



**CENTRAL
HAWKE'S BAY**
DISTRICT COUNCIL

Land Transport



Activity / Asset Management Plan

July 2021



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1 Executive Summary

1.1 Introduction

The Council is committed to investing in transport infrastructure based on robust evidence to sustain the transport network in the long term; by targeting the right treatments, to the right places, at the right times and for the right costs.

This is the second business case Land Transport Activity Management Plan (LTAMP), prepared for the road assets owned and operated by the Central Hawke's Bay District Council (CHBDC) on behalf of its community and ratepayers. This plan has been produced and reviewed as required by legislation set out in Local Government Act (LGA) 2002. Under the Act, Council has to deliver revised Plans to its community on a three-yearly cycle.

The purpose of the LTAMP is to set out the tactical response to managing the transport activity by explicitly outlining the specific problems, benefits and opportunities within the transport system and discussing the technical aspects of delivering the desired outcomes. The LTAMP explains the process of managing assets to realise the investment objectives set out to achieve agreed levels of service. This LTAMP also outlines funding and financing of the assets including the risk profile and how these can be managed, mitigated or removed.

In compiling this LTAMP consideration was given to its affordability in light of the size of the Council and the other infrastructural financial pressures the Council is facing. The LTAMP does not look for an increase in funding but instead attempts to use a higher level of evidence-based decision making to overcome the lack of funding available.

The LTAMP sets out levels of service and performance requirements that are based on legislative and strategic requirements, the needs of residents and economic affordability. Actual condition and performance of the assets is presented, and current and future asset requirements are identified to ensure the provision of land transport assets that are fit for purpose and meet the requirements of the people of the District both now and long into the future. The goals of this AMP are directly reflected in the RLTP.

The LTAMP is for a period of 30 years from 2021 to 2051, with updates and modifications to meet emerging trends or situations.

This LTAMP also needs to meet the requirement of the Council's funding partner Waka Kotahi (NZTA) to ensure continued investment from the National Land Transport Fund (NLTF). Their requirements differ somewhat in that the use of a business case format is required and the LTAMP must provide a clear line of sight from the problem statements (ILM) to the funding request.

This LTAMP is considered to meet the new recommendations of the Waka Kotahi NZ Transport Agency (Waka Kotahi)/ Road Efficiency Group (REG) business case approach (BCA) as far as best appropriate practice for the CHBDC.

As part of the network management planning process, local authorities are expected to apply the principles of the BCA to justify investment decisions, with the outcomes of realising efficiency savings and increasing value for public by better targeting investment. The BCA is a process that improves investment decision-making by clarifying why we are doing work, defining our strategic problems and benefits, ensuring there is robust evidence behind our strategic response, and building a robust case for investment.

The District's business case approach for each of the asset groups is outlined in the lifecycle management plan section of this LTAMP (section 7).

This LTAMP describes the programme business case approach as well as the strategies, work programmes and long-term financial forecasts for Council's Land Transport portfolio.

1.2 Strategic Goals

Project Thrive is the backbone of the Council and provides the strategic direction behind significant investment in people and infrastructure to support the growth and aspirations of the Central Hawke's Bay District. The Council's vision for Central Hawke's Bay District is,

E ora ngātahi ana! Together we thrive!

The supporting community objectives to help achieve this vision are:

- A proud district
- A prosperous district
- Strong communities
- Connected citizens
- Smart growth
- Environmentally responsible
- Durable infrastructure

The vision and community objectives are also in line with the LGA's four well-beings, Ministry of Transport's Transport Outcome Framework¹, and the GPS strategic priorities², the REG Pillars of Success as shown in Table 1-1. Refer to Section 2.2 for further detail.

Table 1-1: Link between CHBDC community outcomes and national strategic goals

Community Outcomes	Wellbeings	Transport Outcomes	GPS Strategic Priorities	REG Pillars of Success
A proud district	Social, Cultural	Healthy and safe people, Inclusive access	Safety, Better travel options	Service Delivery Benefit Delivery
A prosperous district	Economic	Economic prosperity	Better travel options, Improving freight connections	Systems Decision Making
Strong communities	Social, Cultural	Healthy and safe people, Inclusive access	Safety, Better travel options	Service Delivery Communicating
Connected citizens	Social	Inclusive access	Better travel options	Communicating Decision Making

¹ The purpose of the transport system is to improve people's wellbeing, and the liveability of places

² Safety, better travel options, climate change, and improving freight connections



Smart growth	Economic, environmental	Economic prosperity, Environmental sustainability	Climate change, Improving freight connections	Decision Making Systems Evidence
Environmentally responsible	Environmental	Environmental sustainability	Climate change	Communicating
Durable infrastructure	Economic, environmental	Resilience and security	Climate change, Improving freight connections	Benefit Delivery Service Delivery

1.3 Our Road Network

The Central Hawke's Bay District is in the southern part of the Hawke's Bay Region and adjoins neighbouring Hastings District and Tararua District. The CHB District encompasses 3,332 km² with a usually resident population of 14,1423. There are two main towns in the District, Waipukurau and Waipawa, with several smaller townships, and several beach townships. The District's economy is based in agriculture, mainly sheep and beef farming, vegetable and grain crops, pip fruit, with increasing dairy farming.

The district is served by State Highway 2 and State Highway 50 (managed by Waka Kotahi) and has 1,264 km of local roads (Figure 12). Table 12 shows the local road lengths summarised in terms of the new One Network Road Classification hierarchy.

Table 1-2: Road lengths by one network road classification

One Road Network Hierarchy	Length (km)	Proportion (%)
Arterial	0.57	<1%
Primary Collector	0.75	<1%
Secondary Collector	268.00	21%
Access	551.00	44%
Access (Low Volume)	444.00	35%
Total	1,264.00	

³ Statistics NZ, Census 2018

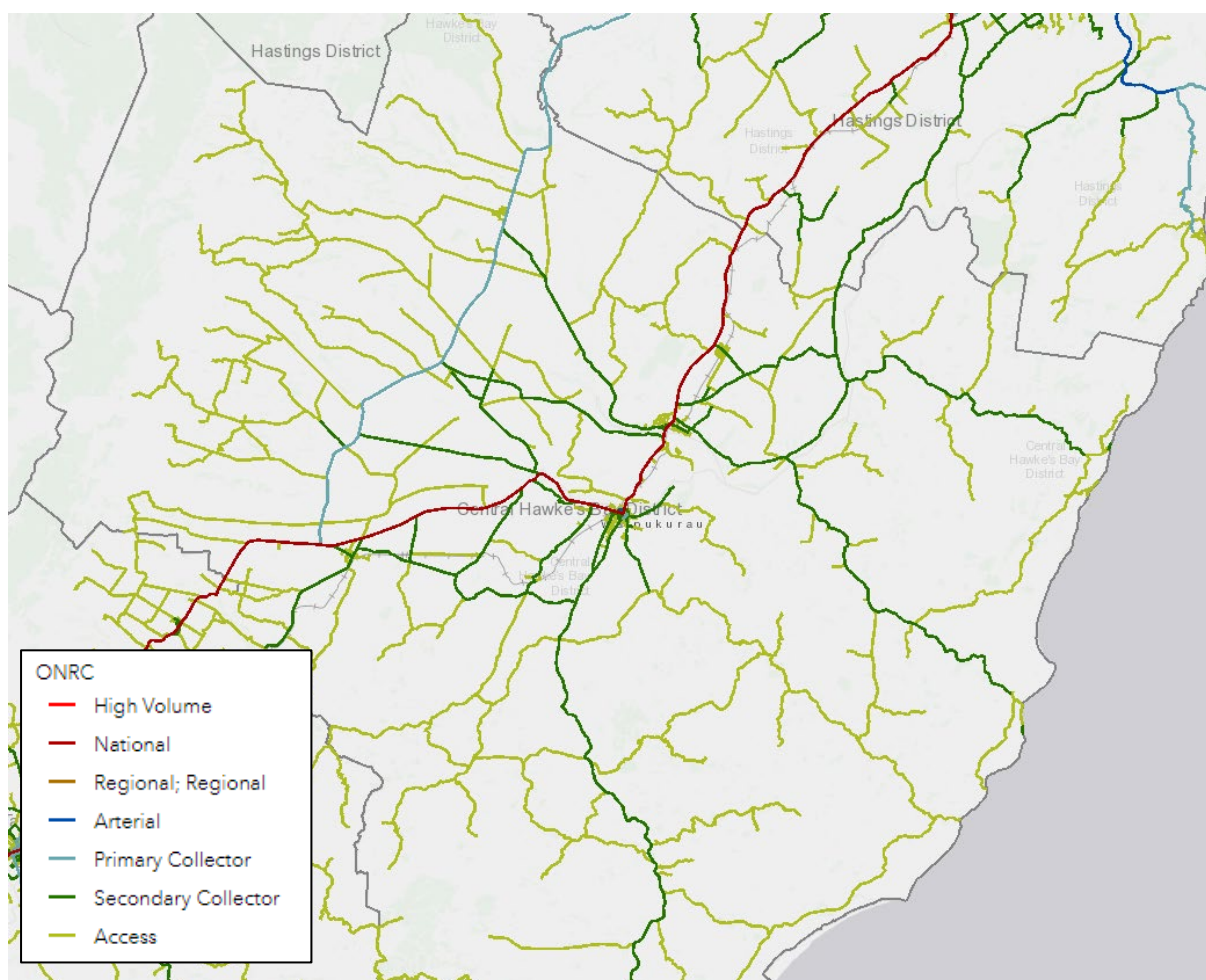


Figure 1-1: Roads in the Central Hawke's Bay district by One Network Road Classification

Table 1-3 provides a summary of the roading assets owned and maintained by CHBDC.

Table 1-3: Road network asset summary

Asset Group	Asset Type	Quantity	Unit
Pavements	Sealed pavements	856,182	M2
	Unsealed pavement	401,978	M2
Drainage	Drainage Assets	9,166	ea
	Surface water channels	1,766,747	lm
Bridges and Guardrail	Bridges	169	ea
	Major culverts	92	ea
	Guardrail	8,485	lm
Retaining Structures		7,540	lm
Traffic Facilities	Rails	10,187	lm
	Signs	5,712	ea



Asset Group	Asset Type	Quantity	Unit
	Markings	1,044,846	lm
	Islands	1,214	m ²
	Minor Structures	47	ea
	Traffic Facilities ⁴	9	ea
Streetlights		1,990	ea
Walking and Cycling Infrastructure	Footpaths	69,717	lm
	Crossings	133	lm
	Cycleways	0	m
Vegetation and Streetscapes	Berms	335,499	m ²
	Trees	160,663	ea

1.4 Why Council has Road Infrastructure

CHBDC is the road controlling authority for the Central Hawke's Bay. As such, Council's role is to provide a transport system that improves wellbeing and liveability by providing safe, sustainable, reliable, efficient, and effective movement of people and goods.

The existing transport network is a significant part of the core infrastructure for the District and contributes to the social and economic wellbeing of residents, visitors and businesses. The transport network is essential to the continued growth and economic success of Central Hawke's Bay District and must be managed safely, efficiently and effectively now and in the future.

Council maintains ownership and responsibility for managing the Land Transport Activity and the associated infrastructure as per the Local Government Act (LGA) 2002 and subsequent amendments namely:

- To enable democratic local decision-making and action by, and on behalf of communities
- To meet the current and future needs of communities for good-quality local infrastructure, local public services, and performance of regulatory functions in a way that is most cost-effective for households and businesses.

1.5 Negative Impacts

Potential consequences of not investing in land transport activities include:

- Raised likelihood of accidents including deaths and serious injuries on the network due to safety issues not being addressed
- Reduced reliability of the network leading to higher transport costs and reduced economic opportunity
- Increased risks of isolating areas of population due to road access not being available

⁴ This component includes only the false kerbs, which are stored in the RAMM Traffic Facilities Table



- Not providing appropriate levels of service to road classification and use
- Deterioration of the assets, requiring a higher cost of remediation
- Decreased customer confidence and satisfaction in the transport system, Council and government agencies

1.6 Key Issues with Road Infrastructure

The key issues with the Central Hawke's Bay transport network are as per the problems identified in the Strategic Case (Section 2.2). The problems identified are:

- **Safety:** Deficiencies in the transport network combined with an increasing demand on the system is leading to crashes that result in death and serious injury.
- **Resilience:** Existing infrastructure is vulnerable, aging and unable to meet increasing demands reducing the reliability of the transport network leading to isolated communities, higher transport costs and reduced economic opportunities.
- **Access:** Existing transport infrastructure provides limited multi-modal options for people to access goods and services leading to inefficient trips and high reliability on private motor vehicles.

There are also routine problems that arise as a result of operating in difficult environmental conditions (soft soils, hilly terrain, high rain fall) causing the road network to deteriorate over time, for example:

- The sealed network requires resealing as the seal wears out causing loss of traction and permeable pavements increasing the likelihood of accidents and further pavement deterioration.
- Metal loss from unsealed roads creates unsafe situations for road users and exposes the road base to more rapid deterioration.
- Drains and drainage appliances lose their effectiveness over time due to vegetation growth, silt, scour etc. putting the network at risk from high rainfall events. This increases the risk of interruption of transport services and potentially increases the cost to businesses in the area by lowering productivity.
- Lighting, line marking, and signs deteriorate over time increasing the accident risk to road users.

1.7 How We Fund This Activity

The management and maintenance of the transportation network is funded from the transportation rate collected by Council and financial assistance received from Waka Kotahi from dedicated transport funding.

Council's funding policy in the past has been to utilise a combination of Waka Kotahi subsidy and land transport Council rates for maintenance and development of the roading network. Where appropriate, and agreed by Council, loans may be raised for the development of the roading infrastructure. It is envisaged that this policy will continue in the future.

For Central Hawkes Bay the (2020/21) unsubsidised portion (covered by general rates) is presently 40% of the cost of maintaining and renewing the transportation network. In August 2020 the Waka Kotahi Board resolved to reduce Councils financial assistance rate by 1% in year two of this plan to 59%. As a result, this will need to be covered by Council and will have an impact on rates and/or customer levels of service.

To ensure Council receives the Waka Kotahi subsidy all projects must meet the requirements set out in the Land Transport Management Act (LTMA) and all Waka Kotahi and Council requirements.

1.8 Key Achievements and Limitations of this Activity Management Plan

Achievements

The transportation activity provides the transport planning, policy and physical infrastructure networks including roads, footpaths, cycleways, bridges and traffic facilities. Investment in the transportation activity ensures a safe, efficient and affordable transport network that facilitates the movement of people, goods and services around and through the district. Many of the expenditures in a local authority are for infrastructure that have long service lives such as transportation networks.

Limitations

The limitations of the LTAMP are largely based on the assumptions and uncertainties associated with the transport activity. More detail on the assumptions and uncertainties can be found in Section 2.2.10 and Section 6, with key limitations listed below:

- Long term impacts of the Covid-19 pandemic are minimal in relation to transport
- Assumption that funding will continue to be available at the current levels
- Service levels are not expected to change significantly
- Community expectations will remain constant
- No abnormal events (weather no greater than a 1 in 5-year event, earthquake – no damage causing earthquake) occur in the forecasted period.
- Regional and Council flood protection schemes remain intact and operate as planned.
- Demand on the network will increase as predicted

1.9 Relationship to Other Council Documents

AMP's are a key component of the strategic planning and management of Council with links to the LTP, Regional and National Land Transport Strategies and Plans, Council planning documents, the GPS and legislation and regulatory instruments. The key linkages are demonstrated in Figure 1-3.

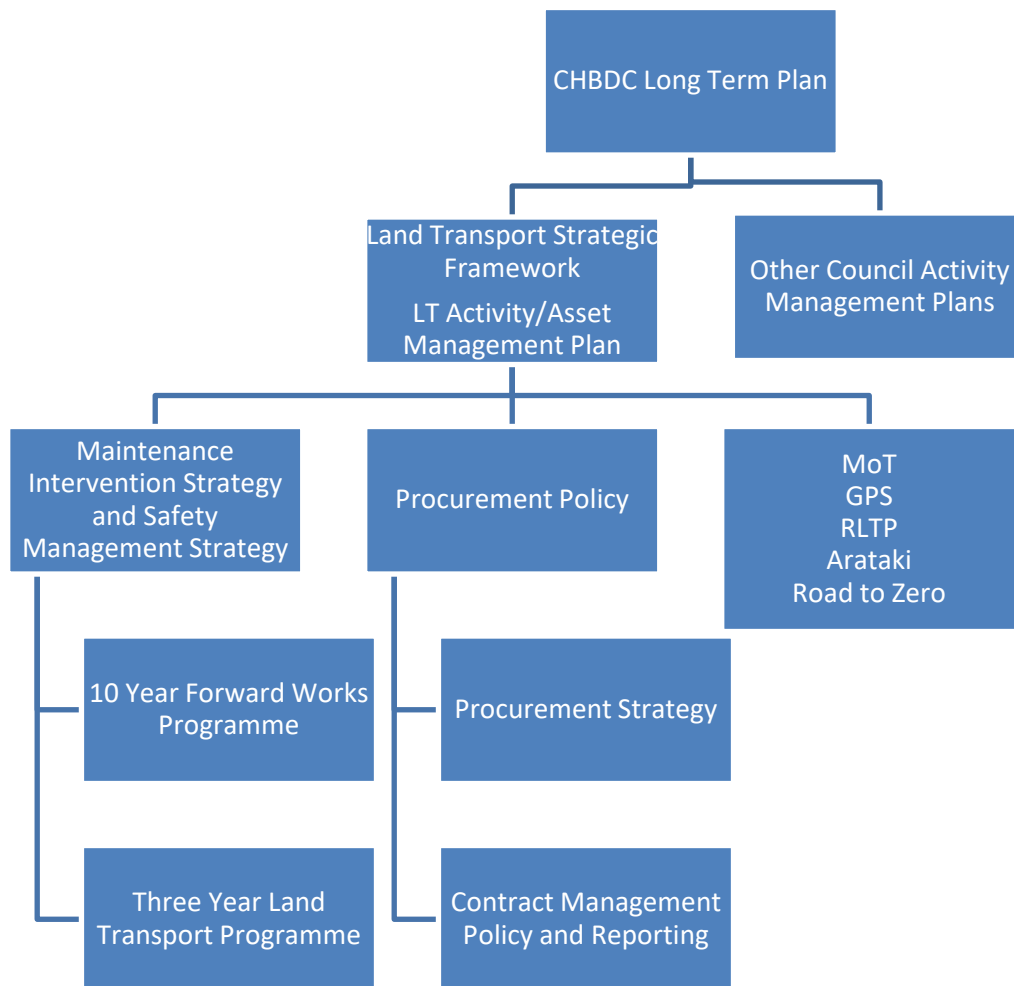


Figure 1-2: Key Linkages to the LTAMP

The following key documents have an impact on this LTAMP

- a) Ministry of Transport outcomes
- b) Government Policy Statement 2021
- c) Council Vision and Outcomes
- d) Regional Land Transport Plan
- e) Regional Public Transport Plan
- f) NZ Walking and Cycling Plan
- g) Arataki
- h) Road to Zero
- i) District Land Transport Strategic Framework
- j) CHB District Plan
- k) CHBDC Spatial Plan

A full summary of the key legislation, national and regional policies, strategies and plans, national standards and guidelines, district bylaws, policies, strategies, and plans is provided in Section 2.

As demonstrated in the body of this LTAMP this document clearly links to all. It provides a clear line of sight between the Problem Statements and the funding request.

2 Strategic Environment and Legal Framework

2.1 Council Mission Statement

Project Thrive is the backbone of the Council and provides the strategic direction behind the significant investment in people and infrastructure to support the growth and aspirations of the Central Hawkes Bay District. The Council's vision for Central Hawkes Bay District is,

E ora ngātahi ana! Together we thrive!

An outline of the framework is shown in Figure 2-1. This LTAMP has been designed to deliver on this strategic direction and the framework has been integrated throughout this plan, including informing the assessment criteria for the final programme of work.



Figure 2-1: Thrive framework

2.2 Strategic Business Case

The Strategic Case sets out why the Council is investing in land transport activities, and in particular:

- Defines the Problem and Benefits that would result from solving the problems.
- Assesses the status of the existing evidence base as a means of assessing the robustness of the problems and benefits from current information and stakeholder knowledge.
- Establishes key performance measures that will be used to measure how an investment has contributed to the benefits or realise an opportunity identified in the strategic case.

A series of workshops and stakeholder sessions were held to develop and document an investment logic map, to define problem statements and understand benefits. The results are incorporated into this LTAMP.

2.3 Strategic Context and Assessment

The Central Hawke's Bay District Council maintains 1,265 km of road with 261 bridges and large culverts. The road network is used to connect communities and provide access to large productive areas of land, which contribute significantly to the Hawke's Bay regional economy as well as the economy of New Zealand.

The road network services approximately 14,000 people⁵ in two main population centres (Waipawa and Waipukurau), along with eight smaller communities ranging from the Ruahine mountains in the west to the Pacific Ocean in the east. There are numerous local connector roads, both north and south to neighbouring districts, as well as two State Highways which connect to manufacturing and processing in Hastings and to the Port of Napier.

2.4 Strategic Objectives and Outcomes

Land Transport Activity Management Plans (LTAMP) are tactical plans which provide the link between community outcomes and work programmes. The Strategic Case aligns with the wellbeing statements, community outcomes and land transport levels of service contained in the Council's Long Term Plan (see Section 1.2). In particular, the Council's investment strategy for this LTAMP aligns to the service requirements in the Long Term Plan for "roads that are increasingly safer" and for the "quality of ride on a sealed local road network."

2.5 Alignment to Existing Strategies and Organisation Goals

This LTAMP is a key component of the strategic planning and management of the Council, with strong links to other overarching strategies and policies, external agency strategies and policies, and to legislation and other regulatory instruments. It sits under the Land Transport Strategic Framework which is at the top of Council's hierarchy of documents and processes used to manage land transport assets

There is also a strong relationship between this LTAMP, National and Regional Land Transport Strategies, and other Council planning documents. The Council's investment strategy for this LTAMP aligns to and addresses government and regional priorities in the Government Policy Statement for Transport (GPS), the Waka Kotahi NZ Transport Agency (Waka Kotahi) Investment Prioritisation Framework (IPF), Arataki (the Waka Kotahi long term strategic view), the Road Efficiency Group's (REG) Business Excellence Framework, and the Regional Land Transport Plan (RTLTP).

The strategies, policies and planning documents of relevance to this LTAMP are discussed in detail in Section 2.5, 2.7, and 2.8. A summary of the key documents is shown in Table 2-1 and how they interconnect and influence each other is shown in Figure 2-2.

Table 2-1: Key strategies, policies and planning documents

Document	Summary
National Context	

⁵ "Population Counts," Central Hawke's Bay District, Stats NZ, accessed 14 July 2020, <https://www.stats.govt.nz/tools/2018-census-place-summaries/central-hawkes-bay-district#more-data-and-information>



Document	Summary
Ministry of Transport, Transport Outcomes Framework (2018)	<p>The Framework identifies what the government is aiming to achieve through the transport system. It states that the purpose of the transport system is to <i>"improve people's wellbeing, and the liveability of places"</i> and it has a guiding principle of mode neutrality. It achieves this by contributing five key outcomes:</p> <ul style="list-style-type: none"> • Healthy and safe people: protecting people from transport-related injuries and harmful pollution, and making active travel an attractive option. • Environmental sustainability: transitioning to net zero carbon emissions, and maintaining or improving biodiversity, water quality, and air quality. • 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. • Economic prosperity: supporting economic activity via local, regional, and international connections, with efficient movements of people and products. • Inclusive access: enabling all people to participate in society through access to social and economic opportunities, such as work, education, and healthcare.
Government Policy Statement on Land Transport (Draft 2021)	<p>The Government Policy Statement on Land Transport (GPS) states that <i>"The purpose of the transport system is to improve people's wellbeing, and the liveability of places."</i> The GPS identifies four strategic priorities for the next 10 years that will best contribute to improving our communities' wellbeing and liveability:</p> <ul style="list-style-type: none"> • Safety: Developing a transport system where no-one is killed or seriously injured • Better travel options: Providing people with better transport options to access social and economic opportunities • Climate change: Developing a low carbon transport system that supports emission reductions, while improving safety and inclusive <p>Improving freight connections: Improving freight connections for economic</p>
Arataki	<p>Arataki is Waka Kotahi's 10-year view of what is needed to deliver on the government's current priorities and long-term objectives for the land transport system. It outlines five step changes to deliver the government's long term objectives: <i>improve urban form, transform urban mobility, significantly reduce harms, tackle climate change and support regional development.</i></p>
Road to Zero: NZ Road Safety Strategy (2020-2030)	<p>Road to Zero is the Government's new road safety strategy that replaces the Safer Journeys initiative. It outlines a plan to stop people being killed or injured on our roads.</p>



Document	Summary
Regional Context	
Hawke's Bay Regional Land Transport Plan 2021-2031	<p>The vision for transport in Hawke's Bay is <i>"A safe, resilient and efficient transport system that supports the development of our economy and contributes to social wellbeing in our community."</i> The RLTP identifies three problems for the region:</p> <ol style="list-style-type: none"> 1. Regional freight movement is constrained by vulnerable & aging infrastructure, competing user demands and Port access limitations negatively impact on supply chain reliability and economic productivity (30%) 2. Existing transport network and land use development has resulted in communities with limited transport choice leading to undesirable health, environmental and socio-economic outcomes. (30%) 3. Transport network deficiencies, an older vehicle fleet and poor road user behaviour contributes to crashes resulting in increased road deaths and serious injuries. (40%)
Hawke's Bay Regional Cycle Plan 2015	<p>This is a Hawke's Bay Regional Council initiative to promote cycling within the region. The Plan's vision is <i>"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."</i> Two initiatives relate to CHBDC: the Waipawa to Waipukurau Off-Road Cycle Path and the Havelock North to Waipawa cycle path investigation. Waka Kotahi are responsible for the implementation of these projects.</p>
Local Context	
Central Hawke's Bay Long-Term Plan 2018-28	<p>The Long Term Plan (LTP) is a statutory requirement that the district completes to ensure that the district has a sustainable vision for not only the present but also for thirty years into the future. The key objectives outlined in the LTP that relate to transport are: strong communities, connected citizens, environmentally responsible, and durable infrastructure.</p>
Draft District Plan 2019	<p>The purpose of the District Plan is to assist the Council to carry out its functions in order to achieve the purpose of the Resource Management Act 1991. The Plan's transport objectives are:</p> <ol style="list-style-type: none"> 1. The transport network is safe, efficient and effective in moving people and goods within and beyond the District. 2. Activities generate a type or level of traffic that is compatible with the roads they are located on.
Land Transport Strategic Framework 2020 – 2025	<p>The Land Transport Strategic Framework presents Council's strategic approach to managing its land transport assets. Its vision is to <i>"deliver safe, reliable and lasting road assets that connect our people and our places and allow our district to prosper."</i> It identifies four pillars to achieve this vision:</p> <ul style="list-style-type: none"> • Safety above all else

Document	Summary
	<ul style="list-style-type: none"> • Connected and resilient infrastructure and communities • Protecting our natural built environment • Economic resilience and financial sustainability

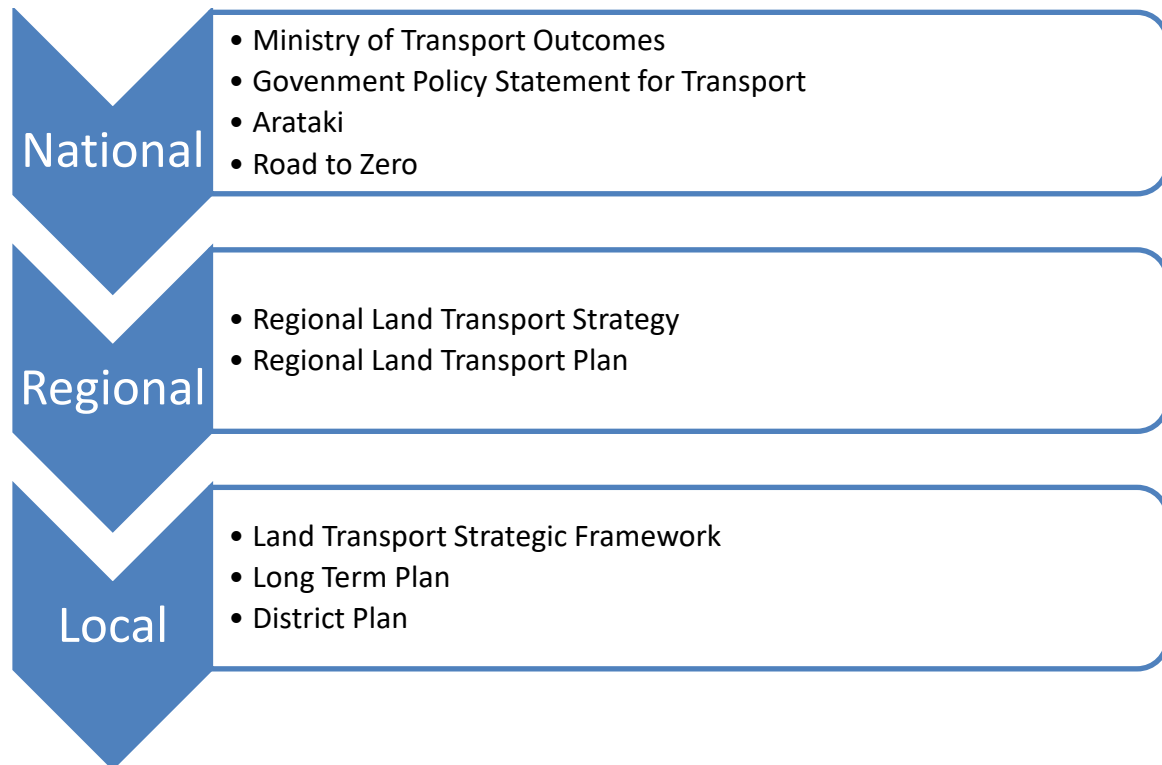


Figure 2-2: How the national vision and objectives influence regional and local documents

2.6 Financial Strategy

Central Hawkes Bay District Council's financial strategy explains how the Council will manage its finances over the next ten years. It sets out the general approach and principles to be followed, and it provides a guide against which proposals for funding and expenditure can be assessed.

Councils financial strategy applies the following principles:

- to be fair to ratepayers and customers
- to maintain service delivery and if required meet increasing demand
- to balance the budget
- to be good stewards of CHBDC's assets and infrastructure, and of funds,
- to spread the cost of assets across their useful lives.

More details on how Council plans to fund the transport activity is included in Section 8 – Financial Summary.

2.7 Procurement Strategy

Council maintains ownership and responsibility for managing the land transport activity and the associated infrastructure. In order to maximise efficiencies and long term value for

money, the Council has taken a holistic approach to service delivery. As a result, procurement is linked operationally, tactically, and strategically.

The road maintenance and capital works contracts form the largest component of the procurement of transport services. To ensure value for money and alignment with Councils strategic procurement objectives Council completed a full round of contract procurement following its strategy review in 2019 to procure services based on the above principles.

The Road Efficiency Group (REG) developed tools to assist road controlling authorities making procurement and service delivery decisions. The aim is to improve road maintenance delivery decisions, affirming value for money and understanding a RCA's ability to procure the services they require in the best possible way.

As a result, a "Smart Buyer Self-Assessment Tool" was created for RCA's to self-assess their targeted vs actual procurement performance. A summary of Councils recent self-assessment is shown in Figure 2-3.

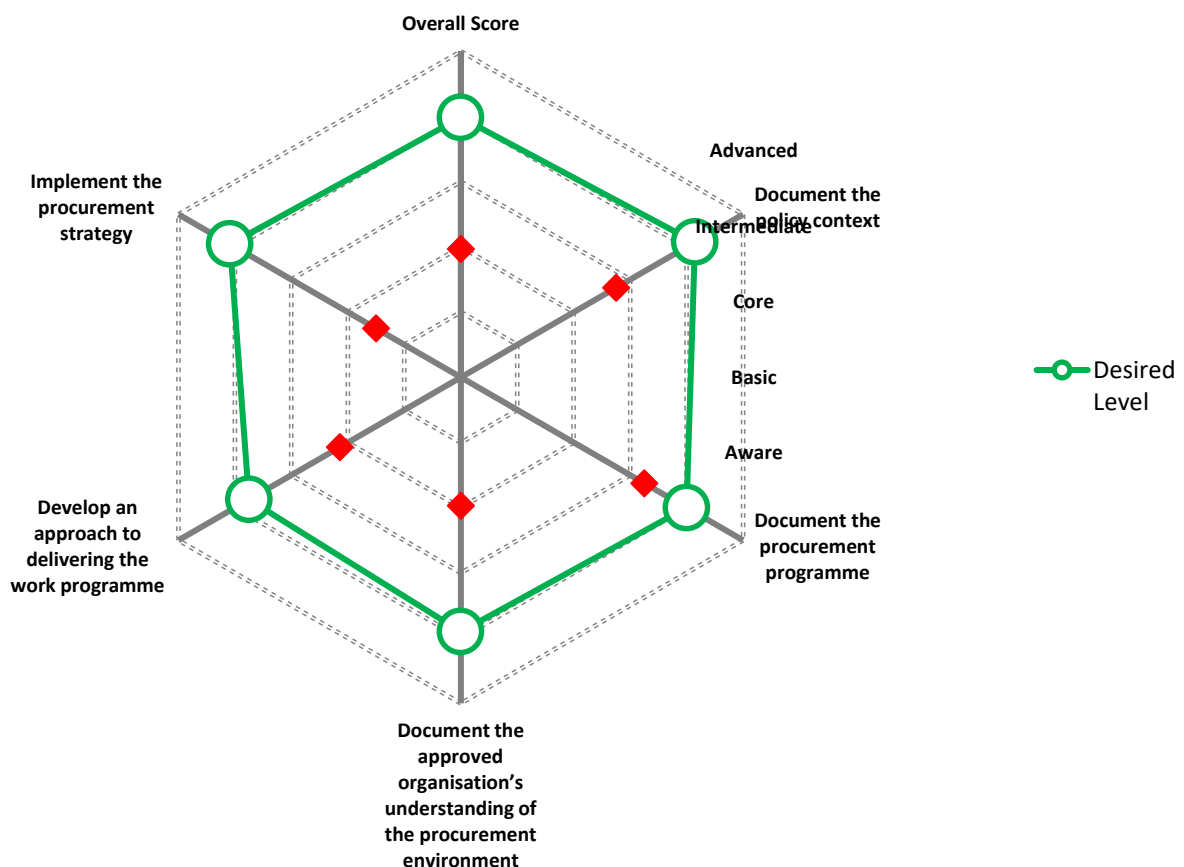


Figure 2-3: Self-assessment

This self-assessment was completed prior to the award of the main land transport physical works contracts in 2020 and is subsequently due for review. This review will happen during the 20/21 fiscal year

2.8 Stakeholders and Affected Parties

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

Council ensures that all stakeholders have an opportunity to influence the level of service (LoS) decisions relevant to this LTAMP by:

- Producing an easily readable summary of the AMP.
- Making this AMP available on Council's website.
- Engaging with key stakeholders about any proposal for new development.
- Undertaking periodic focus group consultation as part of the LTP development.
- Giving the public opportunity to provide submissions on strategic targets through Council's LTP process.
- Consulting with affected persons on specific projects (as required by the RMA).
- Carrying out periodic LoS surveys and yearly resident surveys to monitor customer satisfaction.
- Monitoring and analysing requests for service from customers recorded within Council's customer service request system.

Table 2-2 lists the main stakeholders affected by this business case:

Table 2-2: Key customers and stakeholders

Customer	External Stakeholders	Internal Stakeholders
<ul style="list-style-type: none"> • Citizens and ratepayers, tenants, local businesses, local iwi, visitors to the District, and local community groups. • Road users including: <ul style="list-style-type: none"> ○ Motorists – private and commercial cars, vans, trucks, and motorcycles ○ Cyclists ○ Pedestrians • Disabled users, including wheelchair and mobility scooter users • Recreational users, including runners and skaters • Industry Groups, including forestry, farming, quarrying and mining 	<ul style="list-style-type: none"> • Local Government NZ • Waka Kotahi • Department of Conservation • New Zealand Police • Office of the Auditor General • Ministry of Civil Defence and Emergency Management • Ministry for the Environment • Hawke's Bay Regional Council • Hawke's Bay Regional Transportation Committee • Automobile groups • New Zealand Historic Places Trust • Iwi • Environmental groups • Service utility providers 	<ul style="list-style-type: none"> • Mayor and Councillors • Chief Executive and the Management Team • Asset Management Staff • Regulatory staff • Financial Support staff • Information Technology staff



Customer	External Stakeholders	Internal Stakeholders
	<ul style="list-style-type: none"> • Consultants and contractors • Community Groups • KiwiRail 	

3 Problems

3.1 Background

The Council's investment strategy for this LTAMP aligns with and aims to address key issues that the District faces. Issues and risks identified by the Council, including:

- General labour shortage, maintaining skills and abilities, maintaining local knowledge.
- Insufficient funding to achieve roading goals
- Maintaining skills and level of service in suppliers
- Changes to funding criteria by Waka Kotahi
- Government funding not adequate
- Project costs exceeding budget
- Managing cash flow
- Road closure and lack of access to some areas due to climatic event – storm/ flooding/ high winds
- Road closure and lack of access to some areas due to major accidents
- Not replacing depreciating assets
- Ensuring ratepayers share is available
- Changing vehicle needs - 50MAX/ HPMV

Routine problems arise as a result of operating in difficult environmental conditions (soft soils, hilly terrain, high rain fall) causing the road network to deteriorate over time, for example:

- The sealed network requires resealing as the seal wears out causing loss of traction increasing the likelihood of accidents and further pavement deterioration.
- Metal loss from unsealed roads creates unsafe situations for road users and exposes the road base to more rapid deterioration.
- Drains and drainage appliances lose their effectiveness over time due to vegetation growth, silt, scour etc. thus putting the network at risk from high rainfall events increasing the risk of interruption of transport services and potentially increasing cost to the businesses in the area by lowering productivity;
- Lighting, line marking and signs deteriorate over time increasing the accident risk to road users if they are absent

3.2 Investment Logic Map

Using the Waka Kotahi recommended investment logic mapping framework, the following problem statements for this LTAMP were derived from workshops with key stakeholders in June 2020. The problems fall under three key themes: **Resilience, Access** and **Safety**.

The following Investment Logic Map (Figure 2-4) sets out the problem statements, their relative importance, and their relationship to the benefits.

Central Hawke's Bay District Council Transport AMP

"Deliver safe, reliable and lasting road assets that connect our people and our places, and allow our district to prosper"

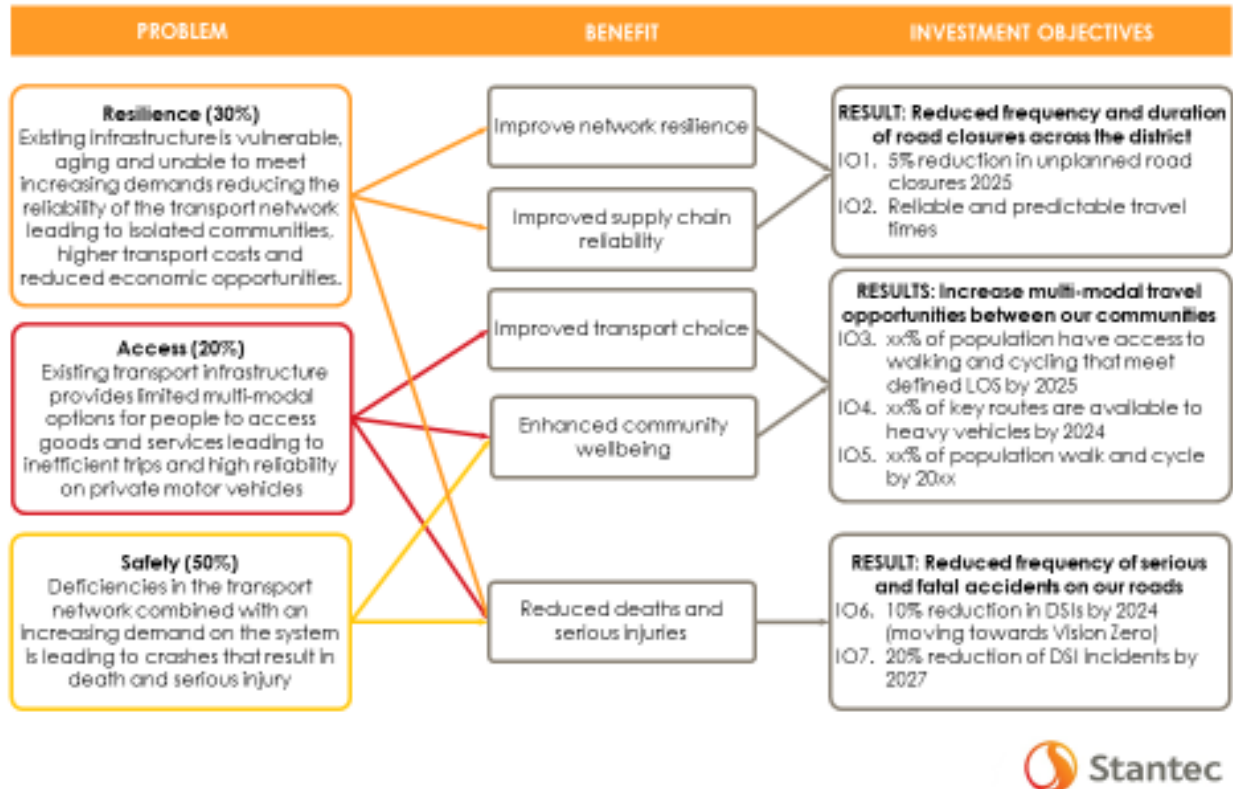


Figure 2-1: Investment logic map

3.3 Problem 1: Resilience

Existing infrastructure is vulnerable, aging and unable to meet increasing demands reducing the reliability of the transport network leading to isolated communities, higher transport costs and reduced economic opportunities.

Resilience, in the land transport context, is defined by Waka Kotahi in the 2018 Resilience Framework as

The transport system's ability to enable communities to withstand and absorb impacts of unplanned disruptive events, perform effectively during disruptions, and respond and recover functionality quickly.

A transport system that lacks resilience becomes unavailable in an event, hindering emergency responses, recovery, impacting lives, livelihoods, communities and businesses. Resilience requires minimising and managing the consequences of small-scale and largescale, frequent, and infrequent, sudden and slow-onset disruptive events, caused by natural and man-made hazards.

Route Reliability

Unplanned road closures disrupt journeys and cause travel time delays. An example of unplanned road closures are natural hazards, weather events and traffic accidents. All can have a significant impact on route reliability. The District's communities and industry groups

cannot manage the impact of unplanned events as it is impossible to know when, where or what level of severity will occur. The impact, felt when people become cut off or face long detours until access can be restored, can be severe.

Transport assets are highly vulnerable to the impact of natural hazard events, which can result in damage to roads and loss or failure of bridges and other structures. The District is susceptible to a number of natural hazards such as earthquakes, coastal inundation and erosion and tsunamis. Vulnerability also arises when assets are located on unstable land that is prone to landslides or land movement in wet conditions. Significant rain events create localised flooding and move debris. High winds bring down trees.

While natural hazard events have a relatively low frequency, records show high consequences and significant disruption. A significant rain event in June 2019 caused road closures across CHB, and the Flaxmill Bridge on Porangahau Road was closed due to flooding for 28 days. The previous year, the rain event that closed the Napier-Taupo Road, also caused flooding along the CHB section of SH50, and localised flood and debris warnings were issued by CHBDC. Other significant events in 2001, 2003, 2004 and 2011 caused major damage to roads, bridges and culverts. Figure 2-5 shows the extent of flooding from the Porangahau River, viewed from Old Hill Road, in 2004.



Figure 2-2: Porangahau River flooding in 2004

Guidance from the Ministry for the Environment suggests climate change is likely to have an impact on the Central Hawke's Bay over the coming years, with changes to wind and weather patterns, sea level rises, increased flood risk and frequency of extreme weather events predicted. Climate change is not expected to create new natural hazards in CHB but may change the intensity and frequency, creating more uncertainty for the District's economy and its communities.

Road crashes are also a major cause of unplanned closures, disrupting journeys and causing travel time delays. All but two of the 16 unplanned closures recorded on SH2 between 2016 and 2019 related to a road crash. Addressing road safety risk would improve route reliability and reduce delays (Problem 3, Section 2.2.5.5).

Unsafe or undesirable detours

When unplanned road closures occurred, particularly on the state highway network, it is the local road network that is relied upon for detours. This is not always desirable due to many of

the District's local roads, and particularly rural roads, having significant safety issues (see Problem 3, Section 2.2.5.5).

Viable Lifelines

Lifelines are infrastructure networks that support life, communities and business. In addition to transport, lifelines infrastructure includes energy, communications and water service sectors. There is a strong 'interdependency' aspect of lifelines networks, with roads facilitating access to sites for restoration during readiness, response and recovery phases of events.

The District has good availability of alternative routes⁶ which provide viable lifelines. SH2 provides the main lifeline through the District and connects the main townships of Waipawa and Waipukurau. SH50 is the main alternative through the district and, in conjunction with the local roads, provides an alternative route between the main townships. There are also alternative local roads parallel to the state highway network to the north-east and south-west.

Fit for purpose infrastructure

Transport network constraints arise when the age, type or condition of assets do not meet the required standard. The District's bridging structures are a key element of the roading network and an example of where the asset may not be fit for purpose.

There are 261 bridging structures on CHBDC's local road network. These include bridges (169) and large culverts (92), with many of the local roads have more than one bridging structure. While many bridges have relatively short spans and low pier heights, others cross large river systems, with long spans and multiple piers, increasing their vulnerability. Recently completed condition assessments show the bridge stock is in good to average condition with some outliers on key routes.

The condition of the District's bridges, or if there is a lack of information about the condition, has implications for network reliability and usability. Weight restrictions are used as a tool to manage risk, which creates challenges and constraints for industry groups and freight operators seeking to use the network.

Weight restrictions dictate vehicle choice, with local producers and transporters not being able to use or access the full range of freight truck permits available. This is a particular issue for the forestry industry who are keen to move away from traditional truck and trailer units to HPMV, primarily due to cost efficiencies. Weight restrictions also dictate route choice, with transporters being unable to travel on the most direct or preferred route, resulting in added trip length. The lack of route choice also forces more heavy vehicle movements through the townships of Waipawa and Waipukurau. Weight restrictions on bridges also mean that when SH2, the only HPMV route, is closed, there is no alternative route for these large trucks to take. This results in delays and increased cost to operators.

3.4 Problem 2: Access

Existing transport infrastructure provides limited multi-modal options for people to access goods and services leading to inefficient trips and high reliability on private motor vehicles

⁶ Facing the Risks: Hawkes Bay Engineering Lifelines Project (2001),
<https://www.hbemergency.govt.nz/assets/Documents/Engineering-Reports/Facing-the-Risks-.pdf>

There is very little multi-modal infrastructure in the Central Hawke's Bay District. There is no public transport and limited cycling infrastructure. However, there are some private transport services that can provide access to medical and educational activities. The lack of public transport, suitable cycling infrastructure, and largely rural dispersed nature of the district means people must have access to a car if they wish to access community facilities and social opportunities. 3.6% of households in the region (183 in total) do not have a car.⁷ The people in these households are effectively excluded from participating in society unless they qualify for, or can afford, one of the private transport services.

The cycling infrastructure in the district is very limited, and the only routes available are either the Route 52 Heartland Ride (on road cycle touring route) or off-road recreational routes.

The 2018 census showed that 92% of people in the Central Hawke's Bay district travel to work via a private vehicle, up from 87% in the 2013 census (Figure 2-6). This is significantly higher than the New Zealand average of 83%. There is considerably more variability in the travel to education data (Figure 2-7), but private vehicles are still the dominant mode and account for 45% of trips to education facilities.

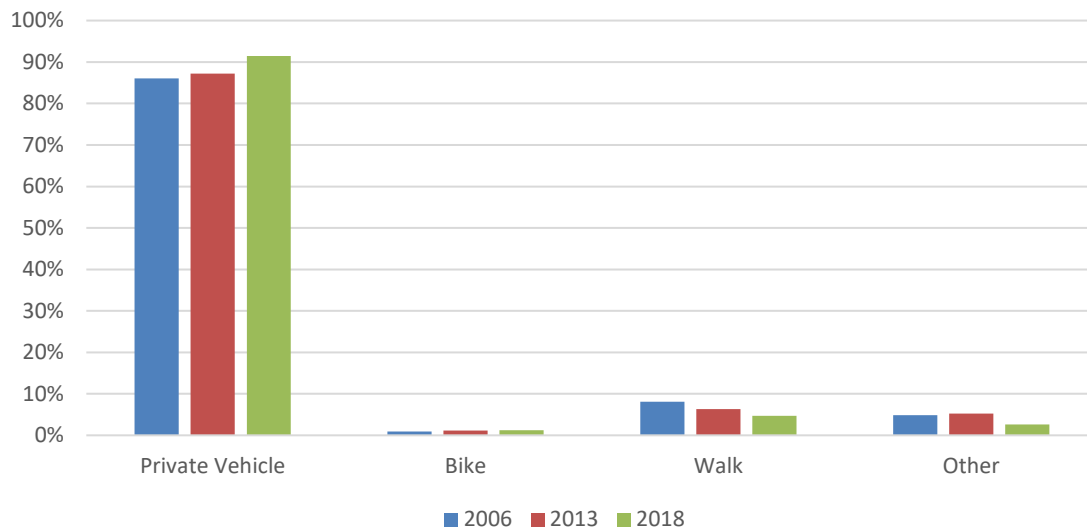


Figure 2-3: Travel to work mode split

⁷ Stats NZ, "Number of motor vehicles for households in occupied private dwellings" in the 2018 Census (2019), <https://www.stats.govt.nz/information-releases/statistical-area-1-dataset-for-2018-census-updated-march-2020>

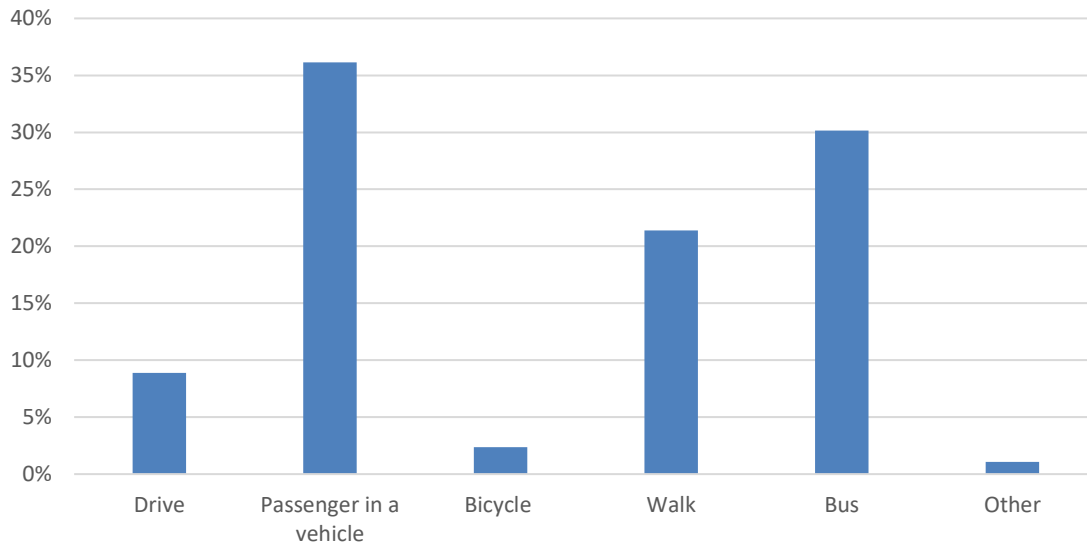


Figure 2-4: Travel to education mode split for the 2018 census

The lack of public transport and the limited cycling infrastructure is reflected in the dominance of private vehicle use for journeys to work and education. It is not unreasonable to assume that this dominance is similar for other trip types.

Hawkes Bay has the lowest physical activity rate in New Zealand and also has the highest overweight/ obesity rates in the country, with over 70% of adults and over 35% of children (2-14 years) considered overweight/ obese. Central Hawkes Bay's infrastructure to encourage active lifestyles is limited.

Road transport accounts for 19.7% of the gross national greenhouse gas emissions⁸ and this number is predicted to keep growing unless changes are made.

The national emissions inventory indicates on-road vehicles were the single biggest source of human-generated nitrogen oxides in 2015 (39%).⁹ The majority of CO and PM₁₀ comes from household heating, but vehicle exhaust emissions are still a key contributor.

Addressing the District's built in car decency and limited mode choice will lead to better health outcomes and environmental outcomes by reducing the concentration of contaminants and contributing towards an increased physical activity rate.

CHBDC's population is expected to continue to age, with the number of people over the age of 65 expected to increase 3.8% each year until 2031, and nearly double by 2051 (refer to Section 5.2.3 for further detail). This will result in a change to infrastructure demands as a result of increased use of mobility aids, electric scooters and frequency of trip and slip hazards.

3.5 Problem 3: Safety

Deficiencies in the transport network combined with an increasing demand on the system is leading to crashes that result in death and serious injury

⁸ Ministry for the Environment (2019). New Zealand's Greenhouse Gas Inventory <https://www.mfe.govt.nz/sites/default/files/media/Climate%20Change/nz-greenhouse-gas-inventory-2019.pdf>

⁹ Ministry for the Environment & Stats NZ, *New Zealand's Environmental Reporting Series: Our air 2018* (2018), <https://www.mfe.govt.nz/sites/default/files/media/Air/our-air-2018.pdf>

Improving road safety is a national priority in New Zealand and is reflected in the CHB Land Transport Strategic Framework (refer to Sections 2.5, 2.7, and 2.8 for further detail). The condition, maintenance and ongoing improvement of roading assets has a significant bearing on how safe a road network is and the likely result when someone makes a mistake.

Transport Network Deficiencies

The Central Hawke's Bay District transport network has the following deficiencies:

- **High speed environments:** Speed is an important factor which can affect the severity of a crash (higher speeds tend to be related to higher crash severity). The majority of local roads across the district have a 100 km/h speed limit or are 'open road' and are not aligned with the suggested Safe and Appropriate Speed (SAAS) as shown in Figure 2-8. Most of the rural roads are better suited to an 80 km/h speed limit and for some of the winding rural roads, the suggested SAAS is even lower at 60 km/h. The current 100 km/h speed limits are of particular concern in the areas around rural schools. In more urban areas some streets, which are primarily place based streets, have speed limits the same as roads with higher through movement functions. The higher speeds in these areas cause higher risk given potential conflict with non-motorised users.
- **Narrow carriageways, high risk curves, and roadside hazards:** A narrow carriageway and lack of shoulder width means there is less room for recovery from loss of control crashes. In the event of a vehicle losing control and veering off the road, the roadside hazards (e.g. power poles) mean the likely crash severity is high.
- **Rural intersection form and configuration, and conflicting movements:** As an intersection becomes busy, the complexity of decision-making increases as several conflicts can occur at the same time. Examples of deficiencies in rural intersections include off-setting and complex 4-way and 5-way layouts, lack of controls at 'cross' and 'tee' intersections, incorrect priority with main routes yielding to minor routes, or a lack of signs and markings making priority unclear.
- **Availability and condition of walking and cycling infrastructure:** There is very limited walking and cycling infrastructure in the district. The cycling infrastructure that is provided is generally off-road recreational routes that may not be suitable for those who would like to commute by bike.
- **Length and condition of unsealed roads:** The network in Central Hawkes Bay is made up of sealed and unsealed roads. Due to the predominately rural nature of the region, the unsealed roads are approximately 32% of the network (402km). Unsealed roads are generally less safe than sealed roads and requires drivers to be more aware of the conditions and also understand how to drive on a loose surface. Unsealed roads generally have less traction for a standard road car resulting in an increased risk of loss of control. These roads are significantly harder to delineate as road marking is impossible and signage is generally minimal due to the associated narrow road reserves. Unsealed roads are also more susceptible to damage to during storm events which can also lead to added safety risks.
The majority of local users driving unsealed roads in Central Hawkes Bay, are aware of the added focus required to drive in these conditions. However, unfamiliar users and some complacent local users could underestimate the conditions which lead to loss of control crashes and run off road crashes.
- **Discontinued guardrail:** Compliant guardrail should help to minimise the impact and severity if and when a vehicle leaves the road. However, discontinued end terminals

such as Texas twists and fishtails are still in use throughout the network¹⁰. These end terminals can increase the severity of a crash as if they are hit directly; Texas twists by launching the vehicle into the air, and fishtails by piercing the vehicle and acting as a spear.

Central Hawkes Bay District Traffic Demands

There are a number of factors that attribute to the traffic demands experienced on Central Hawkes Bay Districts transport network. A key factor is the district population increase from 12,717 in 2013 to 14,142 in 2018, which equates to a 10.5% increase in five years. The population growth is expected to be strong over the next 10 years with the population expecting to rise to 17,140. As population grows this puts increasing demand on the current network with additional traffic vehicles on the roads. This is especially true given the high use of private vehicle as the primary mode of transport (92% as highlighted in section 2.3.4). This is shown in the increase in traffic volumes on key routes within the district.

Road Safety

One of the most significant issues for road safety in the District is speed. Since 2017 Waka Kotahi has been developing an innovative approach to speed management. This has resulted in the identification of the 'safe and appropriate' speed for roads across New Zealand, based on a road's function, design, safety record and use.

Figure 2-8 shows the safe and appropriate speeds for the main road network in Central Hawkes Bay. It shows that sections of the state highway network, and specifically between the two main towns of Waipukurau and Waipawa, currently have a posted speed limit much higher than the safe and appropriate speed. While reducing the posted speed limit may result in some benefits, it is unlikely to substantially contribute to reducing the road safety risk. Waka Kotahi's Infrastructure Risk Rating (IRR) highlights that some sections of CHB's local road network are considered high risk, indicating that there is opportunity to improve the network. Some of this work has been carried out between the 2 towns with the installation of wire rope barriers and widening in 2020.

¹⁰ These end terminals would have been compliant when they were installed

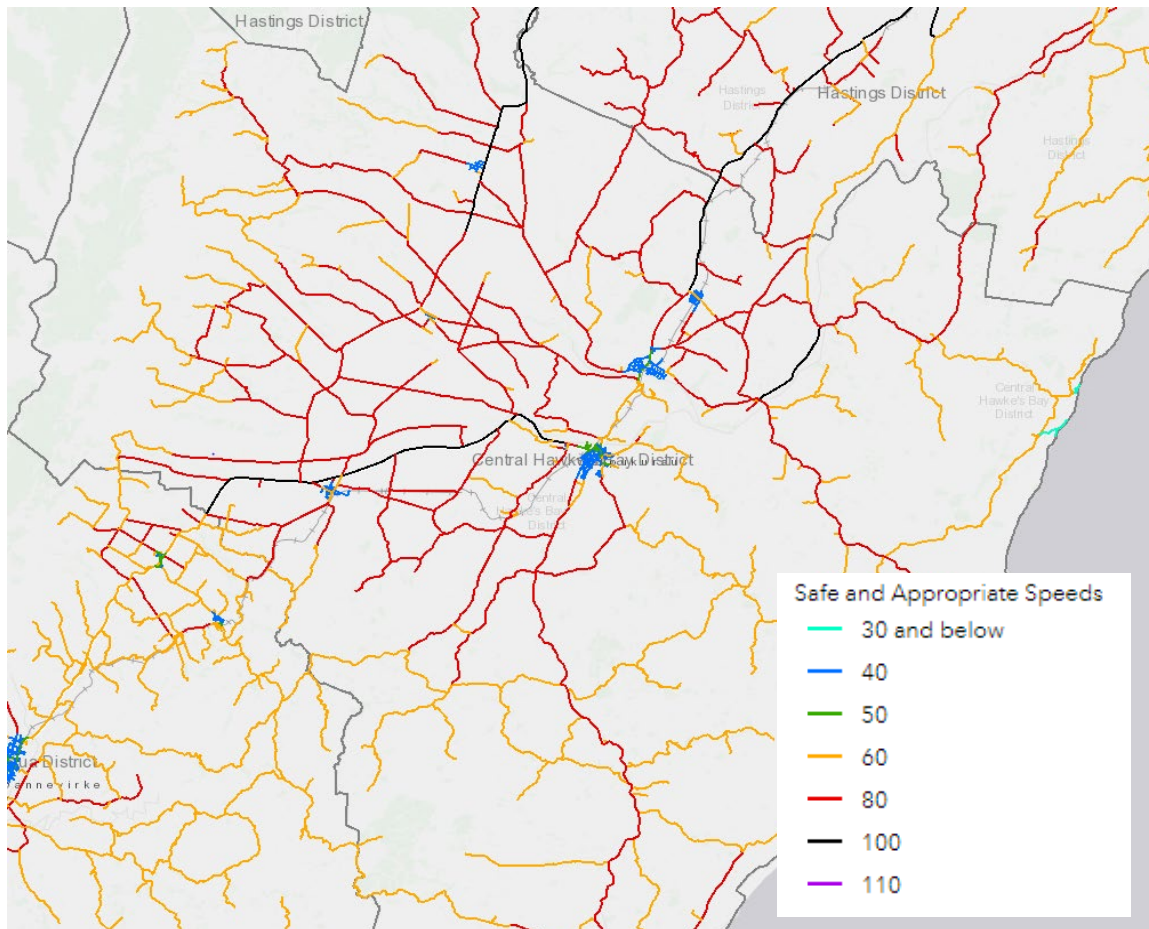


Figure 2-5: Safe and appropriate speeds¹¹

The Communities at Risk register ranks different communities around New Zealand with regard to selected road safety risk. The District is ranked eighth for crashes at rural intersections in the 2019 register. This is graded a 'High Concern' (personal risk profile greater than one) as well as a High Strategic Priority. Examples of deficiencies in rural intersections include off-setting and complex 4-way and 5-way layouts, lack of controls at 'x' and '+' intersections, incorrect priority with main routes yielding to minor routes, or a lack of signs and markings making priority unclear.

The Waka Kotahi Crash Analysis System (CAS) records reported crashes. In the 10-year period from 2010-2019 there were 828 crashes in CHB, of which 464 were on local roads. The maps in Figure 2-9 and Figure 2-10 shows all reported crashes in CHBDC and death and serious injury crashes, for five years between 2015 to 2019.

¹¹ "Speed Management Framework 2018: Infrastructure Risk Rating," Safer Journeys Risk Assessment Tool, Waka Kotahi NZ Transport Agency, accessed 28 July 2020, <https://megamaps.abley.com/Maps/>

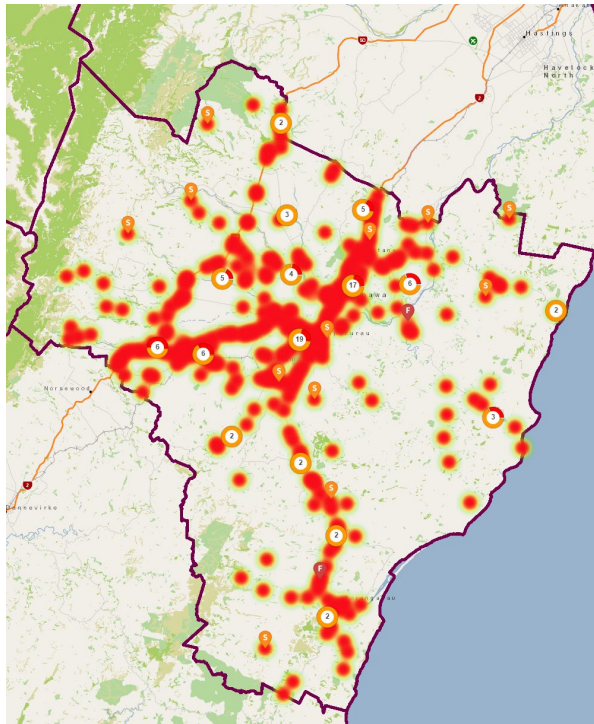


Figure 2-6: All Crashes with Central Hawke's Bay District

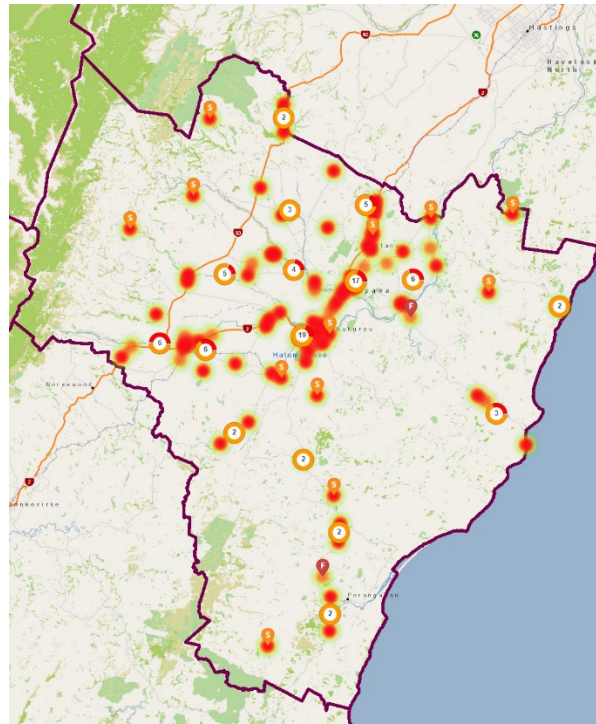


Figure 2-7: All Death and Serious Injury Crashes in Central Hawke's Bay District

Of the 464 crashes on local roads there has been 215 injury crashes for the 10-year period 2010-2019. As shown in Figure 2-11 the crash trend is generally unchanged however there was a significant increase for 2019.

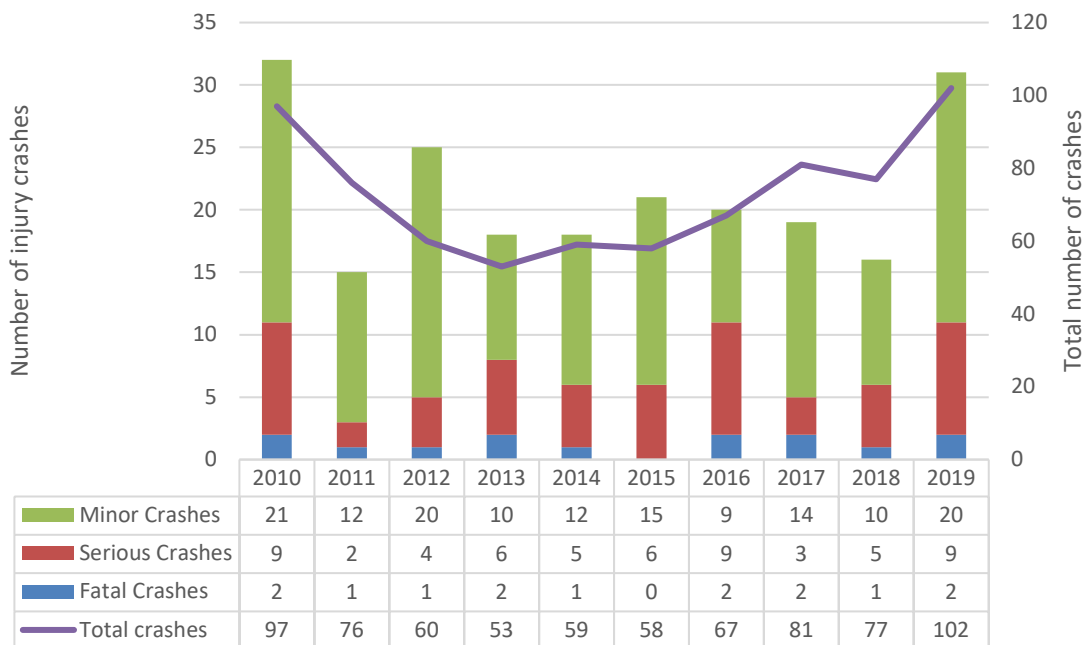


Figure 2-8: Central Hawke's Bay Roads Injury Accidents

An area of concern for the region is the safety of Vulnerable users in particular in the urban and peri-urban areas. This is highlighted by the 19 injury crashes involving pedestrians and cyclists for the 10-year period 2010 – 2019. This is particularly concerning considering that

Urban network only makes up 5.6% of the network. There are a number of factors that can lead to increase in risk for vulnerable users such as:

- The type, quality and connectivity of pedestrian and cycle facilities
- Incomplete street lighting for vulnerable users to either highlight hazards or crossings or provide passive surveillance
- Safety around schools particularly where schools front to busy arterial roads which carry high volumes of vehicles including heavy vehicles.

Investment and planning into a complete active transport network which identifies improvements and provides a complete network for vulnerable users could reduce their safety risk.

4 Benefits of Investment

The benefits of investing in land transport activities that address the problems associated with maintaining levels of service relate to economic, safety, environment and social benefits.

The benefits of providing maintenance and renewal funding is imperative to ensuring that the local economy is strong and that functional access to production centres is maintained for the most efficient travel; accidents are reduced by ensuring the road surfaces are fit for purpose; the road is resilient and less susceptible to costly repairs by providing appropriate drainage and drainage facilities; appropriate lighting, road marking and signs are in place to guide motorists safely from origin to destination; and road users have access to a safe and reliable network to access the rest of New Zealand.

Table 2-3 sets out the benefits of investment in relation to each asset group.

Table 2-1: Benefits of investment per asset group

Asset Group	Benefits of Investment to this activity
Pavements	<p>Enable communities and freight to travel safely, easily and efficiently through the district while maintaining good access to properties, businesses and other areas of interest.</p> <p>Pavement rehabilitation, sealed road resurfacing and unsealed road metalling account for more than two thirds of the CHBDC's renewal budget and approximately 74% of the total land transport asset value, therefore investment in pavements protects and sustains the community's capital wealth base.</p>
Pavement Drainage	<p>Primarily prevents water infiltration and consequent rapid deterioration of road pavements.</p> <p>Also provides a level of protection to road infrastructure and property from flooding ensuring the integrity, reliability and serviceability of the Land Transport network.</p>
Bridges and Large Culverts	Bridges and large culverts provide continuous, safe, all-weather roading over rivers, streams and uneven terrain, providing network resilience and improving supply chain reliability,
Retaining Structures	Protect and support the road pavements



Carriageway Lighting	Illuminates the carriageways improving the visibility of the carriageway and identifies hazards at night and supports the facilitation of safe movement. It is particularly needed in areas with a likelihood of conflict between vehicles, pedestrians or cyclists.
Traffic Facilities	Assist road users to use the road in a safe way.
Vegetation and Streetscapes	Well managed roadside vegetation maintains unobstructed driving visibility and assists with protection of the assets and the environment. Resilient infrastructure against climate change.
Footpaths, Pedestrian Accessways and Cycleways	Provide a safe, convenient, and defined means for pedestrians and cyclists linking roadways and public space. Offer safe infrastructure and provide opportunity for trips to be completed out of motor vehicles to improve health outcomes. Connecting citizens to key hubs to promote inclusiveness and connectivity to services.

4.1 Measurement of Benefits

The measures (also known as key performance indicators or 'KPIs') quantify the benefits of investment and are used to judge how an investment has contributed to the benefits of solving or realising an opportunity.

KPIs identified for this LTAMP include:

Problem	Benefit	Investment Objective	Measure
Resilience	Improved network resilience	10% reduction in unplanned road closures where there are no detours by 2024	Number of unplanned closures without a detour per year
	Improved supply chain reliability	Reliable and predictable travel times	Reducing number of days key routes are closed by year
Access	Improved transport choice	10% of population have access to walking, cycling and public transport networks that meet defined LoS by 2025	Number of households within 400m of a suitable walking, cycling or public transport network
		100% of key routes are available to	



		heavy vehicles by 2024	
	Enhanced community wellbeing	10% of population that walk, cycle and use public transport by 2025	Walking, cycling and public transport mode split for journey to work and journey to education.
Safety	Reduced deaths and serious injuries	10% reduction in DSIs attributed to road factors by 2024 (moving towards Vision Zero)	Deaths and serious injuries per year attributable to road factors
		20% reduction of DSI incidents attributed to road factors by 2027	Serious and fatal crashes per year attributable to road factors

4.2 Alignment of problems with Strategic Objectives

Table 2-42-4 describes how each Problem Statement aligns with the relevant local, regional and national strategies and policies

Table 2-2: problems alignment with relevant strategies and policies

Strategic Documents	Resilience	Access	Safety
Government Policy Statement (2021 draft)	This problem aligns with the <i>Improving Freight Connections</i> and <i>Better Travel Options</i> strategic priorities of GPS 2021 and the associated <i>economic prosperity</i> and <i>resilience and security</i> transport outcomes. Addressing the resilience problem will help to achieve these outcomes.	This problem aligns with the <i>Better Travel Options</i> strategic priority of GPS 2021 and the associated <i>inclusive access</i> transport outcome. Addressing the access problem will help to achieve these outcomes.	This problem aligns directly with the <i>Safety</i> strategic priority of GPS 2021 and the associated <i>healthy and safe people</i> transport outcome. Addressing the safety problem will help to achieve these outcomes.
Arataki	One of the five step changes outlined in Arataki is to <i>support regional development</i>	One of the five step changes outlined in Arataki is to <i>transform urban</i>	One of the five step changes outlined in Arataki is to <i>significantly reduce</i>



Strategic Documents	Resilience	Access	Safety
	and it focuses on optimising transport's role in enabling regional communities to thrive. Addressing the resilience problem will help achieve this step change.	<i>mobility</i> and it focuses on shifting our reliance on single occupancy vehicles to more sustainable transport solutions. Addressing the access problem will help achieve this step change.	<i>harms</i> . Addressing the identified safety problem will help achieve this step change.
Hawke's Bay Regional Land Transport Plan 2015 – 2025 (2018 Review)	Two strategic objectives of the RLTP are to provide <i>a strategic network that provides effectively for growth and economic productivity and a local road network that is maintained and/or improved to ensure effective end-to end journeys</i> . Addressing the resilience problem will ensure that journeys are effective and economic for all.	A strategic objective of the RLTP is to ensure <i>access to social, economic, and cultural opportunities for all sectors of the community, through effective transport links and services</i> . Addressing the access problem will help achieve this RLTP objective.	A strategic objective of the RLTP is to create <i>a transport system that supports safer travel</i> . Addressing the safety problem will contribute towards a safe transport system for the Hawke's Bay region.
Council Community Outcomes	<i>Durable infrastructure</i> is a key theme from THRIVE. Addressing the identified resilience problem will help achieve this theme.	<i>Strong communities and connected citizens</i> are two key themes from THRIVE. Addressing the identified access problem will help achieve these themes.	Proud District by protecting identity by reducing crashes Strong Communities by protecting people.
Council Land Transport Strategic Framework 2020 – 2025	One of the four pillars to the Framework is <i>connected and resilient infrastructure and</i>	Two of the four pillars to the Framework are <i>connected and resilient infrastructure and</i>	One of the four pillars to the Framework is <i>safety above all else</i> . Addressing the identified safety



Strategic Documents	Resilience	Access	Safety
	<i>communities.</i> Addressing the identified resilience problem will contribute to the achievement of this pillar.	<i>communities and economic resilience and financial sustainability.</i> Addressing the identified access problem will contribute to the achievement of these pillars.	problem will contribute to the achievement of this pillar.
Council Infrastructure Strategy	An aging network and its associated resilience problems are identified as significant infrastructure issues in the Infrastructure Strategy, which has a strong alignment to this problem.	There are no specific access issues identified within the Infrastructure Strategy.	There are no specific safety issues identified within the Infrastructure Strategy.

4.3 Trends and Projections

Table 2-5 summarises the effects of the identified growth and demand trends on the land transport activity. Projections and growth/demand trends have been taken from the District's Demographics and Economic Growth Assumptions 2020-2051 report.

Table 2-3: Trends and projections

Growth/ Demand Trend	Impact
Overall population and sub-divisional growth patterns	
Overall usually resident population is projected to increase between 1.2%pa and 1.8%pa	This will increase the rating base but due to the increasing requirements to invest in the network may present challenges to the district
The proportion of the population aged over 65 rises from 20% in 2019 to 27% in 2031 and continues to rise to 32% by 2051 (medium growth scenario).	Increased focus on the provision of additional infrastructure suitable for other modes of transportation such as cycling, walking, motorised wheelchairs in urban areas of the district.
Increasing visitor numbers	



Visitor numbers have increased and are projected to continue to increase with increased holiday home development in specific locations	Little or no significant impact
Increasing heavy vehicle numbers and size	
Harvesting of forests leading to significantly increased heavy vehicle traffic throughout the District	<p>Accelerated pavement deterioration and shortened pavement lives on specific routes.</p> <p>Increased need to improve the geometrics and other manoeuvrability and safety aspects of pavements on specific routes to accommodate increased numbers of large vehicles.</p> <p>Potential for an increase in need to upgrade restricted bridge capacity or geometry to allow more of the network to be travelled by heavier vehicles</p>
Increasing vehicle ownership	
Increased Vehicle Ownership	Demand for public transport may increase to match the growth of the 65+ age group. As the largest growing age group will be 1 – 14 it will not immediately have a significant impact

4.4 Constraints and Assumptions

The following constraints and assumptions have been made:

- It is anticipated that the effect of COVID-19 on the region's land transport system will be minimal, 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.¹²
- Traffic volumes and patterns on the identified critical routes are monitored.
- Council works closely with Waka Kotahi and the Regional Council to ensure consistency is achieved in local, regional and national land transport strategies.
- Council liaises with KiwiRail in a local and regional context as required.
- Council works closely with industry groups to better understand anticipated demand increases. These groups include forestry groups, farmers, quarrying and mining companies.
- Council commissioned the Demographics and Economic Growth Assumptions 2020-2051 report.
- Increasing expectations caused by growing populations in specific locations and increased vehicular trips will be managed through ongoing community consultation as part of the service level reviews.

