West Coast Councils Transport Asset Management Plan 2024-34

West Coast Regional Transport Partnership: Buller, Grey & Westland District Councils

Document Title:

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Prepared for:

Buller, Grey and Westland District Councils

Quality Assurance Statement

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0.1	July 2023	First Draft	CB, AC	GO	
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Current Version

Rev No.	Date	Revision Details	Prepared by	Reviewed by	Approved by
3.0	Jan 2023	NLTP Submission	CB		CB

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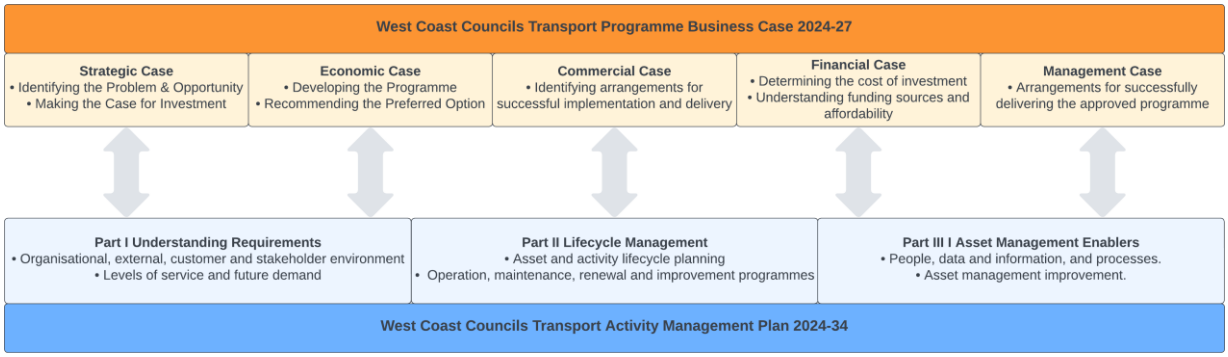
Overview

This 2024 West Coast Transport Activity Management Plan (AMP) is the third iteration of a combined approach to asset management planning for the three West Coast District Councils (Buller, Grey, and Westland). The joint approach recognises the degree to which many issues and opportunities are common to all three Councils and their communities, and supports a regional approach to providing a safe, productive, resilient, and cost-effective transport system.

The AMP outlines how the Councils will operate, maintain, and improve transport service delivery and outcomes over the next three-years (2024-27) and indicate the intentions over the next 10-years (2024-34). It should be read in conjunction with the *West Coast Councils Transport Programme Business Case 2024-27* which proposes investment in the preferred programme for each Council. The relationship between these documents is shown below:



This AMP follows guidance from the International Infrastructure Management Manual (IIMM). It is an evolving document, with this version an update from 2021 to reflect changing issues and opportunities, and improvements each Council has made over the preceding three-years. Improvement is most evident in each Council's evidence base for asset performance and condition, particularly for sealed roads and bridges and structures.

Challenges, or opportunities, for improved asset management practices and maturity remain. This AMP makes recommendations for prioritised improvement to continue the Council's asset management maturity journey to enable optimal investment in long-life infrastructure that is essential to the wellbeing of local communities, and a crucial foundation for the resilience of local and regional economies.

Developing robust asset management plans, while maintaining investment agility and balancing the levels of investment across community needs and other competing requirements over many years is not always a clear path. Strong asset management planning, communication, and engagement is essential to provide decision makers with a clear and robust case for investment that provides confidence in their choices.

The Councils are continuing their journey of continuous asset management improvement, this AMP includes an update Asset Management Maturity Assessment to reflect the current state against desired future state. There has been several improvement projects / actions since the last AMP (described in detail under Asset Management Improvement), some are incorporated into this document while others sit externally, key improvements include:

- Regional procurement
- Sealed pavement forward work programme development
- Bridge & structure lifecycle management planning
- Asset criticality assessment
- Maintenance intervention strategies
- Network operating plans
- RAMM databases
- Asset management policy

This AMP and the supporting Programme Business Case (PBC) each highlight the issue of affordability the three Councils face to fully deliver the recommended 10-year work programmes. This will require the Councils to agree a prioritised programme of work that meets agreed technical and community levels of service. A key point for public consultation through each Council's Long-Term Plan process.

Indicative dates for the 2024-27 National Land Transport Programme development are:

8 December 2023	Final continuous (maintenance, operation, and renewal) programme submission.
March 2024	Final improvement (including low-cost low-risk) programme submission.
27 May 2024	Waka Kotahi release indicative allocations for continuous programmes.
14 June 2024	Regional Land Transport Plants approved by Regional Councils and submitted to Waka Kotahi.
31 August 2024	NLTP is adopted.
Early September 2024	NLTP and RLTPs are published.

Part One

Understanding Requirements

1 Understanding Requirements

1.1 Strategic Direction

This section illustrates how our organisational, external, customer, and stakeholder environment will influence the Councils asset management policy and objectives, which will in turn drive all asset management planning and decision making.

More comprehensive discussion is provided in the Strategic Case of the Programme Business Case.

1.1.1 WEST COAST COUNCIL ENVIRONMENT

West Coast Regional Transport Partnership (Buller, Grey, and Westland District Councils)

This Transport Programme Business Case (PBC) and accompanying Combined Activity Management Plan (C.AMP) has been jointly developed by the three West Coast district councils, Buller, Grey, and Westland. The purpose of these is to inform each council's 2024-27 National Land Transport Programme (NLTP) submission and 2024-34 Long Term Plan development.

Since the signing of a memorandum of understanding by the three councils in 2015, the regional transport partnership has enabled more efficient and effective long-term planning, improved transport outcomes, and delivered value-for-money by addressing common issues and challenges and realising shared opportunities.

Through the 2018-21 and (ongoing) 2021-24 NLTP programmes the councils have been collaborating at increasing levels. The joint transport asset manager group is well established, and the councils have moved into shared contract arrangements for professional service providers to deliver activity management planning, roading asset management, and bridge and structure asset management support.

Regional Land Transport Plan (West Coast Regional Council)

'A safe, effective and efficient land transport network which brings together communities and industries on the West Coast and enables the region to thrive and contribute to a sustainable and prosperous New Zealand.'

The RLTPs strategic transport objectives based on a 30-year vision are:

- Resilience: A transport network that can better cope with unknown stress, natural disasters, and the impacts of climate change
- Asset Condition: A transport network that is fit for purpose
- Safety: A transport network that is safe for all users
- Connectivity: A multi-modal transport network that enables all users to meet their economic, social, and cultural needs

Te Tai o Poutini Plan | West Coast District Plan (Buller, Grey, and Westland District Councils)

Te Tai o Poutini West Coast District Plan is a joint effort to deliver a single district plan for the three West Coast district councils. The Plan Committee is made up of the three district councils, the regional council, and one representative each from local iwi Te Rūnanga o Ngāti Waewae and Te Rūnanga o Makaawhio.

Te Tai o Poutini Plan will help plan for development in the right places so development can go ahead having the services they need, while still protecting the environment. The key objectives of the Plan are:

- Support democratic local decision-making
- Enable action to meet the current and future needs of communities for good quality local infrastructure and local public services
- Ensure performance of regulatory functions in a way that is most efficient, appropriate, and cost-effective for households and businesses.

West Coast Economic Development Strategy (Development West Coast)

'The West Coast will become a thriving and prosperous region – Working together to drive innovation through better utilisation of our unique natural resources will enable us to grow and care for our communities and environment.'

A key strategy to deliver on this vision is '*Infrastructure Investment to Support growth and resilience'* through:

- Investment in road resilience, safe and reliable connections along the West Coast into the region from the north, east and south are critical to supporting the region's economy.
- Growing the economic benefits from visitors and supporting the tourist industry, through enhanced visitor experiences, corridor improvements and increased visitor information.
- Support will continue for regional walking and cycling trails where there are opportunities to grow tourism and support increased expenditure from visitors.

1.1.2 EXTERNAL ENVIRONMENT

Government Policy Statement on Land Transport (Ministry of Transport) (Draft August 2023)

The GPS sets out the government's priorities for expenditure from the National Land Transport Fund over a 10-year period, and how funding should be allocated. Regional Land Transport plans must be consistent with the GPS, and Waka Kotahi must give effect to it with regards to land transport planning and funding.

At the time of writing the previous central government released a draft GPS 2024, however this has not been adopted and is currently under review by the new government, leaving GPS 2021 as the most recent version adopted into legislation. The draft GPS 2024 priorities are similar to GPS 2021 but with the inclusion of 'maintaining and operating the system', a clear indication of the importance of each road controlling authority's 'core' programme.

2021 GPS Strategic Priorities	2024 GPS Strategic Priorities (draft)
○ **Safety** ○ **Better transport options.** ○ **Improving freight connections.** ○ **Climate change.**	○ Maintaining and operating the system. ○ Increasing resilience. ○ Reducing emissions. ○ Safety. ○ Sustainable urban and regional development. ○ Integrated freight system.

The West Coast transport programme is well aligned with both GPS 2021 and 2024, with emphasis on maintenance and renewals, safety, resilience including climate change, and freight. The 2024-27 PBC and regional transport programme seeks to achieve the GPS strategic priorities for the West Coast through:

- Emphasis on Council's core role in maintaining and operating the transport system in an efficient and effective manner.
- Multi-modal transport investment and improvements that improve local transport options and attract visitors to walk and cycle through the iconic landscape.
- Strategic asset management that considers the long-term impacts of climate change on the region's communities, and how appropriate investment can effectively mitigate and adapt to these challenges.
- A focus on freight connections to improve economic productivity and future growth opportunities.
- A focus on safety for all users as an over-arching objective to all our investments and decision making.

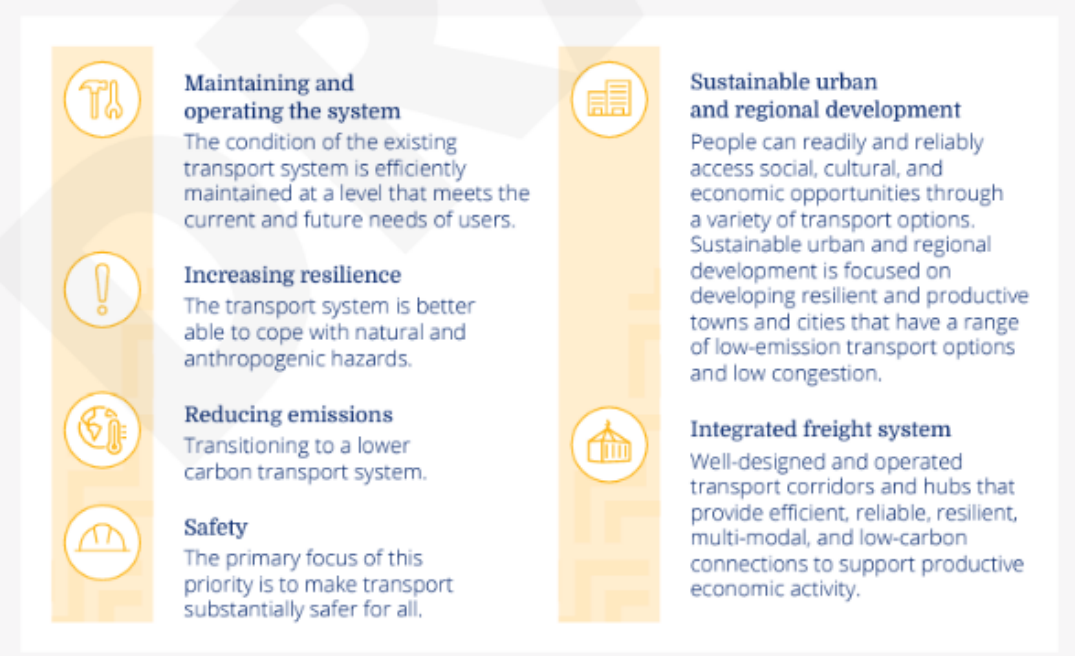


Figure 1: draft GPS 2024 strategic priorities

Arataki (Waka Kotahi)

Arataki is Waka Kotahi's 10-year view of what is needed to deliver on current government priorities. Arataki was updated in light of Covid-19, for the West Coast it recognised that the land transport system would be a key lifeline for supporting post-Covid-19 recovery.

Three regional step changes are identified for the West Coast:

- Significantly reduce harms – a focus on road safety improvements through targeted infrastructure investment for multi-modal trips, safety audits and improvement to traffic services, and speed management.
- Tackle climate change – renewing and improving infrastructure to be resilient to future risk and identifying key issues on the network where medium to long-term mitigation or adaptation planning is needed.
- Support regional development – emphasis on developing a transport system that is safe and efficient for economic productivity and continues to be as much a part of the journey experience for visitors as the many iconic destinations across the region.

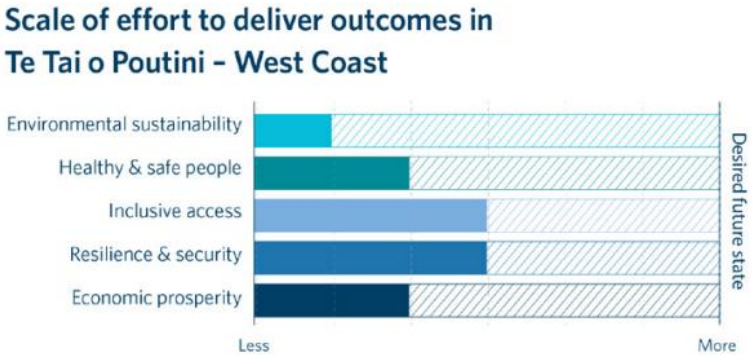


Figure 2: Regional Step Change - West Coast (Arataki v2)

Road to Zero (Waka Kotahi)

Road safety is a critical outcome sought for local residents and visitors to the West Coast. Road to Zero, released in December 2019, sets the vision for New Zealand's transport system where '*no one is killed or seriously injured on our roads*'.

Figure 3: Road to Zero Vision

Climate Change Adaptation and Response (Zero Carbon) Act

Transport is a major source of emissions in New Zealand and internationally, the Climate Change Response (Zero Carbon) Amendment Act, introduced in 2019, has four key objectives:

- Set a new domestic greenhouse gas emissions reduction target for New Zealand to:
    - Reduce net emissions of all greenhouse gases (except biogenic methane) to zero by 2050.
    - Reduce emissions of biogenic methane to 24–47 per cent below 2017 levels by 2050, including to 10 per cent below 2017 levels by 2030.
- Establish a system of emissions budgets to act as steppingstones towards the long-term target.
- Require the Government to develop and implement policies for climate change adaptation and mitigation.
- Establish a new, independent Climate Change Commission to provide expert advice and monitoring to help keep successive governments on track to meeting long-term goals.

National Adaptation Plan

New Zealand's first National Adaptation Plan, released in 2022 by the Ministry for the Environment, focuses on addressing climate change impacts and building resilience strategies. In the Transport sector, the plan aims to create resilient infrastructure by:

- reducing vulnerability to climate change,
- ensuring new infrastructure is adaptable to a changing climate, and
- improving adaptive capacity through renewal programs.

Critical actions include developing risk assessment guidelines for physical assets and their services, establishing a resilience standard for infrastructure, integrating adaptation into infrastructure decisions, and implementing the Waka Kotahi Climate Change Adaptation Plan.

The plan also emphasizes the importance of system-level guidance and tools to reduce inequality of outcomes, particularly for regions like the West Coast, which face increasing climate risks despite having a low population.

1.1.3 LEGISLATIVE REQUIREMENTS

This AMP acknowledges the Councils' responsibilities to act in accordance with legislative requirements, including:

Local Government Act 2002: Councils are required to develop a Long Term Plan (LTP) for their core activities. This includes activities associated with the provision of roading services.

Land Transport Management Act 2003 (and subsequent amendments): The Act requires Road Controlling Authorities to:

- Prepare a *Land Transport Program*, which identifies works to be undertaken. In preparing a land transport program, the Act requires Councils to take into account how each activity –
    - assists economic development; and
    - assists safety and personal security; and
    - improves access and mobility; and
    - protects and promotes public health; and
    - ensures environmental sustainability
    - Control the District *land transport network* in accordance with the Act.

The Land Transport Management Act 2003 also provides the framework for funding allocation in terms of the Government Policy Statement on Land Transport Funding.

Resource Management Act 1991: Councils are required to:

- Sustain the potential of natural and physical resources to meet the reasonable foreseeable needs of future generations.
- Comply with the District and Regional Plans and any resource consents.
- Avoid, remedy or mitigate any adverse effect on the environment.
- Take into account the principles of the Treaty of Waitangi in exercising functions and powers under the Act relating to the use, development and protection of natural and physical resources.

Health and Safety in Employment Act 2005: The Act requires Councils to ensure the safety of public and workers when carrying out works, whether work is undertaken by its own staff or contractors.

Civil Defence Emergency Management Act 2002: The Act requires councils to:

- Prepare a "Lifelines Plan".
- Operate to the fullest extent possible during and after a civil emergency.

Building Act 2004: Councils are required to ensure all buildings and facilities constructed comply with minimum technical standards, as set out in the Act. Specific requirements for bridges, major culverts or earth retaining structures. The New Zealand Building Code is an approved means of compliance with the requirements in the Building Act.

1.1.4 CUSTOMER AND STAKEHOLDER REQUIREMENTS

A West Coast Community Transport survey was carried out from October to December 2022, in total 1,099 people responded providing information that will help all three councils to better understand and make decisions about their local roads. Most (95%) respondents live on the West Coast, spread across Buller 454 (41%), Grey 290 (26%) and Westland 311 (28%).

The full summary of survey responses and analysis can be found at this link.

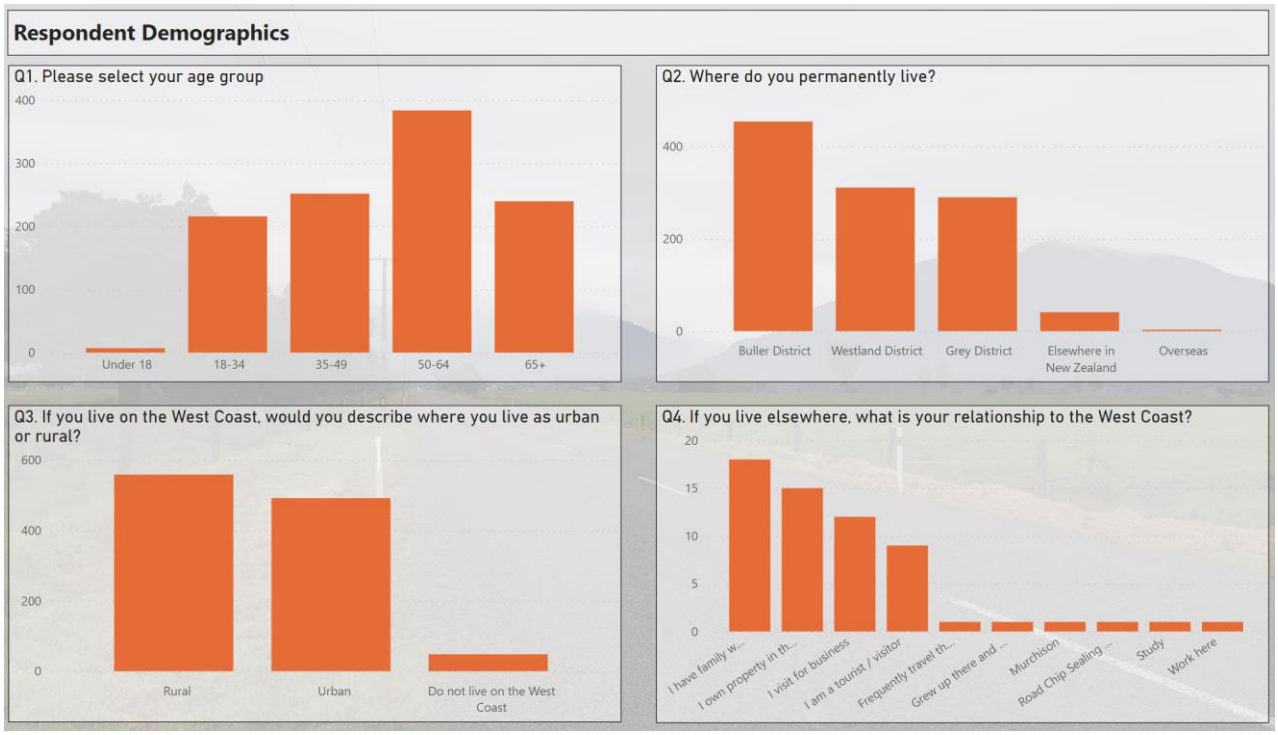


Figure 4: West Coast Community Transport survey respondent demographics

The survey sought feedback on what is working well and not so well with regard to local roads and transport networks on the West Coast. In general, respondents were satisfied with the road network on the West Coast, though there are some obvious areas for improvement. The quality of local footpaths and the desire for improved pedestrian and cycling facilities featured in the responses to several questions (predominantly among urban rather than rural respondents). Rural people were also more concerned with the condition of the road, repairs and safety while younger people were much more likely to cite the need for improved pedestrian and cycle facilities than older demographics.

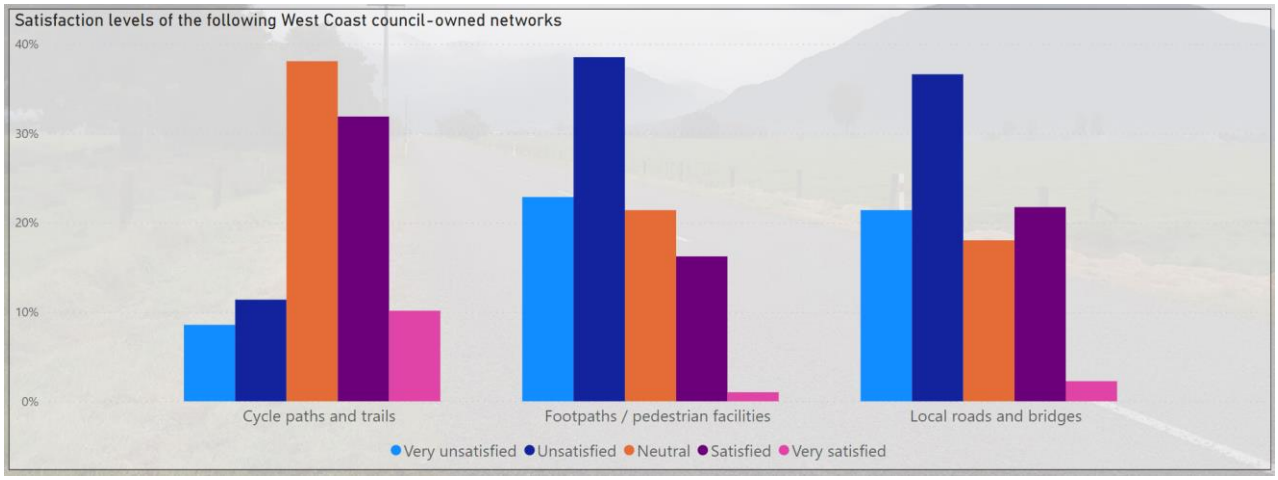


Figure 5: West Coast Community Transport survey satisfaction with local transport networks

Subsequently the survey focused on the strategic drivers to understand how respondents would prioritise investment between and within these. There is a clear trend towards higher prioritisation of road safety, resilience to natural hazards, and economic development investment, followed by climate change mitigation and adaptation and finally zero carbon and emission reductions.

This is unsurprising and in-line with previous engagement. Given the recent experience in all three districts with major flood and storm events the strong emphasis on resilience to natural hazards relative to longer term climate change and emission reduction goals which are less impactful here and now.

This feedback is well aligned with the previous RLTP and updated central government direction via Arataki for the West Coast.

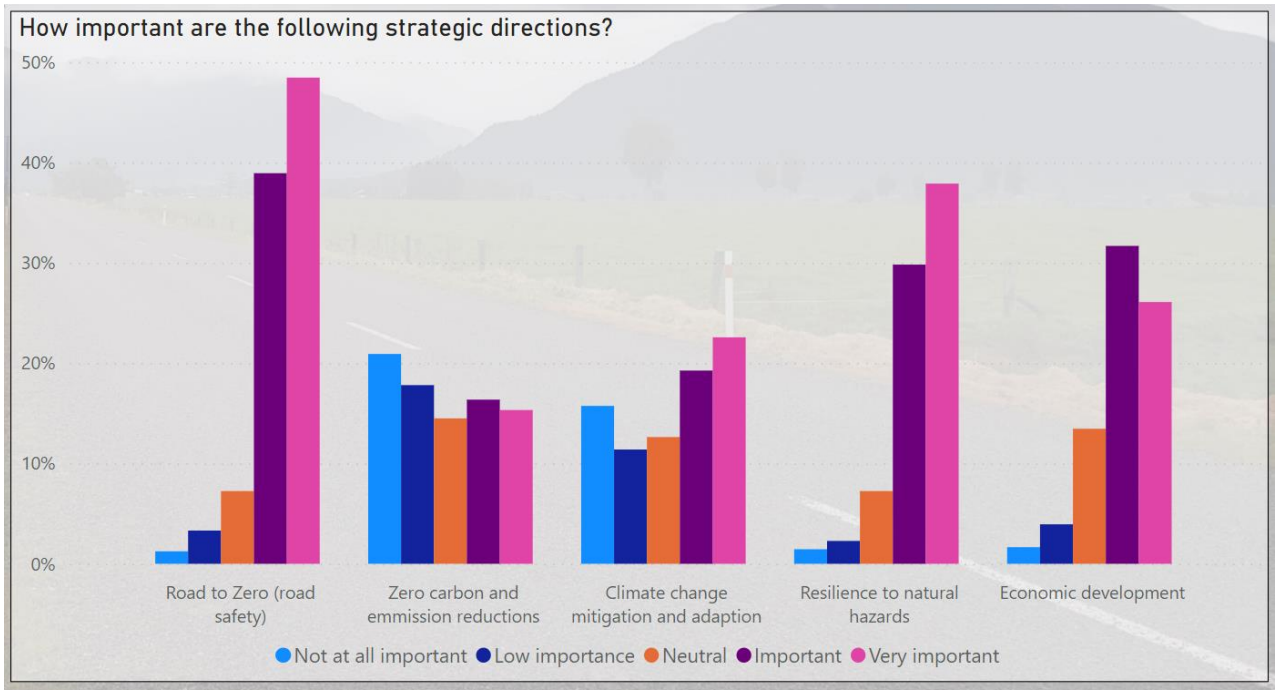


Figure 6: West Coast Community Transport survey strategic priorities

Within each strategic priority area respondents were asked to further prioritise specific investments, the results of this can be found at the above link but to summarise:

- **Road safety:** investment in new / improved infrastructure (e.g. safety improvements, new walking and cycling facilities) was prioritised over 'softer' interventions (e.g. signage, wayfinding, communication and engagement, and speed management).
- **Zero carbon and emission reduction:** freight improvements to enable more efficient movement of goods by road, and integration with rail and sea was encourages, with relatively fewer respondents prioritising electric vehicle, active transport, and emission reduction targets.
- **Climate change mitigation and adaptation:** improving / protecting existing infrastructure and avoiding building new assets in high risk area was a focus, with fewer respondents prioritising moving existing infrastructure to lower risk areas.
- **Resilience to natural hazards:** all investment options rated highly encompassing improved assets, protective structures, alternate routes, and integration with rail and sea transport to improve transport resilience in the region.
- **Economic development:** again freight was a priority to improve the quality of roads for modern efficient freight systems, and integration between road, rail, and sea. Investment in regional walking and cycling improvements to attract visitors had lower priority, but we note that thes trails are generally delivered by non-Council organisations with Councils supporting maintenance and operation once built.

1.1.5 ASSET PORTFOLIO

Asset Group	BDC	GDC	WDC	Total
Network length *(Data source: Transport Insights)*				
Sealed	317.5 km	375.3 km	389.5 km	1,082 km
Unsealed	269.0 km	236.6 km	304.1 km	809.7 km
Total	**586.5 km**	**611.9 km**	**693.6 km**	**1,892.0 km**
ONF Classification length *(Data source: Transport Insights)*				
Urban				
Urban Connectors	9.3 km	9.4 km	3.7 km	22.4 km
Activity Streets	5.1 km	6.0 km	3.8 km	14.9 km
Main Streets	0.7 km	-	-	0.7 km
Local Streets	65.8 km	82.2 km	40.6 km	188.6 km
Civic Spaces	0.5 km	1.4 km	0.6 km	2.5 km
Total Urban Network	**81.4 km**	**99.0 km**	**48.7 km**	**229.1 km**
Rural				
Interregional Connectors	2.3 km	96.7 km	0.4 km	99.4 km
Stopping Places	-	2.2 km	5.5 km	7.7 km
Rural Connectors	102.0 km	56.3 km	110.8 km	269.1 km
Per-urban Roads	30.5 km	27.4 km	17.7 km	75.6 km
Rural Roads	347.3 km	315.8 km	439.1 km	1,102.2 km
Total Rural Network	**482.1 km**	**498.4 km**	**573.5 km**	**1,554.0 km**
Special Purpose Roads				
Total	**61.6 km**	**-**	**48.6 km**	**110.2 km**
Bridges *(Data Source: https://www.nzta.govt.nz/planning-and-investment/learning-and-resources/transport-data/data-and-tools/)*				
Total Bridges	**125**	**209**	**269**	**603**
Bridge restrictions				
Single Lane	94	101	154	349
Speed Restricted	1	5	11	17
Weight Restricted	4	12	14	30
Roading Assets Valuation *(Data Source: Roading Asset Valuation Reports)*				
All roading assets	**2022***	**2023**	**2023**	
Gross Replacement	$421.1 m	$330.9m	$420.7m	$1,172.7m
Depreciated Replacement	$294.2 m	$198.7m	$292.5m	$785.4m
Annual Depreciation	$4.2 m	$5.2m	$4.5m	$13.9m

* BDC did not undertake a 30 June 2023 valuation update, so 30 June 2022 is most recent.

1.1.6 ASSET MANAGEMENT POLICY

The 2021-24 combined NLTP earmarked funding for the development of a combined asset management policy, setting the direction and objectives for activity management planning across the West Coast RCAs network in a more formalised, and coordinated approach.

As of the current writing date, an initial workshop has been completed as a first step in its development. The workshop's purpose was to outline the foundational principles that will underpin the policy. The subsequent principles were pinpointed during this process:

- Clarity of accountabilities and responsibilities
- Competency standards and roles assessment
- Enhancing organisational capabilities
- Resource sharing
- Common processes, information systems and data standards
- Aligned and consistent to ISO standard.
- Measurable and achievable key performance indicators.
- Continuous monitoring and evaluation
- Regular management review.

The Councils anticipate the final Policy will be informed through decision-making for the future direction of the regional transport partnership, with work on the forward scope, governance, and operational model to recommence in early 2024.

1.2 Levels of Service

This section defines the level of service, or the qualities of service, that the Councils intend to deliver, and the measures used to monitor this. The adopted levels of service are used to define the investment programme that best meets each Council's strategic goals, user expectations, and statutory requirements.

1.2.1 LEVEL OF SERVICE OVERVIEW

In 2020 the three Councils reviewed their separate level of service frameworks and developed a shared framework with the aim of having the same performance measures across the region whilst allowing for each Council to set their own targets and include some specific district level measures where desired. This framework has been adopted for 2024-27, with each Council's performance against current targets reviewed to ensure targets continue to reflect objectives and outcomes sought.

The framework is structured around:

- **Transport outcomes:** describe the outputs the Councils intend to deliver.
- **Performance measures:** means of monitoring whether the assets and services are achieving the defined objectives.
- **Performance targets:** Specific and planned result to be achieved within an explicit timeframe, generally the year 1 July to 30 June.

We note that there are external changes / guidance in this space that will prompt a review of the framework, these are discussed in Section 1.2.5:

- Move to the One Network Framework (ONF) from the previous One Network Road Classification (ONRC) and revision of the national level of service measures all RCAs report on.
- Te Ringa Maimoa's differential level of service project (dLOS) which compiles transport level of service measures into a suggested national framework to ensure everyone is talking the same language.

1.2.2 BULLER DISTRICT COUNCIL LEVEL OF SERVICE FRAMEWORK

ROAD SAFETY OUTCOMES

<table>
<tr><th>Performance Measure</th><th>Data Source</th><th>Current Target 2021-24</th><th colspan="3">Current Performance 2022/23</th><th>Target 2024-27</th></tr>
<tr><td>DIA Mandatory Performance Measure
The change from the previous financial year in the number of fatalities and serious injury crashes on the local road network, expressed as a number.</td><td>CAS.</td><td>No annual change, or a reduction from the previous year.</td><td colspan="3">Not achieved: Increase of 3 from previous year (5 total).</td><td>No annual change, or a reduction from the previous year.</td></tr>
<tr><td rowspan="6">ONRC Safety Customer Outcome 1
Serious injuries and fatalities: the total number of reported serious injuries and fatalities (DSI) each year on the network.</td><td rowspan="6">CAS for network.
PMRT for ONRC breakdown.</td><td rowspan="6">No annual change, or a reduction from the previous year.</td><td colspan="3">Not achieved: Increase of 3 from previous year.</td><td rowspan="6">No annual change, or a reduction from the previous year.</td></tr>
<tr><td>Year</td><td>Total DSIs</td><td>Change from previous year</td></tr>
<tr><td>2019/20</td><td>1</td><td>-5</td></tr>
<tr><td>2020/21</td><td>4</td><td>+3</td></tr>
<tr><td>2021/22</td><td>2</td><td>-2</td></tr>
<tr><td>2022/23</td><td>5</td><td>+3</td></tr>
<tr><td rowspan="6">ONRC Safety Customer Outcome 2
Collective risk: the total number of reported crashes per kilometre each year on the network.</td><td rowspan="6">CAS for network.
PMRT for ONRC breakdown.</td><td rowspan="6">No annual change, or a reduction from the previous year.</td><td colspan="3">Achieved: stable / declining trend.</td><td rowspan="6">No annual change, or a reduction from the previous year.</td></tr>
<tr><td>ONRC Classification</td><td>Collective Risk</td><td>Change from previous year</td></tr>
<tr><td>Arterial</td><td>0.000</td><td>-</td></tr>
<tr><td>Primary Collector</td><td>0.099</td><td>-</td></tr>
<tr><td>Secondary Collector</td><td>0.010</td><td>+0.001</td></tr>
<tr><td>Access</td><td>0.005</td><td>-0.003</td></tr>
<tr><td>Low Volume</td><td>0.001</td><td>-0.003</td></tr>
<tr><td rowspan="6">ONRC Safety Customer Outcome 3
Personal risk: the total number of reported crashes by traffic volume each year on the network.</td><td rowspan="6">CAS for network.
PMRT for ONRC breakdown.</td><td rowspan="6">No annual change, or a reduction from the previous year.</td><td colspan="3">Not achieved: increasing trend across multiple ONRC groupings.</td><td rowspan="6">No annual change, or a reduction from the previous year.</td></tr>
<tr><td>ONRC Classification</td><td>Personal Risk</td><td>Change from previous year</td></tr>
<tr><td>Arterial</td><td>0.000</td><td>-</td></tr>
<tr><td>Primary Collector</td><td>11.910</td><td>+0.813</td></tr>
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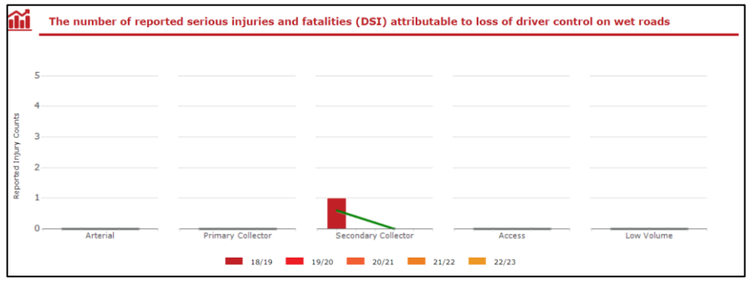
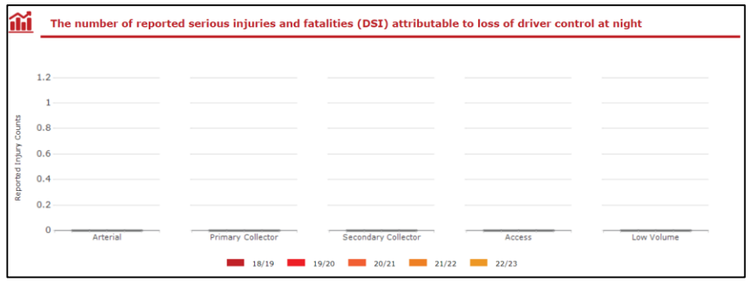
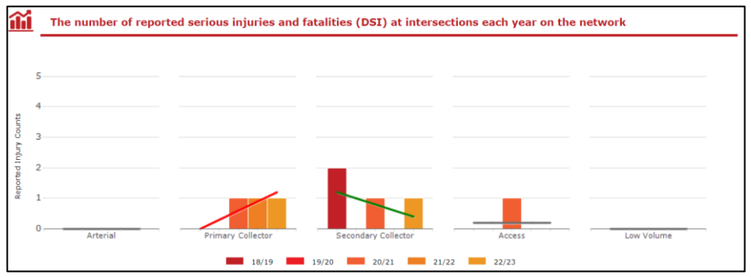
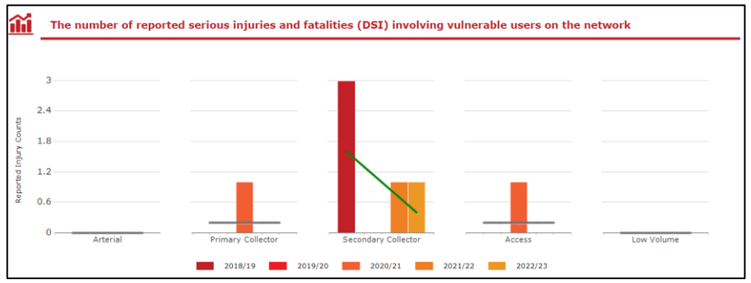
<tr><td>Access</td><td>10.643</td><td>+2.554</td></tr>
<tr><td>Low Volume</td><td>4.852</td><td>-23.706</td></tr>
<tr><td>ONRC Safety Technical Output 1
Permanent hazards: number of permanent hazards not marked in accordance with national standards.</td><td>Annual inspection for network level.
PMRT – for road category breakdown.</td><td>95%+ marked in accordance.</td><td colspan="3">Data not available.</td><td>95%+ marked in accordance.</td></tr>
</table>

ONRC Safety Technical Output 2 **Temporary hazards: the number of sites inspected and the percentage of audits compliant with COPTM.**	Annual inspection for network level. PMRT – for road category breakdown.	10% inspected with 100% compliance.	***Data not available.***	10% inspected with 100% compliance.
ONRC Safety Technical Output 3 **Sight distances: the number of locations where sight distance or signs are obstructed.**	Annual inspection for network level. PMRT – for road category breakdown.	10% inspected with <10% obstructed.	***Data not available.***	10% inspected with <10% obstructed.
ONRC Safety Technical Output 4 **Loss of control on wet roads: the number of reported serious injuries and fatalities (DSI) attributable to loss of driver control on wet roads.**	CAS for network PMRT – for road category breakdown	No annual change, or a reduction from the previous year.	**Achieved: no annual change (0 total).** 	No annual change, or a reduction from the previous year.
ONRC Safety Technical Output 5 **Loss of driver control at night: the number of reported serious injuries and fatalities (DSI) attributable to loss of driver control at night.**	CAS for network PMRT – for road category breakdown	No annual change, or a reduction from the previous year.	**Achieved: no annual change (0 total).** 	No annual change, or a reduction from the previous year.
ONRC Safety Technical Output 6 **Intersections: the number of reported serious injuries and fatalities (DSI) at intersections each year on the network.**	CAS for network PMRT – for road category breakdown	No annual change, or a reduction from the previous year.	**Not achieved: increase of 1 from previous year (2 total).** 	No annual change, or a reduction from the previous year.
ONRC Safety Technical Output 7 **Hazardous faults: the number of hazardous faults which require evasive action by road users.**	Annual inspection for network level PMRT – for road category breakdown	10% inspected with no annual change, or a reduction.	**Data not available.**	10% inspected with no annual change, or a reduction
ONRC Safety Technical Output 8 **Cycle path faults: the number of cycle path hazards requiring evasive action by cyclists.**	Annual inspection for network level PMRT – for road category breakdown	10% inspected with no annual change, or a reduction.	**Data not available.**	10% inspected with no annual change, or a reduction

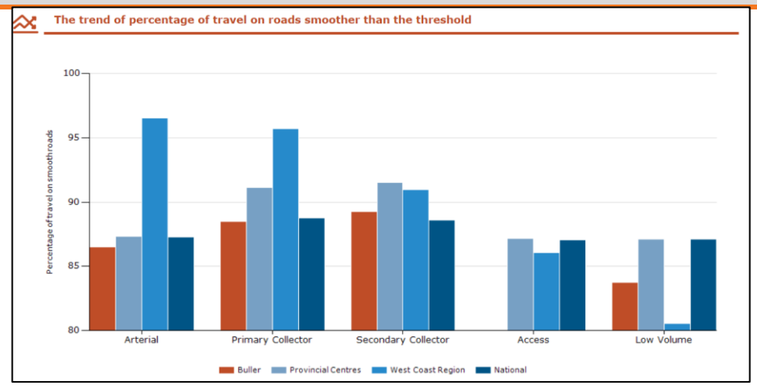
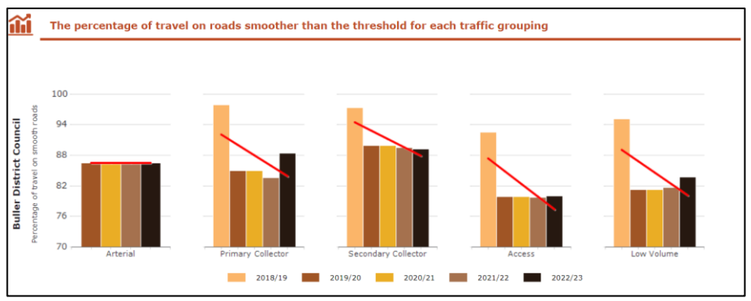
ONRC Safety Technical Output 9 **Vulnerable users: the number of reported serious injuries and fatalities (DSI) involving vulnerable users on the network.**	CAS for network PMRT – for road category breakdown	No annual change, or a reduction from the previous year.	**Achieved: no annual change (1 total).** 	No annual change, or a reduction from the previous year.
ONRC Safety Technical Output 10 **Roadside obstructions:**	Annual inspection for network level PMRT – for road category breakdown	10% inspected with no annual change, or a reduction	**Data not available.**	10% inspected with no annual change, or a reduction

RESILIENCE OUTCOMES

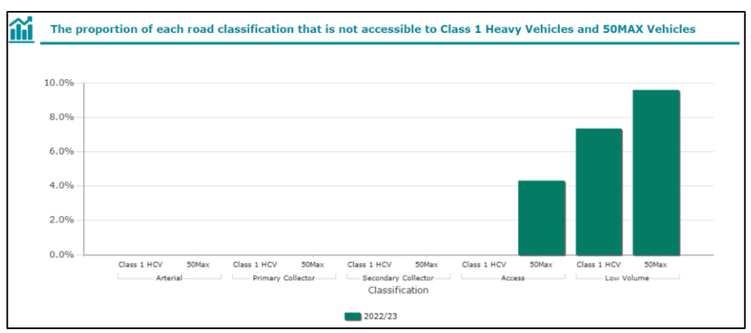
Performance Measure	Data Source	Current Target 2021-24	Current Performance 2021/22	Target 2024-27
ONRC Resilience Customer Outcome 1 **Unplanned closures: the number of road closures with a detour provided and the number of vehicles affected by closures annually.**	Contractor reporting for routine monthly and annual network	No annual change, or a reduction from the previous year.	**Achieved: no unplanned closures without a detour.**	No annual change, or a reduction from the previous year.
ONRC Resilience Customer Outcome 2 **Loss of road access: the number of unplanned road closures with no detour provided and the number of vehicles affected by these closures annually.**	Input into PMRT – for road category breakdown	No annual change, or a reduction from the previous year.	**Achieved: no instances where road access is lost.**	No annual change, or a reduction from the previous year.

AMENITY OUTCOMES

Performance Measure	Data Source	Current Target 2021-24	Current Performance 2021/22	Target 2024-27
DIA Mandatory Reporting Measure **The average quality of ride on a sealed road network, measured by smooth travel exposure (STE).**	Annual condition assessment.	STE >=90%	**Not achieved: 89%** (2021/22 data – 2022/23 Annual Report not yet released)	STE >=90%
DIA Mandatory Reporting Measure **% of footpaths within a territorial authority district that fall within the level of service or service standard for the condition of footpaths that is set out in the territorial authority's relevant document.**	Annual Inspections.	>= 75% ranked as grade 1 and 2	**Not achieved: 64%** (2021/22 data – 2022/23 Annual Report not yet released)	>= 75% ranked as grade 1 and 2
ONRC Amenity Customer Outcome 1 **Smooth travel exposure (STE): % of travel on roads smoother than the threshold.**	Annual condition assessment.	At or above peer group average.	**Not achieved: below Provincial Centres and West Coast region averages.**	At or above peer group average.

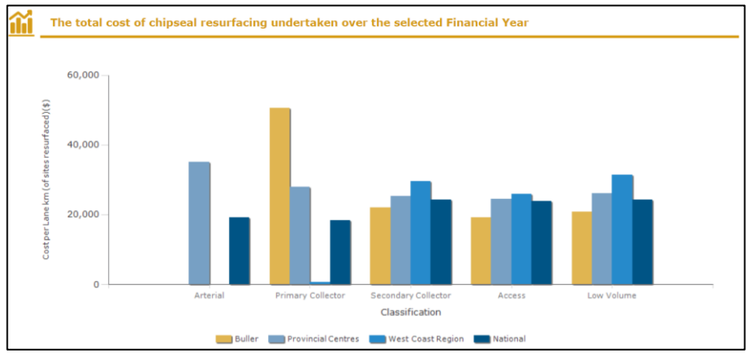
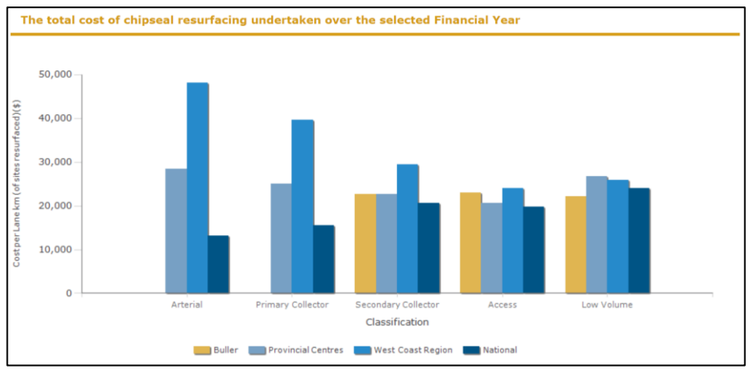
Performance Measure	Data Source	Current Target 2021-24	Current Performance 2021/22	Target 2024-27
				
ONRC Amenity Customer Outcome 2 & ONRC Amenity Technical Output 1 **Roughness: peak and average roughness.**	Annual condition assessment.	No annual change, or an improvement from the previous year.	**Not achieved: declining trend across all classifications, except Arterial Roads.** 	No annual change, or an improvement from the previous year.
ONRC Amenity Technical Output 2 **Aesthetic faults: number of aesthetic faults that detract from the customer experience.**	Inspections.	10% inspected with no annual change, or a reduction	**Data not available.**	10% inspected with no annual change, or a reduction

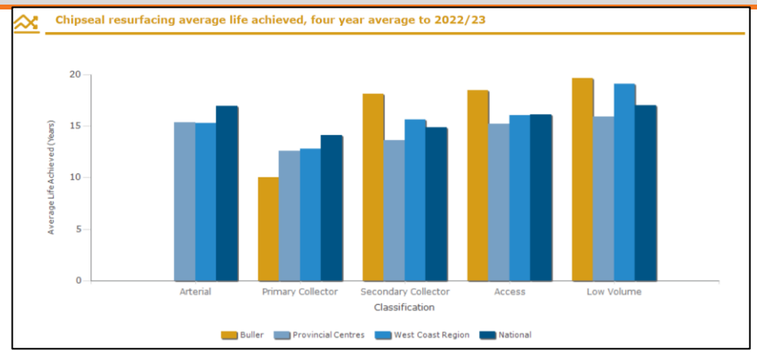
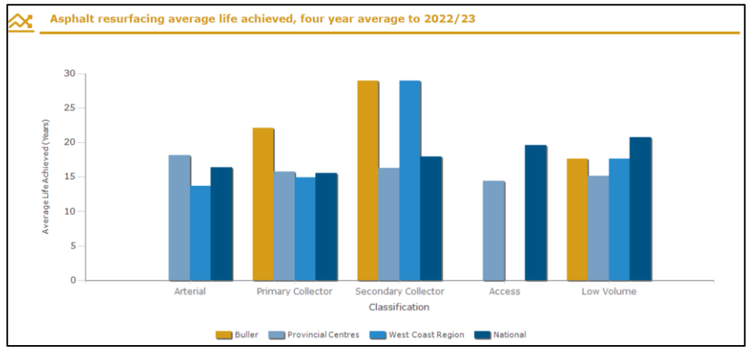
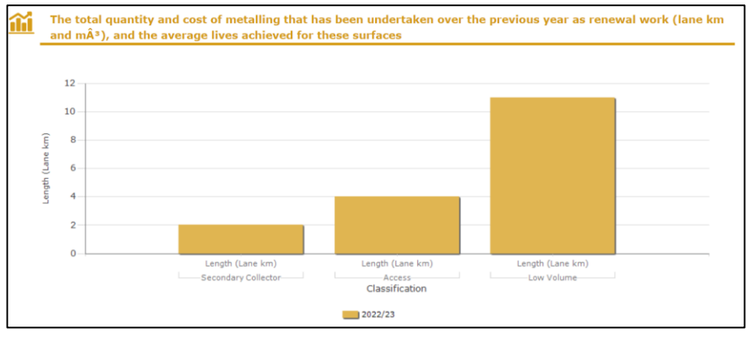
ACCESSIBILITY OUTCOMES

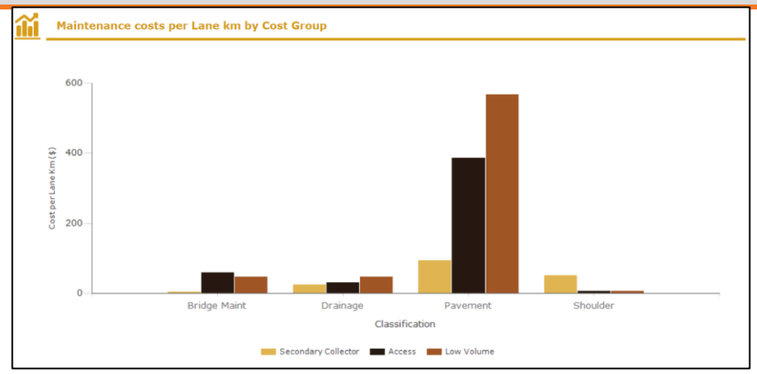
Performance Measure	Data Source	Current Target 2021-24	Current Performance 2021/22	Target 2024-27
Accessibility Customer Outcome 1 **Heavy vehicles: proportion of the network not accessible to Class 1 Heavy Vehicles and 50MAX Vehicles.**		No annual change, or a reduction from the previous year.	**No trend established – just one year of data.** 	No annual change, or a reduction from the previous year.
Accessibility Technical Output 1		No annual change, or a reduction from the previous year.	**Data not available.**	No annual change, or a reduction from the previous year.

Performance Measure	Data Source	Current Target 2021-24	Current Performance 2021/22	Target 2024-27
Wayfinding: number of instances where the road is not marked in accordance with national standards.				

