State Highway Infrastructure Assets Management Plan

NZ TRANSPORT AGENCY
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New Zealand Government

More information

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Document overview

The Infrastructure Asset Management Plan (IAMP) consists of two parts as described below. These parts are both draft as they will be updated once the state highway Activity Management Plan is finalised.

Part 1 Plan overview

Part 1 provides an overview of this Infrastructure Asset Management Plan (IAMP) and describes NZ Transport Agency's approach to prioritising and managing its assets and activities. This section outlines the Agency's maintenance and renewals strategies and programmes that deliver services, address risks, derive financial needs and pursue best value and least long-term cost.

Part 2 Lifecycle management plans

Part 2 provides an overview of all the assets in the NZ Transport Agency network, a description of the lifecycle expenditure categories, a summary of historical and estimated expenditure and an explanation of the Lifecycle Management Plan (LCMP) structure for the sections in Part 2 of this document.

Part 2 also contains the lifecycle management plans for each asset group which includes asset descriptions, operation and maintenance, renewal and new and improved works strategies and historical estimated expenditure. The asset needs in terms of growth in demand, changes in levels of service and legislation, business and financial risks, public health and environmental risks, resilience of infrastructure and maintenance and renewal of existing assets are analysed.

These parts are intended to be live documents. They represent current practice, developing practice, improvement plans and aspirations. They are intended to embody the way we go about our business and the way that we constantly go about improving our business of delivering services to our customer more effectively and more efficiently every year.

The order of Parts 1 and 2 documents is:

Part 1 Infrastructure Asset Management Plan (IAMP) Overview
Part 2 Lifecycle Management Plans (LCMP) Overview
1 Pavements
2 Structures – including bridges, retaining walls, tunnels
3 Drainage
4 Signs and Roadmarking
5 Streetlights
6 ITS (intelligent transport systems infrastructure assets)
7 Road Safety Hardware – guardrails etc
8 Roadside Vegetation Management
9 Roadside Facilities – various minor assets
10 Operation and Environmental Response – including emergency and preventative works as well as operational responses and winter activities
11 Network and Asset Management – activities including Agency re-structure and network outcome contract (NOC) details.

Table of contents

Part 1
Infrastructure Asset Management Plan Overview

1. Infrastructure asset management plan overview

1.1 Introduction

1.1.1 Purpose

The purpose of the Infrastructure Asset Management Plan (IAMP) and associated State Highways Activity Management Plan (SHAMP) is to explain how the NZ Transport Agency has managed and will manage state highway assets and activities to achieve increasing effectiveness and efficiency in the use of resources to deliver the programme of operational, maintenance, renewal and improvement activities within budgetary limits.

This document demonstrates the Agency's responsible management of the state highway assets by:

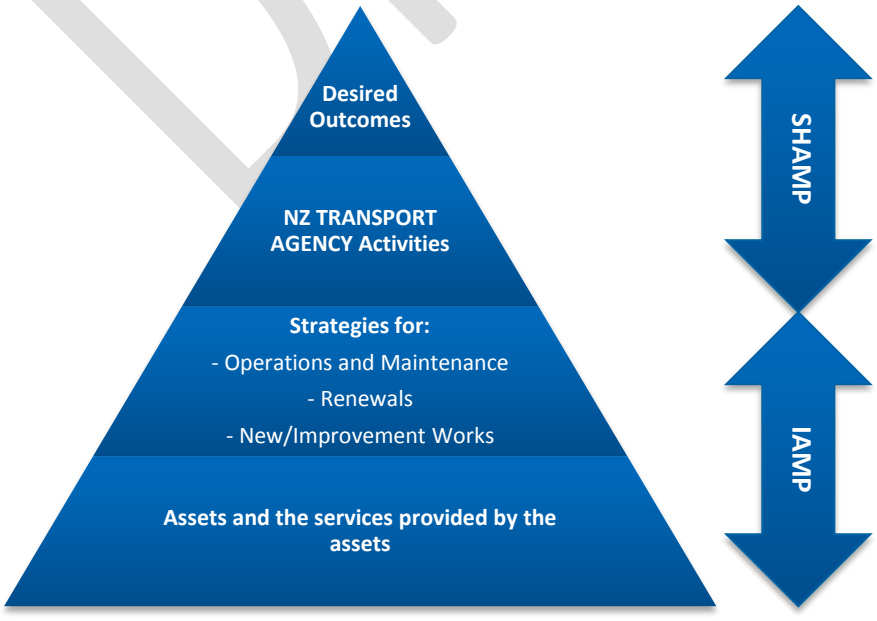
- Using the business case approach to justify investment
- Implementing the one network road classification
- Ensuring that the service of the network is sustained
- Procuring and undertaking activities at reasonable cost
- Understanding and mitigating risks associated with state highway activities for a better understanding of assets

The processes and planning tools associated with these management strategies are summarised in this Overview and are described in more detail in the *Lifecycle Management Plan (LCMP) Introduction* and associated LCMPs for the various asset types and activities.

1.1.2 IAMP relationship with SHAMP

The Infrastructure Asset Management Plan (IAMP) should be read in conjunction with the state highway Activity Management Plan (SHAMP). The SHAMP is a strategic document with a focus on the NZ Transport Agency activities and the desired outcomes for these activities. The focus of the IAMP is on infrastructure assets and the vital services that each of these provides in order to deliver the required activities and outcomes.

Figure 1: Relationship between this IAMP and the SHAMP



The IAMP describes the strategies for operations, maintenance, renewal, and improvements of the assets to:

- Maintain network at an appropriate level of service and
- Increase road maintenance productivity over time.

1.1.3 Lifecycle asset management plans

Part 2 of the IAMP contains individual lifecycle asset management plans for the different asset classes to provide a clear link between service levels, lifecycle management needs and costs.

These are the first version of the plans. We intend to develop and update lifecycle asset management plans and their elements, as part of our continual improvement process and not necessarily in conjunction with the three year business case and investment planning cycle. We expect that proposed programmes will be developed reflecting application of the current lifecycle management plans.

2. Service levels

2.1 Customer focus

This plan continues and enhances the customer service focus of the 2012/15 SHAMP. That SHAMP described the Classification of State highways, and the engagement with customers used to inform the development of the level of service framework applied to state highways. That framework is included as appendix 1. It was used to develop the operational performance measures included in the Network Outcomes Contracts. These are shown in appendix 2. It has a similar philosophy to the One Network Road Classification service framework.

The One Network Road Classification project and the levels of service framework became the natural successor to the state highway framework. State highway planners and asset managers participated in the ONRC project alongside representatives from Metropolitan and District Councils.

2.2 Customer engagement on service levels

We continue to engage with our customers in a number of ways to assess their perceptions of the service we supply. The outcomes will inform our intervention priorities.

2.2.1 Walking in the customers' shoes

We engaged with a sample of customers through our 'Walking in the customer shoes' project. This attempted to gain a sense of customer's perceptions of our technical intervention levels.

The research clearly aims to find a logical connection between technical levels of service and the customer experience. In principle, the customer's feedback of what is good or what is bad can give direction to where and when the Agency intervenes on a network.

It is important to understand how customers perceive the level of service on a road in relation to the Transport Agency's expectations.

Figure 2: Customer perception example 1, flooding

The above picture is a typical example of flooding on SH1; it was presented in a recent survey of a range of road users. All of them answered 'something must be done, it is not safe for driving'. This is a clear example of a match in customer and technical expectations.

Figure 3: Customer perception example 2, flushed surface

Typically this road would be subjected to some form of pavement repair to remove the flushing on the surface. Interestingly, not one of the customers who were surveyed saw the necessity to address anything: 'we should not do anything'. All the respondents thought the road was in serviceable condition and safe to drive. This is an 'above the line' condition where the customers don't see the need to invest in any treatment.

We will use the findings from this research to inform development of technical levels of service.

2.2.2 Wairarapa perceptions

The Wellington - Wairarapa project has incorporated a new approach to understanding customer requirements and how these may inform our asset management strategy. Entitled 'Connecting Wellington and the Wairarapa - a future vision', the project deliberately focused on the wider connection the road Rimutaka Hill Road enables rather than the engineering solutions approach of previous work. By doing this we were able to suspend judgement and any preconceptions to gather customer insight and make sense of what this means for the Transport Agency.

A key stage of this 'design thinking' approach was the immersion of the project team in the communities for whom the connection has importance. Rather than presenting a range of options this work meant spending time with customers, at their homes, their place of work or on their journeys to understand the essence of the connection and how it impacted their lives. Records of this immersion now exist in written, audio and visual form and provide an enduring memory of our customers and their experiences, to support the traditional, empirically driven, approach.

Once gathered, customer data was transformed into insight through a range of design thinking tools, which continued to focus on the divergence of thinking. By repeatedly shifting our perspectives we were able to get a richer understanding of our customers and the meaning of the connection for them, and avoid the temptation to move too quickly to solutions built upon the wrong foundations. The model of current customer experience is our stake in the ground for the perceptions and emotions our customers feel today.

In order to envision the future model we looked at a range of possibilities on a continuum from 'improving today' to 'transforming tomorrow'. Some are engineering solutions - some aren't, some may involve more than we would otherwise have planned - some will involve less. Many will simply be about 'how' we deliver our physical work on this project, communicating with communities by tapping into what we now know is important to them.

We also know that whatever changes we make will make sense to our customers and can be confident that through our design thinking approach we have truly engaged with the people for whom the connection is a vital part of their lives.

We plan to further explore the Design Thinking approach and its usefulness in our investment model later in 2015.

2.3 Transition to the One Network Road Classification

The Transport Agency will adopt the One Network Road Classification system and supporting levels of service and performance measures for state highways.

All state highways have been classified. This is shown in the SHAMP.

Initial indications are that the operational performance measures in the Network Outcomes Contracts that have been tendered are broadly in keeping with the ONRC framework.

We are reviewing the relationship in detail currently and will produce a transition plan by March 2015.

We expect that we will introduce the new classifications and updated operational performance measures into forthcoming Network Outcomes Contracts. We expect to seek agreement from existing Network Outcomes contractors to any change that is required in operational performance measures or road classifications where these are material.

2.4 Resilience

Improved resilience of the state highway network is recognised as important by:

- The National Infrastructure Plan which seeks improved resilience of all key infrastructure
- The Draft Government Policy Statement on Land Transport July 2014, which seeks improvements at critical points of the transport network
- The One Network Road Classification's proposed customer levels of service for resilience of the transport network.

The Civil Defence and Emergency Management Act requires that the state highway network be resilient.

The Transport Agency has addressed the resilience of the state highway network to some extent, it has:

- Business continuity and emergency response plans in place
- identified alternative routes to state highway links
- an information collection and dissemination system in place to advise customer of events, impacts and their options
- Emergency response plans in place through its network maintenance contracts

and is continuing:

- its seismic retrofit programme, bridge scour and rockfall mitigation programmes
- its avalanche and weather monitoring programmes
- its proactive use of CMA to reduce the frequency and impact of ice formation on road surfaces
- to implement preventive works that reduce disruption or risk to customers and staff
- to build new structures to modern standard making them more resilient.

However, it is readily apparent that the resilience of the state highway network falls short of current customer service targets.

The Resilience Programme Business case endorsed in mid-2014 identified three key issues to be addressed:

- Poor highway resilience may impede critical services from providing disaster response and recovery support.

- Unreliability of some highways impacts business and undermines economic growth.
- The risky environment of some roads increases the possibility of harm to road users.

The approach to resilience is to implement the Transport Agency's operating policy, included in Appendix 4, and target achievement of the resilience levels of service in the One Network Road Classification, in the manner set out in the Programme Business Case.

The initial activities to fill information gaps and increase preventative maintenance were split into the following three types of activities:

- Resilience Improvements – Priority Corridors
- Resilience Improvements – Spot Treatments
- Resilience Management and Preparedness

We intend to support and prepare for these activities over 2014/15 by:

- Developing a framework for consistently assessing geologic, and hydrologic risk
- Developing an approach to assessment of risk and response on state highway routes, and dependent communities
- Developing a standard for:
    - Assessing lifelines obligations and responses
    - Assessing and recording alternative routes
    - Emergency response plans, including providing emergency access to isolated communities.

This plan reflects the operational elements of this response.

3. Demand, volume and input price drivers

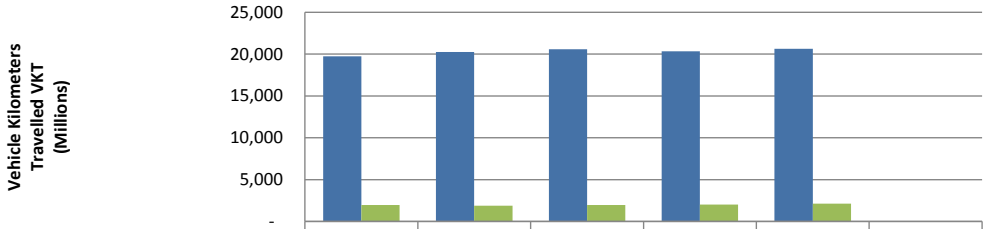
3.1 Freight demand

The SHAMP, in section 3.2.2 describes our expectations of growth in demand. It estimates that heavy vehicle growth will be between 0.3 and 2.7 % pa.

Conservatively we have assumed that it will grow by 1.2% pa in this plan, and in the production of the maintenance and renewal programme.

Figure 4: Vehicle/Heavy Vehicle kilometres travelled 2009 - 2013

Source: RAMM information May 2014 - 2009-2013 (NOC and NMA dimensions and achievements v2.1_FINAL 20140526)



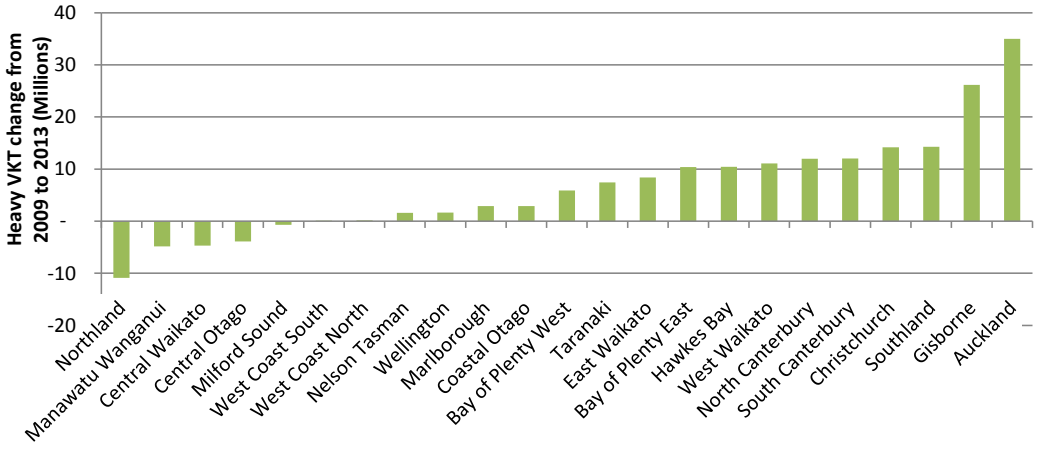
	2009	2010	2011	2012	2013	% Increase over 5 years
Vehicle kilometers travelled	19,727	20,247	20,570	20,318	20,633	4.6%
Heavy Vehicle kilometers travelled	1,970	1,875	1,972	2,031	2,121	7.7%
TOTAL	21,697	22,122	22,542	22,349	22,754	4.9%
Annual % VKT increase		3%	2%	-1%	2%	
Annual % heavy VKT increase		-5%	5%	3%	4%	
Annual combined % increase		2%	2%	-1%	2%	

This increase in vehicle kilometres travelled over the last five years varies from area to area with Auckland having the largest increase (300 million) in number and Gisborne the largest percentage increase (58%). Heavy vehicle increases were the largest in Auckland (35 million), and Gisborne the largest percentage increase (130%).

Figure 5 provides a breakdown of these changes in vehicle kilometres travelled for all areas.

The figure below shows the vehicle kilometres travelled per NOC for 2013. Auckland has the most VKT's with 4.2 billion vehicle kilometres travelled, followed by Wellington (1.75 billion), West Waikato (1.6 billion) and Northland (1.3 billion).

Figure 5: Change in Heavy Vehicle kilometres travelled per area 2009 - 2013
Source: RAMM information May 2014 - 2009-2013 (NOC and NMA dimensions and achievements v2.1_FINAL 20140526)

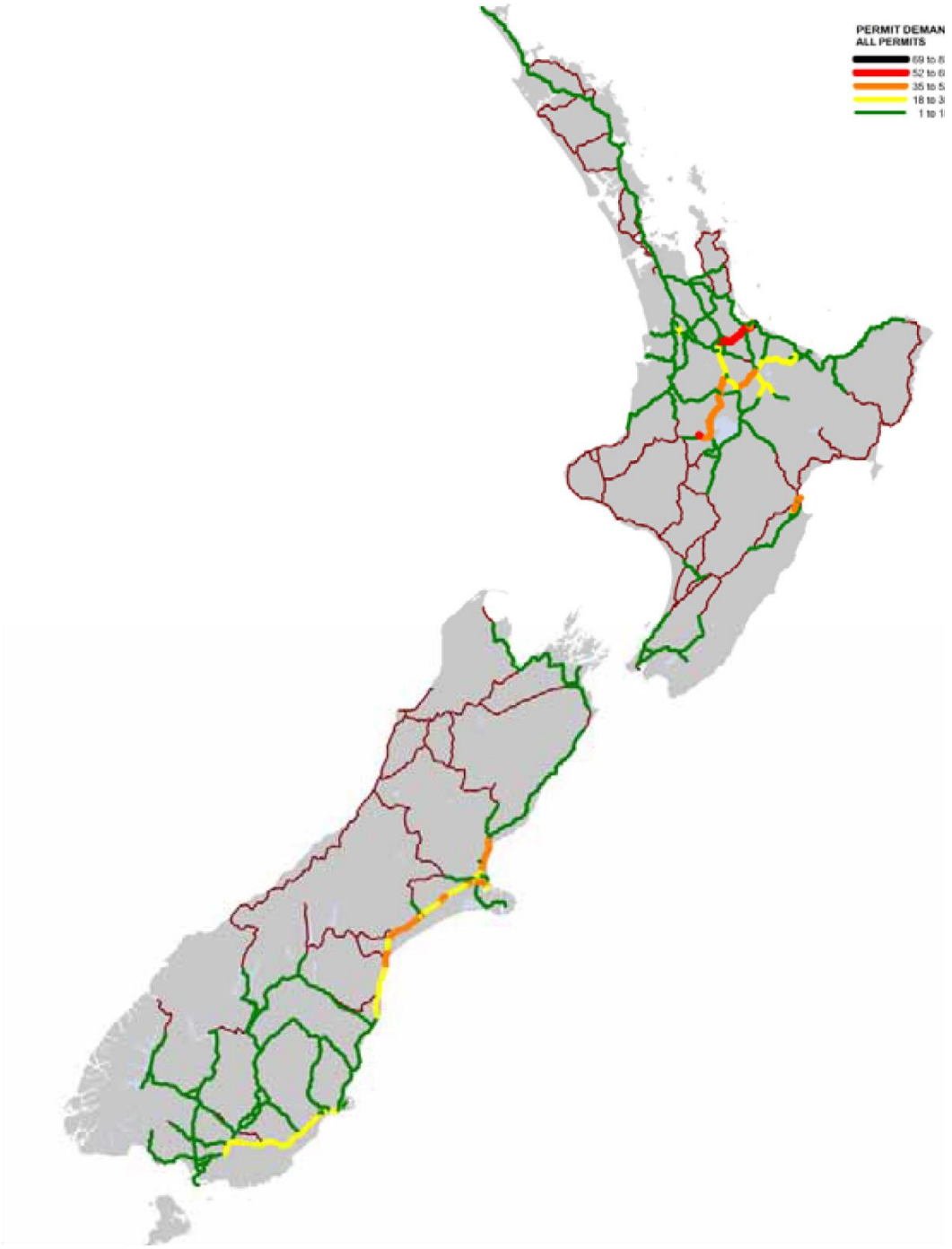


Vehicle dimensions and mass changes

The NZ Transport Agency has approved the use of high-productivity motor vehicles (HPMV) on routes where there is demand and high uptake. This recent legislative change will allow larger and heavier trucks on the network, increasing wear and resulting in shorter asset lives and increased replacement costs. This will likely be restricted to existing freight routes or localised short-haul highway sections.

The NZ Transport Agency has identified the following high productivity investment routes.

Figure 6: Demand for high productivity motor vehicle (HPMV) permits based on applications received



Source: TBC

3.2 Volume drivers

The state highway is increasing in scope and complexity as a net result of the capital improvements programme, and the revocation of state highways. The capital improvements programme is about 3.75% of the state highway value indicating the size and impact of the programme on maintenance and renewal needs.

To determine the volume drivers arising from recently completed projects and from projects which will soon be complete, we have:

- Identified the quantity of operation and maintenance works that are required once a project is released from its defects liability period, or the obligation for payment has been accepted
- Identified the quantity of renewal works required on completed projects once the average life of the surface or pavement has passed
- Recognized operational obligations, or contractual obligations in respect of the maintenance and renewal element of projects when responsibility is accepted
- Considered only large projects, and not the smaller projects such as passing lanes.

The impact is shown in the figure below.

Figure 7: Impact of change in the extent and complexity of the state highway network

NOC Area	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025
	Centreline_km	Centreline_km	Centreline_km	Centreline_km	Centreline_km	Centreline_km	Centreline_km	Centreline_km	Centreline_km	Centreline_km	Centreline_km
Auckland	410.7	410.7	412.7	427.9	432.3	432.3	436.2	436.2	436.2	436.2	472.3
Bop East	567.1	567.1	567.1	567.1	567.1	567.1	567.1	567.1	567.1	567.1	567.1
Bop West	223.8	223.8	223.8	223.8	223.8	223.8	223.8	223.8	223.8	223.8	223.8
Central Waikato	743.5	743.5	743.5	743.5	743.5	743.5	743.5	743.5	743.5	743.5	743.5
Christchurch	211.5	211.5	213.7	230.9	255.3	269.3	273.1	273.1	273.1	273.1	273.1
Coastal Otago	771.9	771.9	771.9	771.9	771.9	771.9	771.9	771.9	771.9	771.9	771.9
East Waikato	532.7	532.7	532.7	532.7	532.7	532.7	538.6	538.6	538.6	538.6	538.6
Gisborne	330.9	330.9	330.9	330.9	330.9	330.9	330.9	330.9	330.9	330.9	330.9
Hawkes Bay	512.1	512.1	512.1	512.1	512.1	512.1	512.1	512.1	512.1	512.1	512.1
Manwatu	631.3	631.3	631.3	631.3	631.3	631.3	631.3	631.3	631.3	631.3	631.3
Marlborough	259.5	259.5	259.5	259.5	259.5	259.5	259.5	259.5	259.5	259.5	259.5
Milford Sound	196.8	196.8	196.8	196.8	196.8	196.8	196.8	196.8	196.8	196.8	196.8
Nelson Tasman	386.4	386.4	386.4	386.4	386.4	386.4	386.4	386.4	386.4	386.4	386.4
Northland	880.8	880.8	880.8	880.8	880.8	880.8	880.8	880.8	880.8	880.8	880.8
Nth Canterbury	590.6	590.6	590.6	590.6	590.6	590.6	590.6	590.6	590.6	590.6	590.6
Otago Central	536.5	536.5	536.5	536.5	536.5	536.5	536.5	536.5	536.5	536.5	536.5
West Waikato PSMC006	348.4	348.4	348.4	348.4	348.4	348.4	348.4	348.4	352.3	352.3	352.3
West Waikato iPSMC007	389.6	389.6	429.4	429.4	432.3	504.5	504.5	504.5	504.5	504.5	504.5
Southland	608.2	608.2	608.2	608.2	608.2	608.2	608.2	608.2	608.2	608.2	608.2
Sth Canterbury	570.7	570.7	570.7	570.7	570.7	570.7	570.7	570.7	570.7	570.7	570.7
Taranaki	530.6	530.6	530.6	530.6	530.6	530.6	530.6	530.6	530.6	530.6	530.6
Wellington	331.0	331.0	332.0	332.0	371.0	371.0	400.3	400.3	480.7	480.7	480.7
West Coast North	440.0	440.0	440.0	440.0	440.0	440.0	440.0	440.0	440.0	440.0	440.0
West Coast South	437.7	437.7	437.7	437.7	437.7	437.7	437.7	437.7	437.7	437.7	437.7
Totals	11442.5	11442.5	11487.5	11519.9	11590.5	11676.8	11719.5	11719.5	11803.8	11803.8	11839.9

Consolidated Maintenance and Renewals by Year by Regional Split												
Region	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	
Northland			-115,200		1,123,200							Renewal
Auckland	900,000	0	18,327,000	14,443,810	14,483,150	35,495,550	14,541,110	14,516,550	16,796,150	19,574,180	17,339,560	Maintenance
Auckland	-170,400	-49,800	-198,600	0	16,217,800	0	0	10,546,150	480,000	5,960,000	15,436,140	Renewal
Waikato	0	0	-10,980	-10,980	15,210	55,860	21,210	194,410	175,360	187,160	491,160	Maintenance
Waikato	343,200	2,571,000	-480,000	-63,000	4,506,600	7,353,600	12,644,400	14,124,000	22,488,830	13,533,900	-3,024,000	Renewal
Bay of Plenty	0	0	0	-28,400	-28,400	-28,400	-28,400	-28,400	159,600	159,600	159,600	Maintenance
Bay of Plenty	-960,000	0	-47,400	0	0	1,646,400	0	540,000	0	0	50,400	Renewal
Hawkes Bay			-51,600					507,600				Renewal
Taranaki		-24,000					806,400					Renewal
Manawatu-Wang	0	-48,000	0	0	0	-96,000	453,600	0	0	0	799,200	Renewal
Wellington	0	0	-11,050	-11,050	-10,950	789,050	6,106,580	6,110,580	6,656,550	10,623,650	10,623,650	Maintenance
Wellington	2,726,400	0	936,000	0	0	0	0	-2,160,000	400,000	1,020,000	1,900,000	Renewal
Nelson/Tasman		-122,400		1,356,000								Renewal
Canterbury	23,580	23,580	37,610	106,750	195,875	151,035	151,035	160,235	230,635	330,635	388,235	Maintenance
Canterbury	0	0	0	0	-6,931,200	0	14,073,600	3,456,000	-60,000	3,578,000	15,360,000	Renewal
Otago	0	19,880	19,880	19,870	19,875	19,875	32,875	32,875	32,875	32,875	32,875	Maintenance
Otago	0	0	-1,036,800	0	902,400	0	0	0	2,640,000	0	0	Renewal

This figure shows there has been an $8m pa growth in the impact and complexity of the state highway network over 2012/15 and that there is expected to be an approximate further $17m impact over 2015/18, and $55m over the following 7 years.

The impacts over 2012/15 include:

- The Waikato expressway – operations and maintenance
- WRR Lincoln Road Interchange – operations and maintenance
- Caversham Stg 2 – operations and maintenance

And over 2015/18:

- Waterview – operations and maintenance of new 2.4km tunnel
- Cambridge Section – operation and maintenance
- Long swamp section – operation and maintenance
- Ngauranga to Aotea Quay – operation and maintenance
- Groynes to Sawyers Arms – operations and maintenance
- Grenada to Transmission Gully Link – operations and maintenance

The analysis is included in appendix 3.

3.3 Input price drivers

The Network Outcomes Contracts use the common New Zealand practice of addressing input price risk by inflating contract payments in proportion to the rise in a Transport Agency provided index since award. Standard practice is modified by not recognising input price change for the first year of a contract. The contracts use two Transport Agency indexes: the Network Outcomes index and the bitumen index.

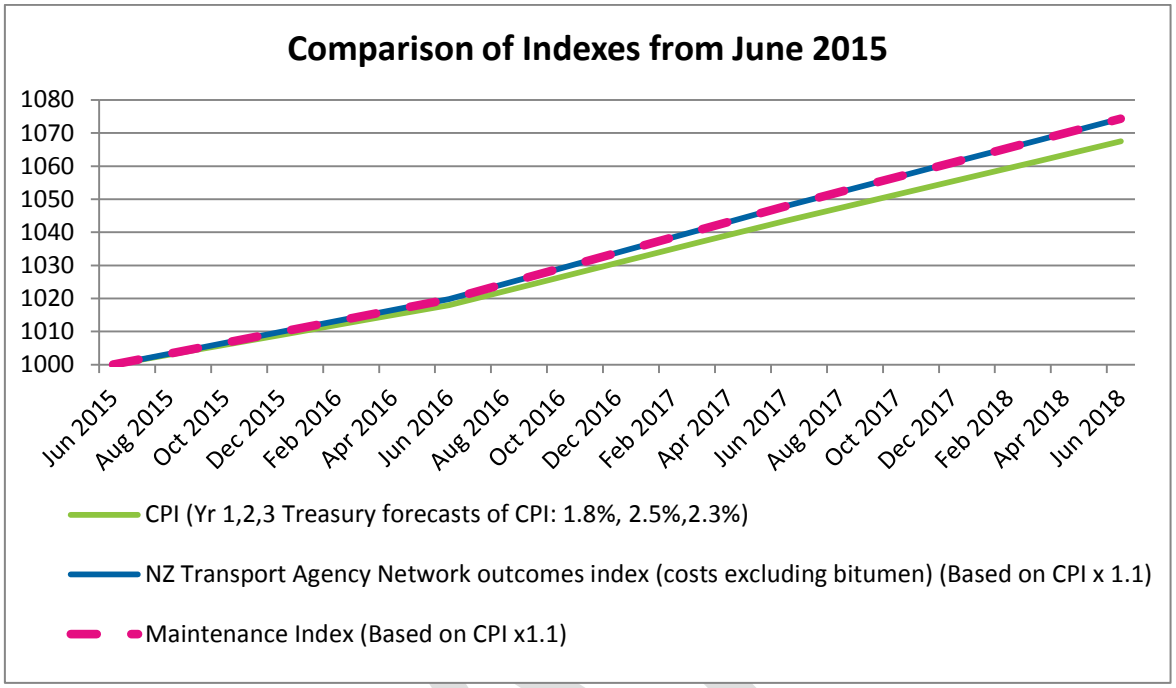
A comparison of the network outcomes index and recent CPI movements showed that the network outcomes index increased about 10% faster than CPI. Prior analysis of the maintenance index and CPI showed the ratio to be 1.5, indicating over-representation of bitumen and diesel in the underlying data sources used.

Bitumen, diesel and aggregate prices have tracked above CPI for significant periods. Between 2002 and 2011 the bitumen price index increased by 140%. During the same period the CPI increased by 28%. The cost of bitumen increased more than 4 times faster than consumer prices per annum, and diesel prices increased by a similar amount. Both are key inputs of road maintenance contributing in total about 15% of costs.

Forecasts of input prices used when preparing the programme for 2015/18 were made by taking Treasury's forecasts for CPI from the budget estimates 2014, and assuming that the network outcomes index would again rise 10% greater than CPI, and assuming that bitumen price change would match this.

Figure 8: Forecast changes in input price

Graph showing Treasury Forecast of CPI, NOC index, Maintenance index:



4. Approach to asset management

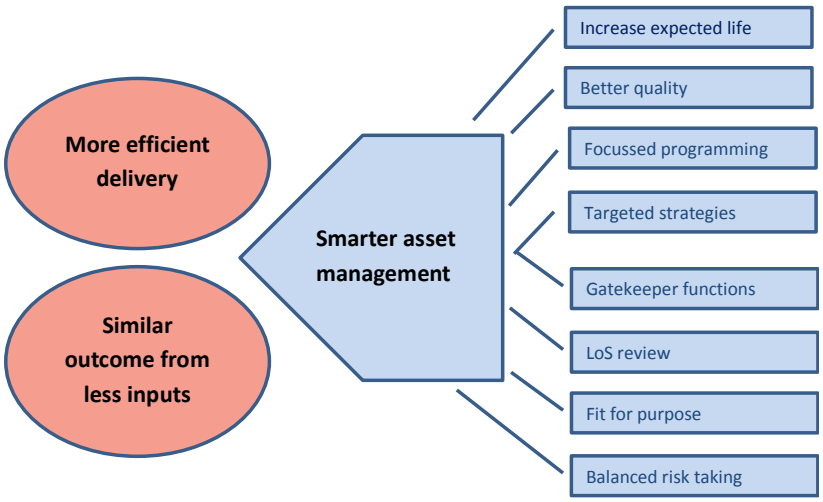
Asset and network management activities are needed to ensure that the NZ Transport Agency has robust systems and processes in place for asset and network management, planning and investment decisions.

The Asset and Network Management Activities section of the IAMP supports the NZ Transport Agency objectives of improving efficiency in the delivery of outcomes for the state highway network and spending only what it needs to. These objectives are driven by the need to:

- Deliver our role as stewards of the state highway network
- Achieve expenditure within the constraints established in the Government Policy Statement
- Respond to the recommendations of the state highway M&O review and of the Road Maintenance Task Force.

