND STREETSCAPES

There are data fields available in the RAMM database to store inventory information regarding the area of road berms and the areas that have vegetation control undertaken as a maintenance activity. The data currently available within Council's RAMM database is summarised in the table below.

Berm Type	Urban Length (m)	Rural Length (m)
Level/grass	60,326	534
Bank/grass	11,974	245
Bank/cover	26	
TOTAL	**72,326**	**779**

11.3.2 LEVEL CROSSINGS

Although railway crossings form part of the KiwiRail network, maintenance of the pavement within 5m, either side of the tracks, and railway crossing signs and poles are now the responsibility of Council. KiwiRail is responsible for the provision and maintenance of the level crossing warning devices at the Ormond Drive crossing in Ōpoutama. Council is responsible for all other associated approach signage and pavement markings to all crossings.

When working within 5m from the tracks, Council contractors must contract KiwiRail (on 0800 801 070).

In the long term, unsealed road crossings are identified for sealing to improve safety through provision of subsequent road markings and delineation. This will also improve safety for the grader operators endeavouring to maintain smooth transition between road and rail crossing, where they often span the tracks of crossings with no form of warning devices present.

Road Name	RP	Surface	Lights	Bells	Barrier Arm	Signage	Limit Lines
Airport Road	0.02	Sealed	✗	✗	✗	✓	✓
Awamate Road	1.986	Sealed	✗	✗	✗	✓	✓
Blucks Pit	0.721	Unsealed	✗	✗	✗	✓	✗
Carroll Street (SH38)	0.735	(Waka Kotahi)	✓	✓	✗	✗	✓
Christy Lane – BEYOND FORMED RD	0.866	Unsealed	✗	✗	✗	✗	✗
Hurumua Road West	0.311	Unsealed	✗	✗	✗	✓	✗
Iwitea Road	0.72	Sealed	✗	✗	✗	✓	✓
Kiwi Road	2.125	Unsealed	✗	✗	✗	✓	✗
Kopuawhara Road	2.519	Unsealed	✗	✗	✗	✓	✗
Kotemaori Settlement Rd – beyond formed rd	0.275	Unsealed	✗	✗	✗	✗	✗
Māhanga Road	2.841	Sealed	✗	✗	✗	✓	✓
Ohuia Road	0.821	Unsealed	✗	✗	✗	✗	✗

Road Name	RP	Surface	Lights	Bells	Barrier Arm	Signage	Limit Lines
Rongomaiwahine Drive	0.031	Sealed	✓	✓	✗	✗	✓
Poututu Road	0.03	Unsealed	✗	✗	✗	✓	✗
Putere Road	0.034	Sealed	✗	✗	✗	✓	✓
Railway Road	1.792	Sealed & Unsealed	✗	✗	✗	✓	✗
Riripeti Street	0.444	Sealed & Unsealed	✗	✗	✗	✓	✓ Decreasing RP only
Spooners Road	0.02	Unsealed	✗	✗	✗	✓	✗
Waihua Valley Road	0.02	Sealed & Unsealed	✗	✗	✗	✓	✗
Waikokopu Road	0.698	Sealed	✗	✗	✗	✓	✗
Whakaki Beach Road	0.105	Unsealed	✗	✗	✗	✓	✗
Whakaki Lagoon Road	0.25	Unsealed	✗	✗	✗	✓	✗

11.4 ASSET CRITICALITY & RISK

No high or critical risk items have been identified for Council's other ser assets. Several low and medium risk items have been identified, along with appropriate mitigation strategies. These risks are included in the full risk register included in the appendices, and will be reviewed regularly to ensure they are being appropriately monitored and managed.

11.5 DELIVERY

11.5.1 DELIVERY CONTRACTS

Key contracts that include for the delivery of other assets and services are detailed below.

Contract No.	Name	Contract Term	Contractor	End Date
18/01	Sealed Road Network Maintenance	3+1+1	Fulton Hogan	1st October 2023
18/02	Unsealed Road Network Maintenance	3+1+1	Quality Roading and Services (Wairoa) Ltd	1st March 2024
18/08	Street Cleaning	3+1+1	T.Rob Contracting Ltd	1st October 2021
18/05	Wairoa Reserves Maintenance	3+1+1	WP & JM Halkett Partnership	1st October 2021
20/04	Contract for Infrastructure Professional Services	3+1+1	WSP New Zealand Ltd	31 July 2025

All contracts are up for renewal prior to the start of the 2018/19-2020/21 period. Details of specific contract requirements are included below.

ENVIRONMENTAL MAINTENANCE

Vegetation control is currently completed through the unsealed roads maintenance contract on all roads (sealed and unsealed). It is completed as a performance based activity and paid for by LS each month.

Hazardous tree removal is completed under annual contracts by qualified arborists.

EMERGENCY WORKS AND MINOR EVENTS

All emergency response is currently completed under the appropriate sealed or unsealed network maintenance contract. Work is completed using dayworks schedule of rates.

STREETSCAPES AND ROADSIDE FURNITURE

Street cleaning is completed through the Wairoa Township Street cleaning contract and includes sweeping and cleaning of all urban streets and footpaths, as well as litter and graffiti removal. As the urban network is relatively small, there is no specific contract for the maintenance of roadside furniture and level crossings. These are handled as dayworks through the network maintenance contract.

11.6 ASSET & SERVICE PERFORMANCE

As asset condition and remaining life is generally not applicable for these other assets and services as they are more operationally focussed. therefore, performance is measured using the data and performance measures outlined below.

ROAD CLOSURES

Wairoa District Council maintains a closure database, recording the location, cause and date of closures back to 2013.

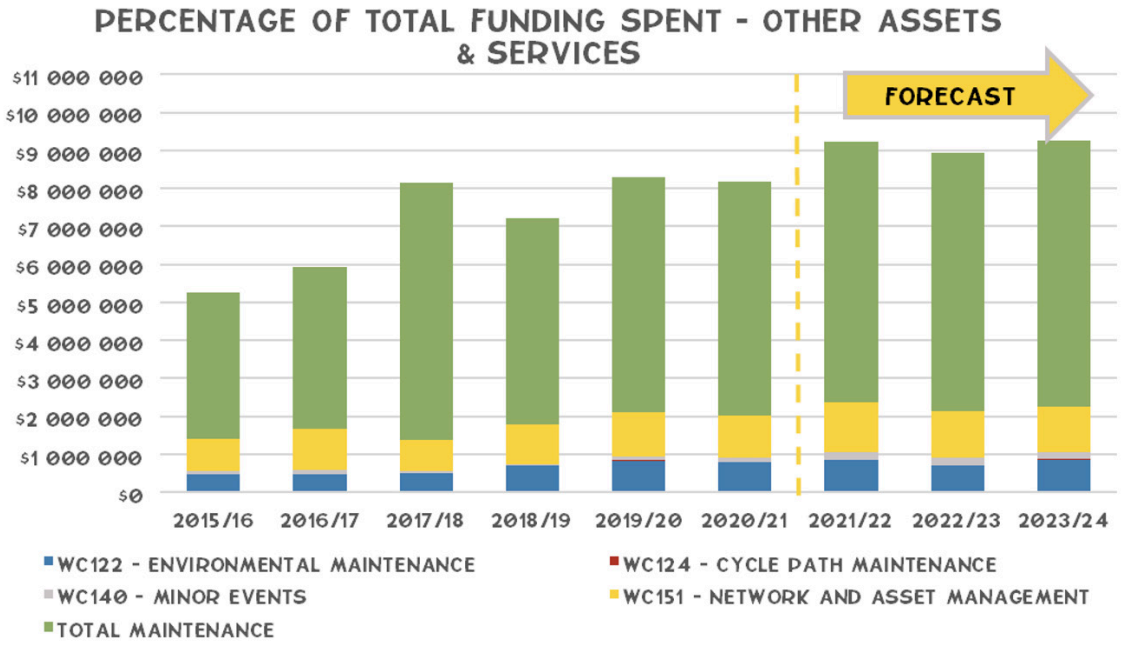
There are a significant number of road closures impacting on journeys each year. Significant weather events can severely impact this. An example of this was the 21/22 September 2015 storm event which results in 57 individual road closures over two-day period, due to slips and trees on road. Road closure data over the period 2013 to 2016 shows that 67% of road closures over this period were due to trees falling on the road during storm events. Other significant causes of road closure are slips/debris (24%) and Flooding (7%).

Trees play an important part in stabilisation of Wairoa's poor soils, but during storm events become hazardous to road users and cause road closure delays, particularly on lower trafficked ONRC Access and Low Volume roads.

Unfortunately, the duration of the closure is not recorded in the closure database. Assuming each closure is, on average, one day in duration, and using AADT and % Heavy Vehicle volumes from RAMM, the number of vehicles and heavy vehicles affected by road closures in the period 2016-2016 can be calculated. Over the 4-year period 2013 – 2016, a total of 25,645 vehicles were impacted by road closures, 4,749 of those were heavy vehicles.

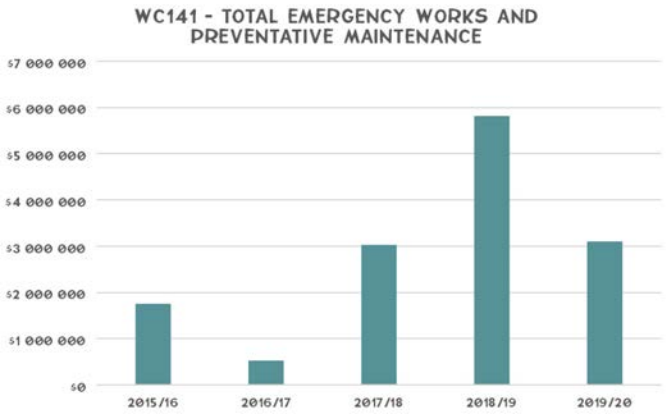
11.7 LIFECYCLE PLANNING

Lifecycle planning for these activities is less asset based and more services focussed.