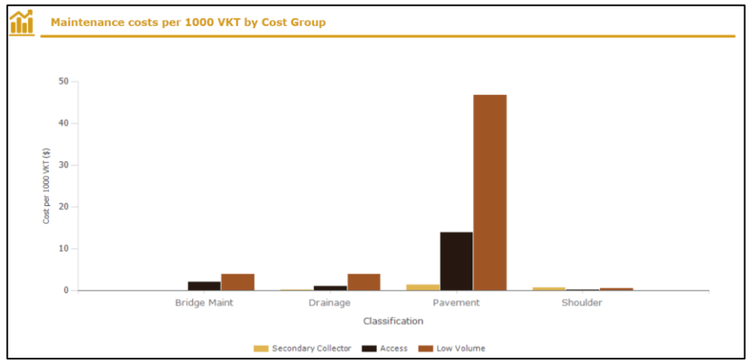
COST EFFICIENCY OUTCOMES

Performance Measure	Data Source	Current Target 2021-24	Current Performance 2021/22	Target 2024-27
DIA Mandatory Measure **% of sealed road network resurfaced each year.**	Contractor reports.	>2,500m3	**Not achieved.** (2021/22 data – 2022/23 Annual Report not yet released)	6.0%
ONRC Cost Efficiency 1 **Pavement rehabilitation (length & area).**	Contractor reports. Input into PMRT – for road category breakdown.	At or above peer group average.	**Data not available.**	At or above peer group average.
ONRC Cost Efficiency 1 **Pavement rehabilitation (cost and average life).**	Contractor reports. Input into PMRT – for road category breakdown.	At or above peer group average.	**Data not available.**	
ONRC Cost Efficiency 2 **Chipseal resurfacing (length & area).**	Contractor reports. Input into PMRT – for road category breakdown.	At or above peer group average.	**Achieved: generally above peer group average for chipseal resurfacing area.** 	At or above peer group average.
ONRC Cost Efficiency 2 **Chipseal resurfacing (cost and average life).**	Contractor reports. Input into PMRT – for road category breakdown.	Cost at or below peer group average. Average lives at or above peer group average.	**Achieved: total cost on par with Provincial Centres.**  **Achieved: average lives above Provincial Centres.**	At or above peer group average.

Performance Measure	Data Source	Current Target 2021-24	Current Performance 2021/22	Target 2024-27
				
ONRC Cost Efficiency 3 **Asphalt resurfacing (length & area).**	Contractor reports. Input into PMRT – for road category breakdown.	At or above peer group average.	**Data not available.**	At or above peer group average.
ONRC Cost Efficiency 3 **Asphalt resurfacing (cost and average life).**	Contractor reports. Input into PMRT – for road category breakdown.	At or above peer group average.	**Total cost data not available.** **Achieved: average asphalt lives above Provincial Centres.** 	At or above peer group average.
ONRC Cost Efficiency 4 **Unsealed road metalling: total quantity and cost of metalling that has been undertaken over the previous year as renewal work (lane km & m3), and the average lives achieved by these surfaces.**	Contractor reports. Input into PMRT – for road category breakdown.	At or above peer group average.	**Peer group comparison not available.** 	At or above peer group average.
ONRC Cost Efficiency 10 **Maintenance costs: maintenance costs per lane km and VKT.**	Contractor reports. Input into PMRT – for road category breakdown.	Declining trend.	**Maintenance costs per lane km – no trend established, just one year of data available.**	Declining trend.

Performance Measure	Data Source	Current Target 2021-24	Current Performance 2021/22	Target 2024-27
				

Maintenance costs per 1,000 VKT – no trend established, just one year of data available.



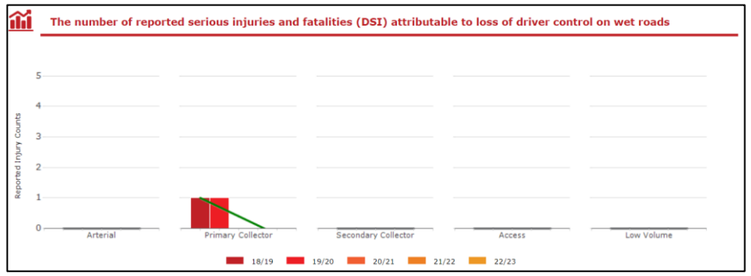
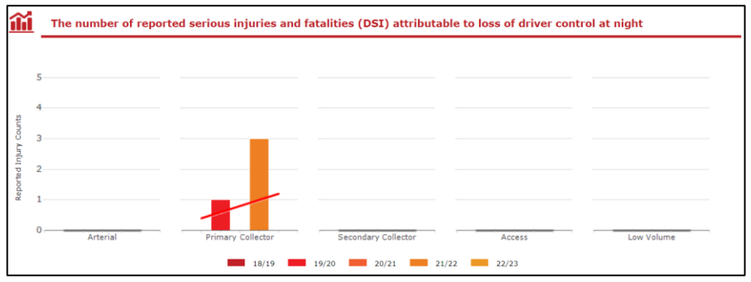
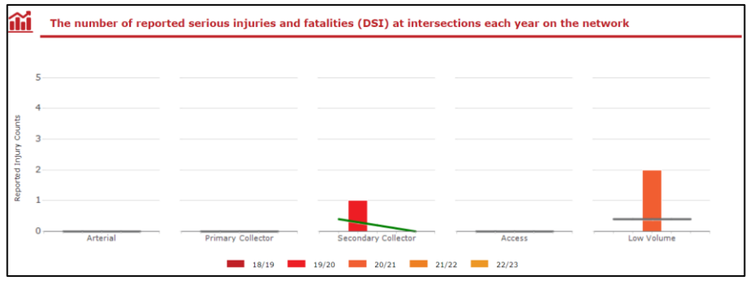
CUSTOMER SERVICE OUTCOMES

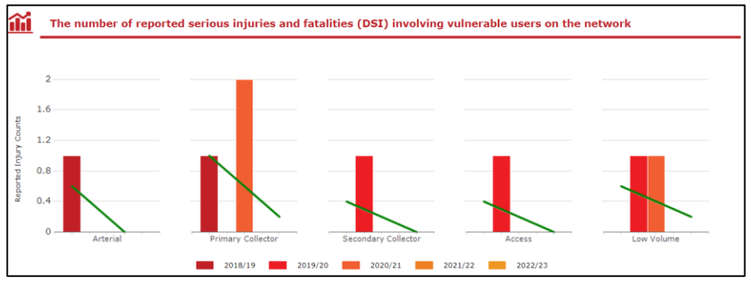
Performance Measure	Data Source	Current Target 2021-24	Current Performance 2021/22	Target 2024-27
DIA Mandatory Measure **% of customer service requests responded to within a specified timeframe.**	Customer service requests. Contractor monthly reports.	>= 85% of request planned for action within 15 days	**Not achieved: 55%** (2021/22 data – 2022/23 Annual Report not yet released)	>= 85% of request planned for action within 15 days

1.2.3 GREY DISTRICT COUNCIL LEVEL OF SERVICE FRAMEWORK

ROAD SAFETY OUTCOMES

<table>
<tr><th>Performance Measure</th><th>Data Source</th><th>Current Target 2021-24</th><th colspan="3">Current Performance 2022/23</th><th>Target 2024-27</th></tr>
<tr><td>DIA Mandatory Performance Measure
The change from the previous financial year in the number of fatalities and serious injury crashes on the local road network, expressed as a number.</td><td>CAS.</td><td>No annual change, or a reduction from the previous year.</td><td colspan="3">Not achieved: Increase of 1 from previous year (2 total).</td><td>No annual change, or a reduction from the previous year.</td></tr>
<tr><td>ONRC Safety Customer Outcome 1
Serious injuries and fatalities: the total number of reported serious injuries and fatalities (DSI) each year on the network.</td><td>CAS for network.
PMRT for ONRC breakdown.</td><td>No annual change, or a reduction from the previous year.</td><td colspan="3">Achieved: decrease of 1 from previous year
Year | Total DSIs | Change from previous year
2019/20 | 5 | -2
2020/21 | 4 | -1
2021/22 | 3 | -1
2022/23 | 2 | -1</td><td>No annual change, or a reduction from the previous year.</td></tr>
<tr><td>ONRC Safety Customer Outcome 2
Collective risk: the total number of reported crashes per kilometre each year on the network.</td><td>CAS for network.
PMRT for ONRC breakdown.</td><td>No annual change, or a reduction from the previous year.</td><td colspan="3">Achieved: stable / declining trend.
ONRC Classification | 2022/23 Collective Risk | Change from previous year
Arterial | 0.071 | -0.047
Primary Collector | 0.025 | -0.007
Secondary Collector | 0.007 | -0.001
Access | 0.002 | -0.001
Low Volume | 0.002 | -0.001</td><td>No annual change, or a reduction from the previous year.</td></tr>
<tr><td>ONRC Safety Customer Outcome 3
Personal risk: the total number of reported crashes by traffic volume each year on the network.</td><td>CAS for network.
PMRT for ONRC breakdown.</td><td>No annual change, or a reduction from the previous year.</td><td colspan="3">Achieved: stable / declining trend.
ONRC Classification | Personal Risk | Change from previous year
Arterial | 5.701 | -0.655
Primary Collector | 7.685 | -1.232
Secondary Collector | 8.010 | +1.220
Access | 4.587 | -0.805
Low Volume | 17.228 | -18.353</td><td>No annual change, or a reduction from the previous year.</td></tr>
<tr><td>ONRC Safety Technical Output 1
Permanent hazards: number of permanent hazards not marked in accordance with national standards.</td><td>Annual inspection for network level.
PMRT – for road category breakdown.</td><td>95%+ marked in accordance.</td><td colspan="3">Data not available.</td><td>95%+ marked in accordance.</td></tr>
</table>

ONRC Safety Technical Output 2 **Temporary hazards: the number of sites inspected and the percentage of audits compliant with COPTM.**	Annual inspection for network level. PMRT – for road category breakdown.	10% inspected with 100% compliance.	***Data not available.***	10% inspected with 100% compliance.
ONRC Safety Technical Output 3 **Sight distances: the number of locations where sight distance or signs are obstructed.**	Annual inspection for network level. PMRT – for road category breakdown.	10% inspected with <10% obstructed.	***Data not available.***	10% inspected with <10% obstructed.
ONRC Safety Technical Output 4 **Loss of control on wet roads: the number of reported serious injuries and fatalities (DSI) attributable to loss of driver control on wet roads.**	CAS for network PMRT – for road category breakdown	No annual change, or a reduction from the previous year.	**Achieved: no annual change (0 total).** 	No annual change, or a reduction from the previous year.
ONRC Safety Technical Output 5 **Loss of driver control at night: the number of reported serious injuries and fatalities (DSI) attributable to loss of driver control at night.**	CAS for network PMRT – for road category breakdown	No annual change, or a reduction from the previous year.	**Achieved: no annual change (0 total).** 	No annual change, or a reduction from the previous year.
ONRC Safety Technical Output 6 **Intersections: the number of reported serious injuries and fatalities (DSI) at intersections each year on the network.**	CAS for network PMRT – for road category breakdown	No annual change, or a reduction from the previous year.	**Achieved: no annual change (0 total).** 	No annual change, or a reduction from the previous year.
ONRC Safety Technical Output 7 **Hazardous faults: the number of hazardous faults which require evasive action by road users.**	Annual inspection for network level PMRT – for road category breakdown	10% inspected with no annual change, or a reduction.	**Data not available.**	10% inspected with no annual change, or a reduction
ONRC Safety Technical Output 8 **Cycle path faults: the number of cycle path hazards requiring evasive action by cyclists.**	Annual inspection for network level PMRT – for road category breakdown	10% inspected with no annual change, or a reduction.	**Data not available.**	10% inspected with no annual change, or a reduction

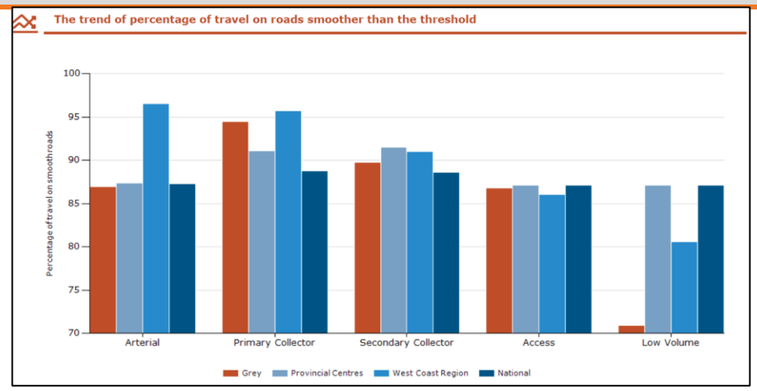
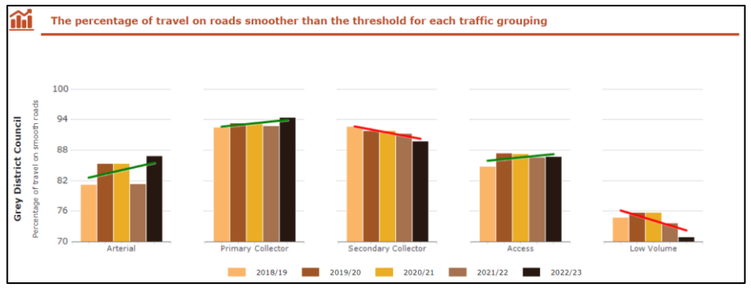
ONRC Safety Technical Output 9 **Vulnerable users: the number of reported serious injuries and fatalities (DSI) involving vulnerable users on the network.**	CAS for network PMRT – for road category breakdown	No annual change, or a reduction from the previous year.	**Achieved: no annual change (0 total).** 	No annual change, or a reduction from the previous year.
ONRC Safety Technical Output 10 **Roadside obstructions:**	Annual inspection for network level PMRT – for road category breakdown	10% inspected with no annual change, or a reduction	**Data not available.**	10% inspected with no annual change, or a reduction

RESILIENCE OUTCOMES

Performance Measure	Data Source	Current Target 2021-24	Current Performance 2022/23	Target 2024-27
ONRC Resilience Customer Outcome 1 **Unplanned closures: the number of road closures with a detour provided and the number of vehicles affected by closures annually.**	Contractor reporting for routine monthly and annual network	No annual change, or a reduction from the previous year.	**Achieved: no unplanned closures without a detour.**	No annual change, or a reduction from the previous year.
ONRC Resilience Customer Outcome 2 **Loss of road access: the number of unplanned road closures with no detour provided and the number of vehicles affected by these closures annually.**	Input into PMRT – for road category breakdown	No annual change, or a reduction from the previous year.	**Achieved: no instances where road access is lost.**	No annual change, or a reduction from the previous year.

AMENITY OUTCOMES

Performance Measure	Data Source	Current Target 2021-24	Current Performance 2022/23	Target 2024-27
DIA Mandatory Reporting Measure **The average quality of ride on a sealed road network, measured by smooth travel exposure (STE).**	Annual condition assessment.	STE >=90%.	**Achieved: 91% in 2022/23.**	STE >=90%.
DIA Mandatory Reporting Measure **% of footpaths within a territorial authority district that fall within the level of service or service standard for the condition of footpaths that is set out in the territorial authority's relevant document.**	Annual Inspections.	>= 80% ranked 'fair'.	**Achieved: 83% (2021/22 data, no assessment in 2022/23).**	>= 80% ranked 'fair'.
ONRC Amenity Customer Outcome 1 **Smooth travel exposure (STE): % of travel on roads smoother than the threshold.**	Annual condition assessment.	At or above peer group average.	**Not achieved: generally below Peer Group and West Coast region average.**	At or above peer group average.

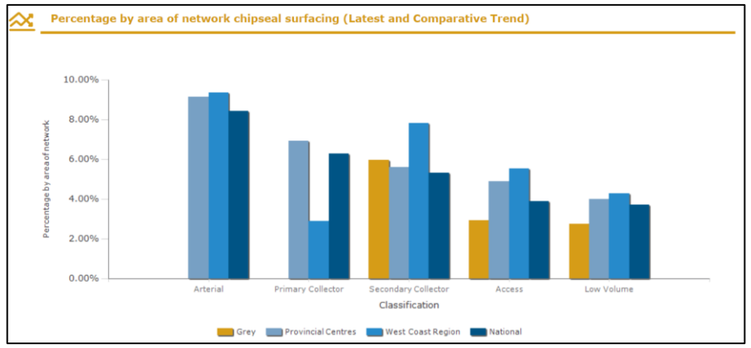
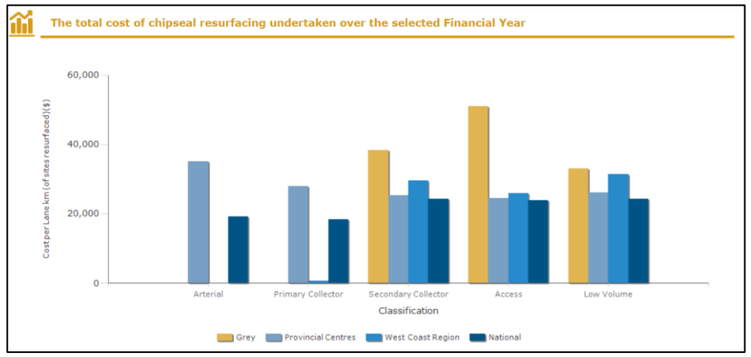
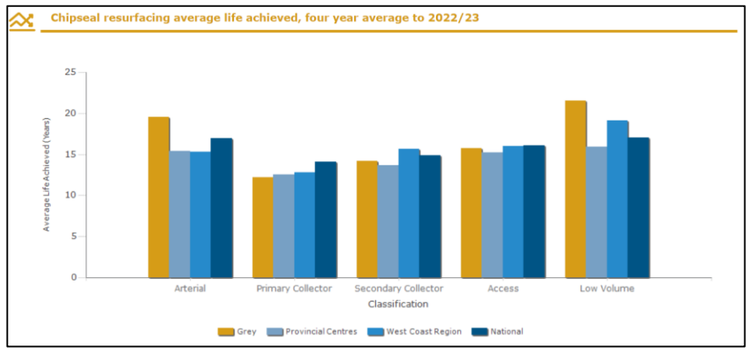
Performance Measure	Data Source	Current Target 2021-24	Current Performance 2022/23	Target 2024-27
				
ONRC Amenity Customer Outcome 2 & ONRC Amenity Technical Output 1 **Roughness: peak and average roughness.**	Annual condition assessment.	No annual change, or an improvement from the previous year.	**Partially achieved: mixed trend between ONRC groupings.** 	No annual change, or an improvement from the previous year.
ONRC Amenity Technical Output 2 **Aesthetic faults: number of aesthetic faults that detract from the customer experience.**	Inspections.	10% inspected with no annual change, or a reduction	**Data not available.**	10% inspected with no annual change, or a reduction

ACCESSIBILITY OUTCOMES

Performance Measure	Data Source	Current Target 2021-24	Current Performance 2022/23	Target 2024-27
Accessibility Customer Outcome 1 **Heavy vehicles: proportion of the network not accessible to Class 1 Heavy Vehicles and 50MAX Vehicles.**		No annual change, or a reduction from the previous year.	**Data not available.**	No annual change, or a reduction from the previous year.
Accessibility Technical Output 1 **Wayfinding: number of instances where the road is not marked in accordance with national standards.**		No annual change, or a reduction from the previous year.	**Data not available.**	No annual change, or a reduction from the previous year.

COST EFFICIENCY OUTCOMES

Performance Measure	Data Source	Current Target 2021-24	Current Performance 2022/23	Target 2024-27
DIA Mandatory Measure **% of sealed road network resurfaced each year.**	Contractor reports.	>=7.0%	**Not achieved: 3.3% in 2022/23 (3.9% in 2021/22).**	6.0%

Performance Measure	Data Source	Current Target 2021-24	Current Performance 2022/23	Target 2024-27
ONRC Cost Efficiency 1 **Pavement rehabilitation (length & area).**	Contractor reports. Input into PMRT – for road category breakdown.	At or above peer group average.	**Data not available.**	At or above peer group average.
ONRC Cost Efficiency 1 **Pavement rehabilitation (cost and average life).**	Contractor reports. Input into PMRT – for road category breakdown.	At or above peer group average.	**Data not available.**	
ONRC Cost Efficiency 2 **Chipseal resurfacing (length & area).**	Contractor reports. Input into PMRT – for road category breakdown.	At or above peer group average.	**Not achieved: generally below Peer Group and West Coast region average.** 	At or above peer group average.
ONRC Cost Efficiency 2 **Chipseal resurfacing (cost and average life).**	Contractor reports. Input into PMRT – for road category breakdown.	Cost at or below peer group average. Average lives at or above peer group average.	**Not achieved: total cost per lane km above Provincial Centres.**  **Achieved: average lives generally on par with / above Provincial Centres.** 	At or above peer group average.
ONRC Cost Efficiency 3	Contractor reports.	At or above peer group average.	**Data not available.**	At or above peer group average.

Performance Measure	Data Source	Current Target 2021-24	Current Performance 2022/23	Target 2024-27
Asphalt resurfacing (length & area).	Input into PMRT – for road category breakdown.			
ONRC Cost Efficiency 3 **Asphalt resurfacing (cost and average life).**	Contractor reports. Input into PMRT – for road category breakdown.	At or above peer group average.	**Data not available.**	At or above peer group average.
ONRC Cost Efficiency 4 **Unsealed road metalling: total quantity and cost of metalling that has been undertaken over the previous year as renewal work (lane km & m3), and the average lives achieved by these surfaces.**	Contractor reports. Input into PMRT – for road category breakdown.	At or above peer group average.	**Data not available.**	At or above peer group average.
ONRC Cost Efficiency 10 **Maintenance costs: maintenance costs per lane km and VKT.**	Contractor reports. Input into PMRT – for road category breakdown.	Declining trend.	**Data not available.**	Declining trend.

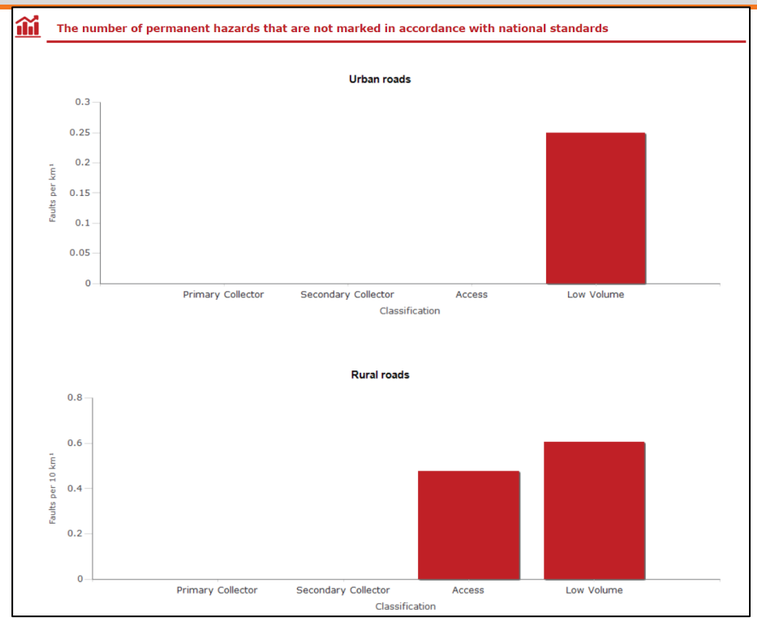
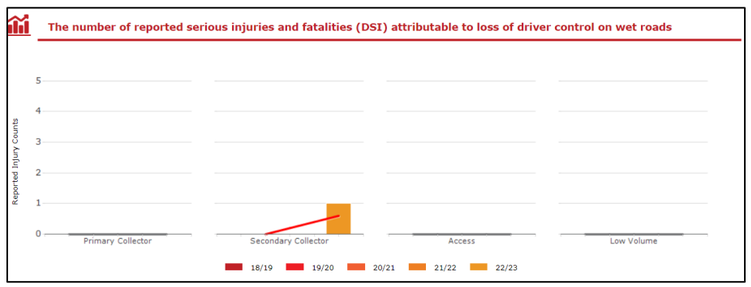
CUSTOMER SERVICE OUTCOMES

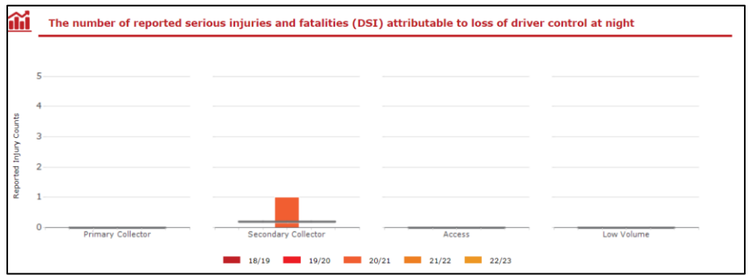
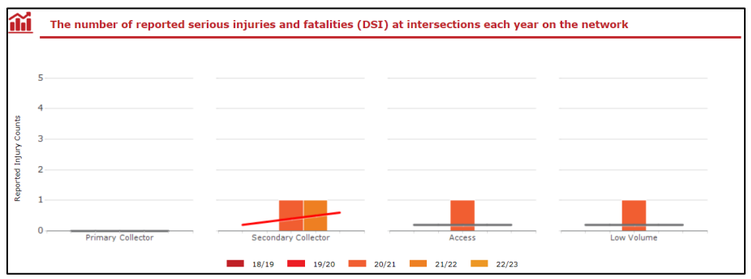
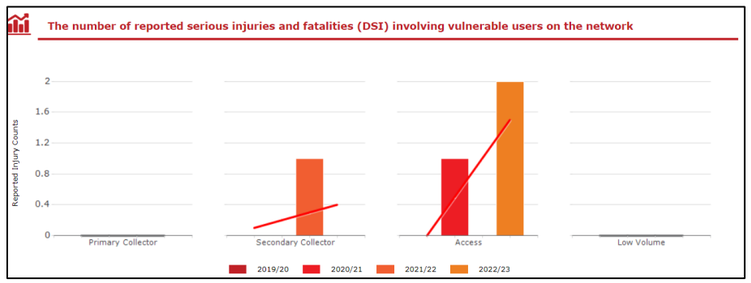
Performance Measure	Data Source	Current Target 2021-24	Current Performance 2022/23	Target 2024-27
DIA Mandatory Measure **% of customer service requests responded to within a specified timeframe.**	Customer service requests. Contractor monthly reports.	>= 87% of request responded to within 10 working days	**Achieved: 91% (previously 91% in 2021/22)**	>= 87% of request responded to within 10 working days
Council Measure **% of residents satisfied with Council's roading network.**	Resident Satisfaction Survey.	>= 72%	**Not achieved: 62% (previously 74% in 2021/22)**	>= 72%
Council Measure **% of residents satisfied with the was local roads are maintained.**	Resident Satisfaction Survey.	>= 54%	**Not achieved: 48% (previously 62% in 2021/22)**	>= 54%
Council Measure **% of residents satisfied with the way footpaths are maintained.**	Resident Satisfaction Survey.	>= 50%	**Not achieved: 39% (previously 49% in 2021/22)**	>= 50%

1.2.4 WESTLAND DISTRICT COUNCIL LEVEL OF SERVICE FRAMEWORK

ROAD SAFETY OUTCOMES

<table>
<tr><th>Performance Measure</th><th>Data Source</th><th>Current Target 2021-24</th><th colspan="3">Current Performance 2022/23</th><th>Target 2024-27</th></tr>
<tr><td>DIA Mandatory Performance Measure
The change from the previous financial year in the number of fatalities and serious injury crashes on the local road network, expressed as a number.</td><td>CAS.</td><td>No annual change, or a reduction from the previous year.</td><td colspan="3">Not achieved: Increase of 2 from previous year (3 total).</td><td>No annual change, or a reduction from the previous year.</td></tr>
<tr><td rowspan="6">ONRC Safety Customer Outcome 1
Serious injuries and fatalities: the total number of reported serious injuries and fatalities (DSI) each year on the network.</td><td rowspan="6">CAS for network.
PMRT for ONRC breakdown.</td><td rowspan="6">No annual change, or a reduction from the previous year.</td><td colspan="3">Not achieved: increase of 2 from previous year</td><td rowspan="6">No annual change, or a reduction from the previous year.</td></tr>
<tr><td>Year</td><td>Total DSIs</td><td>Change from previous year</td></tr>
<tr><td>2019/20</td><td>2</td><td>+2</td></tr>
<tr><td>2020/21</td><td>3</td><td>+1</td></tr>
<tr><td>2021/22</td><td>1</td><td>-3</td></tr>
<tr><td>2022/23</td><td>3</td><td>+2</td></tr>
<tr><td rowspan="6">ONRC Safety Customer Outcome 2
Collective risk: the total number of reported crashes per kilometre each year on the network.</td><td rowspan="6">CAS for network.
PMRT for ONRC breakdown.</td><td rowspan="6">No annual change, or a reduction from the previous year.</td><td colspan="3">Achieved: generally stable trend.</td><td rowspan="6">No annual change, or a reduction from the previous year.</td></tr>
<tr><td>ONRC Classification</td><td>Collective Risk</td><td>Change from previous year</td></tr>
<tr><td>Primary Collector</td><td>0.010</td><td>+0.009</td></tr>
<tr><td>Secondary Collector</td><td>0.005</td><td>-0.002</td></tr>
<tr><td>Access</td><td>0.002</td><td>-0.004</td></tr>
<tr><td>Low Volume</td><td>0.000</td><td>-0.001</td></tr>
<tr><td rowspan="5">ONRC Safety Customer Outcome 3
Personal risk: the total number of reported crashes by traffic volume each year on the network.</td><td rowspan="5">CAS for network.
PMRT for ONRC breakdown.</td><td rowspan="5">No annual change, or a reduction from the previous year.</td><td colspan="3">Achieved: declining trend.</td><td rowspan="5">No annual change, or a reduction from the previous year.</td></tr>
<tr><td>ONRC Classification</td><td>Personal Risk</td><td>Change from previous year</td></tr>
<tr><td>Primary Collector</td><td>1.747</td><td>-1.193</td></tr>
<tr><td>Secondary Collector</td><td>3.542</td><td>-0.992</td></tr>
<tr><td>Access</td><td>4.120</td><td>-8.723</td></tr>
<tr><td>Low Volume</td><td>1.667</td><td>-2.285</td></tr>
<tr><td>ONRC Safety Technical Output 1
Permanent hazards: number of permanent hazards not marked in accordance with national standards.</td><td>Annual inspection for network level.
PMRT – for road category breakdown.</td><td>No annual change, or a reduction from the previous year.</td><td colspan="3">No trend established, just one year of data available.</td><td>No annual change, or a reduction from the previous year.</td></tr>
</table>

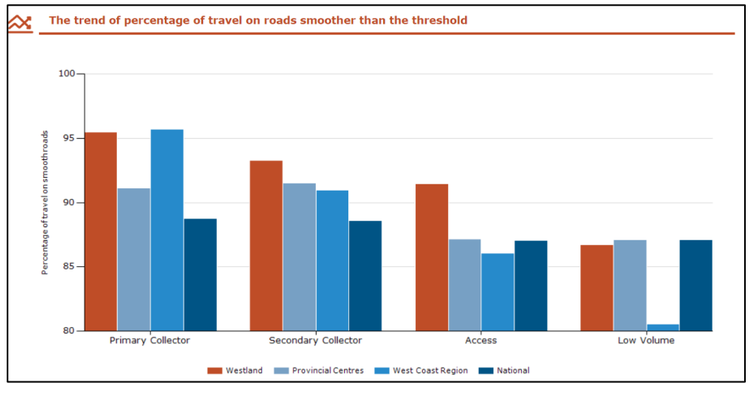
Performance Measure	Data Source	Current Target 2021-24	Current Performance 2022/23	Target 2024-27
				
ONRC Safety Technical Output 2 **Temporary hazards: the number of sites inspected and the percentage of audits compliant with COPTM.**	Annual inspection for network level. PMRT – for road category breakdown.	10% inspected with 100% compliance.	***Data not available.***	10% inspected with 100% compliance.
ONRC Safety Technical Output 3 **Sight distances: the number of locations where sight distance or signs are obstructed.**	Annual inspection for network level. PMRT – for road category breakdown.	10% inspected with <10% obstructed.	***Data not available.***	10% inspected with <10% obstructed.
ONRC Safety Technical Output 4 **Loss of control on wet roads: the number of reported serious injuries and fatalities (DSI) attributable to loss of driver control on wet roads.**	CAS for network PMRT – for road category breakdown	No annual change, or a reduction from the previous year.	**Not achieved: increase of 1 from previous year (1 total).** 	No annual change, or a reduction from the previous year.

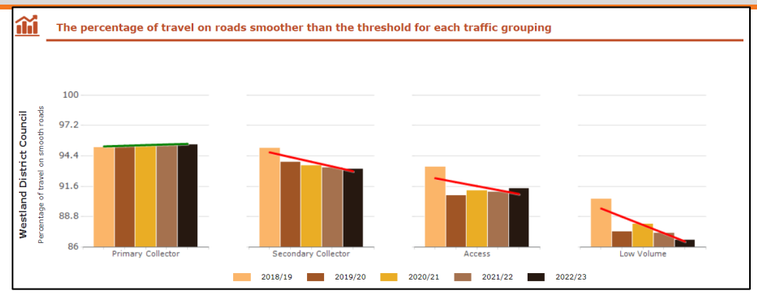
Performance Measure	Data Source	Current Target 2021-24	Current Performance 2022/23	Target 2024-27
ONRC Safety Technical Output 5 **Loss of driver control at night: the number of reported serious injuries and fatalities (DSI) attributable to loss of driver control at night.**	CAS for network PMRT – for road category breakdown	No annual change, or a reduction from the previous year.	**Achieved: no change from previous year (0 total).** 	No annual change, or a reduction from the previous year.
ONRC Safety Technical Output 6 **Intersections: the number of reported serious injuries and fatalities (DSI) at intersections each year on the network.**	CAS for network PMRT – for road category breakdown	No annual change, or a reduction from the previous year.	**Achieved: decrease of 1 from previous year (0 total).** 	No annual change, or a reduction from the previous year.
ONRC Safety Technical Output 7 **Hazardous faults: the number of hazardous faults which require evasive action by road users.**	Annual inspection for network level PMRT – for road category breakdown	10% inspected with no annual change, or a reduction.	**Data not available.**	10% inspected with no annual change, or a reduction
ONRC Safety Technical Output 8 **Cycle path faults: the number of cycle path hazards requiring evasive action by cyclists.**	Annual inspection for network level PMRT – for road category breakdown	10% inspected with no annual change, or a reduction.	**Data not available.**	10% inspected with no annual change, or a reduction
ONRC Safety Technical Output 9 **Vulnerable users: the number of reported serious injuries and fatalities (DSI) involving vulnerable users on the network.**	CAS for network PMRT – for road category breakdown	No annual change, or a reduction from the previous year.	**Not achieved: increase of 1 from previous year (2 total).** 	No annual change, or a reduction from the previous year.
ONRC Safety Technical Output 10 **Roadside obstructions:**	Annual inspection for network level PMRT – for road category breakdown	10% inspected with no annual change, or a reduction	**Achieved: no locations where there are unauthorised items placed within the road reserve.**	10% inspected with no annual change, or a reduction

RESILIENCE OUTCOMES

Performance Measure	Data Source	Current Target 2021-24	Current Performance 2022/23	Target 2024-27
ONRC Resilience Customer Outcome 1 **Unplanned closures: the number of road closures with a detour provided and the number of vehicles affected by closures annually.**	Contractor reporting for routine monthly and annual network	No annual change, or a reduction from the previous year.	**Achieved: 0 closures with 0 vehicles affected (previous year 2 closures with 180 vehicles).**	No annual change, or a reduction from the previous year.
ONRC Resilience Customer Outcome 2 **Loss of road access: the number of unplanned road closures with no detour provided and the number of vehicles affected by these closures annually.**	Input into PMRT – for road category breakdown	No annual change, or a reduction from the previous year.	**Achieved: 2 closures with 75 vehicles affected (previous year 5 closures with 320 vehicles).**	No annual change, or a reduction from the previous year.

AMENITY OUTCOMES

Performance Measure	Data Source	Current Target 2021-24	Current Performance 2022/23	Target 2024-27
DIA Mandatory Reporting Measure **The average quality of ride on a sealed road network, measured by smooth travel exposure (STE).**	Annual condition assessment.	Primary Collector >= 93% Secondary Collector >= 93% Access >= 90% Low Volume >= 89%	2021/22 data as a new roughness survey was not undertaken. **Primary Collector >= 95.5%** **Secondary Collector >= 93.4%%** **Access >= 91.1%** **Low Volume >= 87.4%**	Primary Collector >= 93% Secondary Collector >= 93% Access >= 90% Low Volume >= 89%
DIA Mandatory Reporting Measure **% of footpaths within a territorial authority district that fall within the level of service or service standard for the condition of footpaths that is set out in the territorial authority's relevant document.**	Annual Inspections.	90%	**There is no agreed level of service standard for footpaths, 2022/23 performance:** Rated between 1-4: 94% Rated between 1-3: 75% Rated 5: 6%	90%
ONRC Amenity Customer Outcome 1 **Smooth travel exposure (STE): % of travel on roads smoother than the threshold.**	Annual condition assessment.	At or above peer group average.	**Achieved: above Provincial Centres average.** 	At or above peer group average.
ONRC Amenity Customer Outcome 2 & ONRC Amenity Technical Output 1 **Roughness: peak and average roughness.**	Annual condition assessment.	No annual change, or an improvement from the previous year.	**Not achieved: generally declining trend across all classifications, except Primary Collector.**	No annual change, or an improvement from the previous year.

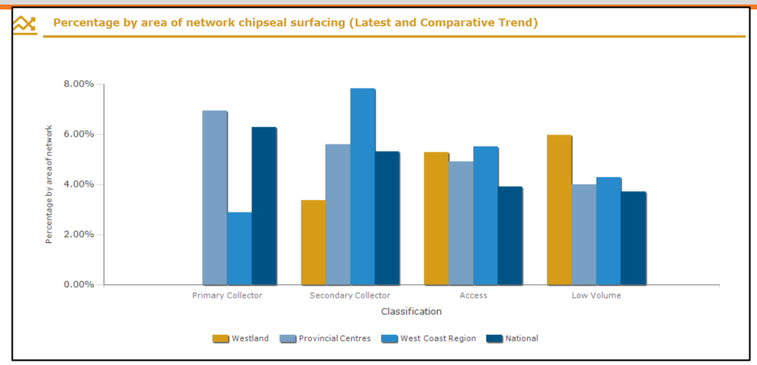
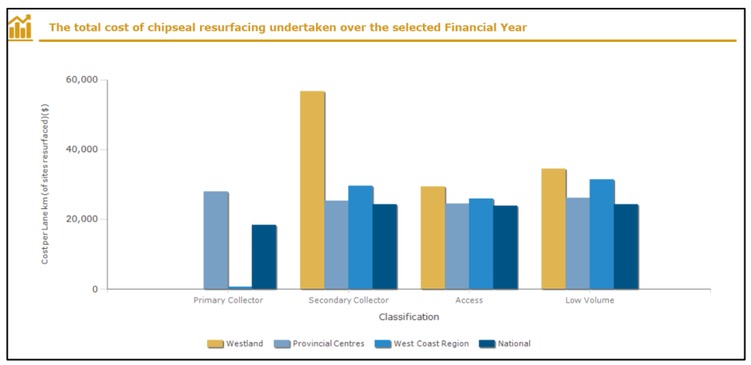
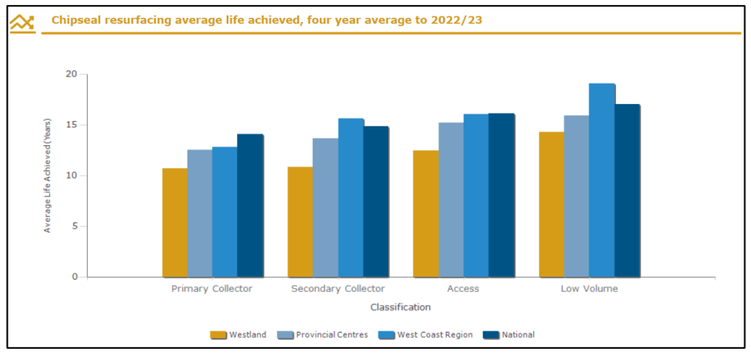
Performance Measure	Data Source	Current Target 2021-24	Current Performance 2022/23	Target 2024-27
				
ONRC Amenity Technical Output 2 **Aesthetic faults: number of aesthetic faults that detract from the customer experience.**	Inspections.	10% inspected with no annual change, or a reduction	**Data not available.**	10% inspected with no annual change, or a reduction

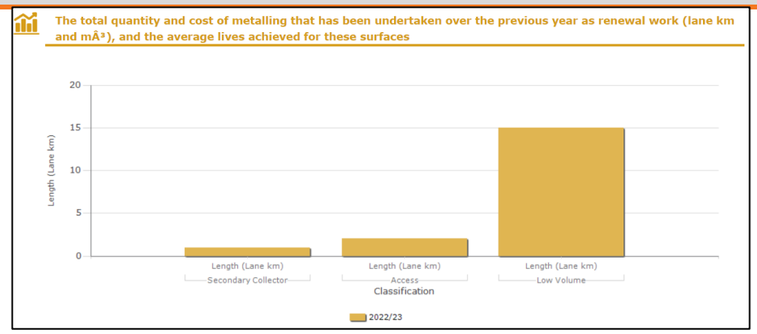
ACCESSIBILITY OUTCOMES

Performance Measure	Data Source	Current Target 2021-24	Current Performance 2022/23			Target 2024-27
Accessibility Customer Outcome 1 **Heavy vehicles: proportion of the network not accessible to Class 1 Heavy Vehicles and 50MAX Vehicles.**		No annual change, or a reduction from the previous year.	**Achieved: no change from previous year.**			No annual change, or a reduction from the previous year.
			ONRC Classification	**Class 1 Heavy Vehicles**	**50MAX Vehicles**	
			Primary Collector	0%	0%	
			Secondary Collector	11.3%	15.1%	
			Access	18.4%	23.7%	
			Low Volume	41.6%	41.6%	
Accessibility Technical Output 1 **Wayfinding: number of instances where the road is not marked in accordance with national standards.**		No annual change, or a reduction from the previous year.	**Data not available.**			No annual change, or a reduction from the previous year.

COST EFFICIENCY OUTCOMES

Performance Measure	Data Source	Current Target 2021-24	Current Performance 2022/23	Target 2024-27
DIA Mandatory Measure **% of sealed road network resurfaced each year.**	Contractor reports.	>= 6.5%	**Not achieved: 4.8% in 2022/23 (previously 3.4% in 2021/22).**	6.0%
ONRC Cost Efficiency 1 **Pavement rehabilitation (length & area).**	Contractor reports. Input into PMRT – for road category breakdown.	At or above peer group average.	**Data not available.**	At or above peer group average.
ONRC Cost Efficiency 1 **Pavement rehabilitation (cost and average life).**	Contractor reports. Input into PMRT – for road category breakdown.	At or above peer group average.	**Data not available.**	
ONRC Cost Efficiency 2 **Chipseal resurfacing (length & area).**	Contractor reports. Input into PMRT – for road category breakdown.	At or above peer group average.	**Partially achieved: mixed performance relative to peer group average.**	At or above peer group average.

Performance Measure	Data Source	Current Target 2021-24	Current Performance 2022/23	Target 2024-27
				
ONRC Cost Efficiency 2 **Chipseal resurfacing (cost and average life).**	Contractor reports. Input into PMRT – for road category breakdown.	Cost at or below peer group average. Average lives at or above peer group average.	**Not achieved: total cost per lane km above Provincial Centres.**  **Not achieved: average lives below Provincial Centres.** 	At or above peer group average.
ONRC Cost Efficiency 3 **Asphalt resurfacing (length & area).**	Contractor reports. Input into PMRT – for road category breakdown.	At or above peer group average.	**Data not available.**	At or above peer group average.
ONRC Cost Efficiency 3 **Asphalt resurfacing (cost and average life).**	Contractor reports. Input into PMRT – for road category breakdown.	At or above peer group average.	**Data not available.**	At or above peer group average.
ONRC Cost Efficiency 4	Contractor reports.	At or above peer group average.	**Peer group comparison not available.**	At or above peer group average.

Performance Measure	Data Source	Current Target 2021-24	Current Performance 2022/23	Target 2024-27
Unsealed road metalling: total quantity and cost of metalling that has been undertaken over the previous year as renewal work (lane km & m3), and the average lives achieved by these surfaces.	Input into PMRT – for road category breakdown.			
ONRC Cost Efficiency 10 **Maintenance costs: maintenance costs per lane km and VKT.**	Contractor reports. Input into PMRT – for road category breakdown.	Declining trend.	**Data not available.**	Declining trend.

CUSTOMER SERVICE OUTCOMES

Performance Measure	Data Source	Current Target 2021-24	Current Performance 2022/23	Target 2024-27
DIA Mandatory Measure **% of customer service requests responded to within a specified timeframe.**	Customer service requests. Contractor monthly reports.	100% of requests responded to within 3 days.	**Not achieved: 47% in 2022/23 (previously 65% in 2021/22).**	100% of requests responded to within 3 days.
Council Measure **% of residents satisfied with the safety and standard of Council's unsealed roads.**	Resident Satisfaction Survey.	>= 70%	2021/22 data – no residents satisfaction survey was undertaken in 2023. **Not achieved: 41%**	>= 70%

1.2.5 LEVEL OF SERVICE REVIEW

A full review and update of the level of service framework is recommended as an asset management improvement action during 2024-27.

This was originally proposed to take place in 2021-24, however with the ongoing change from ONRC to ONF and emerging tools and guidance such as the Te Ringa Maimoa Differential Levels of Service (dLOS) it was agreed to defer this activity to better incorporate these external changes.

It is recommended the review focus on:

- **One Network Framework:** adopt ONF transport outcomes measures and consider variable level of service measures or targets based on ONF category. This approach would recognise that different levels of service are appropriate based on movement and place functions of ONF categories.
- **Differential Levels of Service (dLOS):** seek guidance from Te Ringa Maimoa as this tool is developed to adopt a nationally consistent approach to levels of service. This should be aligned with ONF categories.
- **Data gaps:** there are multiple gaps in each Council's reporting against ONRC outcomes. As part of the ONF transport outcomes measure adoption above the Councils should establish an approach for collecting and reporting on each measure.

For this AMP and the 2024-34 LTP the Councils have made a partial step in using the updated guidance and tools that ONF and dLOS provide. Specifically:

- Reporting against ONF Transport Outcomes measures reported in Transport Insights, though generally only where there is a direct overlap with an existing ONRC measure already being reported on.
- Aligning lifecycle management investment options with dLOS outcomes, see the multi-criteria analysis outputs under each activity in Section 1.1.

1.3 Demand Planning

This section describes and predicts future demand for land transport services on the West Coast to enable us to plan ahead and identify the best way of meeting both demand for the quantity and type of service required.

1.3.1 OVERVIEW

Understanding future demand for transportation service provision for effective planning and service delivery. The knowledge of future demand, especially demand drivers could inform network investment and assist in tailoring services to meeting the needs of current and future customers.

Recently the Councils have invested in a traffic count strategy, this is undergoing implementation with data not yet available to inform this AMP. So, the results presented here are out of data and in some instances lack relevance for current and future planning. They are retained regardless with the intention that the AMP will be updated with up-to-date traffic counts as soon as they are made available.

An improvement recommendation for 2024-27 is to embed the traffic count strategy and future demand forecasts as business as usual and improve to cover heavy vehicles as a separate category.

Table 1: Demand drivers for transportation networks in West Coast region

Demand driver	Impact on future demand
Freight	Demand continues in future. Heavy vehicles for industries (e.g., forestry, dairy, and mining) put pressure on the usage and maintenance of the roads.
Resilience	Require the transportation network to be resilient to future natural hazards and climate change.
Tourism	Demand is expected to increase in future. This requires improved travel experience and access to attraction.
Renewal	Need to maintain the transportation network to keep the desired level of service and maintain demand
Population	Population growth will be reasonably static in the future with minor increase expected.

It is anticipated that the future demand for transport services across the region will primarily remain the same, largely driven by:

- The need to service the resident and population and visitors;
- Increased volume and loadings from heavy vehicles placing extra demand on the pavement and bridge structures throughout the region;

While the Census figures show a general decline in population over time, it is unlikely that this will reduce the demand for the existing land transport network to be maintained to at least its current condition. With increasingly bigger and heavier trucks on our roads, there is an increasing demand for safe and robust road infrastructure.

Any growth through residents, tourists and new industry is monitored and regulated through the district plans. There are no plans or mechanisms for restricting development due to extra demands on the roading network or adverse effects on the community due to increased traffic flow. These negative effects are negligible at present and are forecast to remain so for the next decade.

1.3.2 HISTORIC AND FORECAST DEMAND

The demand for the transportation networks in the West Coast region is driven by many factors. High level demand drivers are outlined in the Table 11 below. These demand drivers could influence the transportation networks owned and managed by the three local Councils.

Table 2: Demand drivers for transportation networks in the West Coast region

Demand driver	Impact on future demand
Freight	Demand continues in the future, heavy vehicles for industry (e.g. forestry, dairy and mining) put pressure on the usage and maintenance of the roads.
Resilience	Require the transportation network to be resilient to future natural hazards and climate change.
Tourism	Demand is expected to increase in the future, this requires improved travel experience and access to attraction.
Renewal	Need to maintain the transportation network to keep the desired level of service and maintain demand.
Population	Population growth will be reasonably static in the future with minor increase expected.

The demand for the transportation networks in the West Coast region is driven by many factors. High level demand drivers are outlined in the Table 11 below. These demand drivers could influence the transportation networks owned and managed by the three local Councils.

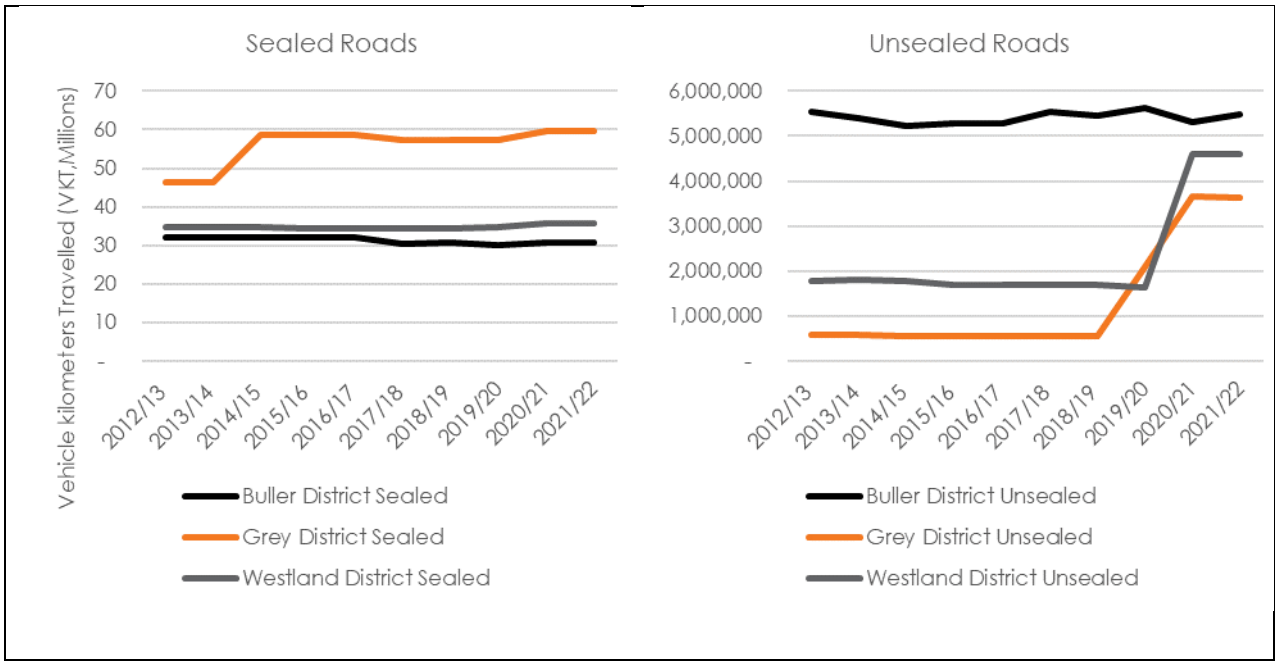


Figure 7: VKT for sealed and unsealed roads

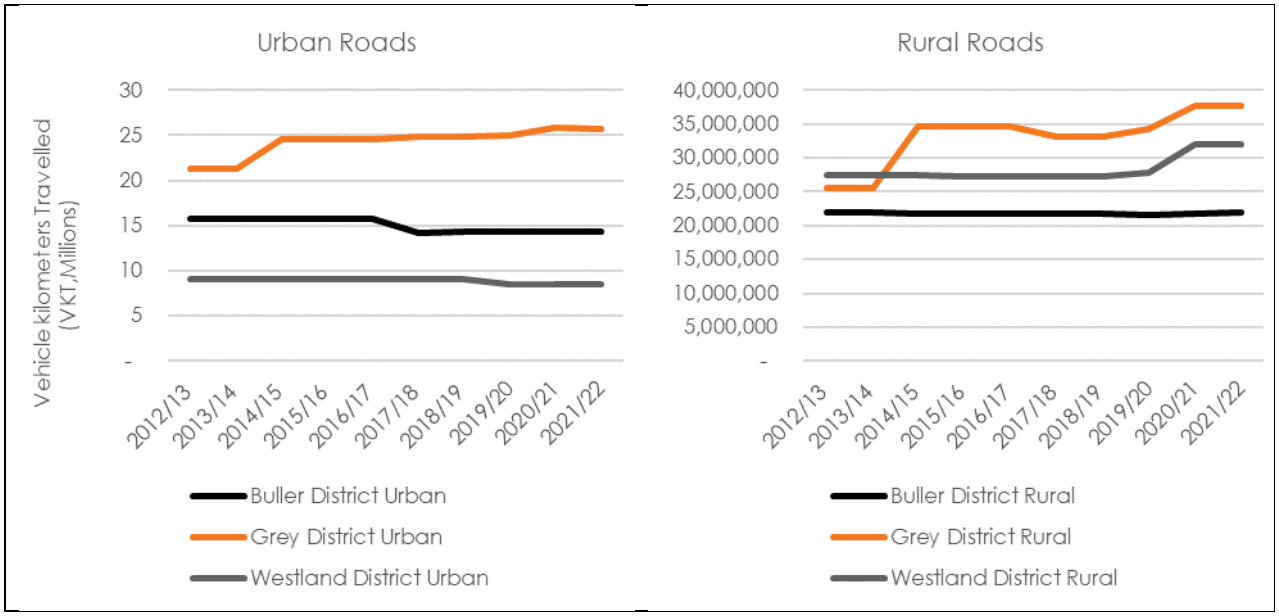


Figure 8: VKT for urban and rural roads

At a district wide level, traffic flows are expected to remain steady and population levels relatively stable with little growth (or some decline) predicted across the region. Based on the demand drivers and VKT for the last 10 years, it is anticipated that:

- Overall VKT for sealed roads in the three Districts have been reasonably steady for the last 10 years. The trend for the three Councils is expected to continue for the next three years.
- For unsealed roads, the VKT in Buller District remains steady. However, Grey District and Westland Districts had significant increases in the last two years. This might be because of updated traffic estimates. However, the demand for unsealed roads of three districts are expected to be stable in the next three years.
- The VKT for urban roads of the three Councils have been stable on average. It might potentially see a slightly increase for the next three years.
- Grey and Westland Districts saw an increase on VKT for rural roads from 2019/20 while Buller District has been keeping the same level of VKT for the last ten years. The trend will be relatively steady for the near future.

