South Wairarapa District Council

Land Transport Asset Management Plan

June 2018

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Revision Schedule			
Rev. No.	Date	Description	Prepared by
1	1/6/2010	New AMP prepared, new format	Mark Allingham
2	14/11/2014	Work in progress draft for Client Review	Iain McIntosh
3	27/11/2014	Work in progress draft for submission to NZTA	Iain McIntosh
4	1/11/2017	Draft Submitted to NZTA	Mark Allingham
5	10/1/2018	Final Review for LTP	Mark Allingham
6	Feb 2018	GMCS Review	Jennie Mitchell
7	June 2018	Update for final LTP changes	Jennie Mitchell

1 EXECUTIVE SUMMARY

Land transport infrastructure accounts for 30% of the Council's operating expenditure and 17% of the Council's capital expenditure and is a critical service to enable residents to move around the district. Council receives funding from the New Zealand Transport Agency (NZTA) to contribute to the cost of maintaining many of the roading assets so the relationship between NZTA and SWDC is a key one.

Below is a summary of the types of work Council carries out in the Land Transport activity area.

Pavements (Roads)	Roadways smoothed to provide users with a safe and comfortable ride.
	Road surfaces resealed to maintain pavement integrity.
Drainage	Roads drained to protect the pavement structure and to control surface water.
Berms and Embankments	Berms installed to provide space for utility services and for aesthetics and beautification.
Vegetation	Vegetation controlled to provide a safe and tidy environment and to minimise maintenance.
	Weed spraying is done where appropriate and where adjoining neighbours do not want weed spraying, they are required to do vegetation control at their own cost.
Footpaths	Footpaths are kept in a safe and useable condition to separate pedestrians from other road users and provide foot access to properties.
	Central business district areas in the three towns have footpaths on both sides of the street. Other urban streets generally have a footpath on one side.
Kerb and Channel	Kerb and channel including sumps are cleaned regularly as part of street cleaning contract to prevent flooding.
Structures	Bridges and cattle stops maintained to ensure continuity of roading network.
	Retaining walls and seawalls provided to maintain roadway stability.
Street cleaning	Street cleaning in urban areas is carried out on a programmed basis to minimise inconvenience to road users resulting from flooding and to maintain a clean and tidy environment.
Vehicle access	Vehicle access to properties (conforming to District Plan provisions) to ensure traffic safety and adequate drainage.

Car Parking	On and off street car parking areas are provided in business and shopping areas to meet commuter and residential parking needs, and District Plan and Building Act requirements.
Bus passenger shelters	Bus passenger shelters in urban areas are provided and maintained at the more heavily patronised stops for the convenience of public transport by Wellington Regional Council in consultation with South Wairarapa District Council.
Street lighting	Street lighting is maintained to provide road user and pedestrian safety and security. Residential streets in urban areas are lit to the National Standard which provides sufficient light to show the way and illuminate any hazards for both vehicle users and pedestrians.

1.1 LEVEL OF SERVICE STATEMENTS AND ONE NETWORK ROAD CLASSIFICATION (ONRC)

The table above is an excerpt from New Zealand Transport Agency's (NZTA's) Level of Service statements for the roading activity which set out what the activity aims to achieve.

In the past, road controlling authorities (RCAs) have tended to take locally appropriate approaches to developing and maintaining roads within their jurisdiction, often based on local needs and affordability. While this approach works well from an individual community perspective, users of the road network may not be as well served as they travel the network experiencing significant variation in service quality as they travel over local government boundaries.

SWDC's Level of Service (LOS) goal is to provide road users, whether they are vehicle drivers, cyclists or pedestrians with consistent customer service levels in line with the One Network Road Classification (ONRC) LOS across the country. This is important for users of the network to know networks are safe and reliable, as well as managed effectively and efficiently.

The ONRC LOS has three components: Functional Classification, Customer Levels of Service and Performance Measures and Targets. These are laid out in a national framework and reported on through NZTA, the funding agency for transport from whom council receives 52% subsidy for roading activities and 100% (decreasing at 8% per year) for the Cape Palliser Rd.

Within the 6 classifications, SWDCs network is in the three lower volume categories, being primary/secondary collectors and local access sealed and unsealed roads. The Primary collectors are roads that function as a highway during intermittent highway closures due to closure e.g. the SH52 Waihenga bridge. Secondary collector roads provide a distributor/collector function, linking local areas of population and economic sites and may be the only route available to some places within this local area.

1.2 RISKS

The transport network is small comparatively and spread over a large geographic area. It is prone to disruptions through weather events making resilience difficult. The approach is to have the financial reserves available to reinstate as and when required and operationally the ability to repair quickly. This is aided through local knowledge and resources.

The proposed removal of the Special Purpose Road classification on the Cape Palliser Road is a resilience and financial risk as the weather/tidal and climate change impacted road within the district.

The increasingly demanding administration and reporting of the transport network requires external expertise and results in increasing costs as it requires more administrative vigilance over physical observance.

The continued growth and infill within the urban areas require development of footpaths and infrastructure. These changing traffic patterns and demand can put strain on urban assess roads where community facilities are located.

1.3 OPPORTUNITIES

SWDC staff work closely with the neighbouring councils to provide efficiencies in delivery of works such as joint contracts and knowledge sharing. This provides quick and reliable information on changing road conditions in adverse conditions.

The use of technology in reporting and analytics can reduce the administrative time required and help us better target renewals and forward works programmes.

1.4 IMPROVEMENTS

The uptake of newer technology in maintenance techniques and in infrastructure (e.g. LED lighting with a 6 years return on investment) can provide greater service at a reduced operational and whole of life cost.

2 INTRODUCTION

2.1 BACKGROUND

This Asset Management Plan (AMP) covers the provision of roading network services to the residents of the South Wairarapa District.

The provision and management of roads is a function of local authorities in terms of the Local Government Act 1974, Local Government Act 2002 and Land Transport Management Act 2003. These Acts stipulate that South Wairarapa District Council is the owner and road controlling authority of all roads other than State Highways in the District. The section of State Highway 2 within the South Wairarapa District boundary and State Highway 53 are controlled and operated by the NZ Transport Agency (NZTA). However, footpaths within State Highway corridors in urban areas are included in this plan as they are maintained by Council.

The South Wairarapa District Council prepared its first Roading AMP in 1999 and partially updated it annually until 2008. This resulted in a document that had some shortcomings. The AMP was reviewed over the years by SWDC, Duffill Watts and Tse Ltd (DWTL now Calibre Consulting), Opus International Consultants, NZTA and Audit NZ.

The AMP was extensively revised for the Council's 2012-2023 Long Term Plan. This review for the 2018-2028 LTP is a revision utilising a document structure agreed by the three Wairarapa Councils previously. It also incorporates NZTA Strategic and programme business case guides and the Audit NZ Asset management and long term planning "Learnings from Audit findings from 2015 to 2017".

2.2 THE PURPOSE OF ASSET MANAGEMENT PLAN

The purpose of an AMP is to ensure that assets are operated and maintained in a sustainable and cost effective manner, so that they provide the required level of service for present and future users.

This Roading AMP for South Wairarapa District achieves ten major purposes as follows:

- It meets the Council's legal obligations under the Local Government Act 2002 to define levels of service and how these levels of service will be provided with the supporting accounting and financial management requirements.
- It provides a detailed description of all components of the road infrastructure assets and the assumed condition of each component.
- Where data is lacking, methods of assessing and monitoring and forecasting condition are developed.
- It provides a valuation of the complete road network as well as individual components.
- It provides the linkage between the Council's Long Term Plan (LTP) Outcomes and the Council's strategic goals for road infrastructure and the levels of service, which are targeted performance objectives for the roading activity.
- It defines the level of service the South Wairarapa community requires from the road infrastructure.
- It defines performance measures and provides performance data, where available, to compare actual service provided with target levels of service.
- It identifies risks, which may cause failure of part of the road infrastructure and sets up a framework with which to manage risks for the future according to the scale of the asset.
- It provides financial forecasts of expenditure based on the assessed condition and estimated future life of components, and includes maintenance, renewal, and capital expenditure.
- It identifies opportunities for improvements that will ensure financial resources are used wisely.

Figure 1 Improvement Pillars – NZTA Road Efficiency Group (REG)

2.3 RELATIONSHIP WITH OTHER PLANNING DOCUMENTS

This AMP is a key component of the Council planning process, linking with the following Council plans and documents:

- SWDC Long Term Plan.
- SWDC Infrastructure Strategy.
- SWDC Annual Plans.
- AMPs for other Council infrastructure assets.
- SWDC Bylaws.
- Combined Wairarapa District Plan.

There are linkages to other local and national planning documents as follows:

- Government Policy Statement on Land Transport Funding.
- NZTA manuals and procedures.
- National Land Transport Plan.
- Regional Land Transport Strategy.
- Regional Land Transport Programme.
- Regional Road Safety Plan.
- Wairarapa Life Lines Study.
- Regional Walking Plan.
- Regional Cycling Plan.

- Regional Plans (Freshwater, Discharges, Coastal, Policy).
- Safer Journeys - New Zealand Road Safety Strategy.

Table 1 Assets Covered by Land Transport AMP

Below is a summary of assets covered by this AMP.

Land Transport Assets	Rural	Urban	Total
PAVEMENT LENGTH			
Sealed	333.1	67.8	400.9
Unsealed	267.4	0.6	268.0
TOTAL	**600.5**	**68.4**	**668.9**
BRIDGES & MAJOR CULVERTS (no.)			
Armco Arch/Culvert	4		4
Box Culvert	36		36
Concrete bridge/Arch/ford	55		55
Timber bridges	12		12
concrete/steel beam bridges	13		13
Multiple culverts	18		18
TOTAL	**138**		**138**
STREET LIGHTS (no.)			
Featherston		257	257
Greytown		211	211
Martinborough		286	286
Rural	51		
TOTAL	**51**	**754**	**754**
KERB & CHANNEL (km)			
Featherston		28.7	28.7
Greytown		21.5	21.5
Martinborough		26.1	26.1
TOTAL		**76.3**	**76.3**
SUMPS			
Featherston		175	175
Greytown		157	157
Martinborough		237	237
TOTAL		**569**	**569**
CULVERTS (no.)			
Featherston	119		119
Kahutara	112		112
Greytown	134		134
Martinborough	444		444
Turanganui	281		281
Western Lake	196		196
Pirinoa	359		359
Otaria	203		203
Ahea	568		568
TOTAL	**2416**		**2416**

	Rural	Urban	Total
FOOTPATHS (km)			
Featherston			
- Asphalt		7.78	7.78
- Concrete		11.41	11.41
- Interlocking blocks		0.02	0.02
- Metal		0.11	0.11
- Seal		0.4	0.4
Greytown			
- Asphalt		8.09	8.09
- Concrete		8.59	8.59
- Metal		0.4	0.4
- Seal		0.65	0.65
Martinborough			
- Asphalt		9.53	9.53
- Concrete		7.11	7.11
- Interlocking blocks		0.05	0.05
- Metal		0.17	0.17
- Seal		3.61	3.61
TOTAL		**57.92**	**57.92**

The roading activity provides:

- Passage for movement of people and freight;
- Access to properties, businesses and natural tourism sites;
- Parking for residents and businesses;
- Passage for pedestrians and cyclists.

To support these assets and outcomes the Council undertakes the following works:

- Operation and maintenance of the transport network;
- Replacement of assets to ensure long term sustainability;
- Improvement of existing assets to sustain serviceability;
- Planning and investigation in relation to transport activities;
- Promotion of different travel modes;
- Ensuring safety of road users;
- Liaising with stakeholders;
- Management of traffic and transport by regulations, standards and bylaws.

Other activities that support asset management:

- School Travel Plans

2.4 KEY STAKEHOLDERS

This AMP recognises the following key stakeholders:

2.4.1 External

- The South Wairarapa district community at large, including its residents, ratepayers and road users (motor vehicle, cyclist or pedestrian).
- Business owners and their organisations.
- Farming and Rural Community.
- Greater Wellington Regional Council.
- Ngati Kahungunu.
- Rangitane o Wairarapa.
- New Zealand Transport Agency.
- Masterton and Carterton District Councils.
- Wairarapa Road Safety Council.
- Government Agencies.
- Contractors.
- Consultants.
- Office of the Auditor General / Audit NZ.
- Wellington Region Emergency Management Office.

2.4.2 Internal

- Mayor.
- Councillors.
- Community Board members.
- Maori Standing Committee.
- Council management and staff.

2.4.3 Shared Services

The three Wairarapa councils (South Wairarapa, Carterton, and Masterton) have a Shared Services Working Party (SSWP) with members made up from councillors from each district as well as the Mayor and CEO of each Council who meet regularly to provide direction to Councils so gains can be made from aligning contracts for services and other efficiencies. It is SWDC's intention to keep working with the neighbouring councils so the communities can share resources seamlessly within the region.

Achievements of the SSWP are:

- Wairarapa Combined District Plan.
- Joint solid waste contract.
- Central emergency services management.

- Property valuations for the South Wairarapa and Carterton are calculated by QV at the same time.
- Common Road Network Maintenance and
- Joint Streetlight Maintenance Contract.

The joint maintenance contract has generated substantial savings in road maintenance costs through having a common contractor.

The three councils work on road safety jointly through the Wairarapa Road Safety Council. This is an incorporated society, which contracts to the three Councils to deliver approved road safety programmes across the cluster. The Wairarapa Road Safety Council has representatives from key road safety stakeholders, these include the local councils, Police, Ambulance Service, Fire Service, Idea Services (formerly IHC), Regional Public Health, Automobile Association, Heavy Transport Industry, ACC, Age Concern, Safe and Health Community Councils, Cycling groups and other associated partners.

2.5 AMP DEVELOPMENT AND REVIEW PROCESS

This AMP has been prepared based on the 2015 Roading AMP and International Infrastructure Management Manual.

This AMP is based on international best practice asset and activity management principles and specifically sets out to:

- Demonstrate responsible management of the Council's roading activities.
- Communicate and justify funding requirements for the roading activity.
- Comply with regulatory requirements.

The information is compiled from historic records, on the job knowledge of SWDC staff and consultants. The following data and advice have been provided for the current AMP document review and update.

The process for developing and managing the forward works programme for pavement and surfacing renewals is outlined in Transport Agency's State Highway Asset Maintenance Management Manual (SM 020). SWDCs approach to reviewing and prioritising the renewals programme is the prioritisation process starts from an optimised programme of forward works that will deliver cost effective whole of life strategies to maintain the network (REG AMP paper 2013_01).

Prioritisation is necessary as the optimised work programme exceeds budget availability. If the prioritisation process does not start from an optimised long term programme, there is a risk that the programme management may revert to a worst first strategy which is generally not efficient in whole of life cost terms. Also, prioritisation in the absence of an optimised long term programme gives no indication of the scale of any backlog that is developing.

Long term renewals programmes are developed drawing on a range of inputs. There are many variables affecting our ability to accurately predict future needs and the most reliable data is used as the key inputs and indicators to determine the future needs.

2.6 PLANNING HORIZONS

The respective objectives for each of the planning horizons are:

- Yr0 – Yr50 – Long-term strategic optimisation is undertaken to confirm that funding levels are sustainable in the long-term. Outputs from this level provide only the total funding level requirements.
- Yr0 – Yr30- Strategic optimisation at this level is undertaken to test both the outcomes in terms of long-term investment levels but also starting to assess the impact of funding splits between maintenance categories. In particular, the impact of the 10-year programme is tested in terms of the long-term consequences it has on the network performance.
- Yr0 – Yr10 – A tactical analysis that provides details in terms of funding split between different maintenance categories and road classes. The emphasis of this analysis is ensuring that the Level of Service is maintained at the required standard for a given maintenance regime.

- Yr0-yr3 Prioritise projects for execution. These projects are determined on the basis of relative maintenance category quantities determined at tactical level. I.e. this level does not provide "the best for the network" but more a relative ranking between candidate sites.

Future reviews are expected to occur three yearly and may be undertaken internally or externally as determined by the availability of resources at that time.

The plan is thereafter implemented by inclusion of the relevant data into the Annual Plan or Long Term Plan.

The Council and council staff are responsible to ensure that appropriate budget provisions are made to implement the AMP.

During the implementation phase between successive reviews, council staff are responsible to capture data for input to the next AMP document review and update. This will include any policy or specification updates, outcomes of investigations, studies, assessments, and any new financial information.

2.7 QUALITY ASSURANCE PROCEDURES

As a minimum, revision of this AMP will undergo the following audit and technical reviews;

- Technical review by document reviewer or independent of the author.
- Internal review by SWDC Staff or consultant retained by SWDC for the purpose.
- Independent external audit by Audit NZ and NZTA.

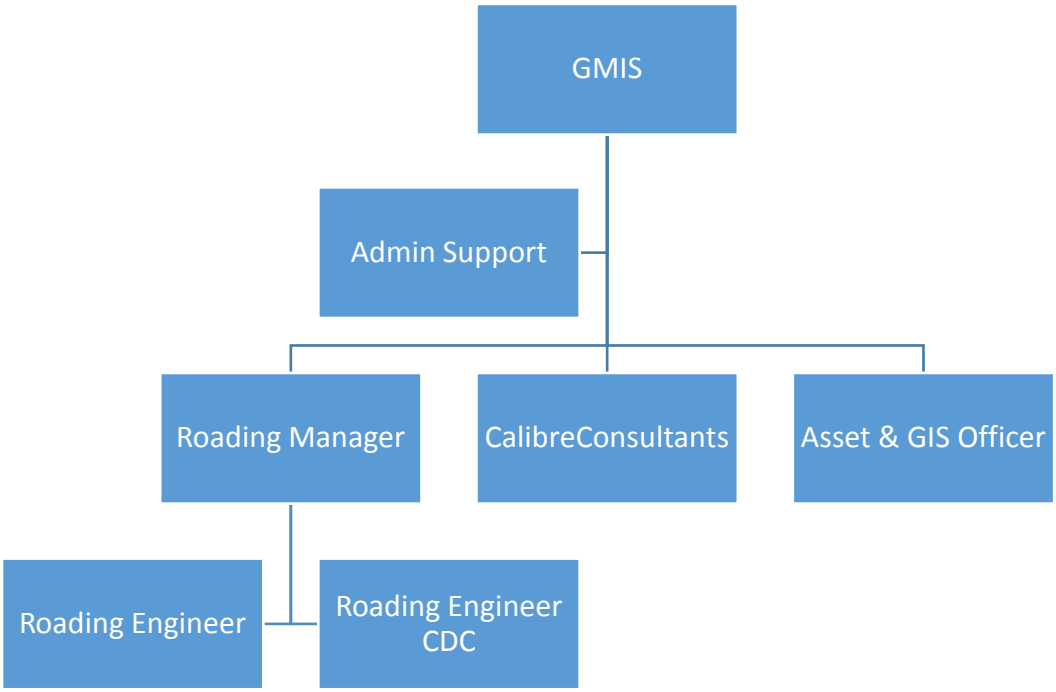
It is expected that additional reviews and audits will be undertaken from time to time in accordance with Council's operating procedures, policies and to meet Council's consultation requirements.

2.8 ACTIVITY ORGANISATION STRUCTURE

The organisation structure is set out below, showing the Roading Division and the day to day operational internal and external linkages. (Key to abbreviations: GMIS = Group Manager Infrastructure and Services GIS = Geographic Information System CDC = Carterton District Council)

Figure 2 Organisation Structure

Carterton District Council (CDC) and SWDC have been working closely to align service standards and works between the two councils with Fulton Hogan the joint maintenance provider.



2.9 GOALS AND OBJECTIVES OF ASSET OWNERSHIP

2.9.1 Reasons and Justification for Asset Ownership

Local Government Act 1974 and 2002 empowers the Council to:

- Erect, construct, and maintain any public work, which in the opinion of the Council may be necessary or beneficial to the District.
- Control all roads (excluding State Highways) in the district.

Council exists to deliver and maintain assets in a responsible manner that meet the needs of the wider community both living within and visiting the District.

This is achieved through long term strategic planning, financial responsibility and the creation, operation, maintenance and rehabilitation of the District's assets.

Roading and transport is a vital element to enable social and economic development. The Council is in the best position to manage the roading network on behalf of the community.

There are significant issues facing the community in relation to the roading network however. With a large road network, static and aging population, and limited money, consideration needs to be given to the sustainability of maintaining roads over the long term to the present standards.

South Wairarapa has a large road network per head of population exacerbating this.

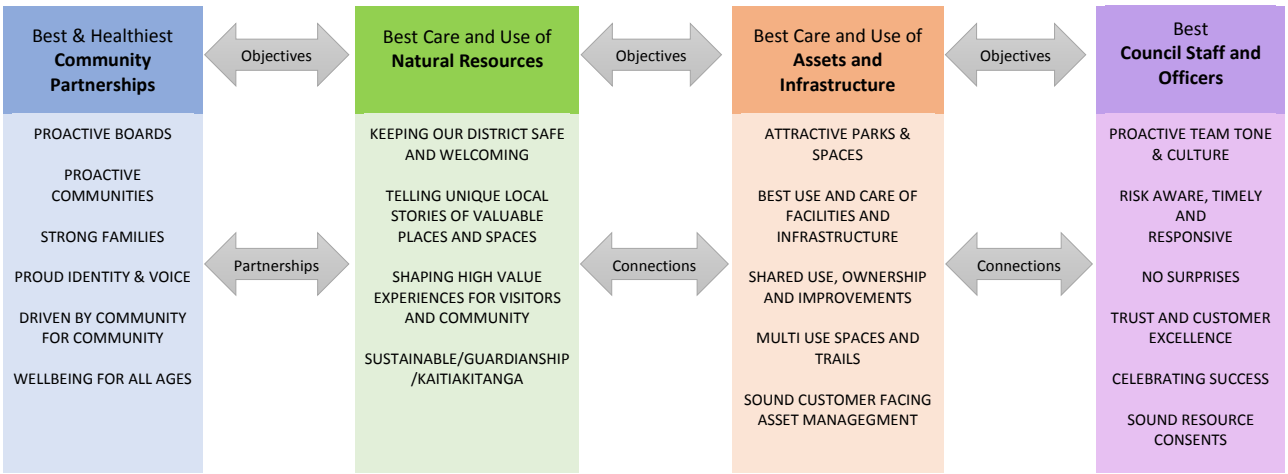
2.10 COMMUNITY OUTCOMES AND COUNCIL VISION STATEMENTS

The SWDC Vision is:

"for the South Wairarapa to be an open energetic and unified community'

***Our Mission** is to be "future focused, growth oriented and exercise sound judgement'*

The new Council developed the following outline of the strategic plan for the three years ahead. These four pillars have formed the basis for decisions on what to include and what to exclude from this LTP.



Five community outcomes have been identified. Council has a role in achieving the community outcomes via significant activities. The community outcomes for the South Wairarapa are as follows:

Table 2 Community Outcomes

Healthy & economically secure people

Working towards healthy and well housed people who are economically secure, active and involved in their community.
Educated and knowledgeable people
Educated and knowledgeable people who feel confident that they can achieve their aspirations.
Vibrant and strong communities
A place where people feel safe, are proud to live and have a sense of belonging.
Sustainable South Wairarapa
A sustainably managed district where economic development and environmental management go hand in hand.
A place that's accessible and easy to get around
Well served by a range of transport options (including roading), local

2.10.1 Links to Council Community Outcomes and Road Activity Goals

Roading contributes to four of the community outcomes as follows:

Table 3 Links to Council Vision and Road Activity Goals

Community Outcome	How the Roading Activity Contributes
Healthy & economically secure people	By advocating for better transport systems for the community with regard to health services, employment opportunities and social services
Vibrant and strong communities	By ensuring land transport, in all its forms, is safe for the community and that it encourages a sense of pride and belonging
Sustainable South Wairarapa	By ensuring all transport options add to the sustainability of the South Wairarapa
A place that's accessible and easy to get around	By demonstrating advocacy and commitment to achieving improved land transport options and services

2.11 REGIONAL CONTEXT

2.11.1 Wellington Regional Land Transport Plan

The Wellington Regional Land Transport Plan 2015 (RLTP 2015) is the latest version of a statutory document that must be prepared every six years as required by the Land Transport Management Act (LTMA) 2003 (as amended in 2013). It is prepared by the Regional Transport Committee (RTC),

which is a joint committee comprised of two representatives from Greater Wellington Regional Council (GWRC), the Mayors of the local councils in the Wellington region, and the Regional Director of the NZ Transport Agency.

The RLTP 2015 must contribute to the purpose of the LTMA which seeks 'an effective, efficient and safe land transport system in the public interest'. It is also required to be consistent with the Government Policy Statement (GPS) on land transport.

The RLTP 2015 strategic context provides the policy framework and strategic case for developing and investing in the region's land transport network. This forms the strategic 'front end' of the RLTP and will include the statutory objectives, policies and measures required by the LTMA.

2.11.2 The Regional Programme

The regional programme sets out the programme of proposed land transport activities over a six year period. It also includes a 10 year financial forecast.

The RLTP 2015 thus helps establish the strategic context for the programme of proposed transport activities in the Wellington Region including South Wairarapa. This includes all Maintenance and Operational activities promoted by each Council. Activities *must* be included in the RLTP in order to be eligible for National Land Transport Funding. Activities in the RLTP programme would be expected to contribute to the delivery of the RLTP vision and RLTP strategic objectives.

The RLTP 2015 also identifies transport network pressures and issues.

Key trends affecting Wellington regional transport out to 2041 include:

- Population growth is steady and expected to continue, and strongest in Wellington City and Kapiti.
- Steady economic growth is forecast throughout the region, with Wellington CBD expected to continue to dominate regional employment.
- Fuel prices are expected to continue to rise, and under a 'high oil price' scenario could outweigh future vehicle efficiency improvements and vehicle fleet composition changes.
- Active mode use is increasing, and is likely to continue, boosted by the growth of inner city living and other lifestyle changes.
- Public transport use and state highway vehicle kilometres travelled (VKT) have been relatively flat over the past decade, but are likely to increase in line with growth in population and employment.
- Congestion on the road and rail network has been fairly consistent over the last decade. Planned and ongoing capacity and efficiency improvements to the state highway network (such as the Wellington Road of National Significance (RoNS)) and the public transport network, with low traffic growth, are expected to reduce congestion.
- An ageing population and people working later in life which will impact on travel requirements, while the trend for younger people is away from reliance on travel by private car.
- The volume of freight moved nationally is expected to grow. Wellington will continue to be a major freight hub for movements between the North and South Islands.

- Road safety is improving. However, cyclist and motorcyclist casualty numbers are disproportionally high compared with other modes of transport and other parts of New Zealand.

The RLTP 2015 vision is:

'To deliver a safe, effective and efficient land transport network that supports the region's economic prosperity in a way that is environmentally and socially sustainable'

To achieve this, the regional transport network will provide a high level of access, reliability and safety for both people and freight travelling within and through the region to support economic development and improve productivity. The regional transport network will be developed in a way which recognises the vital national role of Wellington as the capital city and the region's geographical position on the northern side of Cook Strait.

2.11.3 Transport problems and benefit

The RLTP 2015 identifies overarching regional transport problems and benefit statements, measures and outcomes. It also establishes the case for investment via corridor strategies, network plan and three other key action areas. The RLTP problem statements can be summarised as follows:

Economic growth

Transport inefficiencies *lead to* suppressed regional economic growth and productivity.

Road safety

Transport infrastructure deficiencies and poor user behaviour *leads to* a sub-optimal regional road safety performance.

Resilience

Regional infrastructure that is vulnerable to disruption by unplanned events *is potentially resulting in* an unacceptable cost of severance and restricted ability to recover over time.

Liveability

Poor delivery of transport and land use *can result in* a deteriorating living environment and reduced transport choices for the region's population.

STRATEGIC OBJECTIVES	OUTCOMES SOUGHT
A high quality, reliable public transport network	Increased public transport use Improved public transport reliability and journey times
A reliable and effective strategic road network	Improved reliability of the road network
An effective network for the movement of freight	Improved freight efficiency Increased proportion of freight moved by rail
A safe system for all users of the regional transport network	Improved regional road safety
An increasingly resilient transport network	A transport network that supports the restoration of access and regional recovery after a major event
An attractive and safe walking and cycling network	Increased mode share for pedestrians and cyclists

To achieve this, the district networks will continue to maintain the existing services taking opportunities that are available to improve safety or resilience in conjunction with programmed renewals. This will maintain access for the current economic activity within the district, while also providing access to the district's recreational and tourist areas.

The projected growth and probable resultant increase in demand on the network is not expected to require any significant new roading, or additional capacity on the existing network. The increase in forestry related traffic will have an impact on maintenance and safety on outlying rural roads, and priorities for works may be adjusted to meet that demand. Access to any new residential/retirement developments will be provided by the developers. The need for any major upgrades is not seen at this stage, but the network will continue to be monitored to ensure improvements such as urban by-passes are provided in a timely manner.

2.11.4 The combined vision for the district is taken from the three Councils'

Combined District Plan and is:

- A reliable and well maintained infrastructure
- A strong, resilient economy
- A safe district
- A district that promotes sustainable infrastructure and services
- Vibrant and strong communities
- A place that is accessible and easy to get around
- Maintaining the performance of the roading network is critical to achieving the vision of the three Wairarapa Councils' LTPs.

2.11.5 Key factors affecting the District's roading activities are:

Road Network	The existing road network is fully utilised and meets the need for the current demand from development, tourism and recreational activity. Continued maintenance of the network at an appropriate level is required.
Annual Population Growth .iD forecast	The Wairarapa Councils are investing in economic development, and will continue to do so. Predicted growth is therefore considered to be higher than previously thought based on current development activity and the projections prepared by .iD Consultants (Populations experts). The annual average population change from 2013 to 2043 is predicted to be 0.9% for South Wairarapa District.
Public Transport	Continued steady use of rail links to Wellington, and District bus service. Councils will continue to support and encourage GW initiatives. Concerns about the reliability of the Wellington rail link are being discussed with GWRC and central Government.
Active Transport	Continued recreational cycle use and organised cycle races. Council strategies have been developed to encourage more cycle usage, with network changes required to support this.
Ageing	Ageing population driving demand for retirement villages, but having only minor impact on roading.
Safety	Steady accident rates with high proportion of loss of control accidents. Motor cycle accident rates are disproportionally high for the district.
Economic Growth	There has been a change in the use of farming and horticultural units over recent years, with a move to more vineyards and dairy farming and some change in the size of farming units. There is potential for increased farming and horticulture if regional irrigation goes ahead, but this is some years away. Forestry will continue to increase in the immediate future, but may decline in

	the long term. Tourism forms a significant part of the local economy, and it is expected moderate growth to continue.
Resilience/Environment	The district is subject to earthquakes and severe weather events causing flooding, slips and washouts. Reliable access to all areas of the district is important. Transport related greenhouse gas emissions are monitored by GWRC.
Cape Palliser Coast Road	NZTA are proposing the 100% funding for expenditure on the special purpose road (SPR) will reduce by 8% p.a. from the 2018/19 financial year to a level of 52% by 2024. SWDC are discussing the funding implications for Council with NZTA.
One Network Road Classification (ONRC) refer 5.1	Councils are working with LGNZ and NZTA to improve standardisation of roads both between the three Council's and with other adjoining regions.
High Performance Motor Vehicles (HPMV)	The maximum allowable weight and dimension limits for heavy vehicles have been increased (effective December 2017). There is a portion of the bridge stock that is either known to be unable to cater for this increased loading, or insufficient details of the bridges is known to be able to confirm acceptability of the loading. This limits the routes available for theses HPMVs. Demand from industry is to open up more routes for use which will require bridge upgrading.

Below is an investment logic mapping (ILM) Diagram which is based on a series of structured workshops that brought together key stakeholders for roading in South Wairarapa. The purpose of the diagram is to ensure that there is early agreement on problems, outcomes and benefits before any investment decisions are made or a specific solution is identified. 'ILM' can refer to the workshop (investment logic mapping) or the output of the workshop (investment logic map) as shown below.

ILM workshops put the emphasis on gaining a clear understanding of the problem (or opportunity), the consequence of the problem and the desired benefits – before looking at possible solutions. The output of an ILM is usually a one-page investment story that sets out the problems and benefits in straightforward language that all stakeholders can understand.

As below the strategic response highlights the need to review the AMP's and also issues such as dust that are being resolved through processes and seal extensions. The safer speeds programme is in implementation with consultation having taken place. SWDC are currently in negotiations with NZTA regarding the future funding of the SPR.

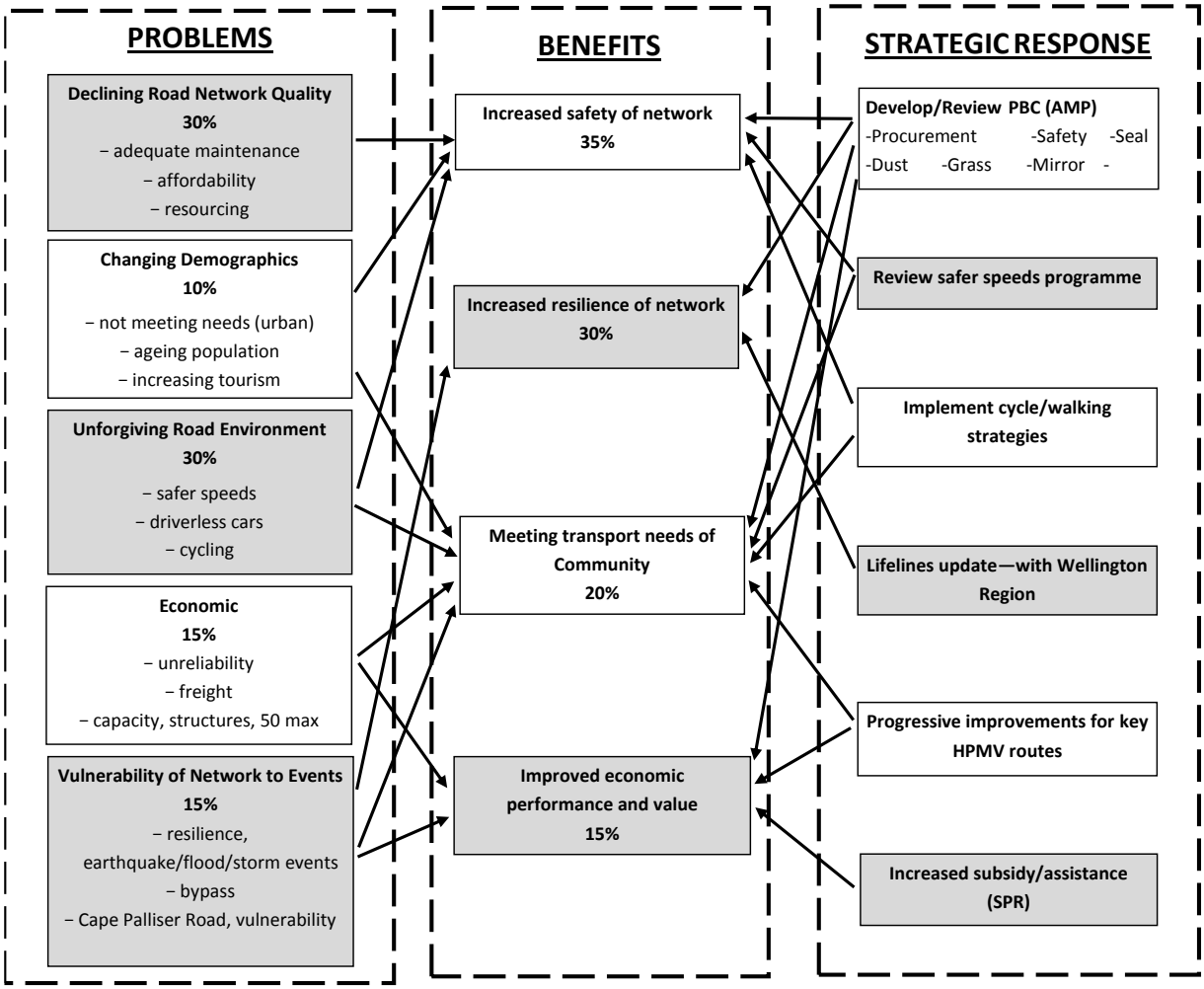


Figure 3 Investment Logistical Mapping

The main outputs from the investment logic mapping process are the investment logic maps above flowcharts that tell the story of an investment and exposes its underpinning logic. They are both in plain English and designed to answer many of the key questions required to make an investment decision.

2.11.6 Infrastructure Strategy

Roading is a vital element to enable social and economic development. With a vast road network and limited money, consideration needs to be given to the sustainability of maintaining roads over the long term. Council will continue to focus on applying to attract maximum subsidies in the areas of drainage, bridging, road safety and maintenance.

NZTA has removed the seal extension subsidy indefinitely on all road classes, including Special Purpose Roads. Future changes to the Funding Assistance Rates (FAR) and the proposed removal of funding for the SPR will impact SWDCs roading budgets in the future.

The greater reliance on "Better Business Case" development for funding ensures SWDC is looking at the whole of life implications for maintenance, renewal and capital expenditure. This ensures there

is less risk in the roading asset group. The Auditing by NZTA on expenditure, quality and standards as well as review of its Transport AMP ensures an independent 3rd party review of Council's largest asset spend.

This AMPs should be read in conjunction with the Infrastructure Strategy. The Infrastructure Strategy outlines the key infrastructural service issues the SWDC community must address over the next 30 years the main options for dealing with those issues; the cost and service delivery implications for residents and businesses of those options and the Council's current preferred scenario for infrastructure provision.

The strategy will help the Council and the community make informed decisions in the next three and ten years, that positions the Council to deal with the major decisions and investments that will occur in the next 10 to 30 years.

3 ASSET MANAGEMENT STRATEGIC BUSINESS CASE

3.1 GOVERNMENT POLICY STATEMENT

The Government Policy Statement on Land Transport (GPS) sets out three areas of the land transport should be focussing on:

- **Supporting economic growth and productivity** – continues the level of investment to allow existing levels of activity to be maintained.
- **Road Safety** – supports safer Journeys including investment in safer roads and roadsides and safe road use.
- **Value for Money** – improving returns from maintenance investment and measureable value from the investment in the land transport sector.

The new GPS is expected to be released in early 2018 with a focus on regional issues and active transport. On its release the AMP will be reviewed accordingly.

This AMP in consistent with the current GPS in that it is predominately about maintaining the existing assets in accordance with the Levels of Service adopted by the Council to ensure the communities and businesses can continue to be productive.

In general, excluding the State Highway, road safety has not been a major issue in the district apart from the problems of speed and young drivers. This AMP addresses some of the problems arising from these issues namely improving roads to minimise the impact of errant drivers.

In preparing the AMP a number of issues have been identified that need to be addressed in relation to value for money. These include the implementation of ONRC and its performance monitoring requirements, and the requirement for improved information to ensure maintenance effort is being directed where it is most effective. The Council in conjunction with the other Wairarapa Councils have made substantial savings in maintenance costs over the last year with concurrent tendering of maintenance contracts for road maintenance, streetlights, and footpaths. It is intended to continue the sharing of resources to drive further savings.

3.2 SUMMARY

A functioning roading network is critical for the achievement of the Councils' vision. The roading network achieves this by ensuring places in the district are accessible and easy to get to and through this connection ensures communities are vibrant, strong and commercially viable.

The District's economy is dependent on a functional, safe and reliable roading network for the transport of goods and people. A functioning road network enables efficient movement of goods and allows people access to services, facilities and interaction with each other.

The programme of work that provides the best value is the current level of activity, with minor budget adjustments primarily for escalation.

3.2.1 Cost Efficiency

The national information on roading costs allows South Wairarapa District Council's performance to be compared nationally. This comparison shows that South Wairarapa District Council is one of New Zealand's more efficient Councils at maintaining its roading networks, see graph below which shows the overall roading network cost per km for various territorial authorities.

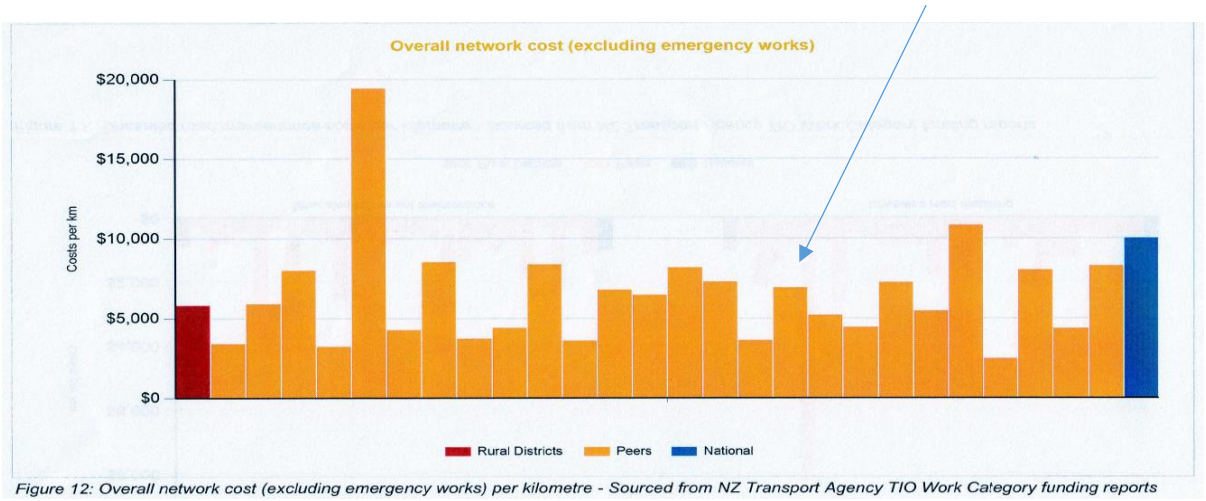


Figure 12: Overall network cost (excluding emergency works) per kilometre - Sourced from NZ Transport Agency TIO Work Category funding reports

Figure 4 Cost Efficiency (from the SWDC ONRC report)

The South Wairarapa District Council's (SWDC) ONRC Summary Report, shows that the SWDC overall Network Cost is similar to other rural districts and significantly lower than the National average, (see graph above). South Wairarapa District Council is the 18th orange bar across from the left as indicated by the arrow. The red bar is the Rural Districts average and the blue bar is the National Average.

The national key performance measures for safety and roughness show these targets are being achieved. This means the performance of the network has not been compromised to achieve South Wairarapa District Council's cost efficiency level.

The data shows that South Wairarapa District Council's performance in the management of the seal maintenance is at national leader level, obtaining sealed surface lives of over 20 years combined with one of the lowest sealed road maintenance costs.