EMERGENCY WORKS & MINOR EVENTS

Emergency works and minor events cannot be included in the lifecycle management plan in terms of forecasting expenditure. However, the graph below shows the costs associated with emergency works and preventive maintenance. This shows a significant decrease over the last five years, but this is very dependent on weather related and natural events. Wairoa is very susceptible to these sort of events.



11.7.1 OPERATIONS & MAINTENANCE PLAN

VEGETATION CONTROL

Vegetation control is undertaken by the unsealed maintenance contractor (for the sealed and unsealed networks). The programme is cyclic and generally set by the contractor.

HAZARDOUS TREE REMOVAL PROGRAMME

This programme provides one of Council's strategic responses to the problem of resilience and provision of access across the network. Although trees play in an important part in stabilizing the Wairoa's poor soils, they also present a risk during storm events. A hazardous tree removal programme targets removal of hazardous trees from key lifeline and forestry routes, to reduce the risk of road closure.
The hazardous tree removal programme has been underway over the last two years, with a plan to complete a further $150k of tree removal per year over the two years 2018/19, 2019/20.

EMERGENCY WORKS

While it is impossible to predict the frequency and scale of emergency events, Council have made allowance in their financial projections for emergency works, to ensure Council can fund their share of the emergency works reinstatement if required. Allowance has been made for operational emergency event reinstatement to cover the initial event response, as well as allowance for renewals and capital emergency works. These items are included as provisional items in the financial projections table in Section 12 – Financial Summary.

11.7.2 RENEWALS PLAN

No major renewal works are planned for the Other Assets & Services group.

As per the operations and maintenance plan, Council have made allowance for emergency works renewals that may be required. This allowance has been included as a Provisional Item in the financial projections' tables in Section 12 – Financial Summary.

11.7.3 CAPITAL/NEW WORKS AND IMPROVEMENTS PLAN

All other assets and services related capital/new works and improvements for the 2018/19-2020/21 period are included in the Low Cost Low Risk Improvement WC 341 and are outlined below.

Activity	Brief Scope	ONRC	Problem	Main Benefit	Outcome Class
River and coastal erosion protection	Environmental Action – Planting of Manuka, Rock Rip-Rap, Culvert outlet improvements	Various	Riverbank and coastal erosion on key routes causing dropouts and affecting resilience	Resilience	Network performance & capability

The financial outcomes from investing in these projects which will be included in WC 341 are shown below.

Improvement Project Name	2018/19 Cost ($000)	2019/20 Cost ($000)	2020/21 Cost ($000)
River & Coastal erosion protection	90	90	90
TOTAL	**$90**	**$90**	**$90**

As per the operations and maintenance and renewals plans, Council have made allowance for emergency works renewals that may be required. This allowance has been included as a Provisional Item in the financial projections' tables in Section 12 – Financial Summary.

11.7.4 NON-ASSET SOLUTION OPTIONS

A lot of the cost for network and asset management is covered under non-asset solutions. Also link back to strategic initiatives in section 22.1.1.

11.8 PREFERRED PROGRAMME

The preferred programme based on the lifecycle management plan, prioritised by ONRC and strategic problems is included in the Section 12: Financial Summary.

12. FINANCIAL SUMMARY

12.1 INTRODUCTION

This section contains the financial requirements resulting from all the information presented in previous sections. It defines the different cost areas (maintenance/operations, renewals and capital/new works) and details the expected expenditure against each.

Refer to the "Introduction to Asset Management Plans 2017" for details on Council's approach to establishing the long term financial strategy for Council's numerous services.

12.2 HOW THE TRANSPORT ACTIVITY IS FUNDED

Activities carried out on the land transport network are funded by central government (via Waka Kotahi) and through local rates share. Council's general ledger has these set up under the following three main categories:

- Roading Subsidised (RS)
- Roading Non-subsidised (RN)
- Parking (PA)

Waka Kotahi's funding share is called the financial assistance rate (FAR) and is currently 75%. The district's community funds the balance of the budget costs (e.g. 30%-25%) through its local rates share.

Exceptions to this base FAR include SH38 and SP38; these are 100% funded until 2023; thereafter Waka Kotahi are planning to transition SP 38 to Council and then these parts of the roading network will also be funded at the relevant base FAR (subject to the agreed negotiation of revocation of highway and special purpose status).

An additional exception to the base FAR is emergency works that exceed a cumulative annual total of $440,000 per annum. Costs up to this figure will be funded at base FAR. Any costs incurred over this threshold will have an additional 20% FAR applied (i.e. in 2021/22 this would be 75% base FAR + 20% = 95% maximum emergency funding FAR). In the last 3 years, Council has spent in excess of $3 million per year on flood damage restoration works.

Works required beyond the immediate road corridor to achieve effective drainage etc, provide public parking and/or facilitate alternative non-motorised user access, do not typically qualify for central government funding. Such activities are provided for under budgets allocated in roading non-subsidised and parking funding plans.

Council may approach other parties for contributions from other funding sources. If stakeholders have a specific demand for sealing a road frontage (e.g. for dust nuisance), this treatment can be considered for elevated prioritisation if the ratepayers' share (i.e. base FAR) is 'privately' funded. One such example is the Ruapapa Road section sealed from RP 2.7 to 3.8 due to the adjacent landowner's contribution. Other scenarios include dedicated forestry routes (e.g. Te Kahu Road and Kokohu Road) where a cost-share scenario to resolve road maintenance and impacts on adjacent residences can provide mutual long term benefits.

12.2.1 COMMUNITIES ABILITY TO PAY

The high deprivation index in some areas of the district highlights the potential for these communities to have difficulty in paying for publicly provided systems, both in terms of capital works and maintaining existing facilities to their intended standards. This could be a particular issue in more isolated communities where isolation and the size of community can increase costs.

If the population continues to decline, Council may need to reduce service provision in some areas and consequently consider alternative methods of managing services in those communities.

12.2.2 LAND TRANSPORT FEES AND CHARGES

The only user charges associated with the land transport asset are the on-charging of actual costs where an external consultant is used to process permits for working in the roads. These can be either corridor access requests or overweight permits. Applicants are made aware at the time they apply for a permit that costs will be incurred and the charges are invoiced to the customer once Council is satisfied the permit is completed.

Council may consider developing a financial contributions policy to ensure the cost of development rests with the developer and does not become a burden on existing ratepayers. This is required across all assets and land transport will form one part of the whole. Due to low development in the district, this is currently a low priority.

12.3 HISTORICAL FINANCIAL DATA

Records of expenditure from Council are available. The following historical information has been extracted from Council's financial systems. Historic expenditure graph – subsidised, non-subsidised and parking – by maintenance, renewals and improvements.

Note: Costs are inclusive of:

- fixed costs: insurance, rates and debt servicing
- depreciation: depreciation of the asset
- overhead costs: corporate and engineering overheads, asset management systems
- operations: routine maintenance such as road marking
- maintenance: expenditure on maintaining the assets
- capital/renewal: expenditure on creation of new asset and/or the renewal of an existing asset to the same service standard as existed (this does not account for residual value of the asset that was replaced).

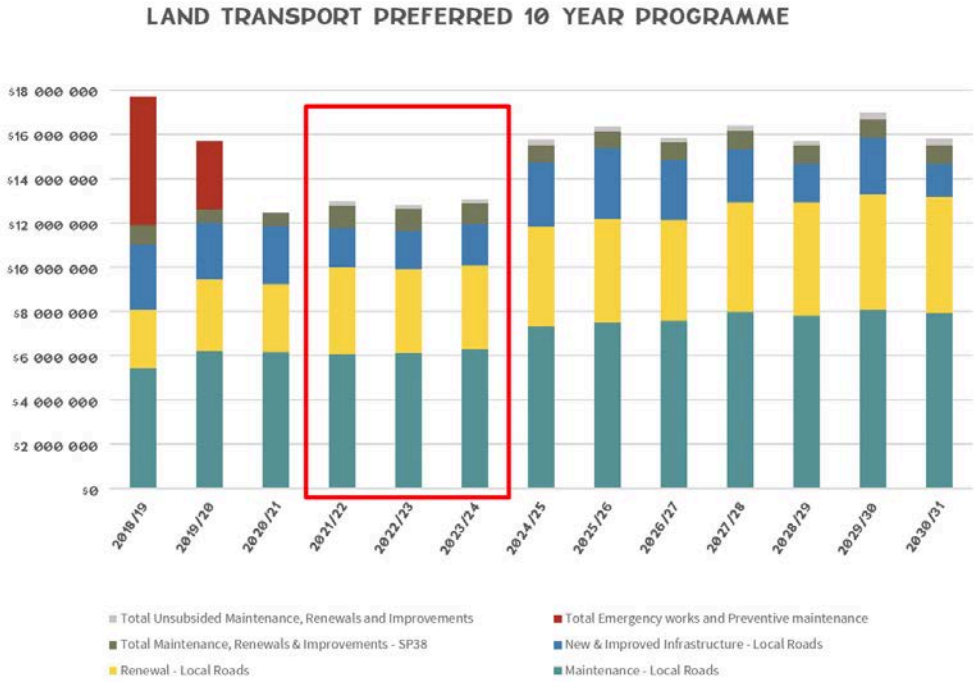
12.4 FINANCIAL PROJECTIONS

This AMP is used to provide a framework for financial decision making that links to the LTP and other Council strategic documents. With the introduction of ONRC, future funding needs to be targeted to provide appropriate LoS based on the ONRC category and general road use. The financial projections included in this AMP are focussed on achieving national consistency by ONRC, while meeting our own customer requirements within the strategic context outlined in the Strategic Case.

The distinction between the different types of works for the purposes of this AMP can be defined as follows.

