

# Draft Transportation Activity Management Plan Mahere Kawenga 2021–2031



**Final version – 3 – A2437268**



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## 1. SECTION 1: EXECUTIVE SUMMARY

### About this Activity Management Plan (AMP)

The Transport Activity Management Plan (AMP) documents the condition, risks, liabilities, and improvements required to sustain the transport system in Nelson for the next 10 years.

The biggest demands to be managed are:

Biggest land holding – Road reserve, including areas occupied and used by others

Biggest asset – Road pavement

Biggest risk – Structures, including bridges and retaining walls

Biggest liability – Responsibility for road crashes by others

Biggest level of service gap – Cycle network extent and connectivity

Biggest improvement required – Data quality and use in decision making

This AMP is structured as a business case, as required by the Waka Kotahi NZ Transport Agency (Waka Kotahi). This format enables Waka Kotahi to assess the funding requests of all councils in a consistent, evidence-based way.

A business case identifies specific problems to be addressed. The four problems which are at the core of this AMP:

- 1 The inability of Nelson's current transport system to support the movement of people and freight is constraining economic, social and safety wellbeing for all users of the region.
- 2 Conflicting and inappropriate use of the network severs neighbourhoods, reducing their safety and amenity.
- 3 Climate change is increasing the frequency and severity risk profile of natural events that affects the resilience of the transport network.
- 4 Pollution from the transport activity are adversely affecting the climate, environment, and people's health.

These problems focus on the gaps between where we are now, and where we want to be. Resolving these problems will help achieve a transport system that:

- is effective at moving people and freight
- is more accessible via all modes of transport
- contributes to quality urban environments
- feels safer and is safer
- is more resilient
- contributes to a healthy community and environment.

#### 1.1. Waka Kotahi partnership

The transport system is delivered in partnership with Waka Kotahi, which co-funds the subsidised portions of the programme. This close partnership with Waka Kotahi is also reflected in the Nelson Future Access Study. It has been led by Waka Kotahi with Nelson City Council as a key project partner. The outcomes are however not known at the time of writing this AMP.

## 1.2. Strategic Direction of the AMP

A fundamental shift in the approach to transport asset management planning is outlined in section 6.1 Strategic Direction. It entails migrating from a deficiency database (which involves prioritising actions based on complaints) to Network Planning Mapping, improvement planning and evidence-based programming.

## 1.3. Strategic Context

This AMP has been developed within the context of the objectives and direction provided in all the following strategies, policies, plans and programmes.

### National Policies

- The Government Policy Statement on Land Transport (GPS) establishes the outcomes, strategic priorities, and areas of focus to guide Waka Kotahi co-funding decisions.
- The National Policy Statement for Freshwater Management now has higher standards for receiving water quality. This will affect management of stormwater run-off from the roading network.
- The Zero Carbon Bill is expected to establish the national targets for emission reductions.
- The Urban Growth Policy is expected to inform responses to parking and land use/transport planning and response to the NPS on Urban Development.

### Strategies

- The Nelson Future Access Study considers how best to future-proof Nelson's transport system.
- The Nelson Tasman Future Development Strategy (FDS) promotes intensification as the primary way to provide for residential growth in Nelson and Richmond.
- The draft 2021 Infrastructure Strategy provides a 30-year framework to address strategic transport issues in Nelson.
- The Parking Strategy (in development).

### Plans, Policies and Bylaws

- Council's LTP includes Council's priorities for 2021–31 of infrastructure, environment, City Centre development, Maitai Precinct, housing and creating a sustainable transport culture.
- The Regional Land Transport Plan sets out the joint Waka Kotahi, Nelson, Tasman and Marlborough land transport objectives, policies, and measures for the next 10 years.
- The Public Transport Plan is expected to establish how to increase uptake of public transport.
- The Draft Whakamahere Whakatū Nelson Plan (Draft Nelson Plan) includes zoning for future urban growth as well as air quality and freshwater rules.
- The Intensification Action Plan outlines how transport activity management can help to create a positive environment for more intensive urban development.
- A Vegetation Management Policy (under development) is expected to include policies on street trees and managing vegetation in road reserves.

## Programmes

- The City Centre Development Programme/Spatial Plan will influence Council's parking strategy and streetscape renewal programme.
- It is anticipated that commercial redevelopment will precede the Stoke Centre renewal programme.

### 1.4. The Role of Transport in Meeting Council's Objectives

The transport system has a key role in making intensification and city centre living attractive and successful and addressing climate change issues. This includes planting and maintaining street trees for shade, amenity and pollution filtration, freshwater improvement and most importantly making active and public transport the most attractive transport options to reduce reliance on private fossil fuel transport.

### 1.5. Proposed Work Programme

Below is a summary of the key aspects of the proposed programme, which is outlined in more detail in section 8 of the AMP.

#### **Pavements**

Pavements are the biggest asset that the transport activity manages. Increased testing, and data analysis is planned over the next three years, to better understand and prioritise activities associated with this critical infrastructure. Council plans to be efficient and effective in the management of pavement activities, to ensure the network sustains changing traffic demands into the future.

#### **Drainage**

Good drainage is important to the management of the pavement asset. But it is also the conduit of pollution from road activity into the streams and waterways, hence a study is underway to determine the best way to reduce the impact on stream health.

#### **Structures**

Ongoing inspections, and maintenance programmes are required to manage the risks associated with bridges and retaining walls. This includes quantifying and understanding the stock of private structures on road reserve.

#### **Environmental Maintenance**

Demand for environmental maintenance is expected to increase in the future where landscaping is sought to improve urban amenity, address climate change issues, by providing shade and stormwater filtration systems and manage sightlines at intersections and provide visual narrowing to help reduce traffic speeds.

#### **Streetlights**

The replacement of streetlights with LED lanterns has been completed, and these now move into a maintenance phase. Ongoing improvement is required to fill gaps in coverage.

### **Traffic Services — Signs and Markings**

Council will identify where any changes to the current approach to signs and road markings could improve safety and use of the network.

### **Cycle Facilities**

Cycle safety is a concern for Nelson, and poor network connectivity is the biggest 'level of service' gap for the transport system. Focus in the first 3 years is to review how cycle facilities are delivered and seek quick and low-cost options to quickly connect a cycle network. The long-term planning will assess areas where road space reallocation is required to connect the network through challenging areas.

### **Walking Facilities**

The pedestrian network is extensive but aged, so the renewal programme aims to address level of service for pedestrians specially to cater for Nelson's older population. Improvement works focus on road crossing issues, and remaining gaps.

### **Emergency Works**

Council is required to respond to events, with permanent reinstatements included in future programmes, if required.

### **Road Safety Promotion**

Driver behaviour is a factor in user safety on the network, and this is reflected in the 2020 Nelson Resident Survey results for road safety. Particular concerns for Nelson are intersections, vulnerable users, including older drivers, pedestrians and cyclists, and driver distraction including cell phone use, alcohol and drugs.

### **Low Cost Low Risk Roding Improvements**

Use the transport planning framework to prioritise improvements.

Nelson is engaged in the Waka Kotahi Road to Zero programme and to develop a safety intervention programme to deliver the safety improvements required.

Specific projects for years 1–3 include:

- Minor Improvements: \$600k year for intersection safety and speed treatments;
- Domett Street precinct \$1M, Year 1–5, to connect Maitai path users to Nile Street and address road layout and use issues;
- Toi Toi Street upgrade, currently in detailed design stage \$1.3M;
- Railway Reserve improvements including lighting and upgrade of Songer Street/Railway Reserve intersection;
- Quarantine Road Bridge footpath \$360k, Year 1–2;
- Songer Street Railway - Reserve Crossing \$280k, year 1-3

## Major Projects

Major projects are defined as over \$2 million per project, see section 8.2n and specifically include:

- Washington Road, speed reduction and improved walking and cycle facilities with the utilities upgrade project
- Cycle facilities between the Railway reserve and Nelson College/Nelson Hospital area
- Nelson Future Access Study

## Public Transport

Improvements are detailed in the Regional Public Transport Plan.

## Total Mobility Services

An increase in the eligible fare cap to \$30 per trip is proposed, (with 50% being subsidised).

### 1.6. Budget

The budgets to operate, maintain, renew, and improve the transport system over the next three years are summarised below. Further detail is given in the financial summary (section 9).

Items	Full Year Actuals 2020/21	AMP Budgets - First 3 Years		
		2021/22 AMP	2022/23 AMP	2023/24 AMP
<b>Operations</b>	<b>10,986,788</b>	<b>10,384,703</b>	<b>10,328,262</b>	<b>13,803,195</b>
<b>Renewals</b>	<b>3,713,597</b>	<b>4,521,145</b>	<b>4,200,035</b>	<b>5,122,705</b>
<b>Capital Growth</b>	<b>1,337,287</b>	<b>2,469,221</b>	<b>2,422,000</b>	<b>2,552,000</b>
<b>Capital Increased LOS</b>	<b>7,578,929</b>	<b>3,338,041</b>	<b>4,566,144</b>	<b>4,413,482</b>
<b>Capex Total</b>	<b>12,629,813</b>	<b>10,328,407</b>	<b>11,188,179</b>	<b>12,088,187</b>
<b>Total</b>	<b>23,616,601</b>	<b>20,713,110</b>	<b>21,516,441</b>	<b>25,891,382</b>

## 2. SECTION 2: INTRODUCTION

This Activity Management Plan has been written in the business case format and builds on the 2018 AMP. It is the business case for subsidised funding from Council's funding partner, the Waka Kotahi NZ Transport Agency (Waka Kotahi), and guides Council's transport spending for the years 2021–2031, as updated each year by the Annual Plan, and the three yearly AMP review cycle.

Nelson uses the International Infrastructure Management Manual (IIMM) as the basis of asset and activity management and this is reflected throughout the AMP.

The AMP directs transport activities towards achieving Council's Community Outcomes, within the context of the Council's priorities. These are: environment, housing affordability and intensification, creating sustainable transport culture, city centre development, Maitai River precinct, infrastructure, and climate change.

The AMP also reflects the long-term view outlined in the infrastructure Strategy. The AMP is a tactical, locally focused document which has been developed around national and regional transport funding guidelines, as indicated by the requirements of the New Zealand Transport Agency (Waka Kotahi) and guided by the Road Efficiency Group (REG), as well as the Government Policy Statement (GPS) on Land Transport Funding and the Arataki. Arataki outlines 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. The project programme in this AMP informs transport spending in Council's Long-Term Plan 2021–2031, both for the subsidised and unsubsidised assets and activities.

The way strategic planning documents relate together and inform the AMP is shown in Figure 1 below.

### 2.1. Activity Management Plan Structure

This AMP is structured as a Strategic Business Case, with:

- Presentation of objectives to be achieved;
- Evidence, current state, and the environment in which transport is operating;
- A strategic response statement; and
- Levels of Service (LOS) and performance measures to achieve both the Council's and Government's objectives for the transport system.

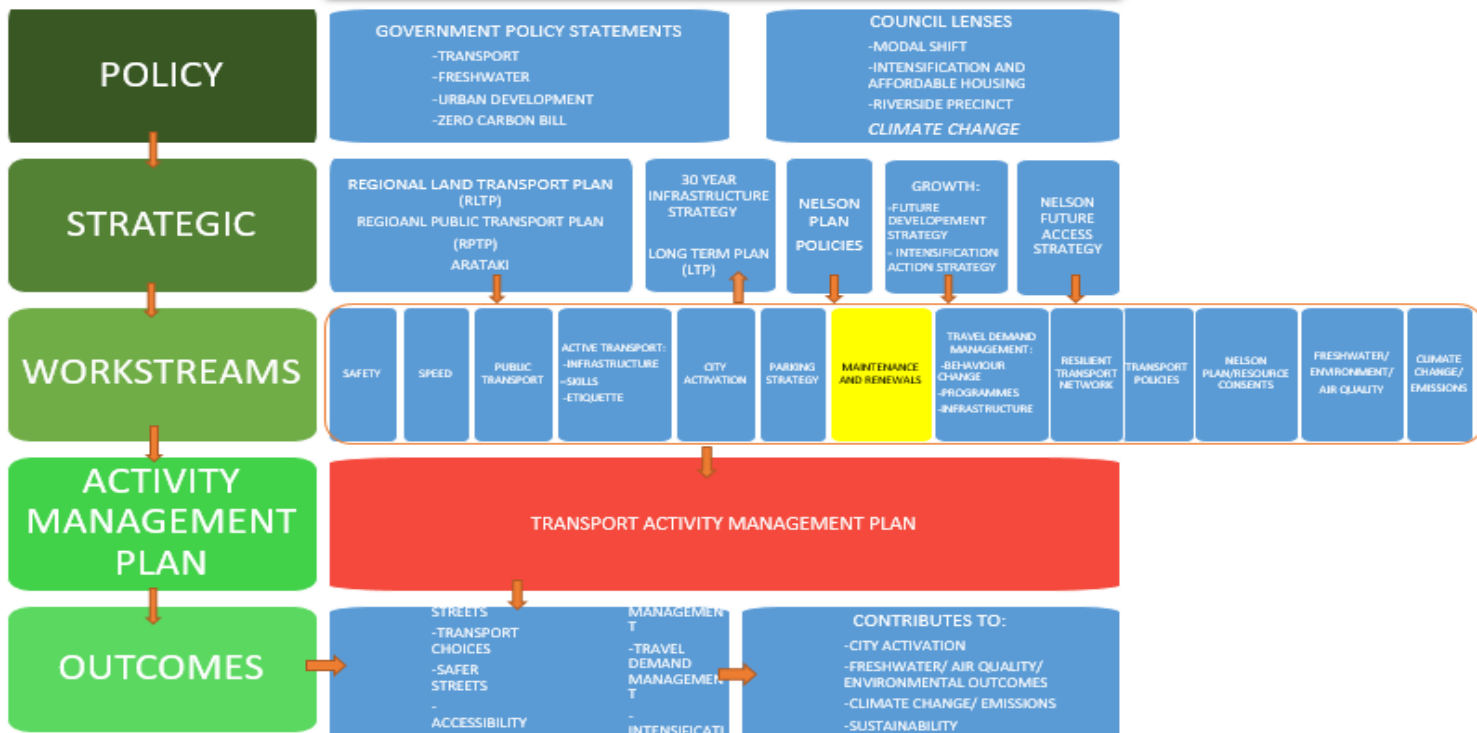
It is then followed by the Programme Business case which outlines how each activity contributes to achievement of the objectives.

The AMP concludes with:

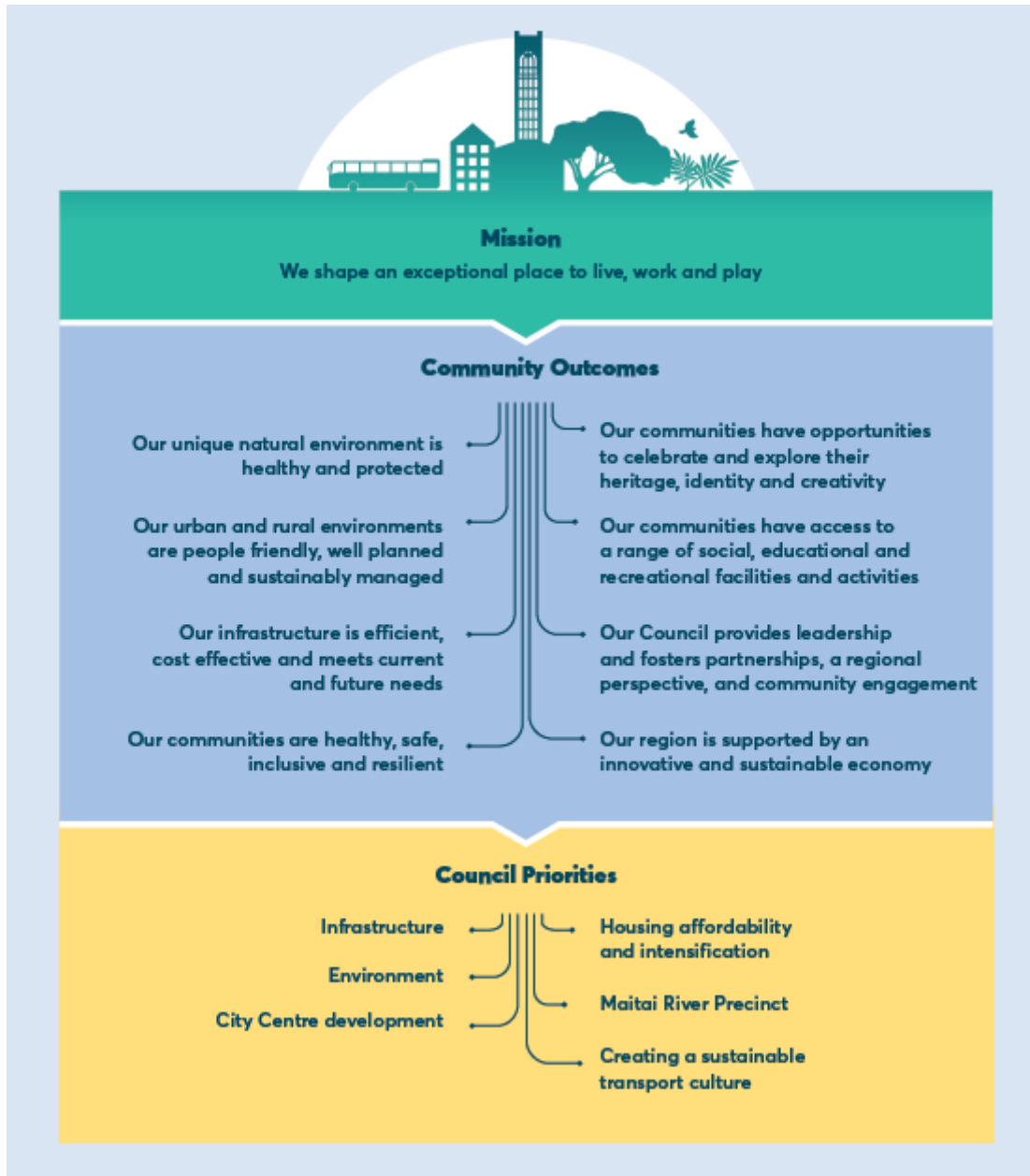
- A financial summary; and
- Appendices of supporting information (including more detailed information about the strategic context for this AMP and evidence in support of the programme business cases).

This AMP provides evidence-based information on how the transport activity in Nelson is performing, based on measurable levels of service and performance indicators. The key objectives this AMP seeks to address are listed over and in Appendix A.

# TRANSPORT ACTIVITY MANAGEMENT PLAN 2021-2031



## 2.2. NCC Objectives





### 2.3. NCC Community Outcomes

The Local Government Act requires councils to include community outcomes in its Long Term Plan to provide a long-term focus for the decisions and activities of the local authority, and to be a basis for accountability to the community. Council's community outcomes are set out in the Long Term Plan 2021–2031.

The Transport AMP's contribution to these outcomes as shown below.

Community Outcome	How transport contributes to the outcome
Our unique natural environment is healthy and protected	Through providing a range of transport modes that minimise the impact on the environment.
Our urban and rural environments are people-friendly, well planned and sustainably managed	Through taking into account the impact on public spaces when providing transport infrastructure.
Our infrastructure is efficient, cost effective and meets current and future needs	<p>Through optimisation of both maintenance and renewal expenditure, to ensure the least cost for the whole of an asset's life.</p> <p>Through providing an effective and efficient transport system that meets the needs of residents and businesses.</p>
Our communities are healthy, safe, inclusive, and resilient	Through providing a safe and resilient transport network that provides for all modes.
Our communities have opportunities to celebrate and explore their heritage, identity, and creativity	Through providing the transportation options to enable people in our community to interact.
Our communities have access to a range of social, educational, and recreational facilities and activities.	Through providing the transportation options to enable people in our community to interact.
Our Council provides leadership and fosters partnerships, a regional perspective, and community engagement	<p>Through providing an integrated transport network that takes account of our inter-relationships with Tasman and Marlborough in the Top of the South Island.</p> <p>Through engaging with our community and regional partners as the transport network is developed.</p>
Our region is supported by an innovative and sustainable economy	Through providing an effective and efficient transport system that meets the needs of residents and businesses.

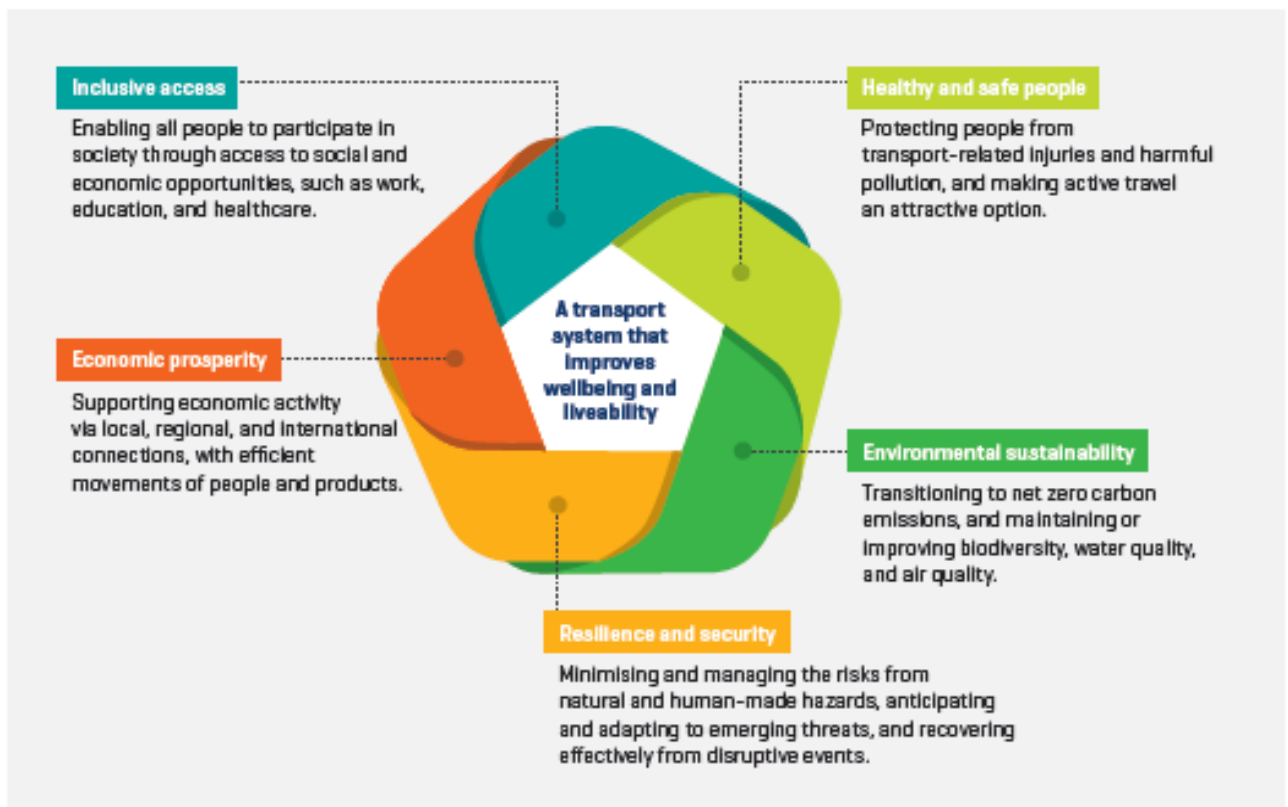
## 2.4. Organisation View of Sustainability

Climate change has an increasingly significant influence on activity management planning. Council has declared a climate emergency and it is a priority for the 2021–31 period with a focus on Council's emissions. However, community transport emissions are the single largest contribution to greenhouse gas behind agricultural emissions. Public transport, walking and cycling improvements, and Travel Demand Management are factors for the transport activity to start addressing these.

## 2.5. Government Policy Statement on Transport 2021.

The purpose of the Government Policy Statement on Transport 2021 (GPS) is to contribute to an effective, efficient, and safe land transport system which is in the public interest. It does this by contributing to five key outcomes, identified in the Ministry of Transport's Transport Outcomes Framework.

### Transport Outcomes Framework



The Government has identified four strategic priorities for land transport investment to best contribute to improving our communities' wellbeing and liveability. These priorities guide Council's and the Government's land transport investments from 2021–2031.

GPS 2021 has four strategic priorities, summarised in Figure 1. These priorities will guide land transport investments from 2021/22-2030/31.

Figure 1: Strategic direction of the GPS 2021



Key areas of focus for regions (of which Nelson is one) are: Road to Zero (Safety), Better Travel Options, Improving Freight Connections and Maintaining the Network and reducing carbon emissions. The GPS also has an overarching objective of providing and demonstrating value for money in all parts of the system.

Further detail on the GPS can be found here:

<https://www.transport.govt.nz/assets/Import/Uploads/Our-Work/Documents/draft-government-policy-statement-land-transport-2021.pdf>

## 2.6. Regional Land Transport Plan

The Regional Land Transport Plan (RLTP) is a Top of the South plan. It presents the priorities for the region and is prepared jointly by Nelson City Council, Tasman District Council, Marlborough District Council and Waka Kotahi (for state highways) to combine the respective Activity Management Plans into a regional focus.

## 2.7. Regional Public Transport Plan

The Regional Public Transport Plan (RPTP) presents the regional operating framework for public transport, and Total Mobility services for 2021–27. It is a six-year plan jointly prepared by Nelson City Council and Tasman District Council and is under review in 2020. This AMP is aligned with the RPTP.

## 2.8. Infrastructure Strategy

The purpose of an infrastructure strategy is to identify significant infrastructure issues during the period covered by the strategy (which needs to be at least 30 years), the principal options for managing those issues, and the implications of those options.

Significant issues considered in the 2021 infrastructure strategy that affect the transport activity include:

- develop a vision for Nelson
- sustainable transport culture, housing intensification and affordability, and enhancement of the Maitai River Precinct.
- Government Policy Statement for land transport with a strong focus on safety, multi-modal transport options, freight and reducing emissions
- increased national and local commitments to both adapt to climate change and reduce emissions
- stricter freshwater provisions and policy direction from central government
- adoption of the Future Development Strategy to guide where and how new residential and business development should occur and how transport should service these areas.
- The transport network is critical to enable all other utilities to get up and running following natural hazard events, by enabling essential service vehicles to access affected areas.
- Incomplete network data creates uncertainty about the level of renewal investment that is actually required.
- The current transport system is in a highly constrained geographic environment, with hills on one side and Tasman Bay on the other. These have become congested through failure to make other modes more attractive than single occupant commuting.
- Growth in the number of car users, and slow uptake of alternative transport options, has increased the demands on the existing road network.

## 2.9. Nelson Future Access Study

The Future Access Strategy seeks to provide a future-proofed transport system which considers the needs of all users — whether they are behind the wheel of a car or truck, on foot, going by bike, or using public transport. The Future Access Strategy is closely aligned with the Nelson Tasman Future Development Strategy which encourages a greater level of intensification rather than continuing to develop on the fringes of the urban area.

A Detailed Business Case is being prepared to guide decision making on investment in a multi-modal transport system. The current programme has this being completed by December 5 2020, in time to be considered during the development of the 2021–24 Regional Land Transport Plan and the 2021–24 National Land Transport Programme, and inform the 30 year planning cycle for transport in Nelson.

The key problems being considered are as follows:

- The inability of Nelson’s transport network to support the increasing movement of people and freight between Stoke and Nelson city centre is constraining the economic growth and social wellbeing of the region.
- Conflicting uses and inappropriate use of the network severs neighbourhoods, reducing their safety and amenity.

- The susceptibility of the arterial network to natural events of increasing severity and a greater number increases the risk of significant economic shock to Nelson and the wider region.

## 2.10. Arataki

Arataki is Waka Kotahi’s long term strategic view of transport in New Zealand, including Nelson. It particularly informs Waka Kotahi investment in the state highway network and may be used to inform the National Land Transport Fund (NLTF) investment in the local network. Arataki is available here:

<https://www.WakaKotahi.govt.nz/planning-and-investment/planning/arataki/>

## 2.11. Treasury Living Standards Framework

The Living Standards Framework provides strategic context for Arataki and the GPS on Land Transport.

## The Treasury’s Living Standards Framework

To help us achieve our vision of working towards higher living standards for New Zealanders, we developed the Living Standards Framework. Our Living Standards Framework provides us with a shared understanding of what helps achieve higher living standards to support intergenerational wellbeing.

**Distribution**

Our work is focussed on promoting higher living standards and greater intergenerational wellbeing for New Zealanders. These require the country’s Four Capitals – human, social, natural and financial/physical – to each be strong in their own right and to work well together.

**People**

**Place**

**Time, generations**

### The Four Capitals (natural, human, social, and financial and physical) are the assets that generate wellbeing now and into the future

Looking after intergenerational wellbeing means maintaining, nourishing, and growing the capitals

**Natural Capital**

All aspects of the natural environment that support life and human activity. Includes land, soil, water, plants and animals, minerals and energy resources.

**Human Capital**

The capabilities and capacities of people to engage in work, study, recreation, and social activities. Includes skills, knowledge, physical and mental health.

**Social Capital**

The norms, rules and institutions that influence the way in which people live and work together and experience a sense of belonging. Includes trust, reciprocity, the rule of law, cultural and community identity, traditions and customs, common values and interests.

**Financial and Physical Capital**

Financial and human-made (produced) physical assets, usually closely associated with supporting material living conditions. Includes factories, equipment, houses, roads, buildings, hospitals, financial securities.

### The 12 Domains of current wellbeing

reflect our current understanding of the things that contribute to how New Zealanders experience wellbeing

- Civic engagement and governance
- Cultural identity
- Environment
- Health
- Housing
- Income and consumption
- Jobs and earnings
- Knowledge and skills
- Time use
- Safety and security
- Social connections
- Subjective wellbeing

**Resilience**

prompts us to consider how resilient the Four Capitals are in the face of change, shocks, and unexpected events

## 2.12. Key Partners

The key partners involved in the development of this strategic business case are outlined below.





Partners	Knowledge Areas
<b>Nelson City Council represented by:</b> <ul style="list-style-type: none"> <li>• <b>Infrastructure Committee</b></li> </ul>	<ul style="list-style-type: none"> <li>• Lead Agency for developing this Strategic Case</li> <li>• Investor in land transport system</li> </ul>
<b>Top of the South Regional Land Transport Forum</b> <ul style="list-style-type: none"> <li>• <b>Marlborough District Council</b></li> <li>• <b>New Zealand Transport Agency</b></li> <li>• <b>Tasman District Council</b></li> </ul>	<ul style="list-style-type: none"> <li>• Regional and inter-regional transport and resource issues</li> </ul>
<b>Waka Kotahi - New Zealand Transport Agency</b> <ul style="list-style-type: none"> <li>• Senior Investment Advisor — Strategic Business Case Review</li> <li>• Senior Investment Advisor</li> </ul>	<ul style="list-style-type: none"> <li>• Investor in land transport system</li> <li>• Provider and operator of adjacent State Highway network</li> <li>• Regulator of use of the land transport system</li> </ul>
<b>Te Ohu Taiao (Environment)</b>	<ul style="list-style-type: none"> <li>• Partner for local government planning</li> <li>• Environmental</li> <li>• Cultural</li> </ul>
<b>Tasman District Council Transport Activity Management team</b>	<ul style="list-style-type: none"> <li>• Joint responsibility for delivering transport outcomes in the Nelson Tasman region</li> <li>• Regional network operating framework</li> </ul>
<b>New Zealand Transport Agency – Future Access Study</b>	<ul style="list-style-type: none"> <li>• Network operating framework</li> <li>• Arterial traffic planning</li> </ul>
<b>Nelson City Council Utilities Senior Activity Manager</b>	<ul style="list-style-type: none"> <li>• Joint responsibility for drainage and freshwater issues</li> </ul>
<b>Nelson City Council Environment &amp; Science team</b>	<ul style="list-style-type: none"> <li>• Joint responsibilities for freshwater and environmental outcomes</li> </ul>
<b>Nelson City Council City Development team</b>	<ul style="list-style-type: none"> <li>• Planning for intensification and urban growth</li> <li>• City centre spatial planning and city palette</li> </ul>
<b>Nelson City Council Environmental Programmes Adviser (Transport and Solid Waste)</b>	<ul style="list-style-type: none"> <li>• Reducing transport-related emissions</li> </ul>
<b>Nelson City Council Climate Change Champion</b>	<ul style="list-style-type: none"> <li>• Climate change adaptation and mitigation</li> </ul>
<b>Nelson City Council Planning</b>	<ul style="list-style-type: none"> <li>• Whakamahere Whakatū Nelson Plan development and implementation</li> </ul>

Council has collected transport-related feedback over the past three years as part of engagement with its community on a broad range of issues. This community feedback has informed this Strategic Business Case.





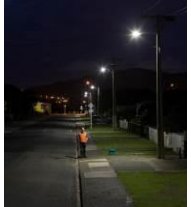

### 3. SECTION 3: TRANSPORT ASSET AND ACTIVITY REGISTER

Nelson City Council is responsible for connecting people and moving goods across Nelson. To do this well Council has a good knowledge of the network and gaps where further work is required. Current status is listed below.

Table 1: Transport Assets

TRANSPORT		Replacement Value as at June 2020	Depreciated Value as at June 2020	Carbon Value	Data Reliability		
					Qty/Age reliability	Condition	Performance
<b>\$\$\$</b>	Total Valuation	\$816.6M	\$640.9M				
	Property Land for legal road 6,630,000 m <sup>2</sup> Unformed road reserve	\$262M	\$262M	TBC	Reliable	Reliable	Uncertain See structures and property evidence and programmes
	Pavements 272km of roads , (256km sealed and 16km unsealed) 22 roundabouts	\$241M	\$204M	TBC	Variable reliability	Average	Uncertain
	Transport Activity 199 million vehicle kilometres travelled in 2018/19 Unknown walking and cycling trips	N/A	N/A	TBC	Average	Average	Average
	Structures 98 bridges (including footbridges and large dia culverts) 460 retaining walls comprising 34,363m <sup>2</sup> area 12km handrails	\$38M  \$103M  Not valued	\$23M  \$71M  Not valued	TBC	Good	Good	Good
	Walking and Cycling 380km of footpaths, walkways, shared paths and separated cycleways 34km of on-road cycle lanes (refer pavements) Seats	\$46M	\$19M	TBC	Good	Good	Average



	<p>Car parking</p> <p>6 off street car park areas 48,300m<sup>2</sup> (1100 spaces)</p> <p>2 off-site leased car parks (37 spaces)</p> <p>(On street parking is included in road assets)</p>	<p>\$4M</p>	<p>\$1M</p>	<p>TBC</p>	<p>Good</p>	<p>Average</p>	<p>Good</p>
	<p>Drainage</p> <p>464km kerbs</p> <p>50km culverts and sump laterals,</p> <p>6,591 sumps/other drainage assets</p>	<p>\$94M</p>	<p>\$50M</p>	<p>TBC</p>	<p>Good</p>	<p>Uncertain</p>	<p>Uncertain</p>
	<p>Environmental, City Centre and Unsubsidised</p> <p>390km of road verges maintained for sightlines and trimming envelopes</p> <p>27 street trees</p> <p>251,540m<sup>2</sup> street gardens</p> <p>2,460m<sup>2</sup> rain gardens</p> <p>600 hanging baskets/year</p>	<p>No valuation</p>	<p>No valuation</p>	<p>TBC</p>	<p>Good</p>	<p>Good</p>	<p>Good</p>
	<p>Environmental</p> <p>1 Stock Effluent Facility</p>	<p>\$0.35M</p>	<p>\$0.32M</p>	<p>TBC</p>	<p>Good</p>	<p>Good</p>	<p>Good</p>
	<p>Traffic Services</p> <p>5,351 streetlights</p>	<p>\$44M</p>	<p>\$23M</p>	<p>TBC</p>	<p>Good</p>	<p>Average</p>	<p>Average</p>
	<p>Traffic Services</p> <p>6,062 signs</p> <p>Line marking, raised pavement markers, and edge marker posts</p>	<p>\$5M</p>	<p>\$2.6M</p>	<p>TBC</p>	<p>Good</p>	<p>Good</p>	<p>Average</p>
		<p>\$0.2M</p>	<p>\$0.15M</p>		<p>Poor</p>	<p>Good</p>	<p>Average</p>



	<p>Total Mobility</p> <p>6 service providers</p> <p>1,386 registered users</p>	<p>N/A</p>	<p>N/A</p>	<p>TBC</p>			
	<p>Public Transport</p> <p>1 service provider</p> <p>350,000 trips/year</p> <p>33 bus shelters, 77 bus stops</p>	<p>N/A</p> <p>\$1.2M</p>	<p>N/A</p> <p>\$0.7M</p>	<p>TBC</p>	<p>Good</p>	<p>Average</p>	<p>Average</p>
	<p>Operational Traffic Services</p> <p>14 sets of traffic signal installations</p> <p>9 traffic cameras</p> <p>28 electronic and driver feedback signs</p> <p>1 copper cable ring road circuit, including spare parts</p>	<p>\$7.4M</p> <p>\$8M</p>	<p>\$3.9M</p> <p>\$4M</p>	<p>TBC</p>	<p>Excellent</p>	<p>Average</p>	<p>Good</p>
	<p>City Centre</p> <p>19 CCTV Police security cameras (leased)</p> <p>Miscellaneous street furniture</p>	<p>\$0.12M</p> <p>\$1.7M</p>	<p>\$0.02M</p> <p>\$0.6M</p>	<p>TBC</p>	<p>Good</p>	<p>Good</p>	<p>Average</p>



## 4. SECTION 4: PROBLEM STATEMENTS

### 4.1. Transport Problems

This Strategic Business Case builds on the 2018 Transport AMP and follows an investment logic mapping (ILM) process to identify problems, opportunities, causes and consequences to address in the 2021 Transport AMP.

The problems relate to gaps between the current transport system and the direction provided in both the Council’s community outcomes and the strategic priorities in the Government Policy Statement on Land Transport 2021 (GPS).

<p><b>Problem 1:</b> The inability of Nelson’s current transport system to support the movement of people and freight is constraining economic, social and safety wellbeing for all users of the region.</p>	 <p>Traffic woes are growing in Nelson as the population increases.</p>
<p><b>Problem 2:</b> Conflicting and inappropriate use of the network severs neighbourhoods, reducing their safety and amenity.</p>	 <p>An existing pedestrian crossing on Wairere Rd. There is an investigation running to see if more pedestrian crossing points should be added to the road.</p>
<p><b>Problem 3:</b> Climate change is increasing the frequency and severity risk profile of natural events that affects the resilience of the transport network.</p>	 <p>Glenleaun, north of Nelson, during the Feb. 1 storm, when a low pressure system combined with strong winds at King Side.</p>  <p>Contractors clear Hicks Rd after a slip closed the Nelson waterfront route following heavy rain.</p>

<p><b>Problem 4:</b> Pollution from the transport activity are adversely affecting the climate, environment, and people’s health.</p>	
	

The causes and consequences for each problem statement are summarised in this section, with cross-references to the evidence for these statements (in section 5 of this AMP).

#### 4.2. Causes and Consequences

**Problem 1: The inability of Nelson’s current transport system to support the movement of people and freight is constraining economic, social and safety wellbeing for all users of the region.**

Cause	Consequence
<p>The average annual population increase of 700 additional residents (290 households) plus a resurgence of business growth 3.9% vs the national average of 3% and health care services is causing congestion accessibility constraints, safety issues, active transport and modal shift barriers and congestion. Refer 5.2-5.8.</p>	<p>The arterial network does not have resilience. Increasing travel times, and significant effects from adverse events affecting the arterial routes results in significant delays. Refer 5.10-5.12.</p> <p>Peak hour volume to capacity ratios on Nelson’s two arterials exceed 80% congestion limit ranging from 83% to 95%. Refer 5.11.</p> <p>School traffic congests the arterial network during school terms, further deterring mode shift and causing safety concerns for parents and students. Refer 5.12.</p> <p>Heavy loading and high demand on pavements may degrade the service life, increasing cost and frequency of maintenance, repair, or rehabilitation.</p>
<p>Congestion on the arterial network is causing traffic to use alternative routes that are not designed for high</p>	<p>Road sections are short. This results in high traffic volumes through more intersections. Refer 5.9, 5.16.</p>

Cause	Consequence
<p>volumes of through traffic. Refer Future Access Study – <a href="https://www.WakaKotahi.govt.nz/projects/nelson-future-access-project">https://www.WakaKotahi.govt.nz/projects/nelson-future-access-project</a></p>	<p>Nelson is high risk on the Communities at Risk Register for intersection safety and cycle safety. Refer 5.14 – 5.18.</p> <p>Cycle demand is suppressed by safety concerns. Refer 5.16, 5.17, 5.23.</p>
<p>Unplanned events on the network cause “traffic chaos” at an increasing frequency. Refer 5.12.</p>	<p>Small events have quick, long lasting and wide-ranging implications that are difficult to reflect in the statistics. Refer 5.12.</p>
<p>Historic “High” growth and ongoing growth in Tasman and city fringe areas. Refer 5.2 – 5.6.</p>	<p>Despite record regional population growth for many years, it wasn’t until 2017 that traffic volumes on Nelson arterials exceeded those of 2006/7. Failure to allow for easy urban intensification and failure to make other options more attractive than car commuting has resulted reliance on vehicle use for commuting. Refer 5.2, 5.8 and 5.12.</p>
<p>Nelson has a defined arterial cycle route, but few off-road facilities away from that route, and poor connections to that route. Refer 5.23.</p>	<p>Cycling is not an attractive or competitive alternative mode of transport for commuter trips. Refer 5.19.</p> <p>Nelson is high risk for cycle crashes. Refer 5.14 – 5.17.</p> <p>Nelson’s enviable proportion of work trips by walk, cycle, and bus for a small metro (18.3% in the 2013 census) is not growing at a fast enough rate to meet the arterial travel demand. Refer 5.19.</p> <p>Inability to cross or use the high-volume roads does not make a connected cycle network possible. Many access and low volume roads that could be accessible for active travel modes have high volumes of traffic. Refer 5.23.</p> <p>There is no cycle connection to key schools, e.g. Nelson College and Nelson College for Girls.</p>
<p>Nelson has an ageing population. Refer 5.2.</p>	<p>Changing demand for services and/or potential for social isolation as the ageing population who have typically only known the private motor vehicle as a means of transport adapt to physical limitations of ageing. Refer 5.2 – 5.8, 5.14 – 5.18.</p> <p>As people age, they lose the functional ability to drive, so become socially isolated when they live in locations where</p>

Cause	Consequence
	<p>alternative mobility options are poor and options to live close to amenities are limited by previous planning restrictions on urban intensification.</p> <p>Home help and social services are an increasing demand on the transport network. Refer 5.2 – 5.6.</p> <p>Nelson’s crash statistics show older drivers are at high risk. Refer 5.14.</p>
<p>The National Policy Statement for Urban Development Capacity requires councils to provide serviced capacity for residential growth. Refer <a href="https://www.hud.govt.nz/urban-development/national-policy-statement-on-urban-development-nps-ud/">https://www.hud.govt.nz/urban-development/national-policy-statement-on-urban-development-nps-ud/</a></p>	<p>Transport capacity in growth areas such as Stoke, and Mahitahi need to meet projected demand in the short (0-3 years) medium (3-10 years) and long term (10 years +). The NPS-UDC requires an additional 3,450 residences in the short to medium term, and the transport system needs to respond to this demand with LOS on the existing network. Refer 5.2 – 5.6.</p> <p>Transport connections are available to the boundary of growth areas but the transport arterial capacity to accommodate additional growth in the wider area is under pressure and is a focus of the Future Access Study. Refer Future Access Study — <a href="https://www.WakaKotahi.govt.nz/projects/nelson-future-access-project">https://www.WakaKotahi.govt.nz/projects/nelson-future-access-project</a></p>
<p>The Urban Development Policy review removes the minimum parking provisions for developments</p>	<p>Potential increased parking demand on street.</p> <p>Requirement to prepare and manage a parking management plan for the city, including previously unregulated residential and industrial areas.</p>

**Problem 2: Conflicting and inappropriate use of the network severs neighbourhoods, reducing their safety and amenity**

Cause	Consequence
<p>Historic reliance on private vehicles as the sole form of personal mobility. Refer 5.8 - .13.</p>	<p>Suppression of demand for diversity of transport options. Refer 5.8 – 5.13.</p> <p>Low uptake of alternative transport modes by older drivers, who have only ever known private vehicles as a mode of transport is resulting in high risks for older drivers as the system is no longer able to meet their changing needs. Refer 5.2.</p> <p>Resilience risk as increasing volumes of vehicles need to be moved through constrained corridors to sustain the current personal mobility demand. Small events cause quick and significant congestion issues. Refer 5.8 – 5.13.</p>
<p>The transport network has been designed for vehicles, not the movement of freight and people.</p>	<p>Vehicle domination and use of all roads equally is resulting in safety issues at intersections, poor safety outcomes for cyclists and pedestrians, and poor urban amenity outcomes Refer 5.12, 5.14 – 5.18.</p> <p>The road network is a barrier to active transport modes because these are not welcome or catered for, creating community severance issues and safety concerns. Refer 5.14 – 5.18.</p> <p>Heavy loading and high demand on pavements may degrade the service life, increasing cost and frequency of maintenance, repair, or rehabilitation. Refer section 8.2a.</p>
<p>Urban intensification and high reliance on vehicles creates high parking demands.</p>	<p>Parking is used as an attractor for retail activity in the city centre, contributing to road congestion, and poor urban amenity in residential areas and the city centre. Refer 5.25.</p>
<p>ONRC road classifications do not align with local hierarchy classifications.</p>	<p>Most journeys are undertaken on primary collector roads which are less appropriate for mass vehicle movement than arterial or regional routes resulting in increased LOS, safety and maintenance demands on those roads. Refer 5.9.</p> <p>The local road classifications are used for local land use development and planning. The gaps between current traffic use patterns and the planning hierarchy result</p>

	<p>in conflicting expectations, use and activity management. Refer 5.9.</p> <p>Heavy loading and high demand on pavements may degrade the service life, increasing cost and frequency of maintenance, repair, or rehabilitation. Refer section 8.2a.</p>
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**Problem Statement 3: Climate change is increasing the frequency and severity risk profile of natural events that affects the resilience of the transport network.**

Problem	Consequence
<p>The regional arterial route is expected to be affected by more frequent storm events and sea level rise. Refer 5.24.</p>	<p>The Nelson Future Access Study is an investigation into the consequences of this problem in detail. Refer Future Access Study <a href="https://www.WakaKotahi.govt.nz/projects/nelson-future-access-project">https://www.WakaKotahi.govt.nz/projects/nelson-future-access-project</a></p> <p>Closures on the state highway regional route result in transport effects on the local network. Refer Future Access Study <a href="https://www.WakaKotahi.govt.nz/projects/nelson-future-access-project">https://www.WakaKotahi.govt.nz/projects/nelson-future-access-project</a></p> <p>Closures impact pavements on secondary roads. Increased loading and demand on pavements may degrade the service life, increasing cost and frequency of maintenance, repair, or rehabilitation. Refer section 8.2a.</p>
<p>Communities expect resilient transport connections regardless of natural circumstances.</p>	<p>Transport is affected by decisions to sustain or retreat from high risk areas. Refer Draft Whakamahere Whakatū Nelson Plan pre-consultation documents and community engagement: <a href="https://shape.nelson.govt.nz/nelson-plan-and-coastal-hazards">https://shape.nelson.govt.nz/nelson-plan-and-coastal-hazards</a></p> <p>Closures impact pavements on secondary roads. Increased loading and demand on pavements may degrade the service life, increasing cost and frequency of maintenance, repair, or rehabilitation. Refer section 8.2a.</p>



<p>Nelson has a transport network that is constrained by topography.</p>	<p>Lifeline facilities (e.g. Maitai Dam, Roding Dam, Water Treatment Plant) have single access routes so lifeline services are vulnerable to natural events affecting those routes. Refer Utilities AMPs.</p> <p>High numbers of retaining walls, as well as bridge and culvert structures, which are essential to the current road network, require ongoing maintenance and renewal. Refer 5.27.</p> <p>Many roads are the result of historic cut to fill, or landfill construction, designed to historic pavement demands affects LOS and maintenance and renewal demands for the network. Refer 5.27.</p> <p>Private structures on road reserve are an unknown age, condition, or quantity that are a safety and legal liability for the Council. Refer 5.27.</p> <p>Unsupported banks are an unquantified risk that could generate increasing demand for emergency works to reopen affected road corridors after natural events. Refer 5.27.</p> <p>Residential growth areas in Nelson are accessed by single link transport connections due to topographical constraints.</p> <p>Refer Future Development Strategy - <a href="http://www.nelson.govt.nz/building-and-property/city-development/future-development-strategy/">http://www.nelson.govt.nz/building-and-property/city-development/future-development-strategy/</a></p>
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**Problem Statement 4: Pollution from the transport activity are adversely affecting the climate, environment, and people's health.**

Cause	Consequence
<p>Vehicle consumables and emissions are polluting waterways.</p>	<p>Stormwater runoff from roads and vehicles is contributing to degrading stream health and loss of biodiversity. Refer 5.24.</p> <p>A new NPS for Freshwater Management (NPSFM) will replace the NPSFM 2014, and its requirements will be reflected in the Draft Whakamahere Whakatū Nelson Plan. The transport activity needs to respond to these new regulatory requirements.</p>
<p>Vehicles generate heat, and the thermal mass of road surfaces contributing to global warming.</p>	<p>The system needs to respond to the climate change effects to continue to provide transport services <a href="https://www.WakaKotahi.govt.nz/assets/resources/research/reports/378/docs/378-v1.pdf">https://www.WakaKotahi.govt.nz/assets/resources/research/reports/378/docs/378-v1.pdf</a></p> <p>The transport system needs to adapt and modify to reduce the impact it is creating on the climate.</p>
<p>Parking caters for single use vehicle trips and storage, and supports reliance on high carbon emission transport modes and road assets.</p>	<p>Over-representation of vehicles affects the spatial allocation of road and urban amenity space and generates more carbon emissions. Refer 5.25.</p> <p>Refer Future Development Strategy - <a href="http://www.nelson.govt.nz/building-and-property/city-development/future-development-strategy/">http://www.nelson.govt.nz/building-and-property/city-development/future-development-strategy/</a></p> <p>Improved central city vibrancy and amenity are constrained by historic parking layouts that support ongoing reliance on vehicle storage from single use vehicle trips. Refer 5.25.</p> <p>Ongoing occurrence of single use car trips and parking demand will continue the legacy of congestion of the road network, and associated high carbon emissions. Refer Future Access Study — <a href="https://www.WakaKotahi.govt.nz/projects/nelson-future-access-project">https://www.WakaKotahi.govt.nz/projects/nelson-future-access-project</a></p>
<p>Retail trends are changing as more goods are supplied online and delivered and the long term COVID-19 reactions are not yet known.</p>	<p>Improved central city vibrancy and amenity and diversity of activities (e.g. inner city living) is being considered through the City Centre Spatial Plan to support businesses and social cohesion, connection demands with a low carbon focus. Refer 5.24.</p>
<p>The Zero Carbon Act could overturn how traditional maintenance, renewal and investment activities are considered. Refer 5.24.</p>	<p>Pollution from the transport activity needs to be considered as well as economic and life cycle considerations, requiring more investigation input to decisions.</p> <p>Pollution from the transport activity need to be quantified and monitored resulting in more administration costs for the activity.</p> <p>The changing carbon landscape is requiring different solutions and greater community involvement in direction setting.</p>

	<p>Adaptation, mitigation and/or retreat scenarios need to be considered for community assets and this affects the decisions made for operation, maintenance, renewal, and improvement of assets.</p>
<p>Global changes to address transport emissions will impact the way transport is delivered in Nelson.</p>	<p>Global developments are expected to change the way movement of people and goods are expected, accessed, and delivered. These could be minor or major, physical, social, IT, fast or slow, and are evolving.</p>

## 5. SECTION 5: EVIDENCE

### 5.1. Introduction

Evidence included in this section refers to the problem statement causes and consequences. Additional evidence is given in Appendix B.

### 5.2. Population

#### Population Growth

Growth and demographics are outlined in document A2380354. The revised population projections post COVID-19 predict a softening in growth rates in the 10-year period to 2031.

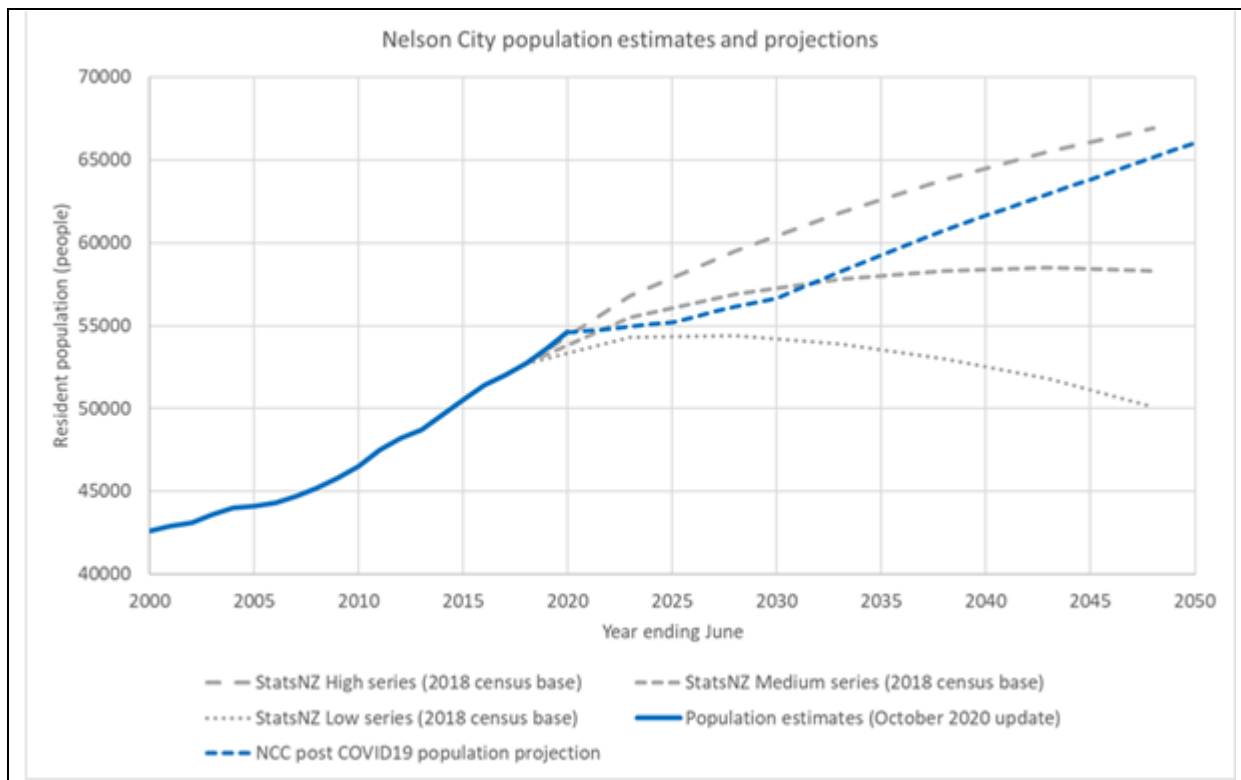


Figure 5.1 population projections.

#### Ageing Population

The number of people aged 65 years and over is expected to increase dramatically over time, increasing from 22% of Nelson’s population in 2021 to 32% by 2043 (as outlined in document A2380354). This trend is also predicted for Tasman.

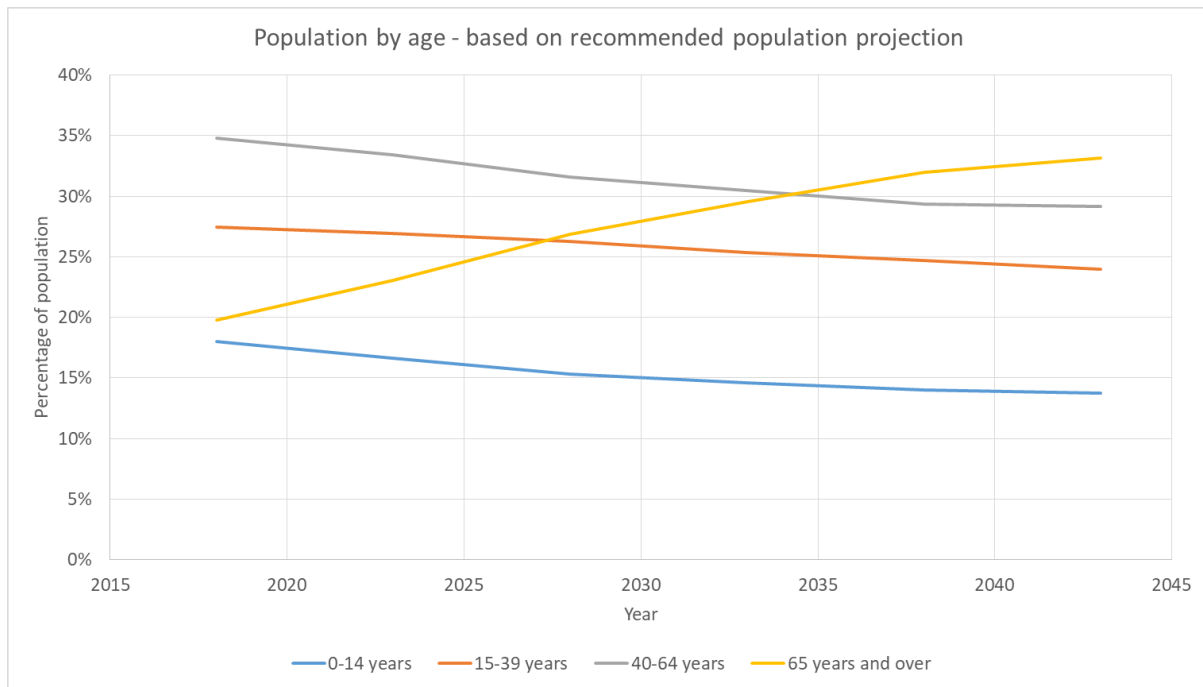


Figure 5.2 Age trends for Nelson population

Waka Kotahi research in 2010<sup>1</sup> showed public transport is expected to continue to be a minor mode for older people. Unless planning and public transport policy changes substantially, older people's present reliance on the car, as a driver or passenger, is expected to continue.

As people age, more active transport modes such as cycling can become less viable, and the ability to use private motor vehicles may also reduce if driving is no longer a safe option. However, the availability of e-cycles has significantly altered previous perceptions. Most of those presently ageing have been familiar with cycle commuting in their youth and given the right infrastructure (protected cycle paths and 30kph shared zones) many are rediscovering the joy of cycling. This issue is compounded by Nelson having very few slow and quiet streets connecting to recreational, social and health facilities. This means it is difficult to access these facilities without using or crossing roads with high traffic volumes via any mode of transport. Also refer 5.12 and 5.14-5.18.

The availability of the Supergold card for free off-peak public transport means that the existing public transport use includes significant numbers of senior citizens. As people age, they often lose their motor vehicle driving licence and so become dependent on mobility scooters. The infrastructure for these is not well developed or considered.

Even if the percentage uptake of public transport doesn't change, the absolute size of public and special transport activities (including Total Mobility) will need to increase to cater for the increased number of older people living in Nelson, and to ensure that lack of transport services does not contribute to social isolation.

A population with an increased proportion of older people on fixed incomes will affect the community's ability to pay for transport infrastructure and services, as could an economic downturn as a result of the COVID-19 pandemic.

<sup>1</sup> <http://www.WakaKotahi.govt.nz/assets/resources/research/reports/481/docs/481.pdf>

## **Urban Growth**

The [Future Development Strategy](#) 2019 (FDS) was jointly developed by Nelson City Council and Tasman District Council. It was informed by a Capacity Assessment report, as required by the National Policy Statement on Urban Development Capacity.

Residential growth areas and the sequencing of urban development capacity in the short, medium, and long term are provided in Figure 5.3.



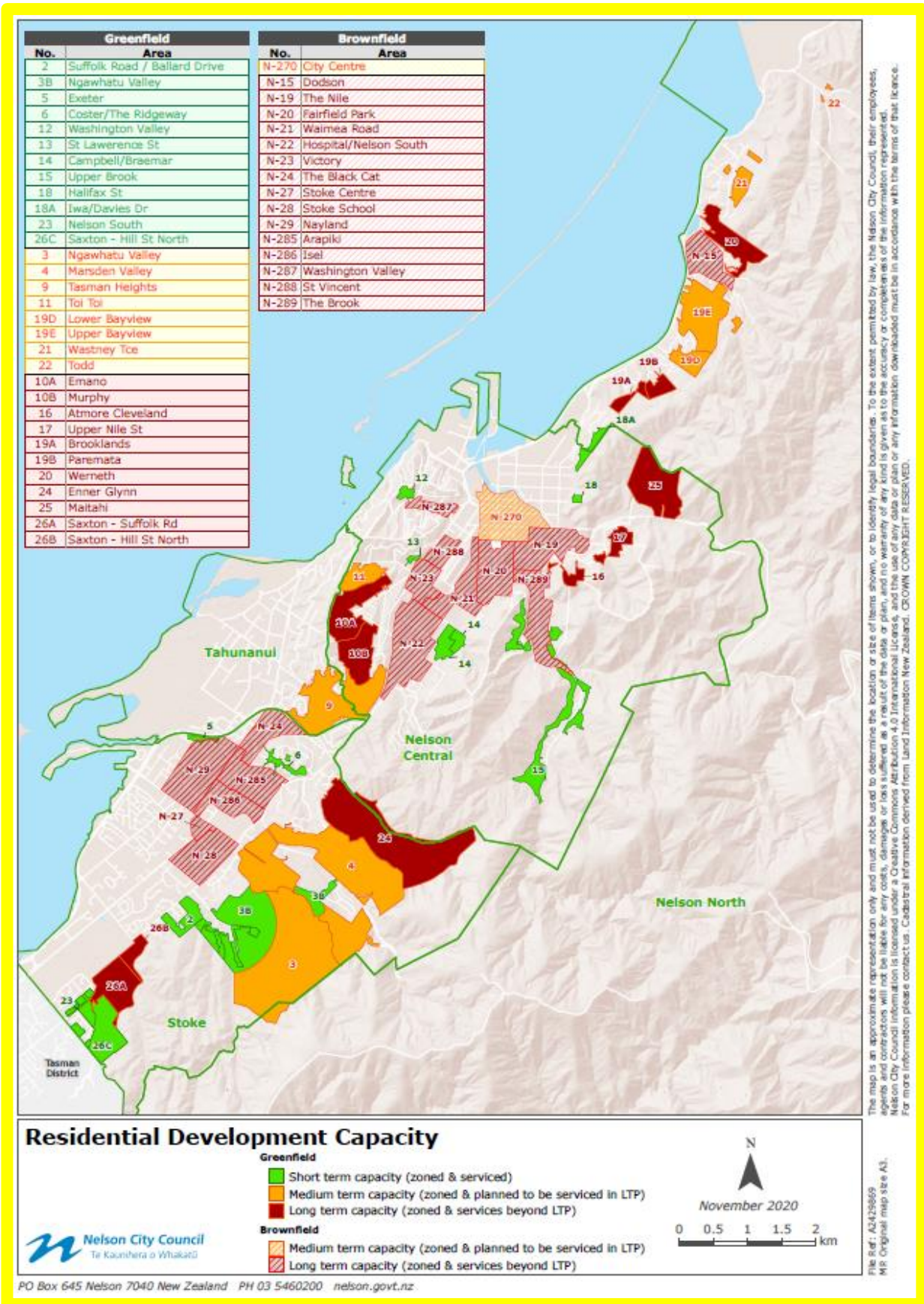


Figure 5.3 — Nelson growth areas responding to National Policy Statement – Urban Development Capacity

### Urban Intensification

The key outcome of the FDS is the realisation that if Nelson (including the Richmond Urban Area) is to accommodate the projected growth in households over the next 30 years, around 60% of the increased housing demand will be through intensification of the existing urban area. There is insufficient greenfield land available in suitable locations to accommodate all of the projected growth, nor is it desirable to use a greenfield only approach when there are other benefits of intensification, including making sustainable transport options more viable. Intensification considerations could affect the renewal programme, as the ideal time to increase the capacity of transport assets could be at the same stage that renewals are due.

An Intensification Action Plan is under development to implement the FDS and has a goal of creating a step-change in the approach to land and infrastructure supply in Nelson.

The Intensification Action Plan states that Council should provide:

- **Lead** investment in urban amenity, utilities, and public transport to encourage growth in specific areas; and
- **Lag** investment in response to growth occurring (e.g. pavement improvements, traffic management systems for increased vehicle numbers and/or to accommodate mode shift priority). Council will need to be flexible in order to respond as required with the "lag" investment approach.
  - Lead investment is required for utilities which affects road renewal programmes (This specifically requires coordination between utility providers and Council, consideration of opportunities for early intervention at reduced cost, prospects for reduced disruption to communities, and a chance for Value-for-Money by the negotiation of incremental additional cost).

Two of the methods in the Intensification Action Plan are to:

- Develop comprehensive neighbourhood upgrade plans; and
- Integrate urban design principles into infrastructure development and renewal processes at the scoping and design phase.

### 5.3 Implications for Transport

The FDS states that much of the Decade 1 development for Nelson (in Figure 4.1 above) relies on urban intensification, as well as ongoing greenfield development in Richmond (with flow-on effects for Nelson's transport network). Council needs to provide timely lead activities in active transport and public transport to make urban intensification realistic and attractive.

The transport network is already generally constrained, and safety and access issues (problem statements 1 and 2) will require upgraded facilities to support intensification, including the layout, composition, and management of pavements.

The availability of frequent, high quality public transport, and safe walking and cycling options, will increase developers' certainty that the neighbourhoods they are investing in will be attractive to buyers. The Intensification Action Plan includes a method to review, reduce or eliminate car parking provisions in all zones but particularly the City Centre (and is relevant to problem statement 4).

The recent National Policy Statement on Urban Development removes Councils ability to stipulate minimum parking provisions in District Plans, instead recommending Council prepares parking management plans. This will further compound problem statements 1 and 2 in the short term, but may become a tool towards the solution of all problem



statements in the long term and will require investigation and consultation through the parking policy and management plan preparation.

#### 5.4 Greenfield Development

The Stoke Foothills subdivisions continue to be developed, increasing pressure on Stoke intersections to accommodate additional traffic. Intersections upgrades identified in the 2018 Activity Management Plan have been reprogrammed to coordinate all city developments with the Future Access Study recommendations. Upgrades to these intersections remain in the work programme and are monitored alongside the high-risk intersection safety concerns for which interventions are anticipated in the 2021–2031 period.

Mahitahi is a proposed development in the Maitai Valley. Proximity to the City Centre and easy access to active transport options are attractive elements of this proposal. This development was signalled for Decade 2 (2030–2039) of the FDS but the developer is currently investigating options to make earlier progress. Active transport routes and intersection upgrades are required to support this development.

Nelson City Council has a [Development Contributions process and policy](#). All projects related to the existing network which are required for a development are assumed to be a local cost (unsubsidised) with cost sharing between the developer/s and Council. However, if a site has a specific and identifiable pre-existing safety, renewal or LOS issue, Waka Kotahi co-funding may be appropriate and may also be requested.

#### 5.5 City Centre Development

Council aims to create an environment which supports commerce, encourages inner city living and is a catalyst for private sector investment.

Of the six key actions of this work programme, three are of particular relevance to the transport activity.

**‘Walkable Nelson’** recognises that Nelson is a compact city, perfect for walking and cycling. Walking will be prioritised through the development of people-focused laneway circuits. Walkable Nelson is about achieving an environment which is ideal for walking, and increases all active mobility and public transport modes, including cycling, personal electric micro mobility (including e-bikes and mobility scooters) and expansion of the capacity of the public bus network.



**'Blue-Green Heart'** prioritises the development of smaller open spaces with trees, lawns and water for use as part of everyday social activities in the city centre. The spaces to be created include pocket parks, parklets (kerbside dining spaces), riverside amenity zones, and pedestrian focused street spaces that balance urban and green. The permanent closure of Upper Trafalgar Street to vehicles will be the first of the Blue-Green spaces in the City Centre.



**'Liveable Centre'**. The Nelson City Centre has a residential population of 7,600 within 2km of the city centre. However, the population drops to less than 75 within a 500m radius from central Trafalgar Street. Council aims to attract high quality, intensified residential development in the city centre. Delivering more housing would create an urban village character that adds vibrancy, reduces commuter traffic and carbon emissions, and enhances the social and retail life of the city.



Council's city centre development document also notes that 20% of the land in the city centre is comprised of Council-owned car parking. (See 5.25 for more detail.)

## 5.6 Nelson Tasman Regional Economy

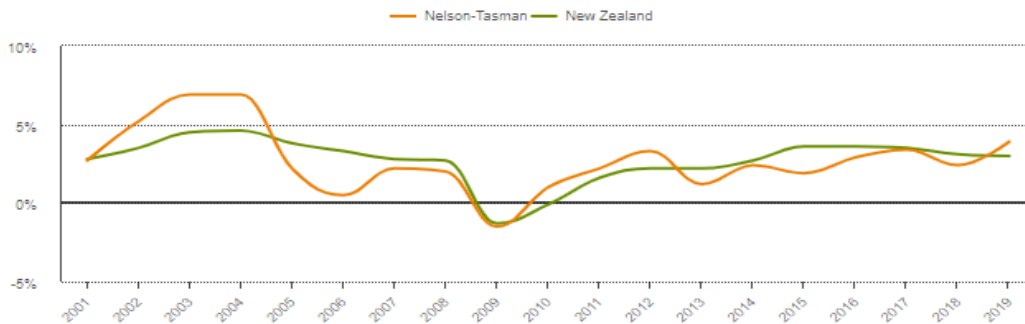
It is difficult to separate Nelson and Tasman when considering business activity. Tasman has a higher portion of land available for primary industries, and Nelson has established secondary industry infrastructure. The airport and port are also located in Nelson.

The Nelson and Tasman districts typically matched national trends in economic growth in the 10 year period from 2009–2018 but experienced increased GDP growth in the year 2018–19. This Transport AMP was prepared before all of the short, medium or long term effects of the Covid19 economic crisis can be known, although early indications are given in figure 5.6. Therefore, the economic, growth and transport projections are based on historic figures and assume resumption of transport activities and revenue at the levels forecast prior to the pandemic occurring. These assumptions will need to be reviewed over time.



3 Nelson-Tasman Annual Economic Profile 2019

Figure 2: Annual average GDP growth, 2001-2019



Change	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Nelson-Tasman	2.2%	0.5%	2.2%	2.0%	-1.5%	1.0%	2.2%	3.3%	1.2%	2.4%	1.9%	2.9%	3.4%	2.4%	3.9%
New Zealand	3.8%	3.3%	2.8%	2.7%	-1.3%	-0.1%	1.6%	2.2%	2.2%	2.7%	3.6%	3.6%	3.5%	3.1%	3.0%

Figure 3: GDP growth over the last 1, 2, 5 & 10 years

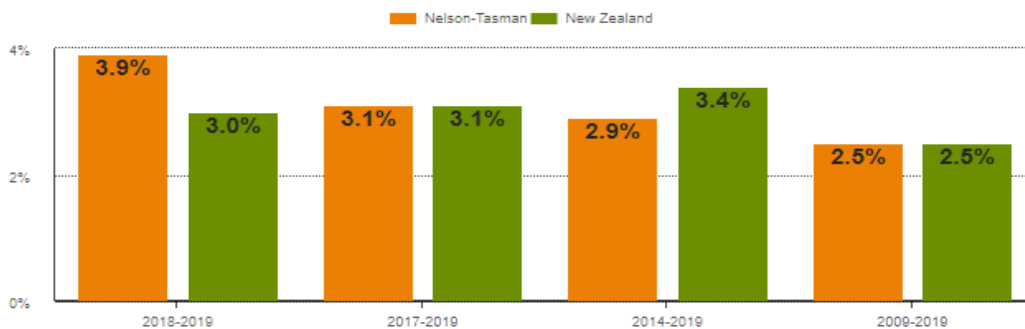


Figure 5.4 — Nelson Tasman Economic Profile 2019

### 5.7 Gross Domestic Product

The Nelson–Tasman region has higher proportions of manufacturing, agriculture, forestry and fishing GDP compared to New Zealand as a whole. The high rental, hiring, real estate and construction GDP are all connected, and relate to the high population growth in the area, which is generating residential housing supply and demand activity. Transport implications include localised increases in construction traffic in the short term, followed by longer term growth in population, widespread general traffic increase, and network expansion related to the new subdivisions. Increases in walking, cycling and public transport use do not yet appear to be directly linked to growth.

Industries in Tasman (agriculture, horticulture and manufacturing) were the biggest contributors to the growth experienced in 2018–19 and these sectors will benefit from the completion of the Waimea Dam. The increase in GDP activity in 2019 is therefore likely to further increase, with associated transport demands, particularly transport of freight to be exported through Port Nelson.

When compared by industry, health care is the second biggest contributor to the Nelson–Tasman region’s GDP. This includes care services for the ageing population, as this work can result in high transport demands as carers travel between clients, supporting them to continue living independently at home. This however could offset travel by elderly drivers, and is less likely to occur in peak commuter travel times.

Over the longer term the Nelson–Tasman region’s employment growth is slightly lower than the national average (1.2% vs 1.5% nationally), but it was 2.5% in 2018–19 compared to 1.9% nationally. The employment growth has been in the primary industries. These jobs are less easily accessed by active transport or public transport modes due to their rural locations, but travel demand management methods such as encouraging employers to provide group transport or to facilitate car share schemes could help to reduce the number of vehicles on the road.

As shown in Figure 5.5, six of the top 10 employment sectors in the Nelson–Tasman region operate in fixed locations within the urban area, so these employees could use public and active transport to get to work if these services could cater for the shift work (e.g. late buses and lighting of cycleways and walkways). These sectors are: cafes and restaurants, supermarket and grocery stores, hospitals, primary education, accommodation and other allied health services.

### Nelson-Tasman Annual Economic Profile 2019

Table 7: 50 largest employing ANZSIC 7-digit industries, 2019

Rank	Industry	Nelson-Tasman		New Zealand
		Jobs	% of total	% of total
1	Cafes and Restaurants	1,667	3.1%	2.9%
2	Supermarket and Grocery Stores	1,648	3.0%	2.4%
3	Hospitals (except Psychiatric Hospitals)	1,440	2.6%	2.9%
4	Apple and Pear Growing	1,311	2.4%	0.2%
5	Seafood Processing	1,309	2.4%	0.2%
6	Primary Education	1,221	2.2%	2.2%
7	Accommodation	1,199	2.2%	1.4%
8	House Construction	1,110	2.0%	1.9%
9	Fish Trawling, Seining and Netting	1,009	1.8%	0.1%
10	Other Allied Health Services	997	1.8%	1.3%

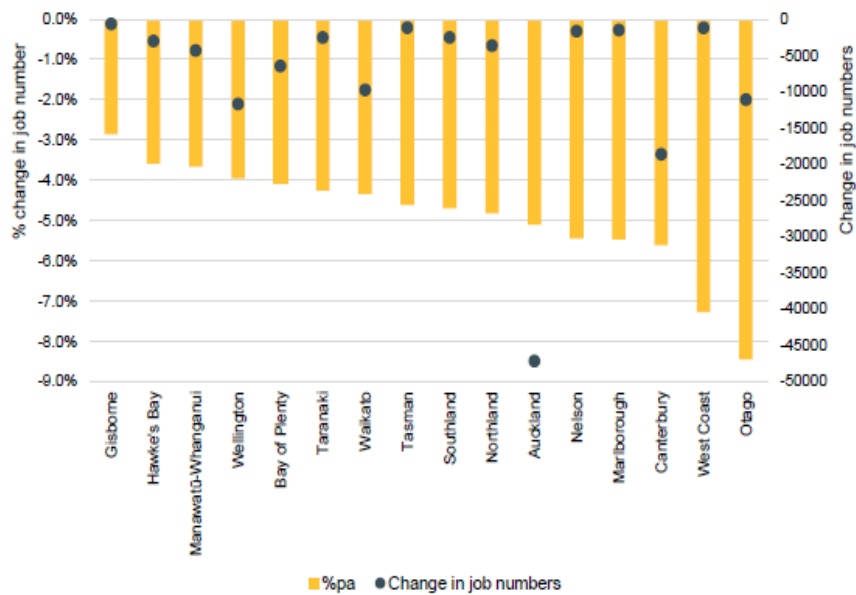
Figure 5.5: Top 10 employment sectors in the Nelson–Tasman region

Tourism growth peaked in 2015 and has decreased since then. Growth was measured at 4.3% in 2018–19. The key implications of tourism for the transport sector are the number of independent travellers, increasing pressure and travel times on arterial roads over summer and autumn.

Early indications are that the Nelson economy is likely to be one of the least affected by the Covid 19 pandemic. This is indicated in the graph below. Further detail can be found in the following link.

[https://Waka\\_Kotahi.govt.nz/assets/planning-and-investment/docs/arataki/regional-summary-10-top-of-the-south-potential-impacts-of-covid-19.pdf](https://Waka_Kotahi.govt.nz/assets/planning-and-investment/docs/arataki/regional-summary-10-top-of-the-south-potential-impacts-of-covid-19.pdf)

Forecast change in employment by region, 2020-2021, Slower Recovery Scenario



Forecast change in employment by region, 2026-2031, Slower Recovery Scenario

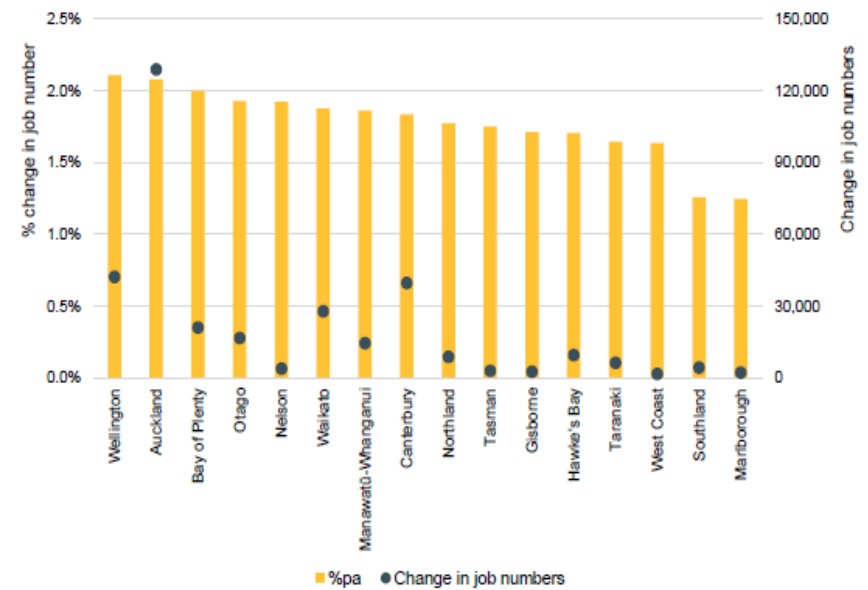


Figure 5.6: Forecast change in Employment as a result of the COVID-19 Pandemic

## 5.8 Traffic Volumes

### Traffic Data

Road transport growth was 2% in 2018/19 alongside regional business growth of 3.9% for the same period.

Traffic count data on key One Network Road Classification (ONRC) regional and arterial routes within Nelson for the period from 2006 to 2019<sup>2</sup> is presented in Figures 5.7 and 5.8. The data shows arterial traffic volumes which had been on a downward trend since 2006-7 has shown a more recent trend upwards particularly affecting Waimea Road and Main Road Stoke at Saxton Field, with traffic numbers in 2017 finally surpassing those of a decade earlier. We need to question why despite a record regional population growth rate Nelson had declining traffic volumes for many years which has only recently reversed.

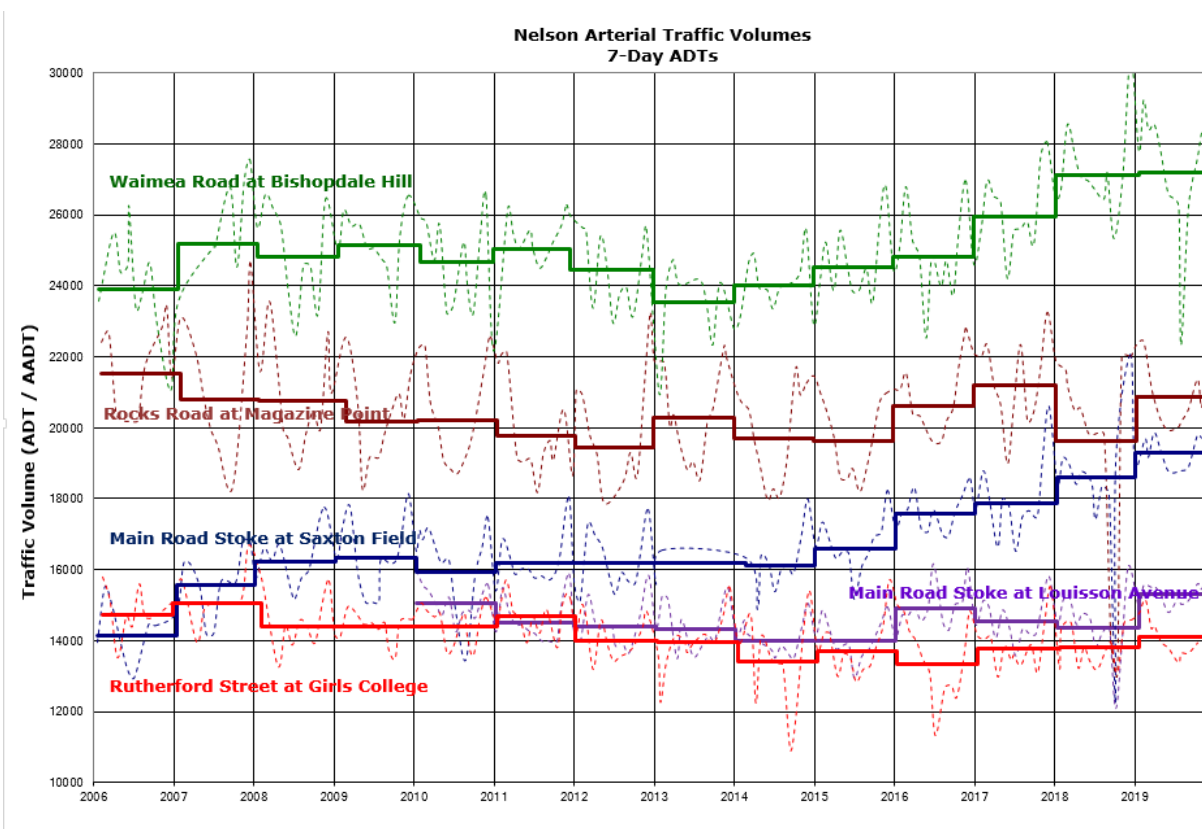


Figure 5.7a: Nelson arterial traffic volumes

<sup>2</sup> Refer A1672546 for data set

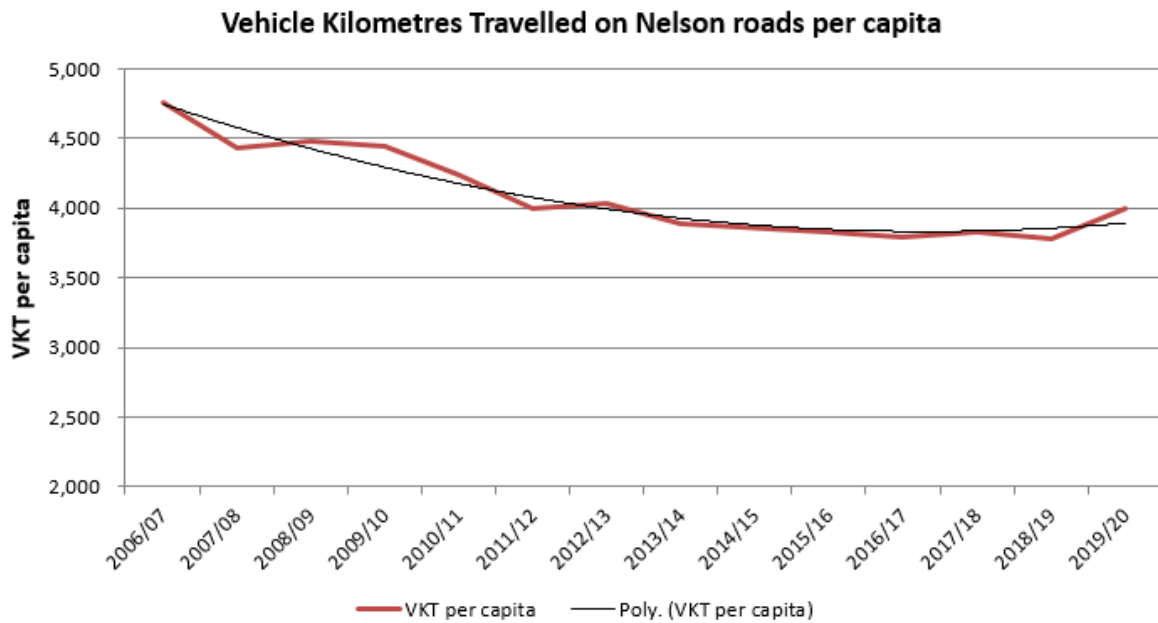


Figure 5.7b: VKT Nelson roads

Vehicle Kilometres Travelled (VKT) on Nelson roads has been corrected in 2019/20 by updating traffic estimates, refer figure 5.7b. It is likely that VKT has been underreported for at least 10 years.

### 5.9 One Network Road Classification (ONRC) Assessment

One Road Network Classification (ONRC) has been introduced to standardise national road hierarchy discussions. ONRC was established in 2015 and updated in June 2020 and will migrate to One Network Framework (ONF) by 2024. The hierarchy reflects the current operating function of each road as determined by the ONRC Functional Classifications:

<https://www.nzta.govt.nz/assets/Road-Efficiency-Group/docs/functional-classification.pdf>

The ONF will include place function as well as traffic function, but is still under development by Waka Kohati.

Routes linked to the Future Access Study are yet to be reviewed for the 2020 ONRC update. Many roads in the study area, for example: The Ridgeway, Nayland Road, Washington Road, St Vincent Street, Vanguard Street, Gloucester Street, Motueka Street and Van Diemen to Collingwood Street, carry arterial traffic volumes (>5000 Vehicles per day and link populations >10,000 people), but carry no public transport or freight. An arterial classification would change the priority for LOS, emergency events, maintenance activities and improvement activities.

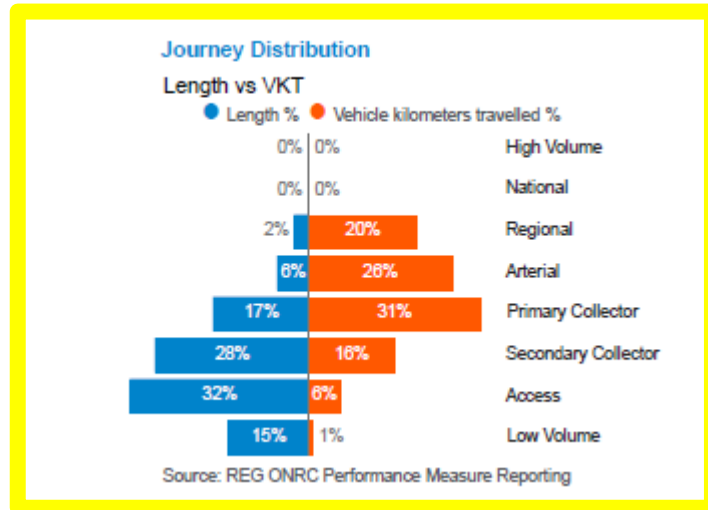


Figure 8: Network length vs VKT

The June 2020 update of the ONRC classification has identified a mis-match between the functioning use of some roads and the local hierarchy, refer Nelson Tasman Land Development Manual (NTLDM) table 4.3, e.g. Vickerman Street as a primary collector in the local hierarchy but a regional road when considering traffic and HCV volumes and port access. The local road hierarchy and ONRC hierarchy are mapped in Appendix O.

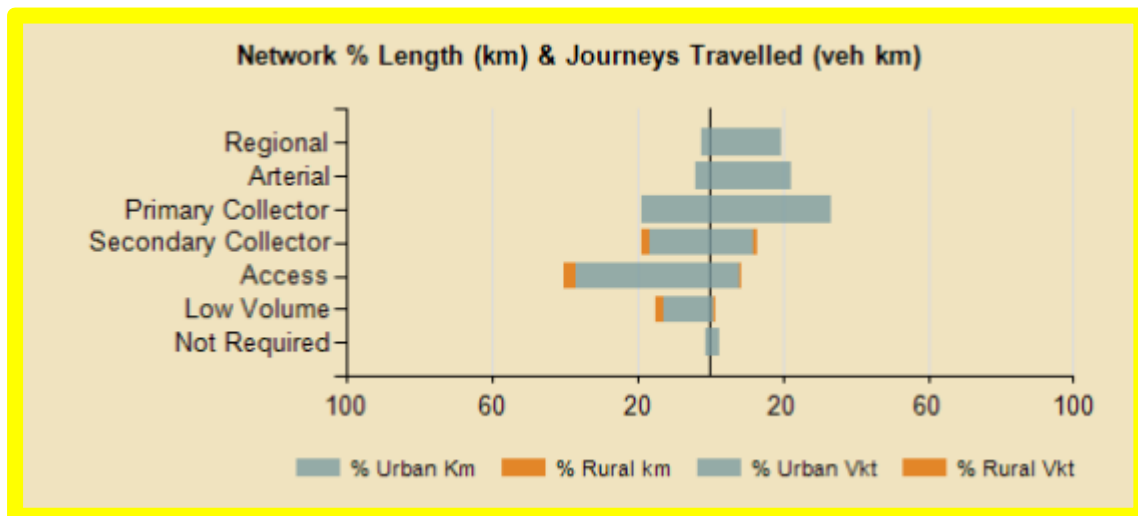


Figure 8b: Urban – Rural Network length vs VKT

Within the ONRC there are 3 peer groups. Networks >90% urban, networks <90% urban and rural. Nelson is in the <90% urban although it is 91% urban. The councils within each urban peer group are listed in Appendix C.

### 5.10 Travel Times

The increase in arterial traffic volumes is also reflected in a significant increase in peak hour travel times, particularly during the afternoon peak on Rocks Road and the morning peak and afternoon peak on Waimea Road. Figures 5.9 and 5.10 present the 24/7 collection of Bluetooth travel time data. The horizontal red line represents the maximum



target peak hour travel time. The number of occasions that the actual peak hour travel time is above the red line demonstrates when a poor level of service especially during the busier summer months.

From 2015 to 2016, there was a 4.5 minute increase in mean travel time in the first quarter of the year on Waimea Road.

The evening peak on Rocks Road and morning peak on Waimea Road reflect local route choice. School traffic accessing schools on Waimea Road increases the morning peak and the recreational and home bound commuters choosing the scenic route on Rocks Road in the evening.

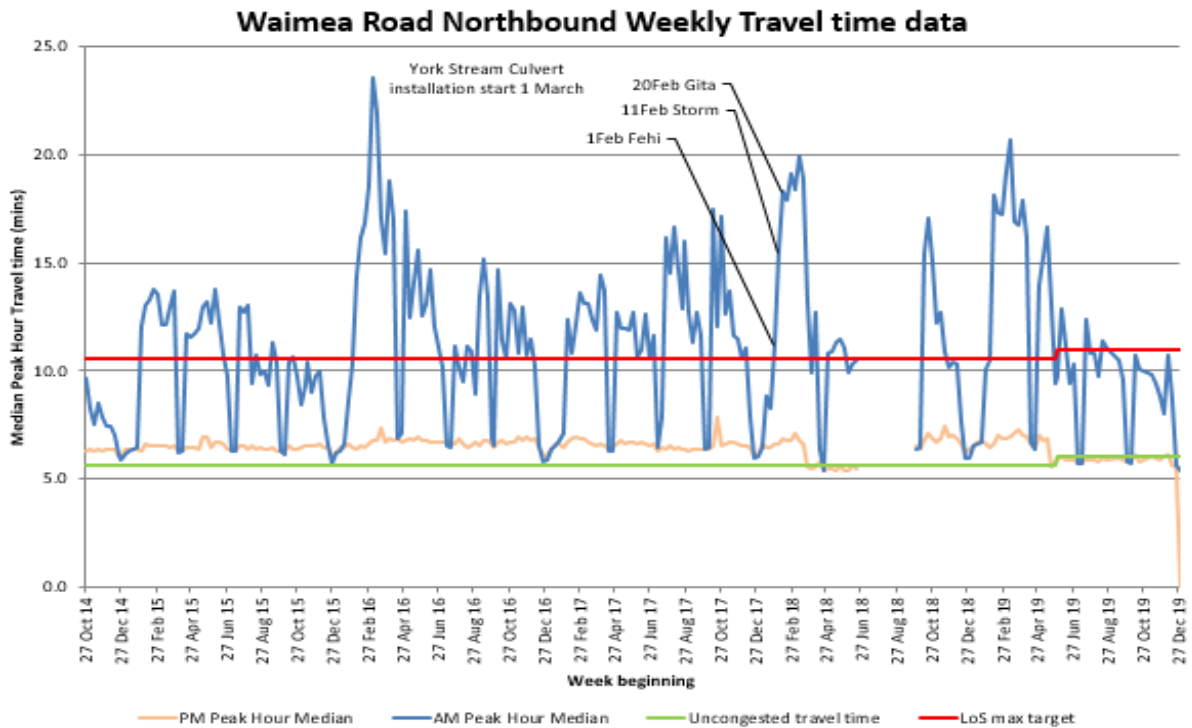


Figure 5.9: Waimea Road Northbound Median Peak Hour Travel Time

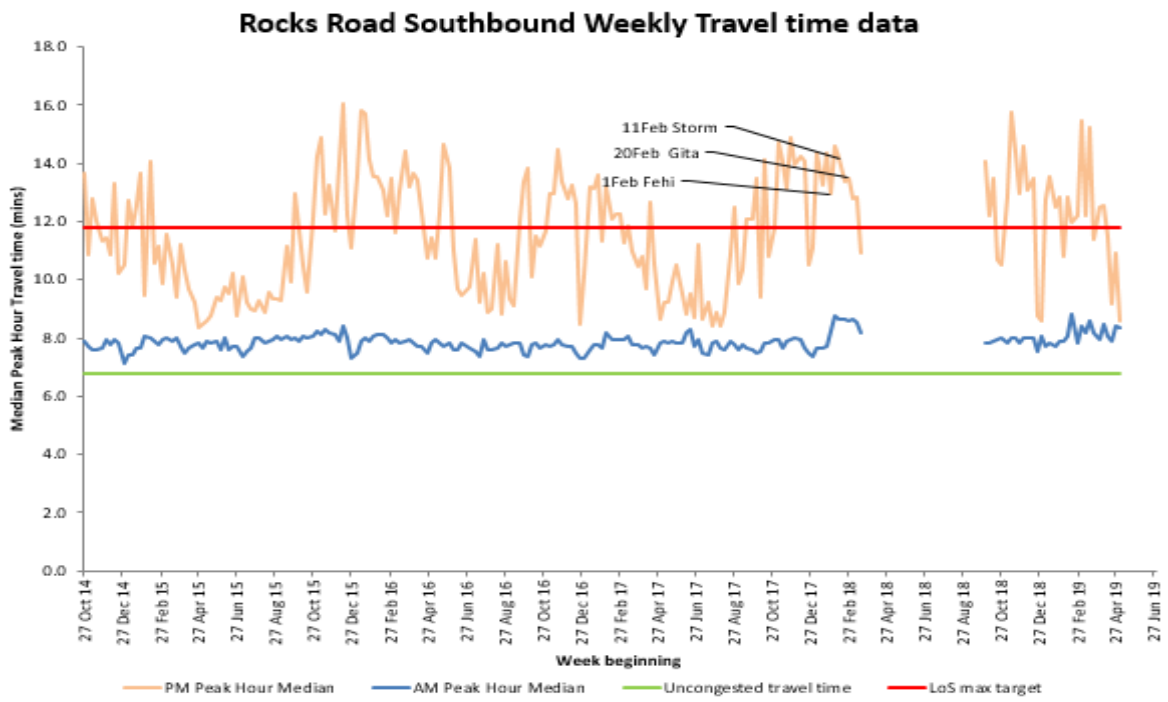


Figure 5.10: Rocks Road Southbound Median Peak Hour Travel Time

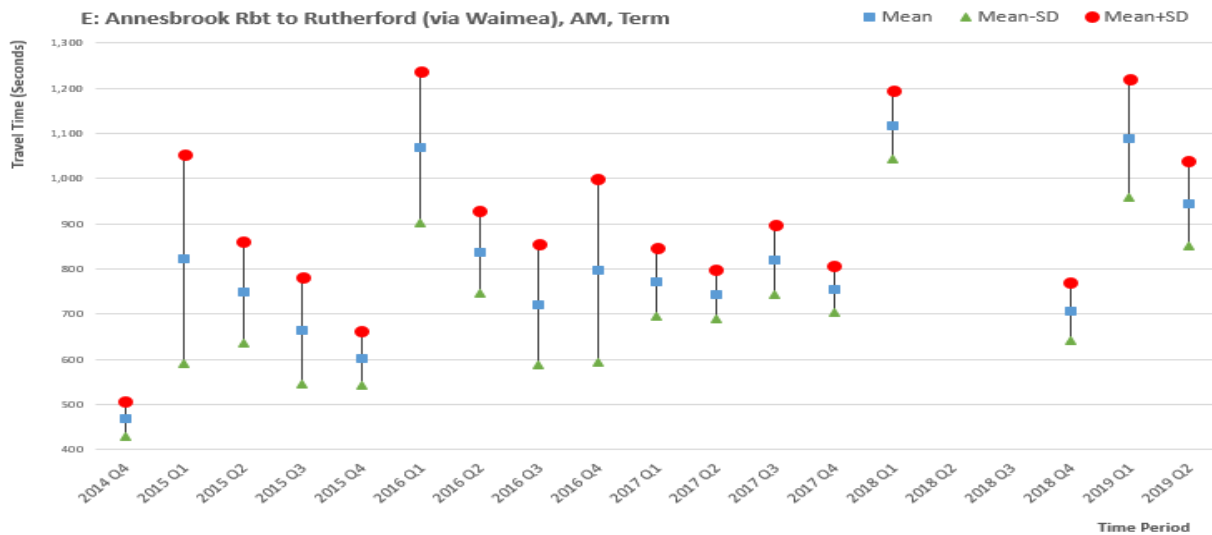


Figure 5.11: Travel time variability between Annesbrook Roundabout and Selwyn Place via Waimea Road during the AM peak hour excluding school holidays

### 5.11 Arterial Capacity

A Transport Agency definition of congestion is “where the volume to capacity ratio exceeds 80% for 5 days per week over at least a 1 hour time period that affects at least 1.5 km of a route”. The travel time data presented in the Nelson Southern Link Strategic and

Programme Business Case provides evidence for congestion in Nelson as summarised below:

- peak hour volume to capacity ratios on Nelson's two arterials range from 83% to 95%, confirming current traffic congestion in the peak hours on Nelson's two arterial routes
- average 15-minute travel time delays in the peak periods on SH6 (Rocks Road route) range between 2 and 4.5 minutes, and between 2 and 12 minutes on Waimea Road
- uncongested daytime travel speeds on SH6 are approximately 40km/hr, reducing to as low as 25km/hr in the southbound peak; and
- uncongested daytime travel speeds on Waimea Road are approximately 50km/hr, reducing to as low as 18km/hr in the northbound peak.

The full report is available at: <https://www.Waka Kotahi.govt.nz/assets/projects/nelson-southern-link/Nelson-Southern-Link-Investigation-Future-Forecasting-FINAL.pdf>

The Waimea Road traffic flows are very defined by the school term because there are two secondary schools, prep schools and a primary schools directly affecting use of the route. The high traffic volumes during the secondary school term are a barrier to active transport modes, because cyclists and pedestrians have to either cross Waimea Road or travel on the road in this heavy traffic. Currently, there are only two controlled crossing points, and six pedestrian refuges on this 4.8km stretch of road.