3.2.2 Annual Costs for sealed network

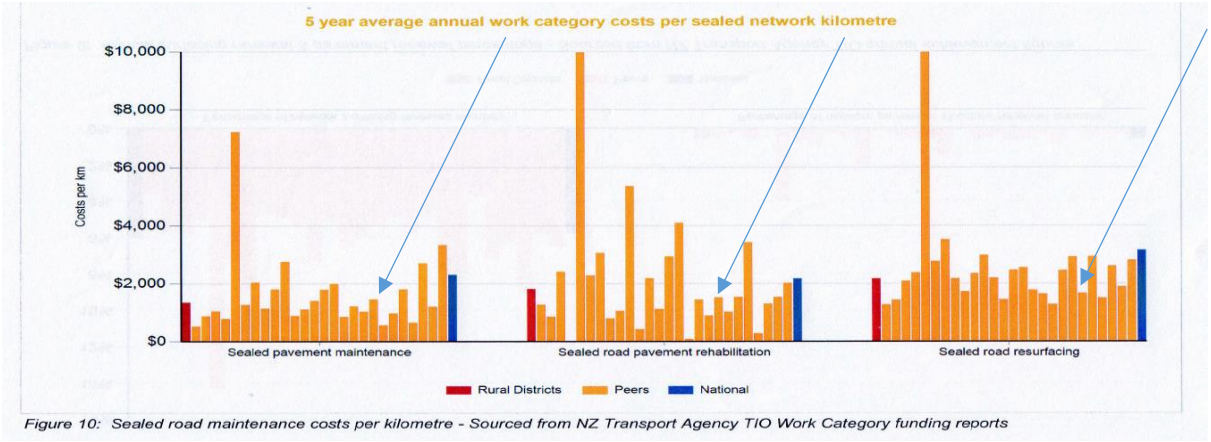


Figure 10: Sealed road maintenance costs per kilometre - Sourced from NZ Transport Agency TIO Work Category funding reports

Figure 5 Sealing Costs

South Wairarapa District Council is the 18th orange bar across from the left as indicated by the arrows. The red bar is the Rural Districts average and the blue bar is the National Average.

Further analysis shows that the performance on unsealed roads requires monitoring. The South Wairarapa District Council ONRC Summary Report shows the cost for unsealed roads maintenance is just above the national average. This means it is in the upper quartile of its peer group as a few Councils have very large costs which has lifted the average cost. The Unsealed Pavement Maintenance is balanced with the unsealed road metalling of the roads, see graph below showing Historical Expenditure – Unsealed Roads.

The relative cost of unsealed road maintenance and renewal are not at a level that requires urgent action. However further analysis and trials could be undertaken over the next three years to see if changes in the process of unsealed pavement maintenance can reduce the costs per km. An example of these investigations would be to visit Councils with lower costs to see how they are managing their Unsealed Pavement Maintenance. The ideas picked up from these Councils could then be trailed and implemented.

3.3 PROGRAMME BUSINESS CASE

3.3.1 Background

This section of the Asset Management Plan brings together the information in the Asset Management Plan to present it in a business case style. This business case supports the funding of an optimal programme of work identified in the Asset Management Plan. It identifies the strategic fit for providing the roading network, clarifies the intent of the programme of work, and identifies

how the maximum benefits can be achieved. The detail and analysis is restricted to the essential factors that make the business case.

The work programme is identified in the analysis contained in the Asset Management Plan. The business case supplements the analysis of the asset plan with the information from the Roading Efficiency Group (REG) data tool. This allows the performance in South Wairarapa District to be compared with other Councils across New Zealand.

This means the performance and outcomes achieved in South Wairarapa District can be bench marked against other New Zealand Roading Authorities. This analysis is particularly relevant for decisions on allocation of national resources.

This analysis is also useful at the local level to see the National context of the funding, the outcomes being achieved, and confirmation of local efficiency when considering the funding allocations between Council services.

3.3.2 Strategic Fit

A functional roading network is required to achieve the Council's vision by ensuring places in the district are accessible and easy to get to and, through the connection it provides, to ensure communities are vibrant and strong. The funding levels need to be sufficient to ensure the roading assets are maintained so they provide a safe, resilient, reliable service. Also this funding level needs to be sufficient that the service is sustainable without leaving a legacy of failing infrastructure that future generations will need to rebuild.

The programme business case provides the strategic response to the planned future state identified in the Strategic Business Case. It identifies a programme of work or activities that deliver on the strategic case.

The programme business case uses the asset management information that identifies maintenance, operations, and renewals along with the comparisons against national bench marks to provide robust evidence that the decision to invest in this programme of works represents the best value for money. It has considered alternatives, potential costs and identified a preferred programme of activities to progress.

The best value in this context is to ensure that this is carried out in the most efficient way, at minimum current cost, without transferring today's cost into higher future costs.

The analysis carried out for the programme business case should be 'fit for purpose' meaning it should focus on the key decision facts that determine the funding decision. To this end this programme business case analysis covers the funding categories of sealed road resurfacing, unsealed road metalling and sealed and unsealed pavement maintenance.

The reason for choosing these categories for analysis is that they are the activities which ensure the major component of the road asset is kept operational. These four categories equate to 50% of the transport maintenance & renewal budget. The other major renewal expenditure category is Pavement Rehabilitation which represents a further 7%. Each project in this category is justified by an individual net present value test so the Pavement Rehabilitation category has not been included in this programme business case. The level of Traffic Services expenditure is set by the standards required in the maintenance contract. This category has not been reviewed in the programme business case as SWDC's expenditure is nationally at a low level and the crash rates have not identified any safety issues that need investigation. Also, to analyse this category would require

additional data collection and this combined with no apparent issues means it would not be an efficient use of resources to collect and analyse this data.

The funding sought to strengthen bridges to carry high capacity vehicles is justified by the business case for the introduction of high capacity vehicles.

3.4 SMOOTH TRAVEL EXPOSURE ON SOUTH WAIRARAPA DISTRICT COUNCIL ONRC SUMMARY REPORT

Smooth travel exposure (STE) is the percentage of travel undertaken on roads with a roughness less than 150 NAASRA (National Association of Australian State Roading Authorities) counts. NAASRA counts are a measure of road roughness (reflecting smoothness of road) i.e. the higher the count the rougher the road. Compared to other Councils' roads in New Zealand, South Wairarapa District Council's roads smoothness standard is very high.

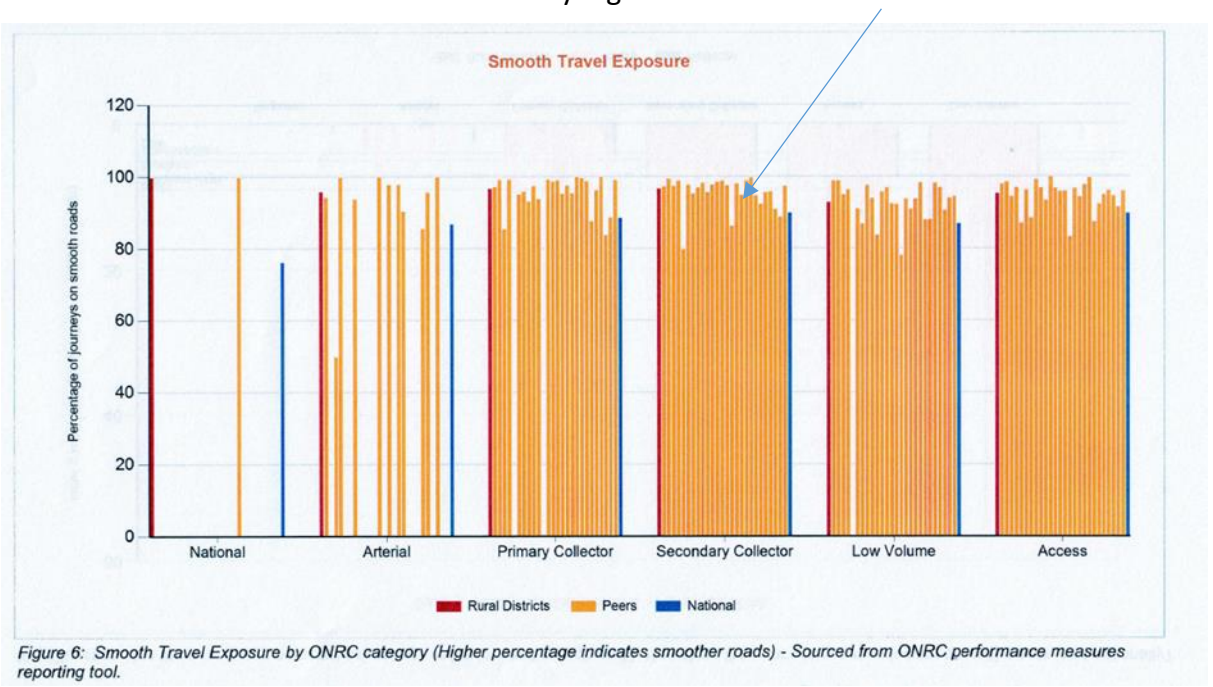


Figure 6: Smooth Travel Exposure by ONRC category (Higher percentage indicates smoother roads) - Sourced from ONRC performance measures reporting tool.

Figure 6 Smooth Travel Exposure

South Wairarapa District Council is the 18th orange bar across from the left. The red bar is the Rural Districts average and the blue bar is the National Average.

3.5 SEALED ROAD RESURFACING

There are five functions the seal coat on a road performs. They are

- To protect the top pavement layer from tyre wear,
- To prevent dust from and erosion of the pavement top layer,
- To prevent water getting into the pavement layer,
- To provide a high traction surface to the pavement, and
- To provide aesthetics to the finished road.

The last three reasons can trigger a resurfacing of a sealed surface if it fails to achieve these three functions.

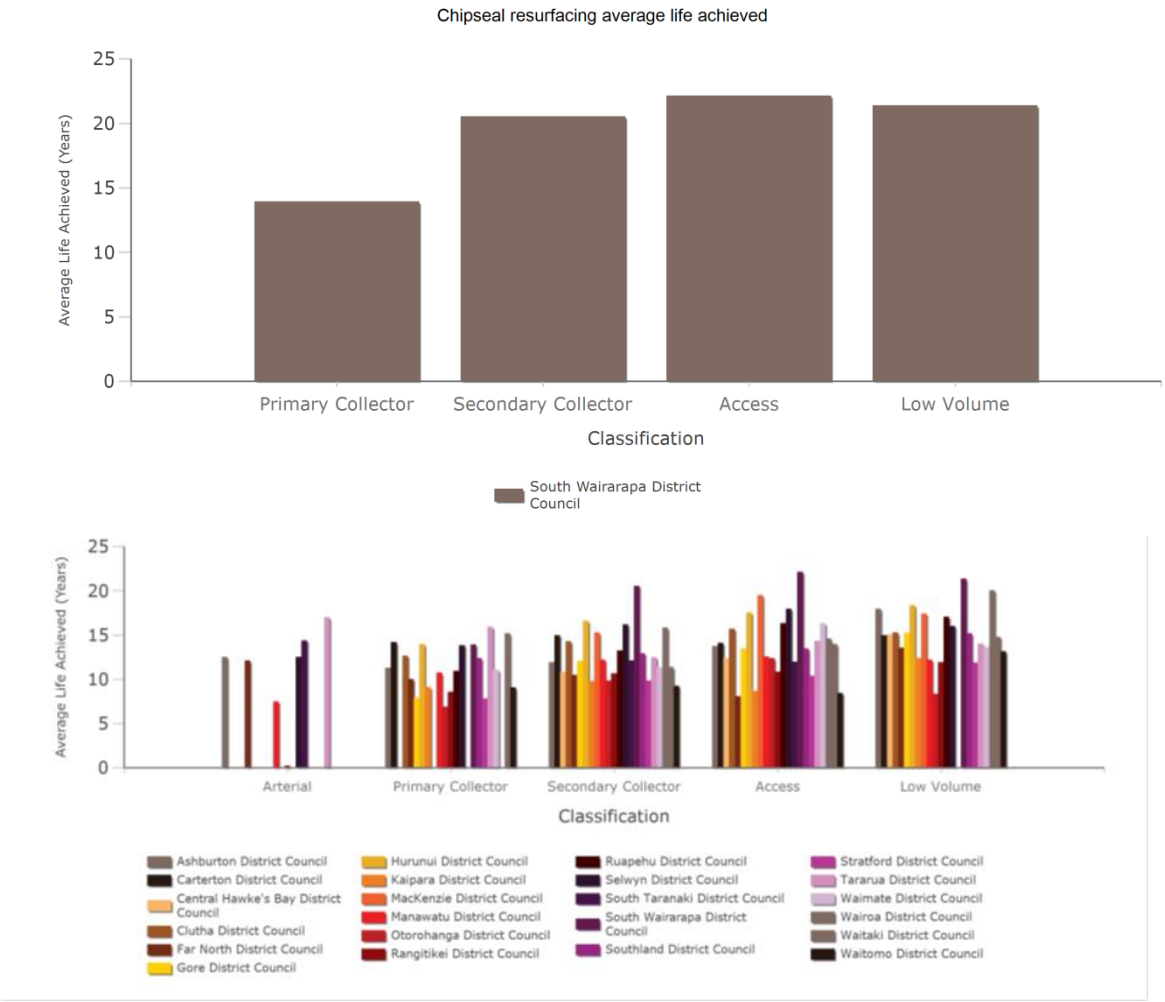
The current trigger for Sealed Road Resurfacing is to prevent water getting into the pavement layer. The reseal of a pavement is the same as painting steel, which is to protect the asset from the elements that will destroy it which would result in requiring the purchase of new asset at a much higher cost.

The sealed surface over time becomes brittle and at some point will crack with the movement of the pavement. The crack allows water to get into the pavement layer. The water in the pavement layer means the pavement loses strength and will fail under load. The cost of pavement renewal after failure is 9 times more expensive than replacing the sealed surface. The value of the sealed road pavement network is $64 million (Optimised replacement cost) and this is the additional cost over 20 years if the reseal programme is not undertaken. The annual programme of Sealed Road Resurfacing is approximately $484,000 only or $9.7 million over 20 years.

The other actions that need to be combined with the resealing to prevent water getting into the pavement are side drain and shoulder maintenance and the provision of subsoil drains.

The failure of the sealed surfaces is occurring because of age. The surfacing water proofing failure occurs due to two actions. The first is when bitumen becomes brittle, which occurs over time as it ages and cracks when the pavement deflects or moves. The second is when the deflection of the pavement underneath becomes too large and the surfacing cracks. Excess deflections occur when there is a weaker pavement and a heavy load goes over it or fines are carried into the pavement by ground water flows. (Fines are small silty sand size particles).

The current level of funding for seal renewals means South Wairarapa District Council is requiring its sealed surfaces to achieve one of the longest lives in its peer group. The peer group average is 13.3 years and the South Wairarapa District Council average is 20 years for all ONRC classes other than the short length of Primary Collector roads which have an average life of 13 years.



The sealed pavement maintenance programme results in the seals achieving this long life is in the lower quartile of cost per km for our peer group. This indicates that the funding level and the application of the funds are achieving an exceptional outcome which is highly cost efficient. However, the seal age profile may mean that in future this may not be achieved as there will be a larger proportion of the sealed surfacing reaching the end of its life.

3.5.1 Options

The two options considered are either to increase or reduce funding for seal surface renewals**.**

- Increased funding for Sealed Road Resurfacing
- An increase of seal renewals could be considered if it resulted in a significant reduction in the funds required for the sealed pavement maintenance. There is no indication that an increased seal renewal programme would provide a significant change in the sealed pavement maintenance costs. An increase in the budget for seal renewals is therefore not proposed.

3.6 DECREASED FUNDING FOR SEALED ROAD RESURFACING

In considering the option to reduce funding for seal renewal the age profile of the sealed surfacing should be taken into account, see Graph showing Age Profile Sealed Surfacing- Age & Length.

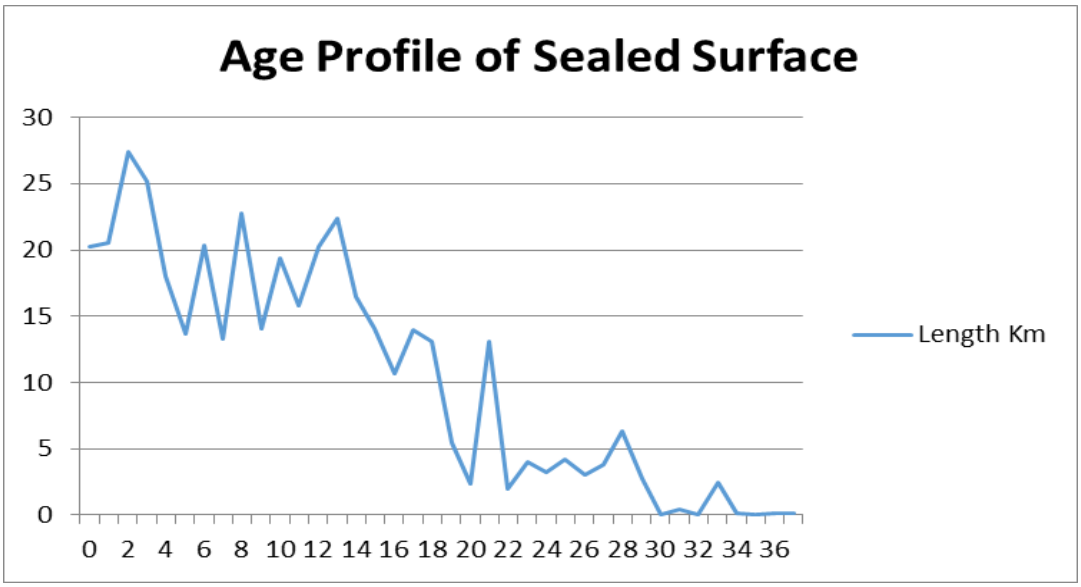


Figure 7 Graph showing Age Profile Sealed Surfacing- Age & Length

This figure shows that there the peak demand for resurfacing which will occur over the next 4 years.

Considering that South Wairarapa Council is at the leading edge nationally in regard to achieving extended seal lives and that the peak demand for sealed surface renewal occurs in the next 2 to 4 years it would not be prudent to reduce the budget for sealed surface renewal. Note underfunding seal renewal could result in unplanned expenditure on pavement renewals that would be nine times the value of any saving made. These factors mean it would not be prudent to reduce the budget for sealed surface renewal.

The process of inspection to determine the extent of surface cracking to determine if a sealed surface needs to be renewed, will continue. Only pavements that fail will be renewed. The quality of these decisions in the past is highlighted by the long seal ages achieved combined with a nationally low level of funding required for sealed road routine maintenance.

The other two reasons for renewal of seals are aesthetics and safety. These are considered as follows.

- Aesthetics

The need to increase renewal for aesthetics would be characterised by customer complaints about the poor condition of the road. There is no significant record of these types of complaints so this aspect is not investigated further.

- Safety

The need to increase renewal of seals to address safety concerns would be characterised by loss of control accidents on sealed roads. The analysis of the accident data in the REG tool shows that South Wairarapa District is in a low category for collective road accidents risk but high for individual risks.

This means that the number of accidents in South Wairarapa is not significant nationally but each driver needs to be particularly vigilant to avoid accidents.

3.7 SEALED PAVEMENT MAINTENANCE

The level of funding needed for Sealed Pavement Maintenance is related to the level of funding for Sealed Road Resurfacing. The main components of Seal Pavement Maintenance expenditure are pre-reseal repairs, pothole repairs and digouts. The pre-reseal repairs are directly related to the quantity of sealed surfaces renewed. The pothole repairs and digouts are inversely related to length of seal renewals.

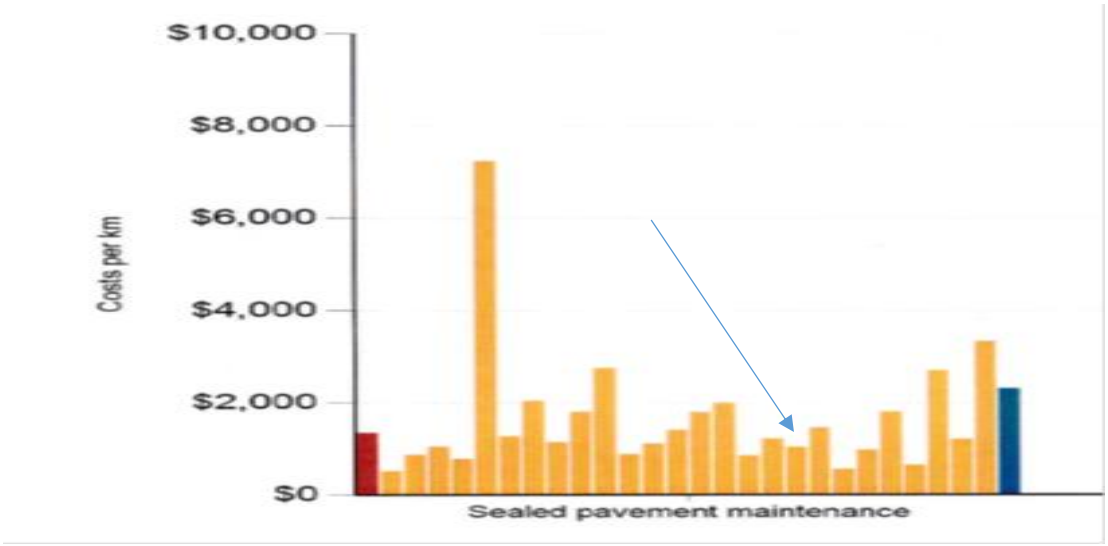


Figure 8 Annual Costs for sealed network maintenance

South Wairarapa District Council is the 18th orange bar across from the left. The red bar is the Rural Districts average and the blue bar is the National Average.

The options considered are to either lower or increase the level of planned seal renewal funding.

3.7.1 Increased Funding

It does not appear to be necessary to increase the funding because even at the current nationally low levels the ONRC customer service level for Smooth Travel Exposure (STE) is being achieved, see graphs below.

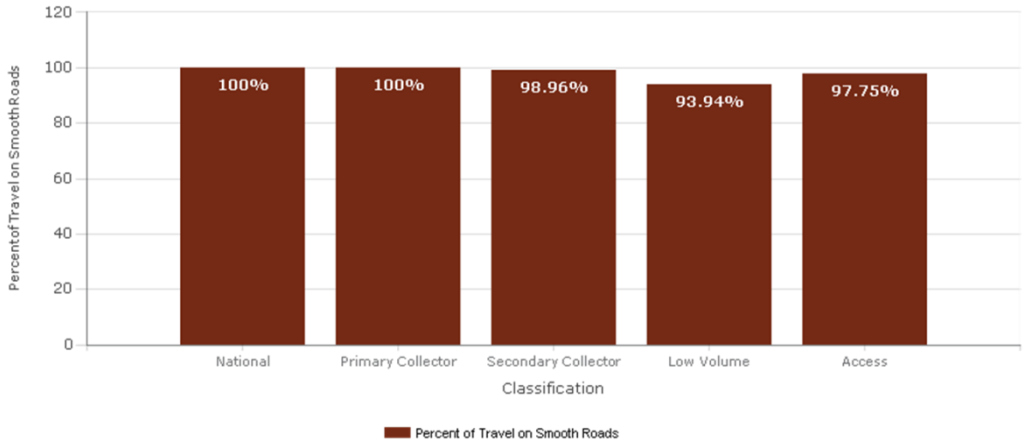


Figure 9 Graph of Smooth Travel Exposure (STE) for combined Rural & Urban South Wairarapa District Council Network

3.7.2 Reduced Funding

The current national low level of budget for Sealed Road Maintenance means there is a high risk of increased costs as pothole and digouts grow in size while waiting to be repaired.

A further reduction is likely to result in customer complaints as some potholes and digouts would remain unrepaired.

Also, it would result in the unrepaired potholes and digouts growing in size to a point where significant unplanned expenditure would be required to repair sections of the pavement.

Conclusion : It has been determined we should not increase or decrease our funding for Sealed Pavement Maintenance as we consider it is at optimum levels at present.

3.8 UNSEALED ROAD METALLING

The Council has 268 km of unsealed roads and it budgets $320,000 annually to carry out road metalling on the unsealed roads. This equates to an annual cost per km of unsealed roads of $1,200 per km. The comparative figure nationally is $1,000 per km.

The unsealed roads metalling is made up of 3 items

- Adding new metal to unsealed roads, reshaping it and compacting.
- Adding a stabilised pavement to unsealed roads.
- Adding running course to the newly stabilised pavements.

The graph below shows national comparisons on Unsealed Road Maintenance and Metalling. The SWDC costs are above the national average and are in the upper quartile of costs. However, the metalling and maintenance costs are linked. A reduction in the metalling expenditure will result in an increased expenditure for maintenance.

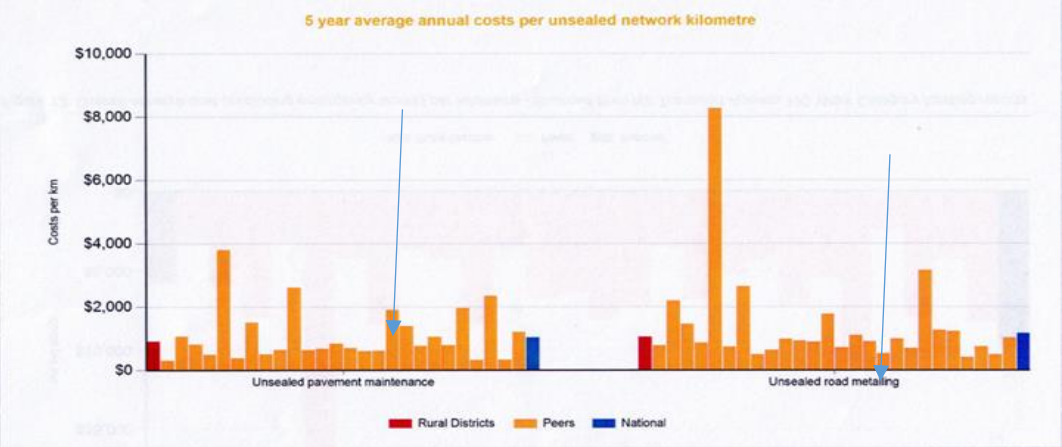


Figure 10 Graph of Annual Costs for unsealed network from the report on South Wairarapa District Council ONRC Summary Report

South Wairarapa District Council is the 18th orange bar across from the left. The red bar is the Rural Districts average and the blue bar is the National Average.

The costs of metalling of unsealed roads are significantly influenced by the cost of procuring and delivering the metal to the road surface. The Councils with lower costs have significantly cheaper road metal placing costs per cubic metre. For example it only costs the Central Otago Council $2.0/ m3 to re-metal its unsealed roads.

SWDC does not have the advantage of having appropriate road metal close to each road like the Councils with lower costs. Also the Councils with low costs have high subgrade strengths so the depth of metal they require is shallower and not as prone to damage in weather events. The graph of Historic and forecast expenditure – Unsealed Roads shows that the expenditure is trending uniformly with a small reduction occurring going forward.

THE OPTIONS CONSIDERED WERE TO EITHER LOWER OR INCREASE THE LEVEL OF PLANNED UNSEALED ROAD METALLING FUNDING.

3.8.1 Decrease Unsealed Road Metalling

To decrease the expenditure on unsealed road metalling will require an increase in the Unsealed Roads Maintenance. The magnitude of the increase in unsealed road pavement maintenance would be equal to or greater than the reduction of unsealed road metalling, see graph above of historic and forecast expenditure. This illustrates the relationship of the expenditure on unsealed road metalling and maintenance.

3.8.2 Increase Unsealed Road Metalling

An increase in Unsealed Road Metalling could achieve a low Unsealed Pavement Maintenance expenditure. However, at present this benefit cannot be predicted with any certainty. Further analysis over the next three years may enable quantification of the benefits.

It is therefore recommended that the Unsealed Road Metalling cost budget for the next ten years be retained at the same level. Also that further analysis is carried out to determine if there is a benefit in increasing this budget and to determine if there are any other opportunities to reduce the combined costs of Unsealed Road Metalling and Unsealed Road maintenance.

3.9 UNSEALED PAVEMENT MAINTENANCE

The Council has 268 km of unsealed roads and it budgets $322,000 annually to carry out Unsealed Pavement Maintenance. This equates to an annual cost per km of unsealed roads of $1,200 per km. The comparative figure nationally is $1,000 per km. The Councils with lower costs per km have high quality metal quarries close to their roads which significantly reduces the road maintenance costs.

The Unsealed Pavement Maintenance is balanced with the metalling of the roads. The Unsealed Pavement Maintenance involves pothole repairs, regrading and shaping, and digouts.

The options considered were to either lower or increase the level of planned unsealed pavement maintenance funding.

3.9.1 Decrease Unsealed Pavement Maintenance Funding

A decrease in the unsealed pavement maintenance budget would mean some potholes and digouts would not be repaired. These would be on roads that provide access to only a few properties. It is expected that the residents on these roads would raise the matter of lack of maintenance with Council. The cost of the work to repair these roads would be significantly more than the saving from reduced expenditure.

Further analysis and trials could be undertaken over the next three years to see if changes in the process of unsealed pavement maintenance can reduce the costs per kilometre. An example of these investigations would be to visit Councils with lower costs to see how they are managing their Unsealed Pavement Maintenance and then trialling ideas picked up from these Councils.

3.9.2 Increase Unsealed Pavement Maintenance Funding

There is no significant backlog of work identified for the Unsealed Pavement Maintenance so any increase in funding for this category is unlikely to be used. Therefore, no increase is recommended.

3.10 CHANGES IN STRATEGIC CONTEXT

The strategic issues facing the district in relation to roading are:

3.10.1 Funding:

The sustainability of maintaining the existing roading network to the current standards potentially poses a problem given all the other pressures on Council funding. The district has a large roading network relative to the size of its population. The proposed loss of 100% funding for Cape Palliser Road which is currently fully funded by NZTA as a Special Purpose Road. SWDC is currently in negotiations with NZTA regarding the ongoing funding levels for the SPR.

3.10.2 Maintenance Strategy

A number of areas have been identified where there may be a requirement to increase maintenance funding subject to further investigation. The two main areas are resurfacing and heavy metalling. Information in the plan has been based on local experience and accepted standard practice with little evidential analysis. The AMP identifies how this will be addressed. This is covered in more detail in section 6 **Lifecycle Management.**

3.10.3 Demand and Other issues impacting on land transport in the District

With a small population base, changes in the demand for services can have a significant impact. Potential areas of change include: the projected population growth in Greytown due to a number of large subdivisions, potential changes from the Wairarapa Water Use Project, the growing popularity of lifestyle accommodation, increased tourist traffic as a result of the designation as a Dark Sky Reserve.

Dust nuisance on gravel roads is a major concern to rural residents, however because NZTA no longer offers a seal extension subsidy on all road classes, including Special Purpose Roads, any new sealing extension has to be fully funded by the Council. The exceptions is where eligibility for a subsidy can be achieved through other mechanisms e.g. road safety.

Dust has been raised as a concern on rural roading at a national level and the Road Efficiency group has started a Special Interest group to look into effects and mitigation for councils.

Public transport is a significant factor for many in South Wairarapa. This is particularly relevant when considering the area of the district, and the relatively wide spread of the small population. The aging population are likely to become more dependent on it as it has elsewhere.

The rail transport link from Wairarapa to Wellington city has become increasingly unreliable. A growing number of South Wairarapa residents use this service to commute to work five days a week. The rail service is managed by Greater Wellington Regional Council (GWRC) and SWDC continue to lobby for improvements to this service as well as lobbying central Government. GWRC are working with track owner Kiwirail and have budgeted $ X m in their 2018/28 LTP for upgrades to the train lines to improve the service going forward.

A proposal to eliminate some of the Hutt Valley stops on the route to speed up services was considered, but ultimately rejected because of the number of people who use these stops.

Residents are also asking for more off peak and weekend trains to the capital city.

Rail services combined with bus service are a key element in the future of the Wairarapa. Metlink (a division of GWRC) is vital for the significant commuter traffic from Wairarapa to Wellington. The service includes bike carriages to support the active transport modes of cycling within the Wairarapa region. This is also seen as a linkage to the Hutt Councils via the Rimutaka Rail trail, a trail of National Significance,

Roading in the district is vital, not only for car traffic which is the primary means of transport for most residents and visitors, but also for commercial traffic which is essential to service major industrial and agricultural enterprises, particularly farming.

Farming has for many years been the major production provider in the district and this is expected to continue along with continued growth in the wine and tourism sectors. If proposed irrigation projects such as Wairarapa Water proceed this may have a significant impact on commercial activity.

Council will promote **walkways and cycleways** where community groups come up with viable proposals and where funding is available. The Wairarapa Trails Advisory Group is strengthening relationships and communications between territorial authorities and stakeholders in Wairarapa in relation to the development and connection of recreational trails in the Wairarapa.

3.11 RESPONDING TO THE ISSUES

The implementation of ONRC and improvement of asset information will provide the Council with a clearer picture of the appropriate level of maintenance required. This will enable an evidence based discussion on the requirements with accurate benchmarking, and agreed strategies for dealing with the issues.

Improving demand forecasting is largely outside of the scope of the land transport AMP in that there are implications for all three Wairarapa Councils and all their infrastructure assets.

The over-arching objective for the AMP is to demonstrate that the activity delivers in all respects, meeting in full the expectations set out in the Council's stated outcomes.

So that these expectations can be met the plan needs to:

- Inform the LTP in a consistent and competent way but at a relatively high level.
- Describe the activity in more detail within the body of the plan.
- Detail the intended levels of service, how they are measured and maintained.
- When and how operational and capital expenditure for the activity will be funded over the time frame of the LTP.
- Give consideration to maintenance and renewal linkage methodologies.
- Ensure that sustainable outcomes are identified for the future.
- Identify asset risk and how that is managed according the scale of the asset.
- Allocate weight to improvement planning.

3.12 DOCUMENTS INFORMING THE AMP

The following documents inform the Land Transport AMP, and should be considered as integral parts of the AMP:

a) ROADING ACTIVITY MANAGEMENT PLAN

This document is the description and analysis of the roading asset and the guiding framework for management of the roading activity. It includes consideration of the outcomes of all the documents listed below as appropriate to activity management. The AMP also sets out in detail the Level of Service required to support and meet the community outcomes. Risks involved in managing the roading activity and the management of the roading assets through their life cycle and the decision process associated with this are also included. Life cycle management covers such issues as the pavement management, surface management and general management of all other roading related assets.

b) ROADING ASSESSMENT AND MAINTENANCE MANAGEMENT SYSTEM (RAMM)

The RAMM database is the electronic storage system for much of the static and dynamic knowledge about the roading network. Output from the RAMM system includes maintenance costs, roughness information and Treatment Selection Reports that determine the optimum maintenance intervention levels, defective locations, and rectification costs for "good practice" rectification works.

c) DISTRICT LAND TRANSPORT PROGRAMMES

The summary of the work required to maintain the roading network is compiled as a District Land Transport Programme which is submitted to NZTA for inclusion in the Regional Land Transport Programme and the National Land Transport Programme. The programme requires consultation with NZTA and must comply with their relevant policies and procedures.

d) ROAD SAFETY EDUCATION (WAIRARAPA ROAD SAFETY COUNCIL)

SWDC is a participating organisation on the Wairarapa Road Safety Council (WRSC). This forum is primarily focussed on safety education and information throughout the region and initiates and funds a programme of work annually for this activity. The outcomes of consultation with the WRSC are included in the AMP forward work programme.

e) FINANCIAL REPORTS

A number of financial reports are generated throughout the year for budgeting, expenditure control and reconciliation.

f) CONTRACT DOCUMENTS

Work carried out on the roading network is presently organised and controlled through contract documents. These contracts specify the standards to which work must be carried out, the methods where appropriate and the extent or scope of work to be completed. As old contracts expire and new contracts are written, improvements are made in terms of their alignment with the AMP, current LOS, measured output and future demand.

g) WORK PROGRAMMES AND INSTRUCTIONS

Following inspections of the roading network by Council staff, consultants and the roading contractor, work programmes are formulated for the Contractor to undertake. Written instructions form part of the process of directing contractors and maintaining alignment between operational activities and community outcomes.

h) SAFETY WORKS PROGRAMME

The Safety Works Programme comprises of the outcomes from a consideration of high crash sites or routes. It is a prioritised list of road safety works for consideration and inclusion in the Forward Works Programme (FWP).

i) LIFE LINES REPORT 2003

The risk to the roading network in the event of an extreme natural hazard was analysed as part of the regional life lines study. The outcome report identified the risk and the areas of the roading network that may fail during such an event and the measure or measures that should be put in place to mitigate or remove the risk. These outcomes are taken into consideration in the development of the RAMP, FWP and Plan Improvement Programme.

There are a number of other strategy and database documents which often form part of Roading AMPs. While not all are necessary for SWDC, consideration needs to be given to developing these in a more limited way particularly around decision processes and documentation of decisions. The documents may include:

- **SAFETY DEFICIENCY DATABASE**

  The purpose of the Safety Deficiency Database is to produce a prioritised gap analysis on road safety issues district wide. The database is a system used to capture, store, manipulate and manage information on deficiencies in the road network. It enables

information collected from a range of data sources to be integrated and the gap outcomes (required safety works) to be prioritised for inclusion in forward work programmes.

- **SAFETY MANAGEMENT SYSTEM – STRATEGY DOCUMENT**

  The Strategy Document identifies all activities undertaken that relate to or impact on road safety issues. It also covers all legislation, policies, guidelines and standards that need to be considered (and where more detailed information on these can be sourced). In association with this the Safety Management System includes a Safety Deficiency Database and a Safety Intervention Strategy.

- **SAFETY INTERVENTION STRATEGY**

  The Safety Intervention Strategy is a document that would set out the objectives, methods and procedures to be used to improve road safety when undertaking roading works within the District.

- **PAVEMENT MANAGEMENT STRATEGY**

  A Pavement Management Strategy document for sealed and unsealed roads within the District would ensure that the relevant strategies in the Roading Activity Management Plan are kept in line with industry "good practice" and that incremental improvement in operational consistency for achievement of community outcomes can be realised.

- **MAINTENANCE INTERVENTION STRATEGY**

  This document provides a concise statement on the strategies to be adopted when scheduling and approving maintenance work. The objective is to ensure pavement treatments are well planned and co-ordinated, providing a concise statement of intent in terms of delivering specified operational LOS and providing the management strategy for the 10 year forward works programme.

3.13 ASSET MANAGEMENT PLAN LEVEL

The following table shows the requirements for basic, core, intermediate and advanced AMPs with the current level for this AMP shaded in green. The gaps between the desired core level and present level are shaded red. This information is used to develop the improvement programme of where further work is required.

Based on the data used in this plan and the source of data in developing strategies on which to base implementation tactics, this AMP is approaching a Core plan level. Improvement in the availability, completeness and reliability of asset and financial data, along with development of decision making procedures and risk management, is required to progress this plan to Intermediate level.

Figure 11 Requirements for Basic, Core and Advanced AMP

Criteria	Minimum	Core	Intermediate	Advanced
AM Policy Development	Corporate expectations expressed informally and simply, e.g.: "all departments must update AM Plans every three years",	Defined policy statements for all significant activities, Clear linkage to corporate goals, Policy supported by high level action plans with defined responsibilities for delivery,	AM Policy and Strategy reviewed and adopted by Executive Team each year. Expectations of each activity area defined with detailed action plans, resources, responsibilities and timeframes.	AM Policy and Strategy fully integrated into the organisation's business processes and subject to defined audit, review and updating procedures,

Criteria	Minimum	Core	Intermediate	Advanced
Levels of Service and Performance Management	Asset contribution to organisation's objectives and some basic levels of service have been defined,	Customer Groups defined and requirements informally understood, Levels of service and performance measures in place covering a range of service attributes, Annual reporting against performance targets,	Customer Group needs analysed, Costs to deliver alternate key levels of service are assessed, Customers are consulted on significant service levels and options,	Levels of service consultation strategy developed and implemented, Technical and customer levels of service are integral to decision making and business planning,
Demand Forecasting	Demand forecasts based on experienced staff predictions, with consideration of known past demand trends and likely future growth patterns,	Demand Forecasts based on robust projection of a primary demand factor (e.g.: population growth) and extrapolation of historic trends, Risk associated with demand change broadly understood and documented,	Demand forecasts based on mathematical analysis of past trends and primary demand factors, A range of demand scenarios is developed (e.g.: high/medium/ low).	As for 'Intermediate', plus risk assessment of different demand scenarios with mitigation actions identified,
Asset Register Data	Basic physical information recorded in a spreadsheet or similar (e.g. location, size, type), but may be based on broad assumptions or not complete.	Sufficient information to complete asset valuation - as for 'minimum' plus replacement cost and asset age /life. Asset hierarchy, asset identification and asset attribute systems documented,	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. Complete data- base for critical assets; minimal assumptions for non-critical assets.
Asset Condition	Condition assessment at asset group level (top-down). Supports minimum requirements for managing critical assets and statutory requirements (e.g. safety).	Condition assessment programme in place for major asset types, prioritised based on asset risk, Data supports asset life assessment. Data management standards and processes documented, Programme for data improvement developed.	Condition assessment programme derived from benefit-cost analysis of options. A good range of condition data for all asset types (may be sampling-based), Data management processes fully integrated into business processes. Data validation process in place.	The quality and completeness of condition information supports risk management, lifecycle decision-making and financial / performance reporting. Periodic reviews of programme suitability carried out.
Risk Management	Critical assets understood 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.	Systematic risk analysis to assist key decision-making. Risk register regularly monitored and reported. Risk managed consistently across the organisation.	Formal risk management policy in place. Risk is quantified and risk mitigation options evaluated. Risk is integrated into all aspects of decision making.
Decision Making	AM decisions based largely on staff judgement and agreed corporate priorities.	Formal decision making techniques (MCA/BCA) are applied to major projects and programmes.	Formal decision making and prioritisation techniques are applied to all operational and capital asset programmes within each main budget category. Critical assumptions and estimates are tested for sensitivity to results.	As for 'Intermediate', plus ... The framework enables projects and programmes to be optimised across all activity areas. Formal risk-based sensitivity analysis is carried out.
Operational Planning	Operational responses are understood by key staff, but plans may not be well-documented, mainly reactive in nature. Asset utilisation is measured for some key assets but is not routinely analysed.	Emergency response plan is developed. Demand management is considered in major asset planning. Asset utilisation is measured for critical asset groups and is routinely analysed.	Emergency response plans and business continuity plans are routinely developed and tested. Demand management is a component of all operational decision making, Asset utilisation is measured and analysed for most asset groups.	Operational plans routinely analysed, tested and improved. Formal debriefs occur after incidents, Asset utilisation measured real-time and effectiveness analysed across all asset groups, Operational programmes are optimised using benefit-cost and risk analysis.