- Maintenance (including operations) (OPEX) – works to maintain the asset such that its average ability to deliver a service remains relatively constant.
- Renewals (CAPEX RENEWALS) – works to restore or replace an existing asset such that its ability to provide its expected LoS is reinstated.
- Capital – works on new or existing assets that increase the LoS beyond the current LoS due to demand requirements or performance issues.

The current ten-year financial plan is included in the appendices and is summarised in this Section. This shows the annual expenditure to be relatively constant over the 10 year period.



The table below shows the subsidised funding requirements for the 2021-24 NLTP, and the change in the requirements from the 2018-21 period.

Programme Component	Description	2021-24 NLTP Funding Requirement	Change from 2018-21 Period
Operations & Maintenance	Increased investment required above that approved for the 2018-21 NLTP to meet increased maintenance contract costs, as a result of re-tendering the contracts and provide additional emphasis on drainage and unsealed roads. This will ensure a safe and fit for purpose transportation network to meet customer expectations and to prevent network deteriorating to unacceptable condition. Through the maintenance work category 151 and activity management work category 003 we have allowed for the following asset management initiatives: • Network wide safety audit • Asset condition inspections • Additional bridge surveys	$18.5M or $8,165/ km/yr	Increase of 4%
Renewals	Increased investment is required to maintain a safe and fit for purpose transportation network to meet customer expectations. The increases include additional proactive drainage renewals to provide network resilience, increased surfacing renewals to catch up on a historic backlog and increased traffic services renewals to address safety issues.	$11.4M or $4,498/ km/yr	Increase of 27%
Capital Improvement	Low Cost-Low Risk improvement initiatives to address safety and bridge capacity concerns to expand High Productivity Motor Vehicle (HPMV) access to the network.	$5.4M or $2,127/ km/yr	Decrease of 34%
Total Budget		**$35.3M or $13,937/ km/yr**	**Increase of 1%**

12.4.1 MAINTENANCE AND OPERATIONS (OPEX)

Table below shows the planned maintenance and operations expenditure for both unsubsidised and subsidised activities for the next 10 years.

Work Category/Activity		10 Year Budget ($000)				
		18/19	19/20	20/21	21/22	22/23
Subsidised Opex						
003	**Activity Management Plans**			**100**	**100**	**158**
	LTAMP Update				-	-
	Network Safety Inspection				40	-
	Procurement Review, contract prep & tendering				-	100
	Speed Management Review				40	-
	dTIMS Modelling				-	-
	Valuations				-	16
	General Activity Management Planning				20	42
111	**Sealed pavement maintenance**	**717**	**759**	**759**	**812**	**838**
	Pavement Repairs				480	505
	Pre-reseal repairs				302	303
	Shoulder Maintenance				30	30
112	**Unsealed pavement maintenance**	**1,579**	**2,048**	**2,048**	**1,750**	**1,813**
	Maintenance Metalling, Grading, Potholes & General Maintenance				1,750	1,813
113	**Routine drainage maintenance**	**994**	**745**	**745**	**662**	**667**
	Sealed Roads Drainage Maintenance				126	128
	Unsealed Roads Drainage Maintenance				452	452
	Urban Care Maintenance				85	85
114	**Structures maintenance**	**35**	**200**	**311**	**243**	**245**
	Bridge Maintenance				200	202
	Other Structures Maintenance				43	43
121	**Environmental maintenance**	**700**	**819**	**800**	**745**	**702**
	Vegetation Control				695	702
	Hazardous Tree Removal				50	-
122	**Traffic services maintenance**	**341**	**322**	**307**	**350**	**392**
	Signs Maintenance				140	142
	Pavement Marking				50	100
	Street Lighting				160	150
123	**Operational traffic management**	**-**	**-**	**-**	**-**	**-**
124	**Cycle path maintenance**	**5**	**20**	**8**	**9**	**9**
125	**Footpath Maintenance**	**-**	**-**	**-**	**52**	**53**
	Footpath Maintenance				36	37
	Routine Cleaning				6	6
	Routing Washing				10	10
131	**Level crossing warning devices**	**2**	**4**	**4**	**4**	**4**
140	**Minor events**	**21**	**99**	**102**	**100**	**97**
141	**Emergency works**	**-**	**-**	**-**	**-**	**-**
151	**Network & asset management**	**1,049**	**1,169**	**1,099**	**1,258**	**1,161**
	Infrastructure Business Unit				650	650
	Consultancy - Asset Management				248	231
	Consultancy - Structures Management				295	181
	Consultancy - Other Services				50	85
	Road Legalisation				15	15
	Subsidised OPEX Total	**5,443**	**6,186**	**6,285**	**6,083**	**6,138**

	10 Year Budget ($000)							
	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
	204	**33**	**51**	**230**	**153**	**55**	**222**	**38**
	150	-	-	150	-	-	150	-
	-	-	-	-	-	-	-	-
	-	-	-	-	100	-	-	-
	-	-	-	-	-	-	-	-
	20	-	-	20	-	-	-	-
	-	-	16	-	-	16	-	-
	34	33	35	60	53	39	72	38
	877	**994**	**1,020**	**981**	**1,090**	**996**	**949**	**880**
	530	562	588	606	644	650	660	664
	317	402	402	344	416	316	258	187
	30	30	30	30	30	30	30	30
	1,878	**2,235**	**2,294**	**2,353**	**2,413**	**2,472**	**2,532**	**2,591**
	1,878	2,235	2,294	2,353	2,413	2,472	2,532	2,591
	723	**878**	**899**	**794**	**812**	**830**	**848**	**865**
	147	308	329	297	315	333	351	369
	485	485	485	412	412	412	412	412
	85	85	85	85	85	85	85	85
	247	**264**	**271**	**278**	**285**	**292**	**300**	**307**
	205	222	229	236	243	250	257	264
	43	43	43	43	43	43	43	43
	756	**758**	**946**	**798**	**995**	**838**	**1,044**	**879**
	706	758	796	798	845	838	894	879
	50	-	150	-	150	-	150	-
	335	**491**	**392**	**517**	**412**	**543**	**432**	**569**
	145	181	182	207	202	233	222	259
	50	150	50	150	50	150	50	150
	140	160	160	160	160	160	160	160
	-	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	9	**16**	**17**	**17**	**18**	**18**	**19**	**19**
	53	**50**	**51**	**53**	**54**	**55**	**57**	**58**
	37	34	35	37	38	39	41	42
	6	6	6	6	6	6	6	6
	10	10	10	10	10	10	10	10
	4	**4**	**4**	**4**	**4**	**4**	**4**	**4**
	94	**218**	**224**	**230**	**235**	**241**	**247**	**253**
	-	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	1,143	**1,392**	**1,344**	**1,329**	**1,501**	**1,442**	**1,423**	**1,457**
	650	650	650	650	650	650	650	650
	218	253	276	253	253	276	253	253
	145	260	160	140	258	155	135	135
	116	215	243	271	326	346	371	404
	15	15	15	15	15	15	15	15
	6,322	**7,332**	**7,513**	**7,583**	**7,972**	**7,788**	**8,076**	**7,920**

	Work Category/Activity	10 Year Budget ($000)				
		18/19	19/20	20/21	21/22	22/23
Unsubsidised Opex						
	Christmas Lighting				9	9
	RoadSafe Hawke's Bay				10	10
	Legal Expenses				16	16
	Consents				14	14
	Drain Cleaning				21	22
	Rest Area Maintenance (SH)				17	17
	Consultancy				10	10
	Consultancy Legalisation				30	31
	Carpark/Other Sealed Surface Maintenance				12	12
	Wairoa District Council Infrastructure Business Unit				50	55
	Unsubsidised OPEX Total				**188**	**197**
Council Internal Costs						
	Depreciation				3,587	3,784
	Corporate Overheads				884	908
	Engineering Overheads				135	448
	Interest				18	65
	Other				0	0
	Council Internal Costs Total				**4,625**	**5,205**
Provisional Items						
	Emergency Works OPEX				500	516
	Total – Provisional Items				**500**	**516**
	GRAND TOTAL	**5,443**	**6,191**	**6,185**	**11,396**	**12,056**

12.4.2 CAPEX RENEWALS

	Work Category/Activity	10-Year Budget ($000)				
		18/19	19/20	20/21	21/22	22/23
Subsidised Capex Renewals						
211	**Unsealed road metalling**	**470**	**920**	**940**	**952**	**934**
	Heavy Metal Build Ups				952	934
212	**Sealed road resurfacing**	**0**	**1,350**	**1,040**	**1,243**	**900**
	Reseals				1,243	900
213	**Drainage renewals**	**378**	**387**	**349**	**665**	**662**
	Culvert and K&C Replacements				425	422
	Surface Water Channel Renewals				240	240
214	**Sealed road pavement rehabilitation**	**1,179**	**-**	**-**	**305**	**305**
	Area Wide Pavement Treatments				305	296
215	**Structures component replacement**	**485**	**510**	**499**	**510**	**733**
	Bridge Renewals				300	273
	Minor Structures Renewals				300	273

	10 Year Budget ($000)							
	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
	9	9	10	10	10	10	10	11
	11	11	11	11	12	12	12	13
	17	17	18	18	19	19	20	20
	15	15	16	16	16	17	17	18
	22	23	23	24	25	25	26	27
	18	18	19	19	19	20	20	21
	11	11	11	11	12	12	12	13
	32	33	34	34	35	36	37	38
	18	13	13	19	14	14	21	15
	21	99	86	58	93	25	26	103
	172	**249**	**240**	**222**	**255**	**192**	**202**	**277**
	3,940	4,104	4,286	4,461	4,633	4,791	4,972	5,128
	982	968	1,009	1,066	1,074	1,073	1,120	1,122
	497	498	527	549	490	504	555	542
	105	192	230	262	293	321	355	380
	0	0	0	0	0	0	0	0
	5,524	**5,763**	**6,053**	**6,339**	**6,490**	**6,689**	**7,002**	**7,173**
	531	545	560	574	589	603	618	632
	531	**545**	**560**	**574**	**589**	**603**	**618**	**632**
	12,549	**13,889**	**14,366**	**14,718**	**15,306**	**15,272**	**15,898**	**16,002**