Industry has shown a number of changes over the last decade. There has been a shift away from mining with increased agriculture, particularly dairy. Tourism up to 2020 was a major growth area but was particularly reliant to international travellers. A combination of Covid travel restrictions and climate impacts on the glaciers, for example, have hit areas such as Haast and Franz Josef. However there has also been significant investments such as at Punakaiki with the new visitor centre and improved walks. The West Coast Wilderness Trail, Kawaiti Coastal Trail, Paparoa and Heaphy tracks all attract growing visitor numbers.

Climate change poses far reaching and unprecedented levels of risk to the transportation networks in the West Coast region as well as the wellbeing of local communities. More heavy rainfall will increase the risk of flooding, erosion, and landslides, which is already high in many parts of the region. Many West Coast roads and communities are located along narrow coastal and river strips beneath mountain ranges, leaving them exposed to increased risks of storms, flooding, and landslides. Further planning and investment are needed to be better prepared for the extreme weather events and enhance the resilience of local transport networks.

Increased traffic volumes, particularly heavy traffic volumes, can be expected to happen at the Alma Road new land development for example in response to the Westport flooding events. This could cause a change across of the transportation patterns in places across the West Coast region. Further work on network performance monitoring will help provide evidence for ongoing works programming and future funding requirements.

In summary, there maybe pockets of growth but overall transport demand is expected to remain steady across the region. The key focus is on the resilience of the current road network and maintaining and restoring access quickly. Future structures renewals will also require an active management plan to optimise spend across this asset portfolio, including reducing levels of services on alternate, less critical routes where available for example.

Given the low population and economic nature of West Coast region, there are no intentions for significant change to demand management for the three Councils.

Some strategies for effectively and efficiently managing the transportation networks include:

- Liaising more closely with industry and major economic contributors to have more structured and regular conversations and to plan ahead to minimise damage by encouraging traffic to make more use of major routes and minimise travel on more less robustly constructed roads.
- Seeking more sustainable and lower operating cost transport assets, particularly as the structures renewal progamme is likely to be unaffordable on a like-for- like renewal basis over the next 30 years. This may lead to reduction in the level of service for low criticality routes
- Adopting climate resilience, risk, and criticality as consideration factors for decision making on investment and work programme to improve the resilience of critical routes that are vulnerable or at high risk.
- Adapting to changing traffic patterns due to the impacts of climate change and subsequent adaptation, particularly around the possible retreat from flood risk urban areas.

1.4 Asset Condition and Performance

This section covers both the monitoring of the condition of assets (which relates to the physical integrity of the asset) as well as various aspects of performance such as the capacity, function, and fitness-for-purpose.

Condition and performance of specific activities and assets is described in more detail in the Lifecycle Management sections in Part Two.

1.4.1 BENEFITS AND APPLICATIONS OF PERFORMANCE MONITORING

Performance monitoring is how the three West Coast District Councils demonstrate they are delivering the agreed levels of service, as well as providing information to support effective short- and long-term maintenance and renewal planning.

Bridges and other roading assets are a core component of this C.AMP. Undertaking periodic detailed inspections of individual bridges allows for the development of accurate renewal plans and forecasts tailored to each structure. This is particularly valuable as each bridge has a unique design, subject to different loadings and exposed to different environmental conditions. Customized deterioration models can therefore be applied to each bridge to evaluate and enhance its lifecycle management strategy.

In addition to gathering data to assess the condition of a particular asset, it is possible to monitor the overall network condition and measure performance over time to evaluate the effectiveness of the maintenance programme.

1.4.2 DETERMINING WHAT ASSETS TO MEASURE AND HOW OFTEN

The performance monitoring method will depend on many factors such as cost, the detail and accuracy of required information, technical experts' recommendations, common industry approaches and accessibility to the asset. Performance information for transport assets commonly include visual inspections as well as more technical methods.

Measuring assets, particularly bridges, can be costly, in part due to the method and the number of structures. For this reason, sampling approach can be taken to target inspections based on risk/critical assets to ensure the optimal frequency of inspections.

As asset management matures, inspections are triggered by pre-determined asset risks, condition, performance levels, which are informed by both physical assessments and modelling results. Since

bridges have a design life exceeding 100 years, the appropriate period between bridge inspections is dependent on the bridges age and condition. As the bridge nears the end of its life, or as condition deteriorates, the frequency of inspections increases.

Historically, there has not been an aligned cycle of inspections for bridges across the three councils. Since 2017, WSP has been periodically engaged to undertake independent out of cycle inspections for Grey District Council and Westland district Council, while Buller District Council endeavour to carry out bridge inspections on nominally on a three-yearly basis.

1.4.3 CONDITION AND PERFORMANCE RATINGS

A general performance rating can be assigned to an asset reflecting its overall ability to fulfil levels of service requirements, ensure targets are being met, and condition ratings are scored at an acceptable level. A multi-criteria performance rating system allows multiple elements that contribute to the overall asset performance be accounted for.

For bridge condition ratings in this C.AMP, the assessment of bridge condition ratings is based on condition rating systems that evaluate the physical integrity of the asset, using a 1-5 grading system. The following outlines the elements and grading system used for assessing the rating of bridge assets:

Rating	Description of Condition
1	Excellent Condition: Only cyclic maintenance required
2	Very Good: Minor maintenance required plus cyclic maintenance
3	Good: Significant maintenance required
4	Average: Significant renewal/upgrade required
5	Poor: Unserviceable

Table 3: Condition rating table

Subsequently, each of the major elements have been given a weighting factor based on risk, cost to maintain, demand for service and urgency to upgrade. The weightings adopted are:

Element	Weighting factor
General (Appearance)	0.1
Foundations/Substructure	0.35
Waterway and Scour	0.2
Superstructure	0.35

Table 4: Element and weighting factor

A detailed assessment of the condition rating for bridges and structures can be found in section 2 Lifecycle Management.

Based on the weighting factors outlined in section 1.4 Condition and Performance, a summary of the overall condition of bridges in 2023 are:

	Bridges	Culverts
Buller	2.23	2.00
Grey	2.80	2.67
Westland	1.46	1.33

Table 5: Overall condition rating for bridges and culverts

1.4.4 PERFORMANCE REPORTING AND EVALUATION

Performance reporting and evaluation highlight gaps in performance, any reason for under or over-performance and addressing gaps.

Performance information should be regularly evaluated to determine whether changes need to be made to ensure targets are being met and wider benefits are being achieved.

1.4.5 IMPROVING THE PERFORMANCE MONITORING PROGRAMME

Several improvement actions are recommended for the 2024-27 period:

- Sealed roads: utilise high-speed data collection delivered through the Te Ringa Maimoa Consistent Condition Data Collection Programme for use in deterioration modelling and forward work programme development.
- Bridges & structures: ongoing inspection programme to inform advanced lifecycle management planning with forward projections and economic analysis of maintenance, renewal and replacement programme options.
- Drainage: asset condition and service gap analysis delivered through Council's contractors.

We understand Te Ringa Maimoa has proposed expanding their Consistent Condition Data Collection programme to include unsealed roads and drainage assets, this will be adopted by Council if/when data is made available.

Part Two

Lifecycle Management

2 Lifecycle Management

2.1 Lifecycle Decision Techniques

This section describes the various decision techniques used that aim to provide the most effective solution to delivering the Councils' strategic objectives.

A range of techniques is applied to different types of decisions, ranging from the best time and option to maintain, replace or rehabilitate the asset to minimise lifecycle costs, to more complex decisions involving a trade-off between performance, risk, and lifecycle cost.

2.1.1 OPTIONEERING

Optioneering is the commonly used term to describe the in-depth consideration of various alternatives and options to find the best of preferred alternative or option. Optioneering should consider a broad range of alternatives and options to ensure that any solution is the best fit and makes the best use of resources.

Waka Kotahi's sifting approach outlines how an iterative process is used to filter alternatives and options to identify the preferred option that passes through all filters:

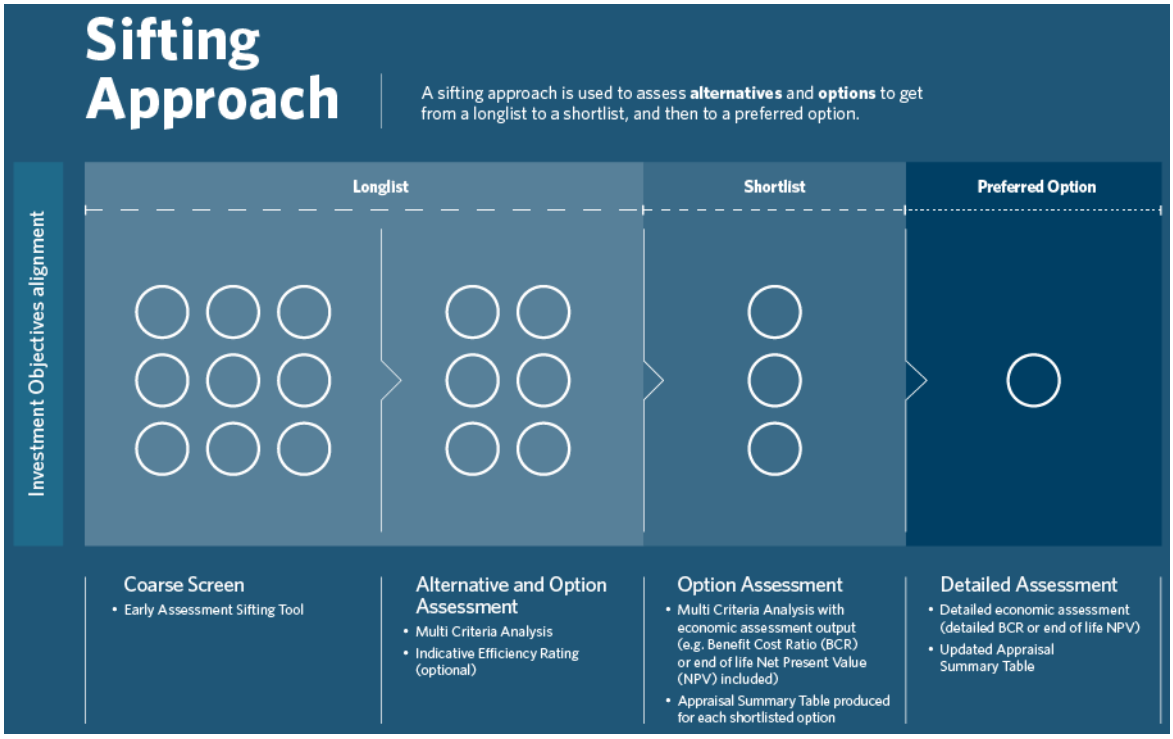


Figure 9: Waka Kotahi Optioneering Sifting Approach

Waka Kotahi provides assessment tools to support optioneering, these are described below and applied to optioneering in this AMP and the PBC.

MULTI-CRITERIA ANALYSIS (MCA)

MCA is a tool for assessing multiple qualitative and quantitative criteria to refine both the longlist and shortlist of options. Waka Kotahi recommends MCA during the optioneering phase of investment business case development. MCA is useful when comparing different alternatives and options, and assistant with conversations between investors and stakeholders to help inform selection of a preferred solution.

Alternatives and options are assessed / scored against MCA criteria which generally include investment objectives, critical success factors, business needs, risks, and other relevant project or organisational criteria.

Scoring should be done relative to a baseline or counterfactual – a future in which a proposed activity does not occur – that is known as do-nothing (status quo) or more commonly do-minimum as it is often not practical to do nothing, and a certain minimum level of expenditure is required to maintain a minimum level of service.

https://www.nzta.govt.nz/resources/multi-criteria-analysis/

APPRAISAL SUMMARY TABLE (AST)

AST summarises the impacts of an option (both positive and negative) compared with the do-minimum. It should be used at the shortlist and preferred option stage to provide decision makers with a consistent and transparent overview of monetised, quantitative, and qualitative benefits and costs to allow informed decision making.

The benefits of using an AST is:

- Presents both monetised benefits and costs and non-monetised benefits describing all relevant impacts to decision makers.
- Clearly demonstrates a proposals alignment to outcomes.
- Reduces the incentive to inflate benefits and underrepresent monetised costs to 'get a project over the line'.
- Illustrates all benefits so trade-offs can be more effectively made between options and then between proposals for different projects.

https://www.nzta.govt.nz/resources/appraisal-summary-table/

2.1.2 POINT OF ENTRY (POE) FOR REPLACEMENT OF STRUCTURES

Waka Kotahi's PoE phase allows problem owners and Waka Kotahi to:

- Develop an initial view of whether a potential investment is well aligned to strategic priorities, and whether it is an appropriate time to develop a business case.
- Understand the issues well enough to be able to make informed decisions about how to progress.

The PoE phase is meant to be a brief exercise to discuss and reach agreement on how any subsequent business case approach will be applied. In general, any capital improvement projects requiring a business case that have been identified in this AMP or the PBC will have developed sufficient information to meet PoE requirements and document:

- The potential problem and possible outcomes.
- How the proposed investment aligns with strategic direction, including local, regional, and national strategies.

Where the purpose of a business case is to consider the potential renewal of a bridge / structure, the PoE process has been further simplified because there are essentially two valid reasons that will prompt renewal of a structure as a potential investment:

1. End of life: a structure is approaching the end of its economic life (Work category 216 – bridge and structures renewals).
2. Level of service: there is a gap between the level of service the structure provides and what is needed, either now or in the future (Work category 322 – replacement of bridges and structures).

This AMP and the supporting Bridge and Structure Lifecycle Management Plan (LCMP) will indicate when either of these triggers is approaching. When a trigger has been reached the PoE phase must be used following the logic described below. A key tool for establishing whether a structure is genuinely approach end-of-life is the present value end-of-life (PVEOL) analysis, this is described in more detail in Section 2.1.3.

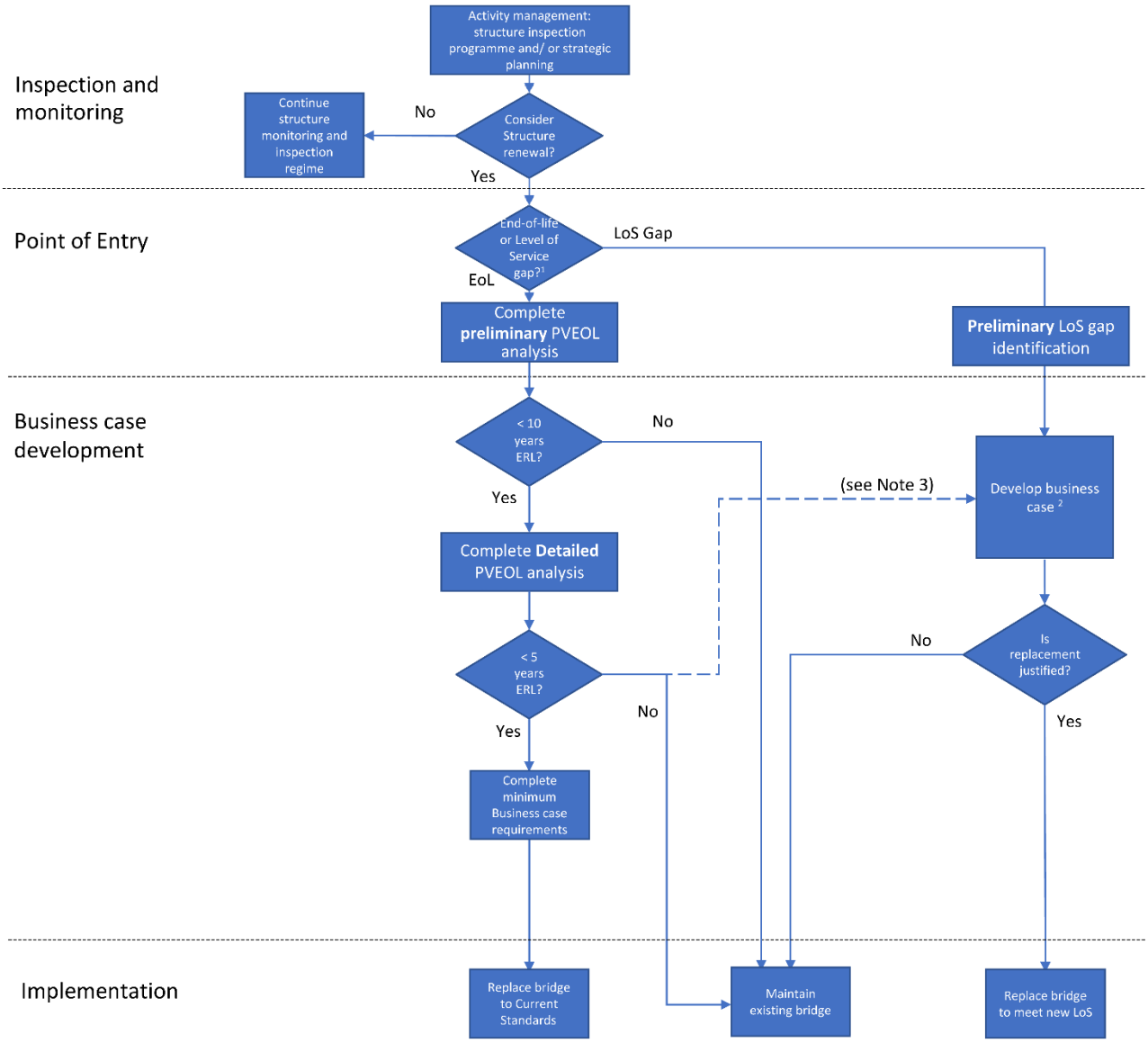


Figure 10: Bridge and structure renewal decision making framework

2.1.3 ECONOMIC ANALYSIS

NET PRESENT VALUE (NPV)

NPV economic analysis calculates the sum of all costs and revenues expected through the asset lifecycle. To reflect the opportunity costs of money NPV values immediate costs and impacts more highly than future costs and revenues by discounting to present-day dollars.

NPV calculates the discounted lifecycle revenues less the discounted lifecycle costs of each option and choosing the one with the highest NPV. If revenue data is not available then just the present value (PV) may be calculated to identify to option with the lowest lifecycle cost. Data requirements of NPV analysis include capital and operational costs, expective lives of components or assets, discount period and discount factor.

PRESENT VALUE END OF LIFE ANALYSIS FOR REPLACEMENT OF STRUCTURES

Where the trigger for structure renewal is end-of-life, a PVEOL analysis must be carried out to support decision making. Current practice is for inspection regimes in an AMP to identify structures within 10-years of the end of its economic life.

The economic analysis compares the net present value of maintaining the existing structure against replacement with a 'like for like' structure for various remaining life scenarios. Like for like replacement provides the same level of service as the existing bridge (e.g. width, live load capacity, alignment, resilience etc.), though the replacement bridge will be constructed to modern design standards. The process involves:

- Identify pragmatic maintenance options that either maximise the remaining life or delay the need for high maintenance expenditure.
- Calculate the NPV of each maintenance option.
- Identify to configuration and cost of a like for like replacement structure, the use of modern materials and constructure methods are assumed for this step.
- For each maintenance option calculate the NPV of the replacement structure.
- The option with the lowest total NPV for maintenance and structure replacement is the least whole-of-life cost and hence the preferred option.
- Confirm that the NPV of ongoing maintenance / renewal (beyond the time of proposed replacement) exceeds the NPV of the replacement bridge.

Planning and design for the new structure should meet current design standards or standards acceptable to the RCA. If other enhanced design standards or level of service features are sought then the PoE pathway for level of service gap should be followed and these improvements justified through a business case.

BENEFIT COST RATIO (BCR)

BCR is a more advanced methodology than NPV analysis, recognising that many asset management decisions have a more complex trade-off to be made around the various costs and benefits of a course of action.

BCR reports a ratio, or preferably a ratio range to reflect uncertainty, of benefits to costs with ratios greater than 1:1 indicating that the value of the benefits exceeds the cost of investment. Types of benefits and costs include:

- Tangible:
    - Direct benefits and costs to the organisation making the investment.
    - Direct benefits and costs to the community.
- Intangible:
    - Indirect benefits and costs arising because of the option but not captured by the organisation making the investment.

Tangible benefits and costs can be quantified and measured in dollars while intangible benefits and costs may be measured in other units (e.g. noise reduction) or can't readily be measured however there are approaches for converting these intangible items into tangible scores or dollars.

2.2 Risk and Resilience

Risk management is a concept that is present throughout this AMP. This section describes the process used to identify, assess, evaluate, and appropriately respond to potential risks.

2.2.1 CONTEXT

Currently the Councils have a lower than desirable maturity for assessing and managing risk, including natural hazards and climate change impacts (see Appendix 1). Risk to transport infrastructure is currently understood and considered / managed by operational staff and contractors involved in maintenance / renewal decisions.

The Councils are seeking to improve their maturity in this area to undertake more comprehensive assessment and analysis of risk to inform decision-making, enable monitoring and reporting, and ensure risks are managed and prioritised consistently.

It is recommended the Councils take a risk management approach generally consistent with AS/NZS ISO: 31000: 2018 (Risk Management – Principles & Guidelines) which defines risk and resilience as:

- Risk is the chance of something happening that will impact delivery of the organisation's objectives measured in terms of the likelihood of an event occurring and its consequence.
- Resilience is the transport system's ability to enable communities to withstand and absorb impacts of unplanned disruptive events, perform effectively during disruptions, and respond and recover functionality quickly.[1]

So, a risk management approach to infrastructure service and networks can help them be more resilient and sustainable, absorb and adapt to disruptive events and rapidly recover, and meet intergenerational needs in the most cost-effective manner.

The key steps of the risk management process are:

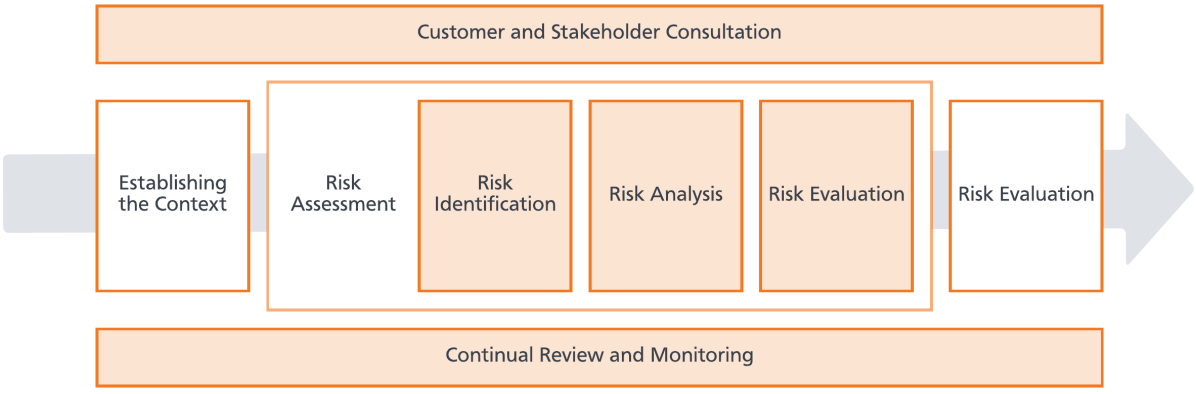


Figure 11: Risk Management Process

This improvement process is underway, with a regional assessment of critical assets underway which has developed an assessment framework and identified critical routes (see Section 2.2.3). This is a precursor to further work to identify critical assets on these routes, and in other locations, ahead of conducting a detailed risk and resilience (including climate change) assessment. The outcome of this work is to agree risk management / mitigation strategies and climate change mitigation and adaptation actions.

2.2.2 IDENTIFYING AND ASSESSING RISKS

[1] Waka Kotahi 2018 Resilience Framework https://www.nzta.govt.nz/roads-and-rail/highways-information-portal/technical-disciplines/resilience

The key risks with potential to impact the West Coast local road network and transport services are:

- Planning and programming risks.
- Operational and service delivery risks.
- Physical asset risks.
- Natural hazards and emergency event risks.

These are summarised below and included in the risk register in Appendix 2.

Table 6: Summary of identified risks

	Risk	Cause	Conseq	Likelihood	Level of Risk	Mitigation Measure / Treatment Options
Planning & Programming Risks	Lack of investment means Council doesn't deliver on community outcomes	Insufficient funds allocated	4	4	Critical	Anticipate what level of investment is needed for the next 10 years and review this annually through • Strategic plans • LTP & Infrastructure Strategy • C.TAMP and Annual Plans
	Reducing capacity of the Activity/Service so reducing levels of service	Increased demand	4	3	High	Monitor growth and demand
	Bridge restrictions or posting of bridges may restrict freight for industries and may prevent access for emergency services	Inadequate level of service Increase demand from freight vehicles	4	4	Critical	• Two yearly bridge inspections to identify high risk structures and identify/prioritise the FWP • Regular review of bridge capacities and demand for increased LOS • Development of overweight permit policy and database
	Asset Management Planning fails to match the district's needs	• LOS do not match customer expectations • Inappropriate FWP • Poor project management or service delivery	4	3	High	Focus on community outcomes as directed by Council.
	Asset inventory incomplete resulting in deterioration or loss of assets	• Data not gathered • Database not kept up to date, including asset condition data	4	3	High	• Requirements regards collection of data to be specified in contracts • Regular audits • Regular condition assessments
	Absence of or inaccurate asset condition information resulting in inappropriate maintenance or renewal	• Condition assessments not undertaken • Condition data not input into database	4	3	High	
	Inadequate maintenance and renewals planning fail to address deterioration of infrastructure resulting in an unsafe network	• FWP based on inaccurate asset data • FWP not prioritised	5	3	Critical	• Establish risk based (prioritised) asset management plan • Establish effective condition assessment programme to reduce uncertainty around lifecycle stages of infrastructure

Risk		Cause	Conseq	Likelihood	Level of Risk	Mitigation Measure / Treatment Options
	Reducing/inadequate funding base for the land transport activity to meet required levels of service	• Reduced subsidies (FAR) • Declining population with consequent reduced rating base • Elected member influence	4	3	High	• Monitor level of investment annually • Better understand cost implications of changing LOS • Investigate alternative sources of funding such as PGF
	Significant new investment needed to match HPMV demand - which can't be funded	• Increase in HPMV on the roads requires higher LOS in particular on bridges. • No additional funding source	4	3	High	Use of asset management systems to prioritise works
Operational and Service Delivery Risks	Insufficient resources are available to implement the programme	Lack of capacity and / or capability within the Council and / or their suppliers	4	3	High	• Internal staff recruitment • Procurement strategies and plans in place • Market analysis prior to procurement • Combined projects to increase size and make more attractive to procure
	Health and safety risks leading to death & serious injury to council staff, contractor working on council owned sites, consultant, member of the public	• Unsafe practices • No or inappropriate Health and Safety Plans / procedures • Lack of H&S policy	5	2	High	• Organisation H&S management systems in place and regularly reviewed • Ensure all contractors / consultants have appropriate H&S management plans / systems in place • Monitoring of site works
	Insufficient resources are available to implement the programme	• Recruitment and retention challenges. • Increasing quantity of work exceeds local capacity	4	3	High	• Succession planning • Regional approach to delivery – share resources • Recruitment focus • Engagement of external providers to 'fill the gap'
	Lack of technical expertise to provide planning/design resulting in absence of or inappropriate planning/design.	• Limited of specialist technical engineering capability based on the West Coast.	4	3	High	
	Renewals / capital works not delivered within approved scope of works, planned timeframes, and budget.	• Unrealistic budgets • Resources	4	3	High	• Set realistic capital budgets • Assess resources required to deliver the overall renewals / capital programmes
Physical Asset	Bridges Failure - Premature failure or partial collapse due to condition of structure resulting in serious injury or possible loss of life.	• Undetected deterioration or poor maintenance.	5	2	High	Bridge inspection procedures, seismic performance review of bridge structure

Risk		Cause	Conseq	Likelihood	Level of Risk	Mitigation Measure / Treatment Options
	Considerable disruption to traffic or rail movement.					
	Age of infrastructure with potential backlog in renewals resulting in • Diminishing or loss of service, • Health and safety issues • Reducing level of satisfaction	Deferred maintenance	4	2	High	Regular condition assessments
	Premature asset failure due to HPMV regularly using the network.	Existing pavements or structures unable to take increase in loadings.	4	2	High	• Identification of vulnerable assets. • Options to address under capacity
	Pavement deterioration accelerates faster than expected, resulting in significantly increased long term life-cycle costs.	Underfunding, work being deferred for too long, overloading by heavy vehicles, poor materials or work quality, poor asset management decisions.	4	2	High	• Annual condition rating data collection • Continued focus on improving AM processes, • systems and data. Monitor traffic growth trends • Review construction specifications for appropriateness. Introduce stricter controls if necessary.
Natural Hazards Emergency Event Risks	• West Coast councils unable to function • Damage caused by natural hazard (earthquake / flood) results in regional isolation	Moderate to severe earthquake, extreme weather event, building fire	5	2	High	Inclusion in Civil Defence emergency response.
	• Collapse or serious Damage to bridge/s	Flooding following extreme weather event / EQ	5	2	High	Inspections of river and structure Lifelines study. Identify critical bridges and monitor
	Large slips making routes inaccessible or causing damage or collapse to structures (eg) rural roads to service key infrastructure & rural industry (forestry / farming)	Moderate to severe earthquake or flooding following a storm event.	5	2	High	Routine inspection. Review Waka Kotahi records for previous incidents of accidents as a result of flood. Identify high risk zones and potential mitigation measures, route slope stability and resilience etc.

2.2.3 CRITICAL ASSETS

As discussed in 2.2.1, the Councils have undertaken a review of critical assets and routes as part of their 2024-34 AMP improvement programme.

The review identified 11 key factors that are anticipated to have impacts on the performance of transportation networks that are managed by the councils. They are relating to resilience, natural hazards, climate change and economic contribution to the West Coast region.

Table 7: Key factors considered in the risk and criticality assessment

Aspects	Key factors	Description
Resilience	Alternative route	The redundancy of the transportation network
	Lifeline utilities	Connected to airport, port, water and wastewater treatment plants
	Key structures	Connected to hospitals, schools and other key structures
	Hierarchy	Strategic, arterial, collector or local roads
Natural hazards	Earthquake	Located in earthquake prone zones
	Flooding	Located in flooding prone zones
	Landslide	Located in the zones with land instability
	Located within a forest zone	Heavy rainfall could convey the slash from the forests and cause damage to roads
Climate change	Sea level rise	Located in coastal hazards zones
	Coastal erosion	Located in coastal hazards zones
Economic value	Key industry	Farming, import/export industries, mining, fishing
Maintenance	Maintenance cost	Annual maintenance cost for each carriageway

These 11 factors were applied to assess the risk and criticality of the transport assets of the Councils was developed, evaluate the 11 factors on a measurement scale (from 1 to 5, where 5 is the most critical). The assessment methodology considered:

Criticality	Risk
• Availability of alternate routes. • ONRC hierarchy. • Transport connection to other key structures (e.g. industry, schools, rest homes, hospitals). • Access to lifeline utilities (e.g. locally, regionally, or nationally significant). • Surrounding land use (e.g. forest zones). • Economic value (e.g. manufacturing, retail, CBD, community places/halls, dairy farming, tourism, primary industry, import / export industries).	• Seismic risk. • Flooding risk. • Coastal hazard. • Landslide hazard.

The assessment aims to identify more critical roads, for example, the roads connected to hospitals and airports are considered more critical than a local road. A road that accesses to a major tourism destination is rated with a higher criticality score than a road leading to high pedestrian areas from an economic perspective. In summary, this methodology is intended to determine the roads that are more critical and with higher risks of failure.

BULLER DISTRICT NETWORK

Buller District has 426 roads recorded in the RAMM database. Figure 11 below shows the results of spatial mapping, with critical roads being identified, and assessed based on their criticality factor, with green being less critical, and orange to red being most critical. As observed, the roads most critical are concentrated within Westport, being situated next to a beach and/or river, as well as access to Westport Airport. Other roads including Cobden Street (East), Waverley Street and Kohaihai Road also receive high scores as they are connected to businesses, hospitals, schools. Karamea Highway is also identified as high criticality.

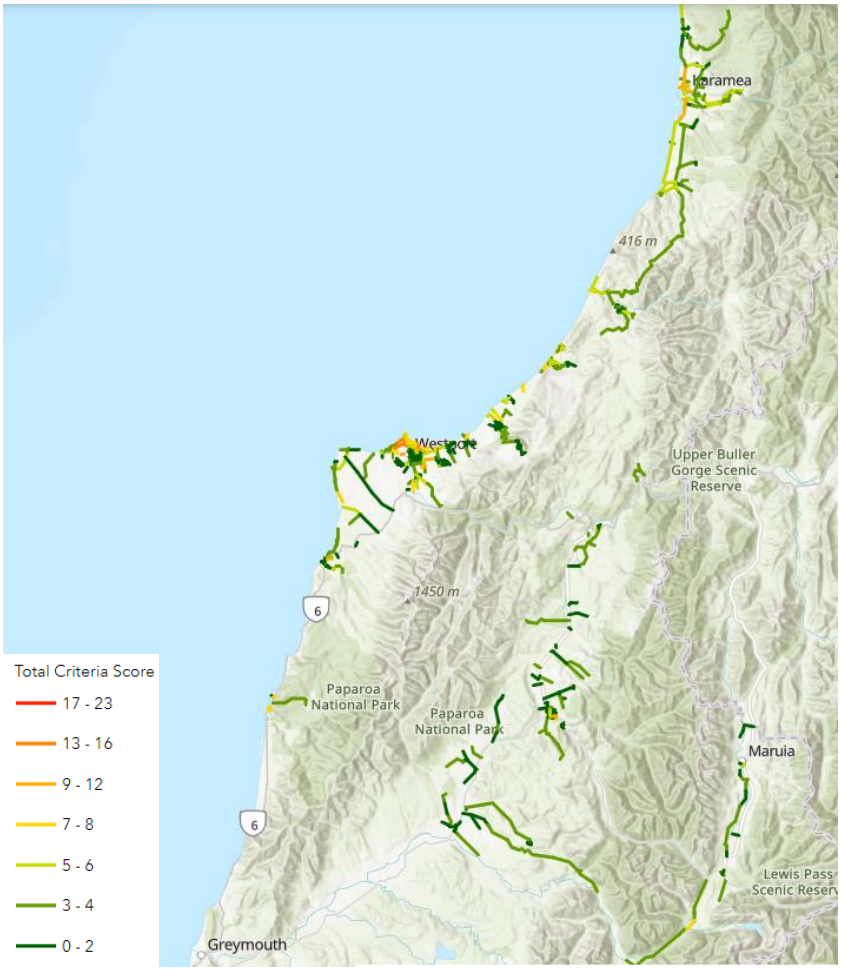


Figure 12: Results of spatial mapping for Buller District

GREY DISTRICT NETWORK

Grey District network has a total of 505 roads recoded in the RAMM database. Figure 12 below shows the most critical routes that have a high risk to earthquakes due to their proximity to the Alpine Fault line, beaches, forests and rivers.

In particular, Lake Brunner Road, Preston Road and Shelley Street are at risk of earthquakes and high flooding risk, while being in close proximity to a school. It is also one of the roads with highest maintenance expenditure recorded. Other roads such as Arnold Valley Road and Deep Creek Road are assigned high scores as they are key transport links for heavy vehicles and connections between

towns. Raleigh Street and its extension are linked to the Greymouth Aero Club; thus, they received higher scores.

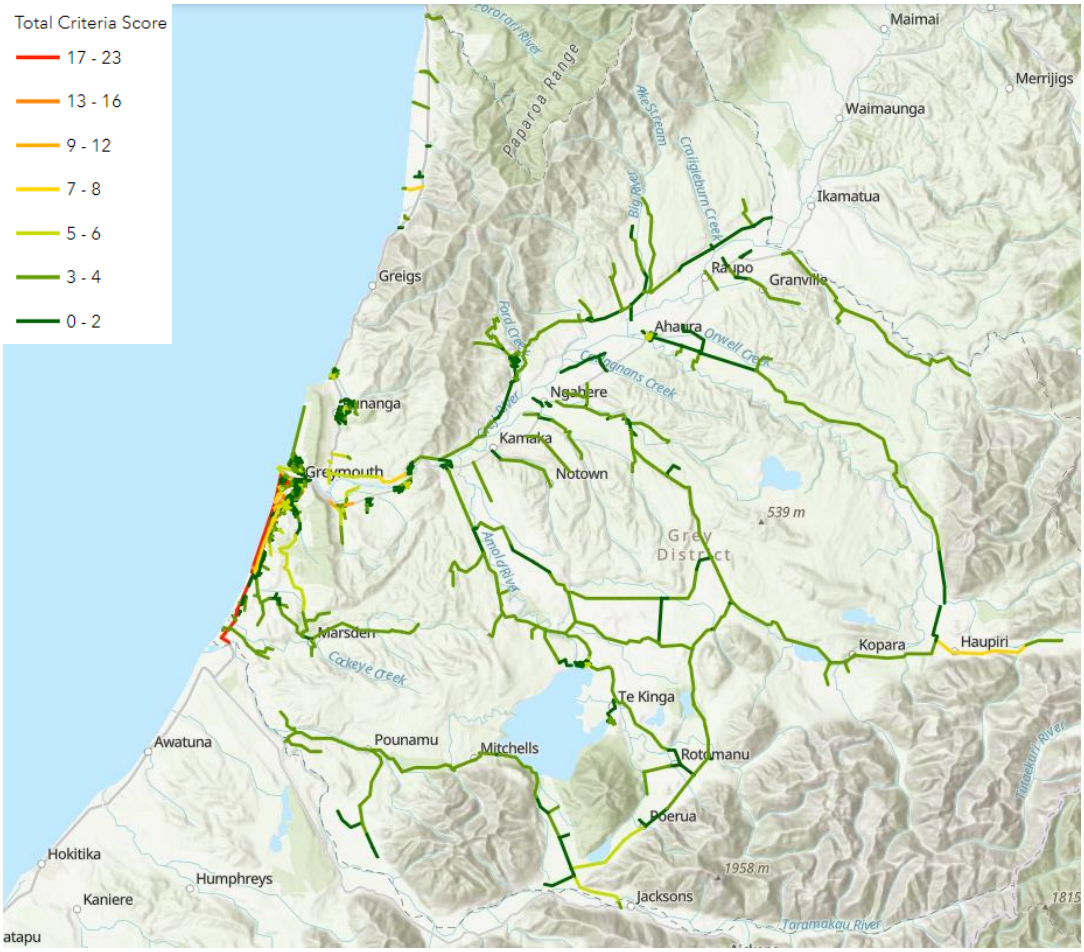


Figure 13: Results of spatial mapping for Grey District

WESTLAND DISTRICT NETWORK

Westland District has 325 roads recorded in the RAMM database. Figure 13 identifies the locally critical roads with high risks, with the main exposures being climate change and key lifeline utilities, including a school and an airport on Gibbs Road and Waiho Flat Road respectively. Furthermore, natural features of the topography such as glaciers, indigenous forests and rivers pose high risks to the nearby transportation assets due to the impacts of climate change. Roads that provide a key transport link across towns or for freight, such as Kaniere-Kowhitirangi Road and Kaniere Road, also are assigned with higher criticality scores as these are crucial for a community's livelihood.

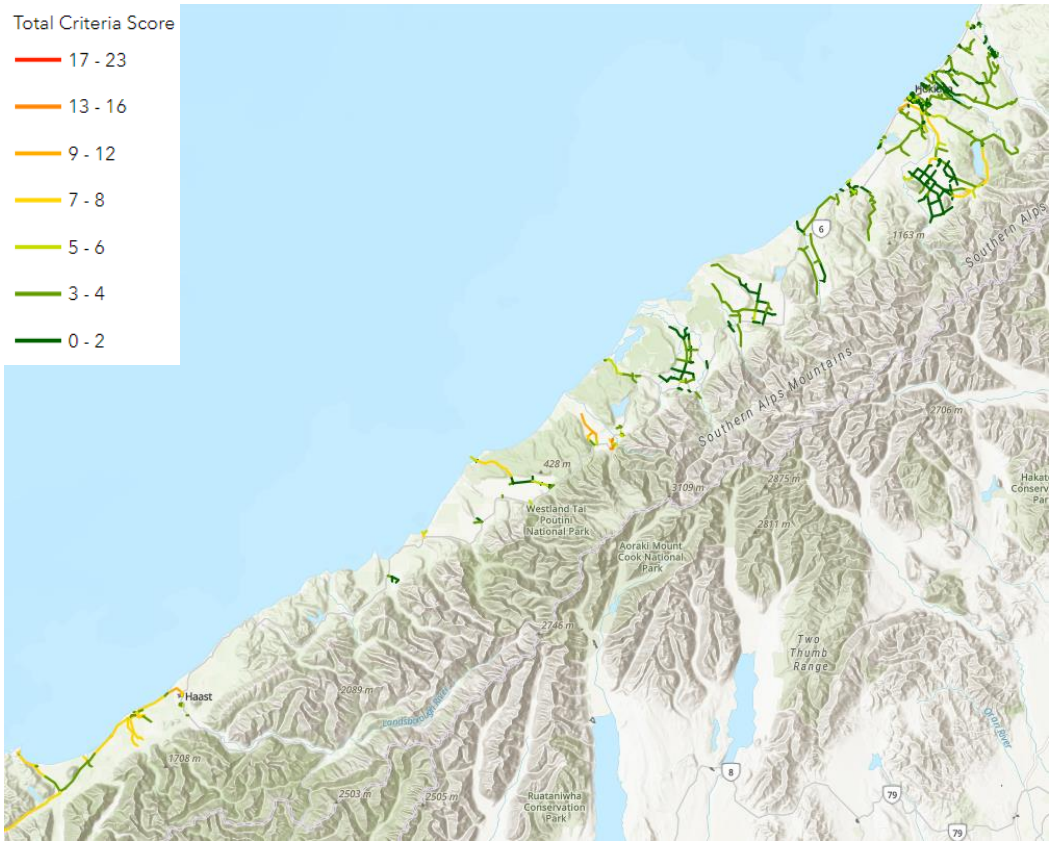


Figure 14: Results of spatial mapping for Westland District

2.2.4 ASSESSING INFRASTRUCTURE RISK AND RESILIENCE

As the wettest region in New Zealand, with low-lying coastal areas typically receiving annual rainfall between 2,000 and 3,000 mm, the next 30 years will bring an increasing threat to road and rail networks due to more frequent and severe rainfall and storms. The combination of intensified storms and the region's relatively unstable terrain will place additional stress on these networks, leading to rockfalls, landslides, erosion, and flooding.

Furthermore, due to the location and topography of the region covering one of the longest fault lines in the country, the threat of medium to large-scale earthquakes are realised. There are significant risks associated with both heavy rain and earthquakes, including rockfalls, landslides and avalanches along SH6, SH7, and SH73.

Following delivery of the criticality assessment above, a regional improvement project is proposed for 2024-27 to assess the potential impact of identified risks and resilience (including climate change impacts) and plan each Council's response to mitigation and adaptation.

2.2.5 WEATHER PATTERNS AND CLIMATE CHANGE

Ministry for the Environment's climate change projections for New Zealand[2] assessment for the West Coast region forecasts:

- The West Coast is expected to experience the largest projected changes in precipitation the winter season, with area-average increases of up to 40 per cent under RCP8.5 (representative concentration pathway) by 2090.

[2] chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://environment.govt.nz/assets/Publications/Files/Climate-change-projections-2nd-edition-final.pdf

- It is also expected that the Coast will experience the largest seasonal changes in temperature in the summer season, with the number of hot days increases by 5 days (64 per cent increase) by 2050.
- Although projections of relative humidity are expected to reduce over the country, the West Coast region is an exception with an increase in humidity in winter, due to increased rainfall and reduced number of dry days, and reduced solar radiation (up to 10 per cent).

Key impacts of climate change related impacts to weather patterns and events are:

- Stormwater design and maintenance.
- Impact on road network access, and potential for visitors and staff to require evacuation by air or boat.
- Other infrastructure impacts, e.g. wastewater overflows, water quality, property flooding.

2.2.6 SEA-LEVEL RISE

The West Coast region, like the rest of New Zealand's coastline, is forecast to experience increasing sea level-rise linked to mid to low latitude mountain glacier wastage, polar-ice sheet response to warming and thermal expansion of the oceans.

NZ SeaRise[3] provides sea level-rise predictions, factoring vertical land movement, under a range of Shared Socioeconomic Pathways (SSP) that span a range of plausible societal and climatic futures based on greenhouse gas emissions. SSP2-4.5 is the scenario used for the discussion below, this is a world with moderate emissions (+2.7°c warmer world) and is the current trajectory we are on if we follow current policy settings.

On average, West Coast sea level is predicted to rise by 0.22m (range 0.19 – 0.25m) in 2050, increasing to 0.57m (0.38 – 0.83m) in 2100 and 0.95m (0.58 – 1.46m) in 2150.

Key impacts of sea level-rise are:

- Sewage treatment plant discharge and plant location.
- Stormwater design and maintenance.
- Impact on road network access, and potential for access to be disrupted during storm events.
- Flooding of town centres and residential areas
- Critical need for protective structures e.g. seawall / breakwater.
- Sewage treatment plant discharge and plant location.

[3] NZ SeaRise https://www.searise.nz/

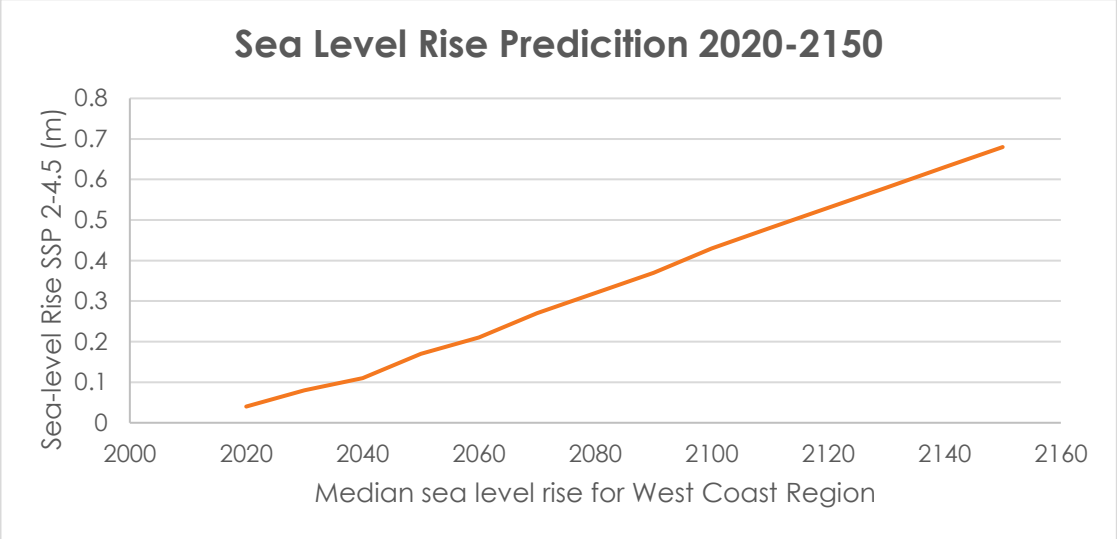


Figure 15: Forecast sea level rise

2.2.7 SEISMIC

West Coast is one of the most at-risk locations, with the Alpine Fault line running from the most southern end of the coast, directly up to the northern end of the region and through the Lewis Pass reserve into Nelson-Tasman region. The Alpine fault line is one of the largest faults in New Zealand.[4]

While we are unable to predict earthquakes, scientific research indicates there is a 75 per cent probability of an Alpine Fault earthquake occurring in the next 50 years, and there is an 82 per cent chance that it will be a magnitude 8 or higher, causing severe damage and disruption and major consequences across the country.

Much of the focus of recent assessment has been for an Alpine Fault Magnitude 8 (AF8) scenario which would produce substantial ground accelerations / shaking, displacements and rockfalls and landslides, avalanches, river sedimentation, flooding, liquefaction of soils in low lying areas, and ocean tsunamis, all leading to possible catastrophic consequences. Studies show that the Alpine Fault will continue to have large earthquakes, at reasonably regular intervals.

[4] https://af8.org.nz/

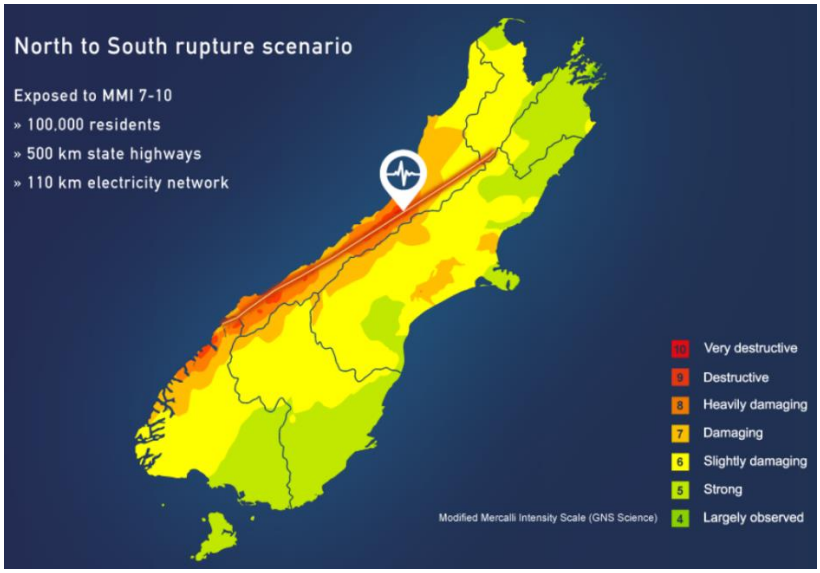


Figure 16: AF8 North to South Hazard scenario

Figure 11 shows one of three possible rupture scenarios: North to South Hazard scenario, with the other two being Central rupture scenario and a South to North Hazard scenario. The first two scenarios place the epicentre within the West Coast Region, with the third one in Fiordland.

This does not preclude a moderate impact earthquake which could happen sooner and still trigger some of these outcomes. Mitigation of the risk posed by a catastrophic AF8 event to the West Coast transport assets is a challenge, in such an event the emphasis is likely to be on preserving life and evacuating people from the area.

Ground shaking is a key risk to the West Coasts to assets, with a possible 400km of surface rupture, any infrastructure such as buildings and roads may be significantly damaged. Shaking will also trigger a large number of landslides and rockfalls, and cause liquefaction in areas near rivers, lakes and other waterways. also likely to damage roads, bridges and railways near the Alpine Fault. Impassable roads and bridges will result in communities being isolated from the rest of the South Island for some time.

2.3 Lifecycle Management Planning

This section seeks to determine the best operational, and capital investment strategies to deliver levels of service, and use these as the basis for asset management planning and financial forecasts.

This section presents evidence for investment in each land transport activity the Councils are responsible for and identifies options for investment to address issues and achieve objectives. It directly contributes to the Economic Case of the Programme Business Case where the programme as a whole is assessed, and the preferred investment programme recommended.

2.3.1 LIFECYCLE MANAGEMENT PLANNING CATEGORIES

The following table shows the relationship between the LCMP sections and NLTP Work Categories.