Criteria	Minimum	Core	Intermediate	Advanced
Maintenance Planning	Organisational objectives and how asset functions support these are understood. Compliant with legislation and regulations. Maintenance records maintained.	Asset criticality considered in response processes. Fault tracking and closure process, Strategy for prescriptive versus performance-based maintenance developed, Key maintenance objectives established and measured,	Contingency plans for all maintenance activities. Asset failure modes understood. Frequency of major preventative maintenance optimised using benefit-cost analysis. Maintenance management _ software implemented.	Forensic root cause analysis for major faults, Optimisation of all reactive and planned programmes alongside renewal planning. Procurement models fully explored.
Capital Works Planning	There is a schedule of proposed capital projects and associated costs, based on staff judgement of future requirements.	Projects have been collated from a wide range of sources such as hydraulic models, operational staff and risk processes. Capital projects for the next three years are fully scoped and estimated.	As for 'Core', plus formal options analysis and business case development has been completed for major projects in the 3-5 year period. Major capital projects for the next 10-20 are conceptually identified and broad cost estimates are available.	Long-term capital investment programmes are developed using advanced decision techniques such as predictive renewal modelling (refer Section 3.1).
Financial and Funding Strategies	Assets re-valued in compliance with financial reporting and accounting standards. 10 year financial forecasts are based on extrapolation of past trends and broad assumptions about the future. Expenditure categories compliant with FRS.	Asset revaluations have a 'C ' grade data confidence' 10+ yr financial forecasts based on current AMP outputs. Significant assumptions are specific and well reasoned. Expenditure captured at a level useful for AM analysis.	Asset revaluations have a 'B' grade data confidence! 10 year+ financial forecasts based on current comprehensive AMPs with detailed supporting assumptions / reliability factors. Asset Expenditure easily linked to finance databases.	Asset revaluations have an 'A' grade data confidence' 10 year + financial forecasts based on comprehensive, advanced AM plans with detailed underlying assumptions and high confidence in accuracy. Advanced financial modelling provides sensitivity analysis, demonstrable whole of life costing and cost analysis for level of service options,
AM Teams	AM allocated primarily to one or two people who have AM experience.	Cross-Council coordination occurs through a Steering Group or Committee. AM training occurs for primary staff. The executive team have considered options for AM functions and structures.	All staff in the organisation understand their role in AM, it is defined in their job descriptions, and they receive supporting training aligned to that role. A person on the Executive Team has responsibility for delivering the AM Policy/Strategy.	A formal AM capability building programme is in place and routinely monitored. The AM structure has been formally reviewed with consideration of the benefits and costs of options.
AM Plans	Plan contains basic information on assets, service levels, planned works and financial forecasts (5-10 years) and future improvements.	As for 'Minimum' plus executive summary, description of services and key/critical assets, top-down condition and performance description, future demand forecasts, description of supporting AM processes, 10 year financial forecasts, 3 year AM improvement plan.	As for 'Core' plus analysis of asset condition and performance trends (past/future), effective customer engagement in setting LoS, ODM/risk techniques applied to major programmes.	As for 'Intermediate' plus evidence of programmes driven by comprehensive ODM techniques, risk management programmes and level of service/ cost trade-off analysis. Improvement programmes largely complete with focus on ongoing maintenance of current practice.
Information Systems	Asset register can record core asset attributes - size, material, etc. Asset information reports can be manually generated for AMP input.	Asset register enables hierarchical reporting (at component to facility level). Customer request tracking and planned maintenance functionality enabled. System enables manual reports to be generated for valuation, renewal forecasting.	More automated analysis reporting on a wider range of information. Key operations, unplanned maintenance and condition and performance information held.	Financial, asset and customer service systems are integrated and all advanced AM functions are enabled.
Service Delivery Mechanisms	Service delivery roles clearly allocated (internal and external), generally following historic approaches.	Contracts in place for external service provision. Core functions defined.	Internal service level agreements in place with internal service providers. Contracting approaches reviewed to identify best delivery mechanism. Tendering / contracting policy in place. Competitive tendering practices applied.	All potential service delivery mechanisms reviewed and formal analysis carried out. Risks, benefits and costs of various outsourcing options are considered.

Criteria	Minimum	Core	Intermediate	Advanced
Quality Management	Simple process documentation in place for service-critical activities. .	Defined quality policy and basic Quality Management System. All critical activity processes documented.	Process documentation implemented in accordance with the Quality Management System plan. All processes documented to appropriate level of detail.	ISO 9001 certification achieved and surveillance audits demonstrates the satisfactory operation of the Quality Management System
Improvement Planning	Improvement actions identified and allocated to appropriate staff.	Current and future AM performance assessed and gaps used to drive the improvement actions. Improvement plans identify objectives, timeframes, deliverables, resource requirements and responsibilities ..	Formal monitoring and reporting on the improvement programme to Executive Team. Project briefs developed for all key improvement actions.	Improvement plans specify key performance indicators (KPIs) for monitoring AM improvement and these are routinely reported.

4 LEVELS OF SERVICE

4.1 CUSTOMER RESEARCH AND EXPECTATIONS

Consultation to establish Community Outcomes for Long Term Plans was first completed in 2006. .

The Levels of Service set out in the LTP are now consulted on through the Annual Plan and LTP processes prior to finalising those documents. Some LOS key performance indicators (KPIs) are required by legislation e.g. the Department of internal affairs measures regarding drinking water standards.

There has been no specific customer research into community expectations for roading infrastructure other than the NRB Communitrak survey which is carried out every three years. Council builds up a broad knowledge of the community's expectations from a variety of sources including:

- Community Outcomes consultation.
- Annual NRB Communitrak Community Survey.
- Public meetings on specific projects.
- Consultation via LTP and Annual Plan process.
- Feedback from the elected members including community boards.
- Service Requests.
- Direct feedback from ratepayers.

4.1.1 Community Survey Results

The most recent NRB Communitrak survey was completed in November/December 2016.

Sample Size This Communitrak™ survey was conducted with 300 residents of the South Wairarapa District. The survey is framed on the basis of the wards as the elected representatives are associated with a particular ward. Sampling and analysis were based on five wards and the interviews spread as follows:

Table 4 Residents Surveyed

Featherston	100
Greytown	99
Martinborough	101
Total	300

Interview Type: All interviewing was conducted by telephone, with calls being made between 4.30pm and 8.30pm on weekdays and 9.30am and 8.30pm weekends.

Communitrak™ provides a comparison for Council on major issues, on their performance relative to the performance of their Peer Group of similarly constituted local authorities, and to local authorities on average throughout New Zealand.

The NRB survey conducted in December 2016 asked respondents whether South Wairarapa was better, the same or worse as "A Place to Live". 45% of residents thought South Wairarapa District is better, as a place to live, than it was three years ago (2013: 35%), while 47% feel it is the same (2013: 49%) and 1% say it is worse (2013: 8%). 7% were unable to comment.

The main things residents thought Council should do for the District over the next few years were:

- roading/bridges/road safety/traffic issues, mentioned by **20% of all residents**,
- infrastructure/maintain existing services/facilities, 13%,
- improve water supply, 10%,
- environmental concerns, 9%,
- promote tourism, /promote the district/better amenities for visitors, 9%,
- appearance/beautification/better upkeep/improve image, 9%

This reinforces the importance of transport in roading including bridges, signs, lighting etc. and its role in tourism including cycling and active transport. The results from the last four surveys in relation to roading are as follows:

Table 5 NRB Communitrak Survey Results

	2016		2013		2010		2005	
	Very/fairly satisfied	Not very satisfied	Very/fairly satisfied	Not very satisfied	Very/fairly satisfied	Not very satisfied	Very/fairly satisfied	Not very satisfied
Roads in the District excluding	73%	26%	75%	25%	77%	23%	81%	19%

State Highways								
Footpaths	63%	29%	66%	29%	61%	33%	No data	No data

In the 2016 survey the 'not very satisfied' for footpaths is higher than the peer group and national averages whereas the figures for roads are on a par with them. The peer group are Councils of comparable size.

Table 6 Comparison of 'Not very satisfied' response

	SWDC		Peer Group		National	
	2016	2013	2016	2013	2016	2013
Roads in the District excluding State Highways	26%	25%	23%	28%	25%	23%
Footpaths	29%	29%	23%	21%	25%	21%

The survey also asks participants questions on why they were not satisfied with roading and overall what the Council should be doing.

The main reasons residents are not very satisfied with roads in the District, excluding State Highways, in descending order are:

- poor condition, lack maintenance, need upgrading, slow to maintain, (13%).
- uneven, potholes, rough, bumpy, (13%).
- poor quality of work, materials, patching, (3%).
- metal roads need sealing, grading, metal, dust problems, (4%).

There were no notable differences between wards or between socio-economic groups, in terms of those residents not very satisfied with roads in the District.

The main reasons residents are not very satisfied with footpaths are:

- no footpaths, not enough, only on one side, incomplete, (14%).
- poor condition, lack of maintenance, need upgrading, (8%).
- uneven, rough, potholes, broken, cracked, (10%).

4.2 LEVEL OF SERVICE CONSULTATION

Every three years the Council prepares a Long Term Plan (LTP) that sets out the Council's intentions for the next decade.

The LTP is reviewed every 3 years to make sure it is still relevant and accurate in dealing with the proposed strategic direction of the Council and community outcomes. It clearly states the current situation along with future expectations and intentions.

The LTP tells a coherent, continuous and logical story to inform the community of what they can expect from the Council in terms of service delivery over the next decade.

For the LTP to be achievable, measurable and realistic it is linked to financial indicators by way of a financial strategy and funding impact statement.

The purpose of the LTP is to:

- describe the activities of the Council and the outcomes for the community.
- provide integrated decision-making and coordination of resources .
- provide a long-term focus for the decisions and activities of the Council.
- provide a basis for accountability.
- give an opportunity for the public to take part in the decision-making processes of the Council.

Prior to adopting the LTP it undergoes a period of consultation and submissions during which the community can have a say on the direction and services provided by the Council. The Council considers the submissions and amends the draft LTP if it is in agreement with the submitters.

4.2.1 Requests for Service Data

Customer service requests are recorded into an organisation wide database (Magiq – formerly known as NCS) and either form the basis for a contractor instruction to rectify or are recorded for future action within a current or future programme of work. Specific response times are defined for particular defects and these are tracked for statutory reporting where relevant.

An after-hours service and an online service request form is available for customer service requests which are then routed to Councils contractors for response. The service request form is also delivered with rates demands.

Data from the Service Request database can also be analysed to track:

- The types of requests for service being asked by the public.
- The level of responsiveness to these requests.
- The actions required to resolve these requests.
- The frequency of types of requests.

At present this data is not being analysed for the type of enquiry; only trends on responsiveness.

Below is a summary of the Level of service results for roading for the year ended December 2017.

Footpaths can be safely used to get around town	**Jan-17**	**Feb-17**	**Mar-17**	**Apr-17**	**May-17**	**Jun-17**	**Jul-17**	**Aug-17**	**Sep-17**	**Oct-17**	**Nov-17**	**Dec-17**
The % of customer service requests relating to roads and footpaths responded to within 48 hours. Target: 95%	**76% 29/38**	**76% 38/50**	**81% (26/32)**	**74% (43/58)**	**62% (24/39)**	**85% (40/47)**	**76% (38/50)**	**74% (41/65)**	**92% (36/39)**	**88% (29/33)**	**92% (23/25)**	**64% (7/11)**
Total no. of service requests relating to roads and footpaths (YTD)	38 (168/211)	50 (206/261)	32 (238/293)	58 (281/351)	39 (305/390)	47 (345/437)	50 (38/50)	115 (79/115)	154 (115/154)	187 (144/187)	212 (167/212)	233 (174/223)
% met for total no. of service requests relating to roads and footpaths (YTD)	80%	79%	81%	80%	78%	79%	76%	69%	75%	77%	79%	78%

Table 7 Responsiveness measures

4.2.2 Performance Tracking

Performance is tracked through:

- All KPIs being reported to each Council meeting.
- The NRB Communitrak three yearly Survey which gives comparative results with similar councils and the national results.
- Non-Financial Performance Measures compared to LTP / Annual Plan Service Levels through the audited Annual Report.
- GWRC reporting on compliance with resource consent conditions annually.
- NZTA monitoring through information provided and audits they undertake from time to time involving:
    - monitoring and reporting on the performance of the land transport system.
    - auditing organisations that receive public funds for developing, operating and maintaining land transport infrastructure and services.
    - checking that appropriate procurement procedures are used for projects involving public funds.
    - checking that good practice is being used when activities are implemented.
    - monitoring the costs associated with publicly funded activities, through procedural audits.
    - carrying out post implementation reviews to check that the forecast results are being delivered.

5 LEGISLATIVE AND STATUTORY REQUIREMENTS

5.1 ONE NETWORK ROAD CLASSIFICATION

NZTA have introduced the One Network Road Classification (ONRC) which involves categorising roads based on the functions they perform as part of an integrated national network. The classification is designed to help local government and the NZTA to plan, invest in, maintain and operate the road network in a more strategic, consistent and affordable way throughout the country. This will be achieved through improved investment prioritisation across the country.

The ONRC will be used by local government and NZTA to guide decision making. Over time this will help to deliver a more integrated roading network for all of New Zealand, that supports working together and a customer focused approach. It will assist local government and NZTA to give effect to the Government Policy Statement on Land Transport, with its focus on economic growth and productivity, road safety outcomes and delivering value for money. It will also help road controlling authorities operate, maintain and deliver good-quality local infrastructure that is efficient, effective

and appropriate to present and future circumstances (as required by the Local Government Act).

Using the ONRC will help road controlling authorities to differentiate their levels of service across categories of road in a nationally more consistent way.

The ONRC has three elements.

- Classifying roads into categories based on their function in the national network. This replaces the road hierarchy used by many councils to establish road priority and standards. The ONRC is included in Appendix 1.
- Performance measures and targets, which will effectively determine how the categories and customer levels of service translate into specific maintenance, operational and investment decisions. The ONRC Provisional Performance Measures are included in Appendix 2.

Software has been developed by RAMM Software Ltd to complete the first step based on the Councils RAMM database utilising Annual Average Daily Traffic (AADT) and Heavy traffic data. The resulting ONRC layer requires extensive manipulation such that it represents the local conditions and important locations e.g. hospitals. The first stage has been completed and submitted to NZTA for moderation.

SWDC needs to consider the ONRC LOS and performance measures in relation to their network, and assess and report on where their current performance sits in relation to the NZTA Road Efficiency Group (REG) provisional targets.

5.2 NON-FINANCIAL PERFORMANCE MEASURE RULES

In 2013 the Department of Internal Affairs promulgated new performance measures pursuant to section 261B Local Government Act 2002 for roading and water infrastructure. These are now covered by the Long Term Plan / Annual Plan Performance measures.

5.3 LEGISLATION

The roading systems within the District are required to comply with applicable clauses in the following legislation and regulations. These form the standards of service, which the roading assets have to meet:

Local Government Act 1974 & 2002 empowers Council to:

- Erect, construct, and maintain any public work, which in the opinion of the Council may be necessary or beneficial to the District.
- Control all roads (excluding State Highways) in the District.
- Comply with certain financial management practices.
- Consult with communities.

Resource Management Act 1991 requires Council to

- Sustain the potential of natural and physical resources to meet the reasonable foreseeable needs of current and future generations.
- Comply with the District and Regional Plans.

- Avoid, remedy or mitigate any adverse effect on the environment and structures (e.g. adverse effects of surface run-off from roads).

Building Act 2004 requires Council to:

- Ensure all buildings and facilities constructed comply with the Act.
- Produce Project Information Memoranda (PIM's) which supply all available information relating to an individual property. For roading services the relevant information may include details of access restrictions, approvals, leases, plans, relevant records, notices, etc. All structures (including retaining walls and bridges) must comply with the Building Act.

Land Transport Act 1998 enables:

- The making of bylaws to restrict roads e.g. for parking or certain classes of vehicles

Land Transport Management Act 2003 and Amendment Act 2013 provides for policy and rules which will:

- Assist economic development.
- Assist safety and personal security.
- Improve access and mobility.
- Protect and promote public health needs.
- Ensure environmental sustainability.
- Ensure preparation of Regional Land Transport Strategies.
- Ensure the preparation of Regional Land Transport Plans.
- Require the Minister of Transport to prepare a Government Policy Statement

Health and Safety at Work Act 2015 requires Council to:

- Ensure that its employees, contractors and road users are protected from injury as a result of its activities.
- Notify WorkSafe New Zealand of serious harm or fatal accidents as a result of its activities within 7 days.

Civil Defence Emergency Management Act 2002 requires Council to:

- Establish and be a member of a Civil Defence Emergency Management Group (CDEM).
- Co-ordinate (through regional groups) planning, programmes and activities related to CDEM across the areas of reduction, readiness, response and recovery, and encourage co-operation and joint action within those regional groups.
- Improve and promote sustainable management of hazards in a way that contributes to the well-being and safety of the public and protection of property

Public Works Act 1981:

- Sets rules for acquisition of land by local authorities for roading works.
- Sets requirements for stopping of roads and removal of trees on adjacent land.

Construction Contracts Act 2002 sets out the requirements for:

- Contractor payments for road maintenance and construction contracts.

Land Transport Rules set out the requirements for:

- Setting speed limits.
- Traffic Control Devices.

Council is required under various legislation (e.g. Resource Management Act and the Local Government Act 2002), to consult with Tangata Whenua and take into account the principles of the Treaty of Waitangi, in the management of roading infrastructural assets.

5.4 BYLAWS AND POLICY

The Council operates the Masterton and South Wairarapa Districts Consolidated Bylaw 2012 which includes Part 13 Traffic and Part 14 Speed relating to roads. Part 13 sets out the provisions relating to parking, one-way roads, turning restrictions, heavy traffic restrictions and special vehicle lanes. Part 14 sets out the speed limits in the district.

The Moroa Water Race Bylaw and the Water Race Code of Practice cover the water races which receive water from the Greytown storm water system.

The council has the following policies relevant to roading:

- Naming of Public and Private Roads and Rights of Way.
- Urban Street Tree Policy.
- Street Banners and Flags policy
- Infrastructure protection deposits policy for footpaths, road crossings and water/sewer connections

5.5 DISTRICT AND REGIONAL PLANS

Roading within the District is subject to the provisions of the following Plans:

- Combined Wairarapa District Plan.
- Regional Policy Statement.
- Regional Freshwater Plan.
- Regional Air Quality Management Plan.
- Regional Coastal Plan.
- Regional Soil Plan.
- Regional Plan for Discharges to Land.
- Regional Land Transport Programme.
- Regional Transport Strategy.
- Regional Walking Plan.
- Regional Cycling Plan.

5.6 RESOURCE AND BUILDING CONSENTS

In general, the maintenance and upgrading of roads is a permitted activity. The District Plan sets out the requirements for roads. Any structures e.g. bridges and retaining walls are required to comply with the Building Act and have a building consent where required.

Bridges and culverts over waterways require resource consents for construction and maintenance though many were existing when the RMA was passed and may continue until a Regional Plan provides otherwise.

Coastal protection works on Cape Palliser Road and other roads on the east coast are subject to the provisions of the Regional Coastal Plan.

The following Resource Consents are held by the Council for roading activities.

Table 8 Roading Resource Consents

Consent No.	Type	Purpose	Expiry Date
WAR 090322	Coastal	Cape Palliser Road coastal protection	30 Sept 2046
WAR 150017	Coastal	Kirikiri Stream Ford	12 Aug 2049
WAR 130295	Freshwater	Gravel takes (various)	12 Sept 2024
WAR 170016	Structure	Bridge beam painting	23 Feb 2052
WAR 050216	Quarrying	Hautotara Pit extraction	30 Sept 2025
WAR 050052	Freshwater	Wairongomai Stream Weir	30 Sept 2040

5.7 CURRENT LEVEL OF SERVICE

The current levels of service which include technical and customer levels of service are shown below. Where available, the results are shown for the first three years of the current LTP. Note the NRB Communitrak survey is completed three yearly so results are available for 2003, 2005, 2010, 2013 and 2016.

5.8 DESIRED LEVELS OF SERVICE

The LOS have been used since the 2009 Long Term Plan. The LOS are open for consultation as part of the LTP and Annual Plan consultation process.

At present the roading network is in a generally good condition. We are continually updating our knowledge of the assets. At present no changes in LOS have been proposed. In the preceding sections there are a number of requirements that are imposed on the Council by NZTA that have been adopted for internal and NZTA reporting and monitoring.

The completion of the improvement plan is important to be able to meet NZTA's requirements for the 2018-2021 funding cycle to improve decision making among other benefits. Setting targets and monitoring progress will be essential to achieve this.

Table 9 Current Levels of Service

Service Level		Actual 2015/16	Actual 2016/17	Target 2017/18	Target 2018/19	Target 2019/20	Target 2020/21	Target 2021 to 2028	How measured
The roads are maintained to ensure that they are safe and comfortable to travel on	Using the RAMM measurement system, average smooth travel exposure on urban roads to be 85% and rural roads 95% with maximum variation of 5%	Urban 96% Rural 99%	Urban 96% Rural 99%	95%	95%	95%	95%	95%	Council Records
	Ratepayers and residents fairly/very satisfied with the roads	75%	73%	75%	80%	82%	85%	85%	NRB survey
	5% of sealed roads are resealed each year subject to availability of NZTA subsidy	100%	100%	100%	100%	100%	100%	100%	Council Records
	The pavement condition index as measured by the NZTA pavement integrity index	93%	93%	95%	95%	95%	95%	95%	NZTA
	The number of crashes causing injuries is reduced	27	19	<19	<19	<19	<19	<19	NZTA
	The number of fatalities and serious injury crashes on the local road network	3	9	<7	<7	<7	<7	<7	NZTA
Footpaths can be safely used to get around town	Ratepayers and residents are satisfied with footpaths in the district	66% (13/14)	63%	65%	70%	75%	75%		NRB Survey
	Availability of footpaths on at least one side of the road down the whole street	86%	86%	89%	90%	90%	90%		Council Records
	Footpath condition rating 95% compliant with SWDC AMP Standard	-	-	95%	95%	95%	95%		Council Records (Audits completed 4 yrly – Due 2018)

	The percentage of customer requests relating to roads and footpaths responded to within 48 hours	86%	79%	80%	85%	90%	95%	Council Records
	Meet annual plan footpath targets	Yes	Yes	Yes	Yes	Yes	Yes	Council Records

Smooth travel exposure (STE) is the percentage of travel undertaken on roads with a roughness less than 150 NAASRA (National Association of Australian State Roading Authorities) counts. NAASRA counts are a measure of road roughness (reflecting smoothness of road) i.e. the higher the count the rougher the road. Compared to other Councils' roads in New Zealand, South Wairarapa District Council's roads smoothness standard is very high. It is difficult to improve smooth travel exposure further but roads will be maintained to current level with + 5% variation.

5.9 LEVEL OF SERVICE GAP ASSESSMENT

Considering the current LOS targets, these are being met by the existing maintenance programme. Work has commenced on assessing the impact of the ONRC LOS. This will be completed over the next two to three years.

5.10 STRATEGIES TO CLOSE GAP

The key strategy being employed commencing in this AMP is the greater utilisation of the available information to do longer term planning e.g. the Forward Works Programme. This in turn has identified shortcomings in the existing information. It is expected over the next three years that LOS gaps will be identified that will have implications for the 2021-2031 LTP planning cycle.

6 FUTURE DEMAND

6.1 FACTORS INFLUENCING DEMAND

The factors influencing demand are either 'use' based e.g. number of vehicles, size of vehicles or 'asset' based e.g. width, capacity, load capability. These are summarised in the following sections.

6.2 DEMAND STUDIES

Apart from assessing bridges for HPMV trucks there have been no specific studies assessing the demand for land transport services given it is a rural community and there are no apparent capacity issues.

6.3 POPULATION STATISTICS

This section provides details of population forecasts, which affect the demand for vehicle and pedestrian assets.

6.3.1 Usually Resident Population

The District's Usually Resident Population shows a population of 9,155 in the 1991 Statistics NZ (SNZ) census reducing to 8,742 in 2001. This was followed by a period of growth through to 2013 when the population was 9,528. This represents growth of about 9% in the period 2001 to 2013. The bulk of the growth has occurred in rural areas rather than the urban areas with the population of Featherston continuing a steady decline, Martinborough growing back up to where it was in 1991 and Greytown showing slow but steady growth.

6.3.2 Aging Population

The rate of natural population change is related to birth and mortality rates. In New Zealand the natural population growth is slowing in response to a declining fertility rate and an aging population. South Wairarapa District population projections follow this general trend with a decreasing birth rate and increasing death rate over time.

6.3.3 Population predictions

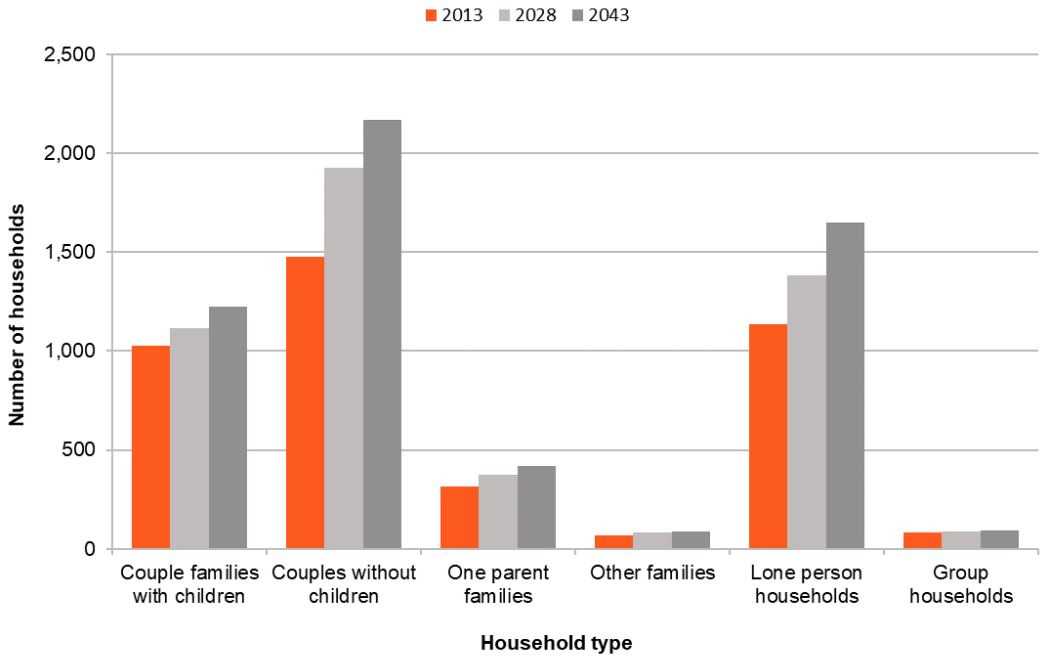
The projections through to 2043 are compiled by ".id Consultants' (ID), an Australian, Melbourne based company with a New Zealand presence since 2010. The forecasts from ID have allowed us to explore what is driving population change in the South Wairarapa communities.

- Forecast information predicts how the population, age structure and household types will change between now and 2043.The resident population in the district is currently around 10,406 people and is expected to increase to 11,421 by 2028 and approximately 12,733 by 2043.
- Projections used for our last LTP indicated a population of 10,250 by 2043 so the latest projections reflect the increased growth in the District over the last three years, which is expected to continue.
- The median age is currently 45.2 (compared with 38 nationally) and is projected to increase to 49 by 2043.
- ID Consultants' projections for the future reveal the following trends:
- Populations in all three towns are predicted to grow at around 1% per annum for the next 25 years. Rural growth is about a third of this at 0.3% pa, with overall growth for the district at 0.9% p.a. for the next 25 years.

Area	Population 2013	Population 2043	Change in population	Average annual pop change (%)
Featherston	2,434	3,127	694	0.80%
Greytown	2,438	3,581	1,142	1.30%
Martinborough	1,569	2,325	757	1.30%
Rural	3,360	3,700	340	0.30%
Total Population	**9,800**	**12,733**	**2,933**	**0.90%**

When looking at where this growth would come from, the dominant household type in the South Wairarapa district are couples without children and lone person households as second. Couples without children make up 36% of all households in 2013 and 39% in 2043. Lone person households make up 28% of all households in 2013 and 29% in 2043.
Although there are more families in 2043 than 2013, they decrease in terms of share of all households.

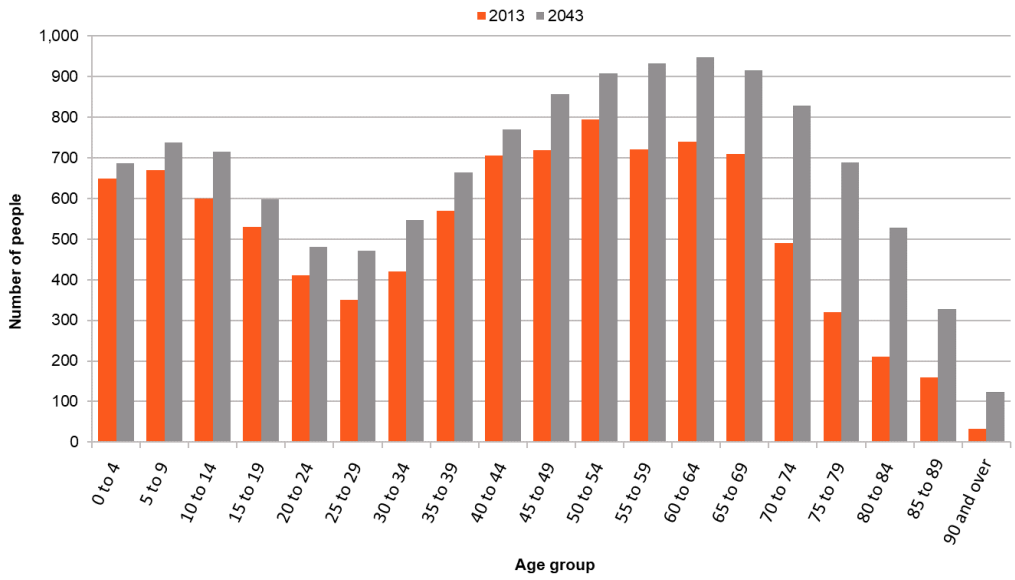
6.3.3.1 Households by type, South Wairarapa District Council – 2013, 2028 and 2043



Overall there will be population gains in all age groups. The most evident gains are of persons aged over 60 years of age. In terms of shares of total population, residents aged over 70 comprised 13% of the total population in 2013 and 20% by 2043. Persons aged under 20 years in South Wairarapa make up 25% of the 2013 population and 21% of the 2043 total population.

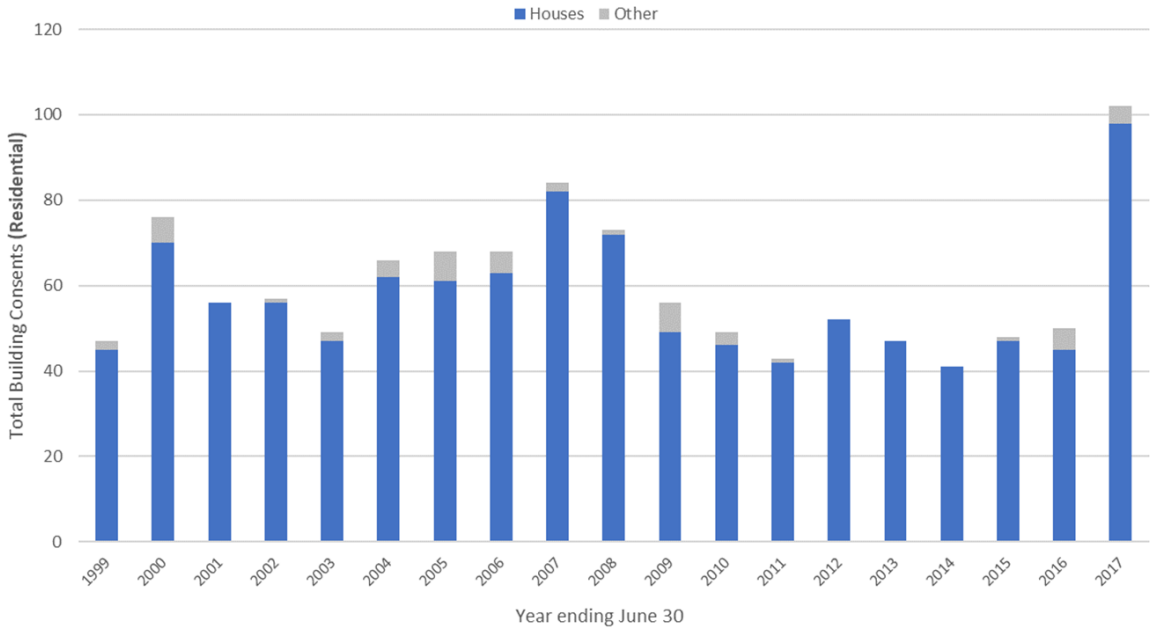
The movement in the percentage of the population of "working age" (up to age 65) is not as dramatic as might have been expected. In 2013 61% of the population was in the working age group, by 2043 this will be 56%. This 5% drop is not as significant as might be expected in terms of the issues created by a rapidly aging population.

6.3.3.2 Age structure, South Wairarapa District Council – 2013 and 2043

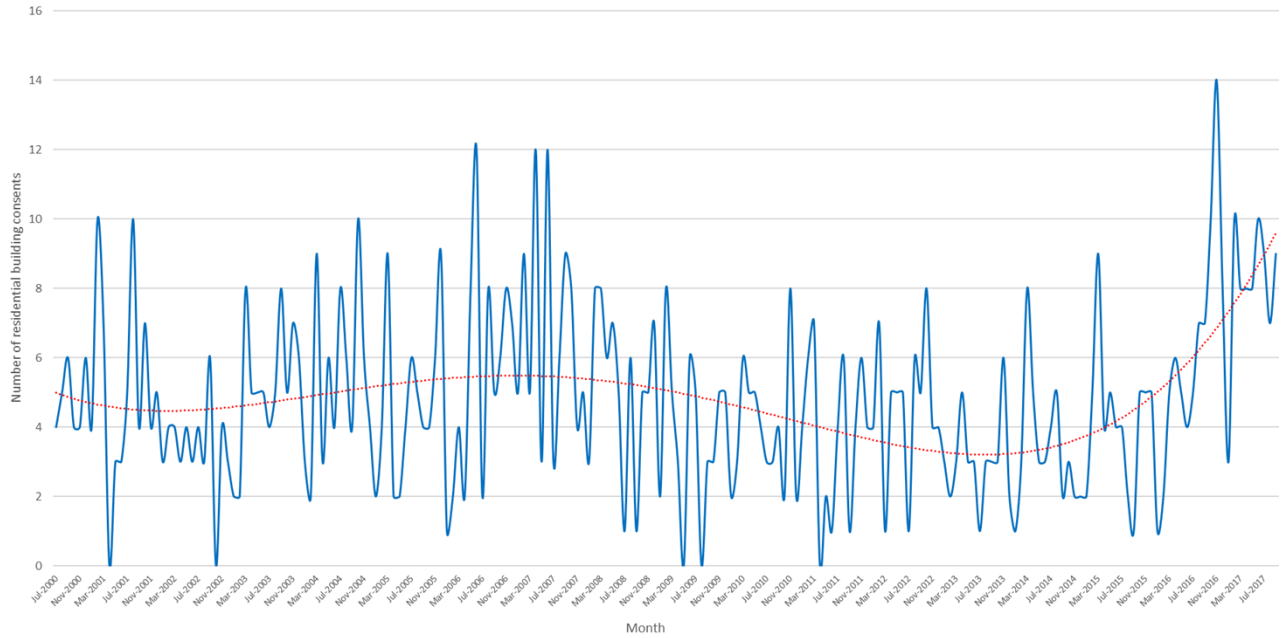


The following two graphs show the trends over recent years in the number of building consents in the South Wairarapa District. The trends clearly back up the known growth in the district over recent years.

6.3.3.3 Annual Residential Building Consents, by type 1999 – 2017



6.3.3.4 Monthly Residential Building Consents, July 2000 – September 2017



Finally, ID have given the following predictions of ongoing new build activity in the district in five year groups through to 2043. This shows a spike in the period 2019 to 2013 to 68 new dwellings pa and then a steady number of dwellings in each of the next five year groups ranging from 58 to 66 new dwellings pa.

This confirms our assumptions that our communities will continue to grow steadily over the period of this LTP and for the following 15 years as well.

This is helpful to inform our decisions regarding future infrastructure requirements for each of our towns.

Assumed development rates (five yearly) – South Wairarapa District Council

Years	Total additional dwellings	Additional dwellings per annum
2014-2018	285	57
2019-2023	341	68
2024-2028	332	66
2029-2033	310	62
2034-2038	309	62
2039-2043	292	58
TOTAL	**1,869**	**62**

Comparing the projection with the actual results from the 2013 census gives an indication of its short term accuracy. New population projections projection based on the 2013 Census

6.3.4 Urban Development

The census figures show that housing development is continuing though this is not necessarily in the urban centres with a number of lifestyle and holiday home developments. The rate of increase in unoccupied dwellings on census night is significantly larger than occupied dwellings supporting this. This would tend to suggest that there may be higher traffic volumes at weekends and more visitors for short periods. There are currently a large number of proposed subdivisions in Greytown including the previously identified future development area. These developments indicate there will be significant growth in population in Greytown in the next 3 to 10 years.

Table 10 Number of Dwellings

	2013 CENSUS	2006 CENSUS	INCREASE	% INCREASE
Occupied dwellings	4,035	3,702	333	9.0
Unoccupied Dwellings	1,248	1,047	201	19.2
Under Construction	54	54	0	0
Total	**5,331**	**4,803**	**528**	**11.0**

6.4 RURAL LAND USE

Primary industries (dairy, cattle, grapes and sheep farming) represent one third of the economic activity in the district. The table below shows the number of farms as at June 2007 and June 2012. There has been a reduction in the number of farming and horticultural units over this period which is reflected by small changes in the size of farming units.

There has been some small changes in the type of farming e.g. changing from beef to sheep but no changes in the dairy and forestry farming which are often cited as farming types that can cause a big impact on a roading network. The increased number of logging trucks on the road as forestry blocks are harvested is expected to have some impact on the rural roads, leading to more wear and tear and potentially increased costs to Council.

The BERL study discussed in the next section noted the positive link between tourism industries and horticulture. Data from Statistics NZ for the Wairarapa Regional Tourism Organisation shows a steady increase supporting the growth in tourism.

Table 11 Farms by Farm Type

Type of Farming	Number of Farms June 2007	Number of Farms June 2012
Sheep Farming	48	72
Beef/Cattle	78	66
Sheep/beef	105	60
Grain and other crops	12	30
Dairy	87	87
Deer	3	0
Horse	3	6
Other livestock	6	3
Forestry	24	24
Other	6	0
Subtotal	**372**	**348**
Nursery	6	6
Vegetable	9	0
Grape growing	63	54
Orchard inc. nut	15	15
Olive	21	27
Subtotal	**114**	**102**
Total	**486**	**450**

The Wairarapa Water Use Project may however have a significant impact on rural activity. This project is assessing five potential dam sites with the view to increasing the area of irrigated farmland from 12,000ha to 42,000ha in the Wairarapa Valley. The project will potentially have the following benefits if it proceeds:

- supplement low summer river flows
- provide alternative/additional water to summer river and ground water takes
- irrigate new areas of the Wairarapa valley
- increase reliability for existing irrigation and frost fighting
- stock drinking water
- recreational use
- supplement town water supplies

This would have a significant economic benefits from one-off construction and set up costs and ongoing increased production. The potential area irrigated in the district could extend from Greytown south beyond Martinborough and Kahutara.

6.5 BUSINESS STATISTICS

The report 'Economic Profile and Projections for the Wairarapa Region November 2008' by Business and Economic Research Ltd (BERL) analyses current economic activity in the district and the other two Wairarapa districts over the last 10 years and provides projections of employment and GDP in 2026. The timing was not good in relation to the Global Financial Crisis however it gave some insight to the industries that might create demand for roading.

In 2007, the South Wairarapa District employed 3,017 FTEs, in 1,601 businesses and generated $218 million in GDP.

In terms of driver industries, the economy in this district is based around the primary industry (dairy cattle, grapes and sheep farming) and the accommodation, cafes & restaurants, and retail trade industries. These driver industries reflect the presence of Martinborough and Greytown in this district, and how these towns provide hospitality to the local community as well as visitors from the Wellington and Hawke's Bay regions in particular.

The report prepared two projections being historical and neutral.

- The neutral scenario assumes that industries in this region grow at the same rate as the industry nationally. This sets a benchmark of how an industry could perform in the region.
- The historical scenario assumes that the industries in the region grow relative to how they have performed over the last 10 years. This scenario provides the most likely outcome of how industry employment will change over the forecast period as it is based on actual performance.

Between 1997 and 2007, employment in the South Wairarapa District grew by 2.1 percent per annum, lower than the national average of 2.4 percent per annum but higher than employment growth in the Masterton and Carterton Districts.

The largest areas of employment growth between 1997 and 2007 in the South Wairarapa District were in accommodation, cafes & restaurants, with a 15.3 percent per annum increase; business services with a 10.6 percent per annum increase; and property services with an 8.1 percent per annum increase.

Under a neutral scenario, employment in the South Wairarapa District is forecast to grow by 1.3 percent per annum to 2016, and then by 1.1 percent per annum to 2026. Employment in this district under the neutral scenario is forecast to reach 3,792 FTEs in 2026.

Under a historical scenario, employment in the South Wairarapa District is forecast to grow faster; at 1.5 percent per annum to 2026. South Wairarapa is the only TA in the region where the historical scenario provides better employment outcomes than the neutral scenario.

Under the neutral scenario there will be employment growth across all industries, but particularly in the accommodation, cafes & restaurants industry. The retail trade, manufacturing, and primary industries also see relatively large increases in employment.

However, under the historical scenario employment growth is concentrated in the accommodation, cafés & restaurants and retail trade industries. There is minimal growth in most other industries and falls in some, such as primary, manufacturing, transport & storage, and education.