	10-Year Budget ($000)							
	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
	892	**1,121**	**1,172**	**1,148**	**1,225**	**1,261**	**1,261**	**1,195**
	892	1,121	1,172	1,148	1,225	1,261	1,261	1,195
	925	**1,208**	**1,240**	**1,084**	**1,372**	**1,447**	**1,482**	**1,517**
	925	1,208	1,240	1,084	1,372	1,447	1,482	1,517
	659	**834**	**856**	**878**	**900**	**923**	**945**	**967**
	419	594	616	638	660	683	705	727
	240	240	240	240	240	240	240	240
	305	**332**	**341**	**350**	**359**	**368**	**377**	**386**
	287	305	305	305	305	305	305	305
	731	**751**	**771**	**791**	**811**	**831**	**851**	**871**
	367	362	382	402	422	442	462	482
	367	362	382	402	422	442	462	482

	Work Category/Activity	10 Year Budget ($000)				
		18/19	19/20	20/21	21/22	22/23
	Professional Services				210	185
221	**Environmental renewals**	-	-	-	-	-
222	**Traffic services renewals**	117	76	231	175	174
	Signage Upgrade and Renewal				135	140
	Lighting Renewals				40	34
225	**Footpath Renewals**	-	-	-	54	54
	Subsidised Capex Renewals Total	2,629	3,242	3,057	3,904	3,761
	Unsubsidised Capex Renewals					
	Carpark Renewals				0	0
	Unsubsidised Capex Renewals Total				0	0
	Provisional Items					
	Emergency Works Capex Renewals				1,000	1,031
357	**Nūhaka-Ōpoutama Blowhole Dropout Retreat**				-	-
357	**Nūhaka-Ōpoutama Coastal Erosion Protection**				-	-
	Total – Provisional Items				1,000	1,031
	GRAND TOTAL CAPEX RENEWALS	2,629	3,243	3,057	4,904	4,792

12.4.3 CAPEX NEW WORKS

	Work Category/Activity	10 Year Budget ($000)				
		18/19	19/20	20/21	21/22	22/23
	Subsidised Capex New Works					
341	**Low Cost/Low Risk Improvements**	-	-	-	1,785	1,746
	Road Pavement Improvements				150	150
	Bridge Improvements				420	688
	Drainage Improvements				325	515
	Road Safety Improvements				390	240
	New Footpaths				-	-
	Resilience Improvements				500	152
	Subsidised Capex Renewals Total	2,955	2,576	2,626	1,785	1,746
	Provisional Items					
	Emergency Works - CAPEX				2,486	490
	Total – Provisional Items				2,486	490
	GRAND TOTAL CAPEX NEW WORKS	2,955	2,576	2,626	4,271	2,236

	10 Year Budget ($000)							
	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
	185	115	115	115	115	115	115	115
	-	-	-	-	-	-	-	-
	173	**234**	**241**	**247**	**253**	**259**	**266**	**272**
	145	154	161	167	173	179	186	192
	28	80	80	80	80	80	80	80
	54	**33**	**34**	**34**	**35**	**36**	**37**	**38**
	3,740	**4,514**	**4,655**	**4,533**	**4,956**	**5,126**	**5,218**	**5,245**
	0	0	0	0	0	0	124	0
	0	**0**	**0**	**0**	**0**	**0**	**124**	**0**
	234	2,043	950	949	946	1,206	1,235	1,264
	2,100	-	-	-	-	-	-	-
	-	**6,100**	-	-	-	-	-	-
	2,334	**8,143**	**950**	**949**	**946**	**1,206**	**1,235**	**1,264**
	6,074	**12,657**	**5,605**	**5,482**	**5,902**	**6,332**	**6,577**	**6,509**

	10 Year Budget ($000)							
	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
	1,861	**2,889**	**3,178**	**2,698**	**2,413**	**1,749**	**2,532**	**1,492**
	450	350	350	350	200	200	200	200
	304	1,230	420	930	1,020	420	930	150
	335	450	450	450	450	450	450	450
	400	80	1,080	80	80	80	80	80
	175	150	150	150	150	150	150	150
	197	629	728	738	513	449	722	462
	1,861	**2,889**	**3,178**	**2,698**	**2,413**	**1,749**	**2,532**	**1,492**
	493	494	494	493	492	627	642	657
	493	**494**	**494**	**493**	**492**	**627**	**642**	**657**
	2,354	**3,383**	**3,672**	**3,191**	**2,905**	**2,376**	**3,174**	**2,149**

12.4.4 SPECIAL PURPOSE 38

Special Purpose Road 38 is funded separately from the local roads budget provision. Details of funding requirements for SP38 are included below.

Work Category/Activity		10 Year Budget ($000)				
		18/19	19/20	20/21	21/22	22/23
111	Sealed pavement maintenance	9	9	9	10	10
112	Unsealed pavement maintenance	191	195	211	200	202
113	Routine drainage maintenance	53	55	57	80	81
114	Structures maintenance	-	-	-	57	58
121	Environmental maintenance	39	40	41	46	47
122	Traffic services maintenance	4	4	4	10	10
140	Minor events	26	26	27	50	50
151	Network & asset management	15	16	16	20	20
	Maintenance Total	**336**	**345**	**364**	**474**	**478**
211	Unsealed road metalling	108	113	122	120	120
212	Sealed Road Resurfacing	-	-	-	40	10
213	Drainage renewals	33	34	34	50	50
214	Sealed road pavement rehabilitation	-	-	-	0	0
215	Structures component replacement	250	-	-	0	0
221	Environmental renewals	-	-	-	-	-
222	Traffic services renewals	8	3	3	5	5
	Renewals Total	**399**	**149**	**159**	**215**	**185**
341	Low Cost/Low Risk Improvements	150	100	75	310	310
	Improvements Total	**150**	**100**	**75**	**310**	**310**
Provisional Items						
	Emergency Works Capital				75	77
	Total – Provisional Items				75	77
	GRAND TOTAL	**884**	**595**	**599**	**1,074**	**1,050**

	10 Year Budget ($000)							
	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
	10	11	11	11	12	12	12	13
	204	206	206	207	207	208	208	209
	82	87	90	92	94	97	99	101
	58	62	64	66	67	69	71	72
	47	51	52	53	55	56	57	59
	10	11	11	11	12	12	12	13
	50	55	56	57	59	60	62	63
	20	22	22	23	24	24	25	25
	482	**504**	**512**	**521**	**529**	**538**	**546**	**555**
	120	131	134	138	141	145	148	152
	9	0	0	0	0	0	0	0
	50	55	56	57	59	60	62	63
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	-	-	-	-	-	-	-	-
	5	5	6	6	6	6	6	6
	184	**191**	**196**	**201**	**206**	**211**	**216**	**221**
	310	75	75	75	75	75	75	75
	310	**75**	**75**	**75**	**75**	**75**	**75**	**75**
	80	82	84	86	88	90	93	95
	80	82	84	86	88	90	93	95
	1,057	**852**	**867**	**883**	**898**	**914**	**930**	**946**

12.5 KEY ASSUMPTIONS MADE IN FINANCIAL FORECASTS

The following key assumptions have been made when developing the financial forecasts:

- Costs are in NZ dollars and are based on current day rates with estimated inflation rates included in the financial data. Council is required to report expenditure based on predicted inflation and cost escalation using standard financial forecasting indicators (BERL).
- The AMP budget figures include updated corporate and engineering overheads.
- Static growth, as predicted by Council, although Statistics NZ shows declining growth based on the latest Census findings.
- All aggregate requirements for unsealed roads will be able to be sourced within the district.
- Renewals and capital development assumptions have been made based on the best information available at this time and this may change as knowledge of the assets improves.
- Renewals will be fully funded.
- The activity will be funded predominantly from the FAR with the remainder coming from general rates. This subsidy rate is 75%.
- Asset renewals will be funded from depreciation funds.
- Depreciation is by the straight-line method.

12.5.1 RISKS ASSOCIATED WITH FINANCIAL FORECASTS

Risks associated with the financial forecast assumptions include:

- All term maintenance contracts are to be retendered by the end of 2018. Changes in performance requirements and market response in terms of pricing may impact on future maintenance and renewals costs.
- Uncertainty around future demand, particularly on the unsealed portion of the network. Any further increase in demand may have significant impact on the LoS provision from existing funding forecasts.
- Environmental impacts, such as seasonal weather conditions, can have a significant on maintenance requirements, particularly on the unsealed network e.g. very wet winter season combined with increased heavy traffic.
- The condition of some of the assets is still not well documented. While comprehensive condition rating is undertaken for some components (pavements/surfaces) other assets, particularly structures and drainage assets, require an improvement in the condition assessment and data recording processes. This is a significant focus for the AMP period 2018/19-2020/21 and will allow for more robust financial forecasting in future.

12.5.2 FUTURE COSTS - 10 YEAR FINANCIAL FORECAST (SUBSIDISED)

This AMP focuses on ensuring that investment is targeted to provide strategic responses to key problems for Wairoa, while meeting the ONRC CLoS. This provides a targeted approach that allows for Council to have a more proactive approach to maintenance, operations and renewals. It will result in an improvement in CLoS where there is current under performance compared to the peer group. With increased HCV loading predicted in future, a more balanced approach to lifecycle planning will be required. The future intent is to see the ratio of Planned work to Reactive work increased to 40% planned / 60% reactive.

The Overarching Principle will be Value for Money and whole of life costs will be optimised in the delivery of affordable customer levels of service.

The 10 year programme of work is included below. Years 1 to 3 (2018/19-2020/21) provide the key focus for this AMP and are detailed further in the asset sections above. A detailed 10 year financial forecast is included in Appendix F.