Public transport, especially in peak hour, is affected by arterial congestion because the bus travels in the same lanes as the general traffic.

## 5.12 Impacts on Alternative Routes

There is little resilience on the twin arterial road network (Waimea Road and SH6 Rocks Road). Any event affecting these roads results in spikes of increased traffic volumes on alternative routes. The particularly high traffic volumes in 2016 and 2017 (shown in Figure 5.13 below) related to York Stream road works on Waimea Road and Cyclone Fehi/Gita effects on SH6 Rocks Road respectively. York Stream road works diverted more traffic onto Rocks Road, and the coastal effects of Cyclone Fehi/Gita diverted more traffic onto Waimea Road.

This effect is shown visually in the Stuff media report for a crash event in Richmond. Similar effect was experienced in Nelson, but not photographed, during the Walters Bluff fire in 2019.



BRADEN FASTIER/STUFF

Traffic was backed up as far as Wensley Rd in Richmond on Thursday afternoon after the crash.

Figure 5.12: Traffic congestion in Richmond

Customer complaints often relate to concerns for safety due to the rat running traffic (drivers choosing to travel on residential streets to avoid the delays on the arterial routes). These vehicles are often travelling fast, resulting in a loss of amenity due to increased traffic noise and safety concerns.

High traffic volumes on alternative routes, where the road hierarchy does not support high volumes, is also likely to be contributing to Nelson’s high intersection crash rates.

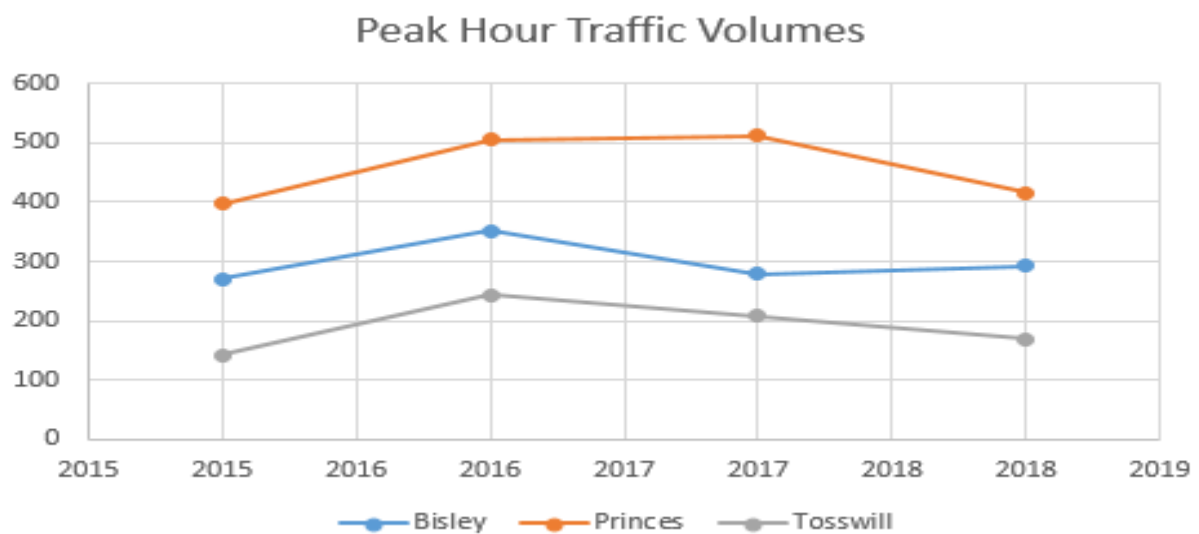


Figure 5.13: Rat Run Traffic Volumes on Port Hills, Spm peak

### 5.13 Freight

Road transport is the only means of getting export products to the port or airport as there is no regional rail network. Road transport is therefore critical to the regional economy. A map of key freight routes – approved HPMV Routes on local roads is included in Appendix O. The most key freight route is the state highway.

The volume of heavy vehicle traffic (all vehicles over 3.5 tonnes) on Nelson's key freight routes peaked in 2017–18. Most freight routes have since stabilised to a nominal 500 HCV per day. Mainfreight will relocate its freight depot to Nayland Road in 2021 which will increase the HCV load on this road.

Of the heavy commercial vehicles (HCV), the largest vehicles cause the most wear of the pavement structure. Most key freight routes have 50–80 Class II (large) HCV per day, with low growth in numbers.

Main Road Stoke (near Richmond) is a notable exception, as shown on figure 5.14a and 5.15b below. The practicalities of turning right out of Elm Street and the freezing works entrance means most of the heavy traffic turns left, to the Saxton Road roundabout, turns left again onto Saxton Road to access the Whakatū Drive roundabout, and exits back onto State Highway 6, doubling their trip on Main Road Stoke and having an impact on the road pavement.

Vickerman Street is another exception. Low Street was closed and transferred to Port ownership in 2019. This has changed the way traffic moves around the Port. Vickerman Street is now the only route into and out of the Port and is used for shuttling logs from the receiving yards to storage elsewhere in the Port area, resulting in very high traffic demands on this section of pavement, increased traffic flow, increased criticality, and potential issues when pavement maintenance, repair, or rehabilitation is required. As shown in figure 5.14a and 5.14b below this has doubled heavy vehicle volumes and resulted in a 4-fold increase in large HCV on Vickerman Street.

For comparison the HCV on Rocks Road (2018 est) 1900HCV.

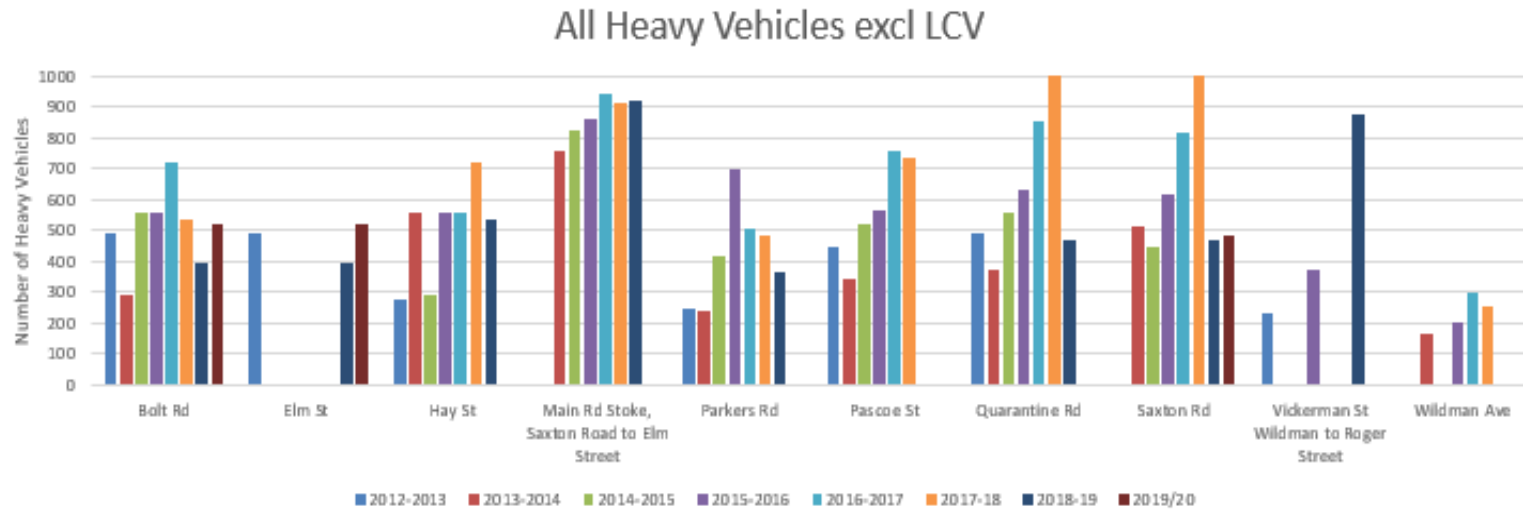


Figure 5.14a: Heavy vehicle volumes

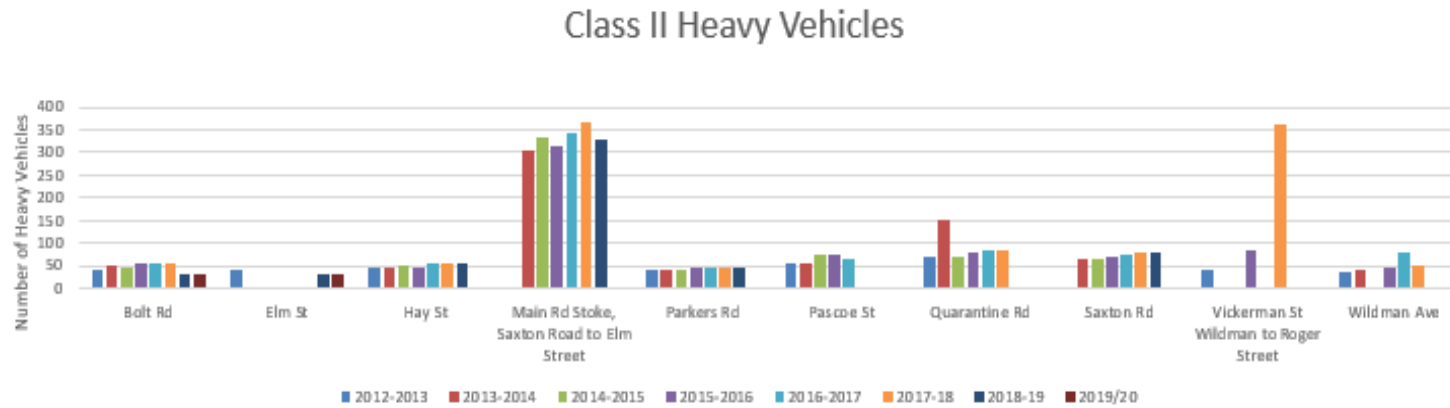


Figure 5.14b: Class II (large) HCV traffic over time on key freight routes in Nelson

High Productivity Motor Vehicles (HPMV) were introduced in order to move more freight on fewer vehicles, acknowledging that the freight task was increasing throughout New Zealand. Nelson has permitted 50 Max vehicles across all of the network, except posted bridges. HPMV vehicles are permitted on key approved freight routes. Larger HPMV vehicles are permitted on key approved freight routes. However even with this network optimisation for moving freight, the number of large (Class 8-13<sup>3</sup>) HCVs has still increased on most of the key freight routed monitored by Council over the past five years. The pavement asset consumption (or damage) from HCVs is much greater compared with smaller or lighter vehicles.

## 5.14 Road Safety

### Communities at Risk Register

New Zealand has a Communities at Risk Register which identifies the national gaps in road safety using a 5-year rolling average. This is used to identify which of Nelson's safety risks are the highest national priorities to action.

<b>Communities at Risk Focus Area</b>	<b>National Risk Priority 2019</b>	<b>Nelson Risk 2019</b>	<b>Nelson Risk Change since 2018</b>
Cyclists	High	High	No change
Older Drivers	Emerging trend	High	Increasing risk
All intersections	High	High	Increasing risk
Urban Intersections	High	Medium	Increasing risk
Rural Intersections	High	Medium	Increasing risk
Motorcyclists	High	Medium	No change
Distraction	Medium	Medium	Increasing risk

Figure 5.15a: Communities at Risk assessment of safety risks

In addition to Nelsons priorities, alcohol and drugs, young drivers, and speed are the high strategic priority nationally including Nelson drivers and network. Speed especially affects the outcomes at crash events, so is a contributing factor to DSI events at intersections and involving cyclists. Addressing speed has a benefit for these local priorities.

<sup>3</sup> Refer Traffic Monitoring for State Highways - Appendix A for classification descriptions (<https://www.nzta.govt.nz/assets/resources/traffic-monitoring-state-highways/docs/traffic-monitoring-state-highways.pdf>)

Peer Group Comparison

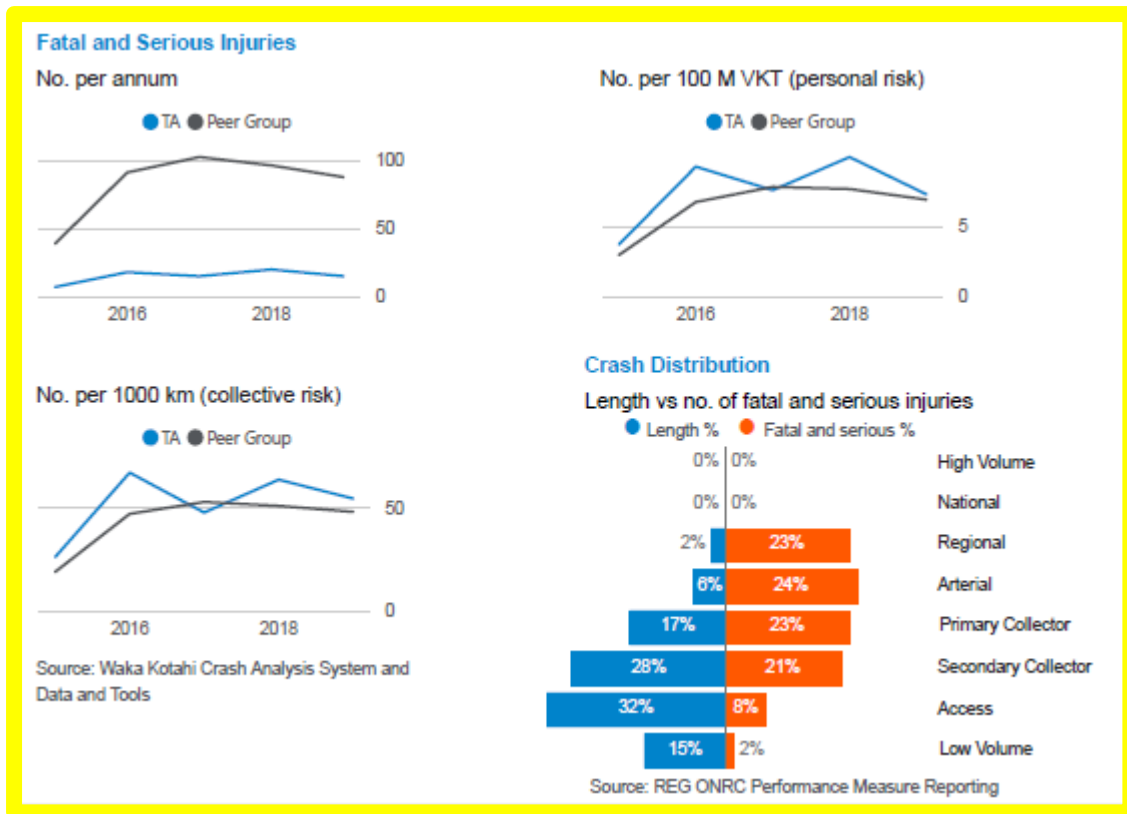


Figure 5.15b: Safety Peer group Comparison

Nelsons has less DSI crashes that our peer group. This is likely to be because Nelson is more than 90% urban so does not have high speed road crashes, because personal and collective risks are generally higher that the peer group. Crashes on Nelson roads are spread across the ONRC spectrum between regional, arterial, primary and secondary collectors. This contributes to poor perceived/real safety concerns, low amenity and inappropriate use of the lower classification roads. It particularly affects opportunity for people to feel safe to walk and cycle on roads where there is less traffic.

Nelson has a higher crash rate for intersections, and vulnerable users than our peers as shown in figure 5.15c below. These are further assessed in sections 5.15- 5.18.

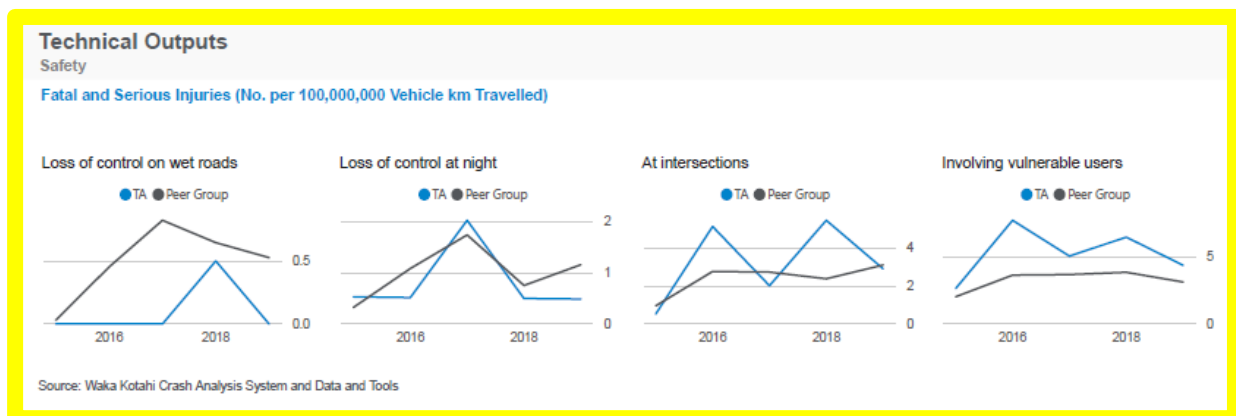


figure 5.15c: DSI Crashes in Nelson compared to Peers



### 5.15 Crash Data

Many Nelson roads are very short, as shown in Figure B.16 (Appendix B), resulting in frequent intersections, many of which are not be designed for the current traffic volumes, pedestrian and cycle demands. This situation may contribute to Nelson’s high crash risk at intersections.

This is particularly noticeable when considering the total number of crashes by category over the last 10 years. Secondary Collectors and low volume roads in Nelson have significantly higher personal risk than the national average or peers. (Note the 2020 ONRC review has not yet been reflected into this data).

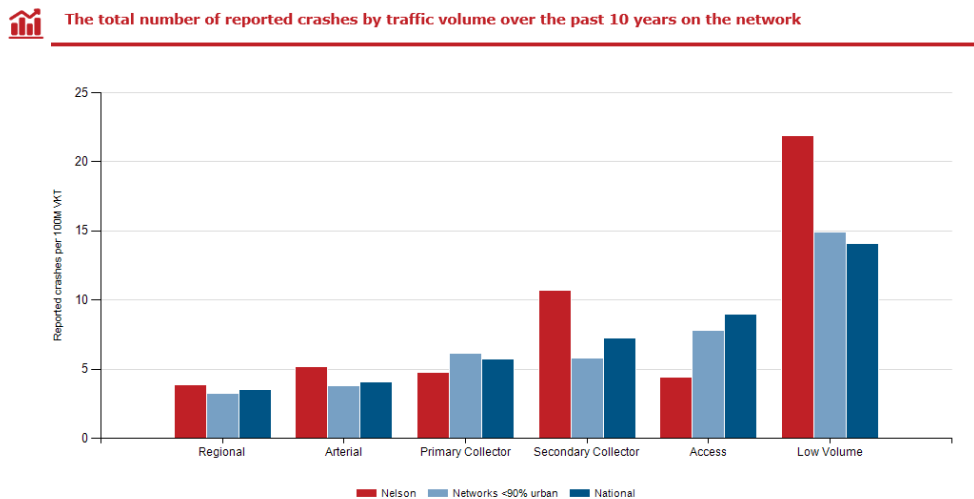


Figure 5.17: Reported crashes

### 5.16 Intersection Crashes

Of the intersection crashes in Nelson, most occur at T junctions, and/or at Give Way controlled intersections. The Waimea Road/Ridgeway intersection is historically the single biggest contributor to crashes at T intersections, although this has been eased recently by the reduced speed limit on Waimea Road. Further intersection safety sites being monitored for the 10-year programme are included in Appendix G – Intersection Safety Programme.

<b>DSI<sup>4</sup> Intersection Crashes in Nelson 2015–19</b>			
DSI by intersection type		DSI by control type	
Junction	Count	Control	Count
T junction (including Y junction)	17 (40%)	Give way	25 (60%)
crossroads (including multileg)	9 (21%)	Stop	3 (7%)
Roundabout	5 (12%)	Traffic signals	2 (5%)
Driveway and end of road	2 (5%)	Unknown	6 (14%)
Nil	9 (21%)	Nil	6 (14%)
		Pointsman	
<b>total</b>	<b>42</b>		<b>42</b>

<sup>4</sup> Death or serious injury

All Crashes at Intersections in Nelson 2015-19			
All crashes by Intersection type		All crashes by control type	
Junction	Count	Control	Count
T junction (including Y junction)	297 (36%)	Give way	466 (57%)
Crossroads (including multileg	139 (17%)	Stop	20 (2%)
Roundabout	187 (23%)	Traffic signals	83 (10%)
Driveway and end of road	37 (5%)	Unknown	150 (18%)
Nil	163 (20%)	Nil	103 (13%)
		Pointsman	1 (1%)
<b>Total</b>	<b>823</b>	<b>Total</b>	<b>823</b>

(From: A2334614 road safety – intersection crash records 2015-2019)

Figure 5.18: Intersection crash records 2015–2019

### 5.17 Cyclist Crashes

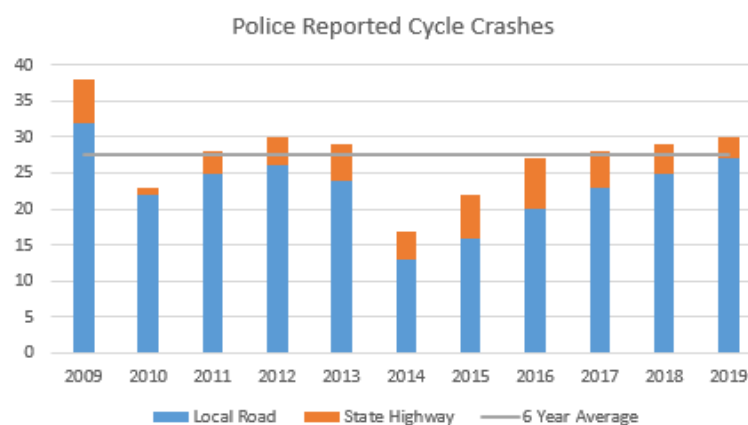


Figure 5.19: Cycle crashes

The number of cycle crashes has been increasing since 2014, matching the increasing number of cyclists until 2019 when there were more cycle crashes than growth. This trend reflects the unforgiving conditions for cyclists choosing to ride on the road alongside traffic, and poor connections to the discontinuous off-road network, refer figure 5.26. This is also reflected in the Communities at Risk Register where cycle risk in Nelson is in the high category.

### 5.18 Pedestrian Crashes

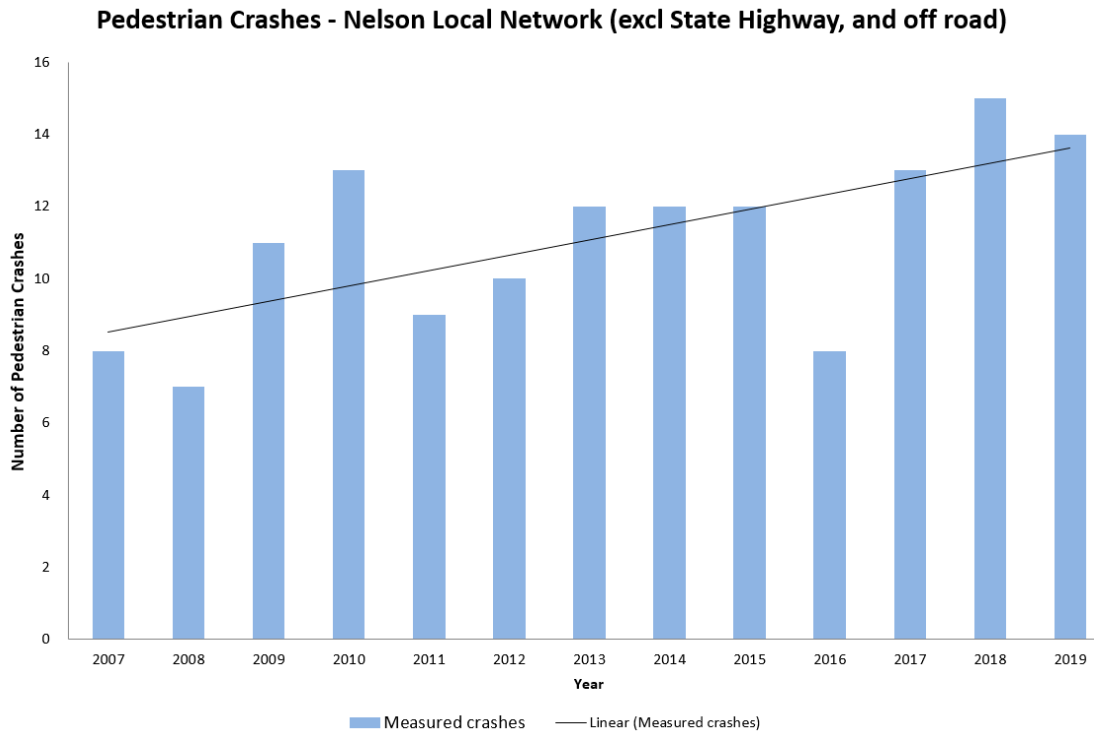


Figure 5.20: Pedestrian crashes

Nelson is not high risk in the Communities at Risk Register for pedestrian crashes. However, they are a concern because pedestrians are vulnerable road users who have a range of abilities, and there has been an increasing year on year trend of pedestrian casualties. Safety concerns are taken seriously because any crash involving a pedestrian is likely to result in injury.

Pedestrian safety concerns will be a barrier to people choosing to walk if the risks are not addressed.

Site specific safety concerns for Nelson are:

- Access to the city centre, walkability within the city centre and road crossing facilities, with specific concerns at Selwyn Place and Rutherford Street; and
- Access to schools.

## 5.19 Alternative transport modes

### Journeys to Work and Education

Nelson’s proportion of work trips by walk, cycle and bus reduced from 18.3% in the 2013 census to 14.4% in the 2018 census. Both numbers are significantly outweighed by the number of people travelling in vehicles, as drivers or passengers (71.4% in the 2018 census).

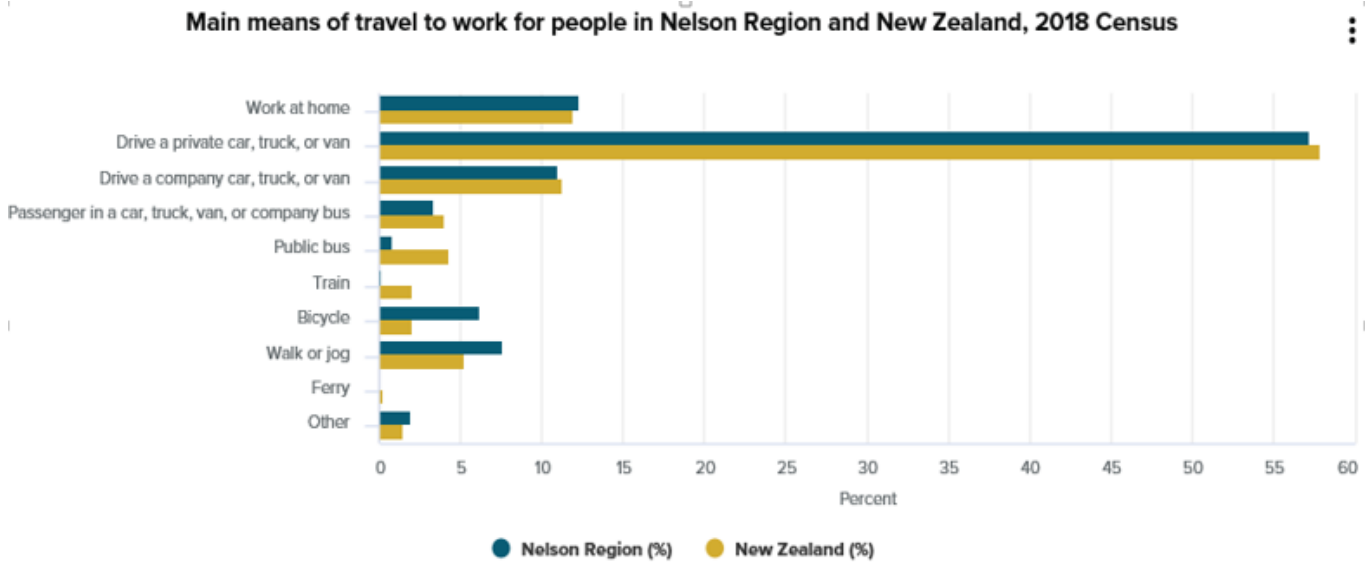


Figure 5.21: Mode share for journeys to work

A large proportion of Nelson students (includes tertiary) walk and cycle to school, with 37.2% walking or cycling in the 2018 census. However, the majority of students travel in vehicles, with 45.5% either driving or being passengers in vehicles. Management of this against efficiency for commuting parents remains a challenge.

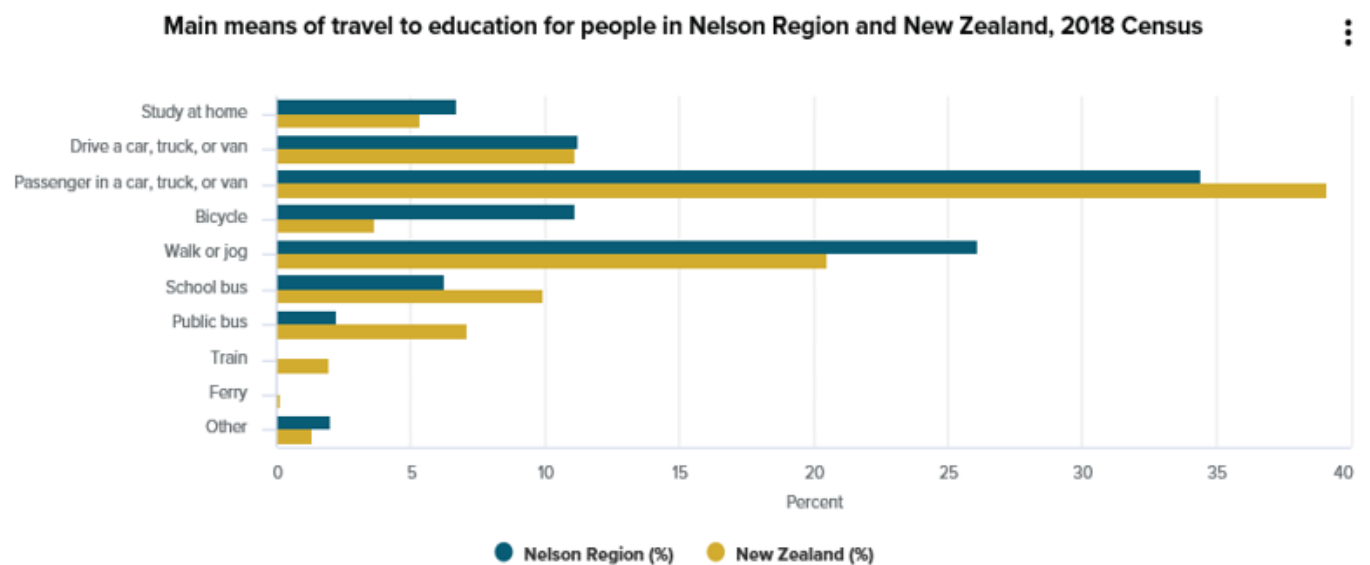


Figure 5.22: Mode share for journeys to education

## 5.20 Active Travel to School

Classroom surveys are undertaken to determine the portion of students walking or cycling or bus to school. Improved data collection and management tools are required to use these statistics in planning and performance monitoring.

## 5.21 Pedestrian and Cyclist Counts

There has been a steady growth in the numbers of people walking and cycling in Nelson, as measured on a six-monthly basis at the five monitoring sites. This is shown in Figure 4.20 below.

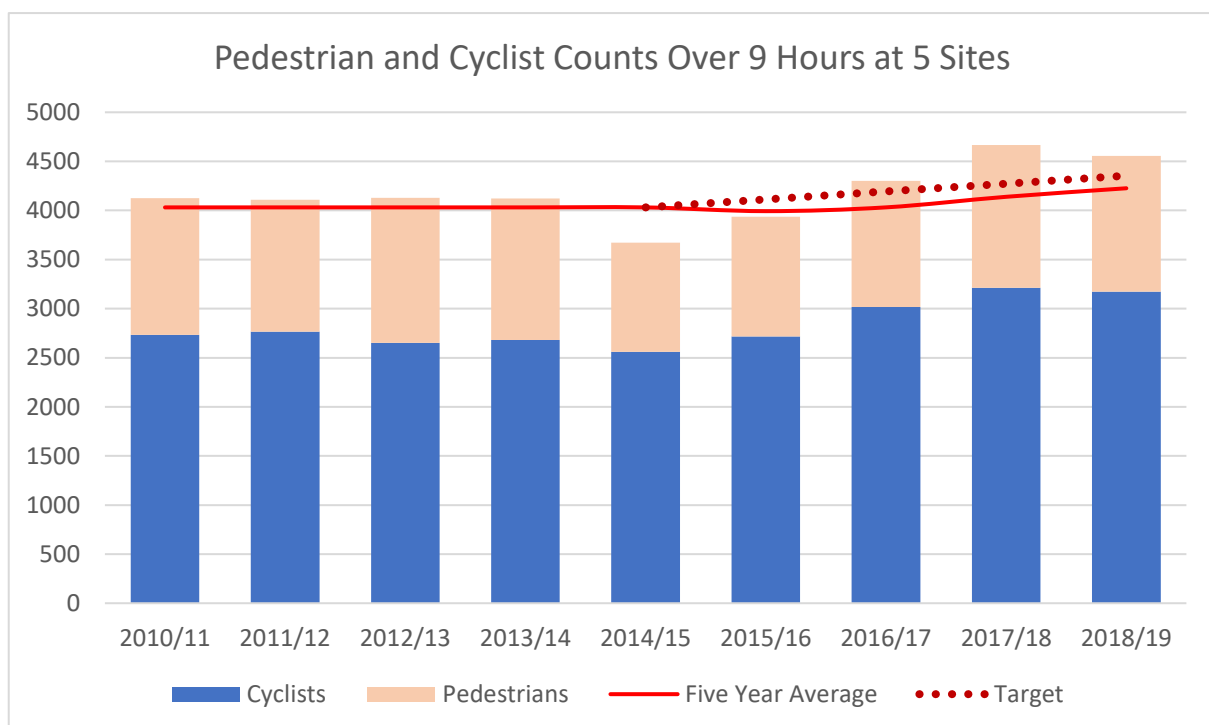


Figure 5.23: Nelson Cycle and Pedestrian Counts over five monitoring sites (Waimea Road at Bishopdale, Whakatu Shared path at Monaco, Atawhai Shared Path, Railway Reserve at Poorman Stream, Rocks Road).

Counting of cyclist use of the road network has traditionally been undertaken manually. The drop in count numbers in 2018–19 coincides with a change in data collection contractor and methodology. In 2020, automatic electronic counters were installed at two sites. These provide 24/7 data which has not previously been available. An additional benefit of this approach is these new counters require fewer site visits, reducing resource use and emissions.

The Public Life Survey completed in 2019/20 showed high walking and cycling demand on Rutherford Street. Rutherford Street, the Maitai residential growth area, and Brook commuter and recreational cycle demands are not routinely monitored. Additional count stations, including rationalisation of current counting programmes, are required to better reflect the whole Nelson area.

## 5.22 Bus Patronage

Steady growth in bus patronage occurred between the introduction of the NBus Service in 2012 and 2015, before reaching the current plateau from 2016 to 2019 (shown in Figure 5.24). The reasons for this plateau have not been confirmed, but they may be linked to a combination of:

- The introduction of the first hour free for parking in Nelson’s city centre;
- A drop in the cost of fuel; and
- A natural flattening of demand following the introduction of a new service.

The 2020 Public Transport Review will focus on static bus patronage and Council’s objective for mode shift. This review will inform the Regional Public Transport Plan (RPTP) and the Regional Land Transport Plan (RLTP).

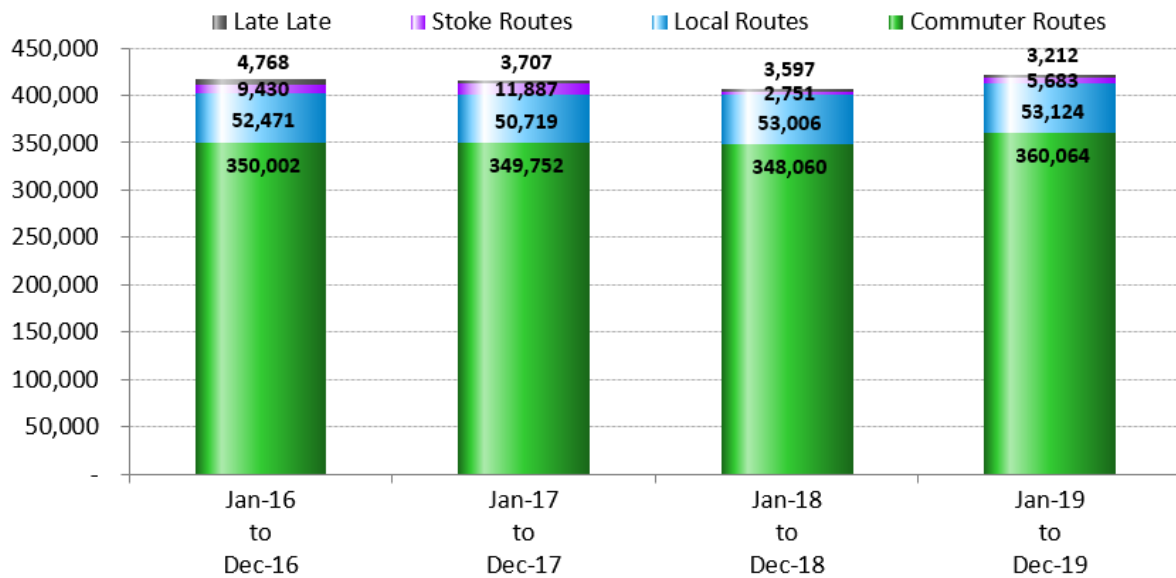


Figure 5.24: Bus Patronage – 2016–2019

Figure 5.25 below shows the patronage of the original Stoke Loop and revised Stoke Loop bus service. The original service was reviewed in 2017/18 due to high costs and low patronage. The new service is cheaper to operate, and operates to suit SuperGold card holders travel times. Review of the Stoke Loop is included in the scope of the 2020 Public Transport Review.

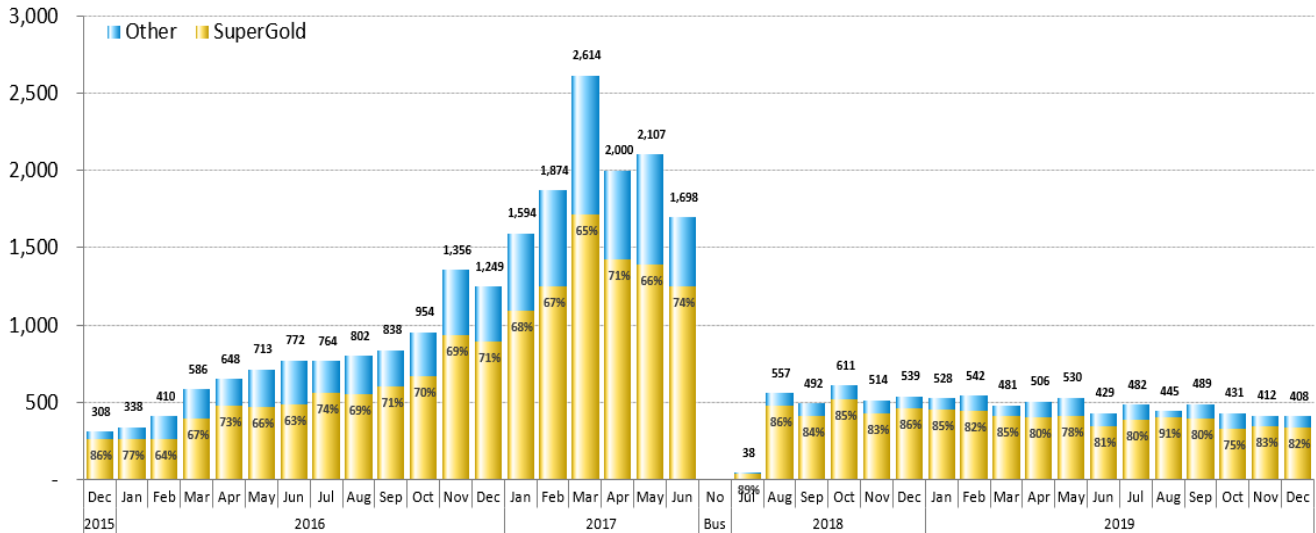


Figure 5.25: Stoke Loop patronage

### 5.23 Cycle Network

Nelson has an enviable shared path facility along the Railway Reserve. However, cycle facilities to/from the Railway Reserve, as well as other cycle facilities, are sparse and disconnected, requiring people to ride on roads with high traffic volumes or to cross high-volume roads. The Nelson community has told us the discontinuous cycle network, few cycle lanes and poor cycle safety record are likely to be key barriers to increasing the cycle mode share.

The length of cycle network has increased since 2017, as shown in figure 5.26a, by some new construction, but most has been through recognition and mapping of the existing facilities. This enables the gaps to be better understood and planned for, as shown in figure 5.26b.

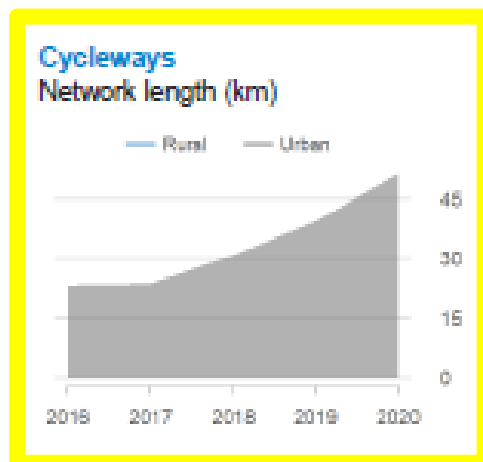


Figure 5.26a Length of Cycle Network

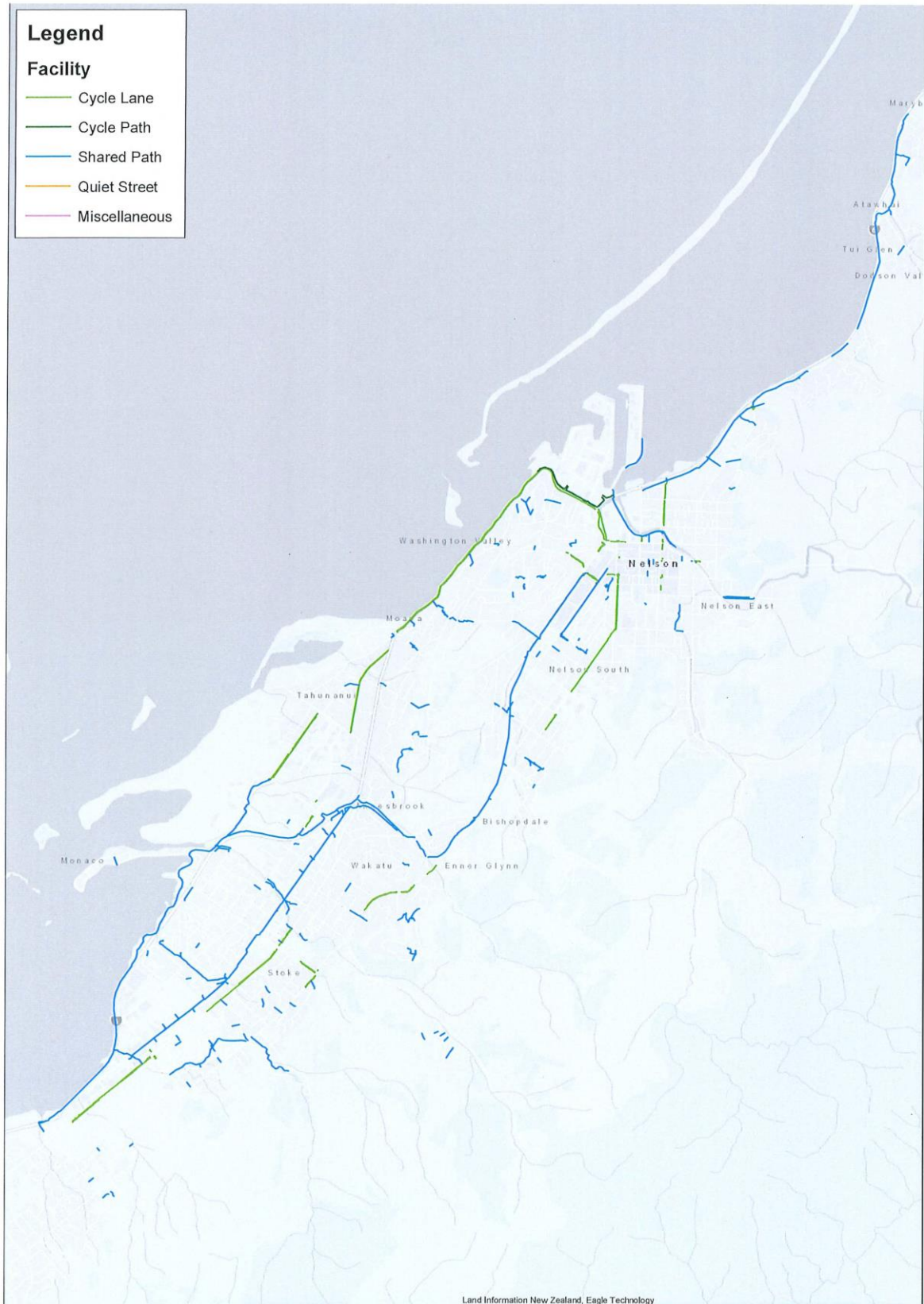


Figure 5.26b: Existing network of disconnected cycle facilities.



## 5.24 Environmental Management

### Climate Change

Climate change is a significant and urgent international, national, and local issue. At a local level, Nelson City Council has a key role to work with the community towards creating a resilient and low emissions future and implementing adaptive measures to manage and minimise risk.

Waka Kotahi guidance on responding to climate change can be accessed via the links below:

- <https://www.WakaKotahi.govt.nz/assets/About-us/docs/sustainability-action-plan-april-2020.pdf>

Local Government New Zealand have also released a practice note for inclusion of climate change into 2021-31 long term plans:

[https://www.solgm.org.nz/Attachment?Action=Download&Attachment\\_id=1943](https://www.solgm.org.nz/Attachment?Action=Download&Attachment_id=1943)

### Sea level rise

Sea level rise is the biggest climate challenge for Nelson as a large proportion of our urban infrastructure is coastal or low lying. These areas will become more vulnerable to coastal inundation (flooding) as tides and storm surges extend further inland over time.

For the community, the main impacts will be the more regular inundation of areas around The Wood, the CBD (including Halifax, St Vincent, Vanguard, Gloucester and Rutherford Streets). Areas on the open coast that are more exposed to coastal swell such as the Glen, Wakefield Quay/ Rocks Road, Tahunanui and Monaco will potentially be subject to increasing coastal inundation and coastal erosion hazard associated with sea level rise. Pavements that are subjected to periodic or regular water inundation will likely degrade much faster than other pavements. Affected pavements will experience higher, more frequent, maintenance costs.

### Heavy rainfall and flooding events

Higher intensity rainfall events will result in an increase in stormwater and stream flows, and potential effect on the secondary flow paths (generally roads). The implications for the community is that without mitigation of these effects, they may experience more regular and extensive flooding and potential for road closures. The increase in storm rainfall intensity will also result in higher sediment volumes entering the stormwater network and stream channels which is expected to increase maintenance requirements over time especially for sumps and small diameter small flow sump laterals. As with sea level rise, pavements that are subjected to periodic or regular water inundation from heavy rainfall and/or flooding will likely degrade much faster than other pavements. Affected pavements will experience higher, more frequent, maintenance costs.

Stream and river flood mapping is shown on the Council's online [map viewer \(Flooding - Nelson City Council\)](#). This mapping shows present day flood extents as well as predicted future flood extents allowing for climate change effects. Recent flood mapping assumes temperature increase and sea level rise will follow the Representative Concentration Pathway 8.5 (RCP 8.5M). It is anticipated that monitoring of climate change effects over the next 10 to 20 years will lead to more certainty over climate change projections.

### **Drought and extreme temperatures**

With a warmer climate, the temperature of the water within our Rivers and Streams will increase. This will have a negative impact on the stream health and biodiversity, and may lead to a proliferation of aquatic weeds and algae as well as the emergence of new pest plants better adapted to warmer temperatures. Road run off, especially first flush during hot summer periods will have additional, potentially catastrophic effect in this environment. Dust from unsealed roads would also increase, adding sediment load into the rivers and streams.

Refer to the Environment Activity Management Plan for more specific detail.

### **Climate Change Adaptation**

Climate change adaptation relates to responding to the impacts of climate change.

Strategies and standards are in place or in progress to identify optimal solutions for responding to the risk of increased flooding and secondary flows associated with temperature warming and sea level rise.

- The Nelson Tasman Land Development Manual 2019 (NTLDM) requires that new stormwater assets are designed to meet a specific level of service projected for 2090 and assuming an RCP 8.5 scenario.
- Stormwater Strategies are in progress that consider stormwater network flows under future climate conditions for an RCP 8.5 climate scenario out to 2090, as required by the NTLDM. These strategies identify future risks associated with stormwater overflows and secondary flow paths and prioritise response options to mitigate risks.
- Flood Management Strategies that consider catchment flood flows and stream / river overflows out to 2130. Prioritisation of response options follows a risk-based approach and the level of service and design life for assets may be different than for stormwater design, depending on the outcome of a risk-based assessment.
- The vehicle fleet is likely to continue to migrate to electric vehicles thus reducing the emissions of the vehicle fleet. Carbon fuels however expect to dominate in the short term.

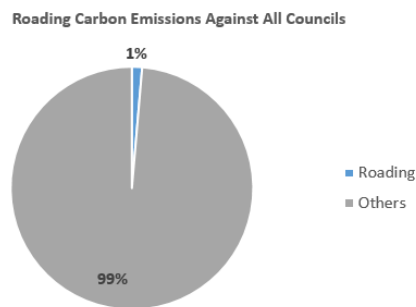
### **Climate Change Mitigation**

Transport is part of the wider community commitment to reducing greenhouse gases through implementing Council's Certified Emissions Measurement and Reduction Scheme (CEMARS) Action Plan. The activity also needs to be able to develop climate change mitigation and adaptation strategies to advise the location, design, and operation of our infrastructure.

### *Transport Contribution to Council Carbon emissions:*

Transport assets contribute a minor share of overall Council emissions, as shown in figure 5.27a, with power consumption for streetlights and traffic signals being the main contributors, at 1% of total Council emissions (as shown in figure below). Council changed to LED streetlights in 2018 to reduce power consumption. Further carbon emission reduction will be sought through council wide power supply contracts so is not a focus of this AMP.

**Figure 5.27a: Transport Asset Emissions as percentage of Overall Council**



## Community Engagement

### Mitigation Actions:

Streetlights were converted to LED to minimise energy demand in 2018 and traffic signals are LED. Remaining decorative lighting will be scheduled for renewal over when an affordable LED option becomes available, and/or as part of the city centre revitalisation upgrades.

### Climate Change Planning Assumptions

- **Mitigation:** The contribution of renewable energy sources to the national grid will progressively increase over time. This is expected to contribute to a steady reduction in the carbon footprint of the transport assets and activity that draw on mains power.
- **Adaptation:** Temperature warming, which contributes to increased storm rainfall intensity will follow the Representative Concentration Pathway 8.5 scenario (RCP 8.5), and sea level rise will follow RCP 8.5 M (mid-range) projections.
- **Defend, Retreat or Accommodate:** For the purpose of planning the 30-year programme, it is assumed at this stage that investment will continue in low-lying areas that are subjected to coastal and flooding inundation. Following notification of the Whakamahere Whakatū Nelson Plan it is anticipated that new development in these areas will be designed to be resilient to flooding out to 2130. A Climate Change Adaptation Strategy is required to inform adaptation responses for existing development in these areas.
- **Finance Assumptions:** Nelson City Council will seek co-financing where available from Central Government towards implementation of stormwater and flood protection works.
- **Trees:** Nelson City Council is one of the regions largest landowners, partly due to its holding of road reserves. Trees also reduce the heat island effect of cities.

- Reduction of Nelsonians transport emissions is a priority over the Councils transport asset emissions.

Community engagement on flood risk and response options is planned for the following:

- Whakamahere Whakatū Nelson Plan consultation on natural hazards overlays (including flood maps) and provisions (Objectives, Policies, Rules and Methods)
- Refer to Nelson City Council Stormwater and Flood protection AMP 2021. Transport will be assisting wherever roads and road drainage are part of the strategies.

### **Knowledge Gaps**

- Adaptation Strategy identifying long term adaptation responses for each coastal area of the city.
- Data collection (Stream recorders, stormwater flow meters, groundwater monitoring sites)
- Secondary flow path mapping (Required for Stormwater Strategies and transport emergency management responses).
- Stormwater network hydraulic models
- Pest weed management (lake snow etc)

### **Freshwater improvements / Contaminants from Vehicles**

Vehicles generate contaminants such as oils and greases as well as heavy metals (zinc, copper and chromium) from tyre wear and brake pads. Roads also collect organic material, sediment and litter. In a rain event, these traffic-related contaminants wash off roads and car parks, and end up in streams and estuaries. A map of high contamination contribution areas (high volume roads) and car parks is included in Appendix B (Extra Evidence).

A trial of sump filters was started in 2019/20 and the results will be used to inform use of the drainage improvement budget included in the 2021–31 AMP to facilitate drainage improvements that address water quality as well as traditional issues.

Research from Auckland Council indicates that roads with an Average Annual Daily Traffic (AADT) of more than 5,000 vehicles and car parks larger than 1,000m<sup>2</sup> create a medium to high contamination risk. The roads with ADT > 5000 vehicles per day and car parks over 1,000m<sup>2</sup> are mapped in Appendix B.

Smaller roads are considered low risk because these surfaces generate contaminant loads that are below the average effluent water quality from most 'best practice' stormwater treatment practices such as rain gardens, swales and wetlands. It is not considered cost-effective to treat surfaces with a low contamination risk.

### **Rain Gardens**

Stormwater treatment has been used in new subdivisions since 2010 with mixed results relating to plant selection, maintenance requirements and the aesthetic preferences of neighbourhoods. The Nelson Tasman Land Development Manual 2019, includes new design standards and proprietary products are now available to help make stormwater treatment easier and more successful, however many have ongoing maintenance issues and costs.

## Stormwater and Flood Protection Activity Management Plan

There is a strong connection between transport and the stormwater and flood protection utility activities. Capturing contaminants at source or the next most effective point in the drainage system will require collaboration with the stormwater utility asset owners: It may be more effective to support end of pipe capture than capture contaminants before they enter the stormwater system.

In addition to freshwater improvement, roads form secondary flow paths for flood water (and need to perform as both roads and flow paths in storm events) and form a significant catchment, and contributor to stormwater flows.

Some drainage improvements are not feasible because there are no stormwater connections available in the urban network, so a risk to pavements and road safety remains.

### 5.25 Car Parks

Parking is not a subsidised transport activity but is integral to problem statements  
Supply, location and demand affect the traffic flows around the network.

### Nelson City Centre Survey

In the Nelson City Centre Survey 2019, parking was sixth of the top 10 factors that attract people to Nelson (29% of all respondents). There is a difference between Nelson and Richmond respondents (41% Nelson and 10% Richmond).

Work in Nelson was the seventh factor (28% of all respondents) with Nelson responding 31% and Richmond residents 18%.

People who rated parking as a factor attracting them to Nelson's city centre rated the free first hour parking highest (62% overall, 60% Nelson, 84% Richmond respondents), parking being easy/ample/plenty (35% overall, 36% Nelson, 29% Richmond respondents). Other factors rated much lower, with the next highest factor being convenient to shops (9% overall, and 9% Nelson, 11% Richmond respondents).

The wish list rated no change highest (37% overall, 34% Nelson and 46% Richmond). Better parking/more disability parking/issues around parking was rated second at 21% – 25% Nelson and 9% Richmond respondents.

Parking was ranked third as a factor that attracts Nelson residents to the Richmond centre and fourth for Richmond residents. Work in Richmond was the fifth most likely reason why Nelson residents went to Richmond.

### City Fringe Parking

A comprehensive count of fringe and city centre parking is undertaken every two years. This is a representative survey to get an indication of parking times and duration and has not captured all parking times and duration.

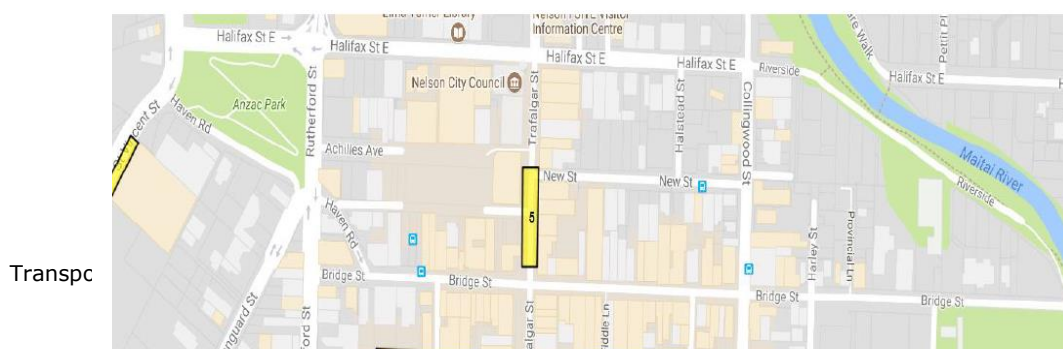


Figure 5.27 – City Centre Parking representative survey areas

Commuter occupancy parking surveys are undertaken every three months in the areas shown below, in Figure 4.28.

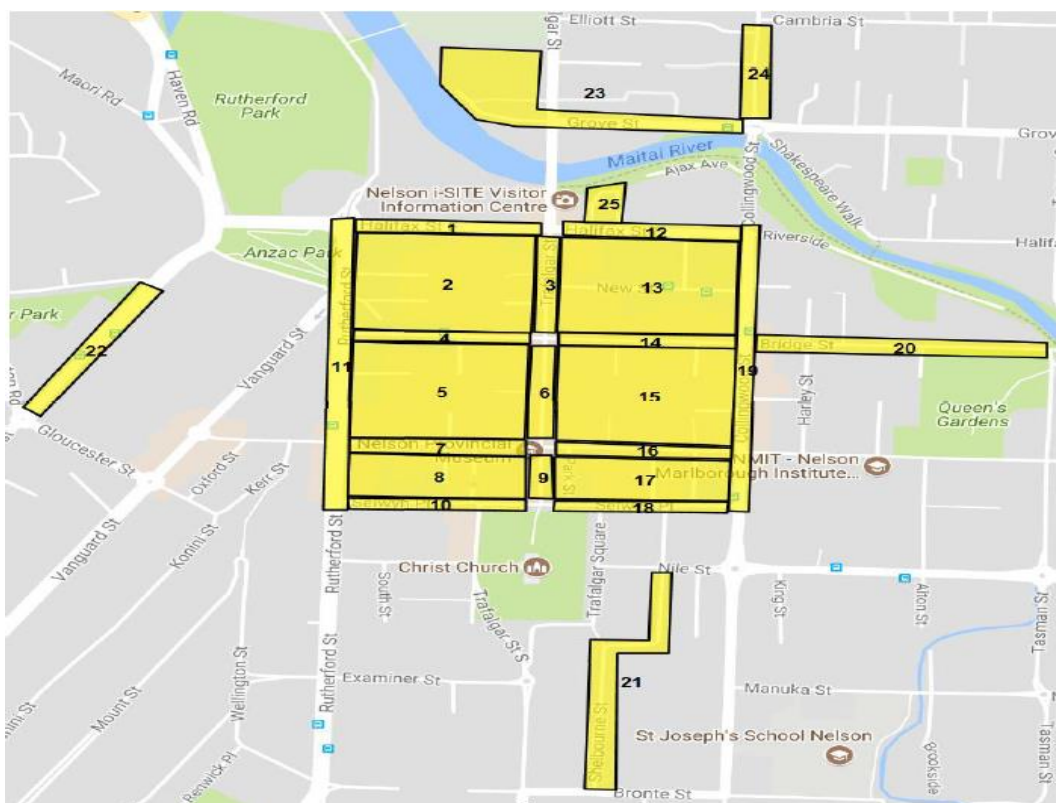


Figure 5.28 – Commuter Occupancy Parking Survey areas

The number of parking spaces occupied at 8.30am and at 1pm on one day in November, February, May, and September is recorded, as shown in Figure 5.29.

Time Limit	Total Spaces	Friday 16 November 2018	Tuesday 12 February 2019	Thursday 9 May 2019	Tuesday 3rd September 2019

	(Not Bus/Cycle)	% Occupancy 8:30am	% Occupancy 1pm	% Occupancy 8:30am	% Occupancy 1pm	% Occupancy 8:30am	% Occupancy 1pm	% Occupancy 8:30am	% Occupancy 1pm
Long	403	79%	80%	75%	74%	86%	84%	81%	87%
Long Metered	161	18%	83%	60%	75%	32%	78%	12%	51%
Short	1414	28%	80%	42%	74%	27%	80%	24%	68%
Total	1978	38%	81%	51%	74%	39%	80%	34%	70%

Figure 5.29 – Car park occupancy records (three monthly)

Figure 5.30 shows the long stay unmetered parking is typically at 80% capacity by 8.30am and remains this way all day, whereas the long stay metered parking fills as the day progresses. The short stay parking is only at 20% capacity at 8.30am, and is at 80% at midday.

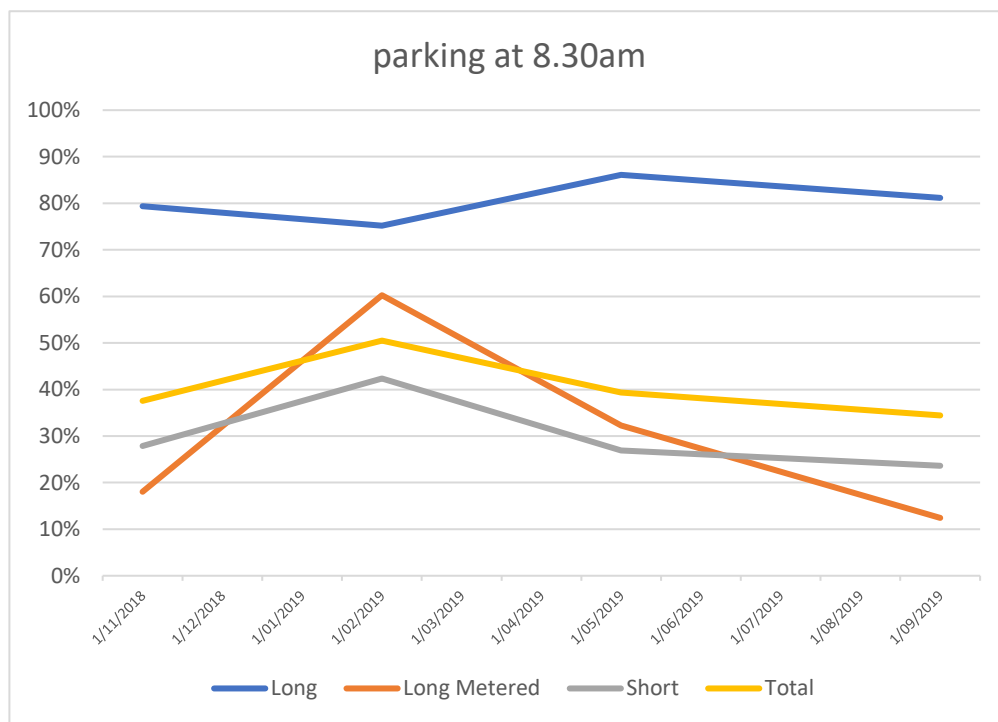


Figure 5.30 a– daily car park occupancy rates at 8:30 am (monthly)

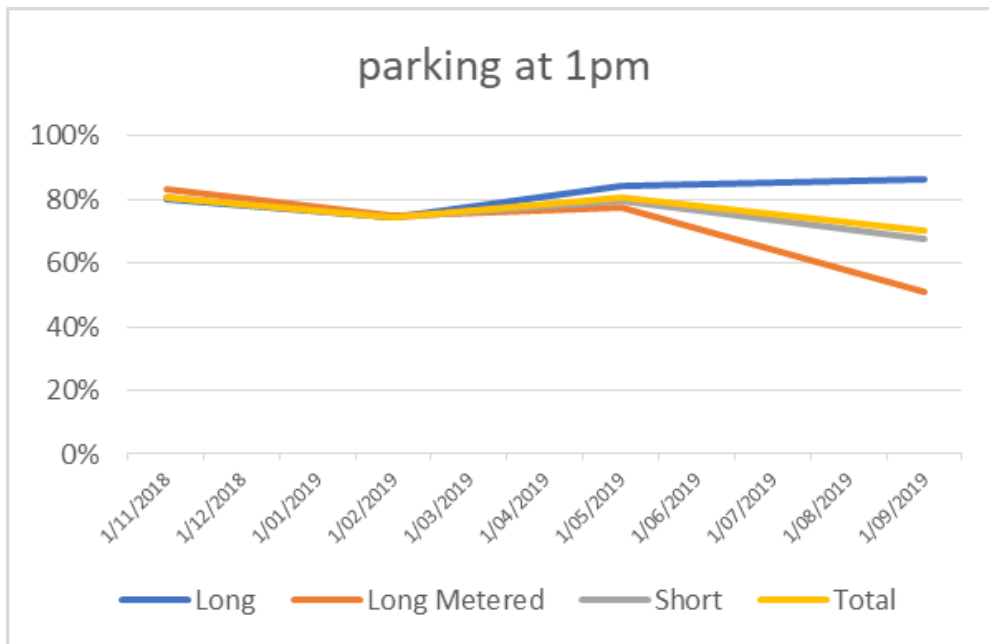


Figure 5.30 b– daily car park occupancy rates at 1 pm (monthly)

### On Road Parking

There is no data collection for on-road parking outside of the city centre, city fringe and Stoke centre parking areas.

Council typically receives up to five applications from the public per week for parking control, or no stopping markings. These are reviewed by the Road Safety Action Group to ensure Council investigates, consults, and acts appropriately.

In December 2020 Council agreed to adopt the National Parking rule changes where development do not need to provide off street parking. This impact will need to be monitored and inform future Parking Strategy reviews.

### Car Park Features

Buxton, Montgomery and Whakatū car parks have raised tables at the entrance to suit the parking meter dispensers. With the change to pay by plate parking meter technology, the configuration of the raised tables becomes redundant however they continue to provide traffic calming to reduce speeds while an alternative is determined.

The Buxton, Montgomery and Whakatū car parks have raised platforms and walkways throughout to provide pedestrian connections and slow speeds through the car parks. These are in good condition because they have been the focus of footpath improvement works in the 2018–21 period. The raised tables and walkways are maintained as walking facilities.

All car parks have trees and planted areas. These are maintained as city centre street trees.

All car parks have lighting.



### Parking Meters

The parking meters were changed to pay by plate technology on 1 July 2020. This new technology is paperless but has similar ongoing operation and maintenance costs to the previous system.

The parking meters continue to accept cash payments, so security and cash collection services are ongoing.

The new parking contract is due for review in 2024/25 and retender in 2027/28.

### Car Park Surfaces

All car parks are surfaced in asphalt to manage the high turning demands. There are small areas of concrete from old building pads. The surfacing of the car parks is generally aged as shown in Table 4.31. Aged surfaces are more likely to let water through into pavement layers and result in failures and high maintenance costs.

Car park	Area	Note	Average Age
Buxton	10,964m <sup>2</sup>		38 years
Millers Acre	3,542m <sup>2</sup>	High use by buses	14 years
Montgomery	13,166m <sup>2</sup>	Used by Saturday Market	33 years
Stoke Fire Station	2,783m <sup>2</sup>		10 years
Strawbridge	6,810m <sup>2</sup>		24 years
Whakatū	2,611m <sup>2</sup> (excluding concrete area)		19 years

Figure 5.31 – Car park areas and ages

### Car Park Drainage



Figure 5.32: Whakatū car park tidal inundation

Whakatū car park is affected by sea water inundation during very high tides. Backflow prevention on the sump outlets has been investigated, but action to address this has been delayed in favour of investigation into backflow prevention at the stormwater outfall at Saltwater Creek, to achieve a better network outcome. Once the outcomes of this investigation are known, a business case for the parking area backflow prevention will be undertaken, if this is still required. The current situation is managed with signs during king tide periods.

The carpark is the low point in the city where inundation is present now. Other roads are affected during low pressure storm events which is expected to get worse with sea level rise. This affects road pavements as well as the transport activity.

### **Environmental Considerations**

A trial of sump filters has been undertaken in the Buxton car park as part of the road runoff treatment trial. (See also Drainage section 8.2b)

## **5.26 Policies and Bylaws**

### **Parking Policy**

Nelson does not currently have a parking policy. A parking policy could review time limits, charges, and space allocation, in conjunction with Nelson Plan development, travel demand management and the Nelson City Centre Development Strategy. The parking policy review is planned for the 2021–24 period, (refer Improvement Plan) and inform the 2024 AMP.

### **Vehicle Control and Parking Bylaw**

The Vehicle Control and Parking Bylaw is due for review in 2021. The current bylaw relies on management of schedules to regulate parking, no stopping, no passing and intersection controls and there is currently no public facing, or mapped system for the parking. The revised Vehicle Control and Parking Bylaw, will be informed by the Parking Policy review, in the 2021–24 period and inform the 2024 AMP.

Time-limited and special parking provisions are managed through the Parking and Vehicle Control Bylaw. The review of this bylaw will identify if these provisions are satisfactory and performing as expected, or whether changes are required.

### **Speed Bylaw**

Review of the speed bylaw commenced in 2020/21 and will continue into 2021-24 and will coincide with the Waka Kotahi Speed Management Framework review. While speed is not a significant safety problem for Nelson, it contributes to appropriate use of the network, perceived safety, intersection, and vulnerable road user safety, and is a national safety concern.

### **WAKA KOTAHI Procurement Strategy**

The Nelson City Council/Waka Kotahi Procurement Strategy is due for renewal by October 2021. The 2018/19 Waka Kotahi Co-Investor Assurance measures, figure 5.33, show Nelson has room for improvement on procurement management.



Figure 5.33 Waka Kotahi Co-Investor Assurance Measures

## Other Policies

Council has many policies referring to the transport activity that are due for review to suit the current and developing environment. The list is included in Appendix L. Decisions to review or revoke the policies need to take into account the current Nelson Tasman Land development manual (NTLDM) provisions and the development of the Nelson Plan, which is scheduled for public consultation in 2021.

High level strategy, the ONRC and carbon management guidance all refers to the importance of using planning tools for management of the transport activity before investing in capital infrastructure works. Review policies could be one of the most effective low carbon mechanisms to address problem statements 1, 2 and 3.

Review of the Occupation of Road Reserve Policy began in 2020 and will continue in 2021-24. The Structures on Road Reserve Policy is being reviewed concurrently. This may consider a framework to assess new requests (from private/commercial interests) for structures on road reserve and management of existing structures.

A Vegetation Management Policy is being developed through the Parks Activity (refer Parks AMP). It is expected to include vegetation management on road reserve.

An amendment to the Speed Limit Bylaw is proposed in 2020/21 to review speeds on roads with high pedestrian/cycle demands. A further review may be proposed in 2021-24 to stage the development of a Speed Management Plan in accordance with the Waka Kotahi Speed Management Framework.

## 5.27 Structures

### Levels of Service

Significant repairs were undertaken in the 2018–21 period and the bridge and large culvert stock is now generally in good condition.

Council assesses levels of service for bridges and culverts on the following matters:

- A 500mm freeboard is required for a Q100 flood event for new bridge designs. This is a risk management issue for older bridges where the freeboard is not available and storm events of increased intensity are occurring. For example, it is important to ensure debris supply is minimised in the upstream tributaries, as this could block the waterway and threaten the bridge due to the low freeboard.
- Posting is used to manage structural loadings on bridges with poor capacity. There are currently two posted bridges —Trafalgar Street Bridge, and Collingwood Street Bridge — that together limit access to the city centre from one quadrant.
- The Waka Kotahi OPermit system is used to issue all permits for HPMV and overweight vehicles.
- Large culvert waterways which are located longitudinally to roads are maintained by the Utilities team, where the requirement to maintain the waterway capacity is more critical for private property than it is for road resilience. Large stormwater culverts are recorded in OBIS as Utilities structures, but this process is incomplete. In contrast, large culverts across the road permit the road to function, so are managed as Transport assets.

The levels of service (LOS) for handrails, safety from falling barriers, crash barriers and guardrails are that the facility will meet the design loading standards at all times. That means the crash barrier or guardrail will minimise the impact with the secondary structure or drop, and will meet the New Zealand Standards. (Hence the barriers that don't comply have been downgraded to sight rails.)

Retaining walls are assessed on age and remaining life to manage risk and the financial impacts of the ongoing maintenance and/or capital interventions. They are managed to provide assurance the resilience of the route is within the Customer Levels of Service requirements for the ONRC category of road.

Retaining walls that provide a high LOS for the adjoining landowner, and which would have a low impact on vehicle kilometres travelled (VKT), pedestrian or cycle safety in the event of failure, are unlikely to attract Waka Kotahi funding. For this reason, where private ownership cannot be proven, retaining walls are managed as unsubsidised structures unless otherwise agreed with Waka Kotahi.

Council manages new roadside obstruction hazards on the road reserve through resource consent conditions. The Council's Road Occupation Policy is being updated to manage private structures on road reserve. There are many historic structures on road reserve of unconfirmed ownership that could breach this rule. They are currently managed on a case by case basis when the adjoining landowner queries their status, or if the structure is identified as 'unsafe'.

### Remaining Asset Life of Bridges and Large Culverts

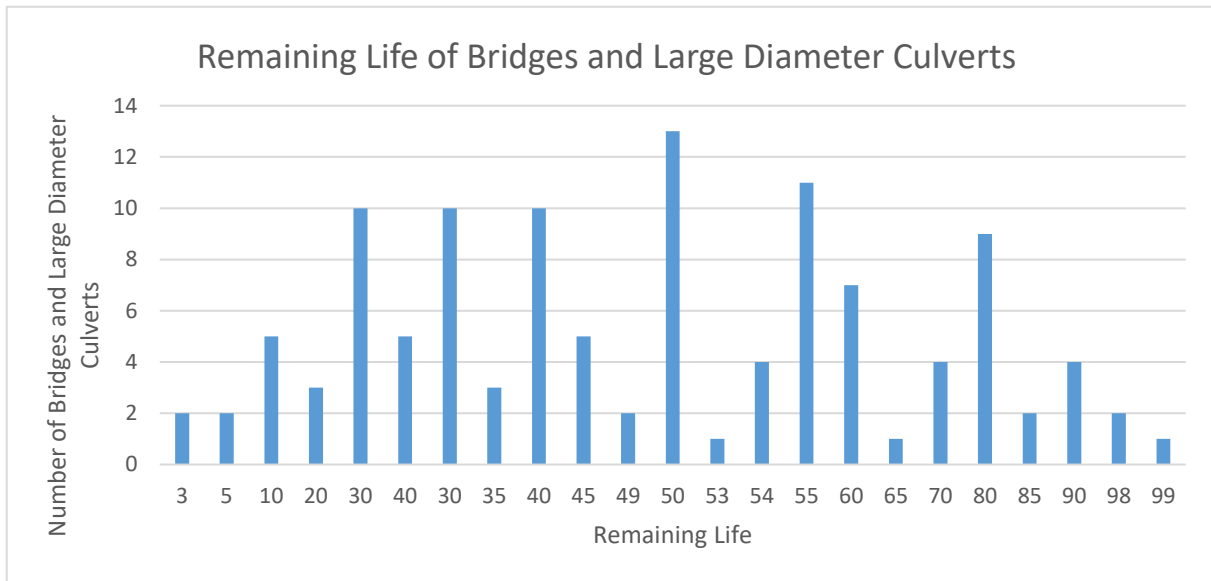


Figure 5.34: Remaining life of bridges and large diameter culverts

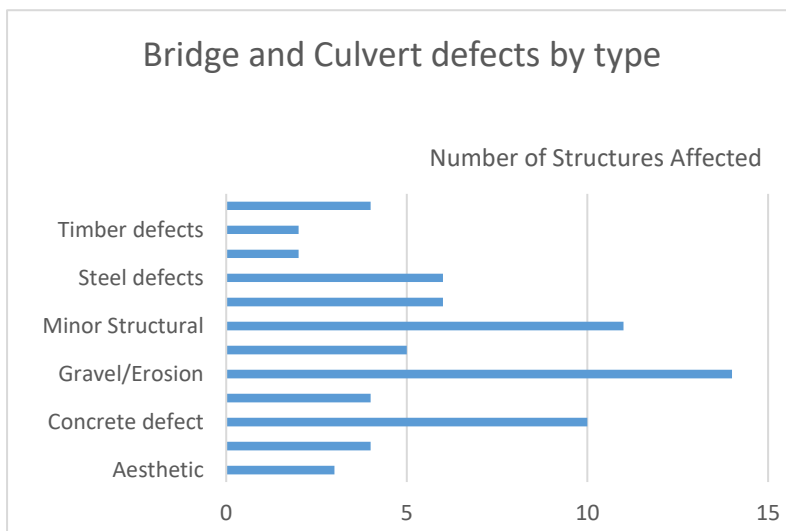


Figure 5.35: Bridge and culvert defects by type

### Bridges

The four bridges with remaining life of less than 10 years have been assessed and are included in Appendix I. There are also five footbridges with a remaining life of 10 years. There are a further 12 bridges with a remaining life of less than 30 years.

Trafalgar Street Bridge only has more than a 30-year life if it has a suitable maintenance programme. This bridge is likely to require significant community involvement prior to renewal because of its location in the City Centre/Maitai River precinct and sea level rise.

Hira Footbridge (a swing bridge) could also require significant community and Waka Kotahi engagement about the layout/location and nature of the connection from Ross Road to the

Highway. The footbridge is separate to the road connection and could be replaced with a road bridge, with closure of the current, poorly aligned road intersection.

Bridges with an estimated remaining life of less than 30 years are listed below, in Table 5.36.

Road	Bridge No.	Name	Constructed	Remaining Life	Bridge Function
HAVEN ROAD	217016	TRAFALGAR CENTRE FOOTBRIDGE		2	Cycle/footbridge
MAIN ROAD STOKE	100	SAXTON CREEK CLVERT	1950	3	Road bridge
MAIN ROAD STOKE	101	POORMANS STREAM CULVERT	1901	3	Road Bridge
THETFORD CHASE	110	NAYLAND TO THETFORD CHASE FOOTBRIDGE	1990	5	Footbridge
SHARED COASTAL 01-02 AIRPORT	98	AIRPORT BRIDGE	1960	5	Cycle/Footbridge
TOSSWILL ROAD	87	TOSSWILL ROAD FOOTBRIDGE NO 2	1970	10	Footbridge
TOSSWILL ROAD	86	TOSSWILL ROAD FOOTBRIDGE NO 1	1970	10	Footbridge
RICHARDSON STREET	92	RICHARDSON STREET FOOTBRIDGE	1790	10	Footbridge
WHITBY ROAD	79	WHITBY ROAD FOOTBRIDGE	1970	10	Footbridge
MAIRE STREET	107	MAIRE STREET FOOTBRIDGE	1970	10	Footbridge
MAIN ROAD STOKE	72	SAXTON CREEK FOOTBRIDGE	1980	20	Cycle/Footbridge
WAIMEA ROAD	38	ARTHUR COTTON BRIDGE	1937	20	Road bridge
ROSS ROAD	76	HIRA FOOTBRIDGE	1970	20	Footbridge
NILE STREET (EAST)	5	CLOUSTONS BRIDGE	1935	30	Road bridge
MAITAI VALLEY ROAD	9	POLEFORD BRIDGE	1959	30	Road bridge
NAYLAND ROAD	26	NAYLAND ROAD BRIDGE	1949	30	Road bridge

MAIN ROAD STOKE	102	ORPHANAGE CREEK CULVERT	1950	30	Road bridge
MARSDEN VALLEY ROAD	78	MARSDEN VALLEY FOOTBRIDGE	2000	30	Footbridge
GRACEFIELD STREET	81	GRACEFIELD STREET FOOTBRIDGE	1999	30	Footbridge
NEWMAN DRIVE	40	NEWMAN DRIVE CULVERT	1986	30	Road bridge
BROOK STREET	74	WATERDALE WAY	1950	30	Footbridge
BROOK STREET	21	CUMMINS CULVERT	1950	30	Road bridge
COLLINGWOOD STREET	2	COLLINGWOOD STREET BRIDGE	1956	40	Road bridge – Posted
TRAFALGAR STREET	1	TRAFALGAR STREET BRIDGE	1927	30	Road Bridge – Posted

Table 5.36: Bridges with an estimated remaining life of less than 30 years

Bridge postings and heavy vehicle access over bridges are managed through the OPermit System.

### Large Culverts

Large diameter utility culverts have been assessed for structural capacity, and the culverts which restrict transport loads are listed in the following table. Inspections are required to validate the capacity assessments. One culvert inspection per year has been programmed, at \$60k per inspection, to work through the list in a prioritised order based on transport load, and the age of the culvert. The large utility culverts are particularly problematic to inspect because of health and safety issues associated with confined spaces. The Haven Road/St Vincent Street Culvert is known to be in structurally poor condition and is assessed annually by Utilities staff.

Figure 5.36: Culverts which restrict transport loads

FID	Road Name	Build Date	Potential Restrictive		Reason for restriction
			45/46T, 50MAX	HPMV	
148	Vanguard St	1915	Yes	Yes	Age, Unknowns
149	Vanguard St	1915	Yes	Yes	Age, Unknowns
150	Roundabout, Vanguard St	1937	-	Yes	Unknowns, assumed design
85	Vanguard St	1937	-	Yes	Unknowns, assumed design
86	Sharps Lane	1937	-	Yes	Unknowns, assumed design
88	Vanguard St	1937	-	Yes	Unknowns, assumed design
89	Vanguard St	1937	-	Yes	Unknowns, assumed design
90	Vanguard St	1937	-	Yes	Unknowns, assumed design
147	Sharps Lane	1937	-	Yes	Unknowns, assumed design
25†	Hastings St	1946/1989	Yes	Yes	Design loading, calcs
35†	St Vincent St	1946/1989	Yes	Yes	Design loading, calcs

†These culverts are restrictive to HPMV vehicles only.

Transport staff have undertaken the structural capacity check for Nelson’s other large culverts because vehicle loadings on the large Utilities culverts are a Transport responsibility, as the associated roads could not exist without the large scale drainage that is provided by the culverts.

**Retaining Walls  
Remaining Asset Life**

The 21 walls with a 1–10-year remaining life have been assessed and are listed in Appendix J.

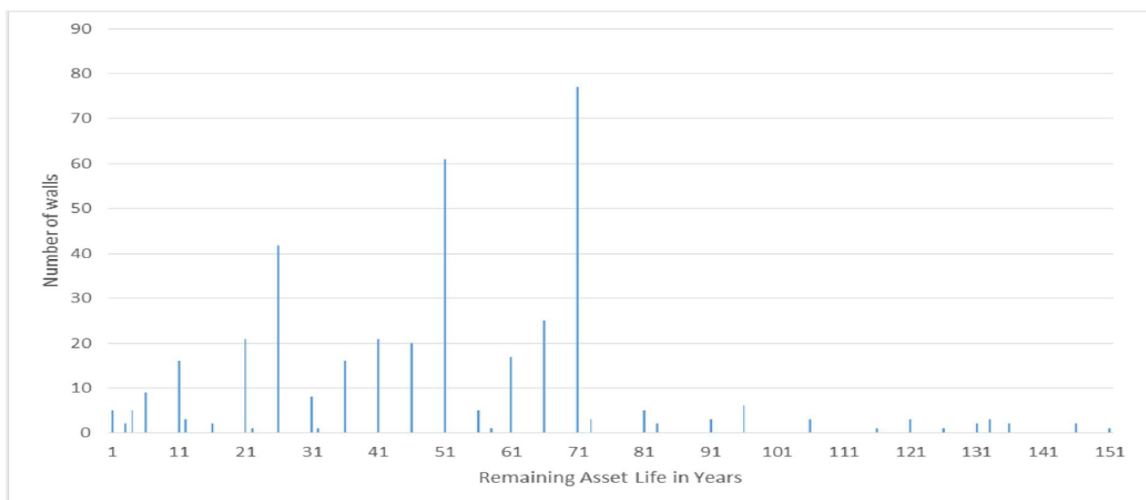


Figure 1: Summary of Roading Retaining Walls vs. Remaining Asset Life  
Figure 4.37: Summary of roading retaining walls vs. remaining asset life

**Maintenance**



Most maintenance defects relate to the need for vegetation removal, followed by corrosion of components, then structural issues. A small number of retaining walls require monitoring for movement.

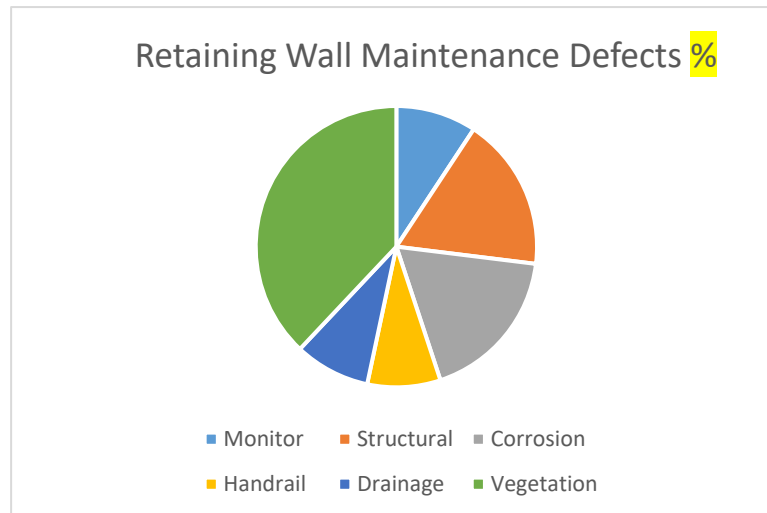


Figure 4.38: Retaining wall maintenance defects

All Council-owned retaining walls are recorded in GIS, and Ramm records are being updated to match the GIS records. This allows maintenance activity to be monitored.

When a wall or structure is queried by a landowner, it is assessed against known infrastructure and building consent records. If there are no Council records for the construction of the wall, and the nature and style of the wall does not reflect standard Council construction, the wall or structure is assumed to be privately owned. Where possible, this identification is followed up with formalisation as a private structure on road reserve. Council is in the process of reviewing its policies for structures on road reserves. In association with this review there needs to be an assessment of existing structures that are not 'owned by Council' but exist on road reserve and have not yet been identified.

If a wall or structure is identified as 'unsafe', this is investigated in consultation with the adjoining landowners to determine safety, options and liability, and a forward works plan is developed which could include removing the wall in favour of a batter or unretained slope.

### Unsupported Banks

Unsupported banks are a gap in Council's structural assessments. Only poor information is available on the integrity of old sidling cut to fill road formations on hillsides, cut slopes and general hillside slope stability that would affect roads in the event of storm events or earthquakes. Variable geologic ground conditions along a slope, changes in use (e.g. road widening), traffic loadings, or adjoining land use changes can contribute to the failure of unsupported banks. Failure is expected to be more frequent and unpredictable due to the increased frequency of intense wet and/or dry periods. Land development to meet growth demand in areas which have previously been less desirable, due to access and stability issues, is also expected to result in more incidence of bank instability.

Council has investigated Russell Street slope stability. No other sites have been investigated in detail, however other fragile sites are acknowledged to exist, such as Beachville Crescent. Drainage was a controllable factor in the Russell Street option.

Drainage and coordination with the stormwater and flood protection work can assist with stabilising unsupported roads in Nelson.

### **Structure Component Renewal, Replacement, or Improvement**

Council has adopted the Waka Kotahi S6:2015 Inspection programme for all structures, and the principal inspection of retaining walls was carried out in 2018. The next principal inspection will be in 2024. Routine and general inspections are undertaken in between these times.

Maintenance tasks on structures are identified and detailed in Ramm for retaining walls and other structures. These changes are allowing a shift from reactive to preventative maintenance, which is a shift in focus from the 2018–21 AMP.

The defects requiring maintenance work for retaining walls and other structures have been identified as at 2018/19. Of 398 roading retaining walls, 247 require maintenance.

A list of defects, requiring partial or complete structure renewal, has been established and costed for structures and is included in Appendix J. As well as structural integrity, changing demands such as use of pedestrian bridges by cyclists, footpath widening, or heavy vehicle loadings also result in the need to consider renewal of structures.

## 6. SECTION 6: BENEFITS OF INVESTMENT

The benefits of investing in the transport system are listed below:

Nelson's transport system is effective at moving people and freight



Nelson is more accessible via all modes of transport



Nelson's transport system contributes to quality urban environments



Nelson's transport system feels safer and is safer



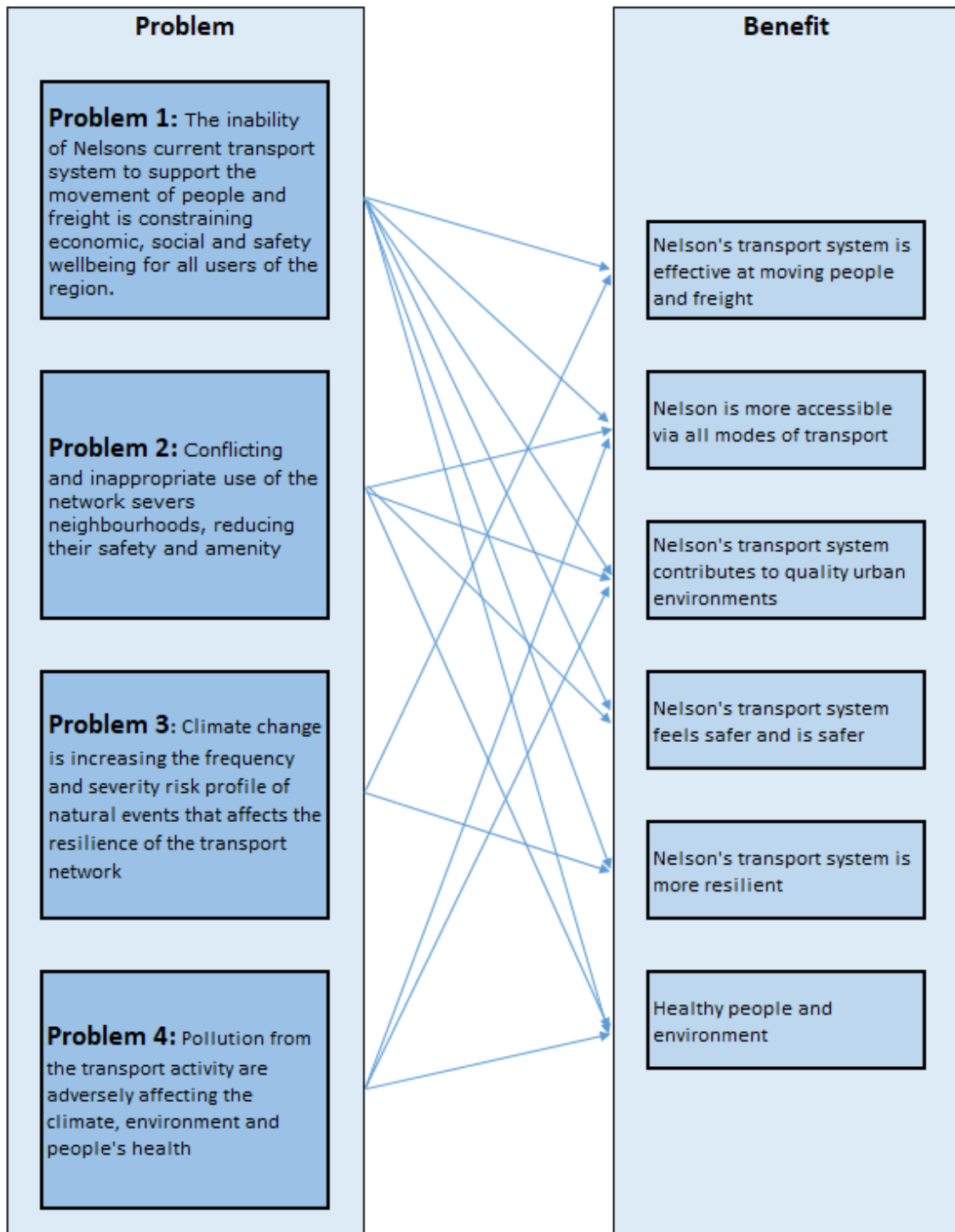
Nelson's transport system is more resilient



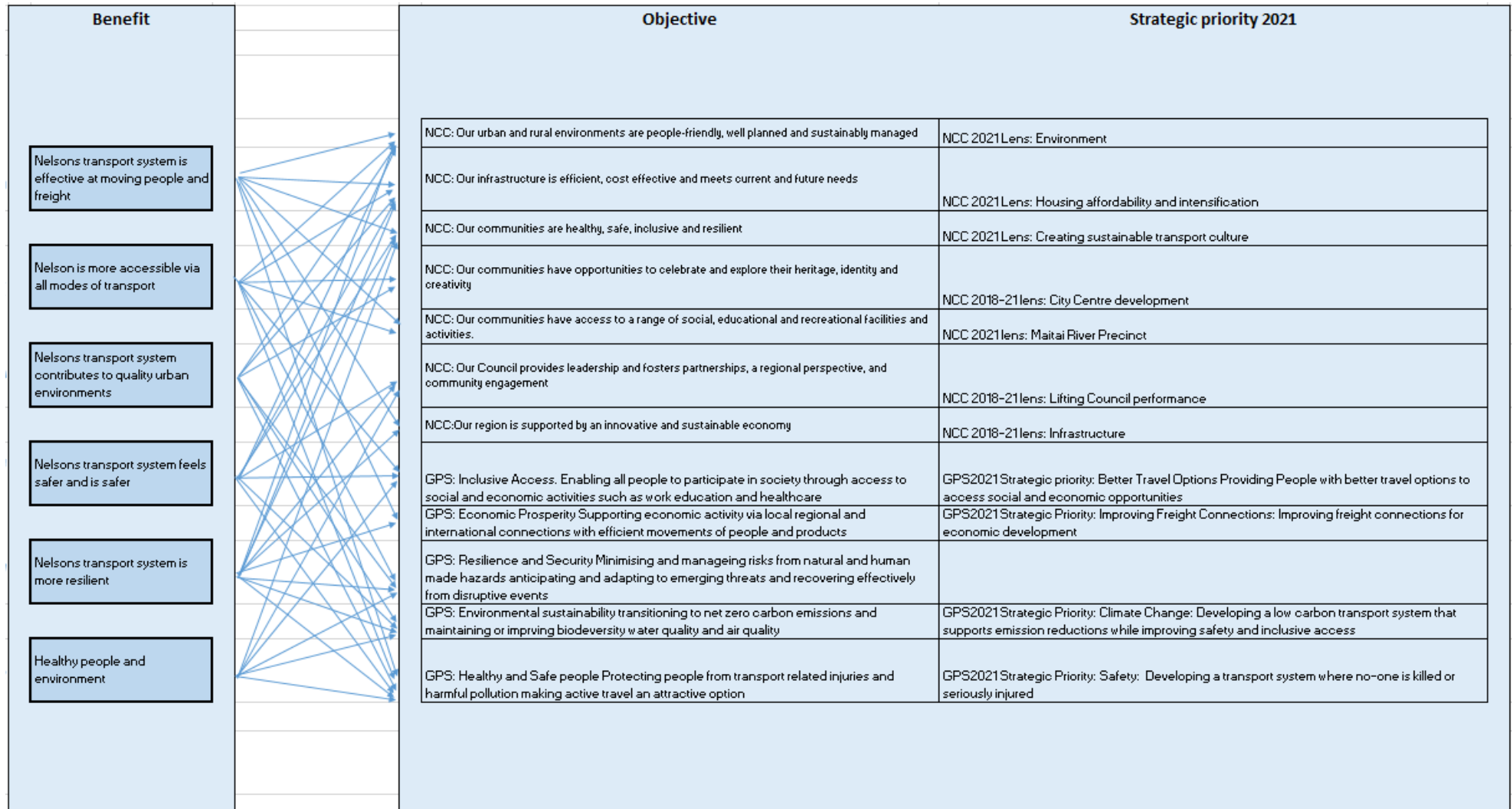
Healthy people and environment



These are assessed against their potential to be realised by addressing the problem statements in the Investment Logic Map (ILM) below.



The benefits deliver the objectives of the NCC community outcomes, priorities and GPS as shown below. The levels of service and performance measures to check delivery of the benefits is given in section 7.



## 6.1 Strategic Response

Review of the evidence, causes and consequences, also the environment that the transport activity is to be delivered in requires a strategic response to direct the overall programme strategy.

There are many concurrent programmes concluding in 2020-24 that affect the Transport Activity:

- Nelson Plan
- Nelson Future Access Study
- Richmond Network Operating framework
- Covid 19 responses and effects
- Detail of the carbon emission reduction programme and performance measures
- National Freshwater Standards
- Growth rates, subdivision vs infill vs no growth
- City Centre revitalisation
- Public transport review
- Government Policy Statement on Urban Development changes
- Parking Strategy and Policy
- Substantial utility programmes, especially stormwater and flood protection
- Possible Ministry of Transport rule changes

While there are strategic documents presently under development there are always unknowns, the current suite particularly affect the transport activity in Nelson with some outcomes requiring specific transport response.

The strategic response for the Nelson Transport AMP is therefore to slow the physical works improvement programme, from the 2018 long term plan projections, and focus the first 3 years, 2021-24 on a planning framework that develops a forward plan to deliver the benefits sought by the AMP, integrates the concurrent programmes, and moves the activity management from a deficiency (reactive) platform to a proactive planning platform.

The planning work would be delivered through the activity Network and Asset Management programme (refer section 8.2k Network and Asset Management for details).

The key focus areas are:

Resource Efficiency:

- Improve chipseal cost efficiency
- Improve asphalt surfacing cost efficiency
- Maintain asphalt surface life expectancy

Healthy and Safe People:

- Reduce occurrence and severity of intersection crashes
- Reduce occurrence and severity of crashes involving vulnerable users: pedestrians, cyclists, and older drivers.