The neutral scenario sees GDP growing by 3.7 percent per annum to 2016 and then by 3.1 percent per annum to 2026. The historical scenario sees GDP growing by 3.8 percent per annum to 2016 and then by 3.1 percent per annum to 2026. This contrasts with the forecast for employment, where growth was higher under the historical case. The reason is in where the growth occurs.

In the neutral scenario growth is across all industries but with particularly strong growth in the primary, manufacturing, and property & business services industries. These all have relatively high GDP per FTE ratios.

The number of business units in the district has declined since 2007 when there were 1601. The 2013 census recoded a total of 1,555 representing a 3% reduction. This will in part be because of the aftermath of Global Financial Crisis. Once the 2013 Census is fully analysed changes in the business sector and any resulting changes should be more apparent.

6.6 TRAFFIC STATISTICS

The Vehicle Kilometres Travelled (VKT) data for the calendar years to the end of 2017 shows a reduction over the past three years. This reduction has occurred primarily on the sealed rural roads while urban sealed roads and rural unsealed roads are largely unchanged. The VKT is derived from the Average Annual Daily Traffic (AADT) and the length of road to which the AADT applies. This requires a traffic counting programme to consistently and accurately represent what is happening on the roading network.

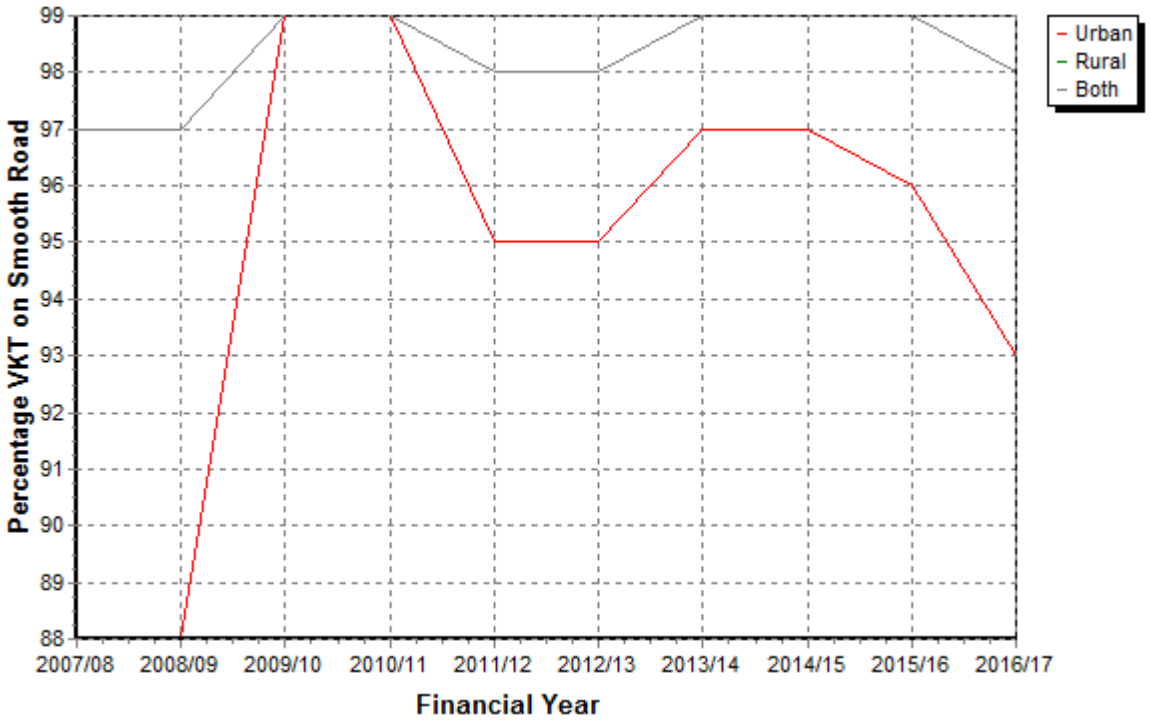


Figure 12 Percentage Vehicle Kilometres Travelled on Smooth Roads

Any potential for increase in heavy vehicles on the network is of real interest because heavy vehicles have a significant impact. This sort of demand on the roading network requires continued investment to sustain these assets for future generations and to encourage business growth through having a network of suitable quality that meets the needs of the transport operators. Data on heavy vehicles can be obtained from traffic classification traffic counters.

The maximum allowable weight and dimension limits for heavy vehicles have been increased (effective December 2017). There is a portion of the bridge stock that is either known to be unable to cater for this increased loading, or insufficient details of the bridges is known to be able to confirm acceptability of the loading. This limits the routes available for theses HPMVs.

Demand from industry is to open up more routes for use which will require bridge upgrading.

Information on the percentage of heavy vehicles within the traffic volume counts is yet to be analysed to predict future growth. However, similar rural communities are reporting growth in heavy vehicles of around 3-5%. RAMM data shows no increased commercial or general traffic volumes but subjective analysis would show that the incidence of high productivity agricultural vehicles (large tractors and implements) and spasmodic incidence of heavy commercial movements, due to pine harvesting. More work is required to determine future demand in both of these areas.

6.7 CHANGES IN CUSTOMER EXPECTATIONS

From discussions with various sector groups as part of the LTP process, customer expectation for the provision of access to reliable public transport seems to be high on the agenda. Further consultation and understanding is required as this AMP does not directly consider public transport as it has no ownership of these assets. However, the AMP does acknowledge Council's advocacy role on behalf of its Community, with the owners of public transport assets (primarily rail and bus companies).

Recent publicity in the media has drawn attention to the issues regarding reliability of the Wairarapa to Wellington rail service. This is a key link for the many ratepayers who have chosen to move to Wairarapa for lifestyle reasons but retain their jobs in Wellington. GWRC and Kiwirail have identified there is considerable deferred maintenance which needs to be budgeted for in coming years. Council will continue to advocate for improvements to this service as it is a key part of the future of our District.

No changes in customer expectations have been identified. The expectations of the people surveyed who were not satisfied, focused more on attention to pavement repairs, improvement in unsealed roads and improvement in footpaths. These issues do not seem to change from one survey to the next.

6.8 CYCLING AND ACTIVE TRANSPORT

Cycling is a key part of the tourism offering in South Wairarapa. In Martinborough it is a popular method of exploring the town and visiting vineyards, in Greytown the cycle trail from the town to Woodside has proven very popular with families and tourists and the Rimataka rail trail is a growing attraction for our District**.**

The planned cycle trail from Featherston to Masterton which is being funded by local trails trusts and volunteers will provide another attraction to our District. This cycle trail will include suspension bridges in each of the three Districts. The initial funding will be from the Trusts and SWDC has agreed to pay for ongoing maintenance once completed. This funding model has been successful in other popular tourist destinations around New Zealand.

At present, the Waihenga Bridge on SH53 prevents safe cycling on the main town entrance and is a barrier to cycling. There are no current plans to improve this access but it could be a topic for future LTPs.

Cycling to school can have many benefits for children. It can improve road safety, decision making and risk assessment skills as well as increasing general health and wellbeing. Council works with the Road Safety Council and funds various school bicycle programs.

Figure 13 Cycle Routes and Linkage to other TA's

Bicycles can be carried free of charge on Wellington to Wairarapa trains during off peak periods. During the peak, there is no charge for bike carriage, but spaces are limited. Folding bikes can be carried on trains and buses. Again, during the peak commuter period, spaces may be limited. Bike parking is available at many railway stations.

More and more everyday people are discovering the benefits of getting around by bicycle. Cycling is often quicker, more fun and healthier than driving for short distances. Within the Wairarapa, facilities such as pools, sportsgrounds and schools are centrally located but also split by geographic divides.

6.9 DEMAND FORECAST

There are no changes in demand in the 10 year period of the AMP 2018-28. Having a good understanding of traffic volumes and classification will enable the network to be accurately represented by the ONRC. This in turn may result in requirements to improve the design standards of some roads while on the other hand, it may identify that many exceed the necessary standard. It is known that many roads in the district are under-width however the Council has decided it is more important to undertake seal extensions at this time, except where there is a safety issue.

It is likely that the asset based maintenance standards will change over the next three years with the implementation of ONRC for implementation from 2018 and beyond.

6.10 IMPACT OF DEMAND

There is no impact from the demand allowed for over the next three years. Beyond that, the status quo has been assumed while it is refined over the life of the 2018-2028 AMP. As above, demand on services such as cycling and increased amenity is driven through changing community pressure for extended services.

6.11 NEW INITIATIVES FOR PROVIDING FUTURE SERVICES.

The NZTA Road Efficiency Group (REG) is a collaborative initiative by the road controlling authorities of New Zealand. Its goals are to drive value for money and improve performance in maintenance, operations and renewals throughout the country.

Since the formation of REG in 2012, considerable progress has been made on a number of projects aimed at sharing perspectives and knowledge to identify opportunities to improve performance and reduce costs.

Building a more robust, effective way of working will reduce costs and encourage innovation in the management of local roads and state highways.

REG was nominated by the government to carry out the recommendations of the broader Road Maintenance Task Force.

REG focuses on three key areas:

- The One Network Road Classification (ONRC) to standardise data and create a classification system which identifies the level of service, function and use of road networks and state highways
- Best Practice Asset Management to share best practice planning and advice with road controlling authorities
- Collaboration with the industry and between road controlling authorities to share information, staff and management practises.

The work is expected to create a number of benefits:

- Improve the performance of suppliers and the industry
- Encourage better collaboration and flexibility between road controlling authorities
- Reduce costs by saving money in the right areas
- Prioritise investment on the roads that need it most
- Encourage best practice for the future from suppliers, industry and road controlling authorities
- Provide a more holistic, collective way of maintaining and operating state highways and local roads in the regions.

Through a number of sources and organisations SWDC roading staff and advisers keep abreast of new technology and techniques for reducing lifecycle costs of roads e.g. polymer stabilisers for unsealed roads to reduce maintenance costs.

6.11.1 Obsolescence

Obsolescence is the state of being which occurs when an object, service, or practice is no longer wanted even though it may still be in good working order. Obsolescence frequently occurs because a replacement has become available that has, in sum, more advantages than the inconvenience related to repurchasing the replacement.

There are no components of the district's roading that would be classed as obsolete.

6.12 DEMAND MANAGEMENT PLAN

6.12.1 Non Asset Based Demand Management

There are non-asset solutions available as alternatives to asset based solutions for demand management (i.e. road user education, insurance, managed failure). On a case by case basis, non-asset options may be feasible and provide Council with a cost effective alternative to capital or operational expenditure options.

The following list provides some examples of non-asset based Demand Management solutions that could be applied at District level;

- Traffic Bylaws on heavy commercial vehicles using sub-standard roads within the district.
- Threshold and speed hump installation.
- Education and communication programmes targeted at stakeholder expectation.
- Setting speed restrictions.
- Subdivision bylaws restricting development from existing roads that are of sub-standard width and safety.
- The use of development impact fees.
- Managed failure of roads to disposal.

In addition to these, there are some National Initiatives for non-asset based Demand Management solutions and these are;

- Alternative transport modes (increased access to public transport options).
- Strategic alliances with neighbouring Road Controlling Authorities.
- Cycling Strategies to promote non-vehicular transport options
- Speed limit changes

Currently Council provides for some of these solutions through Policy, By-laws and Development Consents to control growth and the random addition to the asset that may create a capacity or safety issue on the network.

NZTA produced the Speed Management Guide in November 2016, which modernises the approach to managing speed in New Zealand. The Guide is underpinned by the Safe System approach and One Network Road Classification (ONRC).

ONRC considers factors such as road function, design, and traffic volumes and is a key input to calculating safe and appropriate travel speeds.

7 RISK MANAGEMENT

7.1 INTRODUCTION

Risk is defined as the effect of uncertainty on objectives e.g. deviation from the expected. Risk Management is the coordinated activities to direct and control an organisation with regard to risk.

The purpose of this Risk Management Plan is to identify those activities, the costs and resources required to direct and control the risks associated with the roading activity and assets. This requires approaching the risks from many perspectives including financial, operational, organisational, and public health and safety.

Following risk analysis, it is necessary to develop more detailed risk plans where the criticality of specific assets is assessed and an action plan developed as appropriate.

Risk management involves balancing the possible effects of failure on public safety, together with the effect on the environment, social and cultural implications, business activity and likely costs to remove the risk. The objective of risk management is to identify the specific business risks, together with any possible risks to the health and safety of employees, other contractors and the travelling and general public, associated with the ownership and management of the transport assets. This can be used to determine the direct and indirect costs associated with these risks, and form a priority-based action plan to address them.

The Council has a responsibility to assess the risks in order to best manage the network with the resources available to avoid and mitigate the effects of any event.

Risk Management methodology aims to be consistent with the intentions of AS/NZS 4360: 2004 “Risk Management” Standard to a scale appropriate to its asset.

This Risk Management Policy provides the framework for how we manage our strategic and operational risks.

SWDC will:

- engage with our stakeholders to effectively identify and manage risk to ensure that our objectives and purpose are achieved, and our approach to risk is understood.
- create and maintain a Risk Register.
- determine the level of risk for our organisation by considering the probability and impact and our purposes and objectives.
- Separately identify risks and implement an appropriate plan to pepare for all significant events and projects

1.1 RISK RATING

The following sections expand upon the risk management process used. The steps include

- Identifying all possible risks to achieving the objectives of this AMP.
- Identifying the likelihood and consequences.
- Determining the level of gross risk and prioritise. Gross risk is based on “no measures in place” to prevent or minimise the likelihood or consequence

- Determine net risk after considering current practice and strategies
- Determining and costing mitigation measures
- Determine level of risk after mitigation and management options
- Monitoring
- Budget for mitigation measures

7.1.1 Likelihood Scale

The likelihood scale sets out a standard method for assessing the probability of an event occurring.

Table 12 Likelihood Scale

Level	Descriptor	Description	Indicative Frequency	Probability of at least one occurrence in 10 years
A	Probable	The threat is expected to occur frequently	> 1 year	>99.9
B	Common	The threat will occur commonly	1 to 5 years	90% to 99.9%
C	Possible	The threat occurs occasionally	5 to 10 years	65% to 90%
D	Unlikely	The threat could occur infrequently	10 to 50 years	20% to 64.9%
E	Rare	The threat may occur in exceptional circumstances	>50 years	<20%

7.1.2 Consequence Scale

The Consequence scale sets out a standard method for measuring the consequences of an event occurring.

Table 13 Consequence Scale

Level	Descriptor	Consequence Types						
		Health and Safety	**Image / Reputation**	**Environment**	**Annual Cost**	**Obligations**	**Network Condition**	**Serviceability**
I	**Negligible**	Slight Injury	Brief local media cover	Short term damage	< $10k	Excessive rate payer complaints	Net reduction to asset value < $100,000	Minor localised flooding negligible nuisance value
II	**Minor**	Minor Injury	Local media cover	Limited, medium term, ecological damage	$10k to $100k	Minor claims.	Net reduction to asset value $100 to $500 thousand	Significant localised flooding minor nuisance value
III	**Moderate**	Serious injury	Regional media cover or short term national cover	Significant, but recoverable, ecological damage	$100k to $1M	Abatement Notice, RMA prosecution, Audit tags	Net reduction to asset value $0.5 to $2 million	Disruption of normal operations in localised area moderate nuisance value
IV	**Major**	Several fatalities	Sustained national media cover	Heavy ecological damage	$1M to $10M	Government or independent commission of Inquiry	Net reduction to asset value $2 to $10 million	Temporary disruption to large area or prolonged disruption to smaller area
V	**Severe**	Multiple fatalities	International media cover	Permanent widespread ecological damage	>$10M	Central government takeover	Net reduction to asset value > $10 million	Prolonged disruption to major facility or large area

7.2 RISK RATING MATRIX

The Risk Rating Matrix combines the likelihood and consequence into a standard measure to enable appropriate consideration of measures to mitigate the risk.

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

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

Table 14 Risk Rating Matrix and Scale

Likelihood		Consequence				
		I	II	III	IV	V
		Negligible	Minor	Moderate	Major	Severe
A	Probable	Medium	High	High	Very High	Very High
B	Common	Medium	Medium	High	High	Very High
C	Possible	Low	Medium	Medium	High	High
D	Unlikely	Low	Low	Medium	Medium	High
E	Rare	Low	Low	Low	Medium	Medium

Rating	Description
Very High	Intolerable. Urgent action required
High	Take actions to reduce risk to as low as reasonable possible. Mitigation plan required for each risk.
Medium	Tolerable. Consider mitigation measures on case by case basis. Measures to reduce risk if justified.
Low	Business as usual.

The level of action for each risk rating is described below:

- **Very High:** Risks in the very high category are considered intolerable and immediate action is required to reduce the likelihood or consequence to reduce the risk to a lower category. Risk treatment options may be required that are not justifiable on strictly economic grounds. Safety, legal and social responsibility requirements may override financial considerations.
- **High:** High risks are undesirable, but may be accepted if they cannot be reduced or avoided. All reasonable measures should be undertaken to reduce these risks to as low a level as possible, regardless of cost, inconvenience or other factors. As a minimum there should be a specific risk treatment plan for each entry in the "high risk" category.

- **Medium:** Items in the medium risk category should be evaluated on a case by case basis. Action to reduce these risks will be undertaken only when the potential benefits of the risk treatment outweigh the expected costs. Normal project evaluation criteria can be used to assess potential risk treatment measures for medium risks.
- **Low:** No action required for low risks, other that monitoring to ensure they do not progress into higher risks.

7.3 RISK REGISTER AND MITIGATION

Activities associated with roading services can be categorised by function into four broad areas for risk assessment as shown in the table below. Under each category or function heading is a list of processes that might occur within the roading activity. Each process can have a number of risks. This method of categorisation of risks is used to methodically develop a risk register.

Table 15 Activity Categories for Risk Register

Activity Area	Asset Management Risks	Business Risks	Customer Services Risks	Operational Risks
Processes	Forward Planning	Funding Provision	Public Request Management	Routine Operation & Maintenance
	District Roading Programme	Governance	Managing Response Times	Planned Maintenance
	Information Systems & Management	Legislation Compliance	Managing Customer Expectations	Routine Inspections (Contractor/ Consultant/ Council)
	Standards and Guidelines	Policy Development	Level of Service changes	Work's Programming
	Demand Change	Procurement	Customer Expectation change	Facilities Management
	Data Storage	Employment	Customer not understanding service levels	Data capture, analysis and forward forecasts
	Data Analysis	Financial Management & Reporting	Recording Data	Contract Administration (reporting, programmes, quality management, service delivery)

Activity Area	Asset Management Risks	Business Risks	Customer Services Risks	Operational Risks
	Resources	Political	Analysing Data	Capital and Renewal Physical Works Projects (QA, Management, Timeliness)
	Contract Administration	Staff (Council)	Customer Consultation	Budget Constraints
	Performance Tracking (Contracts and Consents)		Customer expectations research	

A risk treatment is focussed on risks rated high or very high in the first instance. Risk treatment options fall into the following categories:

- Avoid the risk by opting not to start/continue with activity that gives rise to the risk
- Reduce the likelihood of the negative outcomes
- Reduce the consequences
- Sharing or transferring the risk with other organisations
- Retaining the risk, after all reasonable treatment measures have been considered.

Some risks may be rated high initially due to uncertainty in the likelihood or effects and the risk treatment plan may consist of further investigations or assessments to better define the level of risk. Other risk treatment options may consist of financial controls (e.g. insurance), operational improvements, contingency planning or physical works to reduce risks.

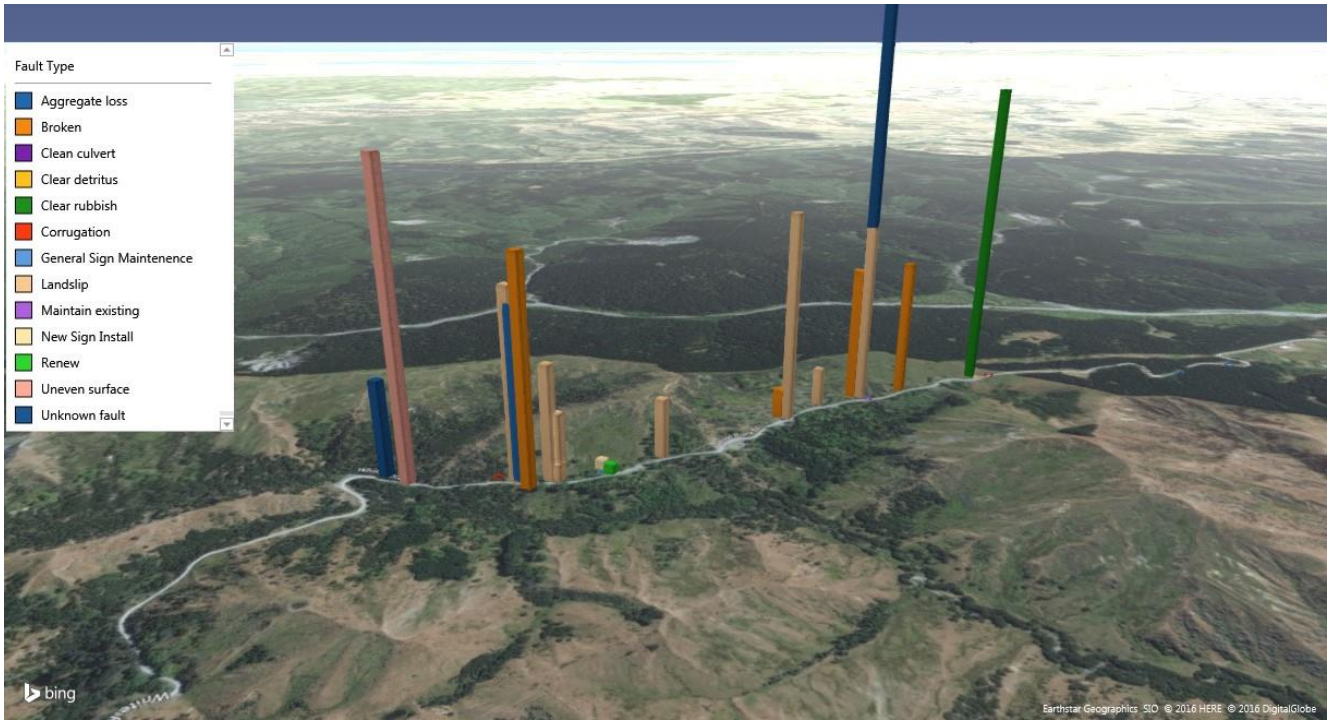
Where necessary budget provision is required to address the high risks where management practices cannot mitigate or eliminate them.

Critical to managing risks is monitoring and auditing. Procedures will be put in place to monitor, measure, and report on and review the action plan alongside the AMP improvement plan. In addition audits may be required to measure “effectiveness” of the measures.

7.4 CRITICAL RISKS

7.4.1 Flooding

There are a number of no exit roads serving large areas on the east and south coast of the district where access may be restricted by flooding, washouts and slips. In most cases access is restored in a day or so. These roads have a number of bridges the failure of which may cause a more significant challenge. These locations pose a high risk. The Council is currently investigating eliminating a flooding hazard to enable access to a rural school at Tututrumuri.



The graph above is a pictorial representation from the RAMM database of the amount of activity on a piece of road, showing the location of works completed and the quantity of work completed. E.g. the taller the column on the graph, the more work was completed.

7.4.2 Special Purpose Road funding

"Special purpose roads" are a group of local roads that for a number of years received very high funding assistance rates. The special purpose roads currently receive a higher funding assistance rate than the other local roads. NZTA has proposed reducing the funding model from 100% funded to 52% over 6 years at a reduction of 8% per year. SWDC are currently working with NZTA on this proposed funding reduction.

The Special Purpose Road (SPR) includes bridges which would be included in the reduction of the FAR rate for the SPR. SWDC's current understanding based on engagement with NZTA to date, is that NZTA will fully fund the replacement of these bridges when the time comes. The replacements will not occur within the AMP period. We estimate they will need to be replaced in approximately 20 years' time. Ongoing maintenance of these bridges will be covered by approved NZTA budgets.

Funding assistance rate (FAR)

NZTA reviewed the funding assistance rate a council receives in 2015 taking into account factors that **materially affect its ability to deliver optimal land transport outcomes**. As a result Council's subsidy rate moved from 49% to 52% for the majority of our roading assets.

Road Closures

Cape Palliser Road has a couple of areas where there is potential for the road to be closed for longer periods because of wave erosion or large scale slip e.g. Te Kopi, Johnson's Hill, Whatarangi Cliffs, Kawakawa. Most of these sites have seawalls protecting the toe of the bank now which has reduced the risk rating to 'high'. The seawalls require ongoing maintenance and inspection. A preventative maintenance plan has been prepared for this road.

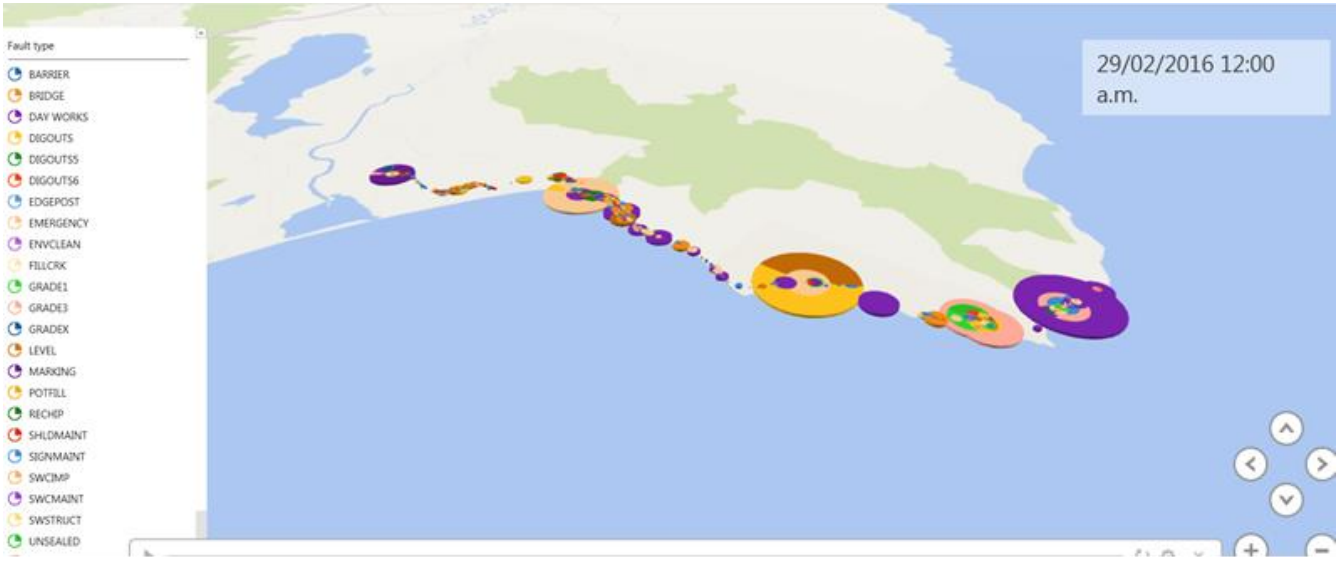


Figure 14 SPR expenditure Map

THE GRAPH ABOVE IS A PIE GRAPH VIEW FROM RAMM SHOWING THE AMOUNT AND LOCATION OF WORK CARRIED OUT ON THE SPR (CAPE PALLISER ROAD). THE LARGER THE CIRCLE, THE MORE WORK WAS DONE.

7.4.3 Collective driving Risk

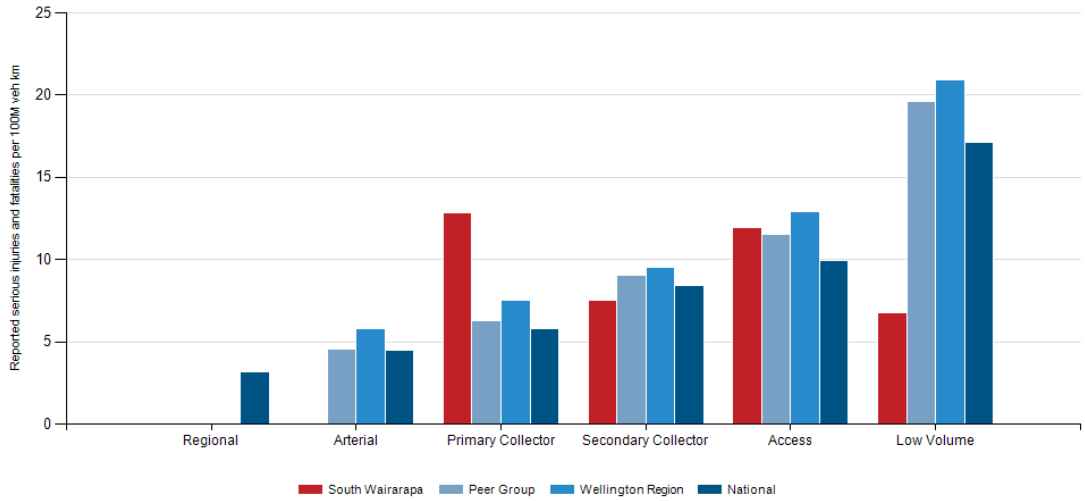


Figure 15 The total number of reported serious injuries and fatalities by traffic volume over the past 10 years on the network

The graph above shows the number of crashes per 100km for South Wairarapa versus other areas of New Zealand. The number of *rural* crashes occurring within the

classification is divided by the number of years of data (the difference between the first crash in the classification and the last up to a maximum of 10 years) to get a number of crashes per year. This is then divided by the length of network within the classification to calculate the Collective Risk.

The New Zealand Road Assessment Programme, KiwiRAP, analyses the road safety of the state highway network. It is a partnership between the NZ Automobile Association, NZ Transport Agency, Ministry of Transport, ACC and NZ Police.

The Collective Risk ranges for rural roads from the KiwiRAP programme are:

- Low is <= 0.039
- 0.04 <= Low-Medium <=0.069
- 0.07 <= Medium <=0.10
- 0.11 <= Medium-High <= 0.189
- High > 0.19

Table 16 ONRC Performance measures Collective risk

Classification		Collective Risk
National	South Wairarapa District Council	0.000
	Rural Districts	0.000
	Wellington Region	0.000
	National	0.000
Regional	National	0.225
Arterial	Rural Districts	0.059
	Wellington Region	0.219
	National	0.140
Primary Collector	South Wairarapa District Council	0.022
	Rural Districts	0.029
	Wellington Region	0.078
	National	0.053
Secondary Collector	South Wairarapa District Council	0.006
	Rural Districts	0.012
	Wellington Region	0.026
	National	0.017
Access	South Wairarapa District Council	0.005
	Rural Districts	0.004
	Wellington Region	0.010
	National	0.006
Low Volume	South Wairarapa District Council	0.001
	Rural Districts	0.002
	Wellington Region	0.005
	National	0.003

7.5 PERFORMANCE MEASURES

7.5.1 Road Safety

The Crash Analysis Risk Matrix from NZTA's Crash Analysis System identified two areas of concern in the most recent report covering both local roads and the State Highways. These were speed and young drivers.

The table below shows the number of crashes that have occurred on the SWDC network over the period 2010-2015. Over 50% of fatal and serious injury crashes occurring on the SWDC rural roading network take place where there have not been other fatal or serious crashes within a 250m radius within the last 5 years. This makes reduction in crashes difficult to achieve if individual crash sites are targeted and therefore a programme that addresses routes is likely to be more effective.

7.6 COLLECTIVE RISK FROM THE REPORT ON SOUTH WAIRARAPA DISTRICT COUNCIL ONRC SUMMARY REPORT

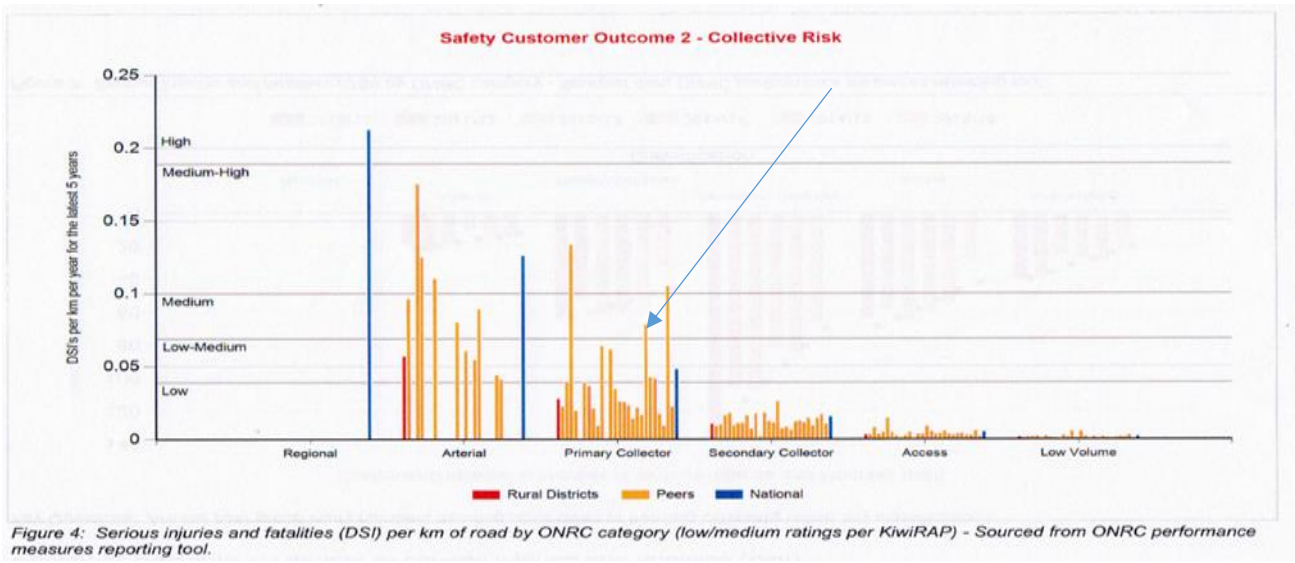


Figure 4: Serious injuries and fatalities (DSI) per km of road by ONRC category (low/medium ratings per KiwiRAP) - Sourced from ONRC performance measures reporting tool.

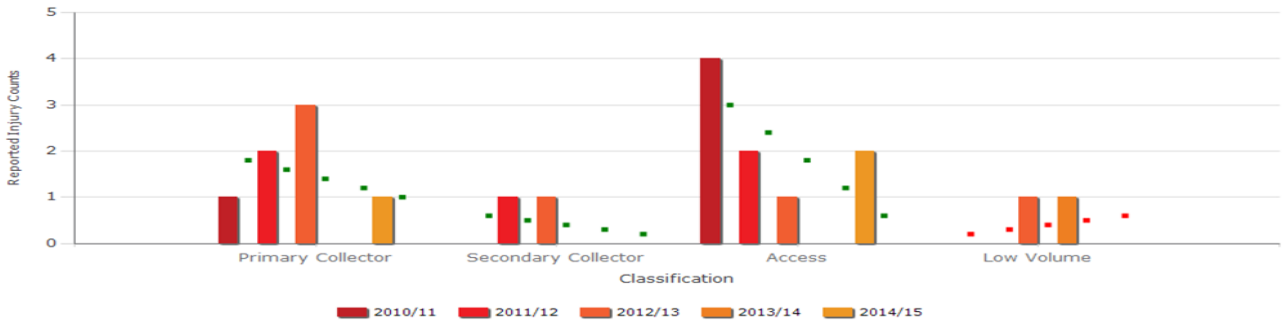
Figure 16 Collective risk

The graph above indicates the customer safety outcome for various types of roading in various districts around the country. South Wairarapa District Council is the 18th orange bar across from the left. The red bar is the Rural Districts average and the blue bar is the National Average. This indicates that South Wairarapa is a relatively safe district to travel in.

The collective & personal accident risks for the South Wairarapa are in the low and low medium KiwiRAP ratings. KiwiRAP is the Automobile Associations rating system for roads (Kiwi Road Assessment Programme).

Figure 17 ONRC Serious Injury and Fatalities Safety outcome 1

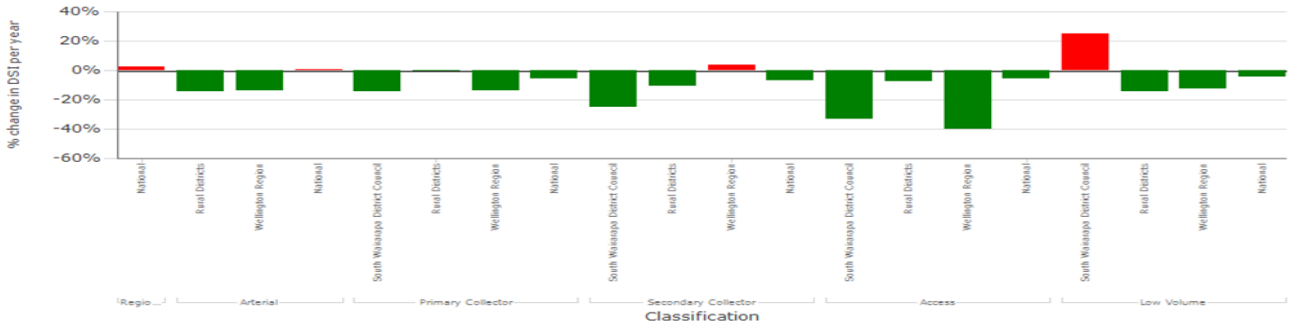
The total number of reported serious injuries and fatalities (DSI) each year on the network



DSI Counts	National	Primary Collector	Secondary Collector	Access	Low Volume	Total
2010/11		1		4		5
2011/12		2	1	2		5
2012/13		3	1	1	1	6
2013/14					1	1
2014/15		1		2		3

Comparative trend in reported serious injuries and fatalities (DSI) over a 5 year period

This graph shows the trend in serious injuries and fatalities over the last five years as a percentage of the average. Worsening trends are shown in red, improving trends in green.



Trend (Percentage of DSI per year)	National	Regional	Arterial	Primary Collector	Secondary Collector	Access	Low Volume
South Wairarapa District Council	0.00%			-14.29%	-25.00%	-33.33%	25.00%
Rural Districts	0.00%		-14.53%	-0.17%	-10.68%	-7.76%	-14.29%
Wellington Region	0.00%		-13.56%	-13.71%	3.61%	-40.00%	-12.50%
National	0.00%	2.79%	0.13%	-5.84%	-6.83%	-5.48%	-4.31%

Peer Groups and Regions include Local authorities only
National - Excludes NZTA, Chatham Islands Council, DOC Roads

Network statistics

RCA	Classification	Urban Rural	Network length (km)	Lane kms
South Wairarapa District Council	National	Urban	7.3	14
	Primary Collector	Urban	2.2	4
		Rural	61.9	123
		Total	64.1	127
	Secondary Collector	Urban	4.3	8
		Rural	167.2	334
		Total	171.6	342
	Access	Urban	26.0	51
		Rural	201.2	378
		Total	227.1	429
	Low Volume	Urban	23.1	45
		Rural	152.0	234
		Total	175.0	279

2 data validation error messages

The crashes were grouped by road to identify which roads had the highest number of crashes. It is well known that on rural roads a large number of crashes go unreported. It is therefore expected that sites identified through CAS are also likely to have unreported crashes and therefore using the CAS data to identify the routes to be treated is considered the best approach.

Evident in both of the CAS output is the large proportion of crashes that occur on bends, 64% of fatal and serious crashes and 58% of all injury crashes.

The percentage of high severity crashes occurring in the dark and the wet was compared against average figures in Appendix B of the NZTA High Risk Rural Road Guide and were found to be average for wet and below average for dark crashes.

The individual roads identified through the CAS search were ranked according to the absolute number of crashes, crashes per year per km and crashes per year per km multiplied by the AADT. This was undertaken for all crashes, all injury crashes and all serious and fatal crashes.

Undertaking this level of analysis on the SWDC becomes problematic as the severity of the of crash types increases as there are not enough crashes to allow meaningful analysis of the data on a road by road basis. If all fatal and serious injury crashes on the network as a whole are considered 80% take place on rural roads (those having a speed limit greater than 80km/h) and when all injury crashes are considered 76% take place on rural roads.

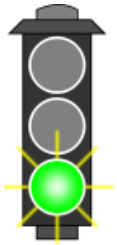


Figure 18 The total number of reported serious injuries and fatalities per kilometre over the past 10 years on the network

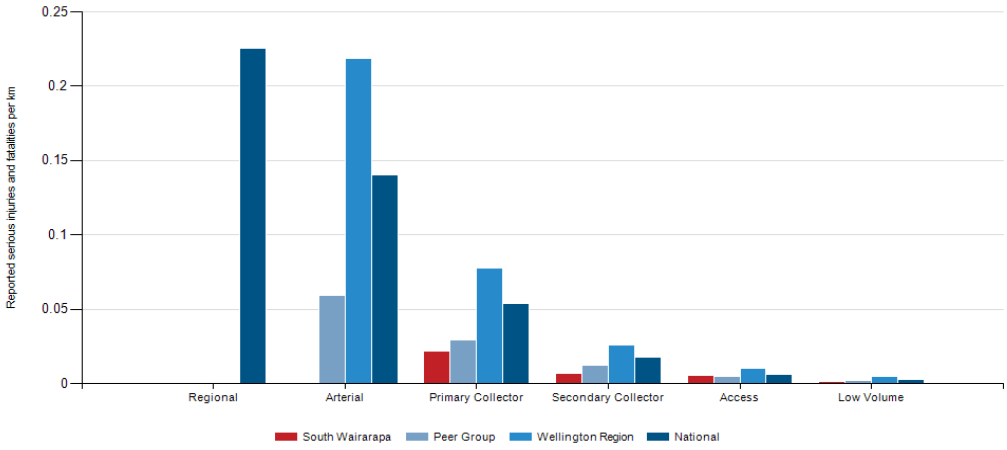
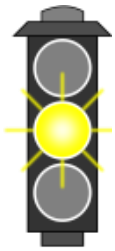
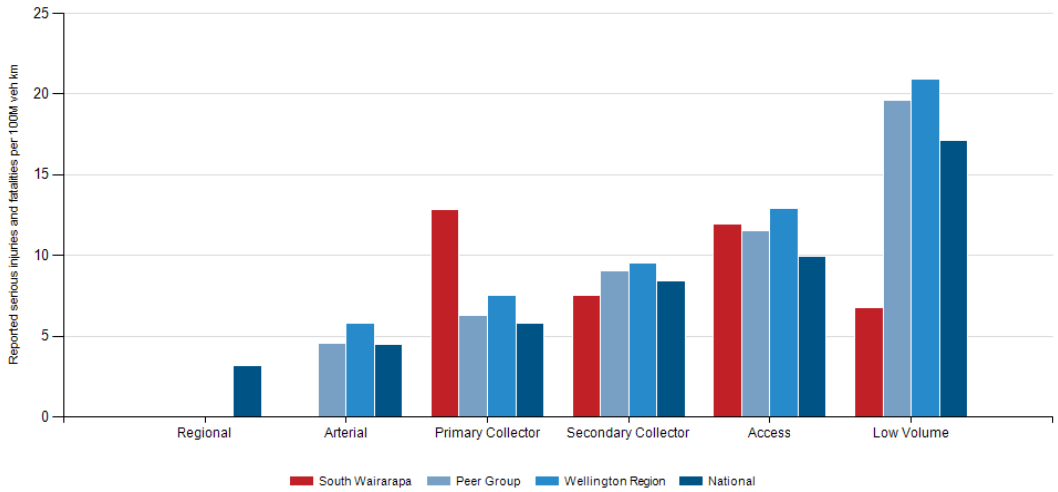


Figure 19 Serious and fatalities (Vehicle KM)





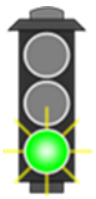
The total number of reported serious injuries and fatalities per kilometre over the past 10 years on the network

The analysis of the accident data shows that South Wairarapa District is in a low category for collective road accidents risk but high for personal risk. This means that the number of accidents in South Wairarapa is not significant nationally but each driver needs to be particularly vigilant to avoid accidents.