¹² Waka Kotahi NZ Transport Agency, *Covid-19 – implications for land transport in Hawke's Bay* (2020), <https://www.nzta.govt.nz/assets/planning-and-investment/docs/arataki/regional-summary-6-hawkes-bay-potential-impacts-of-covid-19.pdf>



- h. 0% growth is expected in the Waka Kotahi Economic Evaluation Manual for roads in the Region.
- i. Heavy vehicle movements, particularly on feeder roads from forestry areas to state highways, will increase vehicle movements in each direction throughout the District.
- j. Council will continue to apply sound pavement design with future loading forecasts to address increased deterioration rates caused by the shift to larger heavy vehicles.
- k. Increasing vehicle ownership and vehicular trips have negligible effect on the deterioration rate of the network.

4.5 Potential Consequences

Potential consequences of not investing in land transport activities include:

- Raised likelihood of accidents on the network due to safety issues not being addressed
- Reduced reliability of the network leading to higher transport costs and reduced economic opportunity
- Increased risks of having isolated areas of population due to road access not being available
- High reliance on private motor vehicles and inefficient trips due to limited multi modal options
- Not providing appropriate levels of service to road classification and use
- Deterioration of the assets, requiring a higher cost of remediation
- Decreased customer confidence and satisfaction in the transport system, Council and government agencies

5 Programme Business Case

5.1 Programme Business Case Introduction

The Programme Business Case sets out the strategic response of the planned future state, identifies a programme of works or activities that deliver on the strategic case, with asset management information that identifies maintenance, operations, renewals and improvement/ new works programmes.

In order to address the strategic issues and problems stated, the preferred programme must address the problems relating to Resilience, Access and Safety.

ONRC road categorisation have been used to help optimise available funds by prioritising and re-focussing investment to where in the network it is needed the most.

2018-21 Actual Achieved Average

Our 2018-21 actual achieved average programme of \$12M invested:

- \$5M in Operations and Maintenance (O&M) of roads, drainage and safety related works
- \$5.1M in Renewals of roads, drainage and safety related works
- \$1.8M in Capital improvement works

The Strategic Case and Programme Business Case demonstrates that although most of the investment needs can be met by re-allocating existing budgets, there is also need for more funds to meet these particular issues and problems.

The evidence shows that even with the current investment levels, there is an increasing damage, worsening condition and higher repair costs to roads especially on haulage routes; and forest harvesting and heavy traffic counts are projected to increase further over the next 10 years. This is supported by the PGF investment in the district to support the projected demand. The previous budget allocations and activities will not fully cater to expected demands. In addition, the allowance to extend the infrastructure to support multi-modal transport options which is suitable for users is in addition to the previous LTAMP.

Councils focus in this LTAMP is to re-focus and re-allocate where funding is spent within its financial constraints and monitor the asset and undertake modelling to the network is sustainable over the long term.

5.2 Programme Alignment to Problems

The following programme responses are required to address the Problems:

Problem	Programme Response
Resilience	Plan and programme transport solutions to account for environmental impacts and changes in demand into solutions for now and into the future. Ensure existing infrastructure is maintained in a way that does not cause adverse effects to the transport system.



Problem	Programme Response
Access	The transport system is sufficient to meet the needs and expectations of the community for now and into the future.
Safety	To reduce the exposure to targeted levels and reduce deaths and serious injuries on the network by undertaking treatments in key areas where the highest risk of exposure is.

The above programme responses have been quantified and developed into a proposed programme of works going forward for as shown below.

5.3 Alternatives and Options

Alternatives and options to the programmes, including Do-Minimum options are considered as follows.

Programme of Work – OM&R	Alternatives (non-asset solution)	Options (renewal treatment types)
Pavement Base and Surfacing	<p>Close or cease public ownership of certain roads of very low or single property usage.</p> <p>Reduce the renewals and allow for increased reactive maintenance such as pothole and digout repairs.</p> <p>Dig up sealed roads and convert them back to unsealed road.</p>	<p>Sealed pavements bases - rip and chemical stabilization existing road base</p> <p>Sealed pavements bases - remove and replace existing road base.</p> <p>Sealed pavements surfacing – chipseal or asphaltic concrete mill and replace or overlay</p> <p>Option would be to reduce the recommended programme and allow for increased reactive maintenance such as pothole and digout repairs.</p> <p>However, this short-term 'Do-minimum' saving would result in higher long-term costs as repair costs to aging roads would increase sharply with time. It would also result in reduced service levels as road sections reach their end of useful life.</p>
Bridges and Structures	Close, demolish or cease public ownership of certain bridges of very low or single property usage	<p>Replace bridge components</p> <p>Replace whole bridge</p>



Drainage	Increase warning signage	Roadside drains routine maintenance Roadside drains re-shaping
Traffic Services	Increase warning signage	Reduced services, but will affect safety and convenient use of the network
Minor improvements to improve driving visibility and road safety by drivers	Increase warning signage	Vegetation clearing Bank cutting road re-alignment to improve visibility
Footpaths Maintenance and Renewal	Remove of or make as unformed footpaths of low usage	Unformed, aggregate, asphaltic concrete or concrete footpaths

5.4 Analyses of Options

Evidence-based, risk-based analysis supporting why the programme was selected included the following:

- Best value solutions to address the specific key problems and demands identified
- Comparison of network condition trends with past expenditure levels
- dTIMS deterioration modelling of road pavements to forecast pavement and re-surfacing needs
- Benefit cost ratio (BCR),
- Life cycle analyses including consideration of annual depreciation of asset
- Effectiveness of historical programmes and expenditures
- Alignment to the priorities of the ONRC road categories, Community Outcomes, IAF and GPS
- Considerations of the costs, benefits and risks of alternatives and options

5.5 Recommended Programme of Works

Council has identified the following programme over the next 10 years to address the challenges faced by the transport network and deliver the District's Strategy and Investment Outcomes. The optimum mix of treatment is a preferred maintenance, operations and renewals programme that responds to the strategic case; aligns to the District priorities and ONRC customer outcomes; maintains asset condition and service; and achieves least lifecycle costs.

The recommended programme has re-focussed and increased to align with and address the current problems facing the District.

This results in a necessary re-allocation and increase to our core annual programme by \$0.4M to \$12.5M, made up of:

- \$5.2M Operations and Maintenance work
- \$5.5M Renewal work
- \$1.6M in Capital improvement work



The breakdown details and alignment to the problem statements without the unsubsidised budgets are as follows (showing annual 3-year average programme budgets):

Table 2-1: Cost breakdown and alignment to the problem statements

Expenditure Type	2018-21 Actual Achieved	2021-24 LTP Proposed	Difference Proposed	Programme Alignment to Problems and Benefits
Capital New/Improvement	\$3.2M	\$3M	-\$0.2M	Decrease reflects change to business case funding allocated through PGF. This application supports the shift to Road to Zero.
Road Improvements	\$1.8M	\$0.5M	-\$0.5M	Study to understand the impacts of dust from unsealed roads.
Walking Facilities	\$0.4M	\$1.5M	\$1.1M	Extend network and provide appropriate LoS for this activity.
O&M	\$15.1M	\$15.9M	\$0.8M	
Pavement	\$5.3M	\$5.7M	\$0.4M	Heavy maintenance on log haul roads Safety Technical Outputs 7 – Hazardous Faults Cost Efficiency EM10 – Routine Pavement maintenance
Network & Asset Management	\$2.2M	\$2.6M	\$0.4M	To improve data & analysis on critical assets and routes. To implement AM and data quality improvements.
Drainage	\$1.3M	\$1.3M	\$-	Programme Optimisation
Vegetation and Streetscapes	\$2.7M	\$2.5M	-\$0.2M	Programme Optimisation, Increased Contract Rates Cost Efficiency EM10 – Routine Pavement maintenance
Traffic Facilities Incl. Rail Crossings	\$1.4M	\$1.6M	\$0.2M	Programme Optimisation



Expenditure Type	2018-21 Actual Achieved	2021-24 LTP Proposed	Difference Proposed	Programme Alignment to Problems and Benefits
				Cost Efficiency EM10 – Routine Pavement maintenance.
Bridges, Guardrails & Structures	\$0.3M	\$0.7M	\$0.4M	Programme Optimisation Cost Efficiency EM10 – Routine Pavement maintenance
Minor Events	\$0.8M	0.9M	\$0.1M	
Renewal	\$15.5M	\$16.5M	\$1M	
Pavement	\$9.9M	\$9.9M	\$-	Programme Optimisation, Prioritising heavy hauling routes. Accessibility Customer Outcome 1 – Proportion of Network not Available to Heavy Vehicles
Drainage	\$2.9M	\$2.6M	-\$0.3M	Programme Optimisation Increase drainage outlet control to maximize drainage capacity facilities to minimise flood and scour conditions.
Bridges, Guardrails & Structures	\$2.0M	\$2.7M	\$0.7M	For ageing structures Safety Customer Outcome 2 – Collective Risk
Traffic Facilities	\$0.6M	\$1.2M	\$0.6M	Programme Optimisation
Grand Total	\$30.7M	\$32.4M	\$1.7M	6% Overall increase

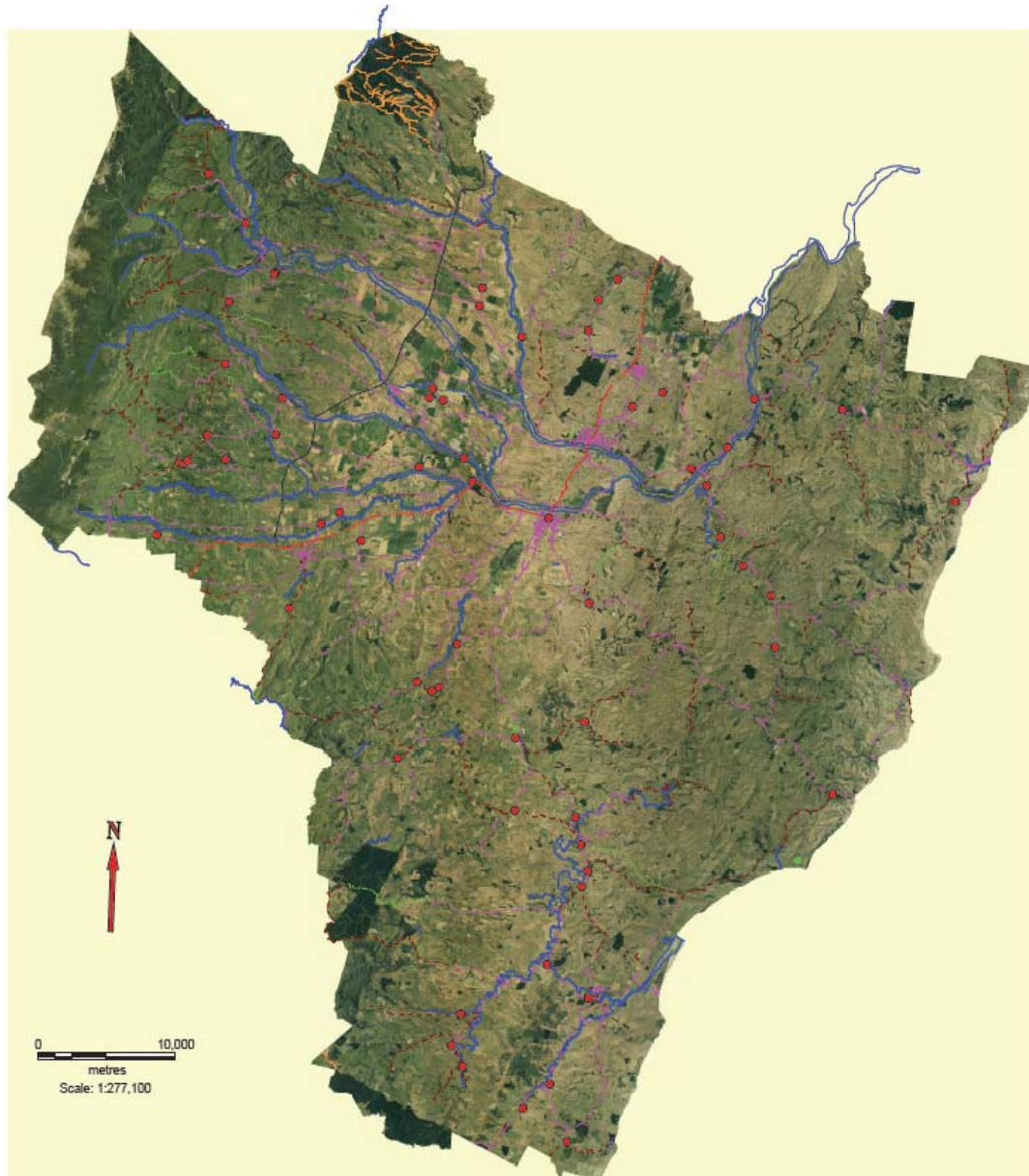


Figure 2-1: : Low-cost low risk Central Hawkes Bay sites

The 2018-21 actual achieved programme total was \$12 million annual average, compared to the original LTP budget of 11.5 million

The proposed ongoing programme of work after 2023 is shown in more detail in the Lifecycle Management and Financial Summary sections of the LTAMP (Sections 7 and 8 respectively).

Our programme also aligns with the Investment Prioritisation Framework, GPS, Arataki and the Regional Land Transport Plan (RTLTP 2015-2025 and 2020 review) because it shows

- **value for money** by targeting the right work in the right places at the right time to achieve least long-term costs,
- **a consideration of supporting regional economy** by catering for heavy haulage and commercial traffic, and
- **a priority for safety** by addressing tree hazards, pavement damage by logging trucks other road and bridge safety improvements, and investment in multi-modal infrastructure.

Arataki identifies long term pressures and priority, issues and opportunities. Its ultimate goal is to develop a shared view of the transportation system that allows any sector to work more effectively with others. According to Arataki the focus for the Hawke's Bay Region is to create a safer, more resilient land transport system, that supports economic recovery and regional growth, maintains critical connections, and provides appropriate levels of service across all transport networks.¹³

The Regional Land Transport Plan is prepared by the Regional Transport Committee. It describes Central Hawke's Bay's strategic objectives for the transport system over the next 10 years.

Central Hawke's Bay has worked with Waka Kotahi to create this document based on transport studies. Two overarching objectives emphasized in the RTLP are:

1. A safe, resilient and efficient transport system that supports the development of our economy and contributes to social wellbeing in our community.
2. A reduction in the risk of death or serious injuries on Hawke's Bay roads.

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

A summary of the full 10 years expenditure plan is shown in Figure 2-13 and Table 2-7.

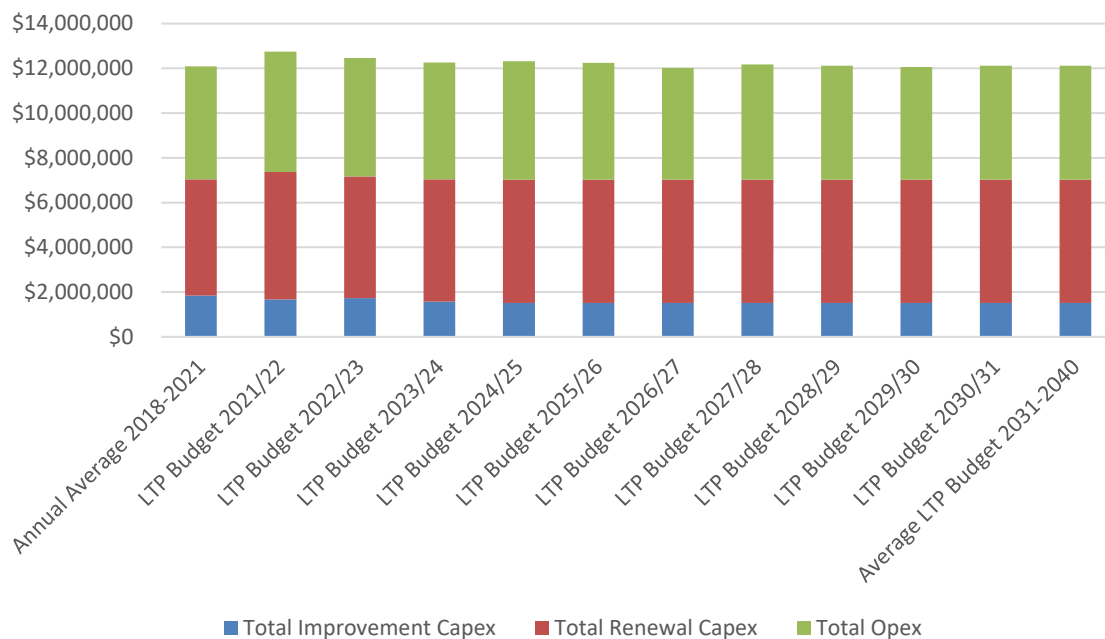


Figure 2-2: Land transport expenditure by expenditure type

¹³ Waka Kotahi NZ Transport Agency. *Hawke's Bay Regional Summary* (2020), <https://www.nzta.govt.nz/assets/planning-and-investment/arataki/docs/regional-summary-hawkes-bay-august-2020.pdf>



Table 2-2: Land transport expenditure by expenditure type

		Total Improvement Capex	Total Renewal Capex	Total Opex	Total Expenditure
	Annual Average 2018-21	\$1,848,075	\$5,187,545	\$5,054,979	\$12,090,598
LTP Budget	2021/22	\$1,050,000	\$6,097,926	\$5,269,575	\$12,417,501
	2022/23	\$1,050,000	\$5,836,576	\$5,234,728	\$12,121,304
	2023/24	\$1,050,000	\$5,794,926	\$5,216,774	\$12,061,700
	2024/25	\$1,154,062	\$6,351,448	\$5,881,533	\$13,387,043
	2025/26	\$1,189,836	\$6,542,780	\$5,939,128	\$13,671,744
	2026/27	\$1,226,722	\$6,740,044	\$5,908,987	\$13,875,753
	2027/28	\$1,264,750	\$6,943,424	\$6,217,131	\$14,425,305
	2028/29	\$1,303,956	\$7,153,104	\$6,411,926	\$14,868,986
	2029/30	\$1,344,379	\$7,369,288	\$6,481,851	\$15,195,518
	2030/31	\$1,384,711	\$7,584,983	\$6,813,313	\$15,783,007
	Average 2031-40	\$1,201,841	\$6,641,449	\$5,937,494	\$13,780,786

Full details of the programme quantities and expenditure types are contained in the Lifecycle management and Financial Summary sections.

5.6 Programme Risk

Risks associated with the programme include key risk areas such as: technical, operational, financial, stakeholder, environmental, social, safety, and economy. The key programme risks are identified in Section 6.

5.7 Programme Financial Case

The funding and affordability of the Recommended Programme is discussed in the Financial Summary section.

6 Key Performance Measures

6.1 Current Levels of Service and Performance Measures

Waka Kotahi and the REG has developed the ONRC regime, which provides nationally consistent road classifications in terms of consistent services levels for roads across New Zealand.

This ONRC framework supports the Business Case Approach (BCA) to justify investment decisions, with the outcomes of realising efficiency savings and increasing value for money by better targeting investment. In practice, this will be achieved by targeting investment to the right treatments, in the right places, at the right times and for the right costs.

The District has implemented the ONRC system. This has resulted in not only the establishment in the District of a new, nationally consistent road classification hierarchy, but also, as part of an ongoing process, the review of existing LoS and the development of associated customer focussed LoS, performance measures and targets. As more details regarding the One Network Framework are available Council will transition to meet these requirements as discussed in section 2.4.1.

A summary of the levels of service, performance measures, actual performance and targets is included in Table 2-82-7. The Secretary for Local Government has developed mandatory non-financial performance measures for local authorities to use when reporting to its communities¹⁴. The Council's current performance measures have been aligned with these Department of Internal Affairs (DIA) measures.¹⁵

For more detail on the current LoS, performance measures and targets refer to Section 4.7.

Table 2-1: Level of service, performance measures, actual results, and targets

Level of Service	Performance Measure	Actual 2018/19	Actual 2019/20	Actual 2020/21	Target 2021/31
Road Safety	The change from the previous fiscal year in the number of fatalities and serious injury crashes on the local road network, expressed as a number	6 (1 fatal crash 5 serious injury crashes)	6 (1 fatal crash 5 serious injury crashes)		Reduce to 0
Road Condition	The average quality of ride on a sealed local road network, measured by	Achieved	Achieved	TBC	Between 85-90%

¹⁴ Local Government Act 2002 Amendment No 2

¹⁵ Secretary for Local Government, *Non-Financial Performance Measures Rules 2013* (2013), 7, [https://www.dia.govt.nz/diawebsite.nsf/Files/Local-Government-Non-Financial-Performance-Measures-Signed-Rules/\\$file/Local-Government-Non-Financial-Performance-Measures-Signed-Rules-1.pdf](https://www.dia.govt.nz/diawebsite.nsf/Files/Local-Government-Non-Financial-Performance-Measures-Signed-Rules/$file/Local-Government-Non-Financial-Performance-Measures-Signed-Rules-1.pdf)



Level of Service	Performance Measure	Actual 2018/19	Actual 2019/20	Actual 2020/21	Target 2021/31
	smooth travel exposure (STE)				
Road maintenance	The percentage of the sealed local road network that is resurfaced	7	6	6	Between 4-10%
Footpaths	At least 20% of the footpaths in excellent condition and no more than 10% of the footpaths in poor condition measured bi-annually	Achieved	Achieved	TBC	Excellent: >50% Poor: <10%
Response to service requests	The percentage of users satisfied with the roading service provided	78	78	78	90%

6.1.1 Future Levels of Service

The ONF is the next evolution of the ONRC and introduces a 'Movement and Place' approach. This also provides the opportunity for the government to revise the current ONRC's Levels of Service and performance measures. This means that key outcome areas under wider frameworks including the Government's transport outcomes framework, GPS, Safe System and wellbeing and liveability indicators can be incorporated, to provide specific safety, environmental or place-focused measures. The measures will consider the role transport corridors play in providing spaces for people to interact in and enjoy, as well as the interplay with movement across and within the corridor.

Information on the proposed updated Levels of Service and performance measures is not expected to be released until late 2020. However, these will need to be incorporated into the next iteration of the LTAMP to coincide with full ONF implementation by 2024.

A breakdown of the various ONRC performance measures (technical output measures and cost efficiency measures) and how they relate to the various road classifications within the CHB District are provided in the LoS Section. A transition plan which will be developed will show the key steps and timing for developing the future District LoS.

6.2 Legislative and Regulatory Requirements

The service levels for the current operation of the Land Transport Activity are defined by the following:

- Key Legislation
- National and Regional Policies, Strategies and Plans
- National Standards and Guidelines
- District Bylaws, Policies, Strategies and Plans

6.3 Key Legislation

The Central Hawke's Bay District Council Land Transport Activity is required to comply with the applicable sections of the following legislation detailed in Table 2-92-8.

Table 2-2: Key legislation

Document	Description
Local Government Act 2002 (LGA)	<p>The purpose of the LGA is:</p> <ul style="list-style-type: none"> a) to enable democratic decision-making and action by, and on behalf of, communities; and b) to promote the social, economic, environmental, and cultural well-being of communities, in the present and in the future. <p>The LGA 2002 outlines the responsibilities of local government and the decision-making process for activities undertaken on behalf of the community, primarily through the adoption of the LTP.</p> <p>The retained sections of the LGA 1974 provide for the formation, management, stopping, closing, and control of roads, limited access roads, and provision of public safety.</p>
Local Government Act 2002 Amendment Act 2010	<p>The LGA 2002 Amendment Act 2010:</p> <ul style="list-style-type: none"> a) Introduces a focus on core business and improved transparency, accountability and financial management b) Requires the establishment of rules specifying the performance measures for core services. c) Reduces some of the consultation requirements d) Merges community outcomes with the long-term planning process with a focus on the outcomes the council will achieve and how it proposes to achieve and pay for them. e) Requires additional financial reporting with Schedule 10 requiring Council to report in the LTP the capital expenditure budgets to: <ul style="list-style-type: none"> i. Meet additional demand for an activity; and ii. Improve the level of service; and iii. Replace existing assets.
Local Government Act 2002 Amendment No. 3 (2014)	<p>The Local Government Act 2002 Amendment No 3 (2014) has redefined the Section on Significance. Section 76AA Significance and engagement policy, requires that the Significance and Engagement Policy sets out;</p> <ul style="list-style-type: none"> a. The local authority's general approach to determining the significance of proposals and decisions in relation to issues, assets, and other matters; and b. Any criteria, or procedures that are to be used by the local authority in assessing the extent to which issues, proposals, assets, decisions, or activities are significant or may have significant consequences; and c. How the local authority will respond to community preferences about engagement on decisions relating to



Document	Description
	<p>specific issues, assets, or other matters, including the form of consultation that may be desirable; and</p> <p>d. How the local authority will engage with communities on other matters.</p> <p>The Local Government Amendment (no 3) Act 2014 has increased the focus on Asset Management through setting out specific requirements including provisions for;</p> <p>a. Requiring local authorities to undertake asset management planning</p> <p>b. Requiring local authorities to develop an infrastructure strategy for a minimum of 30</p> <p>c. consecutive years for core infrastructure and include these in their long-term plans from 2015</p> <p>d. Requiring local authorities to disclose risk management arrangements, such as insurance, for physical assets in their annual reports.</p> <p>The purpose of the infrastructure strategy is to identify significant infrastructure issues for the local authority over a 30-year period, the principal options for managing those issues, and the implications of those options. This is to address the lack of public information about investment needed beyond the current 10-year long-term planning horizon.</p>
Land Transport Management (LTM) Act 2003 and Amendment 2008	<p>The purpose of the Land Transport Management Act is to:</p> <p>a. Set out the requirements and process for the preparation of an annual District Land Transport Programme with recommendations for works to meet the land transport needs of the District</p> <p>b. Assist economic development, personal safety and security and to improve access and mobility</p> <p>c. Promote and protect public health needs and environmental sustainability</p> <p>d. Participate in the preparation of Regional Land Transport Strategies and plans</p> <p>e. Provide a framework for receiving funding from Waka Kotahi and allows for the establishment of future tolls roads under certain conditions.</p>
Resource Management Act 1991 (RMA)	<p>a. Sustain the potential of natural resources to meet the foreseeable needs of the future</p> <p>b. Comply with District and Regional plans</p> <p>c. Avoid, minimise or mitigate any adverse effect on the environment</p>
Civil Defence Emergency Management (CDEM) Act 2002	<p>Participate in and be responsive to the requirements of local and national CDEM Groups as required including training and practical exercises.</p>



Document	Description
Health and Safety in Employment (HSE) Act 2015	<ul style="list-style-type: none">a. To provide for a balanced framework to secure the health and safety of workers and workplaces.b. Workers and other persons should be given the highest level of protection against harm to their health safety, and welfare from hazards and risks arising from work or from specified types of plant as is reasonably practicable.
Land Transport (LT) Act 2017 (Reprint)	Controls aspects of road and traffic operations and includes traffic regulations, bylaws, and enforcement.
Local Government (Rating) (LR[R]A) Act 2002	<p>The three main purposes of the Act are to:</p> <ul style="list-style-type: none">a. Provide local authorities with flexible powers to set, assess and collect ratesb. Ensure that rates reflect decisions made in a transparent and consultative mannerc. Provide for processes and information to ensure that ratepayers can identify and understand their liability for rates.
Transit New Zealand (TNZ) Amendment Acts 1995 and 1997	Primarily provides a legislative framework for Transit New Zealand, but also includes requirements for other road controlling authorities. Section 42H (6) requires district roading programmes to be in keeping with the national land transport strategy and any relevant regional land transport strategy. Section 42H (7) requires the programme to implement the regional land transport strategy.
Traffic Regulations (TR) Act 1976	Comply with various rules for pedestrian crossings, traffic islands, road markings etc.
Land Transport (Road User) Rules	<ul style="list-style-type: none">a. The Land Transport Rule: Setting of Speed Limits 2003 and its amendments by:<ul style="list-style-type: none">i. Establishing Speed Limits by-lawsii. Establish speed limits in accordance with the Ruleb. The Land Transport Rule: Traffic Control Devices 2004<ul style="list-style-type: none">i. Authorise and install traffic control devices in accordance with the Rule
Public Works (PW) Act 1981	<ul style="list-style-type: none">a. Sets requirements for the acquisition of land for Land Transport purposesb. Sets requirements for stopping of roads and removal of trees from adjacent properties
Telecommunications Act, Electricity Act, Gas Act, Railway Safety and Corridor Management Act	Provide utility operators and others with powers to use road corridors.



6.4 National and Regional Policies, Strategies and Plans

Table 2-3: National and Regional Policies, Strategies and Plans

Document	Description
Government Policy Statement (GPS)	<p>The Government Policy Statement on Land Transport Funding sets out the government's priorities for expenditure from the National Land Transport Fund. The GPS is the primary document for land transport decision makers. It is released every 3 years and provides a 10-year policy view. It is a guiding tool for Waka Kotahi to make funding decisions. The GPS 2018/19 – 2027/28 came into effect in July 2018. The Draft GPS 2021 is the most current.</p> <p>The GPS states that <i>"The purpose of the transport system is to improve people's wellbeing, and the liveability of places."</i></p>
Arataki	<p>Arataki is Waka Kotahi's 10-year view of what is needed to deliver on the government's current priorities and long-term objectives for the land transport system. It outlines five step changes to deliver the government's long term objectives: <i>improve urban form, transform urban mobility, significantly reduce harms, tackle climate change and support regional development.</i></p> <p>Arataki Version 1.1 is the most current.</p>
Road to Zero: Road Safety Strategy 2020-2030	<p>Road to Zero is the Government's new road safety strategy that replaces the Safer Journeys initiative. It outlines a plan to stop people being killed or injured on our roads</p>
National Infrastructure Plan	<p>The National Infrastructure Plan (NIP) was released in 2015. The NIP outlines the government's 30-year vision for New Zealand's infrastructure. It is due to be updated in 2021.</p>
Regional Land Transport Strategy (RLTS)	<p>The RLTS is a combined document for the Hawke's Bay Region developed to ensure that all Land Transport providers are aligned in the overall goals for the benefit of the region. This plan will compliment others across the region and the principles will be the same.</p>
Regional Land Transport Plan (RLTP)	<p>The RLTP is the combined activity list for the Hawke's Bay Region and adds substance to the RLTS. The outputs of this asset management plan will provide the input to the RLTP to ensure a consistent approach to decision making across the Hawke's Bay Region.</p>
Regional Public Transport Plan	<p>Although not directly relatable to this plan and developments in the Regional Public Transport Plan may have unintended impacts on this plan and the District which will be evaluated as / if they arise.</p>
Utilities Access Code	<p>New requirements for utilities works in the road reserve</p>
Regional Cycle Plan	<p>This is a Hawke's Bay Regional Council initiative to promote cycling within the region. Two initiatives relate to CHBDC: the Waipawa to</p>



Document	Description
	Waipukurau Off-Road Cycle Path and the Havelock North to Waipawa cycle path investigation. Waka Kotahi are responsible for the implementation of these projects
Regional Walking and Cycling Plan	This is a Hawkes Bay Regional Council Initiative for walking and cycling. CHBDC has no current initiatives within this Plan.

6.5 National Standards and Guidelines

The primary documents that provide guidance for the service standards for the Land Transport Activity are as follows:

Table 2-4: National Standards and Guidelines

Document	Description
One Network Road Classification	Developed by Waka Kotahi to standardise the classification Levels of Service and funding of NZ roads. Will be superseded by the One Network Framework by 2024.
One Network Framework	The ONF is the next evolution of the ONRC and introduces a 'Movement and Place' approach. The ONF is still in draft, but the concepts can be included in the LTAMP. Full implementation is expected by 2024.
Business Case Approach Investment Assessment Framework	<p>A process that improves investment decision making by clarifying why we are doing work defining our strategic problems and benefits, ensuring there is robust evidence behind our strategic response and building a robust case for investment.</p> <p>The prioritization and allocation of funding for Approved Organizations must demonstrate BCA and are in terms of value-for-money, 'Results Alignment' to GPS priorities and Cost Benefit appraisals.</p>
REG Business Excellence Framework	TBC
NZ Code of Practice for Working on the Road	Management requirements and protocols for Road Controlling Authorities and utility operators working in the road corridors.
NZ Code of Practice for Temporary Traffic Management	A recognised standard of maintenance and construction work on legal roads.
Standards Association of New Zealand	A range of standards covering required or recommended practice and which may impact directly on assets or management of



	contracts, e.g. the NZS4404 Code of Practice for Urban Subdivision provides a range of roading standards.
AS/NZS 4360: 2004, Risk Management	Risk management guidelines

6.6 Future Demand

For a summary of the potential impacts from future demand refer to Section 2.2.9. For a detailed discussion of the future demand on the land transport network and the associated management plan refer to Section 5: Future Demand.

6.7 Bylaws

Central Hawke's Bay District Council has a number of bylaws that are specific to the District and support land transport goals:

Table 2-5: District Bylaws

Document	Description
Introductory Bylaw 2008	Outlines serving of orders and notices, powers of delegation and entry, suspension and revocation of licences, removal of works executed contrary to the Bylaw dispensing powers, fees and charges, offences and breaches and penalties for breach of Bylaws.
Public Places 2008	Controls a diverse range of activities to ensure that acceptable standards of convenience, safety, visual amenity and civic values are maintained for the wellbeing and enjoyment of citizens, visitors and businesses within the district. In particular this part addresses damage to public facilities such as roads, grass verges, garden areas and reserves. It also addresses activities within public places and reserves which may have an adverse effect on other users of these facilities.
Trading in Public Places 2008	The general purpose is: <ul style="list-style-type: none">a) to regulate the conduct of persons selling goods on streets, roads, footpaths and other public places; andb) to regulate the conduct of persons using vehicles to sell goods and services to the public.
Livestock Movement and Animals in Public Places 2008	Establishes conditions governing the movement of stock on roads and roadside grazing within the District.
Control of Advertising Signs 2008	Ensures that advertising signs are erected, maintained, and displayed in such a manner that they do not present a hazard or a danger to public safety.



Document	Description
Stormwater 2013	This Bylaw is made under the authority of the Local Government Act 2002 for the management of stormwater and provision of stormwater networks.
Traffic	Sets the requirements for parking and control of vehicular or other traffic on any road in a local authority's district other than State Highways controlled by Transit New Zealand.
Speed Limits 2007	Sets speed limits for District roads as set out in Schedules to the Bylaw.
Liquor Control in Public Places 2008	To enhance safety and the public enjoyment of public places by providing for liquor control in specified public places, and for specified days, times and events.

6.8 Council Policies

Central Hawke's Bay District Council has a number of policy documents, strategies and plans that are specific to the District and support land transport goals:

Table 2-6: District Policies, Strategies and Plans

Document	Description
Long Term Plan	The Long Term Plan (LTP) is a statutory requirement that the district completes to ensure that the district has a sustainable vision for not only the present but also for thirty years into the future. The key objectives outlined in the LTP that relate to transport are: strong communities, connected citizens, environmentally responsible, and durable infrastructure.
Land Transport Strategic Framework 2020 – 2025	The Land Transport Strategic Framework presents Council's strategic approach to managing its land transport assets. Its vision is to " <i>deliver safe, reliable and lasting road assets that connect our people and our places, and allow our district to prosper.</i> "
Forward Works Programme (FWP)	The 10-year FWP is based on historical records, recent work practices, along with visual inspections of the network and incorporates outcomes of analysis tools such as Treatment Selection Algorithm (TSA) and pavement performance modelling. The programme incorporates road sections requiring Area Wide Pavement Treatments, re-sealing, metalling of unsealed roads and drainage requirements.
District Plan	The purpose of the District Plan is to assist the Council to carry out its functions in order to achieve the purpose of the Resource Management Act 1991.



Document	Description
District Land Transport Programme	The summary of work required to maintain the road network is compiled as the three-year DLTP. This programme is compiled and approved by council and forwarded to Waka Kotahi for their approval.
Development Contributions Policy	Sets out the policy around how development contributions will be applied.
Tendering Policy	Policy statements relating to purchasing of works and services within different pricing brackets, the tendering process and tender evaluation.
Maintenance Intervention Strategy	This document includes strategies to be adopted when scheduling and approving maintenance work. The objective is to ensure pavement treatments are well planned and co-ordinated, providing a concise statement of intent in terms of delivering specified operational level of service and providing the management strategy for the 10-year FWP.
District Walking and Cycling Strategy	Forms part of the Regional Cycling Strategy and details the shared road network within Central Hawke's Bay.
Safety Management and Safety Intervention Strategy	These documents provide strategies for managing safety requirements and issues across the network in line with Safer Journeys
Procurement Strategy	This lays out the methods and strategy for procuring road maintenance and renewals suppliers to comply with Waka Kotahi requirements and the District's tendering policy.
Land Transport Policy, adopted March 2014	CHBDC's policy statements relating to the Land Transport Activity.
Level of Asset Management Plan Preparation, adopted February 2011	The level at which AMPs will be prepared by Activity. The level stated for the Land Transport Activity is 'Core – with extensions as necessary to meet the minimum Waka Kotahi requirements for asset management practice' (based on NAMS IIMM)
Other Policy Statements	CHBDC's policy statements relating to each specific area, as follows: <ul style="list-style-type: none">• Ad Hoc Road Signs Policy• Dust Suppression Policy• Enclosure of Road Reserve Policy• Footpaths Policy• Formation, Subdivision and Maintenance of no Exit Roads Policy• Roadside Planting Policy• Roadside Stabilisation and Tree Management Policy• Roadside Weed Control Policy

Document	Description
	<ul style="list-style-type: none"> • Stock Underpass Policy • Use of Road Reserve for Permanent Commercial Display Policy • Vehicle Crossings Policy

7 Land Transport Asset Description

7.1 The assets

7.1.1 Asset summary

The transport network comprises a broad range of assets that underpin the delivery of transport services. This section identifies the range, extent, and current condition of those assets.

The transportation network enables the daily flow of people and commerce across the region through a portfolio of diverse assets including roads, footpaths, streetlights, signs, traffic signals, parking, cycleways, road drainage, kerb and channel, bridges and retaining structures. Central Hawke's Bay's transport asset portfolio grows each year as new assets are constructed through Council projects and by developers.

Public transport is provided and managed by the Hawke's Bay Regional Council and public transportation services are provided by commercial operators. As CHBDC does not own any public transport assets, these have not been included in the LTAMP. Street furniture is managed and maintained through Council's Facility Management contract by the Utilities Division; therefore this has also not been included in the LTAMP.

Land Transport assets are grouped as below:

- Pavement and surfacing
- Pavement drainage
- Bridges and guardrails
- Retaining structures
- Traffic facilities
- Streetlights
- Walking and cycling infrastructure
- Vegetation and streetscapes

Table 3-1 and Figure 3-1 provide the overall asset quantities and values summary, where:

- Replacement cost refers to the 'optimised replacement cost,' or the cost of building the asset today. It is assumed that modern construction techniques, design codes and modern equivalent materials are used but that the physical result replaces the asset as it exists.
- Depreciated replacement cost is the current replacement cost less allowance for physical deterioration and optimisation for obsolescence and relevant surplus capacity.



- Annual depreciation is the amount the asset depreciates in a year. It is defined as the replacement cost minus the residual value¹⁶ divided by the estimated total useful life¹⁷ for the asset.

Further details regarding each asset group are included in the following sections and Section 7: Lifecycle Management.

¹⁶ The Residual Value is the value of the asset when it reaches the end of its life.

¹⁷ The period over which an asset is expected to be available for use by an entity.



Table 3-1: Transport activity asset summary

Asset Group	Type	Length/ Count	Unit	Quantity	Unit	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Pavement	Formation	1,258,160	m	11,037,491	m ²	\$364,568,320	\$364,568,320	\$0
	Sealed Pavement Layers	856,182	m	6,890,769	m ³	\$150,845,729	\$116,175,912	\$1,320,158
	Sealed Pavement Surface	856,182	m	5,029,391	m ²	\$19,749,314	\$6,987,198	\$1,463,707
	Unsealed Pavement	401,978	m	532,807	m ³	\$31,054,463	\$28,923,684	\$483,298
Pavement Drainage	Drainage Assets	94,532	m	9,166	ea	\$63,011,333	\$37,167,111	\$891,517
	Surface Water Channels	1,766,747	m	-		\$34,470,117	\$17,707,818	\$458,786
Bridges and Guardrails	Bridges	169	ea	26,960	m ²	\$121,737,007	\$55,141,701	\$1,217,939
	Major Culverts	96	ea	1,618	m	\$18,949,198	\$9,686,666	\$250,815
	Guardrail	9,091	m	180	ea	\$1,873,382	\$1,068,588	\$61,259
Retaining Structures		7,540	m	7,587	m ²	\$14,598,876	\$10,987,815	\$284,448
Traffic Facilities	Railings	10,553	m	810	ea	\$1,785,137	\$962,818	\$86,413
	Signs	5,712	ea	-		\$1,125,553	\$493,843	\$72,564
	Markings	1,044,846	m	4948	ea	\$503,514	\$194,897	\$194,893
	Islands	57	ea	1,214	m ²	\$216,963	\$169,287	\$2,893
	Minor Structures	47	ea	-		\$83,061	\$48,025	\$3,711

Traffic Facilities ¹⁸		9	ea	-		\$3,706	\$1,887	\$67
Streetlights		936	ea	-		\$1,705,026	\$831,115	\$96,481
Walking and Cycling Infrastructure	Footpaths	69,717	m	129,571	m ²	\$15,407,973	\$9,019,284	\$189,003
	Crossings	133	m	2,266	ea	\$5,201,123	\$2,658,623	\$69,346
	Cycleways	0	m	-		NA	NA	NA
Vegetation and Streetscapes	Berms	709	ea	335,499	m ²	NA	NA	NA
	Trees	160,663	ea	-		NA	NA	NA
TOTAL	Excluding Land					\$846,889,794	\$662,794,590	\$7,147,297
Land ¹⁹						\$37,656,844	\$37,656,844	\$0
TOTAL	Including Land					\$884,546,638	\$700,451,434	\$7,147,297

¹⁸ This component includes only the false kerbs, which are stored in the RAMM Traffic Facilities Table.

¹⁹ The data relating to the land value is for information only. It is excluded from the cost and depreciation values for all calculations in this document and has been brought forward from the 2007 Valuation undertaken by OPUS Consultants Ltd

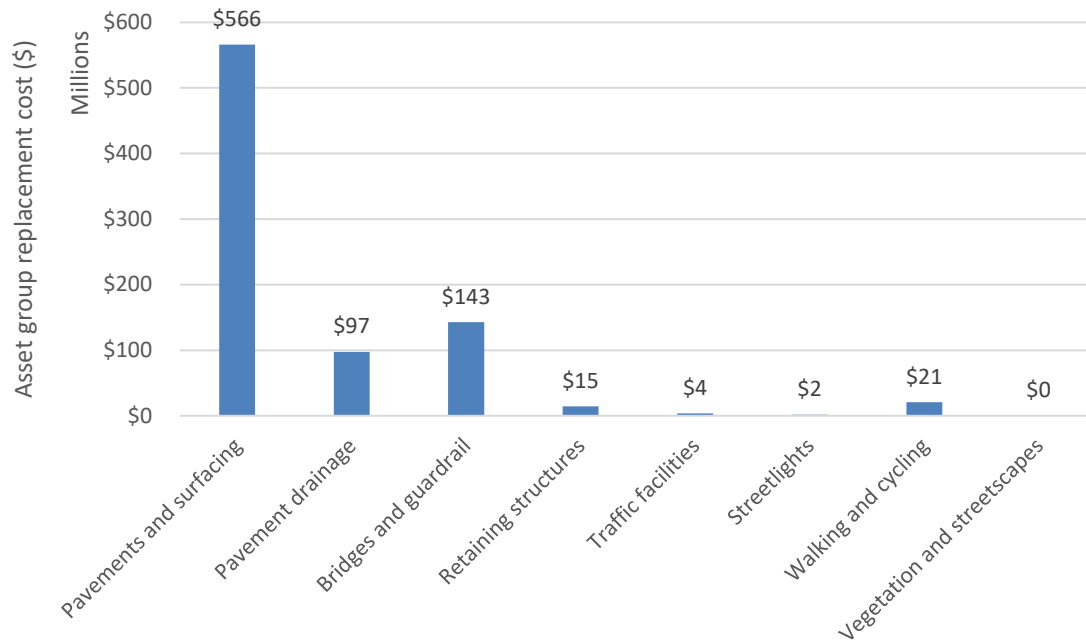


Figure 3-1: Replacement cost by asset group

7.1.2 Data Confidence and Reliability

Central Hawke's Bay uses the RAMM system as a central repository for storing information on the transportation assets. RAMM contains a schedule of all roads in the network and information on carriageway widths, surfacing types and ages, pavement composition, traffic volumes and loadings and road condition data. Information on all other assets is also stored in the RAMM system.

The accuracy of asset inventories in RAMM is critical in the development of strategies for each of the asset groups within this Transportation Activity Management Plan. Table 3-2 outlines the confidence grading system for data. The confidence level for all asset groups is "B – Reliable."

Table 3-2: Asset data accuracy grade framework²⁰

Confidence in accuracy	Description
A – Highly Reliable	Data based on sound records, procedure, investigations, and analysis which is properly documented and recognised as the best method of assessment.
B – Reliable	Data based on sound records, procedures, investigations, and analysis which is properly documented but has minor shortcomings.
C – Uncertain	Data based on sound records, procedures, investigation, and analysis which is incomplete or unsupported, or extrapolation from limited sample for which grade A or B data is available.

²⁰ New Zealand Infrastructure Asset Valuation and Depreciation Guidelines (Ed 2.0, 2006), Table 4.3.1

D – Very Uncertain	Data based on unconfirmed verbal report and/or cursory inspection and analysis.
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7.2 Description of the assets

7.2.1 Pavement and surfacing

The purpose of pavements is to provide:

- a road network that is suitable for effective movement of agricultural, commercial industrial goods, produce and people.
- a safe suitable all-weather surface that is appropriate to its location and function in terms of skid resistance, noise reduction, and smoothness.
- a structure suitable for legal loading requirements.

The Central Hawke's Bay District Council (CHBDC) roading network is 1,264 km in length, of which 856 km is sealed and 402 km is unsealed. The remaining 6 km is the total length of the major bridges.

There are 68 km of sealed roads classified as urban which generally have a speed limit of 70 km/h or less. Most of the urban roads are located in townships within the district such as Waipukurau and Waipawa. Most of the unsealed roads are located in the rural area. Of the 402 km of unsealed roads approximately 69% are classified as low volume roads under the One Network Road Classification (ONRC)²¹ with majority access from sealed roads.

The ONRC is used to determine the standards of maintenance and construction to be used to prioritise future transportation improvements. Table 3-3 shows the CHBDC's road hierarchy system as per the ONRC.

Table 3-3: Central Hawke's Bay District Council road network by One Network Roading Classification

ONRC Category	Sealed (km)	Unsealed (km)	Major Bridges (km)	Total (km)
Arterial	0.57	0.00	0.00	0.57
Primary Collector	0.75	0.00	0.00	0.750
Secondary Collector	264.33	0.91	1.89	267.13
Access	418.82	123.27	1.72	543.81
Low Volume	171.71	277.81	2.25	451.77
Total	856.18	401.98	5.86	1264.02

The total replacement cost for road pavement assets is \$566 million. This is broken down by component in Table 3-4.

²¹ The ONRC involves categorising roads based on the functions they perform as part of an integrated national network and specifies target levels of service for each classification. The classification is expected to assist local government and Waka Kotahi NZ Transport Agency to plan, invest in, maintain and operate the road network in a more strategic, consistent and affordable way throughout the country.

Table 3-4: Pavement asset summary

Asset Type	Length (m)	Quantity	Unit	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Formation	1,258,160	11,037,491	m ²	\$364,568,320	\$364,568,320	\$0
Sealed Pavement Layers	856,182	6,890,769	m ³	\$150,845,729	\$116,175,912	\$1,320,158
Sealed Pavement Surfaces	856,182	5,029,391	m ²	\$19,749,314	\$6,987,198	\$1,463,707
Unsealed Pavement Layers	401,978	532,807	m ³	\$31,054,463	\$28,923,684	\$483,298
TOTAL				\$566,217,825	\$516,655,114	\$3,267,163

7.2.2 Pavement drainage

The purpose of this asset is to:

- adequately drain storm runoff from the carriageway.
- protect the road edge and substrate from stormwater intrusion.
- provide a protective barrier for pedestrians from passing traffic.
- delineate the edge of the carriageway.

Drainage facilities cover all drainage assets that are necessary for the purpose of protecting the pavement integrity and to protect adjacent property from runoff generated from the road surface. This includes the provision and maintenance of key assets including (but not limited to):

- **Culverts**²² convey natural watercourses or stormwater across the road without adversely affecting the pavement or surface of the road or disrupting its use.
- **Surface water channels** (SWC) provide a path for stormwater runoff from the carriageway, footpaths, berms, and adjacent properties. This is to protect the pavement from the ingress of water and resulting structural deterioration, and to allow the convenient and safe movement of vehicular and pedestrian traffic. Surface water channels are described as either "shallow" or "deep" channels. These channels are invariably unlined except in very exceptional circumstances where there is a requirement to prevent erosion of the channel.
- **Kerb and channel** is a specific type of SWC. Almost all the kerb and channel is in the town centres such as Waipukurau and Waipawa. Its purpose is to
 - Provide a path for stormwater runoff from the carriageway, footpaths, berms and adjacent properties, protecting the pavement from water ingress, and consequential structural deterioration.
 - To enhance the convenient and safe movement of pedestrians and traffic by separating these two streams of road users.

The use of concrete kerb and channel, as opposed to earthen surface water channels is a recognised and accepted sign of urban development.

²² Culverts larger in size than 2.3 m in diameter or with a waterway area greater than 3.4 m² are classified as bridges for asset management purposes.

- **Sumps** are used to remove stormwater from kerb and channel or other SWC when there is no suitable open watercourse available. Sumps connect to a pipe and usually contain a silt trap. Sometimes this asset subgroup is referred to as "catchpits" as a generalised description.

Transport network drainage assets in urban areas are defined as carriageway collection facilities that cater for drainage from the carriageway and deliver the stormwater to mains reticulation. These assets include:

- Kerb and channel
- Earth formed SWC were no kerb and channel exits
- Sumps including piped connections to mains reticulation
- Bubble up sumps including piped connections between sumps
- Subsoil drainage reticulation

In rural areas carriageway drainage assets are purely a roading responsibility with side swales, open drains and road culverts being the main asset types.

The total replacement cost for pavement drainage assets is \$97 million. This is broken down by component in Table 3-5.

Table 3-5: Pavement drainage asset summary

Asset Type		Length (m)	Quantity	Unit	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Drainage Assets	Culverts	79,564	7,721	ea	\$51,185,004	\$28,699,462	\$674,018
	Manholes	93	370	ea	\$1,834,945	\$978,587	\$36,518
	Flushing Eye	26	47	ea	\$40,341	\$29,222	\$801
	Side Drains	2,194	13	ea	\$634,900	\$322,410	\$20,880
	Subsoils	9,427	111	ea	\$779,550	\$573,457	\$15,524
	Sumps	93	794	ea	\$3,615,352	\$1,906,660	\$71,718
	Other ²³	3,135	110	ea	\$4,921,242	\$4,657,313	\$72,056
	Subtotal	94,532	9,166		\$63,011,333	\$37,167,111	\$891,517
Surface Water Channels	Dish Channel	6,358		m	\$678,268	\$473,306	\$9,030
	Kerb only	2,639		m	\$127,437	\$65,946	\$1,699
	Kerb and Channel	78,390		m	\$10,106,244	\$5,513,089	\$133,948
	Slot Channel	622		m	\$153,230	\$75,593	\$2,043

²³ Drop chambers, swales, buttress drains and their outlets, sump leads, catchpits, flume down batters, intake structures and aluminium chimneys

Asset Type	Length (m)	Quantity	Unit	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
SWC (Deep/Shallow)	1,664,099		m	\$22,132,517	\$10,952,155	\$295,100
SWC (Other)	14,639		m	\$1,272,422	\$627,728	\$16,966
Subtotal	1,766,747			\$34,470,117	\$17,707,818	\$458,786
Total Pavement Drainage	1,861,279			\$97,481,451	\$54,874,928	\$1,350,302

7.2.3 Bridges and guardrail

The purpose of bridges and large culvert structures is to provide continuous all-weather road access over rivers, streams and uneven terrain, supporting vehicles and ensuring the safety of road users. The purpose of guardrail is to protect motorists who have drifted off the road from hazards.

The council maintains 169 bridges and 92 large culverts. These range in size from large culverts and short span bridges to 150 m bridges such as the Papanui Bridge.

The total replacement cost for bridges and guardrail assets is \$143 million. This is broken down by component in Table 3-6.

Table 3-6: Bridges, large culverts and guardrail asset summary

Asset Type		Number	Quantity	Unit	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Bridges	Prestressed Bridge	81	7,734	m ²	\$35,009,887	\$19,059,113	\$350,050
	Reinforced Concrete Bridge	83	18,931	m ²	\$85,692,144	\$35,545,860	\$856,921
	Timber Bridge Deck	4	147	m ²	\$667,312	\$218,961	\$8,341
	Papanui Bridge (Shared 50%)	1	148	m ²	\$367,664	\$317,767	\$2,626
	Subtotal	169	26,960	m ²	\$121,737,007	\$55,141,701	\$1,217,939
Bridge Culverts	3.4<area<5m ²	56	494	m			
	5 < area < 6m ²	6	100	m	\$1,141,825	\$596,028	\$15,442
	6 < area < 8m ²	17	311	m	\$4,565,516	\$2,305,893	\$60,947
	8 < area < 9m ²	6	83	m	\$1,521,595	\$687,099	\$19,978



Asset Type	Number	Quantity	Unit	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
9 < area < 12m ²	7	128	m	\$2,789,788	\$1,395,007	\$37,409
12< area< 20m ²	2	23	m	\$531,737	\$300,547	\$5,780
20< area< 28m ²	2	24	m	\$613,628	\$323,596	\$6,445
Subtotal	96	1,618	m	\$18,949,198	\$9,686,666	\$250,815
Guardrail	180	9,091	m	\$1,873,382	\$1,068,588	\$61,259
Total				\$142,559,587	\$65,896,955	\$1,530,013

7.2.4 Retaining structures

Retaining structures provide protection and support for road pavements. Most retaining walls are not actively maintained and not all retaining wall structures have yet been identified in RAMM. For example, a lot of the 'in ground' retaining walls are noted in the network but are not in RAMM. Many of these retaining walls are viewed as having failed with these walls being rotated from their original orientation.

The total replacement cost for retaining wall assets is \$15 million. This is broken down by component in Table 3-7.

Table 3-7: Retaining structures asset summary

Retaining Wall Type	Length (m)	Quantity	Unit	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Gabion (no height)	400	23	m	\$238,847	\$180,285	\$6,160
Gabion Wall	596	1,209	m ²	\$2,140,589	\$1,512,080	\$45,822
Anchored - Concrete	76	341	m ²	\$600,272	\$576,175	\$6,670
Anchored - Wood	191	453	m ²	\$1,919,924	\$1,696,947	\$32,731
Anchored - Earth	61	206	m ²	\$664,073	\$651,501	\$12,572
Anchored – Default	27	41	m ²	\$124,487	\$119,493	\$2,228
Railway Irons and Boards	3,566	3,741	m ²	\$2,718,277	\$1,769,943	\$46,156
Reinforced Earth	153	304	m ²	\$186,727	\$154,728	\$4,135
MSE Wall	86	161	m ²	\$283,413	\$273,692	\$3,149
Retaining Walls - Default Other	509	1,028	m ²	\$2,069,890	\$1,213,224	\$43,790
Retaining Wall (no height)	1,744	74	m	\$3,574,829	\$2,790,100	\$79,099

Retaining Wall Type	Length (m)	Quantity	Unit	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Other (no height)	130	5	m	\$77,548	\$49,649	\$1,936
Total	7540			\$14,598,876	\$10,987,815	\$284,448

7.2.5 Traffic facilities

Traffic facilities consist of road signs, sight rails, road markings and traffic islands. These facilities aid the safe and orderly movement of traffic and indicate road use restrictions and other information. A good standard of traffic services can contribute significantly to a safer road network.

Traffic facilities can convey the following information to drivers:

- Regulatory instructions that road users are required to obey e.g. speed limits
- Indicate the edge of the carriageway using marker posts
- Abrupt changes in road direction using chevrons and sight rails
- Warning of temporary or permanent hazards that may not be self-evident
- Indicating directions and distances to destinations
- Indicating road user services and tourist features/establishments

The most prevalent type of traffic facility is signage, and there are over 5,000 signs on the CHB roading network. Most signs have a specially manufactured reflectorised surface laminated onto an aluminium plate and are fixed to timber posts in rural areas and galvanised steel fluted poles in urban areas, which are bedded into the ground. They may also be fixed to existing power poles or similar. The various types of signs are summarised in Table 3-8

Table 3-8: Summary of road signage

Sign Type	Quantity
Permanent Warning	1,725
Hazard Markers	1,288
Regulatory Signs	1,028
Direction Signs	878
Local Authority Signs	282
Information - Street Name	358
Information Signs General	74
Tourist	5
Special Signs	4
Miscellaneous Signs	70

The total replacement cost for Traffic Facilities assets is \$3.7 million. It has very low values compared to the other asset types. This accounts for only 0.4% of the councils Land Transport asset values. This is broken down by component in Table 3-9.

Table 3-9: Traffic facilities asset summary

Asset Type		Length (m)	Quantity	Unit	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Railings	Rail Steel Post and Wood Rail	225	10	ea	\$22,561	\$8,912	\$733
	Timber Sight Rail	10,328	800	ea	\$1,762,576	\$953,907	\$85,680
	Subtotal	10,187	803	ea	\$1,785,137	\$962,818	\$86,413
Signs			5,712	ea	\$1,125,553	\$493,843	\$72,564
Markings	Lines	1,044,846	2,254	ea	\$373,633	\$153,094	\$153,090
	Symbols		2,694	ea	\$129,881	\$41,803	\$41,803
	Subtotal				\$503,514	\$194,897	\$194,893
Islands	Median		3	m ²	\$8,326	\$7,882	\$111
	Rotary		1	m ²	\$1,953	\$989	\$26
	Splitter		20	m ²	\$124,839	\$102,465	\$1,665
	Other		37	m ²	\$81,845	\$57,951	\$1,091
	Subtotal				\$216,963	\$169,287	\$2,893
Speed Humps			47	ea	\$83,061	\$48,025	\$3,711
False Kerbs			9	ea	\$3,706	\$1,887	\$67
Total					\$3,717,934	\$1,870,757	\$360,541

7.2.6 Streetlights

Streetlighting is provided to agreed lighting levels in streets for the safe and efficient movement of vehicles, cyclists and pedestrians. CHB has a large number of streetlights, which play a key traffic safety role in the urban areas and at major rural intersection. Streetlights are also important for creating a walkable urban environment after dark and for providing general social and security lighting in urban areas.

The use of the terminology "lights" when referring to the asset is inclusive of the following two sub asset components:

- Luminaire: the fitting that houses the lamp; and
- Lamp: the light source that produces the light

Brackets are the mounting bracket that attaches the light to a pole or other fixture, while a pole is a support structure that supports the bracket and light at the correct position, height

and inclination. The carriageway lighting data is contained within the RAMM database. This information is continually updated as lights/poles are replaced and upgraded.

There are currently 936 streetlights on the roading network. Council owns 277 streetlight poles of either concrete, steel or wood construction. The total replacement cost for streetlight assets is

\$1.7 million. This is broken down by component in Table 3-10.

Table 3-10: Streetlight asset summary

Asset Type		Quantity	Unit	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Pole	Concrete	11	ea	\$44,046	\$23,705	\$1,762
	Steel	266	ea	\$1,065,112	\$577,723	\$42,604
	Wood	0	ea			
	Subtotal	277	ea	\$1,109,158	\$601,428	\$44,366
Bracket		777	ea	\$199,720	\$104,996	\$7,989
Light	HPS	784	ea	\$344,167	\$90,555	\$39,758
	FL	118	ea	\$9,071	\$4,535	\$1,512
	LED	27	ea	\$21,645	\$19,107	\$722
	Other	7	ea	\$21,265	\$10,494	\$2,135
	Subtotal	936	ea	\$396,148	\$124,691	\$44,126
Total		1,990	ea	\$1,705,026	\$831,115	\$96,481

7.2.7 Walking and cycling infrastructure

The primary purpose of footpaths and cycleways is to provide a safe, comfortable and convenient facility allowing people (including the physically disabled) access to their chosen destination. It is becoming more common to provide shared facilities utilising pathways that are wider than what would be normally provided.

Footpaths are mainly located along streets and roads in urban areas such as Waipukurau and Waipawa and through reserves and other areas connecting cul-de-sac and other streets to enable connectivity. There is currently no cycling infrastructure managed under the transport activity in CHB.

Inventory details on paths are collected and stored in Council's RAMM database. The type of surface used is dependent on life cycle cost considerations, pedestrian volumes and the amenity value of the location e.g. shopping and commercial areas. There are 70 km of footpaths in the CHB; 81% of the footpath is constructed of in-situ concrete, 14% asphaltic concrete and 2% interlocking blocks.

The total replacement cost for walking and cycling assets is \$21 million. This is broken down by component in Table 3-11.

Table 3-11: Walking and cycling asset summary

Asset Type		Length (m)	Quantity	Unit	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Footpath	AC	9,597	26,587	m ²	\$1,974,380	\$1,197,965	\$23,428
	Concrete	56,685	93,591	m ²	\$12,607,590	\$7,400,278	\$150,083
	Interlocking Block	1,224	3,525	m ²	\$390,297	\$246,514	\$5,862
	Seal	1,619	3,969	m ²	\$294,708	\$101,901	\$6,631
	Slurry	592	1,899	m ²	\$140,997	\$72,625	\$2,999
	Subtotal	69,717	129,571	m²	\$15,407,973	\$9,019,284	\$189,003
Crossings	Bevelled Kerb	129,000	1,408	ea	\$2,520,545	\$1,311,591	\$33,607
	Bridge Crossing	4,000	739	ea	\$2,367,335	\$1,188,560	\$31,562
	Heavy Duty		16	ea	\$86,525	\$46,002	\$1,154
	Slot		82	ea	\$159,447	\$79,283	\$2,126
	Steel Ramp		21	ea	\$67,272	\$33,187	\$897
	Subtotal	133,000	2,266	ea	\$5,201,123	\$2,658,623	\$69,346
Cycleways		-	-		-	-	-
Total					\$20,609,096	\$11,677,907	\$258,349

7.2.8 Vegetation and streetscapes

Vegetation and streetscapes provide the amenity elements to the land transport environment and includes grass berms, gardens and trees. The verges can be in an urban or rural environment and create a buffer between the road pavement and private land.

Vegetation and Streetscapes physical data is contained within the RAMM database. For all intents and purpose, the length of the network centreline determines the length of vegetation in the network that has to be managed and maintained. Table 3-12 shows the current extent of the vegetation and streetscape assets.

Table 3-12: Vegetation and streetscapes asset summary

Berm Type	Total Length (m)	Width (m)	Area (m ²)	Number
Cover	4,617	88	9,129	44
Flowers	529	8	523	5
Flowers, Cover	309	3	423	2
Grass	84,324	2,191	313,514	636



Berm Type	Total Length (m)	Width (m)	Area (m ²)	Number
Shrubs	2,368	94	11,910	22
Trees	-	-	-	160,663
Grand Total	92,147	2,384	335,499	161,372

7.3 Condition of the assets

Generally, all of the above assets are in relatively good condition. For more detailed information on the condition of each asset group refer to Section 7: Lifecycle Management

8 Levels of Service



8.1 Introduction to Levels of Service

The Levels of Service (LoS) and performance measures represent Council's commitment to the community in return for the rates and fees they pay. The LoS presented in this section provide a basis for determining whether assets need to be constructed, renewed or maintained. These are based on

- Customer expectations
- Legislative requirements
- Council's strategic goals and objectives
- Thrive values and,
- Community Outcomes

The LoS are consistent with the LTP and the One Network Road Classification (ONRC).

Figure 4-1 describes how the various LoS are delivered and Figure 4-2 shows the LoS lifecycle through various documents.

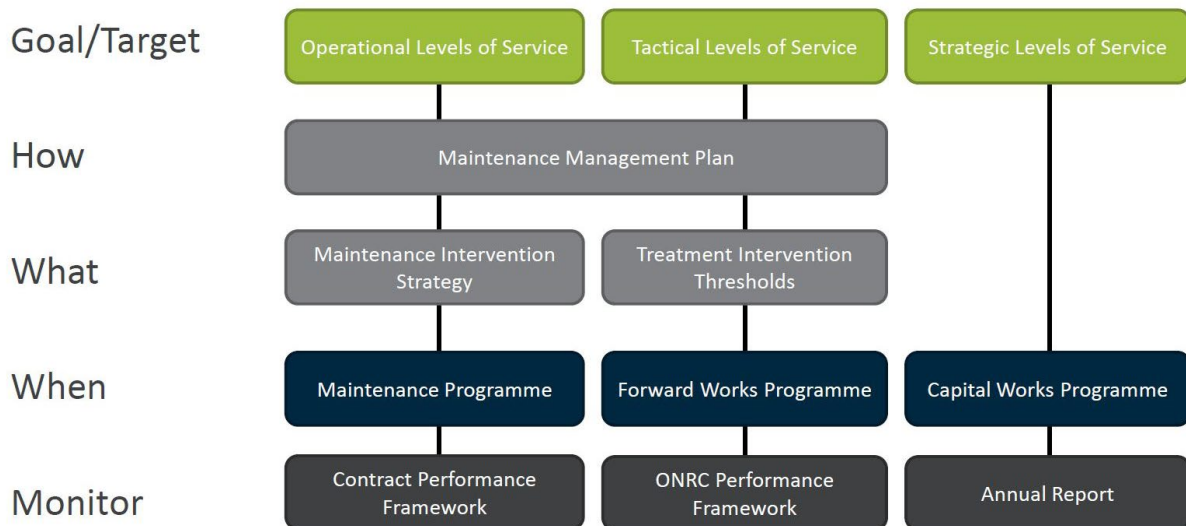


Figure 4-1: Level of service delivery

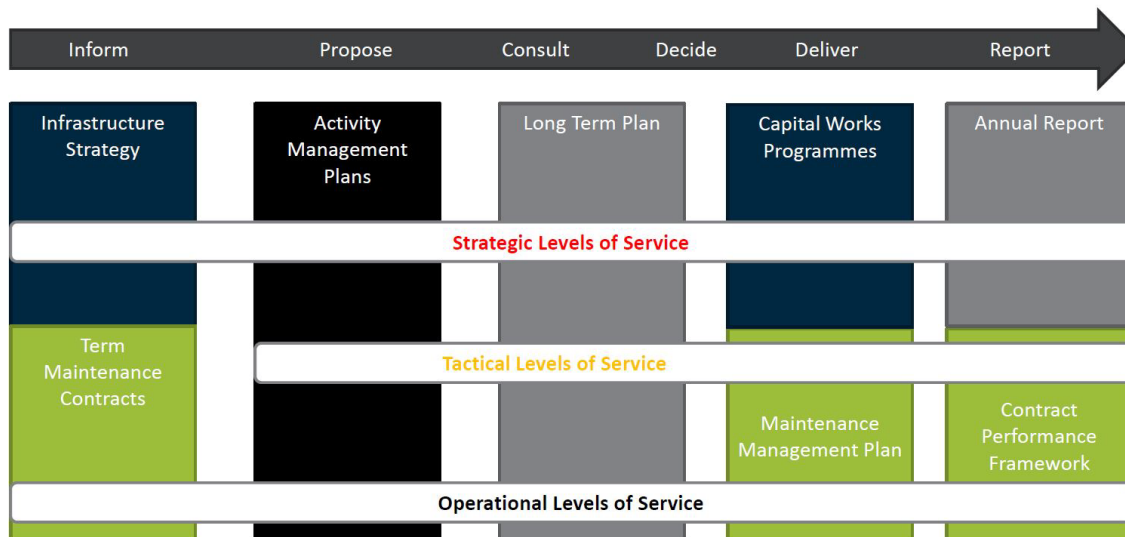


Figure 4-2: Level of service lifecycle

8.2 Framework for Developing Levels of Service

Inputs into the LoS development process are shown in Figure 4.3 and detailed below:

- **Customer expectations and community outcomes** are as discussed in Section 4.4.
- There are numerous **legislative requirements** within New Zealand which have a major impact on the management of the land transport assets. All of these provide rules, guidelines and advice which set parameters around what is acceptable in the management of land transport assets. These are discussed in detail in Sections 2.5, 2.7, and 2.8.
- **Council's vision, strategic goals and objectives** are derived from Council's mission statement "E ora ngātahi ana! Together we thrive!" Refer to Section 2.1 for more information.
- The **ONRC** is a classification system, which divides New Zealand's roads into six categories based on how busy they are, whether they connect to important destinations, or are the only route available
- The **ONF** will replace the ONRC by 2024. It introduces a more granular 'Movement and Place' approach which will allow better consideration of different mode priorities, surrounding land use, community wellbeing, economic activity and growth aspirations for the future.

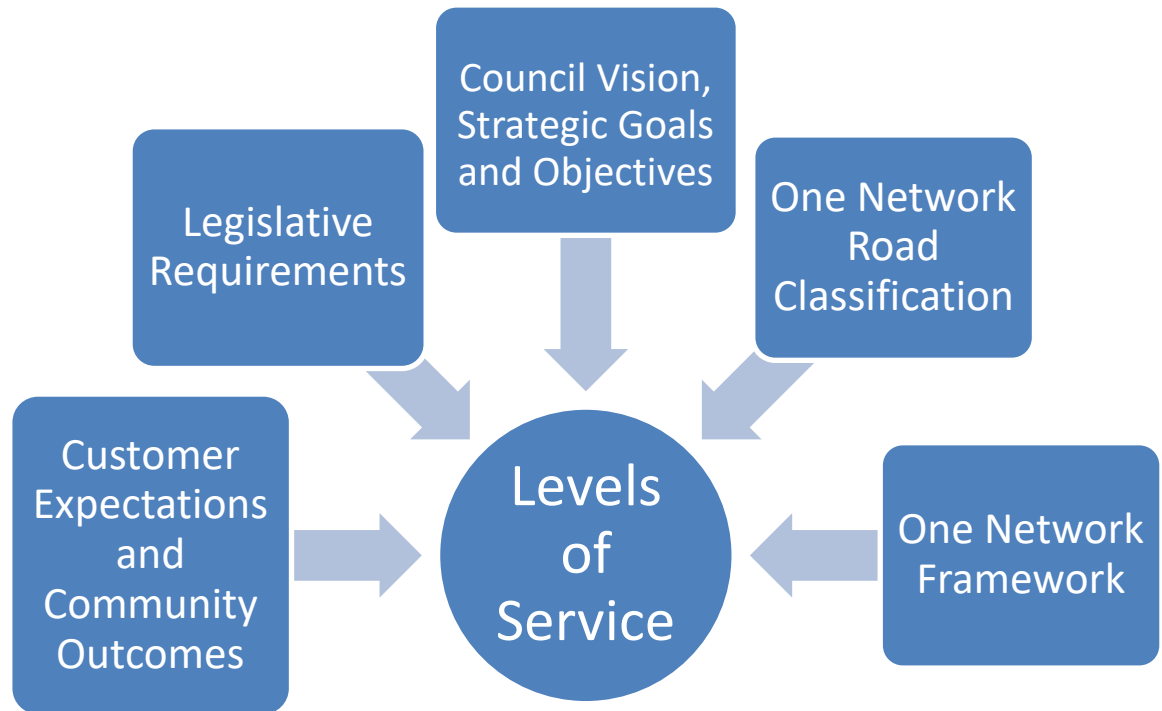


Figure 4-3: Levels of service development process

8.3 Council Direction

The Local Government Act 2002 sets out the four well-beings – Social, Economic, Environmental and Cultural. The Council's direction is set out in the Long Term Plan (LTP) and incorporates the four well-beings:

- Mission: *"Our vision is for Central Hawke's Bay is a proud and prosperous district made up of strong communities and connected people who respect and protect our environment and celebrate our beautiful part of New Zealand"*
- Purpose: *"It's our goal to create an environment that supports a thriving Central Hawke's Bay district, by providing efficient and appropriate infrastructure, services and regulatory functions."*
- Objectives and Community Outcomes:
 - A proud district
 - A prosperous district
 - Strong communities
 - Connected citizens
 - Smart growth
 - Environmentally responsible
 - Durable infrastructure

The Objectives and Community Outcomes are goals that the community believes are important for its present and future economic, social, cultural and environmental well-being. These outcomes were consulted on with the community during the development of the LTP 2018-25 and are discussed in more detail in Section 4.4.

8.4 Community Outcomes

The Local Government Act 2002 sets out the four well-beings – Social, Economic, Environmental and Cultural. The LTP sets out the Community Outcomes, these are goals that the community believes are important for its present and future economic, social, cultural and environmental well-being.

Table 4-1 shows how Central Hawkes Bay District Councils land transport network contributes to the community vision.

Table 4-1: Land transports contribution to achieving community outcomes

Community Outcomes		Contribution
Proud District HE ROHE POHO KERERŪ	Central Hawkes Bay is proud of its identity and place in our region and nation. We hold our head high on the national and international stage, celebrating our unique landscape from the mountains to the sea.	By delivering land transport outcomes in a way that protects and enhances the uniqueness of the Central Hawke's Bays identity.
Prosperous District HE ROHE TŌNUI	Ours is a thriving and prosperous district that is attractive to business. Central Hawke's Bay is enriched by the households and whanau that are actively engaged in, and contribute, to our thriving district.	The entire land transport system and its management will be properly integrated and consulted on.
Strong Communities HE HAPORI KAHA	We have a strong community spirit and work together to support each other. Central Hawke's Bay is made up of proud communities with unique identities that come together to form a strong and thriving district.	The land transport network will be protected and cultural and social effects will be identified and properly managed.
Connected Citizens HE KIRIRARAU WHAI HONONGA	Our citizens can connect easily with each other and with those outside of our district. We have access to everything Central Hawke's Bay has to offer and enjoy these great things together.	Council will lead initiatives to ensure resilient infrastructure is available to enable connected communities..
Smart Growth HE TIPU ATAMAI	We grow Central Hawke's Bay in a smart and sustainable way that cherishes our identity. We use our resources intelligently and with care, to ensure they	By planning of the land transport activity is sustainable into the future.



Community Outcomes		Contribution
	are protected for the citizens of the future.	
Environmentally responsible HE WHAKAARO NUI KI TE TAIAO	Central Hawke's Bay is home to a unique and beautiful landscape. We celebrate our environment and work together to enhance our local natural wonders and resources.	The land transport network will be delivered in a way that protects the natural environment and all effects will be identified and properly managed.
Durable Infrastructure HE HANGANHA MAUROA	We aim to provide sound and innovative facilities and services that meet the needs of our communities today. Our infrastructure is fit for purpose and future proofs our thriving district for tomorrow.	By providing and maintaining local roads and multi-modal transport facilities that meet the current and future needs of the district.

These outcomes will be delivered through delivering on Central Hawke's Bay District Councils core principles of:



Figure 4-4: Central Hawke's Bay District Council's core principles

Activities delivered through the transport programme meet our community outcomes as well as the key customer outcomes as required through the ONRC which are described below:

- Safety
- Resilience
- Amenity
- Accessibility (for freight and wayfinding)
- Cost Efficiency

The ONRC will be replaced by the ONF by 2024. The LoS and performance measure for the ONF have not yet been determined and are to be released in late 2020. However, information from Waka Kotahi states that key outcome areas under wider frameworks including the



Government's transport outcomes framework, GPS, Safe System and wellbeing and liveability indicators will be incorporated, to provide specific safety, environmental or place-focused measures.²⁴

Table 4-2, and FIGURE TO FIGURE detail how providing for various transport activities achieves current ONRC outcomes and the Council's Community Outcomes.

²⁴ "Levels of service and performance measures," What are the new ONF elements?, Waka Kotahi NZ Transport Agency, accessed 31 July 2020, <https://www.nzta.govt.nz/roads-and-rail/road-efficiency-group/one-network-framework/what-are-the-new-onf-elements/#service-and-performance>

Table 4-2: How transport activities achieves One Network Road Classification outcomes and Council's Community Outcomes

Transport Activity	Assets and Services Provided	ONRC outcomes achieved by maintenance, operations, and renewals	Link to community outcomes
Private Vehicle and Freight Movement	<p>Maintenance and renewal of:</p> <ul style="list-style-type: none"> Sealed and unsealed roads Bridges and structures Drainage Traffic services including lighting, signage and other street furniture <p>Maintenance of the road reserve including:</p> <ul style="list-style-type: none"> Mowing, weed spraying Tree removal Sweeping and cleaning of streets (litter and graffiti removal) <p>Safety Improvement works</p> <p>Planning and management of the transport system</p>	<p>Safety: reduction in accidents due to fit for purpose road surfaces, rail systems, lighting, road marking and signs</p> <p>Resilience: Improved resilience through ensuring structures are fit for purpose and road renewals as required</p> <p>Amenity: Comfortable journey provided by pavement rehabilitation, resealing, and maintenance. Road network kept tidy and functional through keeping vegetation controlled, graffiti removal and roadside furniture maintained.</p> <p>Accessibility: key routes are available for freight vehicles the required road marking and signs make wayfinding easy</p> <p>Cost Efficiency: appropriately timed maintenance and renewal works will minimise whole of life costs for the roading network.</p>	<p>Proud District: The roading network allows citizens to access and celebrate the district's unique landscapes.</p> <p>Prosperous District: ensuring freight can move efficiently makes Central Hawke's Bay attractive to businesses and contributes to a prosperous district</p> <p>Strong Communities: The roading network allows proud communities to come together and form a strong and thriving district.</p> <p>Connected Citizens: The roading network allows citizens to connect with each other and those outside the district.</p> <p>Smart Growth: Appropriately timed roading maintenance and renewal works uses resources intelligently and allows for smart and sustainable growth.</p> <p>Environmentally Responsible: Ensuring freight and vehicle movements are as efficient as possible will reduce transport's impact on the environment.</p> <p>Durable Infrastructure: ensures roading infrastructure is fit for purpose and future proof.</p>

Transport Activity	Assets and Services Provided	ONRC outcomes achieved by maintenance, operations, and renewals	Link to community outcomes
Walking and Cycling	<p>Maintenance and renewal of:</p> <ul style="list-style-type: none"> • Walkways • Cycleways • Cycle lanes • Footpaths • Traffic services related to walking and cycling including signage, lighting, and other street furniture. <p>Maintenance of the road reserve including sweeping and cleaning (e.g. litter and graffiti removal)</p>	<p>Safety: vulnerable user accidents reduced by separation from other traffic.</p> <p>Resilience: Active mode access is can be maintained despite road closures</p> <p>Amenity: Cycling and walking paths kept tidy and functional by keeping them free of vegetation, litter, and graffiti. Ensure roadside furniture is maintained and paths are appropriately illuminated</p> <p>Accessibility: providing appropriate signage and markings make wayfinding easier and allow people to connect.</p> <p>Cost Efficiency: the possible mode shift enabled by good walking and cycling infrastructure is highly cost efficient as it reduces the number of vehicles on the road and the cost of the maintenance required.</p>	<p>Proud District: A connected walking a cycling network will contribute to the District's identity and its place in the region and nation.</p> <p>Prosperous District: Walking and cycling infrastructure allow all households and whānau to actively engage in and contribute to the district.</p> <p>Strong Communities: A connected walking and cycling network allows all community members to work together and support each by coming together.</p> <p>Connected Citizens: Provides an alternative transport option for those wishing to connect with others within the district and enjoy all that the district has to offer.</p> <p>Smart Growth: Walking and cycling infrastructure allows Central Hawke's Bay to grow in a smart and sustainable way and allows for smart resource use.</p> <p>Environmentally Responsible: Provides for alternate modes of transport and allows for de-carbonisation of the transport system.</p> <p>Durable Infrastructure: Ensures walking and cycling infrastructure is fit for purpose and future proof</p>
Parking	The provision and management of vehicle and cycle parking within the district.	Safety: A safe place to park is important for managing vulnerable user accidents	Proud District: Parking does not contribute towards this outcome.