Inclusive Access:

- Spatial coverage: increase network coverage and connectedness for cyclists
- Social connectedness: appropriate use of the network, safe and appropriate speeds, public transport, and total mobility access

Resilience and Security:

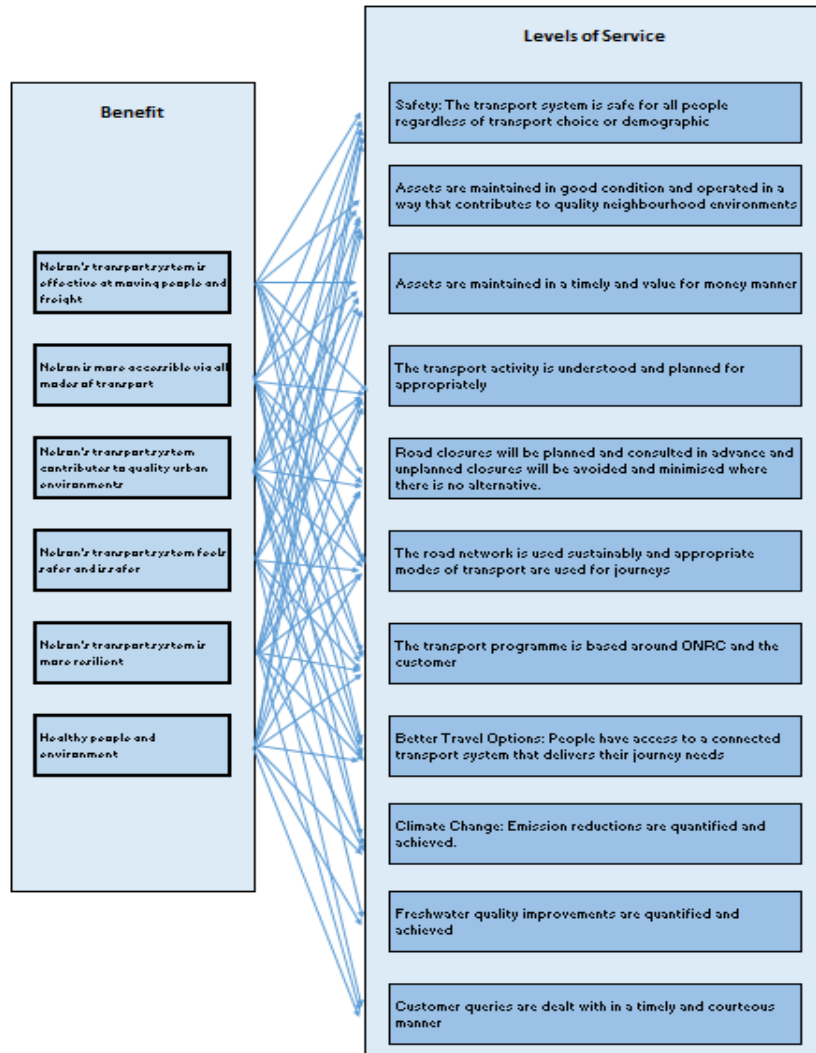
- Network Condition: Improve data quality and use in decision making
- Maintain road and structures with budgets with minimal emergency works

The top 15 Activity Improvement activities are:

Ref	Improvement Action	REG Pillar	When	Who
1(P1, NAM1)	Ramm data improvement	Systems	ongoing	NCC asset management (AM) and operations and Maintenance contractors (include in future contracts)
2(NAM2)	Update the NCC/NZTA Procurement Strategy, including to the REG advised format	Decision Making	2021	AM
3 (P2) (NAM7)	Develop a Pavement Management Strategy and Forward Works Programme	Systems	2021/22	AM
4(NAM3)	Speed Management Framework review and implementation	System	2021	AM/ Operations
5(NAM4)	Parking Policy Review	Systems	2021/22	AM/Operations
6(NAM5)	Road Occupation Policy review	Systems	2021-24	AM/Operations, legal, planning and policy
7(NAM6)	Vehicle Control Bylaw review	Systems	2021/22	AM/Operations
8(NAM9)	Transport Network Plan for mapping out all modes and One Network Framework implementation	Resource	2020-24	NCC asset management
9 (P3)	Test pit pavements on asphalt roads to determine if there is a pavement, depth and materials to inform analysis and prioritisation. Use all opportunities, e.g. utility repairs, service locates, road repairs, and site-specific investigations and update in Ramm	Evidence	2021/22	NCC infrastructure
10 (NAM9)	Develop a framework and prioritise policy updates including manage tension between ONRC/ONF and local hierarchy	Systems	2021-26	AM and planning
11 (D1)	Develop Freshwater Improvement Programme – Business case	Service delivery	2020-24	NCC asset management and utilities
12 (P6)	Develop levels of service and targets for carbon emissions from the transport activity	Evidence	2021-24	NCC Climate change champion and asset management
13 (P5)	Establish 5-year contract for regular high-speed data collection, analysis and site prioritisation including establishing pavement deterioration modelling (Junoviewer)	Evidence	2020-21	NCC asset management
14 (D2)	Drainage data improvement, including ownership, and filling gaps.	Evidence	2021-24	NCC asset management, GIS and utilities
15 (P7)	Employ experienced roading engineer or invest in training of existing staff	Resources	TBC	NCC

## 7. SECTION 7: LEVELS OF SERVICE AND PERFORMANCE MEASURES

Levels of service are used to guide the standards required for the transport activity, especially where key objectives and outcomes are sought. Levels of Service have been developed to deliver the benefits sought from the transport system as listed below.



Performance measures are used and reported to track the success of the programme at delivering the Levels of Service. This process ensures Council is addressing the problems and delivering the benefits to achieve the objectives and strategic priorities for the transport system. Council's performance measures, and details about where these are reported, are listed below. Refer to the 2018 AMP for the previous performance measures.

In addition to performance measures a number of technical measures are used for the monitoring and decision making. These affect Levels of Service and are required for Waka Kotahi funding, and therefore benefit the delivery and resolution of the problem statements of the Transport activity. These measures are tabled in Appendix C.



Ref	Level of Service	Programme Area	2021-24 Performance Target				How Measured	
			DIA	RTC	LTP	NZTA		
1	Safety: The transport system is safe for all people regardless of transport choice or demographic	All activities		X	X		Improving road safety risk for intersections, motorcycles, cyclists and older drivers and a static trend for all other risks to achieve the Vision Zero target of 40% reduction in DSI by 2031. Target to reduce risk from high to low by 2031.	Measured from the Communities at Risk Register. This is a calendar year result reported in June for the prior 5 years.
2	Safety: The transport system is safe for all people regardless of transport choice or demographic	All activities	X		X		Reduction in the number of death and serious injury crashes, per financial year on the local road network to achieve the Vision Zero target of 40% reduction in DSI by 2031. Target to reduce risk from high to low in the Communities at Risk Register by 2031.	The number of crash events with one or more fatally or seriously injured person involved as reported from the Crash Analysis System (CAS). Reporting to include number of death and serious injury crash events and the number of casualties. Excludes crashes on state highway, and parks/private/commercial/car park areas.
3	Safety: The transport system is safe for all people regardless of transport choice or demographic	All activities		X			Reduction in the number of death and serious injury crashes, per financial year on the whole road network in Nelson to achieve the Vision Zero target of 40% reduction in DSI by 2031. Target to reduce risk from high to low in the Communities at Risk Register by 2031.	The number of crash events with one or more fatally or seriously injured person involved as reported from the Crash Analysis System (CAS). Reporting to include number of death and serious injury crash events and the number of casualties. Includes crashes on state highway, and excludes crashes on parks/private/commercial/car park areas. TDC and MDC roads and all state highways in the top of the south are also reported to the Regional Transport Committee.
4	Safety: The transport system is safe for all	All activities		X	X		Reduction in the number of crashes	Reported from CAS — the number of crash events with

Ref	Level of Service	Programme Area	2021-24 Performance Target				How Measured	
			DIA	RTC	LTP	NZTA		
	people regardless of transport choice or demographic						involving cyclists on the network per financial year to achieve the Vision Zero target of 40% reduction in DSI by 2031. Target to reduce risk from high to low in the Communities at Risk Register by 2031.	one or more cyclist involved. Excludes crashes on state highway, and parks/private/commercial/car park areas.
<b>5</b>	Safety: The transport system is safe for all people regardless of transport choice or demographic	All activities		X	X		Reduction in the number of crashes involving pedestrians on the network per financial year to achieve the Vision Zero target of 40% reduction in DSI by 2031. Target to reduce risk from high to low in the Communities at Risk Register by 2031.	Reported from CAS – the number of crash events with one or more pedestrian involved. The definition of pedestrian includes person walking, on a skateboard, or on a small wheeled recreation device, wheelchair, or mobility scooter. Excludes crashes on state highway, and parks/private/commercial/car park areas.
<b>6</b>	Better travel options; People have access to a connected transport system that delivers their journey needs	Cycle facilities Walking facilities Minor improvements Major projects		X	X		Increase the percentage of walking and cycling to school and work from census data	Reported 5 yearly from census data.
<b>7</b>	Better travel options; People have access to a connected transport system that delivers their journey needs	Cycle facilities Walking facilities Minor improvements Major projects			X		Establishment of baseline data by June 2023/24.	Survey of children at participating schools. Survey method and participating schools to be determined.
<b>8</b>	Better travel options; People have access to a connected transport system that delivers their journey needs	Cycle facilities Walking facilities Minor improvements Major projects		X	X		>=2% increasing trend per year.	24-hour count of pedestrians and cyclists on a fine weather Tuesday in February and July at The Railway Reserve in Stoke, and Bishopdale, Atawhai Cycleway, Rocks Road and Whakatu Cycleway.

Ref	Level of Service	Programme Area	2021-24 Performance Target				How Measured	
			DIA	RTC	LTP	NZTA		
							Two new sites are to be added in 2021 on Rutherford Street and Seymour/Willow Walk area. These will not have historical count data so may be reported. However, they will not be included in the target monitoring for 2021–24 while a baseline is established.	
<b>9</b>	Better travel options; People have access to a connected transport system that delivers their journey needs	Cycle facilities Walking facilities Minor improvements Major projects		X	X		>=2% increasing trend per year.	Count of pedestrians and cyclists between 7am-9am on a fine weather Tuesday in February and July at The Railway Reserve in Stoke, and Bishopdale, Atawhai Cycleway, Rocks Road and Whakatu Cycleway.  Two new sites are to be added in 2021 on Rutherford Street and Seymour/Willow Walk area. These will not have historical count data so may be reported. However, they will not be included in the target monitoring for 2021–24 while a baseline is established.
<b>10</b>	Better travel options; People have access to a connected transport system that delivers their journey needs	Walking facilities Minor improvements Major projects	X		X		80% of the footpath network by length has a condition rating of no greater than 4.	A factor for the footpath shape has been added to the performance measure to improve the footpath cross falls and widths that are limitations to access for some users.  Measure is from the annual footpath condition assessments. Also refer to the matrix in Appendix D.
<b>11</b>	Better travel options; People have access to a connected transport system that delivers their journey needs	Major projects Walking facilities Public transport		X	X	X	Annual number of bus patrons. Target to be informed by the public transport (PT) review.	Ticket sales and electronic ticketing data once established.
<b>12</b>	Better travel options; People have access to a connected transport system that delivers their journey needs	Network and asset management		x	x		Percentage of vehicles with more than 1 occupant on Waimea Road and Rocks Road during	Survey the morning peak (6.30am–9.30am) and evening peak (2pm–6.30pm) traffic on Waimea Road and Rocks Road on a fine

Ref	Level of Service	Programme Area	2021-24 Performance Target				How Measured	
			DIA	RTC	LTP	NZTA		
		Travel demand management					the am and pm peak hours. Reducing trend of single occupancy vehicles over 10 years (2021–2031).	weekday in March and September.
<b>13</b>	Better travel options; People have access to a connected transport system that delivers their journey needs	Network and asset management Travel demand management		X	X		Static or reducing trend in VKT for the local Nelson network. Static or reducing trend in VKT per person Nelson population.	Vehicle kilometres travelled (VKT) on the local road network as measured from RAMM network manager. VKT divided by the recognised official population estimate for the year.
<b>14</b>	Better travel options; People have access to a connected transport system that delivers their journey needs	All activities			X		More than 50% of respondents are either very satisfied or satisfied, and less than 10% are either dissatisfied or very dissatisfied.	Annual residents survey. Refer Appendix M for the residents' survey questions.
<b>15</b>	Customer queries are dealt with in a timely and courteous manner	All activities			X		80% of service requests are responded to within five working days.	Number of service requests to the Transport team as measured from Magiq
<b>16</b>	Climate Change: Emission reductions and freshwater quality improvements are achieved	All activities			X		Transport activity emissions. Baseline data is being determined and a target measure is under development.	
<b>17</b>	Climate Change: Emission reductions and freshwater quality improvements are achieved	All activities			X		Embedded and emitted carbon from the transport asset maintenance programmes. Baseline data is being determined and a target measure is under development.	
<b>18</b>	Climate Change: Emission reductions and freshwater quality improvements are achieved				X		Freshwater quality improvement. Baseline data is being determined and a target measure is under development.	

Ref	Level of Service	Programme Area					2021-24 Performance Target	How Measured
			DIA	RTC	LTP	NZTA		
19	Assets are maintained in good condition and operated in a way that contributes to quality neighbourhood environments	Pavements	X	X	X		More than 80% of all journeys are on smooth roads as measured by Smooth Travel Exposure in RAMM.	Percentage of vehicle kilometres travelled (VKT) on all roads classified as smooth where THE owner type is Local Authority — from the RAMM network manager report for the current year. Refer also the pavement programme for the roughness testing programme that provides the data that informs this measure.
20	Assets are maintained in good condition and operated in a way that contributes to quality neighbourhood environments	Pavements				X	Roughness by ONRC: Regional <=120 Arterial <=130 Primary Collector <=140 Secondary Collector <=140 Access <=150 Low Volume <=170	ONRC performance monitoring reports
21	Assets are maintained in a timely and value for money manner	Pavements	X		X		Not less than 3% and not more than 8.5% of the network is resurfaced every year. (Target 5.5% ± 3%)- equates to ~18 yr. average life	Cumulative centreline length of sites in the annual reseal programme against the total centreline length of the sealed road network. Note: condition assessments, and the cost of the surfacing treatment are the factors that control the % of the network resurfaced.  Long term programme view is represented in Pavement Management Strategy.
22	The transport activity is understood and planned for appropriately	Pavements				X	ONRC performance monitoring reports are completed each year.	Refer appendix C.
23	Road closure will be planned and consulted in advance and unplanned closures will be avoided and minimised where there is no alternative	Pavements Structures Unsubsidised CBD		X			Number of events, and cause of events, where an unplanned closure is required, and the number of vehicles impacted per financial year. (No target set)	The number of incidents, and reason are recorded through the CAR management system. The number of vehicles impacted is calculated from the Annual Traffic Data and duration of closure. These are also required for the ONRC performance monitoring tool,

Ref	Level of Service	Programme Area	2021-24 Performance Target				How Measured	
			DIA	RTC	LTP	NZTA		
							Resilience Customer Outcome 1. Unplanned road closures can also be from police events, fire, etc. Unplanned closures on TDC and MDC roads and all state highways in the top of the south are also reported to the Regional Transport Committee.	
24	The road network is used sustainably and appropriate modes of transport are used for journeys	Network and asset management Travel demand management		X	X		Arterial Traffic Volumes. Target is a slowing growth trend on routes which currently have increasing traffic volumes and a static (+/- 2%) on all other routes.	Annual summary of traffic volumes on the arterial traffic network. Annual updates by calendar year. This replaces the peak travel time monitoring. The problem with aiming for significant decreases is the rat run routes are not monitored in the same way, so there could be a shift in traffic that is not a decrease in traffic.
25	The transport activity is understood and planned for appropriately	Network and asset management			X		Asset management data quality score improves from base line score of 68 in 2019/20 to 80 by 2023/24.	REG Data Quality reports.
26	The transport activity is understood and planned for appropriately	Network and asset management			X		Smart Buyer Self-Assessment score improves from 2018/19 baseline of 56 to 70 by 2023/24.	REG Smart Buyer Self-Assessment forms.
27	To be informed by the Parking Policy review	Parking			X	X	No more than 95% occupancy short stay parking occupancy as measured in the mid-week peak of December every second year.	Count of parked vehicles.
28	To be informed by the Parking Policy review	Parking			X	X	No more than 95% occupancy short stay parking occupancy as measured in the mid-week peak of December very second year.	Cycle parking at bike stands.

Ref	Level of Service	Programme Area					2021-24 Performance Target	How Measured
			DIA	RTC	LTP	NZTA		
29	To be informed by the Parking Policy review	Parking			X	X	Not more than 95% occupancy of the long stay parking as measured every 2 months between peak travel times at 5 locations around the city.	5 representative count sites. Refer Car Parks evidence in section 5 for details.

## 8. SECTION 8: Programme Business Case

### 8.1 Introduction

To establish a preferred, fundable programme of work for each transport activity to sustain the infrastructure assets, LOS and address the problem statements identified in the strategic case.

The programme is broken into sections to match Waka Kotahi work categories. There is some overlap between programmes and these are identified within each section programme when they are significant.

### 8.2 Programme

Each programme business case section is structured as follows:

- Link to strategic case;
- Test level of service;
- Compile and test evidence;
- Gap analysis;
- Develop options;
- Test options;
- Preferred programme;
- Risks;
- Procurement;
- Improvement plan; and
- GPS alignment self-assessment.



## A) Pavements

Pavements are directly linked to Problem Statement 1, and indirectly to Problem Statement 2, 3 and 4.

The network consists of 276 km of roadways which is comprised of ~92.4% urban roads (~7.6% rural), with ~94% sealed roads (~6% unsealed), and ~99% of all journeys being Urban (~1% rural). There is a total of 519 lane-km within the network.

The proposed programme involves gathering additional evidence, improving data quality,



Figure 8.1: Pavement Resurfacing Project

Pavements is the term used for all aspects of the road structure, including: subgrade, subbase, basecourse, and the wearing course (surfacing) that is trafficked by vehicles.

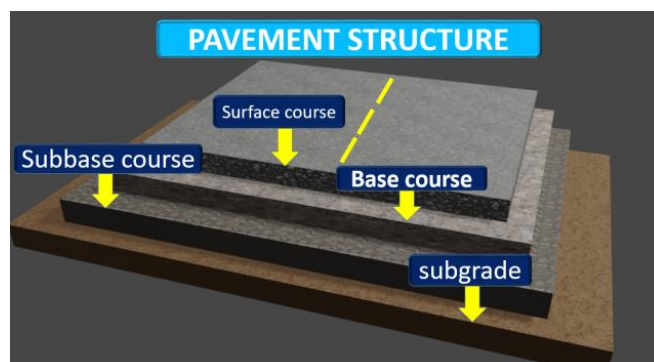


Figure 8.2: Pavement Structure

Link to Strategic Case — Pavements

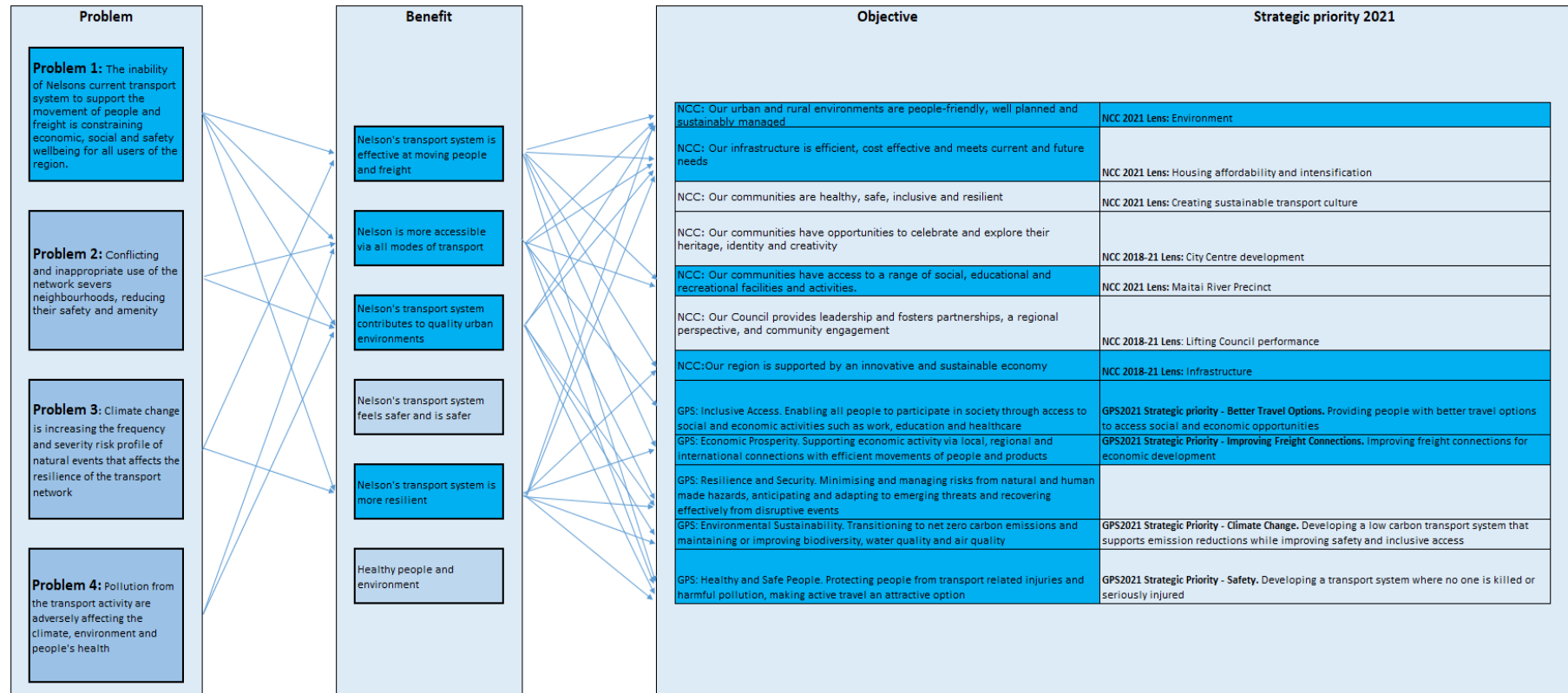


Figure 8.3: Pavements Link to Strategic Case

## **Test Levels of Service — Pavements**

Levels of Service (LOS) are described at a network level in Chapter 7. Appendix C also provides technical measures and performance monitoring against customer LOS, in alignment with ONRC.

### **Public Satisfaction with Transport Activities**

Appendix B includes additional evidence relating to public satisfaction.

There is decreasing satisfaction with transport activities, possibly due to a perception of inaction on perceived problems over the past three years. The 2020 results are consistent with the reasons for dissatisfaction from 2017, as shown in Appendix B2, although it is noted that Public Transport (and Street Lighting) and did achieve higher scores in 2020 than three years prior.

There are three areas of low-performance and high-importance which should be prioritised within the Council programme:

- Roads/Streets
- Public Transport
- Parking

Two slightly lower priority areas which require action, including active travel infrastructure:

- Cycle Lanes
- Footpaths.

### **Roughness**

Appendix B includes additional evidence relating to pavement roughness.

The range of roughness measured for Nelson roads is acceptable in most areas. Roughness has traditionally be measured by the National Association of Australian State Roading Authority (NAASRA) roughness meter. The meter was designed to operate at a constant speed of 80 km/hr, and there can be poor correlation between low speed meter response and the actual roughness. Nelson as high peak roughness on access and low volumes roads, possibly as a result of the testing process.

Nelson has many short road lengths, narrow roads, steep topography areas, and many intersections. Collectively, this makes it challenging for the survey vehicles to gain the speeds required to gather high speed data.

### **Smooth Travel Exposure**

Appendix B includes additional evidence relating to Smooth Travel Exposure (STE).

Council's current Level-of-Service (LOS) for STE is >87% (87% or more vehicles are travelling on smooth roads). Regional and arterial roads match or are better than the peer group while access and low volume roads are significantly worse.

The ONRC Performance Measures Reporting Tool (PMRT) provides the following table as guidance on desirable STE. Generally, STE is controlled by the roughness measures described.

Traffic Volume	Urban NAASRA	Rural NAASRA
< 500	<= 180	<= 150
500 - 999	<= 150	<= 150
1000 - 3999	<= 150	<= 130
4000 - 9999	<= 120	<= 130
>= 10000	<= 110	<= 130

Figure 8.4: Target NAASRA levels for different traffic volumes and road types

### Percentage of the Network Resurfaced

Appendix B includes additional evidence relating to network road pavements.

The current resurfacing target of 3–8.5% is currently thought to be fit for purpose as it correlates well with indicative pavement life, as shown in the indicative Table below. Appendix B6 and B7 elaborate further, and highlight the differences between the performance of chip seal and asphalt resurfacing.

Average Annual Rate of Resurfacing (% of network)	Indicative Pavement Life Expectancy (years)
3	33.3
4	25
5	20
6	16.7
7	14.3
8.5	11.8

For an average pavement life expectancy of 20 years, approximately 5% of the network pavements should be resurfaced annually. To address any backlog, a higher rate of resurfacing will be required until such time as the backlog has been addressed. Under-investing in resurfacing will most likely result in increased costs in future years due to increased pavement degradation.

RAMM reports state that 35% of the network is overdue for resurfacing. A project to review and 'clean-up' the data should confirm if the 35% is a real backlog, or a data reporting problem. Pavement inspections should be used to quantify and prioritise accordingly.

A specific work programme should be developed to address variations across the network, to accommodate high value regional and arterial road resurfacing, to address any backlog, and to prioritise work each funding cycle, and each year.

### Safety

Nelson does not have frequent crash events attributable to the pavement maintenance activity.

Pavement condition has also been noted to deteriorate quickly, in isolated areas, where safety interventions are introduced that channelize traffic flow into very narrow traffic lanes. Introduction of traffic calming, and speed reduction treatments, eg speed humps, to address the AMP problems is expected to create more pavement problems.

Crash events attributable to pavement maintenance may increase if funding and maintenance were reduced.

### **Traffic Demand**

Refer Traffic Volumes in Section 5.8.

Population growth in Nelson and Tasman are sustaining traffic volume increases on the network, with traffic peaking at 30,000 VPD on Waimea Road, 25,000 VPD on Rocks Road and 20,000 VPD on Main Road Stoke. Static traffic volumes on Rutherford Street, and near Hayes Corner indicate the increasing traffic is using the network at large, not just arterial routes to move around, creating pavement stresses network wide.

Improved public transport services and active transport alternatives should reduce peak traffic flows.

### **Walking and Cycling and Urban Intensification**

In many locations around the city the road pavement is integral to the walking and cycling network (including shared zones, and cycle lanes).

The current management of pavements needs to be reconsidered within the urban intensification strategy, as increased urban amenity is a desired outcome. The increased demand for innovative and attractive streets projects may require the use of new and/or high value materials as part of increased urban amenity. Poor pavements do not support high quality finishes.

In the future, it is hoped that population growth will be accommodated with urban intensification rather than green-field expansion. Expansion results in longer networks and increased maintenance costs. If Council can intensity, then prioritised routes can be developed for active travel (footpaths, cycleways, or shared paths). Not all roads will have dedicated cycleways, and this is a consideration in the methodology for pavement maintenance, repair, or resurfacing.

To eliminate a tripping and cycle hazard where cyclists and pedestrians share the same space, pavements must be milled prior to the installation of surfaces course material at kerbs, to remove the seal lip that otherwise builds up over time. This adds to resurfacing costs, and limits the use of overlays as a pavement strengthening option.



### **Noise**

Noise impacts the amenity of the urban environment. Factors that contribute to noise generation are frequently debated, resulting in requests for more asphalt surfacing. However, there are many cumulative factors which affect noise levels, including the volume, speed and characteristics of the vehicles (problem statement 2), surrounding neighbourhood, road pavement quality, roughness and surface type.

Higher speed creates more noise. High speeds in a low speed environment (e.g. rat running on side streets) will contribute to the loss of amenity in those locations. Speed management is regularly reviewed by Waka Kotahi, and a review is in-progress.

Pavement surface is a significant factor in road noise. The cost difference between the smooth asphalt surfacing that is commonly requested and the coarser chipseal that is usually preferred, is \$18-40/m<sup>2</sup> - a very significant amount when Council is striving for value for money and best practice guide decisions on surface choices.

Council is currently applying for a consent to undertake road maintenance activities at night because traffic volume and/or network layout and temporary traffic management rules mean works cannot be undertaken during normal working hours. Noise is the controlled activity requiring the consent. However the constraints in the transport system, problem statement 1 and 2, mean it is otherwise not safe or physically possible to undertake the some road maintenance works during normal working hours without significant traffic disruption.

### **Freshwater Outcomes**

Appendix B includes additional evidence relating to pavement drainage.

The transport team is working with the Utilities and Environmental Management teams to improve the quality of rainwater run-off from road carriageways, into receiving environments (National Policy Statement for Freshwater Management and GPS). Level of service measures for this issue are still under development.

### **Flood Protection**

Nelson's roading network typically cater for the secondary flow path for stormwater in storm events. Features and facilities within the road corridor need to be resilient to the effects of stormwater on pavements, to maintain the flood protection LOS as outlined in the Stormwater and Flood Protection Activity Management Plan. (Refer Section 8.2b)

### **Compile and Test Evidence – Pavements**

Council has historically focused on the surface life and reseal management, because waterproof surface layers minimise the risk of pavement failures and an increase in road roughness. But the age, quality and flexibility of the underlying pavement structure is equally important and especially critical to management of high value surfaces on high volume roads. However, many Nelson roads have unknown pavement data.

### **Data Quality**

Refer to the Transport Asset and Activity Register in section 3 of this AMP for the pavement portfolio statistics. Pavements are the biggest asset in the transport portfolio.

Quantity, age and condition has been downgraded to 'variable reliability' from 'highly reliable' in the last AMP. This reduced confidence is because sporadic testing and review of RAMM data has since identified data gaps. Low quality data affects the veracity of subsequently programming, resulting in additional staff time and contractor resources to validate and develop programmes manually.

Unsealed roads are maintained in RAMM, but historically there has been little data capture for these roads. Most of the budget requirements for unsealed roads are linked to contractual obligations to maintain the level of service on the unsealed roads. As these are a small component of the contract, and of the Transport activity as a whole, this arrangement is considered fit for purpose. However, this approach will be reviewed again in 2024, to specifically include data capture.



## Sealed Pavements

Appendix B includes additional evidence relating to Sealed Pavements.

Only 25% of Nelson pavements are within the 25 year design life required by the Nelson Tasman Land Development Manual (NTLDM). All other pavements are older (up to 75 years, or more), with a third of pavement of unknown age (most of which are expected to be over 50 years old). The historical life achieved from chipseal surfacing is typically 20+ years, which is high compared to the national average and could reflect good materials or coal tar, which is present on many older roads. This life expectancy may reduce as coal tar is removed (utilities trenching and heavy maintenance or rehabilitation works), and alternative sealing (emulsion) materials are used. Removal of coal tar is subject to regulatory control, and is disposed at the Nelson landfill (refer to risks below). All sealing over recent years has used emulsion. Asphalt surfacing lives achieved in Nelson match the national average of 12–18 years. Asphalt surfacing is a high cost in Nelson which need further investigation with the market and suppliers.

Many pavements are assumed to be 200mm depth. However, this assumption needs to be validated.

The peak and average road roughness are generally in alignment with peers. New pavements typically inject favourable results on overall condition metrics, while older pavements typically contribute to poor results. As noted above, further details are provided in Appendix B.

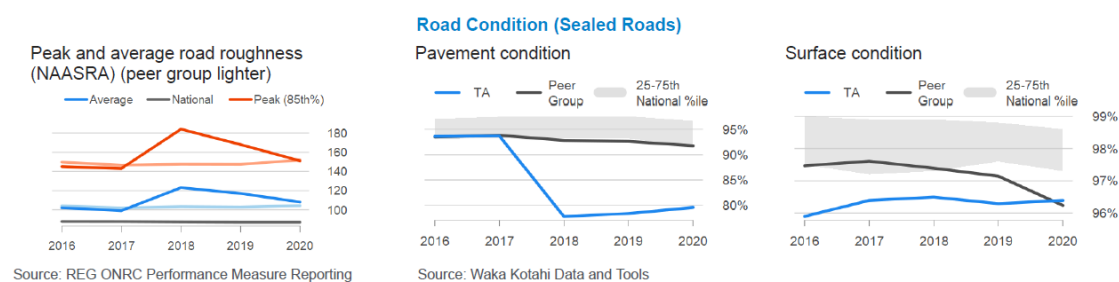


Figure 8.5: Pavement Surface and Condition Comparisons

The NAASRA threshold and Nelson measures are shown in the Table below. Nelson is within the acceptable range for average roughness, and peak roughness on high volume roads (Regional, Arterial, and Primary Collectors). Secondary collectors, access and low volume roads exceed the acceptable peak roughness.

ONRC	ONRC Outcome target NAASRA <=pass >=fail	ONRC Output target NAASRA <=pass >=fail	Nelson Average Roughness	Nelson 85% Roughness	Sealed Pavement Length (km)
Regional	<=90	<=120	69	88.9	6.9
Arterial	<=100	<=130	73	100	11.2
Primary Collector	<=110	<=140	98	134	51.1
Secondary Collector	<=110	<=140	107	144.6	45.3
Access	<=120	<=150	118	165	101.2
Low Volume	<=140	<=170	135	204.5	34.5

The average and peak roughness of the roads improves as the road classification increases. The high classification roads are less rough than the low classification roads and are within the NAASRA thresholds. There is a small variation in the range of roughness in the high classification roads, but a very large range in the roughness results for the low volume roads. The peak roughness for lower volume roads fail the NAASRA threshold for roughness, indicating some roads are rough, or the testing limits for low volume roads are generating poor results.

Based on Falling Weight Deflectometer (FWD) test results and site validation, the asphalt pavements which are showing signs of early deterioration consist of pavements that are too flexible to support asphalt as a surface course. In these cases, an abbreviated 10 year design life is anticipated, with maintenance intervention, and resurfacing within this AMP period.

The predicted maintenance costs are expected to increase from 2018–21 levels as additional intervention is required to provide safe and resilient routes for the traffic identified in problem statement 1, and potentially to manage the existing pavements to suit utilities programmes and improvement programmes recommended via the Future Access Study. Pavement strengthening may be required if additional heavy (bus or freight) traffic is to be accommodated. Pavement strengthening may be required, where there is insufficient pavement to rehabilitate.

The last AMP focused on the renewals backlog and the effects of high traffic volumes on the roads which were not designed for this loading. These are ongoing issues, and are reflected in Problem Statement 1 for traffic loading on the old pavements. However, this AMP is also focussed on collecting additional evidence to better quantify the nature of the backlog problem, and to better prioritise future work programmes.

### **Unsealed Pavements**

Nelson has ~16km of unsealed roads — half are in the urban area and half are classified as rural. The unsealed roads play a major part in keeping the region's economy moving, so a functional unsealed network is of high importance. Unsealed roads provide access to forestry and farming, the Maitai Dam, Roding Dam, and recreation opportunities at the extremes of the roading network. There is an expectation that they are:

- fit for purpose
- safe and trafficable ("no surprises")
- provide a reasonable and consistent ride
- economical in maintenance
- maintained to exceed the design life
- not a nuisance (excessive dust) to customers.



A programme of targeted inspections has ensured that the frequency of maintenance grading has been kept to a minimum. Surfacing deterioration as a consequence of forestry traffic is a key driver for an intervention being required. Strategic placement of metal aggregate limits the amount of unsealed road dig outs currently being required.



The demands of forestry traffic are generally the biggest influence on the unsealed roads maintenance programme. This is tested every three years with the forestry companies, in order to align maintenance programmes with harvesting schedules. Many unsealed roads also have lifeline attributes as they connect to essential services, including the Maitai Dam and the Nelson Wastewater Treatment Plant.

The other significant demand from residents living adjacent to unsealed roads is for dust suppression. No dust suppression is currently undertaken because the chemicals used for dust suppression can wash off into waterways. Dust from roads is also an environmental hazard, as it contributes to silt levels in waterways.

The unsealed roads maintenance budget provides for grading and repair of damaged pavement (unsealed pavement dig outs). Council maintains contact with forestry companies to coordinate maintenance programmes with harvesting because logging trucks are a primary user of the unsealed road network. Increased demand and environmental effects are the two biggest considerations, which will influence future maintenance costs. Council will continue to monitor network condition and assemble data to assist with decisions on any additional investment in future.

#### **Environmental Outcomes**

Levels of service (LOS) and performance measures to reduce community carbon emissions in line with 2050 targets are yet to be set by Council and are noted in the improvement programme. Council is already using low impact treatments where possible, eg emulsion instead of cutback bitumen and reuse of AC millings to address problem statements 3 and 4. Trials in other locations are being monitored to determine further opportunities, such as use of plastics or rubber in road construction.

Good pavement lifecycle management will provide good environmental outcomes towards addressing problem statements 3 and 4.

#### **Utility Upgrades**

There is a large council utility upgrade programme. Utilities are essential services to enable urban intensification to help address problem statements 1-4. Alignment of transport projects with these utility programmes could provide a cost effective opportunity to achieve transport projects with minimum disruption to the community. Pro-active coordination and communication is required by both transport and utility teams.

#### **Asset Disposal (retreat)**

In the past three years Low Street and Rogers Street have been sold to Port Nelson. Further sale of roads is possible.

There are no known uneconomic sections of the maintained road network that need to be considered for disposal. However, a large number of paper or unformed roads throughout

the district are not required for transportation purposes. A review of these paper roads is being undertaken through the Whakamahere Whakatū Nelson Plan development process.

A number of paper roads and driveways in road reserves parallel to the road centreline are used for access by adjoining landowners. These roads are not considered to be part of the transport network and are not maintained by Council. These will be reviewed as encroachments on road reserve through policy updates.

**Gap Analysis**

Pavement data reliability remains uncertain, as indicated previously. However, a data improvement programme is underway to address these gaps. The improvement programme includes a consultant running the Max Quality, Max Maintenance and Max Forward Works programme in the RAMM database, monitoring the REG data quality stories, PMRT results, site investigations, and validation. Council staff and maintenance contractors are using these resources to identify and address gaps and errors in the data. Council will also be participating in the NZTA Data standardisation programme. New RAMM data logging sheets have been circulated to project managers to improve the quality of information gained from project works.

**Sealed Pavement Composition and Age**

The age and uncertainty of pavement materials is a concerning gap in Council’s knowledge of the sealed pavement network. High value surfacing (asphalt) on poor pavements do not result in good value for money. Include pavements of unknown age, two thirds of all pavements are older than 50 years, whereas the design life is typically 25 years. In addition, the majority of ‘known’ pavement details are estimated rather than based on as-built or construction records.

Further data collection and assessment are required to inform the pavement management programme.



Figure 8.6: Age of pavements and pavement material

**Unsealed Roads**

Requests to seal unsealed roads is also a perceived gap in LOS. Council does not have a policy of requiring unsealed roads to be surfaced, due to the cost of reshaping and widening roads to meet a suitable standard for the speed increase generated by sealing. This cost is expected to be borne by developers if they increase the demand on the unsealed roads beyond their current LOS. The cost to maintain the unsealed network at the extremities of the network could warrant sealing some unsealed roads, and should be investigated further.

**Pavement Management Strategy**

In addition to data capture, there is a need for a programme level Pavement Management Strategy. This strategy would consider the network pavements in their entirety, and over

the life of the road corridor. Pavement construction, maintenance, repair, rehabilitation, replacement, and disposal should all be addressed.

**Forward Works Programme**

In addition to data capture, there is a need for a Forward Works Programme. Ideally the Forward Works Programme will be prioritised in accordance with the Pavement Management Strategy identified above, and updated on a regular basis (not less frequent than annually). In the absence of specific guidance, project priority should be aligned with highest risk.

## Develop Options – Pavements

Ideally the options for Maintenance v. Renewal v. Replacement v. Retreat v. Improvement (width / depth / composition) v. New Alignments are addressed through a combination of strategic planning documents and a Pavement Management Strategy. However, the programme level options for pavements are shown in the Table below. The indicative costs, and other evaluation contrasts are provided in the next section.

Develop Options	Option Description	Benefits of Option	Negative Consequences of Option
Decrease current programme	Ongoing maintenance (Opex) at \$670k/year and reduced resurfacing (Capex) programme to \$700k per year.	Decreases capital budgets.  Slows the resurfacing programme to ensure utility and improvement works are prioritised ahead of resurfacing.	Roughness will increase for all road categories as the maintenance budget is spread further, so STE will decrease and historic STE of 87 will fall below 80.  Pavement integrity is already 10% below peers. If maintenance is insufficient to keep water out of the pavement (resurfacing) this will quickly drop further.  Surface condition index will decrease to be less than 93% in year 3 and less than 86% by year 10.  Reactive and emergency works would increase long term to maintain safety.  Asphalt surfaces are chipsealed to reduce costs and have high frequency of renewal (estimate 5 years).
Current level of maintenance and resurfacing	Increase maintenance (Opex) to \$1M year to allow more pre-seal repairs and pavement maintenance options. Resurfacing (Capex) at \$1.3M per year increasing to \$2M per year from year 4 as high value asphalt and arterial sites start to enter the programme.	Roughness expected to remain at current levels and STE between 85-90 will be maintained.  Pavement integrity will be maintained between 80 and 90%, between current condition assessment and peer group condition.	Surface condition index range is expected to be similar to current trend at 96.5% but the lower limit is expected to decrease to be between less than 95% by year 10.  Asphalt surface live less than 10 years.  Reactive and emergency works could increase long term to maintain safety.
Pavement improvement	Ongoing maintenance (Opex) at \$750k year. Resurfacing (Capex) at \$1.2M per year decreasing to \$1M per year from year 4 and new pavements/rehabilitations	Potential to increase STE range to be consistently above 87 by year 10 if roads with high traffic volumes are targeted with pavement improvements.	Investment in pavements requires a long term forward works programme and coordination with utility and improvement programmes for best cost and delivery efficiency.

Develop Options	Option Description	Benefits of Option	Negative Consequences of Option
	<p>increasing from \$200k year in year 2 to \$1M per year in year 4 to year 12.</p>	<p>Potential to shift reactive maintenance to pre-seal repairs to improve roughness for low volume and access roads to improve roughness to 150/170 NAASA respectively or better as other improved pavements require less ongoing reactive maintenance.</p> <p>Reduce risk of reactive and emergency works in the long term.</p>	<p>Higher reinstatement costs when new pavements do need to be excavated later for improvement, renewal or utility works.</p>

**Test Options – Pavements**

Work Category	Strategic Response	Option No.	Option	2015-18 Budget LTP	2019-21 Budget (from NZTA T/O)	2019-19 Actual	2021-24 Estimated Cost (\$m) (first 3 years continuous programmes, first 10 years projects)	Problem Statements				Other MCA Factors								Preferred Option	Problem Statement Score Weighted	Other MCA Factors score	Total Score		
								Problem Statement 1: Arterial Safety and Capacity	Problem Statement 2: Multi Modal response	Problem Statement 3: Environmental challenges / Resilience	Problem Statement 4: Environmental Improvement	ONRC Safety	ONRC Resilience	ONRC Amenity	ONRC Accessibility	ONRC Cost efficiency/ Value for money	Opportunity Smart City	IAF Results Alignment	Urban Development Growth					Stakeholder Acceptability	
111, 151, 212 & 214	Sealed Pavements and Surfacing	1	Decrease current programme	5,629,384	6,833,329	1,929,698	5,000,000	-1	-1	0	0	-2	-1	-2	-1	-1	0	-1	-1	-1	N	-4	-10	-14	
		2	Current programme				6,833,329	0	1	1	1	1	1	1	1	1	1	0	1	0	1	Y	6	7	13
		2	Pavement improvement programme				7,133,329	2	1	2	1	2	2	2	1	2	1	1	2	1	1	2	1	Y	12

Figure 8.7: Pavement Options

Key to scoring  
2 improved   
 1 addressed   
 0 not addressed   
 -1 decreased   
 -2 devalued   
 N not a viable option   
 Y viable option

Both the 'Current Programme' and 'Pavement Improvement Programme' options score well against Problem Statement alignment and Multi-criteria Analysis (MCA) Factors. Unsurprisingly, the Improvement Programme scores better on half the items, and if affordable, should be selected for implementation.

### **Option 1 – Decrease Current Programme**

With this option, roughness will increase with a converse decrease in STE, the pavement integrity index will decrease, and the surface condition will deteriorate. There would be very high risk of reactive emergency repairs as water got into the pavement layers and failures create safety concerns for network users.

### **Option 2 –Current Programme**

The current programme is maintaining the asset and meeting current LOS measures but long term the measures are not expected to be met because the resilience of the asset will continue to decline. Long term there is expected to be a decline in Roughness will increase with converse decrease in STE, pavement integrity index will decrease, and surface condition will decrease as the increased traffic loads impact the pavement life. This option is expected to continue to generate frequent impacts on the network service as maintenance and renewal interventions become more frequent.

### **Option 3 – Increase Current Programme**

This alternative represents a long term increase in pavement investment which is expected to sustain roughness and STE at current levels, but improve pavement integrity and surface condition. This option will provide better amenity and accessibility outcomes as there is less risk of ongoing maintenance works per site as the pavement programme can be aligned with utility and improvement works to provide a holistic outcome.

### **Resurfacing Treatment Selection Flowchart**

The following flowchart is the current basis for pavement resurfacing decisions. This methodology can be adjusted to reflect strategic direction, funding, technology, guidance from Waka Kotahi, and network pavement performance trends.

The current flowchart (Figure 8.8) is due for an update, and will need to include the following changes:

- Align primary collector traffic counts to align with Waka Kotahi recommendations
- Based on FWD tests, Council has found the beam test is OK but the curve function is too high – and this is where AC is failing early (assume pavement is too flexible to hold AC)
- Consider the direction provided in the Pavement Management Strategy, when available
- Consider the outcome of this AMP process, and align with funding constraints
- Consider adaptation and retreat scenarios (and locations) for sea level rise
- Consider amenity values, especially around city CBD and Stoke centre
- Consider alternative surfacing material options (e.g. slurry seals, etc)
- Consider long-term and short-term urban intensification, plus growth effects / demands.

*Photo: resurfacing Waimea Road 2014.*



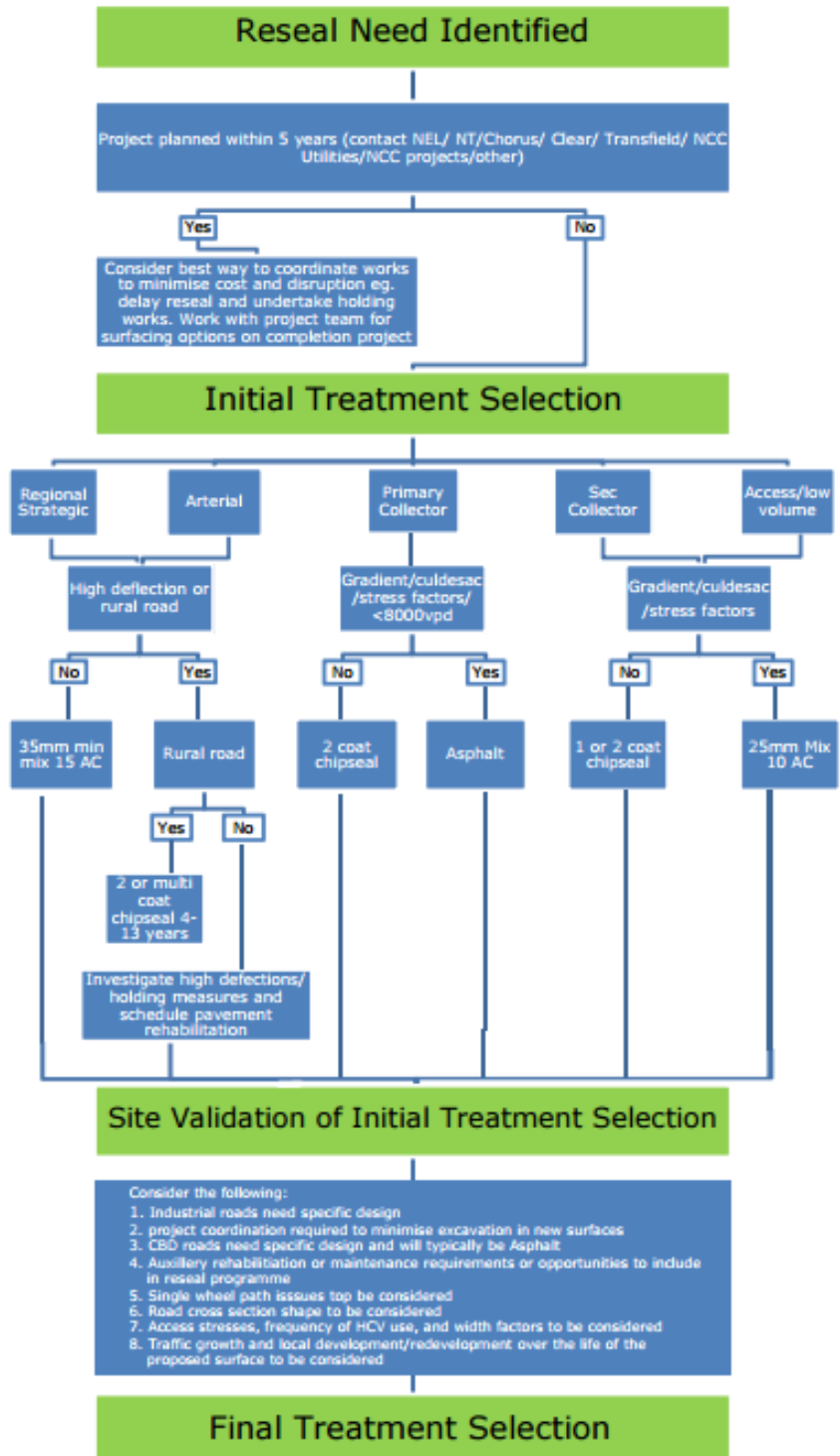


Figure 8.8: Decision Flowchart for Pavement Treatments



## Preferred Programme – Pavements

The preferred option for pavements is Option 3: Pavement improvement programme.

This option is preferred because it provides an estimated \$8M Net Present Value (NPV) of benefits; does not risk the \$200M pavement asset to gross failure; reduces risk of unplanned maintenance activities; and provides a pavement that will meet future demands of the growth on the network. Years 1-3 will be used to confirm and develop this programme.

Council, like Waka Kotahi, desires optimised Value-for-Money. This will be accomplished by removing uncertainty and preparing for informed interventions. Implementation of prioritised renewals/improvement is planned from year 4.

Utility and improvement projects have less risk of project variations as improved information becomes available and a collective understanding of the pavement inventory grows. Proactive planning will better enable economic efficiency for project delivery, and avoid premature trenching into new pavements.

### How we will deliver the levels of service

We will achieve these service levels by:

- Ongoing improvement of data quality, quantity and timeliness
- Development of a Pavement Management Strategy
- Preparation and management of a Forward Works Programme
- Monitoring of cost effectiveness and performance of chipseal surfaces
- Monitoring of cost effectiveness and performance of asphalt surfaces
- Testing to determine failure cause and best treatment options; refer appendix H
- Investigate and quantify weak subgrades
- Proactive coordination with Utilities, and other Council departments
- Review the environmental programmes and industry developments to address carbon, freshwater and energy efficiency improvements, as these become realistically achievable.
- Maintenance interventions and surfacing treatments will be based on the NZTA Pavement Evaluation and Treatment and Surfacing Selection Guides and best practice. Specialist and NZTA advice will be engaged when required.
- A mix of maintenance interventions will be continued, and including options to extend the life of the current asphalt surfaces. These include: chip sealing, crack sealing, deep asphalt patches, and thin patches with different mix designs.
- Due to the suspected poor condition of pavements, and problems encountered with asphalt surfacing, purchase of a Benkelman Beam laser for local use is included in the programme. This purchase would ensure easy access to test results that provide adequate information for decision making, and quality assurance testing on new subdivision roads / rehabilitation sites.
- Further investigation and assessment of the pavement, data and condition assessments will be used to confirm the pavement programme from 2024. If there is insufficient existing material to rehabilitate between existing kerb lines and road improvement programme (WC324) maybe required. Suitable roads would continue to be resurface with pre seal repairs only.

The table below outlines the alignment of key issues with the Strategic Case, Problem Statements and Benefits

Key Issues	Strategic Case	Problem Statement	Programme	Benefits
Surfacing. Value for money	Increasing amenity and walking and cycling demands in intensification areas, traffic control costs, resource supply and reducing life expectancy of surfaces on pavements that are inadequate for current demands are all contributing to high surfacing programme costs	1, 2	Review life cycle management of surfacing, together with pavement design lives to improve value for money and provide long term sustainability of the pavement asset.	Effective at moving people and freight More accessible Quality urban environment More resilient
Roughness	High traffic demands and poor pavement integrity, is causing roads to deteriorate, increasing maintenance demands and shortening renewal periods.	1, 2, 4	Access and low volume roads require improvement.	Effective at moving people and freight Quality urban environment More resilient
STE	STE for regional, arterial, and collector roads is decreasing due to the high traffic volumes on poor pavements. Lowering traffic volumes and or improving pavement quality required to maintain STE	1, 2	Review life cycle management of surfacing, together with pavement design lives to improve value for money and provide long term sustainability of the pavement asset. These measure are good against peers but the decline needs to be understood and managed before it is a problem	Effective at moving people and freight Quality urban environment More resilient
Data	The Nelson data quality score of 68 requires improvement.	3, 4	Pavement data requires improvement through resolving RAMM errors and increased pavements testing and assessment routine.	Effective at moving people and freight More resilient
Pavement Management Strategy and Forward Works Programme	All of the above.	1, 2, 3	Proactive development of strategic documents to guide and prioritise delivery of the pavements programme.	Effective at moving people and freight More accessible Quality urban environment More resilient

Maintenance interventions and surfacing treatments will be based on the Waka Kotahi Pavement Evaluation and Treatment and Surfacing Selection Guides and best practice. Specialist and Waka Kotahi advice will be engaged when required.

A mix of maintenance interventions will be continued, and including options to extend the life of the current asphalt surfaces. These include: chip sealing, crack sealing, deep asphalt patches, and thin patches with different mix designs.

Due to the suspected poor condition of pavements, and problems encountered with asphalt surfacing, purchase of a Benkelman Beam laser for local use is included in the programme. This purchase would ensure easy access to test results that provide adequate information for decision making, and quality assurance testing on new subdivision roads.

Further investigation and assessment of the pavement, data and condition assessments will be used to confirm the pavement programme from 2024. If there is insufficient existing material to rehabilitate between existing kerb lines and road improvement programme (WC324) maybe required. Suitable roads would continue to be resurface with pre seal repairs only.



*Photo: resurfacing Waimea Road 2014.*

Activity	Work Category	2015-2018 Approved WAKA KOTAHI budget (3yrs)	2018-2021 Approved WAKA KOTAHI budget (3yrs)	2018-19 Actual Expenditure (1yr)	Funding Request			
					2021/22 (inflated)	2022/23 (inflated)	2023/24 (inflated)	Annually Years 4-10 (uninflated)
Operations & Maintenance								
Maintenance (sealed)	W/C 111	1,621,887	2,081,211	616,316	\$580,000	\$596,820	\$611,900	\$580,000
Heavy Maintenance (sealed)	W/C 111	-	-	-	\$150,000	\$154,000	\$158,517	\$100,000
Maintenance (unsealed)	W/C 112	103,363	131,014	22,114	\$15,000	\$15,435	\$31,650	\$30,000
Maintenance grading (unsealed)	W/C122				17,850	18,368	18,832	17,850
Investigation, testing and modelling for pavements	WC151	Not specifically identified			70,000	72,030	73,850	\$70,000
RAMM support	WC151				\$87,500	\$90,038	\$92,313	\$87,500
Renewal & Capital								
Unsealed road metalling	W/C 211	189,674	187,215	52,615	\$66,600	\$68,598	\$70,382	\$66,600
Sealed roads resurfacing	W/C 212	3,262,701	3,667,853	1,238,653	1,300,000	1,339,000	1,373,814	\$1,000,000
Pavement rehabilitation	W/C 214	744,796	1,084,265	0	0	0	0	\$1m in years 4-10 as provisional indication of the work required

These numbers were correct on the date of publication, and will not include any subsequent changes.

**Risks – Pavements**

Regular review and coordination of project and programme risks is required. An active risk register is required, and will include emerging risks not shown in the table below, and will also remove risks that have been fully eliminated. The table below shows a snapshot of key risks known at the time of publication. Refer to Network and Asset Management (Section K) for further overarching risks and controls. Refer to Appendix N for the full risk assessment matrix.

Risks — Sealed Pavements							
Refer Network and Asset Management for further overarching risks and controls Refer Appendix N for Risk Matrix							
Identification		Analysis: Residual Risk				Response eg Accept Reduce Share	Treatments
Event	Consequence	Existing Controls	Consequence	Likelihood	Current Risk		
Coal Tar	Management and disposal costs	Avoid excavation	3	5	High (15)	Accept	Consider all options minimising excavation and pay management and disposal costs when required (approx. \$170/t landfill cost, plus \$45/t handling cost).
Pavement failure	Road failure	Maintenance programme	4	3	High (12)	Reduce	Deliver investigation testing, data, maintenance and renewal programmes.
Water ingress causing pavement failure	Road failure	Drainage maintenance renewal and improvements.	4	3	High (12)	Reduce	Plan to better link drainage and pavement maintenance.
Future Access Study fails to deliver options that reduce traffic load on arterial network	Increased maintenance and/or Road failure	Maintenance Programme	4	3	High (12)	Accept	Ongoing programme, with current growth projections
Demand exceeds current and future budget availability	Lower LOS	Reduce LOS to fit within budget constraints.	3	4	High (12)	Reduce	Deliver investigation testing, data maintenance and renewal programmes.
Unplanned closure of Vickerman Street - Single access road to port (ONRC - Regional)	Impact on Port and shipping operations	Maintenance programme	4	3	High (12)	Reduce, Share	Investigate pavement failures, plan rehabilitation, investigate emergency routes with Port Nelson

New subdivision roads do not achieve design life	Road failure	Nelson Tasman Land Development Manual 2019 design and liability standards	3	3	Medium (9)	Share	Include pavement repairs in the development contributions policy and calculations to intervene during the house building stage of new subdivision developments.
Asphalt surfacing has shortened life due to poor pavement integrity	Road failure	Maintenance programme	3	3	Medium (9)	Reduce	Deliver investigation testing, data maintenance and renewal programmes.
Chip surfacing is not publicly acceptable	Public complaints	Communicate	2	5	Medium (10)	Accept	Communicate
Trenching	Road failure	Corridor access requests (CAR)/road opening conditions	2	3	Medium (6)	Share	CAR/road opening conditions. Align pavement programmes.
Precedence of asphalt subdivision roads setting customer expectations	Public complaints	Communicate	1	5	Medium (5)	Accept	Communicate
Heavy vehicle pavement damage	Road failure	Maintenance programme	3	3	Medium (9)	Reduce	Deliver investigation testing, data, maintenance and renewal programmes.

The following risks have been identified in relation to the Unsealed Pavements.

Risks – Unsealed Pavements						
Identification		Analysis: Residual Risk			Response e.g. Accept Reduce Share	Treatments
Event	Consequence	Existing Controls	Consequence	Likelihood		
Unplanned closure of Vickerman Street - Single access road to port (ONRC - Regional)	Impact on Port and shipping operations	Maintenance programme	4	3		

Urban amenity expectations in rural areas	Public complaints	Communicate	2	5	Medium (10)	Accept	Communicate
Heavy vehicle damage	Road failure	Maintenance programme	2	3	Medium (6)	Share	Forestry management is returning to the Parks team, which is expected to improve sector communications.
Crash risk multimodal use	Crashes	Traffic signs and markings	4	3	High (12)	Reduce	Road safety promotion programme, speed reductions, improve sightlines.

### Procurement - Pavements

Waka Kotahi has reviewed and approved NCC Procurement Plan/strategy, with renewal required prior to expiration in Oct 2021.

All procurement for pavements is included in the current road maintenance contract, which will be retendered approximately 2023, via open market (GETS).

All contracts should include a requirement to provide GIS data, RAMM updates, as part of the As-Built delivery requirement. The specific requirement should be standardised into all contracts, and consistent with New Zealand GIS metadata standards, and RAMM requirements.

Inclusion of pavement works in utility project works, and tendered outside of the pavement maintenance contract, may become an alternative for the delivery of upgrade projects.

Specialist testing and advice is currently procured by direct purchase. Separate procurement processes may be required for longer term service delivery.

Specialist consultant advice is procured through the consultant panel, or Waka Kotahi NZTA, as and when required.

Cost provisions for coal tar removal and disposal need to be included in the programme, and align with problem statement 3 and 4 for environmental outcomes, and the percentage of network surfaced each year within budget

### Develop Improvement Plan – Pavements

Ref	Improvement Action	REG Pillar	When	Who
P1	RAMM data improvement	Systems	Ongoing	NCC/Maintenance contractor (include in future contracts)
P2	Develop a Pavement Management Strategy and Forward Works Programme	Systems	2021/22	NCC

<b>P3</b>	Test pit pavements to determine if there is a pavement, depth and material problem. Use all opportunities, eg utility repairs, service locates, road repairs and site specific investigations	Evidence	2021/22	NCC tender a contract
<b>P4</b>	Update traffic counting programme and estimates	Evidence	Next counting contract	NCC/traffic counting contractor
<b>P5</b>	Establish a five year high speed data and FWD testing contract	Evidence	Ready for 2021/22	NCC
<b>P6</b>	Develop LOS and performance targets for carbon emission reductions	Evidence	Ongoing	NCC
P7	Employ an experienced roading engineer, or invest in training of existing staff	Resources	TBC	NCC
P8	Develop maintenance intervention strategy (MIS) with alignment to ONRC	Systems	Before next maintenance contract tender	NCC/Maintenance contractor
P9	Assess maintenance intervention trials for asphalt surfacing	Evidence	Ongoing	NCC/Maintenance contractor
P10	Pavements data collection and assessment	Evidence	Ongoing	NCC/ Maintenance contractor
P11	Invest in a Benkelman beam with laser for testing of deflections	Evidence	2021/22	NCC (for use by contractors and sharing with TDC and NZTA)
P12	ADMS data standardisation project	Systems	To suit ADMS roll out	NCC
P13	Identify critical secondary flow paths on road corridors for maintenance, and for Traffic Management Plan (TMP) planning	Systems	2021-24	NCC/Utilities
P14	Include adaptation, mitigation and retreat priorities into the Maintenance Intervention Strategy	System	Post Nelson Plan adoption	NCC

### GPS Alignment Self-Assessment - Pavements

See 8.2(k) Network and Asset Management.

#### B) Drainage

Drainage is particularly affected by Problem Statements 3 and 4, climate change and pollution from the transport activity. The preferred programme includes a business case to determine best freshwater improvement option in year 1-3 for delivery in year 4-6 and ongoing routine

The purpose of this asset is to provide adequate drainage for stormwater run-off from the carriageway in order to protect the road edge and substructure from stormwater intrusion. In urban areas, kerbs also provide a protective barrier for pedestrians from passing traffic. In rural areas, side drains and culverts need to be managed.

There are close synergies between the road drainage system, the environment and the Stormwater and Flood Protection activity. Road drainage needs to consider freshwater quality, sea level rise, and flood risk management to address problem statements 3 and 4. The drainage activity includes road and sump cleaning which contributes to the benefits of address problem statement 4. Waka Kotahi contributes a 51% subsidy on one third of



the street and sump cleaning costs. In addition to street and sump cleaning, commercial footpath cleaning is carried out as an unsubsidised CBD activity.



There are multiple facets to the drainage activity in road reserves, as outlined below.

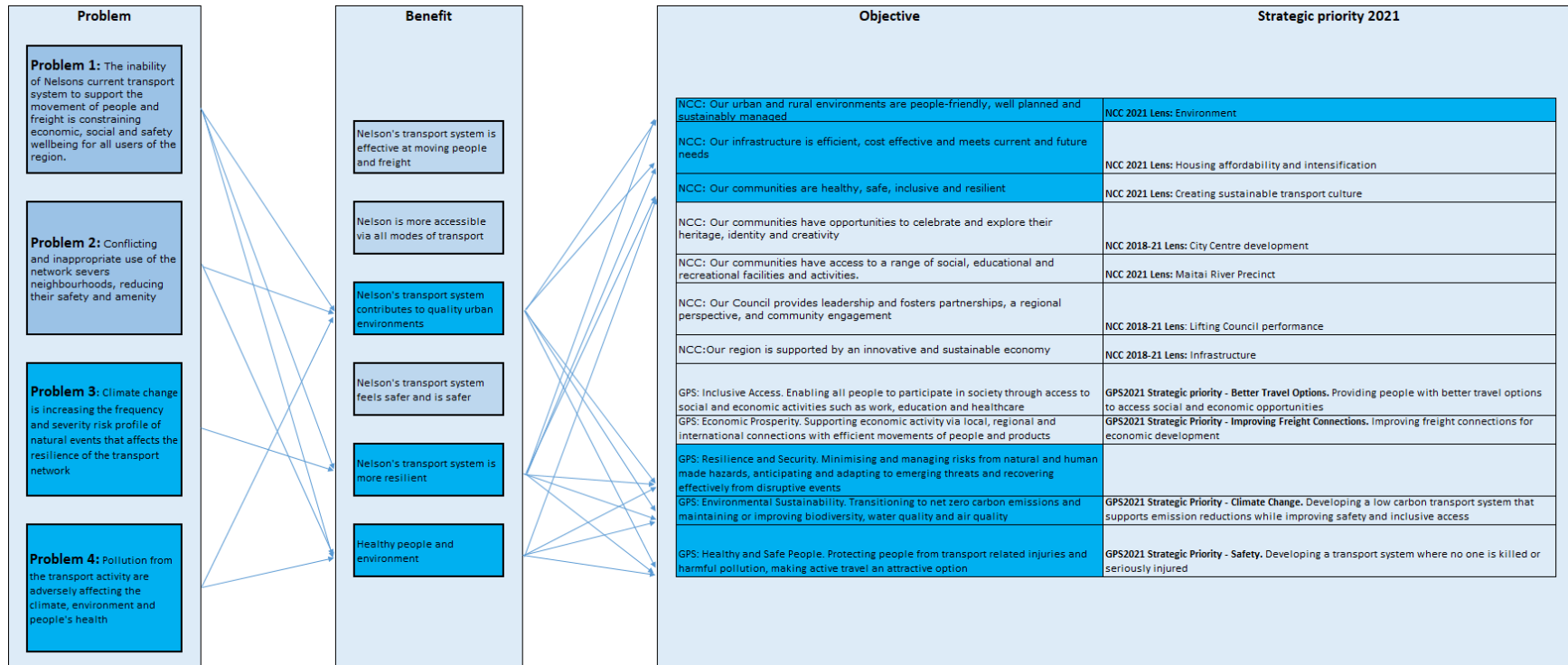
Subsidised activities:

- Drainage for pavement maintenance and resilience, eg subsoil drains and kerbs to prevent edge break and water ingress to the pavement.
- Drainage for road, footpath and cycleway surface water control to ensure safety in wet conditions, eg kerb and channel and sumps, or removal of high shoulders.
- Culverts crossing legal roads which have open channels on either side are roading assets and are subsidised. All other culverts and pipe networks are stormwater assets, and are unsubsidised.
- Large roading culverts crossing legal roads are managed as structures (section 8c).
- Kerbs to separate various transport activities for safety reasons, eg between footpaths and roads.
- Drainage to enable water to pass under a driveway via a side drain.
- Backflow prevention to minimise saltwater flooding of low lying areas during king tides in order to maintain access, eg the Maitai Bridge underpass.
- Stormwater treatment devices to prevent contaminants entering water bodies.
- Backflow prevention to minimise saltwater flooding of low lying areas during king tides.

Unsubsidised:

- Stormwater reticulation. Also see Large Culverts in section 8c of this AMP.
- Drainage to prevent stormwater run-off on the road reserve being a nuisance for adjoining private properties.
- Drainage to enable a driveway to cross a natural waterbody, eg use of a culvert under a driveway to cross a stream adjacent to the road.
- Road sweeping and sump cleaning (30% subsidised).
- Street and seat cleaning in the city centre.
- Rain gardens (also see Environmental Maintenance/rain gardens in section 8d of this AMP).
- Secondary flow path for flood events (also see the 2021–2031 Stormwater and Flood Protection AMP).

Link to Strategic Case — Drainage



### Test Levels of Service – Drainage

Drainage contributes to the ONRC LOS as tabled below.

ONRC LOS	Contribution
Safety	The drainage network contributes toward safe travel by removing stormwater from the paths and carriageway, so that it is not a hazard for road users.
Resilience	Efficient drainage systems contribute to keeping the road pavement dry. This minimises pavement rehabilitation demands. Good drainage facilities also reduce flooding and the risk of road closures during storm events.
Accessibility	A programme of routine maintenance ensures the removal of surface water from carriageways is achieved. This improves the reliability of roads for users travelling to their intended destinations.
Efficiency	Minimise whole of life costs while delivering the required customer outcomes through strategic planning.

Also refer to the Stormwater and Flood Protection AMP. As Nelson predominantly is an urban network, most of the transport network's drainage activity is collected through the Stormwater and Flood Protection network.

### Compile and Test Evidence — Drainage

The data reliability for drainage assets is variable. (Refer Transport Asset and Activity Register in section 3 and Drainage in Appendix B13.) Incremental data improvement and analysis is preferred before committing to an extensive improvement programme (GPS cl 94–95). This also applies to adaptation, mitigation and retreat programmes (GPS cl 152). Poor data quality makes management of the activity difficult, resulting in reliance on reactive operational decisions. This is a whole-of-Council concern for drainage assets and activities, and is covered in the improvement plan.

There are no reported cases of road closures or traffic delays as a result of poor drainage since the 2011 storm event. However, future events of the scale of the 2011 event are now considered more likely (refer 5.24). This is reflected in problem statement 3.

Refer Pavements in Appendix B. Drainage is part of the intervention hierarchy to maximise the use of the existing system before investing in significant pavement renewal programmes (GPS cl94).

Refer Car Park Drainage in section 5.25 for a discussion of drainage issues in the city centre.

Refer Freshwater Improvements in section 5.24. Street sweeping and sump cleaning alone are not expected to achieve the outcomes required by the NPSFM and more improvement is anticipated, to successfully deliver the benefits of addressing problem statement 4.

Drainage provides benefits beyond the transport system, so an unsubsidised programme is also required (GPS cl 112).

### Gap Analysis — Drainage

The drainage systems represent a significant risk to the transportation network, where the cost of repairing the consequences of the failure generally far exceed the value of the

failed asset. Drainage is increasingly being managed to extend pavement life, as water ingress is recognised as a recurring cause of failure for both sealed and unsealed roads.

Many drainage assets are undersized. In addition, sump laterals may be blocked beyond the sump chamber, or located on reclaimed land which settles over time, resulting in ponding of water in storm events. The extent of this problem cannot be confirmed until the data improvement exercise is completed. These issues will be considered alongside the freshwater improvement objectives. Refer Freshwater Improvements in section 5.24 for Council's current processes for drainage management.

Freshwater improvement outcomes are new to the programme since 2018. These reflect the risk of future controls on freshwater quality to meet the NPS. Actions so far include trial of sump filters, that is yet to be assessed, mapping the high volume roads and carparks that contribute most contaminants to waterways, refer Appendix B14, and establishment of a study into existing contamination loads into waterways.

Sump grates can be removed. This creates a hazard in the road space, especially in the cycle path zone. Locked sump grates can be used to address this where their removal is identified as an issue to provide safety benefits required from this AMP. Sump grates are replaced with cycle friendly grates where these intrude into cycle lanes or cycle travel zones of roads.

#### Develop Options — Drainage

Option	Description
Option 1 Sump filters and sump backflow prevention	\$5M for sump filters on all road sumps as per business case in Year 1-3, assuming trial (incomplete due to covid) is conclusive of benefits. Include backflow on sumps in Whakatu Carpark in y4-6.
Option 2 Align with stormwater utilities freshwater programme.	Assume \$5M for sump filters but plan for delivery in Year4-6 and use Years 1 – 3 to work with Utilities to confirm the best network solution and delivery method given most road runoff is a major contributor to pollution in the stormwater network and transport benefits from reduced coastal inundation over a wider area. Work with Utilities for backflow options to prevent tidal inundation of road and pavements in low lying coastal areas. Includes \$200k for options development in y1-4.
Option 3 Combined option 1 and 2.	Assume \$1M for sump filters on high volume roads and carparks (figure B22) in Year 1-3 and use Years 1 – 3 to work with Utilities to confirm the best network solution and delivery method given most road runoff is a major contributor to pollution in the stormwater network. Work with Utilities for backflow options to prevent tidal inundation of road and pavements in low lying coastal areas. Includes \$200k for options development in years 1-4.

**Assessment of Options - Drainage**

<b>Option</b>	<b>Benefits of Option</b>	<b>Negative Consequences of Option</b>
Option 1 Sump filters	Transport only activity to deliver. Clearly defined scope of work. Economy of scale. Earliest delivery programme.	Don't have conclusive trial evidence yet. High ongoing maintenance and renewal costs May result in duplicate systems.
Option 2 Align with stormwater utilities freshwater programme	Allows for options to be confirmed for holistic outcomes. Specialist review of long term options.	Slow delivery of freshwater improvement outcomes. Maintenance and renewal costs
Option 3 Combined option 1 and 2.	Addresses the worst contributors of pollution from the road network. Allows for options to be confirmed for holistic outcomes. Specialist review of long term options.	Slow delivery of freshwater improvement outcomes.  May result in duplicate systems  Maintenance and renewal costs

### Test Options — Drainage

Key to scoring

2 improved  
 1 addressed  
 0 not addressed  
 -1 decreased  
 -2 devalued  
 N not a viable option  
 Y viable option

Work Category	Strategic Response	Option No.	Option	2015-18 Budget LTP	2018-21 Budget (from NZTA T10)	2018-19 Actual	2021-24 Estimated Cost (\$m) (first 3 Year Continuous programmes, first 10 years projects)	Problem Statement 1: Arterial Safety and Capacity	Problem Statement 2: Multi Modal response	Problem Statement 3: Environmental challenges / Resilience	Problem Statement 4 Environmental Improvement	ONRC Safety	ONRC Resilience	ONRC Amenity	ONRC Accessibility	ONRC Cost efficiency/ Value for money	Opportunity Smart City	IAF Results Alignment	Urban Development Growth	Stakeholder Acceptability	Preferred Option	Problem Statement Score Weights	Other MCA Factors score	Total Score
113, 213, 121, 341, CBD and unsub	Drainage	1	Sump filters	1,723,646	904,638	414,609	5,000,000	0	0	0	1	0	0	1	0	0	0	1	0	1	N	2	3	5
		2	Align with Utilities				TBC	0	0	2	2	0	1	1	0	2	2	1	1	2	Y	8	10	18
		3	Combined option 1 and 2.				TBC	0	0	2	2	0	1	1	0	2	2	1	1	2	Y	8	10	18

### Preferred Programme – Drainage

The preferred option is Option 2 – align with Utilities. Option 3 is also acceptable but potentially duplicates some of the alternative options.

WC	Drainage maintenance, renewal and capital expenditure Project ID and Name		2018–21 LTP	2018–21 Approved WAKA KOTAHI	2018–19 Actual Expenditure	Funding request			Annually Years 4–10
						2021/22 (inflated)	2022/23 (inflated)	2023/24 (inflated)	Annually, (uninflated)
113	0121	Condition Assessments	0	0	0	10,000	10,000	10,000	10,000
113	0121	Routine drainage maintenance	319,527	320,208	123,525	80,000	82,320	126,600	120,000
113	0121	Street sweeping and sump cleaning (30%)	122,659	123,080	44,981	70,500	72,545	74,378	70,500
121		Freshwater treatment devices maintenance	26,948	0	0	0	0	0	To be considered in 2024
151	1173	Freshwater drainage improvement programme (Opex)	26,948	N/A	0	50,000	51,450	52,750	50,000
341	7960	Freshwater and backflow improvement	0	0	0	0	0	0	5,000,000 Y4-6 TBC
213	1538	Drainage renewals	459,972	461,550	375,149	160,050	164,852	169,138	160,050
CBD	0457	Maintenance: CBD street sweeping	241,028	N/A	97,778	98,000	100,842	103,390	98,000
CBD	0458	Clean AC footpaths	60,553	N/A	141,006	147,000	151,263	155,085	147,000
Unsub	0409	Street and sump cleaning (70%)		N/A	178,365	164,500	169,271	173,548	164,500
Unsub	7960	Drainage improvements incl freshwater (Capex)	0	N/A	7,319	90,000	154,500	42,271	40,000

These numbers were correct on the date of publication, and will not include any subsequent changes.

### Capital Works — Utilities Drainage Improvement Programme

There is a substantial Utilities drainage programme affecting arterial roads. There is opportunity in the traffic management to trial alternatives and traffic demand practices.

Harley Street has historic timber kerbs that Waka Kotahi and Heritage New Zealand consider nationally significant. Waka Kotahi support retaining heritage in accordance with their guidance:

- <https://www.WakaKotahi.govt.nz/about-us/about-the-nz-transport-agency/environmental-and-social-responsibility/people-and-places/culture-and-heritage/>
- <https://www.WakaKotahi.govt.nz/assets/consultation/cultural-heritage-effects/docs/guide-to-assessing-cultural-heritage-effects-draft.pdf>

If works are agreed to retain and protect the kerbs, these will be delivered through the LCLR programme.

### Procurement – Drainage

- Subsidised and unsubsidised drainage maintenance and renewals, including cleaning of freshwater treatment devices, are managed through the road maintenance contract and/or the Utilities maintenance contract, as appropriate;
- Freshwater improvement business case development will be led by the Utilities team.
- No significant improvements are expected in the 2021-24 period requiring detailed design and tendering as drainage projects.
- CCTV camera inspections of the sump laterals are carried out through the Utilities maintenance contract;
- Staff assess the data, with specialist input where and when required, engaged through the professional services panel; and
- The utility upgrade projects are likely to be tendered. Any transport improvements would be tendered with these projects. The scale of subsidised investment needs to be considered to determine whether Waka Kotahi procurement process is required in the tendering and evaluation process.



**Risks — Drainage**

The following risks have been identified in relation to drainage.

Risks — Drainage						
Refer Network and Asset Management for further overarching risks and controls Refer Appendix N for Risk Matrix						
Identification		Analysis: Residual Risk			Response eg Accept Reduce Share	Treatments
Event	Consequence	Existing Controls	Consequence	Likelihood		
New or increased controls to meet new freshwater guidelines	Increased demand for time, cost and quality.	Global consent	3	5	High (15)	Reduce Investigation of options, coordination with Stormwater (SW) activity.
Poor network resilience to storm events	Unplanned road closures.	Emergency response	3	3	Medium (9)	Reduce Nelson Plan, ONRC, Maintenance intervention strategy (MIS) for response scenarios.
Secondary flow paths, affecting pavements and emergency traffic management	Unplanned road closures.	Emergency response	3	3	Medium (9)	Reduce Mapping secondary flow routes, coordination with SW and MIS.
Inadequate road drainage	Flooding, pavement damage and increased maintenance costs.	Drainage improvement works	3	4	High (12)	Reduce Coordination with SW drainage improvement works
Inadequate design or no kerb, channels and sumps	Flooding, pavement damage and increased maintenance costs.	Drainage improvement works	3	4	High (12)	Accept Accept while freshwater outcomes, and environmental response options are investigated.

### Develop Improvement Plan

The following actions have been identified for improvement with regard to the drainage activity.

Reference	ONRC Pillar	Description	Timing	Who
D1	Service Delivery	Develop freshwater improvement outcomes and monitoring framework.	June 2023 for 2024–27 AMP	Utilities, Environment & Science, Transport, Planning
D2	Evidence	Improved drainage asset data quality and ownership records.	June 2023, for 2024–27 AMP	Transport, utilities and GIS
D3	Evidence	Improve condition knowledge of pipework connected to sumps, CCTV for condition, and clearance.	June 2025 for 2027–30 AMP	Transport and utilities
D4	Systems	Map the secondary flow paths (from Utilities) to inform emergency traffic management and pavement programmes.	June 2021	Transport and utilities
D5	Evidence	Gain understanding of the climate change impacts for the Nelson region and what adaptation, mitigation and retreat scenarios are supported.	Nelson Plan consultation	Climate change champion and planning

### GPS Alignment Self-Assessment

See 8.2(k) Network and Asset Management.

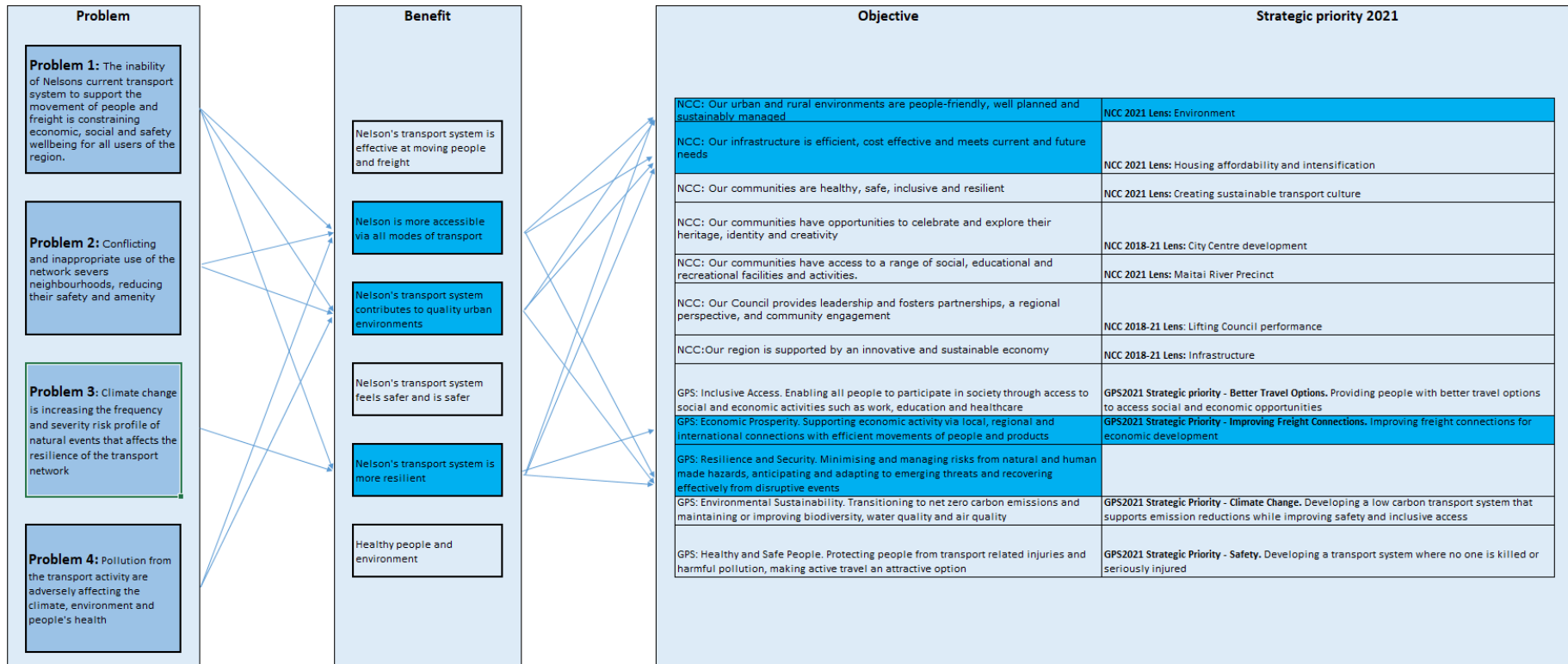
### C) Structures

Structures are affected by Problem Statements 1 – 4. The programme identified subsidised and unsubsidised ownership parameters. The programme will be increasingly affected by the Structures on Road Reserve Policy to identify ownership of “private walls”, freshwater improvement programmes and climate change effects. The programme is for status quo management of the structures assets.

Structures are used on the road network to respond to natural forms and allow passage by vehicles, freight and people. The 2018 AMP addressed the problem statement “A backlog of renewals is contributing to an increase in maintenance costs and poor network resilience”. The uncertain condition and performance of retaining walls, large culverts and handrails and safety barriers was a focus of this problem statement. Work was completed in 2018–21 to understand the network’s structures, which has resulted in an improved forward works programme.



Link to Strategic Case — Structures



### Test Levels of Service — Structures

ONRC LOS	
Safety	Structures contribute to safety outcomes where they are designed to minimise the secondary impacts of personal errors. Nelson does not currently have any guardrails but these cannot be precluded in future. Handrails, safety from falling barriers, and vehicle crash barriers all contribute to safety outcomes. In addition, structures need to be managed to prevent them being a safety concern for any user. A programme of routine, regular and detailed inspections of structures is in place, and is initiated at industry-accepted frequencies. Fault identification and prioritisation ensures safety-related defects are located and a prompt response is initiated.
Resilience	Preventative maintenance activities on structures are identified and evaluated. They are initiated where this has been determined to be the best whole of life option.
Amenity	Management of faults on structures that detract from the customer experience is achieved through appropriate inspections and interventions.
Accessibility	Monitor the proportion of the road network which is accessible for larger vehicles. Assess what limitations related to structures contribute to these results. Establish what can be done to improve accessibility to the transportation network for larger vehicles.
Efficiency	Minimise whole of life costs while delivering the required customer outcomes through strategic planning.

Refer 5.26 for details on how LOS are assessed for structures.

### Compile and Test Evidence – Structures

#### Bridges and Large Diameter Culverts

Refer Structures in section 5.26. The bridge and large culvert stock is generally in good condition.

Programmed condition inspections in accordance with Waka Kotahi S6, and assessment against the LOS measures above, inform the remaining life table shown below. This is then assessed against risk acceptability to determine an intervention programme and/or to recalibrate the remaining life. Works are scheduled for the bridges with less than 10 years of remaining life, as detailed below. A further five footbridges with 10 year of remaining life will need review in the 2021–31 period. Gravel accumulation and scour are the two most common maintenance defects for bridges and large culverts, followed by minor structural or concrete defects.

Many bridges have hollow section handrails, and recent maintenance works have identified that these are rusting from the inside. The 2021 principal bridge inspections will be used to quantify the number of bridge handrails potentially affected to undertake detailed assessment.

Some pedestrian bridges that were previously managed as Parks facilities have been included in the Transport programme due to their contribution to the urban walking/cycle network for commuters and travel function, and acceptance of walking facilities into the Waka Kotahi subsidised programme.

### **Large Diameter Culverts (Utilities)**

Refer Structures in section 5.27.

To date, structural capacity assessments have been desktop exercises, so inspections are required to validate the capacity assessments. The large Utilities culverts are particularly problematic to inspect because of health and safety issues associated with confined spaces. The Haven Road/St Vincent Street culvert is known to be in poor structural condition and is assessed annually.

### **Saltwater Intrusion**

There is a common theme to many of the bridge and culvert repairs and identified faults – the saltwater mixing zones of the rivers and streams is corrosive to old concrete, which affects the steelwork and structural integrity of the structures. Failure of these faults can be difficult to detect, requiring ongoing inspections and specialist assessments. This needs to be taken into account when determining the risks and potential climate change scenarios (adaptation, mitigation or retreat).

### **Retaining Walls**

Refer Structures in section 5.27.

The 21 walls with a 1–10year remaining life have been assessed and are listed in Appendix J.



### **Private Retaining Walls and Structures**

Refer to Structures in section 5.26. There is poor understanding of the quantity and condition of private retaining walls and structures on the road reserve, or liability responsibility. Policy development is underway to start addressing this issue. Significant consultation is expected to be required.

### **Handrails**

Handrails are assessed in accordance with Waka Kotahi:S6. Council has good confidence in the data.

### **Unsupported Banks**

Refer to Structures in section 5.26. There is poor data availability for unsupported banks in the road corridors, including banks that support roads, and banks above roads that are at risk of subsidence onto the road.

One unstable unsupported bank has been identified, to be as a result of historic road widening works, for a retaining wall and scheduled for years 4–5 at 353 Brook Street, with review in Years 2–3, prior to the 2024 LTP. Exact options and outcomes maybe influenced by the structures on road reserve policy.

### **Data**

Bridge records are maintained in OBIS. This includes detailed inventory, inspection records and condition assessments.

All structures data was updated in RAMM in 2020. Having these records in RAMM allows the superficial inspections and maintenance records to be recorded against the assets and monitored. This significantly improves condition and function data and forward planning capability. These changes are allowing a shift from reactive maintenance to forward planning.

## **Gap Analysis – Structures**

### **Bridges and Large Diameter Culverts**

The bridge stock is generally in good condition, based on the last recorded inspections, with only minor maintenance works required at most sites. Confidence in the data will be sustained by the inspection and assessment programme, which aligns with Council's objective of improved Council performance, and the Waka Kotahi and Council objectives of good data and evidence-based asset management systems. Replacement of the Trafalgar Centre Footbridge is the significant work planned for the 2021–24 period to retain pedestrian/cycle access to Haven Road to address problem statement 2.

The provisions in the future Nelson Plan, and the National Policy Statement for Freshwater Management (NPSFM) to come into force in 2020 will influence the methodology, frequency and cost of maintaining waterways, especially where gravel accumulation is a frequent problem.

Objectives for multimodal transport systems (in the GPS and Council's priorities) are challenging at many bridge and large culvert sites where there is poor provision for

pedestrians and cyclists. This can include historic footbridges that now cater for cyclists as well as pedestrians. Alterations to bridges and structures (when the existing design allows) can be expensive, so remain a constraint if they cannot be economically justified as value for money. This may become a limitation, or cost, in future for the multimodal outcomes desired for the transport system.

### **Freight**

State Highway 6 is the primary route, and only preferred route, for heavy traffic through Nelson. However, it is a single route and prone to emergency events that close the road. The structures on the alternative route via Main Road Stoke, Waimea Road, Rutherford Street and Haven Road have been confirmed as suitable for HPMV in the event of closure of the State Highway, to address problem statements 1. Work to strengthen the Poorman Creek culvert on Main Road Stoke in 2020/21 has completed this alternative route. This is not an approved HPMV route when SH6 is open, to address problem statement 2.

### **Retaining Walls**

Refer Structures in section 5.26.

Retaining walls above the road are of low significance for national funding because the risk to the resilience of the road network is low. That is because slip material can generally be removed efficiently before it causes significant traffic delays. (However, the impact of any delay is more notable for higher order ONRC classifications due to increased traffic volumes, lifeline connections, and for single access routes.) Walls above the road generally benefit the property above the wall more than the road. Where Council owns walls above the road, these are unlikely to attract co-funding because they have benefits beyond transport (GPS cl 122). For this reason, these will be managed as unsubsidised assets, unless otherwise agreed with Waka Kotahi. Council may accept more risk on these structures to meet budgetary constraints. A programme is developed and presented in Appendix J.

The defects requiring attention as at 2018/19 have been identified under WC114 for retaining walls and other structures. Of 398 roading retaining walls, 247 require maintenance.

Rock rip rap or a similar coastal/river, defence for the road network is managed as a structure, particularly when it provides resilience to freight routes and/or major regional economic contributors (GPS cl 66). Akersten Street rock repairs will be undertaken as component replacement. Up to 30% of new rock/materials is required (for the existing face area), including restacking existing rock.

### **Private Retaining Walls and Structures**

Private walls are a risk to the Transport activity — they are a potential safety risk in the event of failure in a public place, and a financial and legal risk in the event of an ownership challenge from an adjoining landowner. The Structures on Road Reserve Policy (refer section 5.26) will guide decision making related to future private walls, but a legacy of existing walls remains.

In the absence of confirmed data, the following process is used: When a wall or structure is queried by a landowner, it is assessed against known infrastructure and building consent



records. If there are no Council records of construction of the wall, and the nature and style of the wall does not reflect Council’s standard construction, the wall or structure is assumed to be privately owned. Where possible this is followed up with formalisation of the private structure on road reserve. If a wall or structure is identified as ‘unsafe’ this is investigated in consultation with the adjoining landowners to determine safety, options and liability, and a forward works plan which could include removing the wall in favour of a batter or unretained slope.

**Handrails**

Refer Structures in section 5.26, and extra evidence in Appendix B12.

Rocks Road has historical chains and bollards on the seawall which are maintained as a handrail (unsubsidised). These are inspected annually, prior to the summer holiday season, and maintenance and renewals are undertaken at this time. There are no bollards remaining in stock, and a bulk order is required to sustain the integrity of the historic feature. Failure to have bollards in stock will result in non-conforming posts being used, if these are required to support the chains.

**Disposal Plans**

Removal of retaining walls above the road is considered to be an option when assessing renewal or replacement at end of life. This assessment and decision needs to be undertaken in consultation with the affected landowner/s. Disposal or improvement of walls is also considered against the GPS priority to invest in renewals that support urban form (GPS cl 143).

Investigation actions for retaining walls include monitoring the walls identified through the principal inspection, and ongoing investigation into private structures on road reserve.

**Develop Options – Structures**

Because of the access and resilience component of the structures assets, only one package will be assessed over the next three year period, to sustain the current inspections, maintenance and component renewal package. Improvement works are discretionary, and each renewal is assessed through business case process.

<b>Status Quo Package</b>			
	Option Description	Benefits of Option	Negative Consequences of Option
Status quo  Current forward works programme	Ongoing inspections, maintenance and component replacements. Acknowledgement that some structures are a low priority for Waka Kotahi so their replacement is not subsidised.	Best balance of inspection, maintenance, renewal and improvement in the short term. This option maximises the benefit of the recent efforts to improve the data quality and condition assessments of structures, and the Code of Practice and global consent to progressively improve the	Ongoing programme does not address carbon emissions, and environmental concerns.  Retaining walls above roads have decreased significance for transport reasons, so there is potential increased risk

		environmental impacts of works.	for properties above these walls.
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Preferred Programme — Structures

Key to scoring

2 improved  
 1 addressed  
 0 not addressed  
 -1 decreased  
 -2 devalued  
 N not a viable option  
 Y viable option

Work Category	Strategic Response	Option No.	Option	2015-18 Budget LTP	2018-21 Budget (from NZTA T10)	2018-19 Actual	2021-24 Estimated Cost (\$m) (first 3 year Continuous programmes, first 10 years Projects)	Problem Statement 1: Arterial Safety and Capacity	Problem Statement 2: Multi Modal response	Problem Statement 3: Environmental challenges / Resilience	Problem Statement 4: Environmental Improvement	ONRC Safety	ONRC Resilience	ONRC Amenity	ONRC Accessibility	ONRC Cost efficiency/ Value for money	Opportunity Smart City	IAF Results Alignment	Urban Development Growth	Stakeholder Acceptability	Preferred Option	Problem Statement Score Weighted	Other MCA Factors score	Total Score
114 & 215 & 341	Structures	1	Ongoing structural inspection programme. There after fund a timely but proactive capital works programme to replace components and structures as their condition is assessed as requiring intervention.					1	0	0	0	2	2	1	1	1	0	1	0	1	Y	2	9	11

The preferred programme is the status quo package. Expenditure for the period 2021/22 to 2023/24 is outlined below.

Structure maintenance, renewal and improvement expenditure		Project ID	2018–21 Council Budget	2018–21 WAKA KOTAHI Approved budget	2018/19 Actuals	Funding requested			Average budget Y4-10 uninflated
WC						2021–22 inflated	2022–23 inflated	2023–24 (inflated)	
Bridge and culvert maintenance	114	0122	961,279	997,826	428,412	142,819	147,643	289,227	145,000
Retaining wall maintenance	114	0122			88,906	40,000	41,160	50,993	48,335
Other structures maintenance	114	0122			0	22,335	22,983	23,563	22,335
Opermit	151	0117	387,281	See WC151	11,424	15,000	15,435	15,825	15,000
Structure inspections	151	0117		See WC151	138,969	170,000	154,350	189,900	150,000
Structure component replacements	215	3038 3039 3125	1,284,718	1,059,192	253,939	535,000	56,650	58,123	65,000
Structure replacement	216	2980				65,000	212,180	636,182	400,000
Structure replacement	Unsub	3339	0	N/A	0	60,000	103,000	634,068	835,000
Consent Conditions	Unsub	3291	0	0	0	5,750	5,917	6,066	5,000
Identify private structures on road reserve	Unsub	2789	0	N/A	0	0	0	0	20,000

(Refer unsubsidised structure replacement for Rocks Road bollards, which are maintained as a structure.)

These numbers were correct on the date of publication, and will not include any subsequent changes.

### Site Specific Works — Forward Works Programme

Renewal of Akersten Street rock protection, replacement of the pedestrian cycle bridge between Haven Road and Trafalgar Centre, and Coster Street timber crib wall are specific works planned in 2021-24. Low cost low risk (LCLR) improvements, component replacement and significant improvement investigations which are to be considered in the next five years are listed in Appendix I and J.

## Risks

Specific risks to be managed for the structures activity are outlined below.

Risks — Structures							
Also refer to the Network and Asset Management section which has overarching risks							
Identification		Analysis: Residual Risk				Response eg Accept Reduce Share	Treatments
Event Description	Consequence	Existing Controls	Consequence	Likelihood	Current Risk		
Adapting processes to include carbon and environmental concerns	Premature structure failure or abandonment.	Inspection, maintenance, component replacement and timely capital works programme.	4	4	High (16)	Reduce	Nelson Plan, Maintenance Intervention strategy for response scenarios, business cases
Bridges constrain waterways for flood events	Flooding or bridge damage.	Inspection, maintenance, component replacement and timely capital works programme.	3	3	Medium (9)	Reduce	Coordinate with SW programme
Increasing severity of natural events	Catastrophic damage to bridge structure. Prolonged road closure.	Inspect in accordance with Waka Kotahi:S6.	5	3	High (15)	Reduce	Nelson Plan, MIS for response scenarios, business cases
Transfer of private walls to Council ownership as a result of investigations	Increased budgetary demands for maintenance and renewal.	Communicate and negotiate with private structure owners to accept and manage their assets and liabilities.	4	3	High (12)	Reduce	Policy review of road reserve encroachments, and structures on road reserve. Investigate private structures on road reserve.
Requests for new HPMV routes	Structure upgrades or limited HPMV access.	Decline applications that have structure limitations.	3	3	Medium (9)	Share	Decline applications that have structure limitations.
Multimodal demands on existing structures	User conflicts.	Communicate	2	3	Medium (6)	Monitor	Monitor to identify sites and future improvement criteria.

Unknown extent of ageing concrete, affecting the structural integrity of structures, especially in the marine environment	Catastrophic damage to bridge structure. Prolonged road closure.	Inspect in accordance with Waka Kotahi:S6.	5	3	High (15)	Reduce	Principal inspections on all structures and ongoing inspection programme.
Changing conditions between detailed inspections	Catastrophic damage to bridge structure. Prolonged road closure.	Inspection and maintenance programme.	5	3	High (15)	Manage	Deliver inspection and maintenance programme.
Vehicle crash damage	Road closure and chemical/load spill clean-up. Pollution of watercourse.	Emergency response.	3	3	Medium (9)	Accept	Emergency response
Increased traffic loadings	Increasing vehicle loading limits put additional stresses on bridges and culverts.	Desktop structural assessment when loading rules are changed, and posting of bridges that do not accommodate new loadings.	5	3	High (15)	Reduce	Include loading data and demand structural maintenance and renewal programme, so under-capacity bridges and culverts are identified and monitored.
Structures at end of useful life	High inspection and maintenance costs and risk of premature/seismic failure.	Inspect in accordance with Waka Kotahi:S6.	5	3	High (15)	Reduce	Ongoing inspection and maintenance programme. Plan for renewal.
Structural failure due to earthquake or landslide	Unplanned road closure.	Inspection, maintenance and renewal programme.	5	3	High (15)	Reduce	Ongoing inspection and maintenance programme. Plan for renewal.
Inadequate design	Damage to retaining wall.	Design to comply with Building Control Act requirements.	4	3	High (12)	Reduce	Adequate design and budget to comply with Building Act requirements and site constraints.

Ownership of retaining walls	Unknown liability where a wall is not registered as a roading asset, and legal issues where a resident is unaware that they have responsibility for a retaining wall.	Current programme to identify all road retaining walls and condition assessments.	4	4	High (16)	Share	Policy review of road reserve encroachments, and structures on road reserve. Investigate private structures on road reserve.
Inadequate barriers or handrails	Personal injury	Inspect in accordance with Waka Kotahi:S6.	4	3	High (12)	Reduce	Inspection of inventory, ongoing monitoring and maintenance programme.
Bank instability below Mary Ann walkway	Path failure. Affect on neighbouring property	Neighbouring property building/resource consent conditions	3	3	Medium (9)	Reduce	Budget in LTP to build wall along road edge to support bank.
Bank instability at #353 Brook Street	Loss of driveway above the road	Monitoring.	3	2	Medium (6)	Reduce	Inspection and inventory and ongoing monitoring and maintenance programme

### Procurement — Structures

Routine maintenance, routine superficial inspections, structure component replacement, new and replacement handrails	Road maintenance contract.
Poleford Bridge maintenance	Tender a site specific maintenance project
Retaining wall replacement	Tender as site specific projects.
Major bridge component replacement, new or replacement bridges	Tender as site specific projects.
Routine and detailed structural inspections	Professional services panel.