12.6 VALUATION FORECASTS

The latest valuation for land transport assets was completed in June 2020. This valuation implements the RAMM valuation system and compares the quantum and value outcome with the valuation undertaken in June 2017. It identifies where the Council asset register (RAMM) can be improved for valuing of road assets.

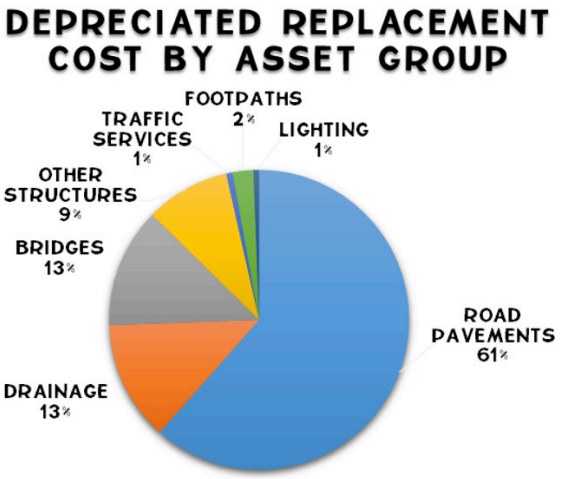
Key outputs from this valuation are:

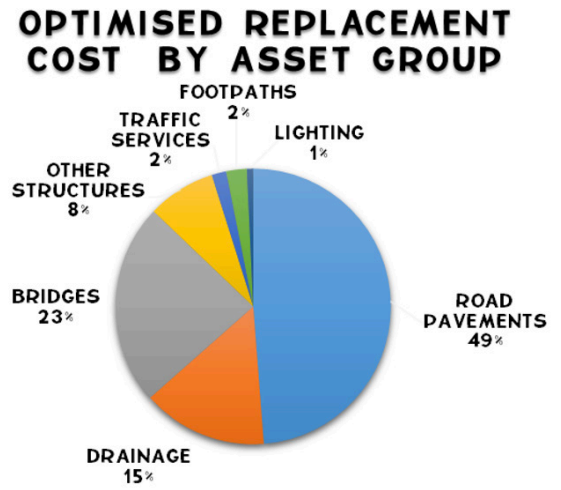
- Asset component schedules for each type of asset and comparison with the previous valuation;
- A confidence assessment of the current information in the Asset Register;
- Improvement recommendations for the Council asset register and associated valuation inputs;
- Optimised Replacement Cost (ORC);
- Optimised Depreciated Replacement Cost (ODRC);
- Annual Depreciation (AD);
- Cumulative Depreciation (CD).

The total asset valuation assessment is detailed in the table below. The full Asset Valuation Report is included in Appendix G.

Year	ORC	ODRC	AD
2020	**$336,112,781**	**$204,598,241**	**$3,586,255**
2017	$281,453,377	$192,509,365	$3,217,827

A breakdown of the valuation by asset group shows that road pavements make up half of the Optimised Replacement Cost for Council assets. Other significant value assets include Drainage, Bridges and Retaining Walls/Other Structures. It is worth noting the lower proportion of the Depreciated Replacement cost for Bridges compared to Retaining walls is due to the older ages of these assets.





12.6.1 CONFIDENCE LEVELS IN ASSET DATA

Confidence ratings have been assigned to the source data and unit cost rates and to other items as appropriate. Data from the RAMM database was generally considered to have a **confidence rating of B**. The current confidence ratings descriptions as well as confidence ratings for different asset groups is summarised below.

Confidence Grade	Description	Accuracy
A	**Highly Reliable** Data based on sound records, procedure, investigations and analysis, documented properly and recognised as the best method of assessment. Dataset is complete.	±2%
B	**Reliable** Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example some data is old.	±10%
C	**Uncertain** Data based on records, procedures, investigations and analysis which is incomplete or unsupported or comes from a limited sample.	±25%
D	**Very Uncertain** Data based unconfirmed verbal reports and/or cursory inspection and analysis. Dataset may not be fully complete and most data is estimated or extrapolated.	±40%

Asset Component	Optimised Replacement Cost			Optimised Depreciated Replacement Cost		
	Quantity	Unit Cost	Value	Life	Remaining Life	Value
Road Formation	B	B	B	-	-	B
Unsealed Basecourse	B	B	B	B	B	B
Sealed Basecourse	B	B	B	B	B	B
First Coat Seals	B	B	B	B	B	B
Surface Structure	B	A	B	B	B	B
Bridges	B	C	C	B	B	B
Drainage	B	B	B	B	B	B
Footpath	B	B	B	B	B	B
Minor Structures	B	C	C	B	B	B
Railings	B	B	B	B	B	B
Retaining Walls	B	B	B	B	B	B
Signs	B	A	B	C	C	C
Street Lighting	B	B	B	C	C	C
Surface Water Channel	B	B	B	B	B	B

Improvement Item - Review Asset Valuation Report improvement recommendations and prioritise for completion. Key improvement items include ensuring the construction/replacement dates are recorded for all assets, ensuring owners are applied to all assets and ensuring length is recorded for retaining walls.

13.1 CURRENT & DESIRED STATE OF ASSET MANAGEMENT PRACTICES

Our Activity Management Plan uses Business Case principles and Asset Management processes to provide strong support for future investment requirements.

Our transportation team have the capacity and capability to provide professional engineering and management services to all asset based activities, including: managing physical works contracts, collecting maintenance cost data, managing customer and stakeholder interface and future planning for the transportation activity. The in-house team are complemented when necessary by a range of professional services providers for technical input, design and investment planning capability.

13.1.1 ASSET MANAGEMENT PRINCIPLES

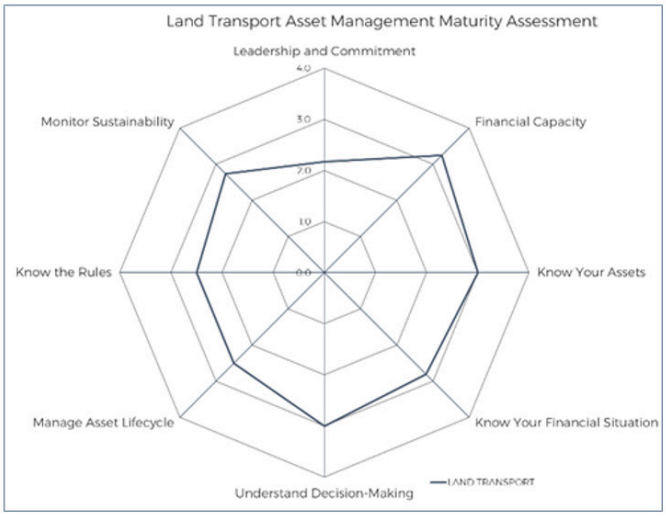
As outlined in our Council 'Introduction to Asset Management Plans', key principles of infrastructure asset management practice that we are guided by are:

- Providing a defined level of service and monitoring performance
- Managing the impact of demand changes (growth as well as decline) through demand management, infrastructure investment and other strategies
- Taking a lifecycle approach to development cost-effective management strategies for the long term that meet that defined level of service
- Identifying, assessing and appropriately controlling risks
- Having a long term financial plan which identifies required expenditure and how it will be funded.

Our Asset Management Policy outlines that a 'Core' level of asset management advancement is required for the land transport activity. This approach is consistent with the guidance provided in the International Infrastructure Management Manual (IIMM, 2015).

13.1.2 ASSET MANAGEMENT MATURITY

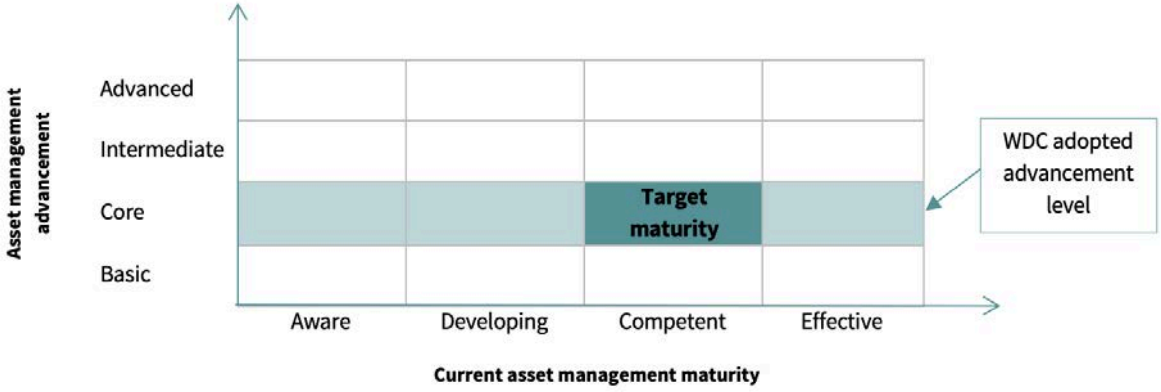
In early 2020, we commissioned WSP to complete a review of our asset management maturity to assess how well we are delivering on our asset management policy, to achieve a 'Core' level of asset management practice. Our aim is to become 'Competent' within our adopted level of advancement as shown below.
Land Transport activity showed the highest level of maturity of all activities. In most areas the asset management practices are close to 'Competent' scoring (score of 3.0). These assets are well understood, with appropriate levels of data and good operational management practices in place. Financial planning for these assets is robust for the short to medium term. But there is less certainty of long-term requirements. Further improvement of lifecycle management and decision making will help provide a firmer long-term financial projection. This will help WDC to better plan for the future and continue providing sustainable service to the community.



Key areas identified for improvement have been included in our Improvement Plan in Section 10.