Transport Activity	Assets and Services Provided	ONRC outcomes achieved by maintenance, operations, and renewals	Link to community outcomes
		<p>Resilience: Parking does not contribute to resilience.</p> <p>Amenity: parking areas kept tidy and functional by keeping them free of vegetation, litter, and graffiti.</p> <p>Accessibility: Parking does not contribute to the accessibility of the network. However, it is important to have appropriately located parking areas capable of taking freight vehicles.</p> <p>Cost Efficiency: NA</p>	<p>Prosperous District: Appropriate parking for all modes is part of ensuring the district is attractive to businesses and allows everyone to contribute to the thriving district.</p> <p>Strong Communities: Parking does not contribute towards this outcome.</p> <p>Connected Citizens: Appropriate parking is a part of ensuring all citizens have access to everything the district has to offer and enjoy them together.</p> <p>Smart Growth: Ensuring all parking is planned intelligently and with care will ensure smart growth is not impeded.</p> <p>Environmentally Responsible: Parking does not contribute towards this outcome.</p> <p>Durable Infrastructure: Ensures any parking infrastructure is fit for purpose.</p>

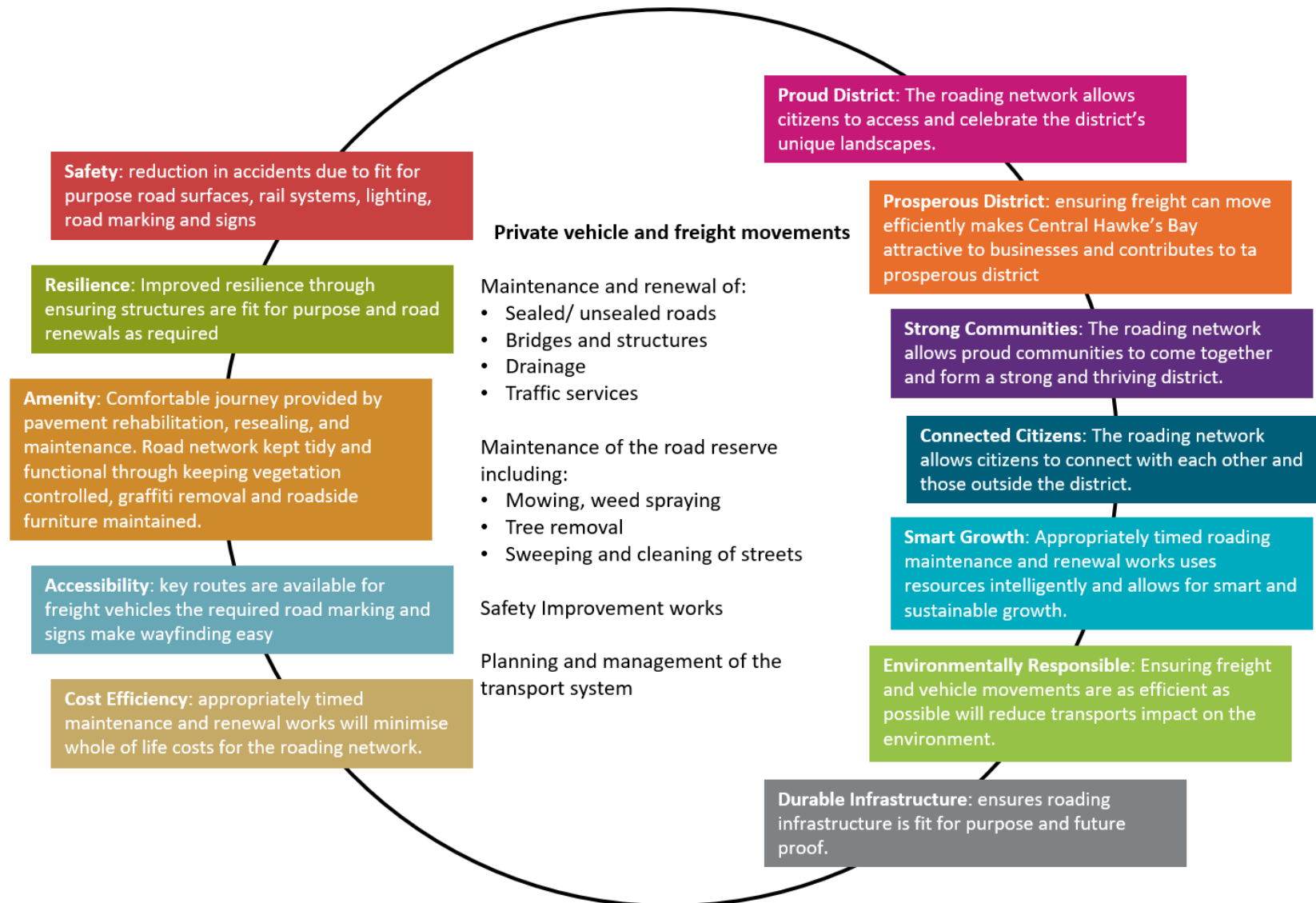


Figure 4-5: How private vehicle and freight movements achieve One Network Road Classification outcomes and Council's Community Outcomes

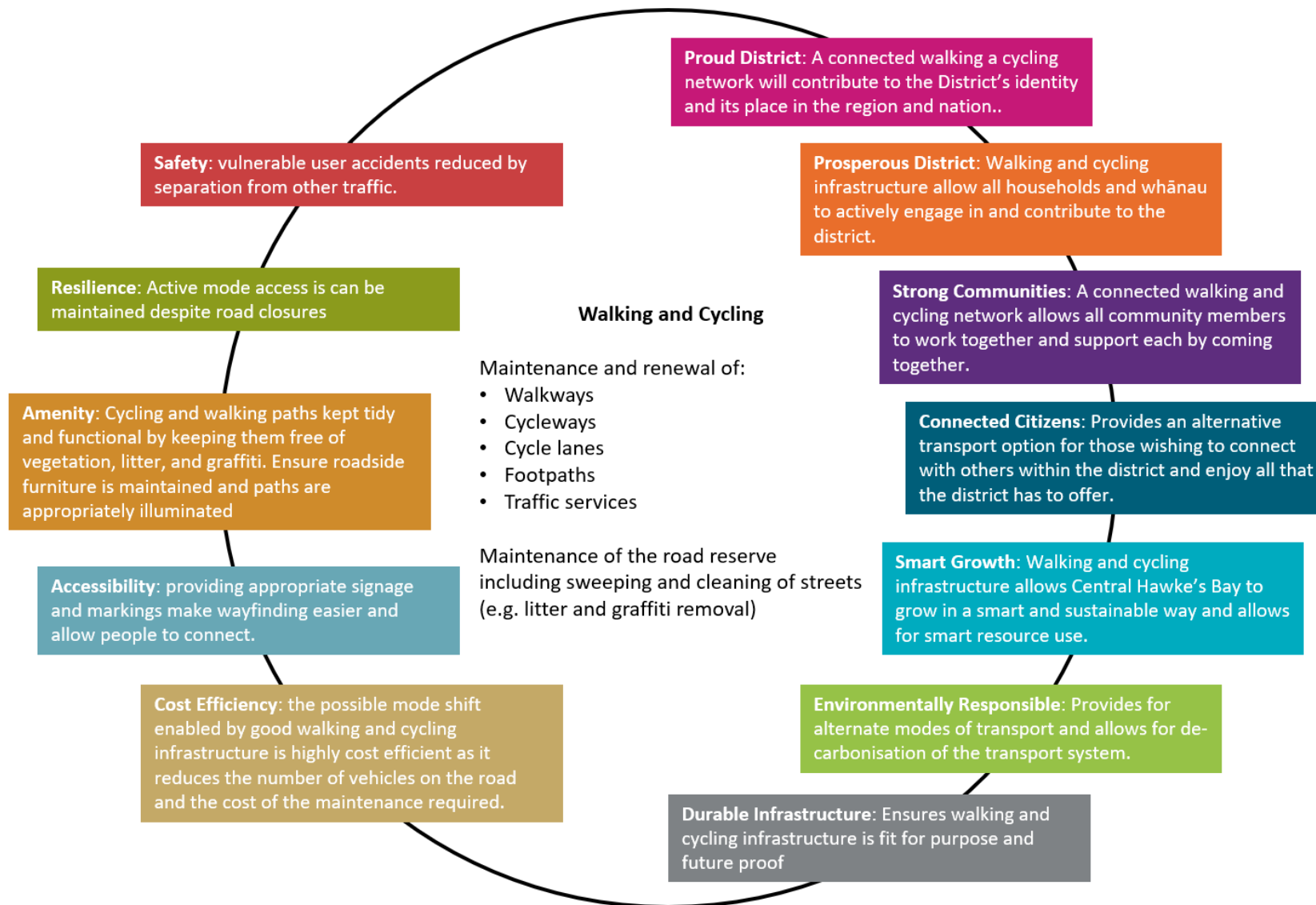


Figure 4-6: How walking and cycling achieves One Network Road Classification outcomes and Council's Community Outcomes

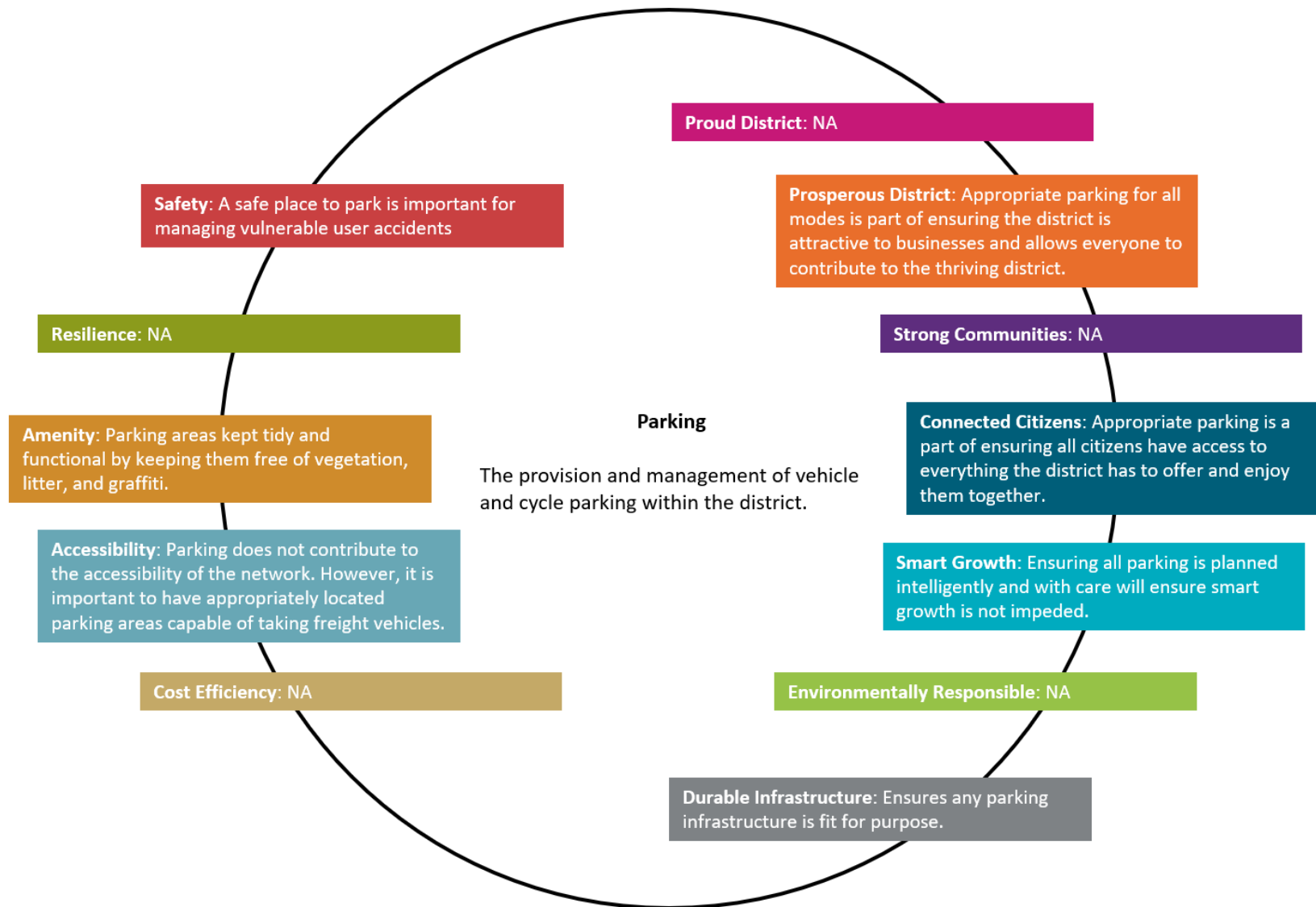


Figure 4-7: How parking achieves One Network Road Classification outcomes and Council's Community Outcomes

8.5 Customer Research

Customer research provides an understanding of customer expectations of cost and quality which allows the LTAMP to more clearly reflect the levels of service desired by customers.

Annual public surveys are conducted using an electronic format as well as direct contact whether through phone calls or through consultation. The results of these are then analysed by the Council and appropriate actions are then put in place to either change the LoS or provide better communication regarding that particular level of service.

The Resident Opinion Survey 2019 states that 78% of people in the district are satisfied with roading. This is in line with previous years' surveys.

8.5.1 Key Customers and Stakeholders

Council recognises there is a wide range of customers and stakeholders with an interest in how land transport is managed, including the resident community, iwi and specific interest groups within the community and regional and central government agencies. The key customers and stakeholders are listed in Table 4-2.

Table 4-3: Key customers and stakeholders

Customers	External Stakeholders	Internal Stakeholders
<ul style="list-style-type: none"> • Citizens and ratepayers, tenants, local businesses, visitors to the District, local community groups and local iwi. • Road users including: <ul style="list-style-type: none"> ○ Motorists – private and commercial cars, vans, trucks and motorcycles ○ Cyclists ○ Pedestrians. • Disabled users, including wheelchair and mobility scooter users • Recreational users, including runners and skaters • Industry Groups, including forestry, farming, quarrying and mining 	<ul style="list-style-type: none"> • Local Government NZ • Waka Kotahi NZ Transport Agency • Department of Conservation • New Zealand Police • Office of the Auditor General • Ministry of Civil Defence and Emergency Management • Ministry for the Environment • Hawke's Bay Regional Council • Hawke's Bay Regional Transportation Committee • Automobile groups • New Zealand Historic Places Trust • Iwi • Environmental groups • Service utility providers • Consultants and contractors • Community Groups 	<ul style="list-style-type: none"> • Councillors • Chief Executive and the Management Team • Asset Management Staff • Financial Support staff • Information Technology staff • Customer Services staff



8.5.2 Stakeholder Engagement

Local residents, other TLA's, Waka Kotahi, and the travelling public (customers) have the opportunity to provide input into the levels of service through the following mechanisms:

- **The Long Term Plan:** The 10-30-year plan which goes out to public consultation and is updated every three years.
- **The Annual Plan:** The yearly plan which goes out to consultation if there are significant changes to what was consulted on in the LTP.
- **The Council's Request for Service database:** The database whereby the public can report issues or request service for specific items or areas. This database is electronic and as requests are called or sent in they are entered into the system. Each request is assigned a Land Transport Officer to follow the request and a response time for the request to be followed up.
- **Daily contact through phone or e-mail:** All members of the public can contact the Land Transport Department of the Council, the Council reception, the Chief Executive and the elected representatives to report issues or request service. These are always followed up by the Land Transport department.
- **Online Platforms:** Feedback and engagement is often sought and provided through online platforms such as Facebook. These engagements are managed internally by Council staff and where appropriate entered back into the Request for Service database.

8.6 Requests for Service

The Council operates an electronic "Request for Services" (RFS) system whereby the public can report issues or request services by loading feedback online, via phone or other communication which is then entered into the RFS system. The department is measured on their ability to respond in a timely efficient manner to the request. This allows for performance tracking and an opportunity to inform individual members of the public of the LoS for their particular road or their particular service request.

Figure 4-8 and Figure 4-9 below illustrate the Request for Service (RFS) that Council received over the last seven years. It indicates a decline of RFCs between 2010 and 2017 and the biggest area of concern is Traffic Services. Note the significant increase in Service Requests from 2017 to 2018. This is evident across all service request types. This coincides with the rollout of Council's new "Thrive" campaign which has had a positive influence on public engagement.

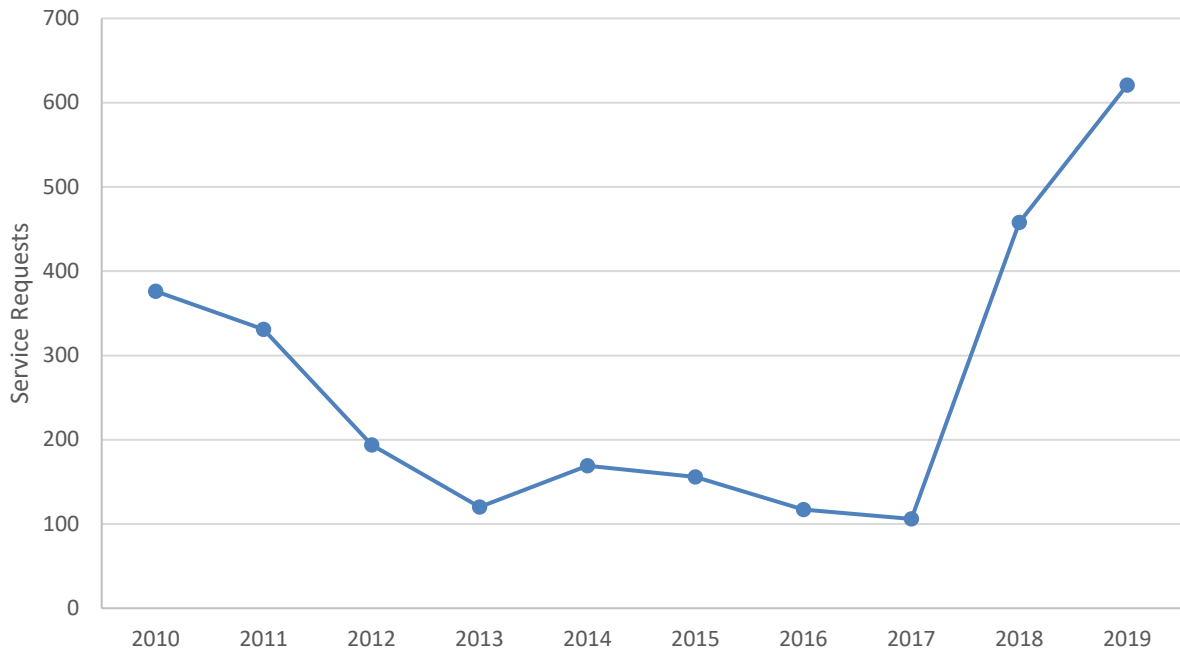


Figure 4-8: Transport activity service requests 2010-2019

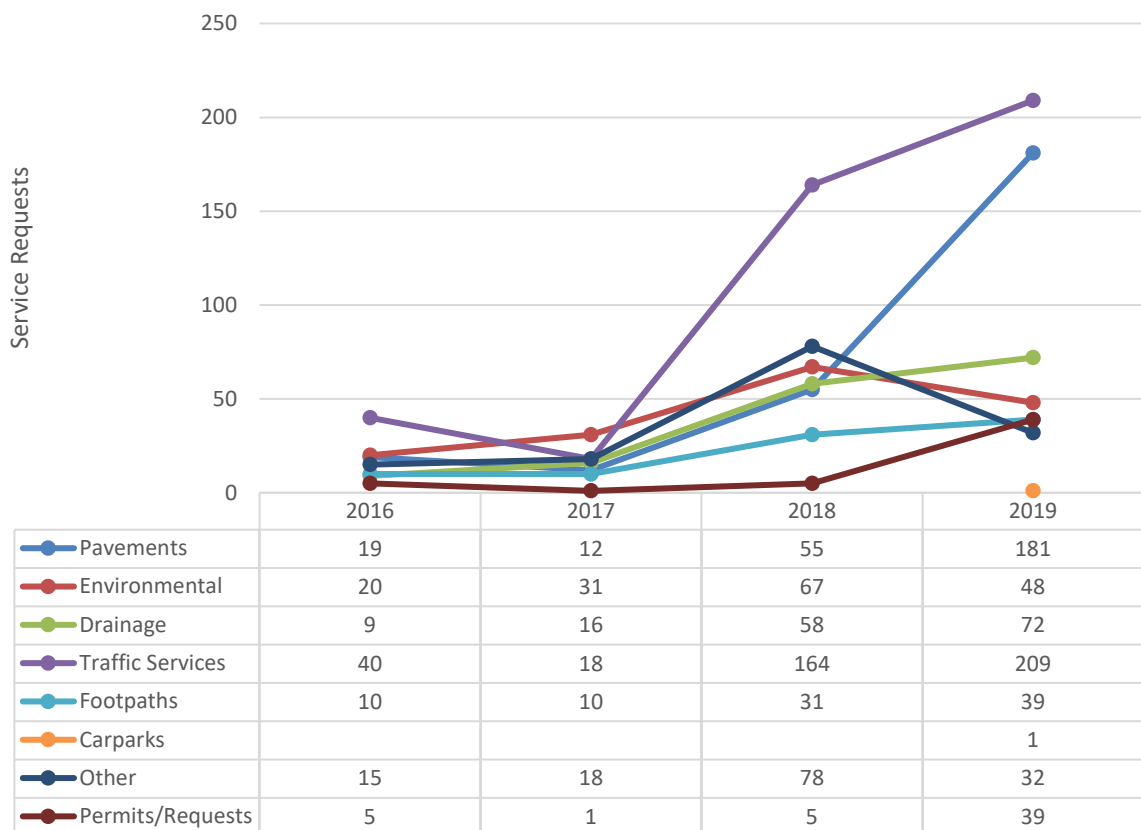


Figure 4-9: Transport service requests per assets group 2016-2019

9 Land Transport Levels of Service

Council outcomes identify the community priorities and direction that the council wants to deliver. In order to deliver these outcomes, it is important that the customer and technical performance measures; and operational and maintenance contracts are clearly linked to achieve this.

9.1 Operational Levels of Service

With the award of the maintenance contracts and commencement in 2020 Council undertook a significant review of how levels of service were achieved by contractors and how this was built into their contracts to reflect the requirements of this AMP. As a result, operational levels of service are currently being negotiated and will form part of this AMP once complete.

9.2 Levels of Service

Tactical LoS requirements continue to be developed and adopted as part of the ONRC LoS development process. Table 4-4 summarises the ONRC levels of service outcomes for CHBDC.

The specific performance measures for each LoS grouping are detailed in Table 4-5. It should be noted that neither of the resilience performance measures have been reported on previously. This is now an improvement action.

There are currently no performance measures or LoS requirements for the current stage of the ONF. These are expected to be released in late 2020 and will be incorporated at that time as appropriate. Refer to Section 4.8 for more detail.

Table 4-1: One network road classification level of service outcomes

Level of Service	Outcome
Safety	In line with Road to Zero provide services to reduce the number and severity of crashes on the District road network
Resilience	To provide for the availability and restoration of roads when there is a weather or emergency event (unplanned) and whether there is an alternative route available and road user information provided
Amenity	Measures the level of travel comfort experienced by the road user including roughness
Accessibility	The ease with which people are able to reach key destinations and the transport networks available to them including land use access and network connectivity
Cost Efficiency	Value for Money and whole of life costs will be optimised in the delivery of affordable customer services by delivering optimised programmes that are affordable and at a cost so that service productivity is improving

Table 4-2: One network road classification performance measures

Level of Service	Type	Performance Measure
Safety	Customer Outcomes	Serious Injuries and Fatalities: The total number of reported serious injuries and fatalities (DSI) each year on the network
		Collective Risk: The total number of reported crashes per kilometre over the past 10 years on the network
		Personal Risk: The total number of reported crashes by traffic volume over the past 10 years on the network
	Technical Outcome	Permanent Hazards: The number of permanent hazards that are not marked in accordance with national standards
		Temporary Hazards: The number of sites inspected and the percentage of audits compliant with COPTTM
		Sight Distances: The number of locations where sight distance or signs are obstructed
		Loss of Control on Wet Roads: The number of reported serious injuries and fatalities (DSI) attributable to loss of driver control on wet roads
		Loss of Driver Control at Night: The number of reported serious injuries and fatalities (DSI) attributable to loss of driver control at night
		Intersections: The number of reported serious injuries and fatalities (DSI) at intersections each year on the network
		Hazardous Faults: The number of hazardous faults which require evasive action by road users
		Cycle Path Faults: The number of cycle path hazards requiring evasive action by cyclists
		Vulnerable Users: The number of reported serious injuries and fatalities (DSI) involving vulnerable users on the network
		Roadside Obstructions: The number of locations where there are unauthorised items placed within the road reserve
Resilience	Customer Outcomes	Unplanned Closures with a Detour Provided: The number of road closures with a detour provided and the number of vehicles affected by the closures annually
		The Number of Instances Where Road Access is Lost: The number of unplanned road closures with no detour provided and the number of vehicles affected by the closures annually

Level of Service	Type	Performance Measure
Amenity	Customer Outcomes	Smooth Travel Exposure (STE): The percentage of travel on roads smoother than the threshold for each traffic grouping
		Peak Roughness: The 85th and 95th percentile roughness of your roads
	Technical Outcome	Roughness of the Road (median and average): The 85th and 95th percentile roughness of your roads
		Aesthetic Faults: The number of aesthetic faults that detract from the customer experience
Accessibility	Customer Outcomes	Proportion of Network not Available to Heavy Vehicles: The proportion of each road classification that is not accessible to Class 1 Heavy Vehicles and 50MAX Vehicles
	Technical Outcomes	Wayfinding: The number of instances where the road is not marked in accordance with national standards
Cost Efficiency		Chipseal Resurfacing (Length & Area): The sealed road chipseal resurfacing undertaken over the selected year range by classification
		Chipseal Resurfacing (Cost & Avg Life): The total cost and life achieved of chipseal resurfacing undertaken over the selected Financial Year.
		Asphalt Resurfacing (Length & Area): The asphaltic resurfacing undertaken over the selected year range by classification
		Asphalt Resurfacing (Cost & Avg Life): The total cost and life achieved of asphalt resurfacing undertaken over the selected Financial Year.
		Unsealed Road Metalling: The total quantity and cost of metalling that has been undertaken over the previous year as renewal work (lane km and m ³), and the average lives achieved for these surfaces
		Maintenance Costs: The maintenance costs recorded against Cost Groups, per Lane km and network VKT, for each classification

9.3 Strategic Levels of Service

Table 4-6 indicates the transport levels of service and performance measures included in the LTP 2018/28. The performance targets have been set by Council to meaningfully assess the achievement of levels of service.



The Secretary for Local Government has developed mandatory non-financial performance measures for local authorities to use when reporting to its communities.²⁵ 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. The CHBDC's current performance measures provided in Table 4-6 have been aligned with the DIA measures.²⁶

²⁵ Local Government Act 2002 Amendment No 2

²⁶ Secretary for Local Government, Non-Financial Performance Measures Rules 2013 (2013), 7, [https://www.dia.govt.nz/diawebsite.nsf/Files/Local-Government-Non-Financial-Performance-Measures-Signed-Rules/\\$file/Local-Government-Non-Financial-Performance-Measures-Signed-Rules-1.pdf](https://www.dia.govt.nz/diawebsite.nsf/Files/Local-Government-Non-Financial-Performance-Measures-Signed-Rules/$file/Local-Government-Non-Financial-Performance-Measures-Signed-Rules-1.pdf)

Table 4-3: Council levels of service, customer performance measures and targets

Customer Levels of Service	Performance Measure	Baseline	Target 2019/20 +	Performance Measure Reporting
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	Reducing trend	Reduce total to 0	Waka Kotahi Crash Analysis System (CAS) to produce an annual report
Quality: Road Condition	The average quality of ride on a sealed local road network, measured by smooth travel exposure (STE)	New	Between 85-90%	Annual performance reports generated by Waka Kotahi ONRC reporting tool
Quality: Footpaths	At least 20% of the footpaths in excellent condition and no more than 10% of the footpaths in poor condition measured bi-annually	Excellent: >74.4% Poor: <6.4%	Excellent: >50% Poor: <10%	Results of bi-annual condition assessment
Quality: Road Maintenance	The percentage of the sealed local road network that is resurfaced	8.5%	Between 4-10%	Management Reporting
Responsiveness	The percentage of customer service requests relating to roads and footpaths to which the territorial authority responds within three working days	87%	100%	Request for Service system
Customer Service	The percentage of users satisfied with the roading service provided	New	90%	Independent Community Views Survey



9.4 Setting Levels of Service in Practice

9.4.1 Expected Changes to Current Service Levels

The change in the road classification system to embrace the One Network Framework in 2024 will require extensive consultation with the public to ensure their understanding, respond to their needs and implement the new levels of service.

In 2021 Council will undertake a gap analysis whereby each level of service defined in the last version of the Asset Management Plan will be analysed against the proposed ONF service levels to define the differences.

Once the GAP analysis has been completed then, if required, consultation will take place which will enable feedback from the public and provide them with an opportunity to invest in higher levels of service than those proposed in the ONF.

For those levels of service where the public want to invest in higher levels of service a transition plan will be prepared in consultation with the community and Waka Kotahi outlining how the district will meet the new level of service. These transition plans will be attached to the Asset Management Plan until they are completed and the new levels of service are imbedded in the Asset Management Plan.

It is anticipated that the GAP analysis can commence at the beginning of the 2021/22 fiscal year providing funding is approved in the three-year funding request. Consultation with the public where required will be held once the impacts of the ONF are better known in conjunction with consultation for the Annual Plan which will define those levels of service which require a "transition plan". Once defined through consultation with the community and Waka Kotahi the transition plans will be implemented with full implementation to take place prior to the next three-year funding round with Waka Kotahi. Once the transition plans have been fully implemented the new levels of service will form part of the Asset Management Plan and will be referenced and implemented in the future maintenance and renewal contracts implemented in the District.

9.5 Summary of Land Transport Performance

9.5.1 Performance

A breakdown of the various performance measures (technical output measures and cost efficiency measures) and how they relate to the various road classifications within the CHB District are provided Section 7: Lifecycle Management. Although there are more classifications in the ONRC than there are in CHB this asset management plan will only deal with those that are applicable. Should growth or usage increase the classification of a road to a level that is not currently covered by this AMP then the AMP will be updated accordingly.

CHBDC's performance against their current LoS and performance measures is shown in Table 4-7.

The REG *Road Controlling Authority Reports* combine information from the ONRC performance measures and other sources to provide an easily comparable summary of network performance. The reports for the CHBDCare provided in APPENDIX A., a. A summary of the key points from each document is below:

- 2018/19 Central Hawke's Bay District Council Road Controlling Authority Report
 - Safety



- Walkers in the Central Hawke's Bay have experience more fatal or serious injuries per 100,000 population than other similar TAs (Figure 4-5)
 - Secondary collector roads are overrepresented in DSIs (56% of DSI occur on 21% of the network)
 - Despite this Collective and Personal Risk are lower than other similar TAs
- Delivery and Achievements
 - Road maintenance spending has increased significantly since 2016. This is mainly due to significantly increased emergency spending since 2017.
 - There has been no spending on road safety promotion and new and improved walking and cycling facilities (excluding low cost, low risk).
 - Planned and actual pavement rehabilitations have been decreasing.
 - Planned and actual resurfacing has remained steady.
 - Total expenditure per length of road (\$1,000/ km) has also increased since 2016 and is greater than that of other similar TAs
- Asset Management Data Quality Report 2018/19
 - Overall score of 66
 - The Network data category has the most issues (minor and major)
 - The Condition data category has no issues
- ONRC Data Quality Report 2018/19
 - The Carriageway, Treatment Length, Maintenance Activity, Roughness, Traffic Count, and Crash Data categories have no issues
 - The Surfacing and Traffic Estimates data categories have the most issues

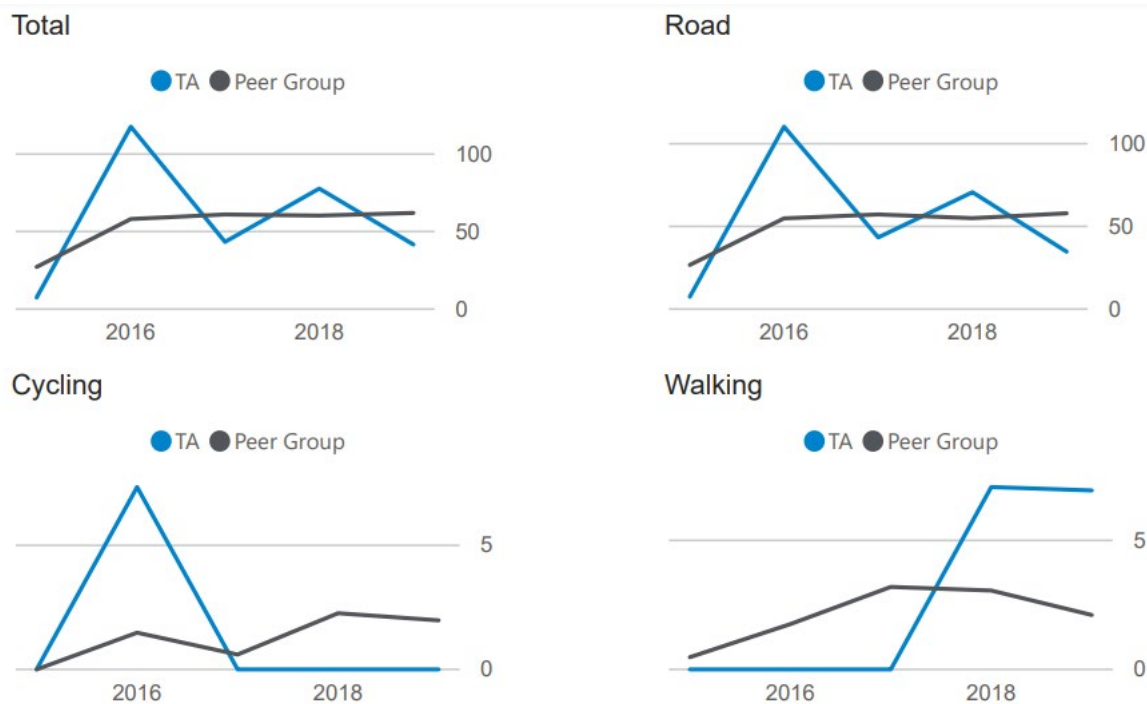


Figure 4-1: Fatal and serious injuries by mode per 100,000 population²⁷

²⁷ Road Efficiency Group, 2018/19 Central Hawke's Bay District Council RCA Report (2020), 1, <https://www.regexcellence.nz/assets/CouncilReports/2018-19-RCA-Report-Central-Hawkes-Bay-District-Council-v1.0.pdf>

Table 4-4: Council transport customer level of service and performance measure results

Customer Levels of Service	Performance Measure	Target for 19/20 and beyond ²⁸	2018/19		2019/20		Trend
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	Reduce total to 0	Fatal Crashes:	1	Fatal Crashes:	1	Steady: above target
			Serious Injury Crashes:	6	Serious Injury Crashes:	6	
			DSI Crashes:	7	DSI Crashes:	7	
Quality: Road Condition	The average quality of ride on a sealed local road network, measured by smooth travel exposure (STE)	Between 85-90%	Arterial:	78%	Arterial:	78%	Steady: above target
			1° Collector:	81%	1° Collector:	78%	
			2° Collector:	97%	2° Collector:	97%	
			Access:	94%	Access:	94%	
			Low Volume:	94%	Low Volume:	94%	
			Average:	95%	Average:	95%	
Quality: Footpaths	At least 20% of the footpaths in excellent condition and no more than 10% of the footpaths in poor condition measured annually	Excellent: >50% Poor: <10%	Excellent: >50%	Excellent: >50%	Excellent: >50%	Excellent: >50%	Steady: above target
			Poor: <10%	Poor: <10%	Poor: <10%	Poor: <10%	
Quality: Road Maintenance	The percentage of the sealed local road network that is resurfaced	Between 6-8%	6.8%		6.6%		Steady within target
Responsiveness	The percentage of customer service requests relating to roads	100%			91%		Trending upward

²⁸ Central Hawke's Bay District Council, *Long Term Plan 2018-28* (2018), 90, <https://www.chbdc.govt.nz/assets/Document-Library/Plans/Annual-Plans-and-Long-Term-Plans/20180619-CHBDC-LTP-2018-28-Final.pdf>



	and footpaths to which the territorial authority responds within three working days	88%			
Customer Service	The percentage of users satisfied with the roading service provided	90%	2018 Survey:78%	2019 Survey:78%	Steady: below target

9.5.2 Service Level Improvement Related Capital Works Programmes

As the Land Transport asset is maintained on an “in perpetuity” basis no significant capital works such as new roads are planned within the scope of this plan. Council also takes every opportunity with rural subdivisions where the major benefactor is the developer to ensure that new roads created remain the property of the developer to maintain and renew.

The bridge inventory is ageing but its life span is being extended by frequent detailed inspections to identify work required and then using structure component renewals as a means to extend their life. The Council in the current long term plan has decided that this is an acceptable strategy which will be monitored closely to ensure it meets the needs of the structures. In future plans should rapid deterioration take place then the Council will be required to revise its strategy accordingly.

Council has successfully secured a \$20 million injection of funding to upgrade the bridges along Porangahau and Wimbledon Roads to full HPMV capability. This is in alignment with the resilience and security, and economic outcomes of the Transport Outcomes Framework, improving freight connections priority of the GPS, and Council's Land Transport Strategic Framework pillars of *connected and resilient infrastructures and communities* and *economic resilience and financial security*.

Although this funding will ensure that the bridge network will be HPMV capable, there is a high risk that the pavement and its supporting retaining walls will deteriorate at an increased rate as they were not constructed to carry HPMV. The rate of deterioration at this time is not known and will be influenced by the intensity of the HPMV usage. This will add extra pressure on the district to be able to maintain the current levels of service along the route due to funding implications

10 Future Demand

This section of the Activity Management Plan presents how road assets are likely to be affected by growth, changes in demand and various changes to the economy and population over the next 30 years.

The future performance and reliability of the Council's road assets is essential to support on-going land-based production, growth and efficient access to market. This in turn will support a sustainable future. Therefore, it is essential that Council has a robust understanding of future growth and demands that will ultimately influence effective planning practices to ensure performance and reliability of the assets.

In this section, the current uses of the network today are addressed, demonstrating how the district is growing, the expected impact on the network and our plans to manage these demands into the future.

10.1 Implications of Uncertainty

10.1.1 COVID-19

Implications for Land Transport

Waka Kotahi NZ Transport Agency (Waka Kotahi) reviewed the implications for land transport in New Zealand as a result of COVID-19, in anticipation of releasing a second version of Arataki. The review found that the Hawke's Bay regional economy is comparatively well-placed to recover from the pandemic, due to the scale of the primary production, healthcare and manufacturing sectors. It noted an above average reliance on migrant labour in the agriculture and horticulture sectors, but that this creates opportunities to re-deploy local labour.

Given the relative resilience of the Hawke's Bay economy, the review concluded there are no significant changes expected in the nature, scale and location of transport demand over the medium to long term – the 10-year outlook remains largely unchanged. The review also noted that maintaining safe and reliable connections to Napier Port, and particularly between Napier and Palmerston North, remain critical to supporting recovery.

Central Hawke's Bay Recovery Planning

On 17 March 2020, the Government released its fiscal and economic response to the COVID-19 pandemic. This was followed on 1 April by a request to industry leaders for water, transport, clean energy, and buildings projects that were 'shovel-ready' or likely to be within six months. The emphasis was on large projects, with a value of over \$10 million, which would have an immediate stimulatory effect on the construction industry, its workforce, and the economy. However, smaller projects that could demonstrate a direct and immediate benefit to the regional economies and communities would also be considered.

Central Hawkes Bay District Council responded with an Economic Recovery Plan, to help the district respond to both COVID-19 and the ongoing drought. The council's plan included the immediate response of working with Te Taiwhenua o Heretaunga, the mandated political leader of Ngāti Kahungunu ki Heretaunga and representative agency of mana whenua in the district. This enables support for and direct engagement of tangata whenua in investigations to bring forward parts of the district's works programmes to stimulate local business and

create jobs. Another key action will be identifying 'quick wins' and utilising social procurement so that iwi agencies are able to be partners in the recovery, and local businesses can leverage off opportunities in the current and future works programme so that where practical, the benefits stay within the district.

10.2 Factors Influencing Demand

10.2.1 Overview

Factors influencing demand can be broken down into two categories - non-asset-based factors (or 'asset use') and asset-based factors. Asset use is defined as how the asset or a section of it is being used.

The following asset use factors influence demand:

- Population trends (increase/decrease)
- Modes of transport (including vehicle ownership and alternative transport)
- Subdivision development
- Recreational development
- Industry development
- Primary production development (including Forestry, Dairy, Agricultural)
- Land development
- Cultural development

The following asset-based factors influence how use demand impacts on the asset:

- Road geometry
- Road width
- Shoulder widths
- Road environment
- Sealed or unsealed
- Design capacity

The combination of the asset and its use defines what needs to be considered to understand the full impact from the demand. These asset-based factors can be considered as critical failure points if the use demand on a section of road increases to a point that exceeds the assets ability to sustain its use.

10.2.2 Current Demand and Issues

A summary of key demand pressures and issues, together with Council's response, is in Table 5-1.



Table 5-1: Current demand issues and pressures

Key Pressures/ Issues	Response
Programme Optimisation in Difficult Conditions	A marginal increase to account for new contract prices and higher customer expectations, but otherwise maintain the status quo, re-allocate as appropriate within existing budgets
Resilience	<p>Increase AM and NAM activities to improve data analysis (dTIMS) and studies for predicting failures and renewals of ageing bridges.</p> <p>Increase Structures Renewals budget for ageing structures.</p> <p>Increase funding for identified roads that are heavily impacted by resilience issues. Re-allocate existing pavement heavy maintenance and renewals budgets to focus on routes of known and expected log haulage.</p>
Access	<p>Increased focus on the provision of additional infrastructure suitable for other modes of transportation such as cycling, walking, motorised wheelchairs and scooters in urban areas of the district.</p> <p>This also helps to address CHB's aging population.</p>
Safety	<p>Look into quick wins (delineation, markings, etc) that can be achieved through operational maintenance.</p> <p>Identify and prioritise known safety issues for intervention.</p>
Limited ability to plan for forestry activities	<p>Forward visibility of logging activity currently estimated on potential timings and area of available forest area by age class.</p> <p>Close monitoring and communication with the industry will be required as well as potentially amending plans for HPMV or 50 Max initiatives and restrict the timing of log hauls on certain roads to appropriate weather and road conditions to protect the infrastructure where necessary.</p> <p>The district will have to apply both engineering solutions and an education campaign to manage the impacts</p>

10.2.3 Population Trends

Population Growth

Population growth in Central Hawke's Bay District in recent years has significantly exceeded expectations. In 2018, Central Hawke's Bay District and its three main centres had surpassed 2023 high growth scenario predictions (Table 5-2). The accelerated growth was due to a sudden increase in migration that was not factored into the original projections.



Table 5-2: Actual vs projected population growth in Central Hawke's Bay²⁹

Area	Estimated Population ³⁰			2017 Projections (Stats NZ)			
				2018		2023	
	2013	2018	2019	Medium	High	Medium	High
Central Hawke's Bay District	13,250	14,550	14,850	13,850	14,150	13,900	14,500
Otane	540	669	710	580	590	580	600
Waipawa	2,060	2,150	2,180	2,090	2,140	2,090	2,190
Waipukurau	4,050	4,520	4,580	4,130	4,220	4,140	4,340

The Council's Demographic and Economic Growth Assumptions 2020-2051 report provides population and household growth projections for Central Hawke's Bay District covering the Long-Term Plan 2021-2031 period, as well as five-yearly out to 2051. The projections consider the historical growth and current trajectory, factoring in the wider economic and social trends. The projections are demand-focused and model where growth is likely to occur in the absence of constraints on, for example, the supply of land or services.

Covid-19 has created a high degree of uncertainty for planners and lower migration over the next couple of years has been factored into all scenarios. Should the effects of Covid-19 be more pronounced than expected, the district may track closer to the low scenario, at least initially.

Figure 5-1 shows the possible population growth scenarios for Central Hawke's Bay. The medium growth scenario can be considered as 'business as usual', while the high growth scenario assumes a higher level of migration to the region than recent historical levels. The low growth scenario models what would happen to Central Hawke's Bay District in the absence of continued levels of migration.

²⁹ Squillions, *Demographic and Economic Growth Assumptions 2020-2051* (2020), Table 1

³⁰ Estimates as at June, provisional from 2018

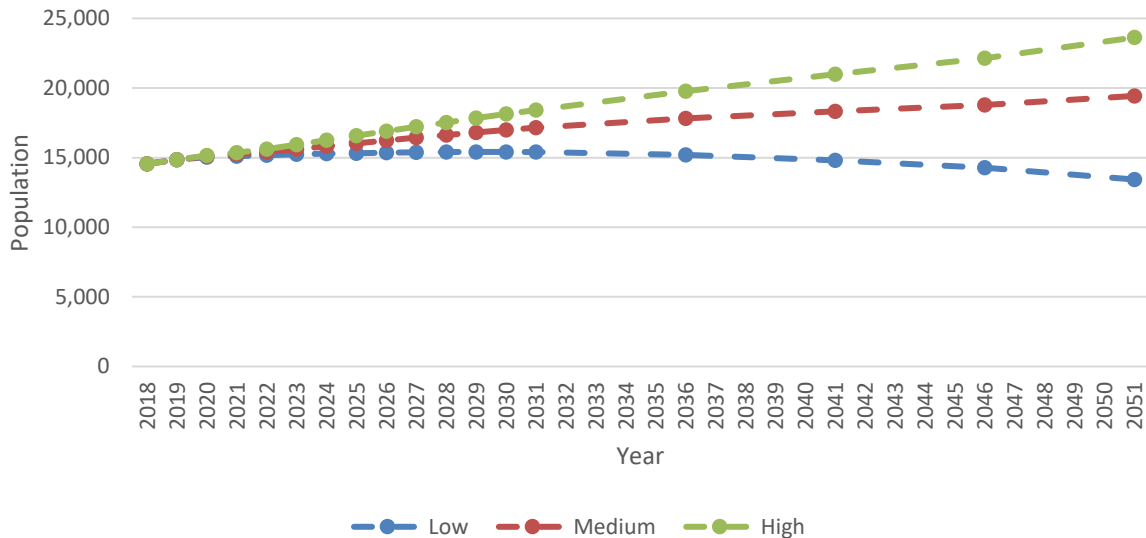


Figure 5-1: Projected population growth for the Central Hawke's Bay District. ³¹

Figure 5-2 and Figure 5-3 outline the projected population by broad age group in the Central Hawke's Bay District for the medium growth scenario. Like much of New Zealand, Central Hawke's Bay has an aging population. The 65 and over age group shows the most significant growth, with an average increase of 3.8% each year until 2031, and 98% increase (nearly doubling) by 2051. All other age groups have a much more moderate growth rate (approximately 1% or less per year), and an overall growth of between 7% and 15% by 2051.

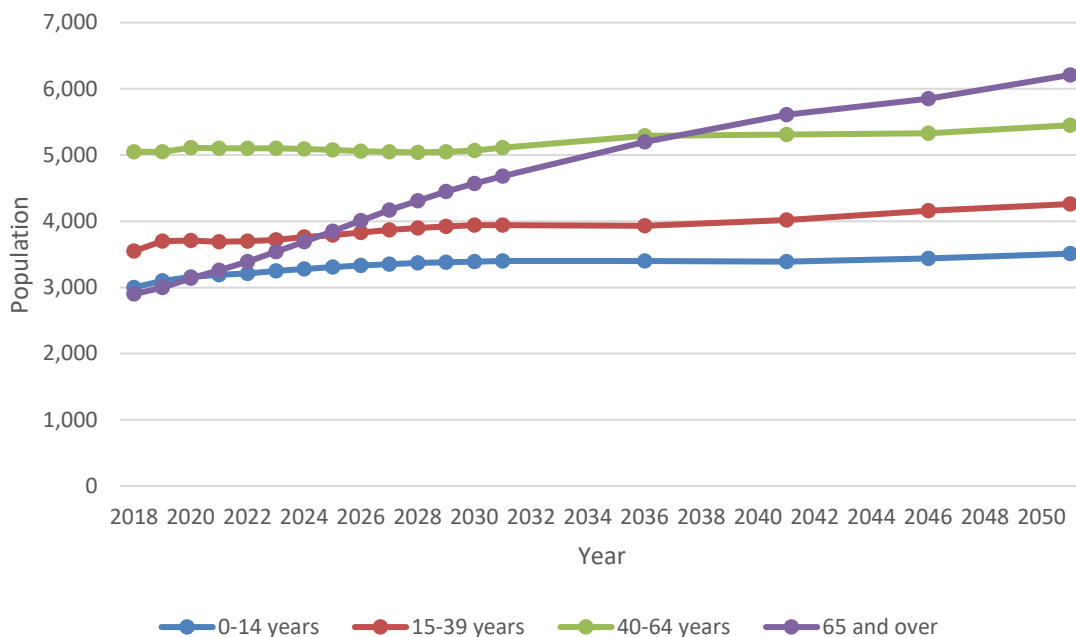


Figure 5-2: Population by broad age groups for Central Hawke's Bay District medium growth scenario³²

³¹ Squillions, "Demographic Projections" in *Demographic and Economic Growth Assumptions 2020-2051* (2020)

³² Squillions, "Demographic Projections" in *Demographic and Economic Growth Assumptions 2020-2051* (2020)

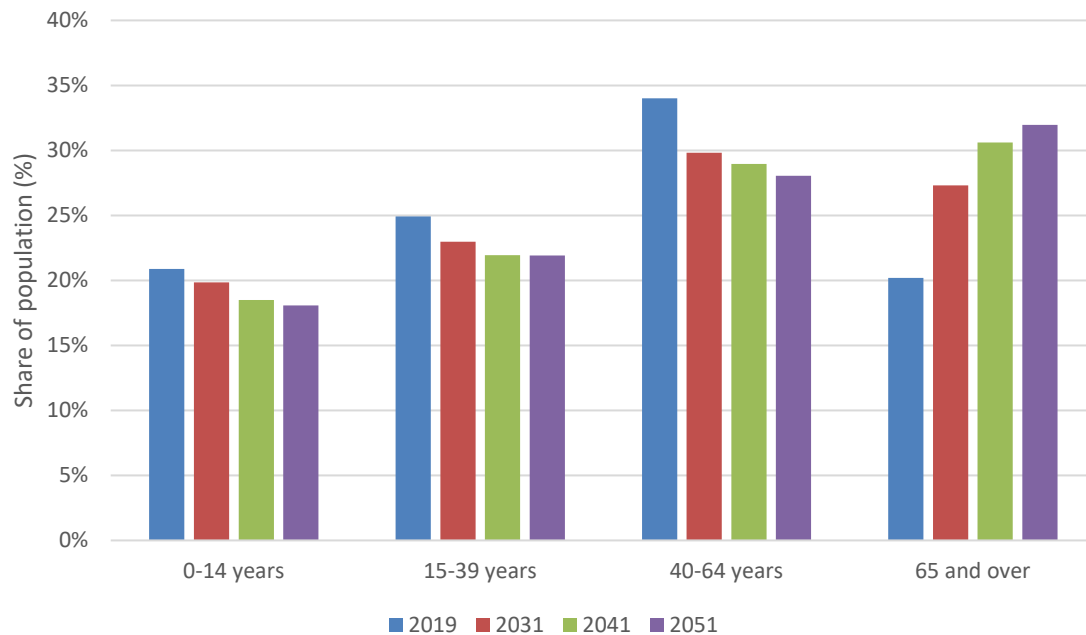


Figure 5-3: Population share by broad age group for Central Hawke's Bay medium growth scenario³³

Projected Impact of Population Change

The Stat NZ census data (2018) and the Squillions report have been used to understand the projected impact of population on the Council's transport assets. Understanding population changes helps to identify changing service need and the potential impact of growth-driven change for tools such as the current ONRC road classifications.

The significant changes in the district's demographics (increasing numbers in the 65 years and over age bracket) mean there will likely be an increase in demand for public transport and Total Mobility services. Public transport is primarily the responsibility of the Hawkes Bay Regional Council, providing CHB residents access to the larger towns in the regions such as Napier and Hastings.

It is also expected that there will also be an increased need for provision of infrastructure suitable for walking, motorised wheelchairs, scooters and cycling. Demand for these modes is expected to rise, especially in urban areas.

Household Trends

The Squillions report projects that the number of households in the district will increase annually by 1.1% on average for the medium growth scenario, and 1.6% on average for the high growth scenario (Figure 5-4).

³³ Squillions, "Demographic Projections"

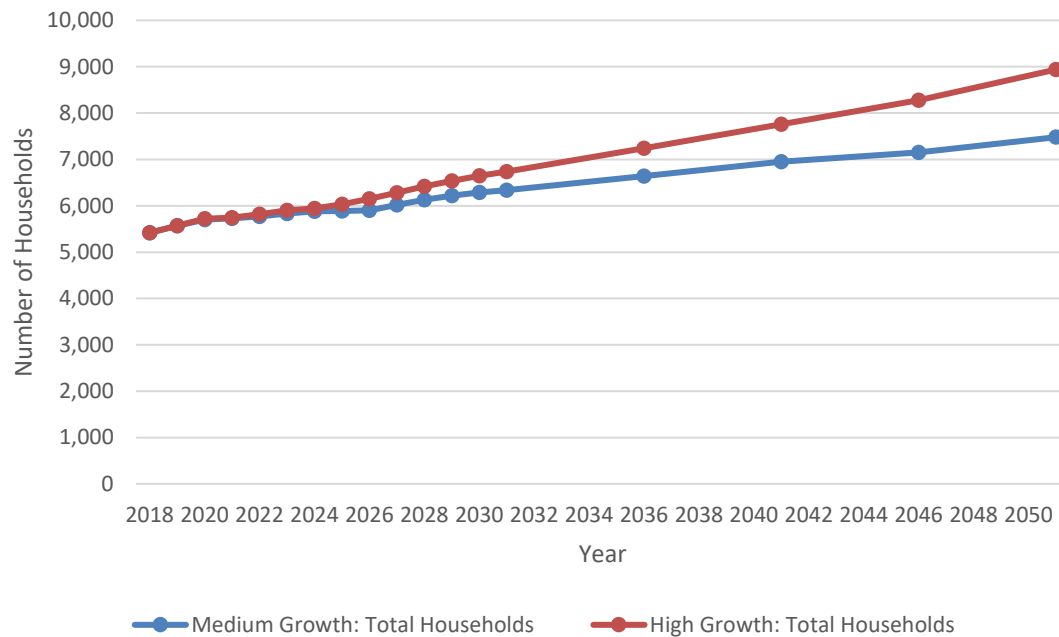


Figure 5-4: Projected Central Hawke's Bay District household growth 2018-2051³⁴

The trend in average household weekly income from 2000 to 2019 is shown in Figure 5-5. This trend is important from a demand and affordability perspective. The average income for the Gisborne/ Hawke's Bay region is currently 89% of the national average, which is an improvement from the low point of 85% in 2013. While the regional income has increased, the Gisborne/Hawke's Bay continues to underperform in relation to the national average. Over time it is expected that this trend will be further impacted by the ageing population, influencing Council's rateability and overall affordability of the network.

³⁴ Squillions, "Demographic Projections" in *Demographic and Economic Growth Assumptions 2020-2051* (2020)

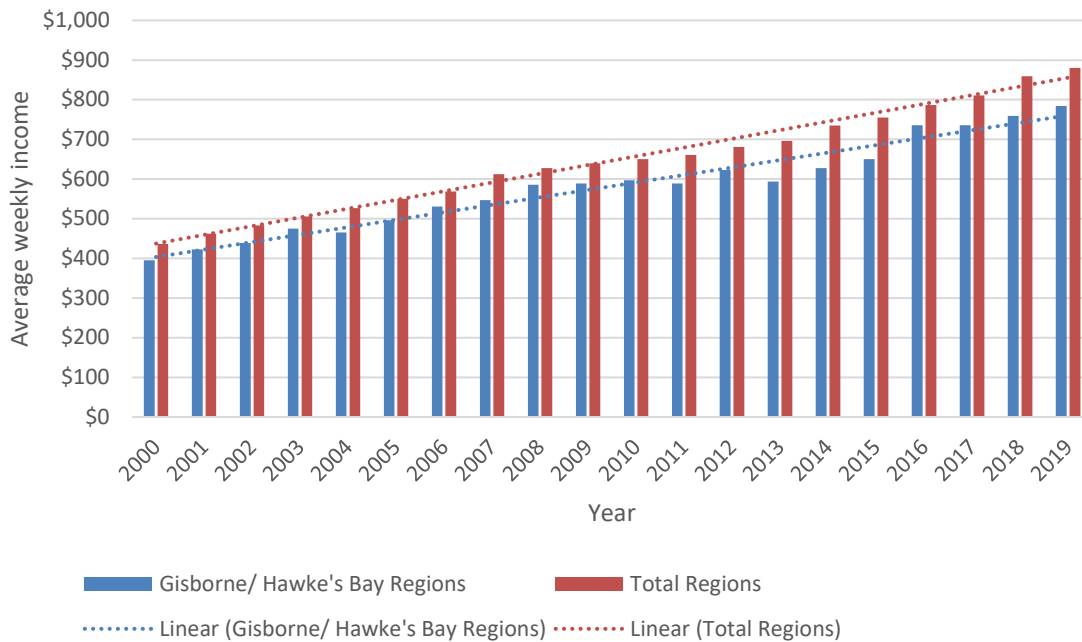


Figure 5-5: Trend of household average weekly income (1998-2019)³⁵

A Draft District Plan (DDP) has been prepared by the council. While it currently has no statutory status, it does provide a good view of the councils current thinking in terms of zoning. The DDP identifies the following growth nodes for the medium-term residential requirements³⁶:

- Two urban residential areas in Waipukurau
- One rural living zone on the outskirts of Waipawa
- One rural living zone on the outskirts of Otane

The majority of new dwellings are located in the main urban centres of Waipukurau and Waipawa. There is also sustained development in Otane and minimal development in other smaller communities. It appears that the majority of the development in Otane is based around people commuting to Hastings and beyond on a daily basis. There is also increasing residential development at coastal locations – primarily for holiday homes and non-permanent use.

The DDP also contains a new zone, currently called the Plain Production Zone, which has much tighter controls on its use to protect highly productive land. It is expected that increased productivity and jobs, as well as tighter controls, will increase demand for housing in and immediately around the townships.

Visitor Growth

MBIE's tourism data shows there has been a steady increase in visitor spending in the Hawke's Bay Region over the past 10 years (Figure 5-6). This is largely in line with growth in

³⁵ "Income by region, sex, age groups and ethnic groups," Incomes, NZ Stat, accessed 16 July 2020, http://nzdotstat.stats.govt.nz/wbos/index.aspx?_ga=2.3772976.1495278435.1581277976-883879982.1573000273#

³⁶ Central Hawke's Bay District Council, "Future Greenfield Growth Areas" in *Draft Central Hawke's Bay District Plan*, (2019), 46-47, <https://www.chbdc.govt.nz/services/district-plan/district-plan-review/>



visitor spending experienced nationally. However, following New Zealand's response to the Covid-19 pandemic the country's borders have effectively been closed to all new arrivals since 19 March 2020. While the majority of the Region's visitor spend is from domestic visitors (over 75%)³⁷, it is unlikely the visitor numbers and visitor spending will return to pre Covid-19 levels until the pandemic is under control globally. The timeframes around this are very uncertain and are unlikely to be realised in the short term.

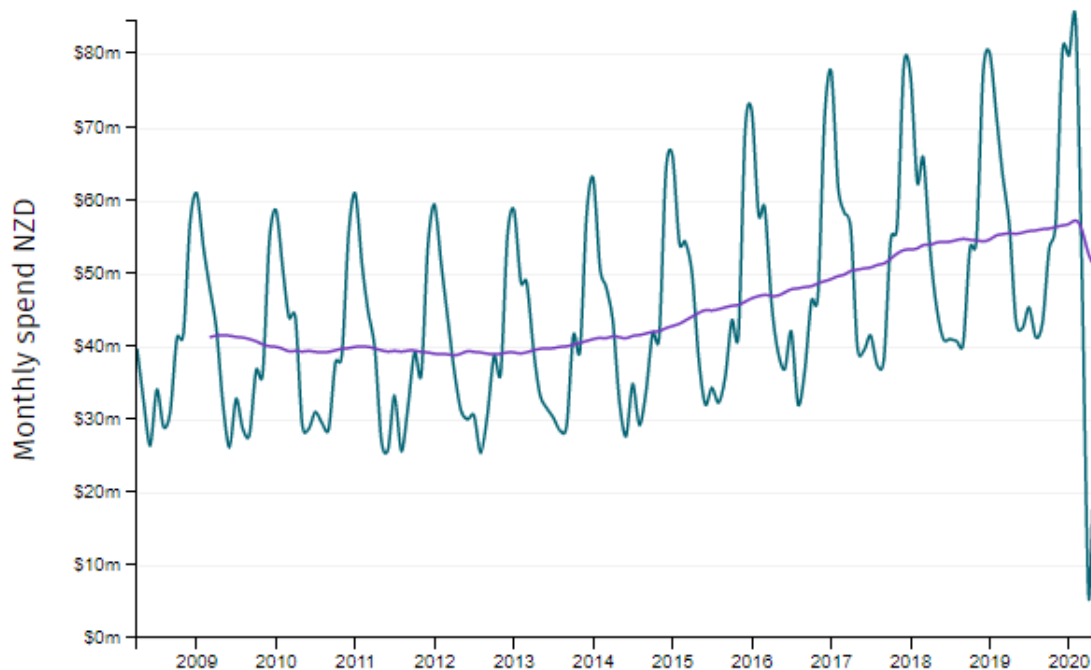


Figure 5-6: Historic monthly international and domestic visitor spending for the Hawke's Bay Region³⁸

10.2.4 Industrial Trends

Overall Industrial Trends

Central Hawke's Bay is primarily a rural economy of sheep and beef farms, dairy farms, forests, apple orchards and cropping farms. There is one major meat processing factory, namely the Silver Ferns Sheep Works, and two pet food plants located in Waipukurau. Estimates of export revenue for 2017/18 generated from local farms and forests show sheep and beef farms are the major income generator for the district.

The top two contributors to the Central Hawke's Bay economy are agriculture and manufacturing. Agriculture contributes approximately 31% to total district GDP³⁹ and 30% to

³⁷ Waka Kotahi NZ Transport Agency, *Regional summary 6 – Hawke's Bay potential impacts of COVID-19*, (2020), 25, <https://www.nzta.govt.nz/assets/planning-and-investment/docs/arataki/regional-summary-6-hawkes-bay-potential-impacts-of-covid-19.pdf>

³⁸ "Monthly tourism spend grouped by RTO and country of origin," Immigration and tourism, Ministry of Business, Innovation and Employment, last updated 02 July 2020, <https://www.mbie.govt.nz/immigration-and-tourism/tourism-research-and-data/tourism-data-releases/monthly-regional-tourism-estimates/latest-update/monthly-tourism-spend-grouped-by-rto-and-country-of-origin/>

³⁹ "GDP by industry in Central Hawke's Bay in 2017", Regional Economic Activity Web Tool, accessed 28 July 2020, <http://webrear.mbie.govt.nz/theme/gdp-by-industry/map/barchart/2017/central-hawkes-bay/agriculture?accessedvia=hawkes-bay&left-transform=regionalPercentage&left-zoom=1&right-transform=absolute>

the total district employment^{40,41}. Manufacturing contributes approximately 13% to total district GDP⁴² and 14% to the total district employment⁴³.

Demand on the local road network generally fits with the pattern of activity to be expected in a small rural economy. Figure 5-7 uses AADT vehicle counts from Council's RAMM database to show the heavy freight movement. Freight movements will likely increase around the Plains Production area to the north-west of the main townships between SH2 and SH50, as the population and agricultural intensification occurs within and near this area.

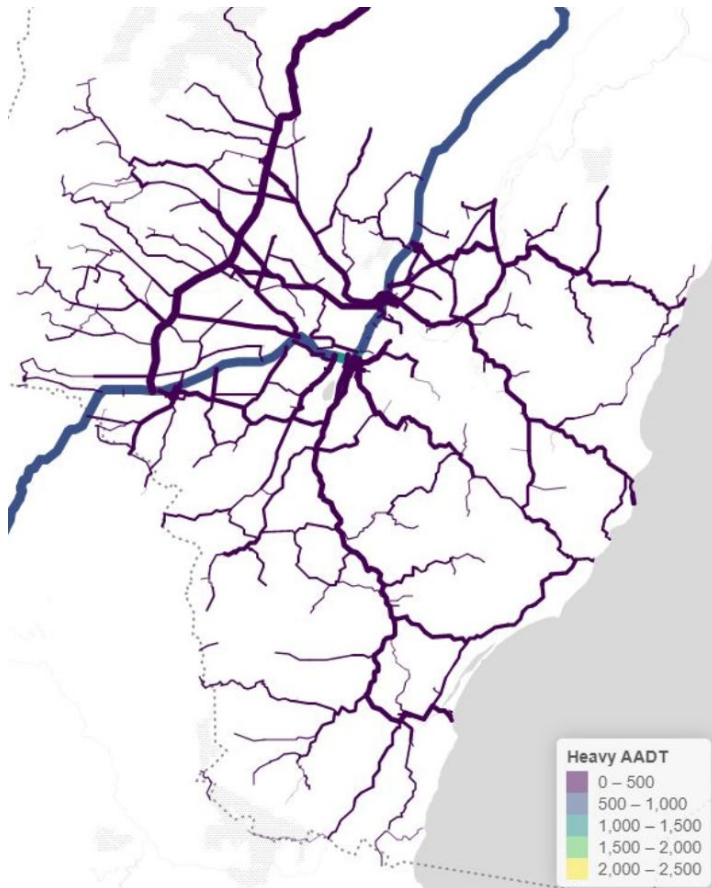


Figure 5-7 Annual Average Daily Traffic (AADT) - Heavy Vehicles

One notable exception is the demand on local roads by the forestry sector (see section 5.2.4.2 below). While it is not the highest value of product produced in the district, the tonnage of logs transported from local forests exceeds the output from the larger pastoral sector. Plus, there is a large volume of logs also transported from Tararua via CHB's local and state highway road network.

Figure 5-8 captures the export value and tonnage of key exports that are transported on local roads within CHB. Note that the graph does not capture the additional substantial volume that

⁴⁰ Employment in agriculture, forestry and fishing

⁴¹ Stats NZ, "industry by usual residence address for the employed census usually resident population count aged 15 years and over," in 2018 Census, (2018), part 3a.

⁴² Regional Economic Activity Web Tool, "GDP by industry in Central Hawke's Bay in 2017."

⁴³ Stats NZ, "industry by usual residence address for the employed census usually resident population count aged 15 years and over."

passes through the district on the state highway network.

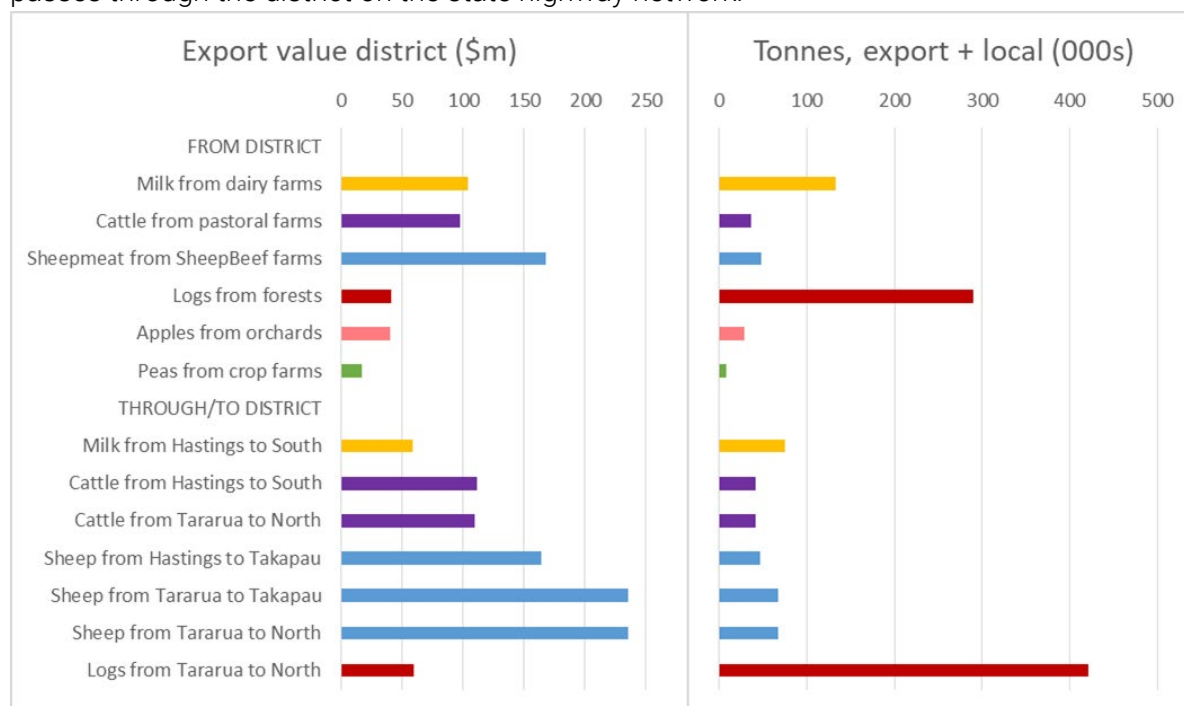


Figure 5-8: Export value per good type

Forestry

The Ministry for Primary Industries' National Exotic Forest Description (NEFD) 2019 shows that there are 16,109 hectares of forestry planting in the District (Figure 5-9). Approximately 86% of forest trees in the district are over 16 years of age and are due for harvesting sometime in the next 10 years. Most of the potential increase during this period is from small-scale forest growers.

Forestry harvesting results in logs being transported through the District. The forestry industry has expressed a preference for transportation via road as opposed to rail, due to the cost and time delays involved in double handling of logs when using rail. They have also expressed a preference for HPMV, where the cost for tonnes per kilometre is higher using traditional truck and trailer units compared to HPMVs.

This indicates that there will be an intensive harvest period starting in around 2020/21 and continuing over the next 10 years. This is supported by the number of hectares of planted land that is reaching the average harvest age of 20-30 years as indicated in Figure 5-9. The harvesting will use a large part of the rural road network at various times putting additional pressure on road assets.

It should be noted that Ernslaw One Ltd have a continual harvest planned for at least the next 20 years and are purchasing and replanting to make this a perpetual activity. While there are no Ernslaw forests in CHB there are a number to the south and west of the district and they will travel through the district on their way to Port Napier.

The Council will work with the forestry industry to understand the timing and size of each of the hauls. This will allow for maintenance and renewal activities to be scheduled to maximise the efficiency for the log haulers and minimise the damage to road assets. However, the ability to plan effectively is limited as harvesting is estimated only on a potential timing at this

stage. To counter this, CHB may have to amend plans for HPMV or 50 Max initiatives and restrict the timing of log hauls on certain roads to appropriate weather and road conditions to protect the infrastructure.

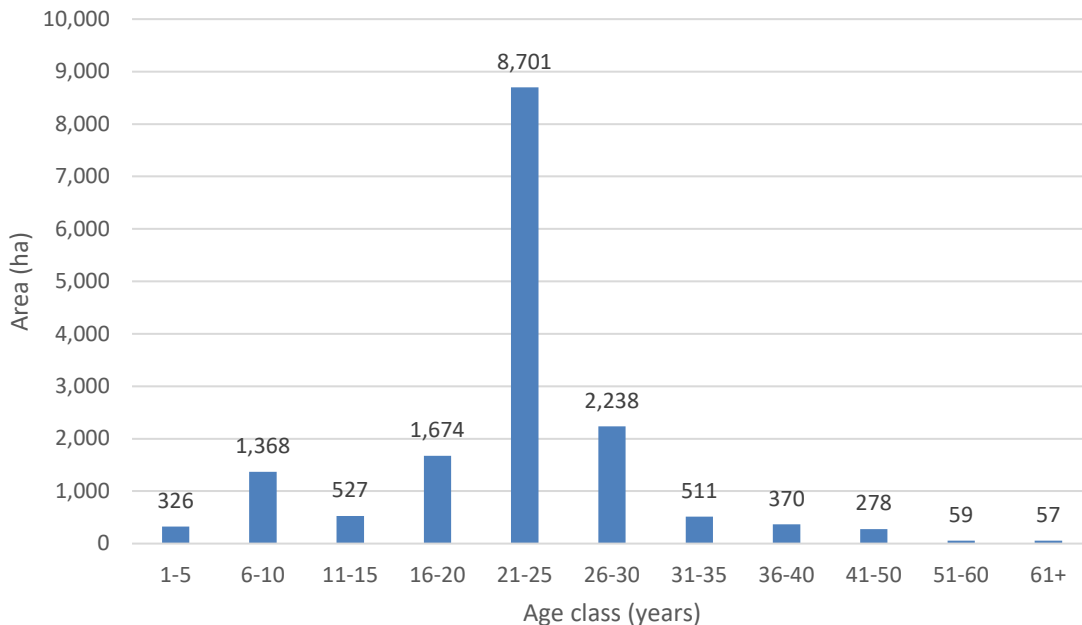


Figure 5-9: Hectares of land planted in forestry by age class⁴⁴

As the timber harvests come online there is potential for congestion and decreased safety at a major intersection in the Waipukurau township. The district will have to apply both engineering solutions and an education campaign to manage the impacts.

Harvests from within the Tararua District, which is directly south of Central Hawke's Bay, may also affect CHB roads as logs are transported to wood processing plants in the region. However, this cross-district movement would require a limited number of roads to be used, enabling the District and Waka Kotahi to prepare for this increased use.

10.2.5 Modes of Transport

The district is predominantly rural, and the population is highly dependent on motor vehicles. This is reflected in the 2018 census data which indicates that 97% of households in the CBH District have access to at least one car and the Census Journey to Work data that shows that 92% travel to work by car.

Public transport is provided and managed by the Hawke's Bay Regional Council. The Draft Hawke's Bay Regional Passenger Transport Plan 2019-2029 provides guidance for the Hawke's Bay Regional Council (HBRC) for the provision of public passenger transport services by outlining the passenger transport needs of the region.

There is currently no formal public transport system in place within the District. Under the 2019-2029 Draft Regional Plan, the HBRC is investigating a transport service in Central Hawke's Bay with consideration given to services for Eastern Institute of Technology (EIT)

⁴⁴ Forestry New Zealand, *National Exotic Forest Description as at 1 April 2019* (Ministry for Primary Industries, 2019), Table 12, <https://www.mpi.govt.nz/dmsdocument/34425-2019-nefd-report-pdf>

students travelling from Central Hawke's Bay. This is likely to be demand driven response by way of a community van service or similar, rather than a scheduled bus service.

Taxi services offering an individualised service are often the only form of public passenger transport available in small towns. They play an important part in meeting the needs of those who may lack access to any alternative forms of transport. Commercial taxi services operate within Waipawa and Waipukurau.

The Total Mobility Scheme is a nationwide scheme that provides discounted transport for people with disabilities which prevent them from using public transport. Eligibility for the scheme is determined by the effect the impairment has on the individual's ability to undertake components of a journey on the public transport network. Total Mobility services for CHB residents are provided under contract to, and subsidised by, the HBRC. The use of the Total Mobility Scheme continues to increase. In 2017-18 there were approximately 3,598 registered users of the scheme in Hawke's Bay compared to 1,914 in 2008-09 and 2,640 in 2011-12.⁴⁵ Total Mobility trips continue to trend upwards and as Hawke's Bay's population is ageing this trend is likely to continue.