### Develop Improvement Plan — Structures

Ref	Improvement Action	Priority	REG Pillar	When	Who
S1	Validate structural assessment of large diameter stormwater culverts (Utilities)	1	Evidence	Pick 1 or more site per year to suit budget. Ongoing programme.	NCC, consultant and Utilities operator

S2	Include loading data and demand the structural maintenance and renewal programme, so under-capacity bridges and culverts are identified and monitored	2	System	Before next maintenance contract	NCC
S3	Quantify and assess hollow section bridge handrails, for structural integrity against rusting from inside	4	Evidence	2021-24	Structures supervisor and Structural inspection consultant
S4	Identify and assess private structures on road reserve	3	Evidence	10 year period	NCC Legal, Property and Transport
S5	Update Road Reserve Occupation Policy, especially for structures on road reserve	1	Systems	Dec 2021	NCC Legal, Property and Transport
S6	Develop a plan for assessing and monitoring unsupported slopes	2	Evidence	10 year period	Engage consultant
S7	Staff resources: Only one member of staff with the skills required to supervise inspection, maintenance and renewal programme (who could retire within this AMP period)	1	Resource	2024	Manager Transport and Solid Waste
S8	Improve environmental and carbon outcomes from structures programme	1	Systems	Ongoing	NCC
S9	Improve environmental and carbon outcomes from structures improvement/capital programme	1	Systems	Project by project	NCC
S10	Better identification of unsubsidised structure inspection and maintenance budgets, separate from unsub road maintenance	1	Systems	2022 for next AMP	Transport Asset Management and accounts

### GPS Alignment — Structures

See 8.2(k) Network and Asset Management.

### D) Environmental Maintenance

Environmental maintenance is particularly affected by Problem Statements 4. The preferred programme includes additional budget to address health and safety for service delivery, roadside safety, shifting abandoned vehicles to the subsidised programme, more trees, improved freshwater outcomes and status quo of winter maintenance, amenity and the stock effluent facility.

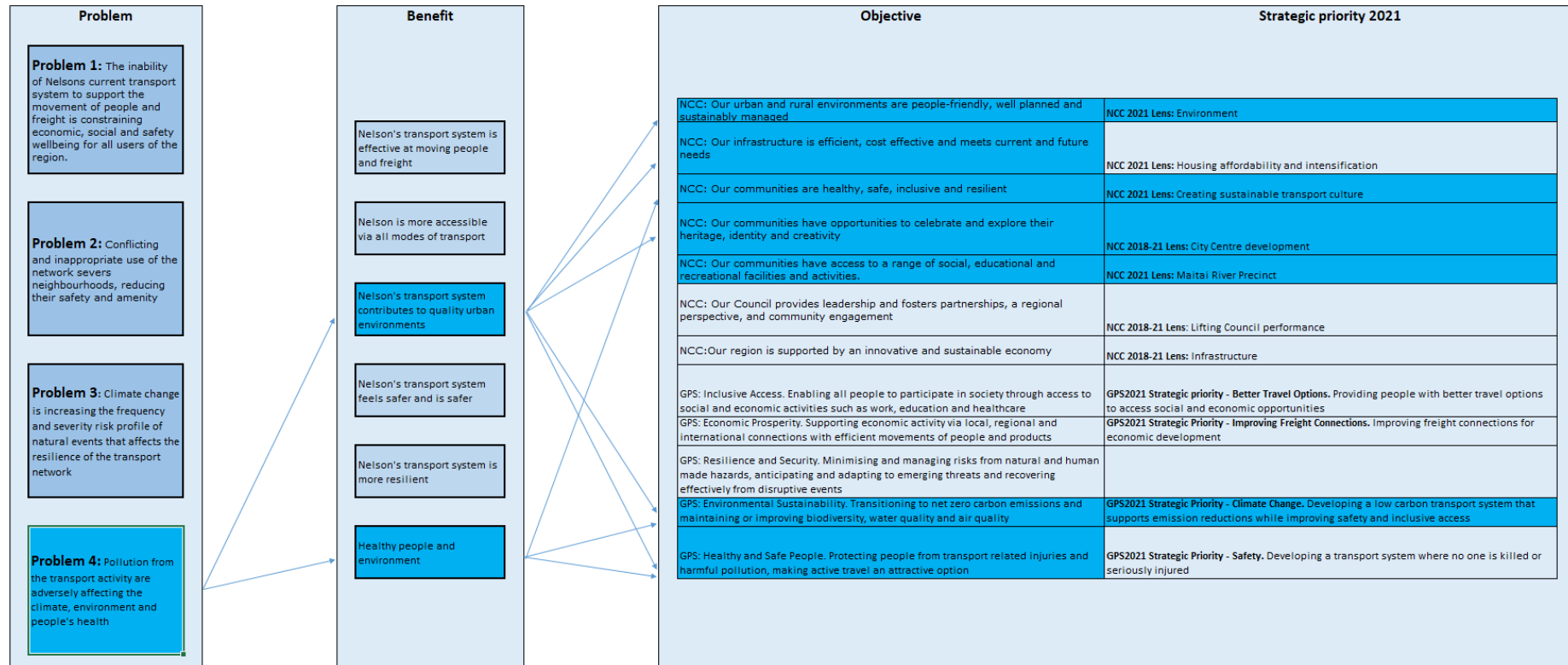


Environmental maintenance covers:

- Measures for winter driving conditions (grit spreading);
- Litter (rural roads) and graffiti removal;
- Operation and maintenance of the stock effluent disposal facility;
- Special treatment of road run-off to improve water quality;
- Removal of loose material from crash events, slips, and non-recovered costs of abandoned vehicles (detritus);
- Vegetation control. In urban areas, grass cutting to lawn standard, or maintenance of alternative, low cost ground cover treatments in median and traffic islands, are eligible for Waka Kotahi co-funding. In rural areas maintenance and sufficient grass cutting of roadside berms and unsealed shoulders to ensure adequate visibility, general safety, drainage, and the elimination of fire hazards or pest refuges are eligible for Waka Kotahi co-funding. All other vegetation, planting and street tree maintenance, renewal or improvement are unsubsidised activities.

**Link to Strategic Case — Environmental**

Environmental activities and assets address the problem statements, contribute to the benefits and achieve objectives of the strategic case, as shown below.



### **Test Levels of Service**

Good management of the environmental activities and assets deliver the ONRC customer levels of service of safety, resilience, accessibility and efficiency. There are no specific performance measures to track these.

Environmental activities and assets contribute more to Council objectives than to GPS outcomes. For this reason, many of these activities are funded through unsubsidised accounts.

Winter maintenance activities are supporting the levels of service because there are few ice-related crashes. There was one in 2016, and one in 2018, which were the first since 2009 (refer A820297). The occasional service requests for additional work indicate the LOS is not too high.

Nelson has an intersection safety problem (refer safety evidence), as a consequence of problem statement 1. Review of sightlines at intersections could result in additional vegetation trimming to support Road to Zero targets as a component of reducing the intersection crash rate to contribute to safety and mode shift benefits.

The stock effluent facility is part of a network in the Top of the South supported by Waka Kotahi and the three councils (Marlborough, Tasman and Nelson). It contributes to LOS on the wider regional network and benefits of addressing problem statements 1 and 4.

Levels of service and performance measures are under development for carbon emission reduction programmes, and for freshwater improvements (NPS for Freshwater Management) for which vegetation cover provides benefits to address problem statements 2, 3 and 4.

The subsidised and unsubsidised environmental programmes support the walking and cycling programmes by providing high levels of urban amenity, clean, well maintained green spaces, no graffiti, longevity of trees and healthy, safe trees. A level of service and performance measure may result from Council's development of the Vegetation Management Policy for the provision and maintenance of trees and gardens in public spaces. This is currently being prepared and will be referenced in the 2024 AMP.

### **Compile and Test Evidence**

#### **Abandoned Vehicles**

Approximately 20 abandoned vehicles are removed each year. Costs are recovered where possible. Variables which influence the number of abandoned vehicles include the price of steel, price of fuel and economic vibrancy, which are all outside the immediate control of Council. There is currently no impact, or cost transfer, to Waka Kotahi.

#### **Litter**

Litter and graffiti are addressed on a responsive basis. This generally a small concern for the transport activity in Nelson.

#### **Vegetation**

Vegetation along 390km of the transport network is maintained for sightlines, and trimming envelopes. In addition vegetation control is undertaken on the State Highway where this is specified in the boundary agreement.

Vegetation, healthy and safe trees, and long-lived landmarks are an important component of the urban environment, and is an important contributor to creating an inviting environment for intensification, mode shift, and to offset transport effects for climate change, thus addressing problem statements 1-3. Vegetation is an important tool for shade to cool road surfaces and water runoff, addressing problem statement 4. Vegetation also helps make road environment feel more constrained therefore help reduce speeds, addressing problem statement 2.

Mature street trees are maintained where possible, in favour of renewal (replacement) due to the infrastructure protection zone clearances required for new plantings. Replacement trees cannot always be planted in the same place due to infrastructure laid through the tree roots.

Council encourages urban property owners to maintain their own frontages, as provided for in clause 355 of the Local Government Act 1974. Council is however required to trim vegetation clear of telecommunication wires in road reserve when requested by utility authorities as required by the Telecommunication Act.

A Council policy review of the provision and maintenance of trees and gardens in public spaces, including in road reserve, is underway and will inform the 2024 AMP.

The vegetation control contract is affected by the Waka Kotahi/MOT Road to Zero Road Safety Action Plan, which includes work-related road safety. Council has a responsibility (as principal) to ensure safety systems are resourced to meet traffic management and health and safety requirements of vegetation management in road corridors. The vegetation control contract is a performance based contract with the performance criteria set within the contract.

### **Hanging Baskets**

Approximately 600 hanging baskets are hung in the city centre each summer. Concerns are developing about safe access to shop verandahs to maintain irrigation for the baskets, and the streetlight pole arms, used to hang baskets, have fatigued. The hanging baskets contribute to city centre amenity during the summer season, and are well supported by the public and businesses, but work is required to maintain the current LOS. This is an unsubsidised activity.

### **Gap Analysis — Environmental**

Stormwater run-off from road surfaces a cause of problem statement 4. Council is committed to improving freshwater quality, and this is mandated through the NPS for Freshwater Management to address this. (Refer to the drainage section 8.2(b) for details.)

The stock effluent facility has pumps, pipework and telemetry, so is maintained through the Infor system. There are gaps in the asset system — the stock effluent facility is remote from Nelson's geographic area, and only one operations person has access to, and the capability to, operate the monitoring systems. The operation of the facility is provided through a variation to Council's Utilities contract, for reasons of compatibility of skills and contract rates. The facility needs to be included in any future retendering of this Utilities contract.

Council holds a resource consent for the application of weed spray through the vegetation control contract. A new consent application has been lodged. Use of chemical sprays is being questioned, with increasing awareness of the negative effects, which is making this consent more difficult to obtain. Alternatives such as steam have been trialled in the past, but until systems are available that deliver the extent of weed control required for this contract, this option remains unviable. In the future, who owns the consent for weed spray applications should be tested, as this may help drive change in process and reduce Council liability for meeting consent conditions.

Vegetation control is undertaken through the landscape and vegetation control contracts. These are ongoing contracts across the Parks and Transport vegetation control programmes. This contract has not been competitively tendered for many years. It is not considered to affect the Waka Kotahi work components because these are of a very small scale. As these contracts are historic, they pre-date many health and safety provisions, such as the requirements in the code of practice for temporary traffic management (CoPTTM). This is now affecting levels of service (which would need to drop to remain within budget), health and safety (risk to workers and the public if trees and sightlines are not maintained, affecting Road to Zero outcomes), compliance (Corridor Access, Traffic Management, and the resource consent) and financial outcomes (increased costs). These are addressed in the options below.

Rain gardens are an increasing feature in subdivisions to address the quality of stormwater run-off from road surfaces. Rain gardens are more intensive to maintain than traditional piped stormwater systems or gardens managed by the Transport activity. As the substrate and drainage fields are a component of the design, they require a level of maintenance that standard gardens do not require.

#### Options — Environmental

Develop Options	Option Description	Benefits of Option	Negative Consequences of Option
1. Status quo	No change to current provisions.	No changes to contractual provisions.  Change is enforced by budget constraints.	LOS for vegetation control will drop as compliance, safety and consent costs are absorbed into current budgets and contractual arrangements.
2. Safety improvements	Survey and condition assessment of all intersections to achieve appropriate sightlines where possible. Increase vegetation control provisions to improve worker safety and compliance.	Safety improvements at intersections.  Health and safety compliance.  Framework against which to measure and maintain sightlines for the future.	Additional costs.
3. Recover abandoned vehicle costs	Cost share with Waka Kotahi for non-recoverable abandoned vehicle costs.	Lower burden of non-recovered abandoned vehicle costs.  Cost share provision is in place if the rate of abandoned vehicles/non-recovery of costs was to increase due to an economic downturn and/or changes in the way people travel.	Administration resources and the processing costs of claiming cost share from Waka Kotahi.
4. Waste Minimisation	Establish incentives for responsible disposal of	Reduced environmental risk of contamination etc from abandoned vehicles.	High set-up and administration costs.

	surplus and unsafe vehicles.	Reduced resources and costs of evidencing and retrieving abandoned vehicles.	Retrieval of costs from recycling variables. These prices are affected by markets such as steel prices.
5. Improved water quality	Special treatment of stormwater run-off from roads to improve water quality.	Supports drainage improvements to achieve improved freshwater outcomes.	Refer 8.2(b) Drainage. Investigations are not yet complete to determine the best approach to achieve these outcomes.
6. More trees	Plant more trees and street gardens.	Supports mode shift and quality urban environments.  Mitigates effects of carbon emissions to improve the health of people and the environment.	Road space allocation is already challenging, so this could be difficult to deliver.  High cost of underground preparation works could show little benefit in relation to new trees above ground.  Roadside hazard risk with large trees

Test options — Environmental

Key to scoring

2 improved  
 1 addressed  
 0 not addressed  
 -1 decreased  
 -2 devalued  
 N not a viable option  
 Y viable option

Work Category	Strategic Response	Option No.	Option	2015-18 Budget LTP	2018-21 Budget (from NZTA TIC)	2018-19 Actual	2021-24 Estimated Cost (\$m) (frst 3 years Continuous programmes, frst 10 years Projects)	Problem Statement 1: Arterial Safety and Capacity	Problem Statement 2: Multi Modal response	Problem Statement 3: Environmental challenges / Resilience	Problem Statement 4: Environmental Improvement	ONRC Safety	ONRC Resilience	ONRC Amenity	ONRC Accessibility	ONRC Cost efficiency/ Value for money	Opportunity Smart City	IAF Results Alignment	Urban Development: Growth	Stakeholder Acceptability	Preferred Option	Problem Statement Score Weighted	Other MCA Factors score	Total Score	
WC121	Environmental	1	Status Quo	3,028,122	1,075,823	1,401,947	3,095,509	1	0	1	0	1	1	1	1	1	0	1	0	1	Y	4	7	11	
		2	Safety Improvements				366,117	1	2	2	2	2	2	1	2	1	2	2	2	2	2	Y	14	16	30
		3	Recover abandoned vehicles				15,000	0	1	2	2	0	0	0	0	0	0	2	2	1	1	Y	10	6	16
		4	Waste minimisation				100,000	0	1	2	2	0	0	0	0	0	0	2	0	1	0	Y	10	3	13
		5	Improved water quality				drainage	0	0	2	2	0	0	2	0	0	2	1	0	0	2	Y	8	7	15
		6	More trees				394,928	1	2	2	2	0	0	2	2	2	1	2	1	2	1	Y	14	11	25

Options 2 and 6 are preferred and can be brought together to compile the preferred programme. Refer drainage for option 5.

### Preferred Programme

The preferred programme for environmental maintenance is outlined below.

Winter maintenance — maintain current methodologies and contractual arrangement to maintain current winter safety performance and Road to Zero outcomes.

Litter (Rural Roads) detritus and graffiti — maintain current methodologies and contractual arrangement for rural and urban amenity and support better travel options.

Stock effluent facility — maintain current methodologies and contractual arrangements. Provide a good LOS for stock freight trucks, and safety on regional roads to contribute to Road to Zero outcomes.

Vegetation — increased budgets to resource safety and compliance for working on roads and Road to Zero safety outcomes. Use staff time to survey and assess intersection sightlines and safety issues to inform the programme.

Vegetation — plant additional garden and street trees to improve urban amenity, better travel choices, mitigate carbon emissions and improve the health of people and the environment.

Investigate the hanging basket irrigation, verandas, and streetlight pole arm issues. Use the City Centre Aesthetic Elements budget to construct solutions.

Environmental		Project ID	2018–21 Council Budget	2018–21 WAKA KOTAHI Approved budget	2018/19 Actuals	Funding requested			Average budget Y4–10 uninflated
WC	2021–22 inflated					2022–23 inflated	2023–24 inflated		
Stock effluent maintenance	121	0673	110,393	110,772	37,668	37,800	38,896	39,879	37,800
Routine emergency	121	0123	456,972	461,500	149,403	100,000	102,900	105,500	120,000
Environmental maintenance (winter maintenance)	121	0123			46,720	40,000	41,160	48,530	46,000
Roadside vegetation maintenance	121	0123	456,972	461,550	160,274	175,000	180,075	184,625	175,000
Abandoned vehicles	121			0		20,000	20,000	20,000	20,000
Intersection safety study	151	Staff time		0					
Street tree maintenance	Unsub	50022016	506,541	N/A	225,500	225,500	232,040	237,903	225,500
Street garden, vegetation and berms	Unsub	0410	720,623	N/A	356,190	356,190	366,520	385,275	356,190
Street garden water	Unsub	50022625	10,643	N/A		6,000	6,174	6,330	6,000
Vegetation and berms	Unsub	50022049	missed	N/A	79,997	85,000	87,465	89,675	100,000
Street tree maintenance: responsive	Unsub	2016	\$229,979	N/A	72,433	20,000	20,580	21,100	0



Street tree maintenance: Chorus	Unsub	8192	0	N/A	726	0	0	0	0
Replacement planting	Unsub	1078		N/A	50,409	55,000	56,595	58,025	55,000
Renewals street/garden furniture	Unsub	50027150	19,517	N/A	13,582	5,000	5,150	5,284	5,000
Road frontage planting programme	Unsub	1076	116,763	N/A	32,104	45,000	46,350	47,555	45,000
Street garden development	Unsub	1078	23,352	N/A	7,780	150,000	154,500	31,703	30,000
Street tree development	Unsub	1079	50,041	N/A	16,028	50,000	51,500	52,839	50,000
Maintenance: Street Gardens	CBD	55102016	18,399	N/A	5,947	6,300	6,483	6,647	6,300
Maintenance: Street trees	CBD	0410	67,537	N/A	67,307	23,400	24,079	24,687	23,400
Hanging baskets	CBD	1267	263,742	N/A	65,285	90,300	92,919	95,267	90,300

These numbers were correct on the date of publication, and will not include any subsequent changes.

**Risks – Environmental**

Risks - Environmental							
Refer Network and Asset Management for overarching risks and controls.							
Refer Appendix N for Risk Matrix							
Identification		Analysis: Residual Risk				Response e.g. Accept Reduce Share	Treatments
Event	Consequence	Existing Controls	Consequence	Likelihood	Current Risk		
Tree or tree limb falling	Personal injury or property damage.	Inspection and maintenance	4	3	High (12)	Reduce	Increased inspections and adequate funding to undertake cyclic rather than unplanned maintenance.
Disease or infection at stock effluent facility	Personal injury or property damage.	Inspection and maintenance	4	1	Medium (4)	Accept	Inspection and maintenance.

**Procurement – Environmental**

The roadside vegetation control contract is to be tendered in 2022.

Management of the stock effluent facility is procured as a variation through the Council's Utility maintenance contract. It needs to be included in future contracts in a way that best fits the scope of this contract.

Abandoned vehicles are managed through Council's compliance contract (EIL).

All other environmental operations are undertaken through the road maintenance contract.

Environmental advice for baseline setting, carbon and energy environmental management is provided by Council staff and procured through the professional services panel.

**Improvement Plan — Environmental**

Ref	Improvement Action	Priority	REG Pillar	When	Who
E5	Ensure Contractors are fully compliant with Health and Safety, Traffic Control and Corridor access regulations	1	System	ongoing	NCC Parks and transport
E4	Review sightlines at intersections and amend any vegetation trimming requirements	2	System	ongoing	NCC Parks and transport
E2	Freshwater Improvement. See also drainage, LCLR and Network and Asset Management	3	System	2021-	NCC Transport and Utilities
E3	Establish the baseline for monitoring of environmental emissions. This may be two baselines, one for embedded carbon and energy and one for emissions from the transport activity.	4	Evidence	2024	NCC
E4	Include Vegetation Management Policy direction in the next AMP	5	System	2023	Transport and Parks

**GPS Alignment — Environmental**

See 8.2(k) Network and Asset Management.

## E) Streetlights

Streetlights are affected by Problem Statement 2 community safety and amenity. The energy savings from changing to LED lanterns was achieved in 2018, addressing problem statement 3, so the programme is status quo of ongoing maintenance, pole renewal and improvement of

Lighting enables people to move through urban areas at night.

### *Subsidised:*

Roadway lighting is a subset of WC122 (traffic services operation and maintenance) and WC222 (traffic services renewals). Walkway lighting (separate to the roadway lighting) is maintained and renewed under WC125 (this has previously been unsubsidised). Cycle path and shared path lighting (separate to the roadway lighting) is maintained and renewed under WC124 where it is consistent with a relevant cycling, or walking and cycling, strategy or plan.

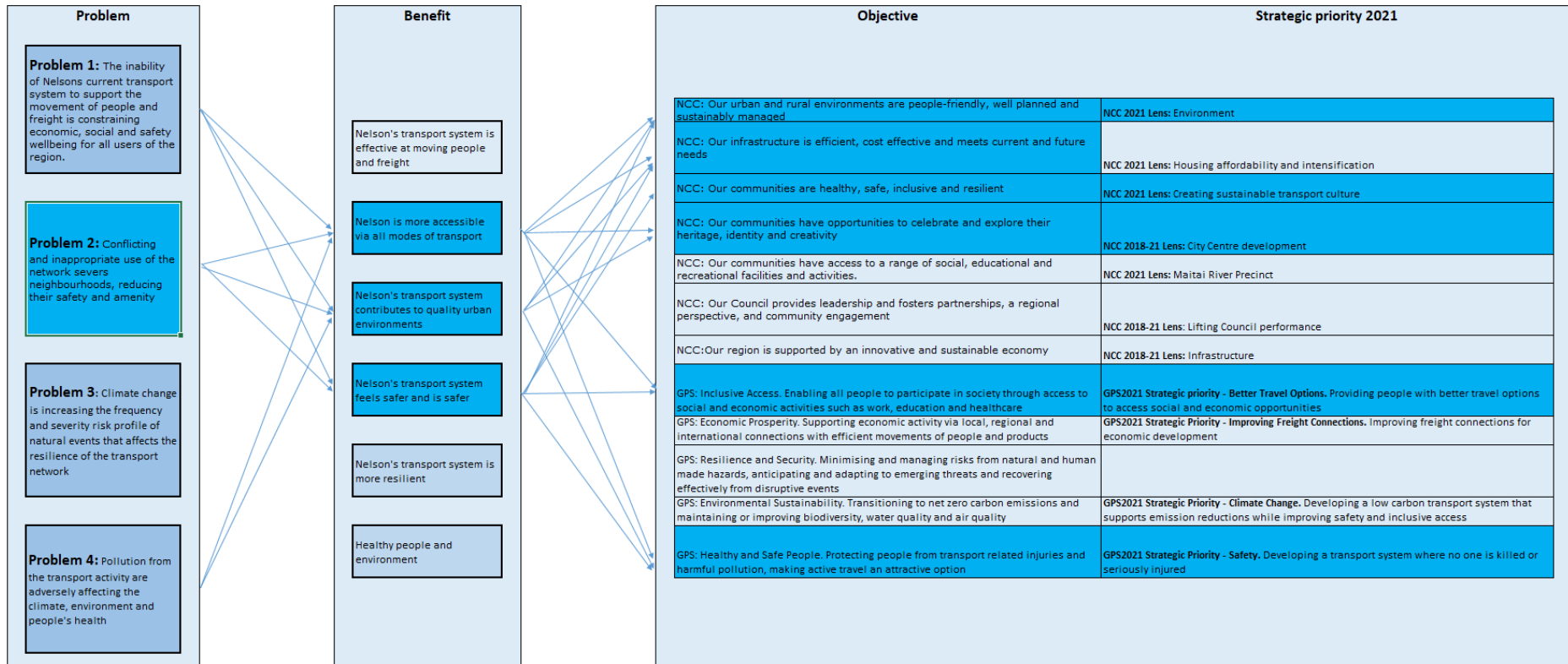
New roadway, cycle path and walkway streetlights are installed under WC341 (minor improvements programme).

### *Unsubsidised:*

In addition to subsidised lighting, Council operates and maintains lighting for enhancement of the city centre, car parks and amenity on road reserve.



Link to Strategic Case — Streetlights



**Test Levels of Service — Streetlights**

Streetlighting contributes to the following ONRC LOS but there are no specific measures.

ONRC LOS	Contribution
Safety	Lighting of the urban transport network provides for the safe and efficient movement of vehicles, cyclists and pedestrians as a 24/7 service.
Efficiency	No match, but minimise whole of life costs while delivering the required customer outcomes through strategic planning.
Amenity	Streetlights contribute to urban amenity Following the LED replacement of all street lights, the improvement programme will remove dark spots and contribute to safety outcomes.

In the absence of specific measures, the NTLDM, AS/NZS 1158 and Waka Kotahi M/30 are used for lighting design standards, and the ONRC framework can be used to prioritise the standard of lighting for the network.

In addition to street lighting, Council operates amenity public lighting through the Transport activity. A small number of alternative electrical connections are also included in the asset portfolio, eg Moller Fountain water pumps, and decorative lighting in Trafalgar Street. These are not subsidised by Waka Kotahi.

Most streetlights are now LED, which are more energy efficient, reducing operating costs by approximately \$100k per year while also contributing to environmental outcomes. This has also contributed to dark skies outcomes by reducing upwards light spill, by having very directional downward light control. This has however resulted in some gaps in service that require additional lights to be installed. Streetlights have been fitted with CMS ports, for future upgrade to dimming or other smart outcomes if required.

**Compile and Test Evidence — Streetlights**

As shown in the figure below most streetlights are LED. The streetlight lanterns were replaced with LED lanterns in accordance with Waka Kotahi M30 specifications in 2018–21. High value decorative lights have not been renewed, awaiting decisions on amenity values for these high profile areas.

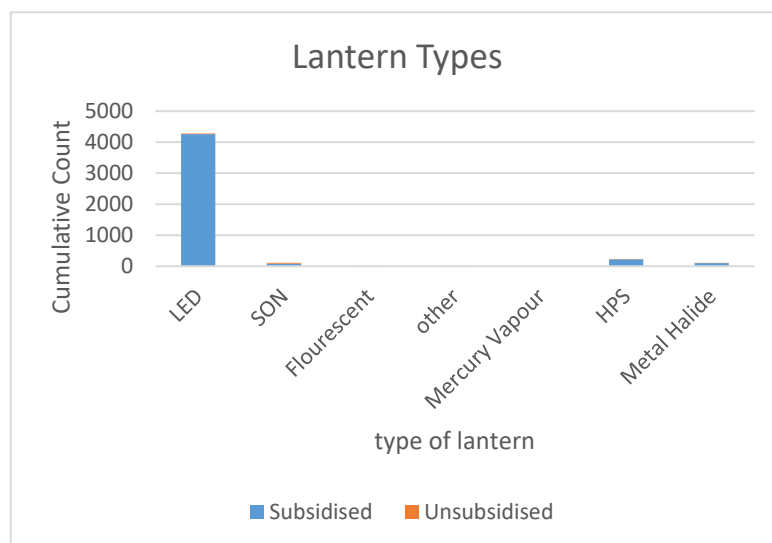


Figure Streetlight lantern types

Ongoing operation, maintenance and renewal costs are due to:

- Power supply;
- Electrical compliance testing and certification;
- Cleaning of long life LED to maintain light output;
- Maintenance and renewal of poles, outreach and fittings;
- Renewal of remaining aged lanterns, and cabling (renewal of the LED lanterns is expected to be outside the current 10 year period); and
- Administration of private streetlights.

Waka Kotahi M/30 requires streetlight components to have a 40 year design life. Refer streetlight evidence Appendix B – 673 concrete poles and 162 steel poles are 30–50 years old.

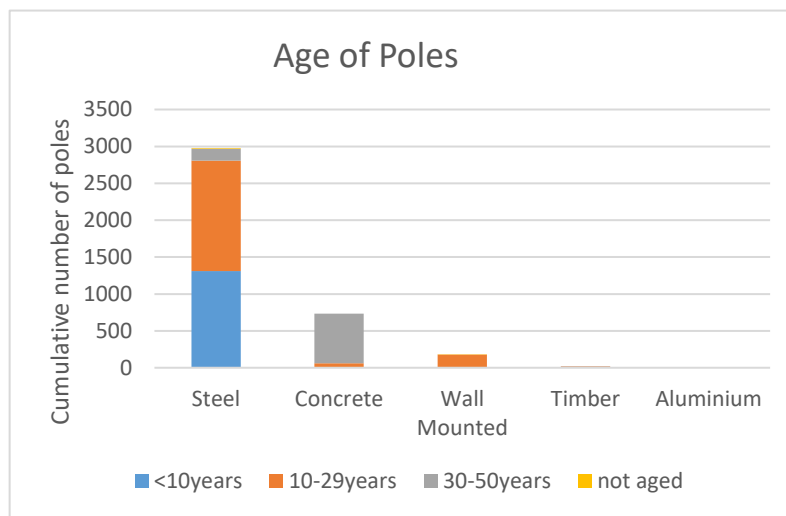


Figure Age of Poles

### Smart Technology

Smart technology has not yet been assessed for the potential to benefit transport outcomes. Local, national and international developments, and local demand, continue to be monitored for how smart technology can best be used to serve the Nelson situation. Smart technology is also likely to introduce many other features (eg rubbish bin monitoring) that will affect the unsubsidised transport programmes.

### Private Streetlights

There are 166 known private lights which are operated through the Transport streetlight circuits. These are beyond the LOS provided by Council, but the historical arrangement may need to be honoured to provide ongoing LOS to affected residents who pay the ongoing power supply costs. These need to be reviewed due to the safety and compliance concerns of the power authorities, and the high administration workload for Council. Some are known to be in poor condition, but Council has no mechanism to maintain or replace the poles, or ensure the safety of the power supply.

### Gap Analysis — Streetlights

#### Existing Assets

There are 998 lights hosted on utility operator poles that are susceptible to demand to provide new poles if the utility operator upgrades or undergrounds these services. This is

considered a low risk because it is unlikely that all poles will need to be replaced at once, and because two different power supply companies are involved. However, Nelson Electricity does have a proactive programme to underground power supplies, so a streetlight improvement programme is required to install new lights where host poles are removed.

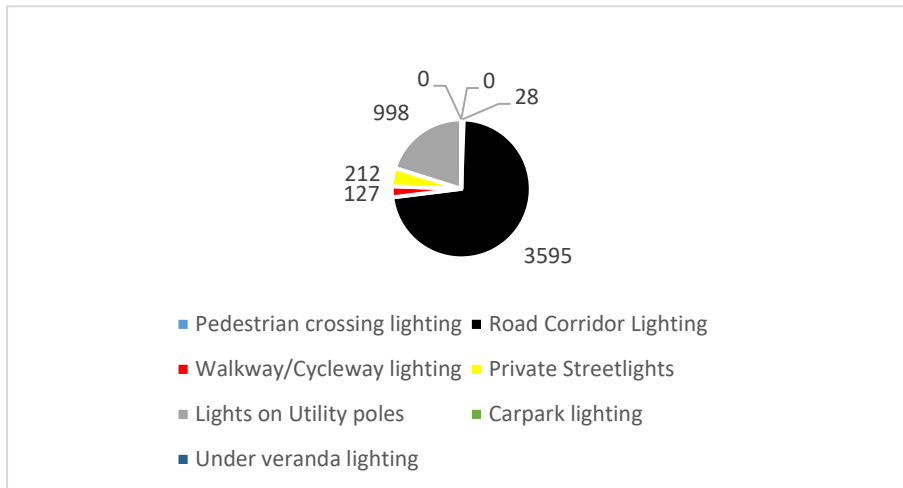


Figure Streetlights

The LED renewal programme has identified gaps in the network where streetlight spacing is inadequate, requiring new poles to infill gaps.

Public complaints about the brightness of the new LED lanterns will inform future lantern selection criteria, within the constraints of M/30 specification. A more diffused light is preferred by complainants, which may be more expensive but provide improved LOS outcomes, and reduce the time required for staff and contractors to respond to complaints.



Electrical compliance testing as required by the electricity regulations and LED cleaning is a new requirement to be managed within the programme. The testing and maintenance programme is expected to evolve over the next six years. Budgets set in 2018 for the LED renewal programme (from the LED renewal business case) are anticipated to be adequate for this testing and maintenance work.

Waka Kotahi manage the streetlights on the state highway, but the power supply charging results in many queries from the power supplier. Clarification of power source, and ownership details is required.



**Identification**

Council needs to be able to respond to public concerns or complaints about streetlights. Tasman District Council tagged all streetlights with the relevant pole ID, which has proven to be a successful way to communicate and target specific concerns. Tags are being introduced to the Nelson streetlights in the course of routine maintenance and inspections. This is adding \$1,500 per year to the maintenance budget. This cost is expected to be offset in future through the expected time savings from improved future tendered rates for streetlight maintenance and callouts.

**Streetlight Capital Works Programme**

Council has run an improvement programme since 2019/20 to address gaps in light distribution since the LED renewal programme was initiated.

This programme will be ongoing throughout 2021–24 to address poorly lit areas of the city. There have been no night time crashes on the network where poor lighting was deemed a factor since the LED and improvement programme were initiated.

**Develop Options — Streetlights**

There are no options to be considered for the streetlight services because the renewal programme in 2018 has been completed, and the new streetlights are at the beginning of their lifecycle. The LED facility has provision for smart technology, but the demand needs to be assessed through the network and asset management planning process, before assessing these options.

Pole replacement and improvement programmes match the current demand.

Test Options – Streetlights

Key to scoring

2 improved  
 1 addressed  
 0 not addressed  
 -1 decreased  
 -2 devalued  
 N not a viable option  
 Y viable option

Work Category	Strategic Response	Option No.	Option	2018-18 Budget LTP	2018-21 Budget (from NZTA TIO)	2018-19 Actual	2021-24 Estimated Cost (\$m) (first 3 years Continuous programmes, first 10 years projects)	Problem Statements				Other MCA Factors							Preferred Option	Problem Statement Score Weighted	Other MCA Factors score	Total Score					
								Problem Statement 1: Arterial Safety and Capacity	Problem Statement 2: Multi Modal response	Problem Statement 3: Environmental challenges / Resilience	Problem Statement 4: Environmental Improvement	ONRC Safety	ONRC Resilience	ONRC Amenity	ONRC Accessibility	ONRC Cost efficiency/ Value for money	Opportunity Smart City	IAF Results Alignment					Urban Development Growth	Stakeholder Acceptability			
WC122 and WC222	Traffic Services	1	Status Quo	\$ 2,927,783				1	1	1	1	-2	0	1	1	1	1	1	1	1	1	1	1	1	1	1	17

**Preferred Programme – Streetlights**

Streetlight Expenditure		2018-21 LTP	2018-21 Approved WAKA KOTAHI	2018-21 Actual Expenditure	Funding request			Years 4-10
Work Category					2021/22 inflated	2022/23 inflated	2023/24 inflated	Annually uninflated
Unsub	Income private streetlights	21,947	0		\$7,682	\$7,905	\$8,105	\$7,826
122	Streetlight maintenance	559,522	1,403,001 all traffic services		170,000	170,930	179,350	170,000
122	Streetlight power	976,596	1,043,795 All traffic services		335,000	344,715	369,250	350,000
Unsub	Streetlight power unsub	44,155	0		5,760	5,927	6,077	5,760
Unsub	Streetlight power car parks	43,566	0		15,169	15,517	15,880	16,198
222	Streetlight renewal	1,125,398	1,375,419 All traffic services		300,000	309,000	317,034	300,000
225	Renewals of streetlights on walkways (previously unsub)	7,666	0		\$2,669	2,730	\$2,796	2,863
Unsub	Car park streetlight renewals	15,332	0		5,335	5,495	5,638	5,725
341	Streetlight improvement programme	155,548	155,548		100,000	103,000	105,678	100,000
TBC	Smart City	0	0	0	0	0	0	TBA years 6-10 capital plus opex

These numbers were correct on the date of publication, and will not include any subsequent changes.

**Risks — Streetlights**

Risks — Streetlights							
Refer Network and Asset Management for overarching risks and controls							
Refer Appendix N for Risk Matrix							
Identification		Analysis: Residual Risk				Response eg Accept Reduce Share	Treatment
Event Description	Consequence	Existing Controls	Consequence	Likelihood	Current Risk		
Electrocution	Personal injury.	Electrical compliance testing.	5	1	Medium (5)	Manage	Electrical compliance testing and controls.
Inadequate lighting	Low real and perceived night time safety. Night time crashes.	Streetlight improvement programme.	3	3	Medium (9)	Reduce	Deliver improvement programme.
Inadequate maintenance	Lights or column failure.	Inspection, testing, data recording, monitoring and renewal.	3	3	Medium (9)	Reduce	Deliver maintenance programme.

**Procurement — Streetlights**

Streetlights are maintained and renewed through the EC3639 road electrical maintenance contract. This expired in June 2019 but can be extended on an annual basis until 30 June 2022 when it will be retendered.

New streetlights are installed through the electrical maintenance contract, except where specifically included in tendered project works.

Streetlight power is procured through Council's bulk power supply contracts.

**Develop Improvement Plan — Streetlights**

Reference	ONRC Pillar	Description	Timing	Delivery
SL1	Service delivery	Develop a process for working with private streetlight owners and the power supply company for the operation maintenance, renewal and ongoing electrical compliance of private streetlights.	2021–2023	NCC Operations
SL2	Systems	Shift walkway lights to subsidised footpath programme (Year 1).	June 2023 for 2024–27 AMP	Asset Management, Operations and Accounts
SL3	Evidence	Include the pole testing results in RAMM to inform decision making affecting poles.	Requirement for next electrical maintenance contract	Operations
SL4	Systems	Continue to monitor the smart technology requirements of the community, for dimming of lights at night or other desired outcomes.	Monitor Waka Kotahi/MOT direction	NCC
SL5	Evidence	Determine the streetlight portfolio growth rate so that future demands can be accurately estimated.	2024	NCC
SL6	Service Delivery	Investigate dimming of lights for power savings	2022-24	Asset management, operations and accounts
SL7	Evidence	Include amenity lighting and Muller Fountain electrical and lighting into RAMM for completeness (unsubsidised)	2024-25	Asset Management and operations
SL8	Evidence	Include streetlights/vegetation/street trees in forecasting of new assets from subdivision works for future programming	2024-25	Asset management and subdivisions and consents
SL9	Service Delivery	Investigate electric charging for Electric Vehicles	2021-27	Asset Management and Planning

**GPS Alignment — Streetlights**

See 8.2(k) Network and Asset Management.

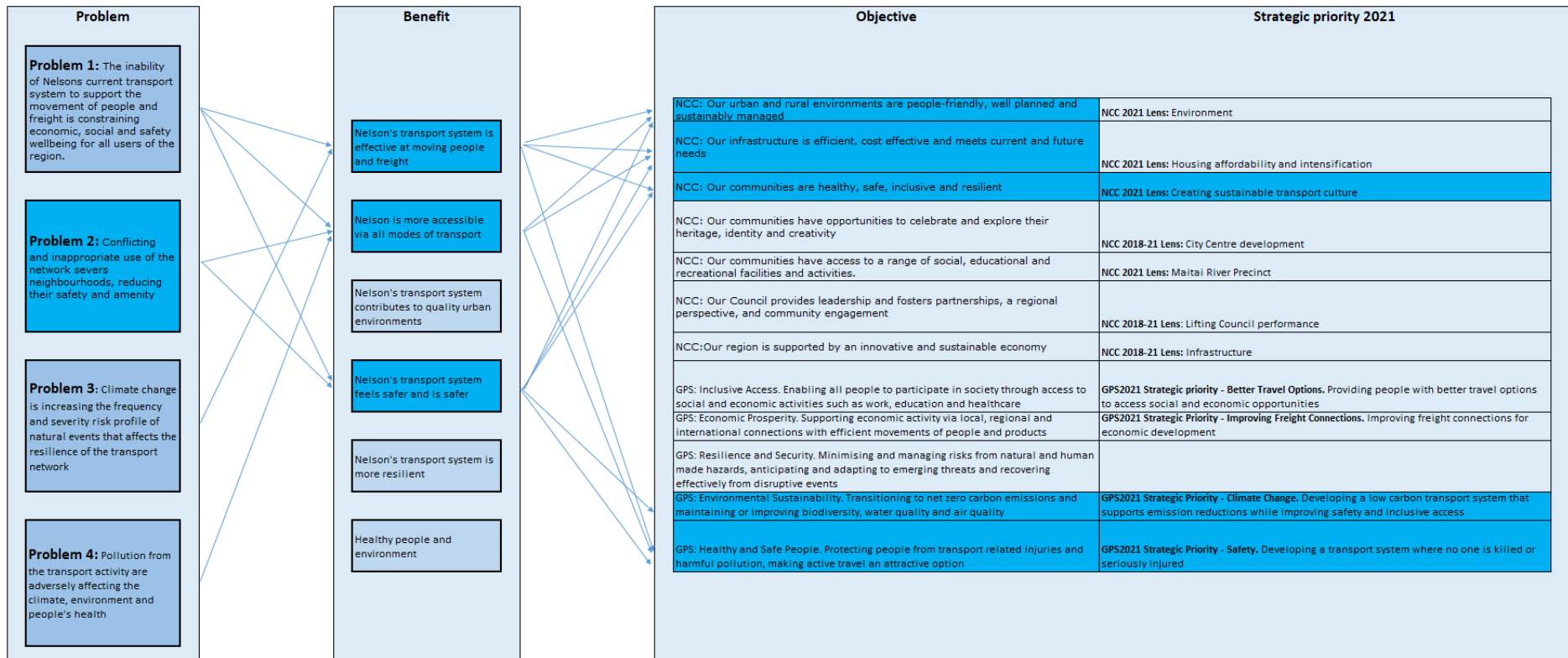
## F) Traffic Services — Signs and markings

Traffic Services particularly are affected by Problem Statement 2. The preferred programme is status quo with increased focus on safety interventions, less frequent marking of access and low volume roads and more green paint on road cycle lanes.

Traffic services aid the safe and orderly movement of vehicular and pedestrian traffic, and indicate road use restrictions and other information. A good standard of traffic services contribute to a safer road network.



Link to Strategic Case — Traffic Services — Signs and Markings



### **Test Levels of Service —Traffic Services — Signs and Markings**

Refer Appendix C for ONRC LOS performance.

In addition to the ONRC LOS, traffic services are required to provide for on-road (non-separated) cycle facilities and pedestrian facilities. There are no technical LOS for these activities. Nelson has a mix of old on-road cycle facilities, green markings, and symbols which have not historically been maintained due to budget constraints. This low LOS for on-road cyclists could be contributing to Nelson's high risk rating for cycling in the Communities at Risk Register. (Also refer to Road Safety in section 5.14.) Improved cycle facilities are proven to improve driver behaviour, and therefore LOS and safety for cyclists.

Traffic services are a good avenue to deliver innovative solutions for traffic management and GPS benefits (GPS cl 148). Low numbers of 'loss of control at night' crashes (see Road Safety in section 5.14) reflects traffic services are providing a good function when needed. However, as part of the review of intersection and cycle safety, more consideration of traffic services could provide good safety and value for money outcomes (GPS cl 94 and 95).

### **Compile and Test Evidence — Traffic Services — Signs and Markings**

The signs and sight rails are generally in good/average condition. However, the assessment programme needs to be updated to avoid this data becoming out of date, with a rise of renewal backlogs occurring.

Minimal data is available on pavement markings in Nelson. This is being quantified through the contractors programme in 2018–21. Based on the limited evidence currently available, the pavement marking has average performance — with low night time crash concerns but high risk intersection safety concerns. Other concerns related to pavement marking include high traffic volumes making marking during working day hours challenging, no resource consent to work at night so noise complaints could stop works, and high parking demand at night, which means edge lines and park marking cannot always be accessed around vehicles.

Electronic signs are managed under WC 123 — operational traffic management. No evidence has been compiled on their performance.

City centre and amenity signage is maintained as CBD and/or unsubsidised assets. Renewal is managed as CBD aesthetic elements. Refer 8.2(r) CBD Facilities, 8.2(s) Parking and 8.2(q) Unsubsidised Activities in this section of the AMP, as well as Car Parks in section 5.25.

### **Gap Analysis — Traffic Services – Signs and Markings**

Traffic services are regulated by traffic management bylaws and policies. New works have historically been undertaken through the renewal programme, so there is limited understanding of the degree of capital investment occurring.

Nelson is on the Communities at Risk Register for intersection and cycle safety (refer Road Safety in section 5.14) and is undertaking a speed management review. These are gaps that could be addressed by review of traffic services provisions across the network before significant improvement works are investigated (GPS cl 94, 95 and 105).



Consistency of pavement markings and cycle markings is a developing gap, as new facilities are installed with a high degree of coloured paint and pavement markings. However, the facilities on the existing network have not been re-marked or maintained, so the city’s road markings do not consistently inform users of expected behaviour and use of the network.

The current method of providing signs and markings is well understood. The environmental outcomes of this method are not well understood. There may be benefits to LOS, lifecycle management, environmental and safety outcomes from more use of alternative methods of deploying traffic services, such as smart technology. These options have not yet been assessed, and will rely on some national guidance, to ensure national consistency for good ONRC outcomes.

Refer 8.2(k) – Network and Asset Management in this section of the AMP. The Vehicle Control and Parking Bylaw is due for review, and this review could affect future delivery of traffic services.

**Develop Options – Traffic Services – Signs and Markings**

Develop Options	Option Description	Benefits of Option	Negative Consequences of Option
1. Do Minimum	Ongoing signs maintenance and renewal, but reduce pavement marking (eg reduce parking and edge markings, and frequency of marking).	Ongoing maintenance of signs, for regulatory control, delineation, and wayfinding.  Reduces complications of marking around parked vehicles.  Consistency of traffic services across the network to inform behaviour and travel expectations.	Less frequent pavement marking is more difficult to re-mark due to poor condition, and could result in higher long term costs.  Lower value signs (eg information signs) are maintained in preference to markings with greater safety benefits.  Coloured markings introduced for capital works projects are not maintained.  No planned improvement for better traffic management.
2. Status quo	No change to current operation, maintenance or renewal planning. Reactive management of new works through site specific projects, or the renewal programme.	Maintains current LOS for road users.  Annual re-mark avoids risk of perceived lower LOS.	New coloured markings, introduced for capital works projects, are not maintained.  No planned improvement for traffic management.
3. Review traffic services	Ongoing signs maintenance and renewal but move to biannual markings of access and low volume roads, and parking on all roads. Annual remark of other markings on regional – secondary collector roads. Coloured markings in critical areas of on road cycleways for safety.	Generally maintains current LOS for road users.  Can be used to address cycle safety concerns on road.	No immediate savings are identified.  Drop in LOS for access and low volume roads.

4. Smart City technology	Technology to improve traffic services.	Interactive and responsive traffic management.	Technology is still evolving, so Council could get left with an early generation system which is quickly out of date.
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Test Options — Traffic Services

Key to scoring

2 improved  
 1 addressed  
 0 not addressed  
 -1 decreased  
 -2 devalued  
 N not a viable option  
 Y viable option

Work Category	Strategic Response	Option No.	Option	2015-18 Budget LTP	2018-21 Budget (from NZTA T/O)	2018-19 Actual	2021-24 Estimated Cost (\$m) (first 3 years Continuous programmes, first 10 years projects)	Problem Statements				Other MCA Factors								Preferred Option	Problem Statement Score Weighted	Other MCA Factors score	Total Score	
								Problem Statement 1: Arterial Safety and Capacity	Problem Statement 2: Multi Modal response	Problem Statement 3: Environmental challenges / Resilience	Problem Statement 4: Environmental Improvement	ONRC Safety	ONRC Resilience	ONRC Amenity	ONRC Accessibility	ONRC Cost efficiency/ Value for money	Opportunity Smart City	IAF Results Alignment	Urban Development Growth					Stakeholder Acceptability
WC122 and WC222	Traffic services	1	Do Minimum		3,620,607			0	0	0	0	1	1	1	1	1	0	1	0	1	N	0	7	7
		2	Status Quo				1	0	0	0	1	1	1	1	0	0	0	0	1	N	2	5	7	
		3	Review traffic Services				2	2	0	0	2	1	2	2	2	1	2	1	2	Y	8	15	23	
		4	Smart City Technology				1	2	0	0	1	1	1	1	0	2	0	1	1	Y	6	8	14	

### Preferred Programme — Traffic Services

Option 3 (review traffic services) is preferred. This is expected to provide good value for money outcomes (GPS cl 94 and 95) and build the culture of using traffic services to create transport-related benefits, rather than just re-marking to maintain existing signs and markings (GPS cl 105). The preferred programme assumes remarking is 2 yearly with higher frequency on high wear areas (eg limit lines) and marking of green paint on road cycle lanes and long life paint are considered on a case by case basis.

The Smart City technology may also be an acceptable option, but it is much lower scoring. It has potential to be a good avenue to deliver innovative solutions for traffic management and GPS benefits (GPS cl 148) so may become the preferred option in the future.

Traffic Services		Project Code	2018–21 LTP	2018–21 Approved WAKA KOTAHI	2018/19 Actual Expenditure	Funding request			Years 4–10
Work Category						2021/22	2022/23	2023/24	Annually, plus inflation
122	Signs maintenance	0124	292,542	1,403,001 includes streetlight maintenance	63,507	65,000	65,000	65,000	65,000
122	Road marking	0124	505,969		206,688*	220,000	220,000	220,000	220,000
222	Traffic services renewal	3040	245,318	1,375,419 includes streetlight renewal	108,495	85,000	85,000	85,000	85,000
341	Minor improvement, new, altered, markings+	1525	0	0	0	30,000	30,000	30,000	30,000
341	School speed signs (WC123)	1884	0			0	0	150,000	0
	Smart City		0	0	0	0	0	0	0

\*Does not include full network re-mark, nor new contract rates effective from 2018/19.

+ Establish a new WC341 LCLR (opex) budget for new signs and markings as a response to safety interventions and better management of the activity eg changed marking layout post reseals. Identifying these will also ensure new works align to the GPS benefits framework, and identify how much can be provided to inform the future maintenance and renewal programme.

These numbers were correct on the date of publication, and will not include any subsequent changes.

**Risks — Traffic Services**

Risks – Traffic Services							
Refer Network and Asset Management for overarching risks and controls							
Refer Appendix N for Risk Matrix							
Identification		Analysis: Residual Risk				Response e.g. Accept Reduce Share	Treatments
Event Description	Consequence	Existing Controls	Consequence	Likelihood	Current Risk		
Inadequate maintenance	Increased safety risk/personal injury	Maintenance and renewal programme implemented	3	3	Medium (9)	Reduce	Prioritise markings to ensure critical signs and markings are renewed before end of life
Water blasting off lines	Increased safety risk/personal injury. Pavement failure.	Avoid water blasting.	3	3	Medium (9)	Reduce	Avoid water blasting, and manage improvements and changes to occur before resurfacing occurs.

**Procurement — Traffic Services — Signs and Markings**

Procurement of signs and markings will be through the road maintenance contract, except when required as part of specific projects.

Staff time through network and asset management will be used for review of traffic services.

Staff time will be used for the review of the Vehicle Control and Parking Bylaw.

**Develop Improvement Plan — Traffic Services**

Reference	ONRC Pillar	Description	Timing	Who
TS1	Evidence	Include signs assessment in routine and night inspections.	Before next maintenance contract.	Transport operations
TS2	Evidence	Update signs condition assessments in RAMM.	Annually	Maintenance contractor

TS3	System	Intersection safety. Review site specific intersection controls for appropriateness.	2021-24	Transport asset managers and operations
TS4	System	Review use of signs and markings as part of network management.	With Transport planning	Transport asset managers and operations
TS5	Evidence	Relay active travel mapping back into Traffic services for cycle lane management and maintenance planning	2023	Transport asset managers

#### **GPS alignment — Traffic Services**

See 8.2(k) Network and Asset Management.

## G) Operational Traffic Management

Operational traffic management is particularly affected by problem statement 1 and 2. The preferred programme is status quo operation, with addition of activities to manage trial treatments, speed management and innovative streets.

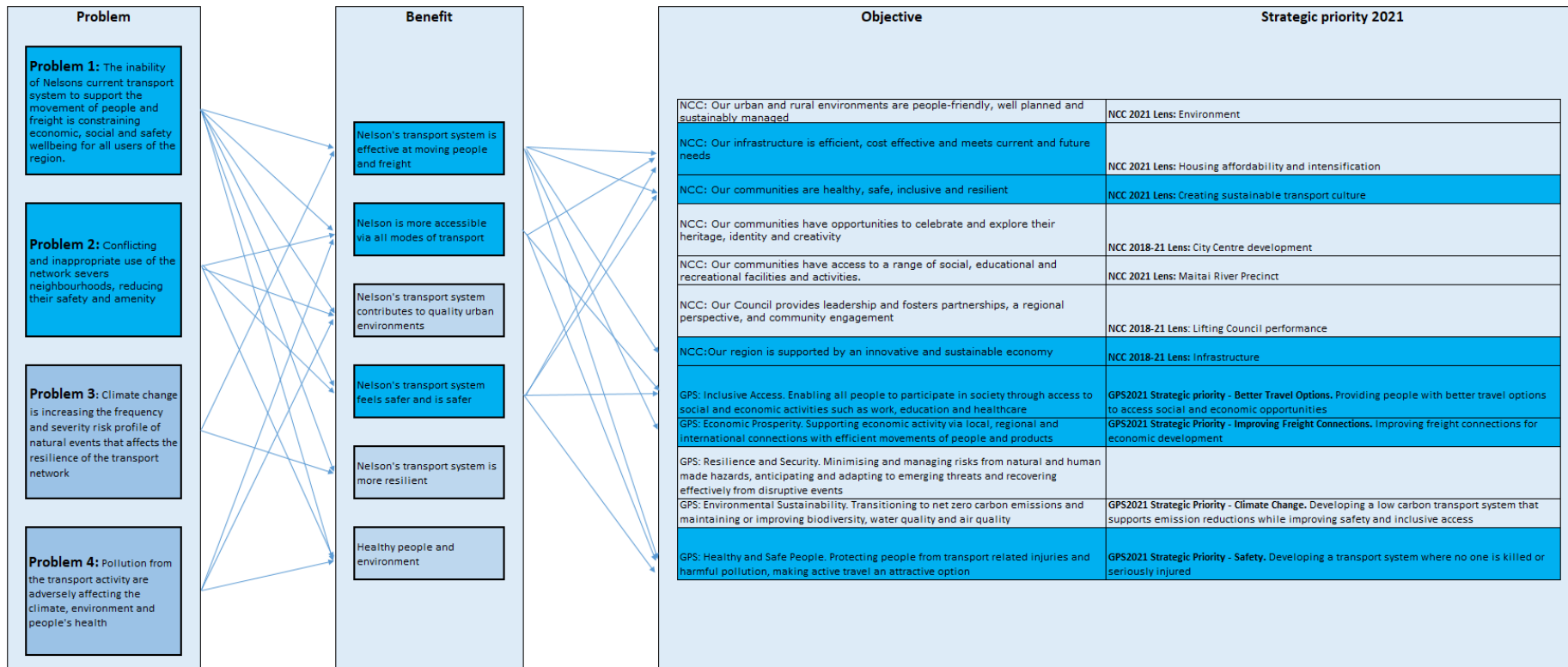
Work category (WC) 123 provides for the operation, maintenance and power costs of traffic signals and other traffic management equipment and facilities, including speed feedback signs. Renewal of equipment is funded under WC222 (traffic services renewals). Traffic signals are managed operationally by the Wellington Traffic Operations Centre in conjunction with local staff, and are maintained by the electrical maintenance contractor.

Operational traffic management also includes the operational cost of operating local area traffic management systems and Innovative Streets schemes.



Future developments in vehicle to vehicle and vehicle to infrastructure communications may result in Council providing and maintaining technology to do this. Examples include parking availability, traffic delays/road closures, road conditions, bus priority, enforcement of traffic lane use, variable speed limits.

Link to Strategic Case — Operational Traffic Management





Operational traffic management contributes to the ONRC Safety LOS as follows.

Intersection safety where complexity and volume of traffic needs formal management. Pedestrian and cycle safety is increasingly being considered where traffic volumes are challenging for safe multimodal intersection interactions.

Operational traffic management is a tool to help educate drivers about safe and appropriate speed, which can also be coordinated with Police enforcement if education is not enough.

School speed zone management, so safety for children accessing and leaving schools is prioritised over general traffic during school terms.

Operational traffic management is a Smart City opportunity for traffic management.

### **Test Levels of Service — Operational Traffic Management**

Operational traffic management is particularly focused on the safety LOS and performance measures. Intersections and cycling in Nelson have been identified as high safety risks. (Refer Road Safety in section 5.14.) Interrogation of the intersection crash history shows few signalised intersections are featuring in these statistics. Further signalised controls may be required at intersections on arterial routes to manage safety concerns and improve accessibility to these complex locations and will require ongoing operation. Refer 8.2(n) Major Projects for Hampden Street/Franklyn Street and the Future Access Study:

<https://www.Waka Kotahi.govt.nz/projects/nelson-future-access-project>.

Cycle safety at the Motueka Street traffic signals is the subject of an ongoing investigation. The signals layout is correct but downhill grades southbound on Waimea Road are creating a cycle safety problem (cyclists underpassing left turning traffic). The Future Access Study, Waka Kotahi Accessible Streets law changes, and updates to the cycle design guide will all inform the development of a solution.

There is potential to improve the LOS and safety for pedestrians and cyclists by making signalised intersections more mode neutral, with the introduction of Barnes dance pedestrian/cycle phases and/or pedestrian radar where these alternative mode demands are very high.

### **Compile and Test Evidence — Operational Traffic Management**

Refer Transport Asset and Activity Register in section 3. Council has good confidence in its data and the performance of the operational traffic management facilities. However, condition data is not recorded in RAMM and relies on the expertise of the maintenance contractor. The Wellington Traffic Operations Centre (WTOC) is contracted to manage traffic signals operations and the Centre's technical skills supplement local knowledge.

The image quality from the Motueka Street traffic camera is poor. This intersection joins two significant traffic flows on Waimea Road and, as noted previously, there are some cycle safety concerns. Camera functionality is important element of efficient WTOC support, and is critical to maximise the efficiency of the existing system (GPS cl 91).

The LED signals is being monitored, as some signals have high percentages of missing diodes. Renewal is required when 30% of diodes are missing.

Safe and appropriate speeds remain a community concern. This is currently being managed through the deployment of driver feedback signs and reporting, to support police enforcement. This approach provides the outcomes sought by GPS cl 118. This process is managing the system well, pending the speed limit review and consultation. (Refer 8.2(k) Network and Asset Management in this section of the AMP.)

Most registered schools in Nelson have school speed zones. However, these are 40km/h zones, whereas 30km/h is recommended in the recent speed management guide update. Three schools have growing rolls and growing safety concerns, so school speed zones should be reconsidered in the 2021–24 period to support the Road to Zero safety outcomes desired by the GPS, and active modes of travel to schools (GPS better travel options).

Nelson does not currently have any 'innovative streets' or 'local area traffic management schemes'. However, these will be considered in the 2021–24 period to support safety (GPS cl 43) and better travel options (GPS cl 44), and could be implemented as part of the speed limit review.

Associated staff time and professional services costs are charged to WC123 for modification, monitoring and management of the operational traffic management systems because these are excluded under WC151.

### **Gap Analysis — Operational Traffic Management**

#### *Traffic Signals and Traffic Cameras*

Traffic signals are used where traffic safety and/or capacity at intersections cannot be adequately controlled by other means. Signals are also a better option than roundabouts in urban environments where land use constraints make the footprint of a roundabout unviable. Traffic signals also facilitate pedestrian and cycle crossings of roads. Safe and efficient management of the Nelson network is currently under consideration through the Future Access Study and could include further signalised intersections. This would result in increased operational traffic management costs in future.

The LED lights used in the traffic signals are being monitored because these are ageing and due for renewal. Many installations are of a similar age, so renewal will be staged as much as possible to smooth this expected spike.

The oldest traffic camera is scheduled for renewal in 2024 (Motueka Street) with other cameras scheduled for renewal in 2027–31. A programme of LED renewal is required from 2021/22. The copper ring road cable is being monitored as it may be the cause of intermittent outages at the Collingwood Street/Halifax Street intersection, but this is not scheduled for renewal in the short to medium term. Recabling of the Songer Street signals is needed in approximately Year five and for the Trafalgar Street signal cables in Year 10. The Halifax Rutherford Street signals are assumed to have been recabled in 2021 with the Anzac to Maitai cycle connection project works. Otherwise they will need recabling in 2021/22.

Traffic signals are managed using SCATS. Traffic flows and monitoring were reviewed in 2018 with WTOC and minor adjustments were made. Manual override is possible for significant events (emergency response, road closures or festivals). This review is ongoing.

#### *Speed Feedback Signs*

There are no gaps in the provision of speed feedback signs. The signs are new, functioning as expected and in demand. Renewal is not expected before 2027.

*Local Area traffic management schemes*

The introduction of innovative streets initiatives, and speed management framework changes introduces a new level of traffic management to local roads where local area traffic management schemes, trial measures, innovative urban designs, and speed control devices are required. These have not historically been included in the programme.

**Develop Options — Operational Traffic Management**

Develop Options	Option Description	Benefits of Option	Negative Consequences of Option
1. Status Quo	Ongoing maintenance of traffic signals, electronic signs and driver feedback signs	Ongoing control and maintenance of signalised intersections	Speed management is limited by the number of driver feedback signs, so there is no opportunity to address community desire for lower speeds, or trial urban intensification and mode shift initiatives.
2. Additional budget	Additional budget to manage local area traffic management schemes, trial schemes, and speed management initiatives	Address community desire for slower speeds, urban intensification and amenity improvements, and mode shift before committing to permanent works.  Opportunity to trial gain benefits of slower speeds and safety interventions before permanent works are required.	

### Test Options — Operational Traffic Management

The preferred option for Operational traffic management for 2021-24 is additional budget to manage local area traffic management schemes, trial schemes and speed management initiatives. The impacts of the Future Access Study need to be accommodated and have been assumed for years 24–31 of the AMP, to be reflected in the 2024 AMP.

**Key to scoring**

2 improved  
 1 addressed  
 0 not addressed  
 -1 decreased  
 -2 devalued  
 N not a viable option  
 Y viable option

Work Category	Strategic Response	Option No.	Option	2015-18 Budget LTP	2018-21 Budget (from NZTA TIC)	2018-19 Actual	2021-24 Estimated Cost (\$m) (first 3 years Continuous programmes, first 10 years projects)	Problem Statement 1: Arterial Safety and Capacity	Problem Statement 2: Multi Modal response	Problem Statement 3: Environmental challenges / Resilience	Problem Statement 4: Environmental Improvement	ONRC Safety	ONRC Resilience	ONRC Amenity	ONRC Accessibility	ONRC Cost efficiency/ Value for money	Opportunity Smart City	IAF Results Alignment	Urban Development Growth	Stakeholder Acceptability	Preferred Option	Problem Statement Score Weighted	Other MCA Factors score	Total Score
WC123 and WC222	Operational traffic Management	1	Status Quo		278.100	98,714	\$386,000 excluding renewals WC221	2	1	1	1	2	1	1	2	1	1	1	1	1	Y	10	11	21
		2	Additional budget to manage local area traffic management schemes, trial schemes, and speed management	\$	\$	\$	\$566,000 excluding renewals WC222	2	2	1	1	2	1	2	2	1	2	2	2	2	2	Y	12	16

**Preferred Programme — Operational Traffic Management**

Traffic Services		Project Code	2018–21 LTP	2018–21 Approved WAKA KOTAHI	2018/19 Actual Expenditure	Funding request			Years 4–10
Work Category						2021/22 inflated	2022/23 inflated	2023/24 inflated	uninflated
123	Staff time	0125	278,100	261,018	21,298	20,000	20,000	20,000	20,000
122	Electronic signs maintenance	0124			11,882	21,800	22,432	22,999	21,800
123	Traffic signal maintenance	0125			52,407	56,402	58,038	63,300	78,472
123	Traffic signal comms	2607			12,552	13,440	13,830	14,179	18,240
123	Traffic signal power	0125			12,457	15,960	16,423	16,838	20,000
123	Professional services	0125			0	0	0	0	0
222	Traffic service renewals — signals	3041	0	223,000	0	63,000	74,160	92,997	42,063

These numbers were correct on the date of publication, and will not include any subsequent changes.

**Procurement — Operational Traffic Management**

Maintenance of traffic signals, electronic school signs, speed feedback signs and traffic cameras is carried out through the road electrical maintenance contract EC3639. This expired in June 2019 but can be extended on an annual basis until 30 June 2022, subject to satisfactory performance.

Management of trial sites, speed treatments and innovative streets is expected to be managed through the Road Maintenance Contractor.

Communications for traffic signals is provided through Fusion, the Waka Kotahi traffic signals communications service provider.

The Wellington Traffic Operations Centre (WTOC) provide operational support for the traffic signals. This is a Waka Kotahi arrangement with no expiry date, and no direct operational cost other than disbursements if site visits are required.

Digital Telemetry provide operational support for speed feedback facilities, access to real time data (speeds and counts) in some electronic school speed zone signs and data storage for the electronic school signs. This is an ongoing arrangement.

**Risks — Operational Traffic Management**

The following risks have been identified for the operational traffic management activity.

Risks — Operational Traffic Management
Refer Network and Asset Management for overarching risks and controls
Refer Appendix N for Risk Matrix

Identification		Analysis: Residual Risk				Response e.g. Accept Reduce Share	Treatments
Event	Consequence	Existing Controls	Consequence	Likelihood	Current Risk		
Closure of the Digital Telemetry website and support	School speed zones are unsupported	Supply contract	1	3	Low (3)	Accept	Ongoing arrangements
Failure of the copper cable for the ring road traffic signal system.	All ring road signals are out of action	Spare parts	4	2	Medium (8)	Accept	
Relocation of Council offices could initiate the transition from the copper network to fibre early	Controllers need to be shifted	Manage with all other IT equipment	3	2	Medium (6)	Share	Coordination with IT, business case to shift or upgrade system
New traffic signal sites that have not been budgeted for are added to the network before 2024.	Budget constraint	Reallocate mtce budgets	1	3	Low (3)	Accept	Reallocate budgets
Local area traffic management and/or innovative streets are required before 2024.	Budget constraint	Reallocate budgets	1	2	Very Low (2)	Accept	Manage improvement programme, reallocate budgets
Increased intersection safety risks in event of signals failure.	Personal injury	Maintenance of signals, road code rules	3	3	Medium (6)	Accept	Maintenance of signals, road code rules
Electrocution	Personal injury	Skilled approved mtce personnel	5	1	Medium (5)	Manage	Electrical compliance testing and controls, skilled maintenance personnel
Power failure or damage	Increase in travel time and increase in safety risk due to lights being inoperable	Maintenance programme	3	3	Medium (9)	Reduce	Maintenance of signals, road code rules

Power failure or damage	Traffic cameras inoperable	Cable traffic cameras independently of signals to retain service in event of signals failure.	2	4	Medium (8)	Reduce	Re-cable existing cameras and all new cameras to be independent of signals, for power and comms
Inadequate maintenance of structural components	Structural failure of signal pole or arm	Inspect in accordance with Waka Kotahi S/6	3	3	Medium (9)	Reduce	Initial principal inspections and establish ongoing inspection programme
Unanticipated New technology demands	Budget Constraints	Reallocate current improvement budgets	3	2	Medium (6)	Accept	Ongoing monitoring of techenology developments
Crash event damages signals infrastructure	Signals failure	Maintenance of signals, road code rules	1	2	Very low (2)	Accept	Skilled personnel detailed design of new signalised intersections for infrasturctre layout and placement

### Develop Improvement Plan — Operational Traffic Management

Reference	ONRC Pillar	Description	Timing	Who
Op1	Evidence	Include condition assessments in RAMM	With next electrical maintenance contract	Transport operations
Op2	System	Require electrical maintenance contractor to do payment claims through RAMM	With next electrical maintenance contract	Transport operations
Op3	System	Detrmine Policy requirements for on site and off site electric charging stations	TBC	AM and Planning

### GPS alignment — Operational Traffic Management

See 8.2(k) Network and Asset Management.

#### H) Cycle Facilities

Cycle facilities are particularly affected by problem statements 2 and 4. The preferred programme is to do comprehensive network planning in years 1-3, address safety and ongoing maintenance and renewal of the existing network with new facilities identified and planned for in years 4 – 10.

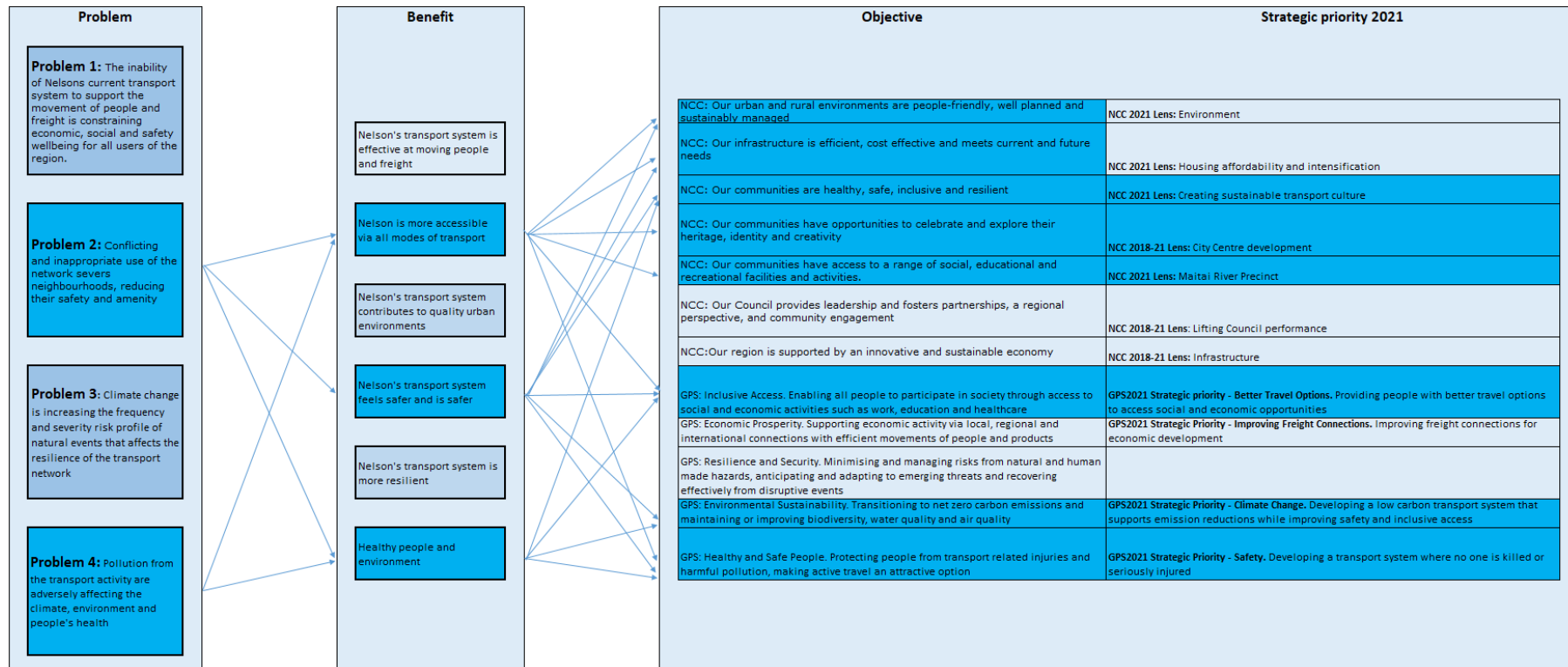
Cycle facilities include separated cycle paths and shared paths.

On-road cycle lanes are included for network management, but are maintained as part of the road pavement and traffic services programmes.





Link to Strategic Case — Cycle Facilities



### Test Levels of Service — Cycle Facilities

Nelson was an early adopter of cycle facilities. Many facilities were installed in accordance with best practice at the time. These facilities often do not meet current best practice guidance (eg Waka Kotahi high use driveway treatment for cycle paths and shared paths – August 2019). Inconsistency with current best practice may lead to confusion and increasing crash events.

The ONRC Customer LOS do not specifically cater for the cycle facilities. However, the principles can however be applied, as shown below.

ONRC cLOS	
Safety	Fault identification and prioritisation ensures that defective and dangerous pathway sections are recorded, and appropriate interventions undertaken.
Resilience	Programme of maintenance works undertaken to ensure journeys are not impacted by unplanned events.
Amenity	Regular programme of routine maintenance ensures the safety and amenity of cycle facilities doesn't detract from the customer experience.
Accessibility	Demonstrate that value for money is being achieved in delivery of outputs through prudent programming and clustering of maintenance activities.
Efficiency	Minimise whole of life costs while delivering the required customer outcomes through strategic planning. Ensure improvement opportunities are considered with all renewal activities by consulting through the Utility Operators meeting and asset improvement planning.

Technical Output 8: Cycle Path Faults is not used for ONRC reporting because Council prefers to focus on repairing faults rather than reporting them. Recording is currently through dispatches.

The Out and About Policy recognises user behaviour contributes to LOS for pedestrians and cyclists. The Out and About Policy is currently under review.

### Compile and Test Evidence — Cycle Facilities

The existing cycle network is disjointed (refer Cycle Network in section 5.23) and has poor connections to the off-road facilities. The road network layout and traffic volumes make local streets undesirable for cycling. The volumes of arterial traffic during school term (refer Travel Times in section 5.10) deters parents from letting children cycle to school, compounding the traffic and safety concerns during term time. This is resulting in low uptake of cycle mode share (refer Journeys to Work and Education in section 5.19), a high safety risk for cyclists (refer Communities at Risk Register in section 5.14) and an increasing trend of crashes involving cyclists (refer Cyclists in section 5.17).

Nelson is required to undertake urban growth planning, and urban intensification is Council's preferred mechanism to improve housing availability and achieve community outcomes (refer NCC Community Outcomes in section 1.4). The Mahitahi residential development was proposed for Decade 2 in the Future Development Strategy (FDS) but is being signalled for earlier progress (refer Urban Growth in section 5.2). As this development is close to the city centre and schools, active transport is proposed as a lead transport function to support this development.

As noted above, Nelson is currently updating the Out and About Policy. However, this work has been delayed to coordinate with Waka Kotahi Future Access Study recommendations,

and to include consideration of better urban design and street form within the framework. This is also in line with the GPS (refer GPS 57).

Cycle counting indicates an increasing trend of cycle use on the main shared path network (refer Figure 5.19 in section 5.21). Recent investment in electronic counters is providing 24/7 information at two sites, which will inform better planning decisions. Electronic stations for the remaining four routine count stations is included in 8.2(k) Network and Asset Management.

### **Cycle Demand and Use Numbers**

The cycle counts on the Railway Reserve in Stoke were increasing at a rapid rate until 2013 when there were high profile complaints about use of the shared path. Cycle counts show a flat growth rate since then. This may reflect that the current numbers are close to the carrying capacity for this route.

Approximately 37% of students walk or cycle to Nelson schools (refer Journeys to Work and Education in section 5.19). While the arterial traffic volumes increase significantly in school term time (refer Arterial Capacity in section 5.11), where possible students do choose active modes. Maintenance and renewal of road crossing facilities is needed to attract more of the working population to use alternative modes to achieve Council's active transport objectives (refer NCC Objectives in section 1.4) and Waka Kotahi objectives (GPS) of mode shift and carbon reduction.

Public transport mode share for Nelson remains very low (refer Bus Patronage in section 5.22). Walking and cycling facilities which are connected to public transport are required to support longer distant trips using alternative modes (refer 8.2(o) Public Transport).

### **Maintenance**

Cycle paths are included in the routine and detailed inspection programme. Cycle path sweeping is undertaken 12 times per year and cycle lane sweeping is undertaken as part of the road sweeping programme, which has a focus on the travel path of cyclists, regardless of whether there is a cycle lane.

Maintenance otherwise aims for footpath standards for shared facilities.

Markings on cycle facilities before 2018 are generally limited to white edge lines, cycle symbols, courtesy symbols and some give way treatments at intersections. Facilities established since 2018 have extensive markings which will affect the future maintenance programme.

White edge lines are re-marked annually. Symbols are re-marked as required. Other markings are not currently re-marked.

### **Renewal**

Sections of the shared paths require renewal.

## Lighting

Railway Reserve lighting has been requested through both the 2015 and 2018 LTP submissions. Lighting will increase both amenity and the availability of the Railway Reserve as a transport corridor for active modes during the hours of darkness. This has not previously been undertaken because the roads are less congested at night, so they provide a well-lit, better CPTED, active transport corridor, however this is under review. (Refer to the Low Cost Low Risk projects business case.)

## Other Cycle Facilities

A cost share arrangement exists with Waka Kotahi for the maintenance of the Atawhai and Whakatū shared paths on the State Highway corridors.

Cost share agreements are in place with Tasman District Council (TDC) for facilities at Saxton Sports Field and Champion Road, as required.

## Bike Parking Facilities

Traditional bike stands are maintained in the city centre and the Stoke Centre. Demand for additional and upgraded facilities are part of the Out and About Policy review.

## Mapping

NCC contributed to the Waka Kotahi cycle network planning project and continues to update network maps and user information as part of the cycle and travel demand management programmes.

Mapping has included referencing esplanade reserve paths (which have traditionally been Parks assets) to gain a more complete understanding of network availability (Figure 5.22).

## Works complete 2018–21

Improvement works completed in 2018–21 include:

- Saltwater Creek Bridge, Urban Cycle Fund(UCF) \$1.1M
- Rocks Road to Maitai shared path (UCF) delivered by Waka Kotahi
- Toi Toi Street shared path connection \$20,000
- Tahunanui Cycleway (UCF) \$4.6M
- Commencement of the speed limits review.

## Gap Analysis — Cycle Facilities

### *Monitoring*

Cycle counting is undertaken (including pedestrian counts) at six sites in both summer and winter. These have historically been undertaken manually. Tube counts can now be used for cycle counts, with pedestrian counts still undertaken manually. Automatic counters were installed in 2019/20. The business case recommends that all stations are made automatic. This supports Smart City and environmental outcomes, as less travel is required to undertake automatic counts. It also has a lower Net Present Cost based on the 10 year expected lifespan of the automatic counters.

UCF cordon counts are undertaken annually around Stoke and the City Centre, which capture gaps in the summer and winter monitoring. Review of the monitoring approach following the update of the Out and About Policy could identify synergies and improve the completeness of network monitoring.

### **Cycle Network**

The cycle network is discontinuous. Refer Cycle Network map (Figure 5.22) in section 5.23. Connected routes that work for origin to destination cycle trips is a significant gap in Nelson's transport network and continues to limit the uptake in mode shift to cycling as a transport choice. (Refer 8.2(k) Network and Asset Management.)

The NTLDM states that access and low volume roads should be designed to create low speed environments for pedestrians and cyclists to share with vehicular traffic. The speed limit review and improved network planning to enact this is expected to assist the development and delivery of improved, connected cycle facilities.

Nelson has two separated on-road cycle facilities, St Vincent Street and Sovereign Street. Both were installed before design guidance was readily available. Neither meet current design standards for driveway treatments and intersection layouts. The St Vincent Street on-road cycleway frequently attracts complaints and should be reviewed once the Tahunanui network is complete for community engagement on upgrade options.

Many shared paths facilities in Nelson are old. They were installed when opportunity occurred in reserves. Many do not meet current cycle design standards for sightlines, widths, wayfinding and similar signs and markings, and road crossing facilities. These attract service requests and concerns from the Police, and result in user conflicts between pedestrians and cyclists, as well as vehicles and cyclists.

There is opportunity to investigate shared paths in Washington Valley with the Utility upgrade programme. This route, has not been a priority in the past, but could be delivered economically due to concurrent works, and would address safety concerns on this road and provide for urban intensification in this area.

### **Cycle lanes**

Satisfaction with cycle lanes has dropped from 70% in 2011 to 50% in 2020. This may reflect changing user perceptions and LOS demands. This will be investigated through the Out and About Policy review. Refer also appendix B16, green markings can assist with cycle lane safety and traffic compliance.

## Safety

Nelson is rated as high risk for cycle safety in the Communities at Risk Register. This has been a focus of the 2018–20 road safety promotion programme and will remain a focus until the statistics improve.

Refer to Road Safety in section 5.14-18. Reported cycle crashes more frequently occur on road environments with vehicles. The cycle and safety programmes need to deliver across the spectrum of facility types and cycle abilities to avoid gaps where experienced cyclists, who prefer to remain on road, and are not welcome on shared facilities with pedestrians, are not catered for.

The discontinuous cycle network and the condition of existing cycle facilities is considered to be a factor in crash statistics, but may not be the only factor, as many cyclists prefer to remain on the road.

There is inadequate data to comprehensively determine relationship between the number of cyclists, facility type/use. Cycle safety causes, effects, locations and interventions will be a focus of the next three years, with future works expected to be identified and programmed in years 4-10.

### Develop Options — Cycle Facilities

Option	Description	Benefits	Negative effects of option
Option 1 Status quo	Continue with projects planned in 2018 AMP, with ongoing operation, maintenance and renewal of existing facilities.	Funding has previously been approved for improvement projects. Maintenance and renewals has its own programme independent of change processes.	Poor efficiency or coordination. Can result in renewed assets being altered early. Slow extension of cycle network as each project is assessed and consulted on its merits. High cost.
Option 2 Mode shift	Use transport planning mapping (see Network and Asset Management) to determine a long term programme and deliverable cycle network, using existing road layouts where possible. This option includes significant planning in the 2021–24 period, for implementation in 2024–34 and beyond. This option uses the WC124 and WC122 maintenance and renewal budgets in 2021–24, with a small improvement budget.	Coordinated programme including speed management review to improve on road cycle safety. Coordinated network. Staged delivery to cater for current and future demands. Consultation and benefits on a wider network. Long term programme to align with Utilities and other opportunities for delivery. Supports road cyclists' use of existing roads. Opportunity to incorporate urban design and amenity outcomes. Identification of quick wins to extend the network efficiently. Use intervention hierarchy for lowest NPV outcomes.	High initial planning input. Extensive initial consultation input. Initial lag in improvement to cycle facilities.
Option 3	Option includes development of separated cycle facility and	Comprehensive long term construction	High cost, typically \$3M per km.

<p>Cycle network extension</p>	<p>shared paths network. It also uses the Out and About Policy consultation to identify routes that need upgraded facilities, to be developed as projects. It includes design and construction budgets in 2021-24.</p>	<p>programme to build separated cycle paths and shared paths.</p>	<p>Extensive initial and ongoing consultation with residents affected by new facilities. High risk for funding, benefit-cost outcomes, and consultation outcomes. Slow delivery of outcomes. Poor urban design and amenity outcomes. Does not use intervention hierarchy.</p>
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Test Options — Cycle Facilities

Key to scoring

2 improved  
 1 addressed  
 0 not addressed  
 -1 decreased  
 -2 devalued  
 N not a viable option  
 Y viable option

Work Category	Strategic Response	Option No.	Option	2015-18 Budget LTP	2018-21 Budget (from NZTA TIO)	2018-19 Actual	2021-24 Estimated Cost (\$m) (first 3 years Continuous Programmes, first 10 years Projects)	Problem Statements				Other MCA Factors								9					
								Problem Statement 1: Arterial Safety and Capacity	Problem Statement 2: Multi Modal response	Problem Statement 3: Environmental challenges / Resilience	Problem Statement 4: Environmental Improvement	ONRC Safety	ONRC Resilience	ONRC Amenity	ONRC Accessibility	ONRC Cost efficiency/ Value for money	Opportunity Smart City	IAF Results Alignment	Urban Development Growth		Stakeholder Acceptability	Preferred Option	Problem Statement Score Weighted	Other MCA Factors score	Total Score
WC124	Cycle Facilities	1	Status Quo	\$ 2,003,360	\$ 2,003,360	\$ 227,174	\$ 3,933,687	0	1	0	0	1	1	0	1	1	0	1	0	1	N	2	6	8	
		2	Mode Shift				\$ 1,064,646	2	2	2	2	2	2	2	2	2	2	2	2	1	1	Y	16	16	32
		3	Cycle Network Extension				\$ 3,933,687	2	2	1	1	2	1	0	2	1	1	1	1	1	1	Y	12	10	22



### Preferred Programme — Cycle Facilities

Either Option 2 or Option 3 could be acceptable. Option 2 is preferred because it has a higher score. Both of these options are likely to result in separated facilities or shared paths, in the short or long term. However, if these are proven to be the right solution as part of a wider network, it should be easier to deliver these as part of Option 2.

WC	Cycle Facilities		2018-21 LTP	2018-21 Approved WAKA KOTAHI	2018-19 Actuals	Funding request (un-escalated)			Years 4-10 Annually, uninflated
	Project ID and Name	Project ID				2021/22 Inflated	2022/23 Inflated	2023/24 Inflated	
124	Waka Kotahi boundary agreement cycleway contribution	0118	(60,000)		(20,000)	(20,000)	(20,580)	(21,100)	(20,000)
124	Cycle path maintenance	0118	181,916	238,326	46,964	30,000	30,870	31,650	30,000
124	Atawhai and Whakatu cycle path maintenance	0118			30,806	20,000	20,580	21,100	20,000
124	Cycle path sweeping	0118			5,730	9,790	10,074	10,329	9,790
224	Cycle path renewals	3239			0	100,000	103,000	105,678	100,000
341	New cycle facility/ improvements	2798	Included in LCLR programme.						

These numbers were correct on the date of publication, and will not include any subsequent changes.

The preferred programme also includes the following.

- Automatic cycle and pedestrian counters at summer and winter count stations to assist with data capture to inform the planning process.
- Improved cycle markings on road to address cycle safety. (Also see 8.2f Traffic Services and 8.2m Low Cost Low Risk Roading Improvements.)
- Minor improvements to existing facilities to get to current standards.
- Speed management review to lower speeds and improve access for cyclists, and improve safety outcomes for cyclists
- Improved crossing at Songer Street for LOS and safety. (Also see 8.2M Low Cost Low Risk Roading Improvements and 8.2i Walking Facilities.)
- Railway Reserve Lighting for LOS and safety.
- Investigation of a Shared path on Washington Road.
- Upgrade Domett Street and/or Maitai path for improved cycle access.

Risks – Cycle Facilities

Risks – Cycle Facilities						
Refer Network and Asset Management for overarching risks and controls						
Refer Appendix N for Risk Matrix						
Identification		Analysis: Residual Risk			Response eg Accept, Reduce or Share	Treatments
Event Description	Consequence	Existing Controls	Consequence	Likelihood		
Inaccurate growth information/assumptions	Inappropriate decision made about future infrastructure and services.	Growth monitoring to be frequent and informed by national/international trends data where possible.	4	3	High (12)	Reduce  Regular monitoring regime and consultation with stakeholders and customers.
Increasing standards	Public expectations of transport safety, quality and environmental standards are increasing.	Mitigation strategies vary depending on the outcomes required.	3	4	High (12)	Share  The implications of increased levels of service, resulting in increased expenditure, are fully recognised by Councillors.
Changed use requires different infrastructure	Poor level of service for changed user expectations of network.	Consider ageing population, technology and mode share in all asset management decisions.	4	3	High (12)	Reduce  Consider aged population, technology and mode share in all asset management decisions. Monitoring and consultation with stakeholders and customers.
Changed use results in poor safety outcomes	Crash risk associated with change of use layout or design.	Awareness of Safe Systems Approach in all aspects of the transport system.	5	3	High (15)	Reduce  Safety audits at appropriate stages of concept design and construction.

Inadequate road width to accommodate all desired transport mode facilities (footpaths/cycleways/traffic lanes and parking)	One mode or user will need to change.	Consultation and use of multi-criteria analysis for business cases.	3	4	High (12)	Reduce	Consider ageing population, technology and mode share in all asset management decisions. Monitoring and consultation with stakeholders and customers.
Changing rules to allow cyclists on footpaths	Crash risk associated with change of use layout or design.	Monitor introduction of new rule.	5	4	Very High (20)	Reduce	Introduce bylaw to control cycle access to footpaths, if required.
Current design standards not appropriate for different devices eg e-scooters and e-bikes	Confusion LOS and safety risks with competing and incompatible users and uncatered for demands	Monitor design and implement guidance from Waka Kohati	4	4	High (16)	Reduce	Include new design guidance when available

**Procurement — Cycle Facilities**

Maintenance and renewal, and associated improvements through utilities, road and electrical maintenance contracts.

Detailed design of specific projects through professional services contracts.

Open tender for construction of specific projects.

Performance monitoring through traffic counting contract.

Assessment of evidence and risks, and forward planning, will be carried out by internal staff.

Automatic count stations will be purchased through direct appointment through the Waka Kotahi group purchase contract.

**Develop Improvement Plan — Cycle Facilities**

Reference	ONRC Pillar	Description	Timing	Who
C1	Communication	Public-facing route maps.	2024	Transport asset managers, Operations and GIS
C2/W2	Communication	Public and political consultation about what urban form looks like, with respect to better	2021–23 for 2024–34 AMP	Transport asset managers, operations and Communications

		environmental outcomes and responding to the climate change emergency.		
C3	Evidence	Better understanding of Nelson’s specific cycle crash risks.	2021–24	Transport asset managers
C4	Systems	Better evidence to support future forward works programme.	2021–31	Transport asset managers
C5	Evidence	Review location, layout and frequency of monitoring.	2024–27	Transport asset managers
C6	Evidence	Programme annual condition assessments of separated cycle facilities.	2021	Transport asset managers and Operations
C7	Evidence	Assess condition rating and maintenance programming for cycle facilities methodologies and programming	2022	Transport asset managers and Operations

### GPS Alignment — Cycle Facilities

See 8.2(k) Network and Asset Management.

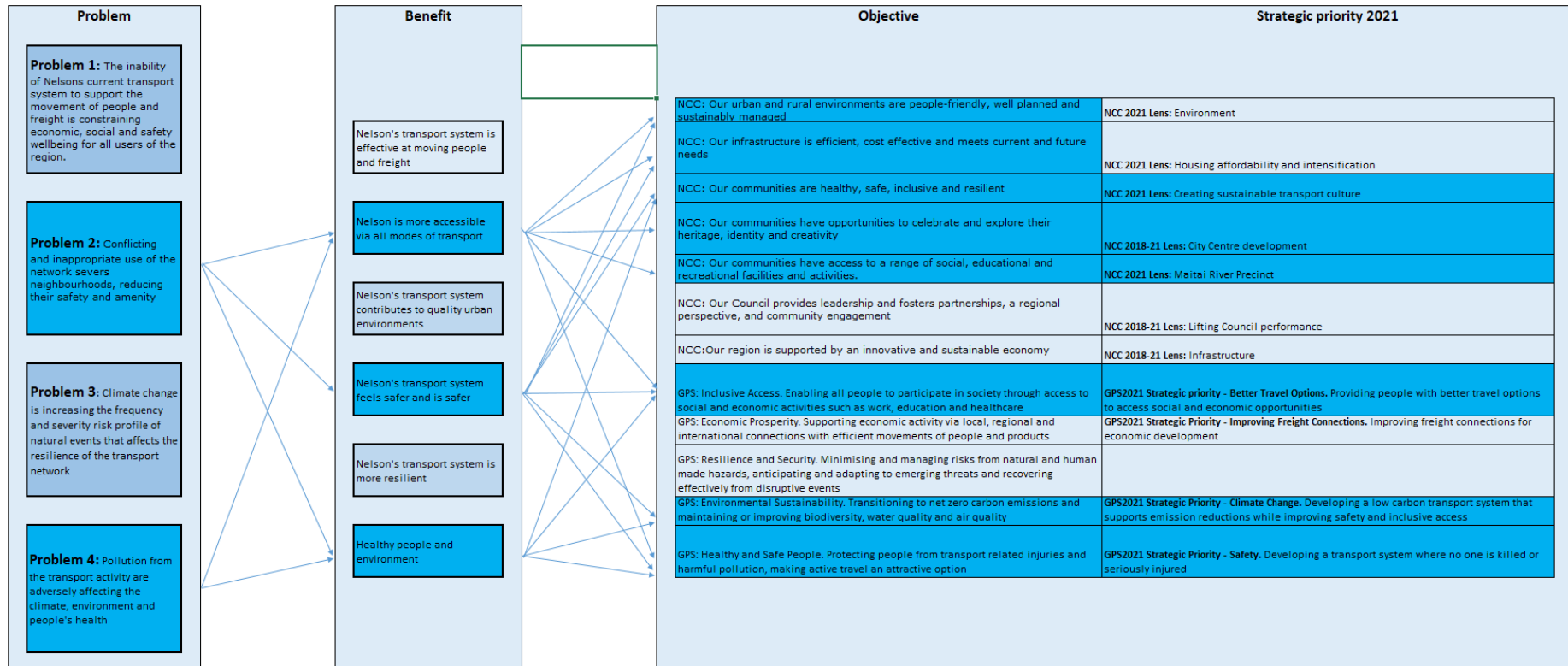
## 1) Walking Facilities

Walking facilities are particularly affected by problem statements 2 and 4. The preferred programme is aimed to maximise the use of the existing network with ongoing maintenance and renewal and minor investment in improvements to enhance access where required.

Footpaths and walkways provide a key link between journey origin and destination for pedestrians. They are an essential component of an effective, efficient and sustainable transport system that delivers better transport options. Waka Kotahi co-funds footpath maintenance and renewals through WC 125. Higher pedestrian amenity is delivered through the CBD programme for city centre spaces.



Link to Strategic Case — Walking Facilities



### Test Levels of Service — Walking Facilities

The ONRC Customer LOS do not specifically cater for the walking facilities. However, the principles can be applied, as shown below.

ONRC LOS	
Safety	Fault identification and prioritisation ensures that defective and dangerous pathway sections are recorded and appropriate interventions are undertaken.
Resilience	Programme of maintenance works undertaken to ensure journeys are not impacted by unplanned events.
Amenity	Regular programme of routine maintenance ensures the safety and amenity of footpath facilities don't detract from the customer experience. Condition assessments are undertaken at least annually on all footpaths and walkways, and are used to inform the future years maintenance and renewal programmes.
Efficiency	Minimise whole of life costs while delivering the required customer outcomes through strategic planning. Ensure improvement opportunities are considered with all renewal activities by consulting through the Utility Operators meeting and asset improvement planning.

The current target of 20% of people walking and cycling or using public transport to go to work is not being achieved (refer Journeys to Work and Education in section 5.19), but 37% of students are walking and cycling to school.

There is no ONRC Technical LOS for footpaths so Council applies the NTLDM and the Waka Kotahi Pedestrian Planning Guide criteria. The new ONRC placemaking framework may fill this gap in future. (The NTLDM sets standards for new footpaths based on the Pedestrian Planning guide.

The LOS in the 2018 AMP are that 95% of the footpath network by length has a condition rating of no greater than 3. Poor definition of the condition assessments means this LOS measure is difficult to communicate. Clearer definition is proposed, and will include footpath shape as well as deterioration issues. (Refer Appendix D). These modifications will focus renewals to provide better facilities for pedestrians. However, this change is expected to increase the number of poor condition ratings for footpaths.

Wider, flatter footpaths are providing a higher LOS for the ageing demographic (refer to Ageing Population in section 5.2) and for less mobile people, where walking is their only form of independent mobility. Walking is suitable for very short trips, so the connectivity of the network is especially important in residential and urban centres where people need to make longer trips to access neighbourhoods and facilities. Council has introduced several measures to improve the footpath profile in existing areas, and adopted advice from the 2017 Waka Kotahi audit. This resulted in the practice note in Appendix D. Improving these facilities gives people a wider range of quality options and access opportunities (GPS cl 58).

There is no LOS measurement for areas pedestrians might want to access but in which there is no footpath, and they have to walk on the road (shared zones, rural roads). Shared

zones are proposed in conjunction with the speed limit review. Low value interventions are expected as a result of this change, which will support lower speed environments and enhance pedestrian safety in shared zones. Comprehensive rebuilds of roads to become shared zones is not anticipated.

Walkways that form road to road connections, and form part of the commuter walking network, are managed as footpaths. They have their own lighting (in a few locations) and are more likely to have handrails, steps, retaining walls (refer Walking Facilities in Appendix B) and lighting (refer Streetlights in Appendix B) and be more expensive to maintain due to access issues.

Walkways that have dual walking and cycling use are classed as cycleways. (Refer Cycle Network in Appendix B.)

Driveways cross footpaths between the road and properties. Some driveways also have extensive berm crossings at the back or front of the footpath. These will be considered as part of the Road Occupation Policy to determine consistent approach to managing these with new and renewed footpath programmes.

### **Compile and Test Evidence — Walking Facilities**

Refer section 5.2 population for details on the percentage of people walking to work and school. Walking and cycling are well supported by students, which indicates successful investment to date in school travel plans and footpath infrastructure.

Active travel to schools was a feature of the 2018–21 travel demand package. Classroom surveys are undertaken to determine the proportion of students walking or cycling or travelling by bus to school. The data collection and analysis requires improvement to enable this data to be used for planning and monitoring the programme.

The walkability of the city centre is being reviewed as part of the Spatial Plan, city revitalisation and Maitai River Precinct programmes. (See CBD AMP for further details.)

As outlined in Pedestrians in section 5.18-21 and 8.2(r) CBD Facilities, pedestrians do not feature on the Communities at Risk Register. However, the number of crashes involving pedestrians has increased, so this is a concern in Nelson.

Footpath lighting is covered by roadway lighting. Walkway lighting is considered on a case by case basis for CPTED issues. Walkway lighting has historically been an unsubsidised activity but in 2018 pedestrian facilities become eligible for Waka Kotahi funding. Council has assumed that walkway lighting qualifies for subsidy and will be included in the traffic services programme from 2021. See the section 8.2(e) streetlights for further details.

Walking is the most viable means to access public transport for many people. For this reason, good pedestrian facilities at and to bus stops contribute to Council's mode shift objective (refer 8.2(o) Bus Patronage).

Severance of walking networks by high volume roads continues to be an issue for the walking activity. Between one and three improvement projects have historically been installed per year. However, demand continues as the public embrace the Council objective towards mode shift. The GPS also requires Council to take a proactive role towards this objective (GPS cl 142). The Pedestrian Planning Guide is used to inform this facility and the site specific design, which are delivered through the LCLR programme.

The Out and About Policy is due for renewal. Refer



<http://www.nelson.govt.nz/council/plans-strategies-policies/strategies-plans-policies-reports-and-studies-a-z/out-and-about-policy/>.

This work will continue into the 2021–24 period as the Future Access Study recommendations and network planning are undertaken. (Refer 8.2(k) Network and Asset Management.)

### **Gap Analysis — Walking Facilities**

Changing the criteria, accommodating for growth in the walking activity, and the ageing population, increase the gap between the current LOS and footpath condition, and desired facilities which indicate a demand for an increased renewal programme.

The higher standard expected from footpaths to cater for user requirements (flat footpaths, and safe grades for vehicles to enter and exit driveways) means there is a gap between a traditional like for like renewal and the desired facility. This could be accommodated by minor adjustments in the scope of renewal works to include shifting a footpath away from the kerb to cater for driveway shapes, and minor widening of footpaths up to 2m wide to meet NTLDM minimum standards. This small change will support urban intensification in the short term while planning for enhanced urban form in future (GPS cl 143).

Pending changes to permit more cycle use on footpaths, unknown demand of alternative wheeled devices use on footpaths, can best be managed by the current proposal to widen and flatten footpaths to provide 2% gradients wherever possible, with NTLDM footpath allocations and widths. Updates to the NTLDM are likely to be needed to accommodate transport changes, and these changes will guide future footpath requirements.