Table 8: Lifecyle Management and NLTP Work Category relationships

Lifecycle Management Activity	NLTP Work Categories
Investment Management	WC003 Activity management planning improvement
Network and Asset Management	WC151 Network and asset management
Sealed Pavements	WC111 Sealed pavement maintenance WC212 Sealed road resurfacing WC214 Sealed road pavement rehabilitation WC341 Low-cost low-risk improvements
Unsealed Roads	WC112 Unsealed pavement maintenance WC211 Unsealed road metalling
Bridges and structures	WC114 Structures maintenance WC215 Structures component replacement WC216 Bridge and structures renewals
Drainage	WC113 Routine drainage maintenance WC213 Drainage renewals
Walking & Cycling	WC124 Cycle path maintenance WC125 Footpath maintenance WC224 Cycle path renewal WC225 Footpath renewal WC341 Low-cost low-risk improvements
Network Maintenance & Services	WC121 Environmental maintenance WC122 Network services maintenance WC131 Level crossing warning devices WC222 Traffic services renewals
Public Transport (Westland only)	WC511 Bus services
Coastal Shipping (Grey only)	WC442 Sea freight operations
Road Safety	WC341 Low-cost low-risk improvements WC432 Safety promotion, education and advertising

2.3.2 SEALED PAVEMENTS

ASSET SUMMARY

Sealed roads comprise ~55-60% of local roads on the West Coast, and this asset group is the largest by value within each Council's transport portfolio. The network connects with the state highways

managed by Waka Kotahi and provide essential social and economic functions as part of the integrated regional network.

Table 9: Sealed road network summary (Source: Transport Insights 2022/23)

Network length (km)	Buller DC		Westland DC	Total
Urban sealed roads	76.8	96.2	47.8	220.8
Rural sealed roads	235.1	276.7	335.3	847.1
Unclassified sealed roads	9.2	6.7	5.7	21.6
Total sealed roads	**321.0**	**379.3**	**388.9**	**1,089.5**
% of all roads	54%	61%	56%	57%

Pavement components:

- **Formation:** the surface of the finished earthworks on which the road is constructed, it has a replacement cost but no annual depreciation. The trimmed or prepared portion of the formation is referred to as the subgrade.

  Basecourse and subbase pavement layers: The basecourse is one or more layers of material which form the uppermost structural component on which the surfacing is placed, while the subbase is material laid on the subgrade and below the base. The subbase adds thickness to prevent intrusion of the subgrade into the base or to provide a working platform.

- **Surfacing:** The part of the pavement specifically designed to resist abrasion from traffic and to minimise the entry of water. High volume roads need superior surfacing to withstand greater turning and braking forces. Cul-de-sac turning heads may also need surfacing specially designed for turning vehicles.

The main types of sealed pavement surface on the West Coast are:

- **Chipseal:** layer of sprayed bitumen with a stone chip spread on top as a running surface, the most common pavement surfacing on West Coast roads.
- **Asphaltic Concrete:** mix of graded aggregate and asphaltic binder laid typically in a 35-50mm layer, used for roads with a high volume of turning, braking, or accelerating traffic, such as in urban areas.

ASSET PERFORMANCE AND CONDITION

Each Council's sealed road network was surveyed in 2021/22 via high-speed condition data surveys which collected data for roughness, rutting, texture, and cracking.

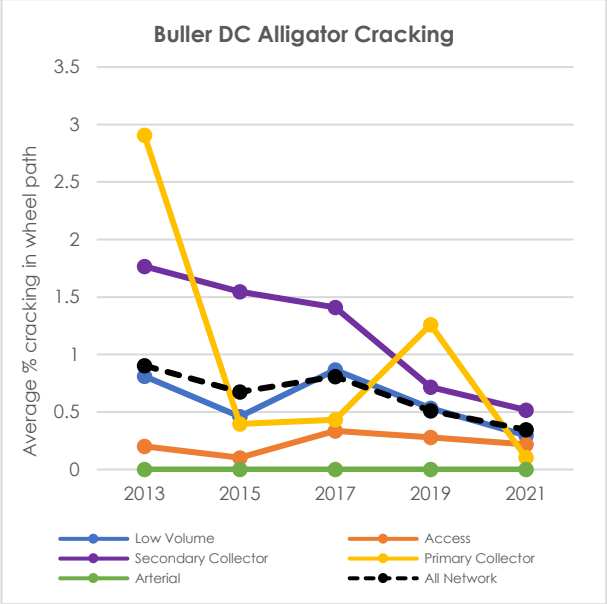
Currently Te Ringa Maimoa Transport Excellence Partnership is proposed to lead future national delivery of sealed pavement condition surveys on behalf of RCAs with data collection and delivery 100% funded via the NLTF. As of 1 July 2024 the updated requirements for sealed pavement condition data collection, as specified in Work Category 151 conditions of funding, are:

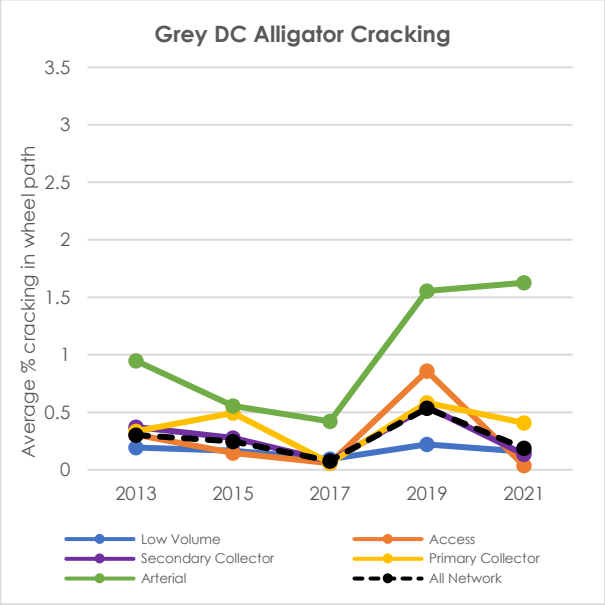
- Automated pavement condition inspections of all sealed roads must be undertaken at least every second year, and high-class roads must be undertaken annually.
- Pavement condition measurement must include roughness, rutting, texture, cracking and geometry.
- High class roads are where the ONF modal network classification are as follows: General Traffic: GT1 – GT5, Freight: F1 – F5, Public Transport: PT1 – PT3

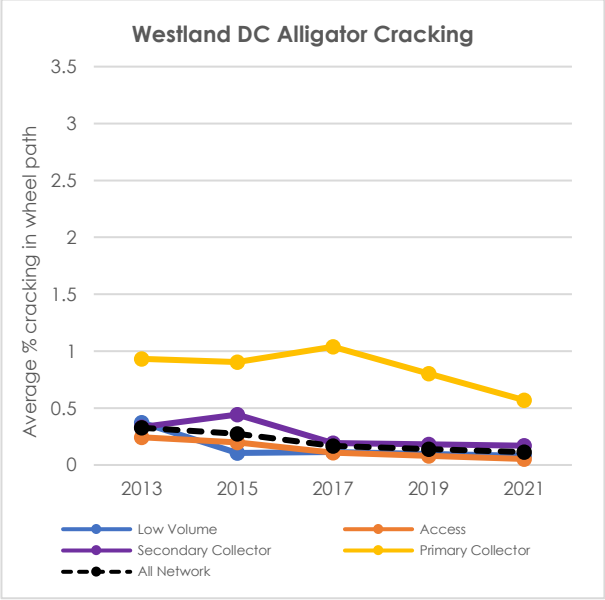
The following charts present each Council's trends for sealed road condition, the most recent data is for 2021/22 (shown as 2021 on the charts).

Alligator cracking: measured as the average % of cracking in the wheel path.

Alligator (fatigue) cracking is a series of interconnecting cracks which are initiated in the wheel paths and progress along the surface under repeated traffic loading. Cracking allows for infiltration of water into the underlying pavement layers, accelerating the rate of deterioration.



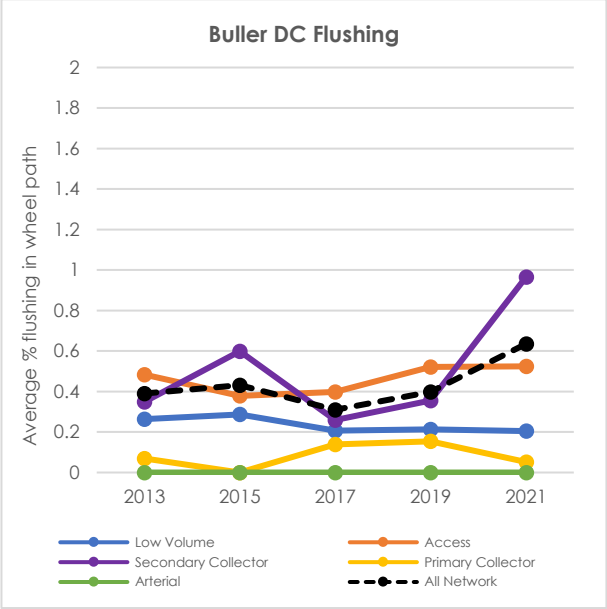


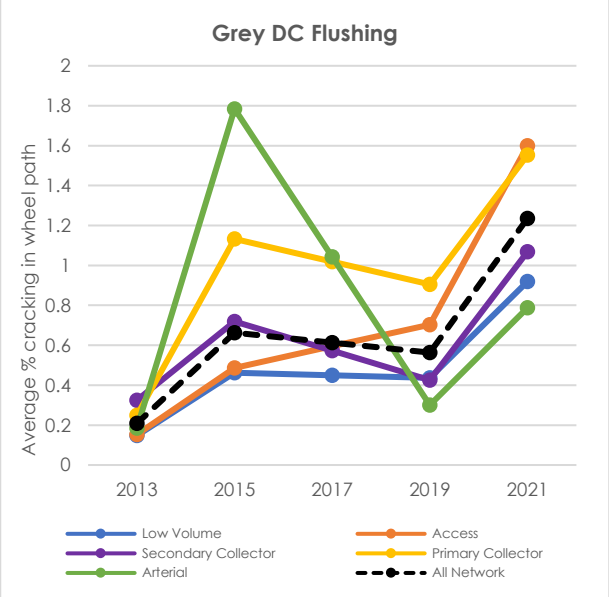


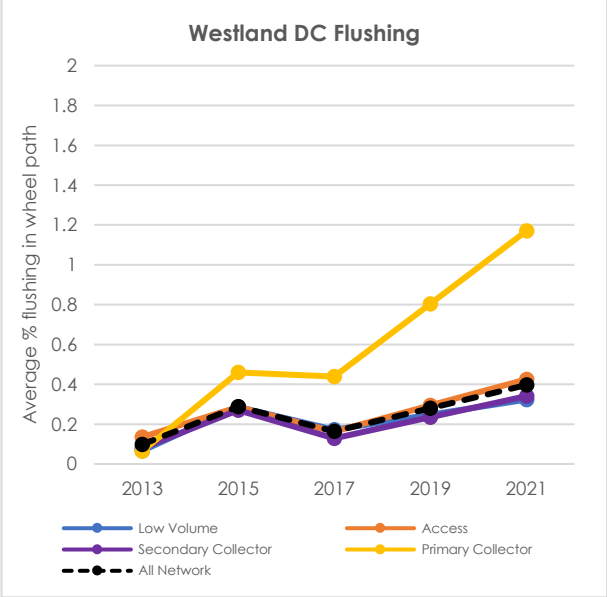
Flushing: measured as average % flushing in the wheel path.

Flushing occurs when the bitumen has risen to where the surface aggregate is just protruding, or where the binder has risen to be level with or over the top of the surface aggregate.

Flushed areas are characterised by a generally shiny or slick appearance and a lack of surface texture.

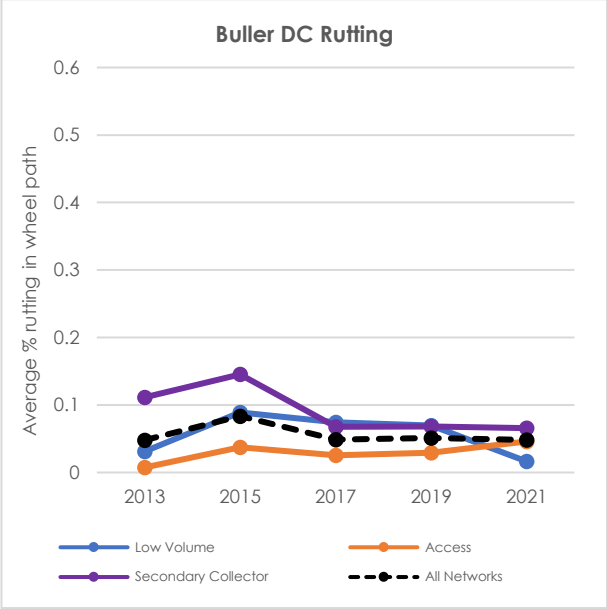


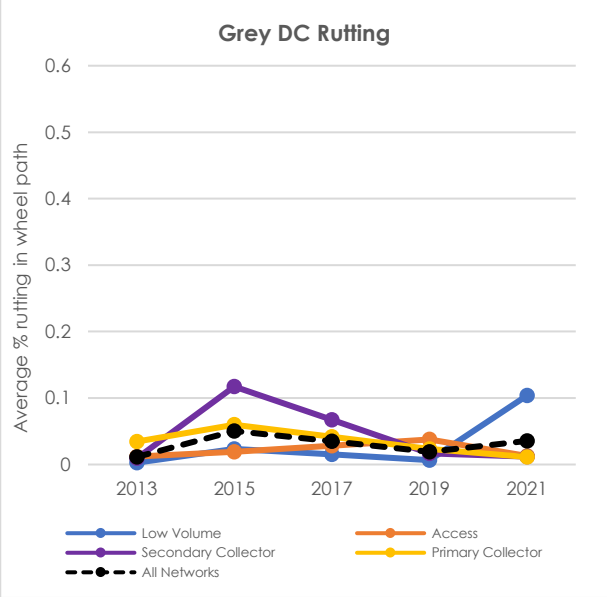


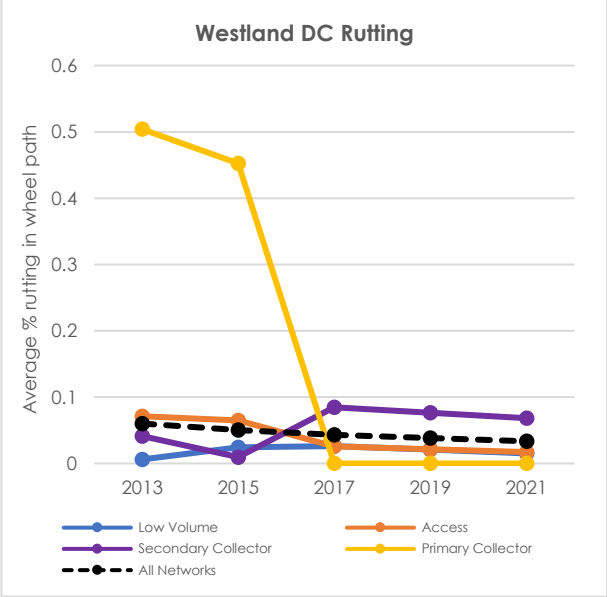


Rutting: measured as average % rutting in the wheel path.

Rutting is a pavement distress mechanism that can significantly affect ride quality, pavement integrity, and safety – a common cause of surface water. Rutting is also followed by surface failure.







Ride quality – roughness of roads: measured as the % of vehicle kilometres travelled on the network on 'smooth' sealed roads indicating the ride quality experience by the user has declined across all three Councils for 2018-22. The decrease has been most marked in Buller, with an 8% decrease and now tracking below the peer group average, while Westland and Grey have had a more modest 2% decrease.

During the same period the peer group average has increased 3%, highlighting the need for intervention to reverse the trend on the West Coast. Westland and Buller currently meet their level of service target for ride quality though further reduction in condition will likely fall below performance targets, while Buller did not achieve in 2021 or 2022 (see Section 0).

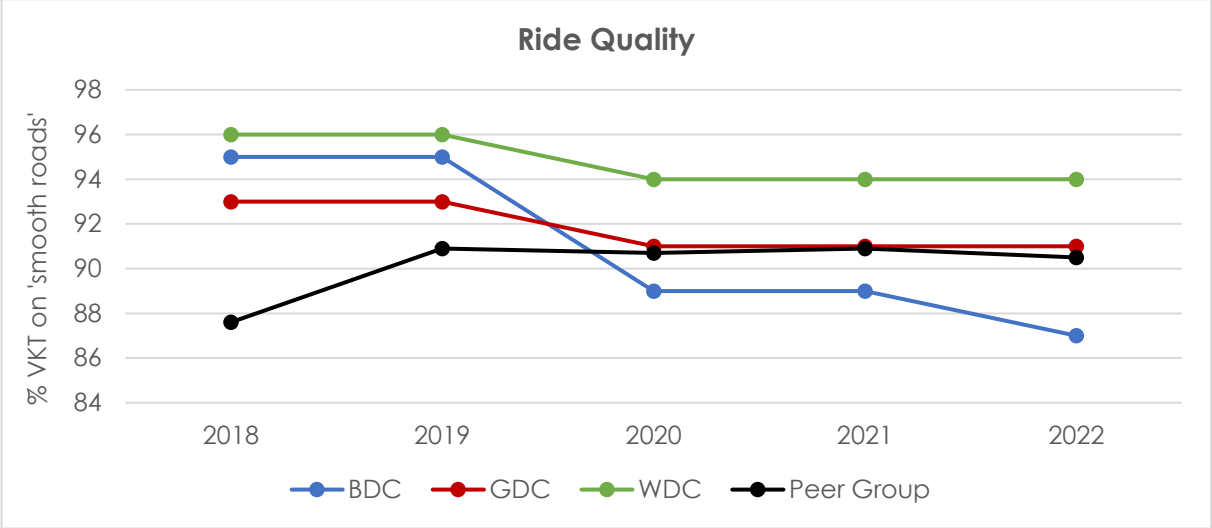


Figure 17: Sealed pavement ride quality (roughness of roads) 2018-22

The distribution of 'smooth' roads, measured by smooth travel exposure (STE) by ONF street category in 2021/22 is shown below. There is variability between the councils and within street categories relative to provincial centre peer group average. Most notably STE is declining across all street categories for all three Councils.

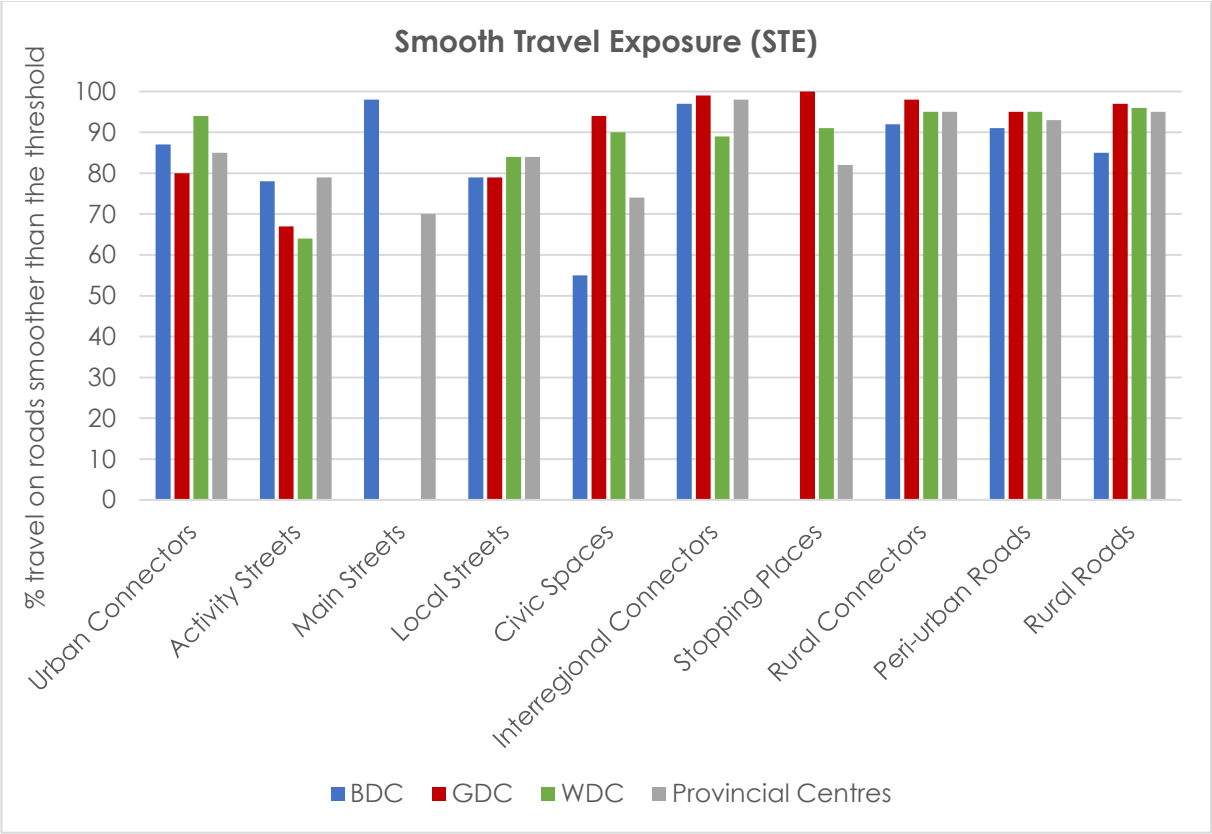


Figure 18: Smooth travel exposure by ONF street category 2021/22

Surface condition: an index summarising surface condition based on visually measured condition defects (out of 100% where a higher number is better condition) has remained relatively stable for 2018-22. All three Councils are tracking above the peer group average.

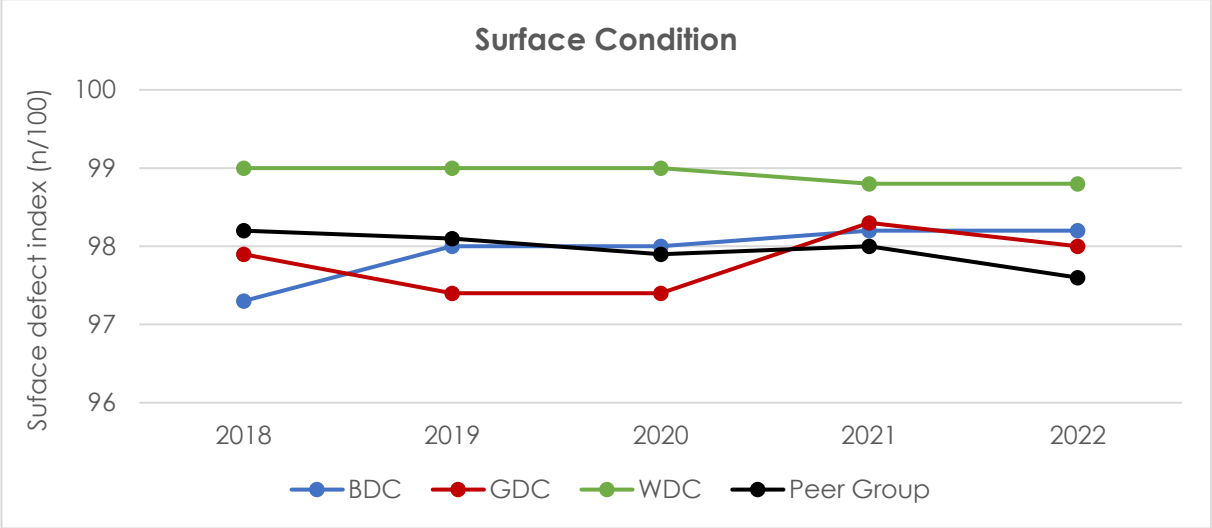


Figure 19: Sealed pavement surface condition 2018-22

Pavement condition: an index summarising pavement faults in the sealed road surface defects (out of 100% where a higher number is better condition) has sharply declined in Buller (-9%) and Westland from 2022 (-7%) for 2018-22, while Grey has had an overall increase (3%) with variability between years. All three Councils are tracking below the national peer group average, which has also declined by 2% over the period.

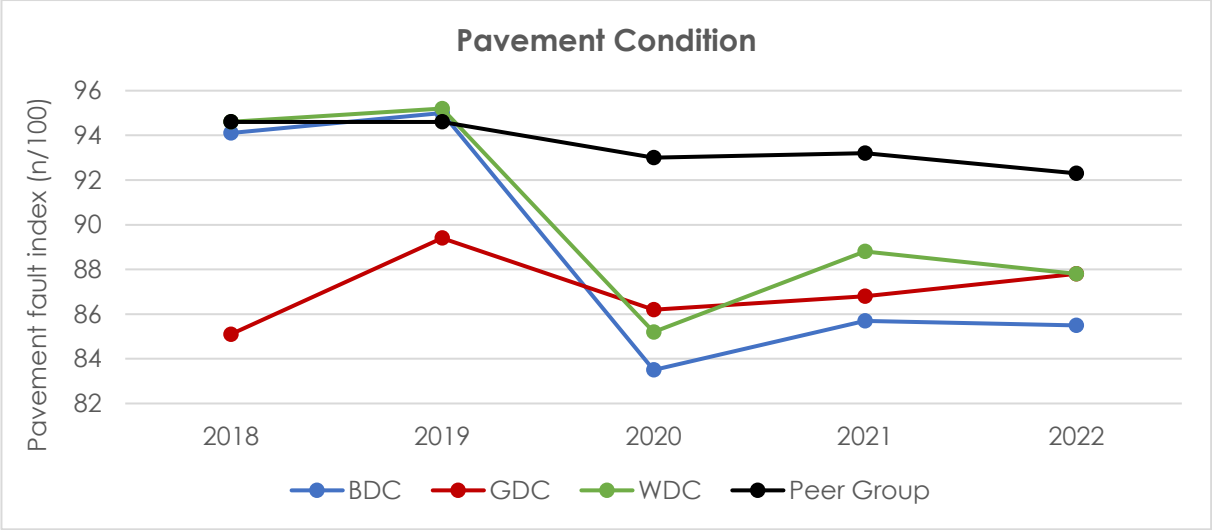


Figure 20: Sealed pavement condition 2018-22

20-YEAR FORWARD WORK PROGRAMME

The carriageway surface is the component of the road that is subject to the most wear, so requires the most frequent renewal with an overall objective of applying the right treatment to ensure that the required level of service is delivered whilst minimising total life cycle costs.

Each Council developed a 20-year forward work programme in July 2023, this was an update on the previous programme from 2020. Each programme was developed through high speed condition data collection and analysis, candidate site selection, field validation, and prioritisation of each Council's long-term programme.

The diagram below outlines the full process used for development of the sealed pavement surfacing renewals and pavement rehabilitation programmes across the West Coast.

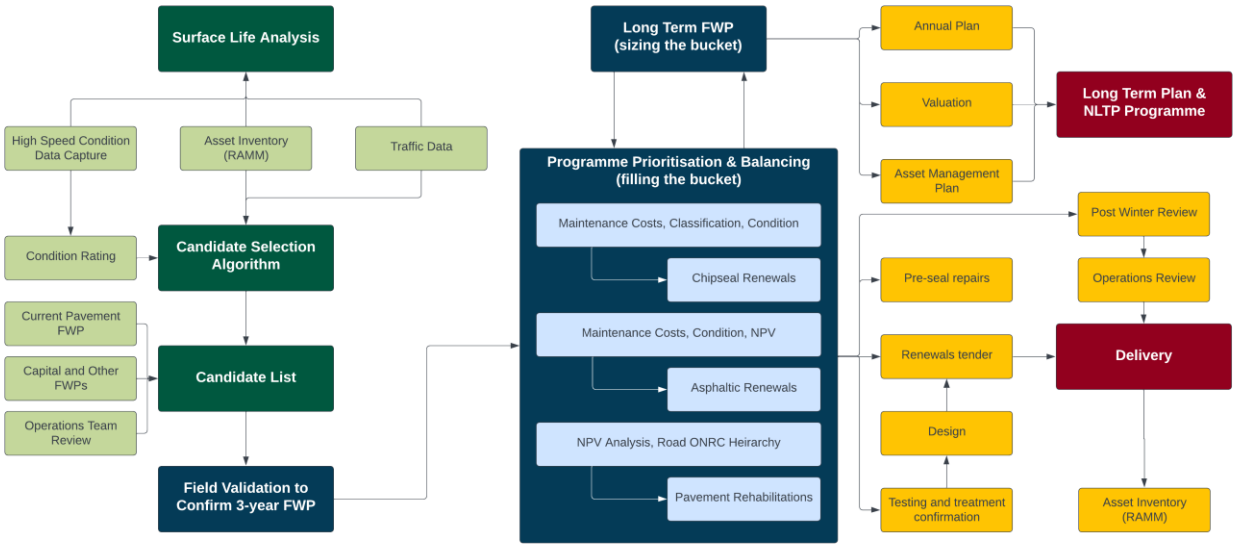


Figure 21: Sealed pavement forward work programme development

The forward work programme recommended quantities (m^2) for Council is shown below. The previous programme recommendation for 2021-24 is shown for comparison to the updated 2024-34 programme. Note that the 2021-24 programme is what was previously recommended, not what has actually been designed and delivered which for each Council was less than the quantities shown due to substantial cost increases limiting the quantity of work that could be delivered within approved budgets.

The updated forward work programme for each Council recommends a higher quantity of work annually compared to the previous version. This is due to deteriorating condition on some parts of the network, exacerbated by each Council being challenges to effective plan and delivery the desired scale of programme within budget and with available resources.

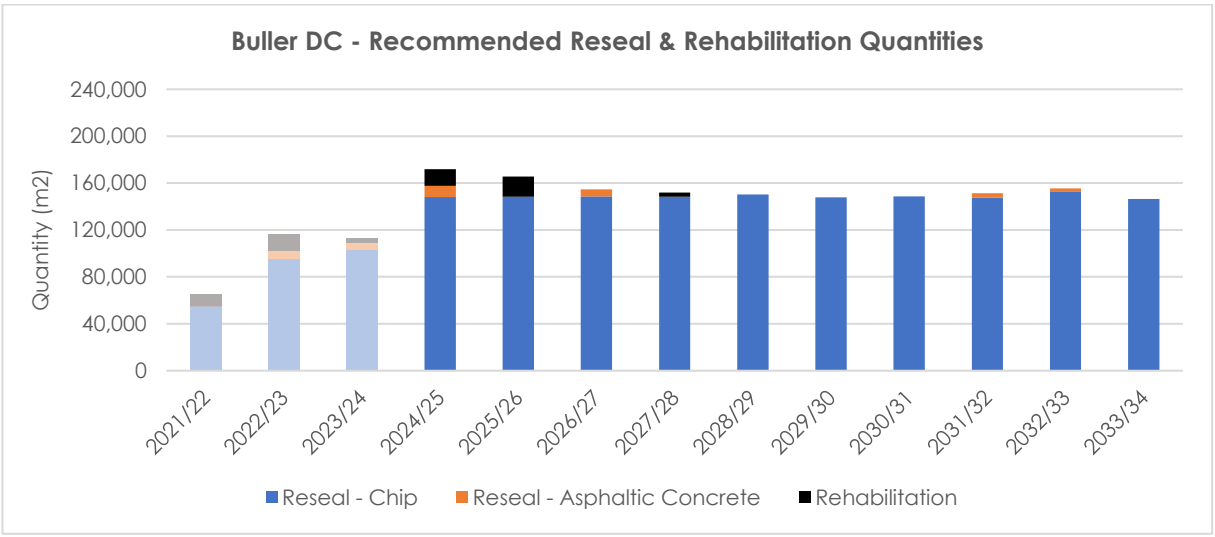


Figure 22: Buller forward work programme quantities

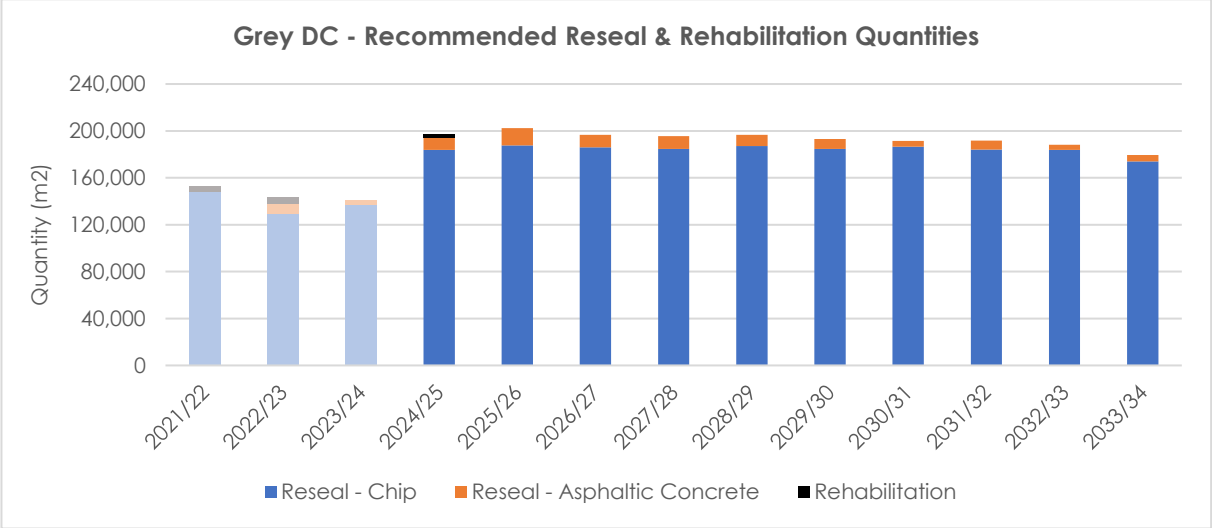


Figure 23: Grey forward work programme quantities

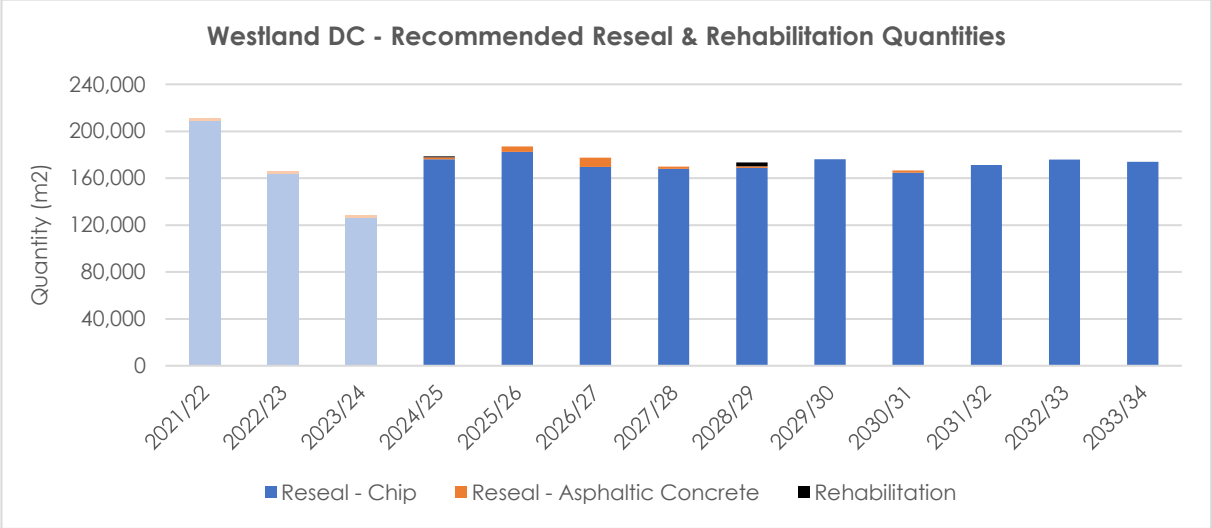


Figure 24: Westland forward work programme quantities

KEY ISSUES AND RECOMMENDATIONS

Issue	Potential Impacts	Recommendations	Priority
Declining sealed pavement condition trend.	Asset failure leading to low quality / unusable facilities. Failure to meet community (level of service) expectations and reputational harm. High cost to repair or replace under urgency.	Programme annual resealing quantities to achieve level of service expectations. Avoid deferred maintenance to maintain better design life of assets and ensure value for money. Routine sealed pavement condition data collection to ensure effective and efficient planning and delivery of physical works that maximise asset lives.	**High**
Significant cost increase, particularly bitumen, fuel, and labour costs.	Previous budgets are insufficient to continue delivering a similar scale programme, resulting in continued decline in asset condition. Operational staff are challenged to effectively plan and budget forward works with uncertainty about future decisions. Asset failure resulting from continued deferral of priority maintenance / renewals. Reallocation of funding from other activities, transferring issues to other parts of the programme.	Forward work programme costs updated to current market rates. Appropriate forward budgets to carry out maintenance and renewals.	**High**

INVESTMENT OPTIONS

Option	Cost 24-27	Summary	Rating
Option 1 **Status quo**	BDC $6.3m GDC $5.2m WDC $5.2m	This option is insufficient to achieve each Council's annual resealing target and is expected to result in significant deterioration of the sealed network resulting in poor surface condition (cracking, rutting and flushing). Surfaces will require increased maintenance and early renewals, while pavement condition will deteriorate requiring most cost rehabilitations in the future.	**Discount**
Option 2 **Do minimum**	BDC $6.6m GDC $7.1m WDC $7.4m	Sealed pavement contract costs have increased disproportionately to other transport costs, with Waka Kotahi's bitumen index showing a 135% increase over the 3-years to May 2023. So, while the inflation adjustment provides substantial uplift to previous budgets it is insufficient to fully cover current contract costs and does not provide for a proactive maintenance and resealing programme.	**Discount**
Option 3 **Prioritised programme**	BDC $7.1m GDC $11.7m WDC $8.3m	A revised forward work programme based on high-speed sealed pavement condition data collection supplemented by field validation, but with a reduced target for annual resealing to 6% for each Council. This quantity is expected to: • Address backlog of resealing lengths. • Prioritise deteriorating condition, including rehabilitation of sites. • Optimise maintenance and resealing to achieve expected lives.	**Preferred**
Option 4 **Preserving our assets**	BDC $8.8m GDC $13.7m WDC $10.0m	As for Option 3 but targeting each Council's current LTP target for sealed pavement resurfacing (BDC 5.8%, GDC 7.0%, WDC 6.5%). Recent assessments and analysis suggest these targets are higher than needed to achieve asset condition and levels of service.	**Possible**

OPTION ASSESSMENT

Sealed Pavements						
		Sealed Pavements Options				
		Option 1	Option 2	Option 3	Option 4	
Description of the Options		Status Quo	DO Minimum: 2023 valuation inflation adjustment	Prioritised Programme	Preserving our Assets	
		Maintain current (2021-24) budgets.	Status quo + adjustment for 2023 valuation optimised replacement cost increase.	Revised level of service targetting 6% per annum resealing need. Based on high-speed condition data collection and field validation.	Current LTP annual resealing targets (BDC 5.8%, GDC 7.0%, WDC 6.5%). Based on high-speed condition data collection and field validation.	
Investment Objectives						30%
Improve network resilience	40%	Large negative (-ve)	Slight positive (+ve)	Moderate positive (+ve)	Moderate positive (+ve)	
Safer travel	35%	Moderate negative (-ve)	Slight positive (+ve)	Moderate positive (+ve)	Moderate positive (+ve)	
Improved transport efficiency	25%	Slight negative (-ve)	Slight positive (+ve)	Slight positive (+ve)	Slight positive (+ve)	
Critical Success Factors						30%
Potential achievability		Large positive (+ve)	Large positive (+ve)	Large positive (+ve)	Large positive (+ve)	
Potential affordability		Large positive (+ve)	Slight positive (+ve)	Slight negative (-ve)	Moderate negative (-ve)	
Potential value for money		Large negative (-ve)	Moderate negative (-ve)	Moderate positive (+ve)	Moderate positive (+ve)	
Supplier capacity and capability		Large positive (+ve)	Large positive (+ve)	Moderate positive (+ve)	Moderate positive (+ve)	
Strategic Priorities: Regional, GPS24, Arataki						20%
Climate change mitigation & adaptation (WC Strategic Inputs)		Neutral	Neutral	Neutral	Neutral	
Economic development (WC Strategic Inputs, GPS24, Arataki)		Slight negative (-ve)	Slight positive (+ve)	Moderate positive (+ve)	Moderate positive (+ve)	
Integrated freight system (GPS24)		Moderate negative (-ve)	Slight positive (+ve)	Moderate positive (+ve)	Moderate positive (+ve)	
Maintaining & operating the system (GPS24)		Large negative (-ve)	Slight negative (-ve)	Moderate positive (+ve)	Moderate positive (+ve)	
Sustainable urban development (GPS24)		Neutral	Neutral	Neutral	Neutral	
Inclusive access (Arataki)		Slight negative (-ve)	Slight positive (+ve)	Slight positive (+ve)	Slight positive (+ve)	
Estimated Cost 2024-27						20%
Buller District Council		6,311,322	6,641,631	7,100,000	8,792,788	
Grey District Council		5,189,134	7,087,464	11,698,672	13,696,213	
Westland District Council		5,196,540	7,410,988	8,302,555	10,041,175	
TOTAL WEST COAST COUNCILS		**16,696,996**	**21,140,083**	**27,101,227**	**32,530,177**	
Assessment						100%
Score		417	515	536	505	
Ranking		**4**	**2**	**1**	**3**	
Assessment		**Discount**	**Discount**	**Preferred**	**Possible**	

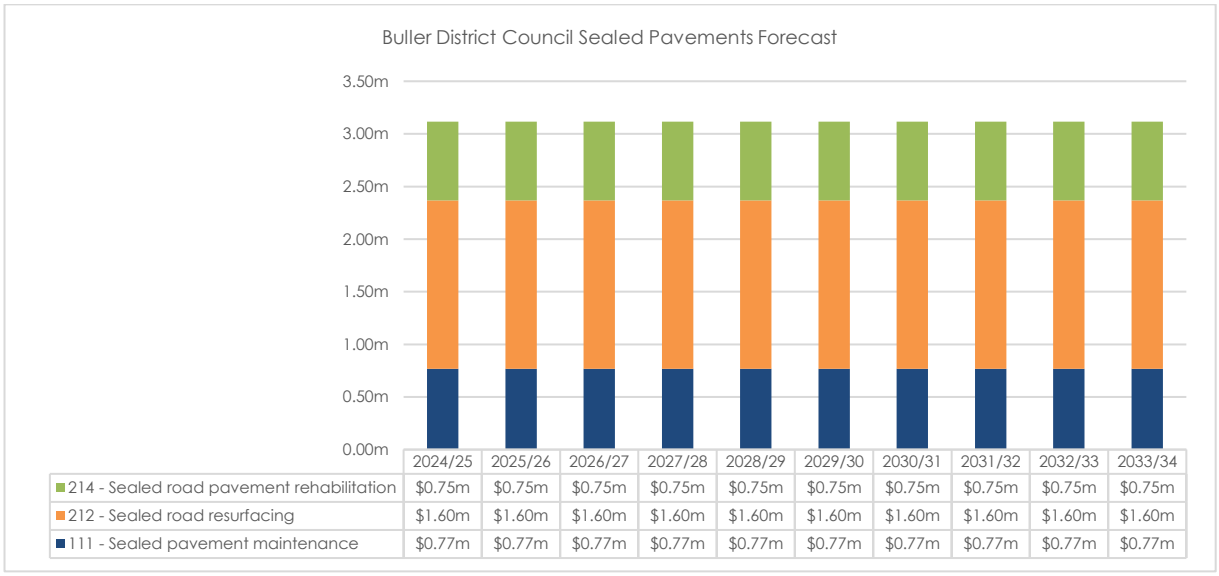
Budget 2024-27	Work Category	Option 1	Option 2	Option 3	Option 4
Buller District Council	111 - Sealed pavement maintenance	2,730,582	2,542,140	2,300,000	2,300,000
Grey District Council	111 - Sealed pavement maintenance	1,758,410	2,541,755	2,160,492	2,541,755
Westland District Council	111 - Sealed pavement maintenance	1,483,513	2,409,033	2,184,156	2,409,033
Buller District Council	212 - Sealed road resurfacing	3,580,740	4,099,491	4,800,000	6,492,788
Grey District Council	212 - Sealed road resurfacing	3,430,724	4,545,709	9,538,181	11,154,458
Westland District Council	212 - Sealed road resurfacing	3,713,027	5,001,954	6,118,399	7,632,142
Buller District Council	214 - Sealed road pavement rehabilitation	1,539,306	738,313	2,250,000	2,826,793
Grey District Council	214 - Sealed road pavement rehabilitation	878,847	1,164,472	556,920	556,920
Westland District Council	214 - Sealed road pavement rehabilitation	621,609	823,631	2,661,009	2,661,009
Buller District Council	**Total - Sealed Pavements**	**7,850,628**	**7,379,944**	**9,350,000**	**11,619,581**
Grey District Council	**Total - Sealed Pavements**	**6,067,981**	**8,251,936**	**12,255,592**	**14,253,133**
Westland District Council	**Total - Sealed Pavements**	**5,818,149**	**8,234,619**	**10,963,564**	**12,702,184**

Level of Service	Measure	Option 1	Option 2	Option 3	Option 4	Work Category
Sealed pavement maintenance	% faults responded to within maintenance intervention strategy timeframes.	Sealed pavement faults are not responded to in a timely manner, proactive maintenance is not done.	Sealed pavement faults are mostly responded to in a timely manner, proactive maintenance is partially enabled.	Sealed pavement faults are responded to in a timely manner, proactive maintenance is enabled.	Sealed pavement faults are responded to in a timely manner, proactive maintenance is enabled.	111 - Sealed pavement maintenance
Sealed pavement condition	% of sealed road network resurfaced each year.	Sealed pavement condition deteriorates, asset consumption accelerates, and asset stewardship is poor.	Sealed pavement faults are mostly responded to in a timely manner, proactive maintenance is partially enabled.	Sealed pavement faults are mostly responded to in a timely manner, proactive maintenance is partially enabled.	Sealed pavement condition is improved, asset consumption is minimised, and effective asset stewardship is applied.	212 - Sealed road resurfacing
Sealed pavement condition	The average quality of ride on a sealed local road network, measured by smooth travel exposure (STE).	Sealed pavement condition deteriorates, asset consumption accelerates, and asset stewardship is poor.	Sealed pavement faults are mostly responded to in a timely manner, proactive maintenance is partially enabled.	Sealed pavement faults are mostly responded to in a timely manner, proactive maintenance is partially enabled.	Sealed pavement condition is improved, asset consumption is minimised, and effective asset stewardship is applied.	212 - Sealed road resurfacing

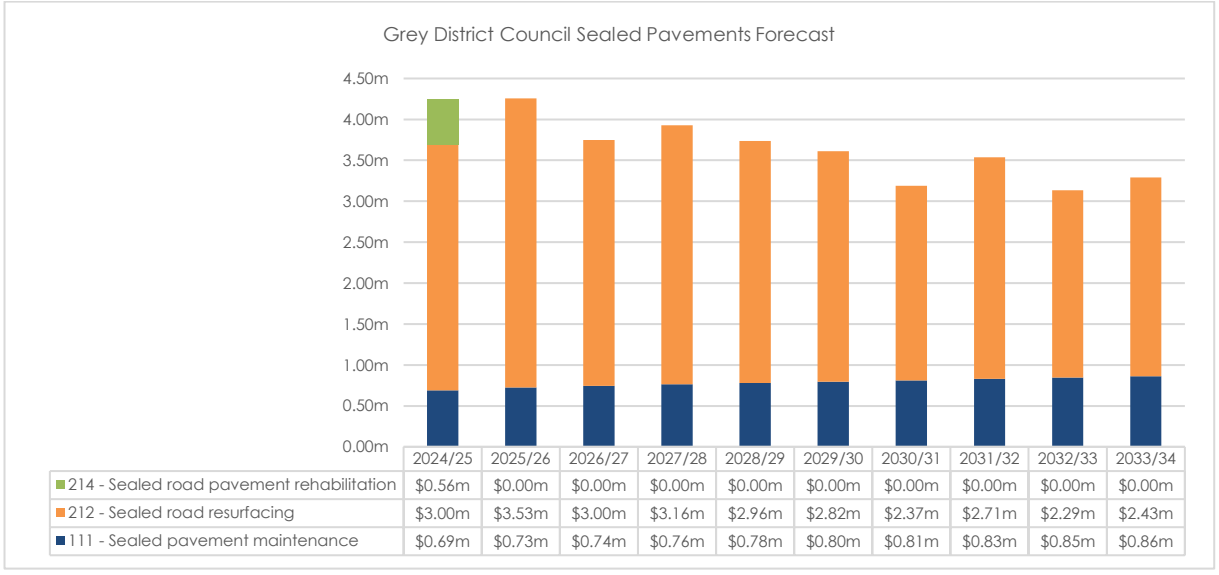
$$ / lane km / annum		Option 1	Option 2	Option 3	Option 4	Network Length
Buller District Council	111 - Sealed pavement maintenance	2,866.75	2,668.91	2,414.70	2,414.70	317.5
Grey District Council	111 - Sealed pavement maintenance	1,561.78	2,257.53	1,918.90	2,257.53	375.3
Westland District Council	111 - Sealed pavement maintenance	1,269.59	2,061.65	1,869.20	2,061.65	389.5
Buller District Council	212 - Sealed road resurfacing	3,759.31	4,303.93	5,039.37	6,816.58	317.5
Grey District Council	212 - Sealed road resurfacing	3,047.09	4,037.40	8,471.61	9,907.15	375.3
Westland District Council	212 - Sealed road resurfacing	3,177.60	4,280.66	5,236.11	6,531.57	389.5
Buller District Council	214 - Sealed road pavement rehabilitation	8,242.13	7,747.97	9,816.27	12,199.04	317.5
Grey District Council	214 - Sealed road pavement rehabilitation	5,389.45	7,329.19	10,885.15	12,659.32	375.3
Westland District Council	214 - Sealed road pavement rehabilitation	4,979.16	7,047.17	9,389.60	10,870.50	389.5
Buller District Council	**TOTAL**	**14,868.19**	**14,720.81**	**17,270.34**	**21,430.31**	**317.5**
Grey District Council	**TOTAL**	**9,998.33**	**13,624.12**	**21,275.66**	**24,824.00**	**375.3**
Westland District Council	**TOTAL**	**9,426.35**	**13,389.48**	**16,487.91**	**19,463.72**	**389.5**

Figure 25: Sealed pavement investment option assessment

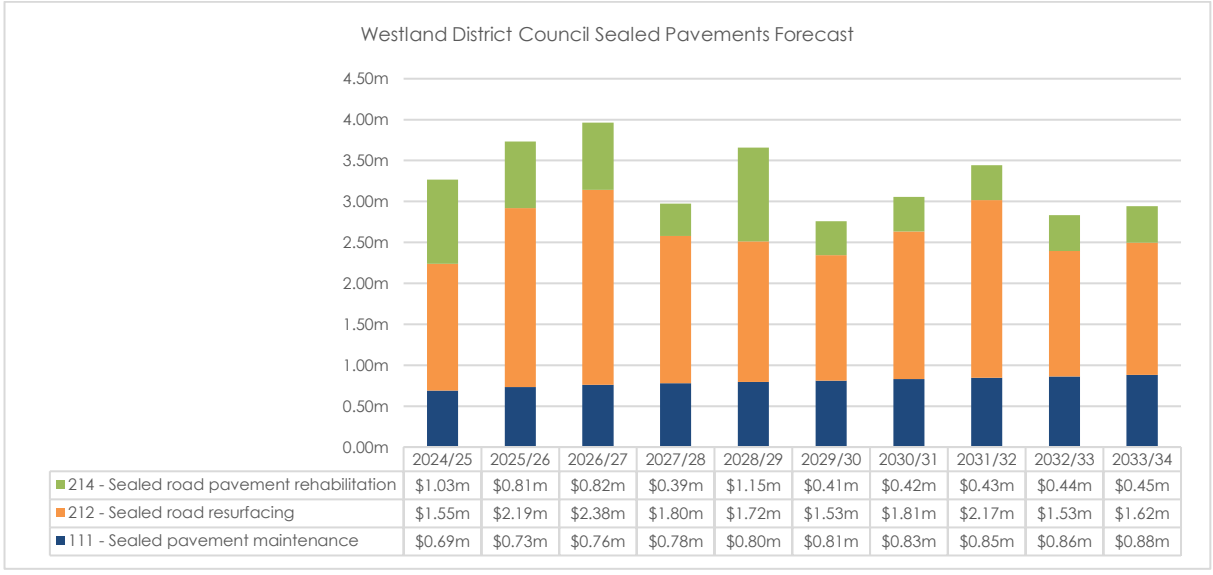
FORECAST MAINTENANCE, OPERATION & RENEWAL EXPENDITURE



	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
214 - Sealed road pavement rehabilitation	$0.75m	$0.75m	$0.75m	$0.75m	$0.75m	$0.75m	$0.75m	$0.75m	$0.75m	$0.75m
212 - Sealed road resurfacing	$1.60m	$1.60m	$1.60m	$1.60m	$1.60m	$1.60m	$1.60m	$1.60m	$1.60m	$1.60m
111 - Sealed pavement maintenance	$0.77m	$0.77m	$0.77m	$0.77m	$0.77m	$0.77m	$0.77m	$0.77m	$0.77m	$0.77m



	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
214 - Sealed road pavement rehabilitation	$0.56m	$0.00m	$0.00m	$0.00m	$0.00m	$0.00m	$0.00m	$0.00m	$0.00m	$0.00m
212 - Sealed road resurfacing	$3.00m	$3.53m	$3.00m	$3.16m	$2.96m	$2.82m	$2.37m	$2.71m	$2.29m	$2.43m
111 - Sealed pavement maintenance	$0.69m	$0.73m	$0.74m	$0.76m	$0.78m	$0.80m	$0.81m	$0.83m	$0.85m	$0.86m



	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
214 - Sealed road pavement rehabilitation	$1.03m	$0.81m	$0.82m	$0.39m	$1.15m	$0.41m	$0.42m	$0.43m	$0.44m	$0.45m
212 - Sealed road resurfacing	$1.55m	$2.19m	$2.38m	$1.80m	$1.72m	$1.53m	$1.81m	$2.17m	$1.53m	$1.62m
111 - Sealed pavement maintenance	$0.69m	$0.73m	$0.76m	$0.78m	$0.80m	$0.81m	$0.83m	$0.85m	$0.86m	$0.88m

2.3.3 UNSEALED ROADS

ASSET SUMMARY

Unsealed roads comprise ~40-45% of local roads on the West Coast, these roads are typically rural providing essential social and economic access to remote properties and communities. These roads vary in width, typically around 5m wide but varying from as narrow as 2.5m to nearly 9m wide. Unsealed roads are graded on a continuous cycle, typically every three months.