13.1.3 IMPROVING ASSET MANAGEMENT PRACTICE

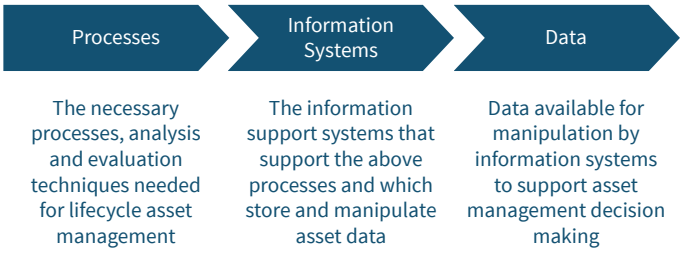
Following the maturity assessment, a comparison was completed between the initially defined desired state ('Core' asset management practice) and the current state of asset management practice at Wairoa District Council. Key asset management improvement priorities resulting from the maturity assessment review, applicable to Land Transport, are included in the table on the next page.



Priority Tasks	Description	Benefit
Data & Tools	Data and information is foundational to asset management processes. Establish a list of datasets, software and information files being used in each activity area, including key information on the purpose, content, update status, and accessibility of each. Make sure that staff are aware of all datasets and other key asset management information and that it is accessible to staff. Provide training to staff on data updating and management.	When data and information is complete and easily accessible it is more likely to get used in decision making. It also means that if/ when staff changes occur there is no loss of organisational knowledge and information, because information is not stored and managed appropriately.
Risk management	Using Wairoa District Council's existing documented risk management framework and assessment processes as a basis, review how risk is actually assessed and included in asset decision processes.	Risk is an import part of asset decision making, forecasting renewals, and maintenance strategies. Staff can use risk to better understand and define consequences and impacts of levels of service changes to Council and the community.
Maintenance Strategies	Wairoa District Council has maintenance strategies for some service areas, however overall this is an area identified for improvement. Maintenance Strategies provide a proactive plan regarding: • Typical maintenance options, methods, and protocols; • Decision criteria and rules for evaluating maintenance options; • What maintenance performance indicators are to be tracked and reported; and • When to flag an asset for renewal. These documents need to be reviewed and kept up-to-date and relevant to current business.	Having clear strategies in place helps staff to use cost effective solutions that get the most from available budgets.
Long Term Financial Planning	Wairoa District Council has a long term planning view of 10 years, providing a good indication of mid-term financial needs. However, longer term plans provide a higher level of confidence of future financial sustainability. For Land Transport: Develop longer term 20-30 years for these core services.	Having longer term plans for key investment areas, helps us to understand any spikes in future expenditure. Proactive measures can be taken to either flatten these spikes or work to get enough funding in place.
Renewals Options	Develop a list of variables which must be considered when deciding between viable renewal alternatives and develop a robust procedure and analysis for comparing and deciding on alternative renewal options. The analysis must include consideration of whole-of-life- costs, expected lifespan, and impacts on operations, maintenance, and service delivery.	Having clear comparison of options will help Wairoa District Council to choose best value for money options. This means better financial decisions not just now, but for the future.
Total Cost of Service	For Wairoa District Council to understand the total cost of service, costs for operations, maintenance repairs, preventative maintenance work, replacement costs, and disposal costs (whole lifecycle of the asset) need to be recorded for each service area. Using this information Wairoa District Council can then complete a high-level assessment of total cost of service within each service area. This can be calculated by dividing the whole lifecycle of the asset by its expected lifespan to get the total average annual cost for each asset. Then add in annual average overhead costs (non-asset specific operational, planning costs, and overhead/administration costs).	The cost of service must be understood for Wairoa District Council to clearly communicate with the community about any impacts of changing rates funding.
Cost of Service vs Level of Service	This involves tracking the relationship between true total cost of service, the required level of service, and the achieved level of service. Analyze the comparative results of these three elements and provide recommendations for investment planning, level of service targets, and performance metrics.	When we understand the relationship between cost of service, level of service and risk, we establish a foundation for identifying options and tradeoffs to attain a financial, socially and environmentally sustainable level of service.

13.2 ASSET MANAGEMENT PRACTICES

This section discusses the status of Council's current Asset Management practices and identifies practices the organisation wishes to use. The key Asset Management practices can be grouped into three broad areas.



13.2.1 PROCESSES

INVESTMENT DECISION MAKING

In early 2020, we commissioned WSP to complete a review of our investment decision making processes. As part of this review a new Investment Decision Making Process has been developed for use across all Service Areas.

This process includes the use of specific project 'criteria' to evaluate the relative priority of capital renewals and improvement projects.

This is a form of Multi-Criteria Analysis. These criteria are meant to consistently score projects across all the things that are important to Wairoa District Council. This aids decision makers to prioritise projects for both the medium and short term.

The following four criteria have been identified for prioritising renewals and capital improvement projects:

1. Strategic Alignment – How strongly does this project align with Wairoa District Council's vision, community outcomes and/or strategic goals (where applicable)?
2. Service Delivery – How important is this project in contributing to the delivery of Wairoa District Council's core activities and services? Will it contribute to service reliability and meeting customer service level expectations?
3. Risk & Criticality – What is the risk to safety and service reliability if the project is not done?
4. Financial Impact – What is the return on investment or financial benefit? Does the project provide value for money?
5. Below are the factors considered for each of the four investment decision making criteria.

Criteria	High	Medium	Low
Strategic Alignment	Strongly contributes to applicable national Transport Outcomes (incl GPS) AND community outcomes	Some contribution with applicable national Transport Outcomes (incl GPS) AND community outcomes	Limited contribution to national Transport Outcome OR community outcome
Service Delivery	Will result in significant improvement in service delivery factors	Will result in moderate improvement in service delivery factors	Will result in minimal improvement in service delivery factors
Risk & Criticality	Extremely/Highly critical asset in very poor/poor condition OR risk level significantly decreased	Critical asset in poor condition OR risk level somewhat decreased	Moderate/low critical asset in very good / good condition OR risk level remains the same or increases
Financial Benefit	High financial benefit (e.g. High NPV for renewals). Lowest lifecycle cost option	Moderate financial benefit when whole of life costs are considered (e.g. positive NPV for renewals)	Limited financial benefit when whole of life costs are considered (e.g. neutral NPV for renewals)

OPTIMISED DECISION MAKING

The following tools and techniques are used by Council and its consultants to ensure that the decisions on future road asset maintenance requirements are optimal both in terms of the intervention timing and the lowest whole-of-life solution.

Criteria	High
Treatment Selection Algorithm	The condition information gathered from surveys is used in the treatment selection algorithm (TSA) within RAMM. This tool aids in the decision-making process for the identification and scheduling of: • resealing – sealing in budget, sealing next treatment • smoothing overlays – in budget • strengthening overlays – in budget. With the ongoing development of pavement deterioration modelling, coupled with the ability to calibrate these models to the unique attributes of the network, it is recommended that greater emphasis be given to the output of this model in the development of the FWP, particularly the selection of treatments beyond year five.

Criteria	High
Pavement Performance Model	In the past, dTIMS modelling has been completed for the sealed road network, however the last full dTIMS modelling was completed in 2014. A partial dTIMS model has been completed as an input to this AMP. Due to the impacts of COVID-19 RAMM rating could not be completed in time for input in to this AMP. The partial model is therefore primarily based on roughness data, and the outputs must be considered with this in mind. The dTIMS pavement performance modelling has been used to support the development of the. Network data is sourced from Council's RAMM database, and includes a maintenance history of treatments and costs. Some representative, sample high volume sealed roads of strategic importance were tested using falling weight deflectometer technology in 2005 and again in 2010. This has helped to identify weaker pavements in the network resulting in an increased level of confidence over the need and timing for pavement investment. Each FWD survey is a prioritised subset of the network with the objective of covering the whole network over time. Further FWD or MSD (Multi-speed deflectometer) testing, targeted at key roads would be a useful in put to the dTIMS model, and would provide Council greater confidence in managing the sealed network. With the trigger-based model, we simulate engineering judgement to determine maintenance strategies i.e. treatments are triggered once various parameters meet a predefined level. For example, a resurfacing can be triggered when cracking is predicted to reach 10% of the surface area of a treatment length. The optimal model, on the other hand, takes account of economic principles in order to determine the most optimal maintenance strategy for the available budget. Rather than triggering treatments based on a set of user-defined intervention criteria, the system selects treatments that maximise condition across the network for a given investment level. Network condition is represented as a composite index of individual condition values referred to as the pavement condition index. Various investment levels can be trialled to determine the longer-term network impact out to 10 or 20 years. Lastly the model can also show the FWP. This is referred to as the specified model or FWP. The model output along with relevant condition information is then incorporated into field sheets that are used by the consultant in reviewing the FWP in the field. Each model can produce a forecast of: • planned programme/routine maintenance activity • composite index indicators of network status • estimated scenario cost • construction programme outputs.
Crash Analysis Studies	Crash records are collected and the information entered into Waka Kotahi'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 Counts	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 • treatment selection algorithm and pavement deterioration modelling • pavement and surfacing design • network safety analysis and design • total transport costs, road user costs and BCR analysis.

Improvement Item - Complete MSD or FWP testing on key sealed routes (Primary & Secondary Collector/ Forestry Routes) to identify weaker pavements, and provide input to the dTIMS model.

Improvement Item - Investigate the feasibility and benefits of undertaking an unsealed roads dTIMS model on the Wairoa District Council network using the new IDS model for unsealed roads.

ROUTINE MAINTENANCE

Maintenance cost information is currently being collected on the network and entered into RAMM. This information is collected by the contractor and submitted to the consultant for verifying quantity, quality, and costs prior to certification of payment. This information is then loaded into Council's RAMM database every three months.

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.

SEALED ROAD RENEWALS

The investment in the network's existing surfacing must ensure that the life cycle of each reseal is maximised without risking the integrity of the life cycle of the underlying pavement. This is achieved through checking the performance and condition of the existing surface against peer group average life and the expected design life within the context of the reseal length.This information along with the recent trends in routine maintenance costs within the treatment length, then enables the economics of proceeding with another reseal or undertaking an alternative treatment, for example an area-wide treatment, to be evaluated.