The collective and personal accident risks are in the low and low medium KiwiRAP ratings. However the personal risk on the primary collector roads is significantly higher than the peer group. Note the collective risk is low because, compared to the Peer Group, the traffic volume on the primary collectors in South Wairarapa are low. The personal risk level on the primary collectors will be driven by a few serious and fatal accidents.

7.6.1 Conclusion & Recommendation

Funding from the low cost-low risk category will be used to address the safety hazards on the primary collectors so the personal risk is reduced on these roads. Road safety education will have a focus of informing drivers of the high risk of accidents and consideration will be given to revision of speed limits on the network.



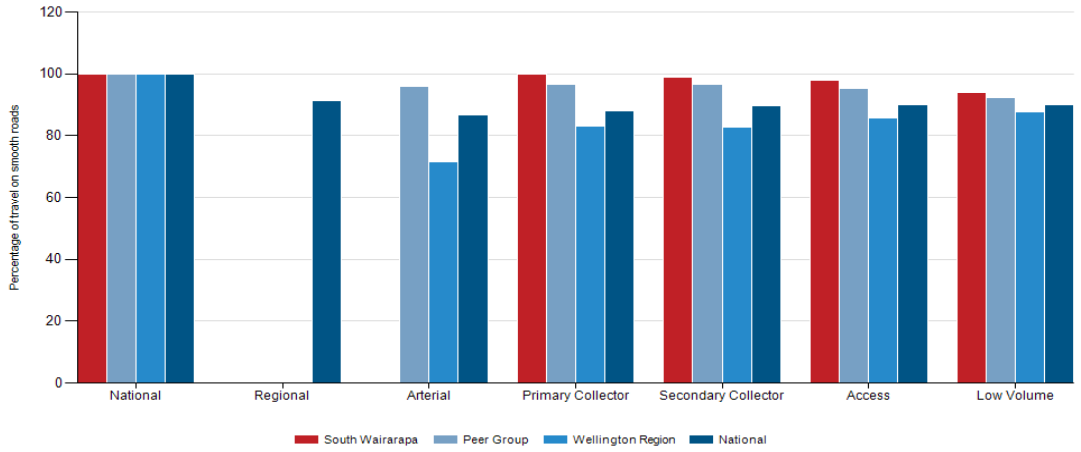


Figure 20 Smooth Travel

7.6.2 Cost Efficiency

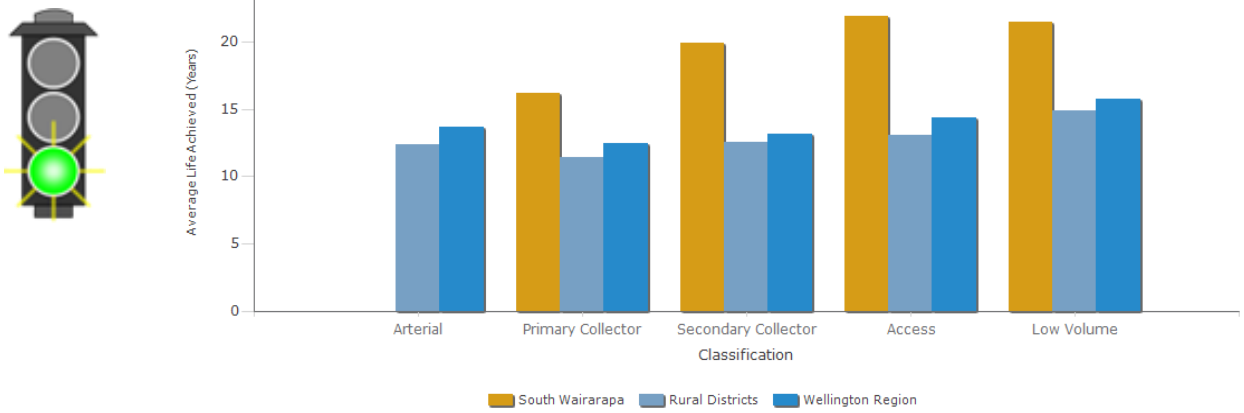


Figure 21 Sealed Road Maintenance costs

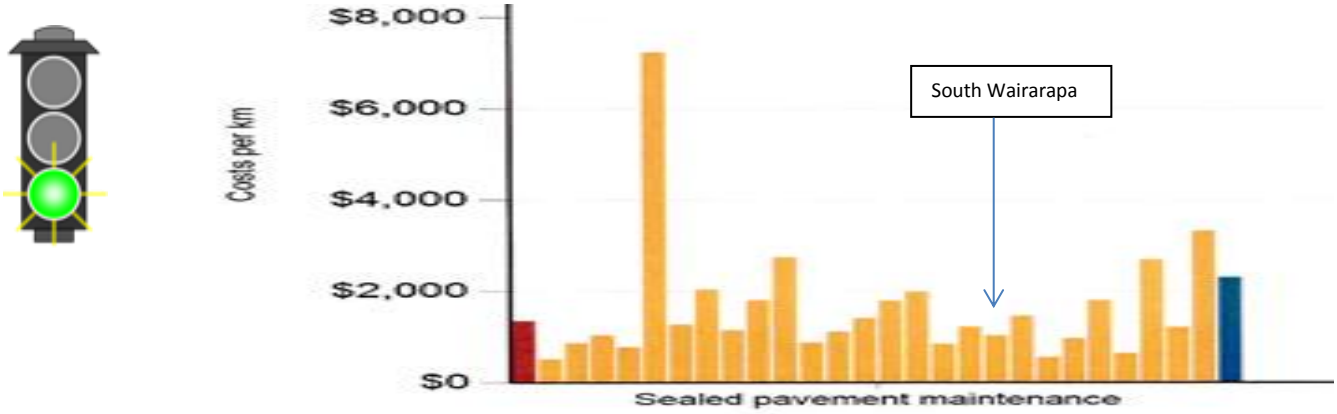


Figure 22 Cost Per KM

7.6.3 Conclusion & Recommendations (continued)

Further analysis shows that the performance on unsealed roads requires monitoring. The South Wairarapa District Council ONRC Summary Report shows the cost for unsealed roads maintenance is just above the national average.

The programme of work that provides the best value is the current level of activity, with minor budget adjustments primarily for escalation. The relative cost of unsealed road maintenance and renewal are not at a level that requires urgent action.

Vehicle speed is a major factor in the likelihood of crashes occurring and in the resulting injuries that are sustained by people in the vehicles involved, hence the high percentage of fatal and serious crashes occurring on rural roads. The Minor Safety programme is targeted at rural roads as this will lead to the greatest reduction in high severity crashes.

Based on the analysis six roads have been identified for treatment. These roads are generally more than 10km long and have more than 16 crashes (all types) each in the period analysed. They also have some of the higher AADTs on the SWDC network and all are rural roads (speed limits greater than 80km/h).

The six roads are:

- Kahutara Road
- Western Lake Road
- Bidwills Cutting Road
- Lake Ferry Road
- Hinakura Road
- Ponatahi Road

Noting the above comments on route treatment there is one location that due to the nature of the horizontal and vertical alignment should be treated as a priority. The Ruamahanga River Bridge on Kahutara Road has a cluster of crashes (one serious injury, two minor injuries and one non-injury) on the approaches to the bridges. These crashes combined with the tight horizontal curves and vertical curves onto the bridge make this location a high risk site. The existing guardrail is unlikely to perform correctly if struck and the signage on the approach to the bridge needs to be upgraded. This site should be treated first out of the sites contained.

Details of the proposed works are listed in 'SWDC Minor Safety Programme' Spiire NZ Ltd (now Calibre Consulting), July 2014.

Road Infrastructure Safety Assessment (RISA) studies have consistently found three issues SWDC roads.

These are

a) AGE OF SIGNS:

A number of signs are very old or have been superseded e.g. white /back chevrons with yellow/black chevrons. The maintenance contracts will identify these where there is an issue in daytime and night time surveys.

b) INCONSISTENT T INTERSECTIONS

A lot of the rural T intersections have slip lanes resulting in differing behaviours across the T intersections in the district. Consistency is a key aspect of road design.

c) INCONSISTENT STANDARDS

Where rural roads have had substantial repairs the opportunity has been taken to improve the carriageway width. This results in an inconsistent driving experience and may result in differing speeds.

The Council is conscious of these issues going forward and as work is required will ensure they do not continue. It is proposed that the issues be dealt with in conjunction with any other necessary work.

7.7 INSURANCE

The roading assets listed below are covered by insurance and the schedule of insured assets is reviewed annually. All assets listed are insured only for the non-subsidised portion

of their replacement value except where noted. Assets not included in the list are not insured.

Table 17 Insured Assets

Asset	Insured value
Signs, Sumps, Culverts Road Furniture Retaining Walls	48% of the replacement value (i.e. 100% less 52% NZTA subsidy)
Bridges	48% of the replacement value (i.e. 100% less 52% NZTA subsidy) for all bridges 100% of the replacement cost for all non-subsidised bridges

7.7.1 Insurance of Vested and New Assets

Capital additions, such as new and vested assets are covered to a maximum at any one time of $200,000. Advice of this must be reported to the insurer at the end of each quarter.

All capital additions above $200,000 must be advised immediately to be added to the schedule of insured items/property to the insurer.

Additionally, any building or structure on which there are any Contract Works to be carried out, where the contract price exceeds $500,000, advice must be given to the insurer. The cover on any existing building becomes null and void over that limit.

7.7.2 Funding of Repair of Damage after Events Not Covered by Insurance

Funding for repair of damage to assets not covered by insurance, or the portion not covered by insurance, would mainly be achieved by stopping non-essential works and services and redirecting the funding to cover the cost of recovery or using existing reserves.

7.8 LIFELINES WAIRARAPA ENGINEERING LIFELINES ASSOCIATION

To complete the risk analysis, all known external risk management procedures and processes that are relevant to the Council's Roading Activity, need to considered and linked to the internal processes. SWDC is a member of the Wairarapa Engineering Lifelines Association (WELA). The WELA project report "Risk to Lifelines from Natural Hazards" completed in 2004, identified hazards, key routes and at risk bridges and is the primary reference for hazards and engineering effects on transportation networks.

Also relevant are reports by the Wellington Lifelines Group which include the adjoining local authority Upper Hutt City

- 'Transport Access- initial project report' – March 2013 WeLG / WREMO
- 'Restoration Times'– November 2012 WeLG
- Other reports include "Lifelines in Earthquakes" Centre for Advanced Engineering

7.8.1 Disaster Recovery Plan:

In an emergency, land transport assets have to enable access into and out of the community and to key infrastructure within the community. It is expected that in a

significant natural disaster, e.g a major earthquake, there could be significant damage to both, limiting this access.

A disaster recovery plan for the land transport assets has not yet been prepared although the WELA sets a good foundation.

This plan would provide a general description of South Wairarapa's land transport network to ensure ready access to information on the extent and exposure of the network that might be required during an emergency. This would support decision-making on the most effective response and for recovery of land transport. In addition, it would describe the processes to be followed in terms of roading assets to determine the priority of the works.

Natural disaster events such as earthquake, flood, wind and man-made disasters would also be considered with the initial response to an event and order of priority of inspection of land transport assets also documented.

Hazards that are immediately prevalent are generally mitigated or isolated immediately. Potential risks are monitored, typically monthly to six monthly depending on the perceived level of risk, until such time as a detailed analysis can be undertaken.

7.8.2 Emergency Management

Wellington Region Emergency Management Office (WREMO) was formed in 2012. It is a semi-autonomous organisation that co-ordinates Civil Defence and Emergency Management (CDEM) services on behalf of the nine councils in the Wellington region.

WREMO has three core groups: Community Resilience, Operational Readiness, and Business and Development. Most of the time WREMO are not responding to an emergency. So their structure is focused on the tasks we do most often – readiness and reduction.

During an emergency, the Wellington Region can activate up to six Emergency Operations Centres. These are located in Wellington, Hutt City, Upper Hutt, Masterton, Porirua and Paraparaumu. The centres' response effort is coordinated by an Emergency Coordinating Centre.

The Emergency Operation Centres and Emergency Coordinating Centre are run by the relevant council, with support from the wider CDEM Group. WREMO staff support the activated centres.

Figure 23 Road Closure due to Flooding

Resilient communities are able to plan for, respond to and thrive after a disastrous event. At the heart of a resilient community is a robust set of social networks which help people address the challenges in their day-to-day lives, as well as those that occur in times of extreme stress.

The Wellington Region Emergency Management Office's (WREMO) Community Resilience Team will engage with its communities and apply a wide-range of tools to help empower them to survive and thrive after an emergency event.

It is broadly driven by three strategic objectives which are - build capacity, increase connectedness and foster cooperation. A core principle is the idea that individuals, organisations and communities have varying levels of interests, resources, needs and organisational capacity. Consequently, they will adopt and sustain preparedness activities which are appropriate for them. WREMO support a "Communicate and Collaborate" methodology, proactively engaging with communities, supporting local ideas and existing structures, and facilitating various opportunities that lead to increased connectedness and preparedness.

The Resilience Team acts as primary lead and facilitator in areas directly related to disaster resilience, while supporting the activities of other organisations and groups working to build strong communities outside the Emergency Management space.

8 LIFECYCLE MANAGEMENT

The overall objective of the Lifecycle Management Plan is to maintain the assets to ensure that the current management strategies do not consume the assets, leading to an unexpected increase in maintenance or renewal expenditure in the future. This is particularly relevant to the pavement.

This section outlines what actions and controls are currently in place or planned to be done to manage the assets and to operate at the agreed levels of service while optimising lifecycle costs.

The lifecycle plan is divided into the ten main roading assets:

- Sealed Pavements
- Unsealed Pavements
- Pavement Drainage
- Bridges
- Culverts
- Structures and retaining walls
- Carriageway Lighting
- Traffic Facilities and guardrails
- Footpaths and Pedestrian Access ways
- Vegetation and Streetscapes

For each asset the following issues are addressed:

- Asset Description (including how asset data is stored)
- Asset Condition and Monitoring
- Age Distribution and Life
- Issues
- Critical Assets
- Asset Capacity /Performance
- Design Standards
- Maintenance Plan
- Renewal
- Asset Acquisition and Creation Plan
- Disposal Plan

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

- Slip removal
- Flood damage repairs

- Minor improvement projects
- Road safety

The roading network in the South Wairarapa District can be categorised by the terrain and development which includes the flat/rolling Wairarapa Valley, the rugged coastal hills on the east and south of the district, a number of small townships and villages and the coastal Cape Palliser Road. While each category presents different issues they are not specifically separated in the Lifecycle Management Plan.

8.1 FORWARD WORKS PROGRAMME

The Forward Work Programme (FWP) is an integral part of the Lifecycle Management Plan setting out the planned physical works required to maintain the assets and therefore meet the specified Levels of Service for each category of road. SWDC has not yet aligned the work programme to the Levels of Service specified for each category of road under the ONRC. It is the Council's intention to fully implement this over the next three years for the 2018-2021 AMP review.

The current FWP prepared in October 2014 for the next three years has assessed the need where information is available and recommended changes to the budget provisions. For some assets it is based on the historical spend and the continued trend of good network condition. A full 10 year FWP will be developed and in place before September 2018.The FWP details the following:

- road resurfacing programme (3 years),
- road resurfacing forecast (30 years),
- road rehabilitation (3 years),
- culvert replacement (10 years),
- unsealed road heavy metalling (10 year) and
- bridge replacement.

The funding on each activity has been amended to reflect the prioritisation of their requirements. While roading is Council's largest budget area, the roading network continues to hold up well. Funding policies set by central government however have meant that any improvements to the network, for example seal extensions, no longer attract a subsidy. Council is proposing to pay the full cost for approximately 1 km of seal extension ($125,000), funded from reserves and rural rate payers.

8.2 PROCUREMENT

Apart from roading activity staff identified in the organisation chart above, all other professional services and physical works are provided by external contractors and consultants.

These contracts are competitively tendered in accordance with the Council's Procurement Policy and comply with the NZTA Procurement Manual. The road maintenance physical works contracts are managed by the Roading Manager and the renewal and specialist physical works contracts are managed by a consultant. The professional services contracts are generally managed by the Infrastructure Group Manager assisted, as required, by the Professional Services contract which provides support for miscellaneous activities.

To meet the requirements of the NZTA Procurement Manual SWDC Transport Procurement Strategy generally follows the checklist in Appendix A of the NZTA Procurement Manual 1st edition and provides the required information to meet NZTA's requirements. This is a first generation strategy which will be developed further through regular reviews with SWDC's Roading Activity Management Plan.

This strategy has been prepared by collaboration between the Approved Authorities of the Wairarapa, (South Wairarapa District Council, Carterton District Council and Masterton District Council), in an endeavour to maximise efficiency, share resources and for regional consistency.

Collaboration with our neighbouring councils, enables us to maximise efficiency, share resources and gain regional consistency in achieving value for money through robust procurement strategies.

Due to the diversity of items likely to be contracted for and supplied to both the District Council's Office and Council's agencies, it is essential that firm and clear policies, guidelines and controls are formulated and maintained for the procurement of goods and services.

Table 18 Current Contracts

Contract Description	Contractor	Term (years)	Term Expires
Professional Services			
Professional Services (bridge inspection, resurfacing, rehabilitation, minor improvements, bridge maintenance, NZTA,)	Calibre Consulting (formerly Spiire NZ Ltd)	1.5	June 2019
Professional Services (Valuation)	Opus		
Physical Works			
Road Maintenance	Fulton Hogan	3+1+1	June 2019
Sealed Pavement Resurfacing	Higgins	2+1+1	June 2019
Rehabilitation Contract	Higgins	1+1	June 2019
Streetlight Maintenance	Alf Downs Ltd	3+1+1	June 2019
Footpath Upgrades	Fulton Hogan	1+1+1	June 2018

Roading maintenance contracts have been let using common standard documents tendered at the same time by all three Wairarapa Councils. Each Council lets and manages its own contract separately from the other Councils. Examples include Road Maintenance and Street-lighting Maintenance Contracts.

In addition to the contracts listed above, other contracts may be let from time to time, on an as needed basis, such as improvement projects (< $250,000) and Professional Services to undertake specific one-off short-term projects or work that falls outside of the existing contracts. These contracts are also procured in accordance with the Council's Procurement Strategy, the NZTA Procurement Manual.

The work output standards required to maintain and improve the roading asset have been determined through the maintenance and performance specifications included in the Maintenance Contracts.

8.3 SEALED PAVEMENTS – LIFECYCLE MANAGEMENT

8.3.1 Introduction

Pavements (sealed and unsealed) represent approximately 46% of the roading asset value (excluding land and formation costs). They are therefore the prime focus of the roading activity and the area in which most efficiency gains can be obtained.

8.3.2 Asset Description

The roading network physical data is contained within the RAMM database. This information is continually updated as roads are maintained, resealed or rehabilitated, and new roads are added to the network through subdivision development.

The current details for sealed pavements are summarised below:

Table 19 Sealed Roading Assets

Asset Component	Hierarchy	Total Length (km)	Avg. Width (m)	Area (m^2)
Urban	Primary Collector	9.44	11.78	111,282
	Secondary Collector	4.27	12.39	52,904
	Access	26.85	9.7	260,373
	Low Volume	27.4	7.63	209,155
	Subtotal	**67.96**	**10.38**	**633,714**
Rural	Primary Collector	61.90	6.99	432,934
	Secondary Collector	157.07	6.29	987,669
	Access	101.78	5.41	550,368
	Low Volume	13.17	4.88	64,271
	Subtotal	**333.92**	**5.89**	**2,035,242**
	Total	**401.88**	**6.09**	**2,668,956**

Asset Condition and Monitoring0

8.3.3 Rating Survey

The sealed roading network is condition rated every two years. This involves manually inspecting 10% of the road at regular intervals to identify and measure a number of different forms or types of faults such as:

- Shoving
- Rutting >30mm
- Potholes
- Pothole Patches
- Cracking – Alligator Cracks

- Cracking – Longitudinal and Transverse Cracks

The results of all this inspection data (condition measurements and observations) are recorded against the relevant assets in the RAMM database. Various summary reports form the Condition Rating assessment for the network. This assessment provides a picture of the pavement condition of the sealed roading network and can be compared to previous assessments to identify medium to long term trends resulting from the associated maintenance strategies and funding levels.

8.3.4 Roughness Survey

Roads are measured for roughness on the same frequency as the condition ratings discussed above (biennially), the latest survey completed in November 2017. As with condition data, roughness measurements are also input to RAMM.

8.3.5 Condition/Performance Results

The following represents the outcomes recorded for completed condition rating and roughness surveys:

a) ROAD ROUGHNESS >150 NAASRA COUNTS

Road roughness is measured using a special-purpose vehicle travelling down both the outside lanes of a length of road. The rougher the road, the higher the NAASRA counts per lane kilometre. A NAASRA count of greater than 150 typically indicates a road which is becoming a concern in terms of its roughness and the number of complaints likely to be generated.

b) CONDITION INDEX (CI)

Condition Index is a combined index calculated in RAMM, a 'weighted sum', of the surface faults in sealed road surfaces. CI combines alligator cracking, scabbing, potholes, pothole patches and flushing. The higher the CI number, the better the condition.

c) PAVEMENT INTEGRITY INDEX (PII)

Pavement Integrity Index is a combined index calculated in RAMM of the pavement faults in sealed road surfaces. It is a 'weighted sum' of the pavement defects divided by total lane length. PII combines surface faults (CI) with rutting and shoving. The higher the PII number the greater the pavement integrity.

d) SMOOTH TRAVEL EXPOSURE (STE)

Smooth Travel Exposure measures the percentage of vehicle kilometres travelled in a year (VKT) that occurs on 'smooth' sealed roads and indicates the ride quality experienced by motorists. A 'smooth' road is one smoother than a predetermined NAASRA roughness threshold. The thresholds used vary with traffic density and road location. Heavily trafficked roads have a lower (smoother) threshold. High volume urban roads have lower roughness thresholds than low volume rural roads.

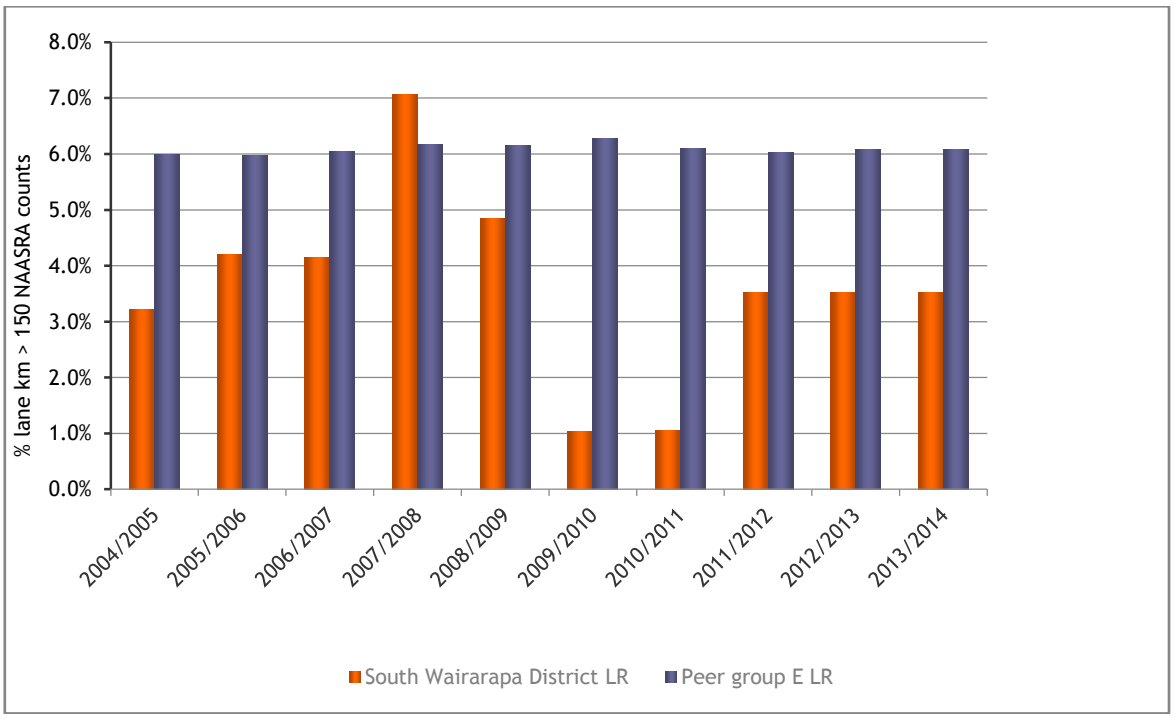


Figure 24 Road Roughness 2004/05 - 2013/14

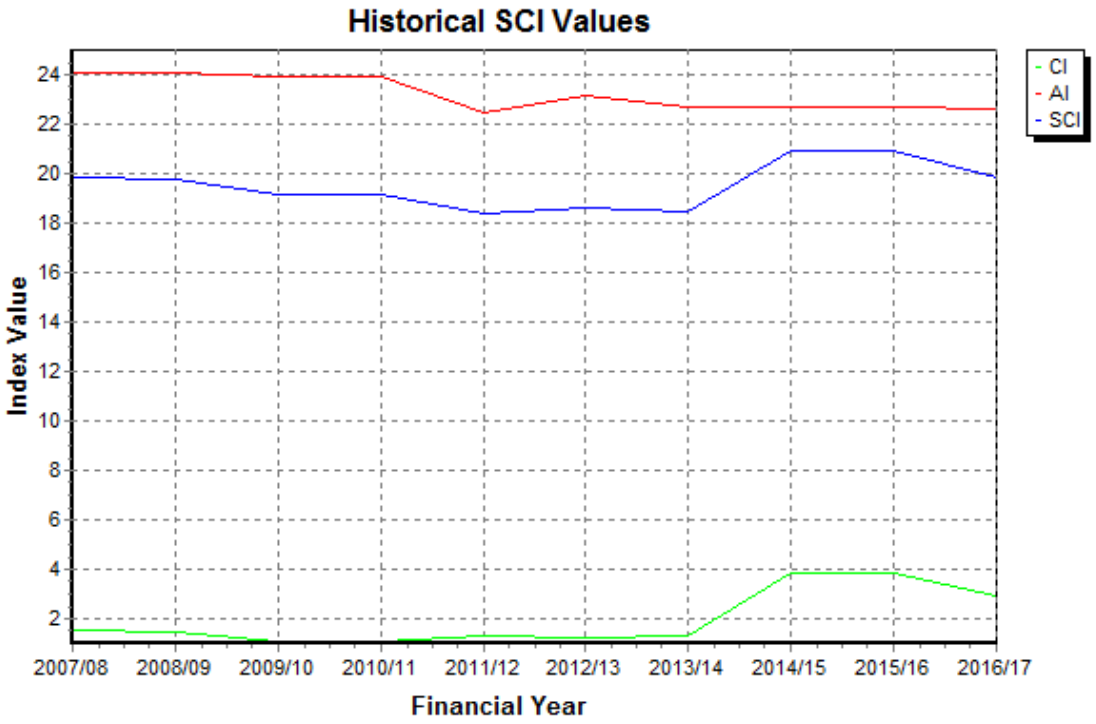


Figure 25 Surface Condition Index (CI) for Sealed Roads 2007/08 – 2016/17

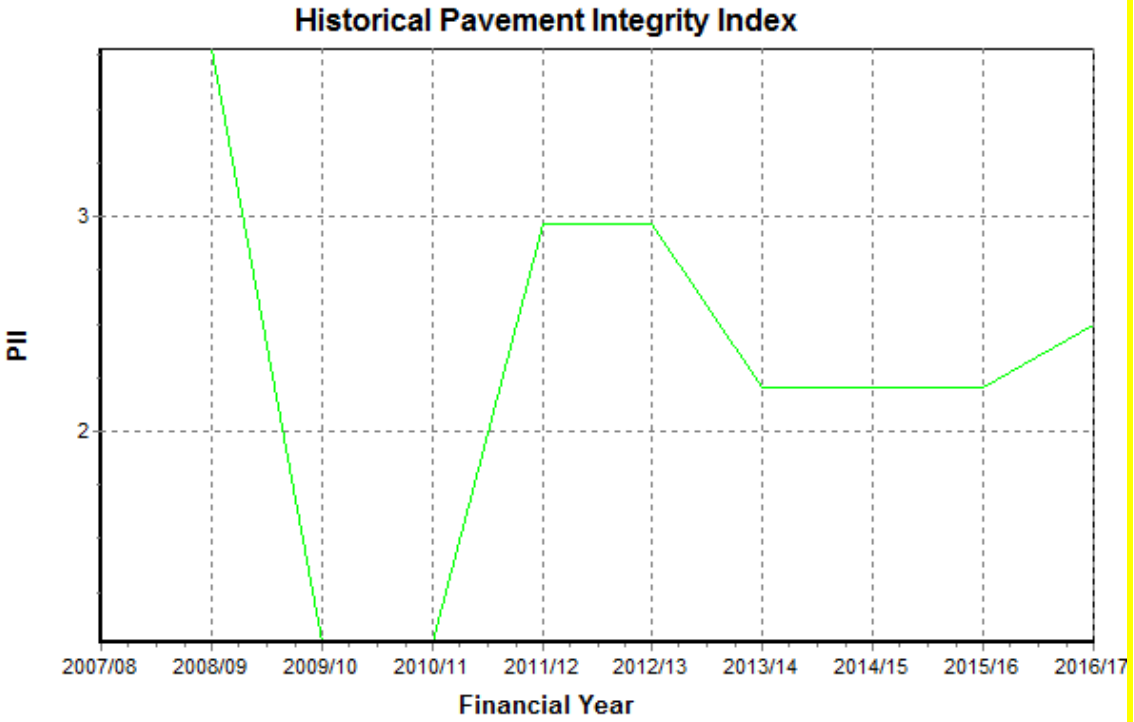


Figure 26 Pavement Integrity Index 2007/08 – 2016/17

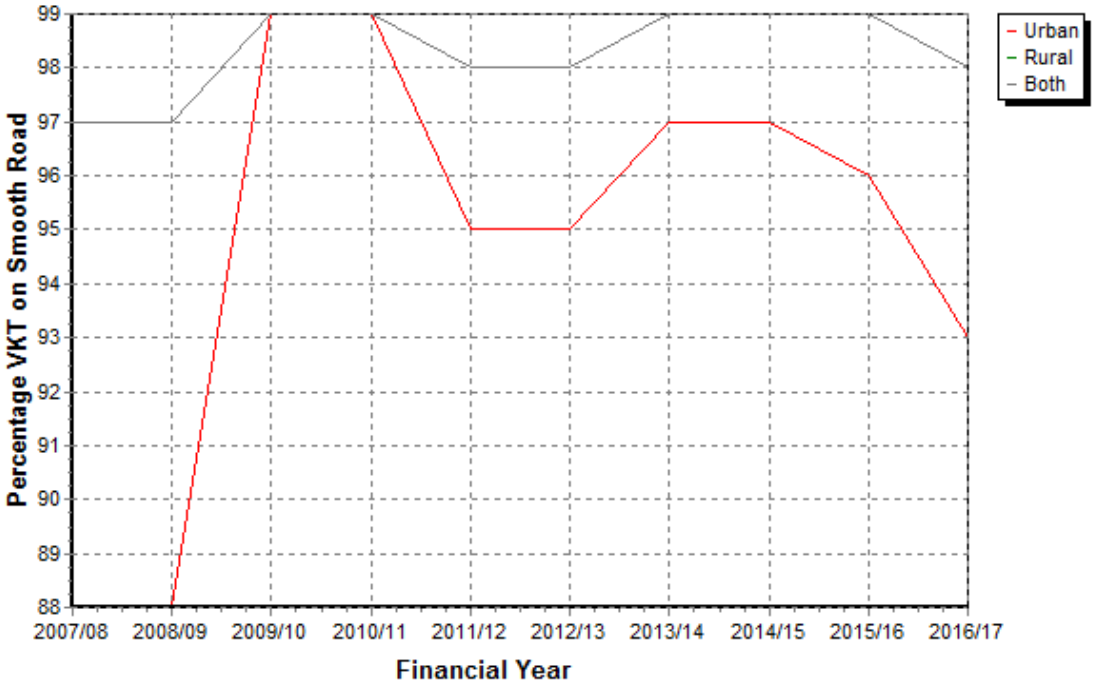


Figure 27 Smooth Travel Exposure for Sealed Roads 2007/08 – 2016/17

SWDC does not have a target measure for roughness instead using CI, PII and STE for performance measures of the LOS.

The Pavement Integrity Index on the other hand has declined recently suggesting defects caused by rutting and shoving are increasing.

Smooth Travel exposure for sealed roads has remained steady.

8.4 Asset Capacity and Performance

No issues have been identified with sealed pavement capacity or performance.

8.5 Design Standards

Pavements are designed in accordance with Austroads and NZTA standards though most roads were constructed before standards applied.

8.6 Maintenance Plan

Maintenance of the sealed pavements is undertaken using a mix of monthly lump sum routine work (inspections, programming, RAMM and pot hole repairs) and ordered work in accordance with the Road Maintenance Contract Specification. The Road Maintenance Contract is a standard document used by the three Wairarapa councils.

The Contractor undertakes inspections of the whole network monthly in urban areas and 6 monthly in rural areas, identifying routine and ordered repairs required to ensure:

- Sealed surfaces remain waterproof,
- There is no increase in road roughness,
- There is no reduction in skid resistance beyond the normal expectation for the road section,
- The faults will not increase in size so that the type or cost of repair escalates,
- The safety of the road user is not compromised,
- There is no inconvenience to the road user,
- There are no public complaints,
- There are no unusual circumstances which compromise the visual aesthetics of a road section.
- Specified Contract performance measures can be met.

Apart from potholes all other work is entered into RAMM by the Contractor for programming and approval by the Roading Manager. Ordered work can include failure repairs, surface opening and levelling, resurfacing, edge breaks, unsealed shoulders, and service cover adjustments.

The quantum of work budgeted for is based on historical records, local knowledge and experience. It is expected that in time with recording maintenance data in RAMM a more strategic approach can be taken.

All work is done in accordance with the standards set out in the Contract Specification.

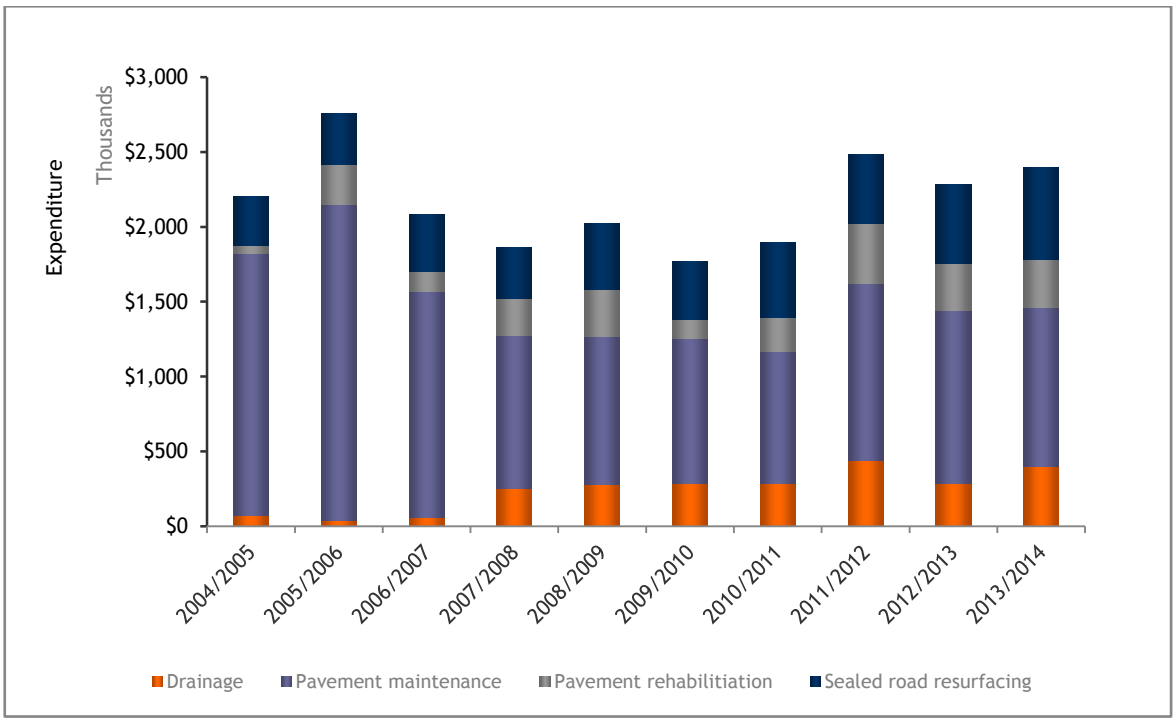


Figure 28 Roading Maintenance Expenditure

8.7 RENEWAL

The sealed pavement renewal programme is based on the least cost option to maintain the roading asset at the required standard to meet agreed levels of service.

There are two main strategies for renewal being:

- Resurfacing of Sealed Pavements
- Rehabilitation

8.7.1 Strategy – Pavement Resurfacing

The strategy for pavement resurfacing is the primary method of maintaining a sealed pavement to ensure it remains waterproof and minimises the need for maintenance and more significant renewal strategies maximising the life of the asset.

When the waterproof surface of a road section has failed, the rate of deterioration of the underlying pavement accelerates, bringing forward the need for rehabilitation works. In contrast, maintenance of a waterproof surface will typically extend the useful life of a road section even when the underlying pavement may be poor and can defer the need for more expensive rehabilitation works in the short term.

There are several drivers to the amount of reseal work required each year. These include;

- The age of individual road sections and when they were last resealed, known as the birthday of the asset.
- The type of seal that was last applied and the relevant life expectancy of that type of surfacing treatment.
- The condition of the pavement (roughness, rutting, cracking etc.). This can be influenced by external factors such as flood events as well as environmental factors and the amount of historical maintenance effort invested in sustaining the asset.

- The required level of service and whether the road section is at, above, or below the standard required to achieve that level of service.
- The cost to maintain the road section at the current or required standard (i.e. to hold or upgrade the condition as necessary) using other routine maintenance repair options versus the cost to complete the appropriate surface treatment (reseal) option.

The cost/benefit of maintaining the waterproof surface on sealed pavements is already accepted as proven and works are programmed on the basis of condition, age and service level requirements. Timing of the work is dependent on the severity of one or all of these factors.

The Forward Works Programme makes estimates of the road resurfacing requirements for 30 years commencing 2018/19. This was done by using the maximum design life for the types of seals with allowance for the low traffic volumes. A large number of roads that would require resealing several times over the 30 year period were included when they were due for resurfacing.

Road sections for inclusion in the forward programme for reseal work are identified using

- the age and expected lifespan of all existing surfaces as recorded in the RAMM database
- outcomes from the roughness and condition rating surveys
- level of expenditure on maintenance and type of maintenance being required
- input from local road engineers, the Roading Manager and contractors with respect to their inspections, observations and works programmes throughout the year
- whether service level requirements are being met
- likely severity of any impact on the rate of deterioration of the underlying pavement if the reseal work is not completed

They are then confirmed annually from field inspections by suitably experienced personnel. Seal sites with expired surface lives were also included to make up the remaining budget.

The length or road resealed over the last 10 years is shown below:

Table 20 Resurfacing 2006-2017

Financial Year	Length Resurfaced (km)
2006/07	41.3
2007/08	14.1
2008/09	30.7
2009/10	13.4
2010/11	29.8
2011/12	14.1
2012/13	18.0
2013/14	24.0
2014/15	28.0
2015/16	20.9
2016/17	20.2
Average	**22.9**

Table 21 Resurfacing Programme

Below is a summary of the resurfacing programme for the 2018/19 to 2020/21 financial years:

Year	Budget	Area (m^2)	Length (km)
2018/19	$495,000	124,000	19.0
2019/20	$507,425	124,000	19.0
2020/21	$520,061	124,000	19.0

8.7.2 Strategy – Pavement Rehabilitation

Rehabilitation provides for the replacement of, or restoration of strength to, sealed pavements where other forms of maintenance and renewal are no longer economic.

Examples of qualifying activities include, but may not be limited to:

- granular overlays
- rip and relay
- pavement stabilisation
- asphaltic overlays or grader-laid asphaltic material
- pavement replacement (including the use of recycled materials)
- structural asphaltic concrete rehabilitation.

To qualify for inclusion in this work category, the work must be the long-term least-cost option, calculated in terms of present value.

SWDC does not use Pavement Deterioration Modelling (dTIMS) to model the historical works completed and the consequential measured performance of the network to identify future works and the optimal timing and cost of those works for input to Council's forward work programme.

Rather the condition and performance of a road section as observed from routine inspections throughout the year and considered with the measured values from the condition rating and roughness surveys are used to initially identify sections to include in the rehabilitation programme. Each section is then evaluated on a case by case basis using the cost/benefit analysis method set out in the NZTA Project Evaluation Manual as is required to qualify for subsidised funding.