Table 10: Unsealed road network summary

Network length (km)	Buller DC	Grey DC	Westland DC	Total
Urban unsealed roads	4.7	2.8	0.9	8.4
Rural unsealed roads	249.4	225.7	238.2	713.3
Unclassified unsealed roads	14.9	8.1	65.0	88.0
Total unsealed roads	**269.0**	**236.6**	**304.1**	**809.7**
% of all roads	46%	39%	44%	43%

Pavement components:

- **Formation:** the surface of the finished earthworks on which the road is constructed, it has a replacement cost but no annual depreciation. The trimmed or prepared portion of the formation is referred to as the subgrade.

  Basecourse and subbase pavement layers: The basecourse is one or more layers of material which form the uppermost structural component on which the surfacing is placed, while the subbase is material laid on the subgrade and below the base. The purpose of the subbase includes making up additional thickness to prevent intrusion of the subgrade into the base or to provide a working platform.

- **Surfacing:** The unsealed running course.

ASSET PERFORMANCE AND CONDITION

Currently there are no performance measures or a formal condition monitoring programme for unsealed roads, so the following information has been sourced from Council staff and contractors:

- Unsealed road network condition is deteriorating, exacerbated by increasing maintenance and remetalling costs which are reducing the quantity of work that can be carried out within existing budgets.
- Weather events and poor drainage condition are causing water damage to unsealed pavement basecourse and subbase layers, this will require pavement strengthening to address.
- Buller especially has experienced poor unsealed road condition with 90% of their current three-year maintenance budget spent in years one and two.

KEY ISSUES AND RECOMMENDATIONS

Issue	Potential Impacts	Recommendations	Priority
Water ingress into pavement base layers.	Accelerated deterioration / failure of pavement layers. Failure to meet community (level of service) expectations and reputational harm. High routine maintenance costs to address surface faults. Increased vehicle running costs due to poor condition.	Address drainage issues to reduce ingress of water into pavement layers (see Section 2.3.4). Increase surface metal renewals. Pavement strength restoration in response to targeted issues.	**High**

Issue	Potential Impacts	Recommendations	Priority
Declining unsealed road condition.	Asset failure leading to low quality / unusable facilities. Failure to meet community (level of service) expectations and reputational harm. High cost to repair or remetal under urgency.	Programme annual remetalling quantities to achieve level of service expectations. Avoid deferred maintenance to maintain better design life of assets and ensure value for money. Improve unsealed road network condition data collection / monitoring to ensure effective and efficient planning and delivery of physical works that maximise asset lives.	**High**
Significant contract cost increase.	Previous budgets are insufficient to continue delivering a similar scale programme, resulting in continued decline in asset condition. Operational staff are challenged to effectively plan and budget forward works with uncertainty about future decisions. Asset failure resulting from continued deferral of priority maintenance / renewals.	Appropriate forward budgets to carry out maintenance and renewals.	**High**

INVESTMENT OPTIONS

Option	Cost 24-27	Summary	Rating
Option 1 **Status quo**	BDC $1.7m GDC $1.4m WDC $1.4m	This option is insufficient to achieve target unsealed road maintenance and re-metalling needs, highlighted by each Council struggling to deliver the required quantities within maintenance contract budgets (GDC being the exception with a new contract signed in 2023). This level of expenditure will result in worsening condition, potholes and rutting of unsealed road surfaces, and risk premature failure of the pavement base layers requiring costly rebuilding in the future. Community dissatisfaction with these outcomes will be high.	**Discount**
Option 2 **Do minimum**	BDC $2.2m GDC $1.8m WDC $1.9m	There is evidence of deteriorating unsealed road condition across the region, but this is variable between the three Councils. This option effectively addresses contract cost increases, but does not fully provide for the increased quantity of work needed on the Buller and Grey networks to address current issues. Further discussion of key issues by Council is provided under Option 3.	**Possible**
Option 3 **Prioritised programme**	BDC $2.7m GDC $2.1m WDC $1.7m	This option, for Buller and Grey, enables a greater quantity of work in response to deteriorating unsealed road network condition which is a source of dissatisfaction for their communities. This option allows for an enhanced re-metalling programme and to address areas where water ingress is causing sub-layers to weaken leading to rutting and poor condition of the surface. This investment is linked to recommendations for drainage maintenance and renewals since inadequate drainage (e.g. high shoulders) is the primary cause of water damage to the unsealed network. In contrast, Westland's prioritised option is a reduction on Option 2. Council staff and contractor feedback states that while an increase is needed to account for higher contract costs, there is not a substantial need to also increase the quantity of works. So, a more modest increase is expected to achieve asset condition and level of service targets.	**Preferred**
Option 4 **Preserving our assets**	BDC $2.7m GDC $2.1m WDC $1.9m	As for Option 3 (Buller and Grey) and Option 2 (Westland).	**Possible**

OPTION ASSESSMENT

Unsealed Roads						
Description of the Options		Unsealed Roads Options				
		Option 1	Option 2	Option 3	Option 4	
		Status Quo	Do Minimum: 2023 valuation inflation adjustment	Prioritised Programme	Preserving our Assets	
		Maintain current (2021-24) budgets.	Status quo + adjustment for 2023 valuation optimised replacement cost increase.	Moderately increased surface metal renewals and pavement strength restoration in response to weather (water) associated deterioration.	Increased surface metal renewals and pavement strength restoration in response to weather (water) associated deterioration.	
Investment Objectives						30%
Improve network resilience	40%	Large negative (-ve)	Slight positive (+ve)	Moderate positive (+ve)	Moderate positive (+ve)	
Safer travel	35%	Moderate negative (-ve)	Slight positive (+ve)	Moderate positive (+ve)	Moderate positive (+ve)	
Improved transport efficiency	25%	Slight negative (-ve)	Neutral	Neutral	Neutral	
Critical Success Factors						30%
Potential achievability		Large positive (+ve)	Large positive (+ve)	Large positive (+ve)	Large positive (+ve)	
Potential affordability		Large positive (+ve)	Slight negative (-ve)	Slight negative (-ve)	Slight negative (-ve)	
Potential value for money		Large negative (-ve)	Large positive (+ve)	Large positive (+ve)	Moderate positive (+ve)	
Supplier capacity and capability		Large positive (+ve)	Large positive (+ve)	Large positive (+ve)	Large positive (+ve)	
Strategic Priorities: Regional, GPS24, Arataki						20%
Climate change mitigation & adaptation (WC Strategic Inputs)		Neutral	Neutral	Slight positive (+ve)	Slight positive (+ve)	
Economic development (WC Strategic Inputs, GPS24, Arataki)		Slight negative (-ve)	Slight positive (+ve)	Slight positive (+ve)	Slight positive (+ve)	
Integrated freight system (GPS24)		Moderate negative (-ve)	Slight positive (+ve)	Slight positive (+ve)	Slight positive (+ve)	
Maintaining & operating the system (GPS24)		Large negative (-ve)	Moderate positive (+ve)	Moderate positive (+ve)	Moderate positive (+ve)	
Sustainable urban development (GPS24)		Neutral	Neutral	Neutral	Neutral	
Inclusive access (Arataki)		Slight negative (-ve)	Slight positive (+ve)	Slight positive (+ve)	Slight positive (+ve)	
Estimated Cost 2024-27						20%
Buller District Council		1,650,000	2,165,292	2,742,412	2,742,412	
Grey District Council		1,358,390	1,799,866	2,050,221	2,050,221	
Westland District Council		1,437,366	1,904,510	1,696,092	1,904,510	
TOTAL WEST COAST COUNCILS		**4,445,756**	**5,869,669**	**6,488,725**	**6,697,143**	
Assessment						100%
Score		417	529	542	530	
Ranking		**4**	**3**	**1**	**2**	
Assessment		**Discount**	**Possible**	**Preferred**	**Possible**	

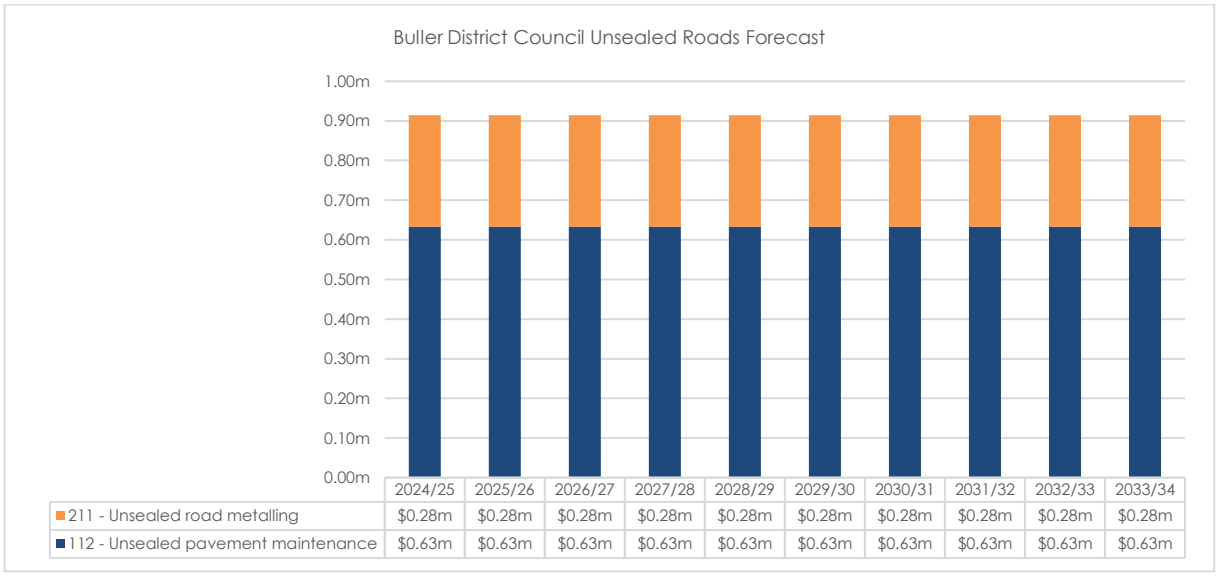
Budget 2024-27	Work Category	Option 1	Option 2	Option 3	Option 4
Buller District Council	112 - Unsealed pavement maintenance	1,200,000	1,650,154	1,900,000	1,900,000
Grey District Council	112 - Unsealed pavement maintenance	726,581	962,719	1,230,133	1,230,133
Westland District Council	112 - Unsealed pavement maintenance	868,738	1,151,077	1,025,110	1,151,077
Buller District Council	211 - Unsealed road metalling	450,000	515,139	842,412	842,412
Grey District Council	211 - Unsealed road metalling	631,809	837,147	820,088	820,088
Westland District Council	211 - Unsealed road metalling	568,628	753,432	670,981	753,432
Buller District Council	**Total - Unsealed Roads**	**1,650,000**	**2,165,292**	**2,742,412**	**2,742,412**
Grey District Council	**Total - Unsealed Roads**	**1,358,390**	**1,799,866**	**2,050,221**	**2,050,221**
Westland District Council	**Total - Unsealed Roads**	**1,437,366**	**1,904,510**	**1,696,092**	**1,904,510**

Level of Service	Measure	Option 1	Option 2	Option 3	Option 4	Work Category
Unsealed road maintenance	% faults responded to within maintenance intervention strategy timeframes.	Unsealed pavement faults are mostly responded to in a timely manner, proactive maintenance is partially enabled.	Unsealed pavement faults are mostly responded to in a timely manner, proactive maintenance is partially enabled.	Unsealed pavement faults are responded to in a timely manner, proactive maintenance is enabled.	Unsealed pavement faults are responded to in a timely manner, proactive maintenance is enabled.	112 - Unsealed pavement maintenance
Unsealed road condition	Average lives achieved by unsealed road surfaced.	Unsealed road condition deteriorates, asset consumption accelerates, and asset stewardship is poor.	Unsealed road condition is maintained, asset consumption is stabilised, and effective asset stewardship is marginal.	Unsealed road condition is improved, asset consumption is minimised, and effective asset stewardship is applied.	Unsealed road condition is improved, asset consumption is minimised, and effective asset stewardship is applied.	211 - Unsealed road metalling

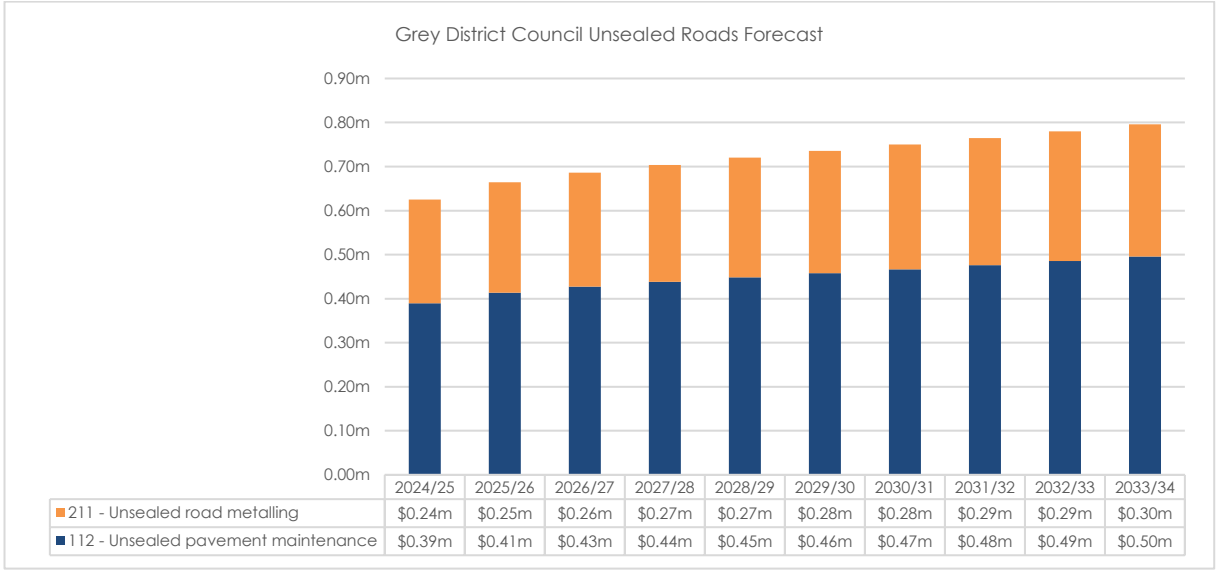
$$ / lane km		Option 1	Option 2	Option 3	Option 4	Network Length
Buller District Council	112 - Unsealed pavement maintenance	1,486.99	2,044.80	2,354.40	2,354.40	269.0
Grey District Council	112 - Unsealed pavement maintenance	1,023.64	1,356.32	1,733.07	1,733.07	236.6
Westland District Council	112 - Unsealed pavement maintenance	952.25	1,261.73	1,123.65	1,261.73	304.1
Buller District Council	211 - Unsealed road metalling	557.62	638.34	1,043.88	1,043.88	269.0
Grey District Council	211 - Unsealed road metalling	890.12	1,179.41	1,155.38	1,155.38	236.6
Westland District Council	211 - Unsealed road metalling	623.29	825.86	735.48	825.86	304.1
Buller District Council	**TOTAL**	**2,044.61**	**2,683.14**	**3,398.28**	**3,398.28**	**269.0**
Grey District Council	**TOTAL**	**1,913.76**	**2,535.74**	**2,888.45**	**2,888.45**	**236.6**
Westland District Council	**TOTAL**	**1,575.54**	**2,087.59**	**1,859.14**	**2,087.59**	**304.1**

Figure 26: Unsealed roads investment option assessment

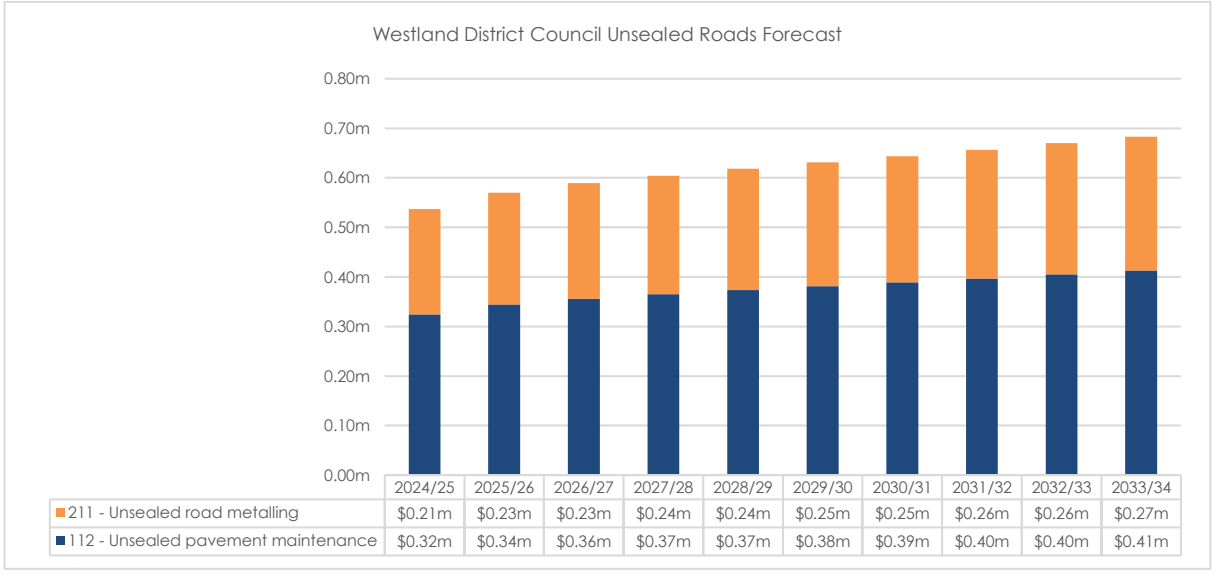
FORECAST MAINTENANCE, OPERATION & RENEWAL EXPENDITURE



	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
211 - Unsealed road metalling	$0.28m	$0.28m	$0.28m	$0.28m	$0.28m	$0.28m	$0.28m	$0.28m	$0.28m	$0.28m
112 - Unsealed pavement maintenance	$0.63m	$0.63m	$0.63m	$0.63m	$0.63m	$0.63m	$0.63m	$0.63m	$0.63m	$0.63m



	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
211 - Unsealed road metalling	$0.24m	$0.25m	$0.26m	$0.27m	$0.27m	$0.28m	$0.28m	$0.29m	$0.29m	$0.30m
112 - Unsealed pavement maintenance	$0.39m	$0.41m	$0.43m	$0.44m	$0.45m	$0.46m	$0.47m	$0.48m	$0.49m	$0.50m



	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
211 - Unsealed road metalling	$0.21m	$0.23m	$0.23m	$0.24m	$0.24m	$0.25m	$0.25m	$0.26m	$0.26m	$0.27m
112 - Unsealed pavement maintenance	$0.32m	$0.34m	$0.36m	$0.37m	$0.37m	$0.38m	$0.39m	$0.40m	$0.40m	$0.41m

2.3.4 BRIDGES AND STRUCTURES

ASSET SUMMARY

WSP completed a 'Road Structures Lifecycle Management Plan' (LCMP) for each of the West Coast councils to support the 2023/27 three-year funding programme. The key purpose of LCMPs was to report on condition, asset performance and risk profile of the road structures, including financial forecasts for maintenance and renewals.

There is a total of 642 bridges and structures across the West Coast local road network comprising all bridges, retaining walls, and large diameter culverts. This asset group is a core focus of this AMP and each Council's maintenance and renewal programmes with a significant number of assets spread across the region providing critical social and economic access for communities.

The average age of bridges across the three districts is 50 years old and the average age of culverts is 42 years old.

Currently the Councils are not sufficiently investing in bridge and structure maintenance and renewals, consequently creating a growing backlog of works and preventing each Council from entering a 'business as usual' approach. As the gap between what is needed and what is delivered grows it is likely that asset condition will worsen, leading to higher whole of life costs as bridges require more costly renewal or full replacement which could have been otherwise avoided with more proactive inspections and maintenance.

A summary of each Council's bridge and major culverts assets is provided below, the total replacement cost across the region is $267.6m. This is an increase of $48.1m (21.9%) since the 2020 valuation. Buller in particular has had a substantial increase up $33.5m (77.4%), followed by Westland ($11.8m, 13.5%) and Grey (2.8m, 3.2%).

Table 11: Bridge summary

Bridge restrictions	Buller	Grey	Westland	Total
Total Number of Bridges	**144**	**213**	**285**	**642**
Valuation of Bridges (2022)	$76.8m	$91.1m	$99.7m	$267.6m
Restricted Bridges				
Single Lane	94	91	176	361
Restricted	16	19	24	59
Posted	11	15	26	52

Routine bridge maintenance is undertaken by the road maintenance contractor with specialists engaged as required. General maintenance activities include but are not limited to:

- Bridge inspections to identify repairs / maintenance required.
- Removal of aggregate from the bridge decks.
- Clearance of drainage holes, drainage paths and outlets.
- Clearance of obstructing vegetation.
- Repair of loose or damaged deck planks, handrails, etc.

Bridge structures are prone to all of the possible failure modes (i.e. sudden irreparable failure, sudden reparable failure, gradual loss of capacity / performance, gradual increase in maintenance costs) and given the potential for catastrophic failure, bridge renewal must pre-empt structural collapse.

It is not possible to develop one deterioration model capable of predicting the useful life expectancy of multiple bridges. This is because virtually all of the bridges have a unique design and each bridge is subject to different loadings and environmental conditions.

Therefore, the only practical means of developing accurate renewal plans is to undertake periodic detailed inspections of each bridge and develop unique renewal forecasts for each structure.

Since many bridges have a design life more than 100 years the appropriate period between bridge inspections is dependent on the bridges age and condition. As the bridge nears the end of its life, or as condition deteriorates, the frequency of inspections is increased.

ASSET PERFORMANCE AND CONDITION

The 2021 AMP highlighted concerns with current condition of these assets, as well as level of service deficiencies, in particular, heavy vehicle loads, seismic and flood resilience.

This AMP broadly identifies these issues persisting, and although each Council is beginning a programme of investment in enhanced maintenance and renewals in their bridge stock in response to the following issues identified through the recent inspections programme:

- Deferred maintenance has led to a reduced level of service and poor condition on many bridges that need to be addressed urgently.
- For some bridges, extensive component renewals or full replacement is needed based on the condition of the assets.
- Forward maintenance and renewal activities must increase to avoid more bridges and structures deteriorating to this level. **A total of 30 bridges have been identified needing improvement or replacement (11 in Buller, 14 in Grey, and 5 in Westland).**
- In addition to condition issues, several bridges on key routes do not currently meet desired levels of service for modern freight vehicles and are posted with speed and weight restrictions. (i.e., load capacity, number of lanes, width, vertical clearance, flood performance, barriers, pedestrian/cyclist access etc). **A total of 4 bridges have been identified for improvement due to level of service deficiencies (1 in Buller, 2 in Grey and 1 in Westland).**

The LCMP report on bridge conditions based on inspections carried out in 2023 reported that:

- Buller and Westland's highway bridges and culverts are in relatively good condition. However, condition issues are typically focused on waterway issues and scour damage, decay and degradation of timber components, and structural steel corrosion. Grey District's highway bridges and culverts condition are difficult to evaluate with current data and it is recommended that this is carried out with future inspections.

Based on the weighting factors outlined in section 1.4 Condition and Performance, a summary of the overall condition of bridges in 2023 are:

	Bridges	Culverts
Buller	2.23	2.00
Grey	2.80	2.67
Westland	1.46	1.33

Table 12: Overall condition rating for bridges and culverts

The overall condition of the bridges inspected in 2023 for Grey and Buller district is good, while condition of bridges in Westland is very good.

Despite the condition assessment, key issues presently faced by each district include:

- Waterway issues (debris build-up and impact, scour and aggradation)
- Vulnerable structure types (buried corrugated metal culverts, timber structures)
- Spalling of precast concrete deck units
- Corrosion of structures in aggressive environments
- Seismically vulnerable structures

LIFECYCLE MANAGEMENT PLANNING

Bridge structures are prone to all of the possible failure modes (i.e. sudden irreparable failure, sudden reparable failure, gradual loss of capacity / performance, gradual increase in maintenance costs) and given the potential for catastrophic failure, bridge renewal must pre-empt structural collapse.

As noted above, the WSP Road Structures Lifecycle Management Plans identified:

- A total of 30 bridges have been identified needing improvement or replacement (11 in Buller, 14 in Grey, and 5 in Westland).
- A total of 4 bridges have been identified for improvement due to level of service deficiencies (1 in Buller, 2 in Grey and 1 in Westland).

Lifecycle management planning can assess condition defects, which include, but are not limited to:

- Steel bridges – protective coating systems and corrosion
- Bridge scour around foundations and piers
- Culvert invert abrasion and impact damage

Over the next three years, efforts to improve levels of service will focus on:

- Strengthening and improvements to HPMV and 50 MAX restrictive structures
- Reducing the number of posted bridges.
- Identifying and developing a prioritised programme of bridge barrier improvements.
- Populating HSIMS with structural data to allow processing of Overweight and HPMV permits through OPermit.
- Generating HPMV pre-approved route maps to reduce processing time.
- Reducing the number of posted bridges.
- Developing prioritised programme of bridge barrier improvements/upgrades
- Populating/updating of structure data
- Risk screenings (e.g. seismic/scour) to identify vulnerable structures

BRIDGE AND STRUCTURE RENEWALS

Following completion of inspections and present value end-of-life analysis (PVEOL), each Council has several bridges and structures which, because of their condition, are at the end of their serviceable life and are recommended for renewal. The PVEOL analysis report for each Council is provided separately, with the list of bridges recommended for renewal summarised here.

Buller District Council

Bridge / Structure	2023/24	2024-27	2027-
Blue Grey River		$1,150,000	
Kelly Creek	$350,000		
Buller Camp	$270,000		
Brown Grey		$1,250,000	
Tobin Creek	$6,000	$30,000	$500,000
Mairs Bridge		$5,400,000	
Little Wanganui (SPR)	$800,000		

Grey District Council

Bridge / Structure	2024/25	2025/26	2026/27	2027-
Brandy Jacks Bridge	$400,000			
Black Creek Bridge	$400,000			
Ryan Creek Bridge	$640,000			
Rough & Tumble Creek Bridge		$400,000		
Orwell Creek Overflow		$480,000		
Little Fuschia Creek		$480,000		
Duffers Creek				$480,000

Westland District Council

Bridge / Structure	2024/25	2025/26	2026/27	2027-
Kakapotahi Beach	$490,000			
Urquhart Creek	$255,000			
La Fontaine		$800,000		
Arawhata River Bridge (SPR)	$1,125,000			

KEY ISSUES AND RECOMMENDATIONS

Issue	Potential Impacts	Recommendations	Priority
Deteriorating asset condition	A growing backlog of maintenance and renewals, and potential for asset failure on the network.	Avoid deferred maintenance to maintain better design life of assets and ensure value for money. Continue to undertake condition rating assessments for remainder of bridge stock in future inspections. Investigate corrosion severity and undertake PWL assessments to determine current loading capacity.	**High**
Bridges approaching end of life	Between 7.8%-18% of bridges in the region will reach their end of life over the next 30 years	Develop a maintenance and replacement strategy to level the spike of large portions of bridge stick reaching end of life over the next 30 years.	**Med**
Insufficient maintenance and renewal budgets.	continued under-investment in bridges resulting in worsening condition. Substantial increase in costs of maintaining/renewing existing assets and services to meet required levels of service.	Appropriate forward budgets to carry out maintenance and renewals.	**High**

Issue	Potential Impacts	Recommendations	Priority
Level of service deficiencies impact freight efficiency and economic productivity	HPMV access, barrier deficiencies and narrow structures on main arterial routes restrict 50 MAX loading, restricting industrial and freight movements.		**High**
Inconsistent data collection of bridge inventory	Effective and efficient long-term planning is hampered as robust data is not available to inform the best economic approach to maintenance, renewal, and replacements.	Improve bridges and structures condition data collection / monitoring to ensure effective and efficient planning and delivery of physical works that maximise asset lives. Updating structural maintenance with drawings and specifications for completed works as they are completed. Annually updating completed routine and structural maintenance schedules to keep backlog up to date for accurate funding requests.	**Med**
Inability to accurately identify risk and resilience issues	Inability to identify risks inhibits the ability to be able to accurately mitigate them. Key risks are presumed to be: deteriorating timber bridge elements, overloading, scour damage, corrosion, and accidents on bridges with no vehicle barriers.	Develop a risk register for each district to identify and address structure specific risks on the network.	**Med**

INVESTMENT OPTIONS

Option	Cost 24-27	Summary	Rating
Option 1 **Status quo**	BDC $1.2m GDC $2.1m WDC $2.7m	This option continues under-investment in bridge and structures maintenance, renewals, and replacements. It is expected to result in an increasing backlog of works, deteriorating asset condition, safety and resilience risk, poor freight capacity, and high future costs are works are carried out under urgency in a reactive manner.	**Discount**
Option 2 **Do minimum**	BDC $2.0m GDC $4.0m WDC $4.2m	Bridge and structure costs have increased disproportionately to other transport costs, with the cost of materials such as steel significantly increased, along with external costs including traffic management. So, this adjustment does not fully cover the actual increase in current costs and falls far short of the increased quantity of work needed to address each Council's backlog of maintenance and component replacements. This option does not provide for condition-based replacement of end-of-life structures.	**Discount**
Option 3 **Prioritised programme**	BDC $11.3m GDC $7.2m WDC $11.3m	Option 3 is a prioritised version of the recommended programme in Option 4, key changes are: • Reduced maintenance & renewal costs in Years 1-3, addresses backlog more slowly but affordably. • BDC to maintain and renew some bridges, as opposed to full replacement (PVEOL recommendation). Requires increased maintenance and renewal budget. • GDC 'flattened' programme, spending same total over 10-years but in equal annual amounts (lower Y1-Y5 costs and higher Y6-Y10 costs). Bridges proposed for renewal under WC216 are: • BDC: Kelly Creek (2024/25), Blue Grey River (2025/26), Tobins Creek (2025/26), Brown Grey (2026/27). • GDC: Brandy Jacks (2024/25), Ryan Creek (2025/26), Black Creek (2026/27). • WDC: La Fontaine (2025/26).	**Preferred**
Option 4 **Preserving our assets**	BDC $14.8m GDC $13.8m WDC $11.3m	Full programme of work recommended by each Council's Lifecycle Management Plan and Present Value End-of-Life analysis for bridges with <10 years remaining life. This option provides the best net present value over 30-years, optimising timing of maintenance, component replacements, and full replacements to provide the least whole of life cost to Council. However, this option has a very high cost in Years 1-5 as it prioritises addressing the backlog of works, plus an uplift in 'business as usual' programme to meet future needs. The result is a significant programme of work that is unaffordable for each Council. It also has substantial delivery risk, with the quantity of work requiring an increase in contractor and technical engineering capacity not currently available on the West Coast.	**Possible**

OPTION ASSESSMENT

Bridges & Structures						
Description of the Options		Bridges & Structures Options				
		Option 1	Option 2	Option 3	Option 4	
		Status Quo	Do Minimum: 2023 valuation inflation adjustment	Prioritised Programme	Preserving our Assets	
		Maintain current (2021-24) budgets.	Status quo + adjustment for 2023 valuation optimised replacement cost increase.	Smoothed 10-year programme to address backlog of works over a longer period, some deferred of renewal / replacements requiring higher maintenance costs.	Inspections and whole-of-life analysis recommendations for maintenance, component replacement, and condition-based structure replacements.	
Investment Objectives						30%
Improve network resilience	40%	Large negative (-ve)	Moderate negative (-ve)	Large positive (+ve)	Large positive (+ve)	
Safer travel	35%	Moderate negative (-ve)	Slight negative (-ve)	Large positive (+ve)	Large positive (+ve)	
Improved transport efficiency	25%	Slight negative (-ve)	Neutral	Moderate positive (+ve)	Moderate positive (+ve)	
Critical Success Factors						30%
Potential achievability		Large positive (+ve)	Large positive (+ve)	Moderate positive (+ve)	Moderate positive (+ve)	
Potential affordability		Large positive (+ve)	Moderate positive (+ve)	Moderate negative (-ve)	Large negative (-ve)	
Potential value for money		Large negative (-ve)	Moderate negative (-ve)	Moderate positive (+ve)	Large positive (+ve)	
Supplier capacity and capability		Large positive (+ve)	Large positive (+ve)	Slight negative (-ve)	Slight negative (-ve)	
Strategic Priorities: Regional, GPS24, Arataki						20%
Climate change mitigation & adaptation (WC Strategic Inputs)		Neutral	Neutral	Neutral	Neutral	
Economic development (WC Strategic Inputs, GPS24, Arataki)		Moderate negative (-ve)	Moderate negative (-ve)	Moderate positive (+ve)	Large positive (+ve)	
Integrated freight system (GPS24)		Large negative (-ve)	Moderate negative (-ve)	Moderate positive (+ve)	Large positive (+ve)	
Maintaining & operating the system (GPS24)		Large negative (-ve)	Moderate negative (-ve)	Moderate positive (+ve)	Large positive (+ve)	
Sustainable urban development (GPS24)		Neutral	Neutral	Neutral	Neutral	
Inclusive access (Arataki)		Neutral	Neutral	Neutral	Neutral	
Estimated Cost 2024-27						20%
Buller District Council		512,239	997,588	6,000,000	4,420,000	
Grey District Council		2,100,766	4,039,235	5,797,509	10,325,000	
Westland District Council		2,685,189	4,232,466	10,464,331	10,464,331	
TOTAL WEST COAST COUNCILS		**5,298,194**	**9,269,289**	**22,261,840**	**25,209,331**	
Assessment						100%
Score		414	428	476	469	
Ranking		**4**	**3**	**1**	**2**	
Assessment		**Discount**	**Discount**	**Preferred**	**Possible**	

Budget 2024-27	Work Category	Option 1	Option 2	Option 3	Option 4
Buller District Council	114 - Structures maintenance	342,526	715,582	2,500,000	2,270,000
Grey District Council	114 - Structures maintenance	1,153,052	1,527,794	2,818,935	4,325,000
Westland District Council	114 - Structures maintenance	537,038	802,398	2,436,000	2,436,000
Buller District Council	215 - Structures component replacements	169,713	282,006	3,500,000	2,150,000
Grey District Council	215 - Structures component replacements	947,714	2,511,442	2,978,574	6,000,000
Westland District Council	215 - Structures component replacements	2,148,151	3,430,068	8,028,331	8,028,331
Buller District Council	216 - Bridge and structure renewals	699,999	976,672	5,320,000	10,330,000
Grey District Council	216 - Bridge and structure renewals	-	-	1,440,000	3,430,000
Westland District Council	216 - Bridge and structure renewals	-	-	800,000	800,000
Buller District Council	**Total - Bridges & Structures**	**1,212,238**	**1,974,260**	**11,320,000**	**14,750,000**
Grey District Council	**Total - Bridges & Structures**	**2,100,766**	**4,039,235**	**7,237,509**	**13,755,000**
Westland District Council	**Total - Bridges & Structures**	**2,685,189**	**4,232,466**	**11,264,331**	**11,264,331**

Level of Service	Measure	Option 1	Option 2	Option 3	Option 4	Work Category
Bridge & structures maintenance	% faults responded to within maintenance intervention strategy timeframes.	Bridge & structure faults are not responded to in a timely manner, proactive maintenance is not done.	Bridge & structure faults are not responded to in a timely manner, proactive maintenance is not done.	Bridge & structure faults are responded to in a timely manner, proactive maintenance is enabled.	Bridge & structure faults are responded to in a timely manner, proactive maintenance is enabled.	114 - Structures maintenance
Bridge & structures condition	Under development.					215 - Structures component replacements

Figure 27: Bridge and structure investment option assessment

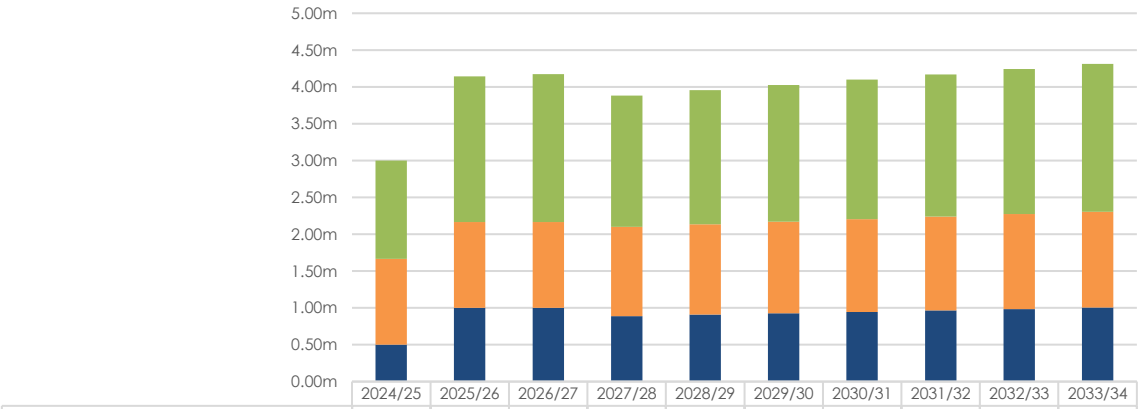
BRIDGE AND STRUCTURE RENEWALS

Option 3 includes replacement of bridges and structures which, because of their condition, are at the end of their serviceable life (WC216), these recommendations are supported by a present value end-of-life analysis (available separately). The specific bridges included in Option 3 budget are:

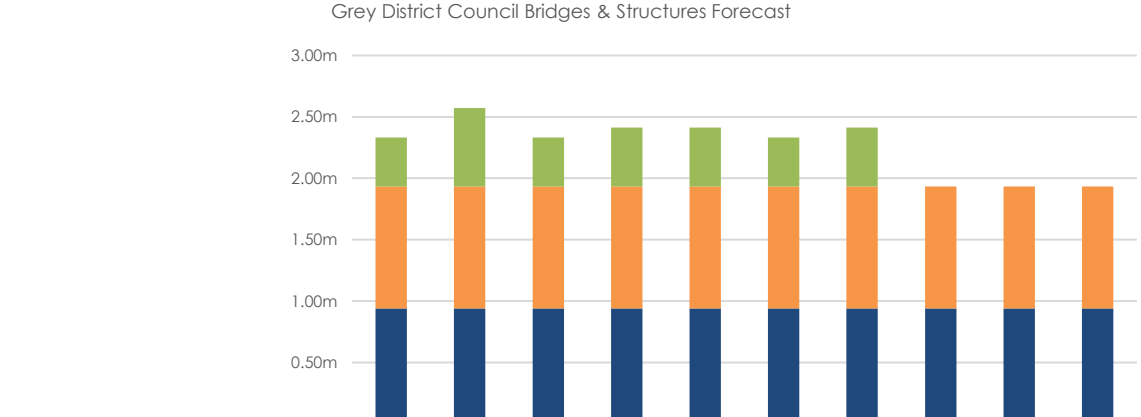
	Bridge / Structure	Assessment
Buller		
Grey	Brandy Jacks Bridge	Displaying significant decay to timber piles requiring underpinning in the short term, steel beams are in fair condition with moderate corrosion present. PVEOL indicates the bridge is at end of life, with significant maintenance requirements in the short to medium term.

		GDC should consider ownership and need for this structure before committing to renewal as it does not provide public access.
	Black Creek Bridge	Posted for 60% Class 1 with a maximum gross weight of 5,000kg. Piles and pile caps show significant signs of decay and are the governing elements for the posting, previous timber drilling in 2018 displayed only minor
	Ryan Creek Bridge	
Westland	La Fontaine	Posted to 40% Class 1 at 10km/h since 2015. Structure in poor condition with significant damage to deck plank cantilever. Significant corrosion resulting in section loss to webs and flanges of the main beams. Timber structure elements displaying advanced decay (drilled in 2020) to the abutment caps and splitting to the intermediate pier pile caps and corbels.

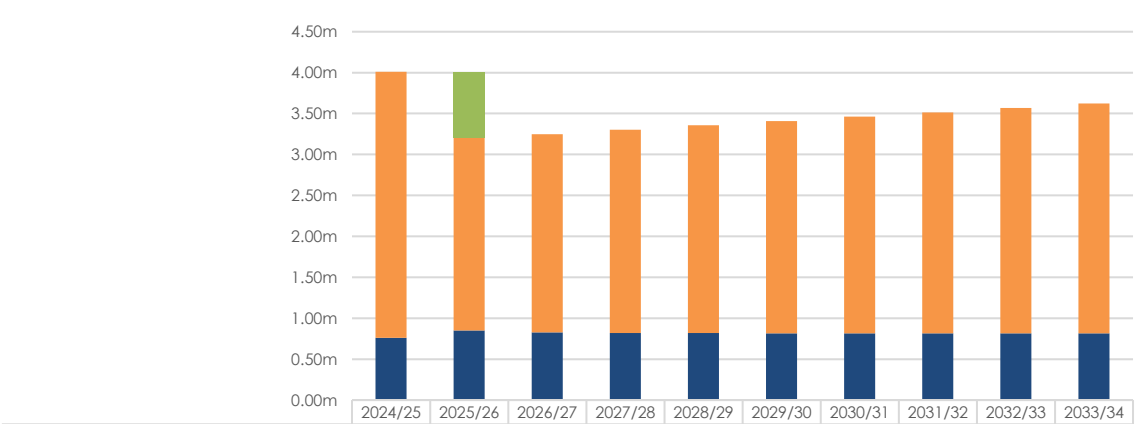
FORECAST MAINTENANCE, OPERATION & RENEWAL EXPENDITURE



	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
216 - Bridge and structure renewals	$1.33m	$1.98m	$2.01m	$1.78m	$1.82m	$1.86m	$1.89m	$1.93m	$1.97m	$2.01m
215 - Structures component replacements	$1.17m	$1.17m	$1.17m	$1.21m	$1.23m	$1.24m	$1.26m	$1.27m	$1.29m	$1.30m
114 - Structures maintenance	$0.50m	$1.00m	$1.00m	$0.89m	$0.91m	$0.93m	$0.95m	$0.97m	$0.99m	$1.00m



	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
216 - Bridge and structure renewals	$0.40m	$0.64m	$0.40m	$0.48m	$0.48m	$0.40m	$0.48m	$0.00m	$0.00m	$0.00m
215 - Structures component replacements	$0.99m	$0.99m	$0.99m	$0.99m	$0.99m	$0.99m	$0.99m	$0.99m	$0.99m	$0.99m
114 - Structures maintenance	$0.94m	$0.94m	$0.94m	$0.94m	$0.94m	$0.94m	$0.94m	$0.94m	$0.94m	$0.94m



	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
216 - Bridge and structure renewals	$0.00m	$0.80m	$0.00m	$0.00m	$0.00m	$0.00m	$0.00m	$0.00m	$0.00m	$0.00m
215 - Structures component replacements	$3.25m	$2.36m	$2.42m	$2.48m	$2.54m	$2.59m	$2.65m	$2.70m	$2.75m	$2.81m
114 - Structures maintenance	$0.76m	$0.85m	$0.83m	$0.82m	$0.82m	$0.82m	$0.82m	$0.82m	$0.82m	$0.82m

2.3.5 DRAINAGE

ASSET SUMMARY

Ingress of water is the most significant threat to road pavement deterioration and early failure; drainage assets are a critical element of pavement design to maintain pavement performance and condition. The purpose of drainage assets is to:

- Remove water from the carriageway to prevent water ingress that will cause risk of asset failure.
- Convey and discharge water to prevent localised flooding to pavements and neighbouring properties.
- Improve road safety by preventing accidents caused by ponding or flooding.

Drainage assets are defined as follows:

- Kerb and channel: roadside assets, predominantly constructed from concrete, that channel road run-off into the road drainage system or delineate the edge of the carriageway.
- Open / side drain: surface drain generally located between the kerb and channel and legal road boundary, on rural roads these may run immediately adjacent to the carriageway and collect surface water run-off from both the road surface and adjacent land.
- Drainage facilities: includes sumps, manholes, and pits / chambers used to collect road run-off. These assets interface with and are managed by each Council's stormwater activity.

Drainage asset maintenance is managed through each Council's road maintenance contract.

Table 13: Drainage assets summary

Asset type	Unit	Buller DC	Grey DC	Westland DC
Kerb and Channel (concrete)				
Kerb & channel	km	68.0	117.4	66.2
Kerb only	km	0.6	2.0	0.6
Mountable kerb & channel	km	1.1	3.5	
Mountable kerb only	km	0.02	9.0m	
Open / side drain				
Dish Channel				
Concrete	km	5.7	1.9	1.9
Sealed	km	1.2	0.04	0.5
Stormwater channels (earth)	km	531.0	471.2	1,241
Slot channel	km		0.07	
Culverts	no.	1,900	1,852	2,278
	km	21	21.9	23.4
Side drains	no.	44	3	9
	km	9.4	0.3	22.7
Drainage facilities				
Sumps	no.	892	892	670
Soak pits	no.		5	
Catchpits	no.		1,402	
Manholes	no.	N/A	N/A	

ASSET PERFORMANCE AND CONDITION

There is no formal condition monitoring programme for drainage assets and there are currently no performance measures, so the following information has been sourced from Council staff and contractors:

- Asset condition is deteriorating on parts of the network, particularly in rural areas where issues such as high shoulders are contributing to water damage of pavement base and subbase layers. Prolonged deterioration will require costly rehabilitation / strengthening of some sections that could otherwise be avoided through proactive maintenance.
- Some drainage assets are no longer fit-for-purpose, having been designed for lower flows than are already being experienced, or are expected from future weather events. Other parts of the network require drainage assets where there are currently none.
- Current maintenance budgets are insufficient to ensure both proactive and reactive maintenance is undertaken. With increasing weather impacts due to climate change the need for proactive maintenance to ensure drainage assets protect and prolong the life of road pavement is essential.
- Renewal budgets are insufficient given increasing replacement cost of drainage assets, and the need for asset improvements as part of the renewals programme to upsize drainage assets to cope with current and future needs.