The traditional approach of vehicles dominating the road space means access to property, intersections, road crossings and roads without footpaths can be a barrier for walking activity. A legacy of driveways that prioritise vehicle use over the pedestrian use lowers the LOS on many footpaths and introduces safety concerns where vehicles cross the footpath at speed.

Speed limit reductions are being considered in consultation with the community for roads without footpaths (potential shared zones), and where there is high demand for pedestrians to mix with traffic (eg in the city centre). A pedestrian lens over network planning mapping is also required to ensure a mode neutral future transport system and a proactive approach to delivering mode shift in Nelson (GPS cl 142). Refer 8.2(k) Network and Asset Management.

A large programme of utility renewals is anticipated in the 2021–31 period. (Refer Utilities AMPs.) Where renewals are in footpath spaces, works are required to meet NTLDM reinstatement requirements and are enforced by corridor access requests (CAR) processes. Where the utility is a Council one, there is a public expectation that any footpath improvement would be concurrent with that work. Allocating renewal budget to enable the NTLDM standard for footpaths to be reinstated in addition to the trench reinstatement, would facilitate benefits for the walking activity and value for money outcomes.

The walking activity can contribute to freshwater and carbon neutral outcomes where it can influence mode shift away from vehicle use. This is partially negatively offset where new footpaths increase net hard surface areas, also increasing the speed and intensity of stormwater run-off and carbon inputs associated with the construction of new paths.

Walking facilities gain amenity and environmental benefits from unsubsidised tree/street garden programmes. They create high quality, healthy pedestrian environments and mitigate the environmental impact of the Transport activity.

Sea level rise implications are considered for the parts of the walking network in coastal locations and the esplanade reserves along the margins of rivers, which become inundated during flood events. This will be considered when implementing recommendations from the climate change risk assessment when this becomes available. Otherwise the benefits of walking vs vehicle use, in terms of reducing the carbon footprint of transport is considered beneficial enough to continue the current walking programme for the short term.

**Develop Options — Walking Facilities**

Option	Description	Benefits	Negative effects of option
1. Status quo	No change in LOS measures, like for like renewals, with minor improvements when indicative efficiency ratings permit.	All footpath improvements are justified through the LCLR programme.	Delays to the programme as improvements are quantified and measured. Like for like renewals do not lift LOS or the attractiveness of walking activity. Poor connection between renewals and improvements.
2. Future Access Study	Defer all improvement works pending the outcomes of the Future Access Study to ensure alignment. Decrease renewals to avoid misalignment, and increase maintenance to offset condition and performance effects.	Focus on alignment with the long term outcomes of the Future Access Study. Avoid risk of renewal in areas where network improvement could be proposed in future.	Missed opportunities for timely renewal of footpaths that cater for walking activity outside the Future Access Study focus area. Maintenance can lead to lower LOS for walking due to the vulnerability of some users.
3. Increase renewal programme	Increase the scope of renewal activities to include minor shape and width improvements up to 2m wide, and relocation of existing footpaths away from the kerb where renewal is the primary objective, including Utility renewal projects. Ongoing maintenance, and minimal improvement programme based on associated improvement opportunities and road crossing facilities, pending the outcomes of the Future Access Study.	Maximise LOS delivery and user benefits with the renewal programme. Associated improvements are justified through the LCLR programme. Streamlined delivery for good value for money outcomes. Minimise risk of renewal in areas where network improvement could be proposed in future.	Site by site LOS improvements are not justified through the LCLR programme.

Test Options — Walking Facilities

Key to scoring

2 improved  
 1 addressed  
 0 not addressed  
 -1 decreased  
 -2 devalued  
 N not a viable option  
 Y viable option

Work Category	Strategic Response	Option No.	Option	2015-18 Budget LTP	2018-21 Budget (from NZTA T/O)	2018-19 Actual	2021-24 Estimated Cost (\$m) (first 3 years Continuous Programmes, first 10 years projects)	Problem Statements				Other MCA Factors							9						
								Problem Statement 1: Arterial Safety and Capacity	Problem Statement 2: Multi Modal response	Problem Statement 3: Environmental challenges / Resilience	Problem Statement 4: Environmental Improvement	ONRC Safety	ONRC Resilience	ONRC Amenity	ONRC Accessibility	ONRC Cost efficiency/ Value for money	Opportunity Smart City	IAF Results Alignment		Urban Development Growth	Stakeholder Acceptability	Preferred Option	Problem Statement Score Weighted	Other MCA Factors score	Total Score
WC125	Walking facilities	1	Status Quo	not included				1	1	0	0	1	1	1	1	0	1	1	1	1	Y	4	8	12	
		2	Future Access Study	\$3,450,982 plus LCR				0	0	0	0	1	1	0	0	1	0	1	0	0	0	N	0	4	4
		3	Increased Renewal programme	\$1,100,000 plus LCR				1	2	0	0	2	1	2	2	1	0	1	2	1	1	Y	6	12	18

### Preferred Programme — Walking Facilities

Both Options 1 or 3 could be acceptable. Option 3 is preferred because it has the higher score.

WC	Walking Facilities		2018–21 LTP	2018–21 Approved WAKA KOTAHI	2018–19 Actuals	Funding request (un-escalated)			Years 4–10 Annually, uninflated
	Project ID and Name	Project ID				2021/22 inflated	2022/23 inflated	2023/24 inflated	
125	Blockwork maintenance	0416		3,417,698	56,957	30,000	30,870	31,650	100,000
125	Footpath maintenance	8076			212,639	100,000	102,900	105,500	100,000
225	Renewals — footpaths	1494			838,818	1,200,000	1,236,000	1,368,136	1,200,000
125	Seat maintenance	2278			36,169	10,000	10,170	10,340	40,000 y4 25,000 y5-10
341	New footpaths (improvements)	2798		Included in LCLR programme	791,904	350,000	360,500	369,873	500,000
Unsub	Footpath renewals	1494	0	0	0	30,000	30,900	31,703	30,000

These numbers were correct on the date of publication, and will not include any subsequent changes.

### Procurement — Walking Facilities

Footpath maintenance, renewals and improvements via the road maintenance contract include pedestrian refuges and handrails. Footpath renewal projects have been beneficial for start-up contractors to gain experience under the supervision of experienced road maintenance contractors, as a subcontractor for specific sites. This is a way for Council to support local industry growth.

Where detailed design is required for specific improvements, this can be procured through the professional services panel, followed by tendering for construction if bridges or retaining walls are required, or if the work is part of a comprehensive project package. Construction that fits within the scope of the maintenance contract may go to the maintenance contractor.

**Risks — Footpaths**

Risks — Walking Facilities							
Refer Network and Asset Management for overarching risks and controls							
Refer Appendix N for Risk Matrix							
Identification		Analysis: Residual Risk				Response eg Accept, Reduce, Share	Treatments
Event Description	Consequence	Existing Controls	Consequence	Likelihood	Current Risk Level		
Inaccurate growth information/assumptions	Inappropriate decision made about future infrastructure and services.	Growth monitoring to be frequent, and informed by national/international trends data where possible.	4	3	High (12)	Reduce	Regular monitoring regime and consultation with stakeholders and customers.
Increasing standards	Public expectations of transport safety, quality and environmental standards are increasing.	Mitigation strategies vary depending on the outcomes required.	3	4	High (12)	Share	The implications of increased levels of service, resulting in increased expenditure, are fully recognised by Councillors.
Changed use results in poor safety outcomes	Crash risk associated with change of use layout or design.	Awareness of Safe Systems Approach in all aspects the transport system.	5	3	High (15)	Reduce	Safety audits at appropriate stages of concept design and construction.
Inadequate road width to accommodate all desired transport mode facilities (footpaths/cycleways/traffic lanes and parking)	One mode or user will need to change.	Consultation and use of multi-criteria analysis for business cases.	3	4	High (12)	Reduce	Consider ageing population, technology and mode share in all asset management decisions. Monitoring and consultation with stakeholders and customers.
Seismic risk to walk/cycle bridge structures	Failure of structure.	Structures inspections and maintenance.	4	3	High (12)	Manage	Inspection and maintenance of structures.
CPTED for walkways with low public surveillance	Personal injury or misadventure.	Vegetation management and sightlines.	4	1	Medium (4)	Share	Safety messaging and consultation with customers.

Changing mobility device use and technology	Crash risk/personal injury.	Monitoring trends and consultation with stakeholders and customers.	5	3	High (15)	Reduce	Regular monitoring regime and consultation with stakeholders and customers.
Changing rules to allow cyclists on footpaths	Crash risk associated with change of use layout or design.	Monitor introduction of new rule.	4	4	High (16)	Reduce	Introduce bylaw to control cycle access to footpaths if required and not covered by the accessible streets package when/if adopted nationally

### Develop Improvement Plan — Walking Facilities

The following actions have been identified for improvement with regard to the walking facilities and activity

Reference	ONRC Pillar	Description	Timing	Who
W1	System	Map the primary and secondary walking routes along with all other network functions in a planning map, to coordinate connections and improvements.	2021–23 for 2024–34 AMP	AM
W2	Evidence	Mark areas in RAMM where no footpath is viable or required, to avoid these being caught in the gap analysis.	Not urgent	Operations
W3	Communication	Public and political consultation about what urban form looks like with respect to better environmental outcomes and responding to the climate change emergency.	2021–25 for 2027– 37 AMP	AM, Comms, Operations and Nelson Plan teams

### GPS Alignment — Walking Facilities

See 8.2(k) Network and Asset Management.

## J) Emergency Works

Emergency works are affected by problem statement 1 and 3. The programme is reactive but includes review of insurances for retaining walls that are unlikely to be eligible for reinstatement through the NLTF if lost through unforeseen events.

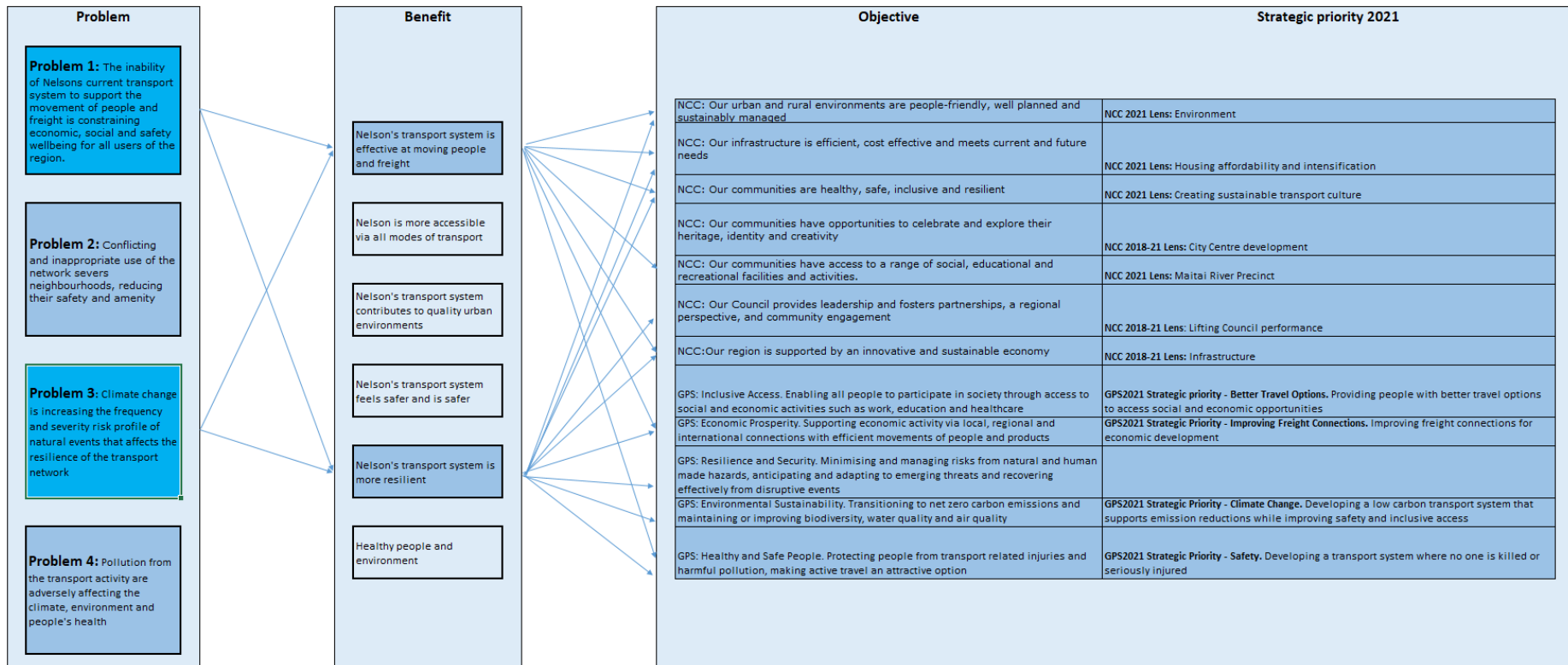
Waka Kotahi co-funds emergency works that affect the transport network, as set out in the planning and investment knowledge base:

[https://www.Waka\\_Kotahi.govt.nz/planning-and-investment/planning-and-investment-knowledge-base/activity-classes-and-work-categories/road-maintenance/work-category-140-minor-events/](https://www.Waka_Kotahi.govt.nz/planning-and-investment/planning-and-investment-knowledge-base/activity-classes-and-work-categories/road-maintenance/work-category-140-minor-events/)

[https://www.Waka\\_Kotahi.govt.nz/planning-and-investment/planning-and-investment-knowledge-base/activity-classes-and-work-categories/road-maintenance/work-category-141-emergency-works/](https://www.Waka_Kotahi.govt.nz/planning-and-investment/planning-and-investment-knowledge-base/activity-classes-and-work-categories/road-maintenance/work-category-141-emergency-works/)



Link to Strategic Case — Emergency Works



### **Test Levels of Service — Emergency Works**

Emergency resilience is measured by monitoring of unplanned road closures, which includes civil, police and fire events as well as storm events.

Nelson City Council is particularly fortunate that the State Highway forms the first line of defence to the sea. However, this is also problematic because if this road is affected by any event, the State Highway traffic is delayed or needs to be accommodated on the local network.

In emergency events HPMV may use Main Road Stoke and Waimea Road (with prior approval). In emergency events traffic management plans are implemented to divert traffic via alternative routes, either by Police or Civil Defence operations. Maintaining accurate ONRC classifications, matched to traffic use will support emergency response plans and response to problem statement 1. When resources need to be prioritised the life line routes are protected first, then lower order roads in accordance with the ONRC hierarchy as resources permit to maximise potential to effectively move people and freight regardless of the event.

The resilience of walking and cycle routes, and public transport services, will become increasingly important, as a multimodal system needs to cater for weather and emergency scenarios. Planning for these activities in emergency events will better address problem statement 2.

### **Compile and Test Evidence — Emergency Works**

#### *Current Profile — Emergency Works*

The 2011 storm event was the last significant event to qualify for Waka Kotahi WC141 Emergency Works funding. Works to complete this response were funded over a four year period.

#### **Current Profile — Minor Events**

Waka Kotahi prefers councils not to set a budget for minor events, unless there is a known history of claims. Minor events are disruptive to routine maintenance, so where possible these are funded through reallocation of budgets within the maintenance and renewal programme.

Waka Kotahi Payments for Minor Events through WC140 have been made as follows.

Financial Year	Waka Kotahi paid claims for minor events WC140
15/16	\$12,705
16/17	\$5,891
17/18	\$208,154
18/19	\$120,564
19/20	\$102,946

### **Gap Analysis — Emergency Works**

There is no current gap in Waka Kotahi emergency or minor events funding.

There may be gaps in the insurance of items not covered by funding from the National Land Transport Fund (NLTF). Bridges, heritage features (eg Rocks Road bollards), artworks, Moller Fountain and CBD amenity features may not be adequately covered. Whether these are covered by Council's insurance will be reassessed with the 2021 asset revaluation.

Planning for disruption to pedestrian and cyclist journey plans due to significant emergency events becomes more critical as mode shift is required to manage traffic demand on the network to address problem statement 1 and 2 or these people could be disengaged by events and return to car use.

**Develop Options — Emergency Works**

Develop Options	Option Description	Benefits of Option	Negative Consequences of Option
Option 1 Status quo	No change to any emergency works provisions. (\$100k budget is allocated locally per year.) No emergency budget is requested through Waka Kotahi until required. Permanent reinstatements are included in future programmes.	Minimises a budget allocation that may not be required.  Immediate response is actioned and sites are made safe.	Reduced LOS where permanent solutions are delayed, awaiting funding programme approvals.
Option 2 Increased insurances	Increase insurances for high value urban amenity facilities and structures. (\$100k budget is allocated locally.) No emergency budget is requested through Waka Kotahi until required. Permanent reinstatements are funded through insurance where applicable, and/or future programmes.	Decreased impact on rates and accelerated permanent reinstatements.  Immediate response is actioned and sites are made safe.  Autonomy to undertake permanent reinstatements without Waka Kotahi funding approval processes for insured facilities.	Increased cost for insurances.  Reinstatements are less likely to allow for improvements if funding is covered by insurances.

Test Options — Emergency Works

Key to scoring

2 improved  
 1 addressed  
 0 not addressed  
 -1 decreased  
 -2 devalued  
 N not a viable option  
 Y viable option

Work Category	Strategic Response	Option No.	Option	2015-18 Budget LTP	2018-21 Budget (from NZTA 710)	2018-19 Actual	2021-24 Estimated Cost (\$m) (first 3 years Continuous programmes, first 10 years projects)	Problem Statements				Other MCA Factors								Preferred Option	Problem Statement Score Weighted	Other MCA Factors score	Total Score	
								Problem Statement 1: Arterial Safety and Capacity	Problem Statement 2: Multi Modal response	Problem Statement 3: Environmental challenges / Resilience	Problem Statement 4: Environmental Improvement	ONRC Safety	ONRC Resilience	ONRC Amenities	ONRC Accessibility	ONRC Cost efficiency/ Value for money	Opportunity Smart City	IAF Results Alignment	Urban Development Growth					Stakeholder Acceptability
WC140	Emergency works	1	Status Quo					1	1	1	0	1	1	1	1	1	0	1	1	2	Y	6	9	15
		2	Increased insurance					1	2	2	0	1	1	1	1	1	1	1	1	2	1	Y	10	10

Both options are acceptable, although Option 2 scores slightly more highly due to improved resilience, by sharing the risks with a 3rd party, as well as multimodal and urban development benefits. Option 1 is more likely to be acceptable to stakeholders due to the reduced rates impact in the short term, and is reflected in the preferred programme below.

### Preferred Programme — Emergency Works

Emergency works			2018–21 LTP	2018–21 Approved WAKA KOTAHI	2018/19 Actuals	LTP funding request			Average annual budget Y 4–10
WC		Cost Code				2021/22	2022/23	2023/24	
140	Minor events	_3030	\$0	\$0	\$120,564	\$0	\$0	\$0	\$0
141	Emergency works*	TBC	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Unsub	Insurance	2637	\$0	N/A	\$0	\$0	\$0**	\$0**	\$0
CBD	Insurance	2637	\$3,834	N/A	\$1,301	\$1,874	\$1,928	\$1,977	\$1,700

\*NLTF funding for declared civil defence emergencies only.

\*\*\$20k budget is allocated across y1 and 2 to engage an assessor to determine risk and benefits of further council insurance for unsubsidised assets and/or major transport assets.

These numbers were correct on the date of publication, and will not include any subsequent changes.

Insurance for specific CBD assets is currently provided incurring an annual fee.

### Procurement Strategy — Emergency Works

The road, electrical, utilities, and parks maintenance contractors respond to emergency events as appropriate and this is covered in current contract provisions.

## Risks

Risks – Emergency Works							
Refer Network and Asset Management for overarching risks and controls							
Refer Appendix N for risk matrix							
Identification		Analysis: Residual Risk				Response e.g. Accept, Reduce, Share	Treatments
Event Description	Consequence	Existing Controls	Consequence	Likelihood	Current Risk		
Significant natural event	Resources reapportioned as necessary which might compromise AMP implementation and agreed LOS. Potential for public claims due to a lack of understanding of the risks.	Delay implementation of the AMP. Review and modify the AMP as necessary when resources are re-established.	4	3	High (12)	Reduce	Nelson Plan and the response areas in the maintenance intervention strategy.
Climate change increases the risk that responses to emergency events are required	More frequent events.	Emergency response	4	4	High (16)	Reduce	Planning for adaptation, mitigation, or retreat. Consider climate change in all business cases.
Health and safety risks for workers and the public are managed during emergency events	Personal injury or misadventure.	COPTTM and Health and Safety Guidelines.	4	3	High (12)	Manage	Ongoing support and training for staff and contractors.
Insurance	Unplanned expenses following a natural event or disaster.	Funding through Waka Kotahi.	3	4	High (12)	Review	Review current provisions, demands and risks.
Desired Waka Kotahi funding not obtained	Additional costs to Council.	Emergency Reserve funding.	3	3	Medium (9)	Share	Follow Waka Kotahi application guidelines and ensure politicians are fully informed.

Lifelines Plan not fully integrated with the Transport AMP.	Lifeline asset failure. Failure to comply with Civil Defence Emergency Management Act.	Improvement of staff understanding of the Lifeline Plan (through the improvement programme).	4	3	High (12)	Reduce	Coordinate with Civil Defence for best integration of Lifelines Plan into AMP. Understand critical assets.
ONRC classifications	Some primary collector roads are under-scoped for emergency response until reclassified as ONRC arterial	Ensure all ONRC are correct and appropriate	4	2	Medium (8)	Reduce	Reclassify affected roads to ONRC arterial. Refer N&AM. Consider upgrade requirements in network planning.

### Develop Improvement Plan — Emergency Works

Ref	Improvement Action	Priority	REG Pillar	When	Who
E1	Review emergency procedures and Lifelines to include any changed priorities from the NFAS and PT reviews	1	System	2021-24	Transport asset management and Civil Defence team
E2	Understand secondary flow paths and the impact on emergency response and lifeline routes (also refer to Drainage).	2	System	2021-24	Transport and Utilities
E4	Determine scope and scale of insurances.	3	Evidence	2021-22	Transport and Finance
E5	Develop a monitoring plan to gain lessons to improve future performance, and to carry out proactive improvements.	4	System	2024-27	Transport Asset management and Operations
E6	Consider how pedestrians and cyclist journeys are catered for in significant emergency events	5	System	2024-27	AM, operations and Civil Defence team

### GPS Alignment — Emergency Events

See 8.2(k) Network and Asset Management.



### K) Network and Asset Management (WC151)

Network and Asset management is affected by all problem statements. The preferred programme is to move from a reactive to forward works planning for the renewal and improvement programmes. The programme also includes ongoing data improvement and assessment and investigation of options the deliver the NPS freshwater improvement outcomes and compliance required.

Waka Kotahi co-funds the following activities under WC151 Network and Asset Management:

- management of the road network (associated staff time)
- implementation and operation of road asset management systems (RAMM, GIS, Infor and OBIS)
- regular, routine updates to the Activity Management Plan (AMP review and improvement planning)
- roughness and condition rating surveys (high speed data and footpath condition surveys)
- traffic count surveys, including pedestrian and cycle counts
- monitoring of network safety
- road network inspections and field validation of proposed programmes (contractor network inspections, staff network inspections, testing and data analysis)
- routine refreshing of the asset deterioration data (including manual deterioration assessment calculations)
- Travel Demand management
- maintenance and routine updating of transport models (traffic modelling)
- legalisation of existing road reserves (specific circumstances only)
- professional services (eg pavement advice, structures inspections and assessments and overweight permit checking, safety audits).

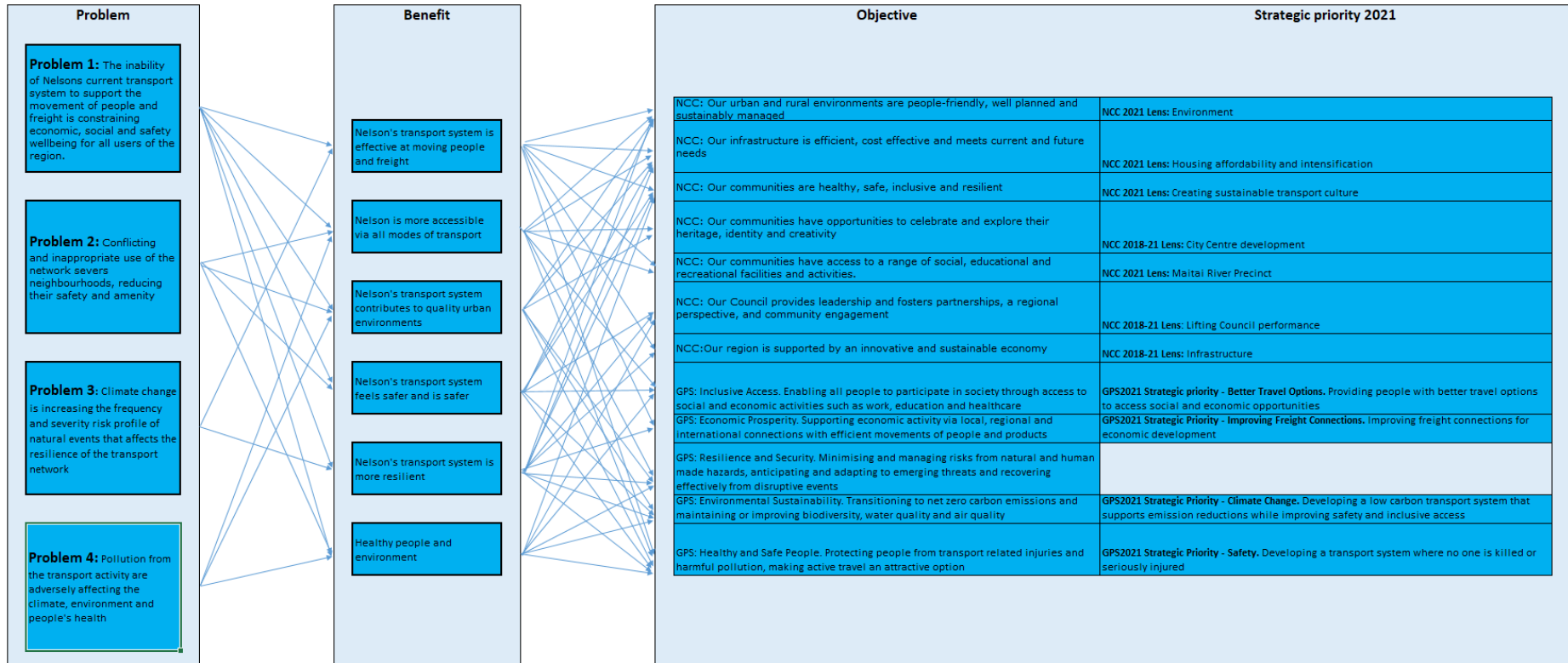
To operate the road network Council also carries out the following unsubsidised Network and Asset Management activities:

- land purchase, valuations, legal advice
- policy updates
- bylaw management and updates
- performance monitoring and reporting
- financial monitoring and management
- assessment of growth demands on the transport network
- preparation of business cases and/or point of entry to apply for Waka Kotahi co-funding when relevant
- assessment of resource consent applications for impacts on the road network
- corridor access requests (CAR)
- traffic management plan (TMP) monitoring and approval.

These are covered in the section 8.2(q) Unsubsidised.

**Link to Strategic Case — Network and Asset Management**

Network and asset management works across the spectrum of benefits to address problems and contribute to Council objectives and GPS outcomes.



**Test Levels of Service — Network and Asset Management (NAM)**

ONRC LOS	
Safety	N and AM contributes to road safety by monitoring the network, and safety concerns to understand risks and issues and to plan interventions.
Resilience	Good planning will identify risks and strategies to ensure the best possible network resilience across all spectrums of the transport system, and identify when coordination is required with other utility providers.
Amenity	Good N and AM will result in improved amenity for customers by identifying the areas of demand, as well as suitable interventions and their timing.
Accessibility	Planning for access to economic and social opportunities regardless of mode of travel.
Efficiency	Minimise whole of life costs while delivering the required customer outcomes across the whole transport activity through strategic planning. Good asset management will maximise the efficiency between maintenance, operations and renewals and transformational change.

Refer LOS/performance monitoring, section 7 and Appendix C. All of the measures are integral to Network and Asset Management for safe, efficient and well planned operation of the transport system both now and in future. Also refer to the other programme sections of the AMP where specific LOS are discussed in detail, as relevant to each section.

The Transport team provides support to the Resource Consents and Planning team by checking consent applications for transport aspects and becoming involved in development plans. This is a vital link between transport and land use planning and provides a good LOS to the planning process. However, it requires a significant amount of experienced transport planner time (0.8FTE) which does not show up in the Transport activity, and reduces the capacity of transport staff to undertake other core transport functions.

**Compile and Test Evidence — Network and Asset Management****Regional Council Functions**

As Nelson is a Unitary Authority Network and asset management (NAM) for Nelson City Council includes all planning and regulatory functions required by a Regional Council. This is likely to result in higher NAM costs, and staff time inputs, compared to peer group councils which are territorial authorities operating alongside a separate regional council. These services are included in WC151 due to the low value of external input required, and high integration with staff time.

**Condition Assessments and data Improvement**

Council uses the road maintenance contract to undertake many inspections and data management activities. This provides a collaborative environment between Council and the contractor, and includes use of the State Highway database operation manual (SHDOM) as the framework for recording and maintaining assets in RAMM, and training Council staff in better RAMM database operation maintenance and management. It is included in the improvement plan in the 2018 AMP. This contractual arrangement is in place until next contract review in 2023.

Data improvement, identified in the 2018 AMP is an ongoing requirement, as highlighted by the current data quality score of 68, and will require staff training and ongoing update and licencing costs. This will include participation in the National data standards programme and programmes to improve forward works planning. It will affect the way

data is recorded, and Council may from time to time require external assistance to update records.

### **Urban Growth Planning**

Refer Urban Growth in section 5.2-5.8. Council will lag in investments to increase vehicle capacity, and lead with interventions that improve urban amenity and public transport, including development of neighbourhood upgrade plans. This is a shift in approach from the traditional vehicle capacity planning and will require coordination, planning and consultation to integrate into service delivery.

Refer Urban Growth in section 5.2-8 for details about Council's Development Contributions Policy. Transport demands related to growth need to be planned, funded and delivered by those who will benefit from the public works (GPS cl 143).

### **Speed Management**

A speed management review began in 2019 and will be continued in the 2021–31 period to integrate with network planning, the delivery of the Future Access Study, and working towards Road to Zero safety outcomes (GPScl118).

### **Network User Information**

Council has a Travel Demand Management programme, currently included in WC421. This programme will be migrated into WC151 from 2021.

### **Gap Analysis — Network and Asset Management**

GIS presents public facing transport information. This is updated from the Ramm system. Streamlining system management, including uploading of new subdivision data RAMM and GIS, and is under ongoing review.

Following the theme of the 2018 AMP, an ongoing data improvement programme is required. This will help lift Council performance, and could lead to options for using "big data" to improve user experiences, integrate transport options and/or optimise traffic flows (GPS cl 101). This could also deliver on Council's Smart City objectives. Good planning and data management will help identify these opportunities (GPS cl148).

Improved data is required to inform and deliver to the service level standards that are consistent with network use and function (GPS cl 143), and create a long term understanding of the cost of maintaining the transport assets (GPS cl 143). This needs to be an ongoing part of the data improvement and planning programme. The current data quality score of 68 reflects the poor condition of the database.

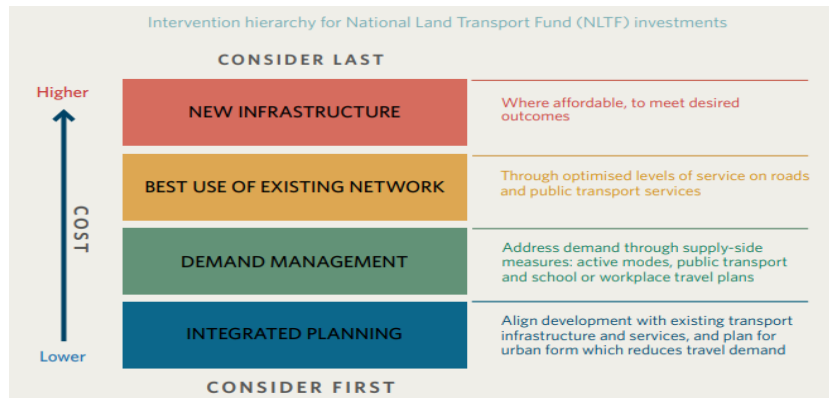
Refer Traffic Volumes in section 5.8 for details about traffic counts. While Council has committed to a contract that should conclude with a traffic count on all roads that is less than five years old and annual counts on regional and arterial roads by 2023, this needs to be supported with an ongoing programme. The counting also needs to be supported by updates to the RAMM traffic estimates programme, which is used to update monitoring programmes, eg VKT and STE.

Refer Traffic Volumes in section 5.8 for details about traffic counts. Arterial traffic counts are collected by monthly single tube counts (traffic volume as one number). This data is not granular enough to inform ongoing monitoring of the traffic flows for problems 1 and 2. Traffic radar, or similar upgraded technology is required and would provide traffic volumes, direction, speeds, traffic mix, live updates.

Infor and RAMM data is extracted for combined presentation in GIS and the public Top of the South Maps interface. Council is reviewing how data on assets associated with new subdivisions, and renewal and capital projects, is updated into the various data systems in order to provide an accurate, logical and traceable single source of truth for assets.

Council proposes to change the safety LOS to refer to the risk ratings in the Communities at Risk Register, and to use performance measures to drive drops in attributes that feature as medium or high strategic priorities.

Integration of the intervention hierarchy below (refer also Appendix A) into asset and activity planning has created a gap in the capital works programme, and this is reflected in the extensive network and asset management improvement programme in this AMP.



Refer Appendix L – Policy Bylaws Studies and Legislation. A review of historic policies, bylaws, and strategies that do not reflect current Council or GPS priorities is required to ensure delivery of transport-related benefits that match today’s transport priorities (GPS cl 105).

The development of the Nelson Plan is an integral component of delivery of good transport outcomes. The developing nature of urban intensification planning, better travel options and modes, accessible streets legislation, and changes related to emerging transport technology, are likely to result in an unintended gap between AMP planning and the Nelson Plan which may not be retrievable until the next Nelson Plan review (estimated to be 2031), or through a plan change. Gaps between current transport provisions and the NTLDM have already been identified, (including the comparison between Local road hierarchy and nationally consistent application of ONRC hierarchy, refer Appendix O Hierarchy Maps and a review is planned.

The recommendations of the National Climate Change Risk Assessment have not yet been released. These create a gap for network planning, but the recommendations will be reflected in the transport planning framework when they become available (GPS cl 142).

Subdivision developments contribute new assets and traffic to the system. Managing and updating associated data records is currently manual and relies on staff communication and can result in significant and undetected gaps. LINZ data updates are a separate process and can trail 224 certification too which compounds deficiencies.

Utilities have a large upgrade programme from 2021. Many projects affect regional and arterial roads. Waka Kotahi has a surfacing programme affecting the urban state highway and transport maintenance and surfacing will affect the local regional and arterial routes. There is opportunity in 2021-31 for travel demand management initiatives alongside these programmes to maximise the effectiveness of promotion of bus and active transport modes.

## Develop Options — Network and Asset Management

Option	Description	Benefits of option	Negative consequences of option
1. Status quo	Continue to implement the current programme and priorities from the 2018 AMP.	Focus on capital project delivery for the first three years of the AMP to assist with delivery of projects which have previously been accepted into the work programme. Includes One Network Framework (ONF) updates Deficiency Database is a mechanism to manage public requests and complaints	Does not provide long term confidence of meeting transport outcomes. Does not align with the GPS 2021. Manual alignment with maintenance and renewal programmes. Risk of institutional knowledge being lost when people leave the organisation. Difficulties in delivering capital works programme because project synergies, conflicts and benefits are not well evidenced or planned resulting development of individual business cases from scratch. Frequent surprises and consultation problems because projects are rushed onto the programme.
2. Asset management planning	Migrate from the deficiency database to Network Planning Mapping, and integrated planning with city growth/intensification and Future Access Study recommendations.	Planning is proactive and evidence-based (GPS cl 151). Integrates Future Development Strategy recommendations. Develop a long term map of strategic direction, improvements and renewals that maintenance and utilities programmes can be aligned to Will allow future projects to be identified and prioritised. Will provide a consultation tool for future engagement. Will assist with mapping the impacts of growth on the existing network. Will allow other priorities to be overlaid in future to ensure alignment. Would provide a tool to align speed limit, vehicle control, parking and regulatory functions with transport outcomes, physical works and customer feedback loops. Include census meshblock mapping for planning and ongoing monitoring. The timing is right strategic planning is developed. Builds a framework for integration between transport and land use planning. Includes ONF updates. Focus on use of data, and data improvement to improve data quality score. Uses disruption from utility, Waka Kotahi and maintenance programmes to build interest and support for TDM measures.	Longer lead time into capital works programme development. Will require ongoing work to maintain.

Test Options — C151 Network and Asset Management

Key to scoring

2 improved  
 1 addressed  
 0 not addressed  
 -1 decreased  
 -2 devalued  
 N not a viable option  
 Y viable option

Work Category	Strategic Response	Option No.	Option	2015-18 Budget LTP	2018-21 Budget (from NZTA T/O)	2018-19 Actual	2021-24 Estimated Cost (\$m) (first 3 years Continuous programmes, first 10 years projects)	Problem Statements				Other MCA Factors							Preferred Option	Problem Statement Score Weighted	Other MCA Factors score	Total Score	9
								Problem Statement 1: Arterial Safety and Capacity	Problem Statement 2: Multi Modal response	Problem Statement 3: Environmental challenges / Resilience	Problem Statement 4: Environmental Improvement	ONRC Safety	ONRC Resilience	ONRC Amenity	ONRC Accessibility	ONRC Cost efficiency/ Value for money	Opportunity Smart City	IAF Results Alignment					
WC151	Network and Asset Management	1	Status Quo		\$3,682,275			1	0	1	0	1	1	1	1	1	1	0	1	Y	4	8	12
		2	Asset management Planning					2	2	2	1	2	2	2	2	2	2	2	1	Y	14	17	31

### Preferred Programme — Network and Asset Management

Either option is acceptable, but Option 2 scores more highly due to the potential to align with the GPS Investment Objectives, address the problem statements, and deliver the benefits desired from the Transport activity. The preferred approach is to minimise the capital works programme in the first three years of the AMP cycle and concentrate on development of an Asset Management Planning Map, with associated alignment with the Nelson Future Access Study recommendations, as well as the policy, planning and regulatory functions, and ongoing data improvement. This planning will initially be time-intensive for staff but should deliver savings in both staff and consultant time over the longer term, as well as focusing maintenance, renewal and improvement costs to addressing the problem statements into the future. It should also identify opportunities to deliver co-benefits across multiple outcomes including mode neutral transport outcomes, utilities, other network providers and stakeholders (GPS cl 149).

**Network and asset management is fundamental to overall transport outcomes, so Option 2 has informed the option development and selection throughout this AMP. This is the Strategic Response for this AMP.**

The preferred programme is to have a map outline by March 2022, so Councillors can consult on the broad concepts with the community during the 2022 elections and return to Council to complete the mapping exercise in preparation for the following AMP period. This process would include review of the AMP problem statements and benefits.

The preferred programme includes development of a Road Hierarchy Policy (or an aspirational One Network framework) to manage the tension between local and ONRC/ONF classifications, use and future development of the network.

The transport planning programme will facilitate community involvement to understand and incorporate carbon savings into design of transport corridors and urban spaces to address problem statements 3 and 4.

Design for low ongoing landscape maintenance requirements

Aim for long lasting, more simple (less-fashionable) designs that have longevity and are flexible enough to change with community needs

The Network and Asset Management programme for 2021-24 also includes:

- Speed limit reviews for all city roads
- Development of Speed Management Framework 2021-22, to be in place in 2023 for consultation with the 2024-27 RLTP review (pending final Waka Kotahi process).
- Review of the Speed Hump Policy, to compliment the speed management framework
- Network user information (Travel demand management) and planning
- Review of the Parking and Vehicle Control Bylaw
- Review of the process for maintenance of Private Access on Road Reserve
- All activities required by regional Councils, including Regional Transport Committees, planning, and modelling (WC001, WC002, WC003, WC004).
- Ongoing development and implementation of the Parking Policy
- Review and incorporation of Nelson Plan provisions into activity and asset management planning
- Update ONRC for primary collector roads that meet the arterial road classification traffic volumes including: St Vincent Street, Vanguard Street, Van Diemen Street, Collingwood Street, Washington Road, Nayland Road, The Ridgeway.
- Adoption of One Network Framework (ONF)



- Integration of Future Access Study recommendations into the Asset and Activity Management plans including detailed assessments for options for the capital works programme
- Ongoing alignment with major utilities upgrades
- Network user information will be especially important in the next 10 years as the future programme planning is undertaken, and when utilities and project works affect the arterial network
- Ongoing review of policy, especially road occupation and structures on road reserve
- Review of the NTLDM to align the transport provisions with recent updates to rule changes, guidance documents and network planning frameworks
- Ongoing data quality and management improvement
- Radar, or similar traffic count stations for the arterial network
- Travel Demand Management (network user) programme
- Develop low carbon solutions

Examples of lower carbon solutions may include:

- Instead of redesigning a public space that is tired, inject funding into events and programming to attract the community to use the area. Daily, weekly, monthly events that reinvigorate a space without having to redo hard landscaping
- Define the carbon and environment footprint of commonly used materials to help compare design options
- Use lifecycle assessments so that the carbon cost of a design is appropriately weighted eg waste stream from the design, how often will the area need renewing, how much watering to keep it looking good, what chemical inputs are needed (eg weed sprays)
- Consider costs such as mowing of grassed verges and see if other plantings can substitute for grass for street gardens or berms. Consider changing the mowing schedule and accepting longer grass (weighed against the summer fire risk).
- Engage with the community to test assumptions about how much they really need in the way of hard surfaces
- Reduce vehicle numbers/trip numbers/distances
- More attractive/direct routes for active modes.

WC	Network and Asset Management		2018-21 LTP	2018-21 Approved WAKA KOTAHI	2018-19 Actual Expenditure	Funding request (un-escalated)			Years 4-10	
	Project ID and Name**	ID				2021/22 inflated	2022/23 Inflated	2023/24 Inflated	Uninflated	
001	Regional Land Transport programme	1475	51,554	0	0	Include under WC151				
002	Tracks and Saturn modelling	2514	128,000	0	42,944	Include under WC151				100,000 Y5
003	Asset management improvement"	2163	2,238	0	0	Include under WC151				
003	Future Access Study monitoring	3211		0	0	Include under WC151				60,000 Y7
151	Staff time	50011671	870,515	3,682,275	516,387	846,282	861,426	876,380	861,700	
151	Data collection	0117	1,706,658		173,633	150,000	154,350	158,250	180,000	
151	Condition inspections and data collection	0117			410,881	440,000	452,760	464,200	440,000	
151	Permit information	0117	0		11,425	15,000	15,435	15,825	15,000	
151	Structure inspections#	0117	477,428		138,969	170,000	154,350	189,900	140,000	
151	South Island Chairs	1475	30,665		11,969	10,000	10,290	10,550	10,000	
151	Pavements data	0117	112,260		60,000	70,000	72,030	73,850	70,000	
151	AM improvement	0117	10,445		0	0	0	0	0	
151	Cycle and pedestrian mapping "	01770178	40,000		0	0	0	0	0	
151	AM database fees	1624	50,000		121,500	87,500	90,038	92,313	95,000	
151	Asset management support	1624	67,422		0	0	0	0	0	
151	Saxton area growth	3094	459,973		0	0	0	0	0	
151	Network User Information	1120	Previously part TDM		163,075	131,500	135,314	138,733	191,500	
151	Freshwater improvement	1173	26,948		0	50,000	51,450	52,750	50,000	
	Future Access Study business cases	3211	0			0	Included as a project cost			
151	Electronic cycle and pedestrian counters	3320	0		0	60,000	51,500	52,839	0	
151	Laser Benkelman Beam	3320	0		0	15,000	0	0	0	

	Total					2,188,600	2,175,700	2,030,700	
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These numbers were correct on the date of publication, and will not include any subsequent changes.

WC	Network and Asset Management		2018-21 LTP	2018-21 Approved WAKA KOTAHI	2018-19 Actual Expenditure	Funding request (un-escalated)			Years 4-10 Uninflated
	Project ID and Name**	ID				2021/22 inflated	2022/23 Inflated	2023/24 Inflated	
Unsub	Saxton area growth	3094	0	N/A	0	0	0	0	0
Unsub	Staff time	50021671	1,277,330	N/A	44,965	162,914	165,829	168,708	187,763
Unsub	Staff time	50021672	211,363	N/A	54,503	153,229	170,600	173,561	133,740
Unsub	Bay View Connection Study++	3334	0	N/A	0	0	0	0	60,000 Y4 18,000 Y5
Unsub	Davies Drive Connection Study++	3339	0	N/A	0	0	0	105,500	36,500 Y4 10,950 Y5
Unsub	Prelim capex point of entry	50024372	14,431	N/A	7,527	20,000	20,580	21,100	7,500
Unsub	Other professional advice	50024760	103,324	N/A	0	70,000	102,900	105,500	50,000
Unsub	AMP	1624	31,334	N/A	0	0	30,870	10,550	15,000
CBD	Staff time	55101671	6,896	N/A	9,355	34,161	34,772	35,376	50,000
CBD	Staff time	55101672	0	N/A	7,000	7,967	8,870	9,024	7,000
CBD	CBD development	8124	168,657	N/A	48,202	0	0	0	0
CBD	Stoke urban design	2984	24,264	N/A	0	0	0	0	50,000 Y4 10,000 y5
CBD	Policy consultants	55102740	50,000	N/A	489	0	0	0	0
CBD	Parking surveys	55104760	75,981	N/A	56,010	73,500	3,087	79,125	39,000
CBD	Parking Strategy	2518	0	N/A	0	0	0	0	0

These numbers were correct on the date of publication, and will not include any subsequent changes.

\*\* project codes from other activity areas that inform network and asset management have been reflected here for completeness

>From staff time

+ from pavements

# from structures

& from drainage

O from parking

++ from projects

` assumes staff time only will be used, no external costs

## Risks — Network and Asset Management

Risks — Network and Asset management							
Refer Appendix N for Risk Matrix							
Identification		Analysis: Residual Risk				Response eg Accept, Reduce, Share	Treatments
Event Description	Consequence	Existing Controls	Consequence	Likelihood	Current Risk		
Increased costs to manage carbon emissions	Budget increases or reduced LOS.	Improvement planning to understand the carbon emissions problem and options.	4	4	High (16)	Share	Consultation. Develop emissions reduction plan.
Negative public reaction to possibly delaying works to complete network planning	Staff time and poor media coverage	Enter requests for infrastructure improvements into deficiency database	3	5	High (15)	Manage	Community engagement in Network Planning
Changed use requires different infrastructure	Poor level of service for changed user expectations of network.	Consider ageing population, technology and mode share in all asset management decisions.	4	3	High (12)	Manage	Consider ageing population, technology and mode share in all asset management decisions.
Inaccurate growth information/ assumptions	Inappropriate decision made about future infrastructure and services.	Growth monitoring to be frequent and include national/ international trends data where possible.	4	3	High (12)	Reduce	Regular monitoring and updating of planning forecasting.
Poor financial forecasting	Reflects on Council as poor planning.	Ensure assumptions behind project cost estimates are fully understood through Annual Plan and TIO.	4	3	High (12)	Reduce	Ensure robust asset management and project management practices are followed.
Desired Waka Kotahi funding not obtained	Additional Council share, or projects delayed, and increased maintenance required.	Monitor Waka Kotahi funding procedures and manuals, and submit applications in a timely manner.	4	3	High (12)	Share	Follow Waka Kotahi application guidelines and ensure politicians are fully informed.
Non-compliance with Waka Kotahi funding agreement	Reduction or refund of NZ Transport Agency contributions.	Annually report on compliance requirements.	4	3	High (12)	Reduce	Implement measures to address any non-compliance.

Failure to act on identified risk	Potential legal action against Council.	Robust risk analysis process in place and reviewed quarterly.	4	3	High (12)	Reduce	Implement identified risk improvements.
Data management improvements not undertaken	Reduction in Waka Kotahi funding to reflect data accuracy.	Improvement plan for RAMM data quantity and quality.	4	3	High (12)	Reduce	Staff training, and contractor involvement, to improve data.
Activity Management Plan improvement plan not undertaken	Reflects on Council as poor planning.	Undertake improvement works.	3	3	Medium (9)	Reduce	Undertake improvement works.
Performance monitoring of levels of service not completed	Levels of service not met, resulting in public dissatisfaction.	Undertake performance monitoring.	3	3	Medium (9)	Manage	Review annually.
Unauthorised construction on road reserve	Public liability risk to Council. Risk of damage to underground services.	Maintenance contractor to record defects and activity affecting the road network, and to audit the CAR process.	3	3	Medium (9)	Reduce	Review Occupation of Road Reserve Policy.
Network modelling and condition assessments not applied	Failure of assets or systems.	Undertake and analyse condition assessments and traffic modelling.	3	3	Medium (9)	Reduce	Road Asset Maintenance Management database (RAMM) and traffic models are regularly updated and assessed.
Private resource consent conditions affecting road reserve and transport activities	Private consent conditions limit or restrict transport outcomes on the road network.	Transport team to work with the Planning team on future resource consent applications, so that future and changing traffic demands can be accommodated.	3	3	Medium (9)	Manage	Ongoing Transport involvement in review of resource consent applications.
Activity Management Plan not fully implemented	Reflects on Council as poor planning.	Ensure robust project management practices are followed.	4	2	Medium (8)	Manage	Communication and improvement planning to inform next AMP.

### Procurement — Network and Asset Management

The 2018 Waka Kotahi/NCC Procurement Policy expires in October 2021 and needs to be reviewed and renegotiated with Waka Kotahi prior to this date. Section 8.4 of the 2018AMP includes service delivery information to be updated and included in the revised Procurement Strategy.

The traffic counting contract is due for renewal in 2023; provision for a five year extension.

The road maintenance contract has a three plus one plus one engagement structure. The first three year period expires in 2021/22.

Testing procurement is currently on a year by year ad hoc basis. This will be reviewed alongside the next road maintenance contract. Consultancy services are engaged through the Professional Services Panel, or tendered as specific transport studies.

Network user information and planning (Travel demand management) will be predominantly undertaken by staff resources.

### Develop Improvement Plan — WC151 Network and Asset Management

Improvement activities, both ongoing and as identified through this AMP, are listed at the end of each relevant section. Further improvement actions will be logged to inform future AMPs.

Ref	ONRC Pillar	Description	Timing	Who
<b>NAM1</b>	Systems	Data improvement. Audit and fix errors in the Ramm database.	ongoing	AM/Operations
<b>NAM2</b>	Decision making	Update the NCC/NZTA Procurement Strategy, including the REG advisory format.	2021	AM
<b>NAM3</b>	System	Undertaken and Implement speed management review	2021	AM
<b>NAM4</b>	Systems	Parking Policy review	2021/22	AM/Operations
<b>NAM5</b>	Systems	Road Occupation Policy review	2021-24	AM/Operations, legal, planning and policy
<b>NAM6</b>	Systems	Vehicle Control Bylaw review	2021/22	AM/Operations
NAM7	Decision making	Develop a forward works programme to go into the next road maintenance contract before tendering occurs.	2022	AM/Operations
NAM8	Systems	Review what data collection and network inspections should be included in the next road maintenance contract before retendering occurs in 2021/22.	2021	AM/Operations
<b>NAM9</b>	Resource	Transport network Plan for mapping out all modes and One Network framework implementation	2021	AM
<b>NAM10</b>	Systems	Develop a framework and prioritise policy updates including to manage tension between ONRC/ONF and local hierarchy	2021-26	AM and NCC Planning
NAM11	Communicate	Strengthen line of sight from strategic business case to programme business case in 2024 AMP	2022-24	AM
NAM12	Evidence	Updating the traffic estimates is not currently an automatic process. Estimates are used in many of the internal workings and reporting of RAMM. Establish a process for updating estimates and for ongoing, annual updates.	Annually	Traffic count supervisor
NAM13	People/ Culture	Asset Management team to be trained in use of RAMM and other asset information and assessment systems.	ongoing	Training
NAM14	Evidence	Update the transport model every 6 years to inform future AMP/LTP direction.	2024/25	AM
NAM15	Evidence	Network Safety Assessments to be completed annually to inform the safety improvement programme.	Annually	AM
NAM16	Evidence	Upgrade the monthly traffic count stations from single tubes to new technology to	2021-24	AM and Operations

		enable directional, speed and traffic composition data to be collected.		
NAM16	Evidence	Change to automatic cycle count stations for improved data quality and lower operating costs.	2021	AM and Operations
NAM17	Resources	Update the Nelson Tasman Land Development Manual (in conjunction with TDC) to reflect the Accessible Streets rule changes.	After Accessible Streets package is adopted nationally.	AM and planning
NAM18	Resources	Staff recruitment and training to ensure staff resources can continue to deliver programme of works.	ongoing	Council
NAM19	Evidence	Make it possible to do valuations directly from RAMM, and use the valuation process to audit data quality.	2021–24	Transport and Accounts
NAM20	Resources	Staff training to improve capability to deliver projects, packages and programmes including monitoring, benefits assessment and realisation (GPS cl 147).	2021	Transport and Capital Projects
NAM21	Resources	Review the process of Transport asset management, linkages to Utilities processes, and any data software packages that could be engaged to assist programming of asset renewals and transport services outcomes.	2021–24	Infrastructure and IT support
NAM22	Resources	Allocation of staff time as a budget and resource management tool.	2024–27	Business Unit Managers
NAM23	Resources	Review NTLDM vertical speed control provisions	Next LDM update	Transport AM
NAM24	Resources	Investigate system for tracking subdivision development from consenting into Ramm /Infor databases	2021-24	Subdivision officers/Ramm manager/Utilities data analyst
NAM25	Systems	Migrate the risk register from spreadsheets to Promapp and set up review processes.	2021/22	AM

### GPS Alignment – Subsidised Maintenance, Operations and Renewal Programme

GPS Strategic Priority	Focus	GPS Alignment	Scheduling	Efficiency	NLTF Priority
Safety Better travel options Climate change Improving freight connections	DSI Mode share Access to social and economic opportunities Reliability	Medium	Medium	Medium	5

The alignment has been assessed as medium because the programme delivers core road operation and maintenance functions only.

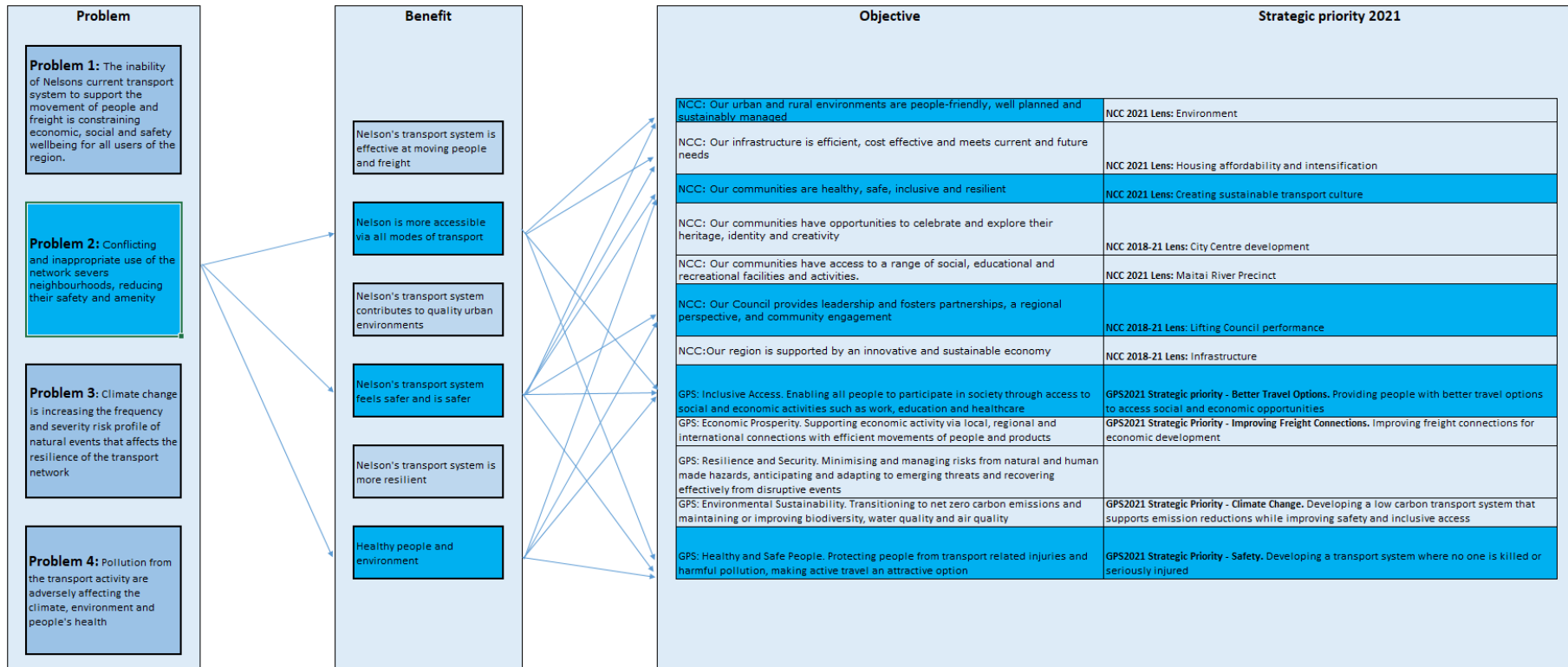
## L) Road Safety Promotion

Road safety promotion is particularly affected by problem statement 2. The preferred programme is ongoing coordination with the Top of the South Action plan and includes additional staff time resources for improved focus on the Nelson specific safety issues.

Road safety promotion is delivered jointly between the police, Nelson City Council, Waka Kotahi and Tasman District Council at a local level, as well as using national resources. Road safety promotion delivers the education focus and links to enforcement, activity management, asset management and user demands where safety is an outcome.



Link to Strategic Case — Road Safety Promotion



**Test Levels of Service — Road Safety Promotion**

Road safety promotion delivers the LOS "Safety: The transport system is safe for all people regardless of transport choice or demographic", at an operational (people focused) level.

Levels of service for the Nelson community and for visitors using the transport network are to be measured by tracking Nelson’s ratings in the Communities at Risk Register, because this includes a reflection of national influences on road safety from 2021. Refer Safety Evidence.

The number of deaths and serious injuries occurring across the transport network, and pedestrian and cycle activities is also monitored, because even one death or serious injury (DSI) is one too many. Nelson supports the Vision Zero outcomes. Refer to the strategic business case. Improved safety is critical to addressing problem statement 2.

ONRC Safety Outputs are monitored and updated as appropriate for the urban network.

**Compile and Test Evidence — Road Safety Promotion**

Refer to Population Growth and Ageing Population in section 5.2. Nelson has a growing older population cohort (over 65), uptake of total mobility and public transport (PT).

Refer to Journey to Work and Education in section 5.19 — walking and cycling are popular modes of travel and is reflected in the popularity of the cycle education programme (2018-21). Ongoing support of this programme is required towards addressing problem statement 2 and contribute for improved safety for cyclists to address the high risk.

**Gap Analysis – Road Safety Promotion**

Refer Ageing Population and Intersection Safety in section 5.16 of the strategic case for road safety issues in Nelson. These are gaps in safety and service that need to be addressed for safety/perceived safety and healthy people benefits sought by the AMP to be realised.

Nelson is rated as high risk in the Communities at Risk Register for intersection crashes, cyclists, and older drivers. Nelson also has a medium risk rating for motorcyclists and driver distraction. These risks gaps need to be addressed to meet the Government’s Road to Zero safety targets and provide the safety/perceived safety and healthy people benefits sought by the AMP.

Vertical deflections (speed humps and raised tables) are frequently requested by the Nelson community to address inappropriate speeds and are included in the Waka Kotahi toolkit for pedestrian and intersection safety interventions. The NTLDM specifically prohibits these on sub-collector, collector, principal and arterial roads. Specific approval by the Transport Asset Manager maybe obtained to address these request, until this can be updated in the next NTLDM review or review of the NCC Speed hump policy.

The 2020 Residents survey ranked Poor/inconsiderate/uneducated driver behaviour as their highest concern for road safety. Refer Appendix B2c.

**Develop Options — Road Safety Promotion**

Status quo is the only option considered for road safety promotion.

Option	Advantages	Disadvantages
1. Status Quo: Deliver with NCC resources and membership of the Joint Top of the South (ToTS) Road Safety Committee and using	Staff resources gives high degree of control over the programme and focus areas and alignment with physical works.	High staff time demands.

<p>external contractors for specialist delivery.</p>	<p>Recognition that drivers traverse ToTS driving conditions, for maximum safety improvement.          Provides support for all providers across the road safety field.          Matches the police district boundaries.          Uses the national programme and resources when available.</p>	
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Test Options — Road Safety Promotion

Key to scoring

2 improved  
 1 addressed  
 0 not addressed  
 -1 decreased  
 -2 devalued  
 N not a viable option  
 Y viable option

Work Category	Strategic Response	Option No.	Option	2015-18 Budget LTP	2018-21 Budget (from NZTA 710)	2018-19 Actual	2021-24 Estimated Cost (\$m) (first 3 years Continuous programmes, first 10 years projects)	Problem Statements				Other MCA Factors							Preferred Option	Problem Statement Score Weighted	Other MCA Factors score	Total Score		
								Problem Statement 1: Arterial Safety and Capacity	Problem Statement 2: Multi Modal response	Problem Statement 3: Environmental challenges / Resilience	Problem Statement 4: Environmental Improvement	ONRC Safety	ONRC Resilience	ONRC Amenities	ONRC Accessibility	ONRC Cost efficiency/ Value for money	Opportunity Smart City	IAF Results Alignment					Urban Development Growth	Stakeholder Acceptability
	Road safety promotion	1	Status Quo - ongoing Top of the South programme					2	2	0	0	2	1	1	2	2	0	2	1	1	Y	8	12	20

### Preferred Programme — Road Safety Promotion

The preferred programme for road safety promotion is Option 1: Joint Top of the South management of a local programme using external contractors for specialist delivery (status quo). Refer Appendix P – Road Safety Promotion programme, for details on the current action plan.

The road safety programme will be continually adapted to focus on the current road safety trends and address the AMP problem statements.

WC	Road safety promotion		2018-21 LTP	2018-21 Approved WAKA KOTAHI	2018-19 Actuals	Funding request (un-escalated)			Years 4-10
	Project ID and Name	ID				2021/22 inflated	2022/23 inflated	2023/24 inflated	Uninflated
432	Staff time	1221	308,049	350,165	113,080	0	0	0	0
432	Road safety promotion	1221			65,573	78,500	80,777	82,818	78,500
432	Cycle safety	1221			27,330	50,000	51,450	52,750	50,000
432	ACC cycle safety	8119			27,330	100% funded. Council would be applying for funding if available.			

These numbers were correct on the date of publication, and will not include any subsequent changes.

## Risks — Road Safety Promotion

Risks — Safety							
Refer Network and Asset Management for overarching risks and controls							
Refer Appendix N for Risk Matrix							
Identification		Analysis: Residual Risk				Response eg Accept, Reduce, Share	Treatments
Event Description	Consequence	Existing Controls	Consequence	Likelihood	Current Risk Level		
Road Safety	Personal injury.	Monitoring and investigation into DSI crash events	4	5	Very High (20)	Reduce	Intervention programme to target Communities at Risk safety priorities.
Perceived safety concerns	Personal injury, poor amenity, low mode shift uptake, public complaints.	Monitoring and investigation of complaints, mobile speed feedback signs.	4	3	High (12)	Reduce	Speed limit review, planning for improved urban amenity, mode neutral and safety outcomes.
Crash rate on arterial roads goes up with reduced traffic/arterial optimisation	Higher crash rate.	Training and increased awareness of Safe Systems approach, adequate budgets and road safety auditing.	4	3	High (12)	Reduce	Continue to monitor crash rates and interventions.
No agreed procedure with Police for road closure or traffic light failure events	Reduced safety leading to increased risk of accidents.	Establish clear line of responsibility for emergency responses	3	3	Medium (9)	Reduce	Establish clear line of responsibility for emergency responses

## Procurement — Road Safety Promotion

Council intends to continue to deliver cycle education to schools through the Sport Tasman contract due to the organisation's presence in Nelson, Tasman and Marlborough. Sport Tasman continues to offer good services and performance.

Age Concern currently holds contracts to delivery safety programmes for older drivers and residents. This is planned to continue in 2021-24.

In addition:

Road Safety Education provides the Rotary Youth Driver Awareness (RYDA) programme supported by local Rotary.

Subsidised mobility scooter training private provider — is procured on a referral basis

Driver education — is procured on a referral basis

Referral services are minor services in terms of the NCC Procurement Policy.

**Develop Improvement Plan — Road Safety Promotion**

Reference	ONRC Pillar	Description	Timing	Who
Safety1	Evidence	Develop trends based on the Communities at Risk Register to determine emerging trends.	2024.	AM
Safety2	System	Improved Driver Education delivery model.	2021	TDC Road Safety Coordinator?
Safety3	Resources	Understand the procurement models for road safety promotion activities to ensure they are within policy guidelines.	2022	AM and Operations

**GPS Alignment — Road Safety Promotion**

GPS Strategic Priority	Focus	GPS Alignment	Scheduling	Efficiency	NLTF Priority
Safety Better travel options Climate change Improving freight connections	DSI Mode share Access to social and economic opportunities Reliability	Very High	Very High	Very High	1

This alignment has been assessed as Very High due to the safety alignment with the GPS safety outcomes.

## M) Low Cost Low Risk Rooding Improvements

The Low Cost Low Risk programme delivers improvement projects, up to \$2M each, to deliver outcomes across the spectrum of benefits. The focus in years 1 -3 is on speed and intersection safety, walking and cycle LOS improvements, and developing options and implementation programmes for intersection safety projects.

### *Subsidised*

Waka Kotahi co-funds projects that meet the criteria set out in the Planning and Investment Knowledge Base (PIKB).

The Low Cost Low Risk (LCLR) programme is focused on improving safety, providing better travel options, and improving freight connections to deliver the outcomes and strategic priorities of the GPS, up to \$2m per project.

Identification and delivery of projects to deliver carbon benefits is expected to improve through the 10 year period.

### *Unsubsidised*

Refer 8.2(q) Unsubsidised Activities, 8.2(r) CBD Facilities and 8.2(n) Major Projects.

### **Link to Strategic Case — Low Cost Low Risk Improvements**

Low Cost Low Risk projects target the problems to be addressed by the Transport AMP, thus delivering across the spectrum of problem statements and benefits, and achieving the community outcomes, ONRC (ONF once established) and GPS objectives. Specific linkages are given in Appendix E for the preferred programme.

### **Test Levels of Service — Low Cost Low Risk**

LCLR projects are identified to deliver improvements to address gaps in network LOS. Gaps maybe service gaps or infrastructural gaps. The gaps are currently recorded in the LCLR deficiency database to prioritise for funding. The deficiency database is a reactive delivery model and can result in unaddressed gaps and disjointed projects because issues are not clearly identified. The AMP strategic response is to move away from the deficiency database to a proactive focused improvement programme (refer section 8.2(k) Network and Asset management) to improve delivery of outcomes.

Specific Level of service gaps informing the LCLR programme are:

LCLR intervention type	LOS measure Reference number	Problem Statement
Safety	1,2,3,4,5 (reduce crash rate)	1,2
Better travel options	6,7,8,9,23 (Improve cycle and pedestrian user numbers)	1,2,4
Climate change	Under development	3,4

### **Business cases**

Council typically undertakes business case assessments of individual LCLR projects, using internal templates to confirm the site specific strategic case and options, and to undertake community engagement as required. This aligns the LCLR programme with the LOS



“transport activity is understood and planned for appropriately” and allows site-specific benefits and LOS outcomes to be assessed. Projects listed in the preferred programme below and very low value improvements (typically <\$50k total project cost), directly aligned with the operation, maintenance and renewal objectives of the AMP may not need to include this step.

### **Safety Audits**

All improvement works require safety audits/exception reports to ensure improvements do not deliver unexpected unsafe outcomes. The Waka Kotahi safety audit procedures are used as the framework for this process, including exception reporting. Refer link to safety audit procedures — [https://www.Waka\\_Kotahi.govt.nz/resources/road-safety-audit-procedures/](https://www.Waka_Kotahi.govt.nz/resources/road-safety-audit-procedures/)

### **Compile and Test Evidence — Low Cost Low Risk**

This AMP strategic case presents the problems to be addressed in the Nelson transport system. Specifically transport demand is growing more than the population growth, particularly as growth in Richmond affects the network. This is causing capacity issues at intersections (problems statement 1) and inappropriate use of the network (problem Statement 2). The presence of the affected intersections on the Waka Kotahi safety pipeline, (Appendix G) shows that insufficient LOS is now affecting safety.

Delivery of improvement activities is complicated by the requirement to address problem statements 3 and 4. This is causing the revised planning strategic direction change for this AMP, and a constrained LCLR programme in the first 3 years. The planning approach will help inform and scope specifics of a future enlarged programme to address the spectrum of problem statements.

The evidence shows the cycle network is particularly deficient. The evidence also shows Nelson has a safety problem at intersections and for cyclists. These are two of the biggest LOS gaps this AMP seeks to address through the LCLR programme.

The utility upgrade in Washington Valley in 2021-24 is providing an opportunity for accelerating safety and walking and cycling improvements in an urban intensification area close to the city centre, because the existing footpaths and kerbs, both sides of the road are being removed. This would deliver safety and mode shift outcomes.

### **Gap Analysis — Low Cost Low Risk**

#### *LCLR Deficiency Database*

Projects are prioritised in the LCLR deficiency database based on demand, cost-benefit appraisal (Indicative Efficiency Rating) and alignment with the GPS strategic priorities to determine likely benefits outcomes. Prioritising through the database gives an initial alignment with the problem statements, benefits and LOS outcomes sought from the transport system. However, this framework, which typically logs community complaints, feedback and operational concerns, is increasingly operating separately to network planning.

As outlined in section 8.2k — Network and Asset Management, the recommended option is to move to a Network Planning Mapping platform, so that proactive forward planning and the AMP benefits can be delivered. The deficiency database is expected to remain in service until this new platform has been developed, with the database information migrated into the new system, to improve the LOS delivery.

#### *Future Access Study*

The 2018 programme was affected by the Waka Kotahi Future Access Study (FAS) which resulted in many projects being deferred. The outcomes of the FAS are expected to be released in 2020, and are expected to shape the future transport programme. The FAS recommendations are expected to inform the 2024 AMP. This also aligns the improvement programme with the intervention hierarchy, and delivers immediate carbon neutral outcomes (refer High Level Strategy Guidance in Appendix A).

There are a number of strategy frameworks due for delivery in 2021-24 that will shape future LCLR programme, including finalisation and adoption of the Nelson Plan, freshwater standards, and urban intensification area progression, speed limit review and parking strategy. These are the pre-implementation frameworks to address problem statements 1-4.

Project delivery in the 2018–21 period was managed solely through the business case approach. This process resulted in delivery delays. Moving to a transport planning platform is expected to streamline this process while still providing assurance that the AMP problems are addressed.

Improved value for money assessments have been included in the deficiency database, and in future the Waka Kotahi Indicative Efficiency Rating assessments, and full Economic Evaluation Procedures, will be used as appropriate.

### *Shape Nelson*

Shape Nelson is the Council's new platform for engaging with the public on network issues and is a source of information for the planning framework to prioritise future programmes.

### *Maintenance and Renewals*

Refer to the other relevant sections of this AMP for linkages to LCLR improvement projects for routine operation, maintenance and renewal of the network. Alignment is being improved to provide economy of delivery of network improvements.

### *Speed and Safety*

Safety is an identified LOS gap. Speed and intersection improvements are areas where the LCLR programme can be used to address gaps to provide the safety benefits desired. Addressing these aspects on low volume and access roads could provide the added benefit of increased cycle network coverage, at low cost for enhanced cycle use.

### *Intersections*

Intersections are typically the first area stressed by traffic growth. The intersections identified for upgrade due to growth in the Stoke Foothills, and within the FAS project area, also appear on the Waka Kotahi Safety Pipeline (Appendix G) and contribute to the problem statements 1 and 2 and safety LOS gaps. The next 3 years are required to develop options that addresses the safety and access problems, but also future proof and address problem statements 3 and 4 for good environmental outcomes.

### **Develop Options — Low Cost Low Risk**

Options for delivery of the Low Cost Low Risk Programme are tabled below. All options are based on the assumption that a deficiency database would be maintained to prioritise all projects until new planning tools are implemented.

Option	Description	Advantages	Disadvantages	Risks
1. Status quo	Continue with the 2018 LCLR programme.	Programme was set and consulted on in 2018, so no change	Does not align with current GPS, Road to	Delivery of projects that do not attract Waka

		management is required.	Zero or Community Outcomes. Programme is unlikely to align with the FAS recommendations.	Kotahi co-funding. Delivery of projects that do not deliver 2021 AMP benefits.
2. Revise LCLR programme	Migrate to a Transport Planning framework.	Planned focus on delivering the benefits and outcomes of the 2021 AMP. Mechanism to integrate the recommendations from the FAS for delivery. Improved project delivery due to robust planning. Economies of scale for use of strategic evidence for development of improvement projects. Joined up thinking occurs before project planning. Improved potential to align with maintenance and renewal programmes. Improved potential to align with Utilities programmes. Opportunity to integrate carbon neutral considerations at an early stage and across the programme, as well as project by project.	Initial reduction in the improvement programme.	Additional operational and/or AM resources may be required to manage programme.
3. Future Access Study	Prioritise the Future Access Study programme over the 2018 LTP programme.	Capitalises on the Waka Kotahi Future Access Study recommendations. Delivers cross boundary outcomes for transport. Focused on 2021 AMP problem statements and delivery of benefits.	May not be adaptable to emerging problems. Focusing on the arterial network and FAS study area may result in unresolved issues elsewhere on the network.	May not deliver in alignment with the intervention hierarchy. May produce a programme of interventions that do not fit the LCLR profile, require ongoing Waka Kotahi funding applications to deliver, and adversely affect the LCLR programme awaiting delivery.

Test Options — Low Cost Low Risk

Key to scoring

2 improved  
 1 addressed  
 0 not addressed  
 -1 decreased  
 -2 devalued  
 N not a viable option  
 Y viable option

Work Category	Strategic Response	Option No.	Option	2015-18 Budget LTP	2018-21 Budget (from NZTA TIO)	2018-19 Actual	2021-24 Estimated Cost (\$m) (first 3 years Continuous programmes, first 20 years Projects)	Problem Statements				Other MCA Factors							Preferred Option	Problem Statement Score Weighted	Other MCA Factors score	Total Score	9		
								Problem Statement 1: Arterial Safety and Capacity	Problem Statement 2: Multi Modal response	Problem Statement 3: Environmental challenges / Resilience	Problem Statement 4: Environmental Improvement	ONRC Safety	ONRC Resilience	ONRC Amenity	ONRC Accessibility	ONRC Cost efficiency/ Value for money	Opportunity Smart City	IAF Results Alignment						Urban Development Growth	Stakeholder Acceptability
341 and unsubsidised	LCLR Improvements		Status Quo		12,102,000	1,689,315		0	0	0	0	1	1	1	1	0	0	0	0	0	N	0	4	4	
			Revised LCLR Programme					1	2	2	2	2	2	2	2	2	2	2	2	2	1	Y	14	17	31
			Future Access Study					2	2	1	0	2	2	1	2	2	1	2	1	2	Y	10	15	25	

### **Preferred Programme**

Option 2 (revised LCLR programme) is preferred, but receives a similar score to Option 3 (Future Access Study). It is likely that these two options will be reconsidered and merged for the 2024 AMP once the specifics of the Future Access Study are known.

Business cases (to local format but including Waka Kotahi requirements) will be undertaken when a project is not specifically included in this AMP, value exceeds \$50k, or multiple options need to be assessed.

### **Travel Demand Management**

Travel demand management will be used and/or integrated into specific projects where appropriate (refer cl 95 and 148 GPS) to address site specific travel problems where infrastructure solutions are not first choice.

Travel demand management may include temporary innovative streets solutions where there is community support and viable temporary solutions to trial. The innovative streets solutions may be used for community involvement and engagement on options to address problem statements 1-4 and will be coordinated through the WC151 Network User programme.

### **Staff Time**

Staff time is charged to specific projects once they are programmed, and includes preparation of local format business cases, management of contractors and consultants, project and programme management, minor designs, as-built records, and benefits monitoring.

This work is undertaken by network and asset management, or operational staff, unless specific project management resources are required, for large and complex projects, which are provided by the Capital Projects team. Consultant resources are additional to staff time when investigation, detailed design and/or MSQA are required.

Delivery of improvement projects are expected to become more streamlined once the network planning framework is operational. (Refer section 8.2(k) Network and Asset Management.)

### **Site Specific Projects**

Refer to Appendix E for the deficiency database assessment criteria. The deficiency database is a live database so projects may be added or removed, as further data becomes available. Prioritisation is based on the GPS and AMP problem statements and benefits.

### Preferred Programme Summary

		2018–21 LTP	2018–21 Approved WAKA KOTAHI	2018–21 Actual Expenditure	Funding request		
					2021/22 Inflated	2022/23 Inflated	2023/24 Inflated
Subsidised LCLR (total)	ID	10,308,051	12,102,000	1,752,049	2,622,461	3,085,916	3,819,930

\*complete works on site

\*\* budget shifted from WC215

# Business case to be completed to confirm it is within the LCLR programme

^to be managed across specific projects as required

### Risks — Low Cost Low Risk Improvements

Risks — LCLR							
Refer Network and Asset Management for overarching risks and controls							
Refer Appendix N for Risk Matrix							
Identification		Analysis: Residual Risk				Response eg Accept, Reduce, Share	Treatments
Event Description	Consequence	Existing Controls	Consequence	Likelihood	Current Risk		
Complexity of medium to large projects results in slow delivery and programme slippage.	Delays to benefits delivery.	Time, cost, quality management.	3	5	High (15)	Reduce	Improved network planning, interventions hierarchy, alignment with renewals, evidence and programming.
Consultation processes and response times slow delivery, causing programme slippage.	Delays to benefits delivery.	Time, cost, quality management.	3	5	High (15)	Reduce	Improved network planning, interventions hierarchy, alignment with renewals, evidence and programming.
Benefits not realised.	Ineffective improvement, wasted resources.	Time, cost, quality management.	3	4	High (12)	Reduce	Staff training in benefits realisation.

Non-compliance with the NTLDM for constructed /adopted assets (by others)	Substandard works requiring greater maintenance or earlier renewals.	Consent and construction checking procedures to be sufficiently resourced and implemented.	4	3	High (12)	Reduce	Consent and construction checking procedures to be sufficiently resourced and implemented.
Changed use results in poor safety outcomes.	Crash risk associated with change of use layout or design.	Awareness of Safe Systems Approach in all aspects of the transport system.	4	3	High (12)	Reduce	Safety audit at concept, design and construction stages.
Unknown effect from Covid19 lockdown and traditionally buoyant contracting markets.	High prices and unavailability of contractors.	Annual meeting with Contractors Federation.	4	3	High (12)	Manage	Increase frequency of meetings with Contractors Federation, and manage LCLR programme demand on the contracting market.
Waka Kotahi funding	Additional costs to Council or deferred works.	Alignment of subsidised projects with GPS.	3	3	Medium (9)	Manage	Maintain LCLR priority list.
Council and government ability to pay is unknown as a result of changing funding availability, and the Covid19 lockdown.	Reduced funding	Defer non-critical works programme to redirect budgets.	3	3	Medium (9)	Manage	Maintain LCLR priority list so lowest priority projects can be deferred first.
TDC has signalled a step change in investment in transport infrastructure, which could further reduce contractor availability and increase prices.	High prices and unavailability of contractors.	Coordination with TDC for efficiencies and complementary works and programmes.	3	3	Medium (9)	Manage	Maintain LCLR priority list so lowest priority projects can be deferred first.
Impact of external factors inflating tender prices.	Prices substantially higher than anticipated estimates.	Defer non-critical works programme to redirect budgets.	3	3	Medium (9)	Manage	Maintain LCLR priority list so lowest priority projects can be deferred first.

Performance monitoring of levels of service not completed.	Benefits not realised.	AMP LOS and performance monitoring framework.	3	3	Medium (9)	Manage	Review annually.
Selection of unknown out of town tenderers.	Poor performance	Tendering attributes and referee checks.	4	2	Medium (8)	Manage	Tendering attributes and referee checks.

### Procurement — Low Cost Low Risk Improvements

Staff time for development of business cases, with specialised input from consultants when required, procured through the professional services panel.

Detailed design and delivery of small and operational improvements through staff time.

Detailed design for medium to large (or complex) projects procured through the professional services panel.

Procurement of very large, or specialised projects by tendering for consultancy services may be required in future for delivery of the Future Access Study programme (eg traffic signal design, network of signals for FAS, or design and build specific projects).

Procurement of low value, and/or low complexity projects, through the maintenance contracts when there is a suitable fit. Investigate increasing the value of acceptable works to include in the maintenance contracts and/or a separate minor works contract.

Construction by tendering to open market for all other works.

The road maintenance contractors are supported to continue to use start-up and/or small companies for delivery of the improvement programme. This provides a good training ground for new and small businesses to enter and gain strength in the public infrastructure marketplace.

Procurement of safety auditing through the professional services panel, except for very low risk interventions, where an exception may be applied or an internal safety audit can be undertaken.

The professional services panel is due for retendering in 2024/25. A similar delivery model to the current practice is anticipated in future.

Direct appointment through a panel of suppliers was implemented in 2020 as a response to the Covid restart programme. This programme may be extended.

### Develop Improvement Plan

Reference	ONRC Pillar	Description	Timing	Who
LCLR1	Systems	Improve use and understanding of benefits framework and benefits realisation monitoring, including training of AM, Capital Projects and Operations staff.	Ongoing	Transport asset managers
LCLR2	Systems	Improve use and application of Benefit Cost (Indicative Efficiency Rating) assessments.	Ongoing	Transport asset managers



LCLR3	Systems	Include operational costs of new assets in future budget projections and the AMP.	Ongoing	Transport asset managers and Finance
LCLR4	Systems	Process to have timely and accurate RAMM and as built records for projects. Use SHDOM calendar, with practical completion only after delivery of data.	ongoing	AM, Operations and Capital Projects
LCLR5	Systems	Map LCLR sites on FWP	2021-24	AM

### GPS Alignment Self-Assessment

The LCLR programme is assumed to have the default GPS alignment for LCLR packages as below. Each project will be loaded into Transport Investment Online (TIO), including project specific benefits separately.

GPS Strategic Priority	Focus	GPS Alignment	Scheduling	Efficiency	NLTF Priority
Safety Better travel options Climate change Improving freight connections	DSI Mode share Access to social and economic opportunities Reliability	High	Medium	Medium	5

Rationale for assessment: The LCLR programme will be focused on Road to Zero safety priorities, mode shift to public transport and active transport, and delivery of a transport system that is fit for urban intensification and quality, healthy living. The LCLR programme will increasingly reflect the intervention hierarchy and move from a deficiency database to a planning framework in order to deliver more robust benefits alignment in future and will focus on projects that address the AMP problem statements.

## N) Major Projects

The Major Projects programme delivers unsubsidised improvement projects, and subsidised projects over \$2M, to deliver outcomes across the spectrum of benefits. There are only unsubsidised projects and programmes in years 1 – 3 while further projects are scoped and prioritised through the planning process for delivery in years 4-10.

### *Subsidised*

Major projects are defined as over \$2M per project in the subsidised programme.

Waka Kotahi co-funds projects that meet the criteria set out in the Planning and Investment Knowledge Base (PIKB) and which are particularly focused on improving safety, better travel options, and improving freight connections to deliver the outcomes and strategic priorities of the GPS. Carbon emission benefits may be realised from the programme but are unlikely to be a focus, or to be measured, until a framework for assessing carbon emissions becomes available.

The Waka Kotahi business case light approach is used for projects between \$2M and \$15M. Projects over \$15M require a full economic analysis and business case.

### *Unsubsidised*

Improvements or changes to road assets or the transport system that are to meet the needs of growth or respond to community demand in order to deliver Council's community outcomes are unsubsidised. Projects that support stormwater and flood protection initiatives using the road corridor are also funded through this programme. Where there is a strong alignment with the GPS, a project may be shifted from the unsubsidised to subsidised category, or vice versa where key project outcomes shift away from GPS alignment. Growth projects are partially funded by development contributions.

### **Link to Strategic Case — Major Projects**

Major projects are a complex improvements at the top of the intervention hierarchy (refer Appendix A) to address problems beyond the scope of maintenance and renewal, or LCLR programmes. They deliver across the spectrum of benefits, and to achieve the Community Outcomes and GPS objectives. Benefits which are specific to these projects are identified through the business case process.

### **Test Levels of Service — Major Projects**

The current procedure for allocation of budgets and projects results in delays and deferral of projects because the evidence, planning and strategic case are not developed prior to committing to the project. This results in additional cost and resources being consumed, and diversion of resources from the planning of the next priorities. The cumulative effect is poor LOS across the system.

Refer to the Network and Asset Management section 8.2(k). The AMP strategic response is to move to a Network Planning Mapping platform so that proactive forward planning can be delivered to address the AMP problem statements and deliver the benefits.

The Waka Kotahi Future Access Study was developed from issues presented in the problem statements from the 2018 AMP.

### **Compile and Test Evidence — Major Projects**

The problem statements and associated evidence summarise the demand for major projects. However, these need to be read in conjunction with the programme business cases for the operation, maintenance and renewal work categories, and the intervention hierarchy (Appendix A) to determine the demand for, and benefits of, a major project to deliver transformational change. (Refer Network and Asset Management section 8.2(k).) Future planning of major projects, including alignment with Nelson Plan outcomes, Utility Upgrades, pavement renewals, carbon reduction and emissions reduction are expected to benefit from Network Planning (refer Network and Asset Management) for the arterial road network.

Problem 1: The inability of Nelson’s current transport network to support the increasing movement of people and freight is constraining the economic growth, social and safety wellbeing for all users of the region.

Problem 2: Conflicting use and inappropriate use of the network severs neighbourhoods, reducing their safety and amenity

Problem 3: Climate change is increasing the frequency and severity risk profile of natural events that affects the resilience of the transport network.

Problem 4: Emissions from the transport activity are adversely affecting the environment and people's health.

### **Gap Analysis — Major Projects**

The improvement programme included in the 2018 AMP has largely been deferred to align Future Access Study and safety programmes (Appendix G – Intersection safety programme).

Point of entry discussions and business cases for the specific gaps to be addressed by major projects need to be agreed with Waka Kotahi before co-funding can be confirmed. Major projects will be assessed against the future Waka Kotahi financing toolkit once this

is introduced (GPS cl 86). This may require a change to Council's Development Contributions Policy.

The monitoring and reporting frameworks need to be updated as part of Network Planning Mapping to ensure benefits realisation is being achieved and recognised (GPS cl 150) so lessons can be applied to future programmes. Economies of scale and the quality of reporting will be improved if this can be applied over the whole network rather than to site-specific projects.

### Develop Options — Major Projects

Options for subsidised major projects are assessed through the Waka Kotahi business case process. (Refer Waka Kotahi guidance and specific business cases for details.) Point of entry agreement is required before Waka Kotahi will co-fund major projects.

Options for unsubsidised major projects are assessed through Council's business case process.

### Preferred Programme — Major Projects

Major projects included in the 2021–31 AMP are listed below. Deferred projects listed in the 2018–28 AMP are awaiting further investigation, and to ensure alignment with the Future Access Study recommendations.

Assumed Programme	Project Name	ID	Benefits	Business Case reference	Status/Progress as at May 2019
Subsidised/ Unsubsidised	Freshwater Improvement		Address impacts from transport system	In progress	Progressing with SW
Subsidised	Marsden Valley/Ridgeway upgrade	1375	Nelson's transport system feels safer and is safer	-	LCLR, but it could be a major project. Deferred to 2029–31.
Subsidised	Main Rd Stoke/Marsden Rd	2933	Nelson's transport system feels safer and is safer	-	LCLR, but it could be a major project. Deferred to 2029–32.
Subsidised	Saxton growth area transport programme	3094	Nelson's transport system is effective at moving people and freight		Programme business case.
Subsidised	Montreal/Princes Drive intersection	3169	Nelson's transport system is more resilient	-	LCLR, but could be a major project, or unsubsidised for growth. Deferred to Y16–20.
Subsidised	Polstead/Suffolk intersection upgrade	3171	Nelson's transport system feels safer and is safer	-	LCLR, but could be a major project. Deferred to Y11–15.
Subsidised	Polstead/Main Road Stoke intersection upgrade	3172	Nelson's transport system feels safer and is safer	-	LCLR, but could be a major project. Deferred to 2024–27.
Subsidised	Stoke East West cycle connection	3174	Nelson is more accessible via all modes of transport	-	LCLR, but could be a major project. Deferred to 2025–28.
Subsidised and/or unsubsidised	Nile Street cycle facilities	3225 2202	Nelson is more accessible via all modes of transport	-	Y4-10 pending investigation and business case to

					support Mahitahi urban growth development.
Subsidised and unsubsidised	Domett Street — LOS capital	1971	Nelson is more accessible via all modes of transport	-	Y1-5 pending investigation and business case.
Subsidised	Quarantine/Nayland intersection upgrades	2934	Nelson's transport system is effective at moving people and freight	-	Deferred to 2026-31.
LCLR	Toi Toi St upgrade	3010	Nelson's transport system feels safer and is safer		Y1-3.
Subsidised	St Vincent Street and Toi Toi Street safety improvements	3035	Nelson's transport system feels safer and is safer	-	LCLR, could be a major project. Deferred to 2024-27.
Subsidised	Elm Street intersection safety improvements	3062	Nelson's transport system feels safer and is safer	-	New to programme due to safety Y24-29 pending investigation.
Subsidised	500179553211. WC 324 Nelson Future Access Study	3211	Nelson's transport system feels safer and is safer	Waka Kotahi	New to programme pending recommendations from Waka Kotahi FAS. Y1-30.
Subsidised	Washington Road walking, cycle and speed safety improvements		Nelson is more accessible via all modes of transport		Project from Future Access Study
Subsidised	Hospital area walking and cycle improvements		Nelson is more accessible via all modes of transport		Project from Future Access Study
Subsidised	Waimea Road/Hampden Street intersection upgrade	3226	Nelson's transport system feels safer and is safer		LCLR, but could be a major project. 2019-26, depending on business case outcomes.
Subsidised	Waimea Road/Franklyn Street intersection improvements	3227	Nelson's transport system feels safer and is safer	-	LCLR, but could be a major project 2020-2025, depending on business case outcomes. Dependent on Project #3226.
Subsidised	500179803212. WC 341 Cross-town links, Brook to Central Programme	3212	Nelson is more accessible via all modes of transport	-	LCLR, but could be a major project. Deferred to 2025-29 to align FAS.
Unsub	Marsden Valley Road upgrade	2200	Nelson's transport system contributes to quality urban environments	-	Deferred to 2024-29. Lighting in 2020/21 so maybe able to down scale project.
Unsub	Milton St (Grove to Cambria)	2074	Nelson is more accessible via all modes of transport	-	Dependent on SW.
Unsub	Halifax (Maitai to Milton)	2075	Nelson is more accessible via all modes of transport	-	Dependent on SW
Unsub	Road drainage improvements	5002 7960	Nelson's transport system contributes to quality urban environments	Refer drainage section 8.2(b) of AMP	Y1-10 programme

Unsub	Railway Reserve lighting	2946	Nelson is more accessible via all modes of transport	-	Y1-3, to be reviewed against Waka Kotahi funding criteria.
CBD	CBD enhancement	5510 7955	Nelson's transport system contributes to quality urban environments	-	Whakatū Square flooding. Dependent on SW.
CBD	Strawbridge Square layout & access improvement	2994	Nelson's transport system contributes to quality urban environments	-	Dependent on retail redevelopment.
CBD	Stoke Centre traffic calming and pedestrian safety works	3120	Nelson's transport system contributes to quality urban environments	-	Deferred to 2027-31 to suit retail redevelopment. Maybe suitable for subsidy.
CBD	Stoke Centre enhancements	2984	Nelson's transport system contributes to quality urban environments	-	Dependent on retail redevelopment
CBD	Polytech to CBD enhancements	3236	Nelson's transport system contributes to quality urban environments	-	Dependent on Polytech

### Risks

Major projects have project specific risk registers.

### Performance Monitoring

Each project business case has a specific performance monitoring programme assigned to it to ensure the specific project outcomes are delivered, as well as the GPS outcomes, where required. However, this process will be more efficient if the network monitoring framework is updated.

### Procurement

Waka Kotahi point of entry discussions and business case development are the responsibility of the Transport Asset Management team, with specialised input when required.

Design and construction monitoring of major projects is delivered through Council's Capital Projects team, and the professional services panel.

Unsubsidised programme works are delivered through the operational teams unless specialised advice/resources are required.

Business cases for the Future Access projects may be developed via the Waka Kotahi Future Access Study consultant.

Construction of major projects is procured through open tender.

### Develop Improvement Plan — Major Projects (refer also LCLR Improvement programme)

Reference	ONRC Pillar	Description	Timing	Delivery
MajorP1	People/Culture	Improve staff capacity for	2021	Training

		understanding and using Business Case Light (\$1-\$5M) and Major Projects Business Cases (>\$5M) and economic analysis.		
Major P2	Systems	Improve integration of land use planning and transport outcomes.	Ongoing	Network and Asset Management
MajorP3	Systems	Improve future planning to inform 1-50 year pipeline.	2021-27	Network and Asset Management
MajorP4	Evidence	Improve understanding and delivery of benefits realisation.	2021-24	Staff training: include Capital Projects, and Transport teams.

**GPS Alignment — Self Assessment**

Only the projects listed below are included in the 2021–24 Waka Kotahi funding application.

Project	GPS Strategic Priority	Focus	GPS Alignment	Scheduling	Efficiency	Nelson Priority	Assessed NLTF Priority
FAS business case development	Safety Better travel options Climate change Improving freight connections	DSI Mode share Access to social and economic opportunities Reliability	High	High	Medium	3	4
Washington Road			High	High	Medium	3	4
Hospital area walk cycle improvements			High	High	Medium	3	4

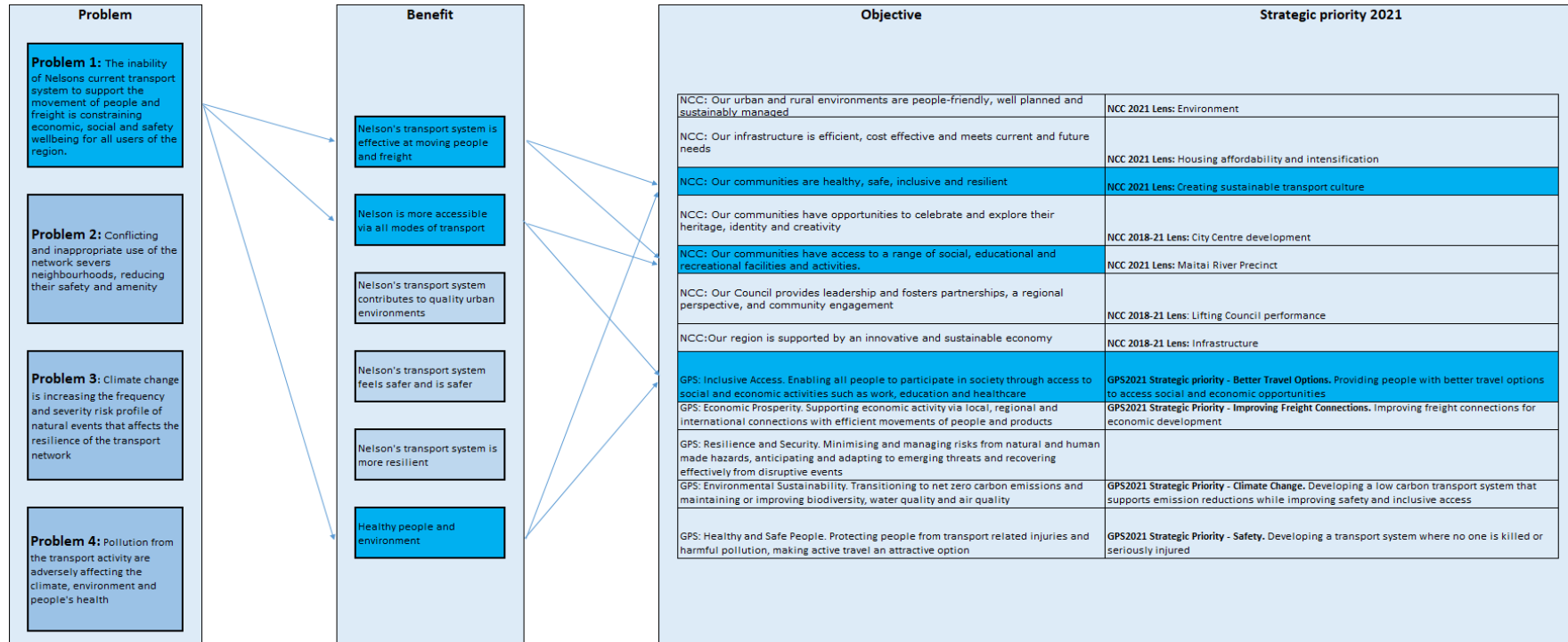


O) Public Transport

The public transport programme is determined by the PT review and set out in the Regional Public transport Plan. New bus shelter and facilities to support the bus services are included in the programme.

Public Transport is the provision of bus services, including all fixed assets that support the bus service.

Link to Strategic Case — Public Transport



**Test Levels of Service — Public Transport**

Refer Regional Public Transport Plan.

Electronic ticketing (to be implemented late 2020) will provide an increased LOS for bus patrons, and provide more data so that services can be further improved in the future. Real time timetable information will also become feasible with the introduction of electronic ticketing, further increasing LOS.

Routes 1 and 2 are conventional services with designated bus stops. The local routes are hail and ride services. All services will benefit from the rule changes proposed in the Accessible Streets package to give buses priority at bus stops, or to stop in lane.

Nelson service providers are in support of the Disability Action Plan to increase the accessibility of transport. This will be further covered in the public transport (PT) review.

No suitable public transport and distance were the most common reason why people drove to work in the 2020 residents survey

**Compile and Test Evidence — Public Transport**

Refer to section 5.22 and the Regional Public Transport Plan.

**Gap Analysis — Public Transport**

Refer to the Regional Public Transport Plan.

Shelters and seats to improve LOS at stops and contribute to the healthy people, and accessibility and effectiveness benefits.

Business Case for a city centre bus depot to provide resilience to the bus service is underway.

Business Case for real time user information of bus timetables is included in the Regional Public Transport Plan.

Walking and cycling connections to the public transport bus stops, will be considered and mapped through the Active Travel planning.

**Develop Options — Public Transport**

Refer to the Regional Public Transport Plan.

**Preferred Programme — Public Transport**

Public transport will be provided in accordance with the Regional Public Transport Plan. A small adjustment to the financial programme to improve transparency between service delivery and public transport infrastructure operations, maintenance and improvements aligns with the GPS (GPS cl 101).

Bus shelters, seats, the city centre depot, and real time timetable information will be provided in accordance with the business cases.