The alternative to passenger road travel through the Central Hawke's Bay region is currently limited to walking and cycling. While there is a main rail line between Palmerston North, Gisborne and Napier, passing through Waipukurau and Waipawa, but no passenger services are currently provided. The line is used solely by freight. There are no plans to reopen a passenger service on this line.

The Regional Council's Cycling Plan⁴⁶ identifies actions to develop and maintain a network of cycle routes in the region. However, the plan focusses predominantly on the Hastings District and Napier City areas.

Currently, there is one mostly off-road cycle trail between Waipawa and Waipukurau. It is predominantly a recreational route but could also be used by commuters who do not wish to ride along SH2. In late 2019 it was confirmed that a new separated pathway along SH2 between Waipawa and Waipukurau is to start constructed in mid-2020.⁴⁷ This connection will provide a stronger connection between the towns and offer a direct route for those wishing to use alternate modes.

The existing local road network offers very few opportunities to construct dedicated cycleways due to limited constructed widths, so the district has opted to take a "share the road" approach to enable cycling within Waipawa and Waipukurau. The District is investing in footpaths and crossings that will cater to the walking and mobility challenged within the district.

10.2.6 Traffic Volumes

Data is collected by the Council using regular traffic count surveys. Traffic counts are undertaken on main roads across the network. Table 5-3 shows the latest traffic counts for the District's main roads (arterial, primary collector and secondary collector classifications in

⁴⁵ Hawke's Bay Regional Council, *Regional Public Transport Plan 2019 – 2029 DRAFT*, (2019), 11

⁴⁶ Hawke's Bay Regional Council, *Regional Cycle Plan*, (2015), <https://www.hbrc.govt.nz/assets/Document-Library/Plans/Regional-Cycling-Plan/Hawkes-Bay-Regional-Cycle-Plan-2015.pdf>

⁴⁷ Waka Kotahi NZ Transport Agency, "Highly-anticipated shared path confirmed for Central Hawke's Bay," 18 December 2019, <https://www.nzta.govt.nz/media-releases/highly-anticipated-shared-path-confirmed-for-central-hawkes-bay/>



the ONRC). These counts are all taken at the urban end of each road, but generally within the 100 km/h rural zone unless noted otherwise. The data shows that while the overall traffic volume has remained steady or slightly decreased, the percentage of heavy freight vehicles has significantly increased.

Table 5-3: 2010 traffic counts for the One Network Road Classification

ONRC	Road	Count Location	ADT			%HV			
			2018	2019	2020	2018	2019	2020	
Arterial	Bogle Brothers Espl ⁴⁸	100m		8,225	7,873	↓	9	13	↑
Arterial	Peel St ⁴⁹	100m		4,800	4,988	↑	15	14	~
Primary	Ruataniwha St, Waipukurau ⁵⁰	310m	5,515	4,855		↓	2	6	↑
Secondary Collector	Ashcott Rd	100m	958	830		↓	6	5	↓
Secondary Collector	Elsthorpe Rd	2,000m		510	642	↑	8	14	↑
Secondary Collector	Ongaonga Rd	7,000m		550	607	↑	9	21	↑
Secondary Collector	Ongaonga Waipukurau Rd	200m		550			5		
Secondary Collector	Oruawharo	3,900m		540			5		
Secondary Collector	Porangahau Rd	2,500m	1,177	1,000		↓	9	5	↓
Secondary Collector	Pourerere Rd	200m		780			22		

⁴⁸ Urban and in 50 km/h zone, used as a town bypass by State Highway traffic

⁴⁹ As above

⁵⁰ This count is just located on the State Highway and is within the 50 km/h zone



ONRC	Road	Count Location	ADT			%HV		
			2018	2019	2020	2018	2019	2020
Secondary Collector	Racecourse Rd, Waipawa	250m		530	553 ↑		5	18 ↑
Secondary Collector	Racecourse Rd, Waipukurau ⁵¹	400m – 600m		3,000	2,660 ↓		5	9 ↑
Secondary Collector	Ruataniwha St, Waipawa ⁵²	200m		1,080			9	
Secondary Collector	Tavistock Rd ⁵³	100m – 250m		2,670	2,674 ~		5	8 ↑
Secondary Collector	Tikokino Rd	750m		690	732 ↑		5	16 ↑

10.2.7 Anticipated Change in Customer Experience

The Draft Government Policy Statement 2021 for Land Transport (Draft GPS 2021) states that the purpose of the transport system is to improve people's wellbeing, and the liveability of

⁵¹ Urban and in 50 km/h zone

⁵² As above

⁵³ AS above

places. It does this by contributing to five key outcomes, identified in the Ministry of Transport's Transport Outcomes Framework (Figure 5-10).

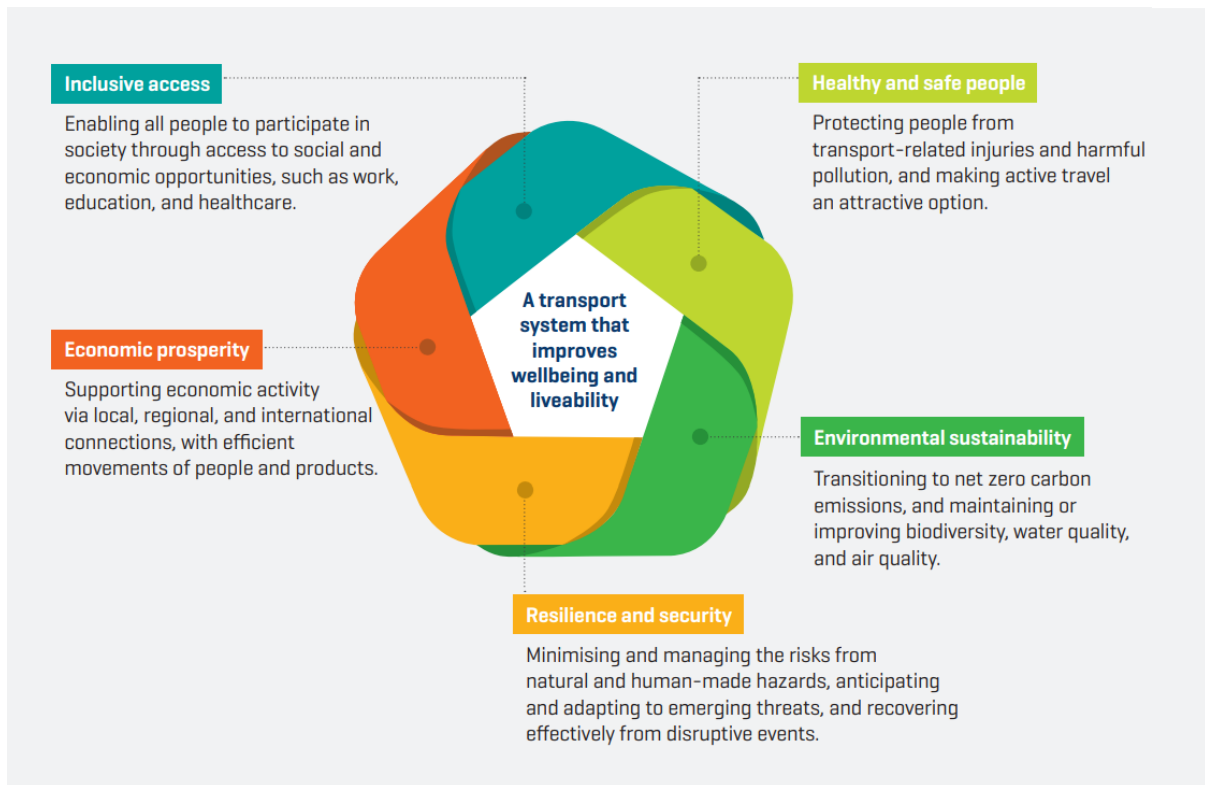


Figure 5-10: Transport Outcomes Framework⁵⁴

The GPS identifies four strategic priorities that will best contribute to improving our community's wellbeing and liveability (Figure 5-11).

⁵⁴ Ministry of Transport, *Draft Government Policy Statement on Land Transport 2021/22-30/31*, (2020), Figure 2, <https://www.transport.govt.nz/assets/Import/Uploads/Our-Work/Documents/draft-government-policy-statement-land-transport-2021.pdf>



Figure 5-11: Strategic direction of the GPS 2021⁵⁵

The links between the four GPS strategic priorities and five outcomes of the Transport Outcomes Framework is shown in Table 5-4. Figure 5-12 shows the links between these documents and Council's community outcomes.

Table 5-4: Link between the GPS priorities and the Ministry of Transport's Transport Outcomes

GPS Strategic Priority	Transport Outcomes Framework	
	Primary Outcome	Co-benefits
Safety: Develop a transport system where no-one is killed or seriously injured	Healthy and safe people	Inclusive access Economic prosperity Resilience and security
Better Travel Options: Provide people with better travel options to access places for earning, learning, and participating in society	Inclusive access	Healthy and safe people Environmental sustainability Economic prosperity Resilience and security
Improving Freight Connections: Improve freight connections to support economic development	Economic prosperity	Inclusive access Healthy and safe people

⁵⁵ Ministry of Transport, *Draft Government Policy Statement on Land Transport 2021/22-30/31*, (2020), Figure 1, <https://www.transport.govt.nz/assets/Import/Uploads/Our-Work/Documents/draft-government-policy-statement-land-transport-2021.pdf>

		Resilience and security
Climate Change: Transform to a low carbon transport system that supports emission reductions aligned with national commitments, while improving safety and inclusive access.	Environmental sustainability	Inclusive access Healthy and safe people Resilience and security

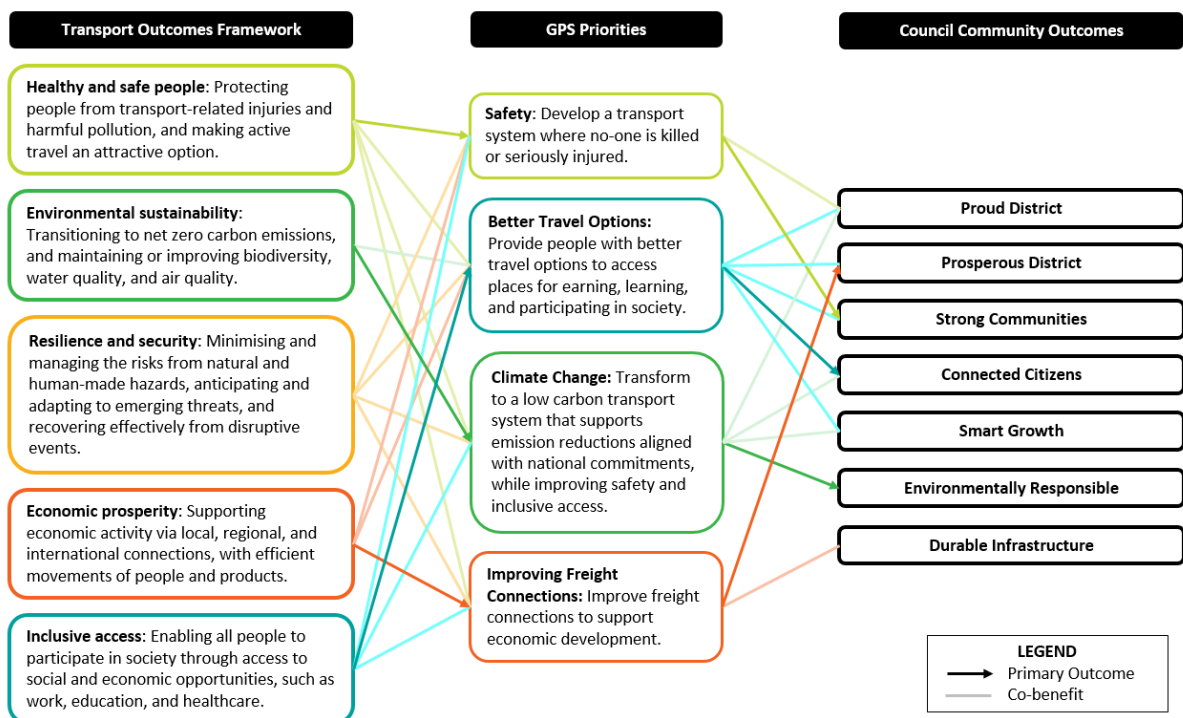


Figure 5-12: Link between the Transport Outcomes Framework, the GPS priorities and Council's community outcomes⁵⁶

One of the governments focuses is to ensure freight movements are efficient, reliable, environmentally sustainable and mode neutral. This means that in the long term, industry groups may be encouraged to increasingly look at moving freight via rail and coastal shipping. Also, road freight should be moved as efficiently and sustainably as possible.

Other focuses or outcomes sought, particularly relating to inclusive access, liveability of place and travel options may create customer expectations in relation to the options available within the District's main townships.

The Hawke's Bay Regional Council's Regional Land Transport Plan (RLTP) sets the strategic direction for transport within the region. It must be consistent with the Draft GPS 2021.

The vision for the RLTP is "A safe, resilient and efficient transport system that supports the development of our economy and contributes to social wellbeing in our community."

⁵⁶ As per the Draft GPS 2021 there is no primary outcome link between 'resilience and security' and any of the GPS priorities

It is a focus of the current RLTP to improve State Highway 2 from Napier to the South boundary of the region which passes through Central Hawkes Bay District. This focuses on bridge and structural improvements to enable the use of HPMV and 50 max vehicles. Currently CHB has a limited number of 50Max approved roads (Figure 5-13) and operators are required to contact Council directly to discuss any requests on a case-by-case basis.

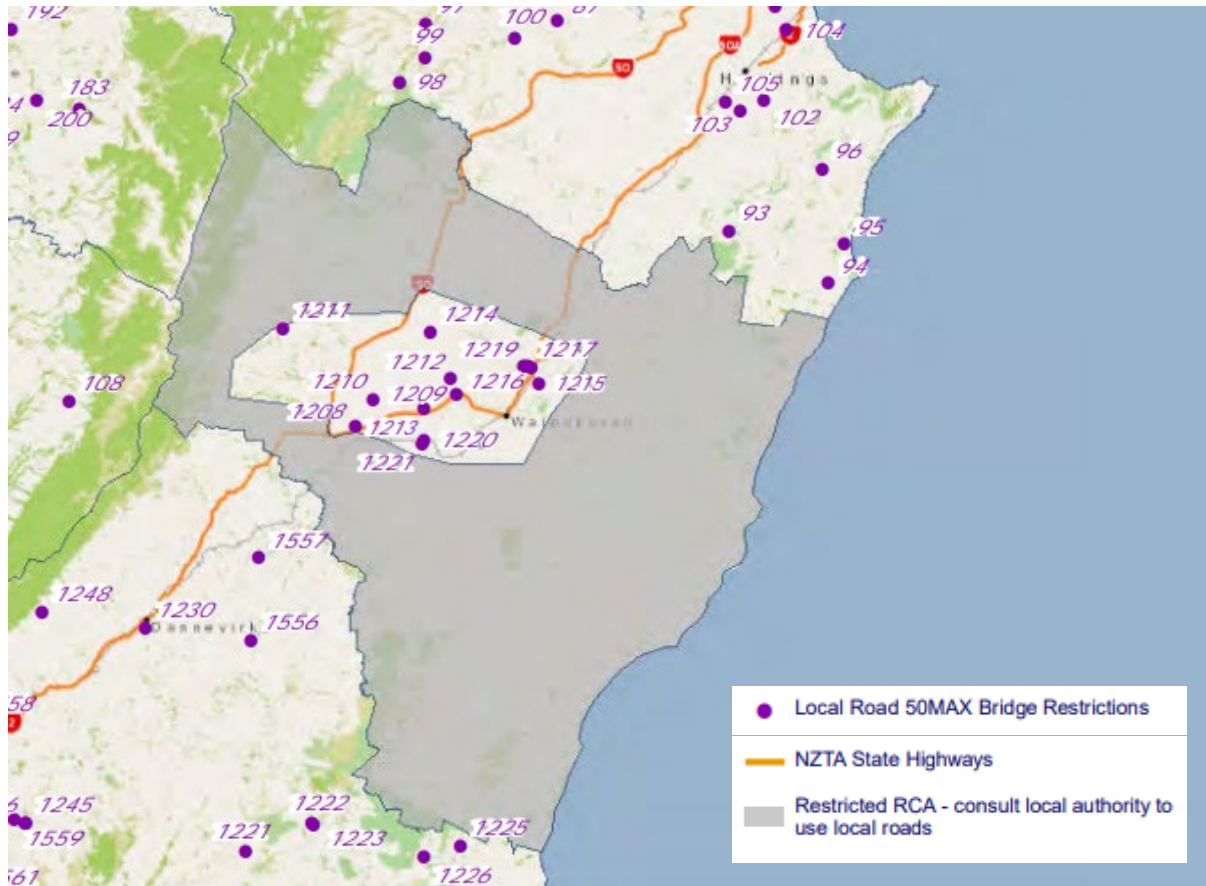


Figure 5-13: 50max restrictions in the Central Hawke's Bay District⁵⁷

In June 2020, CHB District completed a Programme Business Case for improved access for HPMV. Funding options for this HPMV PBC are currently being considered and any work will be dependent on securing this funding. In addition, it is expected that use of HPMV will need to be closely monitored in conjunction with the forecast Forestry activities and any key improvements captured in the Bridge Management Strategy for key routes identified. Even if external funding is secured for the HPMV improvements, the additional load on the network will put extreme pressure on the District's finances due to the maintenance and renewal requirements for HPMV routes.

10.2.8 Changes in Technology

As a funding provider, Waka Kotahi requires more robust data in support of annual funding requests. Consequently, Waka Kotahi requirements combined with technology changes are impacting on the way Council does business in terms of current road data collection practices.

⁵⁷ Waka Kotahi NZ Transport Agency, *50MAX Book of Maps: North Island Hawkes Bay Region* (August 2020), 10, <https://www.nzta.govt.nz/assets/Commercial-Driving/docs/50Max-maps/50MAX-Hawkes-Bay.pdf>

The Asset Management Data Standard (AMDS) project is a collaborative project between Waka Kotahi and REG to improve the management of land transport infrastructure asset information, to improve decision making. The project aims to develop a national data standard for land transport assets that will be used by all RCAs. AMDS will begin roll out in July 2021 and will end in July 2029. Implementation of the AMDS may impact Council's costs associated with data capture, manipulation and reporting, and enable stronger, evidence-based cases for central government investment.

To date, CHBDC have implemented a programme of road pavement condition rating to help inform the long term programme of works. There is a continuing strategy and programme in place to complete regular condition surveys on the network.

Additional technology changes such as the materials used in the maintenance and construction of roads are also continuously being assessed. Materials such as suitable aggregates are becoming scarcer and are unaffordable to process and transport. The Council is looking into new sources for aggregate supply. Other materials such as stabilising agents are also being developed by various industries and, where appropriate, is also being trialled in the District.

Improvements and modifications in equipment are also adding to the efficiencies of the District and are being introduced by contractors in an effort to obtain better value for money.

10.3 Demand Management Plan

10.3.1 Demand Management

There are three core areas of demand management for Land Transport activity. These are:

- Transport demand management
- Traffic demand management
- Travel demand management.

Demand management is concerned with managing, and in some cases reducing, traffic growth rates through network management, urban design or travel behaviour initiatives. It may also include influencing travel demand through various measures, including adjusting parking supply, road pricing measures and engineering measures.

Demand management involves offering greater transport choices and increasing awareness of alternative modes. By doing this it helps to increase access and mobility, enhance environmental sustainability and promote better public health.

The Demand Management Plan included in this LTAMP currently consists predominantly of traffic demand management. However, there is an increasing focus on transport and travel demand management, particularly with the Regional Council's development and adoption of a Regional Cycle Plan. The Demand Management Plan for Central Hawke's Bay is appropriate and cost-effective for an area the size of the District and with a population less than 14,100.

10.3.2 Asset Based Demand Management

The ONRC aligns all road types throughout the country. These hierarchies are established in RAMM and updated on a regular basis using traffic analysis and local experience. The Forward to this LTAMP provides a colour coded map outlining the roads around the District. The level of service requirements for each road is based on is ONRC.

The ONRC will be replaced with a new ONF by 2024. It is expected that the level of service requirements for some roads will change as they are reclassified under the new framework. Under the ONRC roads are classified largely based on traffic volume, while the ONF has “movement and place” based approach.

10.3.3 Non-Asset Based Demand Management

Non-asset based solutions for managing demand are available as alternatives to asset-based solutions. These generally fall into either transport or travel demand management categories. Possible non-asset-based solutions for the District are:

- Traffic by-laws to manage heavy commercial vehicles on sub-standard roads.
- Installation of speed humps and thresholds.
- Implementing targeted speed restrictions.
- Education and communication programmes targeted to deliver critical messages.
- Subdivision by-laws e.g. restricting development from existing roads that are of sub-standard width and safety.
- Operative District Plan which will take into account all possible growth scenarios and set guidelines for development.
- Alternative transport modes such as promoting the use of public transport systems (where available), car-pooling or alternative transportation (including cycling and walking) are sustainable and environmentally friendly transportation modes as convenient pedestrian, bicycle, and public transport networks can reduce reliance on vehicle transport.
- Strategic alliance with neighbouring Road Controlling Authorities.

10.3.4 Capital Works Programmes Related to Demand Management

There are several categories of Capital Improvements identified that are related to either improving the safety of the network or improving inadequate infrastructure due to change in demand. These works are generally related to the following assets and activities:

- Strengthening of bridges and other structures (where justified) as a result of applications for HPMV operation within network corridors
- Minor safety works
- Drainage improvements
- Traffic services such as signs, safety improvements or demand driven
- Walking and cycling facilities
- Seal extensions

In the 10-year horizon of this LTAMP there are no major forms of capital improvement to the network.

The issue of under width pavements could possibly be considered as a capital improvement item and would go some way to contributing to the safety outcomes of the network, although Council's ability to fund such a programme of works is currently severely limited. The process of seal widening is catered for through the pavement renewal process where the widening of the seal is justified primarily on curves. There is currently no other demand on the asset to indicate any capital improvement needed.

10.4 Design Standards for Demand Management

Not relevant



11 Risk Management

11.1 Introduction

The Council recognises that risk management is an integral part of good management discipline, performance and accountability. The risk management procedures currently followed by the Council were reviewed and adopted in 2018 and are based on the guidelines contained within AS/NZS ISO 31000:2009, Risk Management Principles and Guidelines

"Risk Management is the coordination of activities to direct and control an organisation with regard to risk"⁵⁸. The following section outlines the Risk Management process that is currently implemented at CHBDC. This process establishes the basic parameters within which all identified risks must be managed with respect to the management of the Land Transport.

This section covers the risk management implemented by CHBDC and how it applied to current and future transportation activities. The outcome of this evaluation is to be used to:

- Emphasise the importance of managing inherent risks while continuing to provide land transport services
- Continually identify improvements required to land transport assets to avoid risk events, minimise their impact or to realise identified opportunities

11.2 Risk Management Procedure and Policy

Council recognises that risk management is an integral part of good management practice, and is an important aspect of internal controls. Central Hawke's Bay District Council (CHBDC) is committed to the effective management of risk and recognises that risk is present in everything we do. For risk management to be effective it must be integrated into Council's governance, business operations, projects, policies, processes and decision-making as part of everyone's Business as Usual (BAU). A Risk is defined as:

"Effect of Uncertainty on Objectives"

Where effect, objectives, risk, and uncertainty are defined as:

- **Effect:** Deviation from the expected, positive or negative.
- **Objectives:** Can have different aspects and can apply at different levels
- **Risks:** Often characterized by reference to potential events and consequences, and is often expressed in terms of a combination of the consequences of an event and the associated likelihood
- **Uncertainty:** The state, even partial, of deficiency of information related to, understanding or knowledge of an event, its consequence, or likelihood.

It is important to recognise that asset management and network operations of the Land Transport assets are ongoing activities that are well understood. The likelihood of new emerging risks which have not already been well documented and for the most part mitigated, is low. Significant changes to the risk profile of the land transport activity are likely to occur at a corporate level which is discussed below in Section 6.3: Risk Assessment Context.

⁵⁸ AS/NZ ISO 31000:2009

Risks are managed throughout various levels of the organisation in accordance with the risk management framework. The Council's land transport risk management approach also aligns with the guidelines contained within the International Infrastructure Management Manual (IIMM).

The key elements of the Risk Management process have been implemented within the overall management of Council road transportation activity is outlined in Figure 6-1. This establishes the basic parameters within which all identified risks must be managed and sets the scope for the rest of the risk management process.

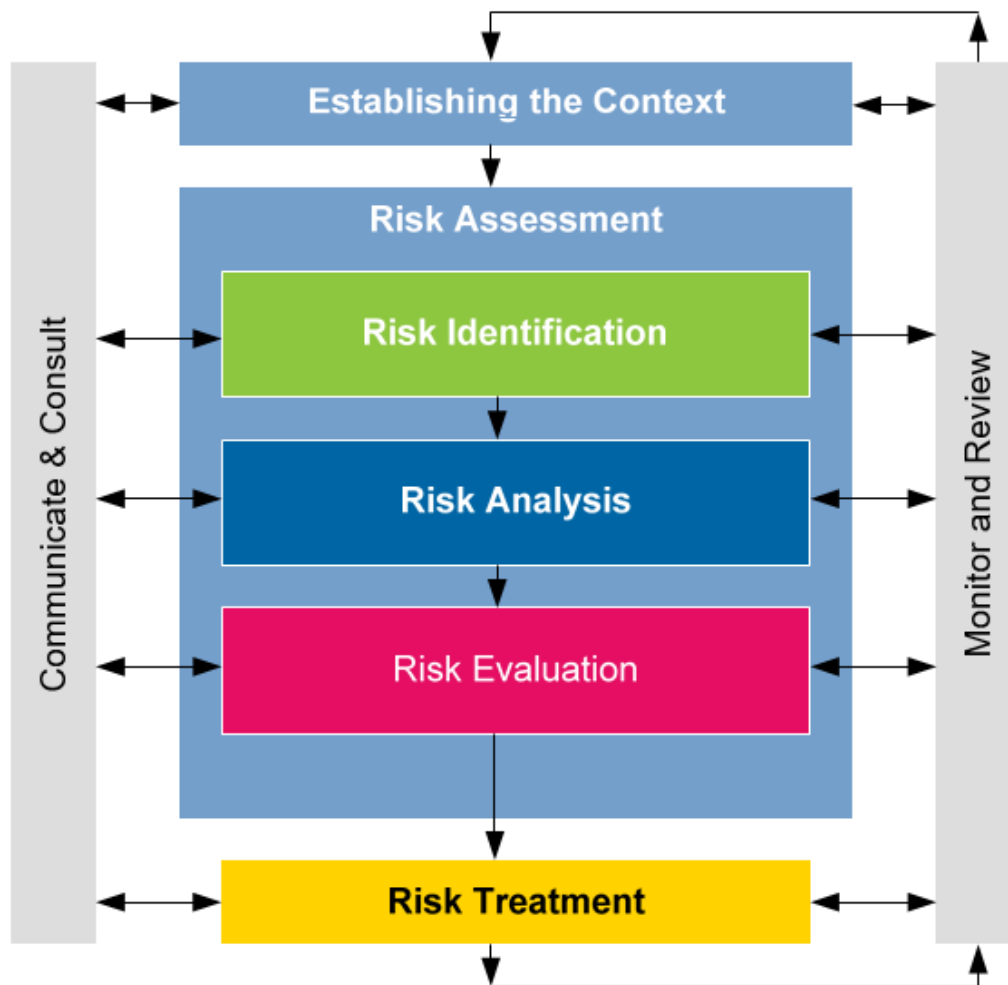


Figure 6-1: Risk management framework

11.3 Risk Assessment Context

11.3.1 Levels of Risk

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

The risk assessment is oriented by one or more objectives which provide the point of reference for identifying potential threats and uncertainties and evaluating risk.

The following objective statement aligns the identification and assessment of risk in the context of the CHBDC's Land Transport asset management activity with the mission statement of the Council.

"To deliver safe, reliable and lasting road assets that connect our people and our places, and allow our district to prosper"

These risks are pertinent to both a higher corporate level, and a detailed asset-specific level, but do not substitute for more specific risk analysis at those levels (see Figure 6-2).

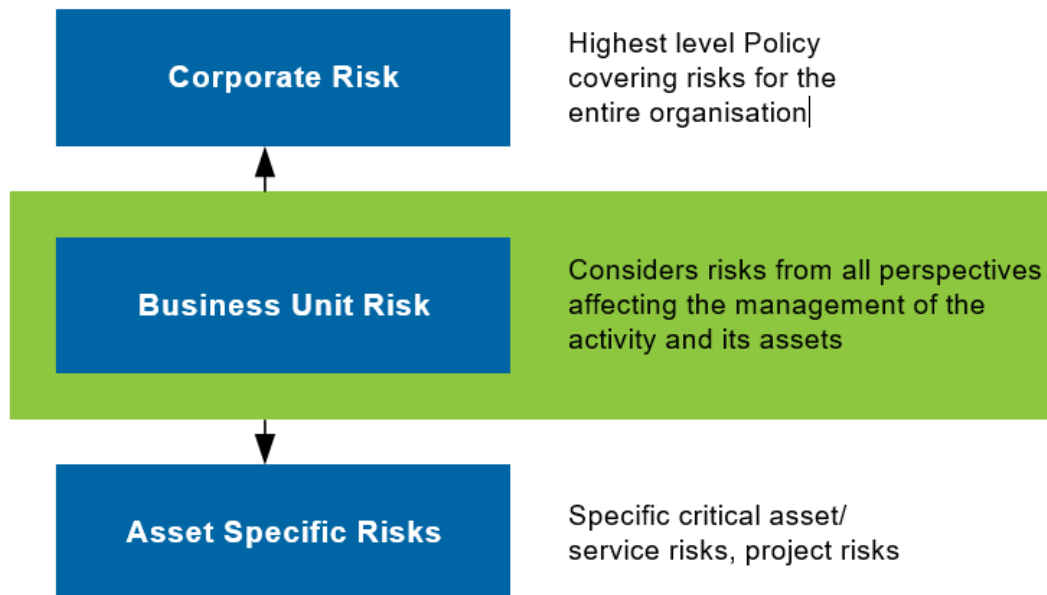


Figure 6-2: Risk hierarchy levels

For land transport activities, risk hierarchy levels can include the following at each level:

- Corporate risk
- Business unit risk
- Asset specific risk

Corporate Risk

Risk assessments at the corporate level focus on risks affecting the organisation as an entity such as:

- Civil defence emergencies
- Business continuity risks
- Organisational health and safety risks
- Political and legal risks
- Financial and cash flow risk
- Risks relating to strategic direction options

Corporate risks are risks that affect the entire organisation and should be addressed by the organisation, independently of individual Business Unit risk assessment.

Business Unit Risk

Risk assessments at the Business Unit level focus on risks associated with the management of the business and enabling infrastructure to provide services.

Risk assessment at this level is the principal focus of this AMP section.

Asset Specific Risk

Asset risk management refers to the assessment of specific risks for assets such as a critical road, bridge or a critical routes or the risks identified for a specific project.

11.3.2 Business Unit Risk Management

Individual business unit risk management tools and techniques are used appropriately and have been over a number of years. Critical assets have been identified and mitigation strategies in place and are reviewed on the basis of continuous improvement. An example is bridge and structural condition assessments that are carried out on a cyclic basis (implemented through the 2018-28 LTAMP). They were implemented through a formal policy to manage the asset risk as it was outlined that Council did not hold sufficient information to effectively manage the asset risk in accordance with Council's framework.

11.3.3 Risk Areas

Risk events will come from, or impact in one or more of the following ways. These are identified against each risk and risk areas which are:

- **Leadership and Governance including Reputation:** events that effect the reputation of the Council or the ability to meet its statutory obligations
- **Financial Decision Making:** events which cause unplanned financial losses or changes which affect the balance sheet, assets and liabilities, Council funding, income, and spending levels. This does not include unforeseen reactive repairs to assets accounted for within normal operating budgets.
- **Service Delivery:** events which cause denial or impairment of Council service/s to the Central Hawke's Bay Community
- **Asset and Project Management:** damage to assets/infrastructure with financial consequences. Loss of utilities/ICT systems resulting in disruption to services.
- **Health and Safety:** Harm or injury to people with potential time loss and/or medical expenses.
- **Environment:** Harm to the environment or heritage asset or area

11.4 Risk Evaluation Process

Risk evaluation is the process of comparing the results of the risk analysis with the risk criteria to determine whether the risk and/or its magnitude is acceptable or tolerable. The Council will draw on the best practice principles outlined in ISO 31000 to identify, analyse, evaluate and treat risks which may have a deleterious effect on the Vision and Strategic Community Outcomes. The Risk Management Process will develop a Risk Matrix of Likelihood (L) versus Consequence (C) which will allow the prioritisation of identified risk.

11.4.1 Likelihood (L) Scale

Likelihood is the chance of something happening. The likelihood scale describes how likely or often an event is expected to occur. For physical assets, the likelihood of some events can be estimated by condition assessments. For other events such as natural disasters or political



risks the likelihood of occurrence is more difficult to determine and even more difficult for outsiders to understand e.g. the 1 in a hundred years flood.

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

The prime objective of this process is to determine a set of applicable likelihood criteria which are also reasonable within the context of land transport activities. The likelihood scales identify how likely, or often, a particular event is expected to occur.

The descriptors shown in Table 6-1 are provided as a guide to help rank the likelihood of occurrence of each risk.

Table 6-1: Likelihood scale

Score	Likelihood	Descriptor
5	Almost Certain	The event is expected to occur e.g. 80% chance within the next 12 months
4	Very Likely	The event will probably occur e.g. 25% chance within the next 12 months or once in 4 years
3	Likely	The event might occur e.g. 10% chance within the next 12 months or once in 10 years
2	Unlikely	The event will probably not occur e.g. 4% chance within the next 12 months or once in 25 years
1	Rare	The event is not expected to occur e.g. 1-2% chance within the next 12 months or once in 50+ years

As CHBDC obtains more metrics, events and occurrences, in accordance with this framework it is likely that a more quantitative and statistical approach to likelihood descriptors will emerge.

11.4.2 Consequence (C) Scale

Consequences of an event are the impacts that it has on the social, environmental or economic well-being of the community or Council. The scale of consequence is focused around a quantitative approach summarised under the risk areas as discussed in Section 6.3.3. Each of these risk areas is then assessed using the standard consequence levels of:

- Insignificant
- Minor
- Significant
- Major
- Catastrophic

Table 6-2 is a series of qualitative descriptors of levels of consequence for the key areas which are not exhaustive but will help you consider the correct level from the point of view of the Council as the Risk Owner.



Table 6-2: Consequence scale

Risk Area	1. Insignificant	2. Minor	3. Significant	4. Major	5. Catastrophic
Leadership and Governance including Reputation	<p>Customer complaint. AND/OR Not at fault issue, settled quickly with no impact.</p> <p>Minor legislative technical breach but no damages. No monetary penalty AND/OR Internal query.</p> <p>No impact on the Vision and Strategic Community Outcomes</p> <p>Consultation on Annual or LTP, strategies or revised Vision & Community Outcomes delayed by less than 3 working Days</p>	<p>Non-headline community media exposure. Clear fault. Settled quickly by CHBDC response.</p> <p>Negligible impact. Minor technical non-compliances and breaches of regulations or law with potential for minor damages or monetary penalty.</p> <p>AND/OR Special audit by outside agency or enquiry by Ombudsman.</p> <p>Inconvenience or short delay in achieving the Vision and Strategic Community Outcomes</p> <p>Consultation on Annual or LTP, strategies or revised Vision & Community Outcomes delayed by 3-5 working days</p>	<p>Negative local (headline) and some regional media coverage. Council notification. Slow resolution.</p> <p>Compliance breach of regulation with investigation or report to authority with prosecution and/or possible fine.</p> <p>AND/OR Non-compliance with Corporate/Council Policy</p> <p>Significant difficulty introduced to achievement of the Vision and Strategic Community Outcomes.</p> <p>Lost opportunity to contribute positively to one or more of the Vision and Strategic Community Outcomes</p>	<p>Negative regional (headline) and some national media coverage. Repeated exposure. Council involvement. At fault or unresolved complexities impacting public or key groups.</p> <p>Major compliance breach with potential exposure to large damages or awards.</p> <p>Prosecution with 50% to maximum penalty imposed. District or Environmental court.</p> <p>OR</p> <p>Multiple compliance breaches that together result in potential prosecution with maximum penalty imposed.</p> <p>Failure to achieve a specific Strategic Community Outcome.</p> <p>Lost opportunity to significantly advance a specific Strategic Community Outcomes.</p>	<p>Maximum multiple high-level exposure. Sustained national media coverage. Direct Council intervention. Loss of credibility and public / key stakeholder support.</p> <p>Serious compliance breach with potential prosecution with maximum penalty imposed. High Court or criminal action.</p> <p>OR</p> <p>Multiple compliance breaches that together result in potential prosecution with maximum penalty imposed</p> <p>Failure to achieve multiple Strategic Community Outcomes.</p> <p>Lost opportunity to significantly advance multiple Strategic Community Outcomes.</p>
Financial Decision Making	Minimal financial impact requiring no action or approval within local authority levels. Less than \$1,000	A financial loss that can be managed within existing department budget. \$1,000 to	A financial loss that can be managed within existing organisational budget. \$10,000 to less than \$100,000.	A financial loss resulting in potential reduction in a service. \$100,000 to less than \$1M	A critical financial loss resulting in closure or significant reduction in a service. Greater



Risk Area	1. Insignificant	2. Minor	3. Significant	4. Major	5. Catastrophic
		less than \$10,000			than \$1M.
Service Delivery	<p>Temporary problem with organisational capability resulting in no impact on external service delivery. Essential service unaffected.</p> <p>Non-essential service delays of 4 hours or less.</p> <p>Reduced hours for amenity.</p>	<p>Loss of organisational capability in some areas resulting in reduced support to external delivery activities and subsequent delays of 8-24 hours to households and 8 hours to a specific business or industry</p> <p>Essential service delayed 4 hours' Non-essential service delays of 8 hours or less</p> <p>Amenity closed for up to a week</p>	<p>Organisation unable to function normally for less than 24-48 hours.</p> <p>Serious reduction in organisational capability leading to delays of 24-48 hours to a specific business or industry.</p> <p>Essential service delayed 8 hours' Non-essential service delays of 8-24 hours.</p> <p>Amenity closed for 1 week to 1 month</p>	<p>Organisation unable to function normally for 48-72 hours.</p> <p>Serious reduction in organisational capability leading to delays of 48-72 hours to a specific business or industry.</p> <p>Essential service delayed 24-48 hours.</p> <p>Amenity closed for 1-2 months.</p>	<p>Organisation unable to function for more than 72 hours.</p> <p>Serious reduction in organisational capability leading to delays of 72 hours or more to a specific business or industry.</p> <p>Essential service delayed 48 hours or more.</p> <p>Permanent closure of amenity</p>
Asset & Project Management	<p>Some damage where repairs are required however facility or infrastructure is still operational.</p> <p>Loss of utilities/systems resulting in minor IT disruption to a service for up to 12 hours.</p>	<p>Short term loss or damage where repairs required to allow the infrastructure to remain operational using existing internal resources.</p> <p>Loss of utilities/systems resulting in minor IT disruption to a service (>12 hours - 24 hours).</p>	<p>Short to medium term loss of key assets and infrastructure where repairs required to allow the infrastructure to remain operational.</p> <p>Cost outside of project budget allocation by 10% or \$10,000 to \$100,000.</p> <p>Loss of utilities/systems resulting in IT disruption to a department for up to 12 hours.</p>	<p>Widespread, short term to medium term loss of key assets and infrastructure. Where repairs required to allow the infrastructure to remain operational.</p> <p>Cost significant outside of project budget allocation by greater than \$100,000.</p> <p>Loss of utilities/systems resulting in serious IT disruption to several services or more than 1 department for up to 12 hours.</p>	<p>Widespread, long term loss of substantial key assets and infrastructure. Where infrastructure requires total rebuild or replacement.</p> <p>Failure of utilities/systems resulting in the loss of function for several departments (> 12 hours).</p>



Risk Area	1. Insignificant	2. Minor	3. Significant	4. Major	5. Catastrophic
Health & Safety	Minor injury or ailment that does NOT require medical treatment by a physician or a qualified first aid person.	<p>Injuries or illness requiring medical attention with no long-term effects.</p> <p>OR</p> <p>Exposure of public and staff to a hazard that could cause minor injuries or minor adverse health effects</p>	<p>One or more injuries or illness requiring hospitalisation with some long-term effects.</p> <p>OR</p> <p>Public or staff exposed to a hazard that could cause injuries or moderate adverse health effects</p>	<p>One or more serious casualties or illness with long-term effects.</p> <p>OR</p> <p>Public or staff exposed to a hazard that results in major surgery or permanent disablement.</p>	<p>One or more fatalities or life threatening injuries or illness.</p> <p>OR</p> <p>Public or staff exposed to a severe, adverse long-term health impact or life-threatening hazard.</p>
Environment	<p>Environmental damage cleaned up within hours of event.</p> <p>No contamination</p>	<p>Environment restored after one week clean-up.</p> <p>On-site release immediately contained</p>	<p>Environmental damage requiring up to 1 year to reverse.</p> <p>On-site release contained with outside assistance</p>	<p>Widespread environmental damage reversed after 1 year.</p> <p>Off-site release with significant detrimental effects</p>	<p>Permanent widespread environmental damage and loss of biodiversity.</p> <p>Toxic release off-site with major detrimental effect</p>

11.5 Risk Matrix

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

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

The seriousness of risk can be best categorised as a function of Consequence and Likelihood (as per best practice and NZ/AS ISO 31000) and involves selecting the most appropriate combination of consequence and likelihood levels determined using the most current information. Risk categories from Low to Extreme are shown in the form of traffic light indications Table 6-3 below.

Council's risk management process requires an initial and revised risk assessment to be undertaken to determine the risk rating. The matrix below shows how the Likelihood and Consequence scores are combined to yield a total risk score for a described event.

Table 6-3: Risk rating matrix

	Consequence				
Likelihood	1 - Insignificant	2 - Minor	3 - Significant	4 - Major	5 - Catastrophic



5 - Almost certain	Low	Moderate	Significant	Extreme	Extreme
4 - Very Likely	Low	Moderate	Significant	High	Extreme
3 - Likely	Low	Moderate	Significant	Significant	Extreme
2 - Unlikely	Low	Low	Moderate	Moderate	Moderate
1 - Rare	Low	Low	Low	Low	Low

When the assessment of risk is done without regard for any current risk mitigation or control method it produces the raw, untreated, or gross risk.

Once the gross risk has been established an assessment of the risk is completed to understand the existing mitigation and control methods. The risk is then re- assessed for Likelihood, Consequence taking these current mitigation or control methods into account. This helps quantify the effectiveness of the controls and provide a residual risk rating.

Refer to section 6.8 for details on risk treatments and mitigation options.

11.6 Risk Register

The next step in the risk management process is to develop a comprehensive list of risks and to evaluate each one against these criteria.

The top identified risks are:

- Changing vehicle needs – VDAM/50MAX/HPMV and increased volumes
- Failure of ageing and critical assets resulting in inaccessibility where there is no alternative access
- Failure of ageing and critical assets affecting safety
- General labour shortage, maintaining skills, abilities, and local knowledge
- Constrained funding to achieve roading goals
- Maintaining skills and level of service in suppliers
- Changes to funding criteria by NZTA
- Government funding not adequate
- Project costs exceeding budget
- Managing cash flow
- Road closure due to climatic events – storm /flooding/storm /high winds
- Road closure due to major accidents
- Not replacing depreciating assets
- Private features –not owned by council
- Dangerous trees on adjoining land to roads (private and council owned)

The risks associated with the AMP are shown in Table 6-4.

Table 6-4: Risk register

Risk Reference Number	Priority	Risk Category	Risk with current Controls																	
			Risk	Source "caused by"	Expected Consequences Impact "Consequences"	Risk Area	Likelihood	Consequence	Risk Rating	Existing Controls	Control	Likelihood	Consequence	Risk Rating	Additional risk controls that affect LIKELIHOOD	Additional risk controls that affect CONSEQUENCE	Expected Cost Peron/area responsible for additional controls	Likelihood	Consequence	Risk Rating
1.1		Business	General labour shortage, maintaining skills and abilities, maintaining local knowledge	Difficulty in attracting, remunerating and retaining key staff	<ul style="list-style-type: none"> Cost Impact Impact on continuity of planning decisions making 	Service Delivery	4	5	Extreme	<ul style="list-style-type: none"> Monitor labour market and work to maintain or enhance the working environment at CHBDC 		3	5	Extreme						
2.6		Asset Management	Insufficient funding to achieve roading goals	Low population base, large network, potentially reducing NZTA funding	<ul style="list-style-type: none"> Increased rates Reduction in amount of work able to be carried out Increased deferred renewals Lower quality assets and LoS Impact on community outcomes 	Financial Decision Making Asset & Project Management	4	3	Significant	<ul style="list-style-type: none"> Monitor Levels of Service and options Increasing maintenance 		4	3	Significant						
2.8		Business	Maintaining skills and level of service in suppliers	Difficulty in attracting and retaining contractor staff and increased quantum of work due to crown infrastructure investment and waters delivery programmes.	<ul style="list-style-type: none"> Impact on ability to maintain network Inability to deliver projects 	Asset & Project Management Service Delivery	4	3	Significant	<ul style="list-style-type: none"> Contracts with NZ wide companies to ensure resources can be managed effectively Social procurement Project Planning 		3	3	Significant						
2.10		Business	Changes to levels of service funding criteria by NZTA	Changes to Govt policy through ONRC/ONF process	<ul style="list-style-type: none"> Changes to levels of service Changes in funding 	Financial Decision Making Leadership and Governance including Reputation	4	4	High	<ul style="list-style-type: none"> Keep informed and contribute to regional and national groups i.e. REG, LGNZ to lobby, inform and influence change Become involved in regional network working group 		3	3	Significant						
2.11		Business	Government Funding not adequate	Changes to Govt policy through ONRC/ONF process	<ul style="list-style-type: none"> Significant changes to lifecycle management Impact on service delivery 	Financial Decision Making Leadership and Governance including Reputation	4	4	High	<ul style="list-style-type: none"> Keep informed of regional and national changes Become involved in regional network working group Partner with contractors to create solutions that are best for Central Hawkes Bay. 		3	3	Significant						

Risk Reference Number	Priority	Risk Category	Risk with current Controls																	
			Risk	Source "caused by"	Expected Consequences Impact "Consequences"	Risk Area	Likelihood	Consequence	Risk Rating	Existing Controls	Control	Likelihood	Consequence	Risk Rating	Additional risk controls that affect LIKELIHOOD	Additional risk controls that affect CONSEQUENCE	Expected Cost Peron/area responsible for additional controls	Likelihood	Consequence	Risk Rating
2.15		Business	Project costs exceeding budget	Poor project estimation Increasing costs of goods and services over life of project	<ul style="list-style-type: none">Increased costs to Council	Financial Decision Making Leadership and Governance including Reputation	4	4	High	<ul style="list-style-type: none">Budget monitoring and regular reportingCareful contract (project) planning		3	3	Significant						
2.17		Business	Managing Cash Flow	Not spending when budgeted causing cash flow issues	<ul style="list-style-type: none">Increase costs	Financial Decision Making Leadership and Governance including Reputation	4	4	High	<ul style="list-style-type: none">Budget monitoring and regular reporting		3	4	Significant						
4.5		Operational	Road closure due to Climatic event – storm/flooding/high winds	Climate change Climatic events	<ul style="list-style-type: none">Delays in planned projectsCosts to emergency fundEnvironmental damageEconomic impactSocial Impact	Environment Asset & Project Management Service Delivery	4	3	Significant	<ul style="list-style-type: none">Biennial review of agreed detoursIdentify key routes, roads and dangerous treesEmergency response plan and process in place with contractors so community impact is reduced.		4	3	Significant	<ul style="list-style-type: none">Annual review of agreed detoursWork with owners to manage tree on critical routes in districtBiennial review of agreed detours		Land Transport	3	3	Significant
4.15		Operational	Road Closure due to major accidents	Poor road design/condition	<ul style="list-style-type: none">Delays in planned projectsCosts to emergency fundEnvironmental damageEconomic impactSocial Impact	Health & Safety Asset & Project Management Leadership and Governance including Reputation	4	3	Significant	<ul style="list-style-type: none">Work with NZTA on accident hot spotsDesign of reseals taking into account modern safe road designSafety through maintenance and renewals		3	3	Significant	<ul style="list-style-type: none">Implement "Road to Zero" Strategy to minimise potential for fatal or serious accident (we have no "High Risk" hotspots).	<ul style="list-style-type: none">Affordability of programme to the community	Land Transport			

Risk Reference Number	Priority	Risk Category	Risk with current Controls																	
			Risk	Source "caused by"	Expected Consequences Impact "Consequences"	Risk Area	Likelihood	Consequence	Risk Rating	Existing Controls	Control	Likelihood	Consequence	Risk Rating	Additional risk controls that affect LIKELIHOOD	Additional risk controls that affect CONSEQUENCE	Expected Cost Peron/area responsible for additional controls	Likelihood	Consequence	Risk Rating
4.16		Operational	Not replacing depreciating assets	Funding	<ul style="list-style-type: none"> Reduction in asset value Reduction in condition of asset Reduction in service levels 	Asset & Project Management Financial Decision Making	3	4	Significant	<ul style="list-style-type: none"> Monitor impact on road roughness and condition Investigate other external funding sources 		2	4	Moderate						
4.19		Operational	Private features not owned by council	Poor asset ownership records	<ul style="list-style-type: none"> Increased costs and liabilities 	Financial Decision Making Leadership and Governance including Reputation	5	4	Extreme	<ul style="list-style-type: none"> Complete due diligence of ownership status of the assets prior to investing to ensure council is asset owner. 		2	4	Moderate						
		Operational	Dangerous Trees on adjoining land to roads	Trees planted as windbreaks or shelter on adjacent land or road reserve	<ul style="list-style-type: none"> Road closures due to fallen trees Damage to road surfaces through tree roots 	Asset & Project Management Service Delivery	4	3	Significant	<ul style="list-style-type: none"> Identify key routes and priority trees and landowners 		4	3	Significant						
		Operational	Changing vehicle needs	Increased usage of VDM, 50 Max and HPM vehicles	<ul style="list-style-type: none"> Impact on bridges and road use and loads Cost of upgrading bridges and key roads 	Asset & Project Management Service Delivery Financial Decision Making	4	4	High	<ul style="list-style-type: none"> Monitor changing requirements of SH2 Regulate permitting through NZTA. Consolidate HV traffic to key routes 		3	4	Significant						
		Business	Social Procurement	The cost of social procurement incorporated into delivery	<ul style="list-style-type: none"> Higher project costs Lower productivity achievement on site Longer construction periods 	Service Delivery Financial Decision Making	3	4	Significant	<ul style="list-style-type: none"> Procurement strategy Project management Seek external funding where possible 		3	4	Significant						



An event leading to a negative outcome to Council's objectives is regarded as a Threat. However, the process of risk analysis can also occasionally identify positive outcomes or Opportunities, and it is quite appropriate to use this register as a means of recording these in addition to the more common approach of only just considering the Threats.

The description should include additional information, such as: the source of the risk, what are the existing controls or influences on the risk, what (specifically) are the consequences, is it dependent on other risks or conditions.

11.7 Risk Management

The remainder of this Section sets out the risk management context in terms of Risk Management Activities, Likelihood Scale, and Consequence Scale. A Risk Assessment matrix and Risk Register are introduced, as are the required analysis and format for a Risk Treatment Plan.

Table 6-5 sets the areas of activity associated with the land transport activity, four key activities areas have been identified. These are Asset Management, Business, Customer Services, and Operational.

Under each heading are the internal processes that are associated with these activities. These processes have associated with them a number of risks. By setting the activity and their associated processes the development of the risk register and all associated risks can be considered and analysed.

Table 6-5: Road transportation risk management activities

Asset Management	Business	Customer Service	Operational
Forward Planning	Funding Provision	Public Request Management	Routine Maintenance - Sealed
District Roading Programme	Governance	Managing Response Times	Planned Maintenance - Sealed
Information & Systems Management	Legislation Compliance	Customer Expectation - Raise/Reduce	Routine Maintenance - Unsealed
Standards and Guidelines	Policy Development	Level of Service changes	Planned Maintenance - Unsealed
Demand Change	Service Provision Purchasing	Customer not understanding service levels	Routine Corridor and Safety Maintenance
Data Storage	Employment	Customer Consultation	Capital/Renewal Physical Works (QA, Management, Timeliness)

Asset Management	Business	Customer Service	Operational
Information Systems	Financial Reporting/ Management		Routine Inspections - (Contractor/ Consultant/ Asset Owner)
Consultant	Political – Elected Representative		Contract Administration
Contractor	Council Staff		Footpath Maintenance
Safety Management			Drainage Maintenance
Network Resilience			Communication and Project Management
Social and Environmental	Legislation Governance Policy		Delivery management

The outcome of the process, illustrated in Figure 6-2, is the development and on-going maintenance of a Road Transportation Risk Register. This register will contain a prioritised list of all the identified risks within each of the above four Risk Management Activity areas.

11.8 Risk Treatments and Mitigation Options

In accordance with councils Risk Management Framework and as discussed in section 6.5 Risk Matrix, council will consider different forms of risk treatment and mitigation options which may include:

- **Tolerate:** accept the risk, fund and resource and risk impacts (Risk has controls in place, nothing more can economically be done to decrease the risk, so it is accepted at its current level)
- **Treat:** mitigate, or manage the risk through strategic planning, organisational improvements, technical improvements, or procedural changes.
- **Eliminate:** eliminate the risk completely by selling the asset, closing the service etc.
- **Transfer:** buy increased insurance, contract services, improve contract terms

Where it is decided that the current level of risk is too high and cannot be tolerated then further management options will be considered to treat, eliminate, or transfer the risk to an acceptable level. Implementation of additional treatment options will impose a further cost on CHBDC which will be assessed.

11.8.1 Residual Risk

Residual risk is the difference between the gross risk and revised risk. Residual Risk also helps to determine how much risk can be expected if further proposed management actions are

effectively implemented. Thus, the acceptability of the current level of revised risk will be determined.

Table 6-6 provides a guideline to the responses that should be made within each band of residual risk scores.

Table 6-6: Suggested actions for relevant risk levels

Risk	Actions
Low	Examine where un-needed action can be reduced, Advisory to Line Manager
Moderate	Managed by routine procedures, Advisory to Line Manager
Low	Managed by routine procedures, Advisory to Line Manager
Moderate	Managed by Group Manager and Advisory to Leadership Team
Significant	Managed by Group Manager and Advisory to Chief Executive
Significant	Managed by Group Manager and Immediate Advisory to Chief Executive & Leadership Team for review and action
High	Chief Executive & Leadership Team attention to review and manage risk and to report to next Risk & Audit Committee
Extreme	Chief Executive immediate action required to reduce risk Immediate Advisory to and consultation with Chair & Deputy Chair of Risk & Audit Committee with subsequent reporting to the Committee

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

11.9 Lifelines

11.9.1 Summary

Lifeline utility organisations provide essential services to the community, including telecommunications, transport, water and energy services. Following a major disaster, restoration of services provided by Lifelines Utility organisations is critical to a community's ability to respond to and recover from the event. Part of providing resilient infrastructure is building this into business as usual practises where available to do so. CHBDC is part of the regional lifelines group which provides joint planning and response to ensure Hawke's Bay has infrastructure that is resilient and able to be restored to ensure the continuous availability of key services. These interdependencies and vulnerabilities which have been considered in the transport programme is outlined in "A Vulnerability Assessment of Lifelines Infrastructure Servicing Hawke's Bay" commissioned by the Hawke's Bay Lifelines Group.

11.9.2 Emergency Planning

CHBDC has a documented Emergency Management (EM) Plan which identifies the key issues and how they would be handled as the need arises.

The Civil Defence Emergency Management procedures required under the Civil Defence Emergency Management Act 2002 are integrated into this plan. CHBDC has qualified individuals within all teams to fill any role required in the Emergency Management structure.

There are numerous hazards which have been identified that may potentially impact on the District including earthquakes, floods and tsunamis. Processes to address each of these scenarios are incorporated in the EM Plan.



Training is offered to all staff including consultants and maintenance contractor personnel to ensure a coordinated response. Exercises are conducted not just locally, but in close association with the regional and national response.

The bulk of the information regarding emergency planning is held in other Council documents and is not duplicated in this AMP.

11.10 Key Assumptions and Uncertainties Affecting Risk

Various uncertainties are inherent in risk identification and analysis and some assumptions have been made. These are documented in Table 6-7.

Table 6-7: Significant planning assumptions and uncertainties in the transportation activity

Ref. No	Assumptions and Uncertainties	Reasonableness of assumption, & likely impact if the assumption is not realised
R1	Funding made available in the LTP (both rating and subsidy) continues to be available at current levels	Unreasonable – negative changes to the FAR will be made in the second year of this 3-year plan
R2	A pool of suitably qualified personnel, consultants and contractors exist to provide roading services.	Reasonable – Consultants will ensure the continued supply of solutions. Council will reduce its programme of work if Contractors are unable to deliver.
R3	Professional services providers and contractors deliver to contractual terms and Code of Practice standards	Reasonable
R4	Service levels (outside of ONRC) do not radically change over the forecasted period. (Variation <1%	Reasonable
R5	Community expectations remain constant over time.	Reasonable
R6	No abnormal events (weather no greater than a 1 in 5-year event, earthquake – no damage causing earthquake) occur in the forecasted period.	Reasonable – assuming events are changing but still not fully understood.
R7	Utility services (power, telecommunications) remain available to current service levels.	Reasonable
R8	Costs for utility services do not increase beyond forecasted inflationary factors.	Ratepayers will themselves determine if they can pay an increase in rates based upon their own safety issues/viewpoint.



Ref. No	Assumptions and Uncertainties	Reasonableness of assumption, & likely impact if the assumption is not realised
R9	Council controlled flood protection schemes remain intact and operate as planned.	Reasonable
R10	Regional Council flood plain protection schemes remain intact and operate as planned.	Reasonable
R11	A collaborative renewals programme is developed between the transport, waters and community services to ensure renewals are sequenced in a logical way.	Reasonable
R12	Predicting the useful life of the asset and determining future performance based on known facts at the time.	Reasonable
R15	There will be no unforeseen changes in demand on the network over the 10-year period outside the predicted growth strategy.	Reasonable – Forecast incorporates expected demand fluctuations
R16	Data reliability regarding accurately predicting the condition performance assets and how these drive the Capital Programme.	Reasonable
R17	Budget Setting - CPI adjustment.	Reasonable – No “step change” in costs forecast
R18	Natural hazards. Areas of the roading corridor which are within erosion zones and the impact	Reasonable – The Hawke's Bay Regional Council erosion management plan implementation.
R19	The Road Safety System which has been implemented does not drive additional expenditure excluding the unknown elements deriving from the ONRC	Reasonable
R20	Impacts because of the COVID-19 Pandemic	Reasonable – No “step change” in assumptions made throughout the LTAMP.

The Council also have a number of highly vulnerable, critical and valuable assets within the transportation activity that are identified for specific risk management. The benchmark applied for identifying an asset activity as critical are the thresholds set within Council's Significance and Engagement Policy.

12 Lifecycle Management

12.1 Life Cycle Management

This section of the LTAMP outlines broad strategies and work programmes to keep the assets operating at the current levels of service while optimising lifecycle costs.

The Life Cycle Management Plan for each asset group⁵⁹ includes:

- Overview
- Key Issues and Risks
- Business Case
- Physical Parameters
 - asset quantity
 - value
 - capacity/ performance
 - condition
 - age
- Operations and Maintenance Plan
- Renewal Plan
- Development Plan
- Disposal Plan
- Asset Expenditure

12.1.1 Business Case Approach

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

BCA demonstrates the degree to which the proposed programme of works is the right solution to invest in. BCA seeks at the earliest stage of the process, to clearly define the problems and contextual state of the district, with engagement of key partners and stakeholders where necessary. This early engagement is to get consensus on and understanding of the cause, scale of consequences and scale of benefits of addressing the problems. This approach will help filter whether a problem is worth investing more time and resource.

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

The Life Cycle Management Plans underpin this approach and provide good quality evidence to support the investment proposed in the AMP.

More details on the BCA can be found in Section 2.2 and Section 2.3

12.1.2 Lifecycle Management Work Categories

The land transport lifecycle management works are categorised as shown in Figure 7-1.

⁵⁹ Refer to Section 3: Asset Description for more detail regarding asset groups

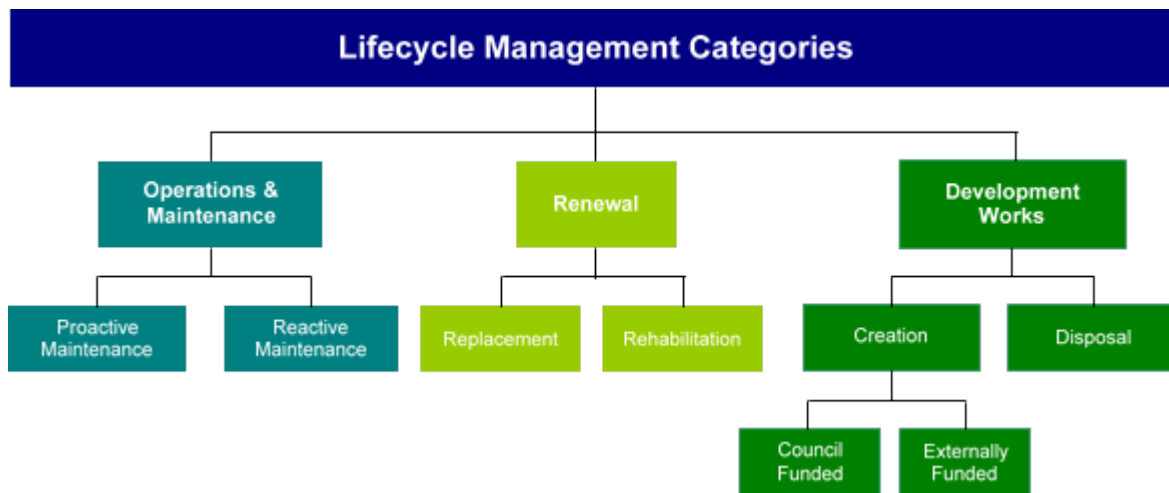


Figure 7-1: Land transport activity lifecycle management work categories

Details on the maintenance and renewal strategies is discussed further in section 9 – Asset Management.

12.1.3 Key Issues and Strategies

The key issues relating to the management of the transport activities are as shown in Table 7-1.

Table 7-1: Key issues related to land transport activities

Key Issue	Description	Strategies to address key issues
Safety	Safety and network Efficiency	The focus of capital projects is on improved network efficiency and safety improvements.
Community expectation	Increasing community expectations with regards to sealing roads at the urban periphery and providing better access for heavy vehicles.	Work with the community to prioritise spending such as from the minor improvement funds from Waka Kotahi and better targeted renewals
Increasing legislative requirements	Legislative requirements are increasing, particularly regarding transparency, and environmental and economic sustainability. Managing these increased requirements can incur additional cost.	Monitor legislative requirements
Climate change effects	The climate has changed and is expected to continue to change. There are longer periods of dry weather and more intense rainfall events leading to higher incidence	Consider adding a climate change factor to the O&M forecast needs of the road network over the next 30



Key Issue	Description	Strategies to address key issues
	<p>of storm damage and increased effort to maintain road access. The District's steep topology and geology of soft papa makes it more vulnerable to increasing weather events.</p> <p>There are increasing requirements for sustainability across Council activities.</p>	<p>years (for example +0.5% factor per annum).</p>
Changes in road usage	<p>The very fragile network condition is susceptible to sudden changes in usage e.g. additional traffic demand and loadings from changes in government legislation (Heavy Commercial Vehicles).</p>	<p>Monitor network for changes in network condition.</p> <p>Stakeholder engagement to understand changes in road use or patterns.</p>
Pavement and surface deterioration	<p>Deterioration of pavement and surfacing</p>	<p>The focus of the maintenance and renewals programme is on high volume roads to reduce the deterioration of pavement and surfacing</p>
Footpath renewals	<p>An aging and tree root affected footpath network requires the current substantial renewal investment to continue</p>	<p>Forward programming of planned maintenance and capital works</p> <p>Implement a condition survey programme for footpaths.</p> <p>Formalise work procedures where tree roots conflict with footpaths.</p> <p>Property owners are responsible for the construction and maintenance of vehicle crossings to the Council standards (Vehicle Crossing Policy reviewed April 2015)</p>
Impact of forestry industry	<p>Impact of current and future forestry traffic on particularly the rural road pavements that have substandard pavement structure and geometry.</p>	<p>Undertake an investigation into the impact of forestry harvesting on rural roads.</p>



Key Issue	Description	Strategies to address key issues
Uneconomic roads	A number of sealed and unsealed rural roads service only one or two properties and have very low traffic volumes. However, some of these roads do service profitable commercial primary industries which generate revenue for the District and the nation.	<p>Consider social and economic sustainability by applying optimised decision making (ODM) to which parts of the network are uneconomic and should or should not be reduced. Network reduction can be achieved by:</p> <ul style="list-style-type: none"> • converting very low volume sealed rural roads to unsealed roads, to reduce the long-term cost of maintenance and renewals • divesting very low volume unsealed rural cul-de-sac roads back to the adjacent landowners.
Aggradation and Degradation of issues of Culverts	Aggradation (riverbed build-up) and degradation (riverbed reduction) issues of culverts – maintenance concerns of gravel inflow and riverbed build-up at outlets restricting flows.	Inspection to determine condition, causes, effects and possible solutions
Aggradation and Degradation of issues of Bridges and Large Culverts	Aggradation (riverbed build-up) and degradation (riverbed reduction) issues of bridges and large culverts – maintenance concerns of gravel inflow and riverbed build-up restricting flows.	Inspection to determine condition, causes, effects and possible solutions.
Retaining Structures	CHBDC's RAMM data base does not have a complete record exclusively for the retaining structure information.	CHBDC has been capturing new retaining structures into RAMM and where old structures are identified these will also be added to the asset register including condition information.
Dust Pollution from Unsealed Roads	Significant impacts on the community living on or adjacent to unsealed roads, in particular roads with high heavy vehicles or high traffic counts.	Undertake a study to understand the impacts and solutions for the district.



Key Issue	Description	Strategies to address key issues
		Adopt road maintenance strategies to minimise the production of dust.
Uncontrolled Intersections	There are a number of uncontrolled intersections	Undertake an investigation to identify all uncontrolled intersections and proposed upgrades.
Footpath and Cycleway Connectivity	The footpath and cycleway network within the district does not provide complete connectivity for users.	Work with the regional Cycling Group to understand the cycle and pedestrian network and identify any gaps to provide a complete network and implement programmes to address.
Car usage/dependency	There is a lack of public transport and limited cycling infrastructure which leads to high private vehicle use.	Develop strategies and programme of works to create a noticeable mode shift with the district.
Rural road delineation	The rural road network has a number of sections without the appropriate delineation to guide users.	Investigate and develop a programme to ensure the rural road network has the appropriate delineation.
Discontinued Guardrail	There is discontinued guardrail on the network that is not compliant with the current standards which may have a negative impact on crash severity.	Develop a programme to replace with correct standard of guardrail
High Speed Environment	The majority of local roads across the district have higher speed limit than the suggest SAAS.	Undertake a speed management study to align the speed limits with the SAAS.

12.1.4 Method of Service Delivery

CHBDC maintains ownership and responsibility for managing the land transport activity and the associated infrastructure. Consultants are used to provide specific expertise and assistance as required.

Physical works contracts are let for the various aspects of roading maintenance. The current contracts let are included in Table 7-2.

Table 7-2: 2020/21 physical works contracts

Contract No.	Contract Name	Responsibilities	Contractor
C-1068	Line Marking	Line Marking	TBC
C-528	Street Light Maintenance	Street Light Maintenance	Pope Electrical
C-1058	Road Reseals Services	Reseals	Downer
C-1060	Minor Structural Renewal Services	Structural Maintenance & Component Renewals	Higgins
C-1057	Road Maintenance Services	Road Network Maintenance	Downer
C-1059	Area Wide Pavement Treatment Services	Rehabilitations & AWPT's for sealed Roads	Higgins

12.1.5 Forward Work Programming

CHBDC develops and maintains a 10-year forward work programme to ensure effective and efficient service level delivery. This programme is mainly based on historical records, recent work practices, along with visual inspections of the network and incorporates outcomes of analysis tools such as the Treatment Selection Algorithm (TSA) and RIMS dTIMs (pavement performance modelling). The programme incorporates road sections requiring Area Wide Pavement Treatment (AWPT), resealing, metalling of unsealed roads and drainage requirements one year in advance of the reseal programme. The process details are included in the life cycle management plans for each asset group.

12.2 Responsibilities

CHBDC maintains ownership and responsibility for managing the land transport activity, the associated infrastructure and the delivery of the total programme of works. Council has engaged a dedicated team of Network Consultants to provide specific expertise, to provide strategic, tactical and operational inputs and resources, to manage physical works contracts and to assist in the programme development and delivery as required.

Physical works contracts are let for the various aspects of roading maintenance, currently as per Table 7-2.

There are a number of other outputs that are carried out on the roading network each year that are not listed above. They are outputs that have a variable quantum each year but still form an essential part of the maintenance regime. They are outputs such as:

- Slip removal
- Flood damage repairs
- Minor safety works

12.3 Pavements

12.3.1 Overview

The purpose of road pavements is to provide a network that is suitable for the effective and efficient movement of vehicles and people. The pavement includes a suitable all-weather

surface that is appropriate for its intended function in terms of skid resistance and smoothness. It must have a structure that is strong enough to carry the anticipated traffic.

12.3.2 Key Issues and Risks

The key issues and risk associated with the pavement and surfacing asset group are discussed in Table 7-3.

Table 7-3: Key issues and risk for pavements

Key issue	Description	Strategies to address issue
Sealed road pavement condition	Sealed roads pavement condition data shows a deteriorating trend	Review and check if this trend is due to data collection survey methodology inconsistencies or actual physical pavement condition
Narrow unsealed roads	Unsealed roads are narrow and windy, with higher risk for car-on-car crashes	The Minor Capital Improvements programme and targeted maintenance.
Increase in heavy vehicles	Increasing number and size of heavy vehicles on roads due to increase in forestry extraction.	Minor Capital Improvements programme and continuous monitoring of asset condition
Dust Pollution from Unsealed Roads	Significant impacts on the community living on or adjacent to unsealed roads, in particular roads with high heavy vehicle or traffic counts.	Undertake a study to understand the impacts and solutions for the district. Adopt road maintenance strategies to minimise the production of dust.

12.3.3 Business Case

CHBDC considers that it has a HIGH confidence level in its approach to pavement investment. This is demonstrated in the AMP which shows thorough processes and methods that CHBDC employs to justify investment decisions, including the development of its forward works programme (FWP) for pavement base renewals and resealing.

Table 7-4 shows how the key pavement issues (discussed in Table 7-3) link to the overall Strategic Case and other relevant documents.

Table 7-4: Key pavement issues in relation to the problem statements, and other relevant documents

Document	Key outcomes/ objectives	Key pavement issues			
		Pavement condition	Unsealed roads	Heavy vehicles	Dust
Problem statements	Resilience	✓			
	Access				✓
	Safety	✓	✓	✓	✓



Document	Key outcomes/ objectives	Key pavement issues			
		Pavement condition	Unsealed roads	Heavy vehicles	Dust
CHB Land Transport Strategic Framework	Safety above all else	✓	✓	✓	✓
	Connected and resilient infrastructure	✓			
	Protecting our natural environment				✓
	Economic resilience and financial sustainability	✓		✓	
CHB Long Term Plan	Proud district	✓			
	Prosperous district			✓	✓
	Strong communities		✓		✓
	Connected citizens	✓	✓		
	Smart growth			✓	
	Environmentally responsible				✓
	Durable infrastructure	✓	✓		✓
Government Priority Statement for Transport	Safety	✓	✓	✓	✓
	Better travel options				
	Climate change				
	Improving freight connections	✓		✓	✓
Ministry of Transport Outcomes Framework	Healthy and safe people	✓	✓	✓	✓
	Environmental sustainability				✓
	Resilience and security	✓			
	Economic prosperity			✓	✓
	Inclusive access				

Investment in pavements is required because:

As the key asset of the land transport activity, pavements enable the public to travel safely, easily and efficiently through the district while maintaining good access to properties, businesses and other areas of interest. Pavements are critical infrastructure that enable growth of the economy and connectivity of diverse communities.

An analysis of the current investment includes:

- Pavements is the asset group with the largest expenditure. Pavement assets form 67% (\$566 M) of the total Land Transport Activity replacement cost and 46% (\$3.3 M) of the annual depreciation. The 2020/21 pavement maintenance, renewal and improvements budget⁶⁰ is 45% (\$6.1 M) of the total Land Transport Activity Budget (\$13.4 M).
- Operations and Maintenance form 27% (\$1.7M) of the 2020/21 pavement budget that includes Network and Asset Management and Overhead. CHBDC implements a maintenance strategy (Maintenance Intervention Strategy 2011), which ensures maintaining the pavement performance without consuming the asset leading to an unexpected increase in maintenance/renewal expenditure.
- Pavement Renewals form 64% (\$3.9 M) of the 2020/21 pavement budget that includes Network, Asset Management and Overhead. This includes about 1.4 km pavement rehabilitation at a cost of \$1.9 M and about 70 km of sealed road resurfacing at a cost of \$1.5 M. About \$0.5 M is for metalling unsealed roads which is about 32% of the CHBDC's network.

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

- Comprehensive condition data analysis: The confidence level in pavement asset data including condition and performance data is reliable. This provides CHBDC with a good basis to support maintenance and renewal analysis and investment decisions.
- Focus and effort go into spending only what it needs to; to make better investment decisions to sustain the transport network in the long term; by targeting the right treatments, to the right places, at the right times and for the right costs.
- This is explained further in the maintenance and renewal strategies. The FWP's are jointly developed, challenged and validated by the key stakeholder groups; namely Council asset and network officers, together with their contractors and network consultants.
- RAMM TSA analysis to provide candidate sites
- Reconciliation is made with the previous FWP
- Known high or low priority sites are identified by CHBDC network managers, together with their contractors and network consultants
- Joint workshop and drive-overs between CHBDC AM, their contractors and consultants to challenge and validate the candidate sites
- Assessment of backlog, which is currently considered as nil; that is, CHBDC is keeping up with pavement rehabilitation. With the increase in HCV's the District may shortly experience a slight increase in the need for pavement rehabilitation. This will be monitored through traffic counts and industry reports

⁶⁰ Work categories 111, 112, 211, 212, 214, and 324

Future enhancements to be considered to improve the business case include the following:

- Comparison of the renewal rate vs deterioration rate
- Top-down check on historical trends for renewal quantities, costs, network LOS KPIs such as condition, performance and backlog.
- Top-down check by comparison with annual depreciation rates.
- Top-down check on the total asset type ratio of depreciated replacement cost with replacement cost (from the latest asset valuation). For example, in a stable, steady state network with no renewals backlog, one may expect to have a Depreciated Replacement Cost of half that of its Replacement Cost, and the annual renewals investment to match the Annual Depreciation. If these ratios are significantly different from these then there may be a story that needs explaining.

12.3.4 Physical Parameters

Road Hierarchy

Table 7-5 shows the CHBDC's road hierarchy system as per the One Network Road Classification (ONRC).

Table 7-5: Network distribution by one network road classification and pavement type⁶¹

ONRC Category	Sealed	Unsealed	Major Bridges	Total
Arterial	0.57	0.00	0.00	0.57
Primary Collector	0.75	0.00	0.00	0.75
Secondary Collector	264.33	0.91	1.89	267.13
Access	418.82	123.27	1.72	543.81
Low Volume	171.71	277.81	2.25	451.77
Total	856.18	401.98	5.86	1264.02

Waka Kotahi NZ Transport Agency has begun the process to update and evolve of ONRC. The evolution of the ONRC also responds to the recognition that shared, integrated planning approaches between transport and land planning will result in better outcomes. CHBDC Road Hierarchy will need to be updated to reflect the new “Movement” and “Place” classifications used to determine “Street Families”. The new “Street Families” are classified as either Rural or Urban which is illustrated in Figure 7-2.