KEY ISSUES AND RECOMMENDATIONS

Issue	Potential Impacts	Recommendations	Priority
Declining drainage condition trend.	Pavement asset deterioration due to water ingress leading to accelerated deterioration / failure of pavement layers. Costly reactive maintenance and/or renewals (both drainage and pavements) ahead of expected useful lives. Flood damage to adjacent properties.	Engagement with maintenance contractor to identify worst condition assets for prioritisation in renewals programme.	**High**
Insufficient maintenance and renewal budgets.	Increasing costs of maintaining/renewing existing assets and services to meet required levels of service	Increased budget to enable more proactive maintenance and renewals, will be important in response to increasing frequency and scale of wet weather events.	**High**
Drainage capacity is insufficient, or non-existent, in some locations, to meet current / future demand.	Inadequate roadside drainage resulting in road pavement deterioration causing traffic disruption and potential access problems	Improvement action to undertake drainage asset performance and service gap assessment, via maintenance contractors, to determine future investment needed in improved / new assets.	**Medium**

INVESTMENT OPTIONS

Option	Cost 24-27	Summary	Rating
Option 1 **Status quo**	BDC $1.6m GDC $1.1m WDC $1.6m	Increasing frequency and scale of wet weather events are causing water ingress into pavements and flooding/ ponding risk to adjacent property. This option does not provide sufficient uplift for proactive renewal of drainage assets, or for a 'build back better' approach to renewals with replacement of assets with modern equivalents sufficient to meet current and future water volumes.	**Discount**
Option 2 **Do minimum**	BDC $2.1m GDC $1.7m WDC $1.8m	This option provides for improved maintenance and renewal of drainage assets, in this programme assets in very poor condition would be prioritised, along with those in areas where issues are already being experienced with deteriorating pavement condition and/or surface flooding/ponding impacting the roadway and adjacent property.	**Possible**
Option 3 **Prioritised programme**	BDC $2.3m GDC $2.1m WDC $2.5m	As for Option 2 + an enhanced programme of proactive drainage renewals to address issues that are negatively impacting sealed and unsealed pavement condition and remaining lives. This option provides for optimised renewal of drainage assets to accommodate current and future water volumes, this is important in areas where drainage will be under-sized for future weather events.	**Preferred**
Option 4 **Preserving our assets**	BDC $2.7m GDC $2.2m WDC $2.7m	As for Option 3 + further expenditure on maintenance and renewals, particularly in Buller, to better respond to weather and flood events and ensure drainage assets protect roading infrastructure and adjacent property.	**Possible**

OPTION ASSESSMENT

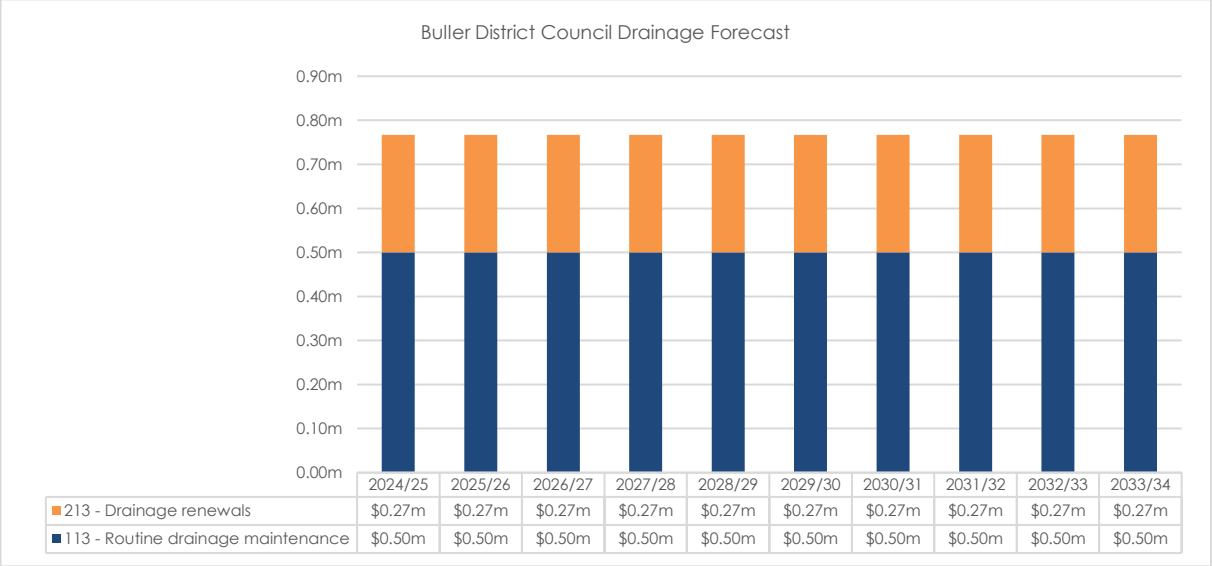
Kerbs, Channels & Drainage						
Description of the Options		Kerbs, Channels & Drainage Options				
		Option 1	Option 2	Option 3	Option 4	
		Status Quo	Do Minimum: 2023 valuation inflation	Prioritised Programme	Preserving our Assets	
		Maintain current (2021-24) budgets.	Status quo + adjustment for 2023 valuation optimised replacement cost increase.		Address drainage condition issues that are negatively impacting pavement condition and remaining lives.	
Investment Objectives						30%
Improve network resilience	40%	Large negative (-ve)	Slight positive (+ve)	Large positive (+ve)	Large positive (+ve)	
Safer travel	35%	Moderate negative (-ve)	Slight positive (+ve)	Slight positive (+ve)	Slight positive (+ve)	
Improved transport efficiency	25%	Slight negative (ve)	Neutral	Neutral	Neutral	
Critical Success Factors						30%
Potential achievability		Large positive (+ve)	Large positive (+ve)	Large positive (+ve)	Large positive (+ve)	
Potential affordability		Large positive (+ve)	Slight positive (+ve)	Slight negative (-ve)	Moderate negative (-ve)	
Potential value for money		Large negative (ve)	Moderate positive (+ve)	Large positive (+ve)	Large positive (+ve)	
Supplier capacity and capability		Large positive (+ve)	Large positive (+ve)	Large positive (+ve)	Large positive (+ve)	
Strategic Priorities: Regional, GPS24, Arataki						20%
Climate change mitigation & adaptation (WC Strategic Inputs)		Moderate negative (-ve)	Slight positive (+ve)	Large positive (+ve)	Large positive (+ve)	
Economic development (WC Strategic Inputs, GPS24, Arataki)		Slight negative (-ve)	Neutral	Neutral	Neutral	
Integrated freight system (GPS24)		Moderate negative (-ve)	Slight positive (+ve)	Slight positive (+ve)	Slight positive (+ve)	
Maintaining & operating the system (GPS24)		Large negative (-ve)	Moderate positive (+ve)	Large positive (+ve)	Large positive (+ve)	
Sustainable urban development (GPS24)		Slight negative (ve)	Slight positive (+ve)	Moderate positive (+ve)	Moderate positive (+ve)	
Inclusive access (Arataki)		Slight negative (-ve)	Slight positive (+ve)	Slight positive (+ve)	Slight positive (+ve)	
Estimated Cost 2024-27						20%
Buller District Council		1,586,803	2,112,687	2,300,000	2,684,411	
Grey District Council		1,119,273	1,708,640	2,116,308	2,182,269	
Westland District Council		1,562,975	1,820,243	2,521,534	2,737,801	
TOTAL WEST COAST COUNCILS		**4,269,051**	**5,641,569**	**6,937,842**	**7,604,481**	
Assessment						100%
Score		407	545	551	531	
Ranking		**4**	**2**	**1**	**3**	
Assessment		**Discount**	**Possible**	**Preferred**	**Possible**	

Budget 2024-27	Work Category	Option 1	Option 2	Option 3	Option 4
Buller District Council	113 - Routine drainage maintenance	1,213,432	1,478,572	1,500,000	1,785,796
Grey District Council	113 - Routine drainage maintenance	740,188	1,206,351	1,579,523	1,579,523
Westland District Council	113 - Routine drainage maintenance	918,946	966,905	1,098,557	1,217,604
Buller District Council	213 - Drainage renewals	373,371	634,115	800,000	898,615
Grey District Council	213 - Drainage renewals	379,086	502,288	536,785	602,746
Westland District Council	213 - Drainage renewals	644,028	853,338	1,422,977	1,520,196
Buller District Council	**Total - Kerbs, Channels & Drainage**	**1,586,803**	**2,112,687**	**2,300,000**	**2,684,411**
Grey District Council	**Total - Kerbs, Channels & Drainage**	**1,119,273**	**1,708,640**	**2,116,308**	**2,182,269**
Westland District Council	**Total - Kerbs, Channels & Drainage**	**1,562,975**	**1,820,243**	**2,521,534**	**2,737,801**

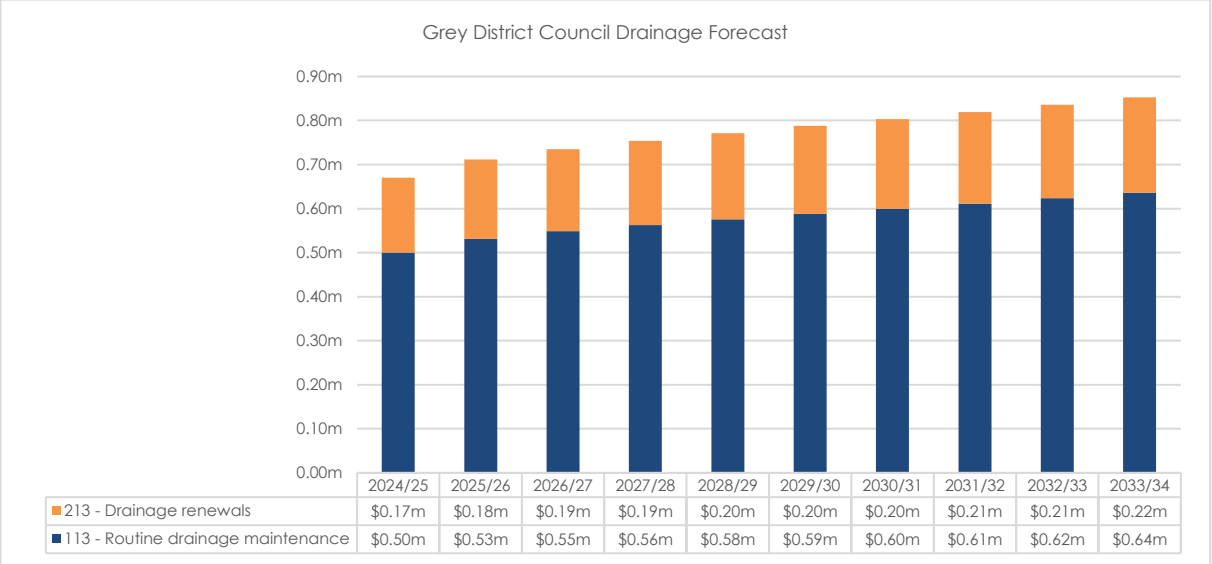
Level of Service	Measure	Option 1	Option 2	Option 3	Option 4	Work Category
Routine drainage maintenance	% faults responded to within maintenance intervention strategy timeframes.	Drainage faults are not responded to in a timely manner, proactive maintenance is not done.	Drainage faults are mostly responded to in a timely manner, proactive maintenance is partially enabled.	Drainage faults are responded to in a timely manner, proactive maintenance is enabled.	Drainage faults are responded to in a timely manner, proactive maintenance is enabled.	113 - Routine drainage maintenance
Drainage condition	Under development.					213 - Drainage renewals

Figure 28: Drainage investment option assessment

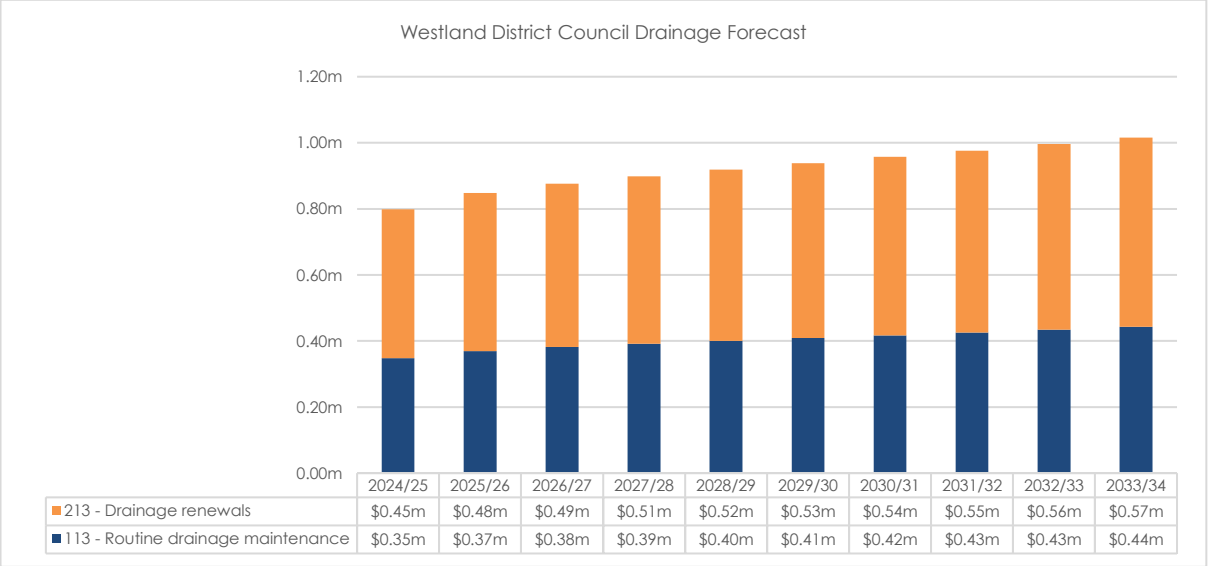
FORECAST MAINTENANCE, OPERATION & RENEWAL EXPENDITURE



	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
213 - Drainage renewals	$0.27m	$0.27m	$0.27m	$0.27m	$0.27m	$0.27m	$0.27m	$0.27m	$0.27m	$0.27m
113 - Routine drainage maintenance	$0.50m	$0.50m	$0.50m	$0.50m	$0.50m	$0.50m	$0.50m	$0.50m	$0.50m	$0.50m



	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
213 - Drainage renewals	$0.17m	$0.18m	$0.19m	$0.19m	$0.20m	$0.20m	$0.20m	$0.21m	$0.21m	$0.22m
113 - Routine drainage maintenance	$0.50m	$0.53m	$0.55m	$0.56m	$0.58m	$0.59m	$0.60m	$0.61m	$0.62m	$0.64m



	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
213 - Drainage renewals	$0.45m	$0.48m	$0.49m	$0.51m	$0.52m	$0.53m	$0.54m	$0.55m	$0.56m	$0.57m
113 - Routine drainage maintenance	$0.35m	$0.37m	$0.38m	$0.39m	$0.40m	$0.41m	$0.42m	$0.43m	$0.43m	$0.44m

2.3.6 WALKING AND CYCLE FACILITIES

ASSET SUMMARY

Footpaths and cycle facilities provide safe, convenient, and defined means for active modes, they are generally constructed adjacent to roadways and as links between roads and public spaces.

Key issues relating to footpath and cycle facilities include:

- Uniformity of design standards.
- Urban character and streetscape design.
- Reinstatement (following excavation/development).
- Aesthetics (following replacement/maintenance).

The majority of footpaths are chipseal formation or concrete and the preference for newly constructed footpaths is concrete with typically less ongoing maintenance costs.

Table 14: Footpath summary

Footpath length (km)	Buller DC	Grey DC	Westland DC	West Coast
Asphaltic concrete	6.8	14.2	6.0	**26.9**
Concrete	32.2	40.4	32.4	**105.0**
Interlocking blocks	-	1.2	1.4	**2.6**
Seal	47.3	50.3	29.6	**127.2**
Chipseal	0.2	-	-	**0.2**
Metal	-	0.7	4.3	**5.0**
TOTAL	**86.5**	**106.9**	**73.6**	**267.0**

These assets generally require minimal maintenance throughout their useful life, beyond being kept clean. Maintenance is undertaken through the road maintenance contracts which specify methods and performance criteria, including vegetation control and sweeping. Footpath construction dates back to the 1970's with two spikes in construction in 1988 and 2000. There has been significant investment in footpath renewals over the last few years.

The West Coast region has become renowned for its network of off-road cycle trails that are highly utilised by locals and attract visitors to the region. In general, these trails have been developed by independent trails trusts using grants, and Council co-funding in some cases, who now lack the financial resources to properly maintain the growing network over the medium to long-term. Recognising the economic value of these assets each Council is engaging with different stakeholders to identify opportunities to support operation and maintenance activities.

ASSET PERFORMANCE AND CONDITION

Condition monitoring of footpath assets varies between the Councils, as shown in the level of service framework each Council has a different set of targets and outcomes:

Council	2022/23 Performance
Buller DC	Condition target not achieved: 64% of footpaths ranked as grade 1 and 2, target is 75%.
Grey DC	Condition target achieved: 83% ranked 'fair' or better, target is 80% Despite this result, just 39% of residents reported being satisfied with footpaths, down from 49% in the previous survey.

Westland DC	No agreed performance target, but condition is reported: 94% rated between 1-4, 75% rated between 1-3, 6% rated 5.

There is no condition rating available for cycle facilities. Anecdotally no issues were raised by any of the Councils.

KEY ISSUES AND RECOMMENDATIONS

Issue	Potential Impacts	Recommendations	Priority
Community satisfaction	Community dissatisfaction with footpaths and cycle paths is already leading to complaints which can end up being directed at Elected Members.	Undertake routine monitoring and reporting of footpath asset condition. Prioritise defects and timely response to customer service requests. Understand drivers of community dissatisfaction, is it a result of poor condition or other factors (e.g. a lack of footpaths in some locations).	**High**

INVESTMENT OPTIONS

Option	Cost 24-27	Summary	Rating
Option 1 **Status quo**	BDC $0.9m GDC $1.2m WDC $0.7m	This option does not provide for a response to feedback in Buller and Grey District community engagement showing an expectation for better footpath levels of service.	**Discount**
Option 2 **Do minimum**	BDC $1.7m GDC $1.7m WDC $0.7m	Based on community engagement, the do minimum option for Buller and Grey District exceeds an inflation only approach. This option enables a higher amount of footpath maintenance and renewal to achieve level of service targets. Minor uplift is provided for cycle path maintenance to reflect the growing network of trails in each district. Westland District Council has made no change to the status quo for Options 2-4 in response to satisfactory asset condition and level of service being delivered under existing contracts.	**Possible**
Option 3 **Prioritised programme**	BDC $2.1m GDC $2.0m WDC $0.7m	This option increases the quantity of footpath maintenance and renewals to address identified issues and respond to community feedback. Buller District has made further provision for cycle path maintenance to support maintenance of trails in the district, particularly the Kawatiri Coastal Trail.	**Preferred**
Option 4 **Preserving our assets**	BDC $2.3m GDC $2.0m WDC $0.7m	As for Option 3 + further footpath maintenance expenditure in Buller.	**Possible**

OPTION ASSESSMENT

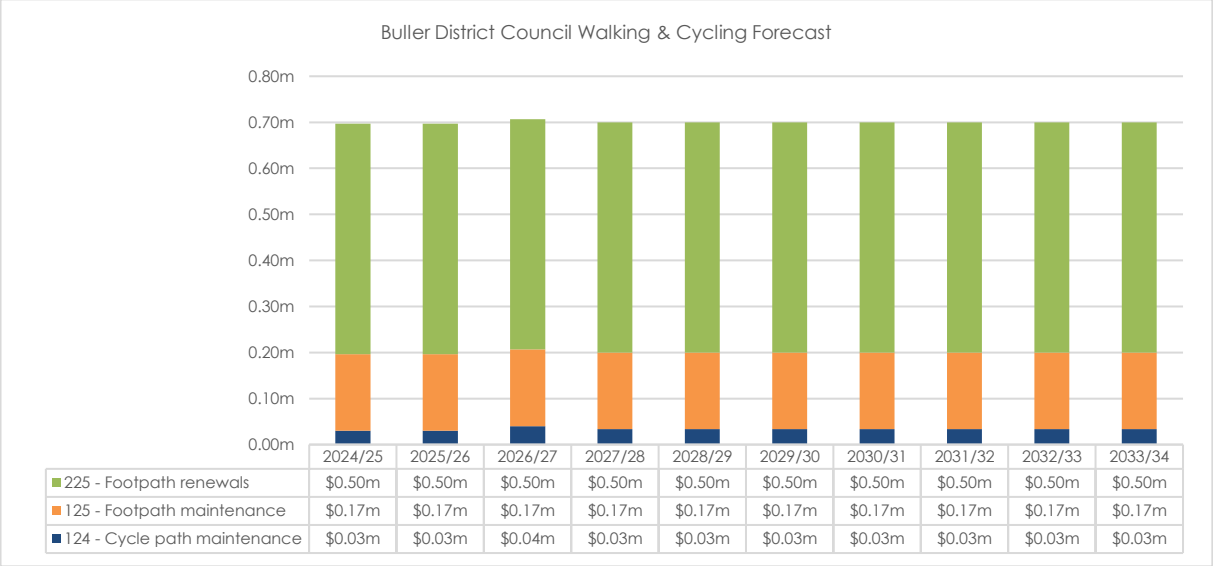
Walking & Cycling						
Description of the Options			Walking & Cycling Options			
			Option 1	Option 2	Option 3	Option 4
			Status Quo	Do Minimum: 2023 valuation inflation	Prioritised Programme	Preserving our Assets
			Maintain current (2021-24) budgets.	Status quo + adjustment for 2023 valuation optimised replacement cost increase.	Response to community dissatisfaction with current levels of service via an increased forward programme of proactive maintenance and renewals.	Option 3 + additional quantity of work to more fully address maintenance and renewal issues.
Investment Objectives						30%
Improve network resilience		40%	Large negative (-ve)	Slight negative (-ve)	Slight positive (+ve)	Slight positive (+ve)
Safer travel		35%	Moderate negative (-ve)	Slight positive (+ve)	Moderate positive (+ve)	Moderate positive (+ve)
Improved transport efficien		25%	Slight negative (-ve)	Neutral	Neutral	Neutral
Critical Success Factors						30%
Potential achievability			Large positive (+ve)	Large positive (+ve)	Large positive (+ve)	Large positive (+ve)
Potential affordability			Large positive (+ve)	Slight negative (-ve)	Moderate negative (-ve)	Moderate negative (-ve)
Potential value for money			Large negative (-ve)	Moderate positive (+ve)	Moderate positive (+ve)	Moderate positive (+ve)
Supplier capacity and capability			Large positive (+ve)	Large positive (+ve)	Large positive (+ve)	Large positive (+ve)
Strategic Priorities: Regional, GPS24, Arataki						20%
Climate change mitigation & adaptation (WC Strategic Inputs)			Neutral	Neutral	Neutral	Neutral
Economic development (WC Strategic Inputs, GPS24, Arataki)			Slight negative (-ve)	Slight positive (+ve)	Slight positive (+ve)	Slight positive (+ve)
Integrated freight system (GPS24)			Neutral	Neutral	Neutral	Neutral
Maintaining & operating the system (GPS24)			Slight negative (-ve)	Slight positive (+ve)	Moderate positive (+ve)	Moderate positive (+ve)
Sustainable urban development (GPS24)			Slight negative (-ve)	Slight positive (+ve)	Moderate positive (+ve)	Moderate positive (+ve)
Inclusive access (Arataki)			Slight negative (-ve)	Moderate positive (+ve)	Moderate positive (+ve)	Moderate positive (+ve)
Estimated Cost 2024-27						20%
Buller District Council			892,887	1,705,955	2,100,000	2,331,376
Grey District Council			1,209,915	1,666,713	1,958,609	1,958,609
Westland District Council			701,466	679,195	661,809	679,195
TOTAL WEST COAST COUNCILS			**2,804,268**	**4,051,863**	**4,720,418**	**4,969,179**
Assessment						100%
Score			427	493	507	500
Ranking			**4**	**3**	**1**	**2**
Assessment			**Discount**	**Possible**	**Preferred**	**Possible**

Budget 2024-27	Work Category	Option 1	Option 2	Option 3	Option 4
Buller District Council	124 - Cycle path maintenance	9,999	27,905	100,000	94,771
Grey District Council	124 - Cycle path maintenance	47,386	126,362	126,362	126,362
Westland District Council	124 - Cycle path maintenance	69,657	-	-	-
Buller District Council	125 - Footpath maintenance	189,099	518,950	500,000	689,620
Grey District Council	125 - Footpath maintenance	530,720	703,204	916,123	916,123
Westland District Council	125 - Footpath maintenance	315,905	315,905	315,905	315,905
Buller District Council	224 - Cycle path renewal	-	-	-	-
Grey District Council	224 - Cycle path renewal	-	-	-	-
Westland District Council	224 - Cycle path renewal	-	-	-	-
Buller District Council	225 - Footpath renewals	693,789	1,159,100	1,500,000	1,546,985
Grey District Council	225 - Footpath renewals	631,809	837,147	916,123	916,123
Westland District Council	225 - Footpath renewals	315,905	363,290	345,905	363,290
Buller District Council	**Total - Walking & Cycling**	**892,887**	**1,705,955**	**2,100,000**	**2,331,376**
Grey District Council	**Total - Walking & Cycling**	**1,209,915**	**1,666,713**	**1,958,609**	**1,958,609**
Westland District Council	**Total - Walking & Cycling**	**701,466**	**679,195**	**661,809**	**679,195**

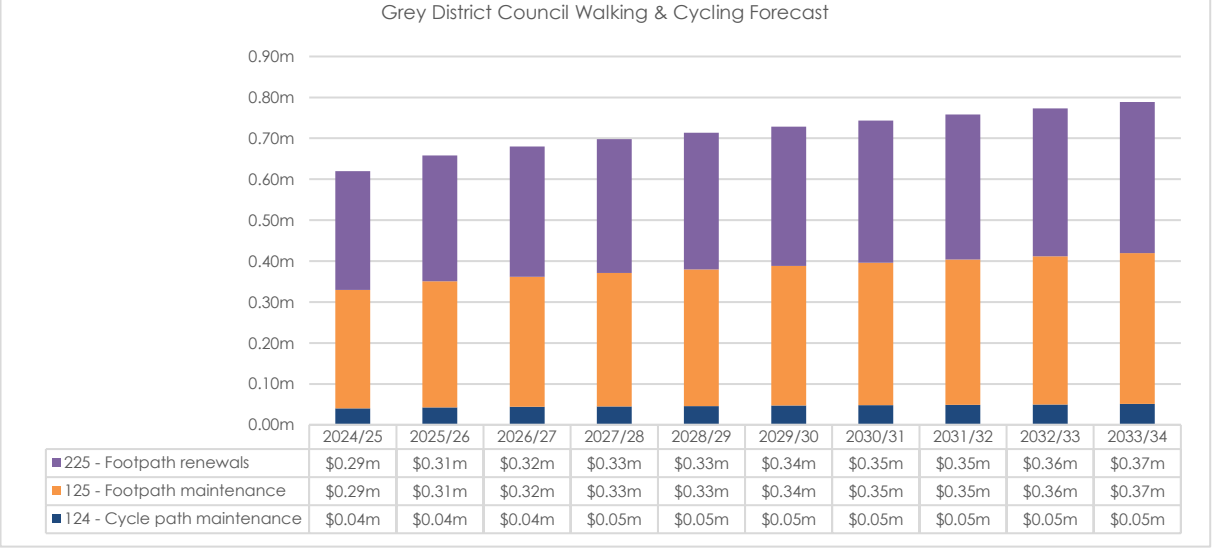
Level of Service	Measure	Option 1	Option 2	Option 3	Option 4	Work Category
Cycle path maintenance	% faults responded to within maintenance intervention strategy timeframes.	Cycle path faults are not responded to in a timely manner, proactive maintenance is not done.	Cycle path faults are mostly responded to in a timely manner, proactive maintenance is partially enabled.	Cycle path faults are responded to in a timely manner, proactive maintenance is enabled.	Cycle path faults are responded to in a timely manner, proactive maintenance is enabled.	124 - Cycle path maintenance
Footpath maintenance	% faults responded to within maintenance intervention strategy timeframes.	Footpath faults are not responded to in a timely manner, proactive maintenance is not done.	Footpath faults are mostly responded to in a timely manner, proactive maintenance is partially enabled.	Footpath faults are responded to in a timely manner, proactive maintenance is enabled.	Footpath faults are responded to in a timely manner, proactive maintenance is enabled.	125 - Footpath maintenance
Cycle path condition	Under development.					224 - Cycle path renewal
Footpath condition	% of footpaths within a territorial authority district that fall within the level of service or service standard for the condition of footpaths that is set out in the territorial authoritys relevant document.	Footpath condition is maintained, asset consumption is stabilised, and effective asset stewardship is marginal.	Footpath condition is improved, asset consumption is minimised, and effective asset stewardship is applied.	Footpath condition is improved, asset consumption is minimised, and effective asset stewardship is applied.	Footpath condition is improved, asset consumption is minimised, and effective asset stewardship is applied.	225 - Footpath renewals

Figure 29: Walk & cycling investment option assessment

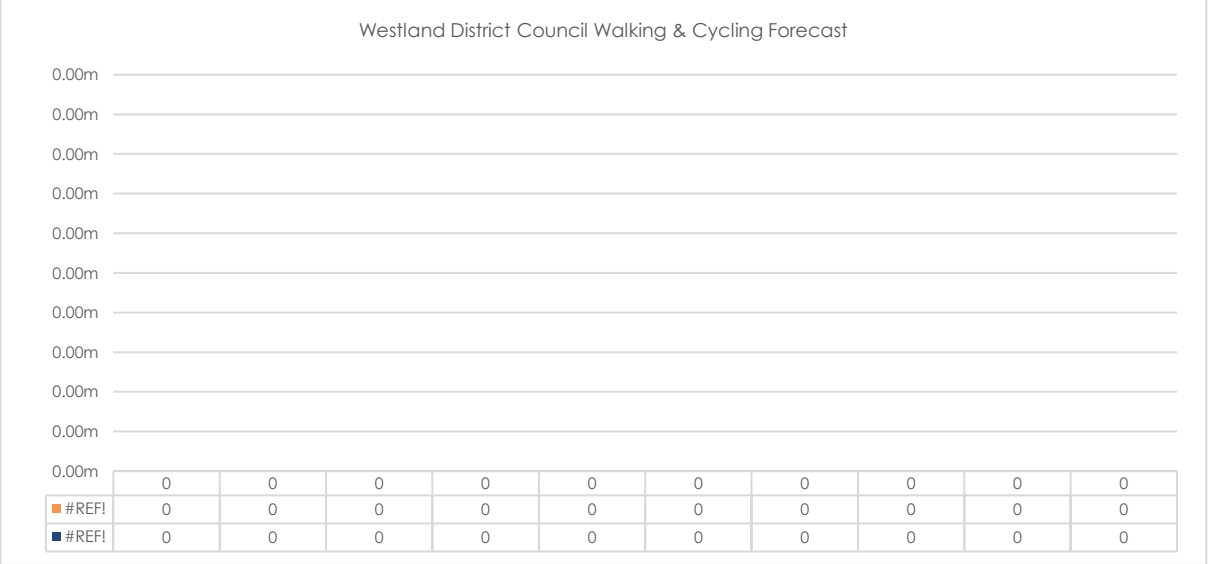
FORECAST MAINTENANCE, OPERATION & RENEWAL EXPENDITURE



	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
225 - Footpath renewals	$0.50m	$0.50m	$0.50m	$0.50m	$0.50m	$0.50m	$0.50m	$0.50m	$0.50m	$0.50m
125 - Footpath maintenance	$0.17m	$0.17m	$0.17m	$0.17m	$0.17m	$0.17m	$0.17m	$0.17m	$0.17m	$0.17m
124 - Cycle path maintenance	$0.03m	$0.03m	$0.04m	$0.03m	$0.03m	$0.03m	$0.03m	$0.03m	$0.03m	$0.03m



	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
225 - Footpath renewals	$0.29m	$0.31m	$0.32m	$0.33m	$0.33m	$0.34m	$0.35m	$0.35m	$0.36m	$0.37m
125 - Footpath maintenance	$0.29m	$0.31m	$0.32m	$0.33m	$0.33m	$0.34m	$0.35m	$0.35m	$0.36m	$0.37m
124 - Cycle path maintenance	$0.04m	$0.04m	$0.04m	$0.05m	$0.05m	$0.05m	$0.05m	$0.05m	$0.05m	$0.05m



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2.3.7 NETWORK SERVICES & MAINTENANCE

ASSET SUMMARY

Due to the proportion of the subsequent work categories relatively small, this section has consolidated them into the summary below. This summary offers an outline for five work categories that contribute to network safety performance and functional utilization:

- Environmental maintenance and renewals: provides for the routine care and attention of the road corridor to maintain safety, aesthetic, and environmental standards.
- Network services maintenance: provides for the routine care and attention of road features that support the safety performance and functional use of the network including:
- Network operations: provides for the operation, maintenance and power costs of traffic signals and other traffic management equipment and facilities.
- Level crossing warning devices: provides the maintenance and renewal of rail level crossing warning devices.
- Traffic services renewals: are the ancillary fixtures designed to assist traffic safety and flow by providing information for the road users. They include items such as signs, hazard markers, road markings, streetlighting and traffic management equipment and facilities.

ASSET PERFORMANCE AND CONDITION

The successful performance of the network services and maintenance is particularly reliant on maintenance inspections to identify any deficiencies.

For traffic services maintenance, it is undertaken through the road maintenance contracts which specify maintenance methods and performance criteria including cyclic inspection requirements. The traffic services inventory is used as a reference document when undertaking inspections, to identify where signs have been removed / damaged etc.

KEY ISSUES AND RECOMMENDATIONS

Issue	Potential Impacts	Recommendations	Priority
Increasing storm events, inadequate at meeting current and future demand.	Frequent weather events have increased the need for environment works.	Increased budget based on current actual expenditure to accommodate post-storm clean ups (debris, trees etc).	**High**
Insufficient maintenance and renewal budgets.	Increasing costs of maintaining/renewing existing assets and services to meet required levels of service. Substantial increase to electricity costs for streetlights and other electronics.	Increased budget based on actual expenditure and new power contract rates.	**High**

INVESTMENT OPTIONS

Option	Cost 24-27	Summary	Rating
Option 1 **Status quo**	BDC $2.5m GDC $2.6m WDC $1.6m	This option does not account for substantial cost increase to new power supply agreements, and the cost of cleaning up debris and vegetation following storm events. Both of these items have required reallocation of funds from other activities to deliver in the current period.	**Discount**
Option 2 **Do minimum**	BDC $3.2m GDC $3.5m WDC $2.5m	This option accommodates increased power costs and environmental maintenance following storm events.	**Possible**
Option 3 **Prioritised programme**	BDC $2.8m GDC $3.3m WDC $2.6m	As for Option 2, but with some reduction to the increased budget for Buller and Grey, this is based on a review of current actual expenditure. Westland has a slight further increase as storm events are incurring a significant cost in the current budget.	**Preferred**
Option 4 **Preserving our assets**	BDC $3.3m GDC $3.7m WDC $2.7m	As for Option 2 with further increase to accommodate for uncertainty around future weather events.	**Possible**

OPTION ASSESSMENT

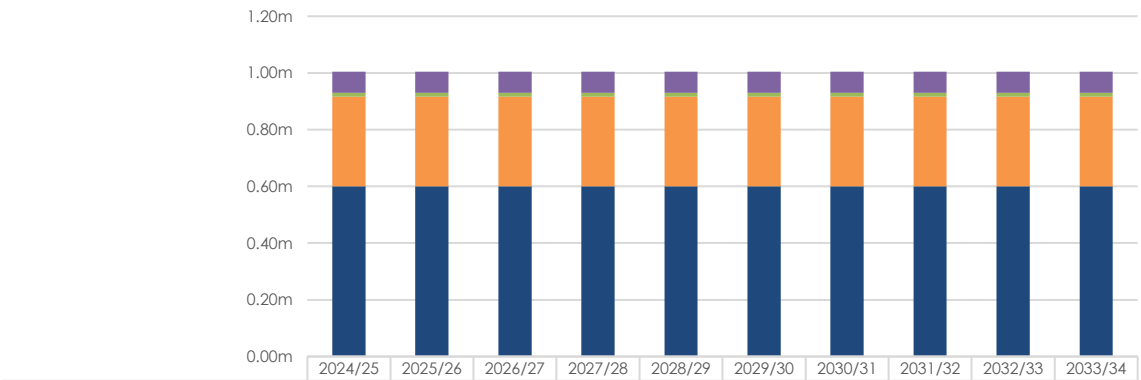
Network Maintenance & Services						
Description of the Options		Network Maintenance & Services Options				
		Option 1	Option 2	Option 3	Option 4	
		Status Quo	Do Minimum: 2023 valuation inflation	Prioritised Programme	Preserving our Assets	
		Maintain current (2021-24) budgets.	Status quo + adjustment for contract and electricity cost increase.	Enhanced network services in response to weather events (environmental maintenance) and network signage due to speed management programme.	Option 3 + additional programme of traffic services maintenance and renewals.	
Investment Objectives						30%
Improve network resilience	40%	Large negative (-ve)	Slight positive (+ve)	Large positive (+ve)	Large positive (+ve)	
Safer travel	35%	Moderate negative (-ve)	Slight positive (+ve)	Moderate positive (+ve)	Moderate positive (+ve)	
Improved transport efficiency	25%	Slight negative (-ve)	Neutral	Neutral	Neutral	
Critical Success Factors						30%
Potential achievability		Large positive (+ve)	Moderate positive (+ve)	Moderate positive (+ve)	Moderate positive (+ve)	
Potential affordability		Large positive (+ve)	Moderate negative (-ve)	Slight negative (-ve)	Moderate negative (-ve)	
Potential value for money		Large negative (-ve)	Moderate positive (+ve)	Large positive (+ve)	Moderate positive (+ve)	
Supplier capacity and capability		Large positive (+ve)	Large positive (+ve)	Large positive (+ve)	Large positive (+ve)	
Strategic Priorities: Regional, GPS24, Arataki						20%
Climate change mitigation & adaptation (WC Strategic Inputs)		Slight negative (-ve)	Large positive (+ve)	Moderate positive (+ve)	Large positive (+ve)	
Economic development (WC Strategic Inputs, GPS24, Arataki)		Neutral	Neutral	Neutral	Neutral	
Integrated freight system (GPS24)		Neutral	Neutral	Neutral	Neutral	
Maintaining & operating the system (GPS24)		Moderate negative (-ve)	Moderate positive (+ve)	Moderate positive (+ve)	Large positive (+ve)	
Sustainable urban development (GPS24)		Neutral	Neutral	Neutral	Neutral	
Inclusive access (Arataki)		Neutral	Neutral	Neutral	Neutral	
Estimated Cost 2024-27						20%
Buller District Council		2,703,042	3,442,971	3,015,000	3,564,274	
Grey District Council		3,369,994	4,465,243	4,200,254	4,716,387	
Westland District Council		2,123,522	3,202,045	3,200,372	3,416,459	
TOTAL WEST COAST COUNCILS		**8,196,559**	**11,110,258**	**10,415,626**	**11,697,120**	
Assessment						100%
Score		431	502	556	533	
Ranking		**4**	**3**	**1**	**2**	
Assessment		**Discount**	**Possible**	**Preferred**	**Possible**	

Budget 2024-27	Work Category	Option 1	Option 2	Option 3	Option 4
Buller District Council	121 - Environmental maintenance	1,567,892	1,901,935	1,800,000	1,800,389
Grey District Council	121 - Environmental maintenance	1,263,618	1,674,294	1,714,730	1,925,439
Westland District Council	121 - Environmental maintenance	1,078,814	1,429,429	1,495,557	1,643,843
Buller District Council	122 - Network services maintenance	930,616	1,267,872	950,000	1,525,991
Grey District Council	122 - Network services maintenance	1,356,103	1,796,836	1,600,201	1,796,836
Westland District Council	122 - Network services maintenance	545,522	1,105,666	1,105,666	1,105,666
Buller District Council	131 - Level crossing warning devices	19,422	15,131	40,000	15,283
Grey District Council	131 - Level crossing warning devices	118,464	156,965	139,788	156,965
Westland District Council	131 - Level crossing warning devices	25,272	33,486	29,821	33,486
Buller District Council	222 - Traffic services renewals	183,519	258,032	225,000	222,610
Grey District Council	222 - Traffic services renewals	631,809	837,147	745,535	837,147
Westland District Council	222 - Traffic services renewals	473,914	633,464	569,327	633,464
Buller District Council	**Total - Network Maintenance & Services**	**2,703,042**	**3,442,971**	**3,015,000**	**3,564,274**
Grey District Council	**Total - Network Maintenance & Services**	**3,369,994**	**4,465,243**	**4,200,254**	**4,716,387**
Westland District Council	**Total - Network Maintenance & Services**	**2,123,522**	**3,202,045**	**3,200,372**	**3,416,459**

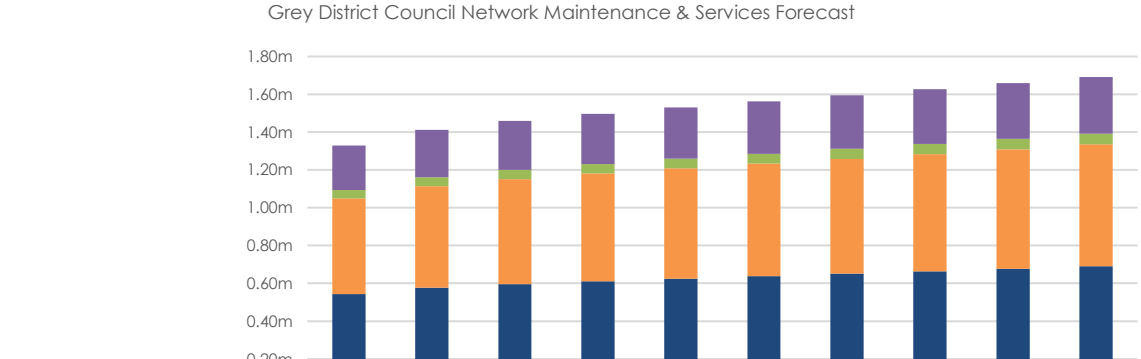
Level of Service	Measure	Option 1	Option 2	Option 3	Option 4	Work Category
Environmental maintenance	% faults responded to within maintenance intervention strategy timeframes.	Environmental faults are mostly responded to in a timely manner, proactive maintenance is partially enabled.	Environmental faults are responded to in a timely manner, proactive maintenance is enabled.	Environmental faults are responded to in a timely manner, proactive maintenance is enabled.	Environmental faults are responded to in a timely manner, proactive maintenance is enabled.	121 - Environmental maintenance
Network services maintenance	% faults responded to within maintenance intervention strategy timeframes.	Network services faults are not responded to in a timely manner, proactive maintenance is not done.	Network services faults are responded to in a timely manner, proactive maintenance is enabled.	Network services faults are mostly responded to in a timely manner, proactive maintenance is partially enabled.	Network services faults are responded to in a timely manner, proactive maintenance is enabled.	122 - Network services maintenance
Environmental condition	Under development.					221 - Environmental renewals
Traffic services condition	Under development.					222 - Traffic services renewals

Figure 30: Network services and maintenance investment options assessment

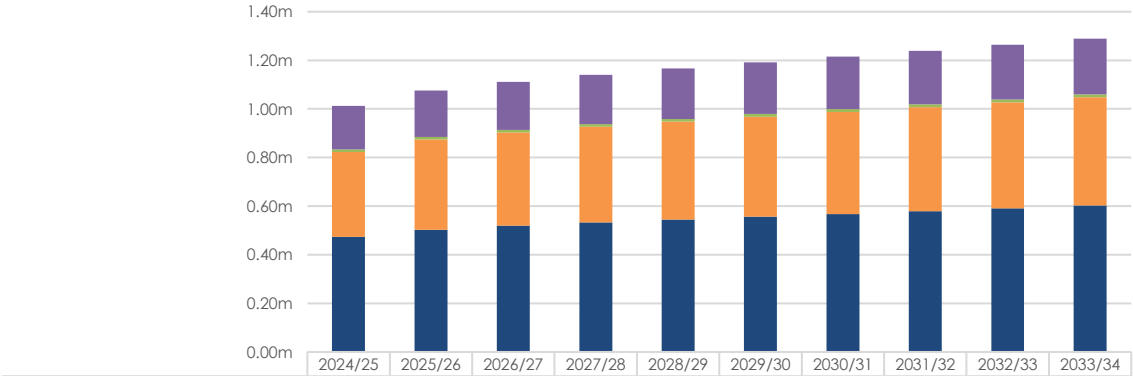
FORECAST MAINTENANCE, OPERATION & RENEWAL EXPENDITURE



	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
222 - Traffic services renewals	$0.08m	$0.08m	$0.08m	$0.08m	$0.08m	$0.08m	$0.08m	$0.08m	$0.08m	$0.08m
131 - Level crossing warning devices	$0.01m	$0.01m	$0.01m	$0.01m	$0.01m	$0.01m	$0.01m	$0.01m	$0.01m	$0.01m
122 - Network services maintenance	$0.32m	$0.32m	$0.32m	$0.32m	$0.32m	$0.32m	$0.32m	$0.32m	$0.32m	$0.32m
121 - Environmental maintenance	$0.60m	$0.60m	$0.60m	$0.60m	$0.60m	$0.60m	$0.60m	$0.60m	$0.60m	$0.60m



	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
222 - Traffic services renewals	$0.24m	$0.25m	$0.26m	$0.27m	$0.27m	$0.28m	$0.28m	$0.29m	$0.29m	$0.30m
131 - Level crossing warning devices	$0.04m	$0.05m	$0.05m	$0.05m	$0.05m	$0.05m	$0.05m	$0.05m	$0.06m	$0.06m
122 - Network services maintenance	$0.51m	$0.54m	$0.56m	$0.57m	$0.58m	$0.60m	$0.61m	$0.62m	$0.63m	$0.64m
121 - Environmental maintenance	$0.54m	$0.58m	$0.60m	$0.61m	$0.63m	$0.64m	$0.65m	$0.66m	$0.68m	$0.69m



	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34
222 - Traffic services renewals	$0.18m	$0.19m	$0.20m	$0.20m	$0.21m	$0.21m	$0.22m	$0.22m	$0.22m	$0.23m
131 - Level crossing warning devices	$0.01m	$0.01m	$0.01m	$0.01m	$0.01m	$0.01m	$0.01m	$0.01m	$0.01m	$0.01m
122 - Network services maintenance	$0.35m	$0.37m	$0.38m	$0.39m	$0.40m	$0.41m	$0.42m	$0.43m	$0.44m	$0.45m
121 - Environmental maintenance	$0.47m	$0.50m	$0.52m	$0.53m	$0.55m	$0.56m	$0.57m	$0.58m	$0.59m	$0.60m

2.3.8 EMERGENCY EVENTS

Emergency works are funded from:

- **WC140 Minor Events** for the response to minor, short duration, natural events where the total cost of the works is less than $100,000. Minor events are co-funded at each Council's normal FAR.
- **WC141 Emergency Works** in response to a major, short-duration natural event where the total cost of the works is greater than $100,000 per event. Emergency works are funded at:
    - Each Council's normal FAR for claims with a total cost of emergency works up to 10% of the organisation's maintenance programme for the year.
    - Each Council's normal FAR plus 20% to a maximum 95% for the part of the total cost of emergency works that exceeds 10% of the organisation's maintenance programme for the year.

The Councils current take a varied approach to funding these events in their annual budget:

- Minor events – each Councils budgets for the possibility of several events per annum:
    - BDC: $250k/annum on local roads and $250k/annum on the SPR.
    - GDC: $300k/annum on local roads.
    - WDC: $300k/annum on local roads and $200k/annum on the SPR.
- Emergency works
    - BDC: no budget, this is paid from reserves if needed during the period.
    - GDC: $500k/annum budgeted if needed during the period.
    - WDC: no budget, this is paid from reserves if needed during the period.

2.3.9 PUBLIC TRANSPORT

Public transport services comprise of the operation of existing public transport networks and services to improve utilisation and maintain existing levels of service, and in new public transport services to improve the level of service and encourage the uptake of public transport.

Currently Buller and Westland have a public transport programme co-funded via WC511 Passenger services – bus. This funding supports small scale contracted public transport services and no change is proposed to these for 2024-27.

The recommended approach to public transport funding is a minor increase to reflect contract cost increases, resulting in:

	2024/25	2025/26	2026/27	Total 2024-27
Buller DC	$56,600	$56,600	$56,600	$169,800
Westland DC	$30,000	$30,000	$30,000	$90,000

2.3.10 COASTAL SHIPPING

As a new addition to the 2024-27 NLTP, the coastal shipping activity facilitates investment in promoting equal opportunities and options for freight transportation which enables New Zealand's domestic coastal shipping to compete fairly with other freight businesses. This effort aims to boost the sustainability and competitiveness of the local industry.

Additionally, with a 100% FAR. The coastal shipping activity category demonstrates the government's commitment to partner with the industry to understand the challenges facing coastal shipping and working with it to address these challenges.

The 2022 West Coast Transport and Logistics Strategy identifies the local ports as important lifeline utilities for natural disaster resilience, and to provide commercial resilience in the event of prolonged closure of road and rail access (e.g. due to an earthquake or major landslip event). Further, there are opportunities to better integrate the ports as part of a road, rail, and sea freight system.

Currently the Councils lack a detailed understanding of where the best opportunities lie, though it is acknowledged that the port at Greymouth likely presents the best opportunity to establish better linkages and efficiency between road, rail, and sea.

Grey District Council are seeking $200,000 via WC442 Sea freight operations to:

- Research opportunities for a regional distribution hub at Greymouth connecting road, sea, and rail freight logistics.
- Understand opportunities to reduce freight sector emissions through investment in Council-owned port infrastructure.
- Identify commercial opportunities for new or enhanced domestic sea freight services.

2.3.11 IMPROVEMENT PROJECTS

BULLER DISTRICT LOCAL ROADS

Project / Location	Description	Activity Type	Primary Benefit	2024/25 Cost	2025/26 Cost	2026/27 Cost	Total Cost
Charleston Kawatiri Coastal Trail walking and cycling improvement	Package of works including footpaths, side rails, safe crossing points, safety infrastructure. The Kawatiri Coastal Trail is increasing visitors to this area, parcticularly walking and cycling. There are no footpaths in Charleston to accommodate these visitors and provide safety. The Charleston Community and Kawatiri Coastal Trail Trust has engaged Council requesting improved walking and cycling infrastructure.	Walking & Cycling Improvements	Safety	-	$100,000	$100,000	**$200,000**
Ikamatua Footpath Improvement	Improvements to footpaths to increase level (some are below road level and are prone to inundation) and require curb build outs, design for kerb lines and improved pedestrian access.	Walking & Cycling Improvements	Safety	-	$150,000	$150,000	**$300,000**
Northern Pathway - Kawatiri River Trail and Pounamu Pathway Connector	Critical linkage of the Kawatiri River Trail & Ponamu Pathway Connector cycle trailes through Westport town centre and urban area. Both of these trails are attracting significant local and tourist users, the connection will improve accessibility and enhance safety for users on urban roads. BDC has been awarded $200k Tourism Infrastructure Fund to support this, the remaining estimated cost of $200k is sought from the NLTP.	Walking & Cycling Improvements	Safety	$200,000	-	-	**$200,000**
Omau Road Intersection	Current 2021-24 LCLR project, due to budget constraints this required additional funding from the NLTP. The finds sought are for physical works construction.	Local Road Improvements	Safety	$1,395,000	-	-	**$1,395,000**
2024-27 Speed Management Plan Implementation	• Implement 2024-27 SMP • Physical works (signs, paint, kerbs) • Monitoring • Develop 2027-30 SMP	Road Safety	Safety	$50,000	$50,000	$50,000	**$150,000**
Pedestrian improvements at intersections (various)	Safety improvements at intersections for pedestrians. High priority projects from BDC's 2019 Walking Strategy.	Walking & Cycling Improvements	Safety	$100,000	$100,000	$100,000	**$300,000**
Reefton hospital footpath	Reefton Hospital -- Provide a new footpath on Sheil Street that provides access to the rear of the hospital, improves pedestrian access for residential properties and creates a walking loop for people undertaking walks for recreation or health.	Walking & Cycling Improvements	Safety	-	$40,000	$40,000	**$80,000**
Carters Beach footpaths	Carters Beach - Holiday Top 10 new footpath connection on the eastern side of the road connecting the existing footpath to the holiday park continuing to link to the new subdivision located at the end of Marine Parade or provide adequate	Walking & Cycling Improvements	Safety	-	-	$50,000	**$50,000**

Project / Location	Description	Activity Type	Primary Benefit	2024/25 Cost	2025/26 Cost	2026/27 Cost	Total Cost
	crossing points to a pathway proposed on the western side of Marine Parade (Kawatiri Coastal Trail).						
Streetlights at intersections improvement (various)	Provide improved lighting focused on pedestrians especially on the priority routes.	Local Road Improvements	Safety	-	-	$50,000	**$50,000**
TOTAL	Local Road Network Improvement Projects			$1,745,000	$440,000	$540,000	**$2,725,000**

BULLER DISTRICT SPECIAL PURPOSE ROAD

Project / Location	Description	Activity Type	Primary Benefit	2024/25 Cost	2025/26 Cost	2026/27 Cost	Total Cost
Karamea Highway Corner Cutting	Currently being LCLR (SPR) project – we have identified 16 corners, but with current budget we will be able to work on only 4 corners. We can include remaining work in next NLTP. Two milk tankers/milk tanker trailers fell off side of road 22/09/2023 and 25/09/23. Beca Report	Local Road Improvements	Safety	-	$900,000	$900,000	$1,800,000
Karamea Highway Resilience Improvement (various)	Address drainage resilience and asset deficiencies on the Karamea Highway as identified in the September 2023 Report prepared by Beca. Recommended works include: • New and upsized culverts and drainage channels • Raised culvert inlets to protect overflows • Swales • Rock or geotextile armouring • Retaining • Realignment (horizontal and vertical)	Resilience Improvements	Increasing Resilience	$1,866,000	$1,933,000	$1,733,000	$5,532,000
TOTAL	Special Purpose Road Improvement Projects			$1,866,000	$2,833,000	$2,633,000	**$7,332,000**

GREY DISTRICT LOCAL ROADS

Project / Location	Description	Activity Type	Primary Benefit	2024/25 Cost	2025/26 Cost	2026/27 Cost	Total Cost
Alexander Street Raised Crossing SNP	Raising existing pedestrian crossing. School has classrooms on both sides of Alexander Street. RSP will help reinforced the proposed safer speed limits and provide protection for students when crossing for class. John Paul II High School & St Patrick's School (Greymouth)	Road to Zero	Safety	-	$200,000	-	**$200,000**
Taylorville Rd Waterloo Street - State Highway 6 SNP	Continuation of Taylorville Road corridor. Lines signs and possibly ATP. Detour and bypass route for SH7	Road to Zero	Safety	-	-	$150,000	**$150,000**
Arnold Valley Road Thomas Brunner Drive - Cashmere Bay Road SNP	Lines and signs delineation potential ATP roughly 150m of barrier at southern end.	Road to Zero	Safety	-	$150,000	-	**$150,000**
Arnold Valeey Road Blair Road - Stratford Road SNP	Lines signs delineation potential ATP in conjunction with speed management. Large number of unreported run-off road crashes noted by council	Road to Zero	Safety	$100,000	-	-	**$100,000**
Taylorville Road SH7 - Trafalgar St SNP	Lines and signs potentially ATP and some minor tweaks to intersections pull-off areas in conjunction with Taylorville Road west of Taylorville. Currently resilience projects on this corridor. Detour and bypass route for SH7.	Road to Zero	Safety	-	-	$400,000	**$400,000**
Lake Brunner Rd & Bell Hill Rd IS SNP	High priority for GDC. Local knowledge of a large number of near misses and crashes not reported to CAS. Reconfiguration of intersection to tee up Bell Hill Rd and reduce avenue effect. Property already purchased. Recent technical audit identified intersection requires improvement. Bypass route when SH is closed.	Road to Zero	Safety	-	$400,000	-	**$400,000**
2024-27 Speed Management Plan implementation	Placeholder for Cert. SMP. Revise cost once bid has been received in TIO	Road to Zero	Safety	$100,000	$100,000	$100,000	**$300,000**
Greymouth Town Centre Redevelopment	Work to improve safety, wayfinding, delineation, clear zone, width and roughness etc.	Local Road Improvements	Safety	$250,000	$150,000	$100,000	**$500,000**
Guardrail Installation	Work to improve the safety and replacement of existing non compliant barrier	Local Road Improvements	Safety	$70,000	$70,000	-	**$140,000**
Shandytown Cycle trail	Long-term plan project, may require additional funding if co-funding is available	Walking and Cycling Improvements	Safety	$500,000	$500,000	$400,000	**$1,400,000**

Project / Location	Description	Activity Type	Primary Benefit	2024/25 Cost	2025/26 Cost	2026/27 Cost	Total Cost
Moana foot bridge	Existing bridge owned by kiwi rail is in very bad condition and as Moana is great tourist spot, council would like to construct a foot bridge in Moana that improves safety and tourist satisfaction	Walking and Cycling Improvements	Safety	$100,000	$100,000	$50,000	**$250,000**
Seal extensions	Unsealed hill section of Maori Gulley Rd and Omoto Valeet Rd is having continuous washouts throughout the year causing high maintenance costs. Waikori Rd is heavily used by tourists and as this is unsealed causing maintenance issues.	Local Road Improvements	Maintaining the System	$200,000	$200,000	$200,000	**$600,000**
Drainage extensions	Lack of good drainages causing road washouts and increased maintenance costs	Local Road Improvements	Maintaining the System	$150,000	$150,000	$100,000	**$400,000**
TOTAL	Local Road Network Improvement Projects			$1,470,000	$2,020,000	$1,500,000	**$4,990,000**

WESTLAND DISTRICT LOCAL ROADS

Project / Location	Description	Activity Type	Primary Benefit	2024/25 Cost	2025/26 Cost	2026/27 Cost	Total Cost
Blue Spur Road Hau Hau Road SNP	Roadside Safety Barrier at High-Risk Locations	Road Safety Improvements	Safety	$150,000	-	-	**$150,000**
Kaneire Komi SSS	Roadside Safety Barrier at High-Risk Locations	Road Safety Improvements	Safety	-	$250,000	-	**$250,000**
Woodstock Rimu Road	Safety improvements for cyclists at pinch point on key route.	Walking and Cycling Improvements	Safety	-	$220,000	-	**$220,000**
2024-27 Speed Management Plan implementation	• Implement 2024-27 SMP • Physical works (signs, paint, kerbs) • Monitoring • Develop 2027-30 SMP	Road Safety Improvements	Safety	$100,000	$100,000	$100,000	**$300,000**
Seal extensions	Adairs Road	Local Road Improvements	Maintaining the System	-	$600,000	-	**$600,000**
Seal extensions	Cement Lead Road	Local Road Improvements	Maintaining the System	$600,000	-	-	**$600,000**
Seal extensions	Gillam's Gully	Local Road Improvements	Maintaining the System	-	-	$600,000	**$600,000**

Project / Location	Description	Activity Type	Primary Benefit	2024/25 Cost	2025/26 Cost	2026/27 Cost	Total Cost
Hampden St-Hauhau Road Footpath Extension	Extension of footpath along Hampden Street and Hauhau Road to connect Racecourse Terrace Rise Subdivision to town	Walking	Safety	$450,000	-	-	**$450,000**
Pedestrian Crossing Improvements (Various)	Crossing improvements within Hokitika, Ross, Kumara & Franz Josef Townships	Walking and Cycling Improvements	Safety	-	$160,000	-	**$160,000**
Haast Village Footpath Extension	Footpath extension within village to link main centre with start of new walkway/cycleway track.	Walking and Cycling Improvements	Safety	-	-	$100,000	**$100,000**
Hokitika CBD Speed Management	Hokitika CBD, improvements with creation of raised pedestrian crossings to help with speed management within the CBD area.	Road Safety Improvements	Safety	-	-	$100,000	**$100,000**
TOTAL	Local Road Network Improvement Projects			$1,300,000	$1,330,000	$900,000	**$3,530,000**

WESTLAND DISTRICT SPECIAL PURPOSE ROAD

Project / Location	Description	Activity Type	Primary Benefit	2024/25 Cost	2025/26 Cost	2026/27 Cost	Total Cost
SPR Resilience	Scope of work to be confirmed, estimated total cost of combined projects $4-5m.	Resilience Improvements	Increasing Resilience	TBC	TBC	TBC	**TBC**
TOTAL	Special Purpose Road Improvement Projects			TBC	TBC	TBC	**TBC**

2.4 Financial Planning

This section sets out how the programme of work will be funded by each Council.