4.1 General approach

The Agency initiated an aggressive new programme to smarten its asset management to improve effectiveness and efficiency and reduce costs. This has included two recent developments to improve the Agency's asset and network management outcomes. On the one hand, the Agency has re-structured its approach to asset management planning to focus on national, overall network level through the leadership of the National Office, to have a consistent framework to prioritise investment based on needs. On the other hand, the regional offices are being more empowered to achieve more effective, efficient and lower cost contract outcomes through the new-style Network Outcomes Contracts. This 'nationally planned and regionally delivered' business case approach is more robust and is resulting in cost savings by spending only what is needed.



Our approach is built around three principles:

Only intervene

- when there is a performance failure (or too great a risk of one)
    - eg skid resistance treatments, unsafe potholes
- or earlier when this is the least-cost option long term
    - eg resurfacing before cracks propagate leading to significant maintenance after water ingress into the pavement

Adopt an aggressive approach, taking risks in proportion to the purpose and classification of the road, generally.

- Take few risks on higher classification roads
- Take greater risks on lower classification roads
- Only take managed risks

Adopt a continual improvement approach, learning from experience.

- Evidence based decisions
- Review the success of decisions
- Adjust practice.

In summary, interventions should involve:

- The right treatment at
- The right place, and
- The right time.

The key elements of this approach used in the development of the proposed 2015/18 programme include:

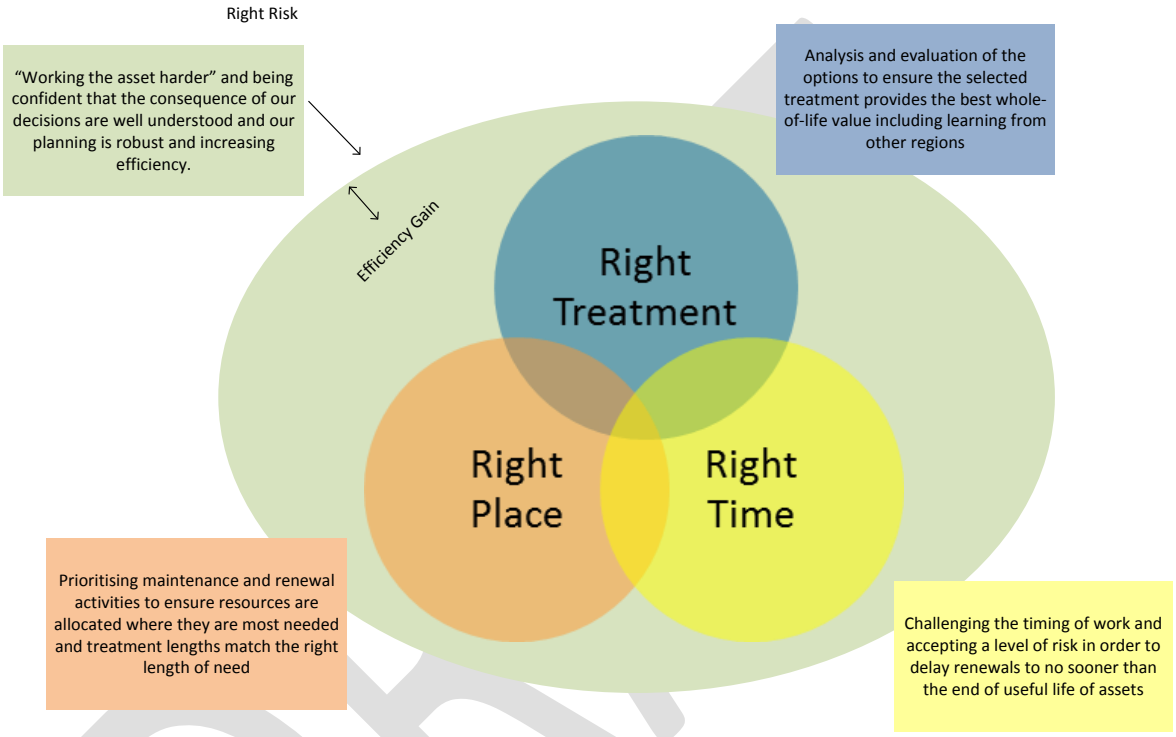
- Using a standard nationwide approach to analysing and proposing works
- Using benchmarks and trends comparing performance and condition on the 23 State highway networks
- Introducing and developing decision support analytics to better inform decisions
- Adopting a more robust 'macro' treatment selection process than that required by the *Economic evaluation manual*, using enhanced net present value and cash flow analysis, reviewing and adjusting proposed pavement renewal programmes on a consistent basis nationwide, using the RAPT process
- Rationalising internal cost centres, to better align budgets, processes or network owners, by, for example, providing separate cost centres for Traffic Operations Centres
- Using a challenge process to focus and hone proposed programmes on each of the 23 networks, the traffic operations centres, and other cost centres
- Establishing a continual improvement framework

4.1.1 Efficiency approach

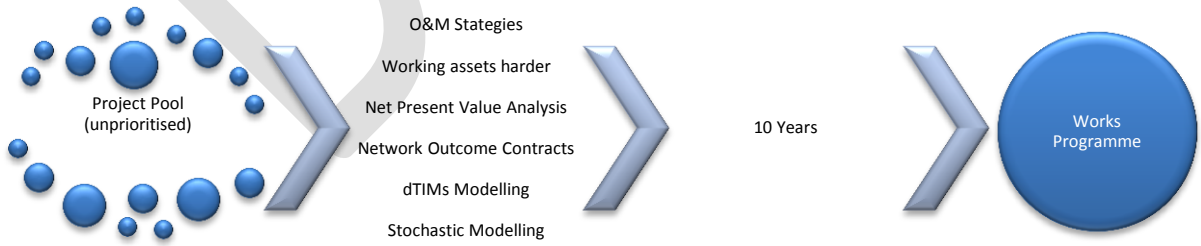
This efficiency programme is being expanded to target a continued 2% cost saving compounding annually for the next 10 years, together with other short term savings initiatives.

This approach programmes intervention works to be:

- The right treatment at
- The right place, and
- The right time.



This approach takes the pool of all potential works and efficiently prioritises them into an optimised programme of works.



The processes and planning tools associated with these management strategies are described in more detail in the *Lifecycle Management Plan (LCMP) Introduction* and associated LCMPs for the various asset types and activities.

4.1.2 Standard nationwide approach to proposing and analysing works

Our approach to asset management has significantly changed in response to the findings of the M&O review and of the Road Maintenance Task Force. We have adopted an approach of:

'nationally planned, regionally delivered'

We have adopted the same approach to asset management across all 23 state highway networks to deliver on the 'nationally planned' goal. We target the same level of service framework for each state highway classification, use the same intervention approach and priorities everywhere, in the context of each network.

4.1.3 Refocussing roles on customer, asset and network management and contract management

The Transport Agency has restructured the Highways and Network Operation business to provide a more strategic approach to asset management with the strategic planning and funding activities being undertaken at a national level and detailed planning and programming input from the regional offices. This 'nationally planned and regionally delivered' approach aims to:

- Improve asset management consistency across the regions;
- Provide a national perspective and needs assessment, so that expenditure can be focussed on where it is needed the most.

Tactical and operational network management continues to be carried out at a regional level, supported by the detailed understanding of specific operations and issues at this level.

The asset and network management activities and responsibilities between the National Office and Regional Offices (including Transport Operations Centres (TOCs)) are demonstrated in the following table.

Table 1: Asset and Network Management Activities and Responsibilities

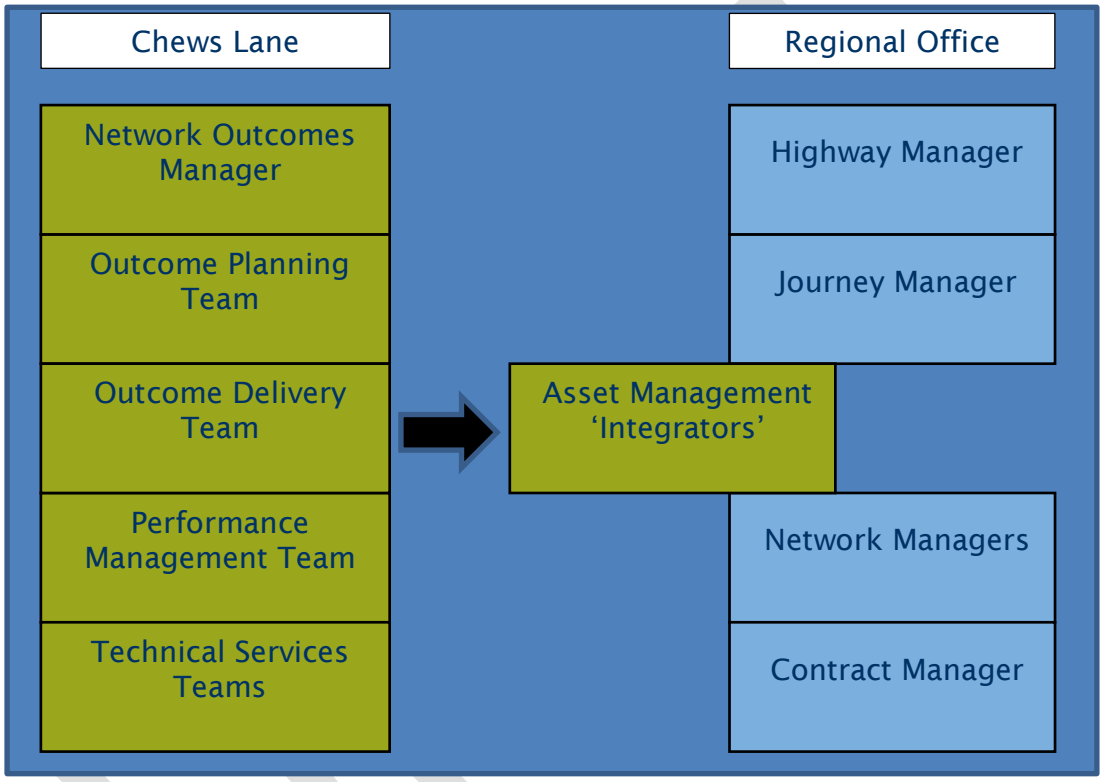
		National Office	Regional Offices (Including TOCs)
Asset Management	Asset Management Policy, Planning, SHAMP and IAMP Development	●	○
	Risk Management	●	●
	Asset Information Management	●	●
	Asset Valuations	●	○
	Asset Programming	●	●
	Asset Management Auditing and Reviews	●	○
Network Management	Contract Management	○	●
	Network Outcomes Contracts	○	●
	Network Controls	○	●
	Consent Management	○	●
	Safety Management	○	●
	Customer and Stakeholder Relationship Management	○	●

Key: ● Delivers activity

○ Supports activity

The implementation of the Network Outcomes Contracts to improve the efficiency and effectiveness of the maintenance and operation of the state highway assets was complimented by a review of the structure of the Highways and Network Operations business unit.

Figure 9: Simplified structure and roles of the Chews Lane and a regional office



Centralising the strategic asset management planning functions ensures that decision making is applied with a whole of network focus enhancing NZ Transport Agency's ability to apply resources better focussed on areas of national need. The Agency's regions are then able to focus on effective delivery to make sure contracted outcomes are delivered.

An effective linkage between the national outcome delivery team and the regional delivery teams is achieved through the integrators whose focus is on ensuring that the national imperatives for asset management investment are understood by the regions and implemented as planned.

Maintaining a dedicated technical services team ensures that NZ Transport Agency continue to provide world class solutions. NZ Transport Agency will continue to develop engineering and design solutions to maximise the performance of the existing asset and respond to poor performance.

Separation of the contract management and network management functions within NZ Transport Agency's regions ensures that an appropriate focus on both contract delivery and the needs of the network are maintained. Successful implementation of the contracts to ensure that they operate

and deliver as intended is critical to the success of pavement, surfacings management strategies, and corridor wide assets.

The new regional journey management function ensures that outcomes are adequately tensioned to reflect customer feedback. This separate function also underpins the need for consistency across our network so that regional boundaries are seamless to customers.

4.1.4 Using benchmark comparisons and trends across state highway networks

The new Performance Management Team is enhancing the way in which we manage and use our asset and service information to increase the effectiveness and efficiency of our operations and the value for money of the services we provide to our customers.

A key aspect of this is increasing our understanding of the different performance of networks and contracts over time and in comparison with each other.

The evidence provided by the pavement condition report and network expenditure trends and comparisons per work category provided valuable evidence when developing the proposed programme.

The pavement condition report reports trends and benchmark condition and performance measures for networks in comparison to each other and as trends within a network.

An example from the work category expenditure report is shown below.

4.1.5 Introducing and using robust decision support analytics

4.1.6 Deterministic and Stochastic modelling

The Transport Agency uses deterioration modelling to forecast future maintenance and renewal programmes required to deliver targeted levels of service, and to investigate impacts on maintenance and/or levels of service under constrained renewals budgets.

To deliver on our efficiency and effectiveness goals we are developing and improving our past approaches to deterioration modelling. We have engaged consultants and researchers to improve our understanding of deterioration, and its links to levels of service and maintenance needs.

The objective is to determine what NZ Transport Agency genuinely believes to be the minimum investment level necessary to deliver service levels and preserve the asset at least long term cost. This is the point beyond which more significant renewals are required to bring the asset back to the target level of service cost effectively, or when the forecast maintenance cost streams no longer represent the minimum whole of life cost to sustain the asset.

Forecasting the end of life point in terms of these criteria is complex and the answer is typically expressed as a range. This is the biggest challenge the Transport Agency is facing; trying to find the ‘number’ that represents the sweet point between the end of the life of the asset and intensive, high cost intervention.

Tensioning and pushing the asset will be improved every year with the assistance of new technologies, new research, and measuring and responding to recent achievements.

The Transport Agency is developing the following new research tools:

- dTIMS modelling for Pavement Asset – Deterministic approach.
- Stochastic modelling for Drainage, ITS, VMS Asset – Probabilistic approach.
- ITS business case as best practise JTOC Auckland – Determinist approach.

Generally speaking, there are two types of deterioration modelling: deterministic and probabilistic.

Deterministic:

'Predict future as a precise value on the basis of mathematical functions of observed or measured deterioration'

Probabilistic (Stochastic)

'Predict future as the probability of occurrence of a range of possible outcomes, based on past events'

Figure 10: Probabilistic and deterministic models compared

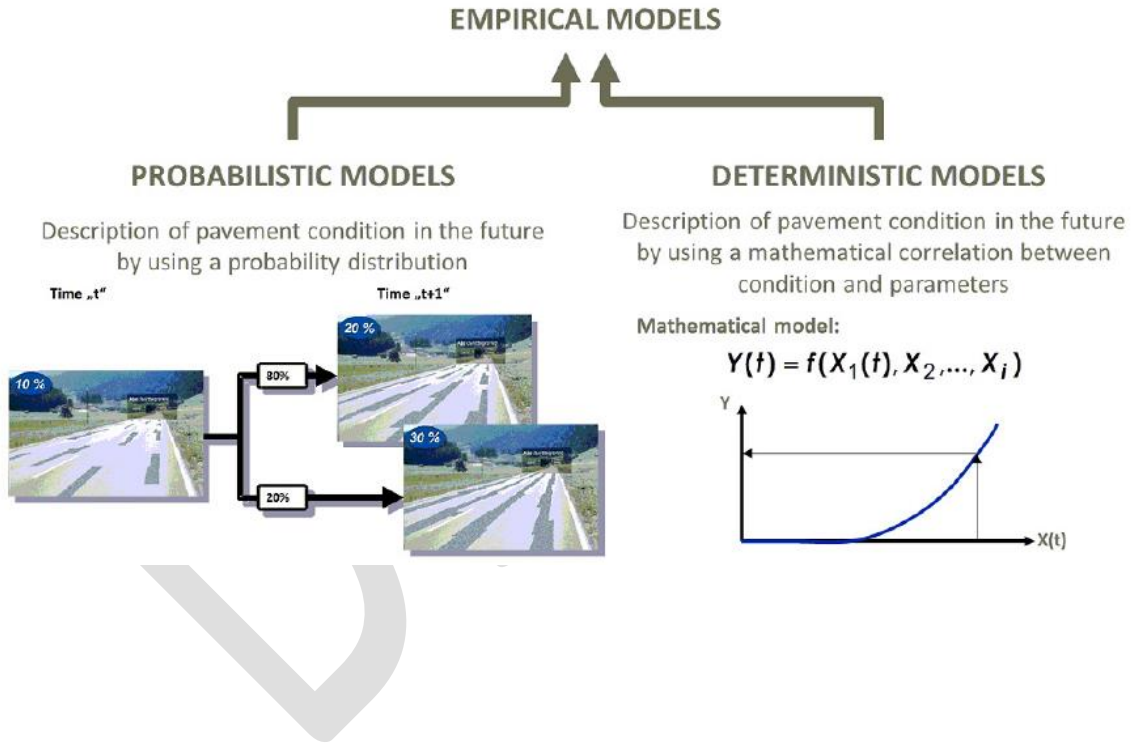


Figure 11: A typical decay curve in a deterministic approach

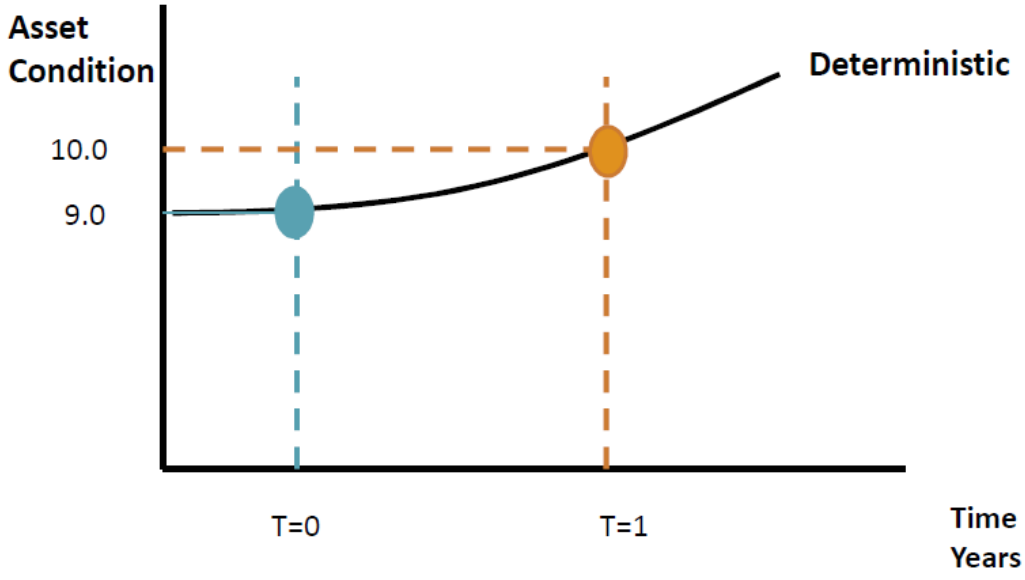
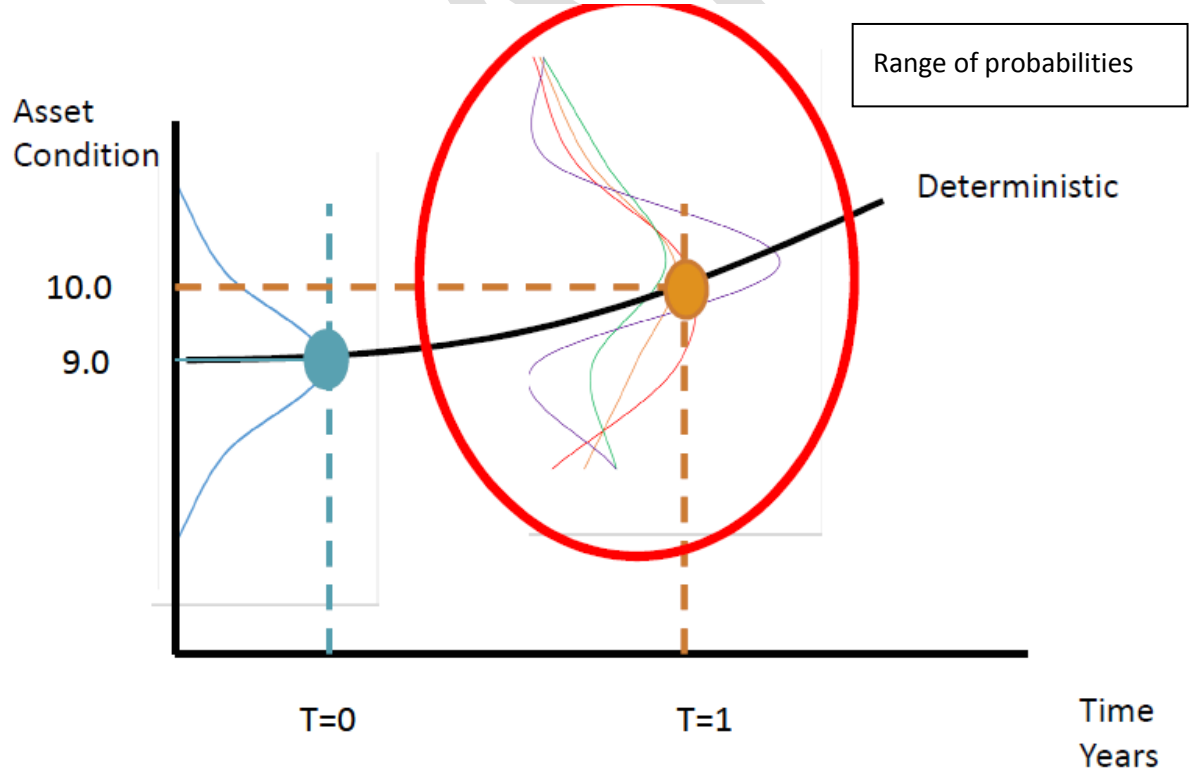


Figure 12: A typical decay curve in a probabilistic approach



In the probabilistic approach you forecast a range or distribution of possible outcomes as occurs on the network.

Since decay is a complex process driven by uncertain factors and relationships, outcomes are uncertain. A probabilistic approach reflects this uncertainty.

Both deterministic and probabilistic models should be reviewed periodically so their accuracy improves, and our confidence grows. The reviews should respond to the differences between forecast and actual outcomes.

Both these approaches were used to forecast pavement renewal needs for the 2015/18 NLTP.

4.1.7 NPV analysis

The Transport Agency enhanced the default NPV analysis process by requiring the investigation of 'do-maintenance', 'do-intermediate', and 'do-rehabilitation' options as a minimum to better explore intermediate options such as partial rehabilitation and resurfacing of a treatment section. It also required that an 'economic indicator' be calculated to confirm that cash flow considerations were soundly based and reflected in the treatment decision.

The Transport Agency continues to expect that NPV analyses will be robust. Analyses that are unsatisfactory are rejected and any decision to intervene deferred. Workshops are being held to improve the capability.

This approach is described in a REG case study.

The NPV method is being further enhanced to reflect traffic impacts of alternate treatments on high volume roads.

4.1.8 Maintenance cost curves

Maintenance cost curves are measures of the growth in repair work expected as an asset deteriorates over time and under load. They represent the default 'do-minimum' option in Net Present Value analysis.

Robust maintenance cost curve information for different surfaces and locations is being developed through a research project. This will be used as the default reference point for NPV analysis to validate site specific forecast.

4.1.9 Deferred treatment impact assessment

The Transport Agency has started to analyse the deferred treatment sites progression in condition and maintenance needs to better inform intervention decisions and forecasts of future maintenance, and to improve our understanding of the risk we are taking by deferring renewal works.

4.1.10 Reason for intervention

In a customer service driven framework, maintenance and renewal interventions are only triggered:

- when there is a performance or service failure or gap (or too great a risk of one)
    - eg skid resistance treatments, unsafe potholes
- or earlier when this is the least cost option long term
    - eg resurfacing before cracks propagate leading to significant maintenance after water ingress into the pavement

Changes to network operations and capital improvement programmes are potentially triggered by performance gaps. Maintenance and renewal interventions are triggered by performance failure, or

least lifecycle cost goals. This is indicated in the intervention hierarchy shown in Figure 13: Intervention hierarchy and reason for intervention.

Performance gap or failure

A performance gap occurs when current service levels are below service level targets. This may arise when:

- Target service levels or outcomes are better than current levels, eg the safety levels of service
- Increasing demand causes service levels to fall below target

In this case either a change is required in network operational practices, or scope, or a capital improvement project is required to close the performance gap. The cost and benefit appraisal for these options typically involves benefit cost analysis.

These works are funded from the 300 series improvement work categories. Typical improvement works include:

- Expanding the network coverage of active traffic management systems to areas of growing demand
- Strengthening bridges to carry HPMV vehicles
- Adding edge or median barriers
- Adding audio tactile pavement marking where there was none before
- Replacing open side drains with buried drains and sumps to improve safety.

A performance or service failure arises when service levels drop below their prior level when:

- Decay causes infrastructure to perform below target levels, eg faded safety signs, wheel track potholes.

These failures are address by either repairs or renewal works, whichever provides the least lifecycle cost option for the circumstances. Typically, economic analysis involves net present value and/or cash flow analysis to determine how it is best to maintain a service level previously set by using some form of cost benefit analysis.

These works are funded from the 100 and 200 series work categories. Typical works include:

- Operating traffic signals
- Responding to enquiries
- Power streetlights
- Skid resistance treatments
- Remarking roads or replacing safety signs when they are faded
- Strengthening bridges as members decay reducing their carrying capacity
- Mowing verges to provide sightlines

Economic interventions

The only reason to intervene before there is a performance failure (or too great a risk of one) is when it is cheaper in the long run, there is no other reason to intervene to 'fix' something that is working well.

Typically economic analysis involves net present value and/or cash flow analysis to determine how it is best to maintain a service level previously set by using some form of cost benefit analysis.

Commonly, condition or time based triggers are used to simplify intervention decision making. This provides a robust basis for intervention when the trigger levels have been established by NPV or cash flow analysis appropriate for the circumstances.

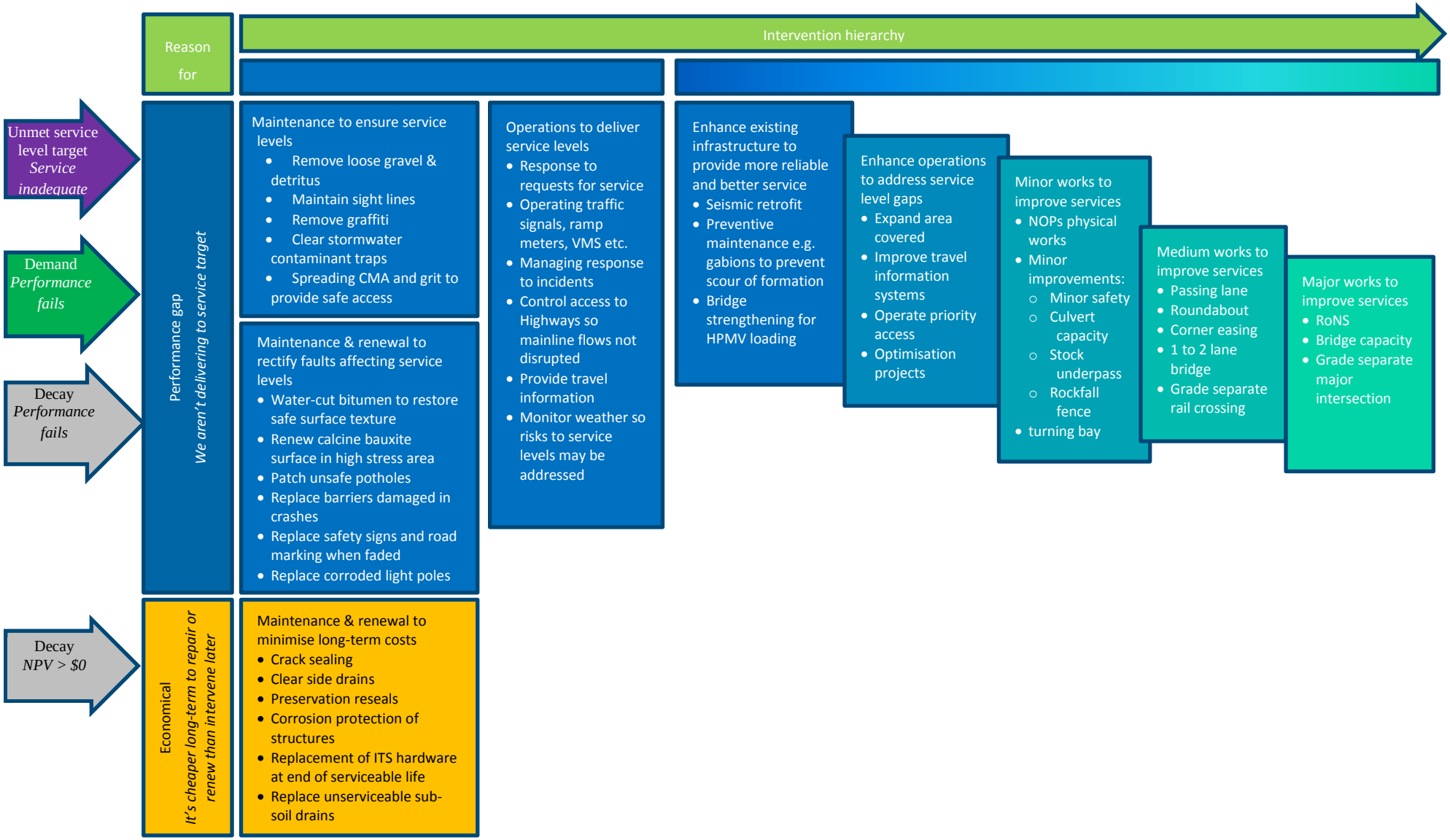
Analysis of demand typically involves using:

- NPV and Economic Indicator
- dTIMS modelling
- HDM4 economic investment modelling
- Stochastic modelling

These works are funded from the 100 and 200 series work categories. Typical works include:

- Sealing cracks on road surfaces rather than wait to patch pavement failures
- Rehabilitating a pavement rather than increasingly patch failures
- Replacing high pressure sodium lighting with more cost effective LED lighting
- Resurfacing roads rather than allowing pavement decay and increased maintenance

Figure 13: Intervention hierarchy and reason for intervention



4.1.11 Treatment selection

The RAPT process and its moderation process now explicitly alter the scope, type and timing of proposed treatments in line with the aggressive approach adopted. Proposed programmes are altered to reflect the recommendations of the RAPT team, and subsequent engagement with the network teams.

As a result the proposed 2014/15 programme was reduced by about 15%. This approach flowed into the forward programmes reflected in the proposal for the 2015/18 period.

A similar process is underway for the 2015/16 programme, although it is being conducted as the programmes are developed to both enable a post winter review of sites deferred on the last RAPT review, and to encourage the development of programmes using the aggressive approach now expected. By doing this we both get a better targeted and scoped programme and growth in capability.

4.1.12 Rationalising cost centres

The state highway maintenance cost structures have been reviewed to rationalise these around cost centres with specific outputs or outcomes.

The Traffic Operations Centres costs have each been moved into cost centres separate to other operations so that we can better manage these services. The costs of the nationwide 'back office' costs of ITS are similarly being drawn together and distinguished from other costs.

The costs of projects improving service delivery are similarly being rationalised so they are better managed.

4.1.13 Procurement

All professional services for preparing and carrying out maintenance, works and property management and physical works on state highways are procured in accordance with a procurement strategy through a tendered competitive pricing procedure developed in accordance with the Government Roading Powers (GRP) Act s27. The details of the procedures are contained in:

- *Procurement manual* (NZ Transport Agency)
- *Contract procedures manual* (NZ Transport Agency)

4.1.14 Contract types

The different types of contracts, and the consultants and contractors that are engaged to deliver the services, play an important part in ensuring levels of service are met. Currently five contract types are used to procure maintenance and operations.

Table 2: Contract types

Historical Contract Types	Performance-specified maintenance contracts (PSMC)	Contracts which are awarded for 10 years to single suppliers who are responsible for providing all services. There are five such contracts operating in New Zealand, including one for maintaining the Auckland Harbour Bridge. Most resurfacing work is also done under performance-specified contracts.
	Hybrid contracts	Contract which are awarded for five years and involve consultants and contractors working in a

		partnering arrangement to deliver services.
	Traditional contracts	Contracts which are awarded for varying terms and involve consultants managing suppliers who deliver physical works on the highway network, in a similar way to traditional road engineering construction contracts. Most pavement strengthening works and bridge repairs are managed through this type of contract.
New Contract Types	Network outcomes contracts (NOC)	A new approach to our maintenance and operations to ensure efficiency and effectiveness through better asset management and service delivery. These contracts are awarded to primary suppliers and are performance-based. This is a new contract model and the contracts are being phased in over the next two and a half years. The core scope of work typically includes, but is not limited to maintenance, operations and renewals. The core scope of work typically excludes: • Transport planning; • ITS maintenance and management; • Capital works; • Emergency works reinstatement; • Traffic Operation Centre activities; • Bridge and other structures management and repairs.
	Alliances	Special arrangements in which groups of organisations combine in partnership and work together. For example, an alliance is currently contracted to operate and maintain the Auckland motorway network in a long-term agreement that began in 2008.