The Forward Work Programme includes a 3 year Rehabilitation Programme. This was prepared by using the RAMM Treatment Selection Algorithm (TSA). The sites triggered by the TSA and historical problem sites are inspected and individual reports detailing option estimates are prepared for each site.

Based on historical data SWDC has included $250,000 for rehabilitation in its 2018/19 budget.

The cost/benefit analysis takes into account the economic issues regarding cost of maintenance to date and predicted future maintenance costs relative to the current condition and probability rate of deterioration if no renewal / rehabilitation works are completed.

8.7.3 Funding Strategy

The forward work programme provides details on the budgets projected for renewal/replacement activities. Yearly, the length of treatment achieved for the allocated budget and/or the monetary value of the work required to be completed will be affected by;

- Actual contract prices received for the work specified.
- The scheduled work identified throughout the year as being required to achieve the agreed results.
- The effect of deferred renewal work from previous years or inadequate maintenance impacting on asset condition or performance and requiring urgent intervention to preserve or sustain the asset.
- The effect of capital and renewal programmes from previous years and/or increased maintenance effort improving the condition or performance of the asset such that intervention with renewal treatments is not required to achieve agreed service levels.

Each year therefore the actual renewal funds needed and expended may differ. An annual reconciliation of physical work done against the condition and performance outcomes will indicate either deferred renewals being accrued, or improvements being made to the network.

8.8 ASSET ACQUISITION AND CREATION PLAN

8.8.1 Strategy – New Roads

Capital works are those works that create a new asset that did not previously exist or work which upgrade or improve an existing asset beyond its present capacity. They may result from growth or changes in social or environmental needs. Assets may be acquired at no direct cost to the organisation (i.e. private developments vesting new roads with Council).

Currently South Wairarapa's normally resident population is growing with a small amount of annual growth predicted. As noted in the section on Demand Forecast, there is limited growth and a reduction in traffic. Anecdotally there is an increase in heavy vehicles.

With the gradual increase in population numbers or traffic volumes there is no justification for Council to programme or fund a capital works programme for construction of new roads except as required for new subdivisions. It is expected that Council will continue to acquire new roads however from developments as these occur over time.

8.8.2 Financial and Development Contributions policy

As further subdivision occurs and new activities are established within the Wairarapa, the existing infrastructure and amenities come under pressure. Financial contributions are a way of ensuring that any adverse effects from subdivision and development on the environment or on community resources are minimised, including ways of offsetting any adverse effects with a contribution toward environmental improvements. Such contributions can be in the form of money, land, works or services and may include the provision of roads and services, the protection of an important historic or natural feature, the visual enhancement of a site through landscape treatment or the provision of access to a hitherto inaccessible river or stream.

Financial contributions for subdivision and land use consents include the costs of upgrading and expanding community works and services as a result of the proposal, including (but not limited to) public roads, public water supplies, and the disposal of wastewater and storm water. This section deals with the requirements for financial contributions, either as a standard of a permitted activity, or a land use or subdivision consent.

Where a financial contribution is required as a condition of a permitted activity or resource consent, the purpose, circumstances in which a contribution may be required, and the amount of that contribution are stated.

Contributions for land use development through the resource consent process are sought in full, unless a previous contribution has been received in the subdivision of the site. Conversely, if a contribution was paid at the time of land use development, then no contribution may be required at the time of any subsequent subdivision consent in recognition of the previous contributions.

Council currently has a Development Contributions and Financial Contributions Policy. Financial Contributions are levied under the provisions of the Resource Management Act through the Wairarapa Combined District Plan. Development contributions are levied under the Local Government Act. As part of the LTP process, Council has reviewed the Development Contributions policy to better reflect recent changes in legislative requirements for such contributions.

8.8.3 Strategy – Roads Improvements

There are several methodologies of undertaking road improvements included in this strategy. The three options identified in the forward work programme for the South Wairarapa network are;

- Seal Extension
- Seal Widening
- Minor Improvements (typically relates to safety driven projects such as);
    - Intersection and other minor geometric improvements
    - Sight benching for visibility
    - Pedestrian crossings
    - Traffic calming measures
    - Installation of a footpath in residential streets that do not have a footpath
    - Installation of guardrails

8.8.4 Seal Extension

Unsealed roads have a number of negative impacts relative to sealed roads. These include higher maintenance costs, dust nuisance to neighbouring properties, damage to adjacent crops, reduced driver comfort, increased vehicle maintenance costs, reduced safety, and a higher number of customer complaints and requests for improvement.

The length of road sealed annually will depend on how much funding is allocated in the LTP and Annual Plan and may vary from year to year. No financial assistance is available from NZTA for seal extensions. SWDC has decided to fully fund seal extension projects.

On 25 October 2017 the Council considered a Seal Extension Policy and priority list. The priority is determined using a number of factors by the number of vehicles using the road on a daily basis (AADT). To determine the effect of those vehicles the ADT is modified by factors that reflect the impact of those vehicles on factors considered relevant to the community.

The factors are:

- F1 Intensive Seasonal Use e.g. tourist route, lot of vehicles in summer
- F2 Heavy Vehicles e.g. going to a factory or production facility
- F3 Strategic Route e.g. connects to other roads and traffic will increase when sealed
- F4 Community Services e.g. community hall located on road or extensively used by school bus
- F5 Dust Nuisance e.g. houses or sensitive crops close to the road

Budget allocation for seal extension is set at $125,000 p.a. funded from reserves and rural rates from 2018/19.

8.8.5 Seal Widening

A large number of the sealed pavements within the network are potentially under width based on current standards, however the council priority at present is to undertake seal extension with the available funding.

8.8.6 Minor Improvements

Minor improvements are undertaken to remedy safety issues. From time to time SWDC will prepare a Safety report based on the latest crash data to identify the problems areas. As noted earlier in the AMP, a number of sites have been identified.

The six roads are:

- Kahutara Road
- Western Lake Road
- Bidwills Cutting Road
- Lake Ferry Road
- Hinakura Road
- Ponatahi Road

Specific treatments have been identified for each of the roads listed above. These can generally be broken down into three main treatment types:

- Improved delineation
- Guardrail at roadside hazards
- Seal widening

The approach taken has been to identify areas where an increased risk exists due to alignment or proximity of a hazard to the carriageway. There does not necessarily have to have been a crash at a particular curve or bridge for it to have been flagged for treatment.

When considered together the treatments will provide good progress to address the loss of control crashes happening on bends in the SWDC network.

8.8.7 Asset Disposal Plan

Disposal is any of the activities associated with disposal of a decommissioned asset including sale, demolition or relocation.

Under this plan there is no requirement for Asset Disposal for the sealed network.

In this regard it is Council's objective to operate and maintain all existing sealed pavement assets in a sustainable way so as to ensure continuance of required roading services to current and future generations.

8.9 UNSEALED PAVEMENTS – LIFECYCLE MANAGEMENT

8.9.1 Introduction

Many factors contribute to maintenance needs on unsealed roads. Conditions are generally much more variable and a change in condition can occur far more quickly than it does for sealed roads. The reason for this is the lower levels of protection provided by unsealed wearing courses against damage from water run-off, exposure to environmental elements and abrasion from traffic movements, compared to the protection provided by sealed surfaces.

Because change can occur rapidly, particularly following heavy rain or heavy traffic use or loading such as stock or forestry trucks, any long term programme should be treated as a guide and varied for actual need from year to year to accommodate these changes and therefore sustain the asset in perpetuity.

8.9.2 Asset Description

The roading network physical data is contained within the RAMM database. This information is continually updated as roads are maintained, resealed or rehabilitated, and new roads are added to the network through subdivision development.

Table 22 Unsealed Roading Assets

Asset Component	Hierarchy	Total Length (km)	Avg. Width (m)	Gravel loss per annum (mm)	Area (m3)
Rural	Secondary Collector	10.25	5.7	10mm	586
	Low Volume	156.97	3.8	6mm	3,617
	Access	98.75	4.4	5mm	2,173
	Subtotal	**265.97**	**4.12**		**6,977**
Urban	Low Volume	0.477	4.6	5mm	11
	Access	0.148	4.0	5mm	3
	Subtotal	**0.625**	**4.46**		**14**
	Total	**266.62**	**4.12**		**6,389**

9 ASSET CONDITION AND MONITORING

Condition surveys are not completed for unsealed road sections. Therefore indicative condition is assessed from maintenance records and frequency of complaints regarding surface defects. There are a number of complaints relating to dust, pot holes etc. and the issues relating to unsealed roads are recognised by the Council in moving to fully funding seal extensions.

The unsealed network is assessed to be of average condition and generally meeting customer expectations. The proposals in this AMP to increase heavy metalling is expected to improve the condition of the roads. It is not known with confidence however, whether sufficient metal has been or will be applied to sustain the asset in perpetuity. Field tests in the form of metal depth measurements and condition rating should be undertaken on a range of typical road sections and conditions to confirm and track the status of unsealed road condition and performance within the District.

9.1 ASSET CAPACITY /PERFORMANCE

For the unsealed road, assets capacity is linked to several factors:

- Loading
- Pavement Depth and Wearing Course
- Traffic volume

Loading relates to the amount of wear on the carriageway. Typically where the unsealed pavements are lowly trafficked (<100 ADT) and loadings are low (<4% HVs) the application

of the wearing course works well. Where volumes are high and loadings start to exceed 4% the unsealed pavements require higher levels of maintenance.

The ability of the carriageway to carry design capacity is related to width, which also impacts on safety. A large proportion of the unsealed roads are under width with an average width of 4.12 m compared to a desirable minimum width of 5.0m. This is not uncommon in large rural networks and is not seen as a major issue with any proposals to undertake seal widening being the result of minor safety studies.

There are however no capacity issues on any of the unsealed rural network with most roads carrying minimal traffic.

9.2 DESIGN STANDARDS

It is unlikely there will be any new unsealed roads constructed in the district under current subdivision code. It is more likely the length of unsealed road will progressively reduce albeit very slowly. There is a possible scenario that little used sealed roads may revert to unsealed if funding is constrained however this is unlikely.

Management of unsealed roads is therefore maintaining what is already in place to the standards as specified in the Road Maintenance Contract 2014-2017.

9.3 MAINTENANCE PLAN

Routine maintenance works for unsealed roads primarily consist of;

- Grading
- Flanking
- Spot metalling and pothole repair
- Restoration of correct camber
- Maintenance of running course

The maintenance contract includes pothole repair and grading as monthly lump sum routine works while failure repairs and rolling are ordered works.

Unsealed roads are grouped into 3 classes according to usage

- Class U1 ADT >100 vehicles per day (vpd)
- Class U2 ADT < 100vpd
- Maintain on Request – unused roads.

Maintenance requirements for Classes U1 and U2 are specified in the Road Maintenance Contract e.g. establishing minimum grading cycle and probable grading cycle. Maintenance on Maintain on Request roads will generally be done at dayworks rates.

9.3.1 Strategy - Routine Grading

The objective for routine grading is to maintain the unsealed road surface condition, using routine grading treatment at frequencies determined by need, based on past experience, environmental condition, moisture and weather patterns, to ensure the required service levels are met.

The frequency of grading is based on condition as observed by the maintenance contractor during regular inspections of the network for monthly work programming, customer

complaints and minimum service level and attendance standards provided in the network maintenance contract.

Grading of unsealed roads is very much an art rather than a science and heavy reliance is put on the skill and experience of the grader operator for the quality and effectiveness of the outcome.

9.3.2 Deferred Maintenance

Based on the available information of the condition there is little to suggest that significant levels of deferred maintenance exist in regard to the unsealed road pavements. However, as discussed above, field tests for metal depth should be completed to confirm the status of the unsealed network.

9.3.3 Unsealed Maintenance Treatment

When considering maintenance treatment options, SWDC adopts the following strategy which is that routine maintenance works (metalling and grading), should only be programmed for unsealed pavements where:

- The full life of the wearing course will be realised and/or
- The frequency and related costs of grading and metalling required, are not excessive.

When routine maintenance options are no longer cost effective, asset renewal or rehabilitation options such as heavy metalling and unsealed area wide pavement treatment will be considered.

9.3.4 Renewal Plan

The unsealed renewal programme is based on least cost option to sustain the roading asset at the required standard to meet agreed levels of service. The strategies used include:

- Heavy Metalling
- Area Wide Pavement Treatment

The drivers that determine the amount of unsealed road renewal work required each year include:

- The age and construction of the original pavement and foundation material
- The loading on the pavement and particularly any changes in the loading that may have accelerated pavement failure such as increase in heavy vehicle traffic
- The nature and lifespan of any previous rehabilitation treatment
- The historical maintenance that has occurred and the consequential current condition of the road pavement
- The condition of the unsealed surface and the consequential impact on the rate of deterioration of the underlying pavement as well as the construction practicality of arresting deterioration with maintenance treatments
- The cost to maintain the road section at the current or required standard using other routine maintenance repair (grading, maintenance dig-outs, metalling) options versus the cost to complete the appropriate rehabilitation option.

9.3.5 Strategy –Heavy Metalling

The objective of heavy metalling is to apply wearing course as necessary to protect against loss of the underlying base course material leading to asset consumption.

Pavement materials are lost to:

- Degradation of the wearing course stone
- Climate conditions, scouring and erosion
- Traffic abrasion
- Maintenance practices
- Poor pavement material selection

The national 'rule of thumb' for wearing course loss is an average of 10mm of depth per year. Thus, heavy metalling is the replacing of lost wearing course and or the base course top layer through the life of the unsealed pavement. Wearing course metal applications are typically placed and compacted in a 50mm layer. This upper road layer acts in the same way as a seal coat acts on sealed roads, protecting and waterproofing the underlying structural basecourse.

Heavy metalling has been classified as the supply, cartage, spreading, shaping and compaction of a minimum of 50mm of wearing course material.

The SWDC RAMM data indicates less than 1% of the 268 km of unsealed roads have been resurfaced since they were constructed. It is likely that RAMM top surfacing records were not previously kept up to date and this figure is incorrect.

Maintenance Metalling: Carriageways that cannot be maintained to the required standard through regular grading and patching are scheduled for approval of the work necessary to overcome the problem. This may include trimming of high shoulders, or replacement or reformation of all or part of the Base-course and running course.

Programmed Application: A decision process for the application of metal is based on a performance management evaluation undertaken by Council Roading Manager and Contractors inspectors. This methodology has shown deficiencies and inconsistencies of ensuring a consistent running course layer application. Future programmed applications is to be based on the theoretical gravel loss prediction model. This provides consistent protection to the base formation and required added strength to the unsealed road, manages pavement deterioration and provides a quality material suitable for ongoing grading and compaction. Even though the predictions show an annual loss evenly across all roads this is generally not the case. Heavy metalling of unsealed renewals only happens on roads which the option can be treated as lowest whole of life cost. As an average 8.7km of unsealed road is targeted annually.

Predicted gravel loss model: A maximum 10mm gravel loss has been assessed as applicable for the South Wairarapa District Council unsealed roads. This model makes no allowance for variable traffic volumes on the unsealed roads. Therefore a modified calculation is applied to the lower volume roads as the gravel loss is reduced due to the lower traffic volumes. Typically these Access roads are no-exit roads servicing two or three properties.

Unsealed Road Average Daily Traffic Volumes:

SWDC unsealed roads are categorised into 3 ONRC hierarchy bands based on traffic volumes. Traffic counting programmes are generally not undertaken on unsealed roads so local knowledge of the network is applied to assign the category accordingly.

- Secondary Collector (U1) >200vpd
- Access (U2) <200 ypd
- Low Volume (U2) <50

Isolated re-metalling is also carried out as needed. The roads in need of upgrading are identified by the Contractor and by the Roading Manager by observation, following complaints from ratepayers and road users. These roads are listed and prioritised by the Roading Manager and programmed in accordance with the most effective use of the maintenance available funds.

The re-metalling list is reviewed regularly to reflect changing circumstances. The contractor, following the identification of sections of road in need of upgrading and approval of the proposed work carries out placement of new metal courses when approved by the Engineer.

The actual gravel loss can be determined or estimated by:

- Taking core levels of gravel depth over time
- Taking spot levels on various representative sections of roads to measure annual wear loss
- Application of a formula, calibrated to local conditions
- Use of ground penetrating radar to calculate existing gravel depth
- Differentiating materials used in base and wearing courses.

The heavy metalling programme is set relative to measured pavement depths and widths, and reviewed and confirmed at least annually, relative to changes in condition as this information becomes available over time.

The identification of sites for heavy metalling is primarily based on condition as observed by the maintenance contractor and the Roading Manager during regular inspections of the network for monthly work programming as well as drivers such as customer complaints, time since last treatment, amount and type of traffic use and minimum service level standards provided in the network maintenance contract.

Typically one of these drivers will identify the site first, then the suitability for metal build-up is confirmed by site investigation by an appropriately skilled and experienced person and will commonly include measurement of the pavement depth to determine the metal application depth required. This customer driven, practical, fieldwork approach is different to the more measured analytical approaches used to manage sealed roads through deterioration modelling and assessments of cost and consequence. However it is an appropriate strategy for unsealed roads.

Where seal extensions have been programmed it is recommended metalling sites the year prior. This metalling should be completed with the type 1 material (which has a lower plasticity index and an assumed higher stiffness modulus) to a minimum overlay depth of 100mm.

9.3.6 Strategy – Rehabilitation

Rehabilitation sites are where pavements have been worn down such that metal build-up requirements are 100mm or more and or where the frequency of metal build-up requirements is high. These can be heavily trafficked routes or sites subject to frequent wash-off, dust-off or abrasion of metal. The structural integrity of the basecourse will have typically been compromised and work of a more extensive nature than metal build-ups is required to reinstate required service levels.

Rehabilitation is a renewal option that requires justification through the NZTA least cost maintenance evaluation process (i.e. option assessed to have a positive net present value over 25 years compared to routine maintenance alternatives), to qualify for NZTA subsidy. Special circumstances would have to exist for Council to consider undertaking any work of this type that did not qualify for NZTA subsidy.

The forward work programme does not differentiate between types of rehabilitation treatments for renewal works for unsealed roads. Therefore should any site be found to qualify for subsidy funding for an acceptable renewal treatment it will be scheduled on a prioritised basis according to greatest need and will be completed as funding allows.

No sites have been identified for rehabilitation on unsealed roads.

9.3.7 Deferred Renewals

Based on the available information condition and performance indicators there is little to suggest that significant levels of deferred renewals exist in regard to the unsealed road pavements. However as discussed in previous sections, field tests for metal depth should be completed to confirm the status of the unsealed network.

9.3.8 Funding Strategy

Yearly, the length of treatment achieved for the allocated budget and or the monetary value of the work required to be completed will be affected by;

- Actual contract prices received for the work specified.
- The scheduled work identified through-out the year as being required to achieve the agreed service levels.
- The effect of deferred renewal work from previous years, or inadequate maintenance impacting on asset condition or performance, and requiring urgent intervention to preserve or sustain the asset.
- The effect of capital and renewal programmes from previous years and/or increased maintenance effort improving the condition or performance of the asset such that intervention with renewal treatments is not required to achieve agreed service levels.

Each year therefore the actual renewal funds needed and or expended may differ.

9.3.9 Asset Acquisition and Creation Plan

It is unlikely that any further unsealed roads will be constructed or vested in Council under the current subdivision codes.

Minor improvements which are generally driven by safety problems are unlikely to apply to unsealed roads because of the very low traffic volumes.

9.3.10 Disposal Plan

Disposal is any of the activities associated with disposal of a decommissioned asset including sale, demolition or relocation.

Under this plan there is no requirement for Asset Disposal for the unsealed network.

In this regard it is Council's objective to operate and maintain all existing sealed pavement assets in a sustainable way so as to ensure continuance of required roading services to current and future generations.

9.4 DRAINAGE - LIFECYCLE MANAGEMENT

9.4.1 Introduction

Drainage control forms a critical component of the roading asset. Drainage has impacts in three ways, namely safety, integrity and cost to the roading asset. In order to maintain a sound pavement the surface water and ground water cannot be allowed to enter the pavement base-course. Inadequate drainage often manifests itself in the form of pavement failure and in times of heavy rain can result in major failures such as dropouts, scour, undermining and subsidence.

To avoid this, an on-going programme of regular routine maintenance is required to optimise the capacity and performance of the available assets. Works need to be proactive to ensure the service levels are met when a rain event occurs.

Drainage is an increased focus of the AMP. Culvert numbering is no longer a high priority as it is less relevant these days with the ability to use GPS to locate culverts. Drainage planning or drainage intervention strategies are part of our improvement programme

Community satisfaction with storm water, which is related to the kerb and channel network, is higher than the peer and national averages.

Figure 29 Lined storm water drain

9.4.2 Asset Description (including how asset data is stored)

The Drainage physical data is contained within the RAMM database. This information is continually updated as drainage structures are replaced, upgraded or removed. The drainage asset is made up of the sub components listed in the following table.

Table 23 Pavement Drainage Assets

Surface Water Channels by Type	Length (m)
SWC (Shallow, <200 Below Seal Edge)	273,420
SWC (Deep, >200 Below Seal Edge)	343,722
Kerb & Channel (Concrete)	70,665
Mountable Kerb & Channel (Concrete)	8,964
Kerb Only (Concrete)	2,261
Dished Channel (Sealed)	2,296
Dished Channel (Concrete)	3,323
Dished Channel (Asphalt)	43
Slot Channel (Concrete)	372
Other Type	112
Total	**705,178**

Asset Component	Total	Units
Catchpit type 1	82	(ea)
Catchpit type 2	32	(ea)
Culvert	29,170	(m)
Debris catching grid	3	(ea)
Manhole/Drop chamber	150	(ea)
Side Culvert	314	(m)
Soak pit	23	(ea)
Subsoil drain	380	(m)
Sump	457	(m)
Culvert pipes (m)		
Up to 375 diameter	20,436	(m)
375 – 525 diameter	3,421	(m)
550 – 750 diameter	4,082	(m)
800 – 1200 diameter	2,442	(m)
1200 – 1500 diameter	544	(m)
1600 – 2100 diameter	130	(m)
> than 2100 diameter	198	(m)

Table 24 Road Crossing Culverts by Material

Material Type	No. of culverts	Total length (m)
Concrete	1,931	25,717
PVC	294	3,541
Asbestos cement	80	907
Earthenware	89	739
Steel	9	134
Armco	11	188
Timber construction	2	16
Total	**2,416**	**31,242**

There is currently no storm water Asset Management Plan. Due to the small size of the storm water assets in the district this is covered under the Land Transport AMP.

9.4.3 Greytown

The major component to Greytown's storm water removal is via the water races. Currently the management review of them is underway. This review will cover the management, maintenance and development of them including urban use. This infrastructure is critical to Greytown and has been targeted as a significant on-going project.

A review of hydrology has been undertaken with pipe sizes set to the upper limit to ensure future proofing of the system. However, in part these sizes have not always been used or exist prior to the plans' development. Future improvement will require upgrading of these areas.

9.4.4 Martinborough and Featherston

The flat geographic nature of Martinborough and Featherston and a lack of storm water systems results in continued minor flooding events in times of inundation. A storm water development plan is required to be developed over the next 3-year period in conjunction with the wastewater infiltration and inflow reviews. It is an assumption that part of the wastewater inflow can be caused by the build-up of surface water within the urban areas.

9.5 Asset Condition and Monitoring

As shown below the RAMM data indicates 83% of culverts are of an average condition or better. Condition ratings are completed annually and updated in RAMM.

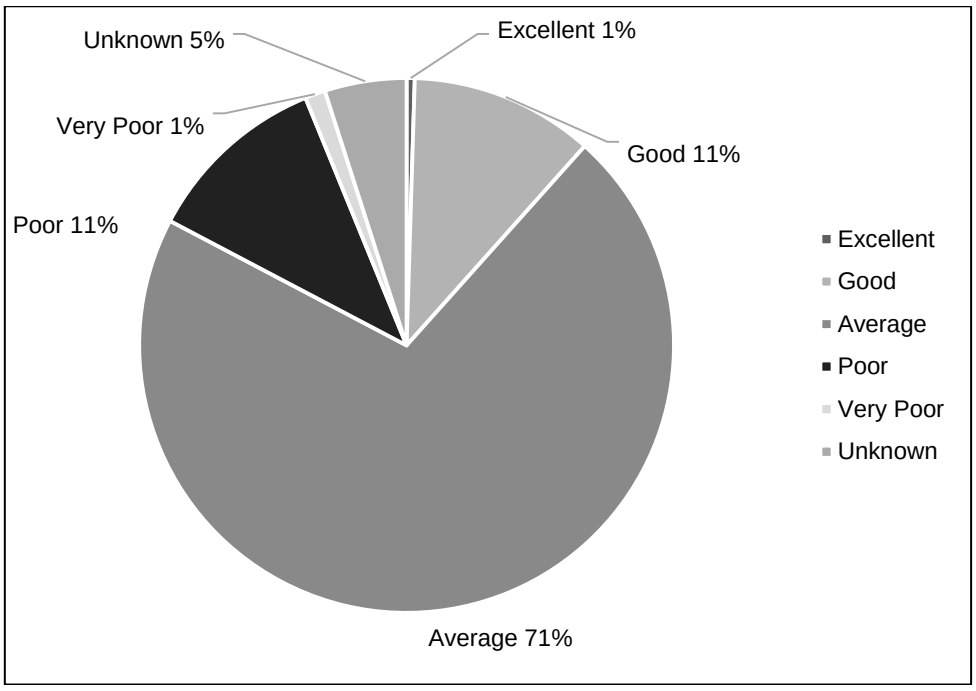


Figure 30 Condition of Culverts

As with capacity/performance issues discussed above, any defects in asset condition are identified during either:

- regular routine inspections of drainage assets as part of the network management and maintenance works
- storm events when flooding occurrences are investigated, and
- Field inspections for other road works (i.e. pavement renewals) where drainage assets (kerbs, culverts, catch pits etc.) will be affected or are in the vicinity.

Any faults found are recorded and appropriate remedial or upgrade works are subsequently determined and scheduled for action on a priority basis, or in the case of assets affected by other road works, scheduled as part of that project.

The overall condition of the drainage assets is assessed to be average.

9.5.1 Asset Capacity /Performance

Drainage asset capacity and performance is linked to several factors including:

- Size of drainage structures (capacity/volume)
- Condition of the asset (performance)
- Factors affecting catchment run-off (original design versus current need)
- Changes in storm event frequency, intensity and/or duration
- Changes in land use increasing run-off from adjacent land.

The capacity of the drain structure to cope with the catchment run-off is generally adequately designed and constructed relevant to the standards at the time of installation. However as standards for design change over time, and as the condition of the asset deteriorates, the assets ability to manage flows from the catchment can be compromised.

Typically such situations are often identified during storm events when flooding occurrences are investigated, and appropriate remedial or upgrade works are subsequently determined and scheduled for action on a priority basis to resolve the matter.

In addition to this however there are also regular routine inspections of drainage assets as part of the network management and maintenance and works programming tasks throughout the year.

The overall capacity and performance of the drainage assets is assessed to be average to fair, based on the large proportion of culverts that are small diameter (300mm or less) and the average number of culverts per km of rural road length balanced by the low level of customer complaints and/or service requests recorded for drainage issues despite some significant storm events having occurred in recent years.

9.5.2 Maintenance Plan

Pavement drainage assets are maintained as part of the Road Maintenance contract which sets out the specifications and standards to be met. The work includes:

- Routine inspecting of storm water facilities to determine cleanliness every 6 months
- Annual inspection of storm water facilities to determine condition
- Routine cleaning of the storm water facilities e.g. sumps are cleaned once per year or when they do not meet cleanliness criteria
- Routine reporting of the results of inspections and progress of cleaning
- Cleaning of existing culvert blockages
- Installation of extra rural culvert markers
- Re-fitting of sump grates and lids inclusive of grates in paved areas of the CBD

Routine maintenance includes inspecting drainage assets and cleaning to ensure at least 85% of the waterway area is clear at all times.

Specific lifecycle parameters have not been used for programming drainage maintenance. The quantum of work is based on historic requirements and local experience.

Street cleaning and detritus removal which is done under the Road Maintenance contract is an important activity to ensure continued function of the drainage assets. The current programme of weekly cleaning in the CBD – 2-weekly on the main access routes and 3-monthly for urban streets - is supplemented by regular inspections in times of heavy rain fall. This is to ensure the urban drainage is working effectively. The renewal of kerbs and grated pits will also assist in prevention of localised flooding.

Detritus includes any collection of fragments or material on the sealed or paved surface or drainage channels e.g. small slips, fretting from cuttings, deposits of wind-blown sand or grit, deposits of loose aggregates, fallen leaves, vegetation, including berm clippings, and minor droppings or spillage created from passing traffic or climatic conditions.

9.5.3 Renewal

The effective life of reinforced concrete pipes is approximately 100 years. Using this as a basis for calculating the replacement lengths required, the SWDC should be aiming to replace approximately 250m of culverts per year.

Shown below is the estimated annual culvert replacement cost using a target replacement length of 250m per year and a minimum replacement size of 375mm reinforced concrete pipe.

Table 25 Estimate of culvert replacement costs

Culvert diameter (mm)	Rate to install culvert to 1.5m	Material cost (per m)	Quantity (m)	Amount per year
375	$115	$125	220	$52,800
450	$115	$175	75	$21,750
600	$115	$300	75	$31,125
Total			**370**	**$105,675**

The culvert replacement schedule in the Forward Works Programme has taken into account factors such as condition rating, material type and culvert diameter.

Some of the culverts which are larger than 375mm in diameter may only require cleaning or headwall replacement however allowing to replace all of the culverts is an approach which has been successful for budgeting and programming purposes. There will be a review of culverts, sizing and locations to develop an improvement plan.

Historically except where an asset has failed and requires immediate attention, the renewal of old culverts has been completed as part of the pavement rehabilitation programme or other repair work. This has proven to be an economic and effective method of maintaining and renewing the drainage asset.

Where a drainage asset (culverts/catch pits/kerb and channel) has failed, renewal is prioritised according to need based on achievement of required service levels. Capacity is always assessed in the design of asset renewals

9.5.4 Asset Acquisition and Creation Plan

Future improvement in drainage is classified in two ways. Urban and Rural. Both have distinctive development and improvement requirements.

As there are very few storm water assets within SWDC a focus on urban drainage functionality is important and an increase in the ability to handle inundation is required. With very little fall within the urban areas a greater study is required to determine the most efficient and economical way to remove water from streets in heavy rainfall.

Rural drainage is one of council's most critical assets. This is primarily due to the rapid degradation that can be caused in asset failure in heavy rainfall events.

Key to understanding the requirements is ensuring adequate condition reporting and under the new Road Maintenance Contract.

Capital expenditure is forecast in the 10 year forward work programme for new or improved drainage assets. However some new assets are likely to be vested with Council as a result of private development work over this period. Also on an as needed priority basis, new or improved drainage structures are also being added to the network where protection from discharging of water causing damage to road pavement or other structures is required. This is usually where preventative maintenance work is being done.

It is expected that annual allocation for drainage renewals funding will be sufficient to sustain the asset during this time. This expectation is based on the projected growth for the District and the absence of indicators that major/widespread drainage capacity issues exist.

9.5.5 Disposal Plan

Disposal is any of the activities associated with disposal of a decommissioned asset including sale, demolition or relocation.

Under this plan there is no requirement for Asset Disposal for the drainage assets.

In this regard it is Council's objective to operate and maintain all existing drainage assets in a sustainable way so as to ensure continuance of required roading services to current and future generations.

9.6 BRIDGES – LIFECYCLE MANAGEMENT

9.6.1 Introduction

The bridge assets are included under the following two categories:

- Bridge Structural Components and
- Large Culverts where the square area of entry is >3.4m^2

There are 138 bridges in South Wairarapa which are mainly in good condition.

There are a number of stock underpasses on the roading network that have been installed by adjoining landowners. Typically the landowners are responsible for maintaining these structures in accordance with the licence to occupy the road reserve granted under Section 338 of the local Government Act 1974. Council has a duty to ensure that the road is safe for use so needs to undertake inspections to ensure integrity.

9.6.2 Asset Description (including how asset data is stored)

The bridge data is recorded in RAMM (locations, dimensions, and descriptions), the bridge inspection files and excel spreadsheets.

Table 26 Bridge Material

Material	No. Bridges
Armco Arch	3
Armco Culvert	1
Armco Twin Culvert	1
Box Culvert -Single	33

Box Culvert - Twin	6
Box Culvert Triple	4
Box Culvert Timber Deck	1
Concrete	53
Concrete Arch	3
Concrete Ford	1
Concrete Twin Pipe	7
Concrete Steel Beams	12
Steel Pipe Culvert	1
Timber	5
Timber Steel Beams	7

9.6.3 Asset Condition and Monitoring

The bridges in the network have been inspected since 2010/11 in accordance with NZTA S6:2014 section 5.2 General Inspection and section 5.3 Principal Inspection, NZTA Bridge Inspection and Maintenance Manual dated July 2001, and Inspection Manual for Highway Structures May 2007 (TSO UK).

Basic data on the bridges is held in RAMM. Detailed inspection reports and summary reports are held by the Bridge Inspection Consultant with copies held electronically by the Council.

Each bridge is rated as per the NZ Infrastructure Asset Valuation & Depreciation Guidelines Version 2. The bridge rating has taken into account the following factors:

- Construction dates (79 of the bridges have unknown history, construction date has been estimated based on inspection observations)
- Assumed design standards at the time of construction
- Construction quality
- Material quality based on age and material type
- Operational Stresses based on traffic loading
- Maintenance History
- Asset Working Environment based on flooding history
- External Stresses based on the erosive quality of the waterway.

Figure 31 Bridge before and after prudential maintenance

Table 27 Bridge Condition

Condition	No. Bridges
Excellent	19
Good	81
Average	34
Poor	3
Very Poor	1

9.6.4 Age Distribution and Life

Table 28 Construction Date of Bridges

Construction Date	No. Bridges
1920-1929	1
1930-1939	16
1940-1948	31
1950-1959	21
1960-1969	32
1970-1979	10
1980-1989	23
1990-1999	0
2000-2009	0
2010-2014	1
2015-2017	3

9.6.5 Asset Capacity /Performance

Currently the bridge asset is performing to its intended capacity. However, bridge widths in relation to traffic volumes need to be assessed as part of the next update of the AMP.

9.6.6 Design Standards

Bridges are designed and constructed in accordance with prevailing standards at the time of construction.

9.6.7 Maintenance Plan

The Road Maintenance contractor is responsible for inspecting all bridges six monthly. The work to be carried out by the contractor shall include:

- Routine maintenance inspection and reporting
- Routine cleaning of reflective end markers
- Routine cleaning of metal and debris from bridge decks
- Repair of damage
- Minor structural repairs
- Painting of handrails, end posts and sight boards
- Replacement of reflective end markers and posts
- Cleaning of handrails

Specific aspects requiring attention shall include, but not be limited to signs, sight boards, deck drainage and collision damage. The biennial bridge inspections identifies minor maintenance work which is passed to the road maintenance contractor and structural maintenance repairs. A separate contract is tendered for the structural maintenance repairs.

Budgeted expenditure on bridge maintenance is based on historic levels.

9.6.8 Renewal

The figure below shows the estimated bridge replacement construction costs for the next 10 year period. Replacement costs in this section are constructions costs only.

Table 29 Bridge Replacements 2018-2028

Bridge	Road	Estimated Construction Cost
Dock Creek	Duddings Line (154)	$60,000
Hikinui	Pahautea Rd (168)	$79,000
Mahaki	Mahaki Rd (197)	$73,000

Haurangi No 2 Culvert	Haurangi No. 2 Rd (188)	$50,000
Lower Cape River	Cape River Rd (225)	$317,000
Tauherenikau Div	Tauherenikau Div. Rd (182)	$39,000

The Special Purpose Road (SPR) includes bridges which would be included in the reduction of the FAR rate for the SPR. SWDC's current understanding based on engagement with NZTA to date, is that NZTA will fully fund the replacement of these bridges when the time comes. The replacements will not occur within the AMP period. We estimate they will need to be replaced in approximately 20 years' time. Ongoing maintenance of these bridges will be covered by approved NZTA budgets.

9.6.9 Asset Acquisition and Creation Plan

Bridge assets may be acquired through vesting from subdivision or land development and bridge improvements may arise during bridge replacement e.g. 2 lane instead of 1 lane bridge. No work has been done as yet to determine what replacement bridges will represent an improvement.

9.6.10 Disposal Plan

Disposal is any of the activities associated with disposal of a decommissioned asset including sale, demolition or relocation.

Under this plan there is no requirement for Asset Disposal for the bridge assets.

In this regard it is Council's objective to operate and maintain all existing bridge assets in a sustainable way so as to ensure continuance of required roading services to current and future generations.

As the bridges in the District near the end of their economic life, bridge replacement will need to be assessed in terms of NZTA policy with regard to whether they rate as uneconomic roading facilities. This may indicate in the future that for some bridges, disposal may be the least long term cost to Council.

9.7 STRUCTURES – LIFECYCLE MANAGEMENT

9.7.1 Introduction

Structures include retaining walls above and below road level and seawalls along Cape Palliser Road.

9.7.2 Asset Description (including how asset data is stored)

Other than for the seawalls and retaining structures along Cape Palliser Road, the number of retaining walls, dimensions and location etc. have not been recorded. They do need to be recorded given the finite life and the fact that many retaining structure incorporate

drainage systems that need to be maintained. This work is planned to be completed over the next three years.

Retaining Wall Type	No.	Length (m)
Rock Revetments - Coastal	11	3,334
Single Crib	8	150
Anchored	71	1162
Rock	5	428
Gabion	10	493
Sheet Pile	1	60
Double Crib	4	26
Reinforced Earth	2	60

Table 6.14 Retaining Structures

There are 11 seawalls with an overall length of 3346m on Cape Palliser Road. A number of these were gabion baskets up to 3 tiers however they have progressively been covered over with rock revetments/boulder beaches as the lower gabions have failed because of erosion and corrosion.

9.7.3 Cape Palliser Road (SPR)

The renewal and maintenance of the structures, in particular those of a preventive maintenance nature, need to be maintained and renewed to prevent greater damage and asset loss. The review of the funding assistance rates on the Cape Palliser Road hold a risk to council in affordability and without the resilience of these structures there is the risk of failure and greater costs. This shortfall in the subsidy will be funded from reserves.

9.7.4 Asset Condition and Monitoring

A condition of the resource consent for the seawalls requires that they are inspected after every significant storm and once a year for reporting to Greater Wellington Regional Council.

Rock revetments are dynamic structures requiring regular maintenance to recover and reposition the rock after storms. In general, the revetments are in good condition with some requiring additional rock as they have been inadequately maintained or were not constructed with sufficient rock initially.

9.7.5 Age Distribution and Life

Provided regular post storm maintenance is carried out the age of a rock revetment is not a relevant parameter.

9.7.6 Critical Assets

At a number of locations on Cape Palliser Road the road has been closed following damage or overtopping of the rock revetments. On a number of occasions continued term access has only been maintained by the prompt action of the Road Maintenance Contractors dumping rock alongside the road.

Elsewhere in the district there are a number of no exit roads in the coastal hills that have the potential to be closed with landslips though no specific at risk structures have been identified.

9.7.7 Asset Capacity / Performance

It is not known what the capacity of the revetments is to withstand storms. There is potential for larger storms in the future as a result of climate change. It is known that some e.g. Te Kopi are under-height for the wave environment being constructed up to the road level. Otherwise the revetments have performed well, significantly reducing erosion of the Whatarangi Cliffs, stabilising the landslide at Johnsons Hill, and protecting the road from erosion.

9.7.8 Design Standards

The rock revetments have been built to a standard design to represent a boulder beach. Following storms it has been necessary to reinforce some of the revetments with additional armour rock layers. It will be necessary to revise the design to take account of the aggressive Cook Strait environment and the potential for larger storms with climate change e.g. using larger size rock and stipulating a minimum of two layers. Other aspects of the design are adequate but this is constantly under review.

Retaining structures are specifically designed for the problem/site by specialist structural and geotechnical engineers e.g. the Kupe's Sail washout.

9.7.9 Maintenance Plan

Maintenance is reactive generally responding to storm damage and is generally funded as an emergency work because of the damage and the resulting obstruction to the road. This can range from recovering and repositioning displaced armour rock to having the reconstruct a section of the revetment where it is destroyed. It should be noted that where it is destroyed most of the armour rock is still available in the vicinity.

This emergency work to date has been partially funded by NZTA. Cape Palliser Road has been fully funded to date but this is currently under review.

9.7.10 Renewal

It is unlikely that any of the rock revetment will be renewed other than as noted in the previous section.

9.7.11 Asset Acquisition and Creation Plan

The report Landslip Investigation (August 2014), set out preventative maintenance required at a number of slip sites in the coastal hills involving structures and improved drainage. Many of these sites are historic having previously been repaired. None of these structures would be classed as requiring immediate work other than monitoring and undertaking any outstanding maintenance works.

Cape Palliser Road Preventative Maintenance Forward Works Plan, March 2014, (Appendix 3) sets out the works required on the Cape Palliser Road to upgrade or construct new rock revetments as well as maintenance and inspection requirements. The timing of the works is dependent on obtaining funding from NZTA.

9.7.12 Disposal Plan

Disposal is any of the activities associated with disposal of a decommissioned asset including sale, demolition or relocation.

Under this plan there is no requirement for Asset Disposal for the retaining wall assets.

In this regard it is Council's objective to operate and maintain all existing retaining wall assets in a sustainable way so as to ensure continuance of required roading services to current and future generations.

9.8 CARRIAGEWAY LIGHTING – LIFECYCLE MANAGEMENT

9.8.1 Introduction

Street lighting is provided and maintained to enhance road user and pedestrian safety and security. Historically the street lighting in some areas has been of a particular concern due to the age, high winds and frequency our outages. This is being remedied with the upgrades and additional switches being added to the network.

The main issue is an aging streetlight network which requires high maintenance inclusive of electricity usage. The opportunity is to replace these with LED lights which come on immediately and last up to 6 times longer with lower electrity use.

Lighting has been raised by residents in amenity and public protection, the project's replacement was based on obsolescence and reduced whole-of-life costs.

The new LED lighting will provide efficient and environmentally sustainable road lighting, making it safer for vehicles, drivers, pedestrians, and cyclists and more economical to operate. LEDs can provide a means by which more light can be provided to specific areas that require it, for generally a lesser cost than previous technology.

Safety benefits from the use of white light in areas of mixed use are significant. It delivers better colour contrast and colour recognition which improves drive reaction times, and helps luminate other traffic service assets.