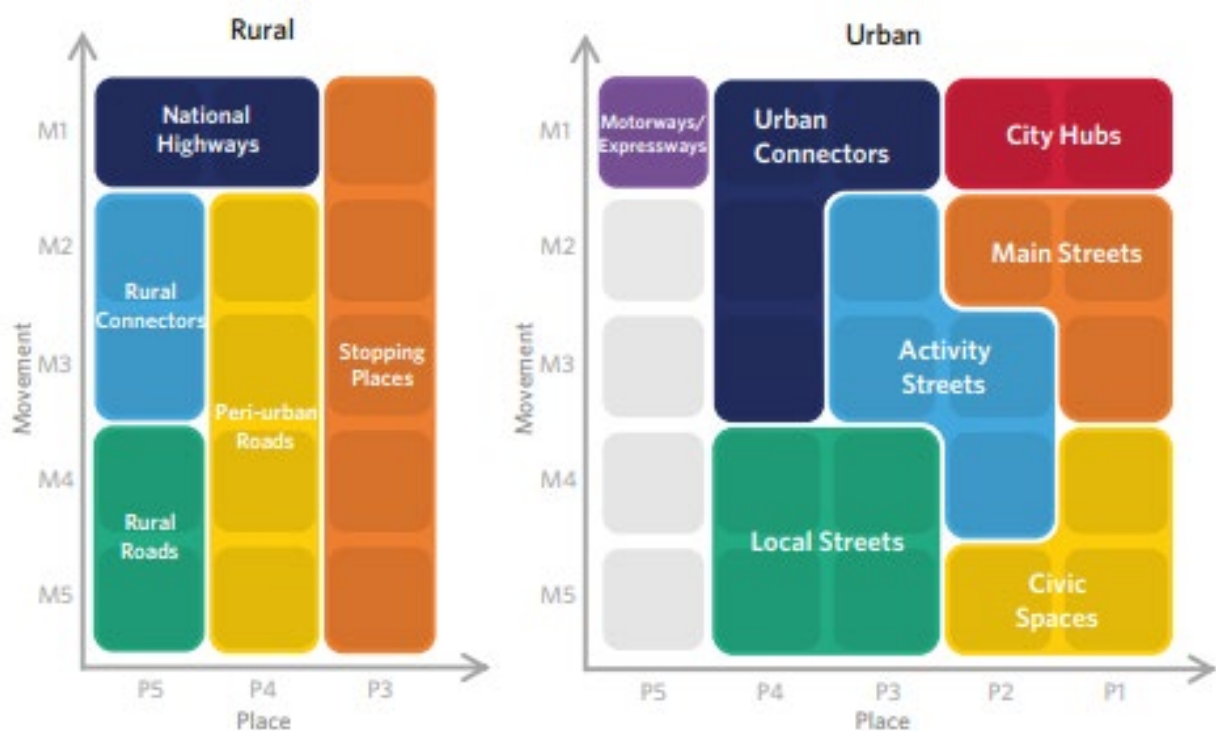


Figure 7-2: One Network Framework Street Families

⁶¹ Stantec, 2020 Road Asset Valuation (2020), Table 4-4

Length of Network

The roading network physical data is contained within the RAMM database. This information is continually updated as roads are resealed or rehabilitated, and new roads are added to the network through subdivision development. CHBDC's sealed and unsealed roading network is summarised in Table 7-6.

Table 7-6: Roading network distribution by pavement type⁶²

Pavement Type	Rural (km)	Urban (km)	Total (km)
Sealed	788.10	68.08	856.18
Unsealed	400.07	1.91	401.98
Major Bridges	5.74	0.13	5.86
Total	1,193.91	70.12	1,264.02

Pavement Components

Road pavements comprise three major asset components:

1. **Formation:** The Formation layer is essentially the natural ground material that the carriageway structure is formed upon. Formation is considered to have an indefinite life and is therefore not depreciated over time.
2. **Pavement Layers (Basecourse and Subbase):** The basecourse is the layer of material immediately beneath the surface layer and it provides load distribution and contributes to the sub-surface drainage. The subbase is the filler between basecourse and the road formation and the primary function of this layer is to provide structural support.
3. **Road Surface (Sealed and Unsealed):** This layer can comprise a variety of materials. The type of pavement surface used generally depends on the traffic volume and mix of traffic using the road (noise, dust, safety and appearance may also be significant factors).

CHBDC's road network is largely Rural (about 95%) and has relatively low traffic volumes. The road network includes the following surface types:

- **Asphaltic Concrete:** Mix of graded aggregate and asphaltic binder laid in a 25 mm – 40 mm layer. This is hard wearing and provides a quiet and smooth running surface. This surface type is limited to urban areas (i.e. high traffic volume roads around Waipukurau) and CHBDC has only less than a kilometre of Asphaltic Concrete roads.
- **Chipseal:** Two layers of sprayed bitumen with stone chips spread on each bitumen layer as a running surface. The life cycle for chipseal surfacing varies dependent on the chip size used (small chip means less bitumen that can be sprayed as the waterproofing membrane) and by traffic volume. In a racked in seal, the binder is applied followed by a relatively light application of the big chip and then a smaller chip is applied that sits between the larger chips. CHBDC has a considerable amount of Racked in Seal surfaces (about 51 km). The construction time required for this surface type is less (approximately 8 hours) comparatively, hence reduces the traffic delays

⁶² Stantec, 2020 Road Asset Valuation (2020), Table 4-2



due to construction works. Having no bitumen exposed to tyres, this reduces the chip pick and flick and minimises the risk of bitumen tracking.

- **Unsealed (Metal Running Course):** About one third of CHBDC roads are unsealed with a graded metal top surface. Unsealed roads are mostly low trafficked and with low loadings. The clay bound wearing courses provides a life span of about five to seven years depending on the traffic volumes and loadings.
- **Other:** CHBDC has a small percentage of roads with other surface types such as dry lock seal, slurry seal and void fill seal.

Asset Value

Table 7-7 and Figure 7-3 to Figure 7-6 indicate the values of these pavement components as at 30 June 2020.

Table 7-7: Value of pavement asset components⁶³

Asset Type		Length (m)	Quantity	Unit	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Formation		1,258,160	11,037,491	m ²	\$364,568,320	\$364,568,320	\$0
Sealed Pavement Layers	Subbase	856,182	1,269,458	m ³	\$75,088,451	\$71,369,828	\$136,266
	Basecourse	856,182	591,920	m ³	\$45,932,991	\$27,068,340	\$717,139
	First Coat Seals	856,182	5,029,391	m ²	\$29,824,288	\$17,737,743	\$466,753
	Subtotal	856,182	6,890,769		\$150,845,729	\$116,175,912	\$1,320,158
Sealed Pavement Surfaces	AC	878	7,391	m ²	\$267,635	\$67,162	\$16,103
	Chipseals	849,038	4,977,992	m ²	\$19,459,171	\$6,910,641	\$1,446,704
	FC Seals Top Surface	6,238	43,804	m ²	\$0	\$0	\$0
	Interlocking Blocks	28	204	m ²	\$22,507	\$9,395	\$900
	Subtotal	856,182	5,029,391		\$19,749,314	\$6,987,198	\$1,463,707
Unsealed Pavement Layers	Subbase	401,978	473,606	m ³	\$28,016,278	\$28,016,278	\$0
	Wearing Course	401,978	59,201	m ³	\$3,038,185	\$907,406	\$483,298
	Subtotal	401,978	532,807		\$31,054,463	\$28,923,684	\$483,298
TOTAL					\$566,217,825	\$516,655,114	\$3,267,163

⁶³ Stantec, 2020 Road Asset Valuation (2020), 13-16

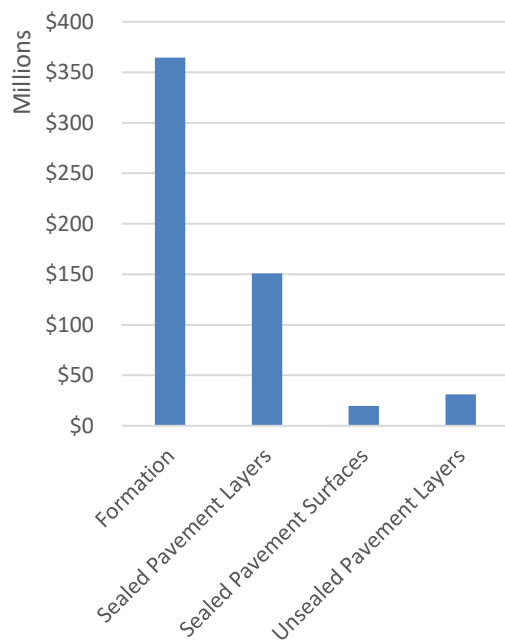


Figure 7-3: Pavement replacement cost by asset type

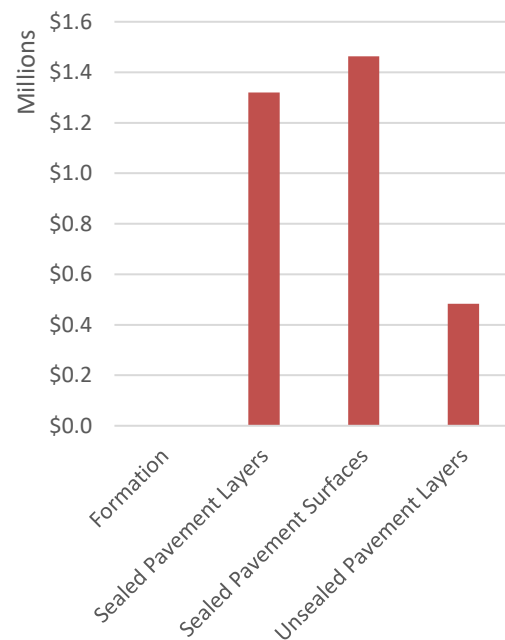


Figure 7-4: Pavement annual depreciation by asset type

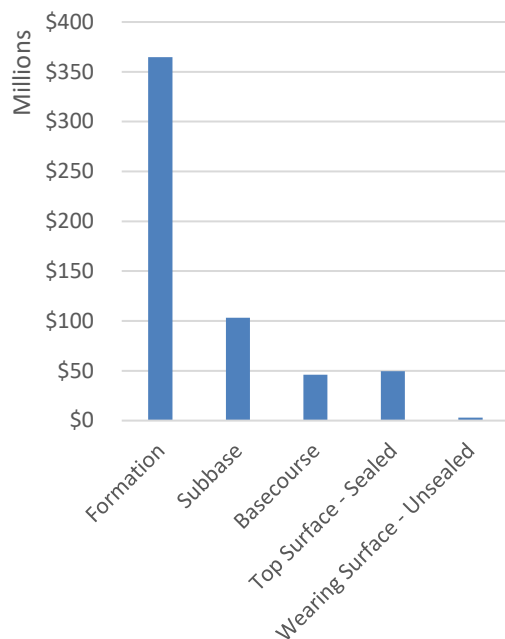


Figure 7-5: Pavement replacement cost by pavement component

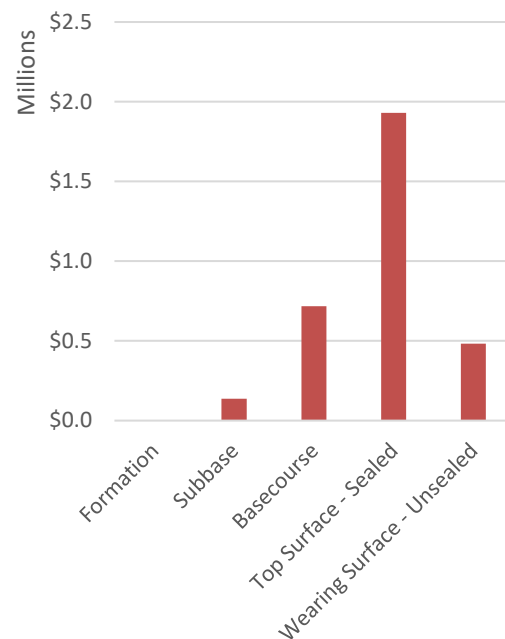


Figure 7-6: Pavement annual depreciation by pavement component

The pavement asset group accounts for 67% of the total replacement costs for the land transport activity but 46% for the annual depreciation. Formation accounts for 43% of the total replacement cost for the land transport activity, and 64% of the replacement cost of the pavements group. Formation is non-depreciable, as it has an indefinite useful life. The replacement cost of the road surface (sealed and unsealed) accounts for about 9% of the

replacement cost for the pavements group, however it contributes to 60% of Annual Depreciation. This is due to its shorter useful lives compared to road pavement layers.

Asset Age

Figure 7-7 and Figure 7-8 indicate that both pavement layers and pavement surfaces are nearing the end of their useful life, with a minimum remaining useful life of five years and one year respectively. Availability of asset age may have an impact on these comparisons. Most of the data is for layers recently added. Surface date is available for all the surfaces recorded in RAMM.

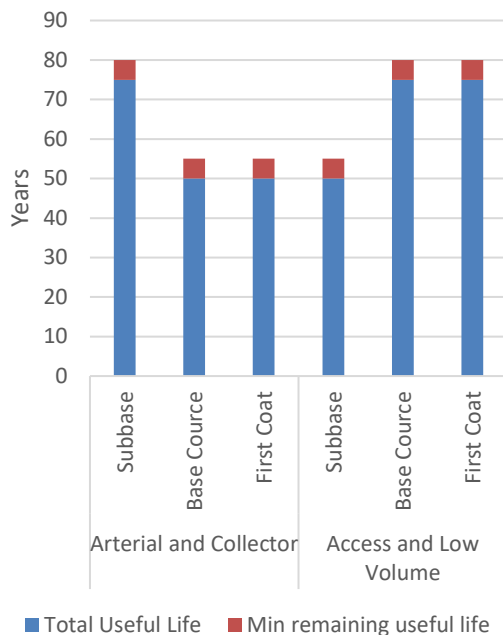


Figure 7-7: Total useful life and minimum remaining useful life of pavement layers

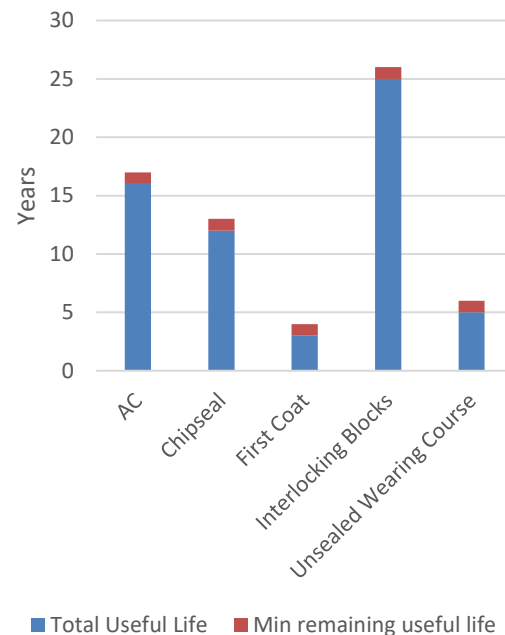


Figure 7-8: Total useful life and minimum remaining useful life of pavement surfaces

Asset Condition

Pavement condition is measured via the RAMM Rating Survey and Roughness Survey. Physical faults are continuously recorded over a representative portion of the carriageway. Capturing condition at any one time is complex because of the constant wear, and for comparative purposes it is more meaningful to chart the trends from year to year.

Condition Rating

The sealed roading network previously has been “Visually Condition Rated” annually on the following basis:

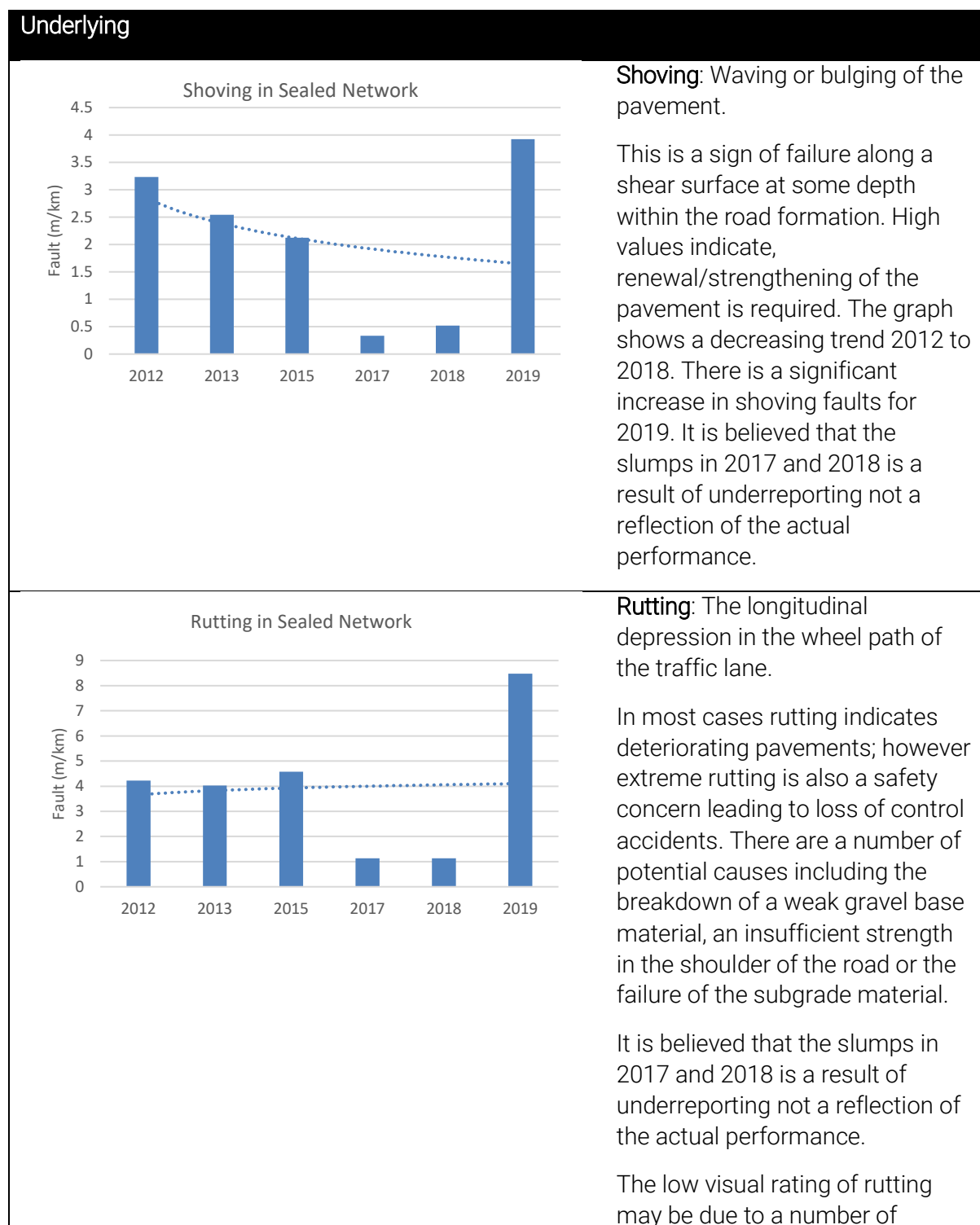
- 10% of high-volume roads (ADT > 500) annually
- Low volume roads (ADT < 500) one third of the entire length each year

A full network survey was completed to include all low volume roads in 2008, 2010, 2013, 2015, 2017 and 2019. For the purpose of accessing Asset Condition of the network the high-volume roads were selected under the following classifications: -

- Arterial
- Primary Collector; and
- Secondary Collector

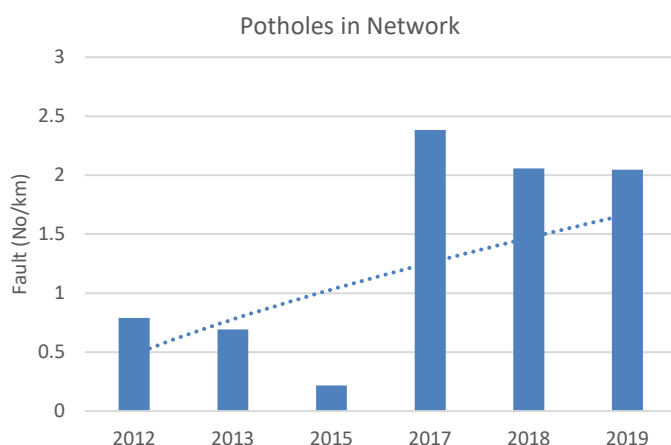
Condition rating involves visually inspecting 10% of the high-volume road network at regular intervals, with the rating process identifying types of pavement and surface faults as listed below. Table 7-8, Table 7-9, and Table 7-10 show the historical trends by fault type.

Table 7-8: Underlying pavement faults trend



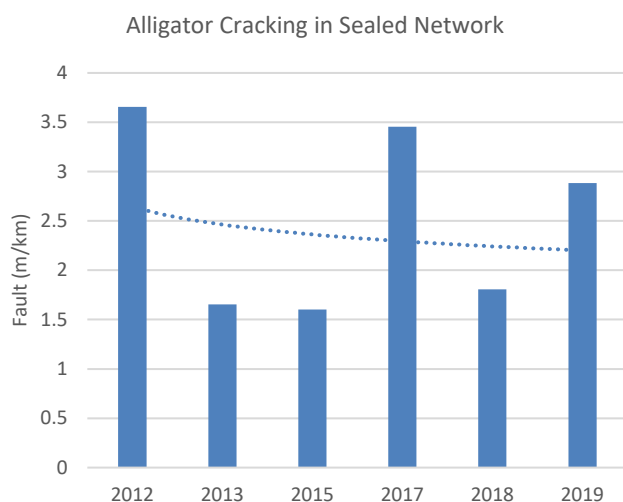
Underlying

reasons as rutting may be identified as edgebreak, shear failure, deformation and depression (subsidence) rather than rutting. This will require further investigation.



Pothole: A hole in the pavement, resulting from loss of pavement material caused by the action of traffic and in some cases insufficient camber.

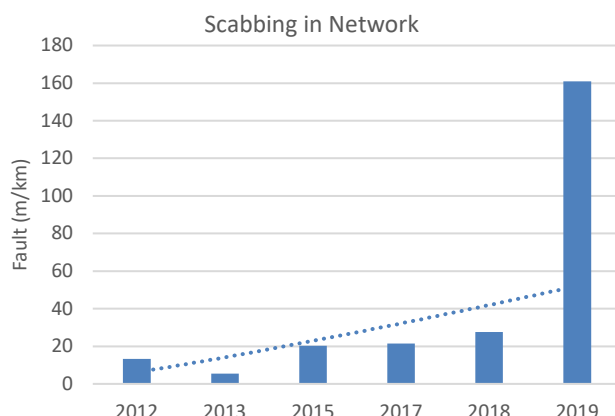
This is one of the indicators of a resealing requirement. The graph shows a slight increase trend of number of potholes through to 2017 which has slightly reduced since. Potholes have increased despite increased investment in repair work. The increase in potholes and subsequent expenditure is largely related to logging haulage. There is an intent to shift from reactive to proactive pavement maintenance to manage temporary repair costs.



Cracking: The appearance in the road surface of small, regular, or irregular shaped continuous cracked areas. Cracking includes alligator (or chicken wire) cracking, block cracking, reflective cracking, longitudinal and transverse cracking, shrinkage cracking and slippage cracking. Cracking occurs when pavements are subjected to repeated loadings causing flexing and ultimately cracking. The increase in Alligator cracking from 2015 most probably reflects the growth in heavy vehicle and traffic loading.

Table 7-9: Surface faults trends

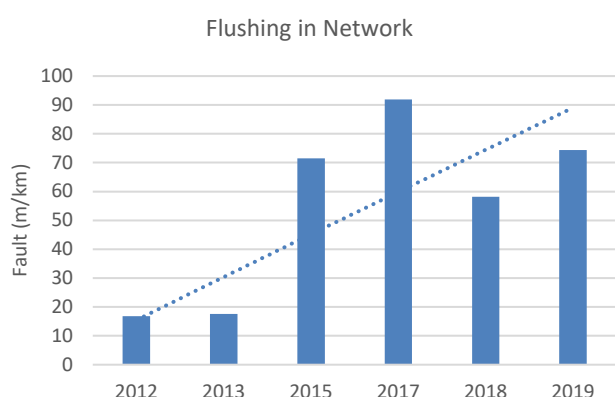
Surface



Scabbing: The progressive loss of chip from a chipseal, often in patches.

Can be exacerbated by cold weather and the action of increased traffic. Mostly scabbing will occur through poor construction technique, methodology or programming. This can be due to poor compaction, low binder application, rain within the first few days of the sealing.

Other factors such as traffic travelling too fast over the new seal, dirty or poor graded chip or aging of the seal. The graph indicates an increasing trend of scabbing after 2013, which can be attributed to the increase in heavy vehicle and traffic loading combined with the age of some of the seals. There is a significant increase in Scabbing in 2019.



Flushing: A pavement surface defect in which the binder is near or above the uppermost surface of aggregate particles.

Flushing can occur due to excess binder used during sealing, hot weather causing the binder to melt or surface chips getting pushed down by traffic into a softened basecourse.

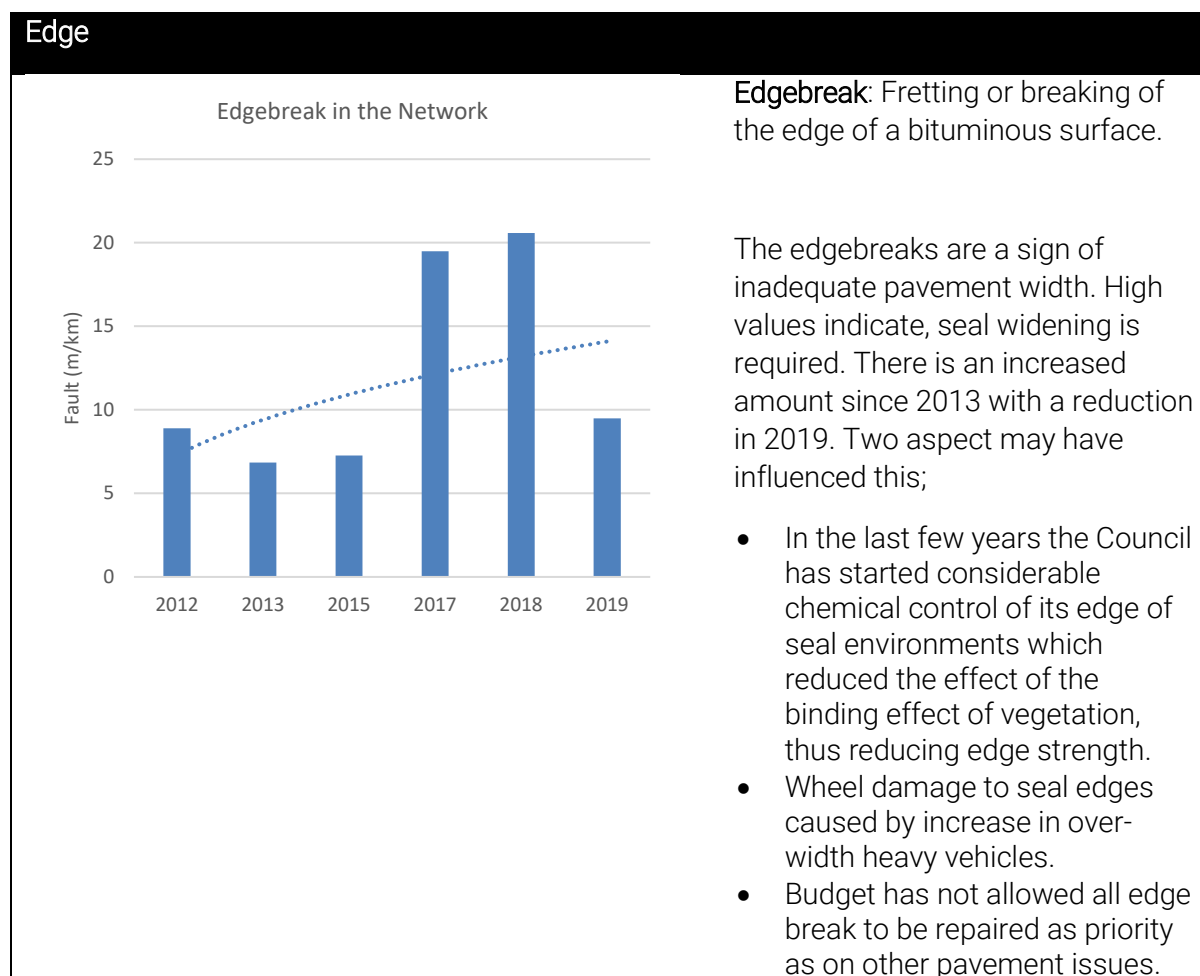
Flushing will occur through poor construction technique and methodology and programming. This can be due high binder application, insufficient compaction of the basecourse layer and rain within the first few days of the sealing. The graph indicates an increasing trend of Flushing after



2013, which can be attributed to the increase in heavy vehicle and traffic loading.

Flushing also reflects multiple seal layers are present within some of the network.

Table 7-10: Edge fault trends



Roughness

All sealed roads are measured for roughness on the same frequency as the condition rating. All of this data is entered into the RAMM database. Road roughness as defined in terms of the National Association of Australian State Roading Authority (NAASRA) roughness counts that can be used as a comparable indicator of road condition and performance. These counts are measured by either a laser profilometer or standard response meter (CHBDC historically had used this method).

Figure 7-9 shows the average roughness per road category and year surveyed as well as the lane length surveyed each year.

Prior to 2008 predominantly only full surveys were undertaken. Full surveys were carried out in 2008, 2010, 2017 and 2019. The year's in-between had part surveys carried out, however all High Traffic volume roads were surveyed each year.

Some variability in those years that were part surveyed is apparent and Figure 7-10 gives a more realistic view especially when comparing trend results that are showing in the visual condition graphs.

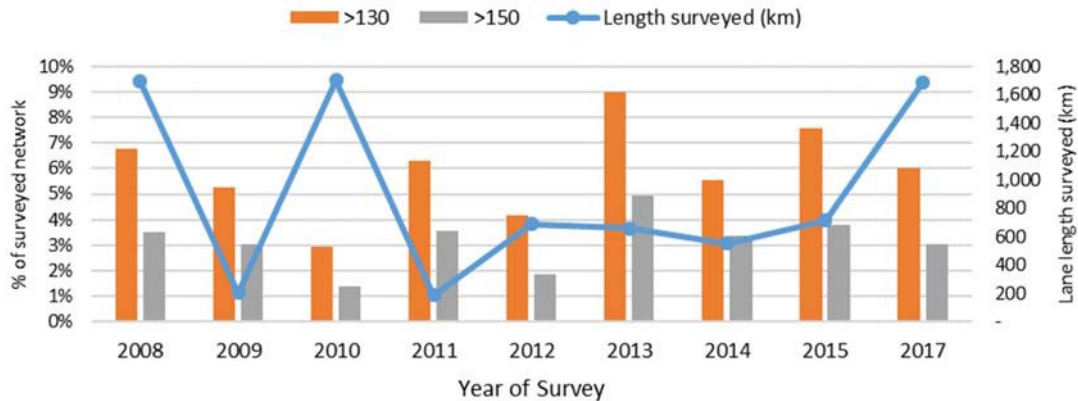


Figure 7-9: Historic road roughness

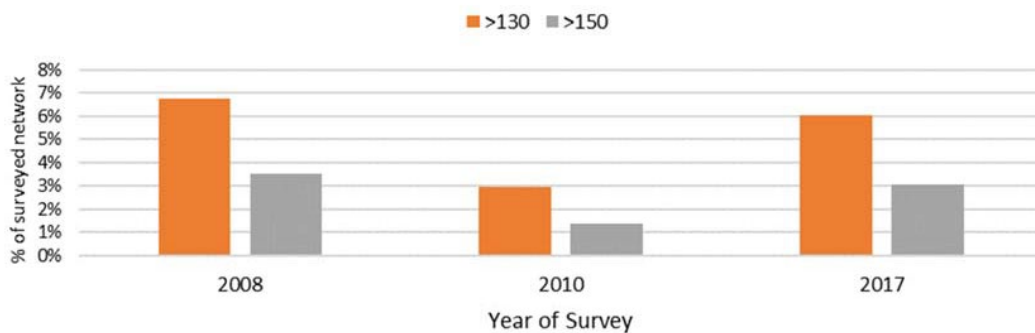


Figure 7-10: Historic Road Roughness

Figure 7-11 and Figure 7-12 show the cumulative roughness distribution by road category for 2017 survey. It is worth noting that the Arterial and Primary Collector ONRC classified roads have not met their respective ONRC target of returning 95% of their length with less than 100 NAASRA counts.

The roads for both these classifications are part of the State Highway and CBD By- Pass routes through the Waipukurau township and therefore subjected to extremely high traffic volume and traffic loading requirements.

Figure 7-12 indicates the percentage of road network above 90 NAASRA. Excluding Arterial and Primary Collector classifications 90% of the network is below 130 NAASRA average and 95% of the network is below 150 NAASRA average.

Figure 7-12 shows ONRC target on Secondary Collector Rural was reached with 95% of the network with Roughness less than 130. Figure 7-12 also shows ONRC target for Access (Urban and Rural) was reached with 95% of network with Roughness less than 150. In addition, Figure 7-12 shows ONRC target for Low Volume Rural was reached with 95% of network with Roughness less than 180.

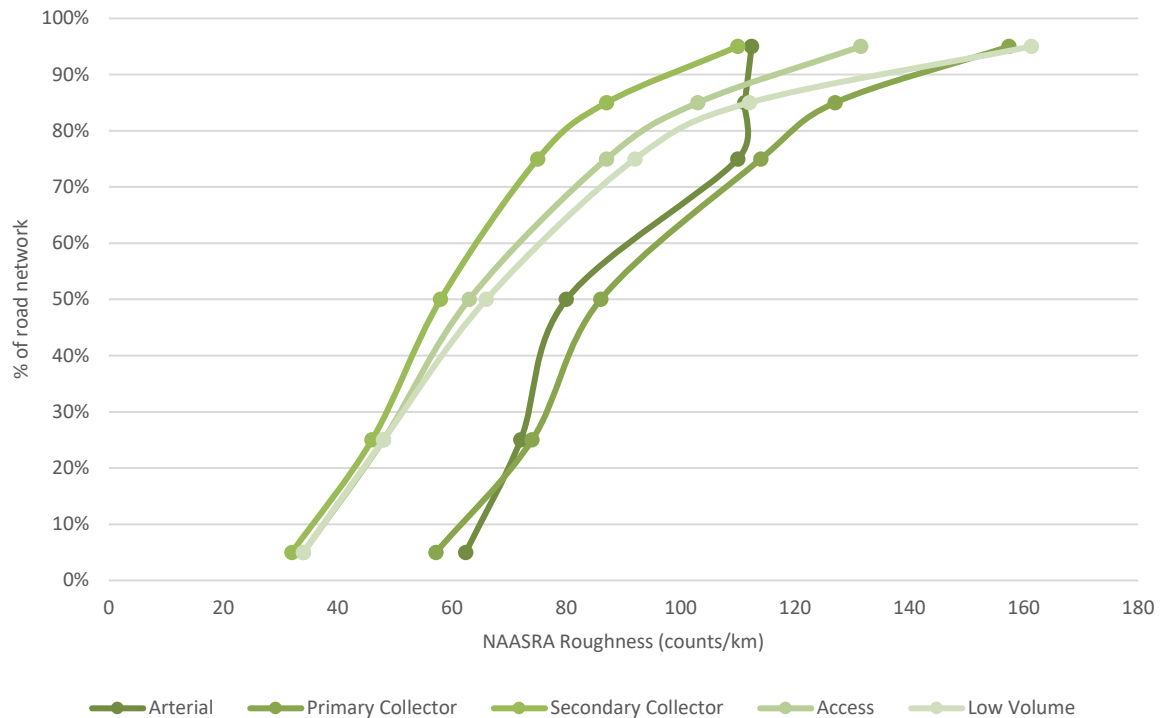


Figure 7-11: Cumulative roughness distribution (2019 survey)

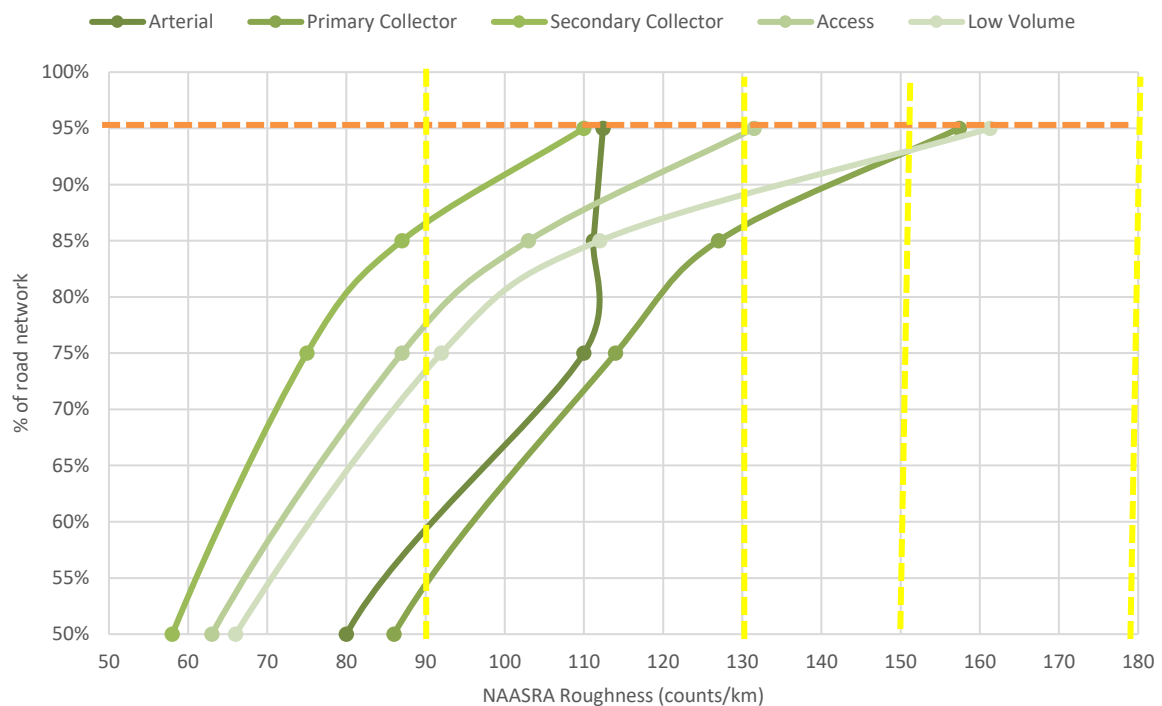


Figure 7-12: Cumulative roughness distribution 2019 survey (roughness > 90 NAASRA)

Asset Performance

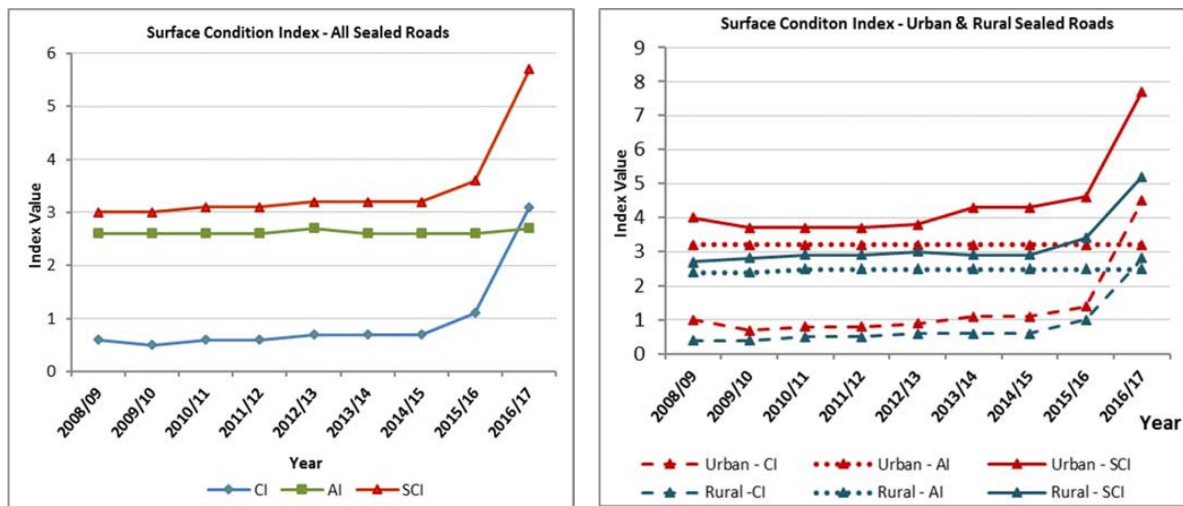
Waka Kotahi has introduced KPI's called Surface Condition Index (SCI), Pavement Integrity Index (PII) and Smooth Travel Exposure (STE) which are based on visual condition rating and roughness survey outputs.

SCI is a composite index that describes the network surface condition and allows easy comparison of historical and future surface conditions. This has two key components:

- The Condition Index (CI) is a 'weighted sum' of the surface faults in sealed road surfaces. It combines alligator cracking, scabbing, potholes, pothole patches, flushing and is based on RAMM condition rating data.
- The Age Factor Index (AI) of the surface is based on surfacing remaining life held in RAMM.

The SCI is used to trigger resurfacing or reseal treatments. Figure 7-13 indicates a significant drop in CI from 2008/09 onwards and a steep climb from 2015/15 through 2016/17. According to SCI values, Rural road network is in a better condition than Urban roads. The steep increase between 2015/16 and 2016/17 is due to increase in Flushing and the change in traffic profile with the log harvesting as shown in the visual condition rating graphs. CHBDC's will need to target the network where log harvesting is compromising SCI targets to flatten out trendlines.

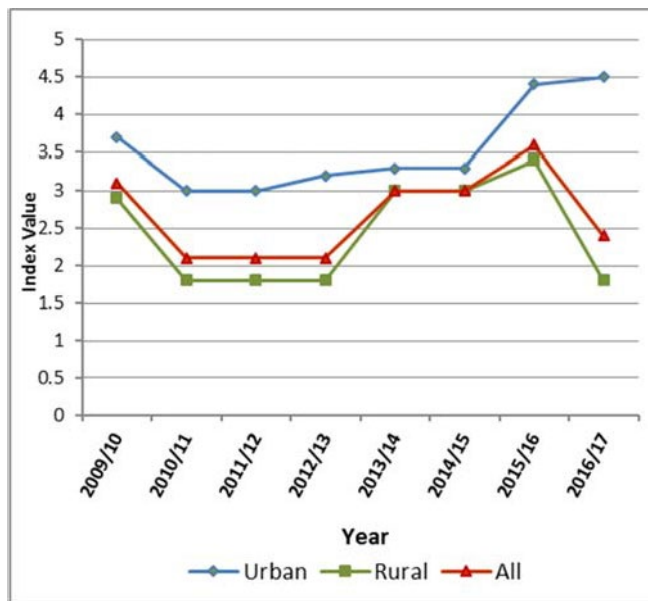
Figure 7-13: Surface condition index



PII is a combined index of pavement faults in sealed road surfaces. It is a "weighted sum" of the pavement defects divided by the total lane length. It combines surface faults from SCI with rutting and shoving.

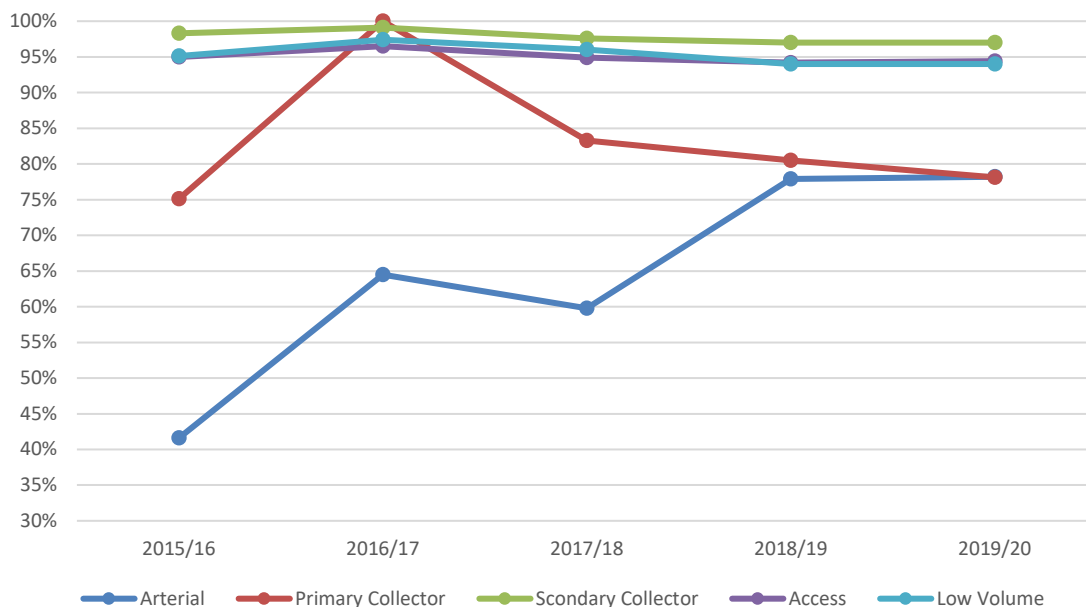
CHBDC's target is to maintain PII within a range of 1 – 2. Figure 7-14 indicates a decreasing trend for Shoving and Rutting after 2006. However, the reduction from 2015/16 is not easy to analyse as an increasing trendline would be expected when considering the SCI, roughness and condition rating trends. Further investigation is required to check the veracity of the data by desktop and field validation to understand whether the pavement rehabilitation needs are being met.

Figure 7-14: Pavement integrity index



STE is defined as the proportion of vehicle kilometres travelled each year on roads with condition above the targeted conditions for those roads. An increase in STE means that fewer vehicles are travelling on roads above the target roughness. For the purpose of the Waka Kotahi reviews, the target roughness is generally taken as 150 NAASRA. A roughness greater than 150 NAASRA usually indicates poor road condition.

Figure 7-15: Smooth travel exposure



Road Safety

Road safety is a key levels of service measure for CHBDC. The Council intends to maintain a reducing trend in the annual number of fatalities and serious injuries where road factors were a contributing factor (refer section 3: Levels of Service).

The figures below set out the number of minor, severe and fatal injuries on CHBDC roads for the 10-year period 2010 to 2019. Figure 7-16 indicates the accidents due to any reason (i.e. human errors, vehicle faults, road defects, etc.) while Figure 7-17 indicates the accidents where the road is listed as one of the causes.

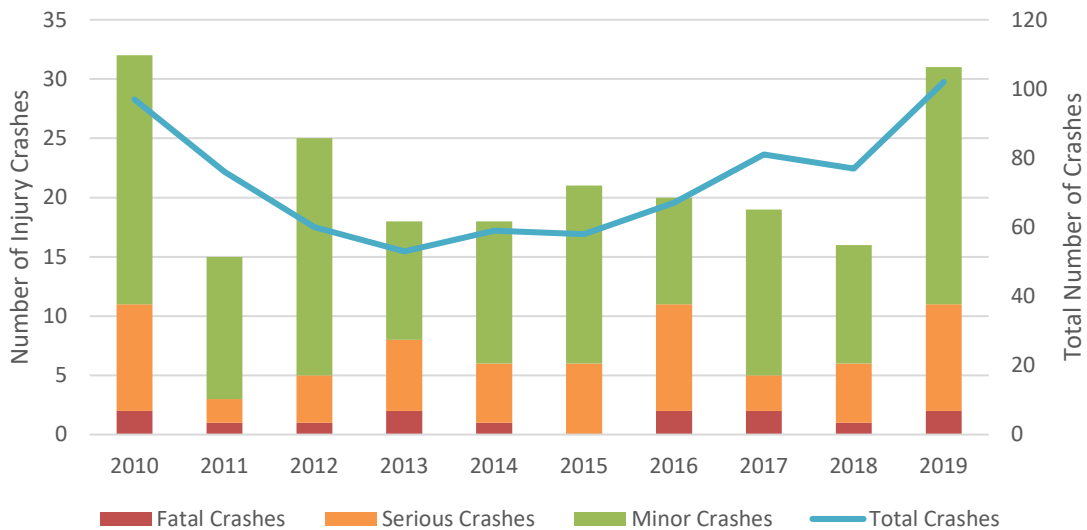


Figure 7-16: Total accidents and injuries in CHBDC area for the 10-year period 2010 – 2019

Figure 7-18 provides a breakdown of the cause for accidents where the road is listed as one of the causes of the accident. Over the data period “Wet Surface” (which includes rain, oil, mud, ice and other) caused the most accidents (13). This is followed by “Surface Condition” (8 accidents) and “Road Condition” and “Visibility Limited” (5 accidents). Injury crashes caused by road related issues have been relatively steady since 2010. However, total number of crashes caused by road related issues has begun to increase, although this is likely a function of the overall increase in crashes.

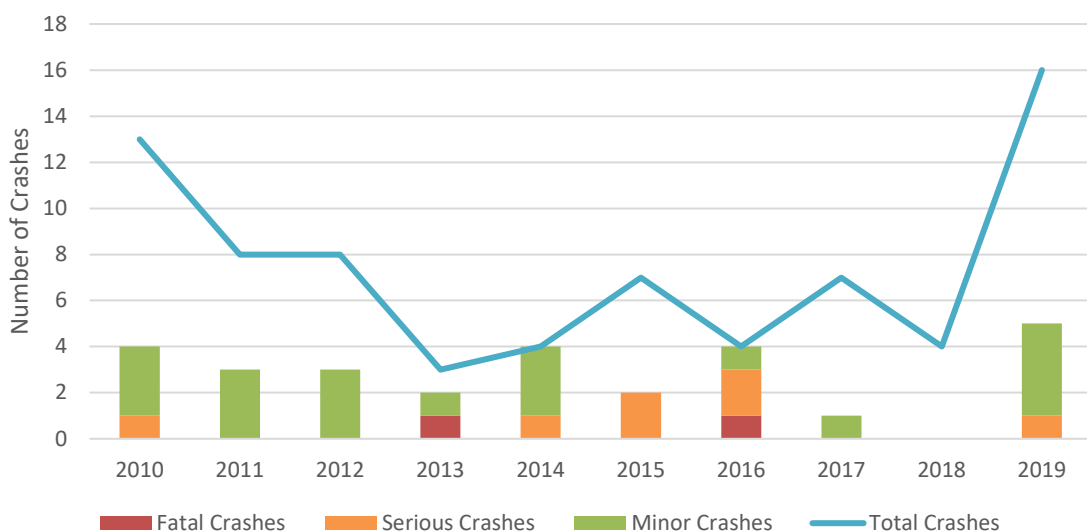


Figure 7-17: Accidents and injuries in CHBDC where the road is listed as one of the causes⁶⁴

⁶⁴ Source: Waka Kotahi Crash Analysis System (CAS) - highways assumed as Waka Kotahi responsibility and excluded)

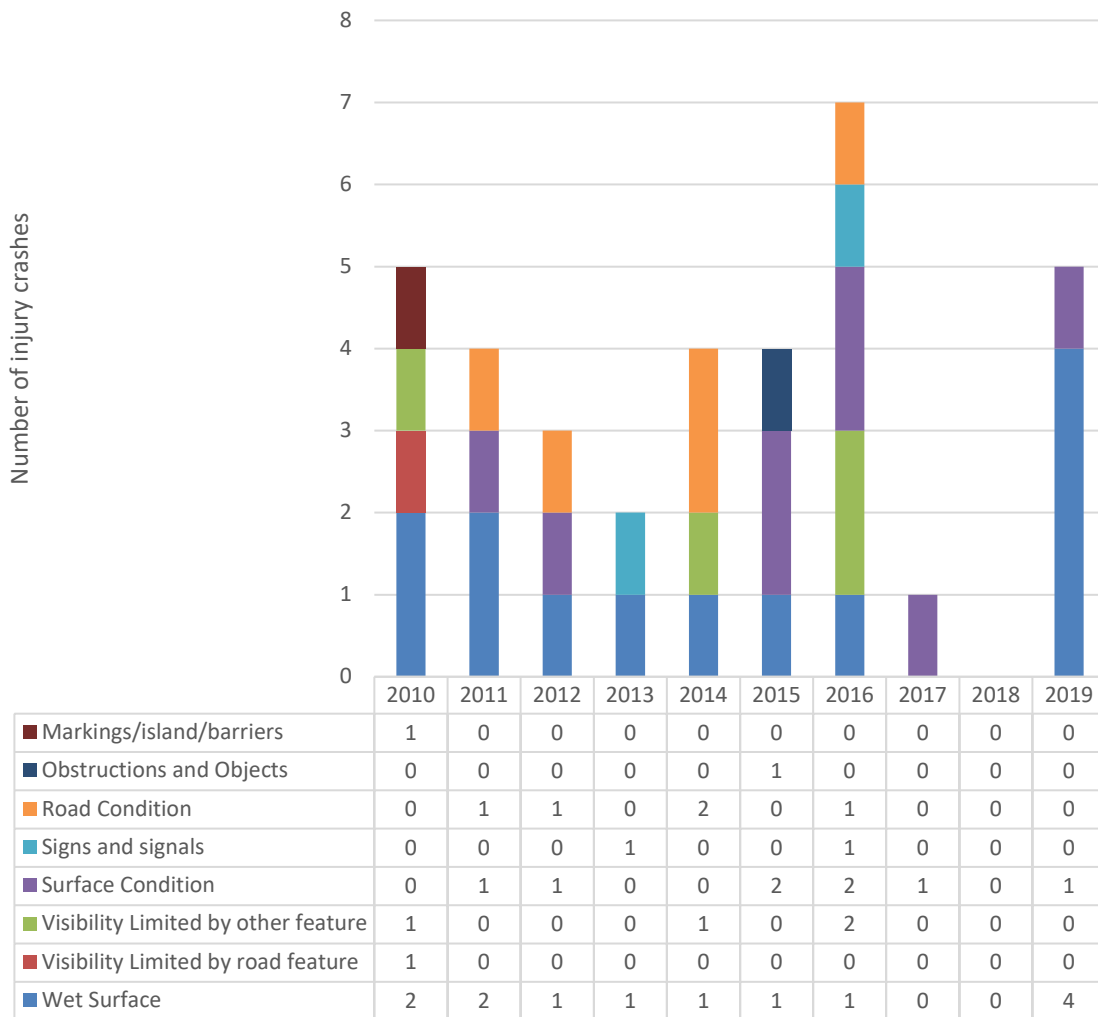


Figure 7-18: Injury causing crashes due to road conditions by contributory causes⁶⁵

Asset Capacity

Asset capacity is linked to three factors:

- Traffic volume
- Loading
- Pavement depth and Wearing Course (for unsealed roads)

Traffic volume relates to the space being consumed whereas loading relates to the amount of wear on the carriageway.

The ability of the carriageway to carry design capacity is related to width, which impacts on safety. Analysis of the RAMM database indicates a considerable length of the roading network is under width compared to the design standard adopted to date. Therefore, Council may choose to review its design standards and levels of service delivery in terms of road width design, Annual Daily Traffic (ADT) classification and the available funding levels.

⁶⁵ Source: Waka Kotahi Crash Analysis System (CAS) - highways assumed as Waka Kotahi responsibility and excluded)

Typically, where the unsealed pavements are lowly trafficked (< 100 ADT) and loadings are low (< 4% heavy vehicles) the application of the wearing course works well. Where volumes are high, and loadings start to exceed 4% heavy vehicles the unsealed pavements require higher levels of maintenance.

The clay bound wearing courses are providing between 5-7 years of life dependent on the volumes and loadings.

12.3.5 Operations and Maintenance Plan

The overall Life Cycle Management Plan Objective for pavement maintenance is:

Sealed Pavements: *To maintain the network through continued pavement maintenance programming and approval based on the Maintenance Intervention Strategy, to ensure the efficient and economic allocation of maintenance funds.*

Unsealed Pavements: *Undertake a practice of running/wearing course application based on a rate of loss of 10mm per year to protect against loss of basecourse material leading to asset consumption. Undertake a practise of performance grading determined by need based on past experience, environmental condition, moisture and weather patterns.*

CHBDC is committed to achieve these objectives by providing scheduling and approving pavement maintenance work to:

- ensure that pavement treatments (i.e. repair of failed pavement) are well planned and co-ordinated with regard to type of work, timing and location so as to optimise the use of available funds and hence the performance of the pavements
- Reflecting good pavement management practice, against which actual achievement can be measured and controlled
- Provide guidance on treating and understanding the mechanism of failure and treating the cause rather than the symptom. The right treatment selected reflects the standards to match the road classification / whole of life requirements.
- To maintain the integrity of the pavement and surfacing as the appropriate treatment is applied, rather than the easiest and most commercial advantageous treatment which in most cases does not treat the cause but only the symptom.

CHBDC's Maintenance Intervention Strategy, sets out the guidelines for all pavement maintenance activities including justifying preventive verses reactive maintenance, determining the right treatment and timing to suit with the seasonal changes.

Sealed Pavement Maintenance

The Routine Maintenance Plan (RMP) is based on information and knowledge at the time of preparation. The volumes of work determined are calculated from knowledge in the roading industry and the input of local knowledge and experience.

As more knowledge is gained and recorded, the trends in amount of work required will become apparent, and combined with an assessment of the levels of service being provided, more accurate projections of work requirements can be defined.

The RMP relies upon the Maintenance Intervention Strategy which contains decision processes for identifying service level failures and the right treatments. These decision processes drive the quantum of routine maintenance completed on the network and ensure an economic approach to routine maintenance expenditure.

In compiling the original Pavement Management Strategies, it was identified that increased output levels in some roading maintenance areas were needed to bring the cycle of maintenance up to a sustainable level.

Previous investment by Council has seen the pavement reconstruction backlog reduced through increases in sealed road rebuilding, water tabling, flanking and unsealed pavement rebuilds. This investment, particularly in reseals, has seen a reduction in the amount of rehabilitation now required to sustain the network.

CHBDC's intended level of annual pavement renewal is 6-8 km (according to Forward Work Programme). The current level of investment is considered adequate to maintain the current condition of the roading assets and so long as this is sustainable then the risk of any future accumulation of deferred maintenance is considered to be low.

The key objective is to achieve network condition in line with the levels of service established in Section 4. This will be achieved by appropriate maintenance levels and timely pavement renewal and resurfacing.

Storms and Other Events

The level of maintenance described in this Maintenance Plan is adequate for normal climatic events in Central Hawke's Bay. Large storm events, typically five yearly, cause damage to the roading network through flooding, slipping and subsidence. Summer shrinkage of clay subgrades in the eastern areas of the network has led to pavement deformation. It is possible that major earthquakes could damage roads and bridges.

The remedial works required after such events will be assessed at the time, and the funding for repairs will be met from adverse events funds and catastrophic events funds held by Council, combined with subsidy money from Waka Kotahi.

Unsealed Pavement Maintenance

Grading of unsealed roads is very much an art rather than a science. The application of deterioration modelling to such a changing environment is difficult and would be uneconomical at this stage of development.

The frequency of maintenance grading had historically been targeted at is 3,200 km per annum, but with the implemented metalling (wearing course) strategies in conjunction with the unsealed rebuild programme reduced the need for reactive grading maintenance to a length of 2,500 km. The length graded in 2019/20 was 2,198 km and the scheduled length for 2020/21 is approx. 3,400 km. it should be noted that future maintenance grading may increase to maintain levels of service and is based on a programme which may not be done if the road is within levels of service at the time of the cyclic grade. This will be monitored to ensure attrition of the unsealed road does not increase due to over grading.

12.3.6 Renewal Plan

Pavement renewal activities include:

- Sealed road surfacing: maintain a waterproof and skid-resistant road surface
- Pavement reconstruction: repair the faults in a failing road by excavating the old one reconstructing it back to new condition.
- Pavement rehabilitation: repair the faults in a failing road by building a new road over the top of the old one, using the old one as a base.



- Unsealed road metalling includes the application of running and base course metal to strengthen unsealed roads.

Sealed Road Resurfacing

The Lifecycle Management Plan objective for Sealed Road Resurfacing is:

To maintain a waterproof pavement through regular renewal of the top surface based on need and condition and to ensure that the expected life of the surface is realised

CHBDC has been continuously improving its forward work programme for resurfacing. As a result, CHBDC has reduced its annual resealing length over the years. Currently annual road resurfacing target is about 56 km at an average cost of \$1.3M.

The current resealing programme is considered sufficient to limit the risk of resurfacing sites becoming badly deteriorated to a point where rehabilitation is required at substantially increased costs.

Surfacing Renewal Decision Process

The renewal decision process is outlined below. Timing is dependent on the severity of one or all of these factors.

- a. Identify failure modes, including the following:
 - Cracking
 - Shallow shear – due to unstable surfacing layers. These are generally areas that have 3 or more seal layers.
 - Flushing – current service levels are defined as continuous “SLICK” patch of 10 m in corners or on approach to intersections and 15 m on straights.
- b. Review condition indicators
 - Age – dependent of surface type and loading. Grade 5 chip seal irrespective of hierarchy will have a life no greater than 6 years.
 - Pavement loading – traffic volumes and movement types (e.g. urban intersections experience a large amount of turning movement)
 - Underlying surface layers – number of underlying surface layers and condition of underlying surfaces prior to sealing
 - Council may consider a collection of high-speed texture data.
- c. Assess economic indicators – increasing maintenance costs, shortening surface lives.
- d. Waterproofing aids in protecting portions of the sealed network where aggregate pavement layers have a high silt / Optimum Moisture Content (OMC) ratio from gravels sourced from local quarry sources verses those of alluvial river gravels. There is a greater chance of pavement failure where OMC ratios are exceeded in silt-based aggregates verses alluvial aggregates.
- e. Understand Levels of Service and appropriate intervention levels for road classification.

12.3.7 Forward Work Programme

Resealing of Sealed Roads

The confident level of CHBDC's FWP for sealed road resurfacing is “High”. Table 7-11 summarises the inputs and outputs of the programme.



Table 7-11: Forward work programme process - resealing of sealed roads

Inputs	Outputs
<ul style="list-style-type: none"> • 2017 GHD dTIMS modelling output: This has a limited value and accuracy level is around 75%. • Treatment Selection Algorithm (TSA): This is a built-in algorithm in RAMM which provides treatment information for two years • Carry over from previous year FWP: Previous year FWP recorded in RAMM NOMAD programme is exported to develop the FWP. • Priority 1, 2, 3 maintenance inspections: Resealing requirements identify during maintenance inspections are fed into the pavement rehabilitation programme. • Historical maintenance costs from RAMM • Roughness survey information (NAASRA values): Road roughness is detailed in Section 6.2.4. • Condition survey information: Rutting, shoving, potholes and cracking (these are detailed in Section 7.3.4) • Road usage: Traffic counts, loading data, logging roads (expected road usage) • Road hierarchy • Validation (timing of work) with utility projects • Local knowledge • Site validation: FWP developed based on above information is site validated. This helps to incorporate local knowledge and integrate the pavement rehabilitation programme with planned utility projects. 	<ul style="list-style-type: none"> • Pre reseal repairing and drainage requirements • 10-year resurfacing programme

Pavement Rehabilitation

The Lifecycle Management Plan objective for Pavement Renewal is:

To undertake pavement maintenance renewal work on a whole of life cycle cost basis determined by condition and economic need

CHBDC has a confident and robust approach for developing pavement rehabilitation 10-year FWP. In the recent past, on average CHBDC rehabilitates about 1.4 km of road pavements annually at a cost of approximately \$1.9 M. This approach is currently being reviewed with the dTIMS initiative.

Levels of fault will be monitored and compared to the renewal programme to ensure that the residual life of the pavement at network level is not being consumed. Forward Work Programme need to be justified in terms of Waka Kotahi and Council funding policy, including having a positive Net Present Value (NPV) over a period of 25 years. Table 7-12 summarises the inputs and outputs of FWP.



Table 7-12: Forward work programme process - pavement rehabilitation

Inputs	Outputs
<ul style="list-style-type: none"> • 2010 Opus dTIMS modelling output: This has a limited value and accuracy level is around 50%. • Carry over from previous year FWP: Previous year FWP recorded in RAMM NOMAD programme is exported to develop the FWP. • Priority 1, 2, 3 maintenance inspections: Pavement rehabilitation requirements identify during maintenance inspections are fed into the pavement rehabilitation programme. • Roughness survey information (NAASRA values): Road roughness is detailed in Section 6.2.4. • Condition survey information: Rutting, shoving, potholes and cracking (these are detailed in Section 6.2.4. • Pavement strength information or at the least pavement layer knowledge at the time of digout repairs, culvert installations and pothole investigations. • Road usage: Traffic counts, loading data, logging roads (expected road usage) • Road hierarchy • Site validation: FWP developed based on above information is site validated. This helps to incorporate local knowledge and integrate the pavement rehabilitation programme with planned utility projects. 	<ul style="list-style-type: none"> • Tree removal identification • Project Feasibility Report • NPV

Pavement Rehabilitation Renewal Decision Process

The renewal decision process is outlined below and relies on number of engineering inputs inclusive of the long-term pavement performance modelling.

- a. Identify failure modes, including the following:
 - Potholing
 - Cracking – pumping fines and loss of shape
 - Shoving in top pavement layers
 - Rutting – this is not a big driver but there is some isolated deep rutting on the network, generally on Arterial and Distributor roads, so this is associated with higher traffic loadings
 - Road under width
 - Subsidence areas (weak subgrade or slope instability)
- b. Review condition indicators – roughness
- c. Assess economic indicators – maintenance costs
- d. Dependent on treatment type, justification for treatment is based on benefits from travel time savings, roughness reduction and accident savings. These are considered at the time of treatment justification.
- e. Understand Levels of Service and appropriate intervention levels for road classification.
- f. Meeting the requirements for Waka Kotahi to secure approval and funding.

In all cases, the requested expenditure needs to be approved by Council. This is an iterative process and Council are informed each year of the programme status, the amount of funding required and the impacts of not funding to the requested amount on the levels of service.

Renewal Plan for Unsealed Roads

The overall Lifecycle Management Plan objective for Unsealed Pavement Renewal is:

Through regular investigation of the pavement depths on the unsealed network, develop a programme of unsealed metal rebuilds on a priority basis to protect against asset consumption.

To undertake a practice of running/wearing course application based on a rate of loss of 10 mm per year to protect against loss of basecourse material leading to asset consumption.

Unsealed Road Metalling

Maintenance metalling is the replacing of lost wearing course (WC) / base course (BC) through the life of the unsealed pavement and is not to be confused with the application of running course used for the protection of the WC/BC pavement layer. Wearing course is a clay bound, aggregate material mixed to a specific grading envelope. It is placed and compacted in a minimum 50 mm layer and acts the same as a seal coat acts on sealed roads, protecting and waterproofing the BC. Unsealed road metalling sometimes uses aggregates from local quarries that have high clay bound materials that are sensitive to moisture that can turn slushy in wet conditions. In these instances, it is recommended that a low-grade sealing chip be used to address this issue. Unsealed road metalling techniques are currently being reviewed to understand how materials and maintenance methods impact on dust pollution. A change in methods including grading frequency, potholing pavements over grading and renewal materials. This has been incorporated into the business case and dust study applied for in this programme.

The national "Rule of Thumb" for WC loss equates to 10 mm of depth per year. Based on this average a 5-7-year return cycle is anticipated, where a minimum 50 mm layer will be placed on each return.

Previously the FWP had included 60 km of WC application per year. This was based on applying 95 mm depth for roads with an average width of 7 m. Therefore, the target length per year is 30 km of road metalling and an increased return life cycle of 8 years. The 30 km equates to approximately 20,000 m³ volume of wearing course per annum, however due to funding constraints and re-prioritisation of funds only 7,000m³ has been achieved in recent years. This has not resulted in significant failure of unsealed roads; however, an intervention strategy is being implemented within the physical works contracts to ensure the unsealed pavements are not consumed. This will include test pitting where required to monitor pavement depths. As part of understanding low-cost methods to recycle materials, reduce cost and mitigate dust issues, CHBDC aims to undertake various trials as part of the dust study to bind up pavements such as AC millings.

It is imperative that the current unsealed road metalling regime is continued to protect the unsealed asset from further deterioration.



Unsealed Pavement Rehabilitation

For unsealed pavements, rehabilitation takes the form of road rebuilds. Recently 8-12 km of unsealed road has been rebuilt each year. This target may change based on funding constraints.

Traction seals will be carried out where they meet the criteria of being the least cost maintenance option (having positive Net Present Value over 25 years). These sections are typically in mountainous terrain with regular movement of stock trucks in and out of farms. These sections typically require high maintenance costs to maintain access. The network has successfully used recycled asphaltic concrete millings to stabilise unsealed pavements on gradient inclines as a substitute to recognised traction seals.

Unsealed Pavement Renewal Decision Process

- a. Identify failure modes, including the following:
 - Flat road profile
 - Exposed sub-grade
 - Heavily loaded
- b. Review condition indicators
 - Potholes
 - Rutting
 - Corrugation
- c. Assess economic indicators – Increasing maintenance costs, continued wearing course application short lives
- d. Understand Levels of Service and appropriate intervention levels for road classification.

12.3.8 Development Works Plan

Capital works are those works that create a new asset that did not previously exist or work which will upgrade or improve an existing asset beyond its present capacity. They may result from growth, social or environmental needs. Assets may be acquired at no direct cost to the organisation (i.e. sub divisional development).

It is anticipated that in the near future new roads generated from subdivisions will be added to the network.

Where the work can be justified through project evaluation, seal widths will be increased to meet the requirements of ONRC. The large majority of the network is under width based on current standards.

Seal Extensions

The overall Lifecycle Management Plan objective for seal extension is:

Seal unsealed road sections if only absolutely required

In order to justify these seal extensions, maintenance costs and accident history are used to determine a Benefit Cost Ratio (BCR) to provide justification for each project to proceed.

The majority of the roads included in the FWP are low volume and do not have specific traffic counts applicable. On a case-by-case basis, as these projects are to be justified, special counts will be completed to confirm estimated traffic flows.

Currently there are no identified seal extensions in the CHBDC's 10-year work programme.

The Council has a "Dust Suppression Policy" where on application the adjacent landowner can fund 200 m section of sealing outside their property. The Council also acknowledges the Waka Kotahi new seal extension criteria where if locations meet these conditions then Council will fund its cost share. The Council also acknowledges the potential of other external funding which if secured can be used for this activity if warranted

12.3.9 Disposal Plan

Disposal is any activities associated with disposal of a decommissioned asset, including sale, demolition, or relocation. For example, redundant road reserve following realignments is usually transferred to adjoining landowners. Under this plan there is no requirement for Asset Disposal for the sealed network.

12.3.10 Road Pavements Expenditure

Figure 7-19 to Figure 7-22 set out the 2018-21 three-year annual average, the LTP 10-year expenditure forecast and the 10-year average forecasted expenditure until 2040 for operations and maintenance, renewal, and improvements expenditure for pavements. Refer to section 7.5 for the key assumptions these figures are based on.



Figure 7-19: Pavement total expenditure

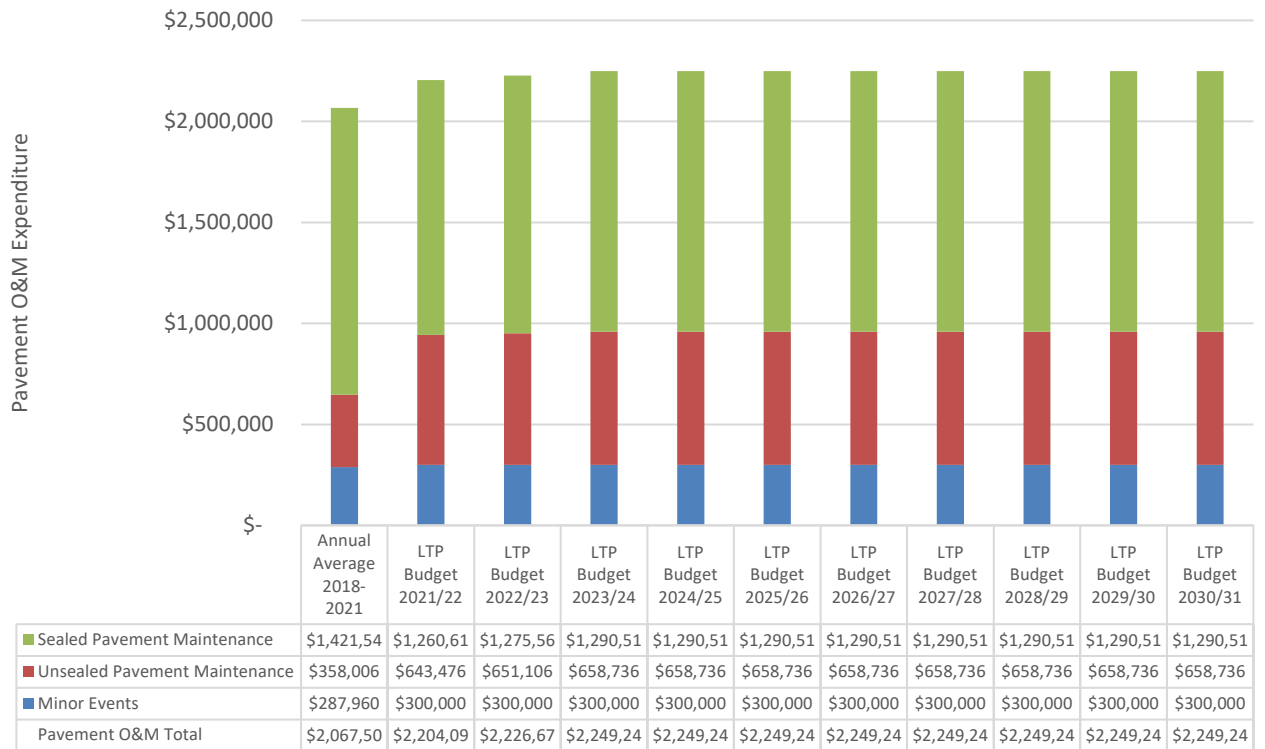


Figure 7-20: Pavement operations and maintenance expenditure

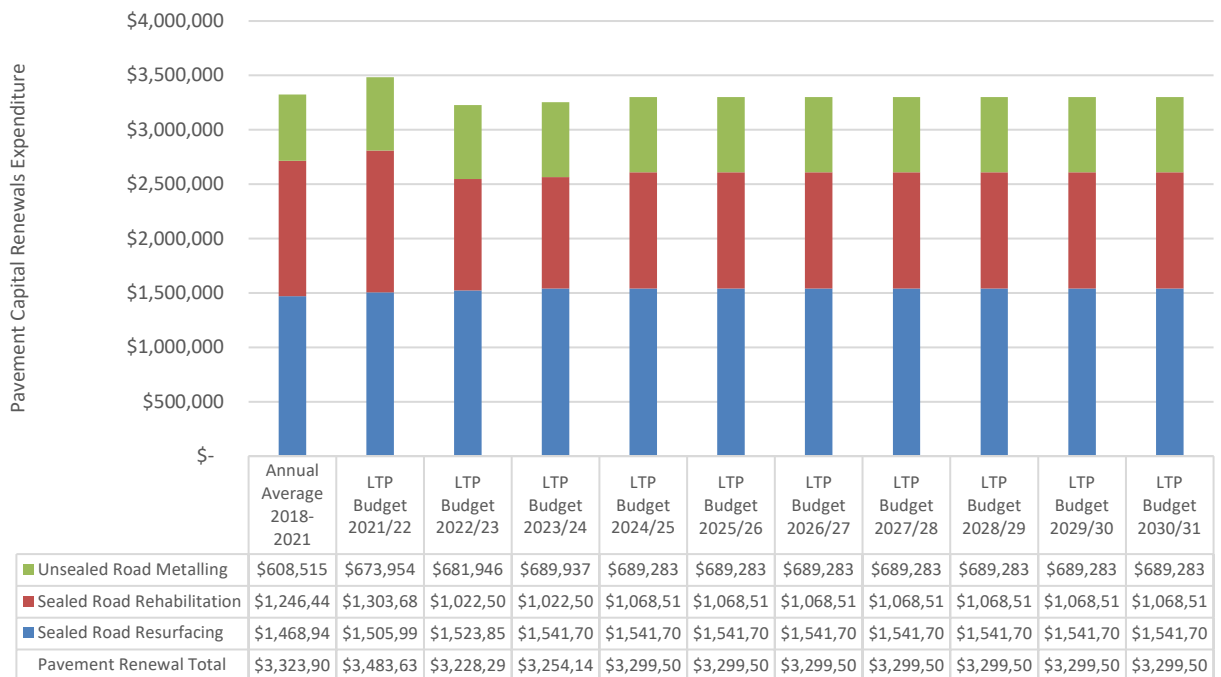


Figure 7-21: Pavement capital renewal expenditure

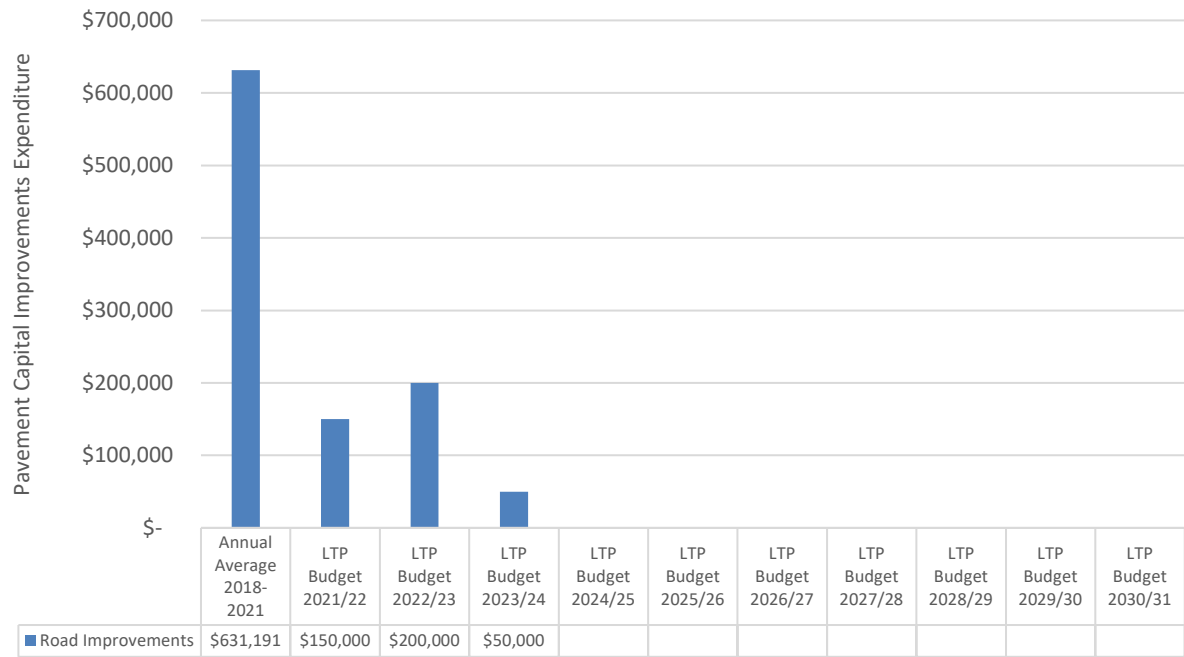


Figure 7-22: Pavement capital improvements expenditure



12.4 Pavement Drainage

12.4.1 Overview

Drainage assets managed under the Land Transport Activity includes culverts (less than 3.4 m²)⁶⁶, drop chambers, manholes, sumps, flushing eyes, kerbs and channels, and surface water channels.