Work Category		2018–21 LTP	2018–21 Approved WAKA KOTAHI	2018–19 Actuals	Funding request*		
					2021/22 Inflated	2022/23 Inflated	2023/24 Inflated
511	Bus services		2,275,100				
	Operations	2,884,511		950,563	2,078,230	2,138,499	5,591,524

	Bus services staff time	115,363		25,000	16,363	16,656	16,945
514	Public transport facilities, operations and maintenance	137,992	73,500	32,600	55,000	58,358	28,625
524	Public transport information supply		249,741				
	Marketing and promotional activities	137,992		47,160	47,250	48,620	49,849
	Real time information and ticketing systems				47,250	48,620	49,849
	Professional services (staff time)	2,754		4,092			
341	LCLR improvements		1,016,982				
531 341	Bus seats/shelters/real time	37,601		87,918	\$100,000	\$206,000	\$105,678
531	New City centre depot	309,997		10,100	50,000	51,500	105,678

\*or fare income

**Risks — Public Transport**

Risks - Public Transport							
Refer Network and Asset Management for overarching Risks and Controls Refer Appendix N for Risk Matrix							
Identification		Analysis: Residual Risk				Response e.g. Accept, Reduce, Share	Treatments
Event Description	Consequence	Existing Controls	Consequence	Likelihood	Current Risk Level		
Congestion on the arterial traffic network (problem statement 1) is a risk to achievement of the LOS and benefits sought from the public transport system, as the buses get stuck in the same traffic congestion as private vehicles.	Poor uptake of PT services	Services match current demands	4	4	High (16)	Reduce	FAS considering bus priority lanes
Short delivery timeframes between the Public Transport (PT) review, acceptance of the Regional Public Transport Plan (RPTP) and tendering of the new services are a risk to delivery in the 2021-24 period.	Delayed award of new contract. Extension of existing contract	Contract extra staff resource to assist with tendering of PT contract	4	4	High (16)	Reduce	Contract staff resource
The current central city bus depot is owned and leased from the current service provider. There is a risk that the depot could be withdrawn before the new depot is provided, requiring a temporary solution.	Shifted bus terminus Lower LOS	rental agreement	3	3	Medium (9)	Manage	Investigate new city centre depot options.

<p>Nelson services compete with privately procured Ministry of Education services for urban school journeys. Successful PT services could make the private services unviable as patrons transfer to the lower cost services.</p>	<p>Reduced options for students and public service demands change</p>	<p>Public services not target school trips</p>	<p>2</p>	<p>3</p>	<p>Medium (6)</p>	<p>Share</p>	<p>Work with MOE and private operators and school communities for future PT reviews</p>
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Refer to the Regional Public Transport Plan for further public transport risks.

### Procurement — Public Transport

The bus services are 6+2+2 contract. The second extension is expected to be applied to extend the contract to October 2022.

Procurement of the City Centre bus depot will depend on the preferred option, and will follow the procurement policy.

Procurement of a Real time timetable system is yet to be determined through the business case, and scope and options.

Bus shelters, as well as walking and cycle connections to public transport, will be procured through the road maintenance contract unless the scope and complexity warrants a specific project and contract for works.

### Develop Improvement Plan — Public Transport

- Move PT services from a net to a gross contract.
- Tender new PT contract.
- Embed driver rest and meal breaks, and facility provisions into the new PT contract and timetables.
- Install new bus shelters and seats.
- Provide new city centre depot
- Decarbonisation of the bus fleet.

The timing for the next PT review will be identified in the Regional Public Transport Plan (RPTP).

### GPS Alignment — Public Transport

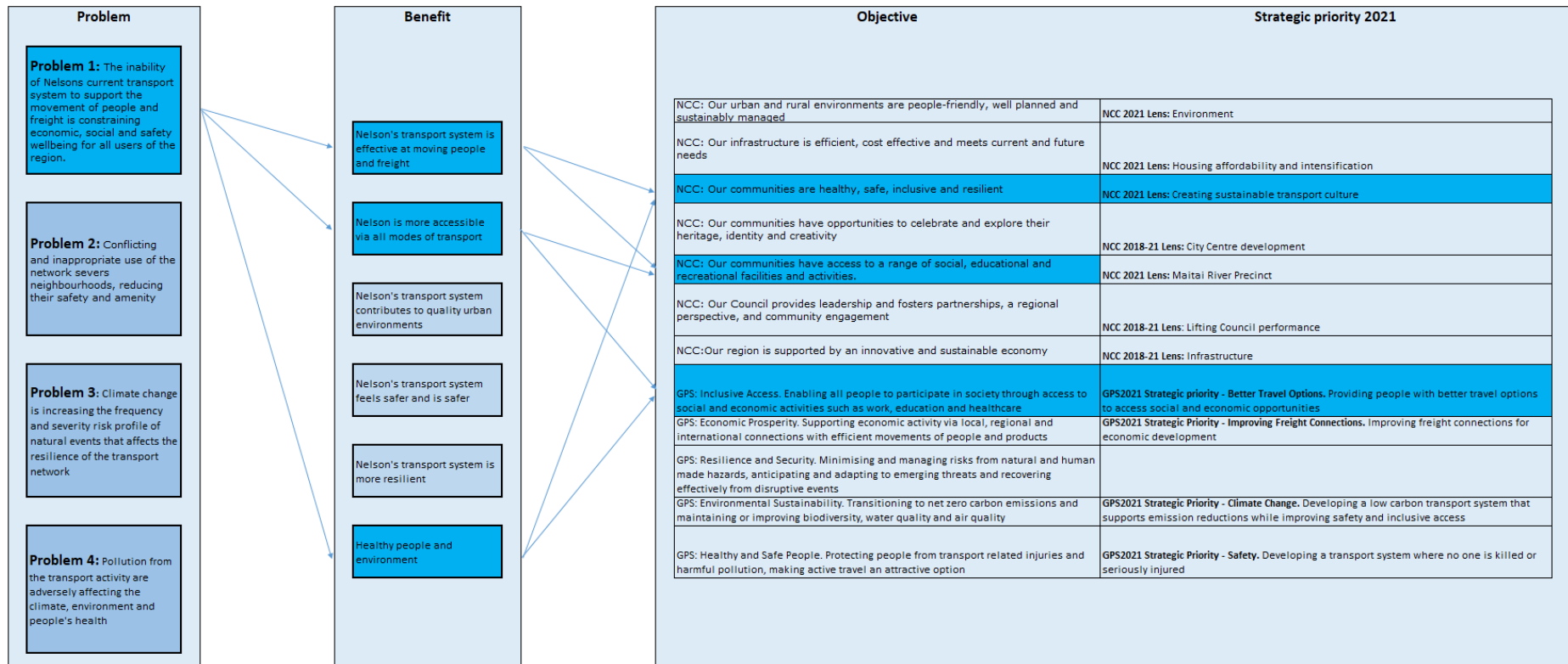
Refer to the RPTP for assessment of the GPS alignment.

#### P) Total Mobility

The Total Mobility programme is affected by problem statement 2. The preferred programme is to increase the subsidy cap from \$10 per trip to \$30 per trip.

Total Mobility provides for door to door subsidised taxi or specialist transport for people with disabilities. Also refer to Total Mobility in Appendix B for further background information.

Link to Strategic Case — Total Mobility



### **Test Levels of Service — Total Mobility**

The levels of service for the Total Mobility Scheme are set in the Total Mobility Scheme Policy Guide for local authorities:

<https://www.Waka Kotahi.govt.nz/assets/resources/total-mobility-scheme/docs/Total-mobility-scheme-local-authorities.pdf>

User guidance is given in the Waka Kotahi regional guide:

<https://www.Waka Kotahi.govt.nz/assets/resources/total-mobility-scheme/docs/total-mobility-around-new-zealand.pdf>

The Total Mobility Service agreement suggests the maximum subsidised fare should be reviewed every 3 years (but was not reviewed in 2018) and has been requested by some users to reduce their costs for longer trips. 63% of all trips are currently over the subsidy cap Operators are encouraged to replace wheelchair hoists every 10 years. This is facilitated by Council and receives a Waka Kotahi subsidy.

### **Compile and Test Evidence — Total Mobility**

Refer Total Mobility in Appendix B44. Total Mobility use increases by 3% per year, with 42,500 trips provided in 2018/19. Average fare was \$8. Wheelchair hoist use is static at approximately 261 trips per month. This data is reliable since the introduction of user cards and a single assessment agency (Ridewise). There is some variability due to the frequency of operator claims, and some uncertainty whether all trips are for one person or more people per trip, which could be fixed with invoicing reporting.

Total Mobility operators are contracted to Council as service providers. They could be contracted to provide electric or low emission vehicles.

Total Mobility card holders may choose to use the service or public transport, to suit their journey. There are requests for discounted rates on public transport. However, this is not supported by the Total Mobility Policy, so standard Public Transport rates currently apply.

Council staff time is required to support the Total Mobility Scheme, particularly finance administration, but also data collection and reporting. Additional staff time would be required for the service review and implementation of the Ridewise upgrade.

### **Gap Analysis — Total Mobility**

There is poor service coverage, and no assessment centre in Motueka. Support for an extension of this service needs to be provided by Tasman District Council.

The current subsidy for Total Mobility trips is capped at \$10 per trip which is lower than the national average (refer appendix B total mobility fare cap graph) and limits user affordability for longer trips.

Ridewise is a national service platform and upgrades are proposed. When the upgrades occur, Council will be required to contribute local share as a Total Mobility service scheme provider.

### **Develop Options — Total Mobility**

Options for Total Mobility include:

Option 1: Status quo – existing subsidy cap \$10 per trip.

Option 2: Subsidise total mobility card users to use public transport, not assessed, – refer Regional Public Transport Plan

Option 3: Increase subsidy –\$30 per trip to match other areas of New Zealand. Increase to \$25 cap in y1 then \$30 thereafter.

**Test Options – Total Mobility**

Option	Advantages	Disadvantages
1.Status quo	Existing budget requirements.	Discourages longer trips for some users. Does not account for inflation increases of costs.
3.Increase subsidy cap— an increase of the cap to \$30 per trip to match other areas of New Zealand	Supports increased mobility for users to travel longer trips providing good alignment with the health people and environment benefits.	Increased costs. Users who could use public transport may choose to use the individualised service thus contributing to problem 1.



Preferred Programme — Total Mobility

Key to scoring

2 improved  
 1 addressed  
 0 not addressed  
 -1 decreased  
 -2 devalued  
 N not a viable option  
 Y viable option

Work Category	Strategic Response	Option No.	Option	2015-18 Budget LTP	2018-21 Budget (from NZTA T10)	2018-19 Actual	2021-24 Estimated Cost (\$m) (first 3 years Continuous Programmes, first 10 years projects)	Problem Statements				Other MCA Factors							Preferred Option	Problem Statement Score Weighted	Other MCA Factors score	Total Score		
								Problem Statement 1: Arterial Safety and Capacity	Problem Statement 2: Multi Modal response	Problem Statement 3: Environmental challenges / Resilience	Problem Statement 4: Environmental Improvement	ONRC Safety	ONRC Resilience	ONRC Amenities	ONRC Accessibility	ONRC Cost efficiency/ Value for money	Opportunity Smart City	IAF Results Alignment					Urban Development Growth	Stakeholder Acceptability
	Total Mobility	1	Status Quo	\$ 1,129,568	\$ 921,800	\$ 323,032		1	1	0	0	1	0	0	1	1	0	1	0	1	1	4	5	9
		3	Increased subsidy cap					1	2	0	0	1	0	0	2	2	0	1	0	2	Y	6	8	14

Option 3, increased subsidy cap, is the preferred programme. Option 4 to encourage low emission vehicles also scores well so a preferred programme of status quo services at 50% subsidy with an increased subsidy cap to \$30 per trip and work with service providers to identify remaining opportunities for them to upgrade to low emission vehicles.

Ridewise upgrades and a future service review with the 2024 AMP are included within this option.

Work Category	Total Mobility	2018–21 LTP	2018–21 Approved WAKA KOTAHI	2018–19 Actual Expenditure	Funding request		
					2021/22 Inflated	2022/23 Inflated	2023/24 Inflated
WC517	Total Mobility operations	780,574	723,700	260,162	366,168	396,572	414,606
WC517	Total Mobility operations – staff time	158,350		33,840	25,669	26,233	26,773
WC517	Service review	0	0	0		0	5,275
WC517	Ridewise improvement	1,749	0	0	0	0	0
WC519	Wheelchair hoists	60,965	41,500	0	20,000	20,580	21,100
WC521	Total Mobility wheelchair hoist use payment	121,930	126,600	29,030	35,000	36,015	36,925

These numbers were correct on the date of publication, and will not include any subsequent changes.

### Risks — Total Mobility

The Total Mobility scheme is low risk for users, operators and Council due to the assessment, and registration process. Most operators are taxis so have taxi security provisions.

There is a risk demand for longer trips will increase with the subsidy cap increase and this will affect budgets.

### Performance Monitoring — Total Mobility

Refer to Levels of Service in section 7. The Ridewise platform allows good data capture and retrieval to support the scheme.

### Procurement — Total Mobility

Age Concern and CCS are the current assessment providers for Total Mobility due to their community contacts. This is a national arrangement.

Total Mobility operators need to be registered with Council and there is no restriction on who is eligible to apply as long as eligibility criteria are met.

Council has contracts with operators to provide trip services.

**Develop Improvement Plan — Total Mobility**

Reference	ONRC Pillar	Description	Timing	Delivery
TM1	System	Implement Ridewise improvements when required nationally.	TBA	TBA
TM2	Evidence	Confirm low emission vehicles in fleet and identify any gaps.	2021-2024	Network and Asset Management

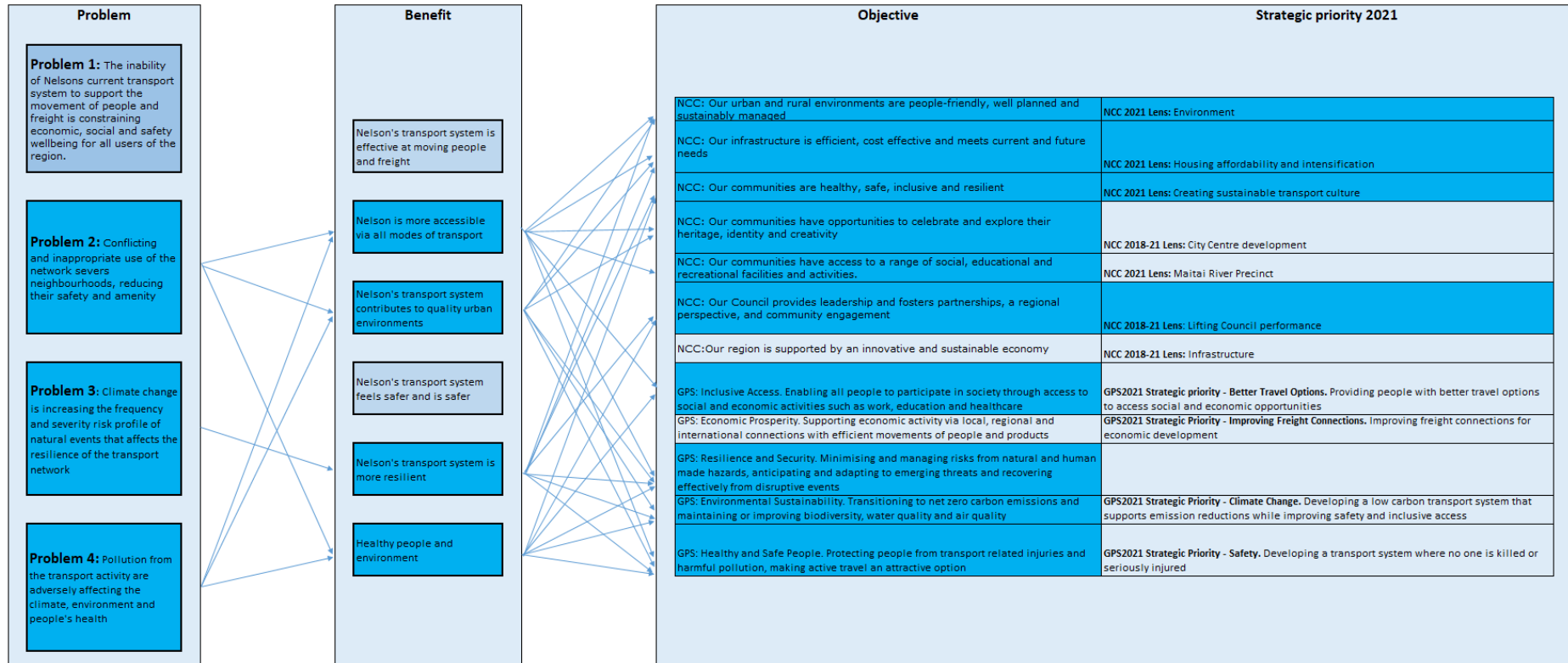
**GPS Alignment — Total Mobility**

Refer to the RPTP for assessment of the GPS alignment.

Q) **Unsubsidised Activities**

Unsubsidised works cover transport activities required by Local Government that do not qualify for Waka Kotahi subsidy and are not specific to the CBD.

Link to Strategic Case — Unsubsidised



## **Proposed Programme — Unsubsidised**

### *Corridor Access Requests*

Corridor access requests (CAR) as well as kerb crossing and temporary road closure requests are a mandatory function of the Road Controlling Authority and provide safety, resilience, asset quality and management benefits to the transport activity. The frequency of applications varies and additional support is required to address the workload and complexity of traffic management issues.

There is a new training model for traffic management which will roll out in stages over the next five years. This is likely to result in increasing traffic management costs and long term resourcing issues, due to increased processing times for Traffic Management Plans (TMP), further training requirements for staff working on the road network, and the likelihood of more auditing requirements.

Direction from Waka Kotahi is to increase the use of temporary road closures for road works to reduce safety risks for workers and the public. This may also increase workloads to process increased applications. Traffic diversions also spread vehicle loadings across the network. While temporary these have an effect on pavement maintenance and management and need to be reflected into future Pavement Management Strategies.

Applications and fees may be affected by Covid19 and will be addressed through Council's report on fees and charges.

All Nelson roads are managed as level 1 roads for TMP. However, traffic volumes on some regional and arterial roads now exceed the 10,000 threshold. This will be reviewed once the impact of the new traffic management measures are understood.

The LOS for kerb crossings is set out in the NTLDM. The NCC Memo (Appendix D) is otherwise applied to achieve flat footpaths when retrofitting existing footpaths.

### **Drainage**

See 8.2(b) Drainage.

See 8.2(d) Street Gardens and Berms and Trees

See 8.2(d) Environmental Maintenance.

### **Footpaths and Associated Infrastructure**

Footpaths were included in the Waka Kotahi subsidised programme from 2018, so have been removed from the unsubsidised activity, along with associated works, such as seat maintenance and walkway lighting. Decorative, garden, and amenity items remain as unsubsidised activities. These support the local active transport environment and contribute to the mode neutral transport and high urban amenity outcomes sought by Council. However, they are not core transport functions so do not attract Waka Kotahi co-investment.

### **Litter Bins**

Litter and recycling bins are maintained by the Solid Waste team (refer Solid waste AMP). Litter bins are maintained outside the city centre unless they become problematic. Many have been removed over the years due to unintended damage and dumping of rubbish. Bins, and alternative collection (eg recycling) will be supported where possible, in order to contribute to the environmental outcomes sought by Council.

### **Legal, Insurance and Valuation Fees, Power and Water Charges**

Legal, valuation, insurance, power, and water charges are routine costs associated with the Transport activity. Legal fees, while reduced in the short term to reflect historic demand, could need to be increased long term as the public and private landowners are engaged on the Road Occupation and Structures on Road Reserve Policy. Review of insurance coverage and scope is also proposed concurrently to these policy reviews to determine risk and impact of unsubsidised structures in event of unplanned events.

Preparation of future asset management plans is generally undertaken by staff, and specialist advice is managed within the specific programme area. However external resources are required for formatting and presentation of AMP documents to meet required standards. Budgets are allocated for this work as this is part of Council's desire to lift Council performance, by making large documents easier to read and understand for all intended users.

### **Growth Planning**

Refer Population Growth and Urban Growth in section 5.2-5.8.

As a Road Controlling Authority, Council needs to manage the transport assets and activities on behalf of the public, and to achieve urban amenity, and the transport benefits sought by Council. Most of this work is carried out by staff. However, specialist advice and growth planning advice is regularly required. Further detail is provided in the Network and Asset Management section 8.2(k).

There are historic resource consents where Council has been obliged to provide improvements on road reserve to support land development. One historic consent is to provide a turning cul de sac at the end of Wastney Terrace (RM0353507). Budget is provided in Year 10 in the event that this is required. Similar encumbrances are unlikely in future due to the planning and funding controls applied through the resource consent processes.

### **Artwork and Heritage Panel Maintenance**

Artworks in road reserves are maintained as transport activities. Artwork, especially micro-art, contributes to the pedestrian environment, by adding interest to the walking experience.

The scope of artwork maintenance has been expanded for the 2021–31 AMP to include maintenance and renewal of heritage information panels on the road reserve. These are created through the Community Partnerships and Heritage advisory workstreams but are maintained through the Transport activity. Artwork and heritage information both contribute to the high urban amenity and community outcomes sought by Council.

### **Unsubsidised Projects**

Refer #14 Major Projects

### **Risks — Unsubsidised**

Refer 8.2(k) Network and Asset Management and 8.2(m) Low Cost Low Risk Roading Improvements in this section of the AMP and specific programmes, eg drainage, for risks.

Risks associated with corridor access requests, and temporary traffic management changes will be assessed once the new traffic management measures are understood.

**Procurement – Unsubsidised**

Corridor access requests (CAR) and traffic management plans (TMP) are processed by Council staff. Specialist external support agencies are directly appointed when required. Additional resourcing is expected to be required due to rule changes. How this will be achieved is yet to be determined, in consultation with TDC and Waka Kotahi who are equally affected by the increased requirements.

Support for AMP presentation is by direct appointment due to the low cost of the work involved.

Unsubsidised projects will be designed through the professional services panel, and tendered when these do not fit the Utilities, Parks, Electrical, or Roding routine operation, maintenance and renewal contracts.

**Develop Improvement Plan — Unsubsidised**

Reference	ONRC Pillar	Description	Timing	Delivery
Unsub1	Service Delivery	Determine resourcing for new TMP requirements in consultation with TDC and Waka Kotahi	By 2024 as new rules are established	Operations
Unsub2	System	Assess and confirm insurance requirements	2021–22	Accounts
Unsub3	Service delivery	Staff training and resourcing of new TMP requirements.	To suit CoPTTM (TMP) updates	Operations
Unsub4	Systems	Integration of flat footpath (2%) profile criteria into CAR conditions.	2022	Operations



## R) CBD Facilities

The operation, maintenance, renewal and improvement of facilities in the city centre and Stoke Centre is a Transport activity because of the synergies with walking, cycling and use of the road corridors.

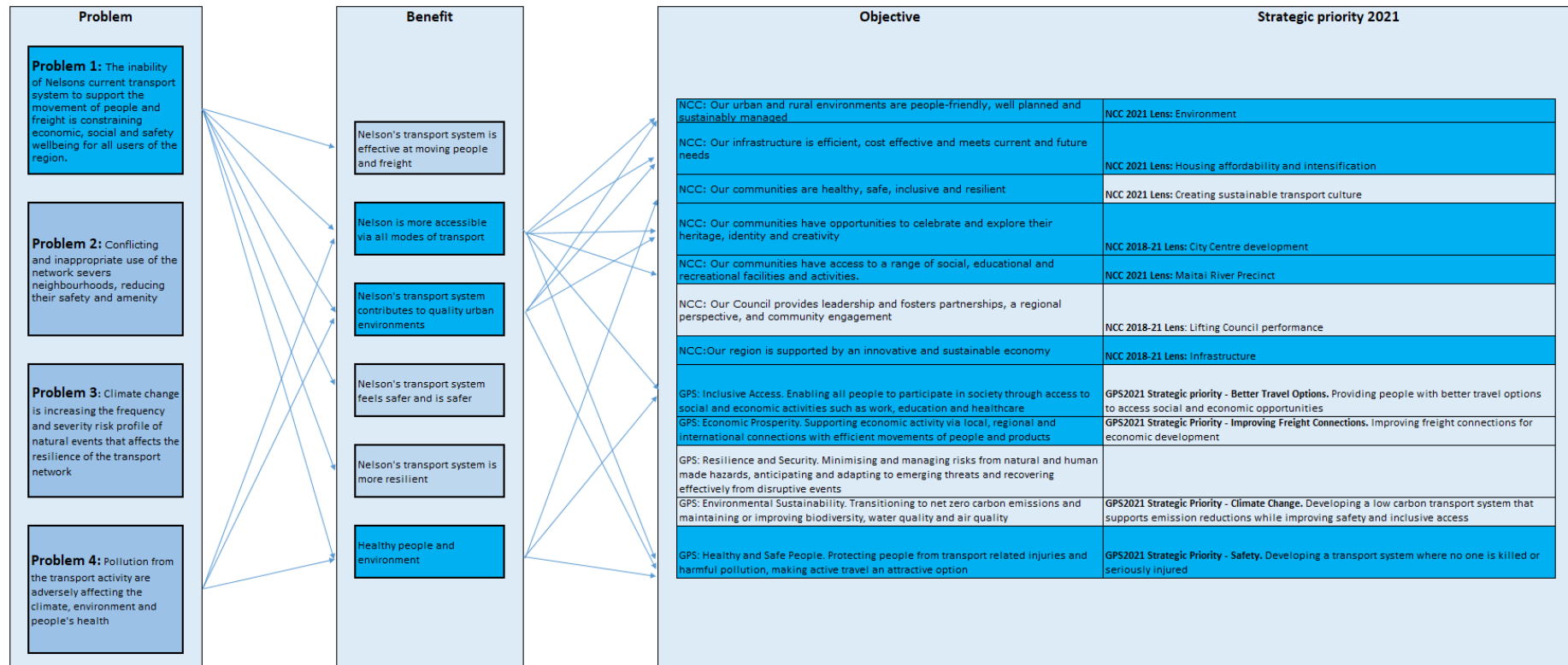
The assets and activities covered in this section are:

- street furniture, eg bollards, seats, decorative signage, wifi, CCTV and on-street art installations
- leases, licences, valuations and legal responses involved with operating a vibrant city space
- Uniquely Nelson (an incorporated society which encourages greater visitation and retail expenditure in the city centre)
- power and water supply to transport services
- rubbish collection including freedom camping provisions in the city centre.

CBD facilities also includes the following items which are covered in a separate sections:

- City Development – refer to the City Development AMP
- parking – refer 8.2(s) Parking
- street trees and gardens – refer 8.2(d) – Environmental Maintenance
- parking and decorative lighting – refer 8.2(e) Streetlighting
- Routine maintenance and renewal of pavements, drainage, footpaths and traffic services (including street lighting) and operational traffic services that comply with the requirements of Waka Kotahi are also covered in the work programmes of this AMP.
- Flags and banners, festivals and events are hosted on CBD/transport facilities but are community events activities. See the Arts, Heritage and Events AMP for details.

Link to Strategic Case — CBD Facilities



### **Test Levels of Service – CBD Facilities**

There are currently no specific Level of Service statements relating specifically to CBD facilities.

### **Compile and Test Evidence — CBD Facilities**

#### *CBD Aesthetic Elements*

The existing streetscape in the city was established in approximately 1990, and used and reflected local materials where possible, eg lamp posts modelled off the verandah posts and timber seats. Bricks were originally sourced from the Bishopdale Brickyards. The decorative signs were refreshed in 2016 for the royal visit. Many seats and cycle stands were renewed in 2018–19.

The brick paving is maintained as footpath surfacing, but is now being systematically replaced with exposed aggregate concrete in the raised tables, as the bricks reach end of life. The bricks can no longer be sourced so bricks removed from the raised tables are now used as replacement stock until finally depleted, when an alternative will be required. Refer City Centre AMP for development of alternative options.

Extension of the coverage of hanging baskets has required additional irrigation, which is maintained as street furniture and/or aesthetic elements. Further extension, including in the Stoke and Tahunanui retail centres is not included in the 2021–31 AMP to hold costs at current levels.

There is no specific inventory of CBD furniture. These are generally mapped in GIS as Parks assets.

### **CCTV**

There are 27 CCTV cameras around the city to support police enforcement of the alcohol ban areas. They are installed and used in accordance with the police's Crime Prevention Cameras (CCTV) in Public Places Policy and are provided on a service fee arrangement. The current contract expires in 2021, with a two year renewal period due to expire in 2023. The extent of the coverage needs to be reviewed with police prior to contract retendering, but it is likely that the coverage will need to extend for the widened alcohol ban area (2019).

Lighting of the Railway Reserve (refer #13 — Low Cost Low Risk Rooding Improvements in this section 8.2(m) could require CCTV support for security. This has not yet been confirmed through the business case and would require adjustment to the CCTV budgets if required.

### **WiFi**

Wifi is provided free to the public in hot spot areas along Trafalgar Street through the CCTV services contract. The equipment is owned by Council, and operated by the CCTV contractor, so operation, maintenance and renewal budgets are required. There is no known request to extend this service so it is planned to remain at the current extent for 2021–24.

### **Power, Water, Leases, Licences, Valuations and Legal Fees**

Regular turnover and ongoing leases and licences result in administrative, insurance and legal costs, as well as income. Future allowances are based on historical activity and known adjustments.

Power and water are ongoing fixed charges. Electricity usage will be reviewed through Council-wide initiatives to move to more carbon neutral outcomes. The scale of cost increases or decreases is not yet known.

### **Uniquely Nelson**

Council supports the Uniquely Nelson programme with funding through the Transport activity. There are no changes proposed for this activity.

### **Rubbish Collection**

Rubbish collection from the CBD bins, and maintenance of the on-street rubbish bins is included in the Transport activity. Compaction bins are proposed for the city centre. Refer Solid Waste AMP for details.

### **2018 AMP projects**

The following updated the CBD projects listed in the 2018 AMP:

- Church Street (the project was cancelled because the budget was exceeded).
- Improve connections between NMIT and the city centre. This was delayed due to the central government proposal to restructure the Polytech system in 2019.
- Improvements to the Hardy Street entrance to Montgomery Square. (No budget was allocated, so no progress has been made. This will be reviewed through the car park resurfacing process.)
- Lighting improvements. The city centre LED lights were not upgraded as part of the network-wide LED roll-out due to the style of lights. Using LED for decorative lights is expensive and the style of decorative lights is to be reviewed through the City development and palette upgrades.
- Pocket parks are being considered as part of the City Development AMP.

### **Gap Analysis – CBD Facilities**

The Spotlight on Stoke study was a focus of the 2015 and 2018 AMPs, but priority was diverted from Stoke to the City Centre in 2019 as part of the city revitalisation package. Spotlight on Stoke was also delayed to coordinate with pending retail redevelopment. Upgrades are generally planned for later years, pending private party redevelopment projects.

**Develop Options — CBD Facilities**

The preferred option for Stoke is outlined in the Spotlight on Stoke report. This may need to be reviewed once commercial redevelopment is complete and to align with Future Access Study recommendations and address the AMP problem statements.

The options for the CBD activity will be determined and consulted through the City Centre AMP and reports. These will become the preferred option for Nelson Centre facilities once adopted. These may not address Transport AMP problem statements but are expected to contribute to Council benefits and objectives.

Parking has a significant impact on the environment and on activity in the city centre and in Stoke. (Refer to Car Parks in section 5, and 8.2(s) Parking in this section of the AMP.) A parking strategy is underway and will influence future CBD activity decisions.

Public transport provides a key access connection to the city centre and to Stoke. (Refer to public transport section 8.2(o)) A public transport review is underway and is likely to influence future CBD and Stoke activity decisions to address the AMP problem statements.

**Preferred Programme — CBD Facilities**

The city centre programme includes an ongoing operation, maintenance and renewal programme from 2018. Significant renewals are likely to be deferred to align with city centre revitalisation, public transport review and parking strategy outcomes.

**Risks — CBD Facilities**

Refer Network and Asset Management, LCLR and specific programmes for risks. Specific additional risks for the CBD activity are shown in the following table.

Risks - CBD							
Refer Network and Asset Management for overarching risks and controls							
Refer Appendix N for Risk Matrix							
Identification		Analysis: Residual Risk				Response eg Accept, Reduce, Share	Treatments
Event Description	Consequence	Existing Controls	Consequence	Likelihood	Current Risk		
Online commerce continues to change the way the city retail operates, and the demands for services	Low CBD vibrancy and demand for services, and rental/rates income.	Refer to City Development AMP.	4	4	High (16)	Share	Coordinate with City Development team, retailers and other stakeholders
Change of use for private land holdings	Unplanned effect on transport services.	Resource consents	3	3	Medium (9)	Manage	Transport involvement in pre-application and consent checking processes.
Changes to bus depot and services	Changed demands for connecting transport services.	RPTP and bus depot business case.	3	4	High (12)	Manage	Consultation, coordination with City Development team and public transport providers?
Potential arterial network changes (Future Access Study)	Changed demands for connecting transport services.	Engagement with Future Access Study.	4	3	High (12)	Share	Coordination with Waka Kotahi and the Future Access Study project.

**Procurement — CBD Facilities**

Council assumes the CCTV contract (including WiFi) will qualify for two years renewal and will be retendered in 2022/23, with increased coverage as agreed with the police. Extension of the existing contract will be considered at this time. If the Wifi services were separated from this contract, significant cost increases are expected.

**Develop Improvement Plan — CBD Facilities**

Reference	ONRC Pillar	Description	Timing	Delivery
CBD1	Service Delivery	Coordination with City Centre team for development plan	TBC	Operations
CBD2	Evidence	Determine a solution to the hanging baskets structural issues for verandahs and streetlight pole arms. Use CBD Aesthetic Element renewals to fund interventions, as required	2021	Transport, parks and property
CBD2	Service Delivery	Provide new hanging basket brackets and irrigation fixings	2021	Parks
CBD3	Service Delivery	Repair Muller fountain water leak	2021	Parks
SL9	Service Delivery	Investigate electric charging for Electric Vehicles	2021-27	Asset Management and Planning

### S) Parking

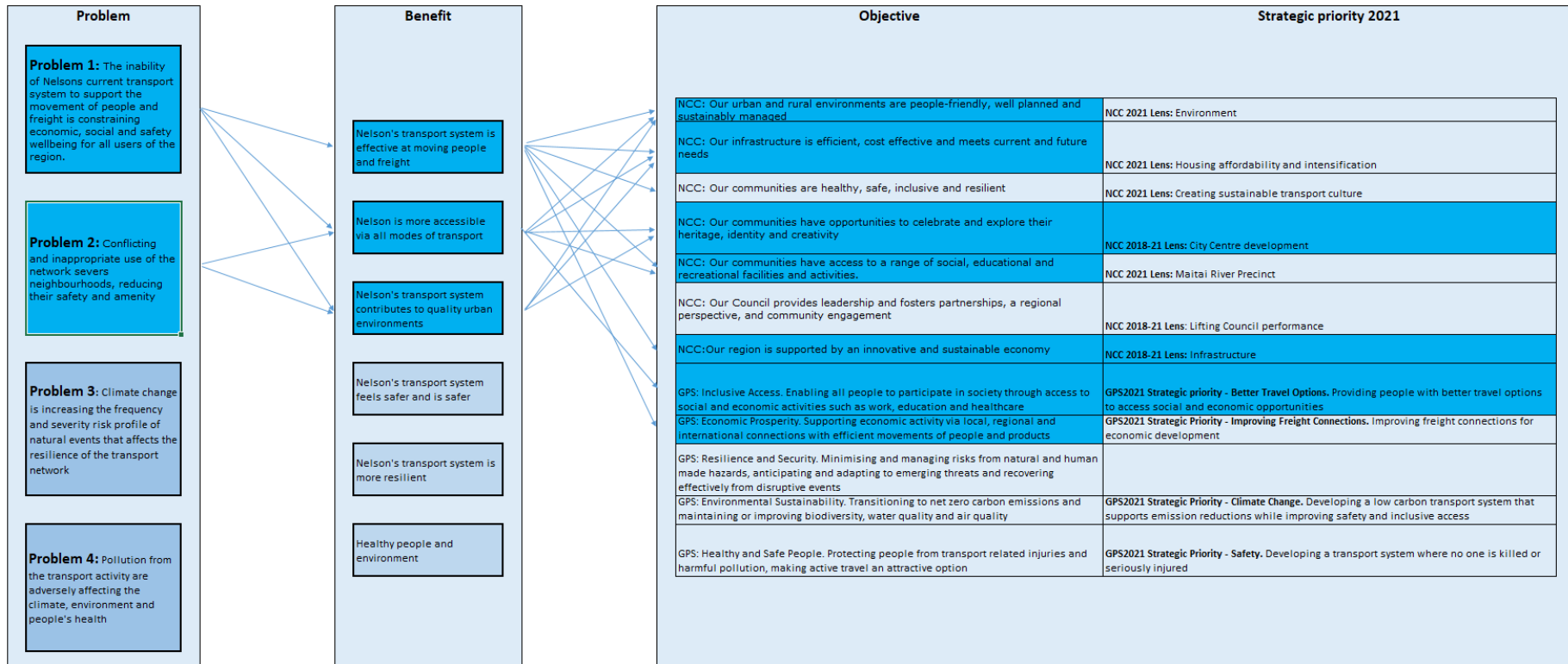
Public parking areas are managed at Buxton Square, Millers Acre, Montgomery Square, Strawbridge Square, and behind the Stoke Fire Station.

On-street parking is managed through the Parking and Vehicle Control Bylaw and includes paid and free parking on all streets and in some Parks and Reserves areas (see Parks and Reserves AMP).

Leased car parks are managed as a Property asset. (See section 8.2(t) property)



Link to Strategic Case — Parking



### **Test Levels of Service — Parking**

The parking LOS are currently under review through the Parking Policy review and will be updated in the 2024–34 AMP.

On-road parking for established areas is controlled through the Parking and Vehicle Control Bylaw and requires consultation with affected parties before changes are enacted. This Bylaw is to be reviewed in 2021–24.

The maximum occupancy of short term parking of 95% as measured mid-week peak December each year, because this is regarded as the practical maximum occupancy before circulating drivers looking for a car park congest the transport network and become frustrated. The monitoring programme will be reviewed with the policy review.

On-road parking requirements for new developments are defined in the NTLDM.

### **Leased Parking**

Refer 8.2(t) Property for leased car park details.

### **Compile and Test Evidence — Parking**

#### *Parking Surveys*

Parking surveys will continue to be undertaken by the traffic count contractor, who uses up to date technology and systems to collect and report data in the smartest way possible. This will be reviewed through the development of the parking policy.

### **City Parking**

Refer Parking evidence, section 5.25 for parking monitoring results.

### **On-Road Parking**

There is no routine data collection for on-road parking outside the city centre, city fringe and Stoke Centre.

There are typically up to five applications for parking control, or 'no stopping' per week. These are reviewed by the Road Safety Action Group to ensure they are investigated, consulted and acted on appropriately.

Time limited and special parking provisions are managed through the Parking and Vehicle Control Bylaw. This Bylaw is due for review, and this review will identify if these provisions are satisfactory and performing as expected, or whether changes are required.

### **Parking Surfacing**

Refer Car Park Surfaces in section 5. The car parks are generally aged asphalt surfaces that can deteriorate quickly at end of life. Changes in the city centre through the parking metering, and city development programmes are opportunities to align surfacing renewal.

### **Car Park Features**

Buxton, Montgomery and Whakatū car parks have raised tables at the entrance to suit the parking meter dispensers. With the change to pay by plate technology the configuration of the raised tables becomes redundant.

Buxton, Montgomery and Whakatū car parks have raised platforms and walkways throughout to provide pedestrian connections and slow speeds through the car parks. These are in good condition because they have been the focus of footpath improvement works in the 2018–21 period. The raised tables and walkways are maintained as walking facilities.

All car parks have trees and planted areas. These are maintained as CBD street trees.

All car parks have lighting. See the section 8.2(e) Streetlighting for details.

Also refer to Car Park Drainage in section 5 for the Whakatū Square drainage background which is being investigated in 2021–24 for potential improvement thereafter.

### **Freshwater Improvement**

A trial of sump filters has been undertaken in Buxton Carpark. This trial is not yet complete.

### **Parking Meters**

The parking meters were changed to pay by plate technology on 1 July 2020. This new technology is paperless, but has similar ongoing maintenance costs to the old system, and has a 10 year service life so renewal is anticipated in y9-10 of this AMP period.

The parking meters continue to accept cash payments so security and cash collection services are ongoing.

The new parking contract will be reviewed in 2024/25 and retendered in 2027/28.

### **Vehicle Control and Parking Bylaw**

The Vehicle Control and Parking Bylaw is due for review in 2021. The current bylaw is historic and relies on management of schedules to regulate the parking. There is currently no public-facing or mapped system for the parking, and this will be addressed with the review. The Vehicle Control and Parking Bylaw is expected to be finalised in 2021–24 and will influence the 2024–34 AMP.

### **Parking Policy**

Nelson does not currently have a parking policy and this is being addressed in 2021. The parking policy will review time limits, charges and space allocation, and will be undertaken in conjunction with Nelson Plan development, Travel Demand Management and Nelson City Centre Development Strategy developments. The Parking Policy is expected to be finalised in 2021–24 and influence the 2024 AMP.

### **Gap Analysis — Parking**

#### *Parking Demand*

Refer Car Parks in section 5. Parking is cited by residents as important to the vibrancy and economic success of the Nelson. Managing demand with transport outcomes to address Problem Statement 1 continues to be a delivery gap and tension.

#### *Parking Drainage*

Whakatū car park is affected by sea water inundation during very high tide events. There are approximately 11 days a year when the very high tides coincide with a weekday or a Saturday, when parking demand is high.

#### *Car Park Features*

Changes to the parking meter system provides an opportunity to remove the parking meters from the car park entrances, in conjunction with resurfacing. However, removal of the raised platforms removes the speed control device. For this reason, raised tables in line with the footpaths to meet pedestrian demand are proposed as improvements, in conjunction with the resurfacing programme.

### **Develop and Test Options — Parking**

Options for parking will be developed and tested in 2021–24 through the development and review of the Nelson Plan, Vehicle Control Bylaw and Parking Bylaw, Parking Policy, Urban Development Strategy and Travel Demand Management. The outcomes of this work will influence the 2024–34 AMP.

### **Preferred Programme — Parking 2021–24**

#### *Parking supply and demand*

The status quo is planned for management of parking supply and demand with the new pay by plate metering system in the city centre for car parking areas and for on-street parking, revision to the Vehicle Control Bylaw, and review of the Parking Strategy, which is planned for years 1–2 of the LTP.

Budgets have been allocated to undertake policy and bylaw reviews where required. Most of this work will be undertaken by internal staff.

### **Monitoring**

Ongoing parking surveys are planned. The pay by plate technology is not suitable for detailed parking demand monitoring.

### **Car Park Drainage**

A provisional budget of \$200,000 is allocated in years 4–6 for drainage improvements in Whakatū Square. This will be confirmed through the 2024–27 LTP process and/or once the Utilities network backflow prevention investigations have been completed.

**Procurement — Parking**

Car park drainage: to be confirmed.

Car park maintenance and resurfacing: through the road maintenance contract.

Car park improvement planning: in consultation with the City Development team. Major changes may be tendered but improvements in conjunction with the renewal works will be done through the road maintenance contract.

The monitoring of the parking with the new pay by plate technology is included in the parking meter supply contract. This is a five year contract, so will be reviewed in Year 4. Renewal of the parking meter equipment is planned to be tendered approx. Year 9.

EIL will continue to do parking enforcement in the pay by plate areas in the city centre and city centre and on-street parking elsewhere.

Parking surveys are procured through the traffic surveys contract.

Professional services to assist with the review of the Parking Strategy will be tendered.

The new parking contract will be reviewed in 2024/25 and retendered in 2027/28.

Security and cash collection was tendered in 2019/20.

The Vehicle Control and Parking Bylaw review and its implementation will be carried out by internal staff.

The parking policy work will be procured through open tender for consultancy services in 2020/21.

**Risks — Parking**

Risks — Parking						
Refer Network and Asset Management for overarching risks and controls						
Refer Appendix N for Risk Matrix						
Identification		Analysis: Residual Risk			Response eg Accept, Reduce, Share	Treatments
Event Description	Consequence	Existing Controls	Consequence Likelihood	Current Risk		
Uncertain future demand for central long stay parking from increased central city living	Parking demand exceeds supply and results in conflicts with inner city retail parking.	Monitoring	3	5	High (15)	Reduce  Parking Policy review

Urban Development No Minimum Parking provisions	Development without onsite parking putting demand on street parking	On site parking provisions	3	4	High (12)	Share	Develop Parking management plan
Inadequate on-road residential parking	Unsafe parking or installation of 'no parking' lines leads to public dissatisfaction .	Travel Demand Management and local engagement when modifying on-road parking.	2	4	Medium (8)	Manage	Consider ageing population, technology and mode share in all decisions. Monitoring and consultation.
Inadequate road width to accommodate all desired transport mode facilities (footpaths/ cycleways/traffic lanes and parking)	One mode or user will need to change.	Consultation and use of multi-criteria analysis for business cases.	3	5	High (15)	Reduce	Consider ageing population, technology and mode share in all decisions. Monitoring and consultation.

**Develop Improvement Plan — Parking**

Review extent and methods of parking surveys.

Undertake a review of the Vehicle Control and Parking Bylaw.

**Develop the parking policy.**

Drainage improvement in Whakatū Square to prevent/minimise tidal inundation.

Car park resurfacing programme in conjunction with urban development improvements.

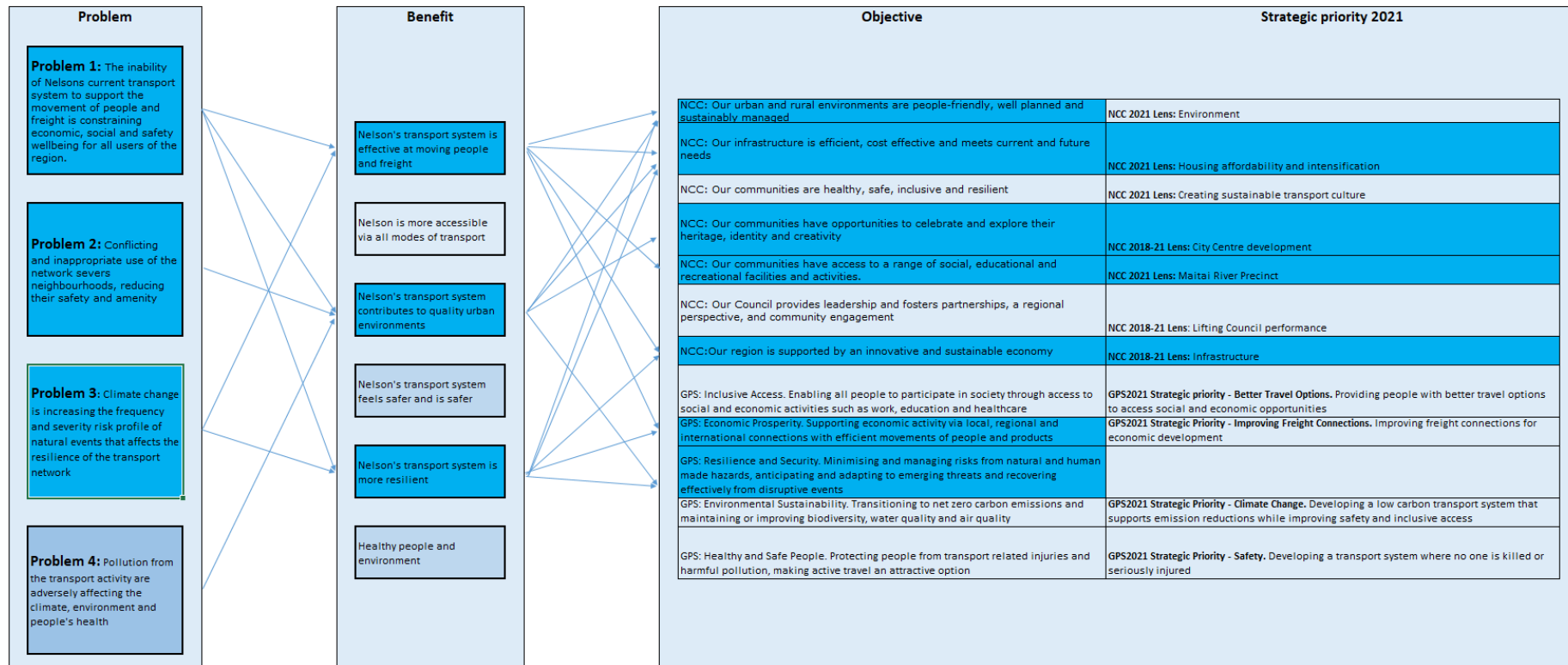
## T) Property

Transport manages a number of property, lease and rental operations.

In 2019 a decision was made that the Property team would manage the Millers Acre, Totara Street, St Vincent Street, Beatson Road and Bridge Street properties. These are no longer reported in the Transport portfolio or AMP.

The Transport activity retains the leased car parks, public car parks, licences and occupation of road reserves.

Link to Strategic Case — Property





## **Test Levels of Service and Evidence and Gap Analysis — Property**

### *Road Reserve*

Refer Asset Portfolio in the Transport Asset and Activity Register (section 3) for land areas.

The performance of the land holding is uncertain while it assessed through the Future Access Study, to determine road space allocation and spatial demands to accommodate the current and future transport demands (land purchase requirements).

Unsupported banks above and below the road are yet to be assessed.

Unformed road reserve is part of the Draft Nelson Plan consultation, identifying areas that could be released in future due to holding no potential future value to the Transport (or any other council) activity.

The Draft Nelson Plan, yet to be consulted on, makes provision for widening the road reserve in established areas when subdivisions are undertaken. This provision will address the road reserve required in future for improved urban amenity and environmental outcomes, and is typically responsive to private development plans

### **Leased Car parks**

Leased carparks use otherwise vacant Council land as parking spaces the public can apply to rent long term. Infringement (people parking where they should not be) is a problem that needs to be managed for leased car parks. The cost of removing illegally parked vehicles is invoiced to the car owner. However, staff time is required to manage this. Additional signage has been installed. No significant expenses are anticipated in 2021–31.

### **Public Car parks**

Council manages the public carparks in the City Centre and Stoke. Council does not own all of the land required for the public car parks and a number of lease and rental arrangements exist for the occupied spaces. This requires ongoing rental and valuation costs, and occasional legal input. These are covered in the relevant sections of the AMP. (Also refer to 8.2(s) Parking and 8.2(r) CBD Facilities and section 5.5.)

### **CBD Licences, leases, and rentals**

Refer to City Centre Development in section 5.5. Licences, leases and rentals (eg outdoor dining, markets, parking) are negotiated based on market rates and are subject to change from time to time as a result of market forces and demands outside Council control. Updates to the charges are managed through the annual Fees and Charges report to Council.

### **Sale and Purchase and Occupation of Road Reserve**

Refer to section 8.2(c) structures. Council is undergoing a review of the Structures on Road Reserve Policy and the Road Occupation Policy to review and formalise the processes for historical and future private encroachment.

Council undertakes land purchase from private parties when required for road or transport infrastructure in accordance with the Local Government and Public Works Act provisions.

Council approval is required for all land purchases, and budget needs to be approved alongside any approval to purchase. Land purchase may be required to enable intersection safety improvements and Future Access Study improvements.

Sale of road reserve initiated by external parties is at the expense of the external party. Council aims to have no cost impact from these dealings. Council approval is required for all land sales.

### **Formed and Unformed Property Access on Road Reserve**

Private property requires individual or joint access across road reserve to connect to the transport network. This is a function of transport that is accepted but not maintained by Council activities. Private accesses are the responsibility of private landowners and are administered through CAR and vehicle crossing requests. The staff maintenance policy for driveway and driveway reinstatements will be reviewed through the Road Occupation Policy review.

Existing driveways are captured in footpath upgrades and renewals when required, to ensure the footpath width and crossfall meets Council's standards. (Also see section 8.2(i) Walking Facilities.)

New driveways requested at the time of footpath renewal or upgrade will be assessed against the NTLDM/Nelson Plan property access standards and, if complying, may be installed at the landowner expense. (Refer 8.2(i) Walking Facilities.)

### **Preferred Programme — Property**

Status quo is the preferred option for property.

### **Procurement — Property**

Property purchases need Council approval and are undertaken on a case by case basis.

Waka Kotahi may contribute to property purchase of agreed transport improvements on specific application and approval. No requirements have been identified for 2021–24.

Legal advice for property work is undertaken by Council's legal consultants.

**Risks — Property**

Risks — Property							
Refer Network and Asset Management for overarching risks and controls							
Refer Appendix N for Risk Matrix							
Identification		Analysis: Residual Risk				Response eg Accept, Reduce, Share	Treatments
Event Description	Consequence	Existing Controls	Consequence	Likelihood	Current Risk Level		
Road formed on private property	Transport facilities could be disrupted by landowner asseting control over private property	Negotiation and land purchase when project works required on affected road on private property	4	3	High (12)	Manage	Land purchase, or retreat when encroachment identified by the private property owner.
No budget	Options limited by current road reserve extents.	Council report for funding.	3	4	High (12)	Manage	Council report for funding.

**Develop Improvement Plan — Property**

Undertake Structures on Road Reserve Policy review.

Undertaken Occupation of Road Reserve Policy Review.

Review the Staff policy on maintenance of driveways and driveway reinstatements.

## 9. SECTION 9: FINANCIAL SUMMARY

This Section sets out financial statements, funding strategy, depreciation forecast and charges for the transport asset and activities in Nelson City.

The Local Government Act 2002 (Part 6 Subpart 3) requires local authorities to manage their finances “prudently and in a manner that promotes the current and future interests of the community. This implies compliance with applicable Financial Reporting Standards, which include New Zealand equivalents to International Financial Reporting Standards (New Zealand IFRS).

In determining how activities will be funded Local Authorities are required to take the following into consideration:

- The contribution to the achievement of Community Outcomes (strategic alignment);
- Beneficiaries of each activity (beneficiary/user pays principles);
- The period over which benefits from the activity will occur (intergenerational equity issues);
- The extent to which identifiable individuals contribute to the need to incur expenditure (exacerbates and user pays principles);
- The costs and benefits of funding the activity compared to other activities (cost/benefit, prioritisation principles); and
- The impact of funding the activity on the well-being of the community (ability to pay principles).

This Asset Management Plan provides the basis for meeting these requirements.

The Land Transport Management Act 2003 requires the Waka Kotahi to allocate and invest the National Land Transport Fund in both the state highways and the local road network whilst giving effect to the Government Policy Statement on Transport.

### 9.1 Financial statements and projections

#### **Definition of Expenditure Categories**

All expenditure on infrastructure assets falls into one of three categories:

- Operations and Maintenance Expenditure;
- Capital Expenditure –Renewal/Replacement; and
- Capital Expenditure –Creation/Acquisition/Augmentation for both level of service compliance and growth.

For the Transport activity there are 6 cost centres as follows

- 5001 Subsidised Rooding;
- 5002 Unsubsidised Rooding;
- 5505 Parking Regulation;
- 5510 Parking and CBD Enhancement;
- 5560 Public Transport; and
- 5570 Total Mobility.

## Forecast Expenditure

The forecasted annual expenditure for the next three years is summarised in the Table 7.1 below. A full breakdown over the plan term of 10 years is shown in full in Table 7.2.

Forecast expenditure used in the AMP is not inflated. CPI adjustments are added for the Long Term Plan and Regional Land Transport Programme.

**Table 7.1: Forecasted Annual Expenditure 3 Year Summary**

Items						AMP Budgets - First 3 Years		
	Full Year Actuals 2016/17	Full Year Actuals 2017/18	Full Year Actuals 2018/19	Full Year Actuals 2019/20	Full Year Actuals 2020/21	2021/22 AMP	2022/23 AMP	2023/24 AMP
Operations	8,255,312	7,969,648	9,173,683	8,842,784	10,986,788	10,384,703	10,328,262	13,803,195
Renewals	3,087,328	2,547,472	3,213,059	3,739,256	3,713,597	4,521,145	4,200,035	5,122,705
Capital Growth	3,995,521	2,430,782	2,037,596	1,963,405	1,337,287	2,469,221	2,422,000	2,552,000
Capital Increased LOS	1,309,323	2,968,677	3,643,240	3,435,478	7,578,929	3,338,041	4,566,144	4,413,482
Capex Total	8,392,172	7,946,931	8,893,895	9,138,139	12,629,813	10,328,407	11,188,179	12,088,187
Total	16,647,484	15,916,579	18,067,578	17,980,923	23,616,601	20,713,110	21,516,441	25,891,382

**Table 7.2: Forecasted Annual Expenditure 10 year Detail Table updated**

Items	AMP Budgets - First 3 Years			AMP Budgets - 10 Years						
	2021/22 AMP	2022/23 AMP	2023/24 AMP	2024/25 AMP	2025/26 AMP	2026/27 AMP	2027/28 AMP	2028/29 AMP	2029/30 AMP	2030/31 AMP
Operations	10,384,703	10,328,262	13,803,195	13,868,670	14,289,722	13,838,037	13,902,385	13,880,079	16,350,900	15,403,894
Renewals	4,521,145	4,200,035	5,122,705	5,713,035	5,561,225	5,693,289	6,403,505	6,311,435	6,180,535	6,134,309
Capital Growth	2,469,221	2,422,000	2,552,000	2,592,000	3,090,871	3,912,000	4,892,000	5,922,000	2,815,871	2,962,000
Capital Increased LOS	3,338,041	4,566,144	4,413,482	7,106,000	9,449,015	13,794,350	7,961,000	3,518,345	8,411,000	3,811,000
Capex Total	10,328,407	11,188,179	12,088,187	15,411,035	18,101,111	23,399,639	19,256,505	15,751,780	17,407,406	12,907,309
Total	20,713,110	21,516,441	25,891,382	29,279,705	32,390,833	37,237,676	33,158,890	29,631,859	33,758,306	28,311,203

Note these numbers are correct at the date of publication and will not include any subsequent changes

### Deferred Renewals

This plan includes no known planned deferred renewals. Deferral of renewals may however be a tool to be used when considering climate change impacts, and mitigation, retreat and adaption scenarios. Refer to specific programmes for treatment of renewals.

### Growth Component of Capital Works

Figure 7.1 below indicates the proportion of capital works programme associated with growth in the 2021AMP. This will be reviewed in 2024 and once the growth modelling done with the Future Access Study modelling is known. A more detailed breakdown is contained within the Developed Contribution Policy.

### Trends from the previous 3 Years

Figure 7.1 below shows the actual expenditure trend for years 13/14 to 17/18, with the forecast expenditure for this plan over the next 10 years for comparison.

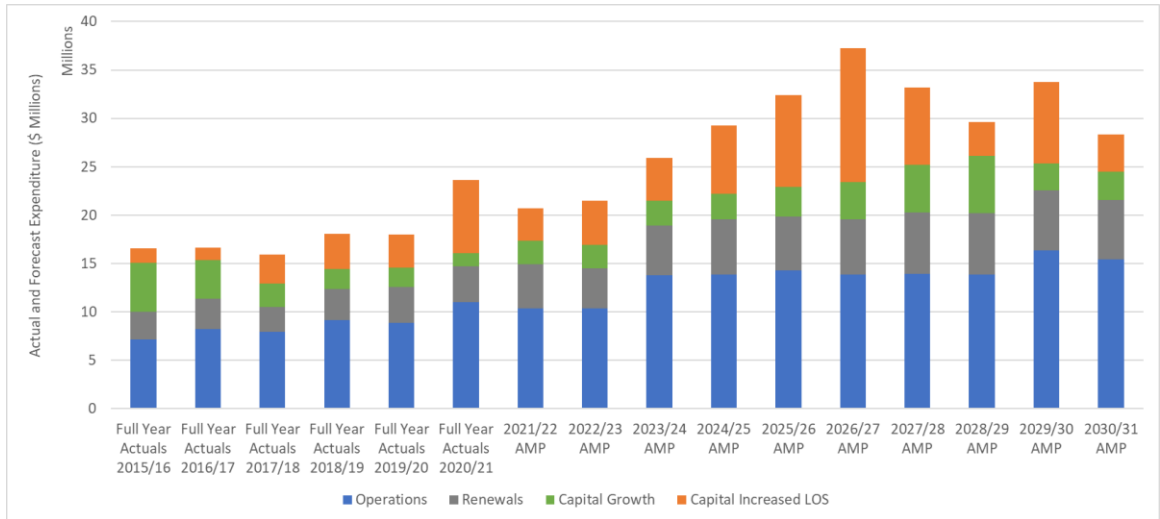


Figure 7.1: Financial Summary

## 9.2 Funding Strategy

**Financial Treatment of Activities**

The table below describes how each account is funded.

**Table 7.3: Financial Treatment of Activities**

Account Number	Account Name	Operations and Maintenance	Renewals <sup>5</sup>	Capital – Level of Service	Capital - Growth
5001	Subsidised Rooding	Rates and Waka Kotahi Subsidy at FAR	Depreciation and Waka Kotahi Subsidy at FAR	Borrowing and Waka Kotahi subsidy at FAR	Borrowing, Development Contributions and Waka Kotahi subsidy at FAR
5002	Unsubsidised Rooding	Rates	Depreciation	Borrowing	Borrowing and Development Contributions
5505	Parking Regulation	Rates and Parking Regulation Income	Depreciation	Borrowing	Borrowing
5510	Parking and CBD Enhancement	Rates and Parking Meter Income	Depreciation	Borrowing	Borrowing
5560	Public Transport	Fares, Rates, Waka Kotahi Subsidy at FAR and Crown appropriation for Supergold	Depreciation and Waka Kotahi Subsidy at FAR	Borrowing and Waka Kotahi subsidy at FAR	Borrowing and Waka Kotahi subsidy at FAR
5560	Total Mobility	Rates and Waka Kotahi Subsidy at 60%	Nil	Borrowing and Waka Kotahi subsidy at 60%	Borrowing and Waka Kotahi subsidy at 60%

## 9.3 Significant Sources of Transport Funding

**Rates** — in addition to funding from rate payers. Inner city and Stoke CBD ratepayers pay a higher differential to cover provision of special services in the CBDs.

**New Zealand Transport Agency Co-Investment** — The Waka Kotahi, like Council, works on a three year funding cycle. It allocates funding to local authorities through the National Land Transport Plan which it adopts in July 2021, after considering each Regional Land Transport Plan (RLTP). The eligibility rules for co-investment by Waka Kotahi can be found on their Planning and Investment Knowledge Base<sup>6</sup>.

<sup>5</sup> Council depreciates its assets according to the replacement value method in order to fund renewal projects.

<sup>6</sup> <https://www.pikb.co.nz/>

The Funding Assistance Rate (FAR) is the co-investment rate for transport activities that Council receives from Waka Kotahi. The current FAR is 51%.

Council funds some activities from rates without any co-investment and must decide whether to continue with any activity that may not receive the requested co-investment. Council has the option of deferring or deleting the activity, continuing with the activity, or improving/reducing the level of service for an activity by changing the activity's funding to rates over the three year AMP time frame.

**New Zealand Transport Agency** — Contributions for cycleway maintenance where covered by the Waka Kotahi/NCC Boundary Agreement and Road Safety Promotion.

**Tasman District Council** — Contributions for the Road Safety Promotion, Public Transport and Total Mobility activities.

**Parking Charges and Enforcement** — Income from parking charges, footpath dining and market rental and parking enforcement activities are used to co-fund the maintenance, renewal and capital activities in the car park and CBD enhancement account.

**Road Opening, Road Closures, Access Crossing, and Over Weight and Over Dimension Vehicle Applications** — Income from various applications to undertake an activity or work within the road reserve is collected to cover the administration and monitoring cost of that activity.

**Development Contribution** — In addressing actual and potential adverse effects from developments, Council may seek financial contributions. The contributions go towards the necessary land and works to construct, widen or upgrade any new or existing road, where:

- Roads are not available;
- Existing roads are of inadequate width or construction to cater for increased usage caused by the subdivision or development; or
- Alterations or works to existing roads are required for traffic safety or efficiency as a consequence of the subdivision or development.

**Borrowing** – Used to fund capital activities and buffer uneven depreciation.

#### 9.4 Cost and Budget Forecasts

The LTP shows a programme of known expected works for the ten years to 2031. This includes yearly financial forecasts of income and expenditure on transport activity operations and renewals and new capital expenditure.

The figures in the AMP are based on 2021 estimates and do not include inflation. The LTP and Waka Kotahi TIO figures differ beyond year 1 as they do include an allowance for inflation.

#### **Forecast of future value of asset and valuation methodology**

##### **Asset valuation and depreciation**

The basic value of an asset reduces in accordance with the wearing out over the asset's life arising from use, the passage of time, or obsolescence. This reduced value is called the depreciated replacement cost. It is accounted for by the allocation of the cost (replacement cost) of the asset less its residual value over its useful life.



## Valuation Method

Every two years Council uses a professional external valuation company to re-value assets. In the intervening years Council adjusts the valuation by indexing to the construction cost index. The 2018 valuation of the transport asset is presented in section 3 – Transport Asset and Activity Register.

## Key Assumptions Made in Financial Forecasts

As well as the general assumptions that apply across Council's work, assumptions specific to transport are presented in the table below:

**Table 7 - 4: Significant Forecasting Assumptions and Uncertainties**

No.	Assumption	Degree of Risk or Uncertainty	Likely Impact if the Assumption is (or is Not) Realised or is Not Acceptable
1	Growth is based on figures provided by statistics New Zealand and Nelson City Council growth projections.	Low	Any significant increase (or decrease) in growth may require upgrading facilities to occur at an earlier (or later) stage than presently proposed.
2	The actual remaining lives of assets will not deviate significantly from those contained in the asset valuation.	High	Changes in estimated asset lives could lead to significant changes in asset renewal and/or improvement programmes, depreciation and budgets.
3	The replacement values are a realistic cost and have taken into consideration engineering fees, resource consents etc.	Low	Programmes can be developed off valuations, but specific project costs will be lower (or higher) if valuations are not representative.
4	Depreciation updated and based on estimated useful lives.	Medium	Assets programmes will match lifecycle (or will be unpredictable and sporadic if there are no linkages).
5	The forecast is based on current Waka Kotahi funding thresholds and co-investment levels.	Low	Increased (or decreased) rate payer contribution to maintain LoS.
6	Maintenance and operations allocations are largely based on maintaining current levels of service.	Low	Increased (or decreased) rate payer contribution to maintain LoS.
7	The National and Regional funding identified in the Regional Land Transport Plan will be supported in the National Land Transport Programme.	Medium	Programme can be delivered (or if funding is not realised then programme is reviewed, or Council's share of project costs increases).
8	The Waka Kotahi financial assistance rates remain at 51% FAR.	Low	Increased rate payer contribution to maintain LoS if funding rate reduces, or reduced contribution and reduced LOS.

No.	Assumption	Degree of Risk or Uncertainty	Likely Impact if the Assumption is (or is Not) Realised or is Not Acceptable
9	Tasman District Council will continue to contribute fair and equitable share to public transport and Total Mobility services for the Tasman region.	Low	Increased ratepayer contribution to maintain LoS if funding rate reduces, reduced services to Tasman region.
10	Public transport patronage will be at a level that continues to support the public transport level of service.	Low	Increased (or decreased) ratepayer contribution to maintain LoS.
11	The forecasts do not allow for fuel price fluctuations.	Low	Increased (or reduced) resurfacing programme, as these are accounted for at an operational level.
12	Staff resources will be available to commission the scheduled projects, activities and actions.	Medium	Project delivery and the benefits that flow from those projects will not be delivered when needed.
13	Energy prices will not increase/decrease significantly over the next 10 years, with a consequent effect on vehicle use or shifts to other modes of transport.	Medium	Any significant decrease (or increase) in energy prices may result in more congestion (or less congestion) requiring upgrading of intersections and links to occur at an earlier (or later) stage than presently proposed.
14	The number of vehicles and vehicle movements per household will continue at no greater than 2013 levels over the period covered by this Activity Management Plan.	Low	Any significant decrease (or increase) in household travel patterns) may result in more congestion (or less congestion), requiring upgrading of intersections and links to occur at an earlier (or later) stage than presently proposed.
15	Parking meter revenue is realised as predicted.	Medium	Increase (or decrease) in rates to balance car parking and CBD Enhancement account.
16	Tasman District Council will continue to promote free parking within Richmond.	Low	Increase (or decrease) in rates to balance car parking and CBD Enhancement account.
17	<p>It is assumed that natural disasters will occur with increasing frequency. This has been the experience of recent years and is consistent with predicted climate change impacts. The Nelson Tasman Civil Defence Emergency Plan states that the most significant natural hazards for Nelson are: earthquakes (greatest impact) and flooding (most likely).</p> <p>The probability of a magnitude 7 earthquake in Nelson is 87% in the next 50 years, and 98% in the next 100 years. The probability of a magnitude 8 earthquake is 43% in the</p>	High	<p>Financial impacts</p> <p>Funds may need to be reallocated to fund recovery and reinstatement.</p>

No.	Assumption	Degree of Risk or Uncertainty	Likely Impact if the Assumption is (or is Not) Realised or is Not Acceptable
	next 50 years, and 67% in the next 100 years.		
<b>18</b>	Resource consents: It is assumed that resource consents held by Council will not be significantly altered and any due for renewal during the life of the plan can be renewed accordingly.	Medium	Conditions of resource consents altered and significant new compliance and activity mitigation costs.
<b>19</b>	<p>Government Policy Changes: It is assumed that any future Government legislation changes will take into account the need for a stable working and statutory framework.</p> <p>The Government has made known its intention to reform the Resource Management Act 1991, to receive a report back from the Rules Reduction Taskforce, and to continue to seek ways of addressing housing affordability and social housing need. It has also introduced the Building (Earthquake-Prone Buildings) Amendment Bill which includes a requirement on Councils to complete seismic assessments and to earthquake strengthen specified buildings.</p> <p>Further changes to legislation impacting on local government may take place, but this is not known at this time. It is assumed that Government will work with small councils to ensure that any legislative changes are managed appropriately.</p>	Low	<p>Financial impact resulting from a need to respond to significant legislation changes would impact on rates or fees and charges.</p> <p>It is not possible to quantify the potential financial impact of any future legislative changes at this time.</p>
<b>20</b>	In 2015/16 the Government reimbursed Council for SuperGold trips on a per-trip basis. The Government decided to shift to a bulk funding approach from 2016/17, where the level of funding is agreed between Council and the NZ Transport Agency. The change brings SuperGold Card funding into line with the way other public transport funding is allocated, and provides a ceiling on the cost of the scheme to Government, with a transfer of risk on any cost overruns now funded by Council.	Low	Increased ratepayer contribution to the Super Gold scheme as the rate of over 65 bus patronage will exceed the CPI adjustment made to the current bulk fund allocation.
<b>21</b>	Integration of any Waka Kotahi Future Access Study recommendations for the local road network can be	High	Increased (or decreased) rate payer contribution to integrate new arterial road into transport system.

No.	Assumption	Degree of Risk or Uncertainty	Likely Impact if the Assumption is (or is Not) Realised or is Not Acceptable
	accommodated within an annual funding allocation up to \$4.35M.		
22	Carbon costs will be managed at a Council-wide level and will not feature in the Transport Activity.	Medium	Activity diversification, and additional resourcing requirements and costs, as carbon management programmes are developed and managed at an activity level.
23	Coal tar can be managed on site wherever possible and costs to dispose of it to landfill can be accommodated within the programme as needed. Assume coal tar disposal costs when incurred can be subsidised, if incurred as part of the subsidised programme	Medium	Reduced or deferred programme to accommodate costs when they are incurred.
24	Transport services demands are increasing and could eventually outweigh physical (capex) provisions in the long term. Services that have typically been owned and operated by council will become services contracts as the technological LOS increases for customers.	High	Increasing Opex demands.

### Forecast Reliability and Confidence

**Operation and Maintenance** — The reliability and confidence of the financial forecasts for operation and maintenance activities for the first three years of this AMP will be within -5% and +10% of budget.

Historically, maintenance and operating cost variations have been low because maintenance has been managed to the budget, not LOS outcomes.

Beyond three years, the reliability decreases due to uncertainties, particularly in policy and technology. Certainty may also change as a LOS delivery becomes more focused with Asset Management Maturity.

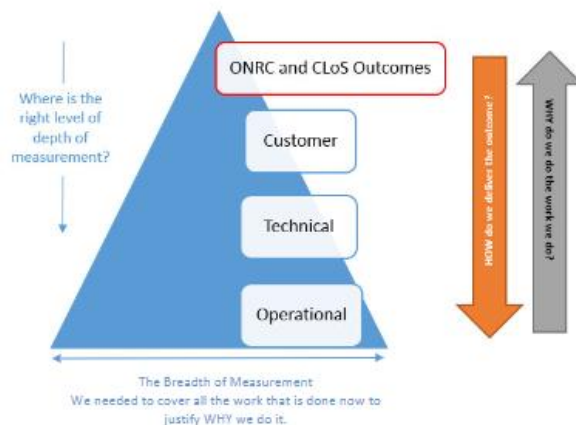
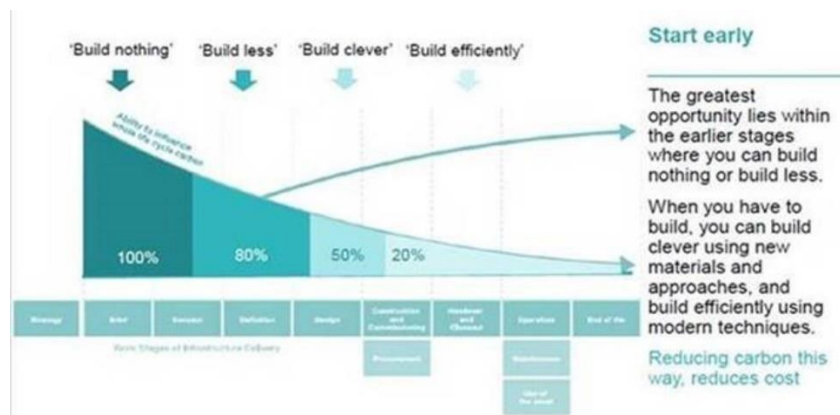
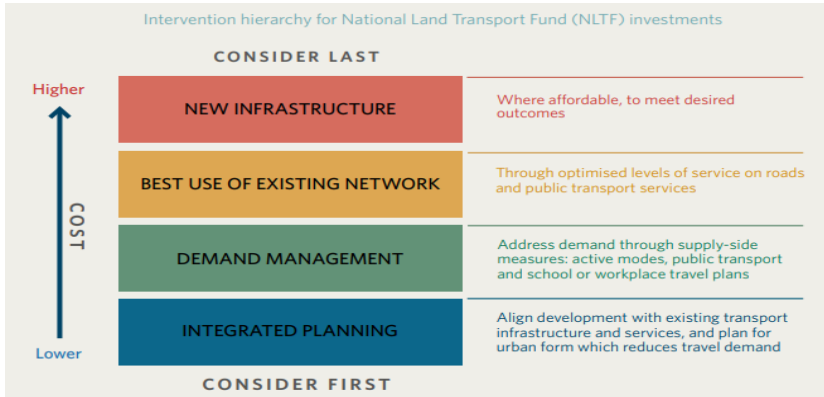
**Capital** — The upgrade/capital estimates include a contingency allowance to make provision for possible issues or circumstance that are unable to be reliably accounted for during the project development of +/- 30%. The contracting market appears to remain buoyant, but the effects of the Covid19 shut down are not yet well enough known to reliably update forecasts.

Projects of unusual complexity or presenting landowner/regulatory issues cannot be quantified, which makes it difficult to estimate the costs of these projects with accuracy.

SECTION 10: APPENDICES

APPENDIX A – STRATEGIC FRAMEWORK AND GLOSSARY

High level strategy guidance from Waka Kotahi and carbon emission reduction guidance is summarised below. The following three graphs inform the process of considering and implementing the Transport AMP.



## GLOSSARY OF ABBREVIATIONS

AMP – Asset Management Plan  
 CAR – Corridor Access Request  
 CBR – California bearing ratio  
 CPTED – crime prevention through environmental design  
 DSI – Death and Serious Injury  
 DBC - Detailed Business Case  
 EBT – Electronic Bus Ticketing  
 FAR – Financial Assistance Rate  
 FWD – Falling weight deflectometer  
 GPS - Draft Government Policy Statement 2018 on Land Transport  
 IAF – Investment Assessment Framework  
 LTMA – Land Transport Management Act 2003  
 LCLR – Low Cost/Low Risk  
 LTP - Long Term Plan  
 MIS – Maintenance intervention strategy  
 MoT – Ministry of Transport  
 NCC – Nelson City Council  
 NDS UDC – National Policy Statement on Urban Development Capacity  
 NFAS - Nelson Future Access Study (also FAS)  
 NLTP – National Land Transport Programme  
 NOF – Network Operating Framework  
 NPS – National Policy Statement  
 NSLI – Nelson Southern Link Investigation  
 NTLDM – Nelson Tasman Land Development Manual  
 NTLF - National Land Transport Fund  
 Waka Kotahi - New Zealand Transport Agency  
 PBC - Programmed Business Case  
 PGF – Provincial Growth Fund  
 Ramm – Road assessment and maintenance management (the councils asset management database)  
 RCA – Road Controlling Authority  
 RLTP - Regional Land Transport Plan  
 RPTP - Regional Public Transport Plan  
 RTC - Regional Transport Committee  
 SH – State Highway  
 SHIP – State Highway Investment Proposal  
 SH6 RR -SH6 Rocks Road Walking and Cycling Project  
 SHA - Special Housing Area  
 SW - stormwater  
 TAIP – Transport Agency Investment Proposal  
 TBC – To Be Confirmed  
 TDC – Tasman District Council  
 TDM – Travel Demand Management  
 TIO - Transport Investment Online portal  
 TMP – Traffic management plan  
 UCF – Urban Cycleway Fund  
 VKT – vehicle kilometres travelled  
 WC - (usually followed by a 3 digit number) work category

## APPENDIX B – EXTRA EVIDENCE

### **B1 Introduction**

The evidence in Appendix B supports the strategic and programme business cases, but is not specific to the causes and consequences of the problem statements. This evidence is representative of wider data and context that guides the transport activity. The evidence has been referenced in the development of programme options, priorities and the Improvements Plan. This Appendix includes:

- B2 – Public Satisfaction with Transport Activities
- B3 – Summary of Transport Network
- B4 – Roughness
- B5 – Smooth Travel Exposure
- B6 – FWP Pavement Data
- B7 – Annual Resurfacing Programme
- B8 – Average Life of Chipseal and Asphalt Surfaces
- B9 – Average Cost of Chipseal and Asphalt Surfaces
- B10 – Maintenance Costs
- B11 – Pavement Renewals
- B12 – Handrails
- B13 – Drainage
- B14 – Freshwater Improvement
- B15 – Coastal Inundation
- B16 – Cycle Lanes
- B17 – Walking Facilities
- B18 – Footpath Severance Issues
- B19 – Shared Paths
- B20 – Road Safety Promotion
- B21 – Total Mobility
- B22 – Transport Carbon Emissions

## B2 Public Satisfaction with Transport Activities

Public satisfaction survey results for the whole transport activity in 2020 are shown in Figure B1.

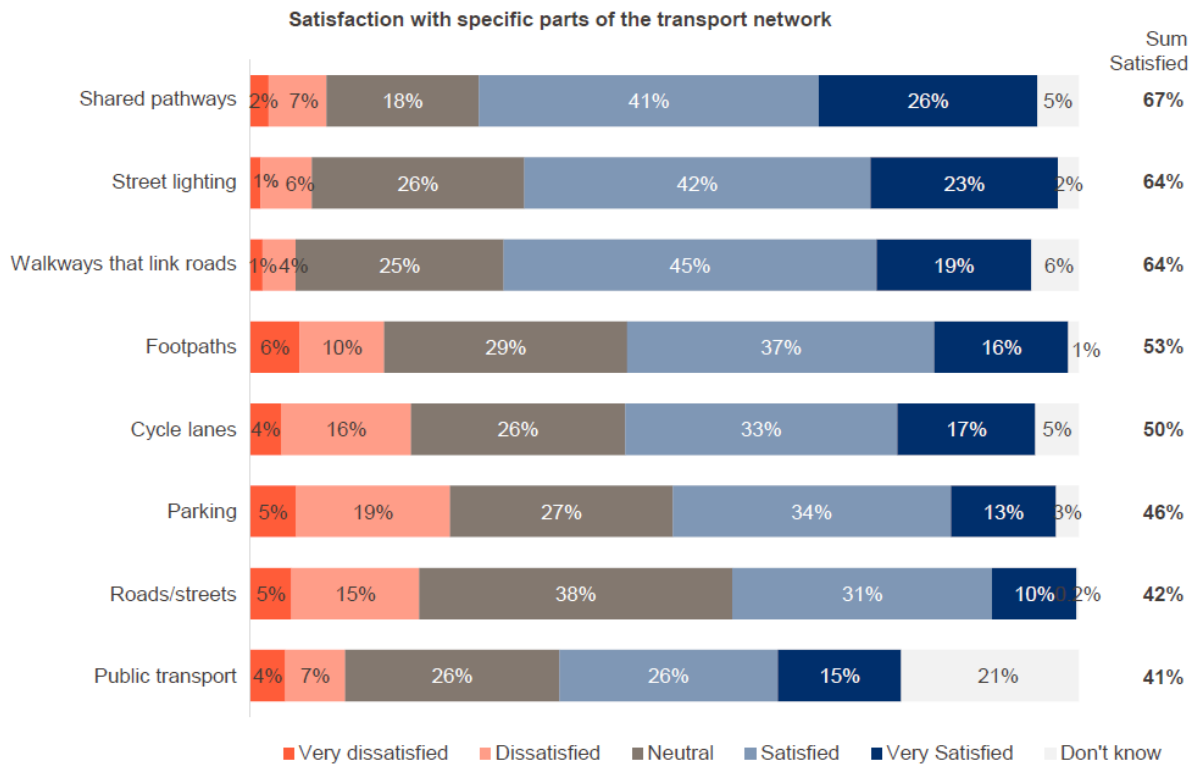


Figure B1 - Public satisfaction with transport activities 2020

Public satisfaction trends over time are shown in Figure B2, while areas of focus are shown in Figure B3

### Satisfaction with Transport Network – Over Time

- Comparing this year's results to 2017 (and even 2014) shows that satisfaction with roads and footpaths has deteriorated significantly, while satisfaction with cycle lanes is also trending downwards.

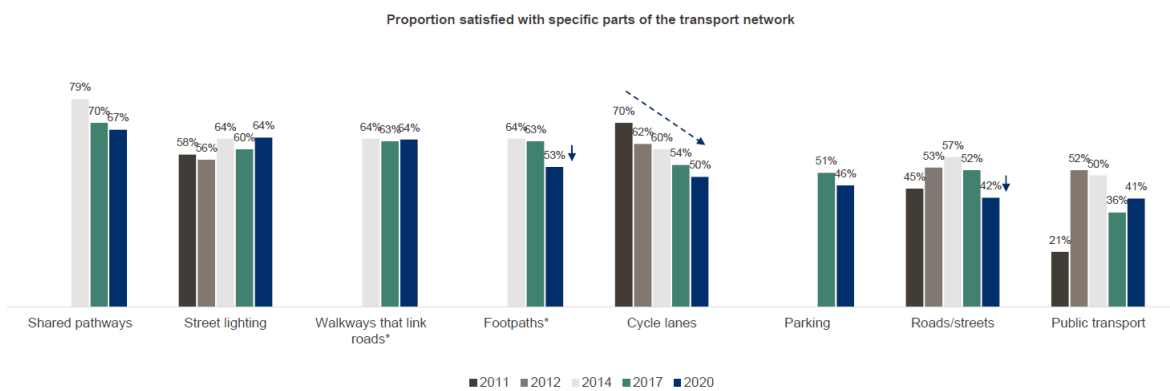


Figure B2: Trends in Satisfaction (2020)

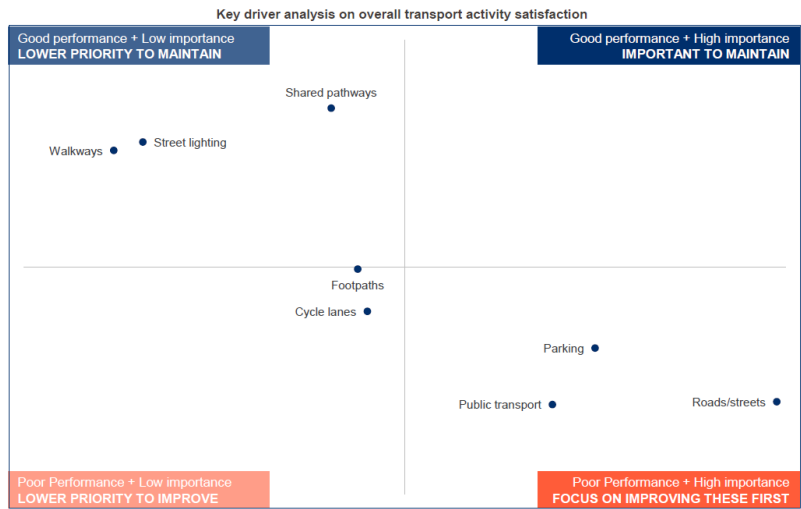


### Transport Areas to Focus on

Relatively speaking, roads/streets, parking, and public transport are the three aspects of transport that have the highest negative impact on satisfaction with overall transport activity satisfaction.

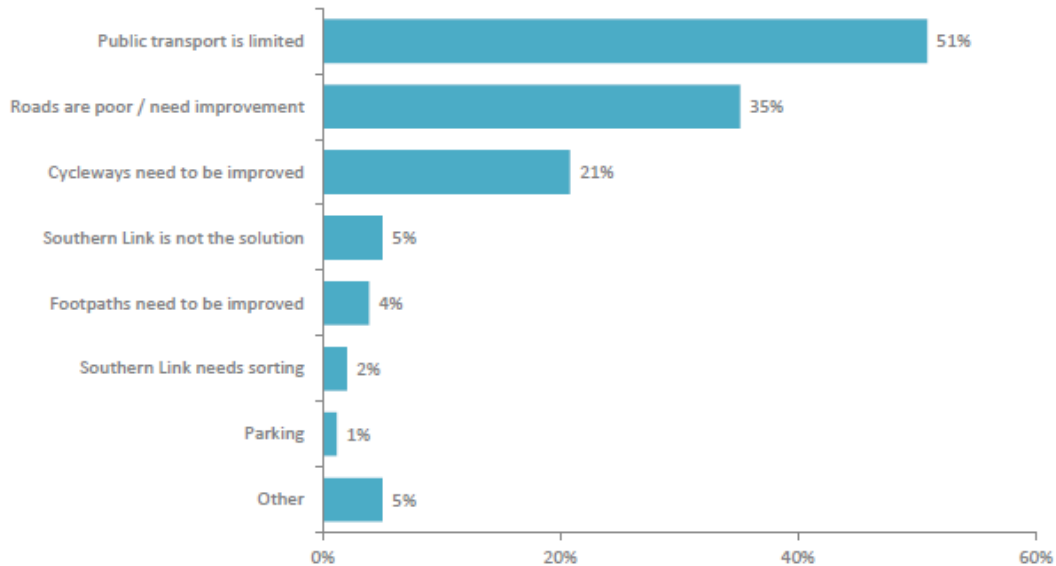
As such, to improve overall satisfaction with transport, those are the top three areas to focus improvement on.

1. Roads/streets (42% satisfied, 20% dissatisfied);
2. Parking (46% satisfied, 24% dissatisfied); and,
3. Public transport (41% satisfied, 11% dissatisfied).



Note: This chart explains 54% of the variability affecting satisfaction with transport

Figure B3: Staff Satisfaction Survey – Focus Areas (2020)



Base size n=162.

Figure B4: Reasons for dissatisfaction with transport activities (2017)

### B3 Summary of Transport Network

The network pavement quantities shown in Figure B5 and B6, are based upon the One Network Road Classification (ONRC).

Financial Year: 2019/20  
 RCA: Nelson  
 Classifications: Not Required, Regional, Arterial, Primary Collector, Secondary Collector, Access, Low Volume

ONRC	Urban (Km)	Rural (Km)	Total Length (Km)	Lane (Km)	Urban Journeys (M VKT)	Rural Journeys (M VKT)	Annual Total Journeys Travelled (M VKT)	Percentage of length
Regional	7		7	14	43.7		43.7	3%
Arterial	11		11	22	48.1		48.1	4%
Primary Collector	51		51	98	73.6		73.6	18%
Secondary Collector	46	6	52	99	26.6	1.4	28.0	19%
Access	101	10	110	208	17.4	0.6	18.0	40%
Low Volume	35	6	41	73	1.8	0.1	1.8	15%
Not Required								0%
Unclassified			4					1%
<b>TOTAL NETWORK</b>	<b>250</b>	<b>22</b>	<b>276</b>	<b>515</b>	<b>211.1</b>	<b>2.1</b>	<b>213.2</b>	

Table 1: Network Statistics for network length (km) and journeys travelled (Million vehicle km) by ONRC Class

Figure B5: Transport Network Quantities

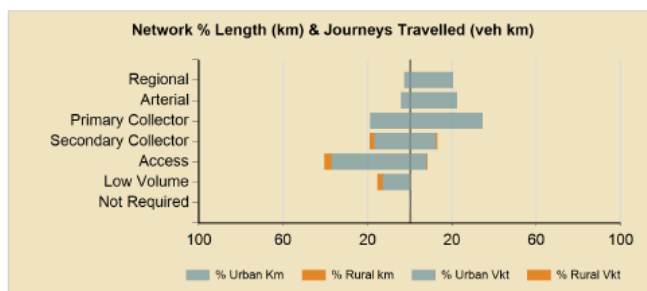


Figure 1: Network Percentage Length and Journeys Travelled

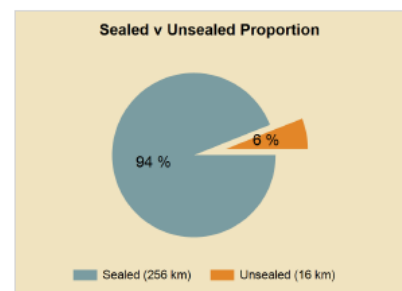


Figure 2: Sealed v Unsealed

Figure B6: Pavements Information

### B4 Roughness

Peak (85%) and average roughness based on the most recent survey of the complete network are graphed below.



#### The 85th percentile roughness of your roads

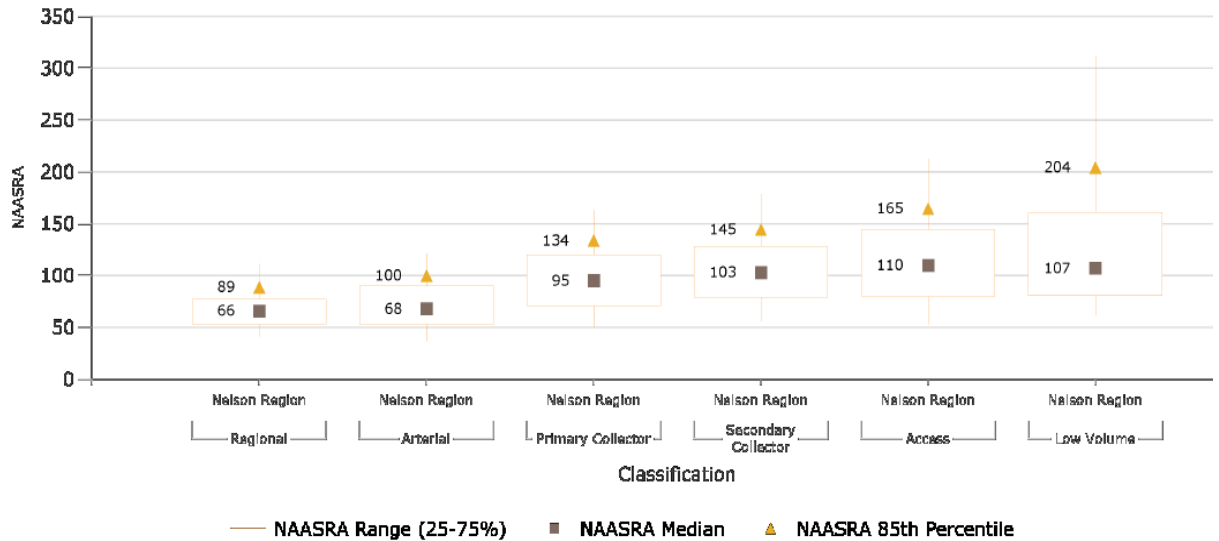


Figure B7: Peak and Average Roughness 2020-21

Over time, the higher volume roads are gradually experiencing increased roughness, as can be seen in Figure B8, while the lower volume roads are showing improved roughness, possibly as a result of improving data quality. The roughness for all roads increased in 2017/18 when the measuring method changed to High Speed Data. The years prior to, and including, 2016/17 are reflective of the prior approach, and are not comparable with the data from 2017/18 and onward.

The data for 2020/21 is incomplete, but these graphs represent the most current data available, and are consistent with expectations for results from the complete year.



#### 85th percentile trend

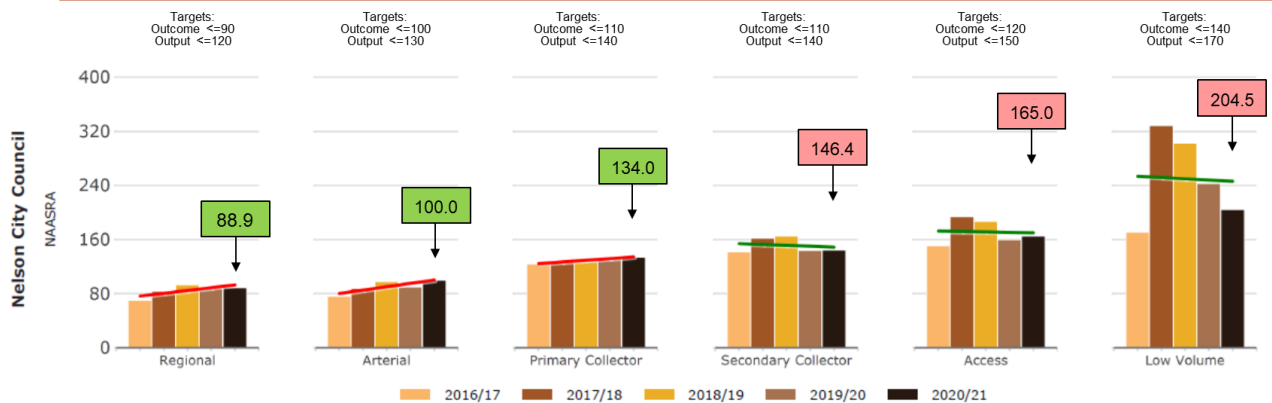


Figure B8: Roughness results year on year by ONRC Category

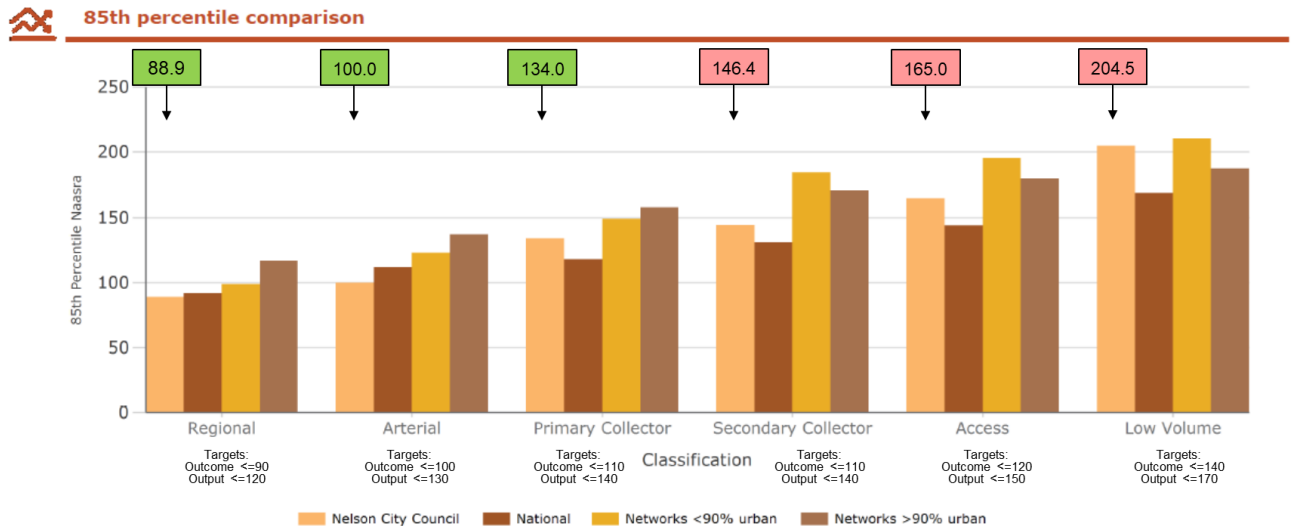


Figure B9: Comparison of Roughness

Nelson at just above 90% urban, compares favourably with peers for road classifications other than Low Volume roads, and is better than the national average for Regional and Arterial Roads. This reflects that most of these roads have been resurfaced in the last few years so are still delivering good results. However the surfacing does require maintenance, and is expected to need resurfacing within the next 10 years. Roughness will increase until the time of resurfacing.

The collective poor performance on lower volume roads could be attributed to the technology used for the network typology. There are technological limitations to the collection of high speed data. The vehicle gives more reliable data when average speeds >50km/h can be sustained. This cannot be achieved where the road lengths are less than 100m, or there are speed control devices (such as raised tables), or during some braking / acceleration manoeuvres.

Intersections, traffic control devices and turning heads are included in the road lengths shown in Figure B10, which indicates that physical constraints may be affecting the roughness results. It is not physically possible for some survey vehicles to access some of the constrained low volume roads. Vehicle volumes are lower on the low order roads, typically low speed due to the same physical constraints so roughness is less critical. As shown in Figure B10, most of the roads in the Nelson network are less than 300m long.

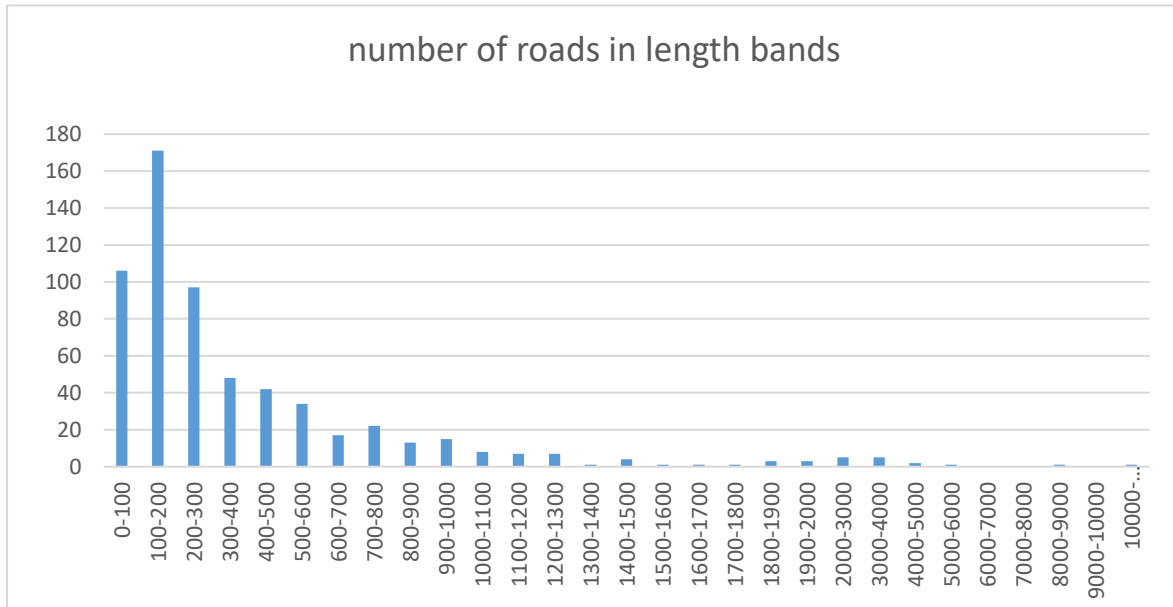


Figure B10: Number of roads in length bands

Improvement to the roughness results (and therefore STE) are being addressed by:

- Further research and data and options assessment;
- Preseal repairs; and
- Improved pavement management programme

It is not expected that long term roughness and STE improvement can be achieved by increased resurfacing alone.

### B5 Smooth Travel Exposure

Smooth travel exposure (STE) for all roads dropped in 2017/18 when the method of measure changed to High Speed Data. The higher score in 2018/19 is the result of filtering the erroneous roughness data, and subsequent years of data improvement is resulting in progressively more accurate reporting. As noted previously, there is still uncertainty about the data, but which is in the process of review.