4.1.15 Network Outcomes Contracts

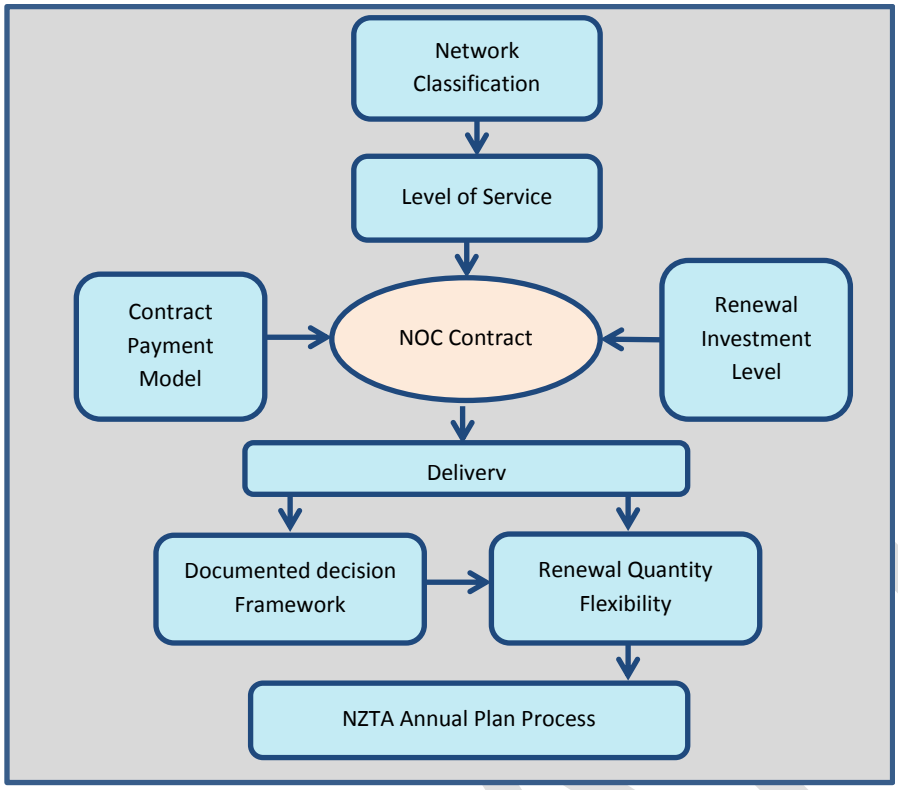
The NZ Transport Agency has introduced a new approach to contract management through the introduction of NOCs aimed at improving the effectiveness of service delivery. The number of contract areas has been rationalised from 37 to 23 with increased collaboration with suppliers.

The new NOC will deliver all of the key outcomes associated with managing the state highway assets in future. The Agency has initiated the roll out of these contracts and it is intended that within the next 18 months most of the network will be covered by the new contracts. The Auckland Motorway Alliance (AMA) will continue delivering services on the Auckland motorway. Further work is required to determine whether two of the longer term hybrid contracts will be successfully converted to the new model (refer to **Error! Reference source not found. Error! Reference source not found.** below).

The Transport Agency has captured the best elements of the three historic procurement methodologies (PSMC, Hybrid and Traditional models) into this new contract model that will deliver services through a primary supplier incorporating both professional services and physical works for all key maintenance activities.

Asset management strategies that form the basis for the Transport Agency's approach to managing pavement and surfacing assets that are embedded into the new procurement model are summarised in the following diagram.

Figure 14: NOC contract process



The Network Outcomes Contracts are described on the Transport Agency's website.

They bring the following advantages:

- A customer level of service based performance framework to promote delivery of targeted outcomes
- Transfer of risk to the Transport Agency around the extent and targeting of the renewals programme to reduced conservative intervention practices
- A collaborative approach to promote improving achievement of short and long term goals
- Providing clear accountability of the contractor for quality works and management practices
- A performance framework linked to financial pain/gain, and contract term to incentivise good supply of contracted services.

4.1.16 Risk management – critical infrastructure

Critical infrastructure is that which is key to service provision because its loss would cause unacceptable impacts on service level. The risk of service failure of critical infrastructure is managed carefully so the residual risk of failure is low.

The Transport Agency's risk management policy is shown in Figure 15.

Figure 15: The Transport Agency's risk management policy

POLICY / RISK MANAGEMENT

Our risk management focuses on minimising threats and maximising opportunities to greater assure the effective and efficient achievement of the organisation's objectives.

Robust NZTA risk management:

- preserves the value of the NZTA's assets by optimally managing threats and minimising the organisation's liabilities
- generates added value through early identification of risks and fostering innovation, efficiency and effectiveness to address these
- generates improved decision-making through provision of more accurate and timely information
- achieves higher levels of customer and stakeholder satisfaction through minimising surprises and improving confidence in the organisation's systems, processes and outcomes.

The NZTA has adopted enterprise risk management (ERM), substantially incorporating the elements of the Joint Australian New Zealand International Standard *AS/NZS ISO 31000:2009 Risk management – Principles and guidelines*. ERM is an integrated and systematic approach to managing the organisation's risks, including strategic, tactical and operational risks. Risks may be threats and/or opportunities.

Our ERM implementation is described in four key documents: *Risk management framework, Risk management strategy, Risk management policy* and *Risk management manual*. The Risk management framework sets out a five-stage risk management maturity model. The NZTA is progressing towards achieving the highest maturity level by August 2012.

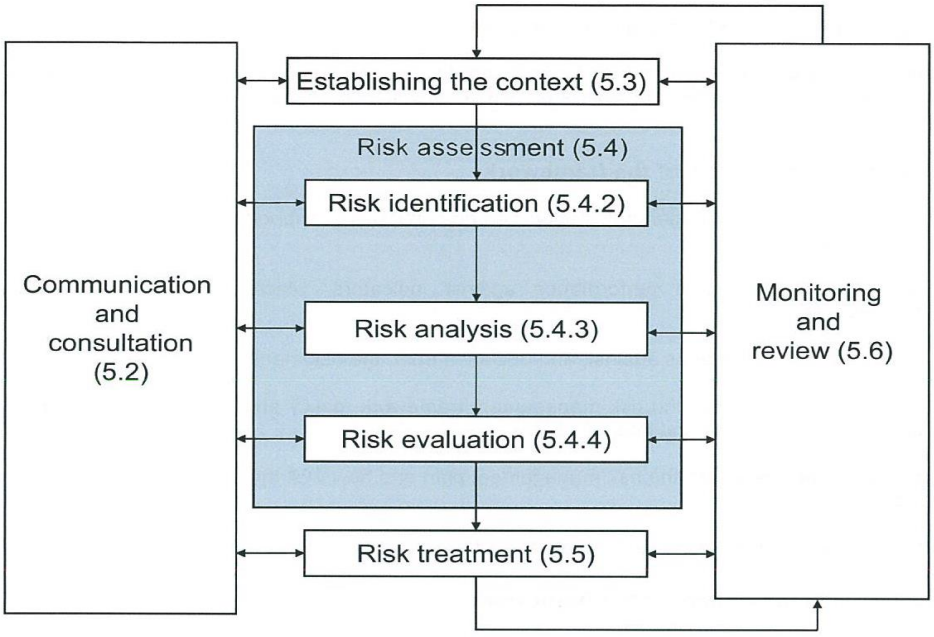
Important governance and high level management structures have been put in place to support implementation of effective ERM. These include the quarterly strategic risk review function of the Senior Leadership Team/Board and the risk management activities of the Audit, Risk and Assurance Committee, the Chief of Assurance and Risk and team, two group-level risk management advisors and the NZTA Risk Management Steering Group.

Our focus during 2011–14 will be on building the organisation's capability for maximising the value of its risk management activities, evolving it from a compliance activity towards one of value creation.

4.1.17 Risk management

AS/NZS ISO 31000/2009 Risk management – principles and guidelines is the guiding standard that informs the NZ Transport Agency's framework for risk management. Risk management processes are specified in a number of documents that apply to internal staff and suppliers. The NZ Transport Agency contracts out professional services and physical works, and the contracts stipulate the requirements for risk management conduct, to be carried out in accordance with the provisions in *AC/MAN/1 Transit risk management process manual*. The NZ Transport Agency holds a risk register for the key risks that have been identified, and uses it as a tool to help manage them.

The process for managing state highway risks is shown below.



The top state highway risks and management strategies are routinely reviewed by the Senior Management Team.

4.1.18 Critical infrastructure

The management of state highway risks relates to the existing asset and those activities, projects and programmes that will modify or add physically and/or functionally to it. The management of SH asset risk can therefore be divided as follows:

- Asset management risk
- Asset improvement risk

The approach to asset risk management shall be in accordance with requirements contained in the NZTA risk management documentation previously discussed and aligned to AS/NZS ISO 31000:2009.

4.1.19 Key asset risks

There are many SH asset risks that are common across the network, however, regions may and will have region specific risks that require specialist evaluation and mitigation.

There are a number of key risks to maintaining the integrity of the SH network and its ongoing development, for example:

Business risks:

- Risk of a lack of or deferred funding
- Risk of schedule slippage
- Risk of overspend
- Risk of failure to gain property access
- Risk of poor contract execution

- Risk of sole supplier insolvency

Network risks:

- Risk of catastrophic failure of a network structure
- Risk of premature deterioration of the asset
- Risk of failure of integration of new projects with existing asset

Natural risks:

- Risk of unanticipated occurrence of a natural event – eg flood, earthquake, landslip, avalanche, bush fire, adverse weather

Stakeholder risks:

- Risk of sub optimal design and/or construction practises or materials
- Risk of damage to the asset
- Risk of pollution and/or negative impacts on flora and fauna

4.1.20 HNO risk management

HNO places contracts for the provision of services with suppliers. These services are either in the form of professional services (via consultants) or physical works (via constructors). The contract documentation will stipulate the requirements for the conduct of risk management. Where the contract requires the application of risk management this is to be done in accordance with the provisions made in *Minimum standard Z/44 – risk management*. Supplies and NZTA HNO staff (particularly those charged with contract management – Project and Network Contract Managers) are expected to be familiar with the contents of Z/44 as a minimum and are advised to review the content of the other NZTA corporate risk documents.

All HNO staff and suppliers will be expected to:

- Be active in identifying and recording risk (threats and opportunities)
- Accept ownership of risks where appropriate
- Execute assigned risk action activities
- Participate in risk reviews/workshops as required

Each contract is expected to follow the process for risk management as shown in fig 1-1 above. Detail on the content of each part of the process can be reviewed in AS/NZS ISO 31000:2009.

A primary output of the risk management process is the risk register; the register has 3 primary functions:

- To record threats and opportunities and the data associated with them
- To act as a tool to assist in the management of threats and opportunities, recording schedule and ownership data relating to mitigation and realisation activities

- To document qualitative and quantitative data as appropriate thereby enabling analysis to be conducted.

Requirements for the creation, management and provision of a risk register as part of the Activity Risk File (ARF) are contained within Z/44.

Where threats are identified as requiring mitigation, suitable actions are to be created and implemented; furthermore, actions are to be reviewed to ensure mitigation work to be undertaken is included in the programme, adequately resourced and the cost of mitigation accounted for. The same principle is to be applied for identified opportunities.

Significant risks that may be identified as being likely to impact the conduct of HNO business are to be sufficiently escalated to ensure the appropriate level of management is appraised of the risk and is able to provide input as required.

4.1.21 Risk management audit

There is currently no specific audit programme reviewing the application of NZTA/HNO policy on risk management. *Contract NO 11-724 contract management reviews* does review risk management as part of the contract audit process but not in significant depth. This contract is entering a new contract period (2011-14) and is specified to enable a greater focus on specific topics such as risk management. However, it should be noted that the CMR contract provides coverage for only a select and small proportion of HNO contracts.

4.1.22 Risk management lessons learnt

There is currently no specific process for the collation and dissemination of risk lessons learnt. *Contract NO 11-724 contract management reviews* does conduct contract lessons learnt exercises post contract completion, but not specifically with regard to risk. As previously mentioned the contract provides coverage for only a select and small proportion of HNO contracts.

4.2 Context & the basis for the programme

4.2.1 State highway network

NZ Transport Agency has stewardship of the 11,373km of state highways network, which has a replacement cost of approximately $29 billion, and annual spend in the order of $550 million for operations maintenance and renewals (OM&R) and over $1 billion for capital improvements.

The state highway network is described in the SHAMP and appendix N has further details.

The NZ Transport Agency Network Outcome and Delivery Team maintain a national overview and control the budget for the maintenance and renewals of the state highway network.

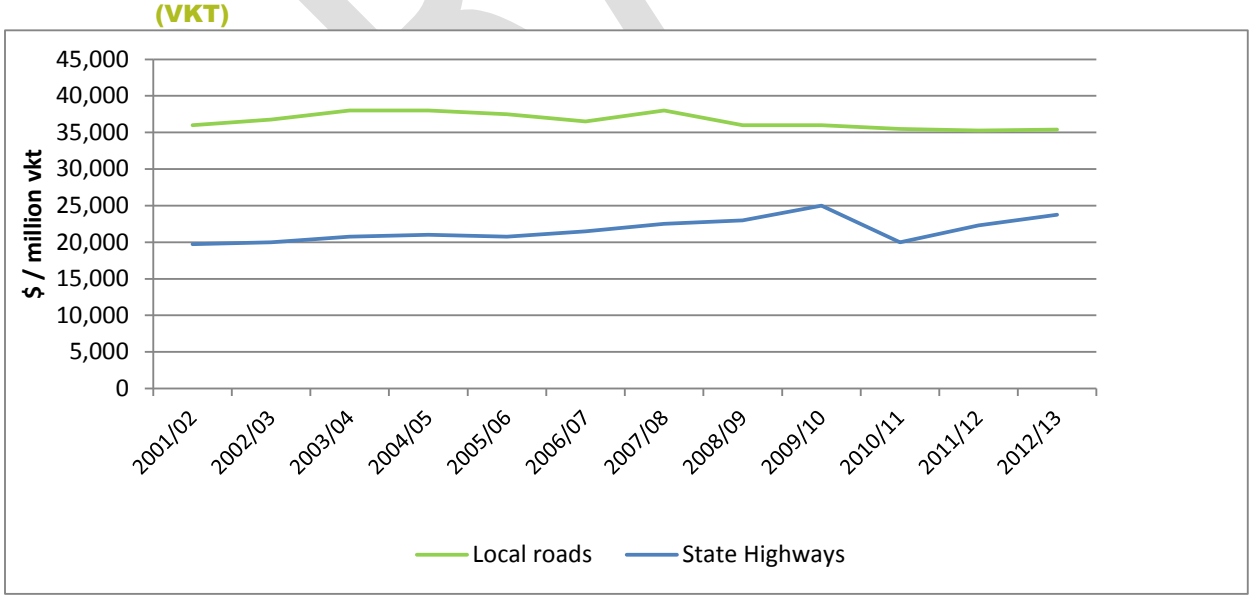
Plan No.	Asset / Activity Group	Asset Type / Activity	Replacement Cost ($m)	Depreciated Replacement Cost ($m)	Annual Depreciation ($m)
1	Pavement	Formation Pavement Base Pavement Surface *Excludes Land $8,003m*	$11,927	$10,226	$171
2	Drainage	Underground assets (pits and pipes) Above ground assets (curbs and channels)	$1,155	$577	$23
3	Structures	Bridges Bailey Bridges Major Culverts Underpasses Retaining Walls Gantries Sea and River Protection Tunnels (excluding M&E) Rock Fall Netting and Fords	$7,969	$4,598	$100 TBC
4	Signs and roadmarking	Signs Pavement Markings Markers and rails	$232	$116	$14
5	Streetlights	Poles (columns), brackets, luminaires, control equipment	$667*	$334*	$31*
6	ITS (infrastructure assets)	ITS infrastructure Tunnel M&E Services Journey Management	$281	$193	$12
7	Road Safety Hardware	Flexible barriers Semi-rigid barriers Rigid barriers Other barrier elements	$617	$309	$27

8	Roadside Vegetation Management	Urban and rural roadside vegetation and gardens	Included above*	Included above*	Included above*
9	Roadside Facilities	Rest Areas Heavy Vehicle Facilities (including Weigh facilities, stock effluent disposal sites and deceleration devices) Road space management facilities	Included under streetlight and structures valuation above	Included under streetlight and structures valuation above	Included under streetlight and structures valuation above
10	Operation and Environmental Response	Winter Maintenance, Litter Collection, Detritus removal, Graffiti removal, Air Quality Sampling, Incident Response	n/a	n/a	n/a
11	Network management/ Asset management	Network Management Planning and Systems, Asset Management Planning and Systems	n/a	n/a	n/a
TOTAL			**$22,848**	**$16,353**	**$377**

4.2.2 Current efficiency

Operational, maintenance and renewal costs for state highways have reduced since 2010 due to the efficiency measures being developed and implemented despite cost increase pressures, as shown in figure 5.

Figure 16: Trend of state highway and local roads costs per vehicle kilometres travelled (VKT)



State highways generally carry more traffic per kilometre than the local authority networks. Consequently, cost per vehicle kilometre travelled ($/VKT) for the state highway network is less than

for local authority. State highways also carry a higher proportion of heavy vehicles, with associated increased deterioration.

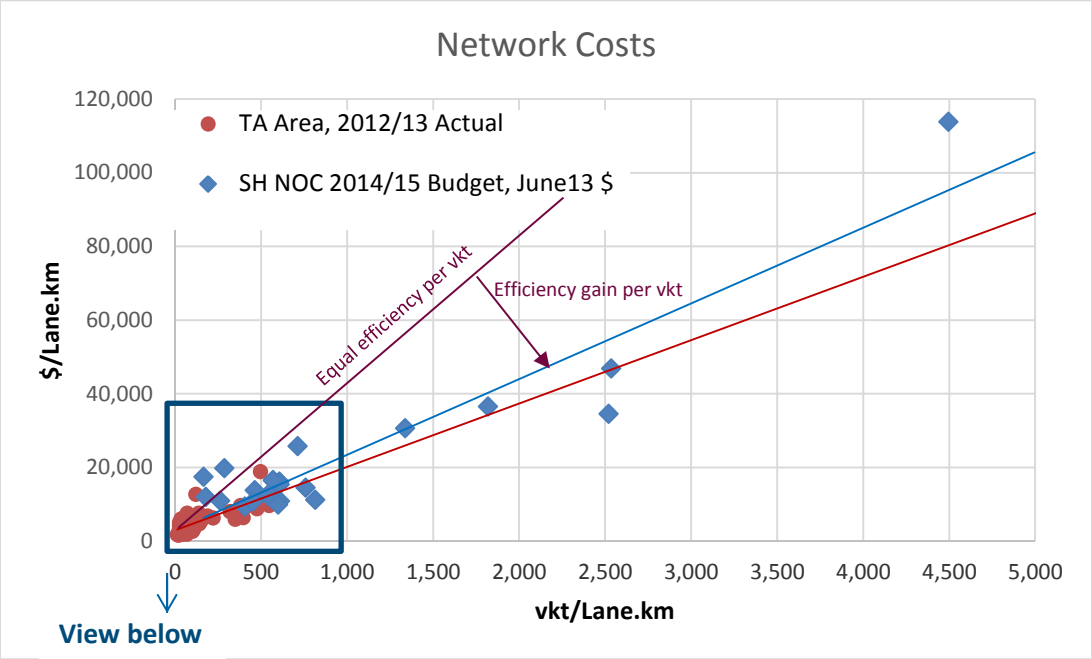
Figure 17 shows a comparison of the cost of state highway networks compared to each other and local road networks against traffic density on each network.

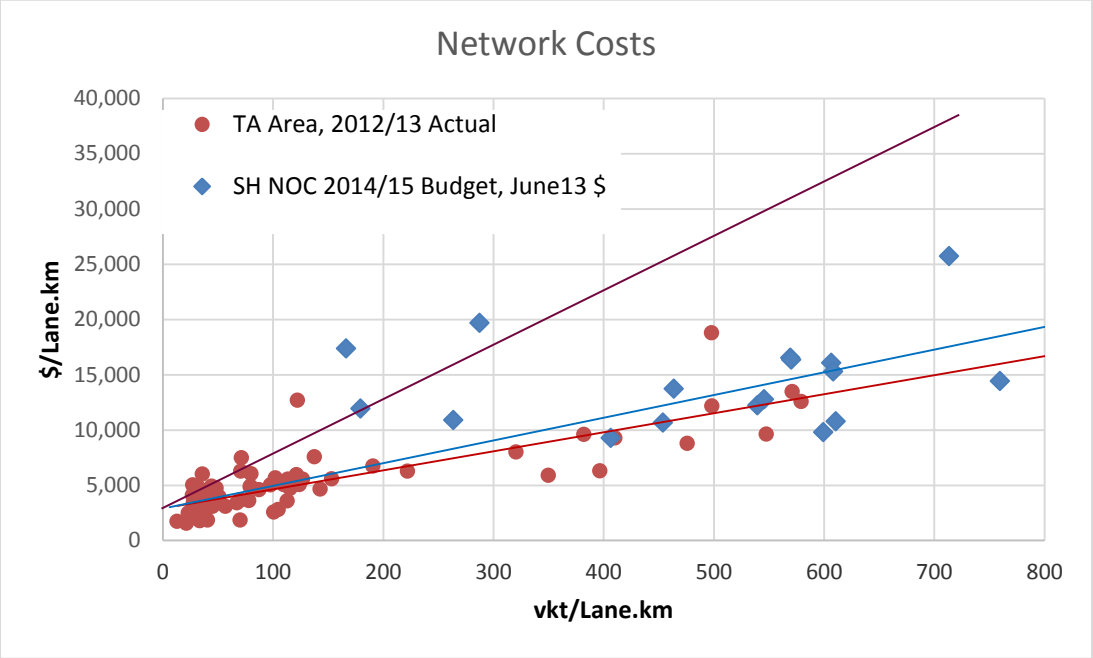
The raw data has been normalised on a $ and VKT per lane km basis, this means that large networks can be compared with the costs on smaller networks.

The horizontal axis is an indicator of the proportion of higher classification, more heavily trafficked roads in any network, which are generally more robust, with more extensive and complex infrastructure supporting the higher levels of service.

State highway and local networks have comparable costs. Both show economies of scale because the trend in costs for more intensely trafficked networks is below the neutral efficiency line.

Figure 17: Comparison of state highway and local roads costs per vehicle kilometres travelled (VKT)





The graphs show both a general trend in unit costs and provide a first indication of network efficiency.

It shows that both state highways and local territorial authority costs are similar over similar networks, with the exception of networks such as the Milford Road, Queenstown Lakes District Council and the West Coast where there are continued efforts to reduce the costs imposed by their unique situations. This means that there are no 'easy targets' for efficiency and effectiveness savings on the state highway network compared to the local road network, in general.

The challenge for the Transport Agency is to drive the costs of all networks towards and beyond the efficiency horizon represented by the network costs below the trend line.

4.2.2.1 Analysis of the cost per vehicle kilometre travelled

The above figures compare state highways and local authorities. The graphs show the current efficiency of state highway networks. They represent a summary of a different combination of asset and procurement strategies.

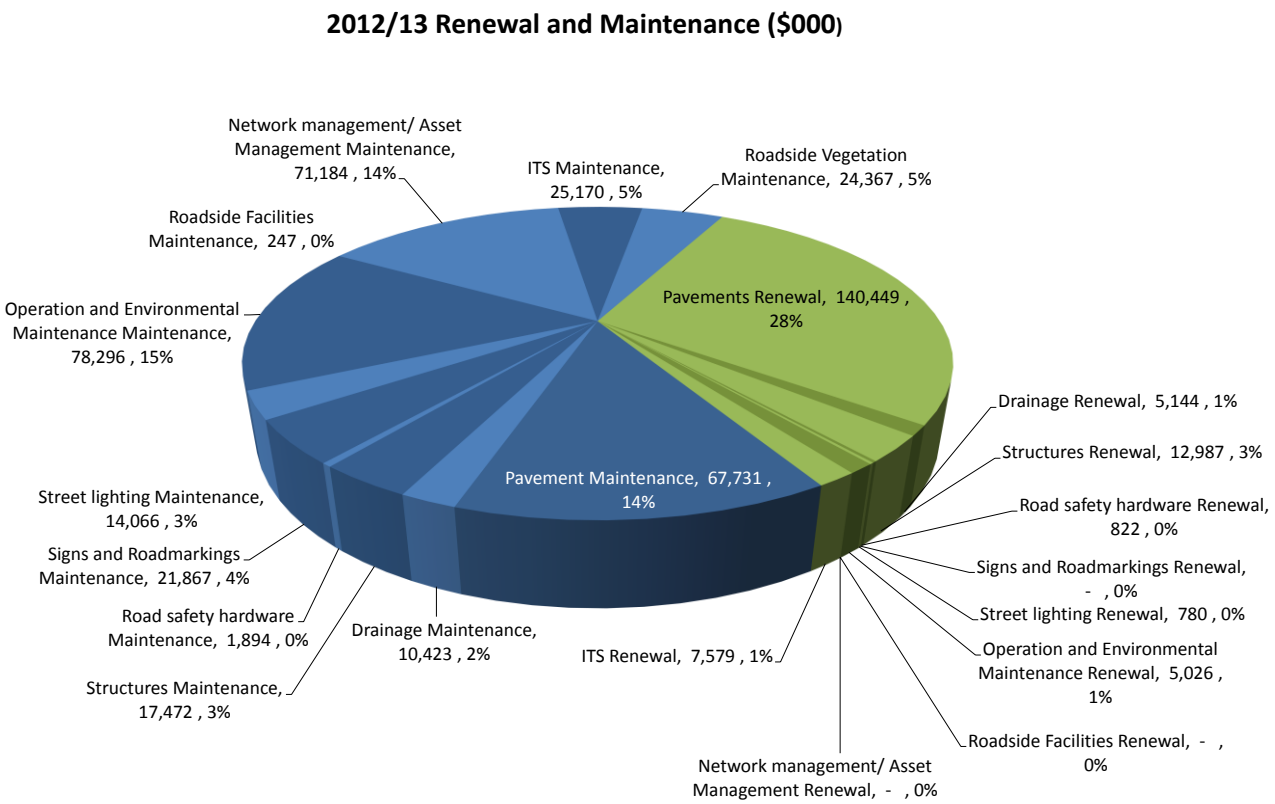
The major challenges that the Transport Agency faces are:

- What if we try to push the expenditure lower?
- Can we sustain this strategy without risking premature failure?
- What if a network such as Wellington, which has indicative costs of $40k/lane.km and over 2,500 VKT per lane km, drops to $35k/lane.km?
- Will the network still deliver targeted levels of service at a sustainable cost?

The typical total VKT expenditure is based on the sum of reactive and proactive components, renewals activities and impacts of current procurement strategies. The proportion of expenditure by type is shown in the following figure.

Figure 18: 2012/13 Renewal and maintenance $(000)

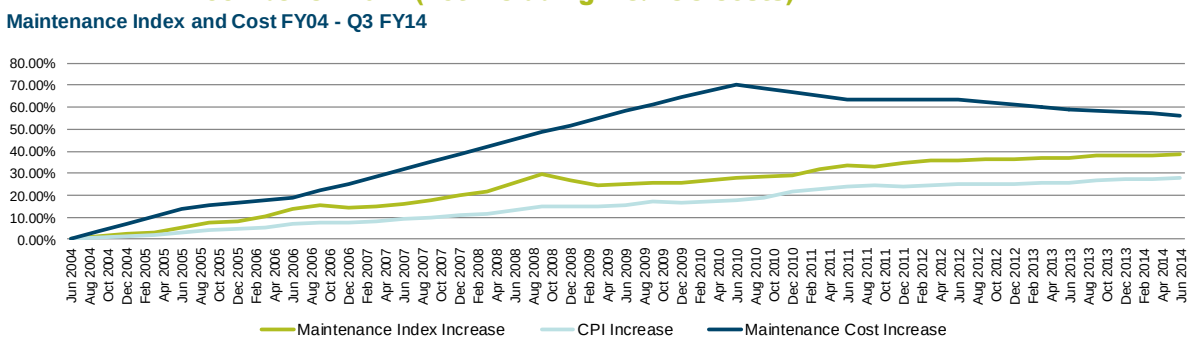
Source: 03 PromanExtract_AllYears_combined_data_only v1 20140828



4.2.2.2 Achievement of the programme

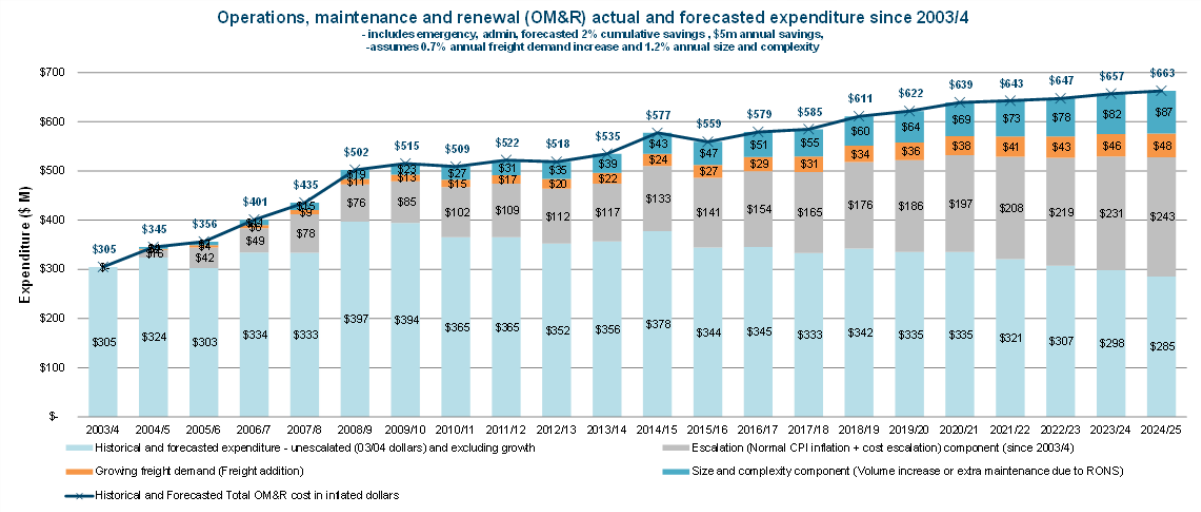
After the beginning of M&O review in 2012, the cost of maintenance started to decrease in respect of the maintenance index thanks to more efficient practices, as indicated in the following figure:

Figure 19: Historical trend in cost of state highway OM&R shown as % increase above the 2004 benchmark (not including NO/TOC costs)



The above figure assumes that after 2014 the CPI is 2% and the Maintenance Index is 1.1 times CPI, and does not include National Office or TOC costs.

Figure 20: Historical trend and future forecasted cost of state highway OM&R above the 2004 benchmark (not including NO/TOC costs)



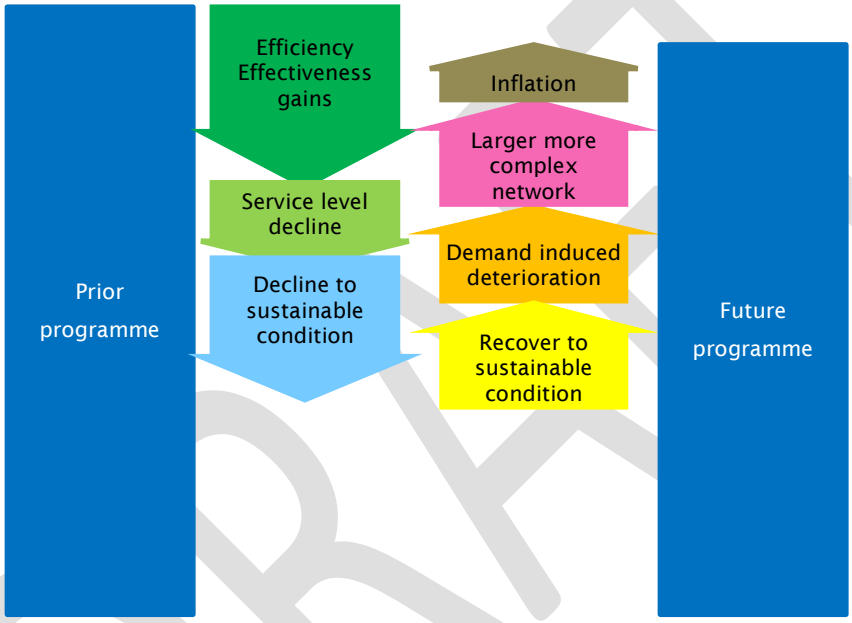
The graph above presents costs calculated in 2003 dollars. This demonstrates that real (unescalated) costs have remained relatively constant since 2003 and are projected to do so for the duration of the SHAMP 2015–18 through the adoption of an aggressive programme. An alternative approach is to adopt a more conservative and higher cost programme having greater certainty of maximum expenditure. The graph also shows other components can increase costs.