Drainage assets play an integral part in ensuring the integrity of the pavement, and provide a level of protection to property and other assets from flooding.

12.4.2 Key Issues and Risks

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

Table 7-13: Key issues for pavement drainage

Key Issue	Strategies to Address Key Issues
Undersize culverts	Increased capacity during renewals
Deep drains adjacent to road edge	Repositioned in conjunction with pavement renewals
Aggradation (riverbed build-up) and degradation (riverbed reduction) issues of culverts – maintenance concerns of gravel inflow and riverbed build-up at outlets restricting flows.	Inspection to determine condition, causes, effects and possible solutions.

12.4.3 Business Case

CHBDC considers that the confidence level of its approach to pavement drainage investment is "Moderate". CHBDC has identified areas for improvement, which are included in the Improvement Plan section.

Investment in drainage asset is required because:

- Drainage assets provide an essential service to the integrity of the pavement network and to provide a level of protection to road infrastructure and property from flooding.
- Good drainage is one of the key aspects to ensuring the integrity and serviceability of the Districts pavement assets. Adequate drainage infrastructure is essential for reducing the networks vulnerability to flood damage.
- The reduction in drainage related service requests, reflects the implementation of drainage renewal programme.

Table 7-14 shows how the key drainage issues (discussed in Table 7-13) link to the overall Strategic Case and other relevant documents.

⁶⁶ Culverts larger than 3.4 m² are included in the bridges and guardrails asset group



Table 7-14: Key drainage issues in relation to the problem statements, and other relevant documents

Document	Key outcomes/ objectives	Key drainage issues		
		Undersized culverts	Deep drains	Aggradation and degradation
Problem statements	Resilience	✓		✓
	Access			
	Safety	✓	✓	✓
CHB Land Transport Strategic Framework	Safety above all else	✓	✓	✓
	Connected and resilient infrastructure	✓	✓	✓
	Protecting our natural environment			✓
	Economic resilience and financial sustainability			
CHB Long Term Plan	Proud district			
	Prosperous district			
	Strong communities			
	Connected citizens			
	Smart growth	✓		
	Environmentally responsible			✓
	Durable infrastructure	✓	✓	✓
Government Priority Statement for Transport	Safety	✓	✓	✓
	Better travel options			
	Climate change			
	Improving freight connections			
Ministry of Transport Outcomes Framework	Healthy and safe people	✓	✓	✓
	Environmental sustainability			✓
	Resilience and security	✓	✓	
	Economic prosperity			



Document	Key outcomes/ objectives	Key drainage issues		
		Undersized culverts	Deep drains	Aggradation and degradation
	Inclusive access			

An analysis of the current investment includes:

- Drainage assets form 11.5% (\$97.5 M) of the total Land Transport Activity replacement cost and 19% (\$1.4 M) of the annual depreciation.
- The 2020/21 total drainage budget (maintenance, renewal and improvements) is 12% (\$1.6 M) of the total Land Transport Activity Budget (\$13.4 M). Drainage is the Land Transport Activity asset group with the fifth largest operational and maintenance expenditure.
- Over the next 10 years, an annual average budget of \$0.4 M and \$0.9 M is assigned for Operations and Maintenance: and Renewals of drainage assets, respectively.

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

- Focus and effort go into spending only what it needs to; to make better investment decisions to sustain the transport network in the long term; by targeting the right treatments, to the right places, at the right times and for the right costs.
- This is explained further in the maintenance and renewal strategies. Drainage forward work programme is aligned with resealing and pavement rehabilitation programmes to optimise the costs.
- 7-year return life cycle on water tabling. Flanking and surface channel cleaning is in place to protect pavements from ground water, reflecting CHBDC's proactive approach.
- An asset condition survey programme for critical assets has been implemented.
- Implementation of an inspection programme for culverts of diameter 900-2000 mm within the professional services contract. Determine structural integrity as previous maintenance reviews only addressed functionality of water flowing in and of water flowing out. Issues of stream aggradation (riverbed build-up) and degradation (riverbed reduction) should be identified for capacity, outlet control and scour undermining of these assets. The repair work may entail works outside of the road reserve to maintain drainage functionality.

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

- Comparison of the renewal rate and depreciation rate to assess the effectiveness of the district wide capital renewal plan.
- An audit of the RAMM database has been completed and missing assets and data are being sourced and entered into the database.
- Improvements recommended in the 2020 Waka Kotahi technical audit.

12.4.4 Physical Parameters

Value and Quantities

The Drainage physical data is contained within the RAMM database. This information is continually updated as drainage structures are replaced, upgraded or removed. Drainage asset data is summarised in Table 7-15. Asset values are as of 30 June 2020.

Table 7-15: Drainage assets summary⁶⁷

Asset Type		Length (m)	Quantity	Unit	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Drainage Assets	Culverts	79,564	7,721	ea	\$51,185,004	\$28,699,462	\$674,018
	Manholes	93	370	ea	\$1,834,945	\$978,587	\$36,518
	Flushing Eye	26	47	ea	\$40,341	\$29,222	\$801
	Side Drains	2,194	13	ea	\$634,900	\$322,410	\$20,880
	Subsoils	9,427	111	ea	\$779,550	\$573,457	\$15,524
	Sumps	93	794	ea	\$3,615,352	\$1,906,660	\$71,718
	Other ⁶⁸	3,135	110	ea	\$4,921,242	\$4,657,313	\$72,056
	Subtotal	94,532	9,166	ea	\$63,011,333	\$37,167,111	\$891,517
Surface Water Channels	Dish Channel	6,358			\$678,268	\$473,306	\$9,030
	Kerb only	2,639			\$127,437	\$65,946	\$1,699
	Kerb and Channel	78,390			\$10,106,244	\$5,513,089	\$133,948
	Slot Channel	622			\$153,230	\$75,593	\$2,043
	SWC (Deep/Shallow)	1,664,099			\$22,132,517	\$10,952,155	\$295,100
	SWC (Other)	14,639			\$1,272,422	\$627,728	\$16,966
	Subtotal	1,766,747			\$34,470,117	\$17,707,818	\$458,786
Total Pavement Drainage		1,861,279			\$97,481,451	\$54,874,928	\$1,350,302

⁶⁷ Stantec, 2020 Road Asset Valuation (2020), 17-20

⁶⁸ Drop chambers, swales, buttress drains and their outlets, sump leads, catchpits, flume down batters, intake structures and aluminium chimneys

Figure 7-23 and Figure 7-24 show the replacement costs and annual depreciation for the drainage assets group. Culverts are the largest item, accounting for 81% of the total replacement cost for the asset group and 76% of the annual depreciation.

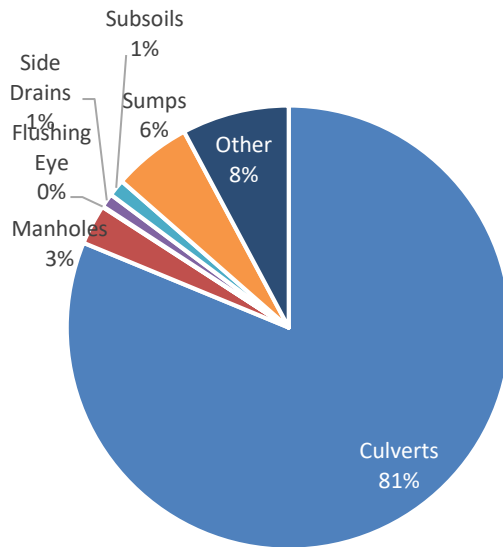


Figure 7-23: Replacement cost of drainage assets

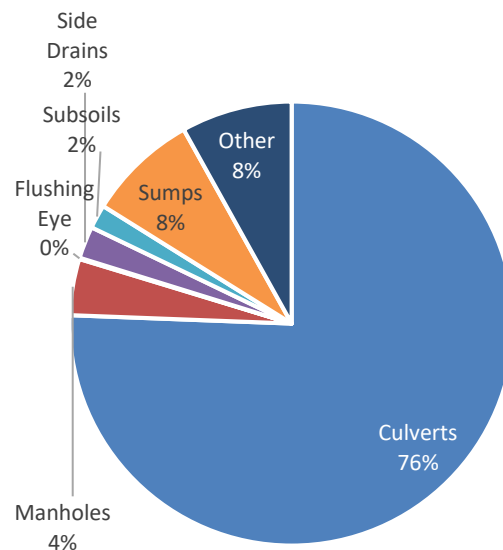


Figure 7-24: Annual depreciation of drainage assets

Figure 7-25 and Figure 7-26 show the replacement costs and annual depreciation for the Surface Water Channels group. Deep and shallow earth surface water channels account for 64% of the total replacement cost and 64% of total annual depreciation.

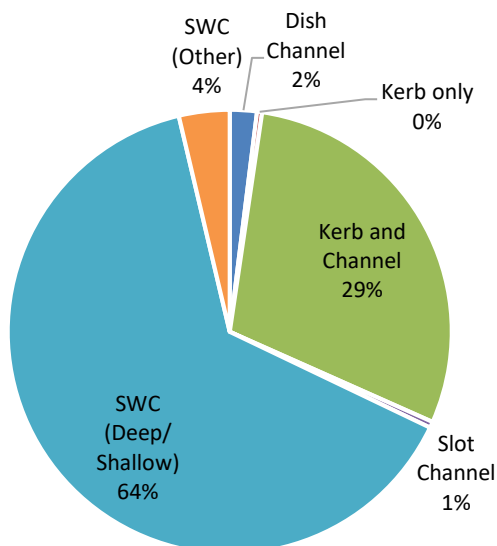


Figure 7-25: Replacement cost of surface water channels

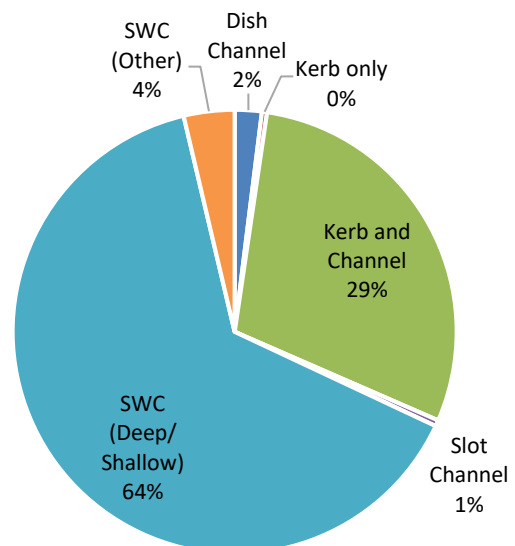


Figure 7-26: Annual depreciation of surface water channels

Asset Condition

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

The most well surveyed drainage asset is culverts, with only 10% of culverts having a condition rating of unknown (Figure 7-27). For all other drainage assets, the number of assets that have a condition rating of unknown ranges from 77% – 95%. No information could be found regarding surface water channels.

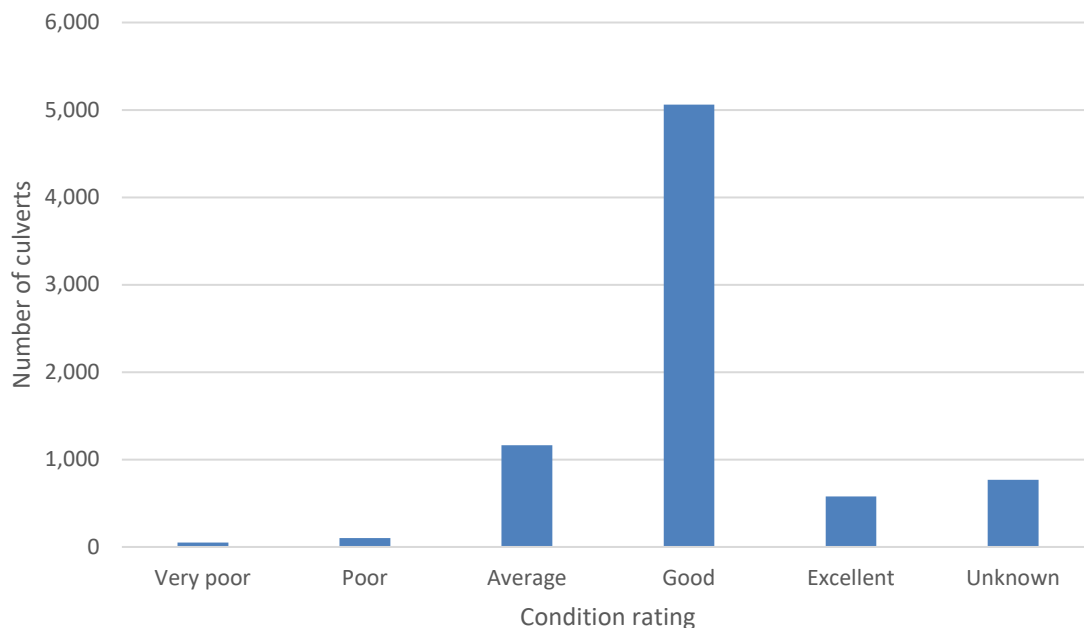


Figure 7-27: Condition rating of small culverts

Asset Capacity and Performance

Drainage asset capacity is linked to several factors:

- Volume capacity of drainage structures for the catchments
- Condition of the Asset
- Changing usage of adjacent land contributing to road drainage.
- Long term climatic conditions.

The capacity of the drainage structure to cope with the catchments is generally adequately designed and constructed. As the condition of the asset deteriorates other factors start to determine the assets capacity for managing the flow from the catchments. This can be compounded by change in adjacent land use e.g. where a heavily vegetated block is turned into pastoral land. This is not common in the rural network and urban or peri-urban drainage development is protected through the consent process.

Apart from the general deterioration, component failures that impact asset's performance are aggradation and degradation of river and stream systems. Aggradation and degradation are long-term riverbed elevation changes due to natural or human-induced causes which affect the reach of the river. Aggradation involves the deposition of material eroded from the channel or watershed upstream of the drainage asset; whereas, degradation involves the lowering or

scouring of the riverbed due to a deficit in sediment supply from upstream. Aggradation can lead to a reduction in capacity of the drainage asset. Degradation scours on the other hand can lead to undermining of the foundation of the assets.

Figure 7-28 shows that customer service requests related to pavement drainage assets have increased since 2016. This coincides with new council and the development of thrive which has seen an increase in consultation and increase in service request for all assets.

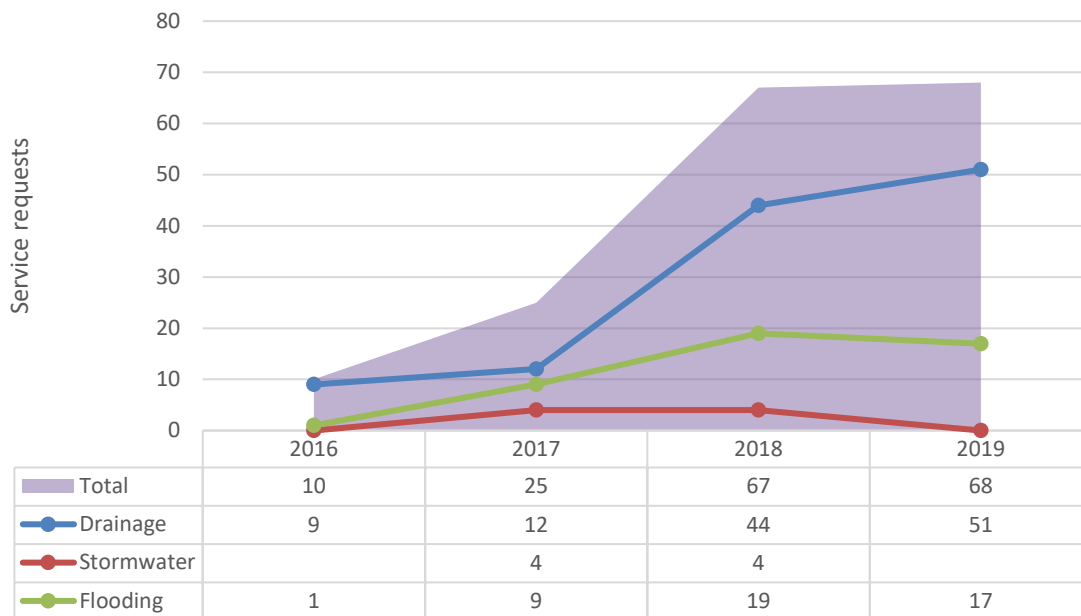


Figure 7-28: Drainage related service requests⁶⁹

12.4.5 Renewal Plan

The overall Lifecycle Management Plan objective for Drainage Renewals is:

To ensure inadequate Drainage Structures are replaced through process of pavement rehabilitation.

Replacing of old of pipes of inadequate capacity is completed as part of the pavement rehabilitation programme. This proves to be the most economic and effective method of maintaining and renewing the drainage asset.

As part of this strategy treatment consists of replacing under capacity cross pavement culverts with a minimum size of 375 mm diameter. In addition, the vehicle crossing policy requires a minimum of 300 mm diameter for property access culverts over water tables is installed by the property owner. Further drainage structures are being added where protection of the network is required in discharging of water. This work is being carried out to ensure an acceptable level of service is being achieved.

Apart from this strategy, where culverts/sumps/kerb and channel are found to be inadequate or failing, these are replaced with the same of slightly larger asset depending upon the capacity requirement.

⁶⁹ Drainage includes the 'Blocked Drain/Culvert' and 'Drainage' request types; stormwater includes the 'Stormwater Complaints' and 'Stormwater/Drainage' request types; and flooding includes the 'Street Flooding' and 'Flooding' request types.



Kerb and channel is included in general road maintenance inspections to identify the need for repairs. Kerb and channel renewals are typically included in urban pavement renewal projects if required.

Table 7-16: Drainage renewal annual operation service level targets

Activity Description	Annual OSL Target Quantities
Major Drainage replacement	As identified through inspections
Drainage Renewal in Pavement renewal Lengths	Pavement Renewal Lengths

The drainage renewal decision process is as follows:

- a. Identify failure modes, including the following:
 - Under capacity
 - Unstable ground conditions
 - Failure of culvert joints due to joint leaking and subsequent erosion of bedding material, leading to loss of pipe waterproofness, and water flow through the bedding material
- b. Review condition indicators
 - Failing structures
 - Road subsidence
 - Pavement failures
- c. Assess economic indicators – Increasing maintenance costs

Drainage Forward Work Programme

The confident level of CHBDC's forward work programme for pavement drainage assets is "Moderate". The approach is mostly reactive and basic. RAMM inventory data adequacy and confidence level is unknown. Condition data is not available for drainage assets. However, CHBDC has sufficient local knowledge of these assets to develop a forward work programme with adequate confidence level. The table below summarises the inputs and outputs of the programme.

Table 7-17: Forward work programme process - pavement drainage

Inputs	Outputs
<ul style="list-style-type: none"> • 2010 Opus dTIMS modelling output: This has a limited value and accuracy level is around 30%. • Resealing forward work programme: Assess with this to ensure include drainage requirements prior to resealing works. • Associate with pavement rehabilitation programme • Under capacity culverts: Replace pavement culverts with minimum size of 375 mm diameter and property access culverts over water tables with minimum of 300 mm diameter. 	<ul style="list-style-type: none"> • 10-year Pavement Drainage renewal works programme • Validating programme



- **Priority 1, 2, 3 maintenance inspections:** Drainage requirements identify during maintenance inspections after catchpit cleaning.
- **Re-profiling programme**
- **RAMM inventory data:** Age, Condition.
- **Large diameter road culvert structural inspection by network consultant**

12.4.6 Development Works Plan

Capital works are those works that create a new asset that did not previously exist or works, which upgrade or improve an existing asset beyond its present capacity. They may result from growth, social or environmental needs. Assets may be acquired at no direct cost to the organisation (i.e. sub divisional development).

Currently in major drainage there exists two distinct categories of creation, these are:

- Major Drainage > 600 mm
- New Culverts or Upgrading of culverts to larger size < 600 mm, and addition of Kerb and Channel.

The Creation / Acquisition / Augmentation Plan is as follows:

- a. Selection Criteria
 - Cross pavement culverts increase to a minimum of 375 mm or larger as design requires.
 - Design of unstable section of the network that require additional construction of drainage structures to protect integrity
- b. Standards and specifications – adopt those standards and specifications currently used in the construction industry.
- c. Forecast of acquisition needs, costs and timing – Forecast future needs for acquisition and/or purchase of infrastructural assets based on demand forecasts – Future need for acquisition of the new drainage asset is covered through the Forward Work Programme. This is in relation to increased drainage capacity within the Pavement Rehabilitation sections where the design identifies increased drainage requirement.
- d. Funding Strategy – Roading rate under Bulk Maintenance Allocation for drainage, Waka Kotahi subsidy under Bulk Maintenance Allocation and Major Drainage where works fall into this category.
- e. Renewal of large diameter road culverts due to condition rating, and or undertake internal lining to improve internal pipe waterproofness.

12.4.7 Disposal Plan

Disposal of drainage assets is by way of replacement. The forecasted disposal is that of replacement in the FWP for rehabilitation where inadequate drainage asset exists and will be replaced by structures of adequate capacity.

12.4.8 Operational Maintenance Plan

Routine Drainage Maintenance

The Lifecycle Management Plan objective for Routine Drainage Maintenance is:



Where drainage is inadequate, undertake a proactive regime of drainage maintenance, water tabling, flanking, high shoulder removal and monitor the pavement performance.

Drainage control forms a critical component of the roading asset. Drainage has impacts in three ways, namely safety, integrity and cost to the roading asset. In order to maintain a sound pavement, the surface water and ground water cannot be allowed to enter the pavement base course. Inadequate drainage often manifests itself in the form of pavement failure.

To avoid this, a regime to undertake a 7-year return life cycle on water tabling, flanking and surface channel cleaning is set. To achieve this, the annual requirement for water tabling and flanking is a minimum of 230 km. This 7-year cycle should be evaluated and monitored to ensure it is correct and producing the expected results.

Water tabling and flanking work will be undertaken with priority given to lengths one year in advance of all reseals. Recent outputs reflect budget constraints and therefore judicious treatment of sites where selected areas within a treatment length were maintained in order to avoid expenditure on areas of lesser need.

12.4.9 Drainage Expenditure

Figure 7-29 to Figure 7-31 set out the 2018-21 annual average, the LTP 10 year expenditure forecast and the 10 year average forecasted expenditure until 2040 for operations and maintenance, and renewal expenditure for pavement drainage. Refer to section 7.5 for the key assumptions these figures are based on. Average annual budget of \$0.4 M and \$0.8 M are allocated for drainage operations and maintenance; and renewal works respectively. There is no new drainage development works planned over the next 10 years.



Figure 7-29: Drainage total expenditure

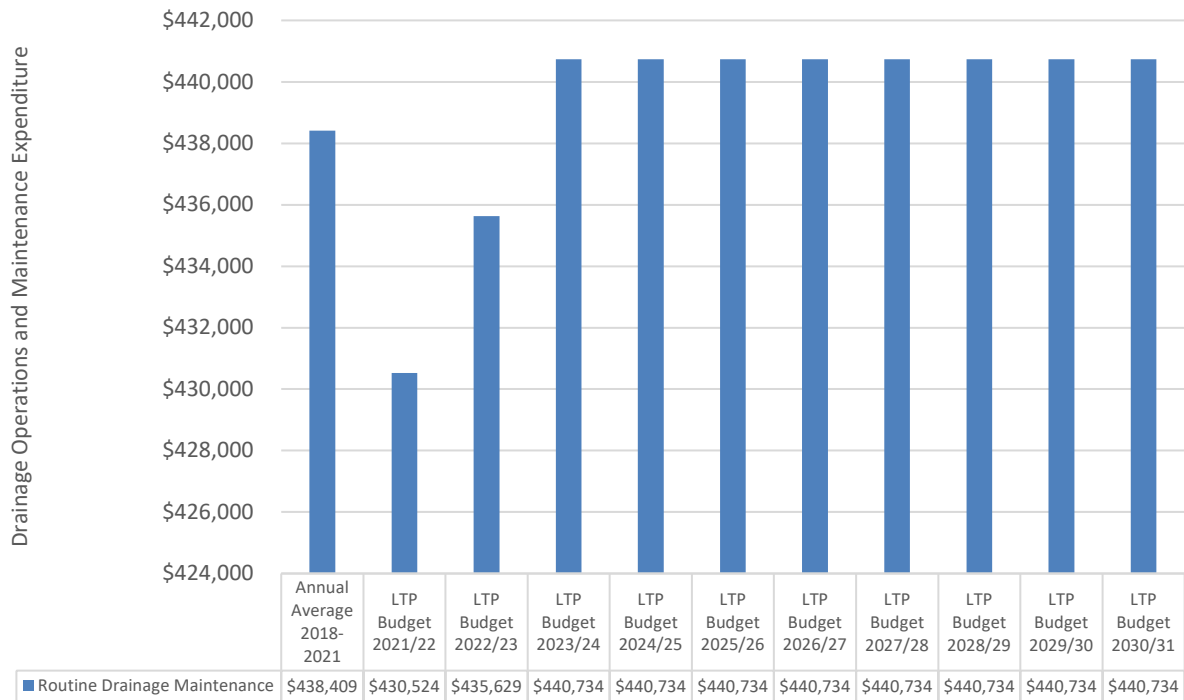


Figure 7-30: Drainage options and maintenance expenditure

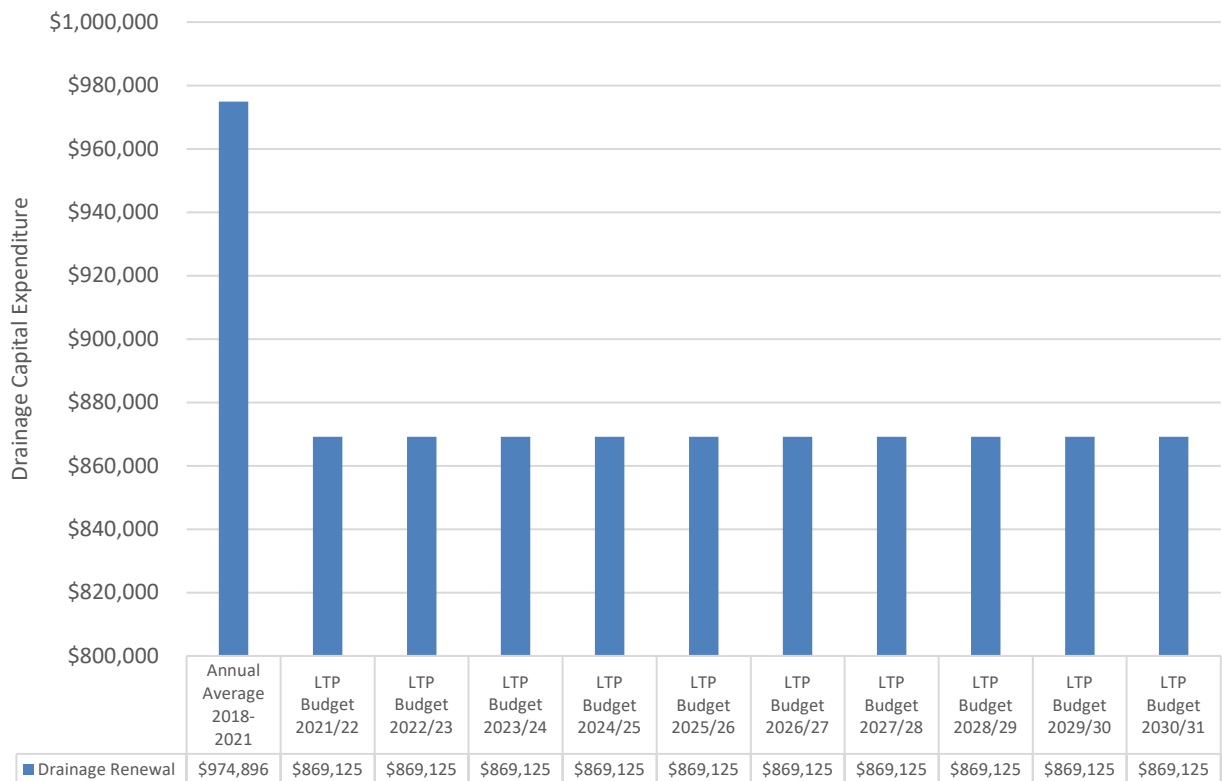


Figure 7-31: Drainage capital renewals expenditure

12.5 Bridges and Guardrail

12.5.1 Overview

The purpose of road bridges and major culverts is to provide continuous all-weather roading over rivers, streams and uneven terrain.

12.5.2 Key Issues and Risks

Some of the key life cycle management issues that affect structures are discussed in Table 7-18.

Table 7-18: Key issues for bridges and major culverts

Key Issue	Strategies to Address Key Issues
Aging bridge stock	Aging bridge stock is going to require a renewal programme to address weight restrictions. Recent works have focussed on structural component replacement.
HPMV and 50 Max	As discussed in Risk Management Section as 50 Max trucks become more common place, there will be pressure to increase the capacity of the bridges on the network to be able to take these loads. CHBDC will identify all the 50 Max restricted bridges and will develop a strategy to consider freight volumes and prioritise improvements.
Resilience	<p>All bridges fall within an inspection regime and some bridges have had seismic assessments. Faults are identified and prioritised as the budget allows. After major earthquakes and flood events the bridges are inspected and renewed as required.</p> <p>Impact of climate changes and sever weather events required to be incorporated in bridge design stage and funding should be allocated accordingly.</p>
Aggradation (riverbed build-up) and degradation (river bed reduction) issues of bridges and large culverts – maintenance concerns of gravel inflow and river bed build-up restricting flows.	Inspection to determine condition, causes, effects and possible solutions.
Replace discontinued guardrail	Discontinued end terminals such as Texas twists and fishtails are still in use throughout the network. These end terminals can increase the severity of a crash as if they are hit directly; Texas twists by launching the vehicle into the air, and fishtails by piercing the vehicle and acting as a spear.

12.5.3 Business Case

CHBDC considers that the confidence level of its approach to investment in bridges and large culverts is "High".



Investment in bridges and large culverts is required because bridges and large culverts provide continuous, safe, all-weather roading over rivers, streams and uneven terrain.

Table 7-19 shows how the key drainage issues (discussed in Table 7-18) link to the overall Strategic Case and other relevant documents.

Table 7-19: Key bridging issues in relation to the problem statements, and other relevant documents

Document	Key outcomes/ objectives	Key bridging issues				
		Aging bridg e stock	Heavy vehicle s	Resilienc e	Aggradatio n and degradation	Discontinue d Guardrail
Problem statements	Resilience	✓	✓	✓	✓	
	Access	✓		✓		
	Safety	✓			✓	✓
CHB Land Transport Strategic Framework	Safety above all else	✓			✓	✓
	Connected and resilient infrastructure	✓	✓	✓	✓	
	Protecting our natural environment				✓	
	Economic resilience and financial sustainability	✓	✓	✓	✓	
CHB Long Term Plan	Proud district			✓	✓	
	Prosperous district	✓	✓	✓		
	Strong communities	✓		✓		
	Connected citizens	✓		✓		
	Smart growth					
	Environmentall y responsible				✓	
	Durable infrastructure	✓	✓	✓	✓	✓



Government Priority Statement for Transport	Safety	✓				✓
	Better travel options					
	Climate change					
	Improving freight connections	✓	✓	✓	✓	
Ministry of Transport Outcomes Framework	Healthy and safe people	✓				✓
	Environmental sustainability					
	Resilience and security	✓	✓	✓	✓	
	Economic prosperity	✓	✓	✓		
	Inclusive access					

An analysis of the current investment includes:

- Bridges, Large Culverts and Guard Rails are the asset group with the second largest expenditure. This asset group forms 17% (\$142 M) of the total Land Transport Activity Replacement Cost and 21% (\$1.5 M) of the annual depreciation. The structures maintenance, renewal and improvements budget over next 10 years is 9.4% (\$11.5 M) of the total Land Transport Activity Budget (\$122.5 M).
- The confidence grade in structure asset data including condition and performance data is highly reliable, with bridges inspected as per the Waka Kotahi bridge inspection policy.
- 80% (\$9.2 M) of the structures budget over the next 10 years is for renewals. CHBDC has planned this mostly for component replacements.

Processes and methods currently employed include:

- Focus and effort go into spending only what it needs to; to make better investment decisions to sustain the transport network in the long term; by targeting the right treatments, to the right places, at the right times and for the right costs.
- The life cycle maintenance and renewal strategies clearly detail Council strategies
- CHBDC has a confident and robust approach for developing Forward Work Programme for bridges and large culverts.

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



- Develop a strategy to consider freight volumes and prioritise improvements on all 50 Max restricted bridges.
- Review current level of General and Detailed bridge inspections.
- Issues of stream aggradation (river bed build-up) and degradation (river bed reduction) should be identified for capacity and scour undermining of bridges and large culverts. The repair work may entail works outside of the road reserve to maintain drainage functionality.

12.5.4 Physical Parameters

Asset Values and Quantities

The estimated cost of replacing the assets in this asset group is \$142 M, which is 16% of the overall Land Transport assets. In practice parts of the bridges are replaced on an as needed basis as part of the maintenance cost. This contributes to their perpetuity existence. Table 7-20 summarises the assets.

Table 7-20: Summary of bridge and major culvert assets⁷⁰

Asset Type		Number	Quantity	Unit	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Bridges	Prestressed Bridge	81	7,734	m ²	\$35,009,887	\$19,059,113	\$350,050
	Reinforced Concrete Bridge	83	18,931	m ²	\$85,692,144	\$35,545,860	\$856,921
	Timber Bridge Deck	4	147	m ²	\$667,312	\$218,961	\$8,341
	Papanui Bridge (Shared 50%)	1	148	m ²	\$367,664	\$317,767	\$2,626
	Subtotal	169	26,960	m²	\$121,737,007	\$55,141,701	\$1,217,939
Bridge Culverts	3.4<area<5m ²	56	949	m	\$7,785,110	\$4,078,497	\$104,816
	5 < area < 6m ²	6	100	m	\$1,141,825	\$596,028	\$15,442
	6 < area < 8m ²	17	311	m	\$4,565,516	\$2,305,893	\$60,947
	8 < area < 9m ²	6	83	m	\$1,521,595	\$687,099	\$19,978
	9 < area < 12m ²	7	128	m	\$2,789,788	\$1,395,007	\$37,409
	12< area< 20m ²	2	23	m	\$531,737	\$300,547	\$5,780
	20< area< 28m ²	2	24	m	\$613,628	\$323,596	\$6,445

⁷⁰ Stantec, 2020 Road Asset Valuation (2020), 27



Asset Type	Number	Quantity	Unit	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Subtotal	92	1,594	m	\$18,949,198	\$9,686,666	\$250,815
Guardrail	180	9,091	m	\$1,873,382	\$1,068,588	\$61,259
Total				\$142,559,587	\$65,896,955	\$1,530,013

Figure 7-32 and Figure 7-33 indicate the percentage splits for replacement costs, depreciated replacement costs and annual depreciation of bridges, large culverts and guardrail. Bridges account for 86% and 80% of the replacement cost and annual depreciation of this asset group, respectively. Guardrail accounts for 1% of the replacement costs, but 4% of the annual depreciation.

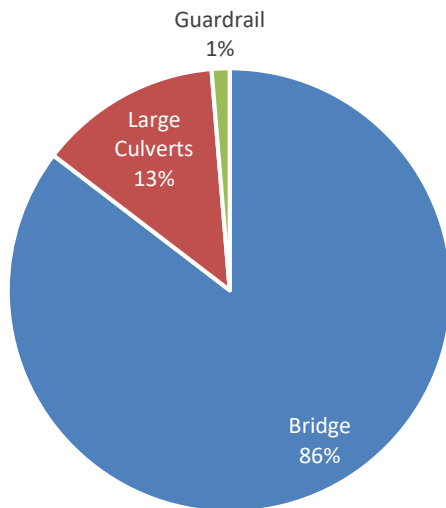


Figure 7-32: Replacement costs for bridges, large culverts and guardrail

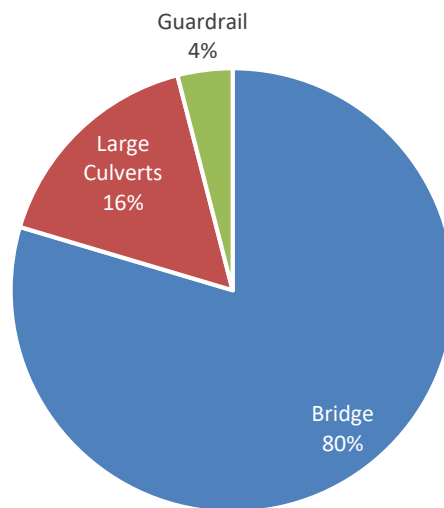


Figure 7-33: Annual depreciation for bridges, large culverts and guardrail

Figure 7-34 to Figure 7-37 indicate the percentage split of the replacement costs and annual depreciation for bridges and large culverts. Generally, the percentage split of the replacement cost and the annual depreciation is similar across bridges and culverts.

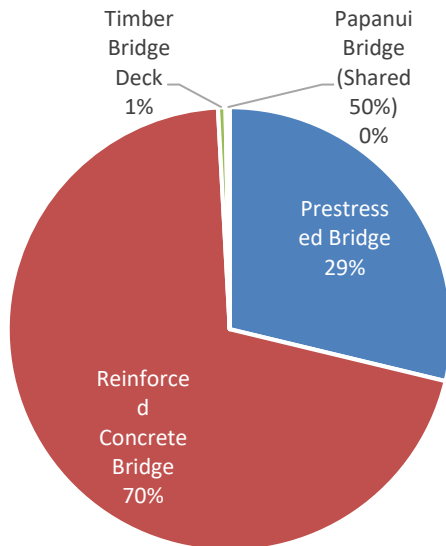


Figure 7-34: Replacement costs for bridges

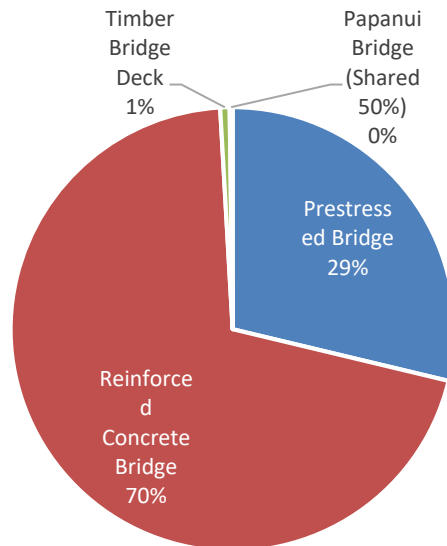


Figure 7-35: Annual depreciation for bridges

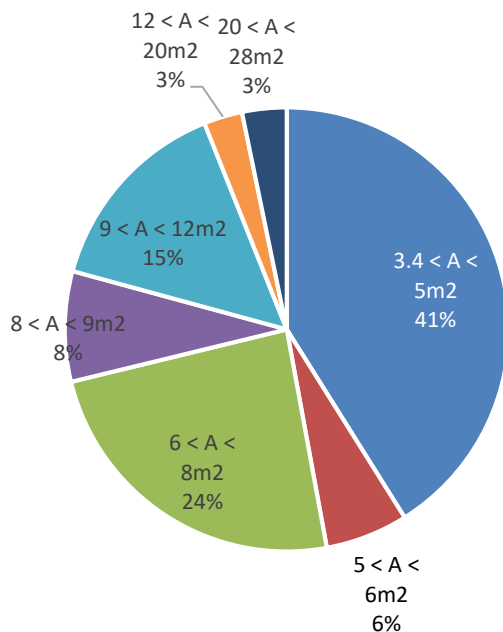


Figure 7-36: Replacement costs for large culverts

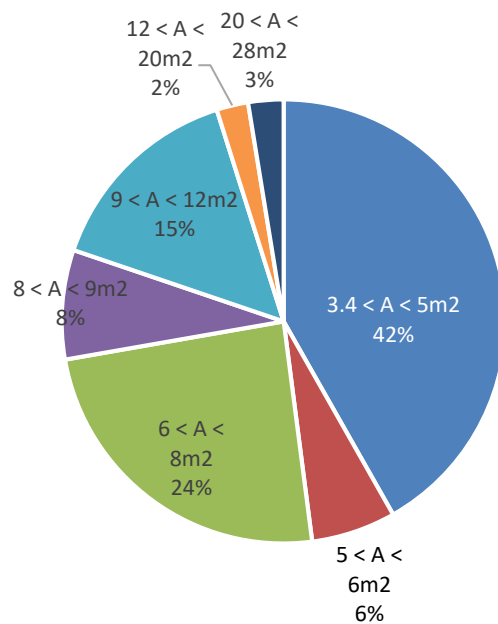


Figure 7-37: Annual depreciation for large culverts

Asset Age and Condition

The CHBDC Bridge Inspection Programme comprises a two-year rolling programme of general and principal inspections of all structures on the CHBDC bridge asset register. The inspections are conducted by Stantec on behalf of CHBDC. The bridge inspection report used during General and Principal inspections is based on the Waka Kotahi S6:2019 document. The form groups each structure into specific elements being inspected, such as superstructure, load-bearing substructure, durability, safety, waterway, retaining and other. Data from the

bridge inspection reports, including routine and structural maintenance items are loaded into a RAMM database.

Most of the bridge and large culvert assets within Central Hawke's Bay District Council are in generally good condition considering their respective ages. These assets are expected to remain functional over the course of their service lives if they continue to be serviced by completing the recommended maintenance items, and routine inspections continue.

Asset Capacity/ Performance

Bridging asset capacity is linked to several factors:

- Traffic volume
- Loading
- Condition

Currently the bridge asset is performing to its intended capacity. There are a number of bridges that have been scheduled for replacement in the next 12 years however they continue to perform to standard. These are outlined in the Renewal Plan.

Apart from the general deterioration, component failures that impact asset's performance are aggradation and degradation of river and stream systems. Aggradation and degradation are long-term river bed elevation changes due to natural or human-induced causes which affect the reach of the river on which the bridge is located. Aggradation involves the deposition of material eroded from the channel or watershed upstream of the bridge; whereas, degradation involves the lowering or scouring of the river bed due to a deficit in sediment supply from upstream. Aggradation can lead to a reduction in capacity under the bridge and is susceptible to contraction scours. Degradation scours can occur around bridge abutments and piers compromising the integrity of the foundation of the bridge.

12.5.5 Operations and Maintenance Plan

The Lifecycle Management Plan objective for Structures Maintenance is:

Maintain an inspection regime to identify any superficial maintenance and structural maintenance requirements on the bridge stock.

Inspections of Bridges, in accordance with Council's bridge maintenance policy, and retaining structures have continued. On bridges typical defects include lost or loose nuts on holding down bolts, concrete cracking, expansion joint defects, rusted holding down bolts and handrails, rotting timber decks and railings and piers cluttered with debris. Maintenance contracts are let to remedy the higher priority defects encountered.

12.5.6 Renewal Plan

Structures Component Replacement

The overall Lifecycle Management Plan objective for Structures Component Replacement is:

Maintain an inspection regime to identify any superficial maintenance and structural maintenance requirements on the bridge stock.

Provision of bridge approach sealing on unsealed roads to protect bridge abutments and increase safety on approach.



As outlined above bridge inspections have continued in accordance with Council's bridge maintenance policy. Work is allowed for as inspections identify it.

Guardrail replacement and new guardrail construction is allowed for under this WC. Generally, work includes replacing sections of guardrail with posts in poor condition requiring renewal, replacement of damaged sections of guardrail and installation of end terminals in order to meet current standards.

Bridge Renewals

The overall Lifecycle Management Plan objective for Bridge Renewals is:

To identify those bridges where deck renewal is required to sustain current loadings.

There has been a concentrated effort since the late 1950's in both the then Waipukurau and Waipawa District areas to carry out an active timber bridge replacement programme. As a result of this effort very few bridges remain with timber substructures or superstructures. Those that do are on very minor no exit roads and are well maintained.

Three bridges in the district have been identified as potentially developing symptoms (condition) that require closer and more detailed inspections and potential remedial works. Two of the bridges are massive structures and at the present beyond the financial capacity of the District to replace. Alternatives and evaluations are being pursued in order to establish actual risk, projected life, traffic impacts etc. This work will provide the district with viable economic courses of action as each bridge nears the end of its life and a more accurate timeframe for renewal, if required. The increase in weights being carried over the bridge structures prompted a more strenuous inspection and several bridges were identified that required strengthening to carry Class 1 loading

The three bridges are:

- Burnside Bridge on Burnside Road
- Makaramu Bridge on Beach Road
- Patangata Bridge on Elsthorpe Road

12.5.7 Development Works Plan

Capital works are those works that create a new asset. There is no capital requirement identified in this Plan. The Creation / Acquisition / Augmentation Plan is as follows:

- a. Selection Criteria
 - Increased capacity requires asset creation
 - To be justified based on the current funding rules as set in Waka Kotahi project funding Manual
- b. Standards and specifications – adopt those standards and specifications currently used in the construction industry.
- c. Forecast of acquisition needs, costs and timing – No future need for creation or acquisition is identified in this LTAMP.
- d. Funding Strategy – Total cost of acquisition proposals, Costs apportionment i.e. Waka Kotahi, Developers, and TLA etc.

12.5.8 Disposal Plan

There are no identified disposals to consider.



12.5.9 Bridges and Guardrails Expenditure

Figure 7-38 to Figure 7-41 set out the 2018-21 annual average, the LTP 10-year expenditure forecast and the 10-year average forecasted expenditure until 2040 for operations and maintenance, renewal and improvement expenditure for bridges (including large culverts), guardrails and retaining structures.

Note: Asset information and management strategies for retaining structures are contained in the Retaining Structures Lifecycle Management Plan. However, expenditure for retaining structures is included in this LCMP because there is no separate breakdown available.

Refer to Section 7.5 for the key assumptions these figures are based on.



Figure 7-38: Structure total expenditure

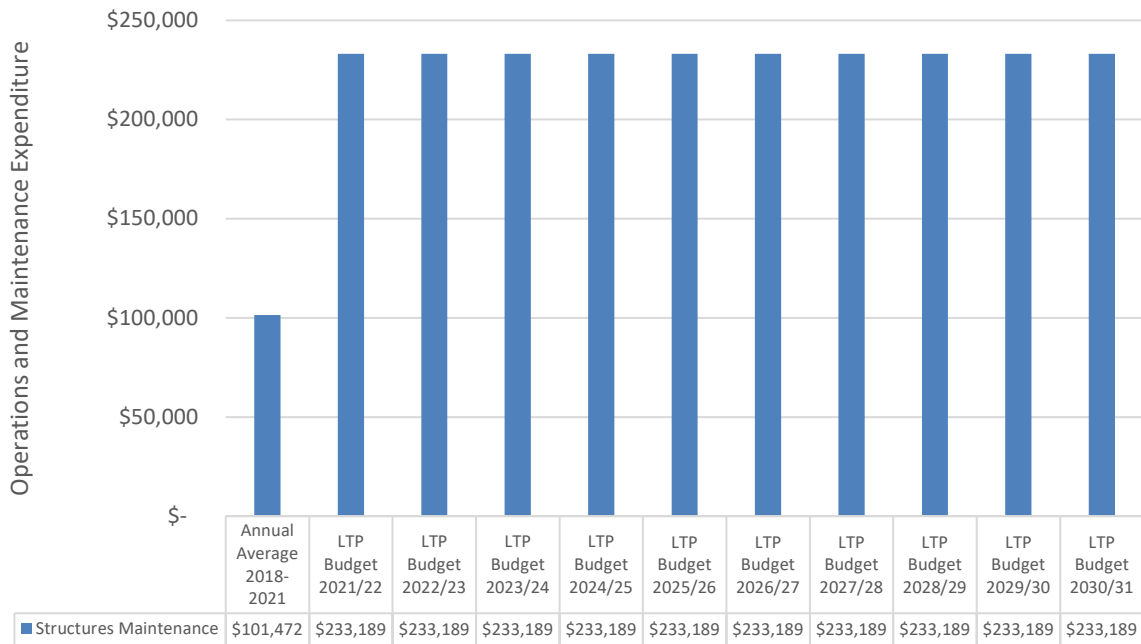


Figure 7-39: Structures operations and maintenance expenditure

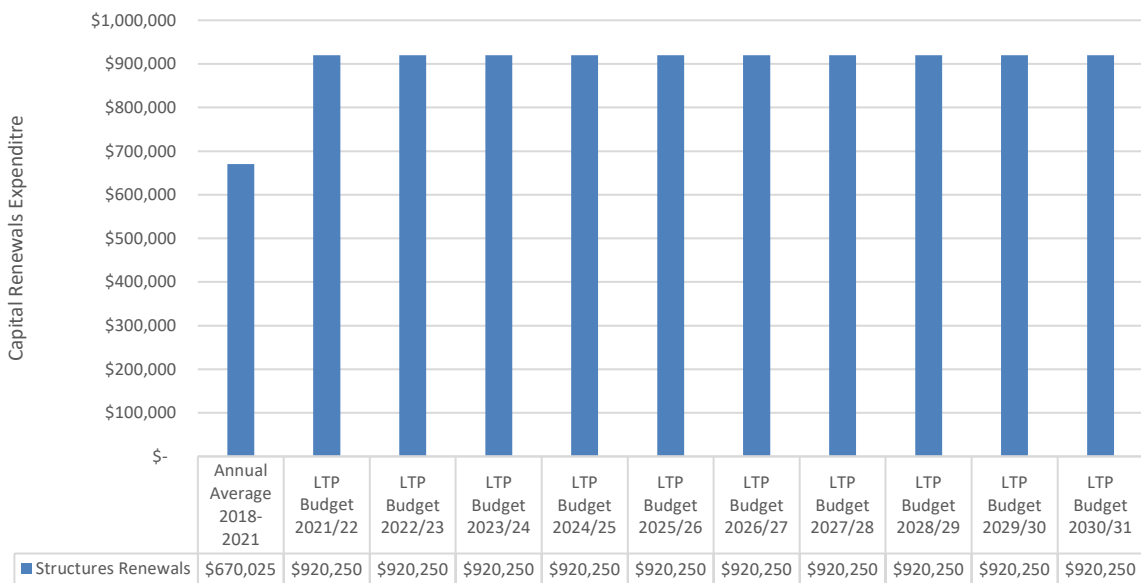


Figure 7-40: Structure capital renewal expenditure

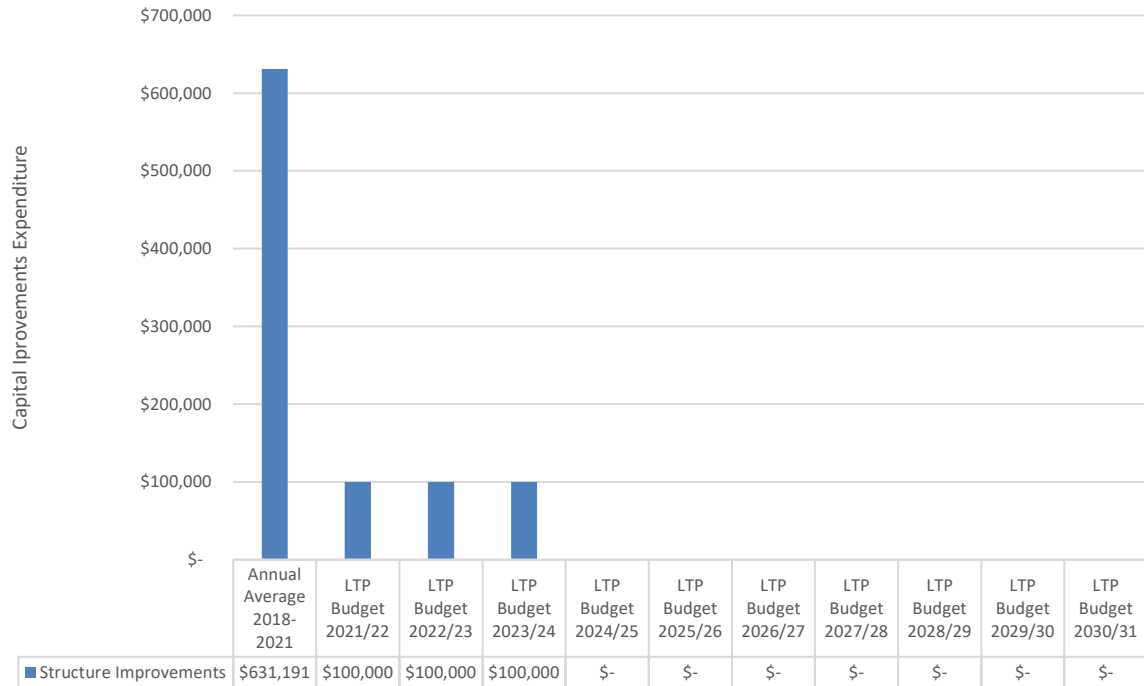


Figure 7-41: Structures capital improvement expenditure

12.6 Retaining Structures

12.6.1 Overview

Retaining structures provide protection and support for road pavements. Most retaining walls are not actively maintained and not all retaining wall structures have yet been identified in RAMM. For example, a lot of the 'in ground' retaining walls are noted in the network but are not in RAMM. Many of these retaining walls are viewed as having failed with these walls being rotated from their original orientation.

12.6.2 Key Issues and Risks

Some of the key life cycle management issues that affect retaining structures are discussed in Table 7-21.

Table 7-21: Key issues and risks for retaining structure

Key Issue	Strategies to Address Key Issues
Material deterioration affecting road stability	Inspection of retaining structures as part of a planned programme
CHBDC's RAMM data base does not have a complete record exclusively for the retaining structure information	CHBDC has been capturing new retaining structures into RAMM and where old structures are identified these will also be added to the asset register including condition information.

12.6.3 Business Case

CHBDC considers that the confidence level of its approach to Retaining Structures investment is "Low". CHBDC has identified areas for improvement for managing these assets.



Investment in retaining structures is required to protect and support the road pavements.

Table 7-22 shows how the key drainage issues (discussed in Table 7-21) link to the overall Strategic Case and other relevant documents.

Table 7-22: Key retaining issues in relation to the problem statements, and other relevant documents

Document	Key outcomes/ objectives	Key retaining issues	
		Material deterioration	Data gaps
Problem statements	Resilience	✓	✓
	Access		
	Safety	✓	✓
CHB Land Transport Strategic Framework	Safety above all else	✓	
	Connected and resilient infrastructure	✓	✓
	Protecting our natural environment		
	Economic resilience and financial sustainability	✓	
CHB Long Term Plan	Proud district	✓	
	Prosperous district	✓	
	Strong communities		
	Connected citizens		
	Smart growth		✓
	Environmentally responsible		
	Durable infrastructure	✓	✓
Government Priority Statement for Transport	Safety	✓	
	Better travel options		
	Climate change		
	Improving freight connections	✓	✓
Ministry of Transport	Healthy and safe people	✓	
	Environmental sustainability		



Document	Key outcomes/ objectives	Key retaining issues	
		Material deterioration	Data gaps
Outcomes Framework	Resilience and security	✓	✓
	Economic prosperity		✓
	Inclusive access		

An analysis of the current investment includes:

- Retaining Structures assets form 2% (\$14.6 M) of the total Land Transport Activity Replacement Cost and 4% (\$0.3 M) of the annual depreciation.
- Retaining structures are included in the Structures group. Budgets for Retaining Structures are incorporated in the Bridges Lifecycle Management Plan. The average annual budget (maintenance, renewal and improvements) for Structures over the next 10 years is .4% (\$11.2 M) of the average total Land Transport Activity budget (\$12.3 M).

Processes and methods currently employed include:

- As part of Pavement Rehabilitation Design, old existing structures are confirmed against RAMM as part of the overall Road Design as required.
- Focus and effort go into spending only what it needs to; to make better investment decisions to sustain the transport network in the long term; by targeting the right treatments, to the right places, at the right times and for the right costs
- The life cycle maintenance and renewal strategies clearly detail in Council strategies.

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

- Assess inspection observations, identify instability areas and develop a long term work programme for maintaining and renewing Retaining Structures.

12.6.4 Physical Parameters

Asset Values and Quantities

The retaining structures are a critical component of the network as they provide stability of unstable pavements in the network, predominantly in the Aramoana Ward. The retaining structure component is made up of a combination of rail irons and timber walls, gabion rock walls and earth gravity walls.

Also identified as part of the retaining structure components are stock underpass structures. These are held on the inventory as Council have a responsibility for the inspection and maintenance of the walls but not the initial construction cost. **Table 7-23** sets out the quantity and value of the retaining structures asset group.



Table 7-23: Summary of retaining structures assets

Retaining Wall Type	Length (m)	Quantity	Unit	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Gabion (no height)	400	23	m	\$238,847	\$180,285	\$6,160
Gabion Wall	596	1,209	m ²	\$2,140,589	\$1,512,080	\$45,822
Anchored - Concrete	76	341	m ²	\$600,272	\$576,175	\$6,670
Anchored - Wood	191	453	m ²	\$1,919,924	\$1,696,947	\$32,731
Anchored - Earth	61	206	m ²	\$664,073	\$651,501	\$12,572
Anchored – Default	27	41	m ²	\$124,487	\$119,493	\$2,228
Railway Irons and Boards	3,566	3,741	m ²	\$2,718,277	\$1,769,943	\$46,156
Reinforced Earth	153	304	m ²	\$186,727	\$154,728	\$4,135
MSE Wall	86	161	m ²	\$283,413	\$273,692	\$3,149
Retaining Walls - Default Other	509	1,028	m ²	\$2,069,890	\$1,213,224	\$43,790
Retaining Wall (no height)	1,744	74	m	\$3,574,829	\$2,790,100	\$79,099
Other (no height)	130	5	m	\$77,548	\$49,649	\$1,936
Total	7540	7586.8		\$14,598,876	\$10,987,815	\$284,448

The percentage split of the replacement cost, depreciated replacement cost, and annual depreciation for each type of retaining wall is shown in **Figure 7-42** and **Figure 7-43**. The majority of structures are classed as retaining walls and account for 39% of the replacement cost and 43% of the annual depreciation.

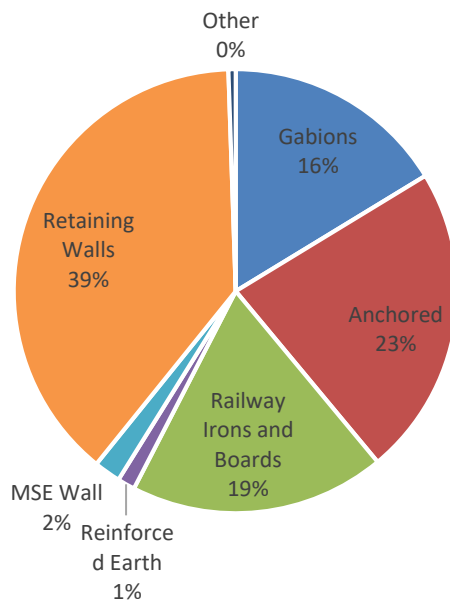


Figure 7-42: Replacement cost for retaining structures

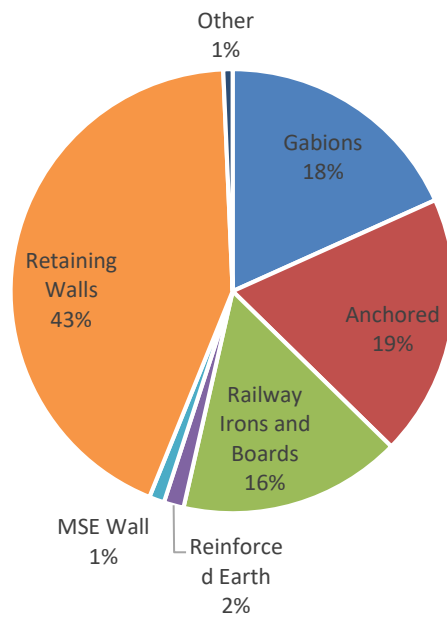


Figure 7-43: Annual depreciation of retaining structures

Asset Condition

Retaining Structures are condition rated as part of the Bridge rating inspection. **Figure 744** illustrates the condition profile of Retaining Structure assets based on data recorded in RAMM.

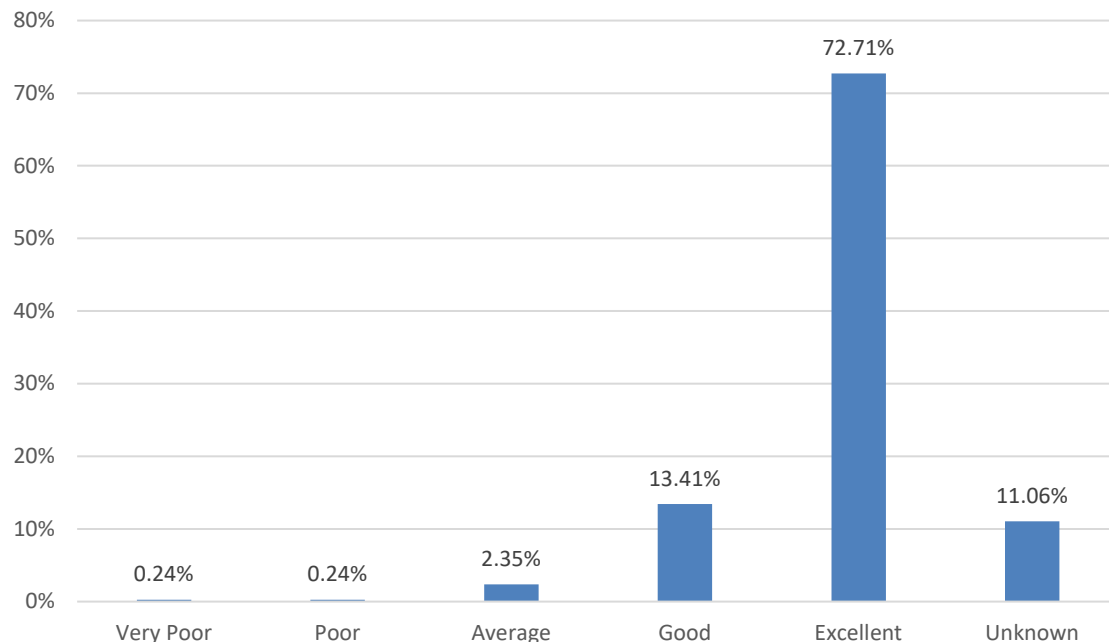


Figure 7-44: Condition of retaining structures

12.6.4.1 Asset Capacity/Performance

Retaining Asset capacity is linked to several factors:



- Traffic volume
- Loading

Due to the unstable nature of Aramoana Ward retaining structures play a critical part in protecting the network from subsidence. Identify retaining structures in the network where retaining structure failure would severely compromise access due to topography. Higher design criteria for 'whole of life' structural integrity needs to be implemented for these identified retaining structures.

12.6.5 Operations and Maintenance Plan Retaining Walls Maintenance

The Lifecycle Management Plan objective for maintenance of Retaining Walls is:

Maintain an inspection regime to identify any superficial maintenance and structural requirements on the retaining structures

Maintenance of the retaining structure is completed as part of the bridge maintenance contract. Data has been obtained on all retaining structures.

12.6.6 Renewal Plan

Retaining Walls Component Replacements

As part of Pavement Rehabilitation Design, old existing structures are identified and renewed as part of the overall Road Design. Structures will need to be considered for replacement where they have an overall rating of > 4 . The inspection of the retaining structures is on the same time line as bridges and half the stock is inspected yearly as for bridges.

Renewal Decision Process

- Identify failure modes, including the following:
 - Shoulder/pavement subsidence
 - Loading exceeding design capacity
- Review condition indicators
 - Cracking
 - Roughness
- Assess economic indicators – Increasing maintenance costs

12.6.7 Development Works Plan

Generally, as part of Pavement Rehabilitation projects, areas of instability are identified and new Retaining Structures designed and added. The other process of new retaining assets is through flood events and storm damage.

The Creation / Acquisition / Augmentation Plan is as follows:

- Selection Criteria
 - Where subsidence exists and has been identified in rehabilitation sections, geotechnical inspection is undertaken and suitable designs completed. This work is incorporated into the projects.
 - Where areas of the network have been identified as subsidence that may require wall installation, these areas are investigated and designed as a one off basis.
- Standards and specifications – adopt those standards and specifications currently used in the construction industry.



- c. Forecast of acquisition needs, costs and timing – Currently as there is no comprehensive inspection of the network to identify areas of subsidence, a forecast of renewal sites is not identified. However, as part of the FWP field review areas of subsidence are being identified and sectioned out as treatment length if this is appropriate dependant on severity of the subsidence. The risk register currently identifies the risk associated with this issue and treatment plan involved. Cash flow forecast is as provided through the current forward work programme for pavement renewal
- d. Forecast of acquisition needs, costs and timing – Currently requirements are identified through the bridge & retaining wall inspection programme. As part of the FWP field review, areas of subsidence are being identified and the reasons behind the subsidence are investigated including any retaining wall failures. The risk register currently identifies the risk associated with this issue and treatment plan involved. Cash flow forecast is as provided through the current forward work programme for pavement renewal
- e. Funding Strategy – Funding is acquired through the Roothing Rate and Waka Kotahi. In the event of large scale storm damage and emergency, Waka Kotahi provide a higher subsidy rate for the replacement of and construction of structures associated with storm damage.

12.6.8 Disposal Plan

Disposal of Retaining Structures will only occur where a wall that is in very poor condition is being replaced.

12.6.9 Retaining Structures Expenditure

Retaining Structures expenditure is included under Life Cycle Management Plan for Bridges, Large Culverts and Guard Rails.

12.7 Traffic Facilities

12.7.1 Overview

Traffic services are the assets that are designed to assist road users use the road in a safe way. Included in this asset category are signs, pavement marking and sight rails.

12.7.2 Key Issues and Risks

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

Table 7-24: Key issues and risks for traffic facilities

Key Issue	Strategies to Address Key Issues
Vandalism	Education and monitoring, and law enforcement if applicable
Uncontrolled Intersections	Number of rural uncontrolled intersections within the district which need to be investigated for improvement
Speed Management	Speed Management study to align posted speed to SAAS.
Rural Road Delineation	Investigate upgrading rural road delineation within the district to provide the appropriate delineation.

12.7.3 Business Case

CHBDC considers that it has a basic approach to traffic services investment, and has identified areas for improvement.

Investment in traffic services assets is required because:

- Traffic services are the assets that are designed to assist road users use the road in a safe way. Included in this asset category are signs, pavement marking and sight rails.
- Service request calls for Traffic Facilities have increased over the last 4 years (from 40 to 209). All these are related to signage. No request calls related to pavement markings have been recorded over the last four years.

Table 7-25 shows how the key drainage issues (discussed in Table 7-24) link to the overall Strategic Case and other relevant documents.

Table 7-25: Key traffic facility issues in relation to the problem statements, and other relevant documents

Document	Key outcomes/ objectives	Key traffic facility issues			
		Vandalism	Uncontrolled Intersections	Speed Management	Rural Road Delineation
Problem statements	Resilience				
	Access	ü			
	Safety		ü	ü	ü
CHB Land Transport	Safety above all else		ü	ü	ü



Document	Key outcomes/ objectives	Key traffic facility issues			
		Vandalism	Uncontrolled Intersections	Speed Management	Rural Road Delineation
Strategic Framework	Connected and resilient infrastructure				
	Protecting our natural environment				
	Economic resilience and financial sustainability				
CHB Long Term Plan	Proud district	ü	ü	ü	ü
	Prosperous district	ü			
	Strong communities	ü	ü	ü	ü
	Connected citizens				
	Smart growth				
	Environmentally responsible	ü			
	Durable infrastructure	ü	ü		ü
Government Priority Statement for Transport	Safety		ü	ü	ü
	Better travel options				
	Climate change				
	Improving freight connections				
Ministry of Transport Outcomes Framework	Healthy and safe people		ü	ü	ü
	Environmental sustainability				



Document	Key outcomes/ objectives	Key traffic facility issues			
		Vandalism	Uncontrolled Intersections	Speed Management	Rural Road Delineation
	Resilience and security				
	Economic prosperity				
	Inclusive access	ü			

An analysis of the current investment includes:

- Although Traffic Services assets form only 0.4% (\$3.7 M) of the total Land Transport Activity Replacement Cost it is 5% (\$0.4 M) of the annual depreciation due to short average useful lives of traffic service assets compared to other asset groups.
- The 2020/21 Traffic Facilities maintenance, renewal and improvements budget is 5.2% (\$0.7 M) of the total Land Transport Activity Budget (\$13.4 M). Note that these figures include the budget for Street Lighting which is a separate LCMP containing specific asset information and management strategies (Section 0).
- The largest proportion (75% or \$0.5 M) of the 2020/21 traffic services budget is for operations and maintenance.
- The annual renewal budget over the next 10 years (\$419,225) is above the annual depreciation of \$357,470 the historical expenditure (which is \$217,107 and \$262,554 for 2018/19 and 2019/20 years respectively).

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

- Routine inspections - CHBDC undertakes regular inspections of these assets to ensure that they are fit for purpose
- Repair/replacement of faulty/failed components within specified timeframes.
- Identification, prioritisation and programming of improvements and ordered works.
- Clear reporting requirements based on KPIs.

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

- Implementing the requirements of the ONRC.
- Improve asset data quality in RAMM asset register

12.7.4 Physical Parameters

Asset Values and Quantities

The large majority of traffic facilities data is contained within the RAMM database. This information is continually updated and new traffic signs installed and replaced. Traffic Facility asset relates to signs, markings and sight rails.



Table 7-26 sets out the quantity and value of traffic facilities on the network as at June 2020. Note that guard rails are included under LCMP for Bridges and Large Culverts.

Table 7-26: Summary of traffic facilities assets

Asset Type		Length	Quantity	Unit	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Railings	Rail Steel Post and Wood Rail	225	10	ea	\$22,561	\$8,912	\$733
	Sight Rail Wooden/Timber	10,328	800	ea	\$1,762,576	\$953,907	\$85,680
	Subtotal	10,553	810		\$1,785,137	\$962,818	\$86,413
Signs			5,712	ea	\$1,125,553	\$493,843	\$72,564
Markings	Lines	1,043,849	2,254	ea	\$373,633	\$153,094	\$153,090
	Symbols	997	2,694	ea	\$129,881	\$41,803	\$41,803
	Subtotal	1,044,846	4,948		\$503,514	\$194,897	\$194,893
Islands	Median		13	m ²	\$8,326	\$7,882	\$111
	Rotary		11	m ²	\$1,953	\$989	\$26
	Splitter		703	m ²	\$124,839	\$102,465	\$1,665
	Other		486	m ²	\$81,845	\$57,951	\$1,091
	Subtotal				\$216,963	\$169,287	\$2,893
Minor Structures			47	ea	\$83,061	\$48,025	\$3,711
False Kerbs			9	ea	\$3,706	\$1,887	\$67
Total					\$3,717,934	\$1,870,757	\$360,541

Traffic Facilities assets have very low values compared to the other asset types. This accounts for only 0.4% of ORC of Land Transport asset values. Annual Depreciation portion (5% of total AD) is higher than ORC portion, due to shorter useful lives of these assets, particularly markings (Figure 7-45 and Figure 7-46).

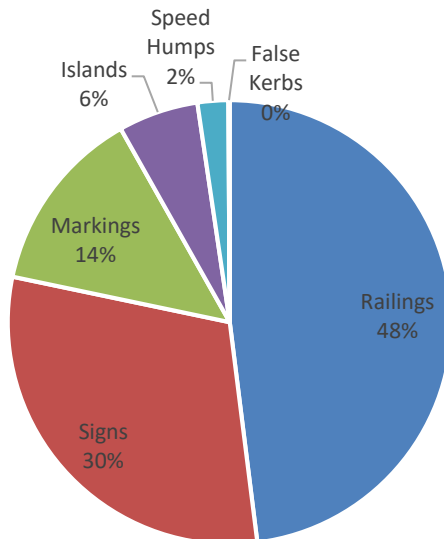


Figure 7-45: Replacement cost for traffic facilities

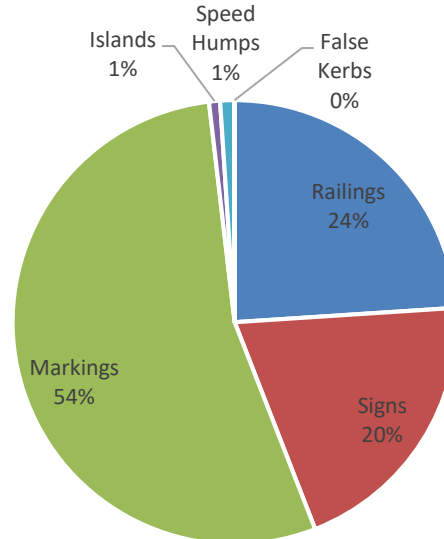


Figure 7-46: Annual depreciation for traffic facilities

Asset Age and Condition

As no formal rating process is undertaken on the traffic facilities asset, the actual condition of the asset cannot be determined. This however is not a priority as the stock is in general continually inspected and maintained through consultant and Council network inspections and routine inspections completed under the Maintenance Contract.

It can be assumed due to the revolving nature of the asset that it is in average condition. There are some very old signs on the network that are in poor condition. These are identified on an ongoing basis through auditing and inspections, and replaced when they are no longer fulfilling their intended purpose.

Availability of asset age data for traffic facilities is low. In average, signs have a useful life of 15 years and rails have 30 years. Road Markings have a very low useful life which is estimated as 2 years.

Asset Capacity/Performance

Asset capacity for traffic facilities is related to a number of factors:

- The appropriate message in the appropriate spot at the appropriate time
- Road widths
- Daily traffic

The appropriate message relates to the road user being able to traverse the road network without surprise. Road width and traffic are related to providing accurate message to the road user for the changing condition.

12.7.5 Operations and Maintenance Plan

The Lifecycle Management Plan objective for Traffic Services Maintenance is:

Undertake regular inspection of signs and delineation devices to ensure that they are fit for purpose.



Routine maintenance for signage only relates to the:

- Painting of Posts
- Cleaning of signs and surfaces
- Straightening of posts and edge marker posts
- Re-erecting of non-damaged signs and edge marker posts.

12.7.6 Renewal Plan Traffic Services Renewals

The Lifecycle Management Plan objective for Traffic Services Renewals is:

Implement a higher standard of delineation and signage on those routes of strategic importance.

Also to identify areas of the network which are considered inadequate in terms of delineation and signage. To ensure that the appropriate traffic device is located at the appropriate spot in the appropriate environment.

For Road Marking the annual outputs have averaged approximately 490km for the last three years. This amount will trend upwards as roads are sealed and widened thereby enabling centreline marking to be applied

Due to the new performance measures within the ONRC the signage and roadmarking standards will be reviewed within the next 2 years with an increasing focus on meeting those performance measures.

12.7.7 Development Works Plan

As a part of Waka Kotahi NZ Transport Agencies Investment Audit Report, which reviews the investment in Council's land transport programme to ensure it is well managed and delivering value for money.

A recommendation from this report is to develop and implement a rural road delineation strategy, based on ONRC classifications and include strong focus on curve warning. Along with this there is a recommendation to improve rural intersection which also incorporate signage and road marking upgrades.

The Creation / Acquisition / Augmentation Plan is as follows:

- a. Selection Criteria based on a strategy of:
 - Upgrading / Installing EMP as required by the ONRC,
 - Where identified through safety audits, crash investigation reports, customer request placement of curve direction and speed advisory signs.
- b. Standards and specifications – adopt those standards and specifications currently used in the construction industry.
- c. Forecast of acquisition needs, costs and timing – As in the Annual Plan.
 - Funding Strategy – Funding is provided through Roading rate and Waka Kotahi subsidy for roading, and community funding. Further when Council can fund Minor Safety, extra level of funding is available from Waka Kotahi.

12.7.8 Disposal Plan

In general, the disposal of Traffic Facilities occurs through replacement of stock due to:

- Traffic accidents
- Vandalism
- Strategy replacement upgrade.



12.7.9 Traffic Facilities Expenditure

Figure 7-47 to Figure 7-50 set out the 2018-21 annual average, the LTP 10 year expenditure forecast and the 10 year average forecasted expenditure until 2040 for operations and maintenance, and renewal expenditure for Traffic Facilities assets. Refer to section 7.5 for the key assumptions these figures are based on. Average annual budget of \$0.5 M, \$0.2 M and \$0.2 M are allocated for Traffic Facilities operations and maintenance; renewal; and improvement works respectively.