ONRC provides consistent level of service throughout the whole Wairarapa region with 2 neighbouring councils also adopting LED conversion.

A joint renewal contract with Masterton District Council, Carterton District Council and South Wairarapa DC has been signed.

9.8.2 Asset Description (including how asset data is stored)

Data on the streetlight assets is stored in RAMM. In addition to streetlights in the urban areas there are flag lights on rural intersections, lights in the rural villages, heritage lights Greytown's Main Street and special lights in Martinborough Square. The tables below include lights in parks and on the State Highways and not all are on the SWDC roading network.

Table 30 Streetlights Owner

Pole Owner	
Roading	91
Power Board	784

Parks	38
NZTA	83
Local Authority	45
Unknown	5
Total	**1,046**

Table 31 Streetlights Type

Model	
ITALO 2	3
ITALO 1	5
GL520 27W	33
80WHPL	14
70W SON I	112
70W SON E	577
70W HPIT	3
60W INCAN	1
50W HPL	17
37 W LED	9
35W METAL HALIDE	4
27W LED	9
26W FLUO	23
250W SON	6
150W SON	87
150W CDM - T	5
110W SON	134
UNKNOWN	4
Total	**1,046**

Table 32 Streetlights material

Pole Material	
Steel	160
Concrete	820
Wood	66
Total	**1,046**

9.8.3 Asset Condition and Monitoring

The streetlights are routinely inspected by the streetlight maintenance contractor and faulty components replaced so that the lights are in generally good condition.

9.8.4 Age Distribution and Life

All lights were replaced during the 2017/18 year. South Wairarapa District Council (SWDC) prefers 3000K luminaires.

NZTA is particularly interested in ensuring that the energy saving and durability are comparable to 4000K luminaires being their preferred option for highways and roads in general. The M30 specification on the Transport Agency website contains contact details allowing suppliers to have their luminaries tested at their cost. All luminaires installed on the SWDC network were assessed against the M30 specification to ensure that Council is making a smart buying decision and to meet the AS/NZS 1158 standard for lighting.

9.8.5 Asset Capacity /Performance

All lights to be replaced with cooler 3000K lighting to comply with the requirements to maintain the status of"3K City". In January 2018, Martinborough was officially listed among our "3K Cities" on the International Dark-sky Association website (IDA). We expect this designation to result in increased tourist visitors to our District. http://www.darksky.org/lighting/3k/.

9.8.6 Maintenance

Streetlights are maintained under a tendered contract covering the three Wairarapa councils. This is done on a bulk replacement basis with reactive maintenance for component failures. The funding levels are based on historic data.

The electricity network is maintained by the lines company Powerco.

9.8.7 Renewal

Streetlight componentry is largely renewed through maintenance replacing failed items. No work has been done to assess the life of the components that do not regularly fail e.g. outreach arms, luminaire bodies, and streetlight columns.

9.8.8 Asset Acquisition and Creation Plan

The Council has an ongoing programme of upgrading the street lighting network following a review and assessment of streetlight spacing and effectiveness including:

- New street lighting brackets as Powerco changes to concrete poles
- Installation of pole fuses for service pole mounted lights
- Installation of additional lights
- Upgrading Sate Highway lights

Issues such as spacing were be dealt with in the full replacement programme moving to LED lights.

9.8.9 Disposal Plan

Disposal of any of the activities associated with disposal of a decommissioned asset including sale, demolition or relocation.

Under this plan there is no requirement for asset disposal for the street lighting assets.

In this regard it is Council's objective to operate and maintain all existing street lighting assets in a sustainable way so as to ensure continuance of required roading services to current and future generations.

9.9 TRAFFIC FACILITIES & GUARDRAILS - LIFECYCLE MANAGEMENT

9.9.1 Introduction

9.9.2 Asset Description (including how asset data is stored)

Asset information of facilities and guardrails is held in RAMM

Sign Type	Number
Regulatory General	496
Permanent Warning	656
Regulatory Parking	14
Guide	478
Hazard Markings	640
Information General	71
Warning Miscellaneous	16
Information Miscellaneous	70
Information signs	98
Motorist service	2
Tourist	2
Total	**2,543**

Table 6.16 Road Signs

Railing Type	metres
Sight rail	3,609
W Section Guard rail	583
Timber	955
Concrete Post and Steel Tube	807
Steel Tube and Post barrier	3,008
Guard rail	1,981
THRIE Beam Steel Guard rail	14
Barrier	866
Total	**11,823**

Table 6.17 Railings

9.9.3 Asset Condition and Monitoring

This is as per contract schedules and routine maintenance

9.9.4 Age Distribution and Life

This is exceptionally varied with some road signs having an extended lifespan due to location, weather, etc. The changing speed limit guide will see progressive changes to the signage over the implementation period and done in a cost and priority program.

9.9.5 Design Standards

All road signs and guardrails are designed to meet NZTA guidelines.

9.10 FOOTPATH, CYCLEWAYS AND PEDESTRIAN CROSSINGS

9.10.1 Introduction

Footpaths are inspected and renewed annually. Due to the low number/length and geographic proximity they are easily inspected in their entirety and repaired each year. The life expectancy of a concrete footpath through use is 100 years however the determination is caused through development (being driven over by heavy vehicles) and tree roots (lifting and moving). Footpaths can be replaced or overplayed with asphalt as required and new paths are determined annually based on development and growth.

Pedestrian crossings are repainted annually and signs replaced as required through routine maintenance.

Cycleway are the area of future concern and development with varying use and construction types. The linkages server connectedness between the towns, internally and across the district.

9.10.2 Asset Description (including how asset data is stored)

The data is stored in RAMM and annually reviewed for condition via physical inspections. The proportion of new paths to renewal and overlays is determined based on the maintenance need first and the development of new paths secondary. Works are often carried out in conjunction with other peripheral works such as new Kerb and channel to provide economy's and address walking and drainage concurrently.

Table 33 Pedestrian Crossings

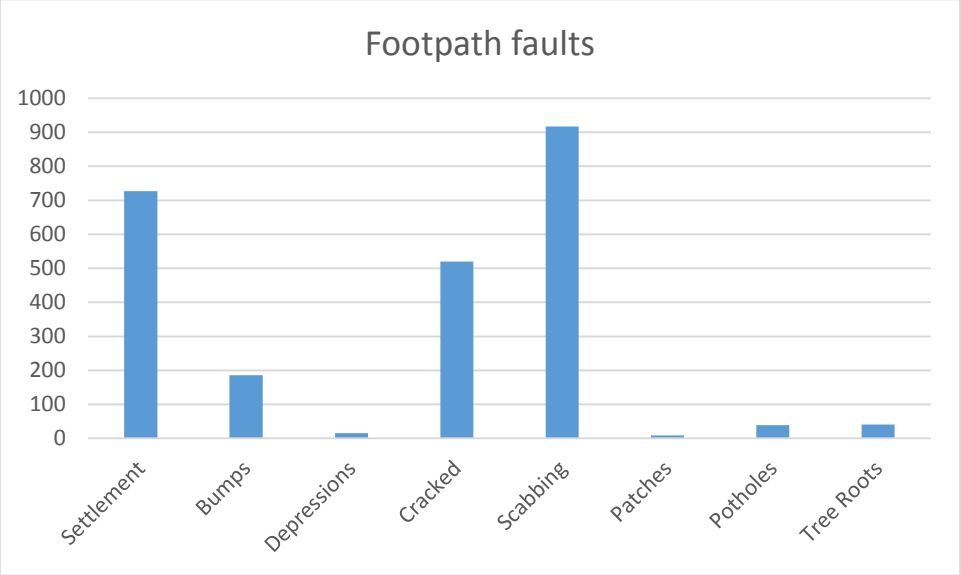
	Road Name
1	CAMBRIDGE RD
2	DUBLIN ST
3	EAST ST
4	EAST ST
5	JELLICOE ST (MARTINBOROUGH)
6	JELLICOE ST (MARTINBOROUGH)
7	KURATAWHITI ST
8	OXFORD ST
9	SH2 FITZHERBERT ST (F)
10	SH2 MASTERTON-WELLINGTON (G)
11	SH2 MASTERTON-WELLINGTON (G)
12	SH53 KITCHENER ST (M)
13	THE SQUARE R/A
14	THE SQUARE R/A
15	THE SQUARE R/A
16	THE SQUARE R/A

Table 34 Footpath length by type

Footpath Type	Length (m)	Area (m2)
Concrete	27,107	37,118
Seal	4,653	12,224
Asphaltic concrete (black)	25,406	68,768
Metal	672	1345
Interlocking blocks	65	196
Total	**57,903**	**119,651**

9.10.3 Asset Condition and Monitoring

Table 35 Footpath Condition



9.10.4 Design Standards

Footpath design must comply with the following best practice standards and guidelines:

Austroads Guide to Road Design – Part 4;

Intersections and Crossings – General Pedestrian Planning and Design Guide,

NZTA (formerly LTNZ) (December 2007) Guidelines for the selection of Pedestrian Facilities;

LTNZ (2007) Austroads Guide to Road Design – Part 6A;

Pedestrian and Cyclist Paths RTS 14 Guidelines for facilities for blind and vision-impaired pedestrians 2nd edition 2007,

LTNZ or later NZTA edition; NZS 4121, Design for Access and Mobility - particularly, Footpaths, Ramps and Landings, Accessible Outdoor Public Areas; Manual of Traffic Signs and Markings (MOTSAM), NZTA - Signs for Shared Paths;

9.10.5 Cycleways

The following are cycle lanes to be implemented for safe urban cycling

Featherston Cycle Routes

Greytown Cycle Routes

N

1:20,000

DISCLAIMER
The South Wairarapa District Councils accepts no responsibility for actions or projects undertaken or loss undamages incurred, by any individuals or company, or agency using all or any of the information presented on this map. The Councils do not provide interpretation of this information or advice on how to interpret, or utilise this information. Your own independent and appropriate professional advice hould be sought. The information displayed on this map may contain errors or omissions or may not have the spatial accuracy required for some purposes.

Martinborough Cycle Routes

Cycle trails are now incorporated into “Trails” and incorporate all aspects of active transport. With the development of e-bikes and the changing nature of non-vehicular transport the cycling strategy is part of the overall a strategic framework for trails in the Wellington Region.

As a first step, the trails in the region have been recommended to be classified using the following headings:

- Signature Trails - A small number of outstanding trails that attract visitors and achieve recognition for the region as a trail destination, and provide a focal point for regional residents.
- Regional Trails - Significant trails that form the core of the trail network and provide quality experiences for residents and visitors and attract users more familiar with the area or wanting less popular experiences.
- Local Trails Trust that primarily service local communities. Local trails are important for everyday health, wellbeing, connectivity and amenity

Actions have been prioritised for creation and no disposals are planned. As the regional initiatives are embryonic in nature this theme of transport is dynamic but low risk in cost and/or economic consequence.

Cyclists (excluding mountain biking)

• Wide range of users and ability levels, including people cycling for exercise, commuting, relaxation and leisure activities and touring.

• Safe cycling or shared use trails for daily use.

• Short to long cycle trails for weekend leisure use both close to population centres and at visitor hubs within easy weekend travel from home. Appealing destinations. Linked or nearby activities, attractions and accommodation. Some may require bike hire.

• Accessible trailheads with adequate parking and facilities.

• Trail events, both participative and competitive

Mountain Bikers (Use of a purpose-built mountain bike on purpose built trails, shared trails or other off-road trails.)

• Children and families seeking a safe entry level or skills development experience.

• Riders in the young adult to middle-age groups.

• Experienced local riders who have ridden for many years in the region, and who continue to contribute to the trail network through building, maintenance and other activities

• Trails and bike parks accessible from population centres and together offering a range of trail types.

• Inter-connected trail networks offering a range of difficulty levels and technical challenges. Ideally offering at least a day's riding.

• Skills parks and technical trails.

• Participative and competitive events.

• Trailheads with appropriate facilities, including parking, bike wash down, food services, shuttle transport.

• A range of trails accessible for shorter 1-to-4 hour near places of work and living. Trails generally for the local user market although will travel more broadly to key trails regionally and will travel nationally for longer weekend breaks and short holidays.

Horse Riders

• Likely to be members of local horse riding clubs.

• Bridle trails accessible from horse agistment areas/ equestrian centres or with adequate horse trailer parking and unloading facilities.

• Some further dedicated bridle trails with the appropriate facilities.

9.10.6 Maintenance Plan

Maintenance plans are developed annually based on condition and need however community consultation on annually plans is also taken into consideration especially submissions from schools, the Wairarapa road safety council and other organisations.

9.10.7 Renewal

The Council currently allocates funds for the renewal of existing Footpaths. The programme is determine by the Roading Manager and Community Boards to reduce the number or Trip Hazards and the renewal of fatigued surfacing. Once the level is at a satisfactory level of service, focus will shift to new footpaths to meet the Councils desire to have a footpath on one side of all urban streets.

10 FINANCIAL SUMMARY

10.1 FINANCIAL STATEMENTS AND PROJECTIONS

10.1.1 Projected Operational and Capital expenditure

Projected costs by individual line items for the first ten years of this AMP are shown in Appendix 4.

10.1.2 NZTA Funding

After a review of the funding assistance rates (FAR), NZTA confirmed SWDC rate will be 52% for all activities for 2018 to 2021 period. Previously this was 49% for maintenance and 59% for construction.

Where emergency works take more than 10% of the budget the financial assistance rate will be the normal rate plus 20%

The funding assistance rate for special purpose roads remained at current levels for the 2015-18 LTP to allow approved organisations to develop individual plans to transition special purpose roads to the normal funding assistance rate by 2023-24. Currently the FAR is 100%, but it is proposed this will reduce by 8% pa from the 2018/19 financial year to 52% by 2023/24. SWDC is talking with NZTA about this proposed change in funding levels.

10.2 ASSET VALUATION

The Council engages Opus International Consultants Ltd to undertake a valuation of the roading network every three years using the asset register in the RAMM database.

The most recent valuation report values the assets as at 30 June 2018. A summary of this report is set out in the table below.

Asset	30 June 2015			30 June 2018		
	ORC $m	ODRC $m	AD $k	ORC $m	ODRC $m	AD $k
Land	81.57	81.57	-	81.57	81.57	-
Formation	126.89	126.89	-	136.73	136.73	-
Pavement	75.58	55.00	1,220	77.09	53.75	1,227
Drainage	16.86	8.45	231	16.97	7.84	232
Footpaths	5.61	2.69	143	6.22	2.92	158
Berms	4.72	4.72	-	5.02	5.02	-
Signs & markings	0.54	0.30	36	0.67	0.33	45
Bridges & Culverts	39.53	15.59	443	46.9	17.95	528
Retaining Walls	10.28	7.79	99	10.88	8.22	106
Street Lighting	1.17	0.79	74	1.65	0.59	98
Rails & Marker Posts	1.17	0.45	69	1.46	0.56	84
Total	**363.92**	**304.24**	**2,315**	**385.16**	**315.48**	**2,478**

ORC = Optmised Replacement Cost ODRC = Optimised Depreciated Replacement Cost

AD = Annual Depreciation

10.2.1 VALUATION METHODOLOGY

The methodology used for the valuation is as follows.

- Every recorded component is valued in terms of its replacement (ORC) and depreciated replacement value (ODRC).
- The valuation is carried out in accordance with the following standards:
    - The NZ equivalent to the International Financial Reporting Standard 16, Accounting for Property, Plant and Equipment (IAS 16).
    - New Zealand Infrastructure Valuation and Depreciation Guidelines, issued by the National Asset Management Steering Group (NAMS) of IPWEA.
- A number of assumptions are used in the valuation process. These are derived from the best available information at the time by a suitably experienced and

competent person. The Valuation Report holds a detailed account of the key assumptions derived for each asset group and the basis for and use of these assumptions.

- The basic approach for the valuation calculation in this methodology involves:
    - Preparation of the valuation databases (using key asset information from the RAMM inventory).
    - Calculation of Optimum Replacement Cost (ORC) by multiplying asset quantities by appropriate unit construction cost rates and including an allowance for other costs (site establishment, professional fees and financial charges).
    - Prediction and assignment of economic and remaining lives for asset types.
    - Calculation of Optimised Depreciated Replacement Cost (ODRC) by deducting an allowance for depreciation, taking into account age, remaining life and estimated residual value at end of life.
    - Optimisation of replacement cost by incorporating provision of present day technology in renewal costs, but maintaining the originally designed level of service. This ensures that any additional costs of outdated and expensive methods of construction are not reflected in the valuation.
    - The per annum Depreciation value of the assets has been calculated on a straight-line basis over their nominal/economic working life.
- No assets have been identified as surplus and therefore unlikely to be replaced.

10.3 KEY FINANCIAL FORECAST ASSUMPTIONS

10.3.1 Assumptions

Significant assumptions and uncertainties in the preparation of the Asset Management Plan are:

- Asset information will continue to be acquired to complete a full understanding of the land transport asset condition.
- The external regulatory environment will remain significantly the same for the next three years.
- Council and its service community will maintain a similar level of expectation in relation to service levels
- The knowledge of the practitioners directly providing this activity, both on a day-to-day basis and historically, has been relied upon. These practitioners include Council's staff, Council's roading network consultants, NZTA staff, and staff of the various physical works contractors.
- There will be an on-going requirement for the provision of this activity.
- The demand for this activity will remain however there is some uncertainty about how the service will change due to changing Government requirements.
- Funding will be available to provide this activity as described in this Activity Management Plan.

- The financial assistance Base Rate from NZTA will remain at 52%. There is a proposal that the 100% funding of the special purpose road will reduce to 52% by 2024. NZTA will continue to fund a portion of emergency works.
- Renewal and Capital costs are preliminary cost estimates that will need to be further researched and refined

Key assumptions made in the financial forecasts are as follows:

- NZTA will continue to provide subsidised funding to Council for the roading network.
- Council will continue to fund the level of service currently set out in the plan.
- Assumptions made on Total Useful Life and Residual Useful Lives of the assets in relation to the asset valuation.
- The asset data is considered to be reliable and fit for the purpose of developing the long term financial forecasts.

10.4 ACCOUNTING AND FINANCIAL SYSTEMS

10.4.1 Accounting and Financial Systems

Financial Management processes are carried out through the Council's finance system. The Council records costs against specific funding categories as they are incurred through contractual arrangements, or as they are processed through the Council's finance system.

For asset management purposes, roading activity expenditure is categorised as follows:

Table 36 Expenditure Categories

Category	Description
Operational	Activities which have a no effect on asset condition but are necessary to keep the asset utilised appropriately (e.g. power costs, overhead cost, etc.)
Maintenance	The on-going day-to-day work required to keep assets operating at required service levels, i.e. repairs and minor maintenance.
Renewal	Significant work that restores or replaces an existing asset towards its original size, condition or capacity.
Capital (also called development or new work)	Works to create a new asset, or to upgrade or improve an existing asset beyond its original capacity or performance, in response to changes in usage, customer expectation, or anticipated future need.
Disposal	Any cost associated with the disposal of a decommissioned asset.

10.4.2 Accounting Standards and Guidelines

South Wairarapa District Council (SWDC) is a territorial local body governed by the Local Government Act 2002 (LGA 2002) and is domiciled in New Zealand. The SWDC is a separate legal entity and does not have any subsidiaries. The primary objective of the SWDC is to provide goods and services for the community or social benefit rather than making a financial return. Accordingly, the SWDC has designated itself as a public benefit entity for the purposes of New Zealand equivalents to International Financial Reporting Standards (NZ IFRS).

Accrual accounting is used to recognise and match costs with revenues in the period.

The Long Term Plan which is compiled using information from asset management plans is in full compliance with Financial Reporting Standard 42 (FRS 42) ”Prospective Financial Statements”.

The financial statements contained in the Long Term Plan must follow the appropriate legislative requirements of the Local Government Act 2002, and generally accepted accounting principles recognised as appropriate and relevant for the reporting of financial information in the public sector.

The financial forecasts for the first 10 years of this AMP are adjusted for projected inflation based on the BERL local government cost index. The financial forecasts for years 11 to 30 use the inflation adjuster for the 2028 year from the BERL local government cost index.

11 ACTIVITY MANAGEMENT PRACTICES

11.1 ASSET MANAGEMENT SYSTEMS

11.1.1 RAMM – ROADING ASSET REGISTER

The roading network physical data is contained within the RAMM database hosted by RAMM Software Ltd. This information is continually updated as roads are maintained, resealed or rehabilitated, vested to Council, structures built and new traffic signs installed. RAMM holds the following inventory data:

Table 37 Asset information stored in RAMM

Table name	Contents / Records
Carriageway	Road IDs & Names
	Start / End names
	Locations
	Dimensions
	Road Details - Hierarchy, Pavement Use, etc.
Treatment Lengths	Treatment Details
Traffic and Loading	Traffic Counts
	Traffic Estimates
	Pavement Loadings Data
Carriageway Surfacing	Current and Historical Surfacing Data
Pavement Layer	Existing Pavement Layer & Subgrade Data
Drainage	Culverts - Locations, Dimensions, Descriptions
	Catch pits - Locations, Descriptions
	Drainage Walls - Inlets & Outlets Descriptions
	Other Drainage - Manholes, Drop Chambers, Subsoil, etc.
Surface Water Channels	Surfaced Channel Types - Kerb & Channel, Mountable KC, Dish Channel. Locations, Dimensions, Descriptions
Footpaths	Footpath locations, Dimensions, Descriptions
Signs	Road Sign Types, Locations, Dimensions, Descriptions
Markings	Road Marking Locations, Dimensions
Minor Structures	No Records
Bridges	Road Bridges, Large Culverts, Stock Underpasses
	Locations, Dimensions, Descriptions

Table name	Contents / Records
Streetlights	Streetlight Pole & Light Data - Types, Locations, Descriptions
Berms	Locations, Dimensions, Descriptions
Crossings	Vehicle Crossings Types, Locations, Dimensions, Descriptions
Islands	Traffic Islands Types, Locations, Dimensions, Descriptions
Railings	Types, Locations, Descriptions
Retaining Walls	Types, Locations, Dimensions, Descriptions
Features	No defined records
Roughness	Roughness Survey Data, NAASRA Detail
Sealed Road Condition Rating	Condition Rating Survey Data
Footpath Condition Rating	Condition Rating Survey Data
Maintenance Costs	Roading Contracts Maintenance Costs Data
Shoulder	Carriageway Shoulder Locations, Dimensions

Council utilises a number of the RAMM tools including the Asset Valuation Module, Treatment Selection Algorithm, and RAMM Contractor for managing maintenance contracts.

The further development of RAMM as a decision making tool has been included into the NZTA Land Transport Plan for funding. Work continues on better utilisation of the database the continual improvement of the data to increase usability.

11.1.2 Geographic Information System (GIS)

The Council uses ArcView GIS system. The three Wairarapa Councils have pooled resources to create a new public, viewable, web-based mapping application. The new website provides information about the region's properties, planning zones and geographic features. It includes recent aerial photography.

As a shared service initiative, the three Councils have put together a range of spatial information onto a shared platform, powered by the ESRI GIS application. Property information, district planning zones, streets and roads, hazards such as fault lines, tsunami and flood risk areas, transport networks, Civil Defence centres, water and sewer pipes, water races etc.

11.1.3 Crash Analysis System

The Council utilises NZTA Crash Analysis System (CAS) to identify crash trends on local roads, identify problem areas and intersections and poor skid resistant sites identified by wet weather crashes.

CAS is a tool that manages, analyses and maps traffic crash and related data. It is a computer system in which people can:

- select crashes for analysis
- map crashes
- view images of the crash report diagrams
- locate and map crash clusters
- report on crashes or crash clusters
- monitor trends at crash sites
- automate the production of collision diagrams

This enables the Council to contribute to improved road safety through road crash prevention. The crash data collection is based on the fatal, injury and non-injury crashes reported to us by the Police.

11.1.4 Service Requests / Incoming Communications

Council maintains a customer service request database through Magiq (formerly known as NCS). This database is used to log calls from customers and other stakeholders. The Council logs requests and passes road related issues onto the roading consultant for action and monitoring. Once the issue has been actioned and completed Council are informed. The relevant history of actions and response times are then recorded in the system.

This information is used to understand the public perception and expectation of public on the roading asset and provides background and context to help set and report on Levels of Service.

11.1.5 Maintenance Cost Recording

Maintenance cost information is currently being entered into RAMM. This information is collected by the contractor and submitted to the Roading Manager for verifying quantity, quality, and costs prior to approval for payment. This information is then loaded into the RAMM database every month.

11.1.6 Data Location and Availability

The following table outlines where data is currently stored and comments on availability or types of information about the roading assets and activity.

Table 38 Data Location and Availability

Data Type	Location	Comments
Asset Inventory	RAMM Asset Register Spreadsheets	Maintained in-house and through professional service contract
Vested assets	GIS Spreadsheets	Loaded into RAMM

Data Type	Location	Comments
Operations Data	RAMM Asset Register Contract Management Spreadsheets	Historical Maintenance Costs Current approved programme Tracking and management of tasks
Condition Assessments	RAMM Asset Inventory	
Customer Enquiries	Council service request system (Magiq)	Not linked to other systems
Asset Valuations	RAMM asset Valuation Module Opus external valuations	
Forward Works Programmes	Spreadsheets Reports	Professional service contract
Level of Service	Roading Activity Management Plan Magiq reporting	
Financial Records	Councils Finance Department and Maqiq financial modules	

11.2 Information Flow Requirements and Processes

11.2.1 Information flows to and from the AMP

It is important to ensure data on every event is recorded to enable it to be used for forward works planning and assessment of inventory condition. Events can include a customer request, contractor routine inspections, post-event inspections, resurfacing, repairs, condition rating etc. All this information needs to be collated in the RAMM system irrespective of how it originated. At present significant improvements are being made to capture this data.

12 AMP Improvement and Monitoring

12.1 AMP level

12.1.1 Desired AMP Levels

The council aims to have a fully compliant Core AMP by 2021 with extensions as necessary to meet the minimum New Zealand Transport Agency requirements for asset management practice. It should be noted that over this time ONRC LOS and Performance Measures will be implemented.

12.1.2 Improvement Plan and Timetable

The table below sets out the Improvement Plan and programme agreed with NZTA. Council is committed to a policy of continual improvement through data collection, procedural improvements and organisational development.

The programme sets out the tasks to be completed to ensure the 2021 AMP meets the Core Level with appropriate data accuracy for submission to NZTA by 30 November 2020. Key areas of improvement include (in priority order);

- Collation of all inventory data into a single repository
- Risk Management Plan preparation
- Track maintenance costs
- Attribute data collection, validation and recording
- Review Levels of Service performance measures
- Asset condition assessment and performance monitoring
- Asset capacity and utilisation assessment

12.1.3 Improvement Plan Process and Resources

SWDC has limited resources and uses external professional services to undertake specialist tasks that are not continuous throughout the year e.g. contract supervision.

The programme set out below includes a number of projects some of which will be achieved through data gathering in maintenance contracts, others will be completed as in-house resources allow with the remainder by a variety of external professional service.

Asset management status assessment relates to six broad AMP inputs/ outputs (listed below).

Life Cycle: The processes, analysis and evaluation techniques needed to understand modes of failure and support effective lifecycle asset management.

Risk: The risks that the organisation faces, the quality of systems and data, and the way these are managed.

Levels of Service: How well levels of service are understood, aligned and support the business process and priorities.

Growth: Identifying and understanding future growth patterns in terms of impact on the asset base, operations and finance.

Demand: Monitoring, predicting and responding to changes in demand.

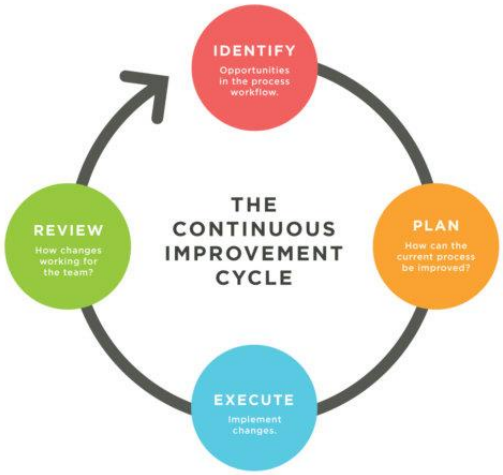
General/Overall: Processes to ensure the AMP remains relevant and is improved over time.

SWDC Improvement Plan and Timetable

Action	Priority	Estimated Cost	Target Date	Action Person Status
IMPROVEMENT TASKS INCLUDED IN 2018/2048 ACTIVITY MANAGEMENT PLAN				
Procurement				
Review and current contract procurement of drainage maintenance to ensure incentives are clear and in place for correct maintenance of side drains.	High	within existing budget	Jun-18	Roading Manager
Consider changes required to contract to align with ONRC levels of service and consider timing for changes.	low	within existing budget	Jun 19	Roading Manager
UNSEALED ROADS				
Analysis and trials be undertaken over the next three years to review if changes in the process of unsealed pavement maintenance and renewal can reduce the costs per km. These investigations would include visits to Councils with lower costs to see how they are managing their Unsealed Pavement Maintenance. The lessons learned from these Councils could then be assessed and trialled.	medium	Within existing budgets	Jun 20	Roading Manager
Asset Plan, Data collection & Evaluation of Options				

Action	Priority	Estimated Cost	Target Date	Action Person Status
To develop an improved and more accurate deterioration model for the road network. This will enable greater confidence in the evaluation of programme options	Medium	Within network management Budget	June 20	Roading Manager
Restructure the Asset Plan document so it aligns with the ONRC and Business case structure.	Medium	Within network management Budget	June 20	June 20
Develop option analysis for Drainage Management, traffic services and environmental managements. Improve the option analysis for seal pavement maintenance and unsealed pavement maintenance.	Medium	Within network management Budget	June 20	June 20
Improve data quality as required to inform decisions on: a) The low cost low risk safety improvements, b) The evaluation of programme options, and c) The management of unsealed road network cost.	Medium	Within network management Budget	June 19	Roading Manager

Asset management improvement planning underpins the success of the overall asset management process.



Based on formal analysis, a review of AM performance captures a snapshot of the state of processes and practices. Where shortfalls between current and desired performance are found, actions can be planned and implemented to address these.

Over time, through the improvement process, Council will be able to more effectively deliver its desired asset management outcomes.

This AMP also recognises that good data is fundamental to asset management, and is one of the key enablers in the improvement process. By ensuring that the data is sound, subsequent analysis and decisions can be made with greater confidence and better results achieved.

12.1.4 Monitoring and Review

The effectiveness of the AMP will be monitored in various ways, including statutory audit, external audit, and conformance with the performance measures. Customer surveys will be carried out to monitor the performance of service delivery and the customers‟ perception of the service being provided.

12.1.5 Monitoring Reporting

LOS performance targets are reported to every Council Meeting with financial performance reported at least quarterly.

12.1.6 External Audit and Review

This AMP has been prepared by SWDC staff and will be reviewed by NZTA and Audit NZ.

12.1.7 AMP revision

The AMP will be progressively updated as the improvement programme is completed with the major review in the third quarter 2017/18 financial year (this version).

13 APPENDIX 1 - ONE NETWORK ROAD CLASSIFICATION

One network road classification - functional classification

ROAD & STREET CATEGORIES/CRITERIA	FUNCTIONAL CRITERIA AND THRESHOLDS									
	MOVEMENT OF PEOPLE & GOODS (LINK ← → PLACE)				ECONOMIC AND SOCIAL (LINK ← → PLACE)					
	TYPICAL DAILY TRAFFIC (AADT)[1]	HEAVY COMMERCIAL VECHICLES[2] (daily flows)	BUSES (urban peak)[3]	ACTIVE MODES[4]	LINKING PLACES	CONNECTIVITY	FREIGHT - INLAND PORTS/PORTS (per annum)	AIRPORT PASSENGER NUMBERS (per annum)[5]	TOURISM[6]	HOSPITALS
NATIONAL Meet 3 criteria (incl. at least 1 of Typical Daily Traffic, HCV or Buses & 1 economic or social)	U[7]: > 25,000 R: > 15,000	>800	> 40 buses or 2000 people per hour		>100,000 population[8]		>2 million tonnes (or >$3 billion)[9]	>3 million[10]		
(HIGH VOLUME) Meet at least 1 high volume (Typical Daily Traffic or HCV)	U: > 35,000 R: > 20,000	>1200								
REGIONAL Meet 2 criteria (incl. at least 1 of Typical Daily Traffic, HCV or Buses & 1 economic or social)	U: > 15,000 R: > 10,000	>400	> 40 buses or 2000 people per hour		>30,000 population[11]	Linking remote regions (regional councils) or sole connectivity in urban areas	>1 million tonnes[12]	>500,000[13]	Top 5 tourist destinations	Access to tertiary hospitals
ARTERIAL Meet 2 criteria (incl. at least 1 of Typical Daily Traffic, HCV or Buses)	U: > 5,000 R: > 3,000	>300	> 15 buses or 750 people per hour	Significant numbers of pedestrians and cyclists (urban peak) or part of identified cycling or walking network	>10,000 population[14]	Critical Connectivity (no alternative routes)		>250,000[15]	Regionally or locally significant tourist destinations or significant scenic routes	Access to regional hospitals
PRIMARY COLLECTOR Meet 1 criteria (incl. at least 1 of Typical Daily Traffic, HCV or Buses)	U: > 3,000 R: > 1,000	>150	> 6 buses or 300 people per hour		>2,000 population		< 1 million tonnes	<250,000		
SECONDARY COLLECTOR Meet 1 criteria (incl. at least 1 of Typical Daily Traffic or HCV)	U: > 1,000 R: > 200	>25			>250 population					
ACCESS All other roads	U: < 1,000 R: < 200	<25			<250 population					
(LOW VOLUME) Meet low volume Typical Daily Traffic	U: < 200 R: < 50									

Functional Classification

There are criteria and thresholds for each category, based on the functions the road performs within the network. To be included in a particular category a road must meet the agreed criteria and thresholds, including at least one of either – typical daily traffic (AADT), heavy commercial vehicles (HCV), or bus (urban peak) as appropriate.

The six functional categories are:

- National: These are roads that make the largest contribution to the social and economic wellbeing of New Zealand by connecting major population centres, major ports or international airports and have high volumes of heavy commercial vehicles or general traffic. They must meet the thresholds for 3 criteria, including at least one of the following movement criteria (Typical Daily Traffic, Heavy Commercial Vehicles or Buses, Urban Peak) and at least one of the economic and social criteria (i.e. 3 in total). To be included in the high volume subset a road must meet one of the high volume criteria for typical daily traffic or HCVs.
- Regional: These roads make a major contribution to the social and economic wellbeing of a region and connect to regionally significant places, industries, ports or airports. They are also major connectors between regions and in urban areas may have substantial passenger transport movements. As well as meeting at least one of the following movement criteria (Typical Daily Traffic, Heavy Commercial Vehicles or Buses, Urban Peak) these roads need to meet at least one of the economic and social criteria (i.e. 2 in total).
- Arterial: These roads make a significant contribution to social and economic wellbeing, link regionally significant places, industries, ports or airports and may be the only route available to some places within the region (i.e. they may perform a significant lifeline function). In urban areas they may have significant passenger transport movements and numbers of cyclists and pedestrians using the road. As well as meeting at least one of the following movement criteria (Typical Daily Traffic, Heavy Commercial Vehicles or Buses Urban Peak) they also need to meet at least 1 other criteria (i.e. 2 in total). The other criteria should then be considered to provide a local 'ground truthing' check, and in some instances by considering these this may result in a road moving up or down a category to reflect the function of the road.
- Primary Collector: These are locally important roads that provide a primary distributor/collector function, linking significant local economic areas or areas of population. They may be the only route available to some places within the region and in urban areas they may have moderate passenger transport movements and numbers of cyclists and pedestrians using the road. These roads need to meet at least one of the movement criteria (Typical Daily Traffic, Heavy Commercial Vehicles or Buses Urban Peak - (i.e. 1 in total). The other criteria are then be considered to provide a local 'ground truthing' check, and in some instance by considering these criteria, this may result in a road moving up or down a category to reflect the function of the road.
- Secondary Collector: These are roads that provide a secondary distributor/collector function, linking local areas of population and economic sites and may be the only route available to some places within this local area. These roads need to meet at least one of the movement criteria (Typical Daily Traffic or Heavy Commercial Vehicles - i.e. 1 in total). The other criteria are then be considered to provide a local 'ground truthing' check, and in some instance by considering these criteria, this may result in a road moving up or down a category to reflect the function of the road.
- Access: These are all other roads. Low volume roads within this category will fall into the low volume subset.

In the Primary/Secondary Collector and Access road categories we propose that the criteria other than the Typical Daily Traffic, Heavy Commercial Vehicles, Bus Urban Peak can be used to move a road up a category on the basis of local knowledge. For example, an Access road may provide critical connectivity or provide access to a regionally or locally significant tourist destination warranting it moving up a category to Secondary Collector even through it does not conform to the movement criteria for that category.

1. Proxy for traffic generators with both economic and social dimensions such as employment, shopping areas and schools/tertiary institutions
2. Proxy for economic productivity – connecting major industrial/commercial and distribution centres to markets.
3. Proxy for bus link and density of 'exchange' place function
4. Proxy for density of 'exchange' place function
5. Proxy for economic productivity
6. Proxy for economic productivity
7. U – Urban, R - Rural
8. Top 7 cities as defined in the Transport Agency Planning Policy and Funding Manual – Auckland, Hamilton, Tauranga, Napier/Hastings, Wellington, Christchurch, Dunedin.
9. Top 8 ports – Tauranga, Auckland, Christchurch, New Plymouth, Marsden, Dunedin, Wellington, Napier plus Auckland International Airport. Break point in tonnages/values.
10. Top 3 airports – Auckland, Wellington, Christchurch. Break points in data.
11. Statistics NZ definition of main urban area
12. Next 3 ports – Picton, Nelson, Bluff
13. Next 2 airports – Queenstown, Nelson
14. Statistics NZ definition – secondary urban area
15. Next 5 airports – Dunedin, Palmerston North, Hamilton, Rotorua, Napier

ONE NETWORK ROAD CLASSIFICATION

14 APPENDIX 2 - ONRC PROVISIONAL PERFORMANCE MEASURES

The One Network Road Classification (ONRC) was designed to standardise the performance of our roads throughout New Zealand, aiming to address historical inconsistencies, and promote economic growth. This can only be achieved if all Road Controlling Authorities (RCAs) are monitoring and measuring their roads with the same tools and standards consistently over time. These performance measures support that consistency.

They have been developed by subject experts from the Road Efficiency Group (REG) – a collaboration between Local Government New Zealand and the New Zealand Transport Agency. When used with the ONRC Performance Measures online reporting tool, they are a significant resource to help asset managers better understand their network and tell their investment story. Asset managers must use the performance measures when developing their business cases for the Regional Land Transport Plan.

Regional Champions and experts from REG are available to support you. Asset managers should also read the ONRC Performance Measures General Guide, which provides strategic overview and context. Further guidance in the form of case studies will be provided for operational use of the ONRC, specific to the field operations and data management. Please visit www.roadefficiency.govt.nz for more information.

When using the performance measures, it is important to remember that while there is an element of compliance, they are intended to form the backbone of a thinking process. The measures complement and interact with each other – you will find your investment story by considering the data across your network and in the national context, rather than focusing on individual performance measures in isolation. We have provided seed questions with each measure to assist.