It supports the Financial Case of the Programme Business Case.

2.4.1 BULLER DISTRICT COUNCIL

TRANSPORT ASSET VALUATION

Buller's 30 June 2022 valuation[5] outputs, and changes from the previous 2019 valuation are summarised in brief below:

- The gross replacement cost is $421.1m, an increase of $72.2m or 21%.
- The depreciated replacement cost is $294.2m, an increase of $40.0m or 18%.
- The annual depreciation is $4.2m, an increase of $1.1m or 34%.

Key drivers of change from 2019 to 2022 are:

- Large increase in unit rates based on current contract material and labour costs.
- Increase in asset quantities through capital works programme.
- Some changes to remaining useful lives based on the maintenance and renewal programme.

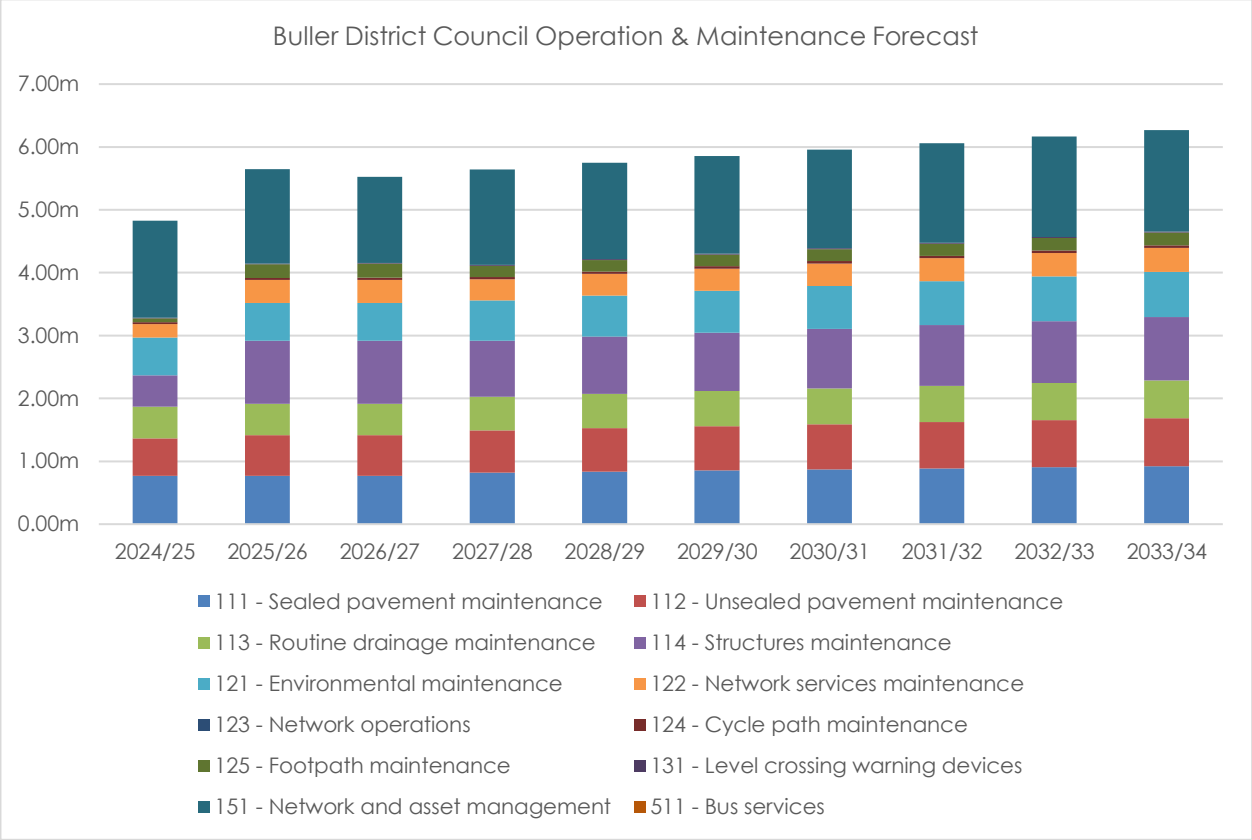
The 21% gross replacement cost increase is significant and reflects the substantial increase in contract costs Council has experienced from the supplier market. The 34% increase to annual depreciation suggests that Council should be allocating substantially more revenue to fund current and future asset renewals, likely raising questions of affordability.

Table 15: Buller District Council 30 June 2022 valuation

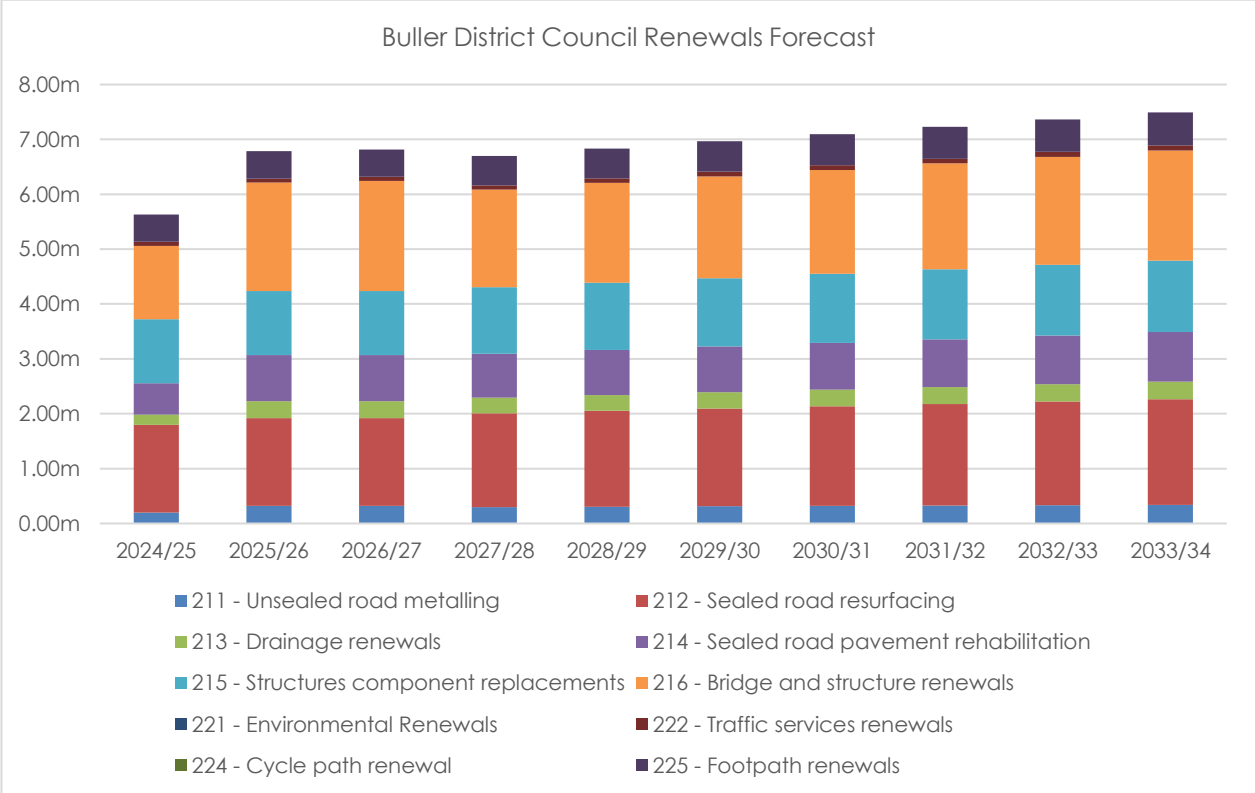
Asset class	ORC	ODRC	ADR
Bridges & Major Culverts	76,826,465	33,412,834	801,626
Drainage	26,176,563	10,087,241	332,700
Footpaths	17,064,989	10,468,405	339,120
Pavement Base	124,939,503	101,878,786	556,566
Pavement Formation	124,824,499	124,824,499	-
Pavement Surface	34,229,591	11,893,897	1,861,483
Retaining Walls	327,210	321,757	5,454
Streetlights	13,443,110	5,755,439	155,128
Surface Water Channels	13,443,110	5,755,439	155,128
Traffic Facilities	1,759,312	965,798	108,431
Total	**421,073,156**	**294,162,665**	**4,204,962**

[5] Buller District Council decided not to undertake a 30 June 2023 valuation update.

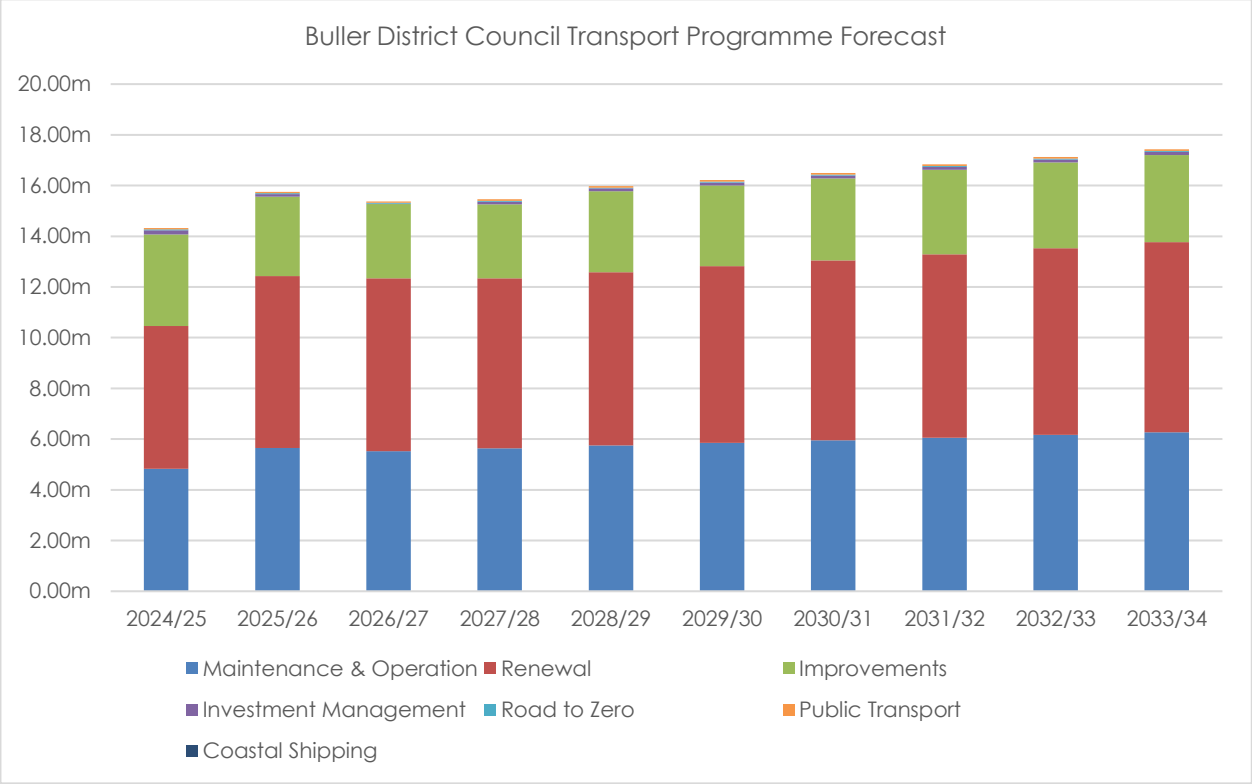
OPERATION AND MAINTENANCE EXPENDITURE FORECAST



RENEWALS EXPENDITURE FORECAST



TOTAL EXPENDITURE FORECAST



2.4.2 GREY DISTRICT COUNCIL

TRANSPORT ASSET VALUATION

Grey's 30 June 2023 valuation outputs, and changes from the 2019 valuation used for the previous AMP are summarised in brief below:

- The gross replacement cost is $330.9m, an increase of $77.5m or 30.6%.
- The depreciated replacement cost is $198.7m, an increase of $45.2m or 29.4%.
- The annual depreciation is $5.2m, an increase of $1.0m or 23.8%.

Key drivers of change from 2019 to 2023 are:

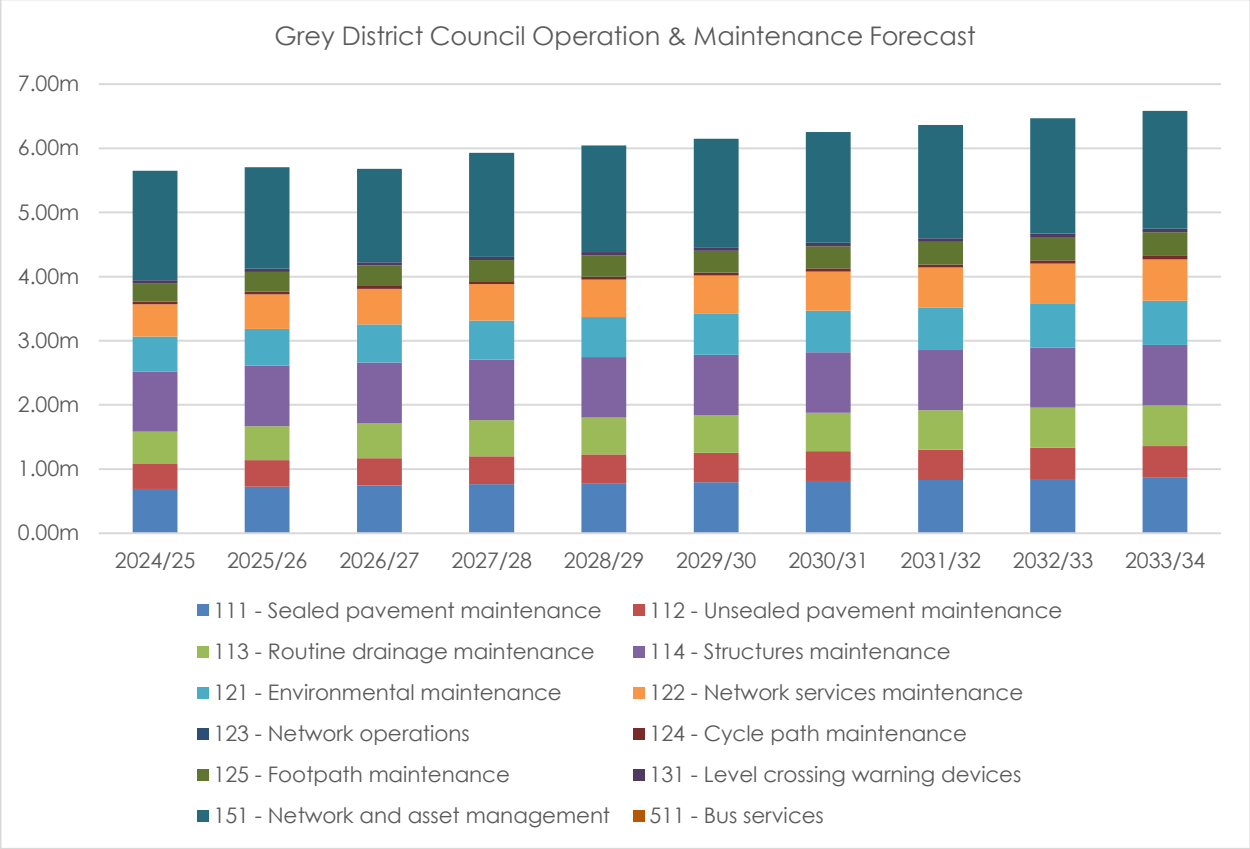
- Large increase in unit rates based on current contract material and labour costs.
- Increase in asset quantities through capital works programme.
- Some changes to remaining useful lives based on the maintenance and renewal programme.

The 30.6% gross replacement cost increase is significant and reflects the substantial increase in contract costs Council has experienced from the supplier market. The 29.4% increase to annual depreciation suggests that Council should be allocating substantially more revenue to fund current and future asset renewals, likely raising questions of affordability.

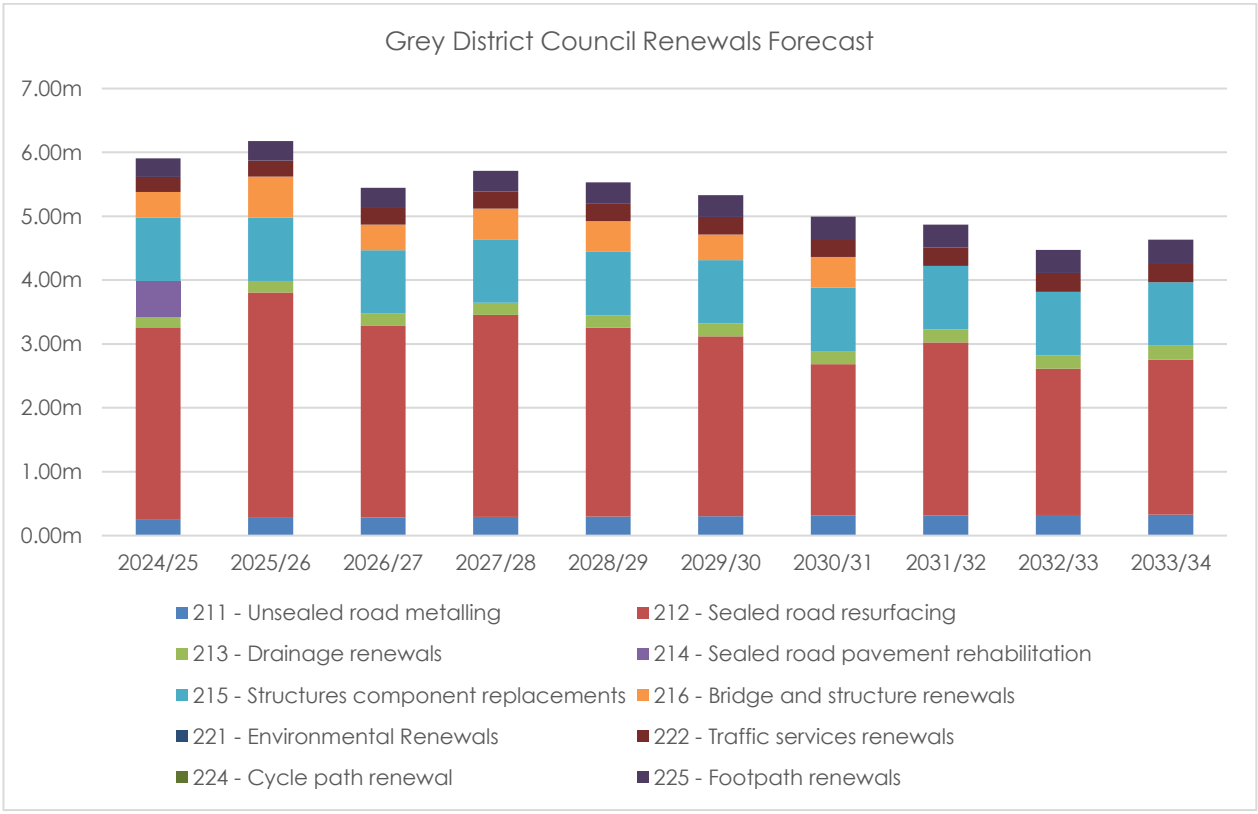
Table 16: Grey District Council 30 June 2023 valuation

Asset class	ORC	ODRC	ADR
Formation	$79,602,964	$79,602,964	-
Sealed Pavement	$83,604,304	$27,418,745	$2,604,194
Unsealed Pavement	$8,435,187	$2,075,534	$206,759
Drainage	$16,830,464	$7,566,915	$359,981
Surface Water Channel	$15,875,990	$12,239,272	$337,532
Footpaths	$14,892,815	$8,726,058	$365,782
Traffic Facilities	$2,558,680	$1,469,612	$146,910
Streetlights	$3,162,018	$1,130,715	$102,129
Bridges and Major Culverts	$105,910,287	$58,431,803	$1,084,871
Total	**$330,872,710**	**$198,661,618**	**$5,208,159**

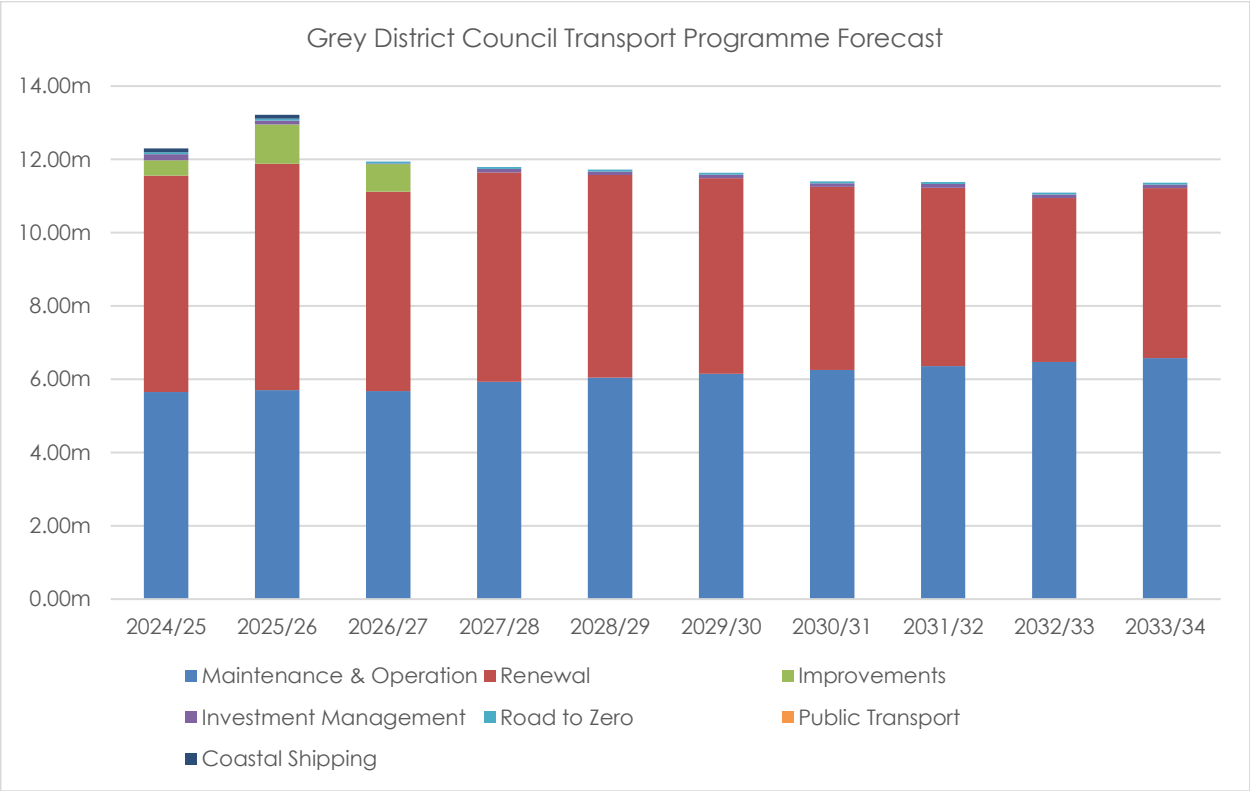
OPERATION AND MAINTENANCE EXPENDITURE FORECAST



RENEWALS EXPENDITURE FORECAST



TOTAL EXPENDITURE FORECAST



2.4.3 WESTLAND DISTRICT COUNCIL FINANCIAL PLANNING

TRANSPORT ASSET VALUATION

Westland's 30 June 223 valuation outputs, and changes from the 2019 valuation used for the previous AMP are summarised in brief below:

- The gross replacement cost is $420.7m, an increase of $107.6m or 34.4%.
- The depreciated replacement cost is $292.5m, an increase of $70.1m or 31.5%.
- The annual depreciation is $4.5m, an increase of $1.3m or 40.6%.

Key drivers of change from 2019 to 2022 are:

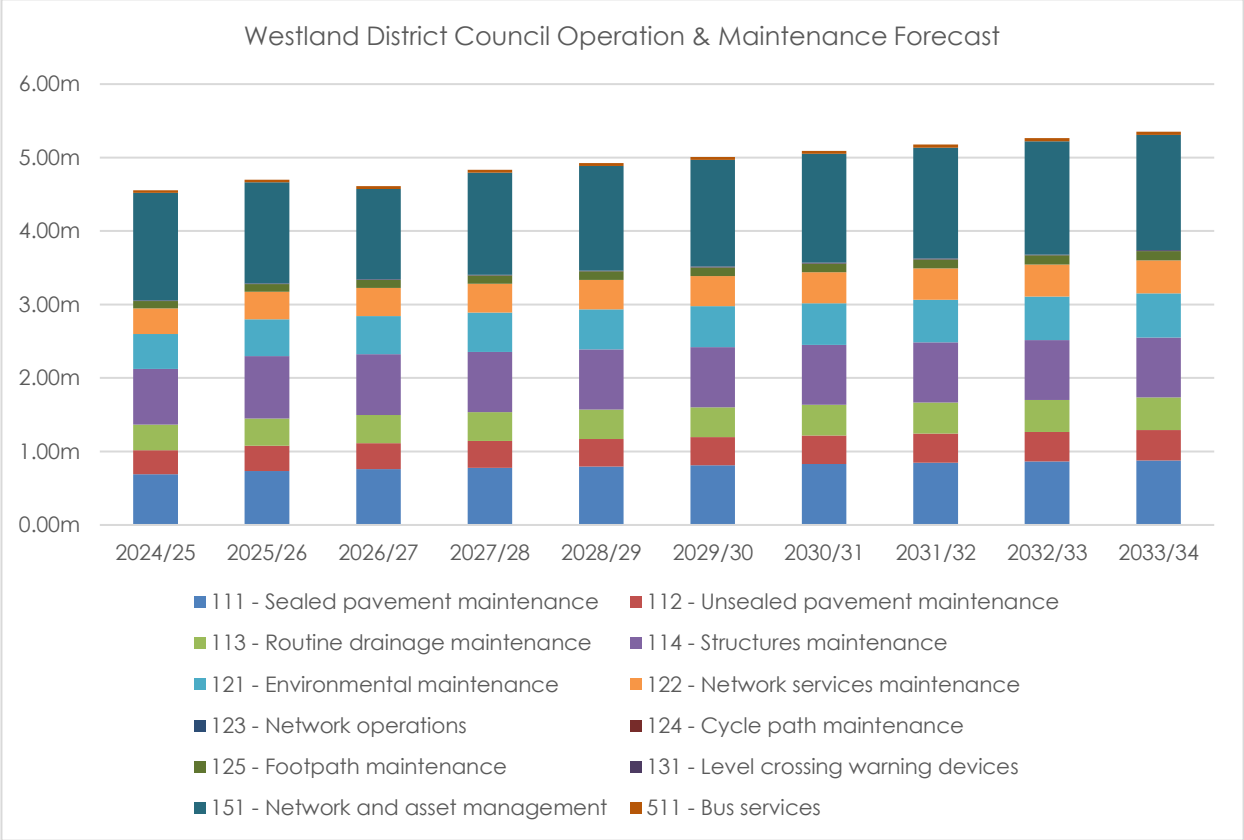
- Large increase in unit rates based on current contract material and labour costs.
- Increase in asset quantities through capital works programme.
- Some changes to remaining useful lives based on the maintenance and renewal programme.

The 34.4% gross replacement cost increase is significant and reflects the substantial increase in contract costs Council has experienced from the supplier market. The 40.6% increase to annual depreciation suggests that Council should be allocating substantially more revenue to fund current and future asset renewals, likely raising questions of affordability.

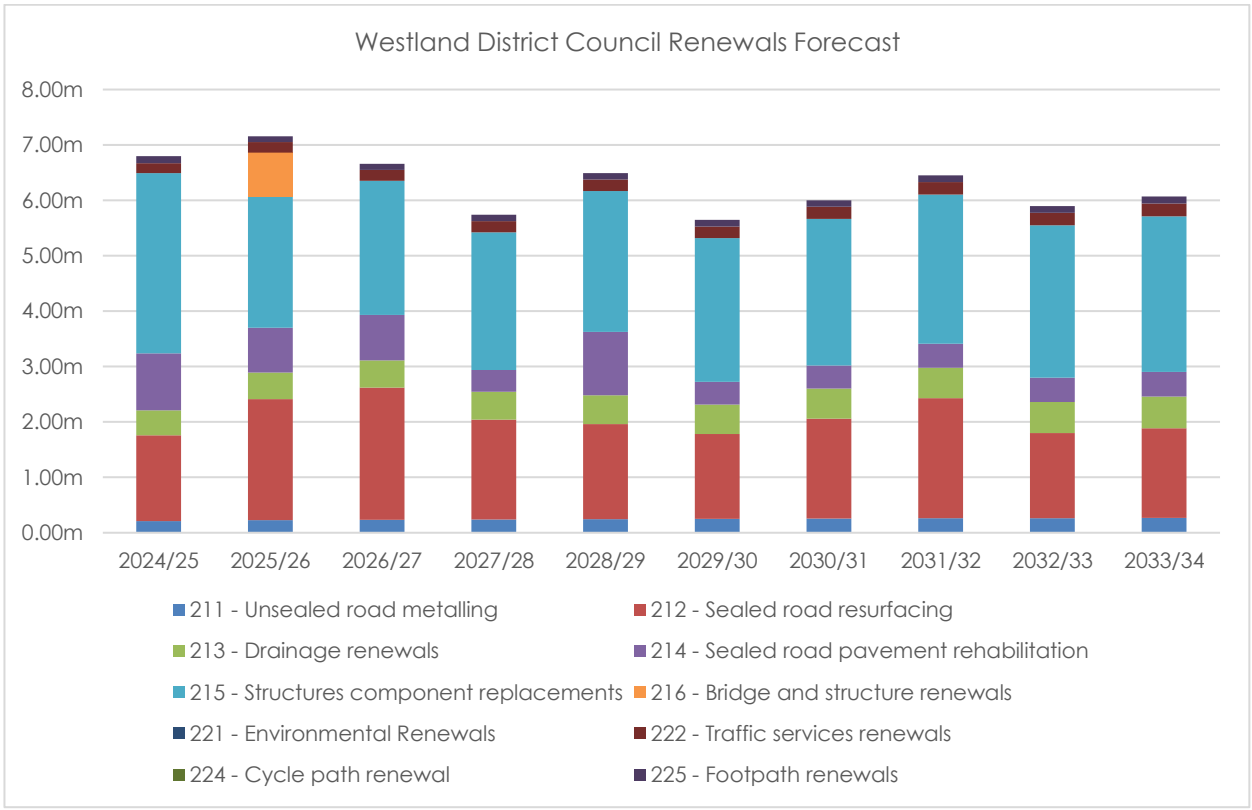
Table 17: Westland District Council 30 June 2023 valuation

Asset class	ORC	ODRC	ADR
Formation	$95,806,985	$95,806,985	-
Sealed Pavement	$152,790,516	$113,607,950	$2,081,314
Unsealed Pavement	$15,404,858	$14,257,735	$369,886
Drainage	$19,941,036	$8,798,255	$251,193
Surface Water Channel	$8,706,101	$3,874,126	$116,081
Footpaths	$12,429,651	$6,905,794	$224,625
Traffic Facilities	$1,083,949	$380,494	$51,730
Traffic Signs	1,962,639	$301,818	$150,226
Railings	$2,720,499	$247,305	$86,798
Streetlights	$1,830,784	$471,839	$55,828
Bridges and Major Culverts	$108,049,533	$47,870,933	$1,134,808
Total	**$420,726,553**	**$292,523,234**	**$4,522,489**

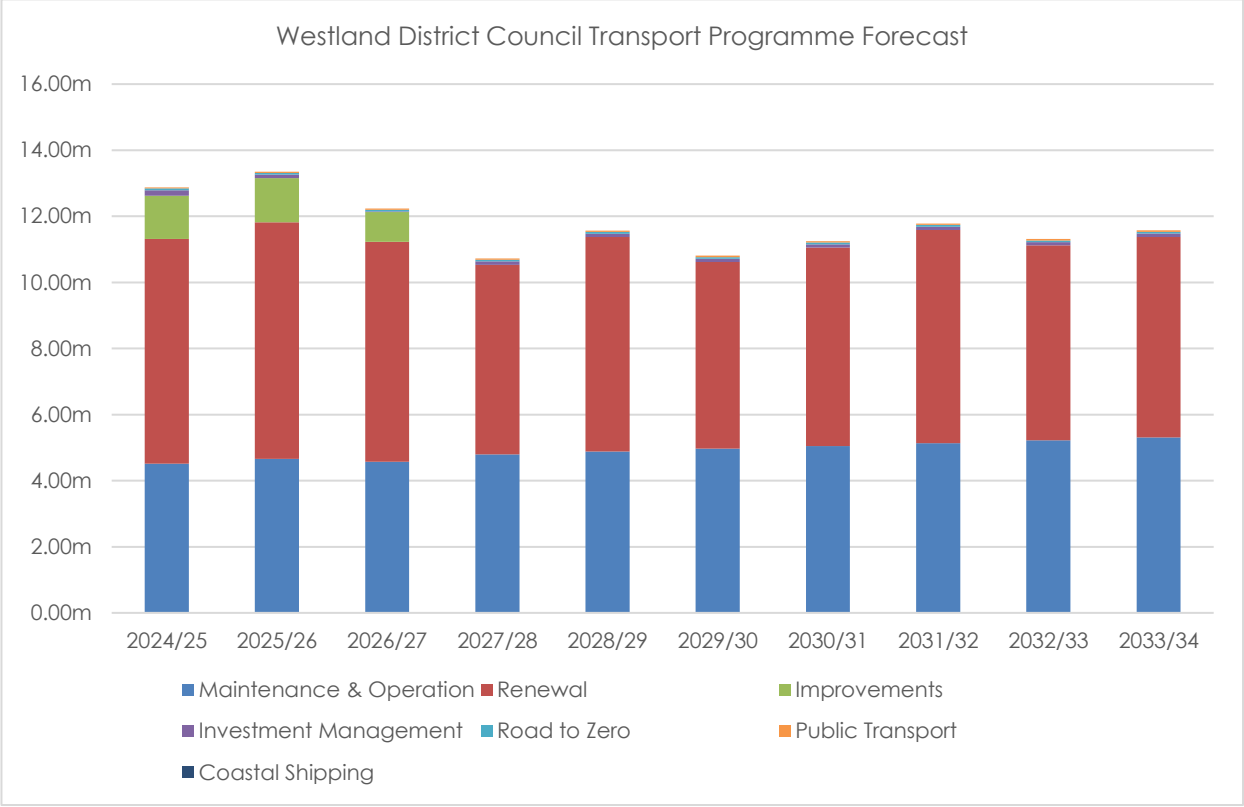
OPERATION AND MAINTENANCE EXPENDITURE FORECAST



RENEWALS EXPENDITURE FORECAST



TOTAL EXPENDITURE FORECAST



Part Three

Asset Management Enablers

3 Asset Management Enablers

3.1 Asset Management People

Each of the West Coast councils maintains internal professional engineering and asset management teams with good and open communication maintained with maintenance contractors.

When required internal resources are supplemented by the use of external consulting resources.

As such, planning and decision making is typically coordinated and developed without the formal structures and processes needed in larger authorities. Regular meetings are held to manage the delivery of the service, coordinate work, identify issues and share knowledge and information.

Whilst the West Coast councils have the advantage of a core of stable and long serving staff with extensive knowledge of the networks, it is recognised that succession planning is an area of risk, and an area of key improvement for continuing development.

3.1.1 REGIONAL TRANSPORT PARTNERSHIP

A collaborative approach across the councils to 'share the load' is of key importance among teams where resourcing is a daily issue. As such, the six workstreams developed for delivery of this PBC and the C.TAMP are proposed to continue as the basis for collaboration and delivery of the preferred programme for 2024-27. These workstreams encompass the skills and resources that are required to deliver the transport activities, and the structure will help to ensure that collaboration continues to increase.

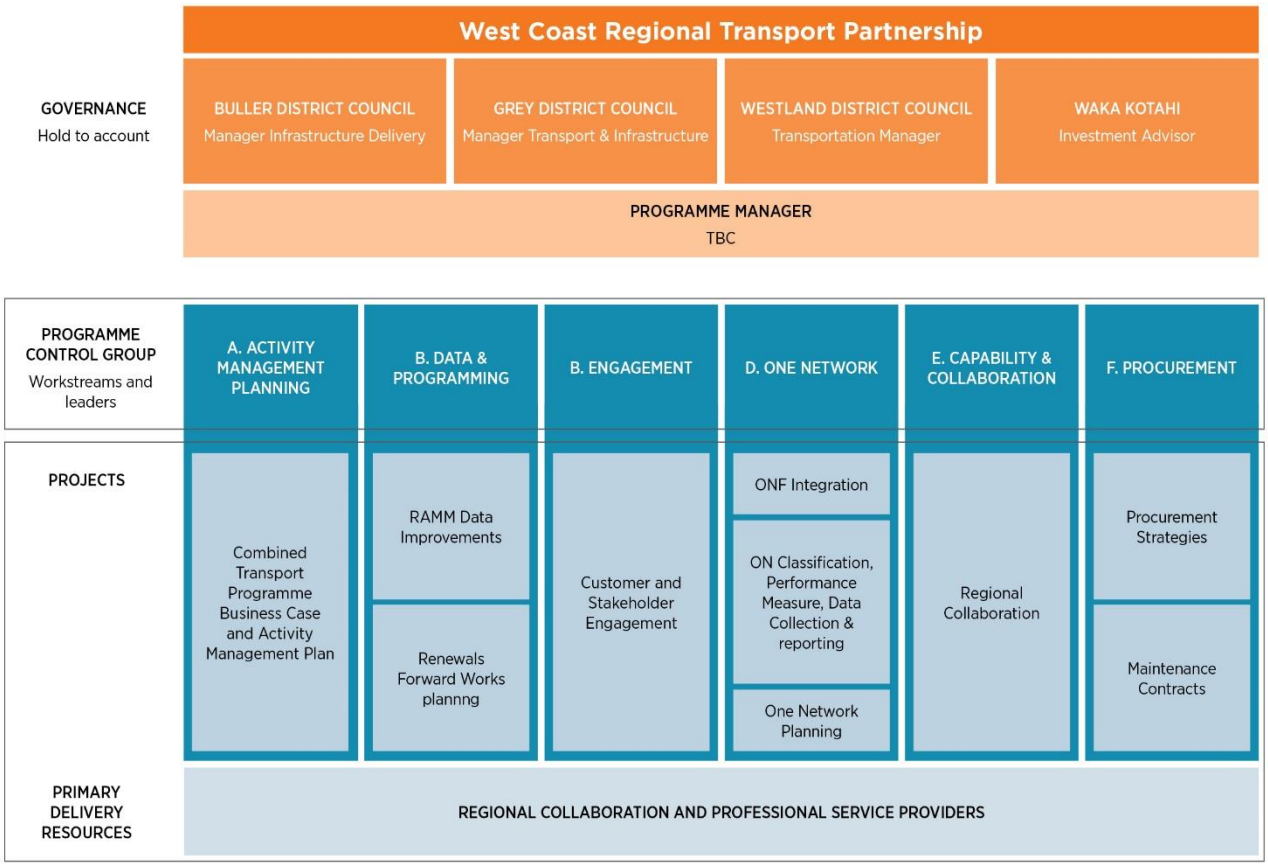
It was agreed that a leader from one council will be assigned to each workstream, with a mutual reliance between councils to ensure delivery. The allocated leader will act in a collective role for the three councils and will work closely alongside project managers, stakeholders and technical specialists to ensure its delivery.

The intention was for the nominated workstream leaders to form the Programme Control Group with responsibility as the primary review and integration, ensuring work is thought through and coordinated at an organisational level. However, limited resourcing has meant that some individuals have worn multiple hats, sitting across both Governance, PCG and workstreams.

3.1.2 ORGANISATIONAL ASSET MANAGEMENT STRUCTURE AND ROLES

Placeholder awaiting updated organisational structure diagrams.

The current regional partnership structure is provided below, note that some names and roles have changed since 2021.



Proposed programme governance and structure

3.1.3 COMMUNICATING ASSET MANAGEMENT (INTERNAL STAKEHOLDERS)

Elected members

Formal reports are provided when decisions are required relating to funding or policy matters. The key 'informing' documents from a procurement perspective are the LTP and relevant Activity Management Plan that sets the scene for the ensuing 10 years.

Monthly updates are provided as appropriate though Council meetings.

Council Management

Management and other staff have access to all the same reports as Councillors including detailed Activity Management Plans.

The size of the organisation is such that most communication between staff and departments is informal, with regular team meetings, and email the most common form of written communication.

3.1.4 COMMUNICATING ASSET MANAGEMENT (EXTERNAL STAKEHOLDERS)

Waka Kotahi

Each Council has routine reporting requirements to Waka Kotahi regarding progress and financial status of their approved programme. This is done via Transport Investment Online (TIO) and through engagement with the regional Investment Advisor.

Te Ringa Maimoa Transport Excellence Partnership

Te Ringa Maimoa has a focus on building sector capability and excellence enabling continuously improving investment decision making based on robust activity planning, service delivery and quality data. Through the Evidence and Insights workgroup Te Ringa Maimoa's Transport Insights portal has become the go-to source of quality data and information across all RCAs. Each Council reports achievement against ONF Transport Outcomes measures and other network characteristics. This data

can be used to monitor trends over time and compare against peer group and national trends, much of the source data in this PBC and supporting AMP has some from Transport Insights.

Other Crown / funding agencies

Each Council has in recent years delivered transport projects and outcomes through support from a range of non-NLTF / Waka Kotahi funding sources. These often have their own reporting arrangements to be met as part of this funding.

Community and stakeholders

Local communities and key stakeholders are routinely engaged in development of Council Activity Management Plans, Long Term Plans, and supporting business cases. As discussed in Section 1.1.4 the West Coast Roading survey was carried out between 30 October and 16 December 2022 and aimed at getting a more detailed understanding of how West Coasters experience their Council-owned roads, bridges and footpaths.

The results from this survey have been used as a key part of customer evidence and combined with other sources of information and analysis to help inform the business case currently under development. These insights have been carefully considered in the development of the forward programme.

3.1.5 DEVELOPING ASSET MANAGEMENT CAPABILITY & CAPACITY

Developed in 2021, The West Coast Capability & Collaboration – Transport Draft Business Case identified investment objectives for improving capability and collaboration regarding the West Coast's combined transport activity. In particular, the case identified what the future needs were to make this step, and what investment can be made now to effectively meet current individual and shared transport needs while proactively preparing for the future.

Although this case reflects where the partnership was a few years ago, the current issues faced with skills shortages and reduced capability still remain. Therefore, the investment objectives and future capability needs are still relevant and pertinent to the effective delivery of the West Coast land transport programme.

The partnership has identified a range of deficiencies, including technical engineering skills, procurement and contract management, project management and information & data management. Recently, the councils explored options around addressing the skills gaps, with consideration given to:

- Secondment
- Joint employment
- Continued use of professional service providers.

The three options considered are well suited to the needs and scope of the partnership. Shared resourcing not only reduces the individual cost for each council but is also appropriate to the level of work required between the three councils.

3.2 Asset Data and Information

3.2.1 THE INFORMATION LANDSCAPE

The figure below shows the flow of information through the organisation's from strategic and tactical planning to transport operations and implementation of work programmes.

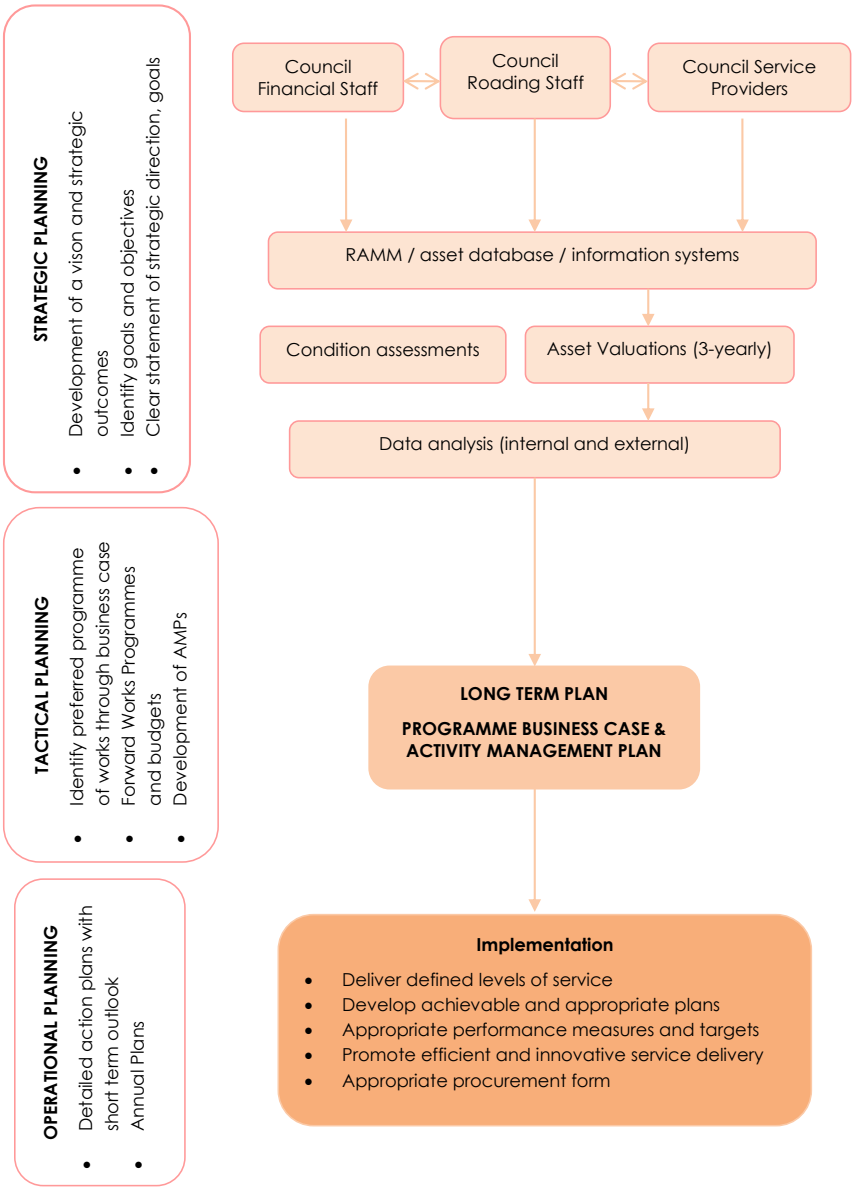


Figure 31: Organisational data and information flow

3.2.2 ASSET DATA AND INFORMATION SYSTEMS

The Councils use RAMM as the primary asset database for all roading assets, supported by customer service and financial tools. The RAMM database holds attribute data for all assets at a component level together with data and information recorded from defect / fault identification, and condition and performance information from visual and other inspections (e.g. high-speed condition surveys of sealed roads).

Depending on the quality of data input into RAMM, the following outputs can be generated to assist with network and asset management planning activities:

- Statistical analysis of the physical characteristics and condition of the entire road asset inventory, as well as the ability to analysis specific locations / lengths of road.
- Historic data and information on aspects of road network and bridge maintenance works.
- Prioritisation of maintenance treatments for specific sections of road or assets.

Each Council's valuation report provides a data confidence assessment, summarised here:

- Several categories are rated highly reliable (A): sealed pavement formation, bridges, and major culverts reflecting recent focus on data improvements. Remaining asset categories are generally rated reliable (B).
- Common reasons for a B rating include assumed installation dates, incomplete records for some assets/treatment lengths, and some assumed depths and widths for pavements.
- Asset type/material: generally rated reliable (B) or highly reliable (A).
- Dimensions: generally rated reliable (B) or highly reliable (A), except for unsealed pavement surface which is rated uncertain (D).
- Construction/installation dates are less reliable, with a multiple uncertain (D) and very uncertain (E) ratings. Sealed pavements, bridges/structures, and streetlights have better ratings, reflecting recent focus on data improvements.

3.2.3 ACCOUNTING / FINANCIAL SYSTEMS

Council's financial management and systems comply fully with the requirements of the:

- Local Government Act 2002
- Office of the Controller & Auditor General
- Institute of Chartered Accountants of New Zealand.

All financial transactions are recorded against specific charge codes, including salaries, contract payments, purchases and accounts payments. Monthly reports are produced by the Finance Team that show expenditure against budget.

3.2.4 CUSTOMER SERVICE REQUESTS

The three Councils operate customer service request (CSR) systems that which log all community requests, queries and complaints. This information is used to identify faults and prioritise maintenance activities by each Council's maintenance contractor The information (electronic and hard copy) are available for extraction, though the type and format of this data limits its usefulness for in-depth analysis (e.g. statistical analysis of service requests / faults by asset type and/or location).

3.2.5 STANDARDS AND GUIDELINES

The following technical standards are used in the management of the land transport asset.

- Design – compliance with all relevant technical standards including:
    - NZS 4404: Land Development and Subdivison Infrastructure
    - Austroads Pavement Design Manuals.
    - Waka Kotahi guidelines for design.
- Operation & Maintenance – compliance with:
    - Council's maintenance specifications.
    - Relevant Rural Traffic Standards (RTSs) – e.g. RTS5 – delineation devices.
    - Code of Practice for Temporary Traffic Management, and
    - Health and Safety Act.
- Materials – comply with industry best practice and relevant standards including:
    - NZS4404,
    - Contract specifications
    - Waka Kotahi specifications.

3.3 Asset Management Maturity

Asset management maturity is '*the extent the maturity of the organisation's asset management practices are able to meet the current and future needs of the organisation and is a lead indicator of future performance*'[6]

The three West Coast councils are generally operating at an Intermediate level, with some items still at Core level[7] (refer to Appendix 1 for a detailed Asset Management Maturity Assessment completed August 2023 using Treasury's Asset Management Maturity Assessment Tool).

The aim is to continue improvement in asset management, working towards an overall Intermediate maturity level where the asset management system scope is well defined and documented with strategic context analysed and implications on the asset management system documented.

The level of asset management maturity sought needs to be appropriate for the organisation; advanced asset management is not always warranted and is dependent on a number of factors such as:

- Costs and benefits
- Legislative requirements
- Customer expectations
- The nature of the assets including criticality, age / deterioration and complexity.