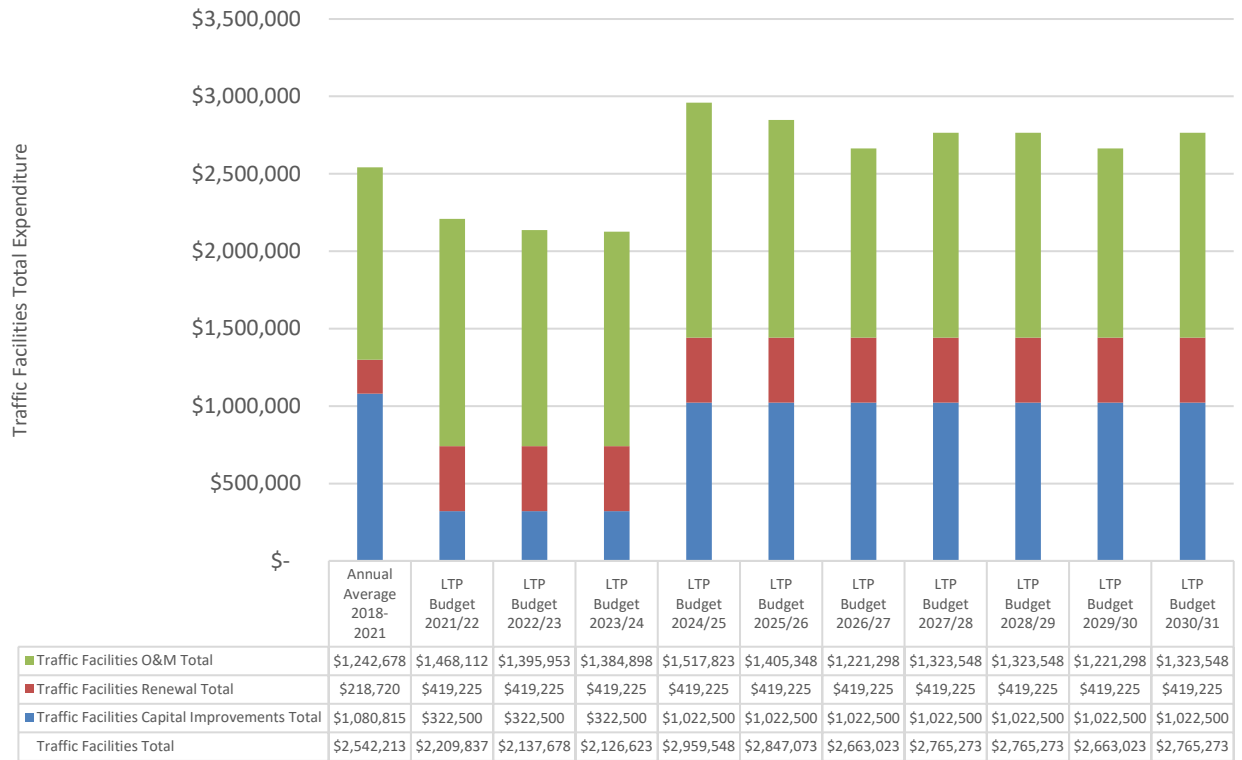


Figure 7-47: Traffic facilities total expenditure



Figure 7-48: Traffic facilities operations and maintenance expenditure

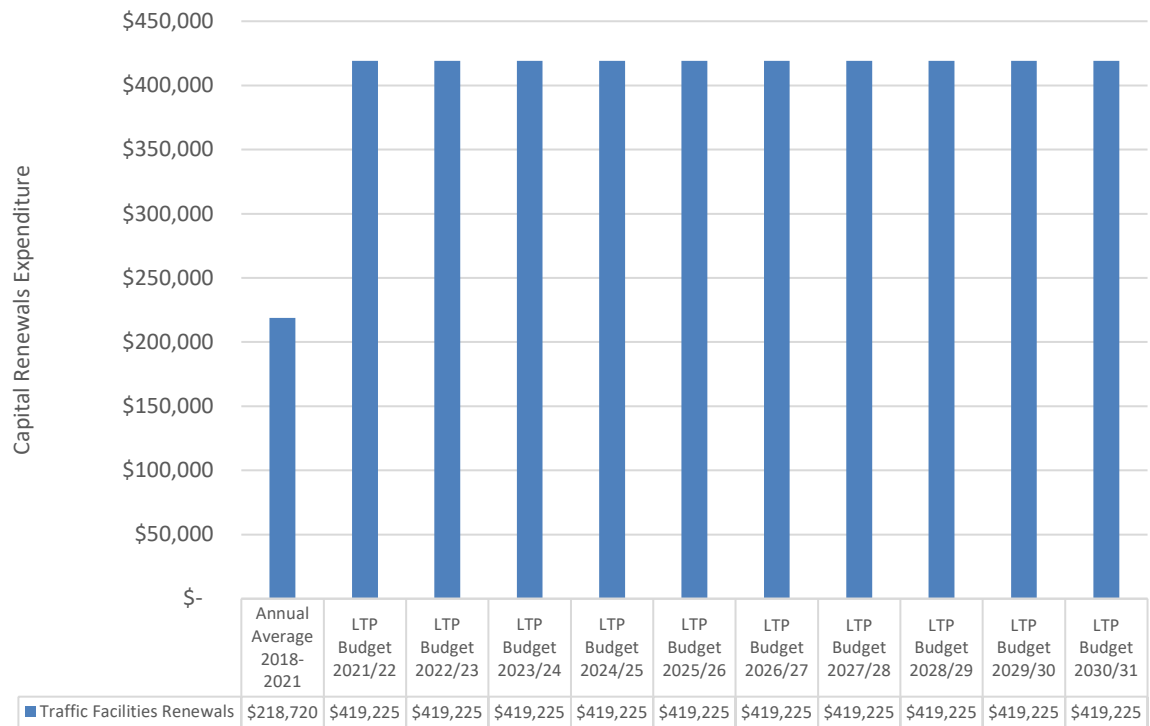


Figure 7-49: Traffic facilities capital renewal expenditure

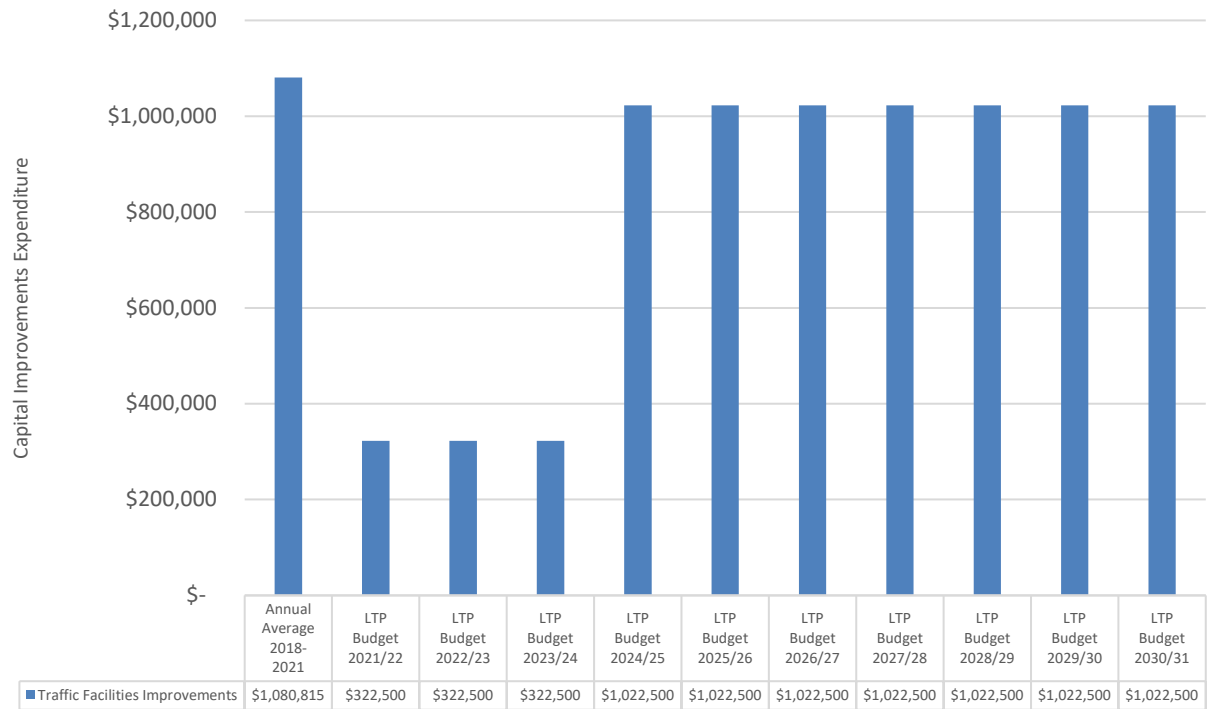


Figure 7-50: Traffic facilities capital improvements expenditure



12.8 Streetlights

12.8.1 Overview

Council has a large number of streetlights, which play a key traffic safety role in the urban areas and at major rural intersections. Streetlights are also important for creating a walkable urban environment after dark and for providing general social and security lighting in the urban area.

The fundamental goal of a structured approach to streetlight management is to allow Council to establish an effective strategy for the asset that achieves an optimised balance between life-cycle cost, risk and level of service.

The purpose of this Streetlight Lifecycle Management Plan is to:

1. Document our approach to streetlight management and adopted management strategies for whole-life asset optimisation.
2. Monitor the streetlight characteristics, conditions, serviceability and risk.
3. Provide analysis of the streetlight asset to inform lifecycle management decision making at a network level.
4. Respond to risk exposure and the changing operating environment.

12.8.2 Key Issues and Risks

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

Table 7-27: Key issues and risk for streetlights

Key Issue	Strategies to Address Key Issues
Street lighting columns in high use areas fall over in high wind or earthquake causing death or serious injury	Ensure accurate and regular condition grading and timely maintenance and renewal programmes.
Changing to LED - LED (light emitting diode) street lighting offers a number of benefits compared to HPS (high pressure sodium) lighting, including reduced energy and maintenance costs, and better light quality leading to increased public safety.	CHBDC will develop an LED strategy which will consider LED application both for new and renewal of existing installations, based on the lowest whole of life cost

12.8.3 Business Case

Council considers that it has an intermediate approach (confidence level is "Moderate") to the streetlighting investment, and has identified areas for improvement.

Investment in traffic services assets is required because:

- Streetlights illuminate the carriageways, improve the visibility of the carriageway, identify hazards at night and support the facilitation of safe movement. It is particularly needed in areas with a likelihood of conflict between vehicles, pedestrians or cyclists.

Table 7-28 shows how the key drainage issues (discussed in Table 7-27) link to the overall Strategic Case and other relevant documents.



Table 7-28: Key streetlight issues in relation to the problem statements, and other relevant documents

Document	Key outcomes/ objectives	Key retaining issues	
		Pole condition	LED lights
Problem statements	Resilience	ü	
	Access		ü
	Safety	ü	ü
CHB Land Transport Strategic Framework	Safety above all else	ü	ü
	Connected and resilient infrastructure	ü	ü
	Protecting our natural environment		ü
	Economic resilience and financial sustainability		
CHB Long Term Plan	Proud district		ü
	Prosperous district		
	Strong communities		
	Connected citizens		ü
	Smart growth		ü
	Environmentally responsible		ü
	Durable infrastructure	ü	ü
Government Priority Statement for Transport	Safety	ü	ü
	Better travel options		ü
	Climate change		ü
	Improving freight connections		
Ministry of Transport Outcomes Framework	Healthy and safe people	ü	ü
	Environmental sustainability		ü
	Resilience and security	ü	



Economic prosperity	
Inclusive access	ü

An analysis of the current investment includes:

- Carriageway lighting assets form 0.2% (\$1.7 M) of the total Land Transport Activity Optimised Replacement Cost and 1.4% (\$0.1 M) of the annual depreciation. Street Lights have shorter useful lives compared to other asset types.

Budget for Carriageway Lighting is included in the Traffic Facilities budget. Traffic Facilities also includes signs, road marking, and site rails (refer to Section 0:



- **Traffic Facilities).** The average annual budget (maintenance, renewal and improvements) for Traffic Facilities over the next 10 years is 7.7% (\$0.9 M) of the total Land Transport Activity budget.
- The annual renewal budget for Traffic Facilities over the next 10 years is \$419,225.
- Streetlight calls have remained the same over the last five years.

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

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

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

- Developing an LED strategy for the changeover to LED lighting. This is expected to achieve long-term savings through reduced electricity consumption and longer lamp lives.

12.8.4 Physical Parameters

Asset Values and Quantities

The carriageway lighting data is contained within the RAMM database. This information is continually updated as lights/poles are replaced and upgraded.

Table 7-29 sets out the quantity and value of lighting components on the network.

Table 7-29: Streetlights asset summary

Asset Type		Quantity	Unit	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Pole	Concrete	11	ea	\$44,046	\$23,705	\$1,762
	Steel	266	ea	\$1,065,112	\$577,723	\$42,604
	Wood	0	ea			
	Subtotal	277	ea	\$1,109,158	\$601,428	\$44,366
Bracket		777	ea	\$199,720	\$104,996	\$7,989
Light	HPS	784	ea	\$344,167	\$90,555	\$39,758
	FL	118	ea	\$9,071	\$4,535	\$1,512
	LED	27	ea	\$21,645	\$19,107	\$722
	Other	7	ea	\$21,265	\$10,494	\$2,135
	Subtotal	936	ea	\$396,148	\$124,691	\$44,126
Total		1,990	ea	\$1,705,026	\$831,115	\$96,481

Asset Distribution

The distribution of the streetlights across the network is shown in **Figure 7-51**.

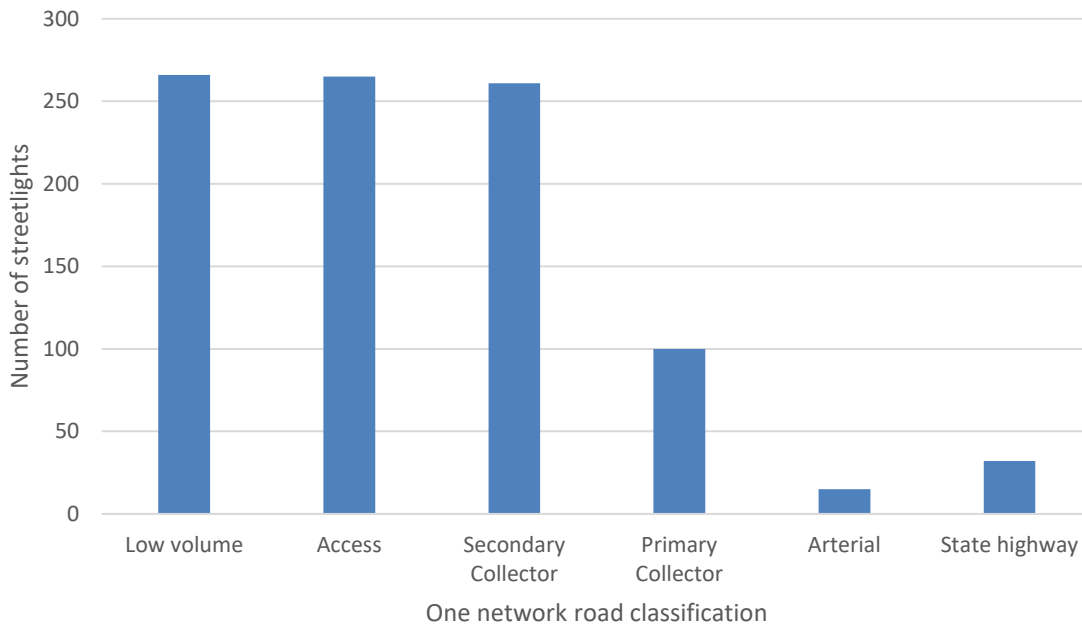


Figure 7-51: Carriageway light distribution (including utility owned poles)

Age and Condition

Through the process of routine maintenance and inspection, it is communicated that the lighting stock is in average condition overall, inclusive of poles where owned by Council, brackets and lights which encompass lamp, gear etc. This is shown in **Figure 7-52** to **Figure 7-54**.

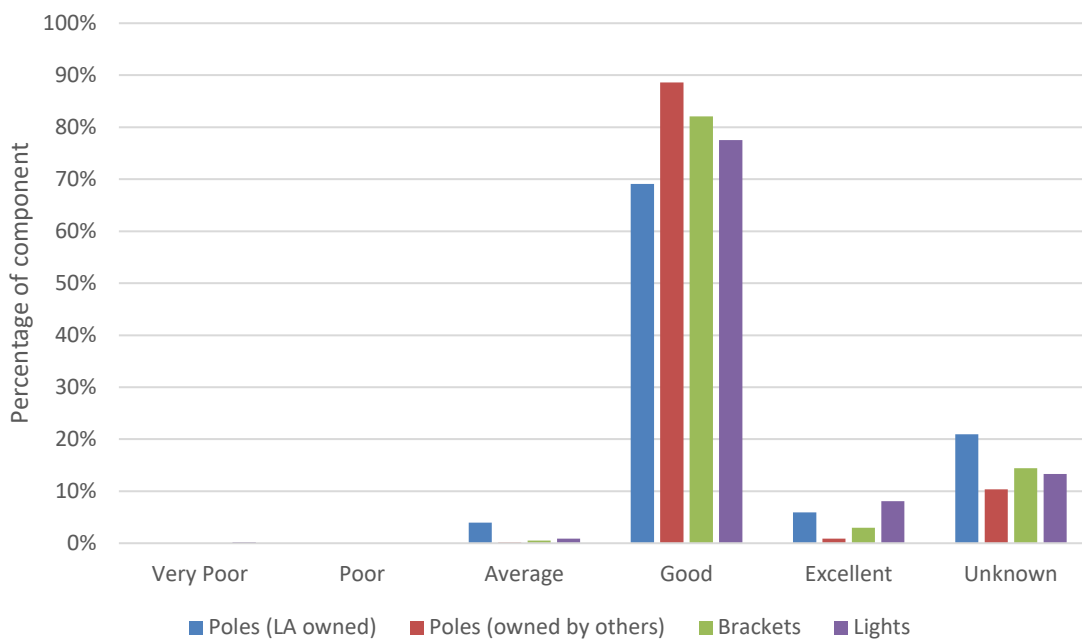


Figure 7-52: Streetlight component condition

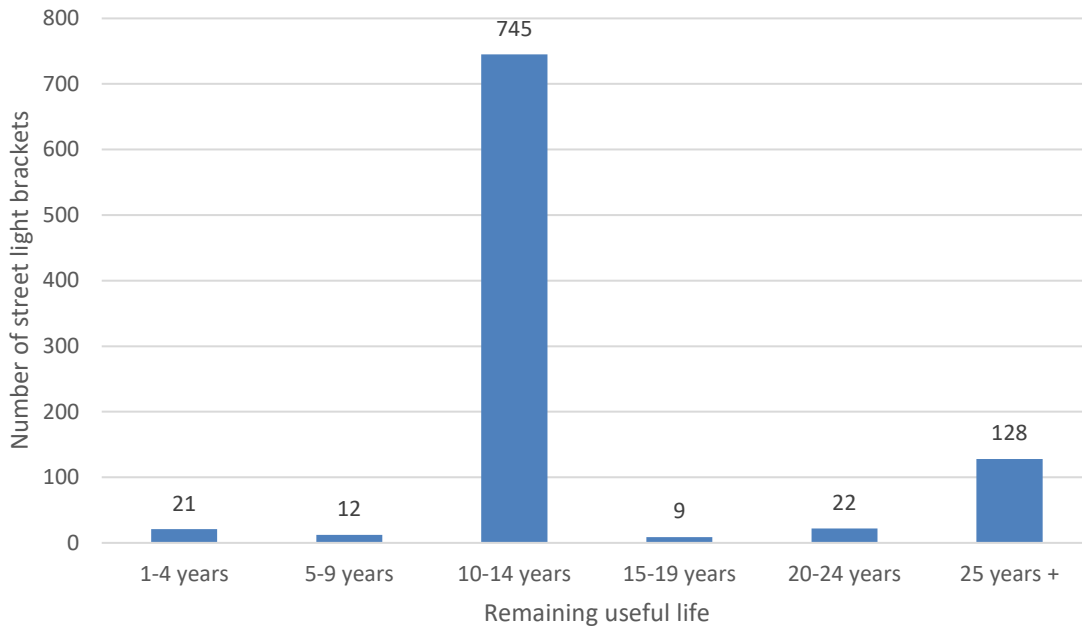


Figure 7-53: Assumed remaining useful life of carriageway light brackets

The assessed remaining useful life indicators for brackets indicate that the majority portion of the asset will have reached the end of its useful life within 15 years. This asset depreciation will need to be monitored effectively through condition rating assessments to ensure that the structural integrity of brackets remains satisfactory and does prevent injury.

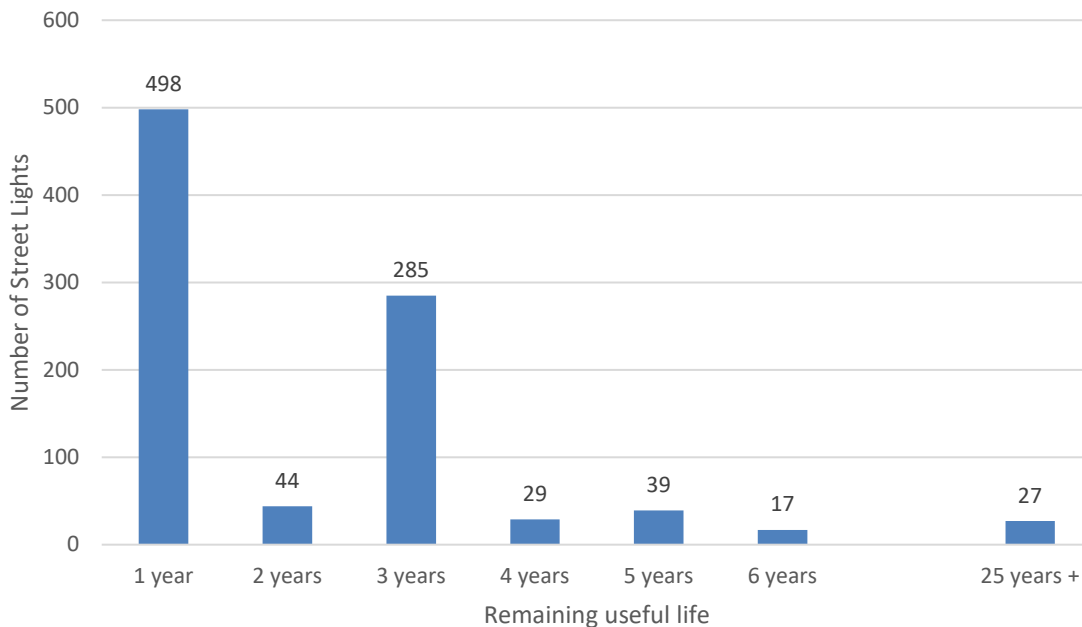


Figure 7-54: Assumed remaining useful life of lights

The assessed remaining useful life indicators for lanterns indicate that the majority portion of the asset will have reached the end of its useful life within one year. The majority of the lanterns are high pressure sodium (HPS) which generally produces a yellow light and has poor



colour rendering properties. The HPS lamp has a slightly higher lumen output per lamp when compared with other lantern types and also has a slightly longer operating life.

Any deterioration in this regard needs to be monitored, albeit mindful that the rated life does not account for the lumen depreciation, colour change, and loss of efficacy (lumens per watt) as lamps age. Economic life is a much better description of actual lamp life rather than rated life. It refers to the hours of operation a lamp is designed to provide in terms of optimum light output, aesthetic quality, and economic energy consumption.

So whilst a typical response may be to replace on failure as opposed to bulk replacement programmes, it should be noted that while lamps may continue to run well past their rated lifespan, their lumen output may have significantly decreased and they will still be consuming full power. This characteristic means that many luminaires appear to be working, even though they are well past their effective operating life, and are often overlooked for maintenance when they should have their lamps replaced. So unless lamps are routinely replaced the lighting installation will not comply with the mandatory requirements of the road lighting standards.

Asset Capacity/Performance

Asset capacity for carriageway lighting is related to a number of factors:

- Location and intent of the lighting
- Traffic volume
- Currently the asset performance is not completely understood in terms of lighting brightness (Lux). Although based on customer inquiry levels the lighting asset would seem to be performing well as there is only limited number of complaints concerning lights not working.

12.8.5 Operations and Maintenance Plan

The Operations and Maintenance plan is under development. This includes a replacement strategy for bulb replacement to incorporate a LED upgrade programme.

The Lifecycle Management Plan objective for Carriageway Lighting Maintenance is:

To routinely inspect and maintain the lights in good operational condition

The District's streetlight inventory has been established in RAMM asset database, recording against a unique identifier, the location, size, type and fittings associated with that particular light.

The routine maintenance of the lighting stock includes repairing of lights not working and routine inspection and cleaning of lamps. The frequency of inspection and maintenance is once every two weeks. The contractor also undertakes a monthly night time inspection, and yearly general fault inspection.

12.8.6 Renewal Plan

The Lifecycle Management Plan objective for renewal of Carriageway Lighting is:

To actively upgrade lamps and fittings to current ASNZ standard on local, distributor, arterial and state highway where the management and ownership is by Council

The standardisation of the fittings and lamps to the GL500 fitting with 70 Watt lamps for Local Roads, 150 Watt lamps for Distributor and Arterial routes, and 250 Watt lamps on Oclyte poles



on Highways and major urban streets has continued to a degree now where there is a minimal amount of older fluorescent lights on the network. Therefore, there is no specific expenditure allowed for future street lighting renewals. Any requirements will be met within the Minor Safety or Maintenance budgets.

The renewal decision process for carriageway lighting is as follows:

- a. Identify failure modes, including the following:
 - Power supply problems
 - Old lights
 - Damage and Vandalism
- b. Review condition indicators
 - Faded lamp covers
 - Failing brackets and poles
 - Reducing Lux (requires measuring)
- c. Assess economic indicators – Increasing maintenance costs, increasing replacement and inspections

12.8.7 Development Works Plan

Where new subdivisions occur in the District, street lights are in the majority of cases added as part of the design and transferred to Council on completion.

The increase in lighting assets impacts on the cost of maintenance. Often poles installed are of a decorative nature and the continued maintenance can be extremely high and replacement poles can be difficult to source due to manufactures not continuing or phasing out a particular decorative style. This needs to be managed in relation to the community expectations in these areas.

The Creation / Acquisition / Augmentation Plan is as follows:

- a. Selection Criteria
 - Other than additional lighting identified for Safety Improvement, Council has no formal lighting acquisition strategy in place. The only addition happens through subdivision development and where requested by the community. Where the community has requested new lighting this is considered in respect to design standards, intent of lighting and request for funding either made in the next financial year or in the current financial year if funds are available.
 - Safety Improvement
- b. Standards and specifications – adopt those standards and specifications currently used in the construction industry.
- c. Forecast of acquisition needs, costs and timing – Except for Safety Improvements there is no Forward Programme identified for lighting asset and the forecast is one of on demand. Cash flow forecast is in the current funding year if affordable or is requested next financial year.
- d. Funding Strategy – Funding is provided through Roding rate and Waka Kotahi subsidy for roading, and community funding.

12.8.8 Disposal Plan

Disposal forecasting for lighting is only associated with the continued upgrade of old fittings to new GL500.

12.8.9 Carriageway Lighting Expenditure

Carriageway Lighting expenditure is included under Traffic Facilities Life Cycle Management Plan.

12.9 Walking and Cycling Infrastructure

12.9.1 Overview

The purpose of footpaths and pedestrian ways is to provide a safe, convenient and defined means for pedestrian movement alongside and linking roadways and public space.

12.9.2 Key Issues and Risks

Although Council undertakes general road corridor inspections for maintenance purposes, it currently does not undertake footpath condition rating, nor have a planned programme of footpath renewals.

Footpath repairs are a combination of scheduled and reactive works to ensure safety hazards are eliminated and to prevent an increase in size or cost to repair the damaged area.

The lack of walking and cycling infrastructure leads to a reliance on private vehicles and affects the safety of pedestrians and cyclists.

12.9.3 Business Case

CHBDC considers that it has a MEDIUM level of confidence in its approach to footpath investment, and has identified areas for improvement.

Investment in drainage asset is required because:

- Provide a safe, convenient and defined means for pedestrians and cyclists linking roadways and public space.

Table 7-30 shows how the key Walking and Cycling issues link to the overall Strategic Case and other relevant documents.

Table 7-30: Key walking and cycling issues in relation to the problem statements, and other relevant documents

Document	Key outcomes/ objectives	Key walking and cycling issues			
		Increasing legislative requirements	Footpath renewals	Footpath and Cycleway Connectivity	Car Dependency
Problem statements	Resilience				
	Access	ü	ü	ü	ü
	Safety	ü	ü	ü	ü
CHB Land Transport Strategic Framework	Safety above all else				
	Connected and resilient infrastructure	ü	ü	ü	ü



Document	Key outcomes/ objectives	Key walking and cycling issues			
		Increasing legislative requirements	Footpath renewals	Footpath and Cycleway Connectivity	Car Dependency
	Protecting our natural environment				
	Economic resilience and financial sustainability				
CHB Long Term Plan	Proud district	ü	ü	ü	
	Prosperous district	ü		ü	ü
	Strong communities	ü	ü	ü	ü
	Connected citizens	ü	ü	ü	ü
	Smart growth	ü	ü	ü	ü
	Environmentally responsible			ü	ü
	Durable infrastructure		ü	ü	ü
Government Priority Statement for Transport	Safety	ü	ü	ü	ü
	Better travel options	ü	ü	ü	ü
	Climate change				
	Improving freight connections				
Ministry of Transport Outcomes Framework	Healthy and safe people	ü	ü	ü	ü
	Environmental sustainability			ü	ü
	Resilience and security	ü	ü	ü	ü

Document	Key outcomes/ objectives	Key walking and cycling issues			
		Increasing legislative requirements	Footpath renewals	Footpath and Cycleway Connectivity	Car Dependency
	Economic prosperity				
	Inclusive access	ü	ü	ü	ü

An analysis of the current investment includes:

- Active transport assets form 2% (\$20.6 M) of the total Land Transport Activity Replacement Cost and 4% (\$0.3 M) of the annual depreciation.

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

- Focus and effort go into spending only what it needs to; to make better investment decisions to sustain the transport network in the long term; by targeting the right treatments, to the right places, at the right times and for the right costs.
- This is explained further in the maintenance and renewal strategies.
- Footpath condition ratings are carried out yearly.

12.9.4 Physical Parameters

Asset Value and Quantities

The footpath physical data is contained within the RAMM database. This information is continually updated as footpaths are rehabilitated, and new footpaths added. Currently there are no identified cycle-ways in RAMM; however, this will be updated when the implementation of the Walking and Cycling Strategy has been completed. **Table 7-31** sets out the type and quantity of footpaths.

Table 7-31: Summary of footpath assets

Asset Type		Length (m)	Quantity	Unit	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Footpath	AC	9,597	26,587	m ²	\$1,974,380	\$1,197,965	\$23,428
	Concrete	56,685	93,591	m ²	\$12,607,590	\$7,400,278	\$150,083
	Interlocking Block	1,224	3,525	m ²	\$390,297	\$246,514	\$5,862
	Seal	1,619	3,969	m ²	\$294,708	\$101,901	\$6,631
	Slurry	592	1,899	m ²	\$140,997	\$72,625	\$2,999
	Subtotal	69,717	129,571	m²	\$15,407,973	\$9,019,284	\$189,003



Asset Type		Length (m)	Quantity	Unit	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Crossings	Bevelled Kerb	129,000	1,408	ea	\$2,520,545	\$1,311,591	\$33,607
	Bridge Crossing	4,000	739	ea	\$2,367,335	\$1,188,560	\$31,562
	Heavy Duty		16	ea	\$86,525	\$46,002	\$1,154
	Slot		82	ea	\$159,447	\$79,283	\$2,126
	Steel Ramp		21	ea	\$67,272	\$33,187	\$897
	Subtotal	133,000	2,266	ea	\$5,201,123	\$2,658,623	\$69,346
	Cycleways	-	-		-	-	-
Total					\$20,609,096	\$11,677,907	\$258,349

The footpath, pedestrian access-way and cycleway asset comprises of:

- Footpath, inclusive of kerb let downs, disabled crossings and pedestrian crossings
- Pedestrian access-ways
- Cycle-ways

Figure 7-55 and Figure 7-56 indicates, concrete footpaths account for 61% of the replacement cost and 58% of the annual depreciation for active transport infrastructure.

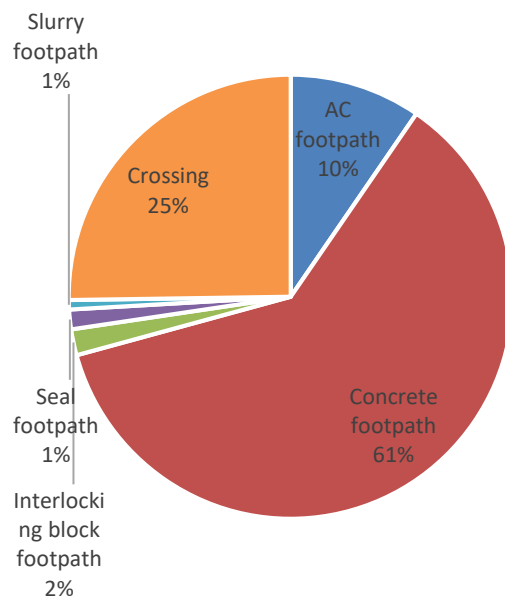


Figure 7-55: Replacement costs for footpaths and crossings

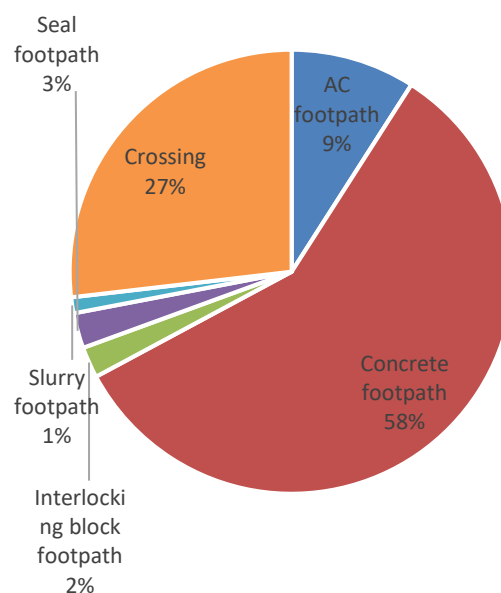


Figure 7-56: Annual depreciation for footpath and crossings

Asset Age and Condition

The assumed remaining useful life of footpaths in Central Hawke's Bay is shown in **Figure 7-57**. There is 770 m of footpath reaching its end of life in the next 10 years, with 220 m only having one year of assumed useful life remaining.

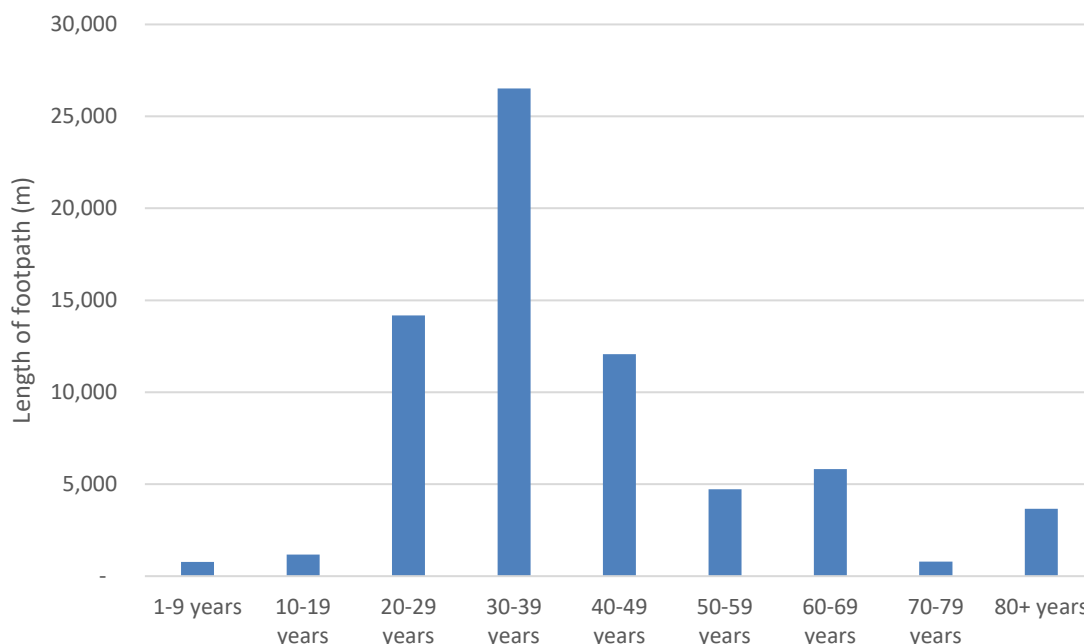


Figure 7-57: Assumed remaining useful life of footpaths

Every year the footpath is rated for defects. The rating methodology is focused on identifying the length of footpath that falls within a certain condition profile. The full rating methodology is set out in the Database Operation document. In general, there are five levels of condition, 1 – Excellent with no work required, through to 5 – Very Poor with immediate renewal required.

While there is some condition rating information available for footpaths, it is very limited with 92% classed as unknown, 6% as excellent, and 2% as average. Immediate renewal is required for 299 m of footpath as it is classed as being in very poor condition.

Asset Capacity/Performance

Footpath asset capacity is linked to several factors:

- Pedestrian Volume/Use
- Traffic Volumes
- Location

Current capacity of footpath asset meets utilisation where provided, although not all urban streets have a footpath down each side. The pedestrian usage of footpaths is generally low with over 50% of footpaths classified as low use, and only 6% classified as medium/ high or high use.

12.9.5 Operations and Maintenance Plan

The Lifecycle Management Plan objective for Footpath Maintenance is:

To ensure that a safe surface is maintained on existing footpaths within the District. This will be achieved through the continued condition rating of the District footpaths to identify and programme areas of fault.

The maintenance of the footpath asset is generally not eligible for Waka Kotahi funding unless the footpath is part of a safety footpath, as part of subsidised street widening, part of a reconstruction project or as part of the Walking and Cycling Strategy.

In terms of maintenance, the footpath asset is generally maintained through renewal rather than maintenance. For this reason, the funding of the footpath maintenance will appear in the renewal section of this LTAMP. A limited amount of maintenance is completed on sections of footpath (e.g. existing sealed or asphalt surface that is prone to pothole), which are treated through Routine Maintenance to maintain safety. Table 7-32 sets out the routine maintenance for the footpath asset.

Table 7-32: Footpath, pedestrian access-way and cycleway maintenance annual operational service level targets

Activity Description	Annual OSL Target Quantities
Footpaths and Pedestrian Access-ways	\$14,617
Cycle-ways	\$0

12.9.6 Renewal Plan

The Lifecycle Management Plan objective for Footpath renewal is:

To undertake a programme of renewal based on a condition and need. To protect against asset consumption and to maintain in a safe condition for pedestrians.

The footpath asset is generally maintained through the renewal of sections of footpath identified as being in poor or very poor condition (rated as ≥ 4). This forms the basis of the contract schedule of sites and is visually confirmed in the field. During this process the footpath length in total is considered and where there are areas of lesser fault, but economics of treating the entire length can be realised, then the entire length is treated.

Table 7-33: Footpath, pedestrian accessway and cycleway renewal annual operational service level targets

Activity Description	Annual OSL Target Quantities
Footpaths and Pedestrian Access-ways	\$289,394
Cycle-ways	\$0

No further expenditure has been identified at this time for cycle-routes as the primary routes were installed in 2009/2010, in accordance with the Walking and Cycling Strategy.

Vehicle Crossings

Council's Policy of June 2007 places responsibility of the maintenance and renewal of vehicles crossings in residential areas on the respective property owners.

In the event of the footpath component of a vehicle crossing being renewed (generally) the remainder of the crossing is completed in conjunction with this work at the property owner's expense.



12.9.7 Development Works Plan

Capital works are those works that create a new asset that did not previously exist or work, which upgrade or improve an existing asset beyond its present capacity. They may result from growth, social or environmental needs. Assets may be acquired at no direct cost to the organisation (i.e. sub divisional development).

The Renewal Replacement Plan is as follows:

- a. Selection Criteria
 - Formal procedure to rank asset creation/acquisition projects is to be determined through workshop with Council staff, a ratepayer request or petition submitted and approved by Council. Council policy states that Council will provide a footpath on one side of all developed community areas over time.
 - Council's Walking and Cycling Strategy identifies actions to develop the pedestrian and cycle route network identified in the strategy.

Table 7-34 sets out the required length to meet this objective.

Table 7-34: Urban footpath length within network

Area	Both Sides (m)	One Side (m)	No Footpath (m)
Ruahine Ward	7,300	6,952	348
Ruataniwha Ward	60,931	59,633	1,298
Aramoana Ward	692	218	474
TOTAL	68,923	67,113	1,810

Table 7-35 sets out the current capital investment Council are making in the footpath asset.

Table 7-35: Footpath, pedestrian accessways and cycleways capital expenditure

Activity Description	Capital Expenditure Quantities
Footpaths and Pedestrian Access-ways	\$0
Cycleways	\$0

Although it is Council policy is to provide a footpath on one side of all developed community areas, there is no funding identified for this purpose, so surpluses from the renewal budgets are used. No capital expenditure has been identified for cycle-ways.

- a. Standards and specifications – adopt those standards and specifications currently used in the construction industry.
- b. Forecast of acquisition needs, costs and timing – No future need for creation or acquisition is identified in this LTAMP. Without further investigation into the expected demand on the asset as defined in the Section 4 Future Demand any programme of creation acquisition would be forecasting funding on little knowledge.
- c. Funding Strategy – Total cost of acquisition proposals, costs apportionment i.e. Waka Kotahi, Developers, TLA, etc.



12.9.8 Disposal Plan

The only disposal associated with the footpath asset is at the time of renewal where footpath in very poor condition is being renewed.

12.10 Vegetation and Streetscapes

12.10.1 Overview

Vegetation and streetscapes provide the amenity elements to the land transport environment and includes grass berms, gardens and trees. The verges can be in an urban or rural environment and create a buffer between the road pavement and private land.

12.10.2 Key Issues and Risks

Table 7-36: Key issues and risks for vegetation and streetscapes

Key Issue	Strategies to Address Key Issues
Programme Optimisation in Difficult Conditions	Status quo, re-allocate as appropriate within existing budgets.
Falling Trees	<p>Increase O&M budget for roads, drainage and safety related works such as fallen trees.</p> <p>Also some of the Minor Improvement budget for proactive identification and removal of hazardous / unstable trees.</p> <p>Work with property owners to manage trees on critical routes in the District.</p>
Log Hauling from Forestry Land Use	Re-allocate existing pavement heavy maintenance and renewals budgets to focus on routes of known and expected log haulage
Understanding Critical Assets and Critical Routes	Increase AM and NM activities to improve data, analysis (dTMS) and studies for predicting failures and renewals of critical assets and routes; including on routes of single entry point and on Lifelines routes. Check ONRC categories and importance of these routes.

12.10.3 Business Case

CHBDC considers that it has a low confidence approach to vegetation and streetscape investment. Well managed roadside vegetation maintains unobstructed driving visibility and assists with protection of the assets and the environment.

A high risk has been identified with the safety of the trees within the network corridor and an investment is needed to continue to remove the high risk trees. This asset group has the second largest operations and maintenance expenditure. Service request calls for vegetation management have increased suddenly from 2013 due to the increasing age and deterioration of the district tree stock.

12.10.4 Physical Parameters

Asset Quantities

Table 7-37 shows the current extent of the Vegetation and Streetscape assets.



Table 7-37: Extent of vegetation and streetscape assets

Berm Type	Total Length (m)	Width (m)	Area (m ²)	Number
Cover	4,617	88	9,129	44
Flowers	529	8	523	5
Flowers, Cover	309	3	423	2
Grass	84,324	2,191	313,514	636
Shrubs	2,368	94	11,910	22
Trees	N/A	N/A	N/A	160,663
Grand Total	92,147	2,384	335,499	161,372

Asset Values

Vegetation and Streetscapes physical data is contained within the RAMM database.

For all intent and purpose, the length of the network centreline determines the length of vegetation in the network that has to be managed and maintained. Of specific interest to Council is the district tree stock. A portion of this asset is kept on the register and is updated on a regular basis as trees are removed and replanted.

Asset Age and Condition

The entire tree stock is now entered into the RAMM database. A total of 160,000 trees have been identified, located and graded from good to poor. There are 37,000 poor to very poor condition.

The condition of the verges - turf and gardens has not been assessed. The useful lives of these assets (excluding trees and standard turf) tends to be less than 10 years and renewal and replacements are managed via cyclic maintenance rather than capital replacement schedules.

Asset Capacity/Performance

The asset can be divided into two components:

- Vegetation – Berm mowing / spraying
- District Tree Stock

The maintenance of the berm gardens is not a land transport function.

In terms of asset performance, the tree stock can be assessed against and its intended purpose. The tree stock was initially planted some years ago to stabilise areas and protect the roading network.

The trees were never actively managed and this has resulted in many trees falling over, or at risk of falling over. This is a liability for Council due to the large risk associated with the trees.

The grass and garden verges are maintained under the current Road Maintenance Contract.

12.10.5 Operations and Maintenance Plan

The Lifecycle Management Plan objective for Environmental Maintenance is:

Maintain verge (fire prevention) mowing and intersection sight distance mowing at the intervention levels specified in contract service specifications.

Undertake a programme of tree removal to target areas of high risk exposure from falling trees

Table 7-38: Environmental maintenance annual operational service level targets

Activity Description	Annual OSL Target Quantities
Vegetation Control	\$400,000
Tree Removal	\$360,000

For the purpose of this LTAMP the asset component of Vegetation and Streetscapes will cover such things as the traditional verge mowing as completed through maintenance contracts, tree management and all related vegetation issues.

Mowing within the District is typically completed in rounds of the whole district (3 to 4 times per year) or in partial rounds not less than 25% of the District. The Contractor is responsible for identifying (using growth rate) and scheduling the mowing rounds accordingly throughout the year. Grass heights should not be allowed to exceed 250 mm on the rural network.

Tree removal remains a critical activity. The entire tree stock is now entered into the RAMM database. A total of 169,000 trees have been identified, located and graded 1 (good) to 5 (poor). There are 35,000 grade 5 trees.

12.10.6 Renewal Plan

The Lifecycle Management Plan objective for Environmental Renewals is:

Undertake a programme of tree replanting to target areas of high risk exposure from road subsidence

Environmental renewals include replanting of trees where large dangerous trees have been removed and required where land stability remains a problem and subsidence and dropouts are causing road stabilisation issues. This expenditure is captured in the pavement management renewal programme.

Table 7-39: Environmental renewals annual operational service level targets

Activity Description	Annual OSL Target Quantities
Tree Planting	\$50,000

The Renewal Replacement Plan is as follows:

- Selection Criteria
 - Replacement of low risk stock in areas of poor stability and known subsidence
- Standards and specifications – adopt those standards and specifications currently used in the construction industry.
- Forecast of acquisition needs, costs and timing – No forecasts of new acquisitions are included in this plan.



- d. Funding Strategy – Waka Kotahi subsidy allocation of council rates, where storm damage has occurred and remedial works include stabilisation through replanting then this avenue of funding is utilised at the higher Waka Kotahi subsidy rate.

12.10.7 Development Works Plan

The Creation / Acquisition / Augmentation Plan is as follows:

- a. Selection Criteria
 - Rank asset creation/acquisition projects – Under this plan the creation has been accounted for within the Renewal Replacement plan as this forms over 90% of the strategy.
- b. Standards and specifications – adopt those standards and specifications currently used in the construction industry.
- c. Forecast of acquisition needs, costs and timing – As defined in the Renewal Replacement Plan.
- d. Funding Strategy – As defined in the Renewal Replacement Plan.

12.10.8 Disposal Plan

Disposal is any activities associated with disposal of a decommissioned asset, including sale, demolition or relocation. As part of the tree removal process, the disposal programme needs to be focused on those trees that pose the greatest risk.

12.10.9 Vegetation and Streetscapes Expenditure

Figure 7-58 and Figure 7-59 set out the 2018-21 annual average, the LTP 10 year expenditure forecast and the 10-year average forecasted expenditure until 2040 for operations and maintenance, and improvement expenditure for Vegetation and Streetscapes. Refer to section 7.5 for the key assumptions these figures are based on.

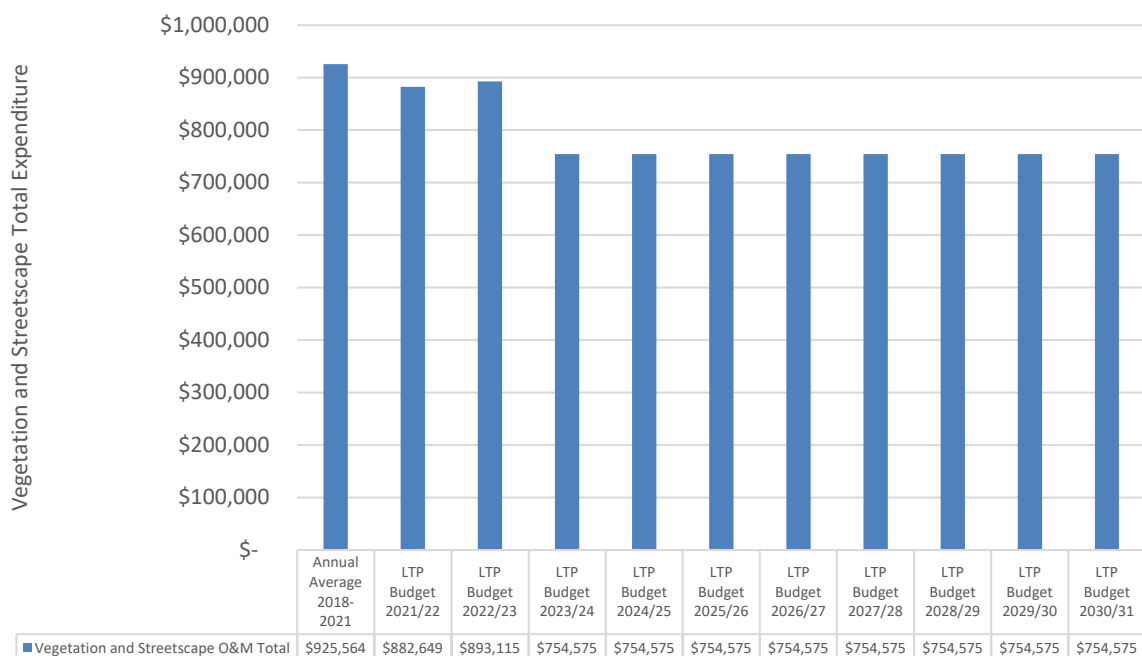


Figure 7-58: Vegetation and streetscape total expenditure

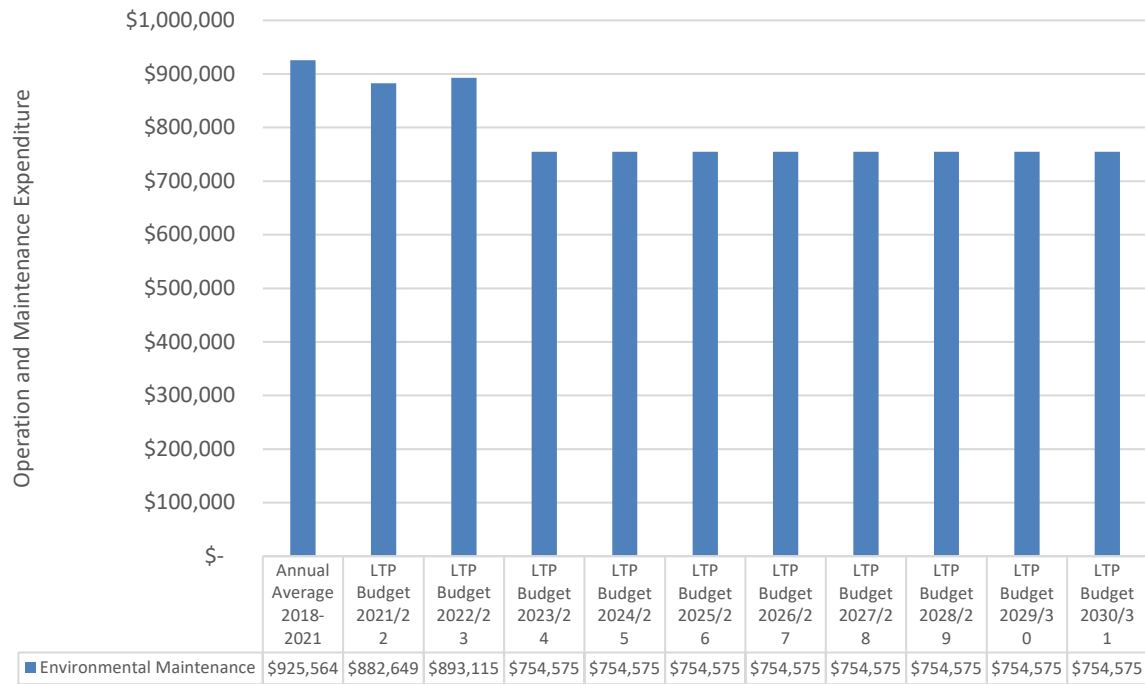


Figure 7-59: Vegetation and streetscape operations and maintenance expenditure

13 Financial Summary

13.1 Revenue and Financing Policy

The management and maintenance of the transportation network is funded from the transportation rate collected by Council and financial assistance received from Waka Kotahi NZ Transport Agency (Waka Kotahi) from dedicated transport funding.

The Government has established a dedicated National Land Transport Fund into which all revenue received from Road User Charges, part of Motor Vehicle Registration and Licensing fees, and all of the fuel excise duty on petrol, LPG and CNG is paid. This fund is distributed by Waka Kotahi after considering requests from Road Controlling Authorities, Passenger Transport Authorities, the Police, Rail and Maritime Authorities.

Targeted rate received from general rates being that portion of the transportation budget not funded by Waka Kotahi investment. For Central Hawke's Bay the (2020/21) unsubsidised portion is presently 40% of the cost of maintaining and renewing the transportation network. In August 2020 Waka Kotahi Board resolved to reduce Councils financial assistance rate by 1% in year 2 of this plan to 59%. As a result, this will need to be covered by Council and will have an impact on rates and/or customer levels of service. As part of the 2021 LTP Council is consulting on changes to its policy which will come into effect for this 2021-31 period. This decrease in the FAR from Waka Kotahi represents a 0.7% increase in rates for all who live in the District.

The first priority is to maintain, operate and protect the existing network at the current levels of service. Maintenance takes approximately 42% of the block allocation provided for Operations, Maintenance and Renewal. Funding for the management, maintenance renewal and improvements of the transportation network is provided from the transportation rate, financial assistance received from Waka Kotahi from the National Transport Fund, fees and charges from transportation activities and Petroleum Tax.

To get subsidy from Waka Kotahi the council must ensure that any project meets the requirements set out in the Land Transport Management Act (LTMA) and all Waka Kotahi and Council requirements.

13.2 Council Financial Strategy

Council's funding policy in the past has been to utilise a combination of Waka Kotahi subsidy and land transport Council rates for maintenance, renewals and development of the roading network. Where appropriate, and agreed by Council, loans may be raised for the development of the roading infrastructure. It is envisaged that this policy will continue in the future.

Council will adopt the following financial policies in the 2021-24 LTP:

- Revenue and Financing Policy
- Funding Impact Statement
- Financial Contributions
- Significance and Engagement
- Rates Remission, Postponement, Discounts and Collection
- Remission of Rates – Financial Hardship due to Covid-19



13.2.1 Waka Kotahi NZ Transport Agency Investment Prioritisation

Waka Kotahi requirements for BCA also include its Investment Prioritisation (formally called the Investment Assessment Framework), which is used to give effect to the Government Policy Statement (GPS) by prioritizing proposals from Approved Organisations (AO) for the 20121-24 National Land Transport Programme (NLTP).

The latest framework has not been released however it will include:

- improvements to the method of prioritising activities in the NLTP to achieve outcomes for government and communities;
- make the process for prioritisation simple; and
- provide confidence that the factors and methods for prioritisation enable the NLTP to deliver on strategic priorities and outcomes.

More details on the Investment Prioritisation Framework is in the Programme Business Case.

13.2.2 Waka Kotahi NZ Transport Agency Funding Subsidy

The management and maintenance of the roading network is subsidised by financial assistance received from Waka Kotahi. Different funding criteria apply to different road categories. The roads that Hawkes Bay District Council are responsible for are all Local Roads. CHBDC receives subsidy rates of 60% for Operations, Capital Renewals and Capital Improvements.

In order to qualify for the Waka Kotahi subsidy Council must ensure that any project meets one or more of the objectives of the LTMA. **Tables 8-1** and **8-2** set out the expenditure that meets this criterion. Table 8.3 sets out the overall district expenditure both subsidised and unsubsidised

	LTP Input 2021/22	LTP Input 2022/23	LTP Input 2023/24	LTP Input 2024/25	LTP Input 2025/26	LTP Input 2026/27	LTP Input 2027/28	LTP Input 2028/29	LTP Input 2029/30	LTP Input 2030/31
111 Sealed Pavement Maintenance	\$ 1,288,675	\$ 1,303,623	\$ 1,290,553	\$ 1,418,453	\$ 1,462,426	\$ 1,507,761	\$ 1,554,502	\$ 1,602,690	\$ 1,652,374	\$ 1,701,945
112 Unsealed Pavement Maintenance	\$ 643,476	\$ 651,106	\$ 658,736	\$ 724,021	\$ 746,464	\$ 769,605	\$ 793,463	\$ 818,060	\$ 843,420	\$ 868,723
113 Routine Drainage Maintenance	\$ 417,474	\$ 417,586	\$ 417,698	\$ 459,094	\$ 473,326	\$ 487,998	\$ 503,127	\$ 518,724	\$ 534,805	\$ 550,848
114 Structural Maintenance	\$ 233,189	\$ 233,189	\$ 233,189	\$ 256,300	\$ 264,244	\$ 272,436	\$ 280,882	\$ 289,589	\$ 298,566	\$ 307,523
121 Environmental Maintenance	\$ 882,880	\$ 882,880	\$ 879,831	\$ 967,027	\$ 997,005	\$ 1,027,912	\$ 1,059,777	\$ 1,092,630	\$ 1,126,501	\$ 1,160,297
122 Traffic Services Maintenance	\$ 513,505	\$ 520,868	\$ 525,446	\$ 577,521	\$ 596,423	\$ 613,881	\$ 632,822	\$ 652,531	\$ 672,761	\$ 692,943
125 Footpath Maintenance	\$ 109,408	\$ 109,408	\$ 109,408	\$ 120,251	\$ 123,079	\$ 127,822	\$ 131,784	\$ 135,870	\$ 140,082	\$ 144,284



131 Crossing Maintenance	\$ 16,345	\$ 16,345	\$ 16,345	\$ 17,965	\$ 18,522	\$ 19,096	\$ 19,688	\$ 20,298	\$ 20,928	\$ 21,555
140 Minor Events	\$ 300,000	\$ 300,000	\$ 300,000	\$ 329,732	\$ 339,953	\$ 350,492	\$ 361,357	\$ 372,559	\$ 384,108	\$ 395,632
151 Network & Asset Management	\$ 974,031	\$ 909,131	\$ 894,976	\$ 1,131,420	\$ 1,040,764	\$ 859,806	\$ 1,011,512	\$ 1,044,845	\$ 948,388	\$ 1,114,847
Total	\$ 5,269,575	\$ 5,234,728	\$ 5,216,774	\$ 5,881,533	\$ 5,939,128	\$ 5,908,987	\$ 6,217,131	\$ 6,411,926	\$ 6,481,851	\$ 6,813,313



Figure 8-1: Subsidised expenditure Maintenance

	LTP Input 2021/22	LTP Input 2022/23	LTP Input 2023/24	LTP Input 2024/25	LTP Input 2025/26	LTP Input 2026/27	LTP Input 2027/28	LTP Input 2028/29	LTP Input 2029/30	LTP Input 2030/31
211 Unsealed Road Metalling	\$ 673,956	\$ 681,945	\$ 689,937	\$ 7,55,533	\$ 778,084	\$ 801,335	\$ 825,307	\$ 850,021	\$ 875,502	\$ 900,926
212 Sealed Road Resurfacing	\$ 1,505,894	\$ 1,523,851	\$ 1,541,709	\$ 1,690,894	\$ 1,742,183	\$ 1,795,063	\$ 1,849,581	\$ 1,905,790	\$ 1,963,742	\$ 2,021,562
213 Drainage Renewals	\$ 869,125	\$ 869,125	\$ 869,125	\$ 955,259	\$ 984,873	\$ 1,015,404	\$ 1,046,882	\$ 1,079,335	\$ 1,112,794	\$ 1,146,178
214 Sealed Road Rehabilitation	\$ 1,377,296	\$ 1,090,000	\$ 1,022,500	\$ 1,119,375	\$ 1,152,680	\$ 1,187,019	\$ 1,222,422	\$ 1,258,922	\$ 1,296,533	\$ 1,334,099
215 Structural Component Renewals	\$ 961,150	\$ 961,150	\$ 961,150	\$ 1,052,441	\$ 1,083,827	\$ 1,116,185	\$ 1,149,547	\$ 1,183,942	\$ 1,219,405	\$ 1,254,787
222 Traffic Services Renewals	\$ 419,225	\$ 419,225	\$ 419,225	\$ 457,799	\$ 471,061	\$ 484,734	\$ 498,831	\$ 513,364	\$ 528,348	\$ 543,299
225 Footpath Renewals	\$ 291,280	\$ 291,280	\$ 291,280	\$ 320,147	\$ 330,072	\$ 340,304	\$ 350,854	\$ 361,730	\$ 372,944	\$ 384,132
Total	\$ 6,097,926	\$ 5,836,576	\$ 5,794,926	\$ 6,351,448	\$ 6,542,780	\$ 6,740,044	\$ 6,943,424	\$ 7,153,104	\$ 7,369,288	\$ 7,584,983

Table 82: Subsidised expenditure Renewals



Account	Full Year Actuals 2019/20	Adopted Annual Plan Budget 2020/21	Operating Budget Total 2020/21	The Plan Y0	The Plan Y1	The Plan Y2	The Plan Y3	The Plan Y4	The Plan Y5	The Plan Y6	The Plan Y7	The Plan Y8	The Plan Y9	The Plan Y10
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sources of Operating	-10,610,083	-9,664,313	-9,664,313	-9,673,419	-9,893,047	-10,003,649	-10,574,817	-9,971,460	-9,837,620	-9,642,422	-9,819,163	-9,754,938	-9,648,978	-9,752,167
General rates, uniform annual general charges and rates p...	-6,562,476	-6,853,686	-6,853,686	-6,906,344	-6,870,235	-7,007,078	-7,589,175	-6,907,593	-6,840,113	-6,753,504	-6,869,917	-6,805,693	-6,760,060	-6,802,921
Targeted rates	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subsidies and Grants for Operating Purposes	-3,844,106	-2,613,110	-2,613,110	-2,569,558	-3,093,389	-3,067,148	-3,056,019	-3,134,445	-3,068,084	-2,959,495	-3,019,822	-3,019,822	-2,959,495	-3,019,822
Fees, charges	-39,829	-35,652	-35,652	-35,652	-39,500	-39,500	-39,500	-39,500	-39,500	-39,500	-39,500	-39,500	-39,500	-39,500
Local authorities fuel tax, fines, infringement fees and othe...	-163,672	-161,865	-161,865	-161,865	110,077	110,077	110,077	110,077	110,077	110,077	110,077	110,077	110,077	110,077
Applications of Operating	7,518,327	6,201,304	6,094,975	6,129,546	6,891,003	6,806,454	7,394,731	6,891,574	6,757,734	6,562,536	6,739,277	6,675,052	6,569,092	6,672,281
Payments to staff and suppliers	6,011,641	4,704,745	4,598,416	4,598,416	5,460,411	5,422,302	5,405,554	5,535,554	5,425,554	5,245,554	5,345,554	5,345,554	5,245,554	5,345,554
Finance costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other operating funding applications	1,506,685	1,496,559	1,496,559	1,531,130	1,430,592	1,384,152	1,989,177	1,356,020	1,332,180	1,316,982	1,393,723	1,329,498	1,323,538	1,326,727
Sources of Capital	-4,416,685	-4,854,768	-4,854,768	-4,773,905	-4,319,843	-4,168,962	-4,144,053	-4,144,053	-4,144,053	-4,144,053	-4,144,053	-4,144,053	-4,144,053	-4,144,053
Subsidies and grants for capital expenditure	-4,416,994	-4,851,768	-4,851,768	-4,770,905	-4,319,843	-4,168,962	-4,144,053	-4,144,053	-4,144,053	-4,144,053	-4,144,053	-4,144,053	-4,144,053	-4,144,053
Gross proceeds from sale of assets	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Development and financial contributions	309	-3,000	-3,000	-3,000	0	0	0	0	0	0	0	0	0	0
Increase (decrease) in debt	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Applications of Capital	7,510,441	8,317,777	8,424,106	8,317,777	7,321,887	7,366,158	7,323,939	7,223,939	7,223,939	7,223,939	7,223,939	7,223,939	7,223,939	7,223,939
to improve the level of service	1,197,163	1,000,000	1,000,000	1,000,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000
to replace existing assets	5,809,733	7,298,657	7,298,657	7,298,657	6,302,767	6,047,038	6,004,819	6,004,819	6,004,819	6,004,819	6,004,819	6,004,819	6,004,819	6,004,819
Increase (decrease) in reserves	503,545	19,120	125,449	19,120	-30,880	269,120	269,120	169,120	169,120	169,120	169,120	169,120	169,120	169,120

Table 8-3: Subsidised and subsidised expenditure

13.3 Fees and Charges

Council forecasts are optimistic from fees and charges and are based on the continued rate of growth. This includes fees from traffic management plans, corridor access requests, vehicle crossings and overweight permits.

13.4 Financial Contributions

The key purpose of the policy is to ensure that new growth funds infrastructure needed to support new residents and business, and those who cause the need for and benefit from that infrastructure fund a fair share of the cost of additional infrastructure to meet that growth. Funding should therefore be sourced from the community or communities that benefit from the development. Financial contributions are not a tool to fund the cost of maintaining infrastructure or changing levels of service for existing users. Those costs will be met from other sources.

13.5 Valuation Methodology

An asset valuation is used for asset management (calculating long term asset renewal projections), identifying loss of service potential (depreciation) and for financial reporting purposes. Statutory financial reporting requirements require CHBDC to revalue its fixed assets at least once every five years, or in any year where there has been a significant movement in asset values.

CHBDC undertakes a full valuation of land transport assets every three years and a short form valuation annual in between.

13.5.1 Methodology

The valuations completed for Council are either a short form or a full valuation carried. A full valuation was undertaken in 2020 and the methodology is outlined below:

- **Asset Data:** Transportation assets owned by CHBDC and held in the RAMM asset information management system was included in the valuation. The data was reviewed to establish confidence in its accuracy and completeness.
- **Unit Replacement Cost:** The rates used in the valuation are contract rates which have been provided by Council. Where current rates were not available, the replacement costs were taken from other similar networks and the industry. All rates were reviewed by Council and confirmed as acceptable for the purposes of running the 2020 valuation.
- **Useful Lives:** The existing valuation setup applies a modification to the remaining useful life for assets, based on the populated available condition data for that asset. The modification can either extend the remaining useful life for assets in good or excellent condition, or conversely, reduce the remaining usual life for those assets in poor or very poor condition.
- **Depreciation Methods:** The annual depreciation indicates the quantity of funding that should be funded each year, to cover the cost of renewing existing assets with a modern equivalent asset at the end of its useful life. These calculations are performed within the RAMM Asset Valuation module. Straight-line depreciation is used for the valuations.
- **Valuation Tool:** RAMM Valuation Module was used to carry out the valuation.

More details can be provided by requesting the *CHBDC 2020 Road Asset Valuation*.

13.5.2 Summary of asset values

Asset valuation derives the following values at component level for each asset:

- **Optimised Replacement Cost (ORC):** The cost of the modern equivalent asset that would be used to replicate the existing asset. The asset cost is 'optimised' down to allow for surplus capacity or technical obsolescence.
- **Optimised Depreciation Replacement Cost (ODRC):** The optimised replacement cost after deducting the wear of an asset to reflect the remaining useful life of the asset, calculated on the gross replacement cost of modern equivalent assets (MEA).
- **Annual Depreciation (AD):** Annual depreciation is the rate of depreciation (straight-line) per year and is the optimised replacement cost divided by the estimated useful life.

Table 8-4 summarises the current valuation by asset group.

Table 8-4: Valuation summary (June 2020)⁷¹

Asset Group	Type	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Pavement	Formation	\$364,568,320	\$364,568,320	\$0

⁷¹ Stantec, 2020 Road Asset Valuation (2020)



Asset Group	Type	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
	Sealed Pavement Layers	\$150,845,729	\$116,175,912	\$1,320,158
	Sealed Pavement Surface	\$19,749,314	\$6,987,198	\$1,463,707
	Unsealed Pavement	\$31,054,463	\$28,923,684	\$483,298
Pavement Drainage	Drainage Assets	\$63,011,333	\$37,167,111	\$891,517
	Surface Water Channels	\$34,470,117	\$17,707,818	\$458,786
Bridges and Guardrails	Bridges	\$121,737,007	\$55,141,701	\$1,217,939
	Major Culverts	\$18,949,198	\$9,686,666	\$250,815
	Guardrail	\$1,873,382	\$1,068,588	\$61,259
Retaining Structures		\$14,598,876	\$10,987,815	\$284,448
Traffic Facilities	Railings	\$1,785,137	\$962,818	\$86,413
	Signs	\$1,125,553	\$493,843	\$72,564
	Markings	\$503,514	\$194,897	\$194,893
	Islands	\$216,963	\$169,287	\$2,893
	Minor Structures	\$83,061	\$48,025	\$3,711
	Traffic Facilities ⁷²	\$3,706	\$1,887	\$67
Streetlights		\$1,705,026	\$831,115	\$96,481
Walking and Cycling Infrastructure	Footpaths	\$15,407,973	\$9,019,284	\$189,003
	Crossings	\$5,201,123	\$2,658,623	\$69,346
	Cycleways	NA	NA	NA
Vegetation and Streetscapes	Berms	NA	NA	NA
	Trees	NA	NA	NA
TOTAL	Excluding Land	\$846,889,794	\$662,794,590	\$7,147,297

⁷² This component includes only the false kerbs, which are stored in the RAMM Traffic Facilities Table.

Asset Group	Type	Replacement Cost	Depreciated Replacement Cost	Annual Depreciation
Land ⁷³		\$37,656,844	\$37,656,844	\$0
TOTAL	Including Land	\$884,546,638	\$700,451,434	\$7,147,297

13.6 Financial Summary – Land Transport

13.6.1 Introduction

CHBDC's Infrastructure Strategy 2021 – 2051, considers how Council will manage its significant infrastructure assets over the next 30 years. The other sections of this AMP describe strategies to manage the Land Transport assets. This section summarises the expenditure forecasts and funding strategies to implement these management strategies.

A table of the Land Transport Financial Forecasts showing subsidised and unsubsidised expenditure for 20- year period from 2021 is shown in **Figure 8-1**. The forecast for the first 10- year period is detailed further in this section below. The financial forecasts are formally reviewed annual as part of the annual plan process but are also updated throughout the year as the road network needs change.

13.6.2 Total Expenditure

This is noted in Table 8.3 above and includes both subsidised and unsubsidised expenditures

Forecasted expenditure is relatively flat with no out of the ordinary expenditure foreseen over the next 20 years. This is based on additional funding already secured for transport works on key routes to cater for heavy productivity vehicles, sustainable growth, a stable infrastructure and the Council's strategy to maintain the infrastructure in an "as is" state.

13.7 Key Assumptions

Key assumptions made in the financial forecasts are as follows:

1. The figures indicated in this section are average actual dollar values for 2018-21 and uninflated dollar values with base year 2021-22 for 2021 to 2031.
2. Overheads such as training are not included, as well as loan repayments and transfers to and from reserves
3. Waka Kotahi will continue to provide subsidised funding to Council for the road network at the proposed rates
4. Depreciation will be raised and used to fund renewals and replacement of deficient infrastructure
5. Council will continue to fund the level of service currently set out in the LTAMP
6. Activities planned are to achieve councils and ONRC/ONF levels of service. This in some instances is through transition timeframe.
7. No account has been taken of the impacts related to the acceptance and implementation of the Risk Management Plan

⁷³ The data relating to the land value is for information only. It is excluded from the cost and depreciation values for all calculations in this document and has been brought forward from the 2007 Valuation undertaken by OPUS Consultants Ltd



8. Assumptions made on Total Useful Life and Residual Useful Lives of the assets in relation to the asset valuation
9. The asset data is considered to be reliable and fit for the purpose for developing the long-term financial forecasts.

14 Asset Management Practices

14.1 Introduction

14.1.1 Overview

This section covers the key Business Processes in place to assist CHBDC in delivering asset management and services.

Specific detail is provided on the following aspects:

- **Business Systems:** Software systems to support the operations of the Transport group and to analyse the data for decision making purposes
- **Data Management:** How data is recorded, where it is stored and how it is used
- **Support Processes and Systems:** Describes the quality management practices in place to enable and sustain asset management practices and decision making.
- **Emergency Planning:** Outlines the responsibilities around preventing and managing emergencies
- **Maintenance, Capital and Renewal Management Strategies:** How interventions are selected
- **Consultation:** details of the consultation and research undertaken to establish the clients and stakeholder's expectations of extent and levels of services provided and key projects
- **Business Continuity Plan:** Details the CHBDCs' ability to function and respond to a crisis
- **Asset Management Teams:** Clarifies roles and responsibilities in relation to the lifecycle of the asset.
- **Asset Management Plan review and monitoring:** Provides guidance on the long-term sustainability of this document

Figure 91 outlines the three key inputs to the AMP to develop outputs for Implementation Tactics.

New Asset Management Practices should be implemented to abide per Waka Kotahi NZ Transport Agency (Waka Kotahi) regulations.

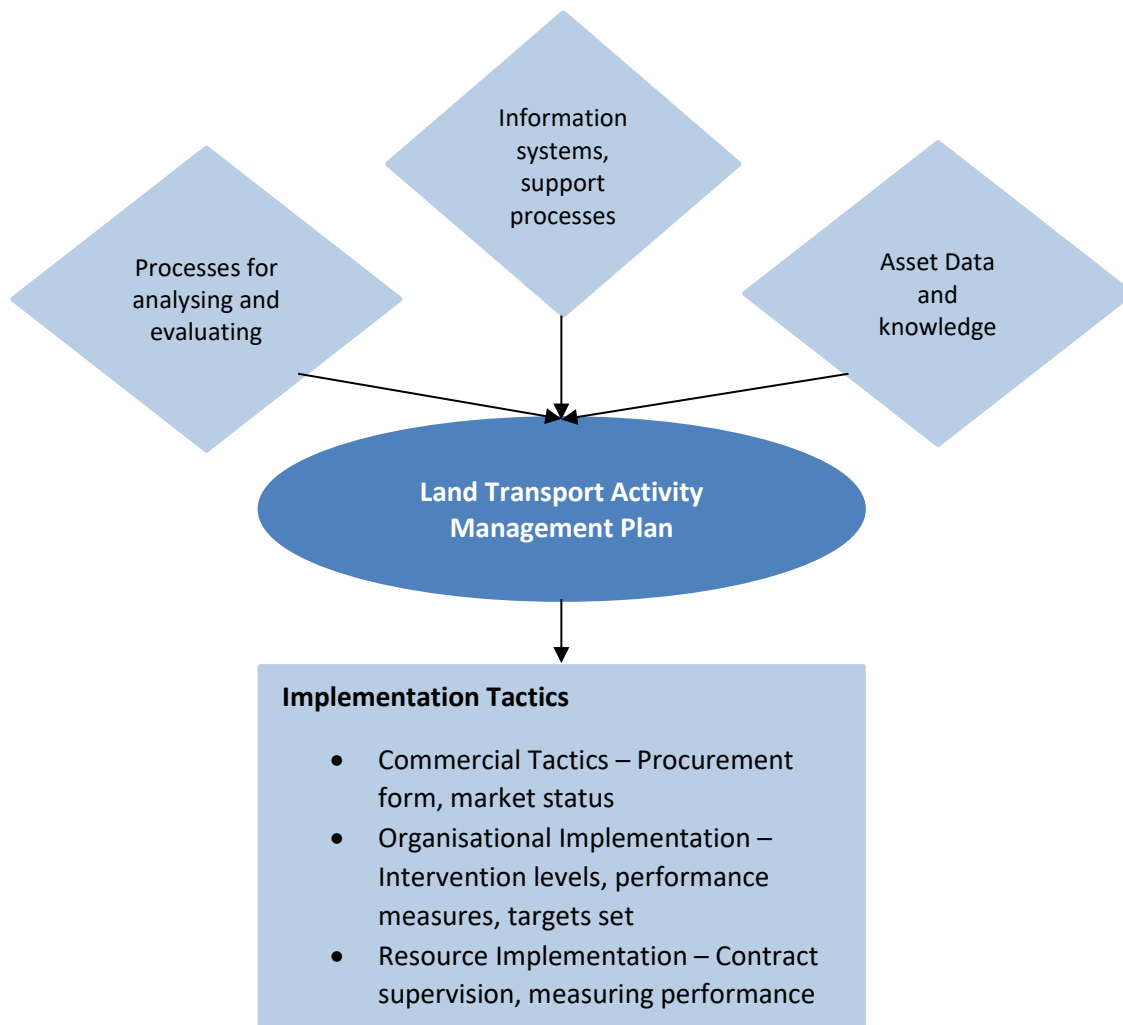


Figure 9-1: Inputs and outputs

14.1.2 Activity and Asset Management Team

Activity Management is undertaken across the activities of Land Transport, Water, Stormwater, Wastewater and Solid Waste. This is undertaken by the Community Infrastructure and Development work group. Asset and activity management within the organisation is led by the Group Manager – Community Infrastructure and Development.

Asset Management roles and responsibilities need to be clearly defined and specifically allocated to people and teams to ensure that what is required is being achieved. The Road Efficiency Group (REG), a partnership between Government, Local Government New Zealand (LGNZ) and Waka Kotahi, has identified capability and capacity gaps across the spectrum of activities necessary to plan, design and deliver a transport system. To address this, REG has created a competency framework for New Zealand transport asset management. CHBDC will adopt this framework for the transport asset management.

The optimal approach is to consider the lifecycle of an asset in two parts - asset planning and delivery. The asset planning aspect encompasses most of the planning and analysis required to define what needs to be delivered at the operational and project level. The delivery aspect responsible for operational delivery of projects and programmes of works (including proactive maintenance) placing the responsibility for asset planning across the lifecycle in a single team enabling a real focus on minimising lifecycle costs.

Table 9-1 outlines the role and responsibilities around activity and asset management.