5. Proposed programme

5.1 Development process

The figure below shows the conceptual elements of programme change, the second figure shows the approach and process used.

Figure 21: Conceptual elements of programme change



In concept the difference between current and future programmes can be conceived as being:

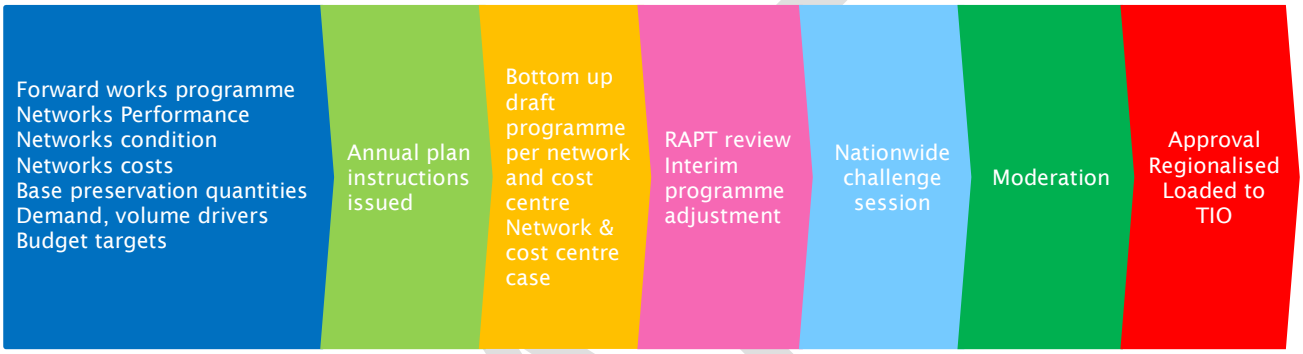
- A reduction from efficiency and effectiveness gains compared to past practice
- A reduction associated with a deliberate decline in service levels
- A potential reduction enabled by allowing asset condition to deteriorate without impact on service levels to the economically sustainable level
- A potential increase required short – mid-term to improve asset condition in order to reduce long term costs, without impact on service levels
- A potential increase from increased demand which caused greater deterioration than before, and thus more maintenance and renewal works to sustain service levels at least long term cost

- A potential increase due to the greater scope and complexity of the network requiring more extensive or advanced maintenance and renewal works to sustain service levels
- A potential increase due to an increase in input prices.

The future programme may be greater or smaller than the prior programme depending on the relative size of the factors driving change.

Each element plays out differently across each of the state highway networks.

Figure 22: Programme development process



Each planning cycle references prior forward works plans and budgets. The measures describing service performance, infrastructure condition, costs, demand and volume drivers, and budget targets are all used as inputs to the planning process.

Annual plan instructions

Annual plan instructions are issued to guide the planning process. They are called annual plan instructions because they are issued annually. Every three years they describe how the proposals are developed for the forthcoming NLTP as well as for the next year's annual programme. They describe the goals for development of the state highway operations, maintenance and renewal programmes, the process, and the targets and parameters to be used.

This approach is contained in our 'Annual Plan Instructions' for 2014/15 and was used to develop the annual plan for 2014/15, and the proposed programmes for 2015/18, 2018/21, 2021/26 under the 2015 NLTP. Each approved programme is delivered regionally in a way that reflects local issues and context but delivers the agreed plans. The annual plan instructions are on the Transport Agency's website.

The recent instructions introduced:

- Budgeting on the basis of Network Outcomes Contract areas, even where traditional contracts were operative so that there is a complete match between budgets and networks for 2015/18 when all networks will introduce these
- Separation of Traffic Operation Centre cost centres to match costs to the outcomes provided by these centres, and allow better management of the costs and operation of these centres which are all operated collaboratively with our local roads partners

- Base preservation quantities for pavement renewals as benchmarks, targets or baselines for each network's bottom up programming process
- A direct link between RAPT moderation outcomes and consequential changes to draft programmes and budgets
- Required use of the enhanced NPV process
- Challenge sessions for each network and cost centre proposal

The RAPT process involved:

- Use of three consistent review teams across all networks
- Review of the majority of resurfacing and pavement rehabilitation proposals
- Assessment of the proposals scope, treatment type and timing
- Consultation with network managers, but not with suppliers who were engaged or soon to be engaged in tendering, in order to preserve equity between potential suppliers
- Moderation and adjustment of draft programmes to reflect recommendations.

The process reduced the proposed programmes by about 15% to levels comparable to the base preservation quantities. This field based review of proposed programmes validated the approach used to develop the base preservation renewal quantities.

Moderation – challenge sessions

We introduced challenge session for each network and cost centre budget for the 2014/15 annual plan, and thus for development of the 2015/18 programmes, which were built at the same time.

These involved network and business managers presenting their proposals to a panel of senior HNO staff, with visiting attendance from P&I. The proponents presented the reasons for the proposed programmes, and responded to questions from the panel. Assumptions were clarified, omissions or apparent over estimation addressed, benchmark comparators were used. As a result we modified proposed budgets.

Nationwide moderation

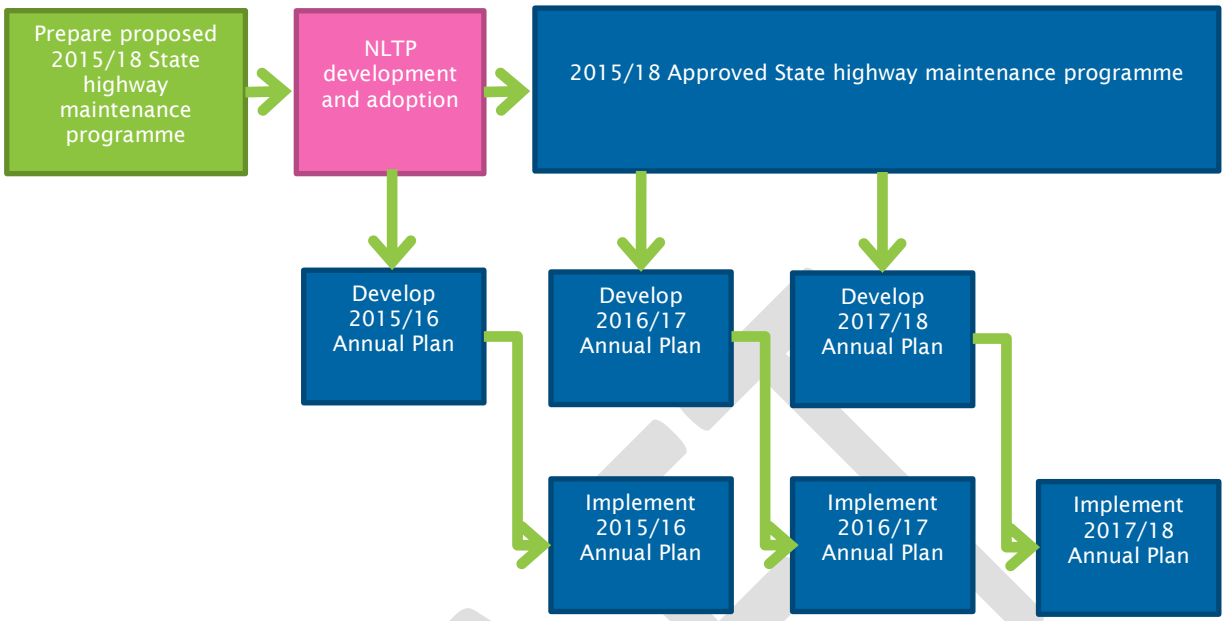
The draft programmes were:

- Inflated from the June 2013 base date using indexes derived from Treasury's CPI forecasts
- Augmented to allow for changes in the network size and complexity, and for demand changes
- Reduced to reflect the efficiency and effectiveness targets not already reflected in the 'bottom-up' budgeting process
- Compared to the goals of the draft GPS.

Three year programme and annual plans

Each three year programme informs and constrains the three annual plans delivered to implement it. The first year's annual plan is developed at the same time the three year programme is developed, and will be modified if the three year programme that is approved is materially different to that proposed.

Figure 23: The relationship between the 2015/18 NLTP programme and annual plans



5.2 Budgetary challenge – efficiency and effectiveness targets

The programme's expenditure profile over the next 10 years depends on the following three key factors:

- Efficiency and effectiveness gains compared to past practice
- Increased demand which causes greater deterioration than before
- The growing scope and complexity of the network requiring more extensive or advanced maintenance and renewal works to sustain service levels
- Continued increases in input prices.

We expect that the other factors that cause changes in programme costs are negligible over the entire programme or reflected elsewhere:

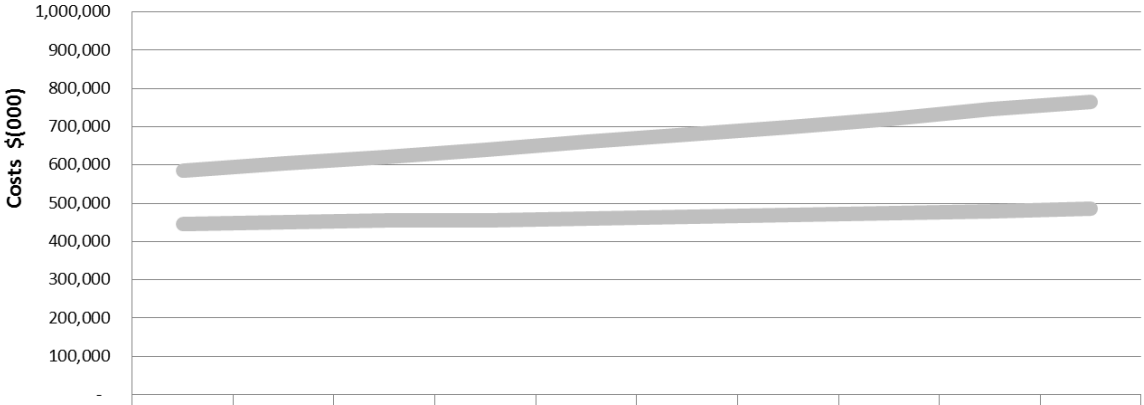
- A reduction associated with a deliberate decline in service levels, these costs are already reflected in estimated costs for Network Outcomes Contracts that incorporate different level of service targets for each classification of state highway

- A potential reduction enabled by allowing asset condition to deteriorate without impact on service levels to the economically sustainable level, these costs are already reflected in annual plan estimates based on the Base Preservation Quantities which reflect the condition of the pavement

- A potential increase required short – mid-term to improve asset condition in order to reduce long term costs, without impact on service levels. There is a risk that by working assets harder, we reduce their condition below the most economically sustainable point before condition measurement reveals this, and must either increase the repairs budget significantly or invest in renewal of poor condition infrastructure to return it to the sustainable condition.

The inter-play between these cost driver components is described in the following sections, demonstrating how the programme will be delivered within the upper and lower bands of the funding ranges set in the GPS 2015, which are shown below.

Figure 24: Draft GPS 2015 OM&R upper and lower bands state highway maintenance



	2015/2016 ($000)	2016/2017 ($000)	2017/2018 ($000)	2018/2019 ($000)	2019/2020 ($000)	2020/2021 ($000)	2021/2022 ($000)	2022/2023 ($000)	2023/2024 ($000)	2024/2025 ($000)
Lower GPS	445,000	450,000	455,000	455,000	460,000	465,000	470,000	475,000	480,000	485,000
Upper GPS	585,000	605,000	620,000	640,000	660,000	680,000	700,000	720,000	745,000	765,000

The draft GPS 15 has similar funding levels to GPS 2012 for state highway maintenance. The upper bound of the funding range increases at a rate significantly below the forecast growth in demand, network size and complexity, and input price change. It is necessary to improve the efficiency and effectiveness of the programme if cost is to be held within the draft GPS funding range.

This process of 'Transport Agency's efficiency programme' has achieved savings over the last 3 years and is being expanded to target further annual cost savings over the next 10 years.

Section 3 described the types and magnitude of forecast cost drivers. These are summarised below.

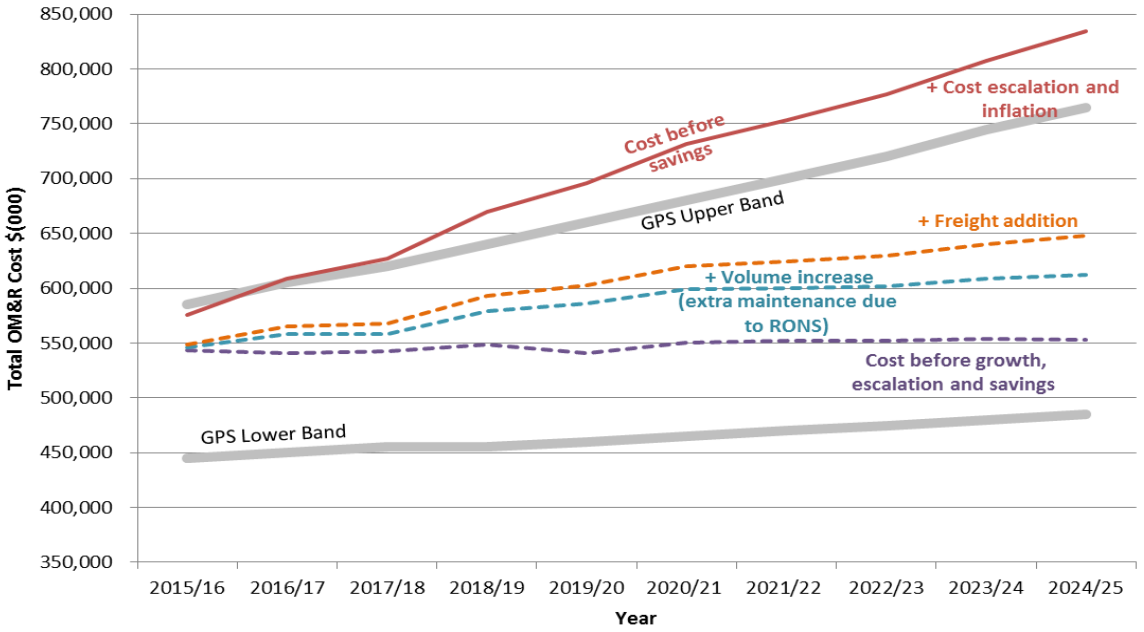
Table 3: Summarised cost drivers

Cost driver	Average Impact	10 year impact	GPS upper range
Growing freight demand	0.7% pa	8%	
Size and complexity of network	1.2% pa	15%	
Input price	2.3% pa	28%	
Total	**4.2% pa**	**51%**	**32%**

Note: detailed budgeting uses annual forecasts not the average rates presented here in summary

Figure 25 below indicatively shows total costs before savings, and includes the cost drivers from Table 3 in detail. This shows potential increase in the long term input costs is expected to be approximately 50% in the next ten years, based on cost increases over the current 2014/15 budget through the cost drivers in Table 3, i.e. before effectiveness and efficiency gains. The impact of cost drivers is 20% greater than the increase in the GPS upper bound funding range.

Figure 25: Potential OM&R cost increases on the current 2014/15 budget due all the cost drivers increase described above



The target for efficiency and effectiveness changes is therefore at least 20% over 2015/16 if expenditure is to stay within the draft GPS funding band.

5.3 The proposed programme

The proposed programme was developed with the aggressive approach outlined in section 4 using the process summarised in section 5.1.

5.3.1 Programme goals

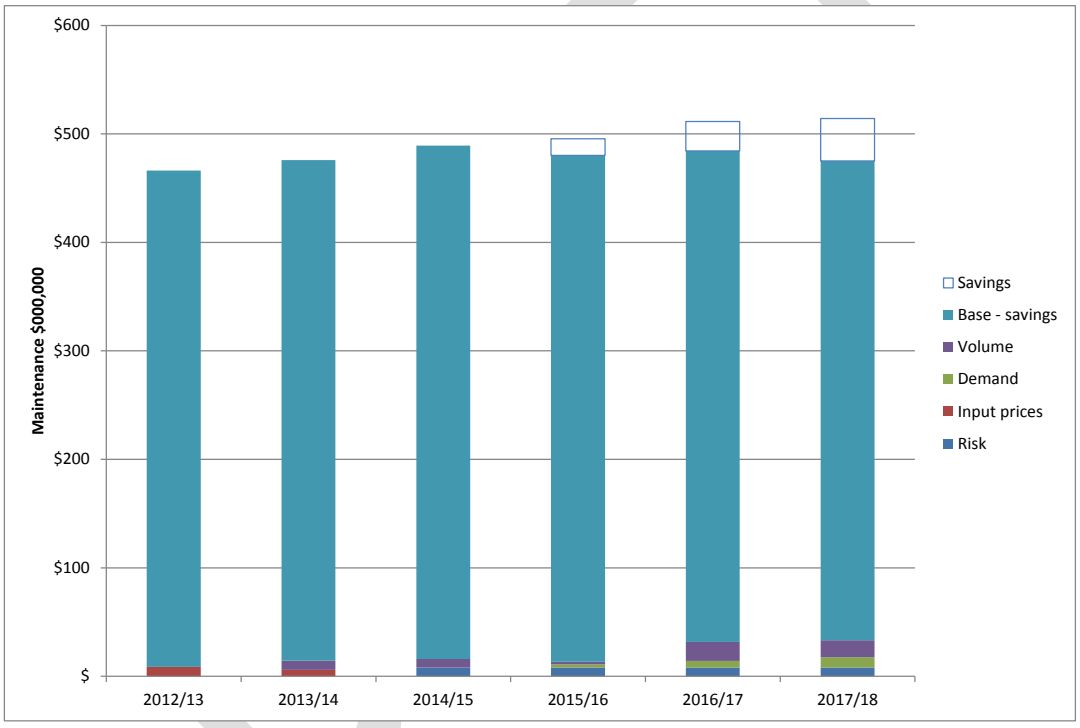
The programme was developed to deliver the state highway levels of service, as the One Network Road Classification levels of service weren't complete during the development process. However we think the differences are small. The new service framework will be implemented as soon as reasonably possible.

The programme has some risk. The aggressive approach to asset management has introduced greater risk than before. We believe the risk is warranted and managed well. Section 5.3.3 describes the managed risks.

5.3.2 Programme outline

The detailed programme is contained in appendix 6; it is described in summary next.

Figure 26: Summary of proposed 2015/18 and 2012/15 programme – real – June2014



The cost components are:

Risk	the centrally held budget for abnormal works required to address greater than expected deterioration on at risk sites where works have been deferred under the aggressive asset management approach
Input price	the impact of input price change on contract prices through use of the Transport Agency's Maintenance Cost Index in the past, and Network Outcomes Index in the future
Demand	the cost impact of increasing freight on deterioration rates, and consequent more frequent works
Volume	the cost impact from growth in the size and complexity of the network
Base	the core operations, maintenance and renewals programmes

Savings	the savings target beyond that already reflected in network costs under Network Outcome Contracts

Figure 26 shows that after targeted savings the budgeted expenditure over 2015/18 is similar to that of 2012/15 despite the increase in network size and complexity, and growth in demand and thus pavement deterioration arising from increased freight. This indicates that the aggressive approach to asset management is delivering efficiency gains.

Figure 27: Summary of proposed 2015/18 and 2012/15 programme – nominal

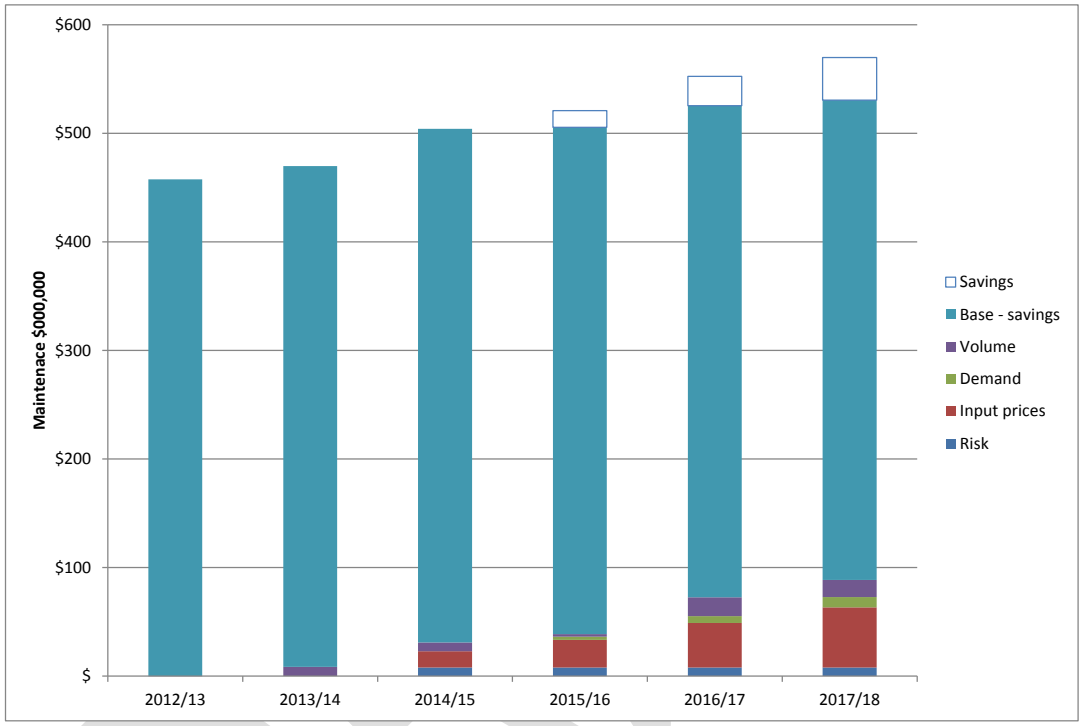


Figure 27 shows that:

- Volume impacts, from a larger and more complex network have occurred over 2012/15 and will continue into 2015/18 because of the recent and continuing capital improvement programme. The largest single increment occurs in 2016/17 with the $15m pa or 3% increase in budget when the contractual commitments related to the Waterview extension are first brought to charge
- There is an increasing allowance for input price changes, for 2014/15 and beyond. The costs for 2012/14 are actuals so include nominal costs of the day
- An increasing allowance for freight growth
- An increasing target for savings beyond those already built into the network cost estimates
- An allowance for risk of $8m pa, representing the expected cost of addressing premature failures arising from the aggressive renewals programme. This allowance is held nationally to

ensure that funds are directed where needed and not held unnecessarily in any network budget

- The efficiency gains assumed and targeted are sufficient to offset volume and demand changes but not forecast input price changes as well.

Table 4: Summarised programme

$000	2012/13 Actual	2013/14 Actual	2014/15 Forecast	2015/16 Forecast	2016/17 Forecast	2017/18 Forecast
Base programme	$453,488	$457,271	$481,103	$414,455	$410,003	$403,418
Risk	$0	$0	$8,000	$8,000	$8,000	$8,000
Volume	-$55	$8,515	$8,018	$2,370	$17,454	$15,813
Demand	$0	$0	$0	$3,059	$6,269	$9,444
Input prices	$0	$0	$15,000	$24, 262	$37,876	$50,578
Additional savings target	$0	$0	$0	-$9,042	-$19,180	-$29,835
	$453,433	$465,787	$512,121	$505,457	$525,287	$530,465
AMA KRA payment	$4,000	$4,000	-$8,000			
Total	$457,433	$469,787	$504,121	$505,457	$525,287	$530,465

5.3.3 Assumptions

Programme assumptions are described in the SHAMP in section 7.3. These are:

- less than the sustainable level of pavement renewal works can be undertaken in the short to mid-term without long term cost impact because pavements are in generally good condition
- continued success of reductions in renewals programmes compared to the 'base preservation quantities' as set for the 2014/15 programme, without significant change to repair programmes, subject to Network Outcomes contract tenders
- that Network Outcomes Contracts will continue to yield efficiency gains beyond the changes to renewal programme reductions in line with expectations
- a continued programme of $10 million per year to maintain safe skid resistance in addition to that provided as a consequence of conventional resurfacing works
- full adoption of Network Outcome Contracts and the aggressive renewal programmes across all networks, thereby reducing resurfacing and rehabilitations by $7 million per year in addition to reductions already realised
- provision for increased operation, maintenance and renewal of the growing and increasingly complex network increasing from $2.4 million in 2015 to $75 million in 2025. Maintenance costs increase by $20 million pa over 2015/18 largely due to the $15 million pa operating cost of the Waterview tunnel
- provision for increasing pavement deterioration of 0.7 percent per year as a result of freight increasing at 1.2 percent per year
- provision for a drop in escalation from past rates of about 3.5 percent per year to about 10 percent greater than the CPI rate forecast by Treasury from 2014/15. The Transport Agency is adopting a new input price index for inclusion in its Network Operating Contracts, which is

expected to grow slightly faster than the CPI due to the greater influence of fuel and bitumen on the road maintenance compared to consumer activity

- no allowance for any impact on input prices as a result of increasing economic activity or the Christchurch rebuild beyond Treasury's CPI forecasts
- the minor works programmes and preventive maintenance programme included in the improvements activity class reduces the amount of emergency works and extends the service lives of pavements by improving network drainage and reducing the incidence of slips
- cost savings from additional efficiency strategies of 2 percent per year.

5.3.4 Relationship of prosed programme to asset condition

Surface and pavement condition indexes were some of the main indicators to represent the condition of the assets, to be comparable with the past and see how they could fit with the proposed programme. An example could be the Surface Condition Index and the rutting progression.

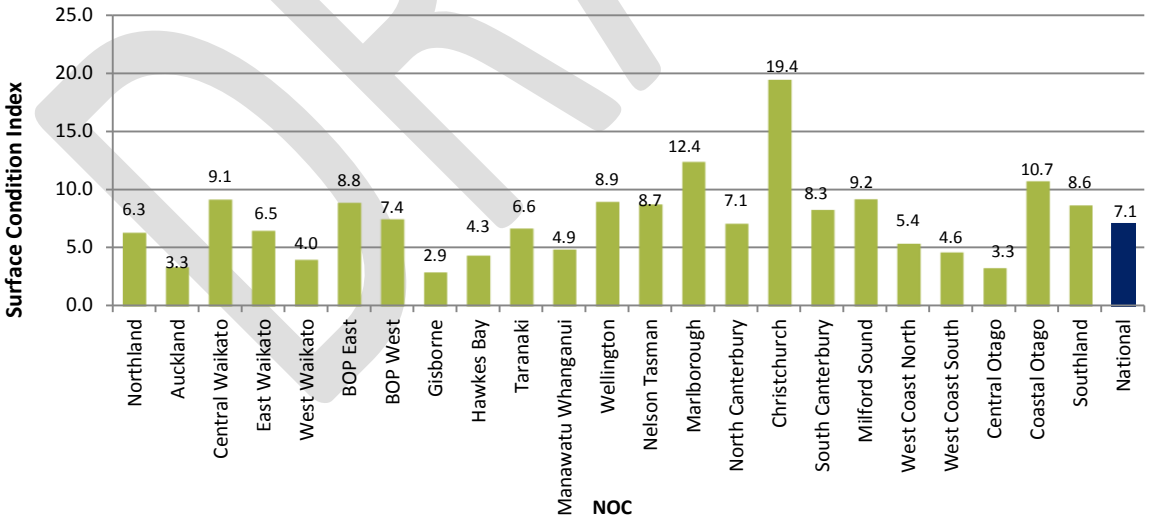
Description:

The surface condition index (SCI) is a single index summarising surface condition based on visually measured condition defects (from RAMM rating) and also accounting for the age of the surfacing in comparison with their design lives.

The index can be summarised as: SCI = Condition Index (CI) + Age Index (AI)

Figure 28: Surface condition index

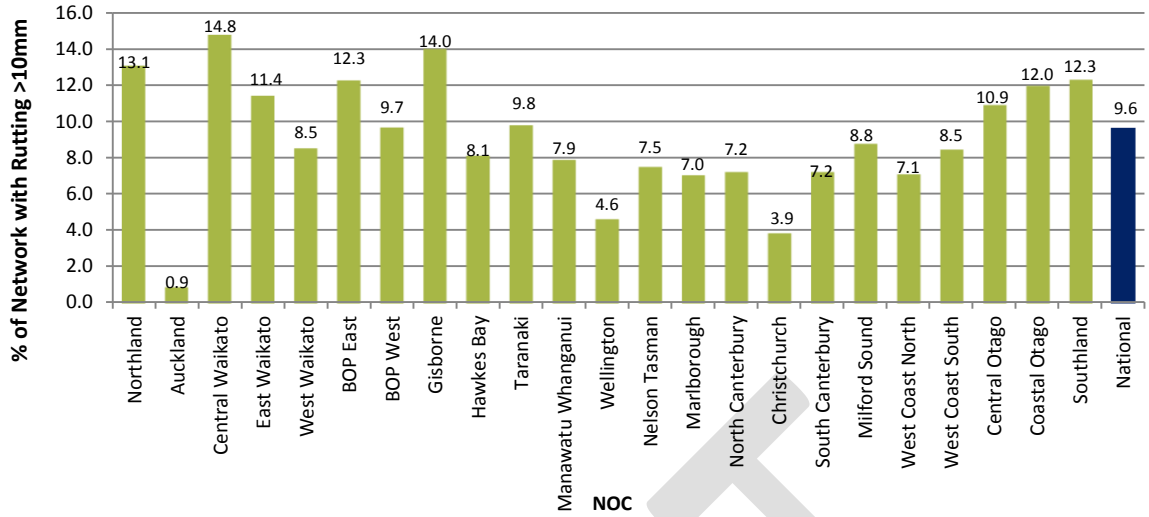
Source: 2014 National Pavement Condition Report NOC_final



5.3.5 Rutting progression

Figure 29: Rutting >10mm

Source: 2014 National Pavement Condition Report NOC_final



It is apparent that we are consuming the pavement condition because it is reaching the threshold level. This is a challenge to maintaining a “flat-line” budget.

5.3.6 Relationship of prosed programme to value and depreciation

The following table shows the relationship between depreciation and renewal expenditure. In general, expenditure is below depreciation.

	2014 Valuation			Maintenance		Renewal		Maintenance comparison		Renewal Comparison		Maintenance and Renewal Combined Comparison	
Asset Group	Replacement Cost ($M)	Depreciated Replacement Cost ($M)	Annual Depreciation ($M)	Work Category	2015/16 Maintenance Expenditure ($M)	Work Category	2015/16 Renewal Expenditure $(M)	Maintenance as % of Annual Depreciation	Comments on Maintenance	Renewal as % of Annual Depreciation	Comments on renewal	Combined Maintenance and Renewal as a % of Annual Depreciation	Commets on combined
Pavement	11,927	10,226	171	WC111 WC112	63	WC211 WC212 WC214 WC231* WC3xx	121	37.2%		71%	Annual depreciation provides an indication of the annual renewal expenditure requirements. The annual depreciation is higher than the forecasted expenditure which is an indication of how NZTA are planning to work the asset harder.	108%	
Drainage	1,155	577	23	WC113	16	WC213 WC231*	5	69.3%		24%	Annual depreciation provides an indication of the annual renewal expenditure requirements. The annual depreciation is significantly higher than the forecasted expenditure. This may be due to assets lasting longer than their expected useful lives. It is also likely that capital improvement projects include the replacement of drainage assets.	93%	
Structures	7,969	4,598	100	WC114*	18	WC215*	17	17.9%		17.5%	Major Bridge renewals are mainly included in the New/improvement expenditure forecasts. Average annual expenditure is significantly less than the annual depreciation. This can be attributed to the fact that the bridges are on average less than half of their expected life (between 80 and 90 years), therefore major renewals will not commence within the next 30 to 50 years.	35%	
Road safety hardware	617	309	27	WC114*	3	WC215*	3	13.1%		10%	Annual depreciation provides an indication of the annual renewal expenditure requirements. The annual depreciation is significantly higher than the forecasted expenditure. Although the depreciated replacement cost for the overall asset group is approximately half the replacement cost, this is not an indication that all the asset are at half their asset lives. A significant proportion of the assets are reaching end of life and an even larger proportion are relatively new, which is averaging the depreciated replacement cost out. Road safety hardware are replaced when they fail and investment in road safety hardware is mainly in capital improvement projects ($25M for 2015/16) for safety.	23%	
Signs and Roadmarkings	232	116	14	WC122*	23	WC222*	5	165.7%		36%	Annual depreciation provides an indication of the annual renewal expenditure requirements. As a lot of renewal works are included under the maintenance category, it can be expected that the annual depreciation is higher than the forecasted renewals.	202%	
Street lighting	667	334	31	WC122*	15	WC222*	2	49.4%		7%		57%	
Operation and Environmental Maintenance				WC121* WC123*	81	WC221	1						
Roadside Facilities				WC123* WC124	1	WC222*	0		Asset not included separately in the valuation		Asset not included separately in the valuation		Asset not included separately in the valuation
Network management/ Asset Management				WC151*	114		-		N/A - no assets		N/A - no assets		N/A - no assets
ITS	281	193	12	WC123* WC131	33	WC215* WC222*	7	281.0%		61%	Annual depreciation provides an indication of the annual renewal expenditure requirements. The asset valuation table does not include journey management assets and tolling annual depreciation.	342%	
Roadside Vegetation				WC121*	19		-		N/A - assets not valued		N/A - assets not valued		N/A - assets not valued
Total	22,848	16,353	377		388		161	103.0%		42.8%		146%	
Notes				* This work category is covered under more than 1 asset group									

5.3.7 Programme risks

There are three main programme risks:

1. The managed risks being taken by significantly reducing the resurfacing and pavement rehabilitation programmes
2. The risks that anticipated savings from future Network Outcomes Contract tenders aren't as great as budgeted, or occur later than expected
3. Further targeted savings aren't delivered at the targeted rate, perhaps either because opportunities are limited or their impact is later than wanted.