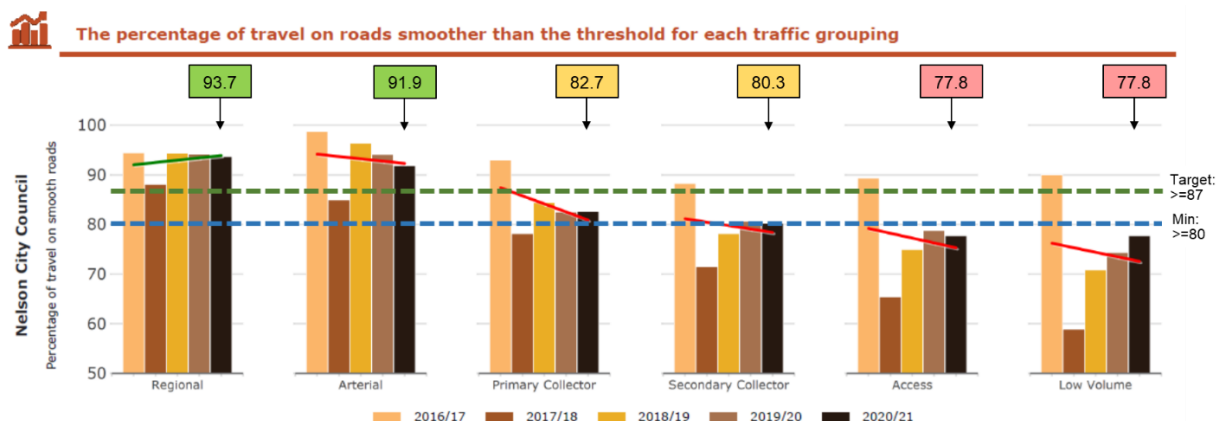


Figure B11: The percentage of travel on roads smoother than the threshold for each traffic grouping

The results shown in Figure B11 reveal a skewed negative trend due to the high numbers reported in 2016/17. Neglecting the 2016 year reveals that there is general improvement of STE across the network, albeit it is unclear the role of erroneous or missing

data in these first years using the new high speed data. Clearly, the higher classification roads are smoother than the low classification roads, with Regional and Arterial exceeding the 87% Nelson target, and both collector road classifications exceeding the minimum target of 80%. This profile means that the highest numbers of users are benefiting from smooth roads.

When compared with national and peer groups, Nelson is well positioned for roads with higher capacity / high demand, and does not fair well for low capacity / low demand roads, as shown in Figure B12.

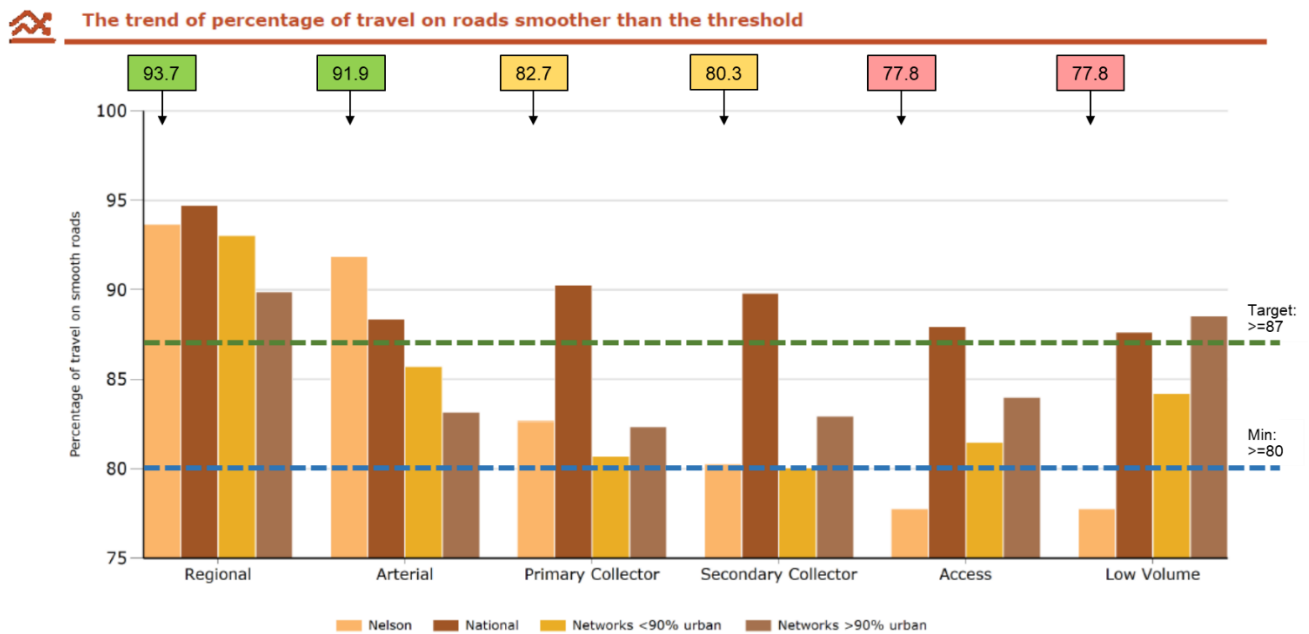


Figure B12: Percentage comparison of travel on roads smoother than the threshold

**B6 FWD Pavement Data**

Falling Weight Deflectometer (FWD) testing were undertaken on a selection of roads in 2019–21. The FWD test data particularly identified that the pavements are flexible and do not support asphalt surfacing. This is also being observed in increased maintenance now being required on asphalt arterial roads less than 10 years old. Asphalt surfaces on these roads are not expected to achieve more than a 10 year life. A more rigid pavement is required if asphalt is to continue to be used for surfacing and a design life greater than 10 years is to be achieved. Some alternatives are being trialled through maintenance interventions, such as alternative asphalt depths, including very shallow asphalt (AC) to achieve a flexible surface that might gain the desired life without pavement rehabilitation. This work will inform the next AMP.

Table 3 Reproduction of deflection and curvature guidance from NZTA (2018a)

Traffic volume	Heavy trafficked pavements (ADT > 5000)		Medium Trafficked pavements (ADT: 500 – 5000)		Lightly Trafficked pavements (ADT < 500)	
	Maximum 95 Percentile Beam Reading (d <sub>0</sub> )	Maximum 95 percentile curvature (d <sub>0</sub> - d <sub>200</sub> )	Maximum 95 Percentile Beam Reading (d <sub>0</sub> )	Maximum 95 percentile curvature (d <sub>0</sub> - d <sub>200</sub> )	Maximum 95 Percentile Beam Reading (d <sub>0</sub> )	Maximum 95 percentile curvature (d <sub>0</sub> - d <sub>200</sub> )
Deflection criteria						
Surfacing mix type						
AC	0.70 mm	0.15 mm	1.00 mm	0.17 mm	1.60 mm	0.2 mm
OGPA	1.10 mm	0.17 mm	1.60 mm	0.19 mm	2.40 mm	0.22 mm
Slurry	0.70 mm	0.15 mm	1.00 mm	0.17 mm	1.60 mm	0.2 mm

Table B13 Reproduction of deflection and curvature guidance from NZTA (2018a)

Surface type	Typical Maximum 95 Percentile Beam Reading (d <sub>0</sub> )	Typical Maximum 95 percentile curvature (d <sub>0</sub> - d <sub>200</sub> )
AC	<1.00mm	0.2mm to 0.5mm

Table B14: Typical results achieved for heavily trafficked pavements in Nelson

In addition to the FWD test data, test pits to date confirm shallow pavements less than 250mm on CBR less than 10. Additional tests are required to build a site specific and general database for future pavement assessment.

### B7 Annual Resurfacing Programme

Figure B15 shows the length and percentage of the Nelson sealed road network which has been resurfaced over a 14 year period 2005-2019.

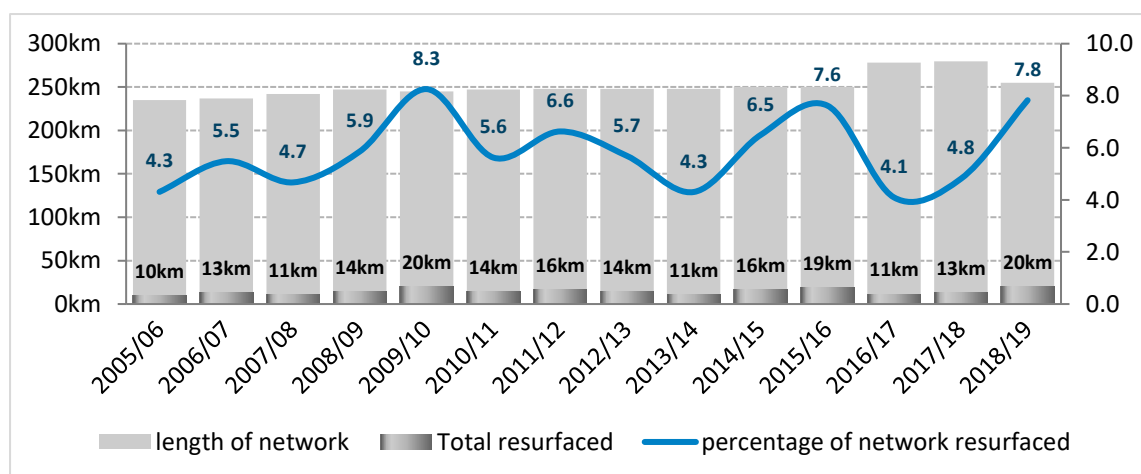


Figure B15: Percentage of network resurfaced annually

However, the most recent data from Waka Kotahi shows that there has been a notable decrease in the percentage of network renewed since the most recent peak in 2018/19. This drop may be partly due to the lag in reporting associated with the reduced quantity

of resurfaced lane-kms that were delivered over 2017 and 2018 than was planned, and as shown in Figure B16.

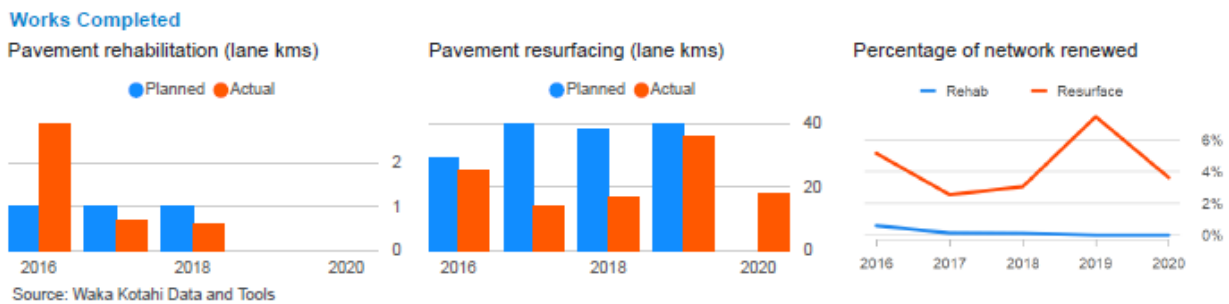
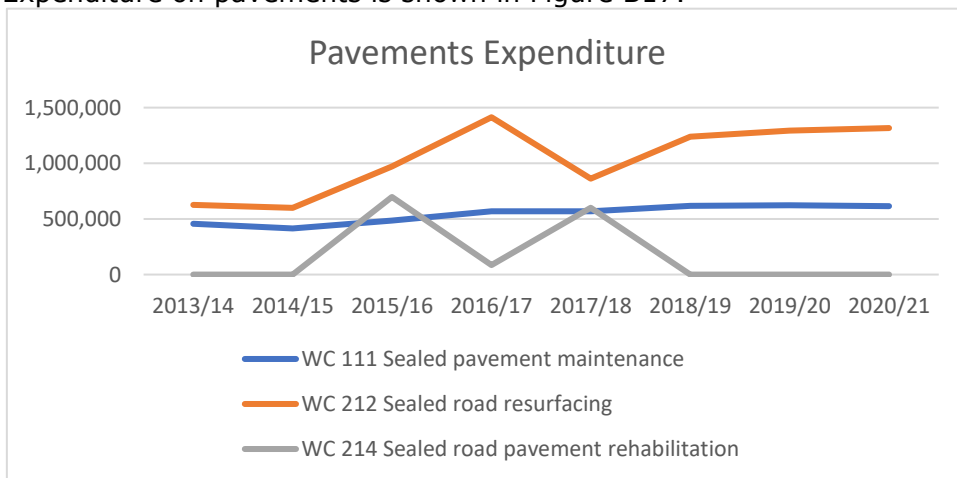


Figure B16: Percentage of network resurfaced annually

This data needs to be interrogated and compared against RAMM reporting that 20–40% surfaces are overdue for resurfacing. Until this the backlog is confirmed as a physical problem instead of a data reporting problem, a risk-based reseal programme should be adopted for the renewals backlog.

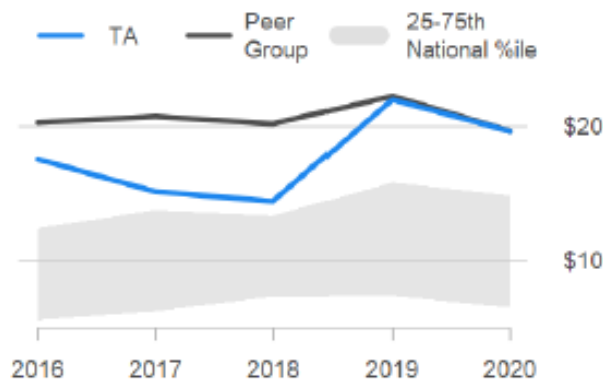
Council has been achieving the current Level of Service measure of between 3% and not more than 8.5% resurfaced annually. To achieve this, between 8km and 21km need to be resurfaced annually. This number will increase over time as the network grows. Expenditure on pavements is shown in Figure B17.



B17 – Pavement Maintenance Expenditure

As can be seen, pavement maintenance expenditure is increasing over time. Surfacing budgets were increased through the 2018 AMP and rehabilitations have been minor and sporadic since 2013. Pavement maintenance demands are expected to climb further due to the identified issues on the asphalt surface of the arterial network. Pavement maintenance, operations and renewals expenditure has aligned with peers, as shown in Figure B18, albeit also shows a reduction from FY2019 to FY2020 which may not be sustainable.





B18 – Pavement Maintenance, Operations and Renewals Expenditure / length (\$1,000 / km)

Early indications are that the cost efficiency of maintenance operation and renewal activities is similar to peers per length of road, although this is higher than the national average. Total expenditure is slightly less than peers.

### B8 Average Life of Chipseal and Asphalt Surfaces

The age of surfacing achieved is up to 21 years, and 9 years more than the national and peer group average. The age of the reseals is reflected in the maintenance costs, especially for secondary collector roads, poor performance results for roughness and STE, and is a result of a renewals backlog which is now being addressed.

 Chipseal resurfacing average life achieved, four year average to

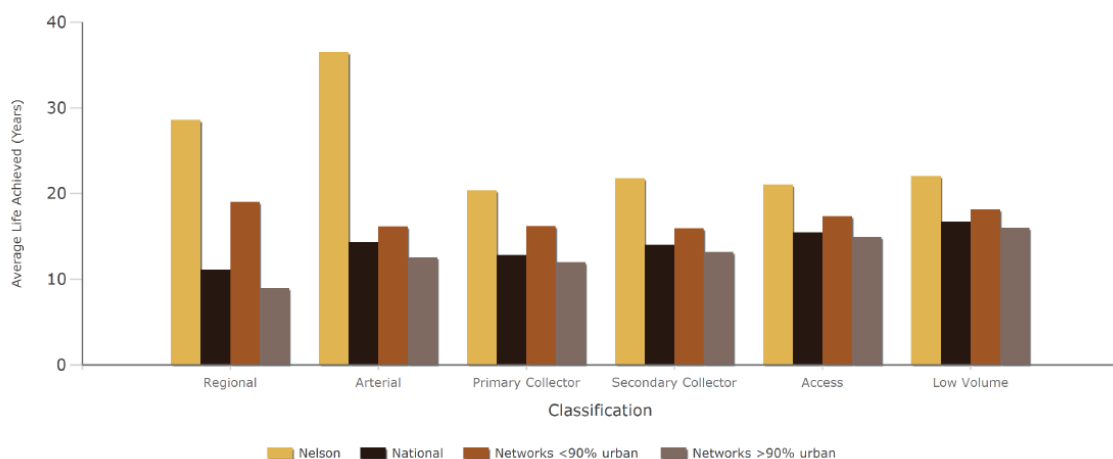


Figure B19: Chipseal resurfacing life achieved

The current asphalt surface structure on the arterial network is expected to last 10 years, line with the national average for regional roads, due to the flexibility of the underlying pavements with regional and arterial road resurfacing anticipated in the 2021–31 LTP period.

**Asphalt resurfacing average life achieved, four year average to 2020/21**

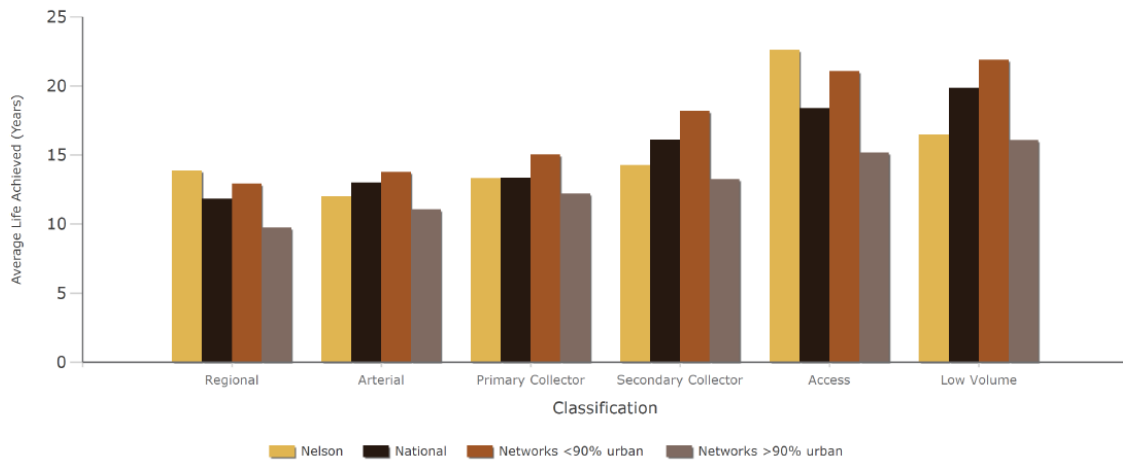


Figure B20: Asphalt resurfacing average life achieved

**B9 Average Cost of Chipseal and Asphalt Surfaces**

The total cost of chipseal resurfacing in Nelson, in 2019/20 is broadly consistent with other networks over 90% urban, as can be seen in Figure B21. As expected, the costs are higher than national average and the networks with less than 90% urban, given these groups generally include jurisdictions with much greater rural networks.

**The total cost of chipseal resurfacing undertaken over the selected Financial Year**

This classifies the Original Cost field for Surface records in RAMM

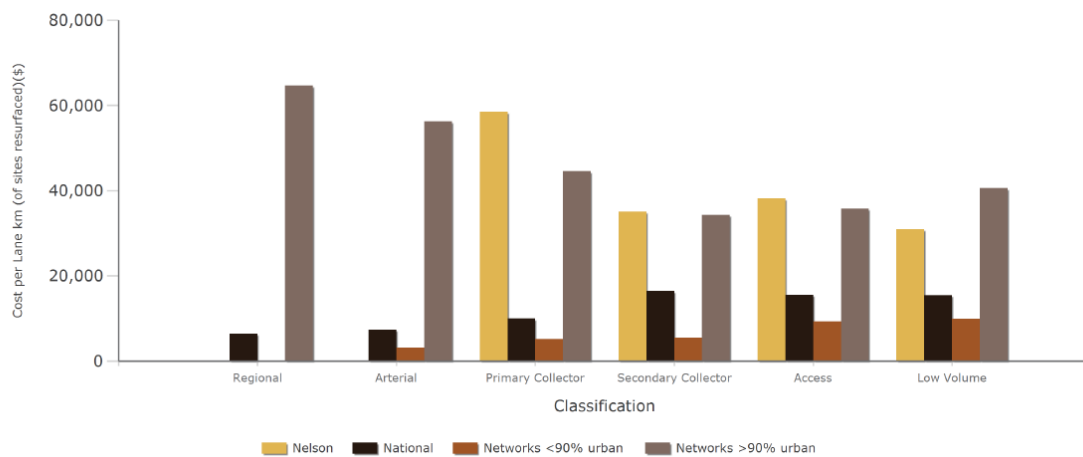


Figure B21: Total cost of chipseal resurfacing 2019/20

The total cost of asphalt resurfacing in Nelson, in 2019/20 is broadly consistent with other networks over 90% urban, as can be seen in Figure B22, with the exception of low volume roads where Nelson is notably high. This is thought to reflect the small and complex sites asphalted on small hilly roads, and the high standard achieved with asphalt surfaces.



The total cost of asphalt resurfacing undertaken over the selected Financial Year

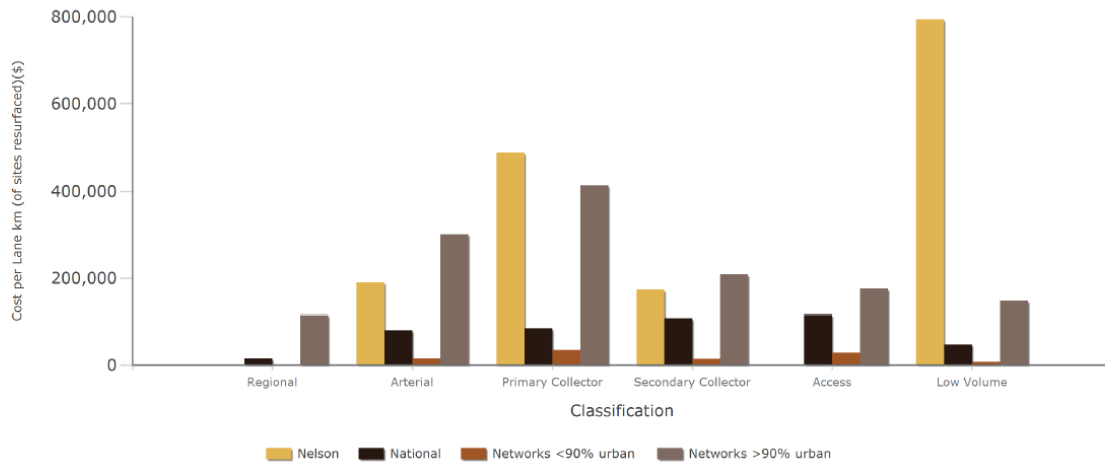


Figure B22 – Asphalt resurfacing costs

As expected, the costs are higher than national average and the networks with less than 90% urban, given these groups generally include jurisdictions with much greater rural networks.

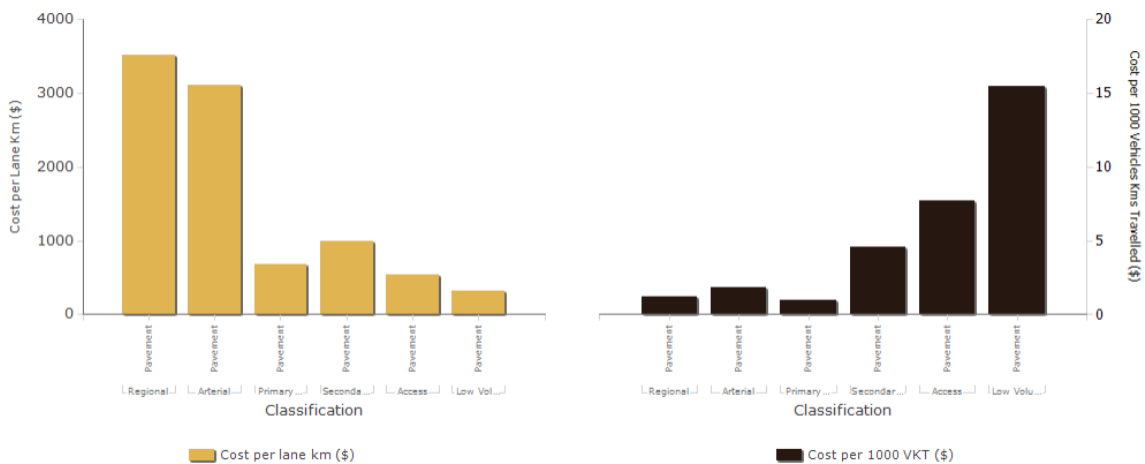
The introduction of a heavy maintenance activity (WC111) in future funding budgets will ensure maintenance and resurfacing budgets are presented consistently for national comparison.

### B10 Maintenance Costs

The high maintenance costs per VKT reflect the high roughness and poor STE of access roads, as well as the high traffic volumes for the low volume and access roads. The exact magnitude of expenditure needs to be analysed in detail and Council may need to



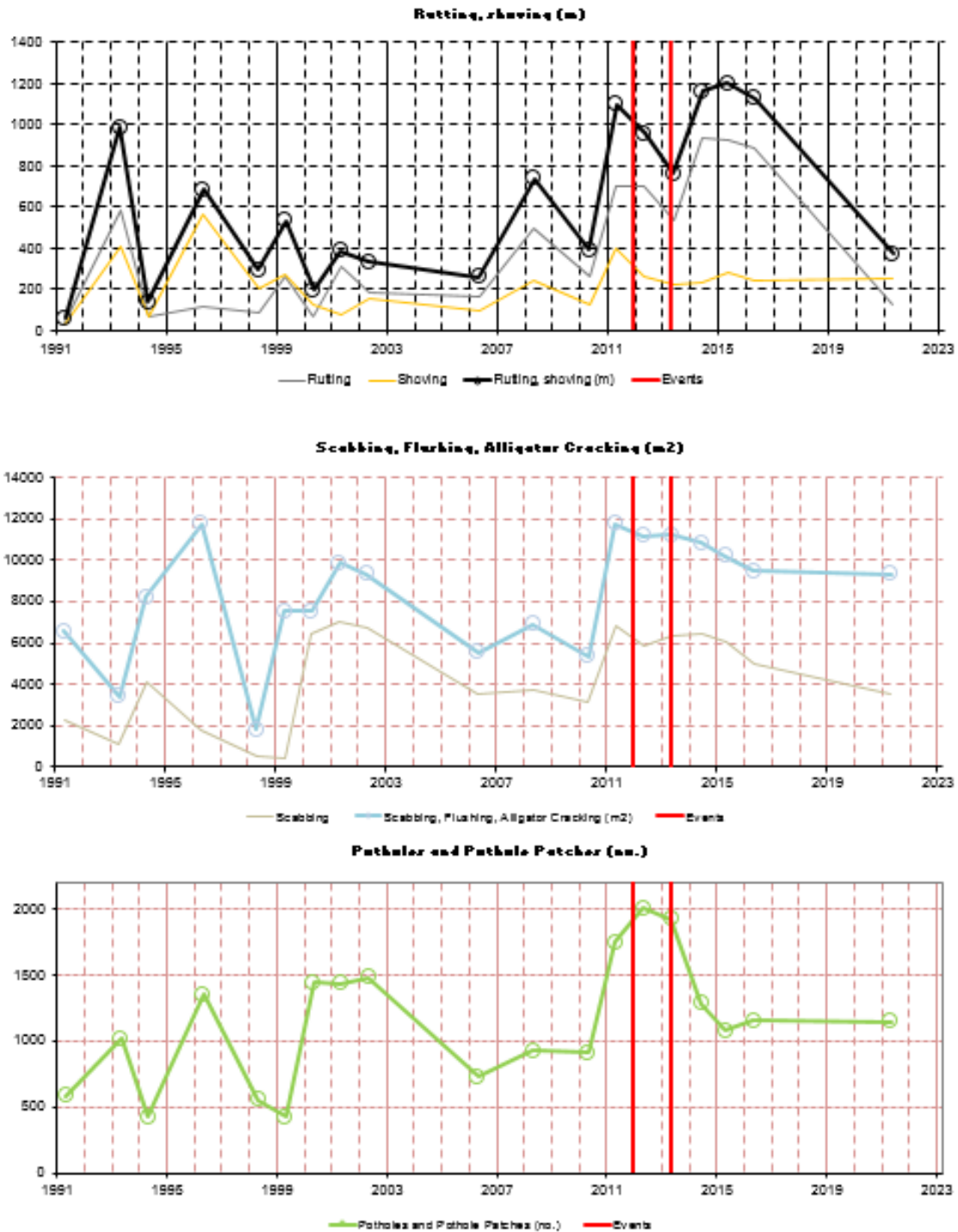
The overall cost of routine pavement maintenance per Lane km and network VKT for each classification



consider improvement actions as part of the maintenance strategy to lift the standard of these roads if the maintenance costs are unsustainable. Figure B22 shows the maintenance cost expenditure per lane km of road, and per VKT. (There are no national, or peer group, comparisons for maintenance costs.)

Figure B23: The overall cost of routine pavement maintenance per Lane km and network VKT for each classification in Nelson

The fault survey data shown in Figure B24 needs to be regularly updated.



**Events**

- 14/12/2011 Rain: severe, region-wide damage; hundreds of slips
- 21/04/2013 Rain: record-breaking flooding in the Sexton Creek catchment; South Stoke and Richmond affected only.

Figure B24: Network Faults

**B11 Pavement Renewals**

Pavement renewal is a major work activity which restores, replaces or rehabilitates the underlying structure of the pavement asset to its original capacity.

There are two types of renewal carried out on the carriageway asset:

- Resurfacing by replacement of either chipseal or asphalt (asphaltic concrete) — discussed in the sections above; and
- Rehabilitation by granular pavement replacement or by structural asphalt (asphaltic concrete) layer construction.

Use of 100mm deep asphalt resurfacing repairs as an interim maintenance intervention will be charged to WC111 sealed pavement maintenance from 2020/21 after migration to reseals in 2019/20. This intervention is currently minimising traffic impacts of repairs, but has yet to be confirmed for long term durability. The process is being used as a holding measure while data is updated and a long-term pavement management strategy for some roads is determined.

Due to some premature deterioration, there is growing uncertainty about the competence of the subgrade. Consequently, further investigation will be required to substantiate whether these are isolated cases, or indication of a broad problem. Presently there is no evidence to substantiate any decision or change.

**B12 Handrails**

The guardrail stock has been evaluated, all have been downgraded to sight rails and are covered in the signs and markings section.

There are 460 handrails, with a total length of 11.6km. Seven are in poor condition, the condition of another 43 are unknown and the remainder are in good/average or excellent condition.

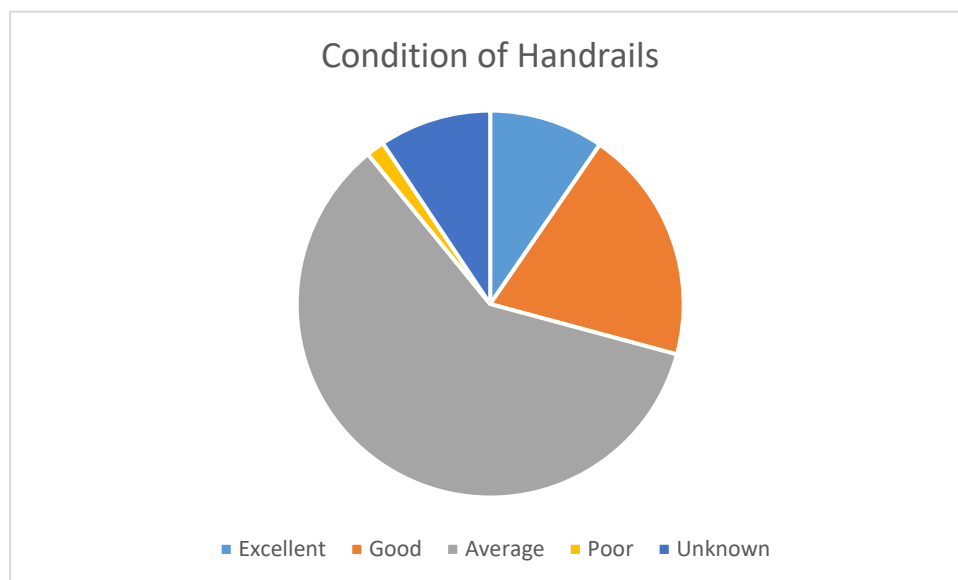


Figure B25: Condition of handrails

**B**

### 13 Drainage

Performance issues for drainage assets relate to:

- pipe capacity — most of the stormwater channels and culverts have not been formally designed, and changing upstream land uses affects downstream flows; and traditional resilience/overflow capacity is not available in surrounding areas, resulting in less tolerance of flooding effects;
- poor data on culverts including condition data;
- management of freshwater values;
- large culverts are recognised as structures for transport loadings, but maintained as utility assets for drainage capacity;
- safety, and lack of a shoulder, between culvert inlets and outlets alongside the traffic lanes.
- bubble up sumps with no supporting pipe network
- Council has performance measures for the drainage activities in the road maintenance contract. Drainage works outside this requirement are undertaken by the Utilities maintenance contractor.
- Asphalt surfacing is not a waterproof layer for a pavement. Pavements need a chipseal surface (alone or underlying an asphalt surface) to maintain pavement integrity especially where roads are used as secondary flow paths for flood flows.
- There is no condition or performance assessment data for the urban network pipework. CCTV inspection of pipes would be required to gain this evidence.

### B14 Freshwater Improvement

Roads with traffic volumes generally higher than 5,000 vehicles per day, high freight demands, and carparks larger than 1000m<sup>2</sup> have been identified as best areas to focus freshwater improvement efforts Figure B26.

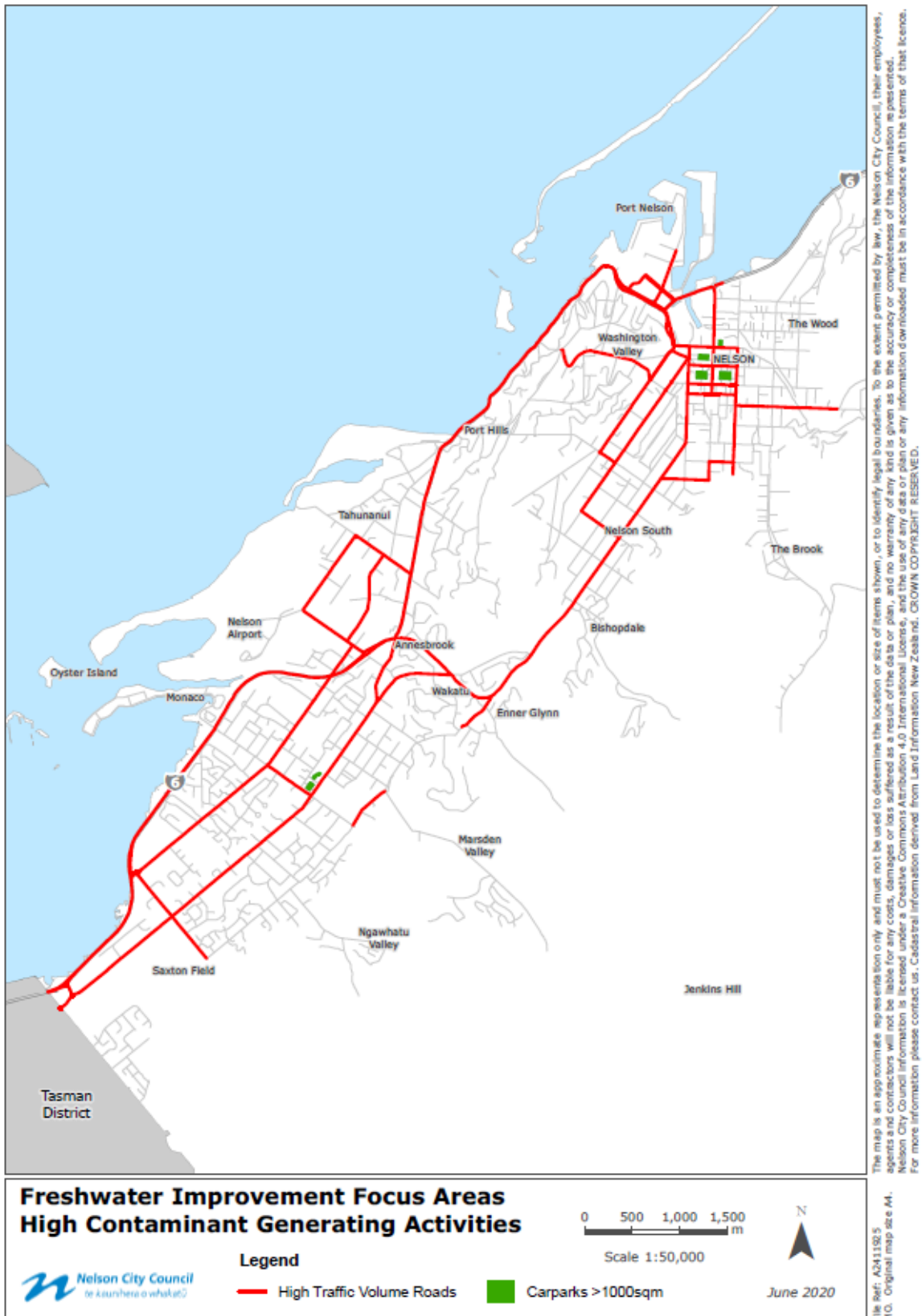


Figure B26: Freshwater Improvement Focus Areas

### B15 Coastal Inundation

Whakatū car park is affected by sea water inundation during very high tides. The flooding lasts approximately 2 hours. This is evident in other areas of the city also, Trafalgar Street, Gloucester Street, Vanguard Street, St Vincent Street and Rutherford Street, especially during low pressure storm events. The 2019 calendar is shown below. The number of days affected and duration of effect is expected to increase with climate change.

Very high tide dates (red-alert) with increased coastal inundation potential and carefree low high-tide dates for Tasman Bay

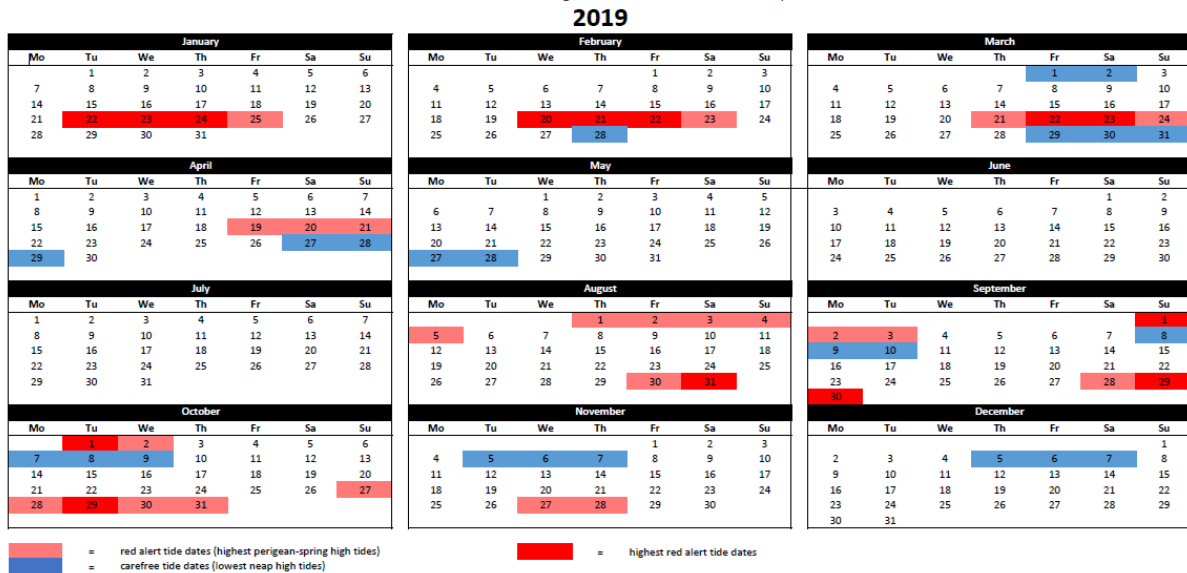


Figure B27 Coastal inundation risk times.

### B16 Cycle Lanes

A Hastings Study has identified that motorists give cyclists more space, and cyclists are more confident using the cycle lane, where green paint is used. Budgets have not included renewal of green paint, but these findings and the cycle crash rate mean this should be reviewed.

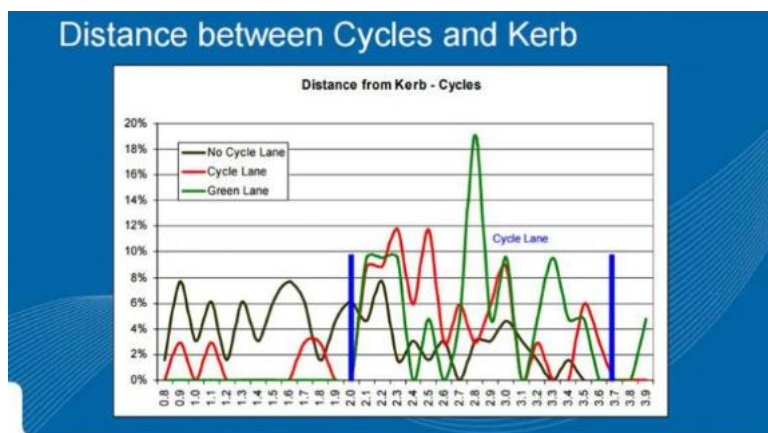


Figure B28: Distance between cycles and kerb



**B17 Walking Facilities**

An interactive data management system is being developed to store the pedestrian and cycle count data.

The Future Access Study is expected to promote primary and secondary walking routes. These may be adopted by Council, but it will take some time to accurately and comprehensively map the demand (in order to confirm the classifications of each walkway/footpath). Council will continue this mapping exercise in the 2021–24 period.

Classroom surveys are undertaken to determine the portion of students walking or cycling or taking a bus to school. This data is to be bought into the transport planning database from 2021.

Improving the walkability of the city centre is proposed as part of the City revitalisation and Maitai River Precinct programmes. Urban living surveys were undertaken to inform this work. Refer the City Centre AMP for further details.

Key findings of the footpath condition rating are that 39% of footpaths are in poor condition and 8% of footpaths are in very poor condition. (One percent of footpaths have not been assessed.)

Condition assessment process has been modified for 2021. It now includes footpath shape to reflect Council’s desire to provide a high level of service for pedestrians, with particular regard for Nelson’s ageing population and the emphasis on mode shift to active transport. The method of survey and data recording are under review to provide more accurate and timely records.

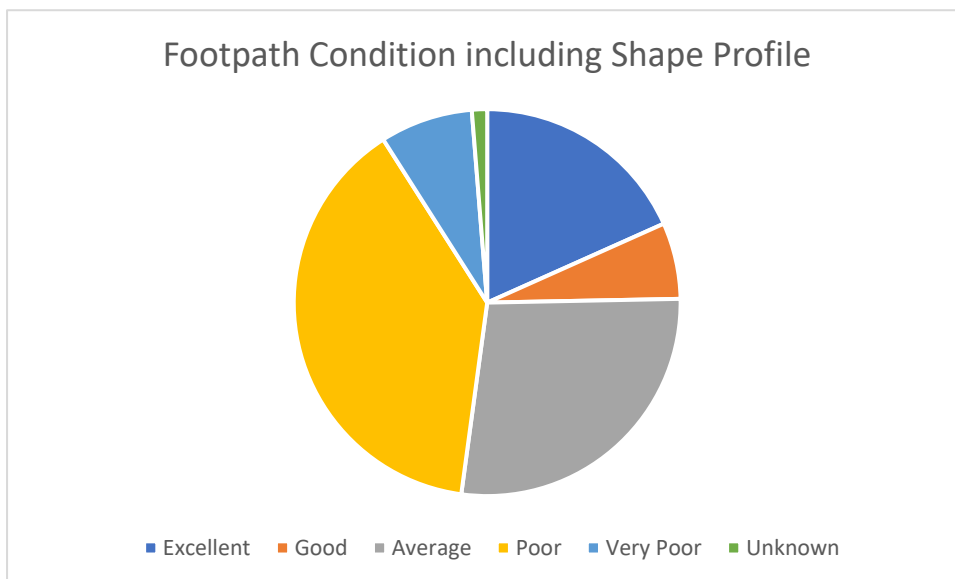


Figure B29: Footpath condition including shape profile

**B18 Footpath Severance Issues**

Severance of walking networks by high volume roads continues to be an issue for the walking activity. Between one and three improvement projects (pedestrian refuges/buildouts) have historically been installed per year. This programme addresses

demand and requests and identified issues. The Pedestrian Planning guide is used to inform the facility and site specific design.

### **B19 Shared Paths**

Shared paths cater for all active modes on one facility. These are common in Nelson because they deal with demands and spatial constraints of the Nelson topography. Shared paths are classed as cycle facilities (for Waka Kotahi funding and reporting), and generate some user conflict complaints due to the mixed use, as discussed above in relation to the cycle network. The Out and About Policy addresses the issues of different user demands and conflict management on shared paths.

### **B20 Road Safety Promotion**

The national Bikes in Schools programme through the Bike On charitable trust has had an exponential increase on the number of students riding bikes during the school day, especially in low socio-economic areas where bike ownership levels are low. The tracks that have been installed at schools are also proving to be community assets and becoming weekend destinations for families.

Waka Kotahi's BikeReady launch has streamlined the national standard of cycle education and had a significant impact on the quality of delivery. Bookings for the RideOn programme are oversubscribed, with demand certainly outweighing the budget of the programme. Sport Tasman have been delivering the programme with funding from Waka Kotahi via Nelson City and Tasman District Councils, ACC and KiwiSport.

Event	When	Number attending	
Bike Ready	July 2019- May 2020	2127	A large group of 300 students was interrupted by COVID.
Adult Community Training	July 2019- May 2020	77 (51- cycle skills and 26- maintenance)	Lessons have had to cease under COVID Alert Levels. New projects like English Language Partners programme were due to start in April and will get going when appropriate.
Community Cycling	July 2019-May 2020		Hampden Street School Maintenance, Cops with Cakes have a go, Scouts maintenance and ride, Central School Crank Day. Again, some effected by COVID and may or may not be rescheduled.
Be Bright (cycle lights)	Winter 2020	We have 500 sets of light to give away	Easy St Cycling contracted to give away in AM and PM in popular commuter areas (i.e railway reserve).
Carfit	February 2020	3 people at Cops with Cakes event	Positive Aging Expo and Ernest Rutherford events cancelled due to COVID.
Staying Safe	September 2019-May 2020	40	Ernest Rutherford event cancelled due to COVID.
Life without a Car	July 2019- May 2020	78	
Shiny Side Up	16/02/2020	1200	Nelson/Tasman event
Ride Forever	July 2019-May 2020	858	Signed up from Nelson/Tasman from website, BMW, Shiny Side Up & Cops with Cakes
Ryder speed/safer stopping distances	17-20/03/2020	194 completed	215 students were booked in but cancelled due to COVID, RYDA looking to re-book when it is safe to do so.
Use of footpaths			Awaiting national direction on footpath cycle riding, electric scooters
Driver Licencing Assistance Course			References from Police are set up and not attended. Refer preferred programme.
Alcohol Impairment Programme	To start funding in 2020/2021	Between 15-18 referred drink/impaired drivers per session. Funding for 5 a year	With TDC, Police, MNDHB, St John, FENZ and marae.

Table B30 Road safety promotion programme

## B21 Total Mobility

As a unitary authority (with regional council functions), Nelson City Council operates Total Mobility services jointly with Tasman District Council.

There are two assessment agencies (Age Concern and CCS), and five operators currently provide the Total Mobility services.

There were 1,386 people registered for Total Mobility in 2018/19. This is an increase of 22% from 2017/18, and coincides with the introduction of the Ridewise scheme.

Ridewise is funded in partnership by local and central government. It assists eligible people, with long term impairments to access appropriate transport to meet their daily needs and enhance their community participation. This assistance is provided in the form of subsidised door to door transport services wherever scheme transport providers operate.

Patronage of this service is shown in Figure B30. On average, the number of trips has increased 3% each year, which closely follows Nelson’s increasing (and ageing) population statistics. The total number of trips in 2018/19 was 42,500. The average number of trips dipped and then recovered in 2018 as the Ridewise scheme was implemented.

There are six operators with wheelchair hoists in Nelson, and the number of hoist uses is generally static at 261 per month. Exact numbers of trips and hoist uses per month varies as some operators do not submit regular monthly claims.

The number of low emission vehicles in the fleet is unknown. But it is recognised that commercial taxi operators have generally embraced this technology.

The Total Mobility scheme provides a subsidy of 50% per trip which is currently capped at \$10 per trip and an additional \$10 if the wheelchair hoist is used.

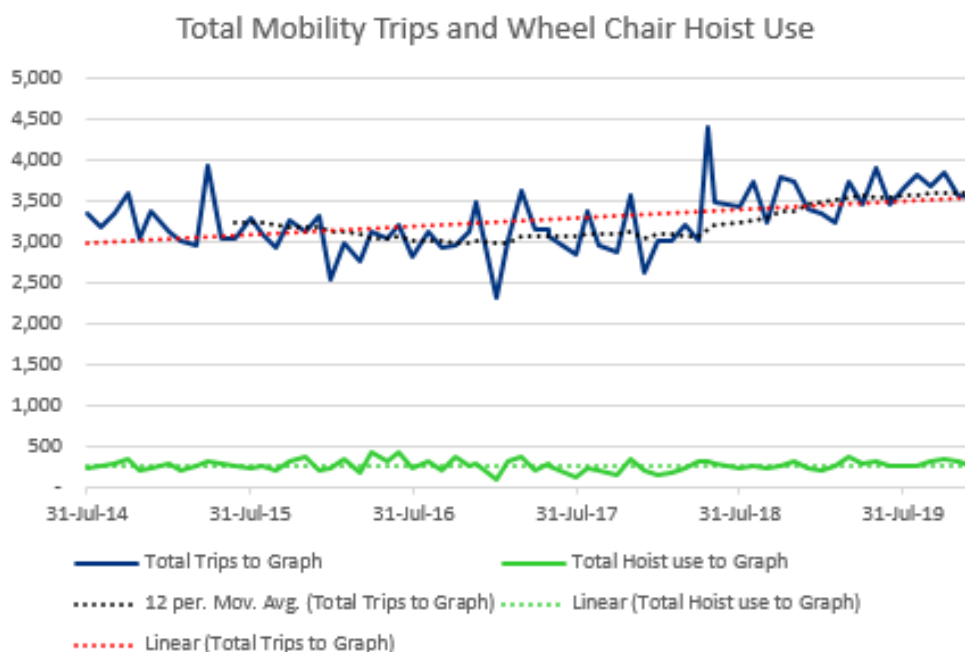


Figure B31: Total mobility trips and wheelchair hoist use

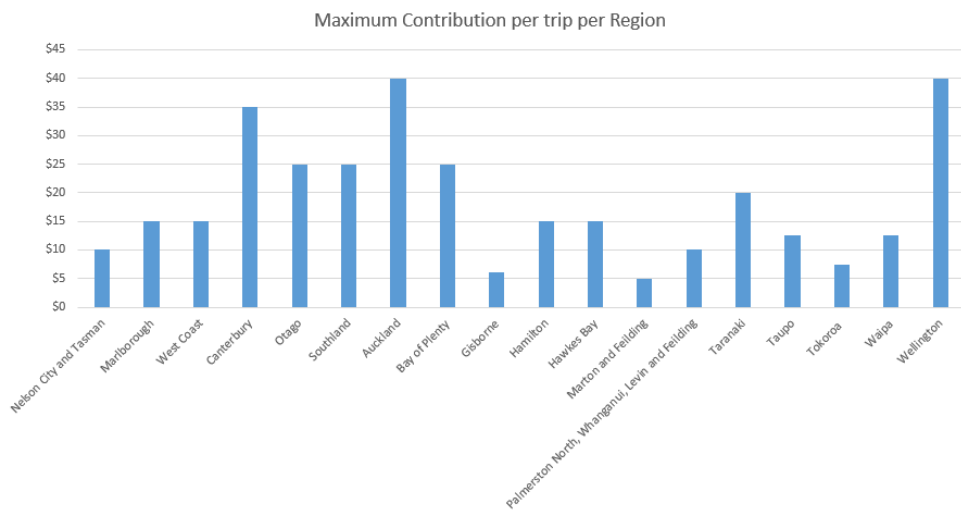


Figure B32: Maximum subsidy caps in New Zealand

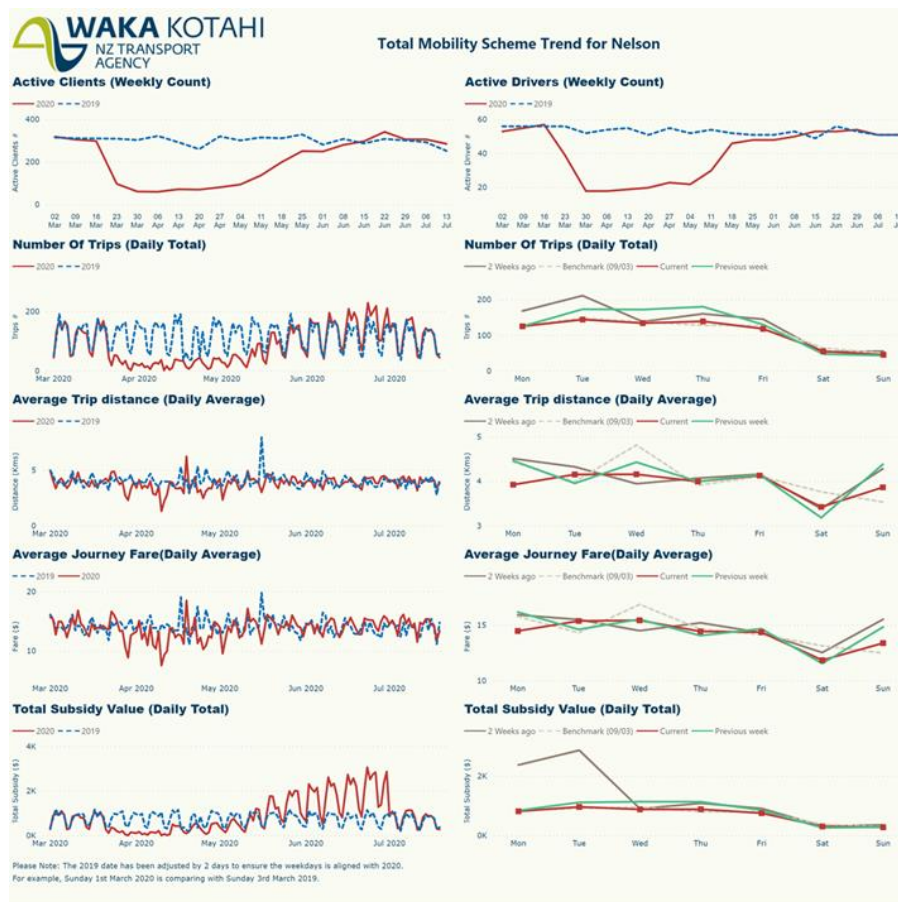


Figure B33. Total Mobility tracking 2019 vs 2020 (covid response period (March to June))

## B22 Transport Carbon Emissions

Nelson City Councils response to transport carbon emissions is in its infancy. Some data from alternative sources is given in this section to support the initial conversations.

Carbon activity from vehicle use is the primary factor contributing to problem statement 3. Baseline data is yet to be developed and the programme addresses this and the measures to address it across the spectrum of activities because there is unlikely to be a single acceptable solution. This AMP focuses on spatial planning and mode shift to address this problem.

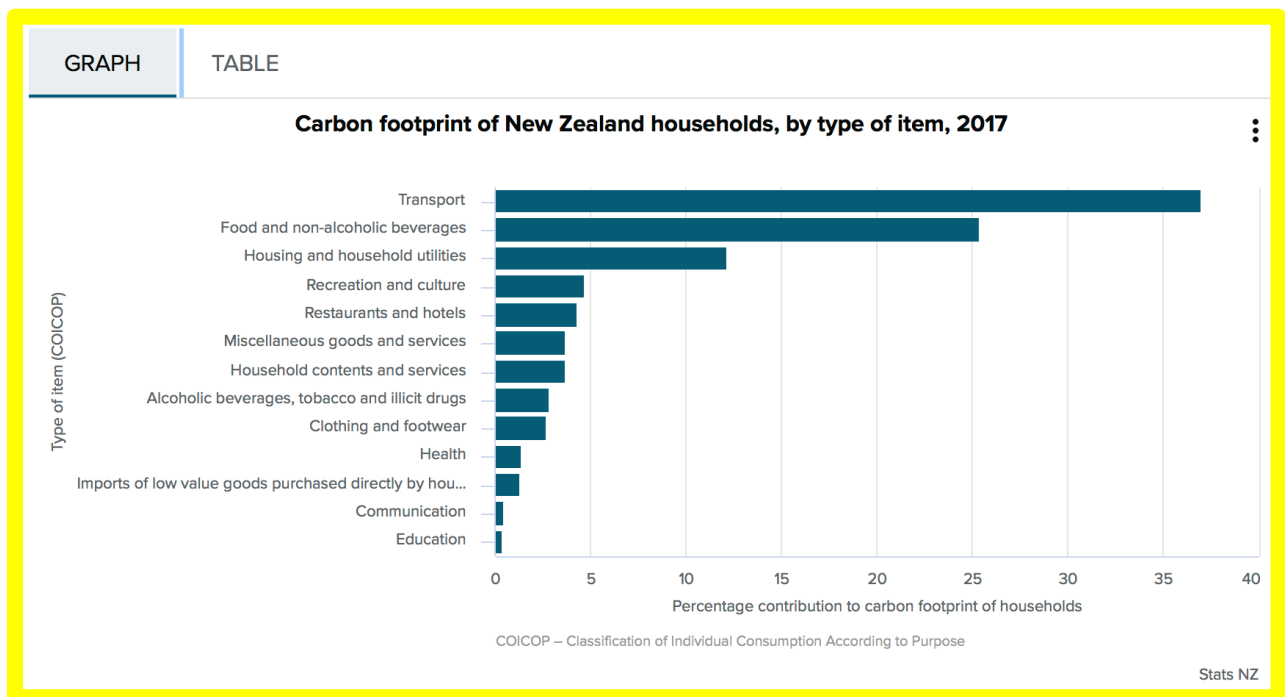
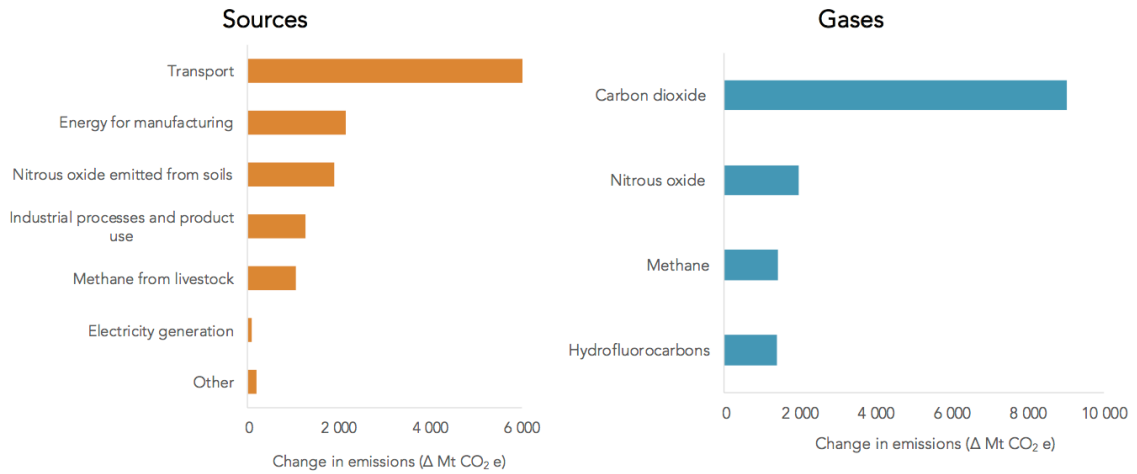


Figure B34: Transport Activity Emissions as a percentage of New Zealand Household Emissions

**Figure 2-9 Absolute change in gross emissions across sources and gases, 1990–2016**



Source: MfE (2018e).

**F2.6**

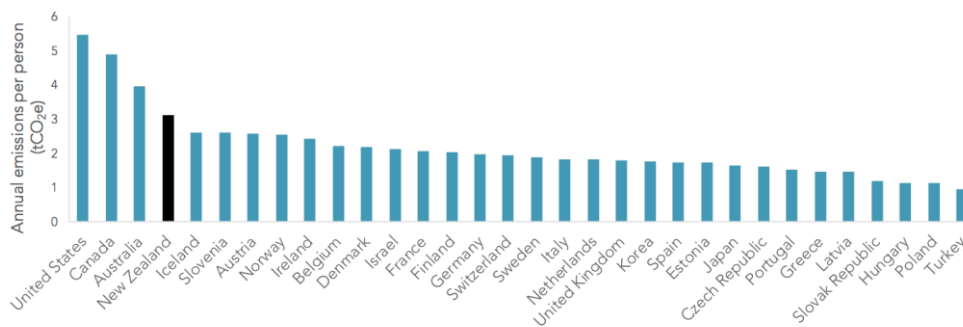
Transport has been the biggest contributor to the rise in New Zealand’s gross emissions since 1990. The growth in emissions from dairy farming was partially offset by a fall in emissions from sheep and beef farming. Because of the growth in transport emissions, carbon dioxide emissions have risen much more than methane and nitrous oxide.

Figure 2-9 above and Figure 12-3 below show transport emissions in New Zealand are the highest contributor of CO<sub>2</sub> by activity category and in the top 10% per capita internationally.

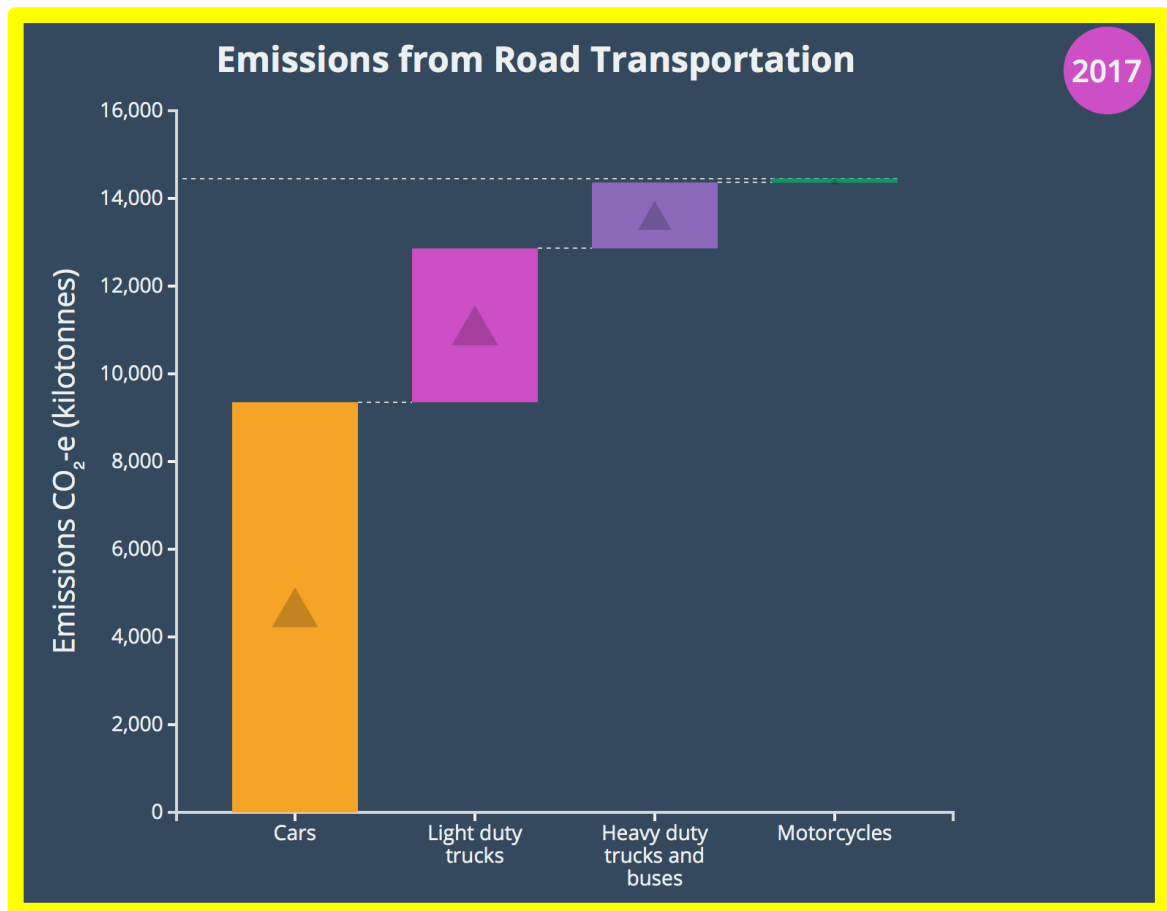
**New Zealand’s per person transport emissions are high**

New Zealand’s per person transport emissions are the fifth highest among OECD countries (Figure 12-3).

**Figure 12-3 Transport emissions per person, OECD countries, 2014**



Source: OECD (2018a); UN DESA (2018).



**Figure B35: Contribution of CO2 Emissions from Vehicles**

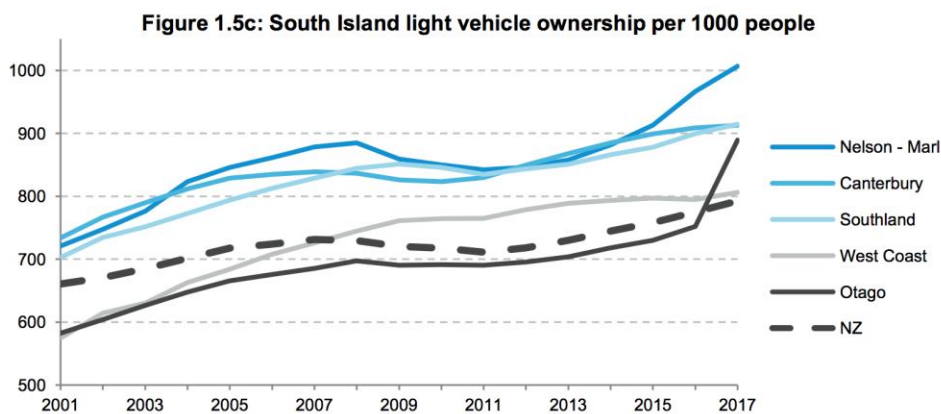
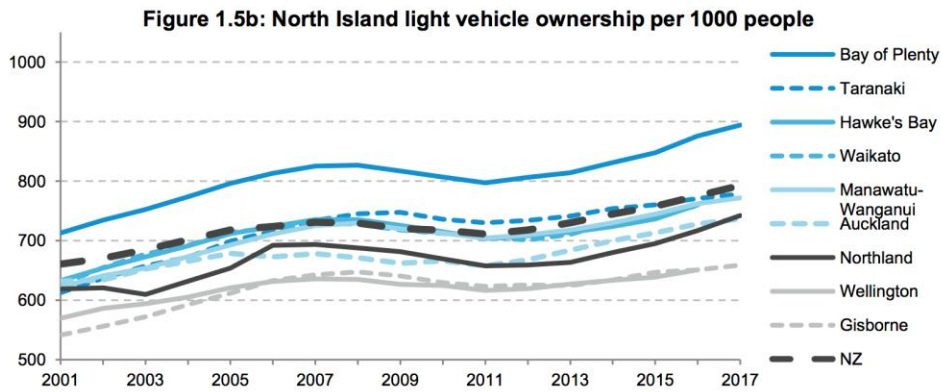
Figure B35 shows that private motor vehicle are the biggest contributor to the transport CO2 emissions in 2017.

Figure B36 reports that Nelson car ownership is highest in New Zealand in 2017 at 1000 vehicle per 1000 population.



**Regional light vehicle ownership**

Figures 1.5a shows the national trend in light vehicle ownership per capita. However, there is substantial regional variation (see Figures 1.5b and 1.5c). Three of the four regions with the highest ownership rates are in the South Island (Canterbury, Nelson-Marlborough and Southland). Wellington and Auckland have low ownership rates, due in part to the availability of public transport



The increased ownership rate was accompanied by increased travel per capita until 2005. Light travel per capita (and fleet travel) dropped in response to the fuel price rises in 2006, rose slightly in 2007 and continued to drop until 2012. Light travel per








<sup>3</sup> Population data obtained from the Statistics New Zealand website [www.stats.govt.nz](http://www.stats.govt.nz).

**Figure B36 Regional Vehicle Ownership**

APPENDIX C: PERFORMANCE MONITORING




In addition to performance measures a number of technical measures are used for the monitoring and decision making that affect Levels of Service, and are required for Waka Kotahi funding, therefore benefits delivery and resolution of the problem statements of the transport activity.

Performance against the customer LOS measures is given below.

<b>Legend</b>	
	<b>Good downward trend or low result</b>
	<b>Static results</b>
	<b>Poor increasing trend or high result</b>
	<b>Good increasing trend or high result</b>
	Good performance
	<b>No issues</b>
	<b>Needs improvement</b>
<b>Nil</b>	<b>No results recorded</b>

Level of Service		ONRC					Comments		
		Regional	Arterial	Primary Collector	Secondary Collector	Access		Low Volume	
<a href="https://www.Waka Kotahi.govt.nz/assets/projects/road-efficiency-group/docs/onrc-performance-measures.pdf">https://www.Waka Kotahi.govt.nz/assets/projects/road-efficiency-group/docs/onrc-performance-measures.pdf</a> <a href="https://www.Waka Kotahi.govt.nz/assets/Road-Efficiency-Group-2/docs/customer-levels-of-service.pdf">https://www.Waka Kotahi.govt.nz/assets/Road-Efficiency-Group-2/docs/customer-levels-of-service.pdf</a> <a href="https://onrc.companyx.nz/Report/">https://onrc.companyx.nz/Report/</a>									
Safety	Safety Customer Outcome 1 – Serious Injuries and Fatalities							Using the Communities at Risk register alongside the ONRC reporting will help focus safety interventions on risk areas. The small real number of DSI crashes in Nelson make the ONRC measures more volatile to small changes. The Communities at Risk register is a 5 year rolling average like ONRC.	
	Safety Customer Outcome 2 – Collective Risk							Regional arterial and primary and secondary collector are higher than peers and/or national average	
	Safety Customer Outcome 3 – Personal Risk							Arterial and secondary collector are higher than peers and national average.	
	Safety Technical Output 4 – Loss of Control on Wet Roads							No reported DSI crashes	
	Safety Technical Output 5 – Loss of Driver Control at night							No reported DSI for last 2 years	
	Safety Technical Output 6 – Intersections								Reducing or static trends
	Safety Technical Output 9 – Vulnerable Users								Reducing trends for all except primary collectors which is increasing. Low volume road static.

Resilience	Resilience Customer Outcome 1 – Unplanned closures with a Detour Provided							No issues.
	Resilience Customer Outcome 2 – The Number of Instances Where Road Access is Lost	Nil	Nil	Nil	Nil	Nil		No issues.
Amenity	Amenity Customer Outcome 1 – Smooth Travel Exposure (STE)							Regional and Arterial roads are better than peers. Access and low volume roads are significantly rougher, but this maybe data issue which is yet to be verified. Refer Appendix B for further details.
	Amenity Customer Outcome 2 and Technical Output 1 – Peak and Average Roughness							
Accessibility	Accessibility Customer Outcome 1 – Proportion of Network not Available to Heavy Vehicles							No issues.
Cost Efficiency	Cost Efficiency 2 – Chipseal Resurfacing (Length and Area)							No issues.
	Cost Efficiency 2 – Chipseal Resurfacing (Cost & Avg Life)							Sealing costs are substantially higher than peers and national average, but average life achieved is also consistently higher.
	Cost Efficiency 3 – Asphalt Resurfacing (Length and Area)							No issues. Substantial areas of asphalt surfacing of regional and arterial roads is expected within

								2021-31. All other asphalt surfacing is high stress area.
	Cost Efficiency 4 – Asphalt Resurfacing (Cost and Avg Life)							Asphalt costs are substantially higher than peers and national average. Average life achieved matches peers and national average.
	Cost Efficiency 10 – Maintenance costs							

**ONRC Peer Group Comparison**

Nelson has 91% Urban roads. However Nelson is in the “Networks <90% Urban” for peer group comparison reflecting the lower urban intensity of the South Island Centres. Peer groups are shown below:

Networks <90% Urban	Networks >90% Urban
Auckland Transport	Hamilton City Council
Christchurch City Council	Hutt City Council
Invercargill City Council	Kawerau District Council
Kapiti Coast District Council	Tauranga City Council
Napier City Council	Wellington City Council
Nelson City Council	
Palmerston North City Council	
Porirua City Council	
Upper Hutt City Council	

In addition to the ONRC customer LOS measures performance and activity reporting is required as below:

Levels of Service	Programme Area	ON RC	NZ TA T I O	Tec h	2021-24 Performance measure	How measured
<b>Safety: The transport system is safe for all people regardless of transport choice or demographic</b>	All activities	X		X	ONRC Safety Customer Outcome 1 Serious injuries and fatalities compared to ONRC road classification	ONRC Performance Monitoring tool
<b>Safety: The transport system is safe for all people regardless of transport choice or demographic</b>	All activities	X		X	ONRC Safety Customer Outcome 2 Comparative Collective Risk — the total number of reported crashes per km over the past 10 years on the network.	ONRC Performance Monitoring tool
<b>Safety: The transport system is safe for all people regardless of transport choice or demographic</b>	All activities	X		X	ONRC Safety Customer Outcome 3 Comparative Personal Risk — The total number of reported crashes by traffic volume over the past 10 years on the network.	ONRC Performance Monitoring tool
<b>Safety: The transport system is safe for all people regardless of transport choice or demographic</b>	All activities	X		X	ONRC Safety technical output 4 loss of control on wet roads by ONRC category	ONRC Performance Monitoring tool
<b>Safety: The transport system is safe for all people regardless of transport choice or demographic</b>	All activities	X		X	ONRC Safety Technical Output 5 — Loss of driver control at night by ONRC category.	ONRC Performance Monitoring tool
<b>Safety: The transport system is safe for all people regardless of transport choice or demographic</b>	All activities	X		X	ONRC Safety Technical Output 6 — Intersections. The number of reported serious injuries and fatalities (DSI) at intersections each year on the network by ONRC classification.	ONRC Performance Monitoring tool
<b>Safety: The transport system is safe for all people regardless of transport choice or demographic</b>	All activities	X		X	ONRC Safety Technical Output 9 — Vulnerable Users. The number of reported serious injuries and fatalities (DSI) involving pedestrians, cyclists and wheeled pedestrians each year on the network by ONRC classification.	ONRC Performance Monitoring tool
<b>Better travel options; People have access to a connected transport system that delivers their journey needs</b>	Cycle Facilities		X	X	Cordon counts around Nelson and around Stoke in the AM peak, weekday and Saturday.	Cordon count summary. March annually.

<b>Better travel options; People have access to a connected transport system that delivers their journey needs</b>	Cycle Facilities		X	X	Comprehensive cycle counts at 21 sites	5 yearly, next due 2025
<b>Better travel options; People have access to a connected transport system that delivers their journey needs</b>	Cycle Facilities Walking Facilities			X	School hands up surveys for journey to school by walking cycling transport or vehicle	Once per term for participating Enviroschools programmes
<b>Better travel options; People have access to a connected transport system that delivers their journey needs</b>	Cycle Facilities		X	X	The length of on-road cycle lanes, off-road cycle paths and shared paths on the network measured each financial year.	Measured from records in Ramm.
<b>Better travel options; People have access to a connected transport system that delivers their journey needs</b>	Cycle Facilities		X	X	The length of quiet streets that contribute to the cycle network.	Measured from records in Ramm. When Home Zones are installed,
<b>Better travel options; People have access to a connected transport system that delivers their journey needs</b>	Minor Improvements and Major Projects		X	X	The length of new roads, bridges, footpaths and cycleways added to the network per financial year.	Records in Ramm.
<b>Assets are maintained in a timely and value for money manner</b>	All activities		X	X	Cost of maintenance activities per financial year.	Reporting against the Waka Kotahi 100 series work categories.
<b>Assets are maintained in a timely and value for money manner</b>	All activities		X	X	Cost of renewal activities per financial year.	Reporting against the Waka Kotahi 200 series work categories.
<b>Assets are maintained in a timely and value for money manner</b>	All activities		X	X	Cost of improvement activities per financial year.	Reporting against the Waka Kotahi improvement work categories such as footpaths, cycleways, retaining walls, bridges, etc
<b>Better travel options; People have access to a connected transport system that delivers their journey needs</b>	Public Transport		X	X	Total population of serviced community.	Population of Nelson from the growth statistics graph. Excludes Richmond and Tasman.
<b>Better travel options; People have access to a connected transport system that delivers their journey needs</b>	Public Transport		X	X	Total fleet size.	Number of buses used to service the public transport contract from the bus contractor.
<b>Better travel options; People have access to a connected transport system that delivers their journey needs</b>	Public Transport		X	X	Percentage of buses that can carry 1 or more wheelchairs.	Number of buses from the bus service contractor as a percentage of the total.
<b>Better travel options; People have access to a connected transport system that delivers their journey needs</b>	Public Transport		X	X	Percentage of buses fitted with bike racks.	Number of buses from the bus service contractor as a percentage of the total.

<b>Better travel options; People have access to a connected transport system that delivers their journey needs.</b>	Public Transport		X	X	Percentage of buses older than 10 years.	Number of buses from the bus service contractor as a percentage of the total.
<b>Better travel options; People have access to a connected transport system that delivers their journey needs.</b>	Public Transport		X	X	Total passenger boardings.	Number of people using the bus through accounts transaction records (will move to electronic ticketing records).
<b>Better travel options; People have access to a connected transport system that delivers their journey needs</b>	Public Transport		X	X	Kilometres travelled by in-service buses per financial year.	Calculation based on routes and timetable.
<b>Better travel options; People have access to a connected transport system that delivers their journey needs</b>	Public Transport		X	X	Total fares paid by passengers per calendar year.	Fares paid by people using the bus through accounts transaction records (will move to electronic ticketing records).
<b>Better travel options; People have access to a connected transport system that delivers their journey needs</b>	Public Transport		X	X	Number of people enrolled in the Total Mobility scheme.	Ridewise records through accounts.
<b>Better travel options; People have access to a connected transport system that delivers their journey needs</b>	Public Transport		X	X	Number of wheelchair hoists in operation each financial year, number of new hoists and average age of hoists.	Contact taxi operators.
<b>Better travel options; People have access to a connected transport system that delivers their journey needs</b>	Public Transport		X	X	Maximum subsidy cap for the total mobility scheme.	Maximum cost available to be paid to total mobility scheme users per trip.
<b>Better travel options; People have access to a connected transport system that delivers their journey needs</b>	Public Transport		X	X	Total cost of operating the Total Mobility scheme.	Voucher cost and fare costs through Ridewise through accounts.
<b>Better travel options; People have access to a connected transport system that delivers their journey needs</b>	Public Transport		X	X	Number of SuperGold card holders in Nelson and number of SuperGold card trips on the bus.	Bus financial transactions through accounts (will be through electronic ticketing).
<b>Better travel options; People have access to a connected transport system that delivers their journey needs</b>	Total Mobility		X	X	The number of trips per month claimed by operators.	Ridewise.
<b>Better travel options; People have access to a connected transport system that delivers their journey needs</b>	Total Mobility		X	X	The number of hoist uses per month claimed by operators.	Ridewise.
<b>The transport activity is understood and planned for appropriately</b>	Network and asset management	X	X	X	Road network data is updated annually by 5 <sup>th</sup> July for the previous year.	Includes data for valuations, TIO uploads, ONRC uploads, roads to



						vest, roads stopped, projects as-builts, work categories allocated to resurfacing and pavement works.
<b>The transport activity is understood and planned for appropriately</b>	Network and asset management	X	X	X	Road network data is updated annually by 5 <sup>th</sup> July for the previous year.	Includes checking ONRC categories have not changed and categorising new roads.
<b>The transport activity is understood and planned for appropriately</b>	Streetlights			X	There have been no incidents of pole failure due to aged poles in the financial year.	Number of pole failures is reported with details of the failure, any damage or injured party/s and what will be done to avoid failures in the future.
<b>The transport activity is understood and planned for appropriately</b>	Network and asset management Pavements	X		X	All faults register is updated to Ramm Rating annually by 5 <sup>th</sup> July for the previous year.	Faults on the network inform the future years programme and data needs to be up to date to confirm programmes.
<b>The transport activity is understood and planned for appropriately</b>	Network and asset Management			X	All roads have a traffic count less than 5 years old.	Some roads may have multiple count sites, but at least one must be 5 years old or newer.
<b>The transport activity is understood and planned for appropriately</b>	Network and asset management	X		X	All traffic counts have a traffic estimate that is less than 1 year old.	Traffic estimates are used by many calculations within Ramm and associated reporting from Ramm. Up to date estimates ensure accurate outputs.
<b>The transport activity is understood and planned for appropriately</b>	Network and asset management	X		X	CAS data is updated to Ramm annually.	Crash data in Ramm helps inform safety interventions, eg surfacing. Up to date records are required.
<b>The transport activity is understood and planned for appropriately</b>	Network and asset management	X		X	The annual ONRC Asset Management Data Quality Report Score is improved by at least 1 point.	ONRC Performance Monitoring Report. Annual Asset Management Data Quality report overall score.
<b>The transport activity is understood and planned for appropriately</b>	Network and asset management	X		X	ONRC Data Quality Report Overall results have more green than in the previous year.	ONRC Performance Monitoring Report. Annual Asset management Data Quality report overall results.

<b>The transport activity is understood and planned for appropriately</b>	Network and asset management	X		X	ONRC data quality reports accuracy results have more green than in the previous year.	ONRC Performance Monitoring Report. Annual Asset management Data Quality report overall accuracy.
<b>The transport activity is understood and planned for appropriately</b>	Network and asset management	X		X	ONRC data quality reports completeness results have more green than in the previous year.	ONRC Performance Monitoring Report. Annual Asset Management Data Quality report overall completeness.
<b>The transport activity is understood and planned for appropriately</b>	Network and asset management	X		X	ONRC data quality reports timeliness results have more green than in the previous year.	ONRC Performance Monitoring Report. Annual Asset Management Data Quality Report overall timeliness.
<b>The transport activity is understood and planned for appropriately</b>	Network and asset management	X		X	ONRC data quality reports accuracy results have more green than in the previous year.	ONRC Performance Monitoring Report. Annual Asset Management Data Quality Report overall accuracy.
<b>The transport activity is understood and planned for appropriately</b>	Network and asset management	X		X	ONRC data quality reports accuracy results have more green than previous year.	ONRC Performance Monitoring Report. Annual Asset management Data Quality Report overall accuracy.

APPENDIX D: FOOTPATH ASSESSMENT CRITERIA

**Footpath Condition Assessment Criteria:**

<b>Score</b>	<b>Description</b>	<b>Other considerations</b>
1 Excellent	New footpath (<2 years old)	>10m Length of each new footpath site. Maintenance works less than 10m in length are classified with the adjoining footpath section for the purpose of condition rating.
2 Good	Footpath over 2 years old. Shape profile best possible for the site, typically 2<4% crossfall. Width >1.5m plus kerb width. Width >2m along school frontages. 1.2m min corridor not affected by driveway cutdown shape at vehicle crossings. Few maintenance defects to report. Maintenance defects to be scheduled for programming, eg potholes, tree roots, lichen removal.	>10m Length of identifiable footpath site, or intersection to intersection, whichever is shorter Footpath less than 2 years old covered by CAR. If not still in excellent condition, flag on CAR for workmanship and material warranty checking.
3 Average	Footpath over 10 years old. Shape profile best possible for the site, typically 2<6% crossfall. Width >1.2m plus kerb width. 1.2m min corridor not affected by driveway cutdown shape at vehicle crossings. Maintenance defects to be scheduled for programming, eg potholes, tree roots, crack sealing, lichen removal.	>10m Length of identifiable footpath site, or intersection to intersection, whichever is shorter. New footpath profiles have been enforced through the LDM since 2010 but exceptions and historic renewal sites applied different standards.
4 Poor	Poor shape profile, typically >6% crossfall. Width <1.8m including kerb. Pedestrian corridor is affected by driveway cutdown shape at vehicle crossings Serviceable surface but rough to ride on for wheeled mobility or recreational vehicles Extensive cracking, potholing, edge break, deformation that creates uneven surface. Safety defects to be scheduled for maintenance, and the footpath to be scheduled for renewal.	>10m Length of identifiable footpath site, or intersection to intersection, whichever is shorter.
5 Very Poor	Poor shape profile, <2%, >4% crossfall. Width <1.5m including kerb. Pedestrian corridor is affected by driveway cutdown shape at vehicle crossings.	Length varies. Use to identify immediate safety concerns for programming as well as condition assessment.

	Footpath is unsafe for less mobile users.	
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## Nelson City Council Vehicle Crossing Guidance

*(For Existing Developments)*



### Options (in order of approval status)

- Option One: Nelson City Council Retrofit Crossing A
- Option Two: Nelson City Council Retrofit Crossing B
- Option Three: Nelson City Council Retrofit Crossing C *(As directed by Council)*
- Option Four: Nelson Tasman Land Development Manual 2019 SD407

*(Refer relevant designs overleaf)*

### Crossing Standards

***Note: All applications for alterations or proposed new crossings must comply with the minimum standards below, or have obtained a resource consent to breach those standards.***

Council's minimum standards for vehicle crossings are found in Section 4.10 of the **Nelson Tasman Land Development Manual (NTLDM)** and Appendix 11 of the **Nelson**

**Resource Management Plan.** The minimum standards are printed below, and both documents can be found on Council's website [www.nelsoncitycouncil.co.nz](http://www.nelsoncitycouncil.co.nz).

### **Residential**

In residential areas, vehicle access points shall have a dropped kerb width of between 3.5m and 6.0m. The minimum distance between vehicle crossings shall be 7.5m. The spacing of access applies within sites and between adjacent sites.

Only one vehicle crossing per property is permitted.

### **Commercial**

In commercial areas, but excluding service stations and where verandas are required, vehicle access points shall have dropped a kerb width of between 5.0m and 7.0m.

The number of vehicle crossings permitted and the space between crossings depends upon the frontage width, speed limit and classification of the road. These rules are found in Appendix 11 of the Nelson Resource Management Plan — refer section AP11.2 or contact the Duty Planner on 546 0200.

### **Industrial**

In industrial areas, vehicle access points shall have a dropped kerb width of between 6.0m and 8.0m.

Where 'B trains' or semi-trailers will be using a vehicle entrance on a regular basis, a crossing width of 9.0m may be permitted on specific application to the Council.

The number of vehicle crossings permitted and the space between crossings depends upon the frontage width, speed limit and classification of the road. These rules are found in Appendix 11 of the Nelson Resource Management Plan — refer section AP11.2 or contact the Duty Planner on 546 0200.

### **In All Areas**

Where a front berm exists, refer to NTLDM SD 406 for required design details.

Where no front berm exists, refer drawings below.

In the case of adjacent property owners in any zone wishing to have a mutual crossing at their shared boundary, the maximum permitted total length is 8.0m.

In all cases the first 2m of the access formation from legal boundary shall be at right angles to the carriageway formation.

### **Photos**





**Option One**



**Option Two**



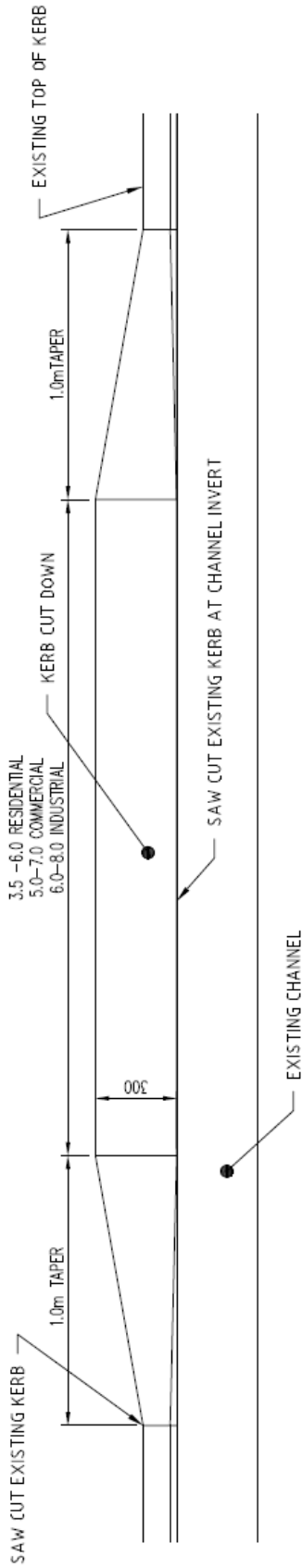
**Option Three**



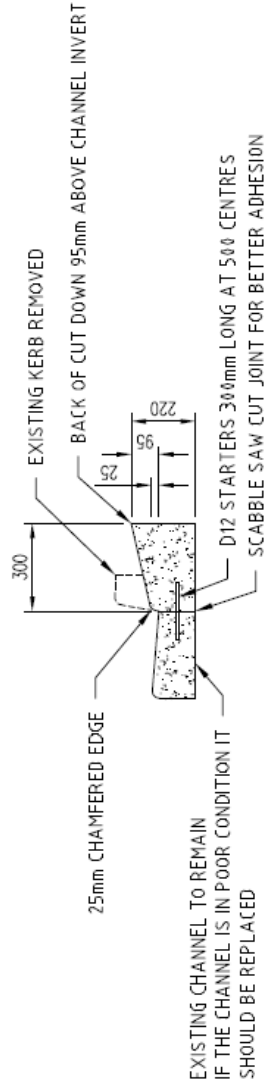
**Option Four**

**Specifications Overleaf**

**Option One: Nelson City Council Retrofit Crossing A**



VEHICLE ENTRANCE PLAN



VEHICLE ENTRANCE SECTION

Note: Footpath cross-fall will vary depending on footpath width. The footpath cross-fall at the tie-ins (either end) shall be 2%. The back of the footpath through the new crossing shall maintain line and height of the adjoining footpath, with shape alterations to the property entrance formed past the back of the footpath. In all cases there shall be a minimum of 1.2m formed footpath at no greater than 4.5% cross-fall, which will reduce as footpath widths increase.