CLoS	Outcome Measure	Brief Description	Reporting Required?	Already Reported 31 March 15?	Clearly defined measure?	Data exists ?	Analysis tools available?	Relevant to maintenance and renewals?	AT
Value for Money	OM1	AMP	No	No	No	n/a	n/a	No	
Safety	OM1	S&F crash trend	Yes	Yes	Yes	Yes	Not yet	Yes	
	OM2	Collective risk	Yes	Yes	Yes	Yes	Yes once cleaned	Yes	
	OM3	Personal risk	Yes	Yes	Yes	Yes	Yes once cleaned and queried	Yes	
Resilience	OM1	Journeys impacted	No	No	Yes	Probably	Not yet	Yes	
	OM2	Journeys not made	No	No	Yes	Probably	Not yet	Yes	
Amenity	OM1	STE	Yes	Yes	Yes	Yes	Yes	Yes	
	OM2	Average Roughness	Yes	Yes	Yes	Yes	Yes	Yes	
Travel Time Reliability	OM1	Variability of journey times	Yes for regionals & sample of arterials	Yes for sum of nominated routes	Yes	Yes for regionals & sample of arterials	Yes	Not as defined - travel speed is more relevant	AT has been reporting reliability on nominated routes since 2015. More relevant to the Network Operating Plan than the AMP.
	OM2	Bus journeys	No	Yes for whole network	Yes, but not clear how to break down by ONRC classification	Yes	Yes	No	Bus journey times would be more relevant than departure times
Accessibility	OM1	Access to PT	No	Yes for whole network	Yes, but not clear how to break down by ONRC classification	Yes	Yes	No	Access to frequent public transport would be more relevant than access to a bus stop
	OM2(a)	Truck Travel Exposure - Class 1	No	Sort of	No				AT claimed 100% access as AT does not legally prohibit access - but a more practical definition would give a lower value. Does this scale of vehicle need access to the whole network?
	OM2(b)	Truck Travel Exposure - 50 Max (and HPMVs)	No	Sort of	No				
	OM3	Roads operated to facilitate journeys (per 1800vl/lane/hr)	No	Yes on nominated routes	Yes	Yes on nominated routes	Yes	Not as defined	AT has been reporting vl/lane/hr on nominated routes since 2015, but is shifting to a multimodal measure
Safety	PM1	Permanent Hazards identified	Yes*	No	Yes	Yes	Not yet	If >70 km/h	* for roads outside the urban area with speed limits >=70 km/h
	PM2	COPTTM implemented at worksites	No	No	Yes	Yes	Not yet	Yes	
	PM3	Sight Distances (vegetation)	Yes*	No	Yes	Yes	Not yet	If >70 km/h	* for roads outside the urban area with speed limits >=70 km/h
	PM4	Street lighting	No	No	No				
	PM5	S&F crash trend per skid resistance	Yes	Yes	Yes	Yes	Not yet	No*	*Trends not statistically significant. CAS parameters need to be more clearly defined.
	PM6	S&F crash trend per intersections	Yes	Yes	Yes	Yes	Not yet	No*	*Trends not statistically significant.
	PM7	Communities at risk register	No	Sort of *	No	n/a	n/a	No	* Sort of = AT reported yes (we do have a plan)
	PM8	Hazardous faults	Yes*	No	Yes	Yes	Not yet	Yes	* for roads outside the urban area with speed limits >=70 km/h
	PM9	Roading service requests response	Yes*	Yes*	Yes, but not clear how to break down by ONRC classification	Maybe	Not yet	No	* A single % for the whole network. Requests for service do not correlate well with actual need so spatial analysis is not a priority
	PM10	Footpath network condition	Yes*	Yes	Yes	Yes	Yes	Not very	* A single % for the whole network
	PM11	Dangerous hazards on cycleways	No	No	No	Maybe	Not yet	Maybe	
	PM12	Areas with surface friction deficiencies	Yes*	No	No	Maybe	Not yet	Maybe	* If feasible. AT is developing a Skid Resistance Strategy but timelines may not align
	PM13	S&F injuries to vulnerable users	Yes	Yes	Yes	Yes	Not yet	No*	*Trends not statistically significant.
	PM14	Restraining devices	Yes*	No	Yes	Yes	Not yet	For >70 km/h roads outside urban area	* for roads outside the urban area with speed limits >=70 km/h
	PM15	Roadside safety zones	Yes*	No	Yes	Yes	Not yet	For >70 km/h roads outside urban area	* for roads outside the urban area with speed limits >=70 km/h
	PM16	KiwiRap	Yes*	No	Yes	Yes	Not yet	For >70 km/h roads outside urban area	Urban KiwiRap under development
Resilience	PM1	Resilience Plan	No	Sort of *	No	n/a	n/a	No	* Sort of = AT reported yes (we do have a plan)
	PM2	Journeys lost per lack of pro-active maintenance	No	No	Maybe	No			
	PM3	Alternative routes	No	No	Yes but only affects a few rural roads				
	PM4	Emergency Procedure and Response Plan	No	Sort of *	No	n/a	n/a	No	* Sort of = AT reported yes (we do have a plan)
	PM5	Customer advice of changed travel conditions	No	No	Yes	Maybe	Not yet	No	
	PM6	PT Customer advice of changed travel conditions	No	No	Yes, but not clear how to break down by ONRC classification	Maybe	Not yet	No	
Amenity	PM1	Ride comfort	Yes	Yes	Yes	Yes	Yes	Yes	
	PM2	Truck ride deficiencies	No	No	Yes	Yes	Yes	On identified freight network	
	PM3	Ride comfort - Unsealed Roads	Yes *	No	No	Maybe	Yes	Yes	* Only if data readily available
	PM4	Ride comfort - Unsealed Roads	Yes *	No	No	Maybe	Yes	Yes	* Only if data readily available
	PM5	Aesthetic defects (litter etc)	No	No	No				
Travel Time Reliability	PM1	Plan to co-ordinate activities and events	No	Sort of *	No			No	* Sort of = AT reported yes (we do have a plan)
	PM2	Delays due to planned activities not to exceed x%	No	No	No			No	More relevant to Network Operating Plan than AMP
	PM4	Customers informed within x minutes of change in	No	No	No			No	More relevant to Network Operating Plan than AMP
	PM5	Prior notification where delays exceed 20min	No	No	No			No	More relevant to Network Operating Plan than AMP
	PM6	Network Operating Plan	No	Sort of *	No			No	* Sort of = AT reported yes (we do have a plan)
Accessibility	PM1	Wayfinding policy	No	No	No				
	PM2	Guidance and signs compliant with MOTSAM etc	No	No	No				
	PM3	Land use planning - access requirements	No	Sort of *	No			No	* Sort of = AT reported yes (we do have a plan)
	PM4	Land use planning - access to adjoining land	No	No	No				
	PM5	Road hierarchy priority	No	No	No				
	PM6	Bus stop signage	No	No	Yes	Yes	Yes	No	
	PM7	Network sensible maintenance and operations	No	No	No				
	PM8	Manage active road user demands	No	Sort of *	No			No	* Sort of = AT reported yes (we do have a plan)
	PM9	Manage CARs	No	Sort of *	No			No	* Sort of = AT reported yes (we do have a plan)
	PM10	Manage events and Road Opening Notices	No	Sort of *	No			No	* Sort of = AT reported yes (we do have a plan)
	PM11	Expanding HPMV access	No	No	No				
Efficiency	EM1(a)	Pavement Rehabilitation quantity - lane km	Yes	Yes	Yes	Yes	Yes	Yes	
	EM1(b)	Pavement Rehabilitation quantity - m2	Yes	Yes	Yes	Yes	Yes	Yes	
	EM2(a)	Chipseal resurfacing quantity - lane km	Yes	Yes	Yes	Yes	Yes	Yes	
	EM2(b)	Chipseal resurfacing quantity -m2	Yes	Yes	Yes	Yes	Yes	Yes	
	EM3(a)	Asphalt resurfacing quantity - lane km	Yes	Yes	Yes	Yes	Yes	Yes	
	EM3(b)	Asphalt resurfacing quantity -m2	Yes	Yes	Yes	Yes	Yes	Yes	
	EM4(a)	Unsealed roads - metalling - km	Yes	Yes	Yes	Yes	Yes	Yes	
	EM4(b)	Unsealed roads - metalling - m3	Yes	Yes	Yes	Yes	Yes	Yes	
	EM5	All Significant Works ($)	No	No	No				
	EM6(a)	Average life achieved - pavement	Yes	Yes	Yes	Yes	Yes	Yes	
	EM6(b)	Average life achieved - surfaces	Yes	Yes	Yes	Yes	Yes	Yes	
	EM7	Future Intent - % planned to reactive	No	No	No				
	EM8	Pavement Rehabilitation ($)	Yes	Yes	Yes	Yes	Yes	Yes	
	EM9	AC Resurfacing ($)	Yes	Yes	Yes	Yes	Yes	Yes	
	EM10	Routine Maintenance ($)	Yes	Yes	Yes	Yes	Yes	Yes	
	EM11	Unsealed road metalling ($)	Yes	Yes	Yes	Yes	Yes	Yes	
	EM12	All significant works ($)	No	No	No				
	EM13(a)	$/lane/km	Yes	Yes	No	Yes	Yes	Maybe	
	EM13(b)	$/vkt/km	Yes	Yes	No	Yes	Yes	Maybe	
	EM13(c)	$/tonne/km	No	No	No				

14.1 SAFETY

14.1.1 Customer Outcome 1: the number of fatal and serious injuries on the network

Aim:

The road and roadside are becoming safer for road users.

Measure:

The total number of fatal and serious injuries each year on your network.

Report:

The CAS system provides a file of crashes on each network each year to RAMM. This file can be loaded into your Asset Register (RAMM) to enable reporting by classification. As long as you keep your CAS data up-to-date in your RAMM database, the ONRC reporting tool will generate the result. The reporting tool provides calculation of a five-year trend.

14.1.2 Customer Outcome 2: collective risk

Aim:

The roads and roadside are becoming safer for road users.

Measure:

The total number of fatal and serious injuries per kilometre each year on the network.

Generate Report:

As long as CAS data is up-to-date in the RAMM database, the ONRC reporting tool will generate the result. The reporting tool calculates a risk rating for each classification on the network.

Action:

Translate problems, benefits and the response proposed into your business case.

If there are no issues to address, identify this in your AMP.

14.1.3 Customer Outcome 3: personal risk

Aim:

The roads and roadside are becoming safer for road users.

Measure:

The total number of fatal and serious injuries by traffic volume each year on the network.

Report:

As long as CAS data is up-to-date in the RAMM database, the ONRC reporting

tool will generate the result. The reporting tool calculates a risk rating for each classification on the network.

Action:

Translate problems, benefits and the response proposed into your business case.

If there are no issues to address, identify this in your AMP.

14.1.4 Technical Output 1: permanent hazards

Aim:

Permanent hazards are marked consistently across New Zealand.

Measure:

The number of permanent hazards that are not marked in accordance with national standards RTS-5 and MOTSAM. Inspect at least a 10% sample of each classification and record the number of non-compliances per ten kilometres for rural roads; per one kilometre for urban roads.

This audit is against the standards, not the condition to which the contractor is maintaining the hazard marking.

Report:

Input the number of faults and the length inspected per classification into the ONRC reporting tool; the ONRC reporting tool will generate the result.

Action:

Review your contract requirements for marking hazards on the network.

Translate problem, benefits and the response proposed into your business case.

If there are no issues to address, identify this in your AMP.

14.1.5 Technical Output 2: temporary hazards

Aim:

Workers and people participating in events on roads are kept safe.

Measure:

The number of sites inspected and the number of audits compliant with COPTTM.

Audit temporary traffic management at work sites, event sites and temporary hazards.

Generate Report:

Input the number of sites inspected and the number of audits compliant with COPTTM per

classification into the ONRC reporting tool; the ONRC reporting tool will generate the result.

Action:

Review your traffic management approval and audit processes; as well as contract requirements for marking temporary hazards on the network.

Translate problems, benefits and the response proposed into your business case.

If there are no issues to address, identify this in your AMP.

14.1.6 Technical Output 3: sight distances

Aim:

Drivers are able to navigate safely because they can see hazards, warning signs or delineation in time to respond.

Measure:

The number of locations where sight distance or signs are obstructed by vegetation, unauthorised signs or other items placed within the road reserve. Inspect at least a 10% sample of each classification and record the number of instances per ten kilometres for rural roads; per one kilometre for urban roads.

The Road Maintenance Visual Guide provides examples of complying and non-complying situations.

Generate Report:

Input the number of sites inspected and the number of audits compliant with COPTTM per classification into the ONRC reporting tool; the ONRC reporting tool will generate the result.

Action:

Review your contract requirements for vegetation control on the network. Review your policy/bylaw requirements and enforcement processes.

Translate problems, benefits and the response proposed into your business case.

If there are no issues to address, identify this in your AMP.

14.1.7 Technical Output 4: loss of control on wet roads

Aim:

Reduce the number of fatal and serious injuries through loss of driver control.

Measure:

The number of fatal and serious injuries attributable to loss of driver control (including on wet roads), each year on your network.

Generate Report:

As long as you keep your CAS data up-to-date in your RAMM database, the ONRC reporting tool will generate the result. The reporting tool calculates a five year trend.

Action:

Assess your skid resistance data to ascertain if you understand the issue adequately.

Develop a targeted strategy to address problem sites/routes.

Translate problems, benefits and the response proposed into your business case.

If there are no issues to address, identify this in your AMP.

14.1.8 Technical Output 5: loss of driver control at night

Aim:

Reduce the number of fatal and serious injuries in night time crashes.

Measure:

The number of fatal and serious injuries which occur in crashes at night, each year on your network.

Generate Report:

As long as you keep your CAS data up-to-date in your RAMM database, the ONRC reporting tool will generate the result. The ONRC reporting tool calculates a five year trend.

Action:

Review your lighting policy and street light maintenance activities, check that delineation

on your network complies with RTS 5.

Translate problem, benefits and the response proposed into your business case.

If there are no issues to address, identify this in your AMP.

14.1.9 Technical Output 6: intersections

Aim:

Reduce the number of fatal and serious injuries at intersections.

Measure:

The number of fatal and serious injuries at intersections each year on your network.

Generate Report:

As long as you keep your CAS data up-to-date in your RAMM database, the ONRC reporting tool will generate the result. The ONRC reporting tool calculates a five-year trend.

14.1.10 Technical Output 7: hazardous faults

Aim:

Reduce the number of maintenance related hazards on roads requiring evasive action by road users (e.g. detritus, ponding water, pot holes).

Measure:

The number of hazardous faults which require evasive action by road users. Inspect at least a 10% sample of each classification and record the number of faults per ten kilometres for rural roads; per one kilometre for urban roads.

GENERATE REPORT:

Input the number of faults and the length inspected per classification into the ONRC reporting tool; the ONRC reporting tool will generate the result.

Action:

Translate problems, benefits and the response proposed into your business case.

If there are no issues to address, identify this in your AMP.

14.1.11 Technical Output 8: cycle path faults

Aim:

Reduce the number of maintenance related hazards on cycle paths requiring evasive action by cyclists (e.g. detritus, ponding water, pot holes, broken glass).

Measure:

The number of cycle path hazards requiring evasive action by cyclists. Inspect at least a 10% sample of each classification and record the number of instances per ten kilometres for rural roads; per one kilometre for urban roads.

Generate Report:

Input the number of faults and the length inspected per classification into the ONRC reporting tool; the ONRC reporting tool will generate the result.

Action:

Translate problems, benefits and the response proposed into your business case.

If there are no issues to address, identify this in your AMP.

14.1.12 Technical Output 9: vulnerable users

Aim:

Reduce the number of fatal and serious injuries involving vulnerable users.

Measure:

The number of fatal and serious injuries involving vulnerable users on your network.

Generate Report:

As long as you keep your CAS data up-to-date in your RAMM database, the ONRC reporting tool will generate the result. The ONRC reporting tool calculates a five year trend.

Action:

Translate problems, benefits and the response proposed into your business case.

If there are no issues to address, identify this in your AMP.

14.1.13 Technical Output 10: roadside obstructions

Aim:

Roadside areas are maintained free from unauthorised obstructions and new hazards are prevented from developing.

Measure:

The number of locations where there are unauthorised items placed within the road reserve.

Inspect at least a 10% sample of each classification and record the number of instances per ten kilometres for rural roads; per one kilometre for urban roads.

The Road Maintenance Visual Guide provides examples of complying and non-complying

situations.

Generate Report:

Input the length inspected and the number of unauthorised obstructions into the ONRC reporting tool; the ONRC reporting tool will generate the result.

Action:

Review your contract requirements for safety zones on the network.

Review your policy/bylaw requirements and enforcement processes.

Translate problems, benefits and the response proposed into your business case.

If there are no issues to address, identify this in your AMP.

14.2 RESILIENCE

14.2.1 Customer Outcome 1: the number of journeys impacted by unplanned events

Aim:

The impact of unplanned events on journeys is minimised.

Measure:

The number of unplanned road closures and the number of vehicles affected by closures annually.

Record the number of unplanned road closures and calculate the total number of vehicles affected annually by classification.

Generate Report:

Enter the number of closures, and the calculated total number of journeys impacted, into the ONRC reporting tool.

Action:

Translate problems, benefits and the response proposed into your business case.

If there are no issues to address, identify this in your AMP.

14.2.2 Customer Outcome 2: the number of instances where road access is lost

Aim:

Access to properties is available whenever practicable.

Measure:

The number of unplanned road closures and the number of vehicles affected by closures where there was no viable detour.

Record the number of unplanned road closures where there was no viable detour and calculate the total number of vehicles affected annually by classification.

Generate Report:

Input the length inspected and the number of unauthorised obstructions into the ONRC reporting tool; the ONRC reporting tool will generate the result.

Action:

Translate problems, benefits and the response proposed into your business case.

If there are no issues to address, identify this in your AMP.

There are no technical output performance measures for Resilience

14.3 AMENITY

14.3.1 Customer Outcome 1: Smooth Travel Exposure (STE) –

Roughness of the road (% of travel on sealed roads which are smoother than a defined threshold)

Aim:

The smoothness of the journey reflects the ONRC classification of the road.

Measure:

The percentage of travel on roads smoother than the specified threshold for each classification.

Measure the roughness of roads on your network and input this data into RAMM.

Generate Report:

The ONRC reporting tool will generate the result for the percentage of journeys which are on roads smoother than the threshold, by ONRC classification.

Action:

Translate problems, benefits and the response proposed into your business case.

If there are no issues to address, identify this in your AMP.

14.3.2 Customer Outcome 2: peak roughness

Aim:

The smoothness of the journey reflects the ONRC classification of the road.

Measure:

The 85th and 95th percentile roughness of your roads.

Measure the roughness of roads on your network and input this data into RAMM.

Generate Report:

The ONRC reporting tool will generate a report identifying the 85th and 95th percentile roughness for each classification, as well as the five year trend.

Action:

Translate problems, benefits and the response proposed into your business case.

If there are no issues to address, identify this in your AMP.

14.3.3 Technical Output 1: roughness of the road (median and average)

Aim:

The smoothness of the journey reflects the ONRC classification of the road.

Measure:

The median and average roughness of your roads.

Measure the roughness of roads on your network and input this data into RAMM.

Generate Report:

The ONRC reporting tool will generate a report identifying the median and average roughness for each classification.

Action:

Translate problems, benefits and the response proposed into your business case.

If there are no issues to address, identify this in your AMP.

14.3.4 Technical Output 2: aesthetic faults

Aim:

Manage the number of faults that detract from the customer experience (e.g. litter, graffiti, damaged or non-functioning furniture).

Measure:

The number of aesthetic faults that detract from the customer experience. Inspect at least

a 10% sample of each classification and record the number of instances of litter, graffiti etc. per ten kilometres for rural roads; per one kilometre for urban roads.

The Road Maintenance Visual Guide provides examples of complying and non-complying situations.

Generate Report:

Input the length inspected and the number of faults into the ONRC reporting tool; the ONRC reporting tool will generate the result.

14.4 ACCESSIBILITY

14.4.1 Customer Outcome 1: proportion of network not available to:

a. Class 1 heavy vehicles

b. 50MAX vehicles

Aim:

The trucks that need to use roads with restrictions can do so.

Measure:

The proportion of each road classification that is not accessible to Class 1 Heavy Vehicles

and 50MAX vehicles.

Identify the restrictions for Class 1 Heavy Vehicles on your network. Consider if there are any alternative routes around the restrictions, and if so are these an economically practicable alternative.

Measure the length of each road classification that is not accessible to Class 1 Heavy Vehicles.

Repeat this process for 50MAX vehicles.

Generate Report:

Input the length of inaccessible network, by ONRC classification, into the ONRC reporting tool for both classes of vehicle; the ONRC reporting tool will generate the result.

Action:

Translate problems, benefits and the response proposed into your business case.

If there are no issues to address, identify this in your AMP.

14.4.2 Technical Output 1: accessibility

Aim:

Signage is fit for purpose in providing direction and guidance to road users.

Measure:

The number of instances where the road is not marked in accordance with national standards RTS-2 and MOTSAM and the Traffic Control Devices manual.

Inspect at least a 10% sample of each classification and record the number of instances where signs and markings do not comply per ten kilometres for rural roads; per one kilometre for urban roads.

Generate Report:

Input the length inspected and the number of faults into the ONRC reporting tool; the ONRC reporting tool will generate the result.

Action:

Translate problems, benefits and the response proposed into your business case.

If there are no issue to address, identify this in your AMP

14.5 Travel Time Reliability

14.5.1 Customer Outcome 1: throughput at indicator sites

Aim:

That traffic throughput is maximised on arterials and higher classifications in metropolitan areas to best satisfy demand.

Measure:

The hourly traffic volume during the peak morning hour and peak afternoon/evening hour.

Measure the vehicle throughput over an hour of the AM or PM peak for each key indicator site on each key route, or on each major leg of a key intersection.

Generate Report:

Input the throughput of the network, by ONRC classification, into the ONRC reporting tool for both.

The ONRC reporting tool will generate the results.

Action:

Translate problems, benefits and the response proposed into your business case.

If there are no issue to address, identify this in your AMP.

There are no technical output performance measures for Travel Time Reliability

14.6 COST EFFICIENCY PERFORMANCE MEASURES

These measures provide an indication of the relative costs and efficiency of your network and can be compared with other networks. They relate to sealed road surfacing and pavements, unsealed roads, and National Land Transport Programme funded maintenance and renewal costs.

These cost efficiency measures need to be considered alongside the customer outcome and technical output measures, as they provide a richer picture in combination than when considered individually.

14.6.1 Cost Efficiency 1: pavement rehabilitation

a. Length (lane km)

b. Area (m2)

c. Cost ($)

d. Average life achieved

Aim:

Demonstrate that pavement rehabilitation on the network is timed to minimise whole-of-life cost while delivering the required customer outcomes.

Measure:

The total quantity and cost of pavement rehabilitation that has been undertaken over the previous year as renewal work (lane km and m2), by classification, and the average lives achieved for these pavements.

Generate Report:

Note: Automatic reporting from RAMM is not available in the ONRC reporting tool as at August 2016 due to inconsistency in the way data is recorded by RCAs and/or RAMM functionality.

Input the quantities (lane km and m2) and cost into RAMM by classification. The ONRC reporting tool will generate reports by ONRC classification.

14.6.2 Cost Efficiency 2: Chipseal resurfacing

a. Length (lane km)

b. Area (m2)

c. Cost ($)

d. Average life achieved

Aim:

Demonstrate that chipseal resurfacing on the network is timed to minimise whole-of-life cost while delivering the required customer outcomes.

Measure:

The total quantity and cost of sealed road chipseal resurfacing undertaken over the previous year (lane km and m^2), and the average lives achieved for these surfaces.

Generate Report:

Input your chipseal resurfacing quantities and cost into RAMM. The ONRC reporting tool will generate reports by ONRC classification.

First or second cost seals should also be reported where they create significant variances.

Action:

Translate problems, benefits and the response proposed into your business case. If there are no issues to address, identify this in your AMP.

14.6.3 Cost Efficiency 3: asphalt resurfacing

a. Length (lane km)

b. Area (m2)

c. Cost ($)

d. Average Life Achieved

Aim:

Demonstrate that asphalt resurfacing on the network is timed to minimise whole-of-life cost while delivering the required customer outcomes.

Measure:

The total quantity and cost of asphaltic sealed road resurfacing that has been undertaken over the previous year (lane km and m2), and the average lives achieved for these surfaces.

Generate Report:

Input your asphalt resurfacing quantities and costs into RAMM. The ONRC reporting tool will generate the report by ONRC classification.

Action:

Translate problems, benefits and the response proposed into your business case.

If there are no issues to address, identify this in your AMP.

14.7 COST EFFICIENCY 4: UNSEALED ROAD METALLING

a. Length (lane km)

b. Area (m2)

c. Cost ($)

d. Average Life Achieved

Aim:

Demonstrate that metalling on unsealed parts of the network is timed to minimise whole-of-life cost while delivering the required customer outcomes.

Measure:

The total quantity and cost of metalling that has been undertaken over the previous year as renewal work (lane km and m3), and the average lives achieved for these surfaces.

Generate Report:

Note: Automatic reporting from RAMM is not available in the ONRC reporting tool as at August 2016 due to inconsistency in the way data is recorded by RCAs and/or RAMM functionality.

Input the quantities (lane km and m2) and cost into RAMM. The ONRC reporting tool will generate the reports by ONRC classification.

14.7.1 Cost Efficiency 5: overall network cost, and cost by work category

a. $/lane km

b. $/vkt

Aim:

That service levels and costs become consistent nationally across like classifications, with reasonable variation for local factors.

Measure:

The overall cost per km and vkt of routine maintenance activities, and cost by work category on each road network for the financial year.

Generate Report:

The cost per km and vkt for each work category, and overall maintenance and renewal cost for each network will be provided by the New Zealand Transport Agency.

Note: Costs are unable to be provided by classification as at August 2016 due to inconsistencies in the way Road Controlling Authorities record cost information.

Action:

Translate problems, benefits and the response proposed into your business case.

If there are no issues to address, identify this in your AMP

15 APPENDIX 3 - CAPE PALLISER ROAD PREVENTATIVE MAINTENANCE FWP

Location	Work Required
Te Kopi	• Armour rocks displaced to the beach should be recovered and placed on the revetment • A revetment needs to be constructed in front of the existing gabion baskets • Areas where there is little armour rock need to be topped up • Geotextile needs proper coverage to protect it from damage i.e. river run metal and double layer of armour rocks. • Revetment needs to be extended on the western end i.e. where the road joins the coast
Te Kopi Stockpile	• Armour rocks displaced to the beach should be recovered and placed on the revetment. • Consideration should be given to protecting the Te Kopi rock stockpile
Johnsons Hill	• Recover displaced rocks from beach and rebuild revetment • Reconstruct northern end against the bank
Te Kopi Village	• Recover displaced rocks from beach and replace on the existing revetment
Whatarangi Cliffs	• Recover displaced rocks from beach and rebuild revetment
Whatarangi Village (1592 -1618 Cape Palliser Road)	• Investigations should commence on extending the Whatarangi seawall along the front of these properties.
Whatarangi Village Revetment	• Recover displaced rocks from the beach and rebuild the revetment.

Whatarangi Beach	• Consideration should be made of the options for protecting the road including relocating the road further from the beach. • This section should continue to be monitored for future revetment works.
Kawakawa #1	• Revetments should be repaired where damage has occurred. • Considerations should be given to the options for this revetment including relocating the road before erosion at the northern end reaches the road.
Kawakawa #2	• Displaced rocks should be replaced. • Consideration should be given to extending the revetment to the north and south.
Mangatoetoe West	• Continue monitoring this site.
Mangatoetoe #1	• Reinstate revetment adjacent to true right stream bank.
Mangatoetoe #2	• Structures need to be repaired to replicate the ideal revetment design if they are to withstand the waves particularly in very exposed areas open to or facing the south.
Kupe's Sail	• Monitor the blow hole and slope beneath the concrete reinstatement.
Kupe's Sail Roadside Failure	• No recommendations for this site.
Kupe's Roadside Drop outs	• Continue Monitoring this site.

16 APPENDIX 4 – FINANCIAL FORECASTS – OPERATING EXPENDITURE

Land transport	30/06/2019	30/06/2020	30/06/2021	30/06/2022	30/06/2023	30/06/2024	30/06/2025	30/06/2026	30/06/2027	30/06/2028
	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000
Interest Income										
Loan redemption	14	19	23	28	29	9	13	17	7	8
Grants, Subsidies & Donations										
NZTA Subsidy	2,454	2,273	2,257	2,220	2,251	2,286	2,363	2,419	2,477	2,537
Petrol Tax	83	85	87	89	91	93	95	98	100	103
NZTA St Cleaning Recoveries	15	15	16	16	16	17	17	18	18	19
Contributions										
Road & Footpath Contributior	30	32	37	37	37	32	30	30	30	30
Rural Rd & Footpath Contribu	0	0	0	0	0	0	0	0	0	0
Road & Footpath Contributior	98	108	113	113	133	152	152	137	142	142
Rural Rd & Footpath Contribu	0	0	0	0	0	0	0	0	0	0
Road & Footpath Contributior	78	89	85	89	93	85	66	47	47	47
Rural Rd & Footpath Contribu	36	24	24	24	24	24	30	30	30	30
Miscellaneous Income										
Footpath Deposits Repaid	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Personnel Costs										
Salaries & Wages	5	5	5	5	6	6	6	6	6	6
Operating Costs										
Advertising	2	2	2	3	3	3	3	3	3	3
Conferences, Seminars	1	1	1	2	2	2	2	2	2	2
Legal Expenses	1	1	1	1	1	1	1	1	1	1
Software Licences	3	3	4	4	4	4	4	4	4	4
Subscriptions & Membership	2	2	2	2	2	2	2	3	3	3
Occupancy Costs										
Rates/Rent Payable	11	11	11	11	11	12	12	12	13	13
Corporate Services	265	266	287	280	284	306	298	299	320	308
Depreciation	2,618	2,640	2,654	2,672	2,759	2,776	2,798	2,910	2,928	2,955
Interest	45	45	45	37	37	14	11	7	0	0
Works Cost										
WRC Works Expenses	2	2	2	3	3	3	3	3	3	3
NZTA Street Lighting	5	5	5	5	5	6	6	6	6	6
NZTA Street Cleaning	15	15	16	16	16	17	17	18	18	19
Structural Maintenance - SPR										
Pavement Maintenance - Seal	45	46	47	34	35	36	36	37	38	39
Pavement Maintenance - Unse	49	50	51	37	38	39	39	41	42	43
Drainage Sealed & Unsealed 1	29	30	31	22	23	23	24	24	25	26
Bridge Maintenance - 114	24	25	26	18	19	19	20	20	21	21
Retaining Walls - 114	54	55	56	40	41	42	43	44	46	47

Structural Maintenance Other Roads										
Pavement Maintenance - Seal	431	442	444	435	445	457	468	480	492	504
Pavement Maintenance - Uns	273	280	287	281	288	295	303	310	318	326
Drainage Sealed & Unsealed -	147	150	154	151	155	159	163	167	171	175
Bridge Maintenance - 114	88	90	92	91	93	95	98	100	103	105
Retaining Walls - 114	5	5	5	5	5	5	5	6	6	6
Corridor Maintenance - SPR										
Vegetation Maintenance & Sa	16	16	16	12	12	12	13	13	13	14
Traffic Services - 122	16	16	17	12	12	13	13	13	14	14
Carriageway Lighting - 122	3	2	3	2	2	2	2	2	2	2
Corridor Maintenance Other Roads										
Vegetation Maintenance & Sa	119	122	125	123	126	129	132	136	139	142
Street Cleaning - 121.	22	23	23	23	23	24	24	25	26	26
Traffic Services - 122	189	193	198	194	199	204	209	214	220	225
Carriageway Lighting - 122	53	54	56	55	56	57	59	60	62	63
Level Crossings	5	5	5	5	5	5	5	6	6	6
Cycle Path Maintenance - 124	5	5	5	5	5	5	5	5	5	6
Professional Services - SPR										
Maintenance Management Sy	5	5	5	4	4	4	4	4	4	4
External Professional Service	39	40	41	29	30	31	32	32	33	34
Professional Services Other Roads										
Maintenance Management Sy	65	67	68	67	69	70	72	74	76	78
External Professional Service	267	271	274	268	275	282	289	296	304	311
NZTA project funds - Other Roads										
Minor Events - (Other Roads)	16	16	16	16	17	17	17	18	18	19
NZTA project funds - SPR										
Minor Events - (SPR)	88	90	92	66	68	70	71	73	75	77
Total	**(2,561)**	**(2,803)**	**(2,890)**	**(2,783)**	**(2,874)**	**(2,926)**	**(2,932)**	**(3,077)**	**(3,114)**	**(3,127)**
Unsubsidised Land Transport										
Personnel Costs										
Salaries & Wages	5	5	5	5	6	6	6	6	6	6
Internal Charges										
Corporate Services	28	28	29	29	30	31	31	31	33	33
Professional Services	28	28	29	30	30	31	32	32	33	33
Footpath Maintenance										
Professional Services	55	56	57	59	60	62	63	65	67	68
Footpath Maintenance	40	42	43	44	45	46	47	49	50	51
Mowing	80	82	84	85	88	90	92	94	97	100
Berm Maintenance	15	16	16	16	17	17	18	18	19	19
Weed Control	22	22	23	24	24	25	25	26	27	27
Road Safety Co-Ordinator	27	28	28	29	30	30	31	32	33	34
Trails Co-Ordinator	3	3	3	3	3	3	3	3	3	3
Kerb & Channel Maintenance	97	99	101	103	106	109	111	114	117	120
Total	**(400)**	**(409)**	**(419)**	**(428)**	**(438)**	**(449)**	**(459)**	**(471)**	**(483)**	**(495)**
Total Land Transport	**(2,961)**	**(3,212)**	**(3,309)**	**(3,211)**	**(3,312)**	**(3,375)**	**(3,392)**	**(3,548)**	**(3,597)**	**(3,623)**
Represented By:										
Total Income	2,819	2,657	2,654	2,628	2,686	2,712	2,780	2,809	2,866	2,930
Total Expenditure	5,780	5,870	5,963	5,839	5,998	6,087	6,172	6,357	6,463	6,552
Net Cost of Service	**(2,961)**	**(3,212)**	**(3,309)**	**(3,211)**	**(3,312)**	**(3,375)**	**(3,392)**	**(3,548)**	**(3,597)**	**(3,623)**

APPENDIX 4 – FINANCIAL FORECASTS – CAPITAL EXPENDITURE

CAPEX - Land Transport		30/06/2019	30/06/2020	30/06/2021	30/06/2022	30/06/2023	30/06/2024	30/06/2025	30/06/2026	30/06/2027	30/06/2028
		$000	$000	$000	$000	$000	$000	$000	$000	$000	$000
Seal extensions (all roads)	**LOS**	126	126	126	137	140	143	146	149	153	156
Reseals (other roads)	**Ren**	435	446	457	509	533	559	583	596	610	624
Reseals (SPR) - Renewals	**Ren**	49	50	51	57	60	63	66	67	69	70
Footpath renewals	**Ren**	45	45	45	49	50	51	52	53	55	56
New footpaths	**LOS**	111	90	90	98	100	102	104	107	109	112
Drainage (Other Roads)	**Ren**	103	106	108	120	125	131	137	140	143	147
Drainage (SPR) - Renewals	**Ren**	9	9	9	10	11	11	12	12	12	13
Signs & guardrails (other roads) - Renewals	**Ren**	29	30	31	34	36	38	39	40	41	42
Traffic Services (Renewals)	**Ren**	5	5	5	5	6	6	6	6	7	7
Rehabilitation (other roads) - Renewals	**Ren**	205	210	215	239	251	263	274	281	287	294
Rehabilitation (SPR) - Renewals	**Ren**	44	45	46	52	54	57	59	61	62	63
Low cost/ low risk improvements (other roads)	**Ren**	337	337	337	374	390	407	424	433	443	453
Low cost/ low risk improvments (SPR)	**Ren**	221	131	122	136	141	148	153	157	161	164
BRIDGES (Structures) (renewal (other roads)	**Ren**	20	20	21	23	24	25	26	27	27	28
BRIDGES)Structures) (renewal) (SPR)	**Ren**	98	-	-	-	-	-	-	-	-	-
Road Metalling (renewal)	**Ren**	303	311	319	355	371	390	407	416	425	435
Road metalling (renewal) (SPR)	**Ren**	16	16	17	19	19	20	21	22	22	23
Total Land Transport CAPEX		**2,155**	**1,977**	**1,999**	**2,216**	**2,311**	**2,415**	**2,511**	**2,567**	**2,626**	**2,686**

CAPEX Types:

Ren = Renewal, LOS = Improve Level of Service, Cap = Increase capacity

17 APPENDIX 5 - SMART BUYER ASSESSMENT

Smart Buyer Self-Assessment

This assessment is based on the Smart Buyer Principles identified in the Road Maintenance Task Force Report. Score the following by ticking the appropriate box - (1) Disagree to (5) Strongly Agree.

Whenever you score yourself "4 or 5" think of an example you can use to justify your score to an independent auditor or the other attendees at this workshop.

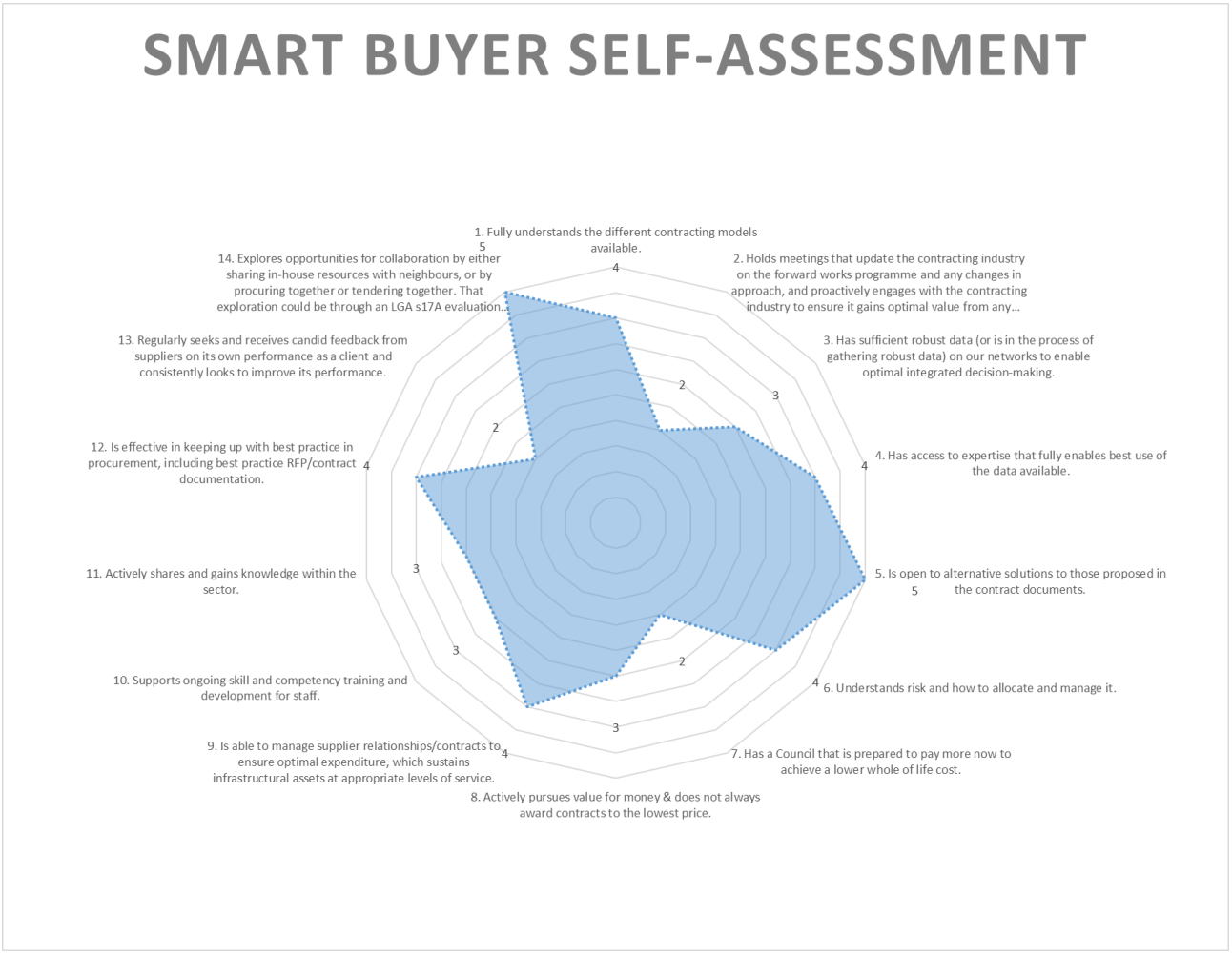
Assessment statement **Our organisation**	**Score**				
	1	2	3	4	5
1. Fully understands the different contracting models available.				X	
2. Holds meetings that update the contracting industry on the forward works programme and any changes in approach, and proactively engages with the contracting industry to ensure it gains optimal value from any changes being implemented.		x			
3. Has sufficient robust data (or is in the process of gathering robust data) on our networks to enable optimal integrated decision-making.			x		
4. Has access to expertise that fully enables best use of the data available.				x	
5. Is open to alternative solutions to those proposed in the contract documents.					x
6. Understands risk and how to allocate and manage it.				x	
7. Has a Council that is prepared to pay more now to achieve a lower whole of life cost.		x			
8. Actively pursues value for money & does not always award contracts to the lowest price.			x		
9. Is able to manage supplier relationships/contracts to ensure optimal expenditure, which sustains infrastructural assets at appropriate levels of service.				x	
10. Supports ongoing skill and competency training and development for staff.			x		
11. Actively shares and gains knowledge within the sector.			x		

12. Is effective in keeping up with best practice in procurement, including best practice RFP/contract documentation.				x	
13. Regularly seeks and receives candid feedback from suppliers on its own performance as a client and consistently looks to improve its performance.		x			
14. Explores opportunities for collaboration by either sharing in-house resources with neighbours, or by procuring together or tendering together. That exploration could be through an LGA s17A evaluation of transport function delivery options.					x
Number of ticks in each column	0	3	4	5	2
Multiplying factor	1	2	3	4	5
Total score in column	0	6	12	20	10
TOTAL SCORE	48				

Score:	**Interpretation**
65 to 70:	Our organisation is a Smart Buyer - people love working for us and with us!
55 to 64:	Our organisation has embraced Smart Buyer principles but can still improve.
45 to 54:	Our organisation gets by but has opportunities for improvement.
30 to 44:	Our organisation is not rocking the boat when it comes to pursuing value for money.
0 to 29:	Our organisation is a bit of a basket case!

If you were to repeat this assessment in one or two years' time, how do you expect it will have changed?

- Which questions will show the greatest change (up or down)?
- What action/inaction will have been the driver of that change?



The need for ‘smarter buyers’

A theme that underpins a number of the conclusions of this review is that RCAs must be both efficient and effective managers of their road assets and smart buyers of the services they require. These issues strongly relate to the concept of ‘smart procurement’ with a balanced focus across ‘the three Es’:

1. **Economy** – through securing (or supporting) the provision of products, materials and expertise at the quality, in the volumes and at the times and locations required, at the lowest price

2. **Efficiency** – through the processes used, including standard documentation and contracting forms selected for achieving best cost / quality and outcomes; and knowledge of the product / materials and supplier market applied

3. **Effectiveness** – taking opportunities for changing from traditional products and materials by maintaining support for innovation in the nature and characteristics of products and materials, and for a strong supplier market

The impact of raising the capability of RCAs would include reduced supplier selection process costs, better management of risk and more objective assessment of performance for use in future supplier selection processes.

The contracting industry has provided the following useful analysis of the characteristics of a smart buyer: Some RCAs are smart buyers but this is believed to be the exception.

Smart buyers have:

- An improved understanding of costs that better inform their decision making process
- An understanding of the impact delivery models and supplier selection criteria can have on the value of contracts
- Robust forward work programmes that are communicated to the industry and supported by budgets that allows the work to be completed
- Knowledge of the network to determine treatments required based on physical evidence and supported by knowledge of the costs involved
- In house expertise that aids the decision making process and allows acceptance of innovative solutions possibly with or without the involvement of consultants
- A clear understanding of risk and how it is allocated and managed
- An understanding that lowest price will not always deliver desirable outcomes
- An understanding that being prepared to pay more may result in enhanced whole of life value for money.

Not so smart buyers:

- Award contracts predominately based on price – with little appreciation of any risk to best value for money
- Outsource work to the detriment of asset knowledge
- Choose contract forms that are fashionable, not well understood and poorly managed
- Lack technical and contractual management skills
- Lack asset management skills that prevent the development of robust forward work programmes
- Do not support forward work programmes with appropriate budgets.

Task Force members debated the nuances around individual items in these lists but believe that they provide a platform on which to build a list of the characteristics that would be exhibited by an RCA that has the capability and the capacity to be a smart buyer.

One Task Force member described a smart buyer in the following terms:

A ‘smart buyer’ RCA ensures its staff are up-to-date, regularly shares best practice experiences with colleagues from other agencies, and supports and resources their teams appropriately in the recognition that getting the strategic direction right is a very small cost compared to the consequence of getting it wrong. This requires staff to be involved in regular training, attendance and participation in sector gatherings, and involvement in NZTA investigating teams and the like. Ironically in the interests of ‘cost-saving’ many agencies are limiting staff involvement in these activities. A smart buyer does not ask the question – what if I train my staff and they leave? – but rather asks the question – what if I don't train my staff and they stay?