Across the network as whole, the maintenance of a balanced resurfacing programme is also necessary to enable not only robust forecast budgeting by Council but also to ensure that the capacity of the contracting industry in completing the resurfacing programme within the best climatic window is not exceeded.

The average annual quantities from the FWP can then be compared with those predicted from the pavement deterioration model and the reasons for any significant variance examined and understood.

13.2.2 INFORMATION SYSTEMS

A summary of Council's existing asset management systems are shown below.

System	Description
Road Asset Maintenance Management (RAMM)	RAMM is a computer-oriented maintenance management system. Physical details of the roads, together with details of defects from visual inspections (ratings), and roughness data, gathered from road measurement are fed into the RAMM computer system. Road condition rating surveys together with roughness surveys are currently conducted on a sample set of sealed roads annually and are then used in the RAMM system to generate treatment selection and maintenance strategies. RAMM is an extremely valuable management tool for the land transport network. It requires a committed effort to continuously maintain and update the data to gain expected benefits from the system. RAMM input data for roads includes: • road names • road section and identifiers • inventory data in terms of culverts, signs, rails, pavement marking • maintenance data in terms of activities and costs. RAMM input data for bridges includes: • physical details • annual non-structural inspections to update and maintain the data in order to gain the expected benefits from the system. RAMM output data: • gives statistical information on the physical characteristics and condition of the entire land transport network, as well as on specific lengths of road • gives historical statistical information on aspects of road and bridge maintenance works • indicates the need for maintenance treatment for specific sections of road or bridges.
Performance Measures Reporting Tool (PMRT)	Waka Kotahi provided system to record and report on performance of land transport network based on ONRC customer levels of service and cost efficiency measures. Provides a tool for benchmarking performance against Peer Group councils.
Crash Analysis System	The Crash Analysis System is a national database that records all known crash statistics. This can be used to identify black spots and for the analysis of trends. Currently, this is only really used during the preparation of crash reduction reports, however, it is intended that Council staff and service providers will begin to use this facility to assist in programming annual minor safety works.
Safety Management System	Council has developed and implemented a Safety Management System for the identification and prioritisation of all of the safety improvements on the road network. This system will then in turn, outline the development of specific safety management and intervention strategies.
GIS	Wairoa District Council has developed a GIS on MapInfo. The cadastral base information has been obtained from LINZ and incorporated into the GIS system. This system or the RAMM map system, should be implemented to allow for the spatial display of road-related information. Both systems will in time, provide powerful tools for asset management once fully integrated together with the other data systems operated by Council. In addition to Council's own systems, the various professional services consultants operate several GIS systems that allow the spatial display and interrogation of all data contained in the RAMM database. Archived records need to be investigated to determine the amount of information within them that has not already been sourced. Council has been progressively scanning archived drawings and plans into electronic format compatible with the GIS system.
Financial Information System	NCS is the software used as the Financial Information Systems. Long term financial decisions are based on the development of 10 year plans as part of the LTP process. These 10 year plans are updated every three years on a cycle linked to the development of this AMP.

System	Description
Capital Works Programming	Estimates of project costs, timing, asset capacity and funding sources are developed using Microsoft Excel by the Utilities Manager with assistance from consultants and the maintenance contractor. These programmes are managed and updated by the Utilities Manager.
Customer Service Request (CSR) System	CSRs are raised by the public or internal departments within Council. They are forwarded onto the appropriate personnel, either Council staff or direct to the operations and maintenance contractor with the relevant response times.
Asset Risk Register	As part of the risk management framework, the asset risk register compiles specific risks and consequences to waters and wastewater assets. Mitigation and intervention measures align to the asset lifecycle process and are included within future planning.
New Technologies	Working smarter not harder is the key to achieving further cost efficiency and value for money decision making. Therefore, the aim of the AMP is to move into new data systems and analysis technologies when they become available. An example of this would be the deterioration model for unsealed roads, if it can be shown to suit the particular needs of Wairoa's transportation network.

13.2.3 DATA

Types of data and information held by Council and details of existing data sets are included below. Legend indicates completeness of data set as follows:

Type of Asset Information	Description	Existing Data Sets	Data Collection Approach
Inventory	The various attributes of the assets e.g. location, classification, asset ID number, size (width, thickness, length, etc.), type, material, date of construction, and date of major renewal or upgrades.	RAMM	Data updates completed periodically. Information is collected from CAD drawings or manually from Capital projects completion records
Condition	The condition rating of each asset. This also includes the date when the condition rating was measured. The results from the various inspections that are undertaken, including what was inspected and the methodology used during inspection.	RAMM	Annual data collection processes completed by external consultants
Operations & Maintenance	Information on the activities completed to ensure assets are functioning correctly, including inspections, date and type of maintenance work completed, works order prioritization and management.	RAMM	Data collected through service requests and inspections by Operations & Maintenance staff. Mobile asset data collection application used.
Utilisation	Ratio of the time a service (system or component) is functional to the total time; service capacity versus utilisation requirements.	RAMM	Annual traffic data collection programme to update traffic count data.
Lifecycle Planning	Information on asset lifecycle processes including acquisition, commissioning and handover, renewal interventions for assets (e.g. replacement), and disposal.	RAMM	Annual FWP driveovers used to populate FWP in RAMM
Financial	Information on costs related to build/acquire, maintain and renew assets, e.g. design, labour, material, cost of managing contracts.	RAMM	Maintenance costs provided by contractor and entered into RAMM. Information collected through Capital projects completion records.
	Asset valuation to establish current replacement and depreciated replacement costs.	RAMM	3-yearly report completed based on RAMM data.
Risk	Information on risk management related to existing assets, including data supporting risk identification, mitigation, mitigation costs.	Spreadsheet Register	Formal update of risk register and process to keep updated required.

Type of Asset Information	Description	Existing Data Sets	Data Collection Approach
Compliance	Information on how assets are meeting regulatory requirements. Tracking inspections, and certification for assets that require it.		
Performance	Information on how assets are performing in terms of meeting defined levels of service and asset management objectives.	PMRT	Most performance measures data collected is automatically populated from RAMM and CAS. No formal process for user defined performance measure data collection.

No existing data set Partial data set Full data set

13.3 STANDARDS AND GUIDELINES

The following technical standards are to be considered in the management of the land transport asset.

Work Component	Standards & Guidelines
Design	Compliance with all relevant technical standards including NZS 4404. National Roads Board guidelines for geometric design of rural roads. Austroads Pavement Design Manuals. Waka Kotahi guidelines for design.
Maintenance & Operations	Compliance with Council's maintenance specifications. Compliance with relevant Rural Traffic Standards (RTSs) – e.g. RTS5 – delineation devices. Compliance with the Code of Practice for Temporary Traffic Management, and Health and Safety Act.
Materials	Selection of materials to comply with industry best practice as well as all relevant standards including NZS4404, contract specifications and policies.

ROUTINE MAINTENANCE STANDARDS

Council has developed a series of standard specifications to cover road maintenance activities. This series of documents include the following:

Specification Number	Description	Last Updated
M1	General Specification – Land Transport	Mar 2007
M2	Specification for Temporary Traffic Control	Jun 2006
M3	Repair of Potholes – Sealed Roads	Mar 2007
M4	Repair of Surface Defects – Sealed Roads	Mar 2007
M5	Repair of Pavement Failures – Sealed and Unsealed Roads	Mar 2007
M6	Repair of Edge Break	Mar 2007
M7	Repair of Depressions, Rutting and Surface Openings – Sealed Pavements	Mar 2007
M8	Adjustment of Service Boxes and Covers – Sealed Roads	Mar 2007
M9	Maintenance of Unsealed Shoulders – Sealed Pavements	Mar 2007
M10	Removal of High Berms – Sealed Pavement	Mar 2007
M11	Unsealed Pavements – Maintenance Grading, Reshaping and Metalling	Mar 2007
M14	Repair of Potholes – Unsealed Roads	Mar 2007
M15	Culvert Maintenance	Mar 2007
M16	Minor Culvert Replacement	Mar 2007
M17	Kerb and Channel Repairs and Replacement	Mar 2007
M18	Removal of Surface Detritus	Mar 2007
M19	Cleaning of Cesspit Grates and Sumps	Mar 2007
M20	Roadside Water Table Maintenance	Mar 2007
M21	Routine Bridge Maintenance	Mar 2007
M22	Emergency Work	Mar 2007
M23	Vegetation Control	Mar 2007
M25	Erection and Maintenance of Traffic Signs, Chevrons, Markers and Sight Rails	Mar 2007
M27	Supply and Application of Dust Suppressants	Mar 2007
M30	Materials	Mar 2007
M31	Footpath Maintenance	May 2015

In addition to these, relevant specifications from NZS4404: 2010 Land Development and Subdivision Infrastructure standards are applicable.

14. RISK MANAGEMENT

14.1 RISK MANAGEMENT POLICY

Risk Management continues to be an area of learning and growth for Council. We are focussed on developing a consistent organisational approach to risk management.

Council's updated Risk Management Policy was adopted in December 2017. This is a Council-wide policy overseen by the Chief Executive Officer. Staff, contractors, and elected members have a shared role to play in the identification, reporting and management of risk through risk management processes being integrated with planning processes and embedded in management activities.

Since this time, Council has commissioned a Risk Management Framework Review by independent consultants in March 2018, which introduced a number of improvement recommendations for future implementation. Then in early 2020, we commissioned WSP to further review our risk management processes and develop a practical Risk Management Strategy to align risk management across the Community Assets and Services Group. A key component of the Risk Management Strategy is the provision of a process for identifying critical assets.

This section of the AMP details of risk management practices used for the land transport activity.

14.2 RISK MANAGEMENT PROCEDURE

The risk management procedure is based on the guidelines in AS/NZS 4360. Refer to the "Introduction to Asset Management Plans 2017" for details on Council's risk management procedures. Risk matrices illustrate how Council can determine the relative risk between events across the organisation and/or determine the subsequent action/s that may be required to manage the risk.