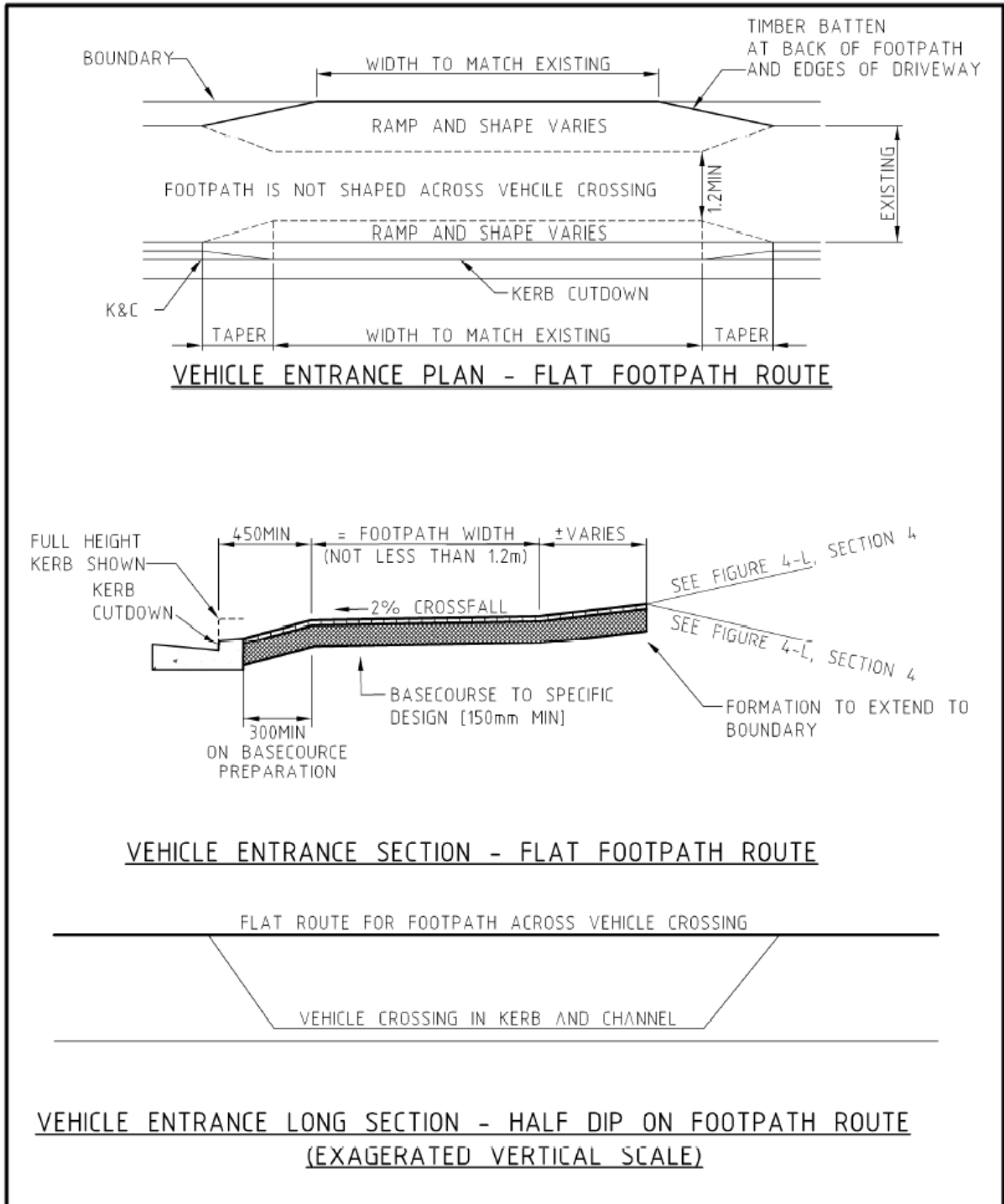
INFRASTRUCTURE

RETRO FIT VEHICLE ENTRANCE CUT DOWN

Sept 2019

Not to Scale

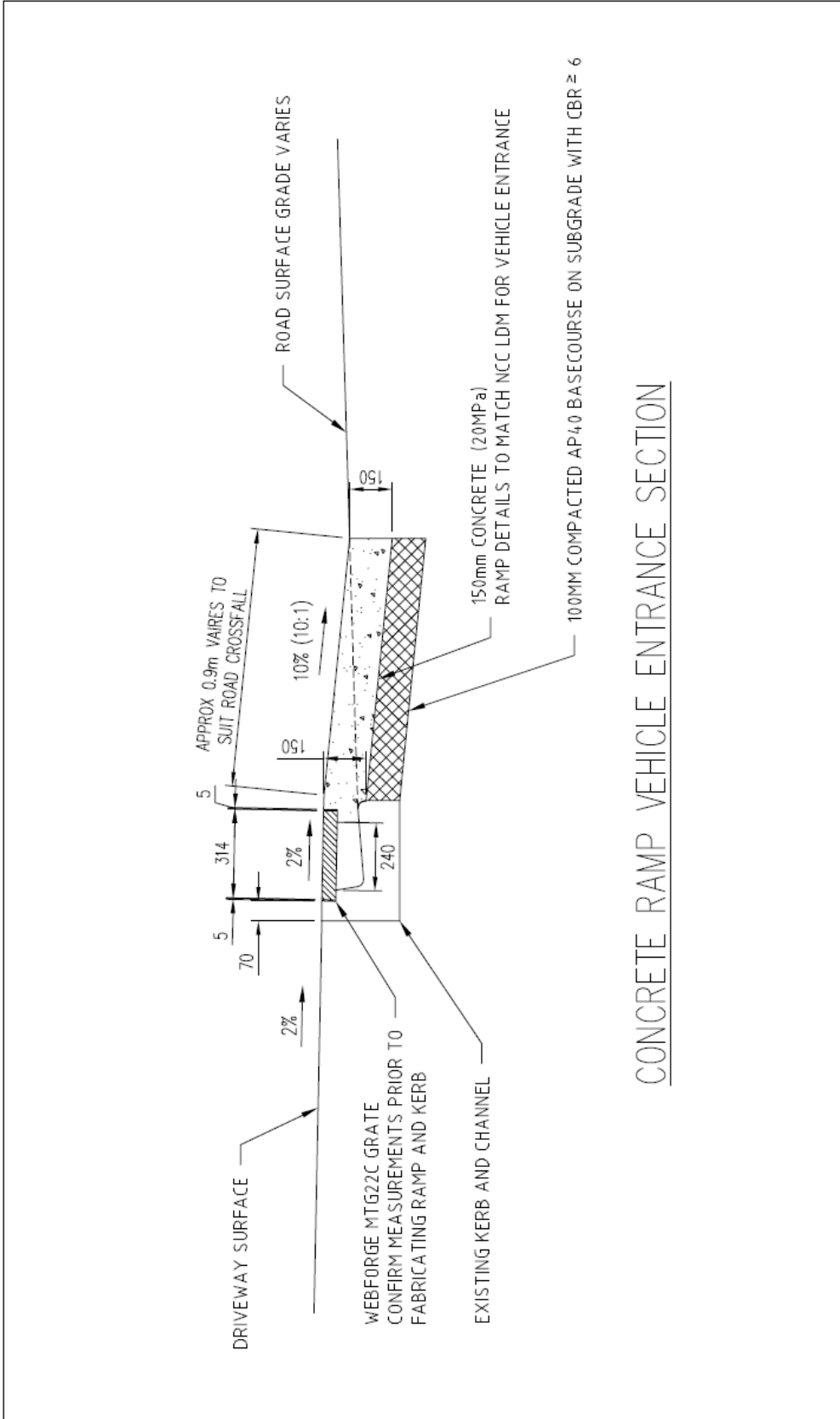
**Option Two: Nelson City Council Retrofit Option B**



<p><b>NELSON CITY COUNCIL</b></p>	<p><b>RETROFIT VEHICLE CROSSING IN EXISTING FOOTPATH ADJACENT KERB – FLAT FOOTPATH</b></p>	
	<p><b>INFRASTRUCTURE</b></p> <p>APPROVED</p> <p>..... GROUP MANAGER INFRASTRUCTURE</p>	<p>..... DATE</p>
		<p>(SD 410) <b>A</b></p> <p><b>Option B</b></p> <p>LA AL.....</p>



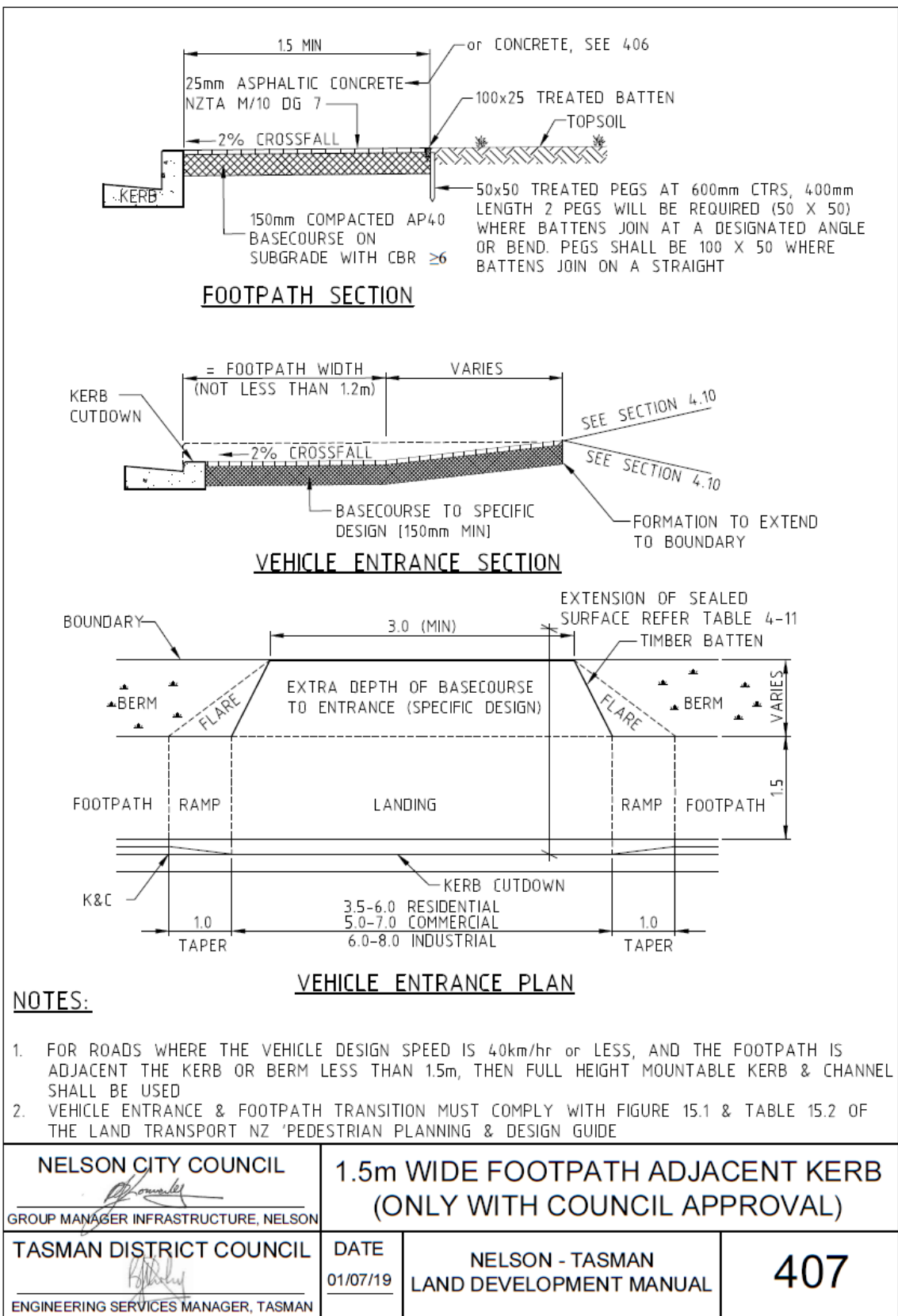
**Option Three: Nelson City Council Retrofit Option C**



CONCRETE RAMP VEHICLE ENTRANCE SECTION

<p>Sept 2019</p>	<p>Not to Scale</p>
<p>CONCRETE RAMP VEHICLE ENTRANCE</p>	
 <p>Nelson City Council te kaitiaki o whakatū</p>	<p>INFRASTRUCTURE</p>

**Option Four: Nelson Tasman Land Development Manual 2019 SD407**



APPENDIX E: LOW COST LOW RISK PRIORITIES

**Deficiency Database Assessment Criteria**

The assessment criteria used for prioritising projects in the LCLR Deficiency database is tabled below:

▼ Criterion_Used	▼ Criterion_Option	LCLR Priority	2021GPS strategic Alignment
Active Transport Strategic priority	National strategic network new walk/cycle connection	2	Very high
Active Transport Strategic priority	Improve connections to tourism destinations/attractions	2	High
Active Transport Strategic priority	Strategic connection in Nelson network	2	Med
Active Transport Strategic priority	Local connections	1	Low
Active Transport Strategic priority	Not a walking or cycle project	0	
Safety Improvement Potential	High risk Intersection crashes	10	Very High
Safety Improvement Potential	>40% crash reduction High/Med high intersection or corridor — collective risk	8	Very High
Safety Improvement Potential	25-39% reduction High/Med high intersection or corridor — collective risk	6	High
Safety Improvement Potential	>15% reduction med/med high/high intersection or corridor — collective risk	4	Med
Safety Improvement Potential	>5% reduction any risk intersection or corridor — collective risk	2	Low
Safety Improvement Potential	High risk cyclists	10	Very High
Safety Improvement Potential	Medium risk motorcyclists/distraction	4	High
Safety Improvement Potential	Behaviour change to improve road safety outcome	4	Med
Safety Improvement Potential	Emerging older drivers	4	Med
Safety Improvement Potential	Low concern on Communities at Risk Register	4	Low
Mode shift attractiveness	>6% shift to other modes	10	Very High
Mode shift attractiveness	4-5% shift to other modes	8	High
Mode shift attractiveness	2-3% shift to other modes	6	Med
Mode shift attractiveness	>1% shift to other modes	2	Low
Value for Money	>5 BCR	25	
Value for Money	>1 BCR	10	
Value for Money	0<1 BCR	0	
Value for Money	<0 BCR	-25	
Time Critical	Yes there is a urgent need or opportunity	10	
Time Critical	Business case is complete	2	
Time Critical	NA	0	
Freight	Improvement in predictability of travel time on priority freight routes	10	Low
Freight	Reduction in duration of road closures	10	Low
Freight	Not a freight project	0	
ONRC Road Hierarchy from RAMM	Regional	5	
ONRC Road Hierarchy from RAMM	Arterial	3	
ONRC Road Hierarchy from RAMM	Primary Collector	2	

ONRC Road Hierarchy from RAMM	Secondary Collector	1	
ONRC Road Hierarchy from RAMM	Access	0.5	
ONRC Road Hierarchy from RAMM	Low-volume	0.5	
Detour Length	<1km		
Detour Length	>1km		
Detour Length	none		
Detour Length	N/A		
Zone	Residential	1	
Zone	Commercial	2	
Zone	Industrial	3	
Zone	Rural	1	
Zone	Complements or supports development	5	
Zone	Awaiting development	-10	
Site Attribute	Supports PT	5	
Site Attribute	School route	5	
Site Attribute	Cycle connection	10	
Site Attribute	Road-crossing Issues	10	
Site Attribute	Off-road alternative	5	
Site Attribute	Crash history	10	
Site Attribute	No specific attributes	0	
AMP Problem Statement alignment	1 - Peak congestion (NOW INABILITY TO SUPPORT INCREASING USE)	1	
AMP Problem Statement alignment	2 - Renewal (NOW CONFLICTING USES AFFECTING SAFETY AND AMENITY)	0	
AMP Problem Statement alignment	3 - Ageing population (NOW INCREASING SEVERITY AND FREQUENCY OF NATURAL HAZARD EVENTS)	3	
AMP Problem Statement alignment	4 - Mode shift/Climate change (NOW EMISSIONS)	3	
AMP Problem Statement alignment	0 - no match to a problem statement	0	
Climate Change	>20% reduction in CO2	3	Very High
Climate Change	10-19% reduction in CO2	3	High
Climate Change	5-9% reduction in CO2	2	Med
Climate Change	<5% reduction in CO1	1	Low
Climate Change	no reduction in CO2	0	
Likely IAF results Alignment	Low (default)	0	
Likely IAF results Alignment	Medium	1	
Likely IAF results Alignment	High	2	
Likely IAF results Alignment	Very High	3	
Feasibility and progress	Investigation	1	
Feasibility and progress	Not feasible	-10	
Feasibility and progress	Yes	2	
Stakeholder Acceptability	Not yet discussed	1	
Stakeholder Acceptability	Engagement required	0	
Stakeholder Acceptability	Inform only	1	
Stakeholder Acceptability	Stakeholder support	2	

The current Priorities included in the LCLR programme are listed below:

Ref	LCLR Project name	Location description	Project description	Problem Statement	Specifics	LOS Measure	GPS strategic priority	2021/22	2022/23	2023/24
1	500175151525. WC341 Speed Limit changes regulatory signs	City wide to suit speed limit revision	Regulatory signs and markings for speed limit changes	2	Reducing speeds will make access and low volume routes less attractive for rat run traffic and improve safety for active modes	1, 2, 3, 4, 5	Safety	\$ 33,000	\$ 33,000	\$ 33,000
2	500179553025. WC 341 Sharedzone - Beachville Cres	Beachville Crescent and Beachville Cresent Stanley Crescent intersection	Treatment to support 30km speed limit where there is no footpath	2	Treatment to support reduced speeds and appropriate network use to enable pedestrian and cycle use of a shared zone (no footpath)	1, 2, 3, 4, 5	Safety	\$ -	\$ 11,000	\$220,000
3	500179551884. WC341 School Speed Zone Signs	Marsden Valley Road and Haven Road	School speed zone treatment for Nelson Christian Academy and	2	Reducing speeds to support active travel to and from schools	23	Safety	\$ -	\$ -	\$165,000

			Auckland Point Schools							
4	500179553227. WC 341 Waimea Road Franklyn Street intersection improvements	Waimea Road at Franklyn Street intersection	Intersection improvements to provide for school walking and cycle traffic and accommodate traffic from Hampden Street closure	2	Improving safe access to schools to support active travel, also addressing intersection safety, road to zero programme	1, 2, 3, 4, 5, 6, 7, 8, 23	Safety			\$ -
5	500179553010. WC 341: Toi Toi St upgrade	Toi Toi Street	Treatment to reduce high speeds and address loss of control crashes and improve walking and cycling LOS and Montreal Intersection	1	Reduce speeds and address speed related crash problem, and improve walking and cycling for an urban intensification growth area	1, 2, 3, 4, 5, 6, 7, 8, 23	Safety	\$605,000	\$528,000	\$ -
6	500176753176. WC341 Songer Street signals review	Main Road Stoke at Songer Street	Review signals right turn filter and add pedestrian radar because of aged community use	1	Improving safe access to schools and community facilities to support active travel, also a road to zero programme site	1, 2, 3, 4, 5, 6, 7, 8, 23	Safety	\$ -	\$ 22,000	\$ 110,000

7	500179553226. WC 341 Waimea Road / Hampden Street intersection upgrade	Waimea Road at Hampden Street and hampden Street west of Waimea Road	Closure of the side road at the intersectin to address identified crash problem Will have co joined project at Franklyn Street to accommodate displaced traffic with school walking and cycle traffic	2	Road is temporarily closed to remove cyclists intersection crash problem. Permement intervention is required	1, 2, 3, 4, 5, 6, 7, 8, 23	Safety	\$ 22,000	\$ 55,000	\$ 55,000
8	500179551525. WC 341 Intersection safety improvements	City wide to suit intersection reviews	Change give way to stop, add throat islands and tighten intersection radii for identified intersections with crash patterns. Supports the Waka Kotahi FAS desire to slow down the rat run routes	1, 2, 4	Intersection modifications to address safety risks and to make access and low volume routes less attractive for rat run traffic and improve safety for active modes	1, 2, 3, 4, 5, 6, 7, 8	Safety	\$260,000	\$260,000	\$260,000

9	500179701080. WC 341 Streetlight Improvement	City wide	Replace power poles when removed and new installations to improve night time safety for pedestrians cyclists and intersections	1, 2, 4	Maintianing lighting services for safe use of the network at night	1, 2, 3, 4, 5, 6, 7, 8	Safety	\$110,000	\$110,000	\$110,000
11	500173901536. WC 341 Associated Improvements	City Wide	Drainage improvements in conjunction with the pavement programme	2, 3	Intersection modifications to address safety risks and to make access and low volume routes less attractive for rat run traffic and improve safety for active modes, and drainage improvements preceding reseals	18, 19, 20	Safety	\$220,000	\$220,000	\$220,000
12	500179802946 RR Lighting	Railway reserve	Lighting of the Railway Reserve which is the principal walking	1, 2, 4	Lighting improvement to make the railway reserve assessible at night	4, 6, 7, 8	Better Travel Options	\$110,000	\$726,000	\$220,000



13	500179752798 WC341 Ridgeway Panorama to Arapiki new footpatjh	The Ridgeway between Panorama Drive and Arapiki Road	New footpath on journey to school route avoids crossing the Ridgeway	1, 4	Providing footpath facilities to communities that otherwise rely on a vehicle for access	5, 6, 7,8	Better Travel Options	\$350,000		
14	500179552189 WC341 Kawai Street Innovative Streets		Permenant works following the Kawai Street innovative Streets trial	2, 4	Reduce speeds and rat run traffic and improve walking and cycling for an urban intensification growth area	1, 2, 3, 4, 5, 6, 7, 8, 23	Better Travel Options	\$ 11,000	\$ 55,000	
15	500179551971. WC341 Dommett Street LOS Capital	Domett Street	Walking and cycle improvements on a road with high parking demand and inappropriate speeds	1, 2, 3	Reduce speeds and rat run traffic and improve walking and cycling for a historical high parking area to help address mode shift	1, 2, 3, 4, 5, 6, 7, 8, 23	Better Travel Options	\$ 55,000	\$ 55,000	\$110,000
16	500179553239. WC 341 Railway Reserve crossing Songer Street	Songer Street	Raised plathform and signalised crossing for pedestrians and cyclists using the primary route	1, 4	Improving safe access to schools and community facilities to support active travel, also a road to zero programme site	1, 2, 3, 4, 5, 6, 7, 8, 23	Safety	\$ 22,000	\$ 29,343	\$234,740

17	500179752798. WC 341 New Footpaths	city wide	New connections and path improvements for pedestrians and cyclists include Bishops Way, The Ridgeway, Ngawatu Road	1, 4	Improving walking and cycle connections	6, 7, 8, 9	Better Travel Options	\$ -	\$385,000	\$200,000
18	500179753312. WC341 Quarantine Road Bridge Footpath (at Bolt Rd)	Quarantine Road	New shared walk and cycle bridge alongside narrow road bridge with no footpath provisions and high HCV count and at entrance to Nelson Airport	1, 4	Providing footpath facilities to communities that otherwise rely on a vehicle for access	6, 7, 8	Better Travel Options	\$ 66,000	\$385,000	
19	500179552079 Konini Street traffic calming	Konini Street	Traffic calming to reduce traffic speeds where there is no footpath to create a shared zone	1,2	Improving walking and cycle connections	6, 7, 8	Better Travel Options			\$800,000

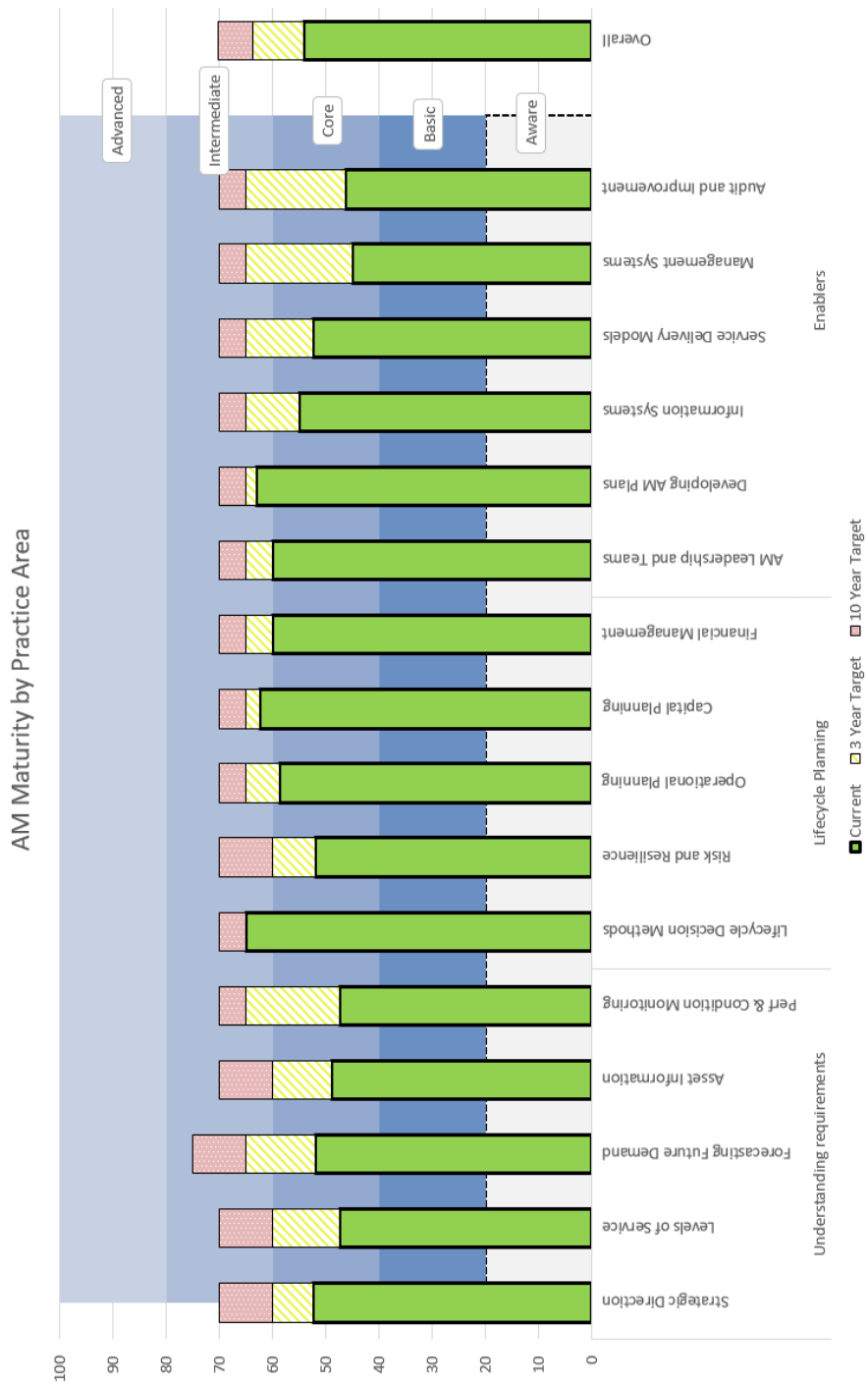
21	Willow Walk kea crossing	Manuka Street	Kea crossing for 2 primary schools who use Willow Walk before and after school. Complicated by presence of 1 lane ford.	2, 4	Improving safe access to support active travel to schools	6, 7, 8	Better Travel Options	\$ 20,000	\$ 185,000
22	Seymour Ave Raised Platform	Seymour Ave Scotland Street intersection	Intersection improvements to provide for school walking and cycle traffic at the school gate for St Josephs school and enroute to colleges and 1 other primary school	2, 4	Improving safe access to support active travel to schools	6, 7, 8	Better Travel Options	\$150,000	
23	St Vincent Street separtaed cycle facility improvements	St Vincent Street	Improvements to sightlines by removing parking and adding raised platforms to existing cycle facility	1, 4	Improving percieved safety for cycling off road facilities	1, 2, 3, 4, 5, 6, 7, 8, 23	Better Travel Options	\$ -	\$ -

24	Van Diemen Street Road Crossing	Van Diemen Street	Safety for pedestrians crossing Van Diemen Street between 2 colleges and enroute to multiple primary and intermediate schools	1, 2, 4	Provide a safe crossing place for people to cross a road that is carrying high traffic volumes and high school walking and cycle demands	1, 2, 3, 4, 5, 6, 7, 8, 23	Safety		\$ -	\$ -
25	Atawhai Cycle path improvements/extension	SH6 Atawhai Drive	Minor improvements on shared path adjacent SH6 and enroute to 1 primary school	1, 4	Extension of the walking and cycle network adjacent a regional road to provide better travel options for residents in Nelson North	6, 7, 8	Better Travel Options			\$ -
26	Nile Street crossing at Alton Street	Nile Street at Alton Street intersection at Central School	Road crossing for pedestrians at intersection on Central School frontage. Complicated by school bus stop and parking demand	1, 2, 4	Provide a safe crossing place for people to cross a road that is carrying high traffic volumes and high school walking and cycle demands at the school gate	1, 2, 3, 4, 5, 6, 7, 8, 23	Better Travel Options			\$ -
27	New Bus shelters	bus routes 1 and 2	Bus shelters and seats at	1, 4	Infrastructure so support mode shift	23	Better Travel Options	\$110,000	\$110,000	\$110,000

			high demand bus stops		from single occupancy vehicles to public transport					
28	Real time bus information	bus routes 1 and 2 and other priority areas	Real time bus information at high demand bus stops	1, 4	Infrastructure so support mode shift from single occupancy vehicles to public transport	23	Better Travel Options	\$ -	\$110,000	\$ -
29	PT CBD interchange	city centre	City centre bus stop	4	Infrastructure so support mode shift from single occupancy vehicles to public transport	23	Better Travel Options	\$ 58,500	\$ 59,500	\$113,300
30	PT Electronic ticketing upgrade	Part of national upgrade	Upgrade to electronic ticketing platform when required as part of the National programme	1, 4	Infrastructure so support mode shift from single occupancy vehicles to public transport	23	Better Travel Options	\$ -	\$ -	\$ -
40	Alma Street raised crossing	Raised tables at carpark entrances	Raised crossing and widened footpaths	2, 4	Improve pedestrian facilities to prioritise walking over vehicles in the city centre	6, 7, 8	Safety	\$150,000		

41	Speed management	City Wide	Speed management interventions to support speed framework review	2, 4	Reducing speeds will make access and low volume routes less attractive for rat run traffic and improve safety for active modes	1, 2, 3, 4, 5	Safety	\$250,000	\$400,000	\$400,000
42	Washington Road	Washington Road	Walking and cycling improvements and traffic calming works	1, 2, 4	Reduce speeds and rat run traffic and improve walking and cycling for an urban intensification growth area	1, 2, 3, 4, 5, 6, 7, 8, 23	Better Travel Options	\$80,685	\$770,000	\$770,000

APPENDIX F: ASSET MANAGEMENT MATURITY ASSESSMENT



APPENDIX G: INTERSECTION SAFETY PROGRAMME

Title Pipeline Tool Extract  
 Council extract is for Nelson City  
 Date of Extract 8/07/2020  
 Road Network Local Roads

**Field Overview**

<b>Corridor/Intersection Name</b>	We are hoping to get names in format: Main Rd Road 1 – Road 2 SNP <i>for corridors</i> Main Rd & Side Rd IS SNP <i>for intersections</i>
<b>ID</b>	This is the ID generated by the tool - please do not amend this in any way
<b>TLA</b>	Council district the intervention is located in, or primarily located in (if the corridor crosses boundaries)
<b>Programme Status</b>	Blank if submission has not been made in the Pipeline Tool, otherwise: <i>Confirmed - Agreement with modelling</i> <i>Modified - Agreement with location identified in modelling, but changes to investment level/timeframes etc OR a "new" project, nominated using local knowledge (i.e. not identified in modelling)</i> <i>Removed - Disagreement with modelling and nominated for removal e.g. if work has already been completed</i>
<b>Treatment Philosophy</b>	Likely Treatment Philosophy
<b>Primary Treatment</b>	Potential treatment
<b>Secondary Treatment</b>	Potential treatment
<b>Indicative Cost of Intervention</b>	Rough budget for the works
<b>DSi saved per 100M</b>	Death and serious injuries saved per annum per 100M The programme has a target of 7
<b>Length of corridor</b>	length of the intervention (in km)



<b>NLTP Period</b>	Funding cycle: <i>NLTP0 (2018-2021)</i> <i>NLTP1 (2021-2024)</i> <i>NLTP2 (2024-2027)</i> <i>NLTP3 (2027-2030)</i> <i>NLTP4: below the affordability line for the Programme</i>
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Nelson City	Cost Submitted	DSI saved per annum Submitted	Number of Ints	Length of Corridor (km)	DSI saved per \$100M						
NLTP0	\$445,000	0.0	0	15.7	2						
NLTP1	\$5,000	0.0	0	0.5	0						
NLTP2	\$1,975,000	0.4	4	0	20						
NLTP3	\$5,625,000	0.7	9	0.5	13						
Total	\$8,050,000	1.1	13	16.7	14						
R2Z Dec 2019 Target	\$6,750,000	1.4	15	4.3	20						
Nelson City	Number of Ints/Length of Corridor	R2Z Dec 2019 Target - Number of Ints/km of corridors									
Corridor Transformation (km)	0	0.0									
Safer Corridors (km)	0.5	0.0									
Safety Management - Corridors (km)	0	0.0									
BOOST - Corridors (km)	0	0.0									
Speed Management (km)	16.2	4.3									
Intersection Transformations	2	0									
Safer Intersections	7	12									
Safety Management - Intersections	4	3									
Corridor/Intesection Name	ID	TLA	Program me Status	Treatment Philosoph y	Primary Treatment	Second ary	Indicativ e Cost of	DSi save d	Lengt h of	NLT P	Intervent ion Type

						Treatm ent	Intervent ion	per 100 M	corrid or	Peri od	
Brook Tce Brook St SNP	Access_5431_m 1	Nels on City	Modified	Speed Manageme nt	Speed Management	0	\$ 5,000	0.13	0.1	NLTP 0	Corridor
Ronaki Tce Hampden St SNP	Access_5456_m 1	Nels on City	Modified	Speed Manageme nt	Speed Management	0	\$ 5,000	0.08	0.1	NLTP 0	Corridor
Clouston Tce Nile St East SNP	Access_5493_m 1	Nels on City	Modified	Speed Manageme nt	Speed Management	0	\$ 5,000	0.07	0.1	NLTP 0	Corridor
Hope St Hardy St - Selwyn PI SNP	Access_5175_m 2	Nels on City	Modified	Speed Manageme nt	Speed Management	0	\$ 100,000	0.03	0.1	NLTP 0	Corridor
Morrison St Hardy St - Selwyn PI SNP	Access_5171_m 2	Nels on City	Modified	Speed Manageme nt	Speed Management	0	\$ 5,000	1.15	0.1	NLTP 0	Corridor
Church St Hardy St - Selwyn PI SNP	Access_5174_m 3	Nels on City	Modified	Speed Manageme nt	Speed Management	0	\$ 5,000	0.75	0.1	NLTP 0	Corridor
Park St Hardy St - Selwyn PI SNP	Access_5172_m 2	Nels on City	Modified	Speed Manageme nt	Speed Management	0	\$ 5,000	0.12	0.1	NLTP 0	Corridor
Rimu St Toi Toi St SNP	Access_5485_m 1	Nels on City	Modified	Speed Manageme nt	Speed Management	0	\$ 5,000	0.25	0.1	NLTP 0	Corridor
Allan St Hampden St SNP	Access_5453_m 2	Nels on City	Modified	Speed Manageme nt	Speed Management	0	\$ 5,000	0.19	0.2	NLTP 0	Corridor
King St Nile St SNP	Access_5498_m 1	Nels on City	Modified	Speed Manageme nt	Speed Management	0	\$ 5,000	0.18	0.1	NLTP 0	Corridor
Endeavour St Ngatitama St SNP	Access_5478_m 1	Nels on City	Modified	Speed Manageme nt	Speed Management	0	\$ 5,000	0.65	0.2	NLTP 0	Corridor
Larges Ln Brook St SNP	Access_5461_m 1	Nels on City	Modified	Speed Manageme nt	Speed Management	0	\$ 5,000	0.53	0.2	NLTP 0	Corridor

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Point Rd Martin St SNP	Access_5390_m1	Nelson City	Modified	Speed Management	Speed Management	\$ 0	5,000	3.21	0.2	0	NLTP	Corridor
Fountain Pl SH6 SNP	Access_5142_m1	Nelson City	Modified	Speed Management	Speed Management	\$ 0	5,000	0.58	0.2	0	NLTP	Corridor
Granville Tce Bisley Ave SNP	Access_5491_m2	Nelson City	Modified	Speed Management	Speed Management	\$ 0	5,000	0.55	0.2	0	NLTP	Corridor
Avon Tce Bridge St - Hardy St East SNP	Access_5511_m1	Nelson City	Modified	Speed Management	Speed Management	\$ 0	5,000	0.16	0.3	0	NLTP	Corridor
Champion Tce Bisley Ave SNP	Access_5475_m1	Nelson City	Modified	Speed Management	Speed Management	\$ 0	5,000	0.97	0.3	0	NLTP	Corridor
Arrow St Quebec Rd SNP	Access_5512_m1	Nelson City	Modified	Speed Management	Speed Management	\$ 0	5,000	0.84	0.3	0	NLTP	Corridor
Achilles Ave Rutherford St - Trafalgar St SNP	Access_5180_m2	Nelson City	Modified	Speed Management	Speed Management	\$ 0	5,000	0.09	0.3	0	NLTP	Corridor
Selwyn Place Collingwood - Rutherford SNP	Selwyn_7618_m1	Nelson City	Modified	Speed Management	Speed Management	\$ 0	5,000	26.24	0.5	1	NLTP	Corridor
Wakatu Ln Rutherford St - Trafalgar St SNP	Access_5177_m2	Nelson City	Modified	Speed Management	Speed Management	\$ 0	5,000	0.99	0.3	0	NLTP	Corridor
Moncrieff Ave Moana Ave SNP	Access_5501_m1	Nelson City	Modified	Speed Management	Speed Management	\$ 0	5,000	0.98	0.4	0	NLTP	Corridor
New St Trafalgar St - Collingwood St SNP	Access_5182_m2	Nelson City	Modified	Speed Management	Speed Management	\$ 0	5,000	8.42	0.4	0	NLTP	Corridor
Montcalm St Quebec Rd SNP	Access_5509_m1	Nelson City	Modified	Speed Management	Speed Management	\$ 0	5,000	1.1	0.4	0	NLTP	Corridor
Hanby Park Mill St SNP	Access_5506_m2	Nelson City	Modified	Speed Management	Speed Management	\$ 0	5,000	0.44	0.2	0	NLTP	Corridor

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Hampden Tce Hampden Tce SNP	Access_5472_m 2	Nelson City	Modified	Speed Management	Speed Management	\$ 0 5,000	64.4 2	0.1	0	NLTP	Corridor
Athol St Seafiel St - Airlie St SNP	Athol_18652_m 2	Nelson City	Modified	Speed Management	Speed Management	\$ 0 5,000	2.3	0.5	0	NLTP	Corridor
Locking St Kawai St - Wellington St SNP	Access_5126_m 1	Nelson City	Modified	Speed Management	Speed Management	\$ 0 5,000	0	0.5	0	NLTP	Corridor
Buxton Sq Bridge St - Hardy St SNP	Access_5176_m 2	Nelson City	Modified	Speed Management	Speed Management	\$ 0 5,000	8.56	0.5	0	NLTP	Corridor
Airlie St Airlie St SNP	Airlie_18653_m 2	Nelson City	Modified	Speed Management	Speed Management	\$ 0 5,000	0.49	0.3	0	NLTP	Corridor
Washington Tce Wolfe St SNP	Access_5515_m 2	Nelson City	Modified	Speed Management	Speed Management	\$ 0 5,000	0.34	0.1	0	NLTP	Corridor
Trafalgar St Halifax St - Selwyn Pl SNP	Trafalgar_19501 _m2	Nelson City	Modified	Speed Management	Speed Management	\$ 0 5,000	32.4 5	0.5	0	NLTP	Corridor
Beachville Cres Maori Rd SNP	Access_5140_m 1	Nelson City	Modified	Speed Management	Speed Management	\$ 0 5,000	4.48	0.7	0	NLTP	Corridor
Halifax Haven - Collingwood SNP	Riverside_2494 _m1	Nelson City	Modified	Speed Management	Speed Management	\$ 0 100,000	10.2 9	0.7	4	NLTP	Corridor
Fifeshire Cres SNP	Access_5141_m 2	Nelson City	Modified	Speed Management	Speed Management	\$ 0 5,000	5.83	0.5	0	NLTP	Corridor
Stanley Cres Mount Pleasant Ave SNP	Access_5144_m 1	Nelson City	Modified	Speed Management	Speed Management	\$ 0 5,000	6.18	1	0	NLTP	Corridor
Rutherford Halifax - Bronte SNP	Rutherford_305 0_m1	Nelson City	Modified	Speed Management	Speed Management	\$ 0 100,000	9.46	1	4	NLTP	Corridor
Poynters Cres Albert Rd - SH6 SNP	Access_5145_m 2	Nelson City	Modified	Speed Management	Speed Management	\$ 0 5,000	2.09	0.4	0	NLTP	Corridor

Plumtree Ln Sanctuary Dr SNP Hardy St	Access_5320_m 2	Nelson City	Modified	Speed Management	Speed Management	\$ 5,000	0.39	0.3	NLTP 0	Corridor
Rutherford St - Collingwood St SNP Bridge St	Hardy_18669_ m3	Nelson City	Modified	Speed Management	Speed Management	\$ 5,000	105. 51	0.5	NLTP 0	Corridor
Rutherford St - Collingwood St SNP	Bridge_7615_m 2	Nelson City	Modified	Speed Management	Speed Management	\$ 5,000	82.4 6	0.5	NLTP 0	Corridor
Rainier St Martin St - Point Rd SNP Queens Rd	Access_5398_m 2	Nelson City	Modified	Speed Management	Speed Management	\$ 5,000	0.4	0.1	NLTP 0	Corridor
Victoria Hts - Victoria Hts SNP Rangiora Tce Tamaki St -	Access_5146_m 2	Nelson City	Modified	Speed Management	Speed Management	\$ 5,000	1.32	0.3	NLTP 0	Corridor
Chamberlain St SNP Washington Valley Rd Britannia -	Access_5129_m 2	Nelson City	Modified	Speed Management	Speed Management	\$ 5,000	25.1 6	0.4	NLTP 0	Corridor
Vanguard SNP	St_7611_m1	Nelson City	Modified	Speed Management	Speed Management	\$ 100,000	20.2 4	1.4	NLTP 4	Corridor
Atmore Tce Cleveland Tce SNP	Access_5132_m 2	Nelson City	Modified	Speed Management	Speed Management Mid-Block	\$ 5,000	4.16	0.5	NLTP 0	Corridor
Songer Nayland - Main Rd Stoke SNP	Songer_7603_m 1	Nelson City	Modified	Safer Corridors	Raised Pedestrian Crossing	Signs and Markings \$ 500,000	9.91	0.5	NLTP 3	Corridor
Cherry Ave Baigent Rd SNP Mayoral Tce Nile	Access_5387_m 2	Nelson City	Modified	Speed Management	Speed Management	\$ 5,000	0.21	0.2	NLTP 0	Corridor
St - Cleveland Tce SNP Cleveland Tce	Access_5132_m 4	Nelson City	Modified	Speed Management	Speed Management	\$ 5,000	1.66	0.2	NLTP 0	Corridor
Manuka St - Atmore Tce SNP	Access_5132_m 6	Nelson City	Modified	Speed Management	Speed Management	\$ 5,000	5.82	0.6	NLTP 0	Corridor

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Point Rd Martin St - Rainier St SNP	Access_5398_m5	Nelson City	Modified	Speed Management	Speed Management		\$ 5,000	1.6	0.4	0	NLTP	Corridor
Martin St Point Rd - Point Rd SNP	Access_5398_m6	Nelson City	Modified	Speed Management	Speed Management		\$ 100,000	0.18	0.9	0	NLTP	Corridor
Wells Rd Queens Rd - Queens Rd SNP	Access_5146_m4	Nelson City	Modified	Speed Management	Speed Management		\$ 5,000	0.44	0.1	0	NLTP	Corridor
Queens Rd Queens Rd - Wells Rd SNP	Access_5146_m6	Nelson City	Modified	Speed Management	Speed Management		\$ 5,000	1.77	0.4	0	NLTP	Corridor
Harbour Tce Poynters Cres SNP	Access_5145_m4	Nelson City	Modified	Speed Management	Speed Management		\$ 5,000	0.52	0.1	0	NLTP	Corridor
Albert Rd Britannia Hts - Fifeshire Cres SNP	Access_5145_m6	Nelson City	Modified	Speed Management	Speed Management Signalised Intersection - From		\$ 5,000	0.52	0.1	0	NLTP	Corridor
Waimea & Franklyn IS SNP	simple_29368	Nelson City	Modified	Safer Intersections	Uncontrolled/ Give Way		\$ 1,000,000	3	0	2	NLTP	Intersection
Toi Toi & Montreal IS SNP	simple_30040	Nelson City	Modified	Safer Intersections	Platform		\$ 300,000	10	0	3	NLTP	Intersection
Waimea & Tukuka IS SNP	simple_29453	Nelson City	Confirmed	Safety Management	LILO Signalised Intersection - From		\$ 100,000	20	0	3	NLTP	Intersection
Main Rd Stoke & Polstead IS SNP	simple_30215	Nelson City	Modified	Safer Intersections	Uncontrolled/ Give Way		\$ 700,000	0.58	0	4	NLTP	Intersection
St Vincent & Washington IS SNP	rab_307	Nelson City	Modified	Safer Intersections	URAB SI Platform		\$ 500,000	18	0	3	NLTP	Intersection
Vanguard & Hardy IS SNP	rab_306	Nelson City	Modified	Safer Intersections	URAB SI Platform		\$ 500,000	10	0	3	NLTP	Intersection

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St Vincent & Toi Toi IS SNP	rab_299	Nelson City	Confirmed	Safer Intersections	URAB SI	0	\$ 500,000	16	0	NLTP 3	Intersection
Gloucester & Vanguard IS SNP	rab_305	Nelson City	Modified	Safer Intersections	URAB SI	0	\$ 500,000	20	0	NLTP 3	Intersection
Ridgeway & Marsden IS SNP	complex_1328	Nelson City	Modified	Safe System Transformation	Filter Removal	0	\$ 2,500,000	0.49	0	NLTP 4	Intersection
Waimea & Ridgeway IS SNP	simple_5736	Nelson City	Confirmed	Safe System Transformation	Urban Roundabout	0	\$ 1,000,000	15	0	NLTP 3	Intersection
Main Road Stoke & Annesbrook IS SNP	simple_29809	Nelson City	Modified	Safe System Transformation	Urban Roundabout	0	\$ 1,000,000	11	0	NLTP 4	Intersection
Rutherford & Selwyn IS SNP	simple_30723	Nelson City	Modified	Safety Management	Platform	0	\$ 440,000	13.6	4	NLTP 4	Intersection
Haven & Halifax IS SNP	simple_46594	Nelson City	Modified	Safer Intersections	URAB SI	0	\$ 500,000	20	0	NLTP 2	Intersection
Waimea & Hampden IS SNP	simple_67839	Nelson City	Modified	Safety Management	LILO	0	\$ 250,000	80	0	NLTP 2	Intersection
Waimea & Motueka IS SNP	simple_29640	Nelson City	Confirmed	Safety Management	Upgrade of Signalised Intersection	0	\$ 225,000	31.1	1	NLTP 2	Intersection
Int of Waimea Road and Market Road - SafeInt	simple_29501	Nelson City	Modified	Safer Intersections	From Uncontrolled/ Give Way	0	\$ 700,000	4.19	0	NLTP 4	Intersection
Rutherford & Hardy IS SNP	simple_3671	Nelson City	Modified	Safety Management	Platform	0	\$ 440,000	18.1	8	NLTP 4	Intersection
Main Road Stoke & Songer IS SNP	simple_30053	Nelson City	Modified	Safer Intersections	Filter Removal	0	\$ 640,000	10.9	4	NLTP 4	Intersection

Nelson City Council

Trafalgar & Halifax IS SNP	simple_30527	Nelson City	Modified	Safety Management System	Upgrade of Signalised Intersection	\$ 225,000	17.78	0	NLTP 3	Intersection
Main Rd Stoke & Elms IS SNP	simple_42511	Nelson City	Modified	Safety Management System	Urban Roundabout	\$ 1,500,000	7.33	0	NLTP 3	Intersection
Boundary & Waimea IS SNP	simple_29459	Nelson City	Modified	Safety Management System	LILLO	\$ 250,000	26.54	0	NLTP 4	Intersection



APPENDIX H: PAVEMENT PROGRAMME

Pavements Testing programme:

Road Hierarchy	Testing	Minimum Frequency
Regional Arterial	High speed data FWD Other: eg test pit, CBR  Scrim Condition assessment	2 yearly 4 yearly Programme to collect data for pavement assessments. When required. 2 Yearly
Primary Collector	High speed data FWD Other: eg test pit, CBR  Scrim Condition assessment	2 yearly 4 yearly Programme to collect data for pavement assessments. When required. 2 Yearly
Secondary Collector	High speed data FWD  Other: eg test pit, CBR Scrim Condition assessment	2 yearly Specific sites prior to planning resurfacing or major capital works. When required. When required. 2 Yearly
Access	High speed data Other: eg FWD, test pit, CBR Condition assessment	4 yearly When required.  2 yearly
Low Volume	High speed data, FWD and Other: eg test pit, CBR. Condition assessment	When required.  2 yearly
Unsealed	No testing	

Pavement programme – sites where pavement improvement/rehabilitation is being investigated:

Road #	Road name	RP start	RP end	Surface proposed	Rehabilitation estimated cost	Approx. year
23	Arapiki Road	0	0.601	chip	\$245,000	2023/24
146	Hay Street	0	0.231	ac	\$498,000	2028/29
7805	Main Road Stoke LHS	0	0.075	ac	\$104,000	2028/29
207	Market Road	0	0.11	ac	\$129,000	2024/25
207	Market Road	0.11	0.17	ac	\$180,000	2020/21
241	Nayland Road	2.95	3.369	ac	\$1,474,000	2030/31
243	New Street	0.1	0.175	ac	\$220,000	2020/21
243	New Street	0.175	0.257	ac	\$253,000	2021/22
299	Richardson Street	0	0.448	ac	\$825,000	2031/32
331	Songer Street	1.4	1.46	ac	\$203,000	2025/26
331	Songer Street	1.46	1.59	ac	\$411,000	2025/26
365	Toi Toi Street left St V to Vanguard	0.862	1.042	ac	\$278,000	2029/30
365	Toi Toi Street right St V to Vanguard	0.862	1.042	ac	\$329,000	2029/30
375	Trafalgar Street South	0.63	0.706	ac	\$235,000	2035/36
383	Van Diemen Street	0.38	0.493	ac	\$334,000	2035/36
384	Vanguard Street	0.305	1.475	ac	\$3,407,000	2024/25
384	Vanguard Street	1.475	1.963	ac	\$1,477,000	2025/26
385	Vickerman Street	0	0.168	ac	\$454,000	2026/27
385	Vickerman Street	0.168	0.618	ac	\$1,108,000	2024/25
391	Waimea Road	0	0.8	ac	\$2,888,000	2026/27
391	Waimea Road	0.8	1.6	ac	\$2,975,000	2027/28
391	Waimea Road	1.6	2.4	ac	\$3,552,000	2033/34
391	Waimea Road	2.4	3.2	ac	\$3,659,000	2034/35
391	Waimea Road	3.2	4	ac	\$3,768,000	2035/36
391	Waimea Road	4	4.784	ac	\$3,694,000	2035/37
395	Washington Road past Wolfe Street	0.775	0.95	ac	\$632,000	2025/26
408	Wildman Ave westbound	0.21	0.406	ac	\$770,000	2028/29

## APPENDIX I: INDICATIVE STRUCTURES RENEWAL PROGRAMME — BRIDGES

Road	Bridge No.	Name	Remaining life	Comment
MANUKA STREET	64	MANUKA STREET FORD	40	Business case to be prepared in 2021/24. The ford closes approximately 3 times per year. This is expected to increase as a result of global warming and increase frequency and severity of flood events. A bridge could provide greater environmental benefits by removing the ford. A project has been established to prove this through a business case in 2021–24. This would improve the resilience of the connections to Manuka Street hospital and the Brook, but would increase through traffic past two primary schools.
HAVEN ROAD	217016	TRAFALGAR CENTRE FOOTBRIDGE	2	Business Case under development. The saltwater environment has deteriorated the steelwork beyond repair. The abutments will not meet current design standards for a new superstructure. This bridge has historically been a Parks structure but forms a vital connection to the walking and cycling network, so will be a transport asset to renew.
SH6 WHAKATU DRIVE	WAKA KOTAHI	SEAVIEW UNDERPASS	N/A	Construction of a weir, with Waka Kotahi approval, to protect the underpass from gravel build up from the creek in order to provide resilience.
QEII DRIVE	WAKA KOTAHI	UNDERPASS AT SALTWATER CREEK BRIDGE	N/A	Improvements to prevent high tide flooding of the underpass, which results in people crossing the highway at grade.
QUARANTINE ROAD	35	QUARANTINE ROAD BRIDGE	50	There is a footpath on one side of this bridge only and demand for a footpath on the other side. The bridge cannot support a clip-on walkway. The options of accommodating the footpath on the existing bridge or constructing a new footbridge are being investigated.
CABLE BAY	57	CABLE BAY #5		Kerb and drainage improvement to prevent scour to bridge abutments .
RIVERSIDE	W215	RIVERSIDE FOOTBRIDGE		Replace handrails, which are rusting from inside. Opportunity to raise handrail height and shift

				rails to outside of structure to widen it for cyclists. Est \$150k
NILE STREET	4	NILE STREET BRIDGE		Replace rubber nosings.
THE RIDGEWAY	29	ISEL BRIDGE		Rotation of wing walls.
		UTILITIES CULVERTS		Validation of structural capacity.
ROSS ROAD		SWING BRIDGE		Procedure for inspection and assessment of swing bridges required.
The need for significant maintenance works, which is more than routine maintenance, has been identified at:				
MAITAI VALLEY ROAD		POLEFORD BRIDGE		\$130,000 in 2020/21

APPENDIX J: STRUCTURES RENEWAL PROGRAMME – RETAINING WALLS

		Green	Structure component replacement - there are none identified what is required for small ongoing projects																
		Red	Minor Works																
		Blue	Likely unsubsidised unless qualifies																
		\$ 5,600	Use																
		\$ 3,500	Heaps more based on Arapiki Road - use above																
		Assume \$3500 until know more detail based on Chris Pawson previous workings																	
Location		\$ 1,123,240	\$ 575,000	\$ 738,000	\$ 632,080	\$ 1,099,008	\$ 639,920	\$ 2,811,520											
NCCWallNum	Start Address	Estimate replace	Where at nov 2018-21	2020/21	2021-24	1	2	3	2024-27	4	5	6	2027-30	7	8	2030-33	9	10	10-13
Road225.4	51 Arapiki Rd	\$ 70,560	Stantec	\$ 70,560	80000														
Road225.1	29 Arapiki Rd	\$ 175,280	Stantec	\$ 59,000	180000														
Road225.2	41 Arapiki rd	\$ 184,800	Stantec	\$ 59,000	180000														
Road225.3	49 Arapiki rd	\$ 246,400	Stantec	\$ 59,000	180000														
Road113	41 Jenner Street	\$ 71,680	reduce load c	\$ 71,680															
Road114	43 Jenner Street	\$ 674,240	reduce load c	\$ 674,240															
	Renew handrails	\$ 30,000				\$ 15,000	\$ 30,000	\$ 15,000											
	Nelson Intermediate - remove wall					\$ 50,000													
Road51	65 The Cliffs	\$ 689,920		\$ 10,000												\$ 689,920			
Road191	351 Waimea Rd	\$ 109,760		\$ 109,760															
Path1	13 Stafford Walk	\$ 47,040		\$ 10,000															
Road215	38 Coster St	\$ 571,200	T and T			\$ 10,000	\$ 100,000	\$ 571,200											
Road216	1 Calamanas St	\$ 588,000	T and T						\$ 588,000										
Road212	56 Golf Rd	\$ 60,480							\$ 10,000	\$ 60,480									
Road230.2	579 Waimea Rd	\$ 50,400																	\$ 150,400
Road121	3 Mahoe Street	\$ 700,000	Monitoring						\$ 50,000	\$ 100,000	\$ 10,000	\$ 700,000							
Road242	Akersten Street	awaiting Chris confirmation of price				\$ 500,000													
Road64	Stansell Ave	\$ 371,280				\$ -	\$ -				\$ 115,000	\$ 371,280							
Road306	Stansell Ave	awaiting Chris to confirm suggested \$400k																	
	353 Brook Street (unsupported t	\$ 225,000				\$ 40,000	\$ 185,000												
	Russell Street (unsupported bar	\$ 300,000	A2273883																300000
Road103.1	Corner Toswill Road and Tahuna	\$ 53,760							\$ 5,376	\$ 53,760	\$ 10,000								
Road107	30 Toswill	\$ 243,040				\$ 20,000	\$ 20,000	\$ 50,000	\$ 243,040										
Road154.3	Waimea Road (opposite Hospita	\$ 207,200									\$ 100,000	\$ 207,200	\$ 20,000						
Road205	66 Tipahi Street	\$ 137,200								\$ 10,000	\$ 50,000	\$ 137,200							
Road250	Haven Road - Crossing opp scho	\$ 2,661,120																	\$ 2,661,120
Road20	112 Cleveland Terrace	\$ 206,080	Private wall																
Road38	11 Russell St	\$ 237,440	Private wall, but in RAMM					50000	100000	237440									
Road166	2 Brunner Street	\$ 63,840														\$ 63,840			
Road193.2	3 Scotia Rd	\$ 65,856														\$ 65,856			
Road193.4	9 Scotia Rd	\$ 259,392														\$ 259,392			
Road232	2 Kowhai Ave	\$ 300,160																\$ 300,160	
Path30	Konini to Vanguard path	\$ 39,760																\$ 39,760	
Road146.1	572 Brook Street	\$ 131,040														13104	\$ 131,040		
	Nelson Intermediate	\$ 50,000					25000	25000											
Bridge	Gibbs Bridge	\$ 40,000									\$ 40,000								
	217016 Trafalgar centre Footbridge	\$ 873,000	A2374622			\$ 65,000	\$ 206,000	\$ 602,000											
Bridge	Riverside Handrails	\$ 150,000										\$ 150,000							
Unknown	Maitai Path Gabions	\$ 2,240,000																\$ 2,240,000	
	Total component replacement					\$ 515,000	\$ 236,000	\$ 15,000	50000	50000	50000	\$ 150,000	50000	50000	50000	50000	250000		
	Total subsidised replacements			620000		\$ 65,000	\$ 251,000	\$ 647,000	\$ 110,000	\$ 403,520	\$ 292,816	\$ 250,800	\$ 354,400	\$ 33,104	\$ 470,800	\$ 2,811,520			
	Total Unsubsidised replacements					\$ 60,000	\$ 100,000	\$ 571,200	\$ 678,000	\$ 335,000	\$ 452,440	\$ 381,280	\$ 700,000	\$ 1,079,008	\$ 2,540,160	\$ -			

APPENDIX K: INDICATIVE PARKING RESURFACING PROGRAMME

**Car Parking Areas**

The preferred programme involves planning to resurface the carparks because of their age and reducing condition. It is expected that each section will be reviewed by the City Development team prior to resurfacing to determine changes required during the process, and the programme maybe deferred or managed to suit their redevelopment programme. Some pedestrian improvements and changes as a result of the parking meter changes may also be included.

Year	Total	# car parks	Cost per car park	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	11	12
Financial period				21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33
Maintenance				50000	50000	50000	30000	30000	30000	30000	30000	30000	30000	30000	30000
Drainage improvement								60000	60000						
Whakatu Square Other improvements eg sw quality				100000	70000	70000		70000							
Improvements total				100000	70000	70000	0	130000	60000	0	0	0	0	0	0
Buxton Carpark	927000			63000					306000	279000	279000				
Millers Acre	342000				27000								315000		
Montgomery Square	1108500			31500		63000	720000	264000							30000
Stoke Fire Station	243000													243000	
Strawbridge Square	540000											540000			
Whakatu Square Resurfacing total	297000														297000
				94,500	27,000	63,000	720000	264000	306000	279000	279000	540000	315000	243000	327000

## APPENDIX L: POLICY, BYLAWS, STUDIES AND LEGISLATION

### Relevant transport legislation

The overall framework for planning, funding and managing the land transport system includes the following Acts, Regulations and Rules. Bills and Rules under development have been included as they are likely to become legislation in the short term. All Acts, regulations and rules are to be read as including any amendment that may occur from time to time.

### Acts of Parliament

The Acts below are listed by their original title for simplicity. However, all amendment acts shall be considered in conjunction with the original Act, as these have not been detailed in this document. For the latest Act information refer to <http://www.legislation.govt.nz/>

- Local Government Acts 1974 and 2002
- Government Rooding Powers Act 1989
- Land Transport Act 1998
- Land Transport Amendment Act 2009
- Land Transport Management Act 2003
- Land Transport Management Amendment Acts 2003 and 2013
- Land Transport (Enforcement Powers) Amendment Act 2009
- Land Transport (Road Safety and Other Matters) Amendments Act 2011
- Land Transfer Act 1952
- Public Transport Management Act 2008
- Resource Management Act 1991
- Resource Management Amendment Act 2003 / 2013
- Resource Management (Simplifying and Streamlining) Amendment Act 2009,
- Building Act 2004
- Building Amendment Act 2012 / 2013
- Public Works Act 1981 Transportation Appendix A.docx Page A-2
- Telecommunications Act 1987
- Electricity Act 1992
- Biosecurity Act 1993
- New Zealand Public Health and Disability Act 2000
- Health Act 1956
- Summary Offences Act 1981
- Civil Defence Emergency Management Act 2002
- Health and Safety at Work Act 2015
- Utilities Access Act 2010
- Land Drainage Act 1908
- Climate Change Response (Zero Carbon) Amendment Act 2019

### Bills

- Local Government Act 2002 Amendment Bill (No.3).
- Urban Development Bill 2019

### National Policies, Regulations and Strategies

- Government Policy Statement on Transport 2021
- The New Zealand Coastal Policy Statement 2010 (<http://www.doc.govt.nz>)
- National Policy Statement for Freshwater Management 2014  
<http://www.mfe.govt.nz/fresh-water/national-policy-statement>
- National Policy Statement for Freshwater Management Amendment 2017  
<http://www.mfe.govt.nz/fresh-water/national-policy-statement>

- The National Energy Efficiency and Conservation Strategy <http://www.eeca.govt.nz>
- The Heavy Motor Vehicle Regulations 1974  
<http://www.legislation.govt.nz/>
- The Building Regulations  
<http://www.legislation.govt.nz/>
- NZ Transport Agency Specifications, Rules, Policies, Manuals and Guidelines  
<http://www.Waka Kotahi.govt.nz>
- Waka Kotahi Long Term Strategic View 2019  
<https://www.Waka Kotahi.govt.nz/planning-and-investment/planning/arataki>
- Road Efficiency Group One Network Road Classification <https://Waka Kotahi.govt.nz/roads-and-rail/road-efficiency-group/onrc>
- Austroads Guidelines and Manuals <http://www.austroads.com.au/>
- Government Policy Statement 2021  
<https://www.transport.govt.nz/multi-modal/keystrategiesandplans/gpsonlandtransportfunding/gps-2021/>
- National Policy Statement on Urban Development Capacity (NPS-UDC)  
<https://www.hud.govt.nz/urban-development/national-policy-statement-on-urban-development-capacity-nps-udc/>
- Road to Zero  
<https://www.transport.govt.nz/multi-modal/keystrategiesandplans/road-safety-strategy/>
- The New Zealand Transport Strategy  
<http://www.transport.govt.nz>
- Ministry of Transport Statement of Intent  
<http://www.transport.govt.nz>
- The Government's Sustainable Development Programme of Action  
<http://www.beehive.govt.nz>
- NAMS Manuals and Guidelines  
<http://www.nams.org.nz>
- Office of the Auditor General publications  
<http://www.oag.govt.nz>
- Requirements of the Auditor General (refer Appendix J for improvement measures specific to the Transport Activity).
- All Land Transport Rules, including:
  - Operator Licensing 2007, Passenger Service Vehicles 1999, Road User Rule 2004, Setting of Speed Limits 2003, Traffic Control Devices 2004, Vehicle Dimensions and Mass 2002, Vehicle Lighting, Driver Licensing;
  - COPTTM (Code of practice for temporary traffic management) — <https://www.Waka Kotahi.govt.nz/resources/code-temp-traffic-management>
  - SHDOM (State Highway Data Operations Manual) — <https://www.Waka Kotahi.govt.nz/resources/state-highway-database-operation-manual/database-operation.html>
  - ONRC Functional Classifications  
<https://www.Waka Kotahi.govt.nz/assets/Road-Efficiency-Group/docs/functional-classification.pdf>
  - ONRC PMRT (performance measures reporting tool)
  - <https://onrc.comanyx.nz/>

#### **Bylaws and Vehicle Control Regulations**

- Land Transport (Infringement and Reminder Notices) Regulations 1998 and 2012
- Land Transport (Offences and Penalties) Regulations 1999
- Land Transport (Ordering a Vehicle off the Road) Notice 1999
- Land Transport (Requirements for Storage and Towage of Impounded Vehicles) Regulations 1999
- Land Transport (Storage and Towage fees for Impounded Vehicles) Regulations 1999



- Transport Services Licensing Regulations 1989
- Traffic Regulations 1976

### **Standards New Zealand**

For all of the following refer to <http://www.standards.co.nz>

- AS/NZS ISO 31000:2009 Risk Management Principals and Guidelines
- NZS 4404:2010 Land Development and Subdivision Infrastructure
- AS/NZS ISO 9001:2008 Quality Management Systems
- AS/NZS 4801:2001 Occupational Health and Safety Management Systems
- SNZ HB 2002:2003 Code of Practice for Working in the Road
- AS/NZS 1158 Lighting for Roads and Public Places Set
- AS/NZS 4676:2000 Structural Design Requirements for Utility Services Poles

### **Local and Regional Plans, Policies, Standards and Bylaws**

- The Regional Land Transport Plan
- Nelson Resource Management Plan (NRMP)
- Tasman Regional Policy Statement (TRPS) <http://www.tasman.govt.nz>  
Transportation Appendix A.docx Page A-3
- Nelson Tasman Land Development Manual (NTLDM) 2019
- Parking and Vehicle Control Bylaw 207 (2011) and 2012 Amendment
- Speed Limits Bylaw 210 (2011) and associated Amendments
- Development Contributions: <http://www.nelson.govt.nz/building-and-property/property-land-use/development-and-financial-contributions/>

### **Road Reserve Management Policies and Procedures**

The following list of policies and procedures is yet to be checked for currency and relevant to the current operating of the network and reviews or redaction processed. Where status is known or assumed this is noted in ( ).

- Maintenance of Private Access on Road Reserve 1999
- Speed Hump Policy 2001
- Minor Safety Priority Process for Projects 2000 (LCLR deficiency database is currently used)
- Motel signs and service signs 1999
- Footpath construction priority list 1999 (LCLR deficiency database is currently used)
- Occupation of footpaths, carparks and parking squares policy 2000
- Streelighting policy 2000 (assumed to be updated by the NTLDM)
- Signs policy 2004
- Staff policy for new drop crossings (refer appendix D footpath assessment criteria for current processes)
- Staff design crossfall adjustments for new kerb and channel and widening 2002 (refer appendix D footpath assessment criteria for current process)
- Staff maintenance policy for driveway and driveway reinstatements
- Rapid no. system information 2002
- Vegetation control legal road frontage 2002 (refer Local Government Act and the Vegetation Management Policy currently under development)
- Planting of road frontage 2003
- Policy structures on legal road 2003 (under review)
- Residents parking zones 1990
- Underground policy 2004
- Aquisition of land for roads
- Powerline undergrounding

- Staff carparks costing formula 2004
- Parking and vehicle control bylaw 2004 (current. To be reviewed in 2021-24)
- Speed limit bylaw 2004 (current)

### **Nelson's Strategies**

#### ➤ **Nelson Regional Policy Statement 1997**

This document is at the top of the hierarchy of resource management considerations. It is prepared under the Resource Management Act and has statutory force.

Its purpose is to identify regional issues in terms of natural and physical resources and to outline objectives, policies and methods to achieve integrated management of the natural and physical resources of the whole region, including cross-boundary issues with other regions.

Other plans prepared under the Resource Management Act must now "give effect" to the provisions of the relevant regional policy statement for a region or district (changes to the Resource Management Act in 2005 have increased the importance of the Regional Policy Statement).

Nelson's Regional Policy Statement was made operative in 1997 and is currently under review through the Nelson Plan project.

#### ➤ **Nelson Resource Management Plan**

The operative Nelson Regional Policy Statement and Nelson Resource Management Plan were developed in the 1990s, and the Nelson Air Quality Plan became operative in 2008. While these plans have been subject to some changes, they have not undergone a full review. The council resolved to embark on a full review. Once prepared, the new plan will be called the Whakamahere Whakatū Nelson Plan.

#### ➤ **Social Wellbeing Policy 2010**

The Council's vision for this policy is that Nelson has a happy, healthy community where people have access to necessary services and facilities and feel connected to each other and to the city.

Council will ensure that social wellbeing issues are considered when planning and delivering new services, facilities and activities.

Areas where Council has a key responsibility or role include the physical environment, leisure and recreation, social connectedness, cultural identity, civil and political rights and safety (particularly relating to safety in public spaces). With limited resources available Council needs to focus on areas where it can have a significant impact and rely on partners to take the lead in other areas.

Council has chosen to focus on particular issues surrounding older people, youth and affordable housing in this policy. These three areas relate to key trends affecting Nelson and have been raised as particular concerns by the community.

Over and above initiatives that directly aim to improve social wellbeing, most Council activities (such as economic development, transport, water supply, waste collection, environmental planning, parks and community facilities) impact on the wellbeing of the community.

Council's social wellbeing role includes:

- Leading by example — looking at Council activities through a social wellbeing "lens" to improve social wellbeing outcomes for the community

- Partnering, collaborating and facilitating — with central government, community organisations and other stakeholders to target initiatives effectively
- Delivery — of services and activities (including through grants to community groups) within wellbeing areas where Council has responsibility
- Advocacy — at regional and national levels
- Planning — ensuring that the development of facilities and services contributes to enhancing wellbeing in the future.

### ➤ **Infrastructure Strategy**

In 2014 the Local Government Act 2002 was amended to include section 101B — a requirement for local authorities to prepare an infrastructure strategy as part of the Long Term Plan. The strategy is expected to look at least 30 years into the future and detail the issues that the local authority can reasonably foresee. The Office of the Auditor General has provided guidance documents for authorities to use when developing the strategy.

Review of the Infrastructure Strategy has been carried out prior to this AMP.

### **Nelson City Council Long Term Plan**

The last Long Term Plan (LTP) was adopted in July 2018. It is a requirement of the Local Government Act 2002 to have such a plan to manage Council's activities and budgeting. The LTP forms the basis for the Council's annual planning process. The plan must have a focus on social, cultural, economic and environmental outcomes. The next LTP 2021–2031 will be adopted by Council in June 2021.

### **Regional Land Transport Plan 2015-2021**

The Regional Land Transport Plan (RLTP) is a six-year document with a 10 year horizon. It provides strategic context and direction for each regional programme. A new RLTP is being prepared concurrently with this AMP.

### **Regional Public Transport Plan 2018**

The purpose of the Regional Public Transport Plan (RPTP) is to provide:

- the public transport services that are integral to the public transport network
- The policies and procedures that apply to those services
- The information and infrastructure that supports those services.

A new RPTP is being prepared concurrently with this AMP.

### **Procurement**

The NCC/Waka Kotahi Procurement Strategy for activities funded through the national Transport Programme 2017 expires in 2021/22. This AMP will inform an update of the Procurement Strategy in 2021.

Council's Procurement Strategy is the overarching document for unsubsidised purchases.

### **Heart of Nelson – Central City Strategy**

The Heart of Nelson Strategy was carried out in 2009 and focuses on the Council's interest in achieving various community outcomes in the LTP. The Mayor's Foreword states that the Council "wants to maintain a vibrant and vital heart of the city" for locals and visitors, and to encourage economic development. It is intended "to manage growth in a coordinated manner and to maintain and enhance the successfulness of the City Centre and surrounding area".

The Heart of Nelson Strategy is included in the City Centre Revitalisation review, which is currently underway.

### **Stoke Foothills Study**

The Stoke Foothills Study is a Programme Business Case for options to manage the effects of residential growth and development and transport effects in the affected areas. The Programme Business Case investigates the case for change, and identifies a preferred programme of investment to address the problems identified.

### **Waka Kotahi Future Access Study**

The Arterial Traffic Study was a key initiative in order to achieve the Community Outcomes in the 2009–2019 Nelson Community Plan. It assessed the effects of arterial traffic flows in order to determine the best transport configuration between Annesbrook and the QEII/Haven Rd roundabouts in order to improve the city as a whole in the long term. This work has been updated through the Southern Link Investigation Study and the current Future Access Study (FAS) being undertaken by Waka Kotahi. The recommendations from the FAS are expected in 2021.

### **Road Safety Action Plan**

A Road Safety Action Plan has been prepared to address safety issues presenting on the network, and greater Top of the South area, in conjunction with Tasman District Council and Marlborough District Council and Police.

The action plan targets current areas of safety concern locally, regionally and nationally.

### **Waka Kotahi Audit Findings**

Waka Kotahi Financial Audit 2015, financial — Waka Kotahi Investment Audit 2017, technical

APPENDIX M: RESIDENTS SURVEY QUESTIONS

1. Which of the following **best** describes your work status?

1	Full time (30 hours or more per week)
2	Part time work (less than 30 hours a week)
3	Not in the workforce
4	Refused (Don't read out)

2. Thinking about the last twelve months, what was your **main** mode of transport to get to work?

1	Worked at home
2	Travel by bus
3	Drove a private vehicle/ car, truck, or van
4	Drove a company vehicle/ car, truck, or van
5	Passenger in a vehicle
6	Motorbike
7	Bicycle, ebike
8	Walked or ran
9	Other such as Scooter, e-scooter, skateboard or similar (specify) _____
10	Don't know

3. In terms of biking, walking or using the bus to get to work, what are the barriers to you using these more often?

--

4. On a scale of 1 to 5 where 1 is very unsafe, 2 is unsafe, 3 is neither, 4 is safe, and 5 is very safe, how safe or unsafe do you feel day-to-day on Nelson roads in the following situations?

		1 Very unsafe	2 Unsafe	3 Neither nor	4 Safe	5 Very Safe	DK
A	Travelling by motor vehicle						
B	When walking, cycling or using other active modes of transport such as a scooter?						

5. Do you have any comments about your feelings of safety when travelling by motor vehicle or other active modes of transport?

--

6. Thinking about specific parts of the transport network, using a scale of 1 to 5 where 1 is very dissatisfied, 2 is dissatisfied, 3 is neutral, 4 is satisfied and 5 is very satisfied, how satisfied or dissatisfied are you with the work Council has been doing on:

		1 Very dissatisfie	2 Dissatisfi ed	3 Neutral	4 Satisfied	5 Very satisfied	Don' t Know
A	Roads/ streets						
B	Footpaths						
C	Walkways that link roads						
D	Cycle lanes, the separate lanes for bicycles on the roadway						
E	Shared pathways, for example the Railway Reserve						
F	Public transport						
G	Street lighting						
H	Parking						

7. How satisfied or dissatisfied are you with the transport activity overall (including with roads, cycleways, footpaths, and buses)?

1	Very dissatisfied
2	Dissatisfied
3	Neutral
4	Satisfied
5	Very Satisfied
6	Don't know (Don't read out)

8. Do you have any overall comments about the Council's transport activity? If your comment relates to a specific area or issue, please make that clear.

--

APPENDIX N: RISK

Table E – 1: Consequence Rating (Impact)

Rating	Safety	Health	Asset Performance/ Service Delivery	Environmental/ Historical/cultural	Financial	Political / Community/ Reputational	Relationship with Iwi	Legal compliance	Information/ decision support
<b>Exterme (5)</b>	Multiple fatalities of workers or public (MF)	Significant loss of life expectancy for multiple persons or incapacity for more than 1000 person days	Service not provided for more than 5000 person days	Permanent environmental damage on a nationally significant scale and/or permanent loss of nationally significant building, artwork, or other valued entity	Overspend, loss (i.e. spend without result) or income loss of > \$5m OR >100% of business unit budget	Major loss of public confidence in Council (>2000 opponents via social media or other mediums) Negative international mainstream media coverage; shareholder or key stakeholder outage; or loss of a key customer	Major breakdown of relationship affecting multiple areas. Refusal to resolve without one or more major concessions from council	Litigation/ prosecution or civil action successful resulting in major (>50% of maximum available) fine/costs awarded and/or imprisonment of council officer.	Multiple errors in information and analysis and presentation misleading (intentionally or not) or not understandable by non- specialists
<b>Major (4)</b>	Single fatality of workers or public (SF)	Single loss of life expectancy or incapacity for between 100 and 1000 person days	Service not provided for less than 5000 person days but more than 500 person days	Major environmental damage with long-term recovery requiring significant investment and/or loss or permanent damage to a registered historical, cultural or archaeological site or object	Overspend, loss (i.e. spend without result) or income loss of > \$1m and <\$5m OR between 70% and 100% of business unit budget	Significant negative public reaction likely (200-2000 opponents via social media or other mediums) Negative national mainstream media coverage; significant negative perception by shareholder or key stakeholder; or a customer disruption	Significant breakdown of relationship largely in in one area. Some concessions from council sought before substantive issue considered by iwi grouping affected	Litigation/ prosecution or civil action successful resulting in minor fine(<50% of max available)/ costs awarded.	One major error in information, analysis incomplete and presentation ambiguous
<b>Moderate (3)</b>	Notifiable injury of workers or public.	Incapacity for between 20 and 100 person days	Service not provided for less than 500 person days but more than 50 person days	Measurable environmental harm on a nationally significant scale. Some costs in terms of money and/or loss of public access or conservation value of the site and/or restorable damage to historical, cultural or archaeological site or object	Overspend, loss (i.e. spend without result) or income loss of > \$0.5m and <\$1m OR between 30% and 70% of business unit budget	Some negative public reaction likely (30-200 opponents via social media or other mediums) Repeated complaints; Regulatory notification; or negative stakeholder, local media attention	Major relationship damaged in a single area but amenable to negotiation	Documented Breach of legislation, no legal action or prosecution or civil action not successful.	Information correct but presentation/ analysis insufficient to support decision on the day
<b>Minor (2)</b>	Serious injury on one person requiring medical treatment (MA)	Incapacity for between 1 and 20 person days	Service not provided for less than 50 person days but more than 5 person days	Medium term environmental impact at a local level and/or development compromising the integrity of a registered historical, cultural or archaeological site	Overspend, loss (i.e. spend without result) or income loss of > \$100k and <\$500k OR between 10% and 30% of business unit budget	Minor public reaction likely (<30 active opponents via social media or other mediums) Workforce attention; limited external attention;	Relationship damage resolvable through normal communication/ consultation mechanisms	Formal warning of breach from legislative authority.	Information correct, analysis complete but presented in a way which could be misinterpreted
<b>Insignificant (1)</b>	Minor injury requiring only first aid or less (FA)	Incapacity for less than 1 person day	Service not provided for between 1 & 5 person days	Short term and temporary impact requiring no remedial action and/or restorable loss damage to historical/ cultural record	Overspend, loss (i.e. spend without result) or income loss of > \$10k and <\$100k OR between 5% and 10% of business unit budget	Very limited negative reaction (1 or 2 active opponents via social media or other mediums) Internal attention only from staff directly working on the matter.	Iwi/ tribe/ hapu public dissatisfaction resolvable through routine communication	Breach of minor legislation/ no legal action	Small errors in information or presentation - no effect on decision

**Table E – 2: Risk Matrix – Consequences x Likelihood**

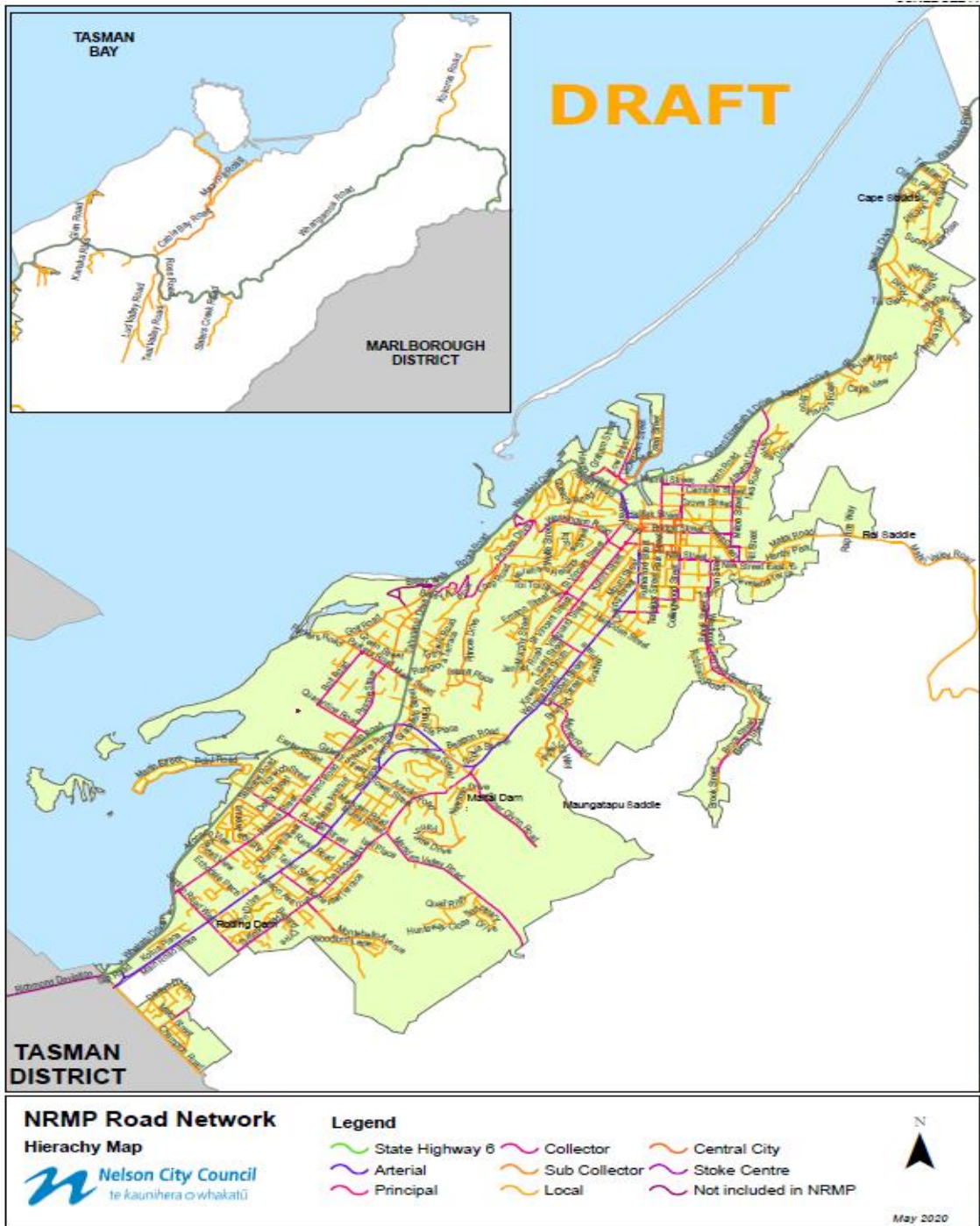
CONSEQUENCES					LIKELIHOOD of the given consequence occurring			
Insignificant(1)	Minor (2)	Moderate (3)	Major (4)	Extreme (5)	Descriptor	Qualitative guidance statement	Indicative Probability range %	Indicative frequency range (years)
Medium (5)	Medium (10)	High (15)	Very High (20)	Very High (25)	Almost certain (5)	The consequence can be expected in most circumstances OR <i>A very low level of confidence/information</i>	>90%	>1 occurrence per year
Medium (4)	Medium (8)	High (12)	High (16)	Very High (20)	Likely (4)	The consequence will quite commonly occur OR <i>A low level of confidence/information</i>	20% - 90%	Once per 1-5 years
Low (3)	Medium (6)	Medium (9)	High (12)	High (15)	Possible (3)	The consequence may occur occasionally <i>A moderate level of confidence/information</i>	10% - 20%	Once per 5-10 years
Very Low (2)	Low (4)	Medium (6)	Medium (8)	High (10)	Unlikely (2)	The consequence may occur only infrequently <i>A high level of confidence/information</i>	2% - 10%	Once per 10 - 50 years
Very Low (1)	Very Low (2)	Low (3)	Medium (4)	Medium (5)	Rare (1)	The consequence may occur only in exceptional circumstances <i>A very high level of confidence/information</i>	<2%	Less than once per 50 years



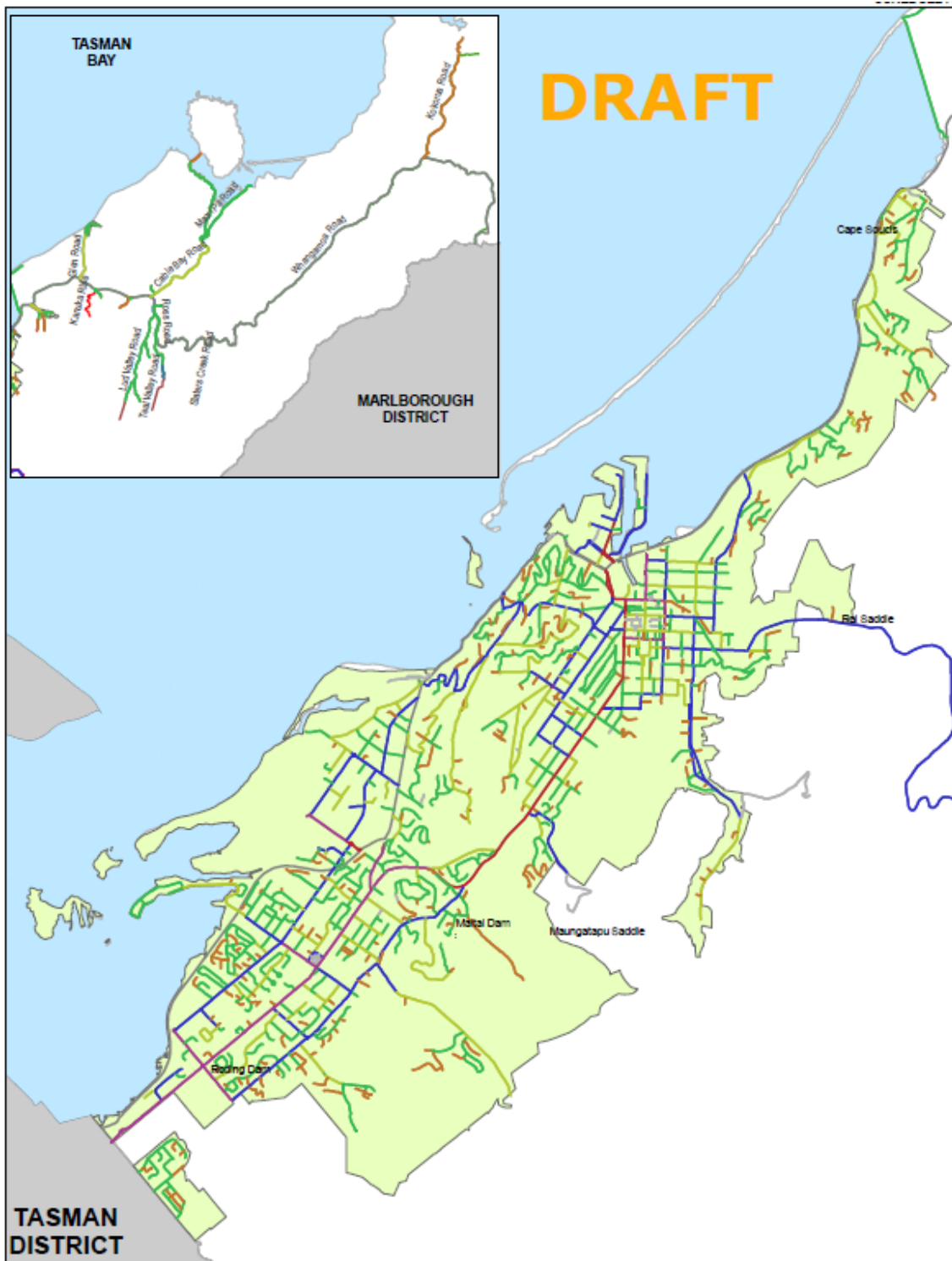
**Table E – 3: Residual Risk Tolerance**

<b>Risk Level</b>	<b>Description and Action</b>	<b>Authority for continued tolerance</b>	<b>Timing for implementing action</b>	<b>Obligation to promptly advise including advising treatments</b>
<b>Very High</b>	Not normally tolerable, immediate intervention to reduce risk	Full Council on advice from CE	Immediate if possible but no more than one month	Full Council using best practicable means
<b>High</b>	Not normally tolerable, initiate action as soon as practicable to reduce risk below High	SLT or Group Manager (Council at CE discretion)	As soon as practicable but no more than 2 months	SLT or accountable Group Manager (Council at CE discretion)
<b>Medium</b>	Normally tolerable, frequently review to look for opportunities to further reduce risk where practicable	Business Unit Manager	At least within one quarter	Accountable Group Manager
<b>Low</b>	Acceptable risk, routine review for low cost actions to reduce risk further	No specific authority required	Routine review period (e.g. 3- 6 monthly)	None
<b>Very Low</b>	Acceptable risk, no specific actions to reduce further	No specific authority required	Only if incidental to another action	None

APPENDIX O: Hierarchy Maps



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**ONRC Road Network**  
**Category Map**

**Legend**

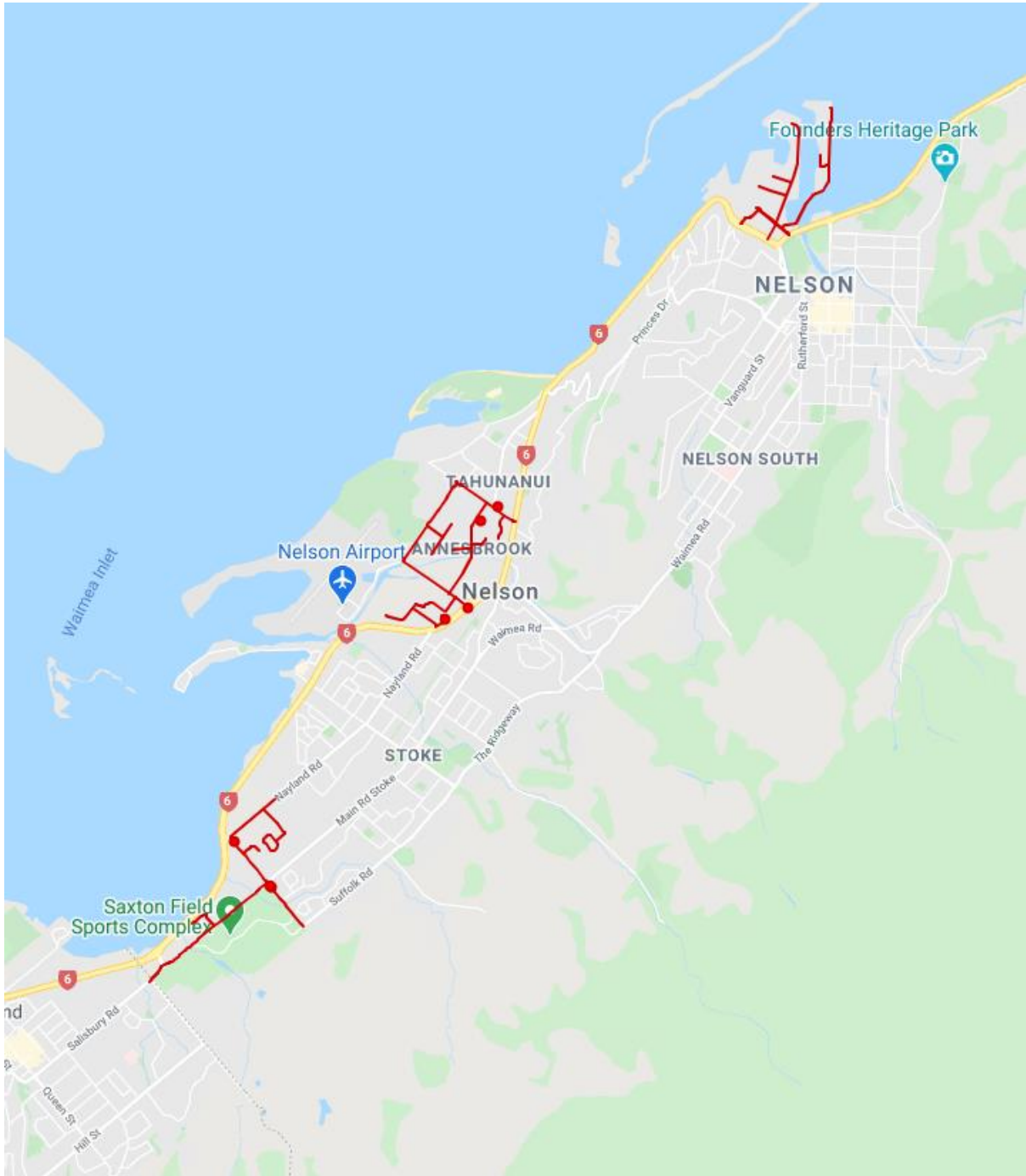
Access	Primary Collector	Urban Traffic Areas
Arterial	Regional	
Low Volume	Secondary Collector	
Not Required	State Highway	

**Nelson City Council**  
 te kaunihera o whakatū

File Ref: A236732  
 MO: Original map size A4  
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Key freight Routes - Approved HPMV Routes on Local Roads

## APPENDIX P: ROAD SAFETY PROMOTION PROGRAMME

### Road Safety Action Plan

Continue to provide a joint road safety action plan with Tasman District Council, Waka Kotahi, Police, ACC and NMDHB. The Road Safety Action Plan is a live document and adapts to include the most current issues and advice.

Quarterly Council-led and chaired Road Safety Action meetings include formal agendas and stakeholder reporting lines and minutes.

Operational meetings for professional key staff occur as and when required, with meeting recordings made.

### Objectives of the Road Safety Action Plan

The objectives of the Road Safety Action Plan will change to match the anticipated directive to change to Vision Zero: <https://www.transport.govt.nz/assets/Import/Uploads/Our-Work/Documents/e97c3b3d0d/Road-to-Zero-consultation-document-July2019.pdf>

Until then, Council will advance the priorities and initiatives identified in the Safer Journeys Strategy and its action plan — [www.saferjourneys.govt.nz](http://www.saferjourneys.govt.nz):

- achieving safer outcomes by working with communities to identify and deliver local land transport safety programmes and activities
- developing and motivating national, regional and local land transport safety partnerships to ensure an integrated approach to safety outcomes.

### Road Safety Resources

The 2018 AMP provided for a person to be dedicated to the road safety promotion 30% and TDM activity 60% because of the synergies in these activities. It is proposed to provide a 100% FTE for the road safety promotion programme in the 2021–24 period. The role will be Safe and sustainable travel so will still have some TDM focus.

### Web Presence

NCC has developed a web page with links to all community and safety programmes to facilitate community connections and access to all available programmes.

*Let's Go has been adopted and is a central webpage dedicated to active, sustainable and public transport. It provides documents for workplace travel plans, walking school buses, information on walking, cycling and buses. Council is currently developing it further to include pages for people to sign up to adult cycle lessons and maintenance sessions. Information and guides on working from home are also being added, as commuting to work has significant impact on congestion and carbon emissions.*

### Cycle Safety (High Strategic Priority)

Sport Tasman holds the contract to deliver the national Bike Ready cycle education programme in schools, which resulted in participation by 2127 primary and intermediate aged students since September 2019. There are another 300 students scheduled to complete RideOn before the end of June 2020.

*Easy Street Cycling includes adult cycle education and maintenance programmes, a winter bike light programme and a 'Dutch Reach' campaign as a part of Look 4 Bikes.*



Council continues to support the 0800 CYCLECRASH programme and uses this data to inform the low cost low risk (LCLR) and cycle path maintenance programmes.

### **Older Drivers (High Strategic Priority)**

Age Concern delivers the following programmes. (Waka Kotahi procured Age Concern on a national level because they are the best placed in the community to deliver these programmes locally.) Council holds a three year contract with Age Concern.

Carfit: <https://ageconnect.org.nz/event/carfit/>



Staying Safe: <https://ageconcernnt.org.nz/events/>



Life without the Car: <https://ageconcernnt.org.nz/events/>

Mobility Scooter Training: Nelson City Council and Age Concern both issue vouchers to recipients to go to a private trainer <http://www.nelson.govt.nz/services/transport/road-safety-programme/mobility-scooter-training/>



### Intersections

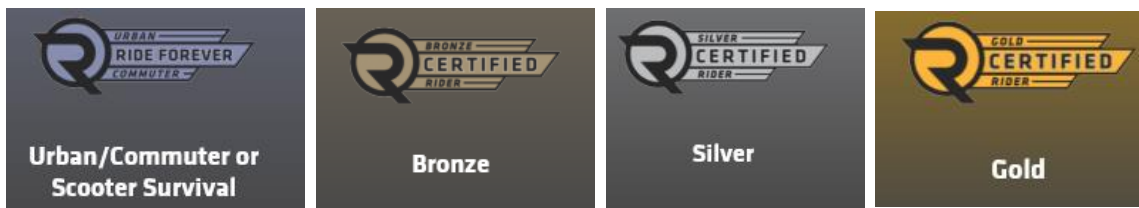
An intersection safety promotion and awareness programme is under development.

### Motorcycling

The initiative for improving motorcycle safety is the "Top of the South Motorcycle Safety Programme as Nelson's two closest neighbours (Tasman and Marlborough) have medium casualty risk rating for motorcycles. Nelson riders travelling on neighbouring roads are therefore included in the programme. Key parts to the strategy are motorcycle training courses together with information publicised on licence requirements and safety gear

Shiny side up [h ttps://shinysideup.co.nz/home/](https://shinysideup.co.nz/home/)

Ride forever: <https://www.rideforever.co.nz/coaching/on-road-coaching/>



### Distracted Driving

Joint ToTS radio and paper campaigns are delivered using local personalities.

*The Top of the South Group (NCC, TDC + MDC) also launched an online campaign to reduce the number of distracted drivers. "Be Undistractable" was made up of static images and a series of short videos about how to minimise distractions while driving. In 2020/21 the ToTs Group is expanding this campaign to target new and young drivers. By promoting "Be Undistractable" to young and new drivers through AA, Driving Instructors and Police. The goal is to educate young people early in their driving, so they develop good habits while they are learning to drive.*

### Speeds and Driving to the Conditions

Speed is a nationally high priority concern (priority 4). Nelson supports the national direction to lower speed related crashes with a two yearly presentation to young drivers and the community via the Ryder programme.

The Road Safety Action Committee is involved with the Nelson Speed Limit Review to focus drivers on safe and appropriate speeds.

<http://www.rse.org.au/programs/ryda/>





### **Walking**

Pedestrians do not feature as a concern for Nelson. Road safety promotion for pedestrians will focus around walking to school within the travel demand management (TDM) packages aimed at schools, and city centre access through the City Development programme. Where appropriate, national initiatives for pedestrians will be reflected in Nelson promotions for consistency.

### **Younger Drivers**

Young drivers are national priority 2, although of low concern for Nelson. Police support the Driver Licence Assistance course and make many referrals. However the current provisions of the course result in low attendance rates when students are booked in. Changes to the way this is provided are planned in 2021, to have a dedicated resource to manage the programme within schools (as this has been successful in Marlborough).

Rotary Young Driver Awareness (RYDA), Students Against Dangerous Driving (SADD) and the training of teachers in delivering road safety across the school curriculum will be continued due to the success of these programmes and to contribute to the national priority of high risk young drivers.

APPENDIX Q: SMART BUYER ASSESSMENT

# REG | THE ROAD EFFICIENCY GROUP

## Smart Buyer Self Assessment

2018-21 Score  
✓ 2021-24 score

This assessment is based on the Smart Buyer Principles identified in the Road Maintenance Task Force Report. Score the following by ticking the appropriate box - (1) Disagree to (5) Strongly Agree.

Whenever you score yourself "4 or 5" think of an example you can use to justify your score to an independent auditor or the other attendees at this workshop.

Assessment statement	Score				
	1	2	3	4	5
<b>Our Organisation</b>					
1. Fully understands the different contracting models available. <i>changing demands &amp; changing models - needs work to keep up-to-date &amp; assess options</i>			✓		
2. Holds meetings that update the contracting industry on the forward works programme and any changes in approach, and proactively engages with the contracting industry to ensure it gains optimal value from any changes being implemented. <i>ongoing Cmi &amp; Bm meeting with local CCNZ 1-2 times per year to discuss</i>				✓	
3. Has sufficient robust data (or is in the process of gathering robust data) on our networks to enable optimal integrated decision-making. <i>detailed interrogation has revealed how poorly data is available &amp; used process of gathering data underway</i>		✓			
4. Has access to expertise that fully enables best use of the data available. <i>training requirements &amp; access to external resources required additional budget required</i>		✓			
5. Is open to alternative solutions to those proposed in the contract documents. <i>is open but need better communication with suppliers to scope this</i>				✓	
6. Understands risk and how to allocate and manage it. <i>Risk to be discussed better at 2021 AMP to improve focus &amp; management processes</i>			✓		
7. Has a Council that is prepared to pay more now to achieve a lower whole of life cost. <i>part of climate change &amp; environmental considerations - preparedness to be tested</i>			✓		
8. Actively pursues value for money & does not always award contracts to the lowest price. <i>Perm tendering 2021 AMP focus</i>				✓	
9. Is able to manage supplier relationships/contracts to ensure optimal expenditure, which sustains infrastructural assets at appropriate levels of service. <i>focus of 2021 AMP to improve council input to these discussions</i>				✓	
10. Supports ongoing skill and competency training and development for staff. <i>additional RSM training &amp; resources provided.</i>				✓	
11. Actively shares and gains knowledge within the sector. <i>REG, TSIG, TOTS</i>					✓
12. Is effective in keeping up with best practice in procurement, including best practice RFP/contract documentation. <i>moved to AETS, move away from NZS 5910 for small &amp; services contracts</i>				✓	
13. Regularly seeks and receives candid feedback from suppliers on its own performance as a client and consistently looks to improve its performance. <i>CCNZ meetings forward award / close meetings wishes meetings</i>			✓		
14. Explores opportunities for collaboration by either sharing in-house resources with neighbours, or by procuring together or tendering together. That exploration could be through an LGA s17A evaluation of transport function delivery options. <i>NCC/TDC Wairarapa Shire/ Public Transport total mobility</i>					✓
Number of ticks in each column	0	2	3	6	2
Multiplying factor	x1	x2	x3	x4	x5
Total Score in Column		4	9	24	60
<b>Total Score</b>				<b>47</b>	

**Score: Interpretation**

65 to 70: Our organisation is a Smart Buyer - people love working for us and with us!

55 to 64: Our organisation has embraced Smart Buyer principles but can still improve.

45 to 54: Our organisation gets by but has opportunities for improvement.

30 to 44: Our organisation is not rocking the boat when it comes to pursuing value for money.

0 to 29: Our organisation is a bit of a basket case!

If you were to repeat this assessment in one or two years' time, how do you expect it will have changed? which questions will show the greatest change (up or down)? and what action/inaction will have been the driver of that change?

**The need for 'smarter buyers' (pages 36 and 37 of the RMTF report)**

A theme that underpins a number of the conclusions of this review is that RCAs must be both efficient and effective managers of their road assets and smart buyers of the services they require. These issues strongly relate to the concept of 'smart procurement' with a balanced focus across 'the three Es':

1. economy – through securing (or supporting) the provision of products, materials and expertise at the quality, in the volumes and at the times and locations required, at the lowest price
2. efficiency – through the processes used, including standard documentation and contracting forms selected for achieving best cost / quality and outcomes; and knowledge of the product / materials and supplier market applied
3. effectiveness – taking opportunities for changing from traditional products and materials by maintaining support for innovation in the nature and characteristics of products and materials, and for a strong supplier market

The impact of raising the capability of RCAs would include reduced supplier selection process costs, better management of risk and more objective assessment of performance for use in future supplier selection processes.

The contracting industry has provided the following useful analysis of the characteristics of a smart buyer: Some RCAs are smart buyers but this is believed to be the exception.

**Smart buyers have:**

- An improved understanding of costs that better inform their decision making process
- An understanding of the impact delivery models and supplier selection criteria can have on the value of contracts
- Robust forward work programmes that are communicated to the industry and supported by budgets that allows the work to be completed
- Knowledge of the network to determine treatments required based on physical evidence and supported by knowledge of the costs involved
- In house expertise that aids the decision making process and allows acceptance of innovative solutions possibly with or without the involvement of consultants
- A clear understanding of risk and how it is allocated and managed
- An understanding that lowest price will not always deliver desirable outcomes
- An understanding that being prepared to pay more may result in enhanced whole of life value for money.

**Not so smart buyers:**

- Award contracts predominately based on price – with little appreciation of any risk to best value for money
- Outsource work to the detriment of asset knowledge
- Choose contract forms that are fashionable, not well understood and poorly managed
- Lack technical and contractual management skills
- Lack asset management skills that prevent the development of robust forward work programmes
- Do not support forward work programmes with appropriate budgets.

Task Force members debated the nuances around individual items in these lists but believe that they provide a platform on which to build a list of the characteristics that would be exhibited by an RCA that has the capability and the capacity to be a smart buyer.

**One Task Force member described a smart buyer in the following terms:**

A 'smart buyer' RCA ensures its staff are up-to-date, regularly shares best practice experiences with colleagues from other agencies, and supports and resources their teams appropriately in the recognition that getting the strategic direction right is a very small cost compared to the consequence of getting it wrong. This requires staff to be involved in regular training, attendance and participation in sector gatherings, and involvement in NZTA investigating teams and the like. Ironically in the interests of 'cost-saving' many agencies are limiting staff involvement in these activities. A smart buyer does not ask the question – what if I train my staff and they leave? – but rather asks the question – what if I don't train my staff and they stay?

APPENDIX R: REG AMP Assessment 2018

The Road Efficiency Group provided feedback on the 2018 AMP. This feedback has been considered in the 2020 AMP preparation as tabled below.

REG Pillars of Success	REG Comments on the 2018 AMP	2020 AMP Preparation
Systems	<p>The AMP has been developed incorporating BCA principles with additional supporting documents like the Strategic Case and a summary TIO linking document. The AMP itself is laid out well with the elements of the BCA integrated into it. Some information could be shifted to other sections providing more clarity in flow and content. The SC document gives a good summary of the AMP exec summary and intro sections and seems to flow better than the info in the AMP. There is still a need for an upfront summary of the overall investment. There is information on the GPS, RLTP, and TLA outcomes, AMP problems this is done well at a higher level and could be further improved by showing how this links more clearly with the programme of works. Sect 6 (ex. 6.2) provides a good overview of activities and how they were developed to include options assessment and evidence.</p>	<p>Reformatted AMP to match NZTA/REG guidance to strengthen the Programme Business case, and optionaireing of the core programme. Improvement of linkages to the strategic case to be a priority of the 2024 AMP and is included in the NAM Improvement plan.</p>
Evidence	<p>Nelson has provided a summary overview of the LoS provision in sect iv of the exec summary; it is a good layout to show the LoS and how the ONRC PM fit into this. The LoS section integrates the ONRC PM and utilises the PMRT and other evidence.</p>	<p>Similar level of service table used to 2018. ONRC measures used where ever possible</p>
Communicating	<p>The exec summary is over 40 pages and contains a lot of information, this could more appropriately be placed in other sections of the AMP a summary of the info in the strategic case context and other detail in the PBC. This There is no overall summary of the investment story leaving the reader wondering what the investment is and having to dig through the document to find it.</p>	<p>Executive Summary reduced to 5 pages.</p>

<p>Decision Making</p>	<p>The LoS section gives an overview of customer research and expectations this provides an indication of how engagement by Nelson was used to inform decision makers. Good section on the AM practices and who fits where, quality management and a description of the business case processes.</p>	<p>Business case process information shifted to various appropriate sections (LCLR and Major Improvements) and Public Satisfaction surveys in Appendices because these were late, and affected by Covid 19, but information still relevant. Some AM practice information removed in favour of reference and use of the IIMM manual (introduction), and to shorten the AMP document.</p>
<p>Service Delivery</p>	<p>Sect 8.4 Service Delivery Models is a good summary of the work NCC has done in service delivery and provides the procurement strategy objectives. No mention of the ONRC and improvements to incorporate the PM in contracts. It does mention attendance at REG workshops.</p>	<p>Sect 8.4 removed in favour of including a procurement section in each programme business case section to inform the update of the NCC/NZTA procurement strategy, where it is proposed to include strengthened service delivery information, and recommended REG formatting, including section 8.4 detail as appropriate</p>
<p>Improvement Plan</p>	<p>A very comprehensive improvement plan, provides a wide range of improvements considering aspects of the pillars of success. The number of actions may make the plan hard to manage. Would be beneficial to develop a priority plan from the long list.</p>	<p>Improvements have been separated into programme areas to be more interactive with the respective activity. A priority list is included in the strategic case.</p>