Table 9-1: Roles and responsibilities

Role	Responsibility
Mayor and Council	<ul style="list-style-type: none"> Endorse Activity Management Plan
Chief Executive Officer	<ul style="list-style-type: none"> Sponsor Infrastructure Strategy and Activity Management Plans
GM – Community Infrastructure and Development	<ul style="list-style-type: none"> Ensure appropriate resources are available to deliver the plan Responsible for the overall delivery of the LTAMP
Land Transport Manager	<ul style="list-style-type: none"> Develop Land Transport Activity Management Plan Develop Levels of Service Manage Risk register Manage operational contracts Deliver the programme in accordance with the approved plan
Director of Capital Projects	<ul style="list-style-type: none"> Externally funded projects Major capital projects
Land Transport Consultant	<ul style="list-style-type: none"> Update Asset register Provide technical and bespoke advice regarding CHBDC's transport system Provide Business Case support to understand the case for change
Chief Financial Officer	<ul style="list-style-type: none"> Maintain fixed asset register Allocate depreciation

14.2 Accounting Financial Systems

Financial management processes will be carried out through Council's financial management and job costing systems provided by Napier Computing Systems (NCS). The Council will record costs against specific funding categories as they are incurred through contractual arrangements or as they are processed through the Council's payroll structure.

The accounting system Council uses is an Accrual Accounting System, which backdates the expenditure to the financial year in which it occurred even if it is paid in the next financial year.

For asset management purposes, expenditure on maintaining the roading asset is divided into categories included in Table 9-2.

Table 9-2: Expenditure categories

Category	Description
Operational	Activities which have a no effect on asset condition but are necessary to keep the asset utilised appropriately (power costs, overhead cost, etc.)



Category	Description
Maintenance	The on-going day-to-day work required to keep assets operating at required service levels, i.e. repairs and minor maintenance.
Renewal	Significant work that restores or replaces an existing asset towards its original size, condition or capacity.
New Work (development, capital works)	Works to create a new asset, or to upgrade or improve an existing asset beyond its original capacity or performance, in response to changes in usage, customer expectation, or anticipated future need.
Disposal	Any cost associated with the disposal of a decommissioned asset.

The category of expenditure needs to be determined as the physical work is completed and paid for. For accounting purposes, expenditure is divided into two categories:

- Operational
- Capital

The accounting system aggregates operational and maintenance costs into an operational category, and renewal and new works into a capital category. This fits in with the Waka Kotahi Work Category Structure.

14.3 Waka Kotahi NZ Transport Agency Financial Systems

Waka Kotahi uses its fully integrated web-based portal Transport Investment Online (TIO) to manage and facilitate the application, allocation, management and reporting of funding.

14.4 Core versus Advanced Asset Management Plans

This management plan is self-assessed at an **Intermediate** level in terms of the Asset Management Plan Maturity Index⁷⁴. The IIMM AMP maturity index is demonstrated in **Figure 9-2**.

⁷⁴ International Infrastructure Management Manual (IIMM) 2015

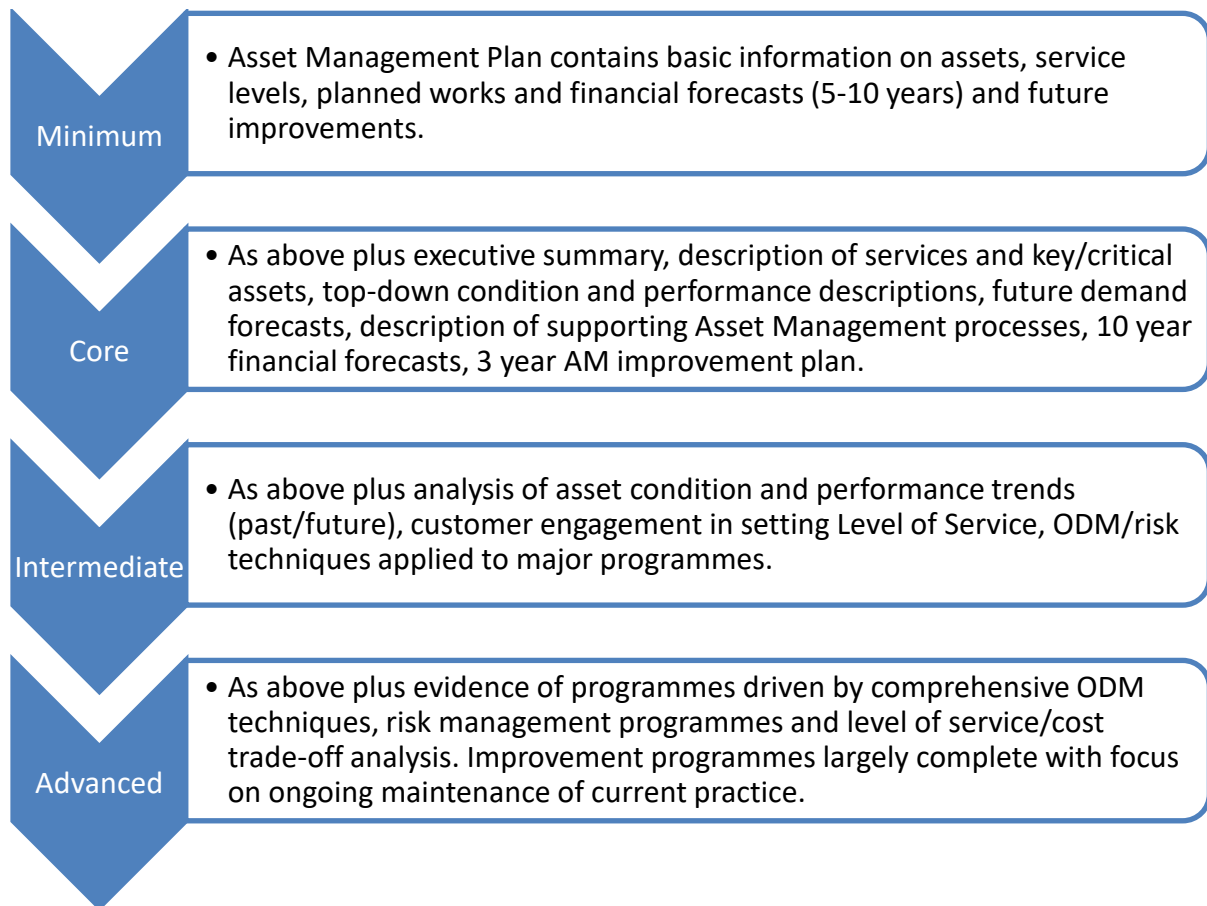


Figure 9-2: Asset management plan maturity index

A summary of the self-assessment and targets is provided in Figure 9-3. More detailed information regarding the assessments are provided in Table 9-3 to Table 9-10.

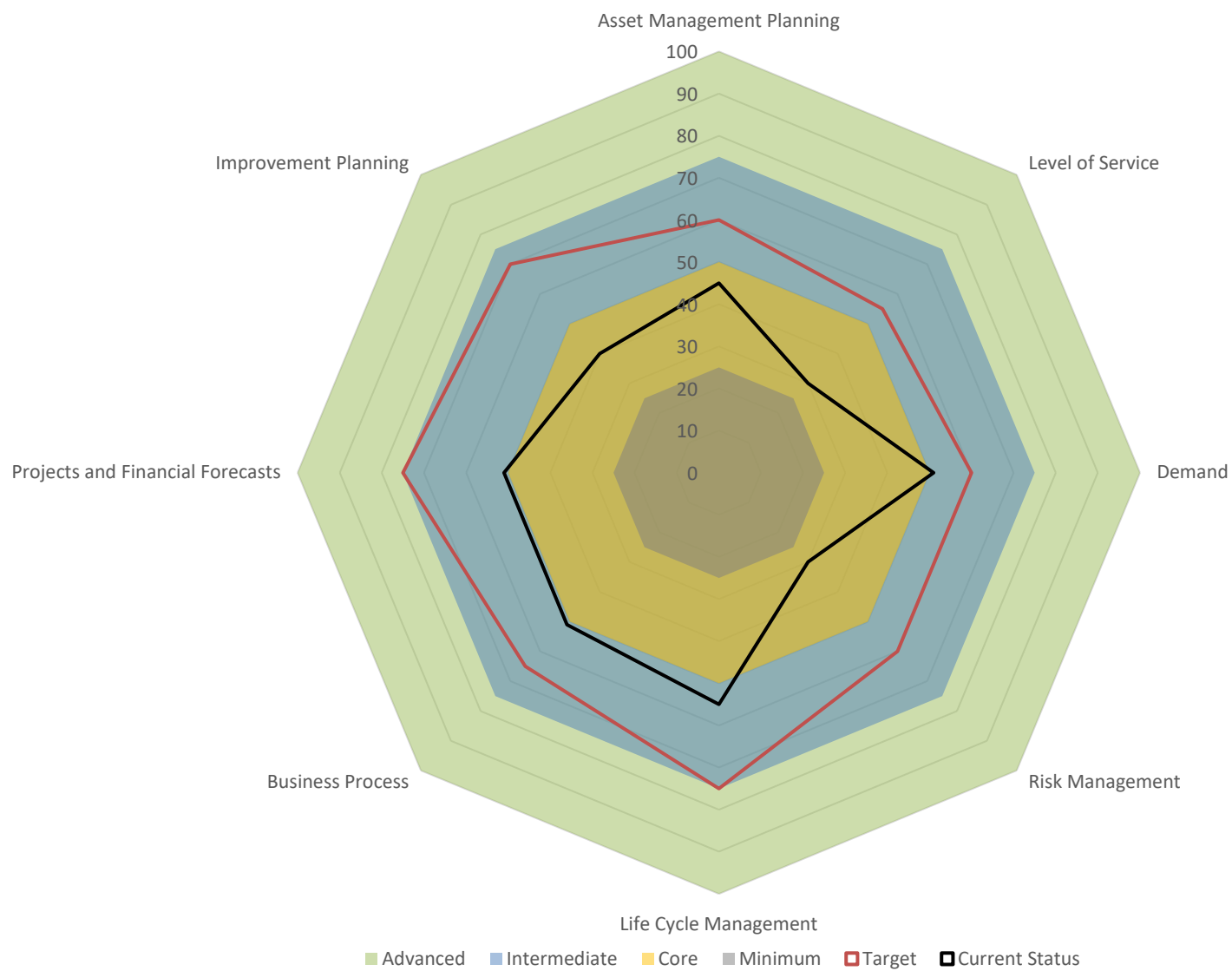


Figure 9-3: Self-assessment of Activity Management Plan maturity process

Table 9-3: Asset management planning self-assessment

Element	Minimum (0 – 25)		Core (25 – 50)	Intermediate (50 – 75)	Advanced (75 – 100)
Asset Management Planning	Plan contains basic information on assets, service levels, planned works and financial forecasts (5-10 years) and future improvements AM decisions based largely on staff judgement and agreed corporate priorities		As for 'Minimum' plus executive summary, description of services and key/critical assets, top down condition and performance description, future demand forecasts, description of supporting AM processes, 10 year financial forecasts, 3 year AM improvement plan	As for 'Core' plus analysis of asset condition and performance trends (past/future), effective customer engagement in setting LoS, ODM, risk techniques applied to major programmes	As for 'Intermediate' plus evidence of programmes driven by comprehensive ODM techniques, risk management programmes and level of service/cost trade-off analysis Improvement programmes largely complete with focus on ongoing maintenance of current practice
Current Status	45	Core	<ul style="list-style-type: none"> • AM Plan in place • Asset information provided • Demand influences and basic service levels reviewed and established • Planned works programme in place • Critical assets identified and management strategies put in place • Understanding of asset management risks • 10 year financial forecasts 		
Appropriate Target	60	Intermediate	<ul style="list-style-type: none"> • Further development of the AM Plan • Development of customer engagement on setting LoS • Regular monitoring and improvement • Integration with 30 Infrastructure Strategy 		

Table 9-4: Level of service self-assessment

Element	Minimum (0 – 25)		Core (25 – 50)	Intermediate (50 – 75)	Advanced (75 – 100)
Levels of Service	Asset contribution to organisations objectives and some basic levels of service have been defined		<p>Internal Customer Groups defined and requirements informally understood</p> <p>Levels of service and performance measures in place covering a range of service attributes</p> <p>Annual reporting against performance targets</p>	<p>Customer Group needs analysed</p> <p>Costs to deliver alternate key levels of service are assessed</p> <p>Customers are consulted on significant service levels and options</p>	<p>Levels of service consultation strategy developed and implemented</p> <p>Technical and customer levels of service are integral to decision making and business planning</p>
Current Status	30	Core	<ul style="list-style-type: none"> • Customer groups understood • Basic levels of service defined 		
Appropriate Target	55	Intermediate	<ul style="list-style-type: none"> • Integrate impact of government policy on services • LoS current performance understood • LoS targets identified achievable and measurable • ONRC in place 		

Table 9-5: Growth and demand self-assessment

Element	Minimum (0 – 25)		Core (25 – 50)	Intermediate (50 – 75)	Advanced (75 – 100)
Demand	Demand forecasts based on experienced staff predictions, with consideration of known past demand trends and likely future growth patterns		<p>Demand forecasts based on robust projection of a primary demand factor (e.g. population growth) and extrapolation of historic trends.</p> <p>Risk associated with demand change broadly understood and documented.</p>	<p>Demand forecasts based on mathematical analysis of past trends and primary demand factors.</p> <p>A range of demand scenarios is developed (e.g. high/medium/low).</p>	As for 'intermediate' plus risk assessment of different demand scenarios with mitigation actions identified.
Current Status	51	Intermediate	<ul style="list-style-type: none"> • Good understanding of market and current provision • Starting to identify demand and growth requirements more robustly 		
Appropriate Target	60	Intermediate	<ul style="list-style-type: none"> • Analysis applied to all growth decisions • Risk factors brought into analysis 		

Table 9-6: Risk management self-assessment

Element	Minimum (0 – 25)		Core (25 – 50)	Intermediate (50 – 75)	Advanced (75 – 100)
Risk Management	Critical assets understood by staff involved in maintenance/renewal decisions.		<p>Risk framework developed.</p> <p>Critical assets and high risks identified.</p> <p>Documented risk management strategies</p>	<p>Risk framework developed.</p> <p>Critical assets and high risks identified.</p> <p>Documented risk management strategies</p>	<p>Formal risk management policy in place.</p> <p>Risk is quantified & mitigation options evaluated.</p>

			for critical assets and high risks.	for critical assets and high risks.	Risk integrated into all aspects of decision making.
Current Status	30	Core	<ul style="list-style-type: none"> • Critical assets understood • Risk framework developed but not current 		
Appropriate Target	60	Intermediate	<ul style="list-style-type: none"> • Critical assets documented • Regular risk reviews in place • Risk framework applied across Council 		

Table 9-7: Life cycle management self-assessment

Element	Minimum (0 – 25)	Core (25 – 50)	Intermediate (50 – 75)	Advanced (75 – 100)
Life Cycle Management	<p>Basic physical information recorded in a spreadsheet or similar (e.g. location, size, type) but may be based on broad assumptions or not complete</p> <p>Maintenance records maintained and legislation and regulations complied with</p> <p>Condition assessment at asset group level (top down)</p> <p>Supports minimum requirements for managing critical assets</p>	<p>Asset identification and asset attribute documented</p> <p>Asset criticality considered in maintenance response processes</p> <p>Data supports asset life assessment</p> <p>Data management standards and processes documented</p> <p>Programme for data improvement developed</p>	<p>A reliable register of physical and financial attributes recorded in an information system with data analysis and reporting functionality</p> <p>Systematic and documented data collection process in place. High level of confidence in critical asset data</p> <p>Data management processes fully integrated into business processes. Data validation process in place</p>	<p>Information on work history type and cost, condition, performance, etc. recorded as asset component level. Systematic and fully optimised data collection programme</p> <p>Complete data base for critical assets; minimal assumptions for non-critical assets</p> <p>Periodic reviews of programme suitability carried out</p>

Element	Minimum (0 – 25)		Core (25 – 50)	Intermediate (50 – 75)	Advanced (75 – 100)
	and statutory requirements (e.g. safety) There is a schedule of proposed capital projects and associated costs, based on staff judgement of future requirements		Fault tracking and closure processes for maintenance Strategy for prescriptive vs performance based maintenance developed Projects have been collated from a wide range of sources such as business unit planning processes, operational staff and corporate risk processes Capital projects for the next 4 years are fully scoped and estimated	Contingency plans exist for all maintenance activities Asset failure modes are understood. Maintenance management software implemented Formal options analysis and business case development has been completed for major projects in the 3-5 yr. period Major capital projects for the next 10 years are conceptually identified and broad cost estimates are available	Forensic root cause analysis in conducted for major faults Optimisation of all reactive and planned maintenance programmes alongside renewal planning Long term capital investment programmes are developed using advanced decision making techniques, such as predictive renewal modelling
Current Status	55	Intermediate	<ul style="list-style-type: none"> • Core information entered into RAMM • Information from condition survey available but not a complete register. • 15-year plan of maintenance and renewals available via condition assessment. • Most maintenance recorded in RAMM • Capital works are planned out by asset group • Data management processes in place with network contractor. • Contingency plans in place • Maintenance Management software in place 		

Element	Minimum (0 – 25)		Core (25 – 50)	Intermediate (50 – 75)	Advanced (75 – 100)
Appropriate Target	75	Intermediate	<ul style="list-style-type: none"> • Asset Criticality understood. • Maintenance and request tracking in place • Business Case processes in place • High level of confidence in data • Understanding of asset failure modes • Use of formal options analysis. 		

Table 9-8: Business processes (asset management practice) self-assessment

Element	Minimum (0 – 25)	Core (25 – 50)	Intermediate (50 – 75)	Advanced (75 – 100)
Business Processes	<p>Operational responses are understood by key staff, but plans may not be well documented, mainly reactive in nature. Asset utilisation is measured for some key assets but is not routinely analysed</p> <p>AM allocated primarily to one or two people with AM experience</p> <p>Service delivery roles clearly allocated (internal and external), generally following historic approaches</p> <p>Asset registers record core asset attributes and asset information reports can be generated</p> <p>Simple process documentation in place for service critical activities</p>	<p>Emergency response plan is developed.</p> <p>Demand management is considered in major asset planning</p> <p>Asset utilisation is measured for critical asset groups and is routinely analysed and documented</p> <p>AM training in place for primary staff</p> <p>The management team have considered options for AM functions and structures with defined policy and basic QM system</p> <p>Asset register enables hierarchal reporting and customer request tracking and planned maintenance functionality enabled</p>	<p>Emergency response plans and business continuity plans are routinely developed and tested. Demand management is a component of all operational decision making</p> <p>Asset utilisation is measured and analysed for most asset groups</p> <p>Staff receive training aligned to that role and fully understand their role in AM</p> <p>A person on the management team has responsibility for delivering the AM Policy/strategy/plan</p> <p>Process documentation implemented in accordance with the QM</p>	<p>Operational plans routinely analysed, tested and improved</p> <p>Formal debriefs occur after incidents</p> <p>A formal AM capability building programme is in place and routinely monitored</p> <p>Asset utilisation measured real-time and effectiveness analysed across all asset groups</p> <p>Operational programmes are optimised using benefit-cost and risk analysis</p> <p>ISO9001 certification achieved and a surveillance audit demonstrates the satisfactory operation of the Quality Management System</p>



			System to appropriate level of detail	
Current Status	51	Intermediate	<ul style="list-style-type: none">• Staff identified with Asset Management responsibilities• Basic processes in place for maintenance• Operations Manual undated and relevant	
Appropriate Target	65	Intermediate	<ul style="list-style-type: none">• Asset expenditure information is linked with asset performance information• Processes relating to AM are documented	

Table 9-9: Projects and financial forecasts self-assessment

Element	Minimum (0 – 25)		Core (25 – 50)	Intermediate (50 – 75)	Advanced (75 – 100)
Projects and Financial Forecasts	Financial forecasts are based on extrapolation of past trends and broad assumptions about the future. Assets are re-valued in accordance with International Financial Reporting Standards (IFRS).		Ten year+ financial forecasts based on current AMP outputs. The quality of forecasts meets IFRS requirements. Significant assumptions are specific and well-reasoned Expenditure captured at a level useful for AM analysis	Ten year+ financial forecasts are based on current and comprehensive AMPs with detailed supporting assumptions / reliability factors. Asset expenditure information is linked with asset performance information	The business unit publishes reliable ten year+ financial forecasts based on comprehensive, advanced AMPs with detailed underlying assumptions and high confidence in accuracy. Advanced financial modelling provides sensitivity analysis, evidence-based whole of life costs and cost analysis for level of service options
Current Status	51	Intermediate	<ul style="list-style-type: none"> • Trend information starting to be collated • Valuations undertaken at asset group level • Assumptions are identified • 10 year forecasted 		
Appropriate Target	75	Intermediate	<ul style="list-style-type: none"> • Historical data available and able to be reported on and analysed • Asset values and useful lives available at the component level • Asset Management links to financial system • 10 yr.+ forecasts 		

Table 9-10: Improvement planning self-assessment

Element	Minimum (0 – 25)		Core (25 – 50)	Intermediate (50 – 75)	Advanced (75 – 100)
Improvement Planning	Improvement actions identified and allocated to appropriate staff.		Current and future AM performance assessed and gaps used to drive the improvement actions. Improvement plans identify objectives, timeframes, deliverables, resource requirements and responsibilities.	Formal monitoring and reporting on the improvement programme to Executive Team. Project briefs developed for all key improvement actions.	Improvement plans specify key performance indicators (KPIs) for monitoring AM improvement and these are routinely reported.
Current Status	40	Core	<ul style="list-style-type: none"> Have completed first iteration Improvement Plan 		
Appropriate Target	70	Intermediate	<ul style="list-style-type: none"> Need to keep focus on improvement and bedding down processes. 		

14.5 Asset Management Practices

14.5.1 Business Case Approach

Summary

The LTAMP has been built and assessed using the Waka Kotahi Business Case Approach (BCA). The BCA is a robust, principles-based approach for developing business cases for investment which is based on the New Zealand Treasury's Better Business Cases. The BCA steps through the following stages with each business case document becoming more detailed:

- Problem identification
- Investigation
- Options analysis
- Proposed solution(s)
- Budget
- Programme
- Implementation

The BCA encourages fit-for-purpose effort, so the path through the phases of the BCA will be different depending on the complexity and risk of the investment proposal (Figure 9-4). The BCA breaks down the work that needs to be done for a robust business case into phases, which means the case can be built up progressively, and decisions about whether or not to proceed can be made at regular checkpoints (red diamonds in Figure 9-4).

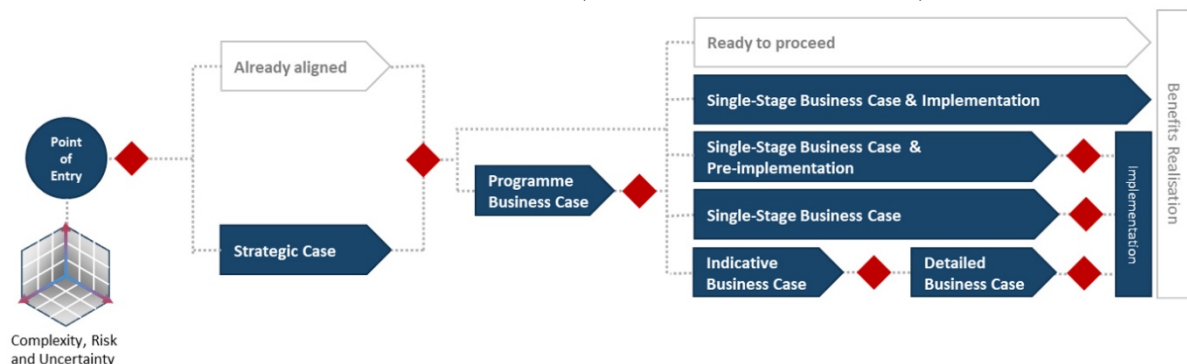


Figure 9-4: Business case approach phases⁷⁵

Point of Entry

The Point of Entry stage develops an initial view of the potential problem or opportunity, and reviews existing information so an informed decision can be made about whether there really is a problem that needs fixing, and, if so, what phase the business case should start at, and how it should progress through the BCA.

⁷⁵ "How to use the Business Case Approach," Waka Kotahi NZ Transport Agency, accessed 29 July 2020, <https://www.nzta.govt.nz/planning-and-investment/learning-and-resources/business-case-approach-guidance/how-to-use-the-business-case-approach/#BCAphases>

Strategic Case

The Strategic Case is about defining and understanding the problem or opportunity, and showing there will be substantial enough benefits to justify investment to investigate the problem further.

Programme Business Case

Programme business cases (PBCs) are generally developed only for investments that have a higher risk and complexity. PBCs gather new evidence and data to better understand the problem and its context, and identify options and alternatives to address the problem. These could include a broad mix of activities that might be delivered by multiple parties over a period of time.

Single Stage Business Case

The single stage business case (SSBC) confirms and develops an activity, and details how it will be implemented. Because they are developed for each activity, one programme may have multiple SSBCs. It is a combination of the:

- Indicative business case (IBC), where potential options are longlisted and then shortlisted through various analysis techniques, and
- Detailed business case (DBC), which provides more detailed reporting of economic, financial and commercial aspects of the recommended activity.

If the proposed investment is very high risk and complexity, then a separate IBC can be completed before beginning a DBC.

14.5.2 Business Continuity Plans

CHBDC has a documented Business Continuity Plan which encompasses all departments within the council. This plan is not duplicated in this AMP.

14.5.3 Life Cycle Costing

The cost of ownership of an asset or service is incurred throughout its whole life and does not all occur only at the point of acquisition. The graph below gives an example of a spend profile showing how the costs vary with time. In some instances the disposal cost will be negative because the item will have a resale value whilst for other procurements the disposal, termination or replacement cost is extremely high and must be taken into account at the planning stage. Life Cycle costing (LCC) is a process to determine the sum of all the costs associated with an asset or part thereof, including acquisition, installation, operation, maintenance, refurbishment disposal costs. It is therefore pivotal to the asset management process.

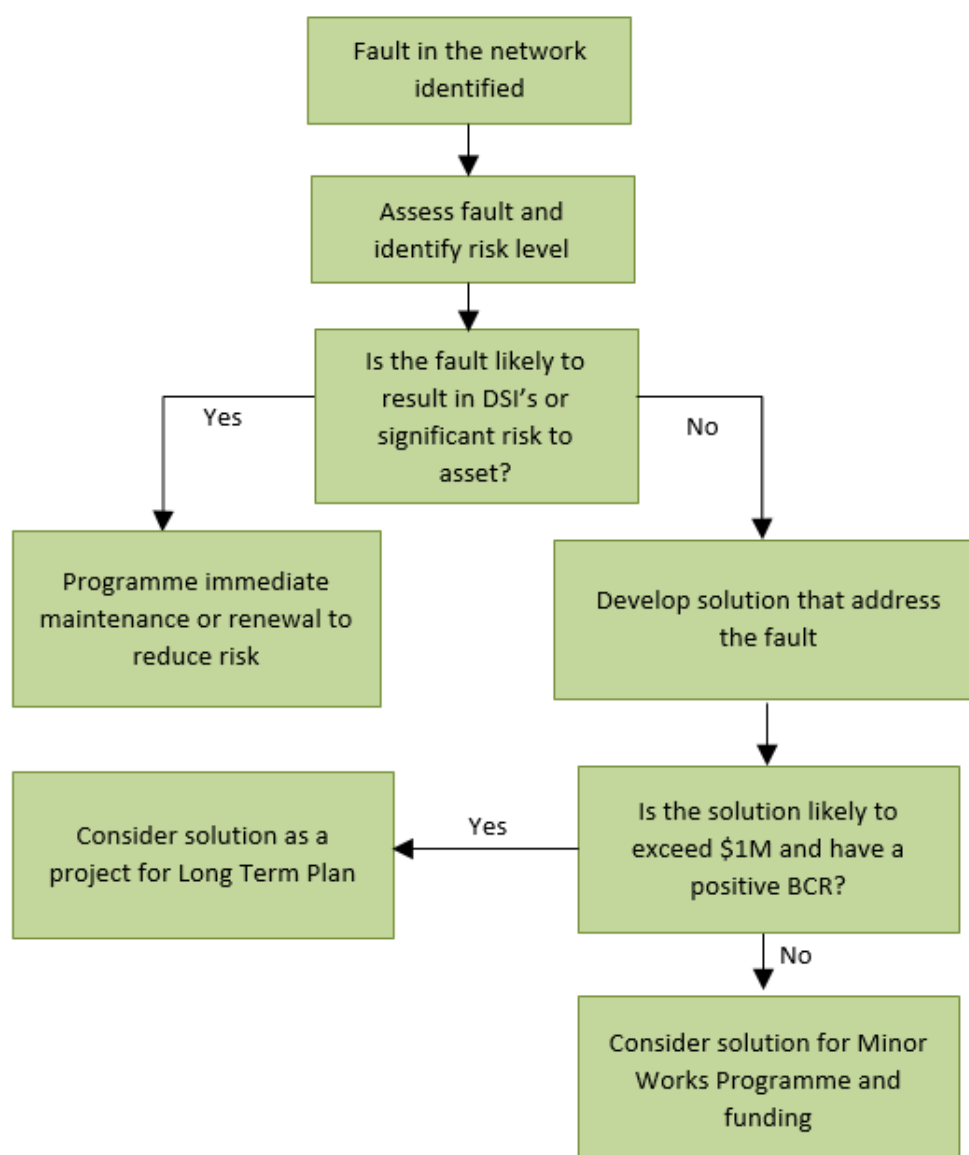
14.5.4 Maintenance, Capital, and Renewal Management Strategies

Maintenance strategies determine how the transportation assets will be operated and maintained on a day-to-day basis. The following operations and maintenance strategies are applied to the transportation assets:

14.5.5 Operations

Council will manage the assets in a manner that minimises the long term overall total cost. Scheduled inspections will be undertaken as justified by the consequences of failure on levels of service, costs, public health, safety or corporate image. The inspection programme will be modified as appropriate in response to unplanned maintenance trends.

Asset monitoring processes include All-faults identification, condition rating of pavements, routine bridge inspections and periodic performance and condition assessments of specific assets. Customer enquiries and complaints are recorded on the customer service request database, summarising data on the date, time, details, responsibility and action taken. Below is a flowchart that illustrates the decision process when a fault is identified and the assessed for treatment.



14.5.6 Maintenance

Routine maintenance is the regular ongoing day-to-day work that is required to keep the road network in a safe and serviceable condition. The work undertaken ranges from work of a cyclic nature such as mowing or maintenance grading to unplanned work such as pothole repairs, the clearing of spillages or the clearing of blocked sump grates in storm conditions.

This work falls into two broad categories as follows:

1. **Proactive (Planned)**

Proactive inspection and maintenance works planned to prevent asset failure.

A programme of planned asset maintenance will be undertaken to minimise the risk of critical asset failure (e.g., bridges), or where justified when considering financial, safety and social impacts (e.g., pre-seal repairs, vegetation management). Major maintenance needs will be identified through the scheduled asset condition inspections and those generated from the investigation of customer complaints.

2. Reactive (Unplanned)

Reactive action to correct asset malfunctions and failures occur on an 'as required' basis. Repair of a pothole is an example of reactive maintenance.

A suitable level of preparedness for prompt and effective response to asset failures will be maintained by ensuring suitably trained and equipped staff to allow prompt repair of critical assets and mitigation of any hazards.

A key element of activity management planning is determining the most cost-effective blend of planned and unplanned maintenance as illustrated in Figure 9-5.

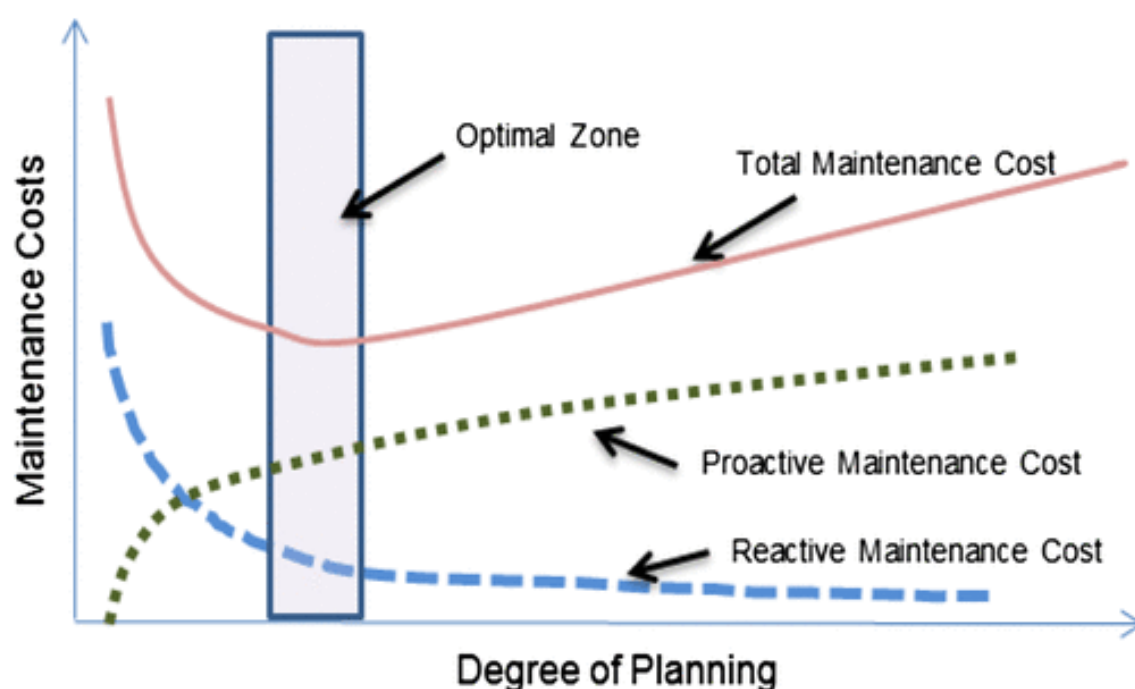


Figure 9-5: Maintenance costs vs degree of planning

Council will maintain assets in a manner that minimises the long term overall total cost.

14.5.7 Capital and Renewal Planning

Capital and renewal planning comprise the creation of new assets, or the upgrade or improvement of an existing asset beyond its existing capacity or performance in response to changes in usage or customer expectations. These works can be either Council or developer initiated.

While Council recognises that asset development and asset replacement can occur simultaneously, it is important to note that the purpose of asset replacement is to prevent a decline in the service potential of the assets.

Asset replacement is concerned with maintaining the condition of the assets and current service levels. Asset development is concerned with the service improvements, measured by asset performance.

Investigations, strategies and studies are all considered capital.

Renewal Works

Renewal expenditure is work that restores an existing asset to its original level of service, i.e. capacity or the required condition. These broadly fit into the following work categories as follows:

- **Rehabilitation:** Rehabilitation involves the repair of an existing asset, or asset component. Rehabilitation doesn't provide for a planned increase in the operating capacity or design loading. It is intended to enable the assets to continue to be operated to meet levels of service.
- **Replacement:** Replacement does not provide for a planned increase to the operating capacity or design loading. Some minor increases in capacity may result from the process of replacement, but a substantial improvement is needed before asset development is considered to have occurred.

Renewal Strategy

Renewal strategies provide for the progressive replacement or rehabilitation of individual assets that have reached the end of their useful life. This is managed at a rate that maintains the standard and value of the assets as a whole. This programme must be maintained at adequate levels to maintain current levels of service and the overall quality of assets.

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

The general strategy is to rehabilitate or replace assets when justified by:

- **Risk:** The risk of failure and associated environmental, public health, financial or social impact justifies proactive action. Where such assets are identified (critical assets), proactive inspection is undertaken to determine asset condition at a frequency appropriate to the risk and rate of asset decay.
- **Asset Performance:** An asset is renewed where it fails to meet the required level of service. Non-performing assets are identified by the monitoring of asset reliability, efficiency and quality during routine inspections and operational activity. Indicators of non-performing assets include repeated and/or premature asset failure, inefficient energy consumption, and inappropriate or obsolete components.
- **Economics:** When it is no longer economic to continue repairing the asset (i.e. the annual cost of repairs exceeds the annualised cost of its renewal). An economic consideration is the co-ordination of renewal works with other planned works such as road reconstruction.
- **Efficiency:** New technology and management practices relating to increased efficiencies and savings will be actively researched, evaluated and, where applicable, implemented.

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

- Public safety risk
- Criticality of assets to network operation
- Criticality of assets to achievement of service standards and community outcomes
- Financial risk of deferring work
- Intensity of usage
- Environmental risk
- Cost and the ability to gain subsidies, and
- Political preference.
- **Lifecycle:** The current lifecycle expectations for the transport assets are in Section 3: Asset Description.

Capital works identified in accordance with the capital work strategies may be deferred if the cost is beyond the community's ability to fund it. This can occur when higher priority works are required on other infrastructure assets, there are short-term peaks in expenditure, or if an inadequate rating base exists. When capital works are deferred, the impact of the deferral on economic efficiencies and the asset's ability to achieve or contribute to the required service standards will be assessed. Although the deferral of some capital works may not impact significantly on the short-term operation of assets, repeated deferrals will create a liability in the longer term.

Renewal Works Summary

Replacement assets are identified through analysis of the Asset Register which takes into account factors such as age, condition and performance. Transport engineers then make an assessment of the analysis data and prioritise a replacement program taking into account risk and criticality.

Assets are renewed when it is determined to be more cost effective in the long term to replace rather than continue to maintain them. Longer term asset renewal needs are identified through analysis of condition assessments. More detailed, shorter term prioritised programmes are developed with reference to failure history, risk assessment (including consideration of financial, environmental and social implications of failure), and in the case of critical infrastructure visual condition assessments and site inspection information.

New works are the creation of new assets or works, which upgrade or improve an existing asset beyond its existing capacity or performance in response to changes in usage or customer expectations.

New works fall into separate categories as follows:

- Growth: Any capital works (council funded or externally funded) that are required as a result of growth
- Levels of service: Any capital works required as a result of an increase in levels of service
- Legislative: Any asset developed to meet legislative requirements
- Vested assets: Any assets vested to Council

As required by schedule 10 of the LGA 2002, with respect to Council funded development work, this plan also identifies and differentiates between requirements of additional asset capacity in terms of increased demand (e.g. growth) or increase in service levels and standards.

In setting the final programme of capital expenditure, projects are subject to Council deliberation as part of the LTP process.

Asset maintenance and asset renewal projects are given highest priority so the Council can continue to maintain its existing service capacity. Capital works are planned in response to identified service gaps, growth and demand issues, risk issues and economic considerations, including accelerated or enhanced development plans proposed by Council or Committees. When evaluating significant proposals, the following issues will be considered:

- The contribution the new or improved assets will make to the current and anticipated future levels of service and community outcomes
- The risks and benefits anticipated to be made from the investment
- The risks faced by not proceeding with the works. These could include safety risks, social risks and political risks
- Ability and willingness of the community to fund the works
- Future operating and maintenance cost implications

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

- Targeted user groups might include industry groups, tourism operators and adjacent residents
- The general community (through public consultation)
- Council staff, key partners such as Contractors and Consultants that may be engaged to provide advice to the Council
- The LTP/Annual Plan process
- The elected Council and Committees (significant proposals are subject to Council decision and available funding)

Five yearly reviews of the state highway and local network are normally undertaken by Waka Kotahi. Some assets (such as State Highway 2 through Waipukurau) may be transferred to Council following these reviews.

14.5.8 Disposal

Disposal is the retirement or sale of assets whether surplus or superseded by new or improved systems. Assets may become surplus to requirements for any of the following reasons:

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

14.5.9 Optimised Decision Making

Council and its consultants use a range of tools and techniques 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. This LTAMP outlines details and applications of these tools which include the following:

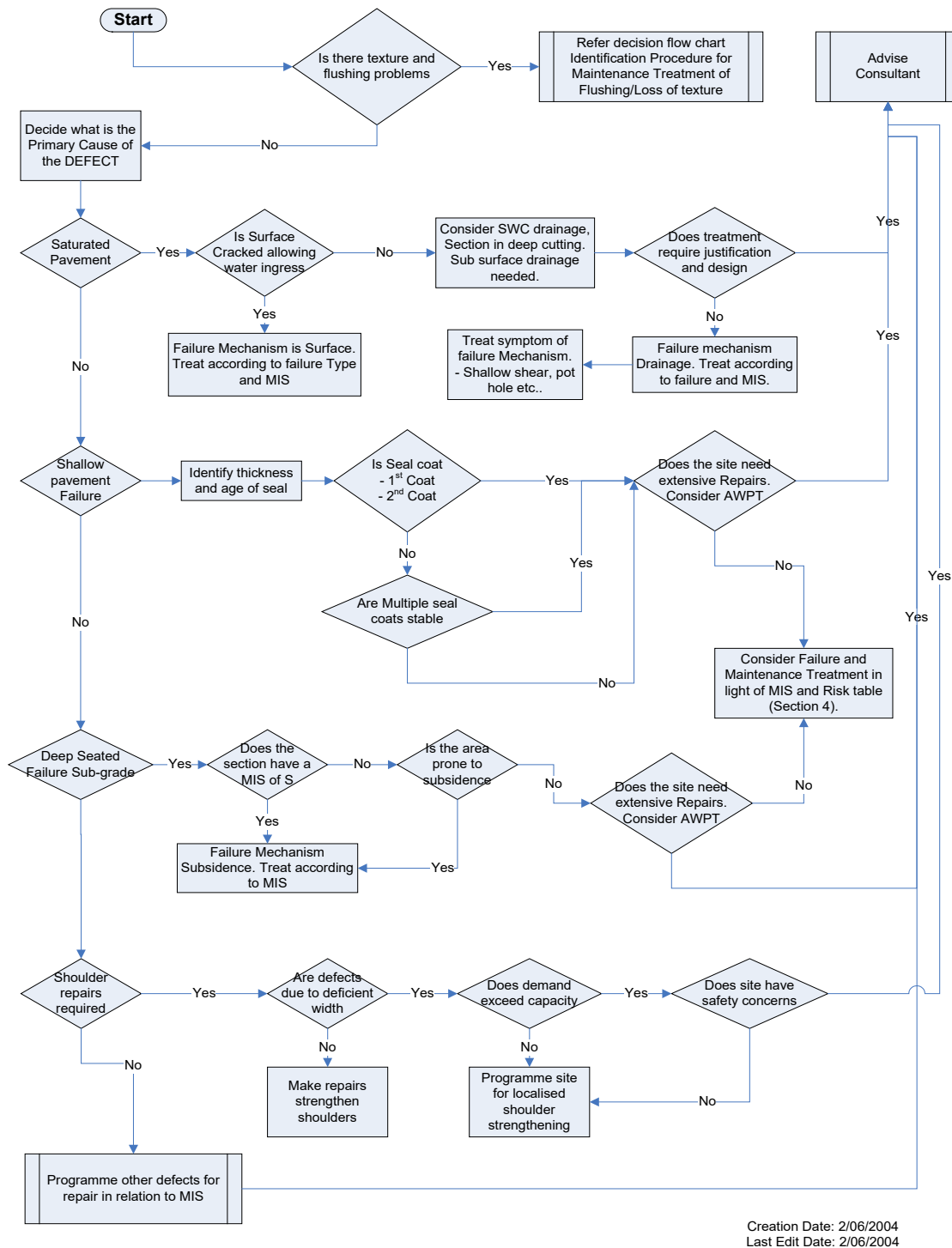
- Treatment Selection Algorithm (TSA)
- Pavement Performance Model (dTIMS)
- CAS (Crash Analysis Studies)
- Traffic Counts
- Benefit Cost Ratio (BCR) – justification for capital works projects
- Net Present Value (NPV)
- Multi-Criteria Analysis (MCA) - to rank options that are not easily quantified in terms of dollar values.

Optimised decision-making applications are as follows:

- **Routine Maintenance:** Maintenance cost information in RAMM enables the development of more accurate maintenance cost prediction models that can be used in both BCR and NPV analysis of various pavement maintenance, rehabilitation and capital works projects.
- **Resurfacing:** Ensuring that the lifecycle of each reseal is maximised without risking the integrity of the lifecycle of the underlying pavement. This is done by checking the performance and condition of the existing surface by incorporating visual inspections of seal conditions against default lives 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 will then enable the economics of proceeding with another reseal or undertaking an alternative treatment.
- **Area Wide Pavement Treatments (AWPT's):** The condition and maintenance cost information stored within RAMM is used as the basis for the selection and timing of the FWP AWPT's. Prior to project selection, AWPT's are supported by field testing to verify the appropriate solution. The justification of these treatments will be primarily driven by agency cost savings and analysed through the comparison between the Net Present Value of the continuing "Do Minimum" maintenance and that for the AWPT option over a 25-year period.
- **Seal Extensions and Seal Widening:** Justification and prioritisation of these capital works items is required through a BCR analysis. In addition, the funding of the future maintenance of the increased sealed surface must be allowed for in the FWP. This analysis will again need to utilise the pavement condition information and associated routine maintenance costs data held in RAMM.
- **Traffic Management Decisions:** The traffic count data recorded in RAMM has a direct application to Regional land transport studies and strategies, ONRC Classification, Temporary Traffic Management Plans, assigning and management of traffic detours in the event of road closure and prioritisation of resources in the event of large scale road closures.

Figure 96 illustrates the decision-making process for pavement faults to decide appropriate treatment strategy. This is a historic chart and an updated version will be created for Council's Maintenance Intervention Strategy.

IDENTIFICATION PROCEDURE FOR FAILURE MECHANISM AND MAINTENANCE TREATMENT



Creation Date: 2/06/2004
Last Edit Date: 2/06/2004

Figure 9-6: Identification procedure for failure mechanism and maintenance treatment

14.5.10 Road Assets Maintenance and Management System

The roading network physical data is contained within the RAMM database. This information is continually updated as roads are constructed, sealed, resealed or rehabilitated, structures built, and new traffic signs installed. RAMM will be maintained to minimum Waka Kotahi State Highway Database Operations Manual.

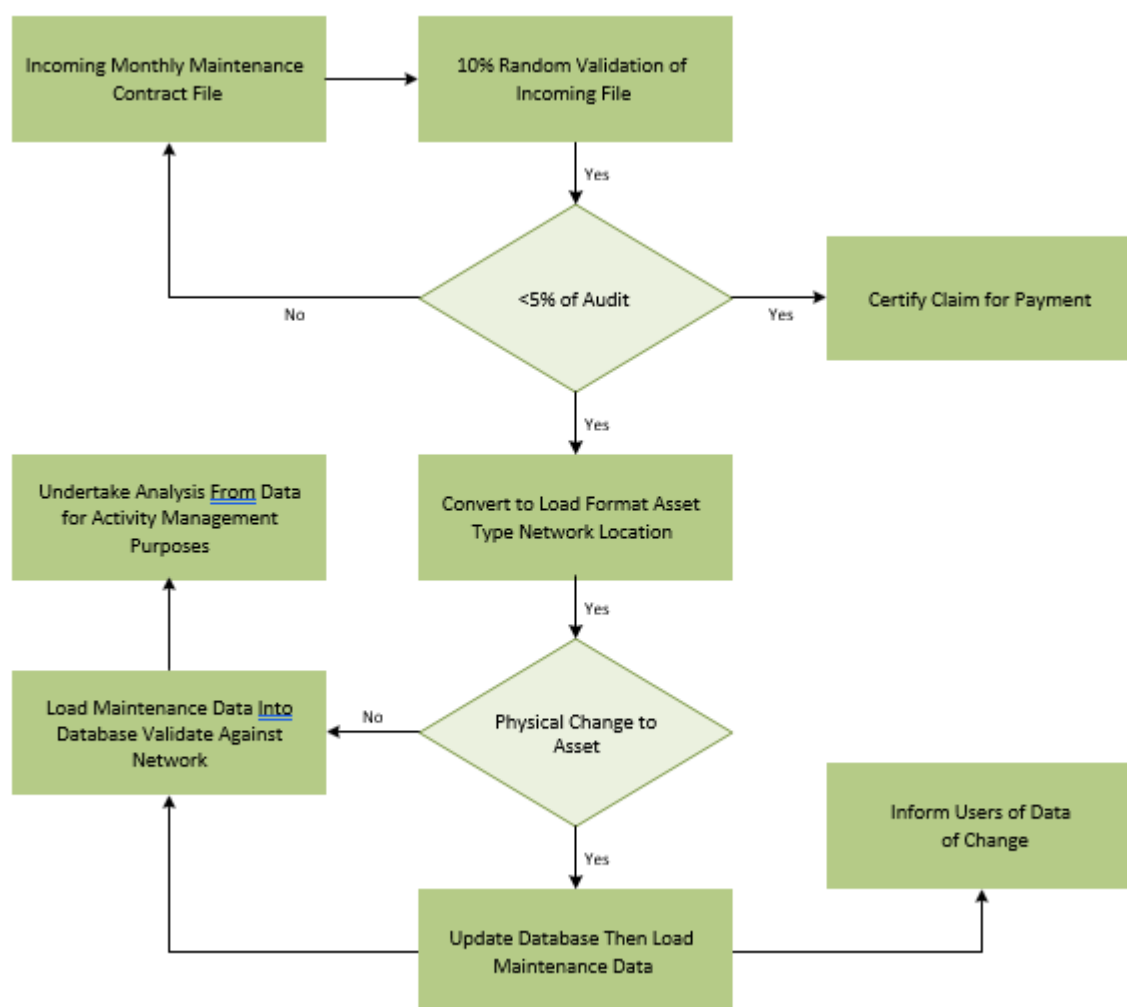
In addition, RAMM stores condition information (visual inspection observations, roughness survey) of the sealed network and footpaths.

The RAMM system also includes the following suite of tools to help manage the roading asset:

- **RAMM Mapping:** Spatially represents asset inventory on a map held in RAMM of the roading network. This form of visual data representation helps in assessing the current level of service of an asset component. For example, if the current service level is to provide footpath on all urban streets where the traffic counts are 200 and greater, the inventory of footpath data and count data can be plotted on the map and an instant visual representation of the deficiency in service level can be determined and from this a programme to achieve the service level put in place.
- **RAMM Asset Valuation:** The asset valuation system in RAMM allows for the valuation and depreciation of the asset. Council requires an annual valuation using the RAMM valuation system.
- **RAMM Contractor:** This allows managing the road asset maintenance contracts. This provides special features to support managing signs and street lights maintenance.
- **RAMM Treatment Selection Algorithm (TSA):** This helps to develop the forward work programme (for next two years). The output contains required treatment, financial costs and user benefits of the treatment for each road section (treatment length)
- **RAMM NOMAD Programme:** This holds the CHBDC's 10-year Forward Work Programme

Maintenance cost information is stored in RAMM and is used to evaluate historic trends in maintenance expenditure on the network. These costs can be analysed down to the treatment length level to ascertain if the cost of maintenance per kilometre is excessive. Information on works undertaken on the network is received from the contractor and loaded into RAMM (Figure 9-7).

Figure 9-7: Maintenance cost recording process



14.5.11 Data Management

CHBDC has developed its IT infrastructure around several key products that provide a platform for all IT applications. Table 9-11 sets out the cornerstone IT applications used at CHBDC.

Table 9-11: Cornerstone applications

Function	Product	Group Responsible	Primary Users
Word, spread sheets, email, project	Microsoft Office Suite	Information Services	All organisation
Financial accounting and reporting	Napier Computing Systems (NCS)	Finance	All organisation
Budgeting and Forecasting	NCS and Excel	Finance	All organisation
Asset and Maintenance Management	Road Assets Maintenance and Management (RAMM)	Transport	Transport

Function	Product	Group Responsible	Primary Users
Service Request System	NCS	Information Services	All organisation
GIS	Intra maps by DMS & Map Info	Technical Services	All organisation
Remote access and integration	Cloud based systems	Information Services	All Organisation
Web based information portals	Facebook	Information Services	All Organisation and public
Council Records Management	One Drive	Information Services	All Organisation

Table 9-12 outlines current data availability, location and comments.

Table 9-12: Data availability

Data Type	Location	Comments
Asset inventory	RAMM asset register	Maintained through professional services contract
As built plans	Hard copy	
Conditional data	RAMM	On applicable asset types. Not all assets have condition assessments
Job tracking	Contractor system	
Maintenance history	RAMM	
Customer enquires	Service request register	Asset Managers file finance records (historical)
Network maps	GIS	
Asset valuations	RAMM valuation module	
Financial data	Finance system	
Contract data	Finance system, RAMM and external records	
Development data	RAMM Nomad forward planning tool	

14.5.12 Quality Management

A Quality management system should strengthen the business. The level of documentation should be appropriate to the risks, complexity and resources associated with each activity. As a general principle, processes should only be documented to the extent necessary to assure effective planning, operation and control. Once implemented quality processes can evolve in an iterative manner over time to an optimal level through continuous monitoring and improvement.

Currently CHBDC does not have ISO9000 accreditation or any specific Quality Management framework. This is an opportunity for improvement.

14.5.13 Asset Management Plan Review

To ensure the asset management plan remains useful and relevant, the following on-going process of plan monitoring and review will be undertaken, as summarised in Table 9-13.

Table 9-13: Asset Management Plan review and monitoring process

Activity	Action	Target Date
Asset Management Policy	Full review of the Asset Management Policy including principles, responsibilities etc.	3 yearly
Asset Management Plan development	Signoff of Asset Management Plan principles	3 yearly
	Signoff of Land transport outcomes by the Council	3 yearly
	Annual review of plan context by the Land Transport Manager	Yearly
	Check Asset Management Plan content for consistency with approved programmes and plans	Yearly
	Compliance with agreed Asset Management Plan improvement programmes	Yearly
Asset Management Plan review	Full review of the Asset Management Plan and external review of technical content including an assessment of the effectiveness and adequacy of Asset Management processes, systems and data	3 yearly
	Revision of Asset Management Plan annually to incorporate and document changes to works programmes, outcome of service level reviews and new knowledge resulting from the asset management improvement programme	Yearly
	Quality assurance audits of asset management information to ensure the integrity and cost-effectiveness of data collected	3 yearly
	Endorsed reviewed Asset Management Plan by Council	3 yearly

Activity	Action	Target Date
	External review of Asset Management Plan information by Independent party	3 yearly
	Peer reviews will be undertaken to assess the effectiveness with which this plan meets corporate objectives (periodic internal reviews will be undertaken to assess the adequacy of asset management processes, systems and data, to measure performance against desired practice)	3 yearly
Levels of Service	Review service performance measures (including consultation process) and formally approve levels of service	3 yearly
	Consolidate performance against actual level of service delivered and report in Annual Report	Yearly
Risk	Review of risk framework by Council	3 yearly
	Annual review of risk register by Land Transport Team	Yearly

14.5.14 Asset Management Plan Monitoring

The following indicators identified in **Table 9-14** will be monitored to measure the effectiveness of this asset management plan.

Table 9-14: Monitoring Asset Management Plan effectiveness

Indicator	Measure	Information source
Compliance with legislative requirements	Unqualified audit opinion relating to asset management plan outputs	Audit report
Quality of services delivered	100%, compliance with Level of Service targets	Asset Management Plan monitoring
Quality of risk management	No potential identifiable event occurring outside of risk profile	Asset Management Plan monitoring

14.6 Communication

14.6.1 Consultation Methods

Consultation by CHBDC is primarily through the Long Term Plan and Annual Plan processes. On significant projects there may be specific community consultation required.

14.6.2 Engagement Process

Engagement is communicating effectively with the people who affect, and are affected by, the Land Transport activities (its stakeholders). CHBDC's engagement process is as per the CHBDC Significance and Engagement Policy (2018). The Policy states that Council will follow three steps to determine the significance and level of engagement required:

1. Determine the significance of the project as per agreed criteria
2. Link level of significance to level of engagement

3. Consider methods of engagement – each level of engagement will have a range of methods that the Council is able to choose from to undertake the engagement required.

A good engagement process typically involves identifying and prioritising stakeholders, conducting a dialogue with them to understand their interest in an issue and any concerns they may have, exploring with them ways to address these issues, and providing feedback to stakeholders on actions taken.

There are two key Levels of Engagement with stakeholders.

- **Strategic Engagement** is related to outward focussing strategies and enables stakeholders to influence the holistic place of the organisation in its business operations.
- **Operational Engagement** targets the Stakeholders impacted by the business at an operational level.

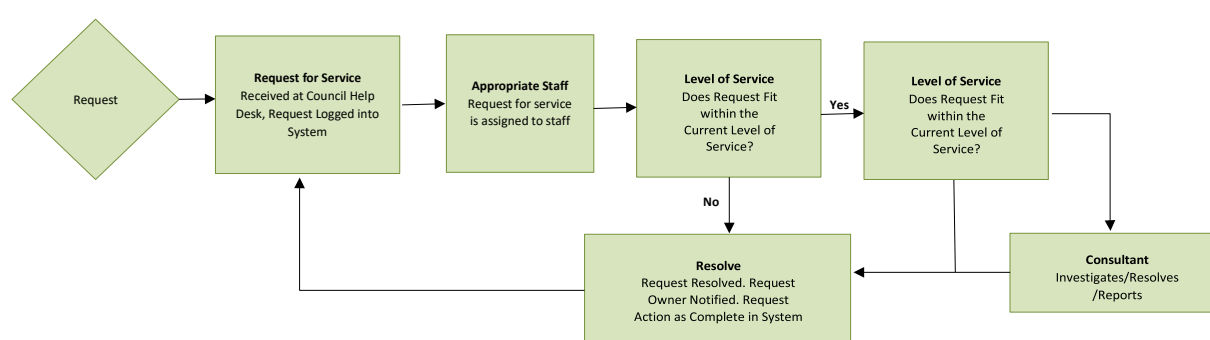
Councils Thrive programme is intertwined through council policy and practise resulting in communication that meets the district's unique engagement needs and requirements.

14.7 Service Requests

Council uses the Napier Computing Systems (NCS) customer service request system to manage and respond to customer requests. This database is used to log calls from customer and stakeholders. The Council logs requests and passes road related issues onto the roading contractor for action and monitoring. Council are informed once the issue has been actioned and completed and they are then able to reply to the customer on the outcome of their request.

In conjunction with this process, Council also maintains a database of service requests as received from both public and Council. This system tracks the service request and maintains a history of actions (Figure 9-8)

Figure 9-8: Service request flow path



More information on the service requests is detailed in Section 4.6 of this Activity Management Plan.

15 Plan Improvements and Monitoring

15.1 Introduction

15.1.1 Continuous Improvement

Council has adopted a strategic management approach to improvement planning, and implementing improvement processes and practices. This Improvement Plan is integral to that approach, quantifying current business practice and measuring progress toward an identified future position.

Council is committed to a policy of continual improvement through data collection, procedural improvements, investment studies, system developments and organisational developments. A key objective is to dovetail the asset management planning process with the other key planning processes particularly the Long-Term Plan.

15.1.2 Improvement Cycle

The purpose of the Improvement Plan is to identify, prioritise and implement specific projects and tasks which will increase the level of maturity over time (Figure 10-1).

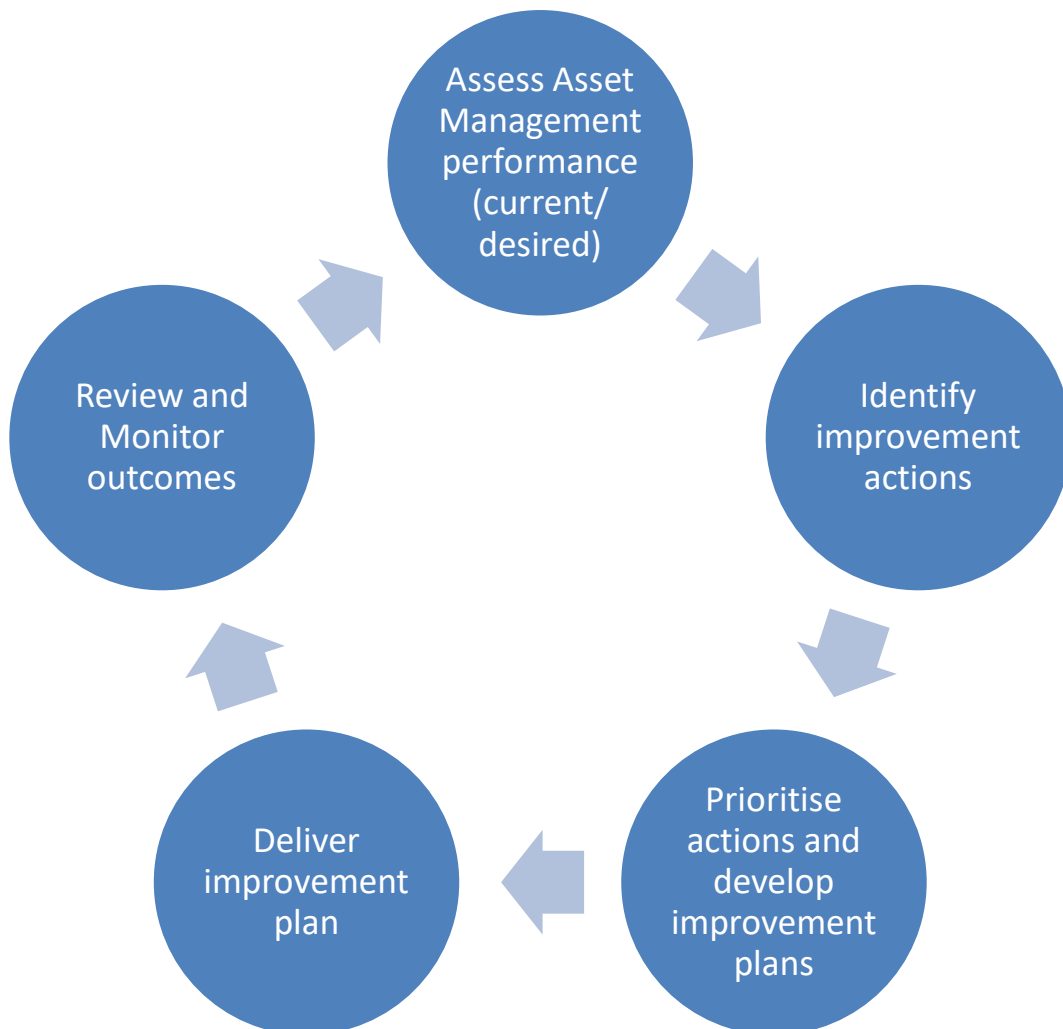


Figure 10-1: Continuous improvement cycle

15.1.3 Current Practice Assessment

The first step of the *Asset Management Improvement Plan* is to understand the current and future “appropriate practices”.

The 17 IIMM key element indicators have been consolidated into the LTAMP chapters to better align the improvement task to an outcome.

The key elements that make up the assessments are critical to achieving sustained performance of the organisation at the lowest life cycle cost and to form a clear picture of how well it is performing in each of these elements and where the weaknesses lie. Each of the elements “adds value” to the raw business processes which leads to good asset management practice.

15.1.4 Identify Improvement Actions

A clear understanding of the gap between current and appropriate practice will help drive identification of improvement actions. However, identifying improvements should also be an ongoing activity, not just a “one- off” gap assessment process.

Improvement actions need to be clearly scoped and defined. Failure to recognise the full costs associated with improvements may see the projects inadequately resourced and potentially not meeting the desired outcomes.

Previous versions of the LTAMP has incorporated updates and improvements to produce an intermediate level of Asset Management Planning.

15.1.5 Develop Improvement Plan and Prioritise Actions

The improvement plan will be developed to identify the high priorities requiring action to focus the organisation on the most important areas. Utilising a simple improvement framework that has a clear relationship to the assessment elements will help people understand how the actions relate to the appropriate level of Asset Management required.

15.1.6 Deliver the Improvement Plan

The improvement plan needs to be strongly led, properly resourced, and regularly monitored. Clear targets must be well defined with well specified deliverables that help focus on what is required.

This improvement plan incorporates the benefits and consequences of not delivering on the plan and the estimated costs to undertake the work which has been built into the final programme for delivery.

15.1.7 Monitor the Outcomes

Organisations are under pressure to show the quantifiable benefits from improving Asset Management outcomes and this is a real challenge. Regular Asset Management assessments using the frameworks in this section are currently the best way to demonstrate ongoing improvement to Asset Management practices and should be utilised over a number of years to track progress. Tasks are aligned to the level of maturity identified by the organisation.

15.2 Areas for Improvement

The summary results of the current practice assessment are illustrated below in **Figure 10-2** in 2020. These results require ongoing validation and review.

Overall, this LTAMP is identified as an INTERMEDIATE level AMP.

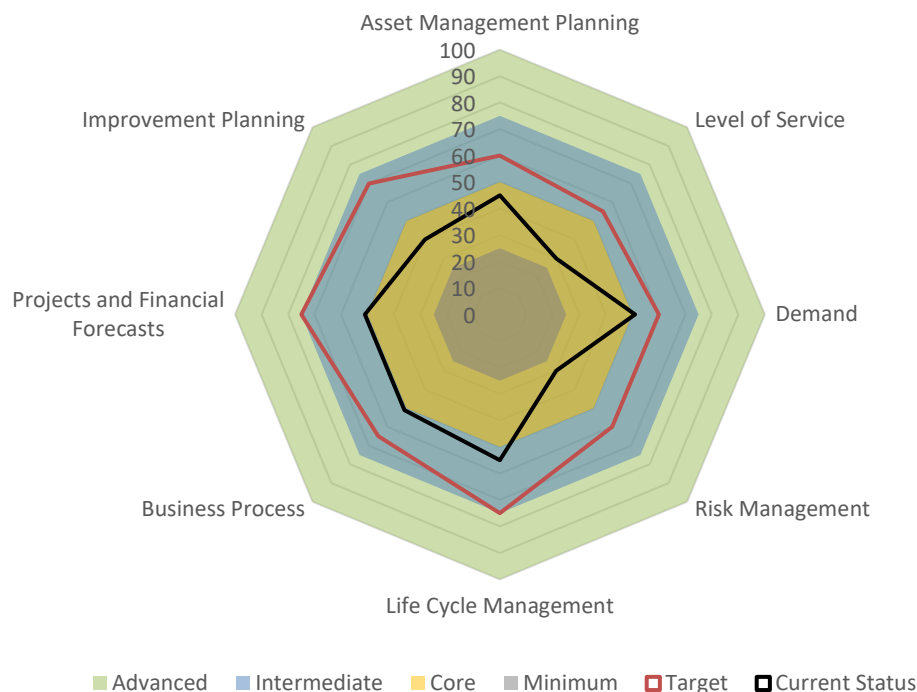


Figure 10-2: Current practice assessment results

15.3 Improvement Areas Prioritisation

15.3.1 Setting Priorities

A thorough Asset Management review process will often identify more improvements than an organisation is able to realistically deliver within a short timeframe. Therefore, there is a need to prioritise these actions, so they are realistic and affordable is important. The projects/ tasks are prioritised based on the gap between the current maturity and what is the appropriate target for the organisation. **Table 10-1** provides a general meaning ranging from Priority A (very high priority) to Priority E (very low priority).

Table 10-1: Prioritisation general meaning

Priority		Explanation
A	Very high priority	These improvement tasks should be implemented in the short term (i.e. in the next year)
		Typically, the higher benefit improvements improve legislative compliance, greatly enhance operational efficiency, provide significant cost savings or mitigate major risk
B	High priority	These improvement tasks should be implemented in the short to medium term
C	Medium Priority	These improvement tasks should be considered for implementation in the longer term

D	Low priority	These improvements provide relatively low value for money, and should only be implemented after higher priority improvement tasks
E	Very low priority	These improvement tasks provide the least benefit for the highest cost, and should only be implemented if they are a pre-requisite for another task, or there are no other higher priority tasks

15.4 Improvement Plan Summary

15.4.1 Overview

The review and improvement of the plan requires resource and budget to complete the selected improvement tasks. The following Sections outline the current performance, the target levels of items for improvement, relative urgency, resource, priority, budget and the authority sought to give approval to complete each item.

Since the last LTAMP the following improvements have been completed.

- Understanding and implementing ONRC into BAU,
- Understand heavy vehicle impacts and routes through the separate PBC
- Various data improvements

Table 10-2 contains all the improvement projects/ tasks to be undertaken over the next three years.

Table 10-2: Improvements plan

Project grouping	Name	Activity	Current Status	Future Status and Improvements	Improvement Approach	Priority	Timeframe	Responsibility	Resources	Benefits of Investing	Consequences of not Investing	
Systems	1	ONRC and ONF integration	Use the ONRC, ONF and community outcomes to set customer levels of services	The ONRC base levels have been implemented, ONF rollout underway, CHBDC has robust community and strategic objectives	Levels of service to reflect community and government outcomes	Complete GAP assessment, consider appropriate LoS, engage, partner, and consult with stakeholders and community to set new LoS.	High	3 years	Transport Manager		LoS which meet expectations for their use, form and function.	Incorrect investment levels for the transport system.
	2	Road to Zero	Implementation of strategy	No strategy currently exists	Strategy to deal with the transport system safety problems and implementation of the plan.	Develop an approach and implement.	High	June 2022	Transport Manager		Meeting investment objectives and government policies. Reduction in deaths and serious injuries.	Increase in community harm through deaths and serious injuries. Not meeting government direction.
	3	Safe Speeds	Regional approach to speed management through a regional strategy	Individual Councils undertaking their own approach to speed management	Regional coloration to speed management	Through RTC, develop working group to complete regional plan	High	June 2022	Transport Manager	Planning and implementation has been allowed for in this LTAMP	Safe and appropriate speeds. Reduction in deaths and serious injuries.	Status quo.
	4	Economic Evaluations	NPV and BCR for all relevant works	Implemented in 2020 for AWPT's.	Ensure economic evaluations for relevant works are completed and filed.	CHBDC directive to professional service provider to undertake analysis for all works requiring analysis	High	Immediate	Transport Manager		Works completed meet current policies and practices	Works do not qualify for Waka Kotahi subsidy and project is funded by local share.
Evidence	5	RAMM database	Evidence to support problems	Evidence gaps exist where there are problems in the network.	Robust data and reporting strategy to support asset and activity management including measuring Investment Objectives.	Stocktake data requirements (incl. data improvement programme), prioritise quick wins and areas for significant improvement, develop strategy for implementation.	High	2-3 years as funding is available.	Transport Manager		Data is reliable for assessing successful implementation of this plan and evidence to support future decisions.	Gaps which do not provide evidence to support investment decisions or AM objectives.

Project grouping	Name	Activity	Current Status	Future Status and Improvements	Improvement Approach	Priority	Timeframe	Responsibility	Resources	Benefits of Investing	Consequences of not Investing	
Communication	6	Activity Management Planning	Tell the community about the objectives of this LTAMP and what is expected over the next three years	No engagement to date. To be completed through the LTP consultation process.	Community that is engaged and understands the transport investment priorities.	Undertake engagement on transport objectives and outcomes as part of the LTP process.	High	June 2021	Transport Manager	Communications team	A community that understands what is being invested in.	Disengaged community that does not understand levels of service and or the system does not meet expectations.
	7	Planned and Unplanned events	Communicating with road users	Ad hock process for communicating planned and unplanned events with the community which impacts on their experience of the transport system.	Investigate regional communications system. Look at utilisation of existing tools that contractors and Council already have available.	Approach RTC to see if they are interested in a regional approach to communicating with customers. Investigate and implement low level communication streams while a more permanent and effective measure is in place	Medium	June 2021	Land Transport Manager	RTC, Regional comms and transport staff	Co-ordinated journey planner for customers, cost effective delivery.	Status quo.
Decision Making	8	Data Improvement	Data Quality meets best practise requirements	Some gaps as outlined in the data quality reporting completed by REG	Set appropriate target levels for data quality, maintain the appropriate levels	Analyse current data gaps, close gaps, and implement change process to ensure data management is maintained in accordance with best practice guidelines.	High	June 2022	Transport Manager		Reliable data for decision making	Inappropriate investment levels
	9	Understanding Future Demand	Research Study	The new district plan has land transport input regarding traffic increases but not focused on HPMV	Use this data to develop longer term views of our renewal requirements.	Conduct a research study, including the impact of District Plan changes to assess future demand on the network, in particular identifying any expected change						

Project grouping	Name	Activity	Current Status	Future Status and Improvements	Improvement Approach	Priority	Timeframe	Responsibility	Resources	Benefits of Investing	Consequences of not Investing	
					in use such as the operations of High Productivity Motor Vehicles (HPMV)							
	10	Risk Register	Review Risk Register on a yearly basis and update with change to risk ratings and consequences	Risk register has been completed and a process around updating needs to be created.	Like this item with the review timeframe for the land transport framework	Create a business case framework around the risk register.			Land Transport Manager			
	11	Multi-Criteria Analysis (MCA)	Explore opportunities to utilise MCA in assessing land transport related options where the intangible benefits or costs are significant.	Have yet to determine the criteria we would use for this analysis	Run a trial using an MCA tool against current assessment tool	Having a solid business case approach to assessing land transport related options.			Land Transport Manager			
Decision Making	12	Falling Weight Deflectometer	Review process, selection and testing frequency of pavement sections for future Falling Weight Deflectometer (FWD) surveys to meet long term pavement management strategy outcomes	Review needs to be done of current and legacy data and Pavement asset data	Program survey sites to line up with missing or out of date data within budget and time scale.	Establish weaknesses in the data and set programmed improvements based on set levels of service.			Land Transport Manager			
	13	dTIMS	Use dTIMS or other appropriate alternative method to determine pavement investment profiles	Old data and modelling which does not reflect current demand and pavement condition.	Robust renewals investment profile for pavements.	Complete modelling	Medium	June 2022	Land Transport Manager	Specialist supplier	High confidence in pavement performance and expectations. Reliable decision making for future investment.	Inappropriate investment levels which put Council at risk.
	14	Unsealed Pavements Strategy	Dust Management and Mitigation	Seal extension policy in place. No current practise for	Complete a study on the dust impacts for the CHB community.	Study and business case for change.	High	June 2022	Land Transport Manager	Specialist supplier	Fair and equitable approach to managing the	Status quo.

Project grouping	Name	Activity	Current Status	Future Status and Improvements	Improvement Approach	Priority	Timeframe	Responsibility	Resources	Benefits of Investing	Consequences of not Investing	
			managing or mitigating dust.	Investigate a range of options to manage dust.						impacts of dust for the community. Investment in the problem which exists for the community.		
Service Delivery	15	High level review	Understanding changes stakeholder demand	Baseline provided in Business Case. Assess if the assumptions are realised to ensure investment is targeted to correct level.	Undertake a high level review of demand factors on a yearly basis identifying any significant change impacting the Land Transport Activity	Create a framework to identify those factors necessary to monitor change and impact on the network	Medium	Annually	Land Transport Manager	Appropriate investment levels to meet demand	Over or under investment resulting in redundant or underperforming assets.	
	16	Contract Delivery	Monitoring Performance	In first year of physical works contracts. Ensure contract and delivery monitoring is completed.	Contracts deliver on agreed KPI's which have been set.	Complete contract performance reporting as per contract timeframes to ensure contractors are delivering on agreed outcomes.	High	As per contract requirements	Land Transport Manager	Contracts that deliver on investment.	Under delivery resulting in gaps between agreed LoS and what is delivered. Customers experiencing a lower LoS than what has been invested in.	
Service Delivery	17	Expenditure forecasting	Prioritising expenditure across the 10-year forecast and detailing associated projects									
	18	Maintenance Strategies	Review MIS to ensure it is delivering on AM Practises, ONRC and ONF requirements.	Based on 2019 strategies	Ongoing reviews to meet current requirements and outcomes.	Review in 2022-23 to ensure still relevant.	Low	July 2023	Land Transport Manager	Technical staff, contractors, ELT	Correct intervention levels	Incorrect intervention levels resulting in higher or lower LoS than specified.
	19	ONF	Implement ONF	Draft framework out for consultation. No changes yet.	Fully imbedded ONF.	Review form and function of corridors in accordance with ONF and consult	High	As rolled out by Waka Kotahi	Land Transport Manager	Technical staff, Waka Kotahi, elected members and ELT. Engagement with	System aligned with ONF principles	Status quo.

Project grouping	Name	Activity	Current Status	Future Status and Improvements	Improvement Approach	Priority	Timeframe	Responsibility	Resources	Benefits of Investing	Consequences of not Investing	
People/ Culture	20	Regional collaboration	Regional collaboration is continued to be developed and new opportunities identified	Collaboration and development of RLTP and other regional initiatives such as regional bridge strengthening programmes	Continue to work together with shared improvement opportunities for AMP development. Identify further collaborative opportunities	Reinstating regular collaboration meetings. Involve both RCAs and Waka Kotahi.	High		Transport Manager	Agreement from other stakeholders and partners	Regionally co-ordinated transport system. Cost savings due to packaging initiatives or studies.	Disconnected system which is not customer focused and does not meet the needs of the community. Additional investment levels due to duplication.
	21	Capability plan	Development of a regional capability and success plan	No plan in place	Review individual RCA plans (if available) and identify any gaps.	Individual RCA capability matrix of core competencies required developed. Combine into an integrated regional plan. Gaps identified collectively. Action plan developed collectively. Align with national framework through REG programme.	Medium		Transport Manager	Sector leads including REG People and capability group, contracting community etc.	Identify gaps in market place and work collaboratively with sector to strategically fill gaps.	Unable to deliver due to capacity and capability gaps.
	22	Customer Engagement	Identify the need for engaging customers and key stakeholders in a formal process (beyond that undertaken in the LTP) to examine their willingness to pay for alternative LoS links to improvement item 6	Council has set LoS based on what it feels the community needs and as recommended by ONRC and draft ONF measures.	A fully consulted framework for LoS	A full LoS review which includes workshops and feedback from the community. Link in customer excellence framework from REG programme.	Medium	2023	Group Manager - Assets	REG, community and stakeholders, elected members.	Correct LoS for CHBDC's portfolio, reduction in costs and complaints. Connected citizens.	Higher costs to deliver if the outcomes exceed Waka Kotahi framework. Council unable to deliver community expectations.

15.4.2 Monitoring and Review Procedures

This Long-Term Activity Management Plan is to be reviewed on a three-yearly basis, with the next full review taking place in 2022/23 financial year. During the three-year period leading up to this review, the items in the Improvement Programme should be addressed within the timeframes provided. These improvements can then be incorporated into the next review of the LTAMP.

This LTAMP is also audited externally with the review including process, data integrity and Levels of Service. The last external audit was completed by Land Transport New Zealand in March 2020.

The plan will be prepared by the Land Transport Manager using consultants. Those feeding into the plan will include the planning department, the finance committee, and the other asset managers.