There are also the conventional risks that:

- Extreme weather or other natural events will occur requiring greater emergency works than budgeted. Recent experience has shown that the budgeted amount has been sufficient even with extreme events such as the Northland floods
- Input prices will rise faster than forecast. If this occurs then the programme will be reviewed.

5.3.8 Reduced renewals programme

The forward mid-term pavement resurfacing and rehabilitation plan is based on the base preservation levels, and additional safety programmes developed as part of the recently adopted aggressive approach. In the short term we have assessed that in some networks a smaller programme is possible in the short to mid-term, and that it will grow above the base preservation levels in the mid-term. This can occur because we are able to draw down the current good surface and pavement condition.

There is a risk on the lower classification roads where we are implementing works later in the lifecycle than before, that surface or pavement condition will rapidly deteriorate over winter and more extensive repairs than expected will be required to maintain service levels, and a further risk that on a few sites, expensive pavement rehabilitation will be required rather than a resurfacing treatment.

This risk is managed by:

- Providing a centrally held fund for such eventualities
- Closely monitoring the condition of at risk sites to minimise the unaddressed deterioration of surface or pavements, and to document and assess the merit of risks taken and improve future intervention strategies.

The pavement programme is described in more detail in the *Pavement lifecycle asset management plan*.

5.3.9 Network Outcome Contract costs compared to budgets

We have proposed budgets for each network either on the basis of:

- forecast expenditure under a Network Outcomes Contract that has concluded or in the process of tendering, when the schedule of prices is well developed

- an assumption that tendered prices will be better than current costs after renewal programme reductions are reflected for those networks yet to start the tendering process.

Current indications are that the costs of network outcomes contracts and the impact of reduced renewals programmes are smaller than current costs.

At the time that the SHAMP programme was developed only a few networks had entered or concluded tendering. Over the course of 2014/15 many more contracts will be tendered. We propose to update the proposed maintenance programme in the SHAMP in early – mid 2015 if there is a need to change the programme bid as a result of contract prices awarded since this programme was developed. This would arise if the contact prices were less than those reflected in the SHAMP for each network, plus the targeted further savings.

5.3.10 Further savings targeted

There is a risk that the targeted savings not included in the networks budgets aren't achieved, or aren't achieved within the 2015/18 period.

Section 6 Continual improvement describes the approaches being taken to implement further cost savings and develop opportunities.

5.4 Alternative programmes

We have adopted a 'standard' level of service under the One Network Road Classification framework. This means we have not considered maintenance programmes with alternative level of service targets. We have considered alternative programmes that:

- Cost less and take more risk, or cost more and take less risk
- Incur more costs now for later savings, or cost less now with expected subsequent investment.

The Transport Agency has considered it wise to adopt an aggressive programme where the balance of known risks is for an increase in programme, but where the balance of potential improvements is in favour of the adopted approach. This means that we'd rather be proved wrong and need to increase the programme and budget required to deliver targeted service levels than have unexpended funds in the budget.

The following sections explore the potential for alternate programmes.

5.4.1 Efficiency scenarios

NZ Transport Agency has developed a number of scenarios for budgets going forward over the next 10 years.

The 'normal' budget is based on extension of past regional practice.

The 'tight' budget is based on regional budgets, which have been kept to a level close to the 14/15 budget level, by the aggressive asset management approach, a greater risk that repairs will be required above the budgeted level, and a risk that savings can't be delivered at the level targeted. This is the final proposed budget.

The 14/15 budget is a result of analysis, challenge sessions with regions, tensioning of base preservation quantities and a new methodology of Net Present Values. The 14/15 budget was also reduced by $30 million from the original submission from regions in December 2013.

Using the base of 14/15 for building the tight budget could appear misleading if it is not analysed against the previous budgets of 12/13 and 13/14. Those previous two years resulted in a lower expenditure due to a restructuring of the M&O review, developing of the Network Outcomes Contracts, and expanding the Traffic Operation Centres in Wellington and Christchurch.

The following forecast options show alternative programmes against the GPS bands:

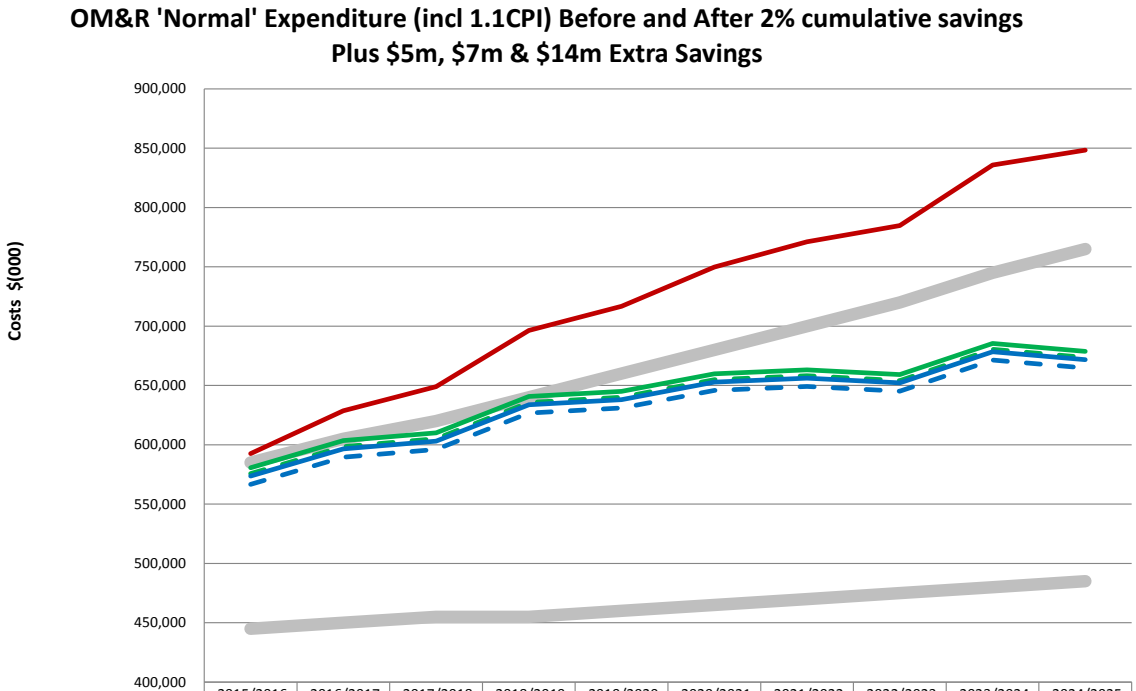
'Normal' budget options (Figure 30: 'Normal' budget options):

- Normal (full requests from the regions) budget before efficiency savings
- Normal budget minus efficiency savings (2% cumulative pa)
- Normal budget minus efficiency savings minus further savings of $5m, $7m and $14m pa.

'Tight' budget options (Figure 31: 'Tight' budget options):

- Tight budget (capping on regions requests based on the previous year) before efficiency savings
- Tight budget minus efficiency savings (2% cumulative pa)
- Tight budget minus efficiency savings minus further savings of $5m, $7m and $14m pa.

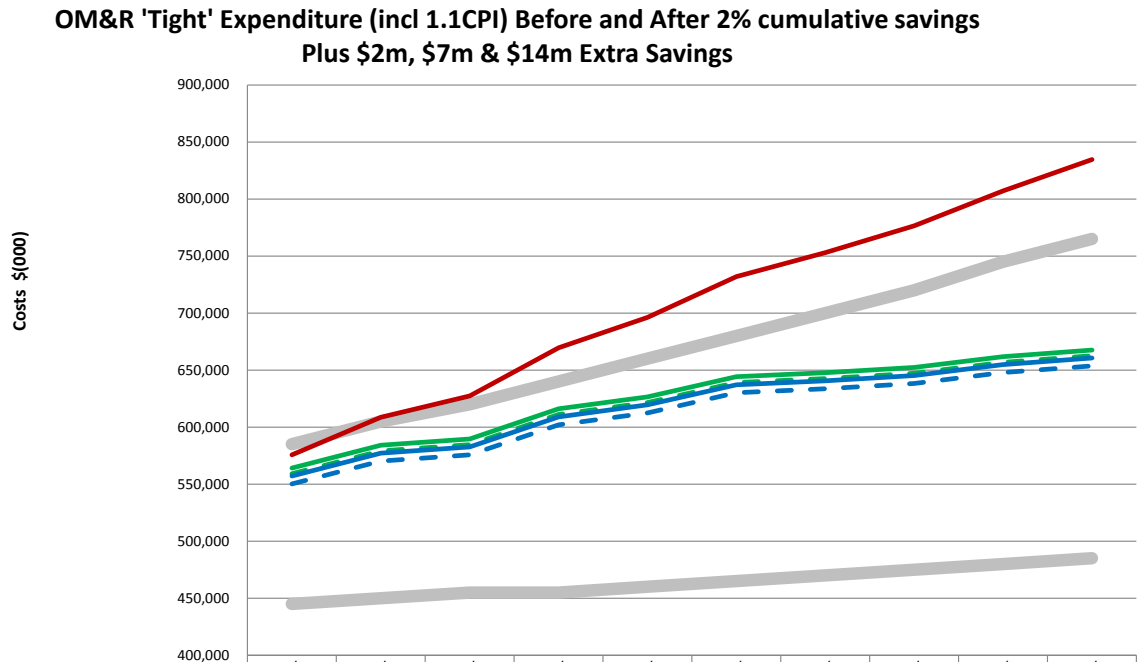
Figure 30: 'Normal' budget options



	2015/2016 ($000)	2016/2017 ($000)	2017/2018 ($000)	2018/2019 ($000)	2019/2020 ($000)	2020/2021 ($000)	2021/2022 ($000)	2022/2023 ($000)	2023/2024 ($000)	2024/2025 ($000)
Upper GPS	585,000	605,000	620,000	640,000	660,000	680,000	700,000	720,000	745,000	765,000
Lower GPS	445,000	450,000	455,000	455,000	460,000	465,000	470,000	475,000	480,000	485,000
Costs before savings	592,504	628,678	649,070	696,414	716,750	749,826	771,177	784,713	835,892	848,384
Costs after 2% Cum Savings	580,654	603,531	610,126	640,701	645,075	659,847	663,212	659,159	685,432	678,707
Costs 2% plus $5m Savings	575,654	598,531	605,126	635,701	640,075	654,847	658,212	654,159	680,432	673,707
Costs 2% plus $7m Savings	573,654	596,531	603,126	633,701	638,075	652,847	656,212	652,159	678,432	671,707
Costs 2% plus $14m Savings	566,654	589,531	596,126	626,701	631,075	645,847	649,212	645,159	671,432	664,707
2% savings cumulative	2%	4%	6%	8%	10%	12%	14%	16%	18%	20%

The cost savings after the efficiency strategies are expected to reduce the expenditure forecasts to below the GPS upper band if normal CPI inflation of 2% is included in the costs.

Figure 31: 'Tight' budget options



	2015/2016 ($000)	2016/2017 ($000)	2017/2018 ($000)	2018/2019 ($000)	2019/2020 ($000)	2020/2021 ($000)	2021/2022 ($000)	2022/2023 ($000)	2023/2024 ($000)	2024/2025 ($000)
Upper GPS	585,000	605,000	620,000	640,000	660,000	680,000	700,000	720,000	745,000	765,000
Lower GPS	445,000	450,000	455,000	455,000	460,000	465,000	470,000	475,000	480,000	485,000
Costs before savings	575,653	608,585	627,347	669,649	696,162	732,032	753,097	776,561	807,115	834,573
Costs after 2% Cum Savings	564,140	584,242	589,706	616,077	626,546	644,188	647,663	652,311	661,834	667,658
Costs after 2% plus $5m Savings	559,140	579,242	584,706	611,077	621,546	639,188	642,663	647,311	656,834	662,658
Costs after 2% plus $7m Savings	557,140	577,242	582,706	609,077	619,546	637,188	640,663	645,311	654,834	660,658
Costs after 2% plus $14m Savings	550,140	570,242	575,706	602,077	612,546	630,188	633,663	638,311	647,834	653,658
2% savings cumulative	2%	4%	6%	8%	10%	12%	14%	16%	18%	20%

Assumptions and inputs to the financial forecasting are:

1. Funding requests from the regions (un-inflated dollars base year 2013/14)
2. SCRIM (skid resistance/safety) $10 million pa
3. Transferable renewals $8 million pa
4. Volume increase (extra maintenance due RoNS) varies from $2.4m to $75m pa over 10 years
5. Freight addition (eg HPMV impacts on bridges) increasing 0.7% annually cumulating
6. Escalation varies from 3.6% in 2013/14 to 1.1 times CPI (normal inflation) from 2014/15
7. CPI (normal inflation) varies between 1.8% to 2.5% for 3 years then is 2.0% from 2018/19
8. Except that National Office/TOC/Emergency works costs escalation at only 1.1 times CPI from 2014/15
9. Cost savings from all efficiency strategies are 2.0% increasing annually cumulating.

Risks associated with these assumptions and inputs include the following:

1. Exchange rate
2. International oil and energy price increases
3. RMA processes for aggregates – mining

If escalation of OM&R costs is at a higher rate than 1.1 times the annual of CPI, such as 1.5 times CPI, then the expenditure forecasts approach the GPS upper band.

Although these risks are beyond NZ Transport Agency control, the Agency is seeking ways to anticipate and manage these risks by making contingences and mitigating the impacts.

5.4.2 Investment to reduce long term costs

There are opportunities to improve levels of service and value for money not reflected in this programme. Not all state highways can be economically converted to HPMV routes in the short term because the forecast numbers of HPMV trips are small and/or the required works are extensive because of poor strength in current pavements. However, where there is sufficient potential demand for HPMV capacity, it could be advantageous to select HPMV-capable treatments whenever pavements are rehabilitated as part of normal periodic renewal processes. This would deliver HPMV capacity over a longer timeframe for less cost than a current retrofit. The estimated cost of this is between $5–10 million per year.

On high volume routes, where resurfacing or pavement rehabilitation works have significant impact on customers, there is potentially an economic advantage by using higher strength, more durable treatments that extend service life and reduce customer impact. However, these cost more and so require greater renewal expenditure over 2015–18 in order to deliver subsequent savings in maintenance and renewal costs. Examples are:

- the use of Epoxy OGPA, a high strength road surface material on high volume rigid pavements to extend surface lives from about seven to eight years to potentially 50 years
- the use of bound structural pavements on higher volume routes to extend the service life of pavements and reduce the impact on traffic.

We will continue to explore with our sector partners and investors the business case for investment in this level of service improvements with whole-of-life economic benefits.

We are exploring how to implement LED lighting across maintained networks and how this is best coordinated with adjacent network partners.

5.5 Implementation

Approved programmes are implemented using two key approaches:

- Annual planning process
- Programme delivery management
- Implementation through Networks Outcomes Contracts

5.5.1 Annual planning process

The annual planning process is similar to the process used to develop the SHAMP's proposed programme. That process was described in section 5.1 Development process. The differences are:

- The budgets are known (or assumed for the first year), and the three year budget known
- The targets of the NLTP approved programme and final SHAMP are adopted
- The forward works programme produced for the SHAMP forms the basis for the programme.

5.5.2 Programme delivery management

Accountability for programme delivery rests with Highway Managers responsible for several networks.

Adopting and using targets for delivery to plan.

Monthly reports on operations, expenditure, achievement and delivery to plan are produced and reviewed:

- Directly by network & contract managers, and by senior regional managers
- On a monthly basis by the newly formed Regional Network Performance Group
- On a monthly basis by the Senior Management Team.

The performance management of programme delivery is being rapidly enhanced by:

- Introducing a balanced score card approach to focus attention and decisions on the most important issues
- The Performance Management Team enhancing the content and meaning of 'routine' reports.

The state highway review committee manages variations to programmes within its delegation, and facilitates the application for other proposed variations through the NLTP review group.

Together the Performance Management and Outcome Delivery teams review achievement against expectation and propose variations to regional programmes for nationwide benefit.

5.5.3 Implementation through Network Outcomes and other contracts

All maintenance works are delivered by external suppliers engaged under the state highway procurement policy and strategies.

The Network Outcomes Contracts deliver the majority of maintenance works. Other contracts are used to deliver bridge and ITS maintenance and renewal.

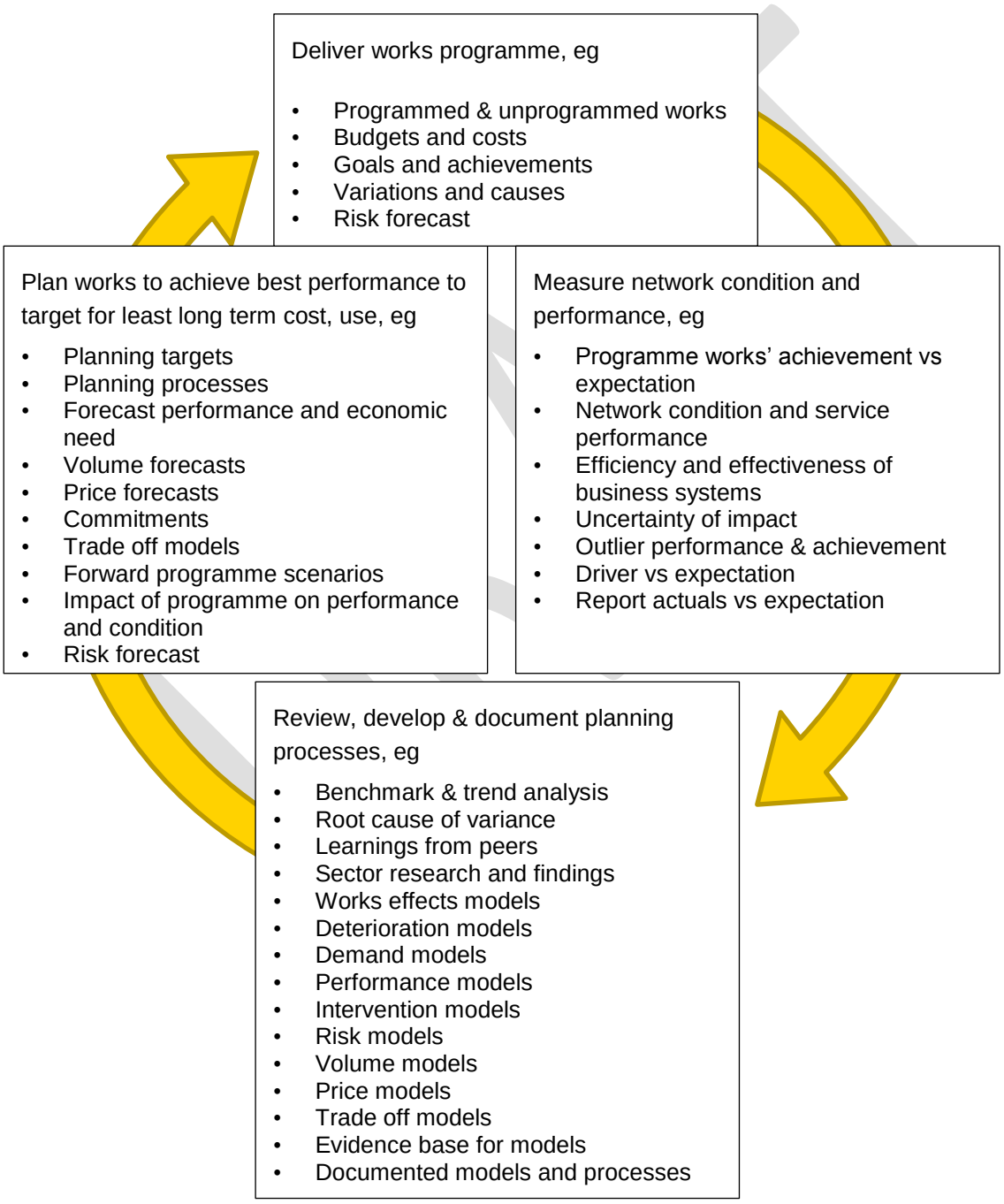
These contracts all have mechanisms for managing the delivery of services on time, for the correct price and to the specified quality.

6. Continual improvement

6.1 General approach

Our general approach to improving our asset management processes is outlined as follows:

Figure 32: Indicative approach to improving asset management



This approach:

- Uses learnings from both the state highway network and works programmes and from external sources including peers and research
- Implements a key recommendation of the Road Maintenance Task Force to better use feedback loops.

Changes to process will be reflected in:

- Annual plan instructions
- Lifecycle Asset Management Plans.

Programmes developed using updated processes will embed the new approach, subject to contractual arrangements.

6.2 Efficiency initiatives 2015-18

6.2.1 ISO 55000

The Transport Agency is intending to develop a business case for the adoption of the ISO 55000 the Asset Management Standard, and then implement its recommendations.

Potential benefits:

- Structured approach through a focus on asset management planning and delivery via a systematic approach (rather than the products of this)
- Greater ability to transfer learnings, skills and approaches between organisations
- Greater attractiveness as an employer from developing an industry standard approach.

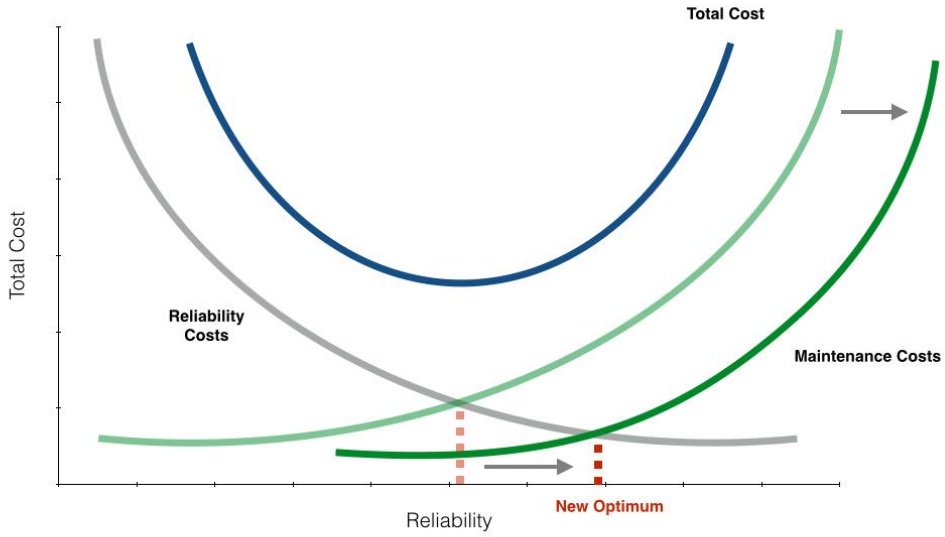
Approach:

- Develop understanding and approach alongside Austroads ATF
- Participate in IPWEA led developments
- Develop business case for implementation alongside/as part of TAM implementation.

6.2.2 Maintenance – renewals balance

The typical funding process in the road industry has always been subdivided into two main components, reactive maintenance activities and proactive (or renewals) activities. Finding the best approach for optimising the funding between these two activities has been a worldwide challenge (see figure below).

Figure 33: Improving the optimum intervention point



The above figure shows that the ideal method is to find the optimal point, which represents the best investment between reactive and renewal activities, from either a public or private sector perspective. This leads to the next question: what is the best investment? To understand this, it is not only a matter of improving the life cycle asset management process, but implementing it in procurement models with the appropriate input price for the specific contract.

Many countries have developed different procurement models where typically all or most of the reactive maintenance has been incorporated inside a 'lump sum' system. Under this system the supplier agrees to cover the risk of the asset failing versus a system of measured value (client's risk), which was developed from the necessity to improve the network with various mechanisms (the NPV in primis).

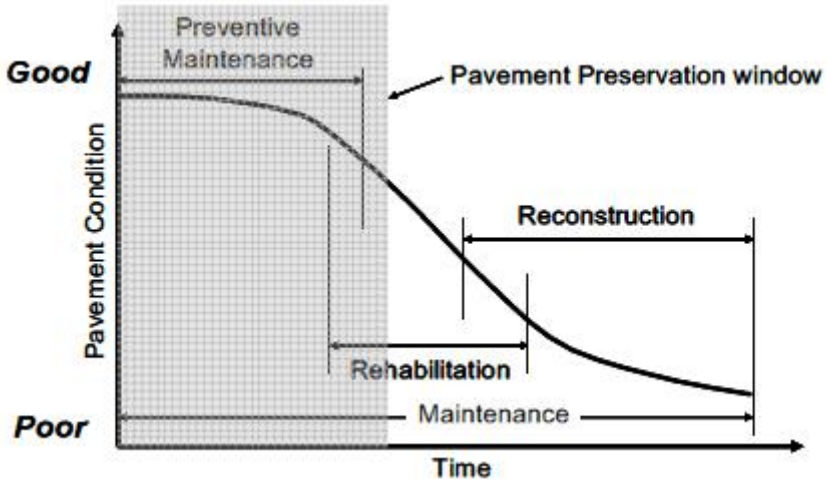
It is evident that the challenge sits in the lump sum activities where the mechanism of profit/loss between the supplier and client plays the biggest part. The Agency has developed different contract mechanisms for reactive activities, but still the question remains: how is the network currently performing? And furthermore, until what point can we push the asset harder without compromising the serviceability of the network? Is there a mechanism whereby it is possible to lower the existing level of service further?

Note that this 'level of service' terminology has been debated several times and created confusion within international asset management practises. In general, the level of service is how to provide a service to the customers within a series of service attributes ie safety, amenity and access.

In the contract procurement world, achieving these levels of service is required in order to comply with the operation measurement specific to the contracts. For the NZ Transport Agency, these are the Operational Maintenance Systems (OPMs) inside the NOCs.

Understanding how the levels of service are distributed across different asset types means understanding how the deterioration curve interacts with the time of intervention (see below).

Figure 34: Deterioration in condition



The ultimate goal is to understand the optimum point between any preventive maintenance and the full renewal of the asset.

In order to do this there is the need to analyse all the dollars spent during a certain timeframe ie what can happen in a situation where the asset starts to deteriorate and the provider decides to take the risk to not renew the asset?

Since the M&O review, the Agency has started the process of 'deferring' treatments in order to better understand what sort of risk can be taken. This methodology has been applied (and improved on during the years) to the pavement asset using the RAPT methodology.

Figure 35: Deferring works on mediocre condition sites

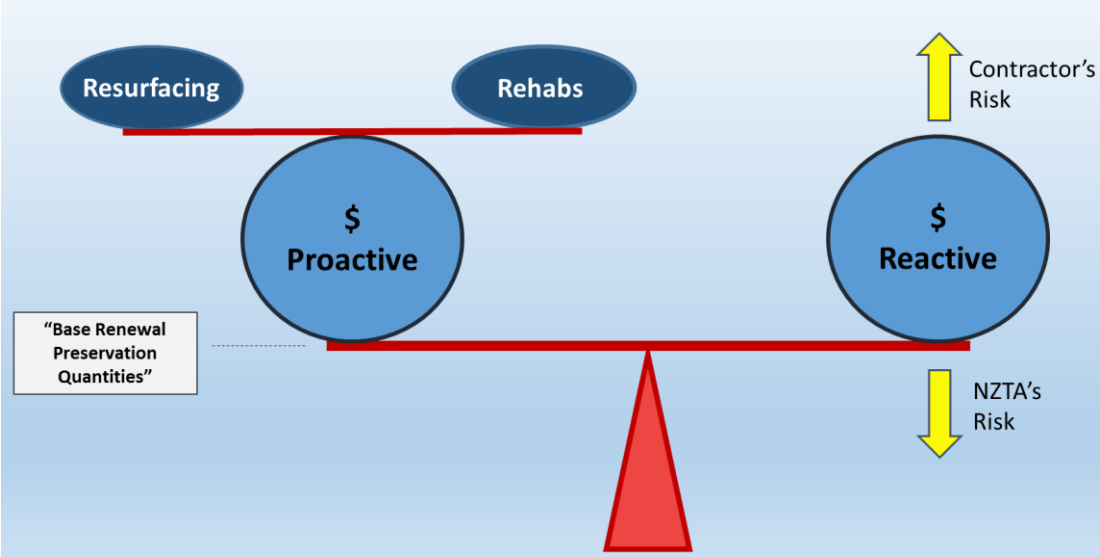
This road rehab was deferred as a result of the RAPT inspection.

For the first time the Agency has started to analyse the deferred treatments in collaboration with the Performance Management Team. This study tries to understand how much reactive maintenance is needed in order to keep the site driveable. This analysis will give the Agency more confidence in managing the risk of deferring sites with a trade-off holding treatment and will lead to a better understanding of the reactive maintenance needed for the implementation of the NPV analysis.

To gauge the type of reactive maintenance required, a reasonable amount of analysis time is needed in order to provide confidence in the process. By the next NTLP submission in 2018, the Agency hopes to have a firm grasp on the type of reactive maintenance required to provide the appropriate level of service.

This analysis will help to answer this challenging paradigm:

Figure 36: Balanced intervention framework



Balance of proactive versus reactive maintenance.

Will reducing reactive maintenance or pushing the performance of the asset within the levels of service increase the need for renewals?

This will help in understanding the prolongation of resurfacing life with a focus on long life skid resistance material, which will certainly have an impact on asset preservation.

6.2.3 Need for benchmarking the asset and further development

The Performance Management Team has begun benchmarking analysis in order to gauge the comparative performance of the network. This is currently focussed on service delivery and investment decision making for reactive maintenance and renewals. This analysis is NOC oriented, but potentially can give additional information on any generic historic performance and be compared with other Road Controlling Authorities and international practises.

Initial analysis of the regions, which have already adopted the NOC model shows that costs, based on the lump sum and estimated renewal quantities, have been reduced on the whole compared with costs under the former contract regime. Work is now being carried out to improve the robustness of this analysis by incorporating the changes in the levels of service to the cost saving analysis. In addition to this, Uniservices (Auckland University Consulting) has been contracted to research and review existing benchmarking practices as phase one of a research project. If they are able to discover a sufficient model, phase two of the project will be to develop a complete framework-tool that will be adopted as the standard for benchmarking of highways and maintenance. This will be ready and in use before the next round of NLTP 18.

Benchmarking is a key enabler for an organisation whose main goal is achieving efficiency through reducing funding and providing a serviceable infrastructure for the customer.

It is impossible to associate dollars and levels of service within the deterioration curve without first benchmarking the contract and understanding how the asset is performing.

6.2.4 Expand advanced asset management to other non-pavement types

Historically the Agency has focussed most of its strategic funding polices on the pavement asset (reactive and renewals), despite the pavement asset accounting for only half of total expenditure each year.

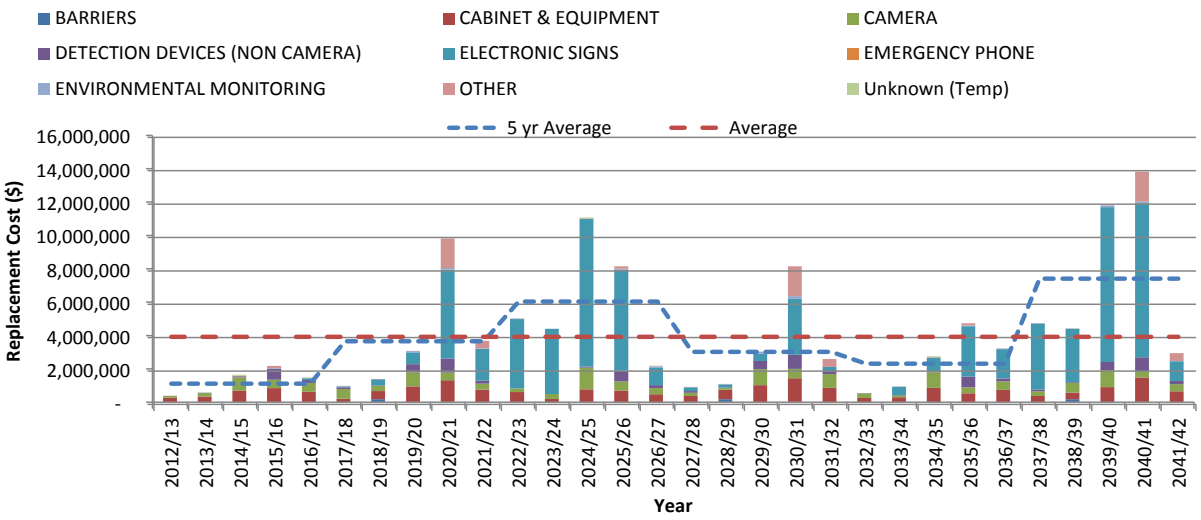
Due to the expansion of the network from new capital investment, and with the increase in freight, as the Agency has now started investing in new research and projects which investigate how to maximise assets, which will extend the life of the pavement and reduce costs. The main focus of this investment is around:

- ITS and journey management
- Drainage.