A summary of the Asset Management Maturity assessment of the West Coast Councils is given below:

Table 18: West Coast Asset Management Maturity Summary

IIMM Section	Current AM Maturity level	Target AM Maturity Level	Comment
AM Policy and Strategy	Core / Intermediate (60)	Intermediate (70)	A regional Asset Management Policy is under development, with core principles agreed by the Councils.
Levels of Service and Performance Management	Core / Intermediate (60)	Intermediate (75)	LOS are defined and reported against measures and targets across the district with consultation through the Annual Plan / LTP. There is now alignment across the three Councils, though improvement is sought to better align LOS with expenditure forecasts, and to adopt ONF and dLOS guidance and tools.
Forecasting Demand	Core / Intermediate (60)	Intermediate (65)	Traffic count strategy has been developed and the Councils are developing demand forecast models. However, with a static / declining population, this is not a critical focus area. Future assessment of future HV demand will be key to supporting economic development.
Asset Register Data	Intermediate (75)	Intermediate / Advanced (80)	RAMM is used across the region. Whilst there are known gaps in information, data confidence is generally reliable (where asset data available) with valuations recently updated for each council. A Data Improvement Strategy has been agreed by the Councils with actions implemented through

[6] https://www.treasury.govt.nz/information-and-services/state-sector-leadership/investment-management/review-investment-reviews/investor-confidence-rating-icr/investor-confidence-rating-asset-management-maturity

[7] International Infrastructure Management Manual (IIMM), Section 2

IIMM Section	Current AM Maturity level	Target AM Maturity Level	Comment
			2021-24. The Councils are committed to continued improvement, including AMDS implementation in 2024.
Asset Performance and Condition	Core / Intermediate (60)	Intermediate (70)	Asset condition data is incomplete and limited to a subset of assets (sealed roads, bridges, footpaths, some drainage). Councils have moved to high-speed condition data collection for sealed roads which is driving reseal and rehabilitation programmes. Prof. service provider is supporting the Councils with Principal inspections of bridges and structures to develop maintenance, component replacement, and renewals programmes.
Decision Making	Intermediate (65)	Intermediate (70)	AMP and PBC utilise Waka Kotahi business case approach, ILM, multi-criteria analysis, and IIMM guidance. Programme options are developed and assessed against monetary and non-monetary criteria to identify preferred programme.
Managing Risk	Core (50)	Intermediate (70)	Critical routes and assets identified. No documented strategies for critical assets and high risks.
Operational Planning	Core / Intermediate (60)	Intermediate (65)	Regional Maintenance Intervention Strategy under development (in draft for Council agreement).
Capital Works Planning	Core / Intermediate (60)	Intermediate (70)	Capital projects typically identified in a reactive basis for the 3-year NLTP programme. Some longer term identification of bridge renewals is taking place via LCMPs. Capital projects are assessed against GPS priorities for fit.
Financial Planning	Core / Intermediate (60)	Intermediate / Advanced (80)	Valuations are based on reliable data, Councils have undertaken regular valuations though 2021-24 in response to material changes in market costs. Financial forecasts are based on a mix of historic expenditure, Council and contractor knowledge, and more robust forward programmes for critical assets (sealed roads, bridges and structures).
Asset Management Enablers	Core / Intermediate (60-75)	Intermediate (70-80)	Roading teams are under resourced, vulnerable to change & struggle to recruit, with a focus on operational & reactive work, inhibiting their ability to be strategic & plan. Regional alignment on

IIMM Section	Current AM Maturity level	Target AM Maturity Level	Comment
			delivering asset management is proposed to support improvements in this area. Whilst complex asset management systems and processes not appropriate for this scale of network Alignment of systems such as non-RAMM asset registers, customer services requests and monitoring asset management across the region will support the collaborative approach.

3.4 Asset Management Improvement

The Councils are continuing their journey of continuous asset management improvement, this AMP includes an update Asset Management Maturity Assessment to reflect the current state against desired future state. Key improvements during 2021-24 are:

- **Regional procurement:** Beca (roading asset management) and WSP (bridge & structure asset management) have been engaged via regional contracts to deliver professional services to the three Councils. These procurements are core enablers of improving each Council's asset management maturity, with emphasis on improved data, systems and processes, and forward work planning. Many of the items below have been delivered as a result of these contracts.
- **Sealed pavements:** the treatment selection process for sealed pavement forward work programme has been improved, bolstered by improvements to the asset registers in RAMM. This has been used for development of the updated 20-year resealing and rehabilitation programme discussed in this AMP.
- **Bridge & structures:** an enhanced bridge & structure inspections programme has enabled improvement to the data informing each Council's 20-year lifecycle management plan which recommends the optimal maintenance and component replacement programme. Each Council has also adopted Waka Kotahi's Present Value End of Life analysis approach for structured with <10-years remaining useful life to determine the best economic approach to replacement. These programmes form the core recommendation for each Council's LTP programme.
- **Asset criticality:** a criticality framework has been developed and applied to identify critical routes and assets across the region. This project is a precursor to further work to identify exposure to natural hazard and climate change related risks, and determine each Council's response (e.g. management, mitigation, adaptation) at a route and/or asset level. This is a core piece of work to enable better planning and investment in response to identified risks.
- **Maintenance intervention strategies:** draft regional maintenance intervention strategies for road assets and for bridge / structures have been delivered to the Councils. These are expected to improve maturity and consistency for planning and management of each Council's assets.
- **Network operating plans:** a network operating plan has been developed based on the ONF classifications, the purpose of this plan is to confirm the initial ONF classification, understand where conflicts exist between place and movement functions and where improvement is needed to meet community objectives, and create a prioritised programme of actions to better meet ONF goals.
- **RAMM databases:** the three Councils have migrated their asset data (roads and bridges) into a regional RAMM database. This process has included improvement to the asset registers to improve quality and consistency.
- **Asset management policy**: Council staff have commenced work on a regional policy with agreement gained for principles that will underpin the policy. This will subsequently be taken to

managers and decision makers in 2024 as part of wider investigation around the future of the regional transport partnership.

The 2024-27 improvement plan below builds on the improvements achieved during 2021-24 to increase the Council's asset management maturity, and to provide a more robust evidence base for investor confidence.

Improvement		Description	Delivery	Priority	24/25 Y1	25/26 Y1	26/27 Y3	Estimate
WC003	**Procurement Strategy**	Regional Procurement Strategy developed for endorsement by Waka Kotahi. To be timed when Grey's Strategy is due to renew in mid-2025. Regional strategy will further align procurement and contract approach, and raise potential of aligning timing of physical works contracts to bundle into single contracts for delivery by the market.	Professional service provider.	**High**				$30,000
WC003	**Resilience & Climate Change**	Regional risk, natural hazard resilience, and climate change strategy to identify and agree preferred options for mitigation and adaptation to identified risks. Builds on critical route and asset assessment completed in 2021-24.	Professional service provider.	**High**				$225,000
WC003	**Bridges & Structures**	Bridge & structure asset condition and service gap analysis, updated Lifecycle Management Plan with forward projections, economic analysis of maintenance / renewal options.	Professional service provider.	**High**				$50,000
WC003	**Sealed Roads**	Sealed roads asset condition and service gap analysis, deterioration modelling and economic analysis of maintenance / renewal options.	Professional service provider.	**Medium**				$50,000
WC003	**Drainage Assets**	Drainage asset condition and service gap analysis.	Driven by internal staff with maintenance contractor input. Professional service provider support as necessary.	**High**				$150,000
WC003	**Community & stakeholder engagement**	Community and stakeholder engagement for development of 2027-30 AMP and Long-Term Plan programmes. Repeat three-yearly community roading survey and hold key stakeholder workshops (business, freight, community, etc.) to identify key issues and opportunities and confirm strategic direction.	Professional service provider.	**Medium**				$30,000
WC003	**Level of Service**	Level of service review and update to ONF and incorporating Differential Level of Service (dLOS) guidance.	Driven by internal staff with professional service provider support as necessary.	**High**				$20,000
WC003	**Procurement Strategy**	Regional Procurement Strategy developed for endorsement by Waka Kotahi. To be timed when Grey's Strategy is due to renew in mid-2025. Regional strategy will further align procurement and contract approach and raise potential of aligning timing of physical works contracts to bundle into single contracts for delivery by the market.	Professional service provider.	**High**				$30,000
WC003	**Strategic Asset Management**							$100,000
WC003	**Walking & Cycling**	Regional walking and cycling strategy developed to take a consistent approach to maintenance, renewals and investment in new infrastructure. Strategy to identify a list of prioritised investments for each District to work through over 10-years.	Professional service provider.	**Medium**				$100,000
WC151	**AM Process and Data Improvement**	Asset management process improvements and data improvement activities as agreed in the Data Improvement Strategy and via contracts with Beca and WSP for asset management professional service support.	Professional service provider.	**High**				$300,000
WC151	**PBC & AMP Update**	Update the regional transport PBC and AMP for the 2027-30 NLTP and 2027-37 Long-Term Plans.	Professional service provider.	**High**				$150,000
WC151	**Future Demand**	Embed traffic count strategy and future demand forecasts as business as usual. Improve to cover heavy vehicle forecasts.	Internally driven with professional service provider support as necessary.	**Medium**				$200,000

Appendix 1: Asset Management Maturity Assessment

Asset Management Maturity Assessment August 2023					Maturity Levels					Agencies to complete these four columns (K to O)				
					Aware	Basic	Core	Intermediate	Advanced					
Reference	Question	Section	Questions	Why	0-20	21-40	41-60	61-80	81-100	Current Score	Appropriate Target	Reason for scores	Evidence to support score	Improvement actions planned or underway
Understanding and Defining Requirements														
IIMM 2.1	**1**	**AM Policy and Strategy**	To what extent has your organisation's AM system (including AM Policy and Strategy) been articulated, approved, communicated, and acted on? How consistent is the asset management policy and strategy with current government policies?	The asset management system is the co-ordinated set of activities that are undertaken to deliver the organisation's AM objectives. Plans and processes relating to the AM system must be clearly aligned from the strategic plan through to the detailed work programmes and procedures. The AM Policy supports an organisation's strategic objectives. It articulates the principles, requirements, and responsibilities for asset management (AM). The AM Policy and Strategy may be incorporated into the AM Plan.	The organisation is aware of the benefits of asset management.	Corporate expectations are expressed in relation to the development of AM Plans and AM objectives.	AM Policy, Strategy and Objectives are developed, and are aligned to corporate goals and the strategic context.	AM System scope is defined and documented. Strategic context (internal, external, customer environment) is analysed and implications for AM System documented in the AMP / AM Strategy.	AM Policy and Strategy is fully integrated into the organisation's business processes and subject to defined audit, review and updating procedures.	**50**	**70**	Regional Transport Asset Management Policy is currently under development.	2021-24 AMP	Regional Transport Asset Management Policy is currently under development.
IIMM 2.2	**2**	**Levels of Service and Performance Management**	How does your organisation determine what is the appropriate level of service for its customers and then ensure that asset performance is appropriate to those service levels?	Levels of service are the cornerstone of asset management and provide the platform for all lifecycle decision making. Levels of service are the outputs a customer receives from the organisation and are supported by performance measures. One of the first steps in developing asset management plans or processes is to find out what levels of service customers are prepared to pay for, then understand asset performance and capability to deliver those requirements.	The organisation recognises the benefits of defining levels of service, but they are not yet documented or quantified.	Basic levels of service have been defined and agreed, along with the contribution of asset performance to the organisation's objectives. Customer Groups have been defined and requirements understood.	Levels of service and appropriate performance measures are in place covering a range of service attributes. There is annual reporting against targets. Customer Group needs analysed. Level of service and cost relationship understood.	Customers are consulted on significant service levels and options.	Customer communications plan in place. Customer levels of service and technical (i.e. asset performance) levels of service are an integral part of decision making and business planning.	**60**	**75**	Councils have increased their regional LOS alignment. LOS are defined and reported against (varying measures and targets across the district) DIA mandatory measures reported on Consultation through Annual Plan / LTP Relationship between cost and customer needs not full assessed.	2021-24 AMP Council Annual Reports PMRT	Level of service review proposed to transition from ONRC to ONF, and to incorporate the Te Ringa Maimoa dLOS guidance and tool.
IIMM 2.3	**3**	**Forecasting Demand**	How robust is the approach your organisation uses to forecast demand for its services and the possible impact on its asset portfolios?	This AM activity involves estimating demand for the service over the life of the AM plan or the life of the asset. Demand is a measure of how much customers consume the services provided by the assets. The ability to predict demand enables an organisation to plan ahead and meet that demand or manage risks of not meeting demand.	Future demand requirements generally understood but not documented or quantified.	Demand forecasts are based on experienced staff predictions, with consideration of known past demand trends and likely future growth patterns.	Demand Forecasts are based on robust projections of a primary demand factor (e.g. population growth) and extrapolation of historic trends. Risk associated with changes in demand is broadly understood and documented. Demand management is considered as an alternative to major project development.	A range of demand scenarios is developed (e.g. high/medium/ low). Demand management is considered in all strategy and project decisions.	Risk assessment of different demand scenarios, and mitigation actions are identified.	**50**	**65**	Demand is not a critical focus area with a relatively static population. Response to demand is likely to be highly localised, e.g. at key intersections, pockets of urban development, and tourist routes to improve safety and multi-modal accessibility. The Councils have undertaken traffic counts and forward demand forecast is being modelled.	2021-24 AMP	Traffic count and future projections to become business as usual activity. Heavy vehicle forecasts are an area of improvement.

Asset Management Maturity Assessment August 2023

Reference	Question	Section	Questions	Why	Maturity Levels: Aware 0-20	Basic 21-40	Core 41-60	Intermediate 61-80	Advanced 81-100	Agencies to complete these four columns (K to O): Current Score	Appropriate Target	Reason for scores	Evidence to support score	Improvement actions planned or underway
IIMM 2.4	**4**	**Asset Register Data**	What sort of asset-related information does the organisation collect, and how does it ensure the information has the requisite quality (accuracy, consistency, reliability)?	Asset data is the foundation for enabling most AM functions. Planning for asset renewal and maintenance activities cannot proceed until organisations know exactly what assets they own or operate and where they are located	The organisation has an awareness of need to collect asset data.	Basic physical information recorded in a spread sheet or similar (e.g. location, size, type), but may be based on broad assumptions or not complete.	Sufficient information to complete asset valuation (basis attributes, replacement cost and asset age/ life) and supports prioritisation of programmes (criticality). Asset hierarchy, identification and attribute systems documented. Metadata held as appropriate.	A reliable register of physical and financial attributes recorded in an information system with data analysis and reporting functionality. Systematic and documented data collection process in place. High level of confidence in critical asset data.	Information on work history type and cost, condition, performance, etc. recorded at asset component level. Systematic and fully optimised data collection programme with supporting metadata.	**70**	**80**	Councils are implementing the regional Data Improvement Strategy leading to improved asset data. Shift to regional RAMM database and inclusion of bridges in RAMM (previously external). Critical routes and assets are being identified.	2021-24 AMP Prof. Service provider review. Data quality scores.	Ongoing implementation of the Data Improvement Strategy recommendations. AMDS implementation.
IIMM 2.5	**5**	**Asset Performance and Condition**	How does the organisation measure and manage the performance of its assets?	Timely and complete asset performance information (such as condition, utilisation and functionality) supports risk management, lifecycle decision-making and financial / performance reporting.	Condition and performance understood but not quantified or documented.	Adequate data and information to confirm current performance against AM objectives.	Condition and performance information is suitable to be used to plan maintenance and renewals over the short term.	Future condition and performance information is modelled to assess whether AM objectives can be met in the long term. Contextual information such as demand is used to estimate likely performance.	The type, quality and amount of data are optimised to the decisions being made. The underlying data collection programme is adapted to reflect the assets' lifecycle stage.	**60**	**70**	Asset condition data is incomplete and limited to a subset of assets (sealed roads, bridges, footpaths, some drainage). Councils have moved to high-speed condition data collection for sealed roads which is driving reseal and rehabilitation programmes. Prof. service provider is supporting the Councils with Principal inspections of bridges and structures to develop maintenance, component replacement, and renewals programmes.	2021-24 AMP Prof. Service provider review.	Will adopt the Te Ringa Maimoa Consistent Condition Data Collection requirements for 2024-27. Implementation of more robust inspections for bridge and structures based on regional Maintenance Intervention Strategy.
Lifecycle Decision Making														
IIMM 3.1	**6**	**Decision Making**	How does your organisation go about making decisions on the replacement or refurbishment of existing assets or investment in new ones?	Decision techniques provide the best value for money form an organisation's expenditure programmes. These techniques reveal strategic choices, and balance the trade off between levels of service, cost and risk. ODM is a formal process to identify and prioritise all potential asset and non-asset solutions with consideration of financial viability, social and environmental responsibility and cultural outcomes.	AM decisions are based largely on staff judgement.	Corporate priorities incorporated into decision making.	Formal decision making techniques (e.g. using MCA/BCA) are applied to major projects and programmes, where criteria are based on the organisations' AM objectives.	Formal decision making and prioritisation techniques are applied to all operational and capital asset programmes within each main budget category/business unit. Critical assumptions and estimates are tested for sensitivity to results.	AM objectives/targets are set based on formal decision making techniques, supported by the estimated costs and benefits of achieving targets. The framework enables projects and programmes to be optimised across all activity areas. Formal risk-based sensitivity analysis is carried out.	**65**	**70**	AMP and PBC utilise Waka Kotahi business case approach, ILM, multi-criteria analysis, and IIMM guidance. Programme options are developed and assessed against monetary and non-monetary criteria to identify preferred programme.	2021-24 AMP Prof. Service provider support for ILM and MCA.	Communication and engagement with Council ELT and Elected Members to get buy-in and support for recommended programmes from decision makers.

Asset Management Maturity Assessment August 2023

					Maturity Levels					Agencies to complete these four columns (K to O)				
					Aware	Basic	Core	Intermediate	Advanced					
Reference	Question	Section	Questions	Why	0-20	21-40	41-60	61-80	81-100	Current Score	Appropriate Target	Reason for scores	Evidence to support score	Improvement actions planned or underway
IIMM 3.2	**7**	**Managing Risk**	To what extent is risk management and resilience planning integrated into your asset management decision making?	Risk management helps identify higher risks, and identify actions to mitigate those risks. This process reduces the organisation's exposure to asset related risk, especially around critical assets, and drives renewal and rehabilitation programmes and decision making.	Risk management is identified as a future improvement.	Critical services and assets understood and considered by staff involved in maintenance / renewal decisions. Risk framework developed.	Critical assets and high risks identified. Documented risk management strategies for critical assets and high risks.	Current resilience level assessed and improvements identified. Systematic risk analysis to assist key decision-making. Risk register regularly monitored and reported. Risk managed and prioritised consistently across the organisation.	Resilience strategy and programme in place including defined levels of service for resilience. A formal risk management policy in place. Risk is quantified and risk mitigation options evaluated. Risk is integrated into all aspects of decision making.	**40**	**70**	Critical routes and assets identified. No documented strategies for critical assets and high risks.	2021-24 AMP Beca's criticality assessment	Regional resilience (including climate change) mitigation and adaptation strategy to be developed using outputs from criticality assessment.
IIMM 3.3	**8**	**Operational Planning**	How does the organisation plan and manage its operational activity (including maintenance planning and procedures) to keep assets in service and meet AM objectives?	Operational procedures are wide ranging and sometimes complex. The operations manager needs to have robust and documented procedures in place for cost and budget management, health and safety management, security, operational risk, reactive and preventative maintenance. A major challenge for the asset manager is striking the appropriate balance between planned maintenance (inspections and scheduled maintenance etc.) and unplanned maintenance (arising from unexpected failures)	Operational processes based on historical practices.	Operating procedures are available for critical operational processes. Operations organisational structure in place and roles assigned.	Operating procedures are available for all operational processes. Operational support requirements are in place.	Risk and opportunity planning completed. Operational objectives and intervention levels defined and implemented. Alignment with organisational objectives can be demonstrated.	Continual improvement can be demonstrated for all operational processes. Comparison with ISO 55001 requirements complete.	**60**	**65**	Regional Maintenance Intervention Strategy under development (in draft for Council agreement).	Beca (roads) and WSP (bridges) draft MIS	Complex processes are not required for networks of this scale Operational objectives and intervention levels should be defined and implemented at a regional level through O&M contracts
IIMM 3.4	**9**	**Capital Works Planning**	What processes and practices does the organisation have in place to plan and prioritise capital expenditure?	Capital investment includes the upgrade, creation or purchase of new assets, typically to address growth or changes in levels of service requirements, or for the periodic renewal of existing assets, to maintain service levels. Agencies need to plan for the long term asset requirements relative to future levels of service. The decision on whether to create a new asset is typically the time when there is the most opportunity to impact on the potential cost and level of service. Cabinet expects all capital-intensive agencies to disclose 10 year capital intentions and make appropriate use of the better business cases methodology for programmes and individual investment proposals.	Capital investment projects are identified during annual budget process.	There is a schedule of proposed capital projects and associated costs for the next 3-5 years, based on staff judgement of future requirements.	Projects have been collated from a wide range of sources and collated into a project register. Capital projects for the next three years are fully scoped and estimated. A prioritisation framework is in place to rank the importance of capital projects.	Formal options analysis and business case development has been completed for major projects in the 3-5 year period. Capital intentions reports identify all major capital projects for the next 10 or more years and broad estimates of the costs and benefits are available.	Long -term capital investment programmes are developed using advanced decision techniques, such as predictive renewal modelling.	**60**	**70**	Capital projects typically identified in a reactive basis for the 3-year NLTP programme. Some longer term identification of bridge renewals is taking place via LCMPs. Capital projects are assessed against GPS priorities for fit.	WSP draft Bridge & Structure LCMP.	Councils generally 'right size' their capital works programme to identify a package of works that is affordable and can be delivered. Analysis generally needed to meet Waka Kotahi and internal decision making requirements.
IIMM 3.5	**10**	**Financial Planning**	How does your organisation plan for the funding of its future capital expenditure and asset-related costs?	Poor financial management can lead to higher long run life cycle costs, inequitable fees and charges, and financial "shocks". Good collaboration between financial and asset managers is important, especially in relation to long term financial forecasts and asset revaluations. Asset valuation is required by International Accounting Standards, and can be used in lifecycle decision making. Robust financial budgets are a key output of any asset management planning process.	Financial planning is largely an annual budget process, but there is intention to develop longer term forecasts. The organisational focus is on the operating statement rather than the balance sheet.	Assets are re-valued in accordance with financial reporting and accounting standards. Five to nine year financial forecasts are based on extrapolation of past trends and broad assumptions about the future.	Asset revaluations based on reliable asset data. Ten year financial forecasts based on current comprehensive AMPs with detailed supporting assumptions/reliability factors. Significant assumptions are specific and well reasoned. Expenditure captured at a level useful for AM analysis.	10 year plus financial forecasts based on current comprehensive AMPs with detailed supporting assumptions/reliability factors and high confidence in accuracy. Funding sources are fully understood and matched with expenditure forecasts over the long term. Alternative funding sources have been fully explored. Asset expenditure information is linked with asset performance information.	The organisation publishes reliable ten year+ financial forecasts based on comprehensive, advanced AMPs with detailed underlying assumptions and high confidence in accuracy. Advanced financial modelling provides sensitivity analysis, evidence-based whole of life costs and cost analysis for level of service options.	**60**	**80**	Valuations are based on reliable data, Councils have undertaken regular valuations though 2021-24 in response to material changes in market costs. Financial forecasts are based on a mix of historic expenditure, Council and contractor knowledge, and more robust forward programmes for critical assets (sealed roads, bridges and structures).	Beca's roading asset valuations. 2024-27 AMP financial forecasts.	Complex processes are not required for networks of this scale. Councils are taking consistent approach to valuations, financial forecasts, and multi-criteria analysis with support from technical specialists.

Asset Management Maturity Assessment August 2023					Maturity Levels					Agencies to complete these four columns (K to O)				
Reference	Question	Section	Questions	Why	Aware	Basic	Core	Intermediate	Advanced	Current Score	Appropriate Target	Reason for scores	Evidence to support score	Improvement actions planned or underway
					0-20	21-40	41-60	61-80	81-100					
Asset Management Enablers														
IIMM 4.1	**11**	**Asset Management Leadership and Teams**	What is the level of organisational commitment to asset management? How is this reflected in existing organisation structure, responsibilities and resourcing of AM competencies?	Effective asset management requires a committed and co-ordinated effort across all sections of an organisation. The organisational structure and AM roles need to be clearly defined and specifically allocated to people and teams.	The organisation recognises the benefits of an asset management function within the organisation, but has yet to implement a structure to support it.	Asset Management functions are performed by a small groups and roles reflect requirements.	Position descriptions incorporate AM roles. AM co-ordination processes established. Ownership and support of AM by the leadership. Awareness of AM across most of the organisation.	Organisational structure supports AM. Roles reflect AM resourcing requirements and reflected in position descriptions for key roles. Consistent approach to AM across the organisation. Internal communication plan established.	Formal documented assessment of AM capability and capacity requirements to achieve AM objectives. Demonstrable alignment between AM objectives, AM systems and individual responsibilities.	**60**	**70**	Roading teams are under resourced, vulnerable to change & struggle to recruit, with a focus on operational & reactive work, inhibiting their ability to be strategic & plan.	ILM workshops	Regional alignment on delivering asset management is an ongoing focus to share resources and seek greater value for money in service delivery.
IIMM 4.2	**12**	**Asset Management Plans**	How does your organisation develop, communicate, resource and action its asset management plans?	An asset management plan is a written representation of intended capital and operational programmes for its new and existing infrastructure, based on the organisations understanding of demand, customer requirements and it's own network of assets. The AM Plan is often considered as the business case for the long term financial forecasts.	The organisation has a stated intention to develop AM plans.	AM Plans contain basic information on assets, service levels, planned works and financial forecasts (5-10 years), and future improvements	AM objectives are defined with consideration of strategic context. Approach to risk and critical assets described, top down condition and performance assessment, future demand forecasts, description of supporting AM processes, 10 year financial forecasts, 3 year AM improvement plan.	Analysis of asset condition and performance trends (past/future), effective customer engagement in setting LoS, ODM/risk techniques applied to major programmes. Strategic context analysed with risks, issues and responses described.	Evidence of programmes driven by comprehensive ODM techniques, risk management programmes and level of service/cost trade-off analysis. Improvement programmes are largely complete with focus on maintaining appropriate practices.	**70**	**85**	AMPs follow IIMM guidance and provide financial forecasts for 3-year and 10-year programmes to meet LTP requirements. Community and stakeholder engagement, asset condition and performance, and financial forecasts used to develop major programmes. Local, regional, and national strategic alignment analysed.	2021-24 AMP	Current AMP is fit-for-purpose, targeted improvements sought to improve evidence for robust and confident decision making.
IIMM 4.3	**13**	**Management Systems**	How does your organisation ensure that it's asset management processes and practices are appropriate and effective?	Management systems are the procedures and interactions within an organisation that are needed to achieve its objectives. A robust management system enables the organisation to operate consistently and reliably, and provide evidence that what was planned was delivered. The processes should be appropriate, consistently applied and understood.	The organisation has an awareness of the need to formalise systems and processes.	Simple process documentation in place for service-critical AM activities.	Basic Quality Management System in place that covers all organisational activities. Critical AM processes are documented, monitored and are subject to review. AM system meets the requirements of ISO 55001.	Process documentation has been implemented in accordance with the AM system to appropriate level of detail. Internal management systems are aligned.	ISO certification to multiple standards for large asset intensive organisations, including ISO 55001. Strong integration of all management systems within the organisation.	**60**	**70**	QA systems in place Monitoring of AM processes generally informal.	Review of 2021-24 AMP	May be some differences across the TLAs Alignment across the systems would be ideal. Complex systems and processes not appropriate for this scale of network
IIMM 4.4	**14**	**Asset Management Information Systems**	How does your organisation meet the information needs of those responsible for various aspects of asset management?	AM systems have become an essential tool for the management of assets in order to effectively deal with the extent of analysis required to support the size and complexity of assets and their operation, and the maturity of AM practices.	The organisation has an intention to develop an electronic asset register/AMIS.	Asset register can record core asset attributes - size, material, location, age etc. Asset information reports can be manually generated for AM Plan input.	Asset register enables hierarchal reporting (at component level to facility level). Customer service request tracking and planned maintenance functionality enabled. System enables manual reports to be generated for valuation and renewal forecasting.	Spatial relationship capability. More automated asset performance reporting on a wider range of information.	Financial, asset and customer service systems are integrated and all advanced AM functions are enabled. Asset optimisation analysis can be completed.	**60**	**70**	RAMM used as the primary asset register, the Councils have moved to a single regional database. CSRs are not aligned, would improve better assessment of problems and trends.	2021-24 AMP Breakdown of CSR info not readily available.	Continue to investigate options for aligned systems.

Asset Management Maturity Assessment August 2023					Maturity Levels					Agencies to complete these four columns (K to O)				
					Aware	Basic	Core	Intermediate	Advanced					
Reference	Question	Section	Questions	Why	0-20	21-40	41-60	61-80	81-100	Current Score	Appropriate Target	Reason for scores	Evidence to support score	Improvement actions planned or underway
IIMM 4.5	**15**	**Service Delivery Mechanisms**	How does your organisation procure asset-related services like maintenance and consumables for different classes of assets? How does the organisation exercise control over any outsourced asset management services?	The effectiveness of asset management is proven in the efficient and effective delivery of services at an operational level. Organisations need to consider the relative costs, benefits and risks of alternative delivery mechanisms.	Asset management roles (owner and service delivery) are generally understood.	Service delivery roles are clearly allocated (internal and external) generally following historic approaches.	Core functions defined. Procurement strategy/policy in place. Internal service level agreements in place with the primary internal service providers and contract for the primary external service providers.	Risks, benefits and costs of various outsourcing options have been considered and determined. Competitive tendering practices applied with integrity and accountability.	All potential service delivery mechanisms have been reviewed and formal analysis carried out to identify the best delivery mechanism.	**70**	**80**	Procurement strategies in place. Contracts in place. Beca and WSP procured to long-term professional service provider contracts. Rationale continues to support activity management planning.	Waka Kotahi AMP review ILM workshops Waka Kotahi Procurement Strategy feedback.	Waka Kotahi has endorsed a move to a regional Procurement Strategy, to commence in 2025.
IIMM 4.6	**16**	**Audit and Improvement**	How does your organisation ensure that it continues to develop its asset management capability towards an appropriate level of maturity?	Well performing agencies give careful consideration of the value that can be obtained from improving AM information, processes, systems and capability. The focus is on ensuring AM practices are "appropriate" to the business objectives and government requirements.	The organisation recognises the benefits of improving asset management processes and practises, but has yet to develop an improvement plan.	Improvement actions have been identified and allocated to appropriate staff.	Current and future AM performance has been assessed and gaps used to drive the improvement actions. Improvement actions identified to close the gaps. Improvement plans identify objectives, timeframes, deliverables, resource requirements and responsibilities.	Formal monitoring and reporting on the improvement programme to the Executive Team. Project briefs have been developed for all key improvement actions.	Improvement plans specify key performance indicators (KPIs) for monitoring AM improvement and these are routinely reported.	**65**	**75**	The Regional AMPs have identified improvement plans. Project Control Group meets quarterly to review progress against milestones and budget.	2021-24 AMP	Improvement plan to be developed in a format that can be easily monitored - fit-for-purpose

Appendix 2: West Coast Transport Risk Management Framework

The level of risk is determined through consideration of the likelihood and consequence of a risk happening.

Likelihood is the chance that something might happen *and* can be defined, determined, or measured objectively or subjectively and expressed either qualitatively or quantitatively. A consequence is the outcome of an event and has an effect on objectives.

LIKELIHOOD TABLE

Likelihood	Rating	Descriptor
Almost Certain	5	The event could occur in most circumstances, e.g. 90% + chance of occurring in the next 12 months (or in 9 out of every 10 years).
Likely	4	The event will probably occur in most circumstances, e.g. 70% chance of occurring in the next 12 months (or in 7 out of every 10 years).
Possible	3	The event should occur at some time, e.g. 50% chance of occurring in the next 12 months (or in 5 out of every 10 years).
Unlikely	2	The event could occur at some time, e.g. 20-30% chance of occurring in the next 12 months (or in 2-3 out of every 10 years).
Rare	1	The event may occur only in exceptional circumstances, e.g. up to 10% chance of occurring in the next 12 months (or once in 10 years).

CONSEQUENCE TABLE

Consequence	Rating	Descriptors					
		Public Health & safety	Financial / Economic	Service Delivery / Operational	Legal	Environmental	Corporate Image & Reputation
Extreme	5	Fatality	>$10m	Failure to meet 100% LOS	Commission of enquiry / prosecution	Permanent widespread environmental damage	International media coverage
Severe	4	Permanent disability	>$1m	Failure to meet 75% LOS	Breach of Act of consent but no material effect	Heavy ecological damage, costly restoration	Sustained national media coverage
Moderate	3	Serious injuries	>$100k	Failure to meet 50% LOS	Breach of Act of consent with material effect	Major but recoverable ecological damage	Regional media coverage or short-term national coverage
Minor	2	Minor injuries	>$10k	Failure to meet 25% LOS	Minor Breach	Limited but medium-term negative effect	Local media coverage
Insignificant	1	Slight injuries	<$10k	Failure to meet 10% LOS	Minor complaint	Short-term damage	Brief local media coverage

RISK MATRIX

LIKELIHOOD		CONSEQUENCE				
		Insignificant (1)	**Minor (2)**	**Moderate (3)**	**Severe (4)**	**Extreme (5)**
	Almost Certain (5)	Low	Medium	High	Critical	Critical
	Likely (4)	Low	Medium	High	Critical	Critical
	Possible (3)	Low	Medium	Medium	High	Critical
	Unlikely (2)	Low	Low	Medium	Medium	High
	Rare (1)	Low	Low	Low	Medium	High

	Risk Descriptor	Discussion	Risk Type: Public Health & Safety	Risk Type: Financial / Economic	Risk Type: Service Delivery / Operational	Risk Type: Legal	Risk Type: Environmental	Risk Type: Corporate Image & Reputation	Consequence	Likelihood	Risk Rating	Treatment Options
Planning & Programming Risks												
Strategic Risks	Legislative change / Central Government policy decisions adversely affect Council decisions relating to transport assets.	Insufficient knowledge of legislation or failure to monitor for change.	√	√	√	√	√	√	3	3	Medium	• Monitor • Engage with relevant govt depts • Risk financing • Internal management strategies to lower the potential severity of the activity
		Central Government changes to Local Government approach	√	√	√	√	√		3	3	Medium	
	Lack of investment doesn't deliver on community outcomes				√			√	4	4	Critical	Anticipate what level of investment is needed for the next 10 years and review this annually through: • Strategic plans • Infrastructure Strategy • LTP • Annual Plan • AMP
	Investment in transport modal alternatives doesn't result in any change in user behaviour.	Not understanding user needs, or wrong new assets created.			√			√	1	2	Low	Focus on community outcomes as directed by Council.
	Existing road formation discovered to not be within legal road formation resulting in costs and resources to legalise the existing formation	Current areas of encroachment of road onto private land identified		√		√			1	2	Low	Undertake a GIS review of formed legal road to identify all obvious areas of encroachment, Prioritise including options for vesting
Economic Risks	Cost Escalations (e.g. as a result of price of materials, economic failures, natural disasters, exchange rates) can have serious financial implications.	Changes in transport pricing that significantly affect demand		√	√				3	2	Medium	Monitor Use of asset management systems to prioritise works
Level of Service Risks	Significant service level cuts due to insufficient funding resulting in high level of public concern	Change in government or policy which causes a reduction in funding for the Council	√	√	√			√	3	3	Medium	Use of asset management systems to prioritise works
	Insufficient knowledge of communities' desires resulting in inappropriate levels of service	Misalignment between stakeholder expectations and delivery.			√			√	2	2	Low	
	Insufficient knowledge of what services are currently being delivered to the community				√			√	2	2	Low	Establish review process
	Insufficient knowledge of what the community can/will pay for desired service			√	√			√	3	3	Medium	Develop consultation process / plan.
	Incomplete knowledge of the communities' perception of delivered service and the value of that service			√	√			√	2	2	Low	Develop consultation plan / process
	Reducing capacity of the Activity/Service so reducing levels of service	Increasing demand	√	√	√		√	√	4	3	High	
	Bridge restrictions or posting of bridges may restrict freight for industries and may prevent access for emergency services.		√	√	√			√	4	4	Critical	• Two yearly bridge inspections to identify high risk structures and identify/prioritise the FWP • Postings and overweight permits undertaken as required • Review of current bridge capacities required • Development of overweight permit policy and database
Asset Mgmt. Risk	Lack of leadership / ownership	• Lack of buy-in to the new more collaborative approach Roles not clearly defined		√	√			√	3	3	Medium	• Organisation charts with roles and responsibilities Regular team meetings at the appropriate levels

	Risk Descriptor	Discussion	Risk Type: Public Health & Safety	Risk Type: Financial / Economic	Risk Type: Service Delivery / Operational	Risk Type: Legal	Risk Type: Environmental	Risk Type: Corporate Image & Reputation	Consequence	Likelihood	Risk Rating	Treatment Options
	Asset Management Planning fails to match the district's needs	• Levels of service do not match customer expectations • Inappropriate works programmes Poor project management or service delivery procedures	√	√	√		√	√	4	3	High	Focus on community outcomes as directed by Council
	Asset inventory incomplete resulting in deterioration or loss of assets	Database not kept up to date	√	√	√		√	√	4	3	High	• Requirements regards collection of data to be specified in contracts • Regular audits Regular condition assessments
	Absence of or inaccurate asset condition information resulting in inappropriate maintenance or renewal	• Condition assessments not undertaken Data not input into systems	√	√	√		√	√	4	3	High	
	Absence or inaccurate asset valuation information resulting in inappropriate depreciation values			√					2	2	Low	Establish plan for periodic condition assessment
	Inadequate maintenance and renewals planning fail to address deterioration of infrastructure resulting in an unsafe network		√	√	√			√	5	3	Critical	• Establish risk based (prioritised) asset management plan Establish effective condition assessment programme to reduce uncertainty around lifecycle stages of infrastructure
	Breakdown in communication between councils and other external parties (eg Waka Kotahi) effects integration with other activities			√	√				2	2	Low	Establish communication / relationship plan
Programme and Budget Risks	Forward planning ineffective, forecasts substantively wrong causing under investment in transport services.	Poor data or lack of planning process		√	√			√	3	3	Med	• Expanding use of asset management data and systems. Robust asset management condition ratings and systems
	Inadequate planning for the implementation of the annual programme			√	√			√	3	2	Med	
	Over provision or over investment in transport services.	Failure to consider risk appropriately in decision making, overcautious decision making		√	√				2	2	Low	Ensure risks are properly identified and understood at an early stage
	Reducing/inadequate funding base for the land transport activity to meet required levels of service	• Reduction in subsidies • Declining population, affecting rates • Development contributions • External economic factors Elected member influence		√	√			√	4	3	High	

	Risk Descriptor	Discussion	Risk Type: Public Health & Safety	Risk Type: Financial / Economic	Risk Type: Service Delivery / Operational	Risk Type: Legal	Risk Type: Environmental	Risk Type: Corporate Image & Reputation	Consequence	Likelihood	Risk Rating	Treatment Options
	Operating costs resulting from new assets out-strip Council's ability to pay	Life-cycle costs not considered for higher design standards proposed in Capex works		√	√				2	1	Low	Use of asset management systems to prioritise works
	Increasing costs of maintaining/renewing existing assets and services to meet required levels of service			√	√			√	3	2	Medium	Use of asset management systems to prioritise works
	Budget over expenditure.	Contract rates increase markedly, inaccurate forecasts, lower than expected financial assistance or contributions.		√	√				3	3	Medium	• Use of asset management systems to prioritise works. • Ensure up to date contract costs reflected in database • Procedures in place to identify cost increases early Project management manual
	Significant new investment needed to match HPMV demand - which can't be funded	HPMV changes		√	√				4	3	High	Use of asset management systems to prioritise works
	Reduction in Development / financial contributions significantly reduces forward Capex programme	Government legislative change or directive, or much less development than expected		√					2	2	Low	Use of asset management systems to prioritise works
Operational & Delivery Risks												
Procurement	Insufficient resources are available to implement the programme	Lack of contractors to carry out council work due to competition from the State highway contracts and the ability to draw resources to the area		√	√				4	3	High	• Procurement strategies in place • Market analysis prior to procurement • Procurement plans for major projects • Regional projects to increase size and make more attractive to procure
Contract / Project Mgmt.	Lack of monitoring and enforcement activities	Insufficient funding / resources	√		√	√					Medium	
	Disruption to businesses due to roading work	Work not communicated to businesses, or taking longer than expected, or low tolerance levels.			√			√	3	3	Medium	
	Delays to work completion, poor quality, high levels of public complaints	Poor consultation with residents / businesses			√			√	2	2	Low	Follow established project management procedures

	Risk Descriptor	Discussion	Risk Type: Public Health & Safety	Risk Type: Financial / Economic	Risk Type: Service Delivery / Operational	Risk Type: Legal	Risk Type: Environmental	Risk Type: Corporate Image & Reputation	Consequence	Likelihood	Risk Rating	Treatment Options
	Inadequate monitoring of staff, consultants, contractors results in maintenance and renewals not being completed			√	√			√	2	2	Low	Follow established project management procedures
Service Delivery	Service providers do not deliver on contract requirements	• Ineffective procurement procedures • Tender process may result in a price over/below the estimate • Poor performance / don't deliver on KPIs Inadequate resources		√	√			√	3	2	Medium	• Appropriate procurement procedures (NZTA Procurement Manual) • Appropriately qualified tender evaluation teams Monitor performance
	Health and safety risks leading to - Death & serious injury to council staff, contractor working on council owned sites, consultant, member of the public	Unsafe practices, culture, lack of commitment, incorrect plant operation, etc. Non-compliance with legislation	√			√		√	5	2	High	
	Quality of work / materials does not meet legislation or NZ Industry recognised Codes of Practice	• Quality systems not in place or not appropriate • Traffic Management Plans not in place or not appropriate Environmental management plans not in place	√	√	√	√			4	2	Medium	Monitoring of materials undertaken as per Roading maintenance and other contracts Liaise with Contractors regarding material quality and sources
	Insufficient resources are available to implement the programme	Capability and capacity of the councils and their suppliers to deliver the programme.		√	√				4	3	High	
	Lack of technical expertise to provide planning/design resulting in absence of or inappropriate planning/design.			√	√				4	3	High	• Succession planning • Regional approach to delivery – share resources • Recruitment focus Engagement of external providers to 'fill the gap'
	Unsafe work sites	Health and safety plans not in place or not appropriate	√	√		√		√	4	2	Medium	
	Utilities dig up roads soon after resealing or other new work has been completed	Lack of knowledge or poor coordination	√		√			√	2	2	Low	Continue coordination meetings and discussions with Utility providers.
Capital Works	Renewals / capital works not delivered within approved scope of works, planned timeframes, and budget.	Unrealistic budgets Resources		√	√			√	4	3	High	Set realistic capital budgets Assess resources required to deliver the overall renewals / capital programmes
Environmental Damage	Breaches of resource consents / environmental (RMA) requirements	Adequate measures not in place Inappropriate work methods		√		√	√	√	4	2	Medium	• Environmental management plans for designs and construction Monitoring of worksites

	Risk Descriptor	Discussion	Risk Type: Public Health & Safety	Risk Type: Financial / Economic	Risk Type: Service Delivery / Operational	Risk Type: Legal	Risk Type: Environmental	Risk Type: Corporate Image & Reputation	Consequence	Likelihood	Risk Rating	Treatment Options
	Environmental damage caused by vehicle crash.	Truck trailer overturning and contents spilling		√			√		3	2	Medium	Provision within roading maintenance contract to attend within set timescales.
	Significant contamination or degradation of the environment	Environmental Non-compliances.		√		√	√		3	2	Medium	Provision within roading maintenance contract to attend within set timescales.
	Environmental pollution or negative impact on flora and fauna	• Roading operations Fuel spillage		√		√	√		3	2	Medium	• Minimise the effect of activities on the natural environment • Environmental policy • Erosion and sediment control standards Storm water management
	Perceived environmental effects and health issues associated with dust from unsealed roads settling on properties		√		√			√	3	2	Medium	Review of Waka Kotahi subsidy for seal extension to develop a strategy for identifying roads which may qualify for seal extension funding
Physical Assets Risk												
Condition	Bridges Failure - Premature failure or partial collapse due to condition of structure resulting in serious injury or possible loss of life. Considerable disruption to traffic or rail movement.	Undetected deterioration or poor maintenance.	√	√	√			√	5	2	High	Bridge inspection procedures, seismic performance review of bridge structure
	Age of infrastructure with potential backlog in renewals resulting in • Diminishing or loss of service, Health and safety issues Reducing level of satisfaction		√	√	√			√	4	2	High	
	Premature asset failure due to HPMV regularly using the network.	Existing pavements or structures unable to take increase in loadings.		√	√				4	2	High	Identification of vulnerable assets. Options to address under capacity
	Pavement deterioration accelerates faster than expected, resulting in significantly increased long term life-cycle costs.	Underfunding, work being deferred for too long, overloading by heavy vehicles, poor materials or work quality, poor asset management decisions.		√	√				4	2	High	Annual condition rating data collection Continued focus on improving AM processes, systems and data. Monitor traffic growth trends Review construction specifications for appropriateness. Introduce stricter controls if necessary.
	Damage to the network caused by other service providers	Poor trench reinstatement by utilities or their contractors	√	√	√			√	2	2	Low	Audit and inspection of works during and after construction. Network inspections

	Risk Descriptor	Discussion	Risk Type: Public Health & Safety	Risk Type: Financial / Economic	Risk Type: Service Delivery / Operational	Risk Type: Legal	Risk Type: Environmental	Risk Type: Corporate Image & Reputation	Consequence	Likelihood	Risk Rating	Treatment Options
	Footpath deterioration	• Poor construction and maintenance techniques • Unsatisfactory reinstatement following utility installation/maintenance Lack of funding	√	√	√			√	3	2	Medium	• Periodic footpath inspections • Review footpath levels of service Develop a new 10 year work programme and review funding allocation for the activity
	Inadequate maintenance and renewals fail to address deterioration of infrastructure resulting in unsafe network		√	√	√			√	3	2	Medium	
	Bridges and culverts damaged by overloading Heavy Vehicle Overload/Over Width Damage Costs involved in repair and recovery of costs	Vehicles exceeding legal load or bridge weight limits	√	√	√			√	4	2	Medium	Identification of vulnerable assets. Posted speed and weight restrictions. Priority for upgrade or replacement Development of overweight permit policy and database
	Bridge damaged or collapse caused by impact.	Vehicle, train or boat impact - damage to beams, barriers	√	√	√			√	4	2	Medium	Height limits, bridge signs, navigational lights
Performance	Traffic delays on key routes and bridges.	Bridge width too narrow for number and width of lanes required to meet transport needs			√			√	3	2	Medium	Identification of assets that may be affected Feasibility studies to accommodate anticipated traffic volumes
	Flooding - Inadequate roadside drainage resulting in road pavement deterioration causing traffic disruption and potential access problems	Drainage assets under-designed or poor maintenance.		√	√		√		3	2	Medium	Routine inspection / road user complaints. New culverts must meet current design standards. Identify high risk culverts and potential mitigation measures if justified.
	Lack of road marking or deteriorated road marking may lead to vehicle accidents			√	√		√		3	2	Medium	Undertake day and night safety audits Annual remarking
	Lack of guard railing / sight railing or damaged guard rail			√	√		√		3	2	Medium	Regular network inspections Condition rating Undertake day and night safety audits for sight rails
Natural Hazards / Emergency Events												
Service Delivery	Councils do not meet responsibilities for an emergency or a civil defence emergency event because it is unable to deliver the basic services		√	√	√			√	3	2	Medium	Develop and maintain high level Business Continuity Plan(s) (BCP)

	Risk Descriptor	Discussion	Risk Type						Consequence	Likelihood	Risk Rating	Treatment Options
			Public Health & Safety	Financial / Economic	Service Delivery / Operational	Legal	Environmental	Corporate Image & Reputation				
	West Coast councils unable to function Damage caused by natural hazard (earthquake / flood) results in regional isolation	Moderate to severe earthquake, extreme weather event, building fire	√	√	√			√	5	2	High	Inclusion in Civil Defence emergency response.
Assets	Collapse or serious Damage to bridge/s	Flooding following extreme weather event / EQ	√	√	√		√	√	5	2	High	Inspections of river and structure Lifelines study. Identify critical bridges and monitor
	Large slips making routes inaccessible or causing damage or collapse to structures (eg) rural roads to service key infrastructure & rural industry (forestry / farming)	Moderate to severe earthquake or flooding following a storm event.	√	√	√		√	√	5	2	High	Routine inspection. Review Waka Kotahi records for previous incidents of accidents as a result of flood. Identify high risk zones and potential mitigation measures, route slope stability and resilience etc.
Customer Risks												
	Network Safety.	Public perception	√					√	2	2	Low	
	Flooding, washouts, landslides causing fatalities / injuries leading to Financial implications / possible legal action		√	√	√	√		√	3	2	Medium	• Identify high risk zones eg Alpine Fault Exclusion Zone • Undertake risk assessments of areas identified as being prone to natural hazards Carry out risk assessments for all significant projects
Safety	Lack of appropriate traffic management	inadequate signage and unsatisfactory control of construction sites resulting in hazards for road users	√			√			4	2	Medium	Review of Contractors procedures including training
	Vehicles or pedestrians fall from bridge	Inadequate barriers	√			√			4	2	Medium	Construction conforms with accepted design standards Network inspections undertaken regularly as per maintenance contract specifications
	Loss of control accidents which are confirmed to be attributed to road factors /such as formation geometry, vegetation, lack of guardrails etc	Sub-standard design, construction or maintenance.	√			√			4	2	Medium	Safety audits. Review Waka Kotahi record for previous incidents of crashes. Identify high risk zones and potential mitigation measures included in programmes.
	Death or serious injury due to insufficient street lighting.	• Poor street lighting design or maintenance. Inadequate lighting at intersections	√			√			4	2	Medium	Ensure adequate inspection, maintenance and renewal programmes in place.

	Risk Descriptor	Discussion	Risk Type						Consequence	Likelihood	Risk Rating	Treatment Options
			Public Health & Safety	Financial / Economic	Service Delivery / Operational	Legal	Environmental	Corporate Image & Reputation				
	Death or serious injury due to vehicle collision with street furniture, signs, signals or street lights; OR from missing signs, markings and no streetlighting	Location of assets – damaged by vehicle. Missing assets cause incident to occur.	√			√			4	2	Medium	Regular inspection / road user complaints. Ensure appropriate design, positioning and/or protection of equipment
	Death or serious injury due to road crashes on wet roads	Poor skid resistance	√			√			4	2	Medium	Roughness surveys carried out bi-annually Review Waka Kotahi record for previous incidents of accidents as a result of surface condition. Identify high risk zones and potential mitigation measures in programmes.
	Crashes occur on unsealed roads, considered to be dust related	Dust from trucks or high traffic volumes	√			√			4	2	Medium	Watering of some roads driven by public demand Review Waka Kotahi Waka Kotahi record for previous incidents of accidents as a result of dust. Identify high risk zones and potential mitigation measures, sealing, watering, signage etc.
	Footpath & pedestrian facility hazards causing tripping and slipping injuries.	Footpath deterioration caused by poor ground conditions, tree root growth, lichen growth, high lip at dropped kerb crossing	√			√			4	2	Medium	Development of condition rating system to address priority areas.
	Falling trees & branches risks safety of users on network	Storm events and/or poor maintenance / removal	√			√			4	2	Medium	Inspection and maintenance regimes to identify safety issues. RAMM data on tree locations
Other	Customers dissatisfied with levels of service provided	Public perceptions out of alignment with the reality of what can be provided within available budgets			√			√	3	3	Medium	Wider Council public education programmes
	Poor decisions made about local roading issues resulting in community dissatisfaction	Decision makers fail to take account of all relevant issues.			√			√	3	3	Medium	• Focus on providing agreed levels of service and community outcomes. • Better recognition and understanding of community requirements
	Inappropriate parking provision	Underestimation of demand			√			√	3	2	Medium	
	Complaints from road users or the public about graffiti or vandalism				√			√	2	2	Low	• Routine inspection, response time set Investigate alternative coatings

Appendix 3: Supporting Documents

This Transport Programme Business Case and the accompanying Activity Management Plan summarise several external documents and strategies from each Council. These are referenced below and are a mix of publicly available and internal documents:

- Land Transport Procurement Strategy endorsed by Waka Kotahi
- Bridge & structure lifecycle management plan (WSP)
- Bridge & structure present value end of life analysis (WSP)
- Sealed pavement 20-year forward work programme (Beca)
- Risk & criticality assessment (Beca)
- Future demand for transport networks (Beca)
- Maintenance intervention strategy (draft) (Beca & WSP)
- Network operating plan (draft) (Beca)
- Buller Walking and Cycling Action Plan (Abley)