14.2.1 MANAGING RISK THROUGH ONRC

A risk-based approach will be taken to optimise activity across the different ONRC. On higher classification roads, a lower risk approach will be taken i.e. earlier intervention with renewal treatments and robust maintenance repairs. For lower classification roads, more risk may be taken by deferring renewals where possible and using holding repairs. For unsealed roads, this may affect grading cycles as well as where Heavy Metal Build Up (HMBU) renewals are completed. It is important to note that safety will not be compromised through this process, and intervention with routine maintenance will be completed as necessary to keep the road safe.

By accepting greater risks on lower classification roads, a higher percentage of work will be reactive compared to the preventative and planned strategies on higher classification roads. This risk based approach will be implemented at all levels of maintenance and renewals delivery, including through:

- Strategy and planning development – e.g. Maintenance Intervention Strategy, traffic count programme etc
- Network inspections
- Development of all maintenance programmes
- Forward Work Programming of renewals prioritisation

14.2.2 RISK IDENTIFICATION

The aim of the risk identification phase is to systematically and comprehensively identify all risk events that might have an impact on organisational objectives. A link between these objectives and LoS performance measures ensures integration into the asset management process.

Critical and High-risk items have been identified for each asset group in the sections above. A full risk register is included in the appendices.

Consideration of risk goes beyond financial planning, asset condition and hazard categories. Council also considers such events as changes in legislation (at both local and central government levels), process and system risks at this level of risk assessment.

14.2.3 ENVIRONMENTAL & CULTURAL RISKS

Failure to comply with the District Plan and RMA for earthworks activities is a risk to Council with potential adverse effects to land habitat, waterways and archaeological sites, including associated litigation consequences.

To manage erosion and sediment risks, Council complies with the District Plan for volume thresholds that apply. In addition, Council complies with HBRC's guidelines to implement sediment retention ponds for any earthworks area exceeding 3,000m2 (refer to Hawke's Bay Waterway Guidelines, Erosion and Sediment Control) and other appropriate silt fence arrangements to protect the environment.

To manage any unforeseen disturbance of archaeological sites and to respect the cultural well-being of our community, Council has a Protocol for the Accidental Discovery of Archaeological Sites and includes this in earthworks contracts.

14.2.4 RISK EVALUATION & TREATMENT

Refer to the "Introduction to Asset Management Plans 2017" for details.

For a complete table of all land transport risks see Appendix D. For a complete table of all Council activity risks refer to the "Introduction to Asset Management Plans 2015".

14.2.5 CRITICAL ASSETS

Asset Criticality is the consequence arising from the sudden and total loss of an asset. The principal objective is to prevent the deterioration of critical assets to "very poor" condition where major and urgent replacement is required, to allow for service continuity and minimise disruption costs. To assess the criticality of an asset the following three factors are considered:

- **Service Importance**: The importance of core asset groups providing the service to the community. This answers the question: What is the effect on the community of losing service provision?
- **Functionality**: Reflects how important the specific asset is to the functionality of the core asset groups providing the service. It answers the question: What is the impact on the service if the asset fails?

- **Down-time**: Duration that the asset will be "down", until return of the asset to full capacity, if it fails. It answers the question: How quickly can the asset be repaired/replaced?

ASSET CRITICALITY

Using this assessment process from our Risk Management Strategy, the Service Importance of core asset groups within the land transport activity have been determined as follows.

Core Asset Group Delivering Key Services	Importance to Service Provision
Road Pavements	Extremely important
Bridges	Extremely important
Other Structures	Highly important
Drainage	Highly important
Traffic Services & Lighting	Important
Footpaths & Cycleways	Important
Car Parking	Important

To further assess which particular assets are considered critical, the **functionality has been aligned to ONRC** to determine the r**oads and bridges that provide key links or have high traffic volumes**.

LIFE LINE ROUTES

Lifelines routes have been identified through the 2001 HB Engineering Lifelines Project[3]. These routes provide key access to communities within Wairoa and:

- Maintenance of these routes is critical to ensure continued access to communities and key facilities (e.g. power stations, quarries) in emergency events.
- Failure to maintain them may result in isolated communities during and following emergency event.
- Lack of maintenance may lead to higher costs for repairs after emergency events.

Improvement Items - Key improvement items in the management of emergency events include:

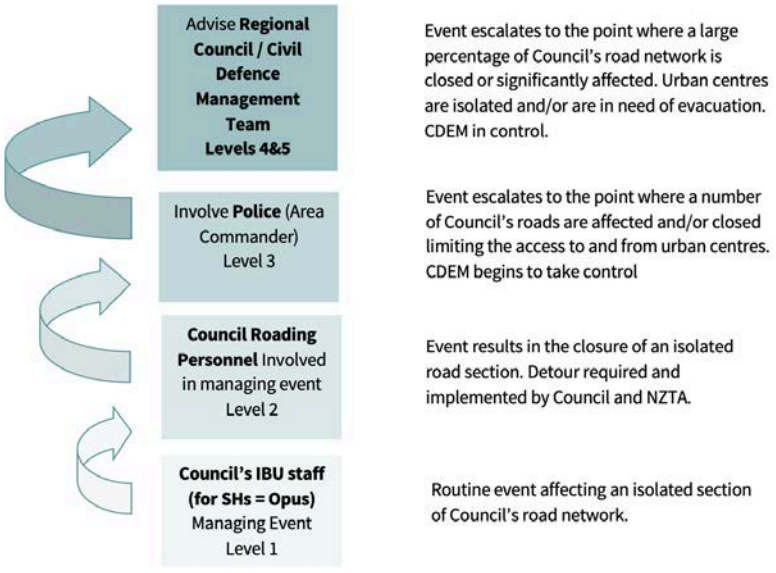
- Review existing communications plans specific to managing emergency events affecting the road transport corridor. Review the communication protocols and procedures with respect to keeping the public and emergency services informed of road closures and the management of emergency
- Update and further develop detour routes and maps. Cooperatively identify and develop appropriate detour routes that can be implemented in the situation of road closures

14.2.6 EMERGENCY EVENT MANAGEMENT

Another specific land transport risk includes emergency event management discussed extensively in Appendix H with linkage to Hawke's Bay Civil Defence Emergency Management (CDEM) Group.

Response Protocol for Emergency Event Escalation

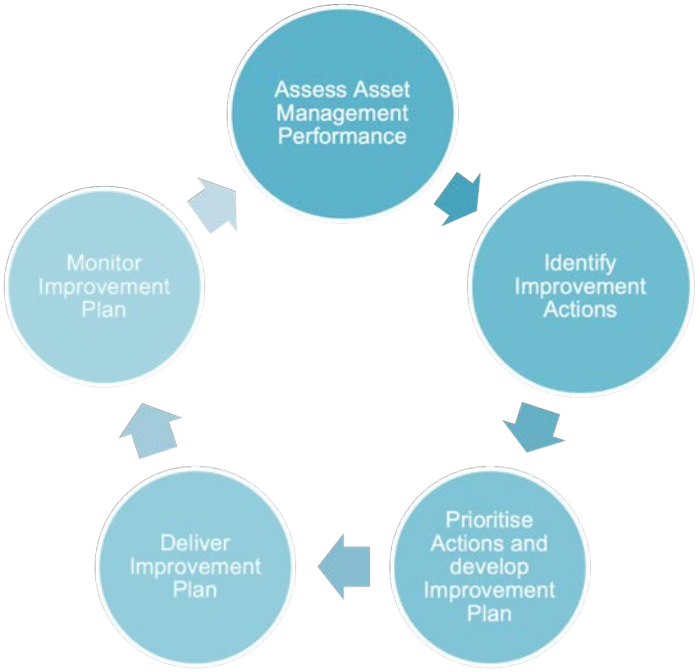
This diagram shows a bottom-up ("push") type arrangement and future regional lifeline coordination seeks to evolve into a "push" (from local field sources) and "pull" (by co-ordinating HQ staff) communication structure.



[3]HBRC Plan No. 3065

15.1 IMPROVEMENT PLAN

A key feature in Council's Asset Management system is continuous improvement. This is essential to ensure the asset management system and services are effectively managed. Through the initiatives presented in this section, Council is committed to appropriate asset management practices. Council is committed to delivering the most appropriate levels of service balanced with affordability and good industry practice.



Details of future improvements required and a timeframe for these improvements is included in the table below. Implementation of this Improvement Plan will also provide a framework from which the AMP can be developed to meet all the requirements of a core asset management system.

While no extensive monitoring programme has been put in place at this time, it is proposed to review progress against the plan on a six-monthly basis with the mid-year report being an interim look at progress year to date, while the Annual Report will be a more formal review of the Improvement Plan.

15.2 IMPROVEMENT MONITORING

The Improvement Plan addresses short-term priorities because the effects of those actions must be monitored before medium and long term improvement plans can be put in place.

Undertaking a review of the Improvement Plan, in terms of comparing progress to the proposed timeframes etc., will affect the introduction of a programme of performance reporting, auditing and reviews of the AMP.

15.3 HOW EFFECTIVENESS OF AMP WILL BE MONITORED

The AMP is a living document and needs to be kept current and relevant. It is recognised that prioritises will change which makes review activities even more important to ensure this plan is a live document. The following review activities will be undertaken.

Frequency	Review Task	Action	Document/Report	Audience
Three Yearly	AMP Development (including Peer Review)	Formally review to assess adequacy and effectiveness Formal adoption of the plan by Council	Land Transport Activity Management Plan	Transport Asset Manager, Community Services & Assets Manager, LTP team, Council and Audit New Zealand
Annually	AMP Improvement Plan Review (internal)	Tracking the progress of implementing the improvement programme	Internal report	Transport Asset Manager and Community Services & Assets Manager

WAIROA DISTRICT COUNCIL