6.2.5 ITS and journey management moving forward

The Agency has started a process of individual analysis and development of the specific Traffic Operations Centres (TOCs) and Intelligent Transport Systems (ITS) to support better journey management by maximising the existing capacity of roads, with the final goal of reducing or deferring the need for capital expenditure. The Agency has also started to manage driver expectation and frustration by improving travel time ie the increase in vehicle flow on the Auckland motorway due to ramp signalling. Along with improved understanding of journey management, the Agency is also starting a series of research projects on how to improve the programming of ITS asset renewals along with a proper understanding of their life cycle management that will lead to better budget forecasting.

Figure 37: Forecast ITS replacement expenditure



Indicative 30 year forecast of estimated replacement costs per asset type based on current assets (ITS infrastructure only).

The figure above represents indicative life cycle management of ITS assets. This research was conducted by the Agency in order to better understand the average life of the asset versus dollars spent. Further development of this study will build a typical deterioration curve, which will make it possible to understand the time of intervention and acknowledge the potential risk of deferring any renewals (or in some circumstances the type of reactive maintenance required).

ITS expenditure (reactive and maintenance) makes up 32% of the total annual budget. It is evident that optimisation of the programme will certainly be beneficial to achieving the targeted 4% savings.

The figure above shows that if the Agency accepts the risk of stretching the life of the asset from 5 to 7 years then this will return an investment of $3m per year. This is equivalent to a 0.8% saving.

Journey management accounts for 1.2% of total network expenditure and involves maximising traffic flows and reducing congestion and disruption for the road user. Smart Journey Management maximises the use of ITS infrastructure and increases understanding around how to push out the time of intervention and delay replacement costs.

Journey management will become an increasingly important activity as future changes to the economy; demographics, technology and environment are likely to increase the frequency and impact of events on the transport network.

6.2.1 Traffic Speed Deflectometer (TSD) and Ground penetrating radar (GPR):

The Agency has invested in a Traffic Speed Deflectometer (TSD) over the next 5 years. It is a fully functional research tool capable of measuring the structural condition of asphalt road pavements at a traffic speed of 80km/h. This incorporates the Ground penetrating radar, which investigates the presence of moisture inside the pavement.

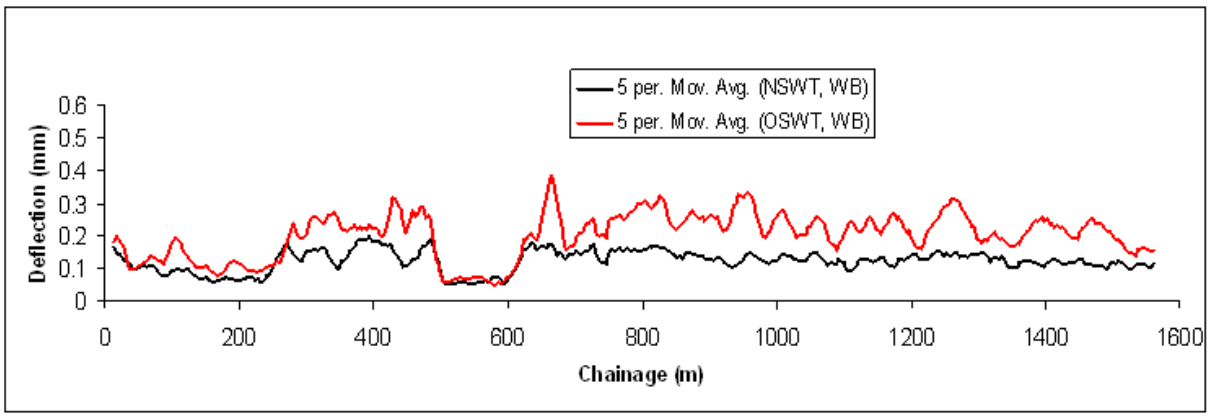
Figure 38: Traffic speed deflectometer

TSD Traffic vehicle.

Figure 39: Surface distress and flooding

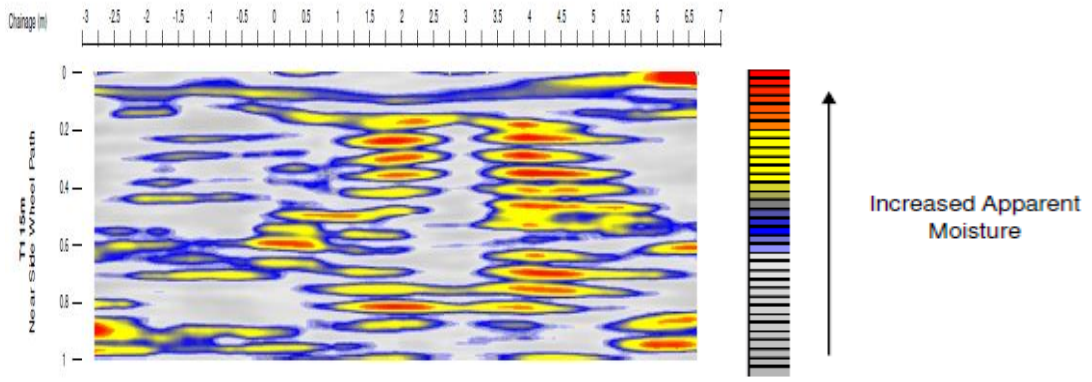
Overseas testing.

Figure 40: Deflection and pavement moisture content



High deflection located nearby the flooded area, possible weakening of the foundation due to water seepage.

Figure 41: Indicative moisture content from GPR



Typical moisture content plot from GPR data.

There is strong correlation between high moisture content and high deflection in pavements. Therefore, the data provided by the GPR will contribute greatly to a successful forward works drainage plan by associating high deflection with the presence of significant moisture inside the pavement.

This will certainly drive the need for increased funding of new drainage systems ie subsoil drains, especially in locations prone to high rainfall, frequent flooding events and slips.

Investing in drainage in these critical areas will give a significant return in pavement performance, as well as all the activities associated with the Preventive Maintenance and Resilience Programme funding.

6.2.2 Water, moisture control, drainage

We know that moist pavements fail prematurely. We know broadly how to remove moisture from pavements, or prevent its entry. We don't know which pavements are moist or at risk of becoming too moist before failures occur in a systematic way, and we are uncertain about the extent of defects in different circumstances that lead to adverse water impacts on pavements. In the interim all proposals for resurfacing and pavement rehabilitation are required to have considered the need for drainage improvements, perhaps as a precursor to deferred surface or pavement works.

We are addressing these challenges through a multifaceted approach involving:

- Sector research into systematic high speed measurement of moisture content of pavements, and site specific measurement to:
    - Confirm failure modes and drive the right treatment selection on a 'per site' maintenance intervention
    - Identify sites for treatment at a network level
    - Assess the effectiveness of treatments so treatment selection can be improved

- Implement network level systematic moisture measurement, and embed the expected response in the annual plan instructions. Note that Network Outcomes Contracts already have a requirement for drainage upgrade planning and this will optimise its targeting
- Refine and implement moisture control strategy
- Share the benefits and processes for site specific moisture measurement through the supply chain and work with contractors to implement this
- Modify intervention strategies once the risk of different surface condition factors is well known.

6.2.3 Basis for approach

Forecasting of drainage asset renewals at a network level is not well understood within the Agency. This presents a problem for the business case for drainage renewal funding. Additionally, anecdotal evidence suggests that we may not be investing enough in the area of drainage renewal as over 60% of pavement rehabilitation justifications cite problems relating to drainage as a contributing factor to the failure of the pavement.

Therefore, drainage has been recognized as a strategic asset going forward. Investing more in drainage needs, with a consequence of programming drainage works well ahead of resurfacing/renewals, will prolong the life of the existing pavement and give a better return on investment in the long term.

Figure 42: Moisture damage

Evidence of poor road-side drainage.

6.2.4 Water Control Strategy

The Agency has started to develop a tool which aims to find the right time for intervention. This involves building a probabilistic/stochastic model for calculating the best time for drainage asset renewals.

Targeting the right time to intervene in drainage renewals on the state highway network can be considered under four activity groups, which are based around areas of effective control:

- Drainage asset condition and maintenance
- Storm related flooding impact
- Storm related geotechnical impact
- Water in pavements.

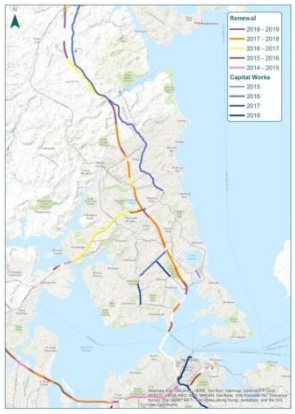
The development of this statistical tool will aim to understand the level of investment required to improve the road and prolong the life of existing assets.

Investing in more drainage features (subsoil drains, culverts, etc) in the short term can increase costs in the network, but in the long term this has the advantage of reducing investment in rehab/resurfacing activity by a potential 10%. This can then lead to an additional 1.2% saving on the annual budget, contributing greatly to the required 4% saving.

6.2.5 GIS Renewals Modelling with a focus on drainage

The Transport Agency is moving toward incorporating Geographic Information System (GIS) mapping in planning its routine maintenance and renewals programme. The main focus is to start finding the 'hot spots' in terms of poor drainage and mapping these against either the renewals sites over a 10 year period and/or across the regions capital works in the same area.

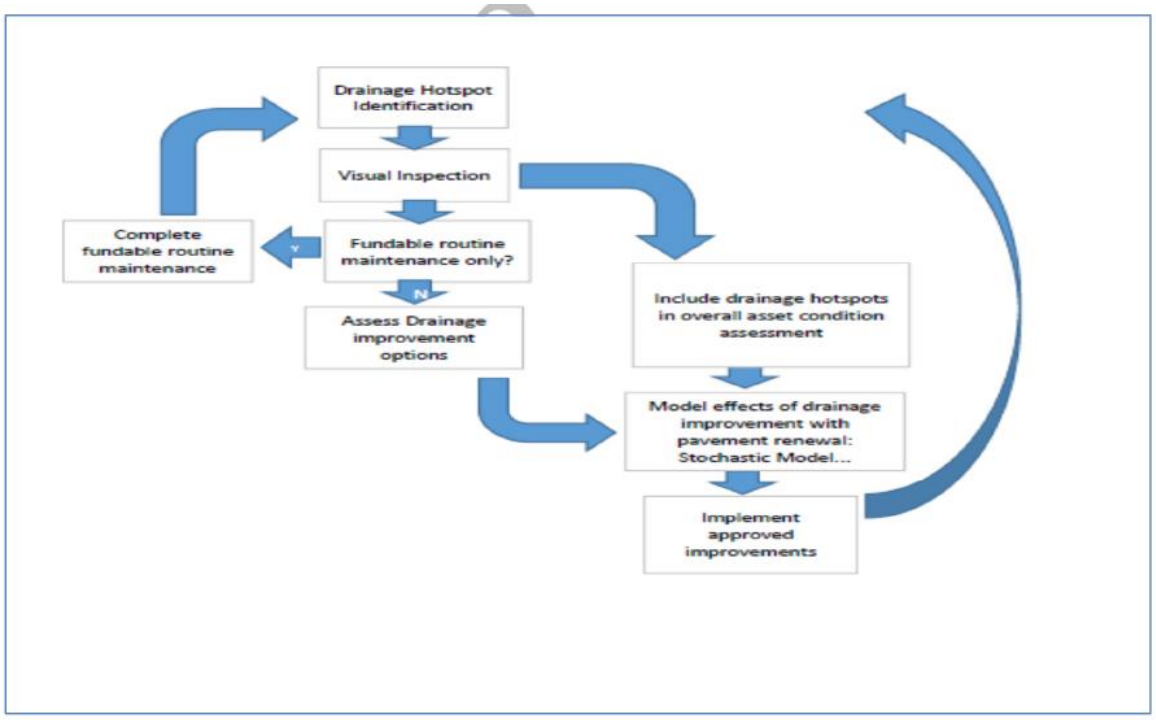
Figure 43: Indicative map of GIS capability



GIS maps showing road renewals and capital works.

This mechanism can help the Agency to increase savings further by reducing the chance of renewals occurring before a capital improvement in the same area and, where appropriate, investing in drainage improvements before the renewal occurs.

Figure 44: Potential intervention strategy



Potential screening tool using GIS information of drainage hotspots.

GIS modelling plus a screening tool is a promising mechanism to facilitate investigation on site by the network manager and produce a robust drainage renewal programme.

6.2.6 Automatic condition assessment and inventory capture

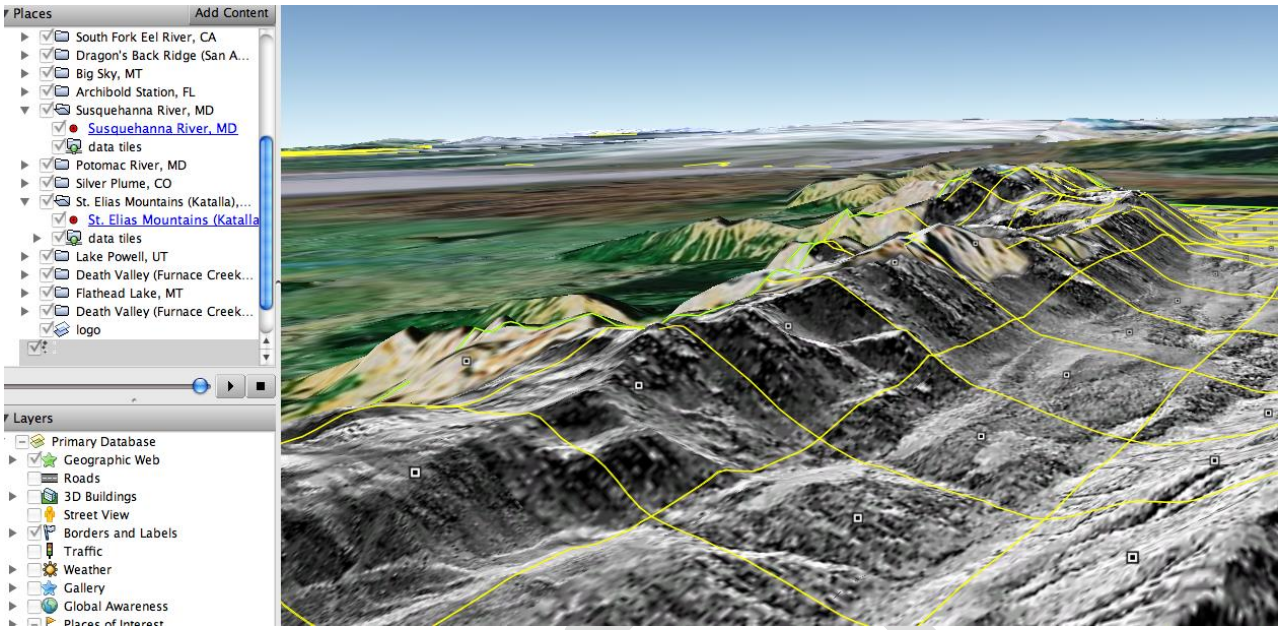
We intend to develop and adopt automatic replacements for past visual condition rating to make all measurements objective and repeatable, and eliminate the safety risk of manual rating.

6.2.7 LIDAR

LIDAR is a cost effective alternative to conventional ground surveying for medium to large scale terrain modelling projects and in terms of accuracy this method is far superior to photogrammetric mapping. This technique will allow us to understand potential faults along the network with an emphasis on finding drainage hotspots and identifying suitable sites for preventive maintenance.

The topography will dictate how quickly water will reach, and then drain away from, the highway. At a coarse level this may simply be broken down into ‘mountainous’, ‘rolling’ or ‘flat’ terrain parameters already contained in the NZTA’s RAMM database. To complement this existing information, data obtained from LIDAR surveys, supported by aerial photography and high speed data can then be used to categorise highway and adjoining land topography, eg whether the road is low-lying with respect to the adjacent terrain.

We expect to utilise the Austroads research on this topic.



3D topographic representation from LIDAR.

6.2.8 Crack detection

Laser scanning and image analysis technology is advancing rapidly. We are considering, and expect to experiment with, ARRB and WDM supplied crack detection technology and use this to measure cracks on all surface types, and to detect other surface failure modes including scabbing, heaves and shoves.

6.2.9 Retro-reflectivity scanning and inventory validation

We expect to learn from the AMA's work in trialling and developing technology that can systematically assess the retro-reflectivity of signs and lines, etc and simultaneously validate existing infrastructure records for signs and capture missing inventory.

6.2.10 Conversion of state highway routes into HPMV routes – long term benefits

Due to improved economic productivity an increase in freight is expected, especially along HPMV routes. Having a long term strategy to convert routes into HPMV routes will mean a huge long term investment that requires careful attention.

Generally speaking, it is not economically viable to convert all state highways into HPMV routes, especially in the short term, because forecasted numbers for HPMV trips are low and the required works are extensive due to poor strength in current pavements. However, where there is sufficient potential demand for HPMV capacity it would be extremely advantageous to select HPMV capable treatments whenever pavements are rehabilitated as part of normal periodic renewal processes. This will therefore deliver HPMV capacity over a longer timeframe for a lower cost than a complete retrofit.

The estimated cost of this is between $5m and $10m per annum.

On high volume routes, where resurfacing or pavement rehabilitation works have significant impact on customers, there is a potential economic advantage for New Zealand in using higher strength, more durable treatments, which extend service lives and reduce customer impact.

Spending a potential $5m per year on bound structural pavements accounts for 0.5% of total Opex funding, but could give an enormous return by prolonging the life of the pavement asset. In the long term this could potentially drop pavement renewals expenditure by more than 25% over 10 years.

6.2.11 Systematic measurement and assessment of 'tight' renewals programmes

We have introduced a system to systematically record and assess the achievements of the aggressive approach to renewal treatment timing and scope. Essentially we are measuring whether the deferral or scope change was wise or not to give a statistical basis for its continuance or modification. We are measuring maintenance and other works on deferred sites so we can back–calculate the outcome vs. expectation and change the intervention parameters if this is warranted, and also so we can better understand the risks we are taking on sites, networks and across the entire state highway network.

6.2.12 Transforming asset management

We are reviewing the processes and systems we use to manage assets and the way in which we go about our business. We expect this will create significant improvements in efficiency and effectiveness of our asset management.

This project is in its early stages so the scope benefits and costs are not yet established.

There are opportunities to:

- Improve the way we use RAMM
- Improve our business processes to eliminate delay, duplication and focus efficient effort on the most beneficial tasks
- Improve the completeness, timeliness, consistency and meaning of information supplied to decision makers, and to improve the administration of decision making processes
- Improve the way we collect and manage data and its use across the various information systems we use
- Eliminate unnecessary data
- Improve our use of spatial aspects of asset data
- Reduce the costs of managing our systems and the interfaces between them.

6.2.13 Developing advanced lifecycle asset management plans for each asset class

We intend to have advanced LAMPs in place for each asset type to support SHAMP III.

This involves ensuring that every intervention decision process is well founded, supported by evidence, utilised and documented in the LAMP, and is fit for purpose. We expect that these processes will be used to develop the 2018-21 proposed programme.

6.2.14 Targeted position for 2018–21 Programme

We are aiming to be able to describe and provide evidence for:

- The efficiency of every material expenditure stream
- The trade-off between level of service, cost and risk of every material expenditure stream
- The link between each programme of work and its delivery of customer levels of service.

6.2.15 Full implementation of the Network Outcomes Contracts

The Agency will progressively implement the Network Outcomes Contracts across all networks by the middle of 2016. The benefits of this process include:

- Middle term cost savings from improved construction driven by enhanced quality assurance requirements
- More effective works programmes arising from improved decision making. These will be enabled by more complete, timely and accurate inventory and maintenance information, driven by enhanced quality assurance requirements
- More efficient works programmes arising from less conservative intervention enabled by risk transfer to the Transport Agency
- More efficient network management and reduced customer impact. Under the NOC, works will be better planned because the contractor will manage all networks from fence to fence and thus have better control of programming works on the network.

6.2.16 More complete, timely and accurate works and infrastructure data capture quality assured by each supplier for both maintenance and capital works

These improvement plans are an ongoing process, yet they have already started to progress the items described above. These plans seek to build strategic asset management as well as a national best practise for operational maintenance through the NOCs, whilst giving confidence to the P&I group that a flat line budget approach will be maintained through until NLTP18.

6.2.17 Supporting and using sector research, engaging with sector peers

The Transport Agency leads and participates in NLTP funded research and the Austroads research programmes. It proposes and progresses research that will be beneficial to the sector here and separately pursues research and development of its business through its own programmes.

Current and forthcoming research that will be beneficial for the state highway network includes:

Project Number	Project Title
AT1484	Review of standard methods for measuring road condition
AT1490	Improving the Estimation of the Cost of Accelerated Road Wear Due to Possible Increases in Axle Mass Limits
AT1064	Long-Term Performance Monitoring to Develop Consistent Performance Models
AT1540	Understanding the Impact on Pavement Surfaces from Next Generation Freight Vehicles and Developing Practical Network Prediction Models and Responses
AT1732	Defining asset management LOS requirements for freight on rural arterial roads.
AT1734	Refine and Deploy the road wear modeling methodologies
AT1733	Analysing dynamic wheel loading and its effects on the network
AT1920	Developing the Data and Cost Information Required to Support the Heavy Vehicle Charging and Investment Reform
AT1737	Define the Asset Management LOS requirements of non-freight customers
AT1899	Maintenance of a weigh-in-motion (WIM) users website
AT1735	Guidelines for the development of a framework for the asset management of road reserves
AP1900	Update the Austroads Guide to Asset Management
AB1907	Update of Road Condition Monitoring Specifications, Test Methods and Commentaries
AT1933	AT1933 Unsealed road resheeting practice for local authorities (Cassowary Coast Regional Council Qld & Blayney Shire Council NSW)
AB1935	Asset Register Proposal – Stage 1: Business Case
AT1901	Reliability Centred Maintenance Stratetgy and Framework for Management of Intelligent Transport Systems (ITS) Assets
FS1807	Best practice guidelines for planning and development of industrial estates in Local Government areas
FS1808	Moving freight in emergency situations
FS1804	Review of PBS standards for Level 3 and Level 4 vehicles
FS1701	Harmonisation of Pilot and Escort Vehicle Driver Requirements
FS1893	Management of Over Size and Over Mass (OSOM) movements
FS1892	Improving Access Through Private Investment in Public Roads
FS1923	Improving High Productivity Vehicles (HPV) through Potential Charging Regimes
FS1894	Address process gaps/lack of details in Access Management Ministerial Guidelines
FS1806	Development of a Policy Framework to Support Safety, Efficiency, and Productivity of Freight in the Urban Context
FS1814	Publish a Roadmap for Austroads Jurisdictions on Bridge Assessment Processes
FS1891	Expansion of PBS RAT (Route Assessment Tool)
FS2001	National Steer Axle Mass Limits
FS2002	Heavy Vehicle Braking Standards
FS2000	Investigating the potential benefits of enhanced end to end supply chain visibility
FS1999	Overcoming barriers to the off-peak movement of freight in urban areas
NT1797	Guide to Traffic Management Review– Part 7: Traffic Management in Activity Centres
NT1803	Development of Product Acceptance Techniques for Network Devices
NT1782	Ability to absorb information through electronic and static signs
NT1788	Level of Service Metric
NS1912	Pedestrian Facility Selection Tool
NS1929	Review of Sign Sizes for Electronic Regulatory Speed Signs
NT1926	Impact of Network Operations Planning on Austroads Guides
NB2019	Safety at Road Worksites
NB2018	Congestion and Reliability
NS1697	Development of ITS Architecture - Stage 2 - Logical Architecture
NS1790	NBN Coordination
NS1785	Cooperative ITS (Stage 2)
NS1787	Harmonisation of Practices
NT1798	Guide to Traffic Management Review– Part 8: Local Area Traffic Management
NT1919	Traffic control at worksites - implementation.
NT1913	ITS Performance Benchmark
NT1909	Techniques for Signal Management to Support Network Operations
NS1927	ITS Roadmap

6.2.18 Supporting and learning from sector groups

The Transport Agency leads and participates in sector working groups including RIMs REG REAAA IDS National Surfacing Steering Group and it co-hosts the HZIHT conference. These fora are used to share asset management knowledge across the sector.

6.2.19 What the Transport Agency will expect before NLTP18

The Agency has started to develop a number of potentially beneficial changes to its current approach to asset management. These can be summarized as:

- Extending the service life of surfaces and pavements and monitoring the deterioration and maintenance on deferred sites
- Targeting works on failed areas thereby reducing treatment scope below past treatment lengths.

Utilising the NPV extensions developed by HNO to reduce agency costs, and to analyse impacts of work on high volume routes:

- Requiring the investigation of at least three optional treatments: do-maintenance, do-something and do-more
- Requiring valid maintenance costs, which fit realistic needs
- Expecting that sometimes drainage improvements will be selected ahead of pavement rehabilitation
- Measuring and reporting the amount of maintenance required against expectation on sites where the do-minimum is selected as the best option
- Reviewing the approach to traffic delays in the appropriate circumstances.

							pro rata on $ (National office+property)		12/15 Previous budget
	15_18 Everything, by AMP (all the cost increase but without saving)	CPI	Emergency	Admin	Freight Growth	Capital Projects	by original AMP	by Regional Council 15/18	12_15
Northland	155,536,880	7,368,276	14,544,029	5,844,797	1,742,769	-158,653	126,195,663	107,266,314	91,617,677
Auckland	362,380,850	14,838,511	29,083,495	11,687,760	3,506,367	32,434,003	270,830,716	289,760,065	278,143,779
Waikato	266,935,900	12,658,175	24,741,486	9,942,840	2,990,132	1,930,237	214,673,030	200,914,581	181,047,826
BoP	123,116,860	5,945,444	11,499,009	4,621,097	1,402,311	-111,687	99,760,686	94,224,680	114,441,916
Gisborne	48,789,720	2,374,704	4,551,733	1,829,201	559,483	-14,555	39,489,154	39,489,154	44,222,325
Hawkes Bay	56,418,860	2,699,016	5,273,778	2,119,369	637,501	-67,720	45,756,917	45,756,917	61,813,329
Manawatu/Wanganui	52,184,650	2,496,478	4,878,008	1,960,321	589,660	-62,911	42,323,094	70,022,651	44,406,408
Taranaki	43,197,180	2,065,788	4,036,425	1,622,115	487,928	-36,338	35,021,263	26,616,160	78,335,328
Wellington	126,907,082	5,346,023	10,688,660	4,295,443	1,267,000	882,461	104,427,496	104,427,496	85,751,486
Marl	24,735,620	1,178,351	2,310,497	928,517	278,454	-7,003	20,046,803	20,046,803	24,915,120
Nelson	7,483,160	342,602	682,431	274,248	81,100	183,099	5,919,680	5,919,680	12,522,375
Tasman	42,404,760	1,941,598	3,867,109	1,554,072	459,566	1,037,559	33,544,856	33,544,856	44,405,279
West Coast	77,732,010	3,618,823	7,269,963	2,921,574	857,982	-20,812	63,084,480	63,084,480	55,895,667
Canty	159,023,090	7,214,016	14,090,740	5,662,634	1,703,667	125,076	130,226,956	141,041,848	109,796,694
Otago	106,429,140	5,017,906	10,042,840	4,035,908	1,189,172	-1,006,336	87,149,650	76,334,759	87,241,692
Southland	69,812,580	3,336,706	6,519,799	2,620,106	788,122	-19,929	56,567,776	56,567,776	65,815,347
Total	1,723,088,342	78,442,417	154,080,000	61,920,000	18,541,214	35,086,490	1,375,018,221	1,375,018,221	1,380,372,248

TIO table 15/18 submission.

The above table shows the potential drivers of cost increases across the next three year period. The effort required to stay within a flat lined budget is evident through these future cost increases and despite any efficiency gains.

	by Regional Council 15/18	12_15
Northland	107,266,314	91,617,677
Auckland	289,760,065	278,143,779
Waikato	200,914,581	181,047,826
BoP	94,224,680	114,441,916
Gisborne	39,489,154	44,222,325
Hawkes Bay	45,756,917	61,813,329
Manawatu/Wanganui	70,022,651	44,406,408
Taranaki	26,616,160	78,335,328
Wellington	104,427,496	85,751,486
Marl	20,046,803	24,915,120
Nelson	5,919,680	12,522,375
Tasman	33,544,856	44,405,279
West Coast	63,084,480	55,895,667
Canty	141,041,848	109,796,694
Otago	76,334,759	87,241,692
Southland	56,567,776	65,815,347
Total	1,375,018,221	1,380,372,248

6.3 Effectiveness

Effectiveness factors for operations, maintenance and renewal programmes of activities

Factor	Generic assessment factors	Improvements perspective	Operations maintenance and renewals assessment factors	Examples - Best Operational and AM practice
Outcome focused Delivers the right thing(s)	• delivers on the potential identified in the Strategic Fit assessment	• Focussed on the change in outcomes targeted • Interventions target a performance gap or a change to a level of service target	• Focus on delivery of current outcomes • Interventions only target direct service provision, performance or economic failure in order to deliver on the ONRC levels of service	• Base preservation quantities achieving efficiency saving inside the NOC • Reducing the targets of the OPMS within the NOC in particular for the lower classification roads • Improved WLC (Stochastic and Deterministic analysis) to understand mechanism of failure versus economic intervention
Integration Demonstrates integration	• with the current network and future transport plans • with other current and future activities • with current and future land use planning • across modes • as an agreed activity across partners	• Targets achievement of the One Network Road Classification levels of service • Programme aligned with other network and future plans • Programme aligned to its contextual customer and locational issues • Responds to the different needs multi-modal customers • Implements an activity supported by transport network partners	• Targets only the One Network Road Classification levels of service throughout the delivery chain • Programmes aligned with other network and future plans • Programme aligned to its contextual customer and locational issues • Responds to the different needs of multi-modal customers • Implements an activity supported by transport network partners	• Operating and service delivery plans align with the ONRC LoS • Renewals don't precede improvement projects! • Events and seasonal traffic is considered when developing works programmes
Scope Correctly scoped	• the degree of fit as part of a justified strategy or business case • applies the intervention hierarchy to considered alternatives and options including low cost alternatives and options • is of an appropriate scale in relation to the issue/opportunity • covers and/or manages the spatial impact (local, regional, national scale)	• The scope matches that of an agreed strategy or business case • Investment proposal is robust, supported by a sound evidence base and option selection process • applies the intervention hierarchy to considered alternatives and options including low cost alternatives and options • is of an appropriate scale in relation to the issue/opportunity • covers and/or manages the spatial impact (local, regional, national scale)	• Investment proposal is robust and supported by robust intervention decision processes • The extent and scale of proposed interventions reflect the findings of performance management and continual improvement frameworks • Treatment selection and design processes are robust	• Decisions are evidence based, economic calculations used to justify significant renewal interventions • Treatment selection is optimised, eg NPV analysis, uses of best practice for context

Factor	Generic assessment factors	Improvements perspective	Operations maintenance and renewals assessment factors	Examples - Best Operational and AM practice
	• mitigates any adverse impacts on other results	• mitigates any adverse impacts on other results		
Affordable	• is affordable for all parties • properly apportions benefits and costs between transport users and other parties	• Is affordable through the lifecycle for all parties • properly apportions benefits and costs between transport users and other parties	• The impact of activities on customers is mitigated • Service performance, return on investment and achievement against target of interventions are well managed and inform continual improvement • Works quality is managed to target • The real unit cost of service delivery is declining to the efficiency horizon • Service offerings are matched to funding, and service level compromises and impacts robust	• Works programming and traffic management mitigates impacts on traffic and neighbours • Unit rates $/l.km, and $/VKT are declining in real terms • The condition of infrastructure is trending towards that of networks on the efficiency horizon
Timely	• delivers enduring benefits over the timeframe identified in the justified strategy or business case • provides the benefits in a timely manner • represents the best whole of life cost approach	• delivers enduring benefits over the timeframe identified in the justified strategy or business case • provides the benefits in a timely manner • represents the best whole of life cost approach	• Service failures and risk are aligned to the ONRC framework • represents the best whole of life cost approach • The value of the infrastructure employed is maintained at the minimum sustainable level	• Intervention decision-making criteria differ across classifications • Repairs are more frequent on lower classification roads • Works quality is managed to target and substandard works rejected
Confidence Manages uncertainty	• manages current and future risk	• Uncertainties in outcomes and costs are effectively addressed	• Uncertainties in outcomes and costs are effectively addressed • Risks to service resilience are effectively managed • Uncertainties in outcomes and costs are effectively addressed • Response to incidents, events and emergencies meets ONRC los targets • Cogent improvement programmes are in place and resourced to address asset management issues	• Operational traffic management responds to incidents and events mitigating impacts • Business continuity plans are in place and useful • Emergency preparedness and response mitigates impacts in a proportionate manner to classification

Appendix 1 existing state highway service levels

Table 5: Customer Levels of Service that relate to Network and Asset Management

Source: LOS Measures - 2013-12-09

Service Attribute	Level of Service Statement	Level of Service Sub-statement	Customer Level of Service			Operational Performance Measures
			Main Indicator	Outcomes Target	Performance Outcome	
CONNECTIVITY Customers can easily make journeys to places they want to go, whenever they want - routes and alternatives are available, or connectivity restored through; informing customers, minimising the risk/impact of obstructions, maintaining the network, providing guidance, and providing alternative routes and/or modes	Customers are informed of route availability and travel choices so they can reach their destination	Informed Prior to Travel - customers can source information relating to their travel plans i.e. regarding route, mode, time and cost options, prior to departure enabling them to make a choice on how to travel to their destination.	Information updates in TREIS relating to events affecting connectivity	Improved information available to customers	No instances where information regarding a loss in connectivity is not made available to the public within required timeframes	Incident Response Management - initial update provided to TOC/TREIS within physical response time requirement + 15 minutes in X% of cases. Incident Response Management - updates provided to TOC/TREIS within 15 minutes of an event condition change in X% of cases.
	Customers will be protected from obstructions so they can reach their destination	Prevention - actions to prevent obstructions on the carriageway are well managed, protecting customers from loss of route availability and providing a high degree of certainty that preferred routes will be available.	Route availability related to obstructions	Reduced incidents of obstructions affecting route availability	Year on year reduction in the loss of route connectivity resulting from obstructions	Event Reporting - Delivery - completion and delivery of reports as required by Winter Services requirements
CUSTOMER ACCESS TO STATE HIGHWAY Customers can assess the highway when and where they want - efficient access on and off the highway is provided, access for overweight and over dimension vehicles is provided where possible, and capacity is maximised in response to demand	Customers have access to the highway for efficient journeys		Spatial coverage - access onto the highway	Reduced instances of access issues	No more than 2 complaints per month per network related to a customers or stakeholders lack of access onto the highway	Corridor Access Management - there shall be no more than X CARs not processed in accordance with the Principal's procedures and the *National Code of Practice for Utility Operator's Access to Transport Corridors*
	Commercial vehicle customers have access to the highway for efficient journeys		Percentage of commercial vehicles able to access the highway	Increased commercial vehicle accessibility	Year on year increase in percentage of network available to over dimension and over mass vehicles	Over Dimension Permits - X% of permits processed within the specified response time HPMV Permits - X% of HPMV permits within the specified response time
	Customers are not affected by poor capacity when they access the highway		Throughput - vehicles / freight / people, by mode	Increased throughput	Year on year increase in VKT	Vehicles per Lane per Day - monitor ADT with a view to maximise capacity LUD Permits - X% of LUD's processed within the specified response time
TRAVEL TIME, AND IT'S RELIABILITY Customers are provided with as short and predictable travel times as circumstances allow - activities on the network are effectively managed to reduce travel time delays, information is provided regarding route delays, and network capacity is optimised	Roads are maintained so customer's travel time is not affected	Maintenance - Service disruption to customers is minimised through infrastructure being maintained and operated in such a condition so as to provide a consistent travel experience	Travel time affected by infrastructure quality	Reduced delay costs due to infrastructure quality	No increase in average travel time per month between major centres	Service Availability - monitor travel time performance
SAFETY Safety risk for customers in maintained and reduced -	Customers are informed of road conditions to minimise the	Hazards - Customers are advised generically or specifically about hazards to ensure the	Fatal and serious crashes associated with lack of	Reduction in fatal and serious crashes	Year on year reduction in the total number of fatalities and	TMP Approvals - X% of TMPs approved within the days specified in A7.6 of CoPTTM

Service Attribute	Level of Service Statement	Level of Service Sub-statement	Customer Level of Service			Operational Performance Measures
			Main Indicator	Outcomes Target	Performance Outcome	
safety performance is managed to state highway targets through informing customers of network conditions, maintenance of assets and network improvements	safety risk	infrastructure is used safely and crashes are minimised	information		serious crashes. No more than X fatalities and no more than Y serious crashes per year.	TMP Audits - At least X audits completed. TMP Audits - X% of TMP audits result in score classified as "Dangerous" on own work sites
	Roads are maintained so customer's safety risk is minimised.	Maintenance - The likelihood and consequence of customers crashing will not increase over time through effective infrastructure maintenance	*Fatal and serious crashes associated with infrastructure quality.*	Reduction in fatal and serious crashes.	Year on year reduction in the total number of fatalities and serious crashes. No more than X fatalities and no more than Y serious crashes per year.	• Skid Resistance Management • Potholes • Deformation, Heaves & Shoves • Rutting • Flushing • Shoulder Maintenance • Detritus Skid Resistance
ENVIRONMENT Ensure the impacts on the SHs and their use on the human or natural environment are minimised - legislation will be adhered to, resources will be effectively managed, and pollution will be minimised	Environmental standards will be met	Heritage - Heritage sites are protected ensuring historic value is available for future generations	Infringement and/or abatement notices	No infringement and/or abatement notices	No infringement and/or abatement notices	Heritage - discovery of heritage issues handled effectively in X% of instances
	Environmental standards will be met	Maintenance - The natural and built environment will be protected through adherence to environmental requirements	Infringement and/or abatement notices	No infringement and/or abatement notices	No infringement and/or abatement notices	Stakeholder Satisfaction - X abatement notices served on NZTA projects
	Environmental standards will be met	Maintenance - The natural and built environment will be protected through adherence to environmental requirements	Infringement and/or abatement notices	No infringement and/or abatement notices	No infringement and/or abatement notices	Consents - Comply with all permits as recorded in NZTA's consent management system (CSVUE).
	Customers and stakeholders will not be adversely affected by pollution	Air Quality - Emissions will be reduced in locations where customers and stakeholders are exposed to unhealthy levels of transport related pollution.	Environmental testing	Positive trend in environmental test results	Year on year improvement in environmental test results	Air Quality - Downward trend in concentration of nitrogen dioxide at SH monitoring sites in main urban areas where the annual average concentration was greater than 30 ug/m3 in 2012.
EMPATHY Understand and respond to the needs of customers - respectful relationships will be maintained through effective engagement	Customers and stakeholders are provided with adequate opportunities to have a voice		Customer satisfaction relating to engagement	Increased customer satisfaction relating to engagement	At least 95% of road users satisfied with NZTA's response to their issues based on quarterly customer satisfaction surveys	Customer Satisfaction - X% of road users satisfied with NZTA's response to their issues based on quarterly customer satisfaction surveys Public Complaints - No more than X number of public complaints relating to NZTA not understanding the customer's needs (per monthly) Customer / Stakeholder Engagement - No more than X complaints due to lack of customer / stakeholder engagement
	Investment decisions are transparent and demonstrate value		Investors' confidence in spend	Improved project economics and reduced rework	100% of renewal projects are economically justified with a positive Net Present Value. Year on year reduction in maintenance required on completed renewals sites	Stakeholder (AA, RTA, etc.) View on Value - demonstrate that Road User Charges (RUC) is being used well and on quality work
	Management of information and systems is effective in producing quality outcomes	Information - Accurate and timely information relating to the asset is available to make optimised decisions regarding programme and performance	Accuracy and timeliness of asset information	Reduction in overdue reporting and/or inaccurate asset information	90% of deliverables are provided by the due date Year on year improvement in asset information quality	Key Reporting - key report delivered to a Principal accepted standard, within agreed time frame Annual Plan - Annual plan delivered in accordance with SM018. National Benchmarking - develop some sort of index based on the following technical measures

Service Attribute	Level of Service Statement	Level of Service Sub-statement	Customer Level of Service			Operational Performance Measures
			Main Indicator	Outcomes Target	Performance Outcome	
						Condition Trends - achieve the goals established for the network, e.g. Improvement or deterioration in roughness as specified in the RAMP
						National Benchmarking - % completeness of network data, derived from national RAMM database
						RAMM Register Updating - X instances of asset information on work carried out by the Contractor missing or inaccurate post deadline.
		Systems - Systems are established and operated to assist in sound decisions making and delivering quality outcomes on the network	Accuracy and timeliness of asset information	Reduction in overdue reporting and/or inaccurate asset information	90% of deliverables are provided by the due date Year on year improvement in asset information quality	Consented Compliance - there shall be no more than X instances of receiving a consent compliance infringement notice
						Financial Management - No more than X% misalignment between end of year actual and original forecast that was established in August of the preceding year.
						Financial Management - No more than X% misalignment between end of year actual and forecast that was reviewed at February of the current year.
RESPONSE Customer's request for service will be responded to - customer service requests are completed	Customer's will be provided with an appropriate response		Customer satisfaction relating to service request response times	Reduction in complaints relating to lack of response	No more than 1 complaints per month per network regarding lack of response	Service Requests - all requests are logged , actioned and closed within appropriate timeframe
TANGIBLES Customers are aware of what NZTA provides - achieved through effective communication, education, and enhanced brand recognition	Customers understand what NZTA owns and operates	Provide - Customers are provided with roads, bus routes and cycle lanes	Achievement of programmed work	Increased understanding of NZTA business	Year on year increase in understanding of NZTA business based on annual customer satisfaction survey (based on targeted questions)	Supply - Customers are provided with transport systems commensurate with demand
		Inform - Customers are provided with information regarding investment in new and existing assets				Asset Quantity - information provided regarding kilometres of highway constructed and maintained
	Customers are educated on use of the highway		Media based education campaigns	Right messages reaching targeted audience and changing behaviours	No more than 300 fatalities and no more than 4,000 serious crashes per year (check GPS2)	Media - X number of TV/radio/newspaper/signage campaigns per year
						Crashes - crashes caused by poor driver behaviour reducing year on year
	Customers can communicate easily with NZTA		Customer satisfaction relating to communications with NZTA	Customers can communicate with NZTA	Increase in the number of communications with NZTA (e.g. website hits)	Customer Relationship Management System
						Customer and Stakeholder Meetings -
						Mobile Connectivity - apps, social media, etc.
						Interactive website

Appendix 2 Networks Outcomes Contract Operational Performance Measures

OPM GROUP 3.8.1: KEY REPORTING (100% SAMPLE SIZE, MEASURED MONTHLY)				
OPM	**ROAD CLASS**	**CONTRACT STANDARD**	**DEFECT**	**PIP**
1	All Roads	No defects.	Key report not delivered to a Principal accepted standard, within agreed time frame.	2 weeks

OPM GROUP 5.2.1: ANNUAL PLAN (100% SAMPLE SIZE, MEASURED ANNUALLY)				
OPM	**ROAD CLASS**	**CONTRACT STANDARD**	**DEFECT**	**PIP**
2	All Roads	No defects.	Compliant Annual Plan not delivered in accordance with SM018.	N/A

OPM GROUP 5.2.2: YEAR 1 RENEWAL PROGRAMME INTEGRITY (100% SAMPLE SIZE, MEASURED ANNUALLY)				
OPM	**ROAD CLASS**	**CONTRACT STANDARD**	**DEFECT**	**PIP**
3	All Roads	<25% of Defects.	RAPT Review priority assessment recommends deferring a site to a later year.	N/A

OPM GROUP 5.3.1: INCIDENT RESPONSE MANAGEMENT (100% SAMPLE SIZE, MEASURED MONTHLY)				
OPM	**ROAD CLASS**	**CONTRACT STANDARD**	**DEFECT**	**PIP**
4	NSHVH,NSH	<5% defects.	Initial update not provided to TOC/TREIS within physical response time requirement + 15 minutes.	N/A
5	RSH, RCH, RDH	<15% defects.	Initial update not provided to TOC/TREIS within physical response time requirement + 15 minutes.	N/A
6	All Roads	<5% defects.	Updates not provided to TOC/TREIS within 15 minutes of an event condition change.	N/A

OPM GROUP 5.3.2: TMP APPROVALS (100% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
7	All Roads	No defects.	Third party TMP not approved within the days specified in A7.6 of CoPTTM.	N/A

OPM GROUP 5.3.3: TMP AUDITS (100% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
8	All Roads	No defects.	Less than 10 audits completed within the last month.	N/A
9	All Roads	No defects.	An audit score classified as "Dangerous" on own work sites.	1 Day

OPM GROUP 5.3.4: CORRIDOR ACCESS MANAGEMENT (100% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
10	All Roads	Not more than 2 defects.	CAR not processed in accordance the Principal's procedures and the *National Code of Practice for Utility Operator's Access to Transport Corridors*.	5 hours

OPM GROUP 5.3.5: CONSENTED ACTIVITIES MONITORING (100% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
11	All Roads	No defects.	A defect liability issue not identified for the third party to address prior to the end of the liability period.	2 months

OPM GROUP 5.3.6: CONSENT COMPLIANCE (100% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
12	All Roads	No defects.	Receipt of consent compliance infringement notice.	N/A

OPM GROUP 5.3.7: GEOLOGICAL THREATS (100% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
13	All Roads	No defects.	Unstable site not actively monitored and reported on, as defined within the listed sites shown in Appendix 5.3.	N/A

OPM GROUP 5.5.1: SKID RESISTANCE MANAGEMENT (100% SAMPLE SIZE, MEASURED ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
14	All Roads	No defects.	Incomplete evidence that NZTA T/10 process has been adhered to for all exception reported sites.	1 month
15	All Roads	No defects.	Incomplete evidence that all Priority A sites have been addressed in accordance with NZTA T/10, within 3 months of receiving Annual Exception Report.	1 week

OPM GROUP 5.6.1: FINANCIAL MANAGEMENT (100% SAMPLE SIZE, MEASURED ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
16	All Roads	<20%.	Misalignment between the end of year actual and original forecast that was established in August of the preceding year.	N/A
17	All Roads	<5%.	Misalignment between the end of year actual and forecast that was reviewed at February of the current year.	N/A

OPM GROUP 6.1.1: REINSTATEMENT OF DELINEATION DEVICES AND SERVICE COVERS AFTER ANY COMPLETED WORKS (10% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
18	NSHVH	No defects.	Delineation devices (except for ATP) not reinstated	1 hour

OPM GROUP 3.8.1: KEY REPORTING (100% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
			before site dis-establishment.	
19	NSH, RSH, RCH, RDH	No defects.	Delineation devices (except for ATP) not reinstated and or temporary traffic management is not removed within 48 hours of the surfacing being completed.	48 hours

OPM GROUP 6.1.2: SURFACE BUMPS (10% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
20	NSHVH,NSH	≤10 defects per audit section.	Surface bump within a wheel path or cycle lane/path > ± 20mm lip as a result of the Contractor's completed work (or monitored work), which causes a noise, vibration or ride nuisance.	2 days
21	RSH, RCH	≤20 defects per audit section.		
22	RDH	≤30 defects per audit section.		
23	All Roads	No defects.	Service cover is not adjusted within +10mm, -0mm of the surrounding surface as a result of the Contractor's completed work (or monitored work).	1 week

OPM GROUP 6.1.3: POTHOLES (10% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
24	NSHVH (Motorways and Expressways only)	≤ 1 defect per audit section.	Pothole > 150mm in diameter.	48 hours
25	NSHVH	≤ 3 defects per audit section.		

OPM GROUP 3.8.1: KEY REPORTING (100% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
26	NSH, RSH	≤ 4 defects per audit section.		
27	RCH, RDH	≤ 6 defects per audit section.		

OPM GROUP 6.1.4: DEFORMATIONS, HEAVES AND SHOVES (10% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
28	All Roads	No defects.	Deformation, heave or shove with height or depth > 50mm within the sealed pavement area (when measured from peak to trough).	1 week
29	All Roads	No defects.	Ponding that constitutes a safety hazard.	2 days

OPM GROUP 6.1.5: RUTTING (100% SAMPLE SIZE, MEASURED BI-ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
30	NSHVH, NSH	<1% of wheel path length.	>20mm depth, or constitutes a safety hazard.	1 week
31	RSH	<1.5% of wheel path length.	>20mm depth, or constitutes a safety hazard.	
32	RCH, RDH	<2% of wheel path length.	>20mm depth, or constitutes a safety hazard.	

OPM GROUP 6.1.6: FLUSHING (100% SAMPLE SIZE, MEASURED BI-ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
33a	All Roads	No defects.	Areas within a carriageway ≥ 10m long that are flushed and constitutes a safety hazard (i.e. macrotexture is ≤ the	

OPM GROUP 6.1.6: FLUSHING (100% SAMPLE SIZE, MEASURED BI-ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
			threshold level for macrotexture as specified in T10 "Specification for State Highway Skid Resistance Management") and either: a. In addition to low texture the SCRIM coefficient is ≤ 0.35 unless a joint inspection has determined that SCRIM improvement is not warranted, or b. The texture will impact negatively on the life of a surfacing renewal treatment.	Within two months of receipt of the SCRIM exception report Prior to undertaking resurfacing renewal
33b	All Roads	No defects.	Any area within a carriageway where bleeding of the binder may lead to the binder being tracked onto the adjacent surface.	1 week
33c	All Roads	No defects.	Surface texture and texture variation will not impact on long term performance of resurfacing works	Prior to undertaking resurfacing renewal

OPM GROUP 6.1.7: EDGE BREAK (10% SAMPLE SIZE, MEASURED EVERY 2 MONTHS)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
34	All Roads	No defects.	Encroaching into edge line.	2 weeks
35	NSHVH, NSH, RSH	No defects.	>2m of continuous edge break where encroachment is more than 250mm into seal at any point.	2 weeks

OPM GROUP 6.1.6: FLUSHING (100% SAMPLE SIZE, MEASURED BI-ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
36	RCH, RDH	No defects.	>5m of continuous edge break where encroachment is more than 250mm into seal at any point.	

OPM GROUP 6.1.8: SHOULDER MAINTENANCE (10% SAMPLE SIZE, MEASURED EVERY 2 MONTHS)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
37	All Roads	≤ 500m per audit section.	>10m of continuous low shoulder or edge rutting, >50mm on a straight.	2 weeks
38	All Roads	≤ 100m per audit section.	Low shoulder or edge rutting, >50mm on a bend.	2 weeks
39	All Roads	No defects.	Low shoulder or edge rutting, >100mm.	1 week

OPM GROUP 6.1.9: REPAIR QUALITY (10% SAMPLE SIZE, MEASURED EVERY 2 MONTHS)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
40	NSHVH (Motorways and Expressways only)	No defects.	Obvious occurrence of repair re-work or need for rework (excluding renewal sites), which has not previously been a repair quality defect.	2 weeks
41	NSHVH, NSH, RSH, RCH, RDH	≤ 5 defects per audit section.	Obvious occurrence of repair re-work or need for rework (excluding renewal sites) that has not previously been a repair quality defect.	2 weeks

OPM GROUP 6.1.10: PAVEMENT REHABILITATION REWORK (100% SAMPLE SIZE, MEASURED ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
42	All Roads	≤ 3 defects per site.	An occurrence of an OPM defect (as defined within Section 6.1.1) within a pavement rehabilitation site.	As per Section 6.1.1

OPM GROUP 6.1.11: PAVEMENT REHABILITATION POST-CONSTRUCTION SURFACE SHAPE VERIFICATION (100% SAMPLE SIZE, MEASURED ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
43	All Roads	Not more than 1 defect per site.	Does not comply with the Surface Shape specification described above.	2 months

OPM GROUP 6.1.12: AC SURFACING REWORK (100% SAMPLE SIZE, MEASURED ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
44	All Roads	≤ 3 defects per site.	An occurrence of an OPM defect (as defined within Section 6.1.1) within an AC site.	As per Section 6.1.1

OPM GROUP 6.1.13: AC POST-CONSTRUCTION SURFACE SHAPE VERIFICATION (100% SAMPLE SIZE, MEASURED ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
45	All Roads	Not more than 1 defect per site.	Does not comply with the Surface Shape specification described above.	2 months

OPM GROUP 6.2.1: NON-VULNERABLE SUMPS, MANHOLES AND CATCHPITS (100% SAMPLE SIZE, MEASURED ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
46	All Roads	No defects.	Debris < 200mm below the internal outlet pipe invert or > 20% of the cross-sectional area of outlet pipe covered with debris or, for manholes and like features, >33% of the grate is blocked, not remedied within 2 months as identified from an annual drainage inspection.	1 month

OPM GROUP 6.2.2: NON-VULNERABLE CULVERTS, SUBSOIL AND HORIZONTAL DRAINS (100% SAMPLE SIZE, MEASURED ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
47	All Roads	No defects.	> 20% of the cross-sectional area of the culvert inlet, outlet	1 month

OPM GROUP 6.1.6: FLUSHING (100% SAMPLE SIZE, MEASURED BI-ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
			or barrel filled with debris, not remedied within 2 months as identified from an annual drainage inspection.	
48	All Roads	No defects.	> 20% of the cross-sectional area of the culvert filled with water caused by poor maintenance of downstream hydraulic conditions, within the Limit of Works, not remedied within 2 months as identified from an annual drainage inspection.	1 month
49	All Roads.	No defects.	Subsoil drain not flushed or horizontal drain not scraped clean in accordance with the time frames specified within Appendix 6.6, Culverts, Subsoil and Horizontal Drains Maintenance Schedule.	1 month

OPM GROUP 6.2.3: LINED SURFACE WATER CHANNELS (10% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
50	All Roads	≤ 3 defects per 100m of asset length, per audit section.	Isolated blockage that could allow water to pond or flow onto the carriageway or undermine the asset integrity.	2 weeks
51	All Roads	No more than 5% of the asset length, in any audit section.	> 50% of the channel hydraulic cross-section inoperative.	2 weeks

OPM GROUP 6.2.4: UNLINED SURFACE WATER CHANNELS (10% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
52	All Roads	≤ 1 defect per audit section.	Isolated blockage that would allow water to pond or flow onto the carriageway or undermine the asset integrity.	1 week

OPM GROUP 6.1.6: FLUSHING (100% SAMPLE SIZE, MEASURED BI-ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
53	NSHVH, NSH	No more than 2% of the asset length, in any audit section.	> 50% of the channel hydraulic cross-section inoperative.	1 week
54	RSH,RCH, RDH	No more than 5% of the asset length, in any audit section.		

OPM GROUP 6.2.5: VULNERABLE FLOODING AREAS (100% SAMPLE SIZE, MEASURED EVERY 2 MONTHS)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
55	All Roads	No defects.	Water does not readily flow to the outlet point.	24 hours
56	All Roads	No defects.	Isolated blockage that would allow water to pond or flow onto the carriageway or undermine the asset integrity.	24 hours
57	All Roads	No defects.	> 20% of the channel hydraulic cross-section inoperative.	24 hours

OPM GROUP 6.3.1: BRIDGE AND OTHER STRUCTURES MAINTENANCE (100% SAMPLE SIZE, MEASURED ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
58	All Roads	No more than 10% of the total number of structures per audit.	Graffiti in view of road users or pedestrians.	48 hours
59	All Roads	No more than 3% of the total number of structures per audit.	No blocked drainage system.	2 weeks
			No undesirable drainage discharge point.	2 weeks
60	All Roads	No more than 3% of the total number of structures per audit.	Debris impeding joint movement or damaging the joint.	1 month

OPM GROUP 6.1.6: FLUSHING (100% SAMPLE SIZE, MEASURED BI-ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
~~61~~	~~All Roads~~	~~No more than 5% of the total number of bridges per audit.~~	~~> 20% of the cross-sectional area of waterway obstructed by debris or inappropriate vegetation (within the Limits of Work).~~	~~2 months~~

OPM GROUP 6.3.2: BARRIERS, END TREATMENTS AND HAND RAIL MAINTENANCE (100% SAMPLE SIZE, MEASURED ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
62	All Roads	≤ 15 defects per system.	Integrity of individual barrier component is deficient, contributing towards an inoperative barrier system and end treatments, as designed.	48hrs wire rope, 2 weeks other assets
63	All Roads	≤ 5 defects per audit section.	Integrity of individual rail component is deficient contributing towards an inoperative rail system as designed.	1 month

OPM GROUP 6.3.3: BARRIER AND HAND RAIL DAMAGE REPAIRS (100% SAMPLE SIZE, MEASURED EVERY 2 MONTHS)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
64	NSHVH	No defects.	Barrier structurally damaged (and not programmed for repair) resulting in an inoperative barrier system as designed (excluding end treatments).	24hrs wire rope, 3 days other assets
65	NSH, RSH	No defects.		48hrs wire rope, 2 weeks other assets
66	RCH, RDH	No defects.		48hrs wire rope, 1 month other assets

OPM GROUP 6.1.6: FLUSHING (100% SAMPLE SIZE, MEASURED BI-ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
67	All Roads	No defects.	Structurally damaged (and not programmed for repair) resulting in an inoperative rail system as designed.	2 weeks

OPM GROUP 6.4.1: ICE GRITTING, SNOW CLEARANCE AND CMA RECORD MAINTENANCE (100% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
68	All Roads	No defects.	Records are not maintained or complete to demonstrate that the right decisions are being made.	N/A

OPM GROUP 6.4.2: FROST, ICE GRITTING AND SNOW CLEARANCE – MOBILISE AND ESTABLISH ON SITE (100% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
69	All Roads	No defects.	Did not mobilise within 30 minutes of determining the need.	N/A
70	All Roads	No defects.	Inappropriate or insufficient plant and/or personnel established on site.	N/A

OPM GROUP 6.4.3: ICE GRITTING AND CMA – TREATMENT DECISIONS AND COMPLIANCE (100% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
71	All Roads	1 defect for every 10 decisions, or part thereof.	Inappropriate treatment decisions within the high Winter Period leading to additional risk to motorists and/or wasteful use of materials.	N/A
72	All Roads	No defects or consent compliance abatement notices.	Application and management not in accordance with the resource consent requirements for CMA use.	N/A

OPM GROUP 6.4.4: SNOW CLEARING – RESPONSE (100% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
73	All Roads	No defects.	Response to snow events not in accordance with Winter Services Requirements.	N/A

OPM GROUP 6.4.5: EVENT REPORTING – DELIVERY (100% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
74	All Roads	No defects.	Completion and delivery of reports as required by Winter Services requirements not met.	N/A

OPM GROUP 6.4.6: VEGETATION CONTROL – GENERAL (10% SAMPLE SIZE, MEASURED EVERY 2 MONTHS)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
75	All Roads	Type 1 (Urban) Control - ≤ 20% of area per audit section.	Vegetation < 20mm or > 75mm in height.	1 weeks
76	All Roads	Type 2 (Rest Areas) Control - ≤ 25% of area per audit section.	Vegetation < 20mm or > 150mm in height.	1 week
77	NSHVH, NSH	Type 3~~B~~ Control – no defects.	Vegetation < 25mm or > 300mm in height or <160m forward sight visibility to all signs and delineation devices or Vegetation within the clear Vegetation-free Zone.	2 weeks
78	RSH	Type 3~~B~~ Control - ≤ 5% of area per audit section.		
79	RCH	Type 3~~B~~ Control - ≤ 10% of area per audit section.		
80	RDH	Type 3~~B~~ Control - ≤ 15% of area per audit section.		
81	All Roads	Type 5 Control - ≤ 20% per audit section.	Area not vegetation-free or near vegetation-free.	2 weeks
82	NSHVH, NSH, RSH	Type 7 Control - ≤ 15% per audit section.	Non-compliance with requirements of Type 7 control or Designation Conditions and Plans.	1 month
83	RCH, RDH	Type 7 Control - ≤ 20% per audit section.		
84	All Roads	Self-sown trees - ≤ 20 defects within an audit section.	Self-sown tree greater than 1m high and less than 3m.	1 month
85	All Roads	No defects.	Dead tree or limb within the Limit of	1 month

OPM GROUP 6.1.6: FLUSHING (100% SAMPLE SIZE, MEASURED BI-ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
			Works that presents a risk of falling onto the road (a fallen tree or limb shall be treated as an Incident Response).	

OPM GROUP 6.4.7: SIGHT-LINE VEGETATION CONTROL (10% SAMPLE SIZE, MEASURED EVERY 2 MONTHS)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
86	NSHVH, NSH	Type 3A Control – No defects.	Vegetation < 25mm or > 200mm in height.	2 days
87	RSH	Type 3A Control - ≤ 5% of area per audit section.		
88	RCH	Type 3A Control - ≤ 10% of area per audit section.		
89	RDH	Type 3A Control - ≤ 15% of area per audit section.		
90	All Roads	Type 4A Control – No defects.	Vegetation < 25mm or > 300mm in height.	2 weeks

OPM GROUP 6.4.8: VEGETATION CONTROL – GENERAL (100% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
91	All Roads	Type 6 Control – No defects.	Receipt of an Abatement notice.	2 weeks

OPM GROUP 6.4.9: LITTER COLLECTION (10% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
92	NSHVH (Motorways and Expressways only)	≤ 75 defects per audit section.	Litter item visible to anyone who is travelling at normal operating speed.	2 days
93	NSHVH, NSH, RSH, RCH, RDH	≤ 100 defects per audit section.		

OPM GROUP 6.4.10: DETRITUS (10% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
94	NSHVH (Motorways	≤ 2 defects per audit section.	An area where there is > 500 grams of detritus (e.g. sealing chip, slip	2 days

OPM GROUP 6.1.6: FLUSHING (100% SAMPLE SIZE, MEASURED BI-ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
	and Expressways only)		material) per two square metres of sealed surface and/or is considered a safety hazard.	
95	NSHVH, NSH	≤ 5 defects per audit section		
96	RSH, RCH, RDH	≤ 10 defects per audit section.		

OPM GROUP 6.4.11: REST AREA AND HEAVY COMMERCIAL VEHICLE FACILITY MAINTENANCE (100% SAMPLE SIZE, MEASURED BI-ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
97	NSHVH, NSH,RSH	≤ 2 defect per facility.	Pothole within trafficked area greater than 150mm in diameter.	2 weeks
98	RCH, RDH	≤ 3 defects per facility.		
99	All Roads	≤ 2 defects per facility.	HCV facility not maintained to the special requirements of Appendix 6.11, Rest Area and Heavy Commercial Vehicle Facility Maintenance.	1 week

OPM GROUP 6.4.12: REST AREA AND HEAVY COMMERCIAL VEHICLE FACILITY CUSTOMER MAINTENANCE (10% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
100	All Roads	≤ 1 defect per audit section.	There is non-functioning or damaged, but repairable, equipment or furniture.	2 weeks
101	All Roads	≤ 1 defect per audit section.	There is litter overflowing in rubbish bin.	1 week

OPM GROUP 6.4.13: URBAN GRAFFITI REMOVAL (100% SAMPLE SIZE, MEASURED EVERY 2 MONTHS)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
103	NSHVH, NSH	≤ 30 defects.	Graffiti, in isolation or a collection, in view of road users or pedestrians.	48 hours

OPM GROUP 6.1.6: FLUSHING (100% SAMPLE SIZE, MEASURED BI-ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
104	RSH, RCH, RDH	≤ 40 defects.	Graffiti, in isolation or a collection, in view of road users or pedestrians.	72 hours

OPM GROUP 6.5.1: SIGNS (10% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
105	All Roads	No defects.	Physically missing or illegible Regulatory.	2 hours
106	NSHVH	≤ 2 defects per audit section.	Physically missing or illegible sign that is not Regulatory.	1 week
107	NSH, RSH	≤ 4 defects per audit section.		
108	RCH	≤ 5% with defects per audit section.		
109	RDH	≤ 10% with defects per audit section.		
110	All Roads	≤ 5% with defects per audit section.	Graffiti visible from 50 metres in rural areas.	48 hours

OPM GROUP 6.5.2: SIGNS (100% SAMPLE SIZE, MEASURED BI-ANNUALLY AND AT NIGHT)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
111	All Roads	≤ 10% defects.	Sign not visible at night from a distance of 160m, with head-lights on dipped beam, and/or has a reflectivity of less than 50% of its original reflectivity.	1 week

OPM GROUP 6.5.3: FRANGIBLE SIGNS (100% SAMPLE SIZE, MEASURED ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP

OPM GROUP 6.5.4: RAISED PAVEMENT MARKERS (100% SAMPLE SIZE, MEASURED BI-ANNUALLY AND AT NIGHT)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP

OPM GROUP 6.1.6: FLUSHING (100% SAMPLE SIZE, MEASURED BI-ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
113	All Roads	≤ 20% defects.	RPM not visible from 160m at night, when viewed from the centre of the lane with headlights on full beam or 80m on dipped beam, where the road geometry permits a line of sight.	2 months
114	All Roads	≤ 3% defects.	Three or more consecutive RPMs on curves not visible from 160m at night, when viewed from the centre of the lane with headlights on full beam or 80m on dipped beam, where the road geometry permits a line of sight.	2 weeks

OPM GROUP 6.5.5: EDGE MARKER POSTS (100% SAMPLE SIZE, MEASURED BI-ANNUALLY AND AT NIGHT)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
115	All Roads	≤ 3% defects.	Reflector not visible.	2 weeks
116	All Roads	≤ 1% defects.	Two or more consecutive reflectors on the same side of the road, on curves, not visible from 160m at night, when viewed from the centre of the lane with headlights on full beam or 80m on dipped beam.	2 weeks

OPM GROUP 6.5.6: CULVERT MARKER POSTS (10% SAMPLE SIZE, MEASURED EVERY 2 MONTHS)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
117	All Roads	≤ 3 defects per audit section.	Missing culvert marker post.	1 month

OPM GROUP 6.5.7: LRMS (100% SAMPLE SIZE, MEASURED ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
118	All Roads	≤ 3% of LRMS assets.	Missing, non-functional or incorrectly located sign or pavement marking.	2 weeks
119	All Roads	≤ 5% of LRMS assets.	Missing, damaged, non-functional or incorrectly located kilometre marker post.	2 weeks

OPM GROUP 6.1.6: FLUSHING (100% SAMPLE SIZE, MEASURED BI-ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
120	All Roads	≤ 1% of LRMS assets.	Two or more consecutive missing or damaged kilometre marker posts.	2 weeks

OPM GROUP 6.5.8: NZTA P/22 PAVEMENT MARKING – LINES, TEXT, SYMBOLS, ETC. (100% SAMPLE SIZE, MEASURED BI-ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
121	All Roads	≤ 1% of the completed programme.	After installation, faults identified as per NZTA P/22.	1 month
122	All Roads	No defects.	Rework as identified in OPM 121 not corrected within the agreed time frame.	1 month

OPM GROUP 6.5.9: CARRIAGEWAY LIGHTING (100% SAMPLE SIZE, MEASURED QUARTERLY AND AT NIGHT)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
123	NSHVH, NSH	≤ 5% defects.	Light or belisha beacon not functioning or missing.	1 week
124	RSH, RCH, RDH	≤ 10% defects.		
125	All Roads	≤ 2% of lighted intersections with defects.	More than 50% of the lights not functioning at intersection.	2 days

OPM GROUP 6.5.10: CARRIAGEWAY LIGHTING SLIP BASES (100% SAMPLE SIZE, MEASURED ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
126	All Roads	No defects.	Re-torqueing of a third of the base-slip-asset not undertaken in accordance with manufacturer's recommendations.	N/A

OPM GROUP 6.6.1: INCIDENT RESPONSE (100% SAMPLE SIZE, MEASURED MONTHLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
127	NSHVH, NSH, RSH	No defects.	Not on Site within 1 hour from receiving notification of an incident with sufficient and appropriate resources.	N/A

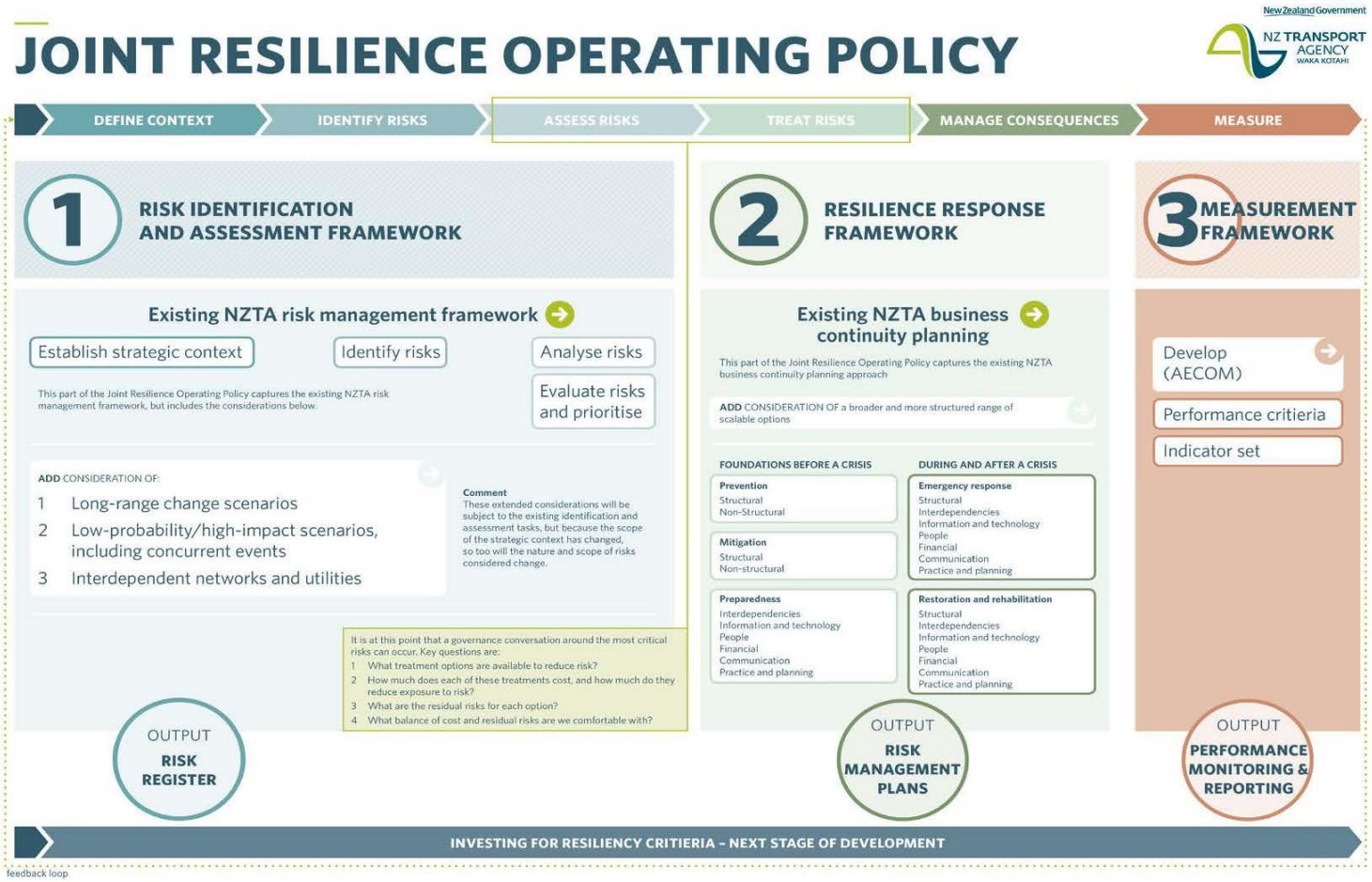
OPM GROUP 6.1.6: FLUSHING (100% SAMPLE SIZE, MEASURED BI-ANNUALLY)

OPM	ROAD CLASS	CONTRACT STANDARD	DEFECT	PIP
128	RCH, RDH		Not on Site within 2 hours from receiving notification of an incident with sufficient and appropriate resources.	N/A

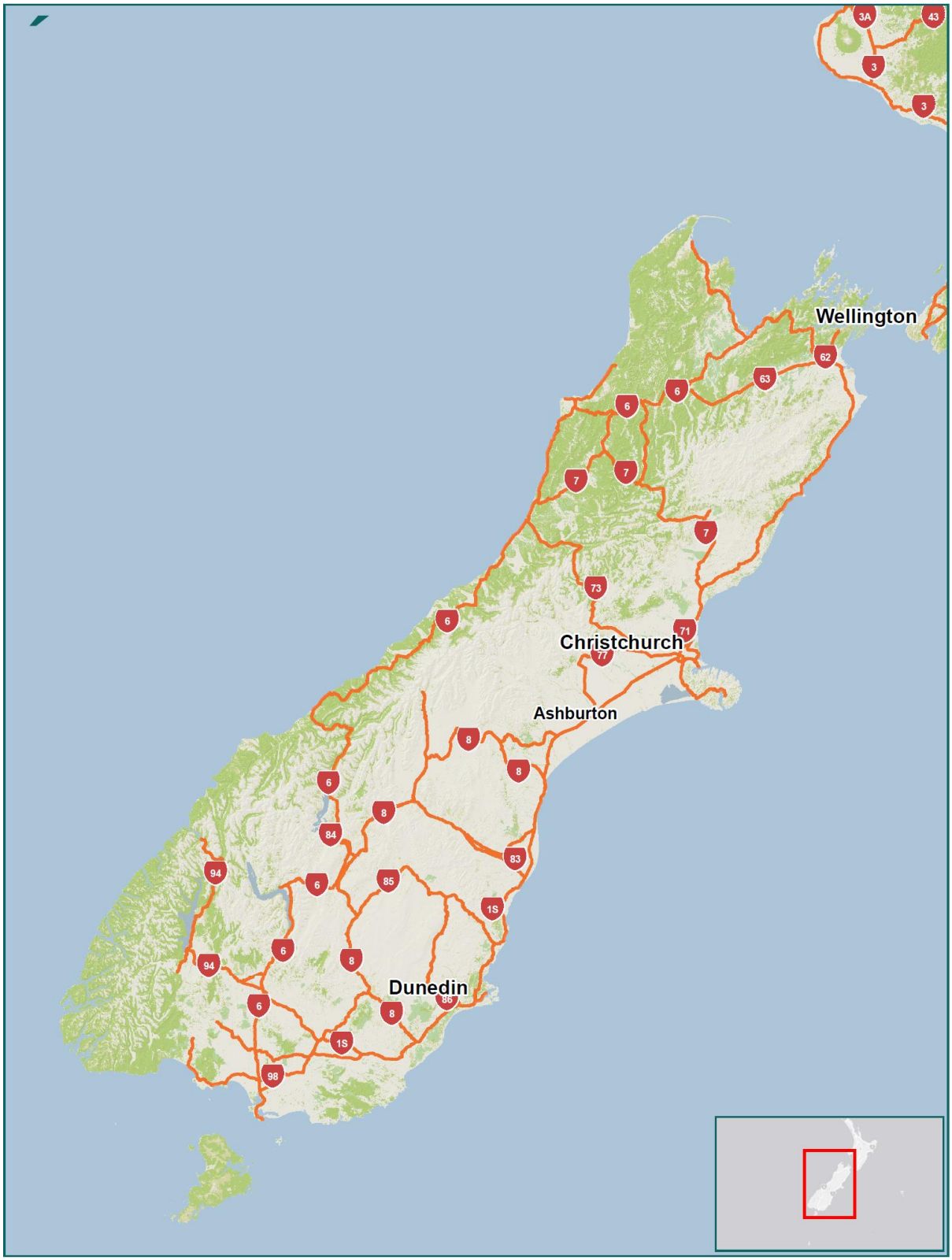
Appendix 3 volume impacts of Capital Projects & Revocations

Region	RoNS Project	Likely completion (year)	Total length CL-Kms	Additional Lanes	Lane-kms New Pavement	Revocation Lane-Kms	Tunnels Lane-kms	Ramps Lane-kms	Median Barriers Kms	Side Barriers Kms	Year of Maintenance Start	Year of Resurfacing
Auckland	WRR Lincoln Road Interchange	2015/2016				0		1			2016/2017	2022/2023
	WRR (St. Lukes)	2016/2017	2	2	4	0		1			2017/2018	2023/2024
	WRR Te Atatu Interchange	2016/2017				0		1			2017/2018	2023/2024
	WRR (Causeway)	2017/2018	4.8	2	9.6	0					2018/2019	2024/2025
	WRR Waterview (2.4k tunnel)	2017/2018	3.6	6	7.2	0	14.4	1	1.8	3	2018/2019	2024/2025
	Lincoln to Westgate	2020/2021	4	2	8	0					2021/2022	2027/2028
	SH20A Upgrade	2018/2019	4.5	2	9	0		1			2019/2020	2025/2026
	Greville Rd Interchange	2019/2020				0		1			2020/2021	2026/2027
	SH1/SH18 Interchange	2018/2019				0		1			2019/2020	2025/2026
	Puhoi to Warkworth	2024/2025	18.5	4	74	0		1	18.5	5	2025/2026	2034/2035
	Total:		**37.4**	**18**	**111.8**	**0**	**14.4**	**8**	**20.3**	**8**		
Waikato	Rangiriri section	2016/2017	4.4	4	17.6	10		2	1	3	2017/2018	2023/2024
	Cambridge section	2016/2017	16	4	64	36		3	16	10	2017/2018	2023/2024
	Long Swamp section	2018/2019	5.9	1	5.9	0		1		2	2019/2020	2028/2029
	Huntly Section	2019/2020	15.2	4	60.8	43		1	15.2	15	2020/2021	2029/2030
	Hamilton section	2019/2020	21.8	4	87.2	20		3	21.8	9	2020/2021	2029/2030
	Maramarua Deviation	2020/2021	6	2	12	15		1		3	2021/2022	2030/2031
	Kopuku Realignment	2022/2023	4	2	8	9				1.5	2023/2024	2032/2033
	Total:		**73.3**	**21**	**255.5**	**133**	**0**	**11**	**54**	**43.5**		
Tauranga	Tauranga Eastern Link	2017/2018	23	4	92	52		2	23	5	2018/2019	2027/2028
	Total:		**23**	**4**	**92**	**52**	**0**	**2**	**23**	**5**		
Wellington	Mackays to Peka Peka	2018/2019	18	4	72	40		2	18	8	2019/2020	2025/2026
	Peka Peka to Otaki	2020/2021	15	4	60	30		1	15	9	2021/2022	2027/2028
	Otaki to North of Levin	2022/2023	30	3	27	0			27		2023/2024	2032/2033
	Mt Vic Tunnel to Airport	2020/2021	3	2	2.2	0	0.8		2		2021/2022	2027/2028
	Tunnel to Tunnel	2016/2017	1	2	2	4.5				2	2017/2018	2023/2024
	Terrace Tunnel Duplication	2023/2024	1	2		0	2				2024/2025	2030/2031
	Ngauranga to Aotea Quay	2018/2019	2	4	8	0					2019/2020	2025/2026
	Petone to Grenada	2022/2023	12.7	4	50.8	0			12.7	12	2023/2024	2029/2030
	Grenada to Transmission Gully Link	2022/2023	12	2	24	0				4	2023/2024	2029/2030
	RoNS (5) Transmission Gully	2020/2021	27	4	0	0		0			2021/2022	2030/2031
	Total:		**121.7**	**31**	**246**	**74.5**	**2.8**	**3**	**74.7**	**35**		
Christchurch	Sawyers Arms to Harewood - 4 laning	2014/2015	1.3	2	2.6	0			1.3		2015/2016	2021/2022
	SH1 Masham and Carmen Roads	2014/2015	2.3	2	4.6	0			2.3		2015/2016	2021/2022
	Harwood to Avonhead Park Section	2016/2017	2.3	2	4.6	0			2.3		2017/2018	2023/2024
	Groynes to Sawyers Arms	2017/2018	3.8	4	15.2	0			3.8		2018/2019	2024/2025
	Western Belfast Bypass	2017/2018	5	4	20	1			5	3	2018/2019	2024/2025
	Christchurch Southern Motorway Stage 2	2018/2019	12.5	4	50	5			12.5	5	2019/2020	2027/2028
	Northern Arterial	2019/2020	7.2	4	28.8	32			7.2		2020/2021	2026/2027
	QEII 4 Laning	2020/2021	3.8	2	7.6	0			3.8		2021/2022	2027/2028
	Total:		**38.2**	**24**	**133.4**	**38**	**0**	**0**	**38.2**	**8**		
Dunedin	Caversham Stg 2	2015/2016	2.5	2	5	0		0.5	2.5	2	2016/2017	2022/2023
	Total:		**2.5**	**2**	**5**	**0**	**0**	**0.5**	**2.5**	**2**		
	National Total:		**296.1**	**100**	**843.7**	**297.5**	**17.2**	**24.5**	**212.7**	**101.5**		

Appendix 4 joint resilience operating policy



Appendix 5 state highway network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Wellington
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Christchurch
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Ashburton
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Dunedin
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Appendix 6 Detailed State Highway Maintenance Programme

6.1 Northland

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and	erations											
Structural Maintenance	111	Sealed Pavement Maintenance	$5,845.6	$5,845.6	$5,845.6	$5,845.6	$5,845.6	$5,845.6	$5,845.6	$5,845.6	$5,845.6	$5,845.6
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$2,107.4	$2,057.4	$2,057.4	$1,457.4	$1,457.4	$1,457.4	$1,457.4	$1,457.4	$1,457.4	$1,457.4
	114	Structures Maintenance	$878.2	$886.6	$895.1	$913.8	$922.7	$936.7	$956.0	$970.4	$980.0	$1,004.8
Corridor Maintenance	121	Environmental Maintenance	$3,366.6	$3,191.6	$3,191.6	$2,936.6	$2,936.6	$2,936.6	$2,936.6	$2,936.6	$2,936.6	$2,936.6
	122	Traffic Services Maintenance	$2,739.0	$2,739.0	$2,739.0	$2,739.0	$2,739.0	$2,739.0	$2,739.0	$2,739.0	$2,739.0	$2,739.0
	123	Operational Traffic Management	$959.3	$959.3	$959.3	$959.3	$959.3	$959.3	$959.3	$959.3	$959.3	$959.3
	124	Cycle Path Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	131	Level Crossing Warning Devices	$3.0	$3.0	$3.0	$3.0	$3.0	$3.0	$3.0	$3.0	$3.0	$3.0
Asset Management	151	Network and Asset Management	$6,091.4	$5,456.2	$5,461.2	$5,366.2	$5,251.2	$5,271.2	$5,226.2	$7,383.6	$5,246.2	$5,201.2
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$21,990.5	$21,138.6	$21,152.2	$20,220.9	$20,114.7	$20,148.8	$20,123.0	$22,294.9	$20,167.1	$20,146.9
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$7,558.0	$7,558.0	$7,558.0	$7,558.0	$7,558.0	$7,558.0	$7,558.0	$7,558.0	$7,558.0	$7,558.0
	213	Drainage Renewals	$1,250.0	$1,000.0	$1,000.0	$1,000.0	$500.0	$500.0	$500.0	$500.0	$500.0	$500.0
	214	Pavement Rehabilitation	$4,490.0	$4,490.0	$4,490.0	$4,490.0	$4,490.0	$4,490.0	$4,490.0	$4,490.0	$4,490.0	$4,490.0
	215	Structures Component Replacements	$1,504.2	$1,554.2	$1,773.0	$1,529.2	$1,579.2	$1,529.2	$1,529.2	$1,579.2	$1,529.2	$1,529.2
Corridor Renewals	221	Environmental Renewals	$117.0	$117.0	$117.0	$117.0	$117.0	$117.0	$117.0	$117.0	$117.0	$117.0
	222	Traffic Services Renewals	$1,790.0	$1,775.0	$1,575.0	$1,575.0	$1,575.0	$1,575.0	$1,575.0	$1,575.0	$1,575.0	$1,575.0
Associated Improvements	231	Associated Improvements	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Associated Improvements	3xx	Capital Improvement Opportunities	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	-	ROAD RENEWALS SUB TOTAL	$16,709.2	$16,494.2	$16,513.0	$16,269.2	$15,819.2	$15,769.2	$15,769.2	$15,819.2	$15,769.2	$15,769.2
	-	TOTAL REQUEST	$38,699.7	$37,632.8	$37,665.2	$36,490.1	$35,933.9	$35,918.0	$35,892.2	$38,114.1	$35,936.3	$35,916.1

6.2 Auckland Harbour Bridge

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and	erations											
Structural Maintenance	111	Sealed Pavement Maintenance	$40,000.0	$211,087.9	$40,000.0	$40,000.0	$211,087.9	$40,000.0	$40,000.0	$211,087.9	$40,000.0	$40,000.0
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	114	Structures Maintenance	$3,544,106.0	$4,169,188.4	$4,032,641.3	$3,868,543.2	$3,924,677.5	$4,031,145.8	$3,914,448.2	$3,988,302.6	$4,062,825.5	$4,044,532.6
Corridor Maintenance	121	Environmental Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	122	Traffic Services Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	123	Operational Traffic Management	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	124	Cycle Path Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$1,979,320.1	$2,753,468.9	$2,210,666.5	$1,581,733.0	$1,590,790.4	$1,617,865.1	$1,595,216.9	$1,445,468.4	$1,492,381.7	$1,495,302.1
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$5,563,426.1	$7,133,745.2	$6,283,307.8	$5,490,276.2	$5,726,555.8	$5,689,010.9	$5,549,665.2	$5,644,858.9	$5,595,207.2	$5,579,834.8
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	213	Drainage Renewals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	214	Pavement Rehabilitation	$2,633,216.4	$0.0	$2,633,216.4	$2,633,216.4	$0.0	$2,633,216.4	$2,633,216.4	$0.0	$2,633,216.4	$2,633,216.4
	215	Structures Component Replacements	$811,813.8	$811,813.8	$461,813.8	$761,813.8	$1,761,813.8	$261,813.8	$261,813.8	$261,813.8	$261,813.8	$261,813.8
Corridor Renewals	221	Environmental Renewals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	222	Traffic Services Renewals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Associated Improvements	231	Associated Improvements	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Associated Improvements	3xx	Capital Improvement Opportunities		$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	-	ROAD RENEWALS SUB TOTAL	$3,445,030.2	$811,813.8	$3,095,030.2	$3,395,030.2	$1,761,813.8	$2,895,030.2	$2,895,030.2	$261,813.8	$2,895,030.2	$2,895,030.2
	-	TOTAL REQUEST:	$9,008.5	$7,945.6	$9,378.3	$8,885.3	$7,488.4	$8,584.0	$8,444.7	$5,906.7	$8,490.2	$8,474.9

6.3 Auckland Motorway Alliance

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and	erations											
Structural Maintenance	111	Sealed Pavement Maintenance	$1,564.7	$1,428.0	$1,435.0	$1,436.0	$1,445.0	$1,445.0	$1,453.0	$1,455.0	$1,460.0	$1,470.0
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$2,257.5	$2,079.3	$2,110.5	$2,157.2	$2,163.9	$2,189.0	$2,226.6	$2,236.8	$2,244.3	$2,250.3
	114	Structures Maintenance	$4,006.8	$4,412.3	$4,427.7	$4,275.0	$3,766.0	$3,777.0	$3,814.5	$3,817.5	$3,877.9	$3,880.0
Corridor Maintenance	121	Environmental Maintenance	$9,068.3	$8,355.9	$8,365.0	$8,630.0	$8,652.0	$8,785.0	$8,857.5	$8,870.0	$8,870.0	$8,913.0
	122	Traffic Services Maintenance	$7,842.4	$7,289.6	$7,400.0	$7,406.8	$7,507.0	$7,514.3	$7,598.0	$7,605.0	$7,665.0	$7,670.0
	123	Operational Traffic Management	$14,017.6	$12,883.6	$13,003.6	$13,073.7	$13,273.7	$13,303.7	$13,529.0	$13,679.0	$13,979.0	$13,979.0
	124	Cycle Path Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$8,827.0	$8,055.0	$8,070.0	$8,085.0	$8,085.0	$8,100.0	$8,110.0	$8,120.0	$8,120.0	$8,130.0
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$47,584.3	$44,503.7	$44,811.8	$45,063.7	$44,892.6	$45,114.0	$45,588.6	$45,783.3	$46,216.2	$46,292.3
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$5,511.9	$8,565.5	$10,009.8	$20,544.4	$12,842.0	$14,646.8	$12,059.5	$10,282.7	$3,819.0	$6,182.5
	213	Drainage Renewals	$1,468.2	$1,345.0	$1,345.9	$1,350.0	$1,355.0	$1,355.0	$1,360.0	$1,369.0	$1,270.0	$1,380.0
	214	Pavement Rehabilitation	$0.0	$0.0	$200.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	215	Structures Component Replacements	$7,024.9	$5,001.8	$4,332.2	$4,765.9	$4,836.8	$4,273.0	$5,701.6	$4,928.2	$9,503.7	$4,687.4
Corridor Renewals	221	Environmental Renewals	$82.2	$100.0	$100.0	$100.0	$100.0	$100.0	$100.0	$100.0	$100.0	$100.0
	222	Traffic Services Renewals	$5,328.4	$7,884.8	$6,479.1	$5,127.5	$6,609.5	$7,098.5	$6,033.3	$6,657.0	$4,487.0	$6,865.7
Associated Improvements	231	Associated Improvements	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Associated Improvements	3xx	Capital Improvement Opportunities	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	-	ROAD RENEWALS SUB TOTAL	$19,415.7	$22,897.1	$22,467.0	$31,887.8	$25,743.3	$27,473.3	$25,254.4	$23,336.9	$19,179.7	$19,215.6
	-	TOTAL REQUEST	$67,000.0	$67,400.8	$67,278.8	$76,951.4	$70,635.9	$72,587.3	$70,843.0	$69,120.2	$65,395.9	$65,507.9

6.4 PSMC 007

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and erations												
Structural Maintenance	111	Sealed Pavement Maintenance	$989.0	$989.0	$989.0	$989.0	$989.0	$989.0	$989.0	$989.0	$989.0	$989.0
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$716.0	$716.0	$716.0	$716.0	$716.0	$716.0	$716.0	$716.0	$716.0	$716.0
	114	Structures Maintenance	$511.0	$526.0	$526.0	$541.0	$551.0	$561.0	$571.0	$571.0	$581.0	$591.0
Corridor Maintenance	121	Environmental Maintenance	$1,345.0	$1,345.0	$1,345.0	$1,345.0	$1,345.0	$1,345.0	$1,345.0	$1,345.0	$1,345.0	$1,345.0
	122	Traffic Services Maintenance	$1,477.0	$1,477.0	$1,477.0	$1,477.0	$1,477.0	$1,477.0	$1,477.0	$1,477.0	$1,477.0	$1,477.0
	123	Operational Traffic Management	$211.0	$211.0	$211.0	$211.0	$211.0	$211.0	$211.0	$211.0	$211.0	$211.0
	124	Cycle Path Maintenance	$70.0	$70.0	$70.0	$70.0	$70.0	$70.0	$70.0	$70.0	$70.0	$70.0
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$1,515.0	$1,515.0	$1,515.0	$1,515.0	$1,515.0	$1,515.0	$1,515.0	$2,432.1	$1,515.0	$1,515.0
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$6,834.0	$6,849.0	$6,849.0	$6,864.0	$6,874.0	$6,884.0	$6,894.0	$7,811.1	$6,904.0	$6,914.0
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$4,920.0	$4,920.0	$4,920.0	$4,920.0	$4,920.0	$4,920.0	$4,920.0	$4,920.0	$4,920.0	$4,920.0
	213	Drainage Renewals	$300.0	$300.0	$300.0	$300.0	$300.0	$300.0	$300.0	$300.0	$300.0	$300.0
	214	Pavement Rehabilitation	$2,950.0	$2,950.0	$2,950.0	$2,950.0	$2,950.0	$2,950.0	$2,950.0	$2,950.0	$2,950.0	$2,950.0
	215	Structures Component Replacements	$161.6	$146.6	$156.6	$171.6	$171.6	$186.6	$221.6	$221.6	$256.6	$256.6
Corridor Renewals	221	Environmental Renewals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	222	Traffic Services Renewals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Associated Improvements	231	Associated Improvements	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Associated Improvements	3xx	Capital Improvement Opportunities	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	-	ROAD RENEWALS SUB TOTAL	$8,331.6	$8,316.6	$8,326.6	$8,341.6	$8,341.6	$8,356.6	$8,391.6	$8,391.6	$8,426.6	$8,426.6
	-	TOTAL REQUEST	$15,165.6	$15,165.6	$15,175.6	$15,205.6	$15,215.6	$15,240.6	$15,285.6	$16,202.7	$15,330.6	$15,340.6

6.5 PSMC 006

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and	eration:											
Structural Maintenance	111	Sealed Pavement Maintenance	$5,761.07	$5,817.38	$5,875.17	$5,934.48	$5,995.35	$5,875.44	$5,757.93	$5,642.78	$5,529.92	$5,419.32
	112	Unsealed Pavement Maintenance	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	113	Routine Drainage Maintenance	$1,056.53	$1,056.53	$1,056.53	$1,056.53	$1,056.53	$1,035.40	$1,014.69	$994.40	$974.51	$955.02
	114	Structures Maintenance	$181.00	$181.00	$181.00	$191.00	$191.00	$189.18	$195.40	$193.65	$203.94	$202.26
Corridor Maintenance	121	Environmental Maintenance	$577.00	$577.00	$577.00	$577.00	$577.00	$565.46	$554.15	$543.07	$532.21	$521.56
	122	Traffic Services Maintenance	$838.00	$838.00	$838.00	$838.00	$838.00	$821.24	$804.82	$788.72	$772.94	$757.49
	123	Operational Traffic Management	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	124	Cycle Path Maintenance	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	131	Level Crossing Warning Devices	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Asset Management	151	Network and Asset Management	$1,280.06	$1,280.06	$1,280.06	$1,280.06	$1,280.06	$1,264.06	$2,153.34	$1,233.01	$1,217.95	$1,203.19
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$9,693.66	$9,749.97	$9,807.76	$9,877.07	$9,937.94	$9,750.78	$10,480.33	$9,395.62	$9,231.47	$9,058.84
Structural Renewals	211	Unsealed Road Metalling	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	212	Sealed Road Resurfacing	$2,150.00	$2,150.00	$2,150.00	$2,150.00	$2,150.00	$2,107.00	$2,064.86	$2,023.56	$1,983.09	$1,943.43
	213	Drainage Renewals	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	214	Pavement Rehabilitation	$3,313.74	$3,313.74	$3,313.74	$3,313.74	$3,313.74	$3,247.47	$3,182.52	$3,118.87	$3,056.49	$2,995.36
	215	Structures Component Replacements	$265.00	$305.00	$190.00	$322.00	$225.00	$225.00	$260.00	$260.00	$260.00	$290.00
Corridor Renewals	221	Environmental Renewals	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	222	Traffic Services Renewals	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Associated Improvements	231	Associated Improvements	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Associated Improvements	3xx	Capital Improvement Opportunities	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	-	ROAD RENEWALS SUB TOTAL	$5,728.74	$5,768.74	$5,653.74	$5,785.74	$5,688.74	$5,579.47	$5,507.38	$5,402.43	$5,299.58	$5,228.79
	-	TOTAL REQUEST	$15,422.40	$15,518.71	$15,461.50	$15,662.81	$15,626.68	$15,330.25	$15,987.71	$14,798.05	$14,531.05	$14,287.62

6.6 Central Waikato

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and	eration:											
Structural Maintenance	111	Sealed Pavement Maintenance	$4,901.0	$4,901.0	$4,901.0	$4,901.0	$4,901.0	$4,901.0	$4,901.0	$4,901.0	$4,901.0	$4,901.0
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$1,421.0	$1,421.0	$1,421.0	$1,421.0	$1,421.0	$1,421.0	$1,421.0	$1,421.0	$1,421.0	$1,421.0
	114	Structures Maintenance	$306.0	$331.0	$316.0	$306.0	$316.0	$321.0	$321.0	$321.0	$321.0	$331.0
Corridor Maintenance	121	Environmental Maintenance	$3,154.0	$3,154.0	$3,154.0	$3,154.0	$3,154.0	$3,154.0	$3,154.0	$3,154.0	$3,154.0	$3,154.0
	122	Traffic Services Maintenance	$2,051.0	$2,051.0	$2,051.0	$2,051.0	$2,051.0	$2,051.0	$2,051.0	$2,051.0	$2,051.0	$2,051.0
	123	Operational Traffic Management	$139.0	$139.0	$139.0	$139.0	$139.0	$139.0	$139.0	$139.0	$139.0	$139.0
	124	Cycle Path Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$3,551.0	$3,551.0	$3,551.0	$3,551.0	$3,551.0	$3,551.0	$4,702.7	$3,551.0	$3,551.0	$3,551.0
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$15,523.0	$15,548.0	$15,533.0	$15,523.0	$15,533.0	$15,538.0	$16,689.7	$15,538.0	$15,538.0	$15,548.0
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$1,899.14	$2,741.3	$3,490.6	$1,899.14	$3,380.8	$2,983.1	$2,434.0	$2,983.1	$2,983.1	$3,084.5
	213	Drainage Renewals	$70.0	$70.0	$70.0	$70.0	$70.0	$70.0	$70.0	$70.0	$70.0	$70.0
	214	Pavement Rehabilitation	$2,934.20	$1,019.6	$2,317.3	$2,934.20	$1,855.3	$2,130.1	$227.5	$2,130.1	$2,130.1	$2,688.6
	215	Structures Component Replacements	$350.0	$620.0	$480.0	$350.0	$250.0	$250.0	$275.0	$250.0	$250.0	$305.0
Corridor Renewals	221	Environmental Renewals	$75.0	$75.0	$75.0	$75.0	$75.0	$75.0	$75.0	$75.0	$75.0	$75.0
	222	Traffic Services Renewals	$575.0	$530.0	$595.0	$575.0	$545.0	$530.0	$575.0	$530.0	$530.0	$560.0
Associated Improvements	231	Associated Improvements	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Associated Improvements	3xx	Capital Improvement Opportunities	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	-	ROAD RENEWALS SUB TOTAL	$5,903.34	$5,055.9	$7,027.9	$5,903.34	$6,176.1	$6,038.2	$3,656.5	$6,038.2	$6,038.2	$6,783.1
	-	TOTAL REQUEST	$21,426.34	$20,603.9	$22,560.9	$21,426.34	$21,709.1	$21,576.2	$20,346.2	$21,576.2	$21,576.2	$22,331.1

6.7 East Waikato

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and	eration											
Structural Maintenance	111	Sealed Pavement Maintenance	$2,500.00	$2,530.00	$2,560.36	$2,591.09	$2,622.18	$2,653.65	$2,685.49	$2,717.72	$2,750.33	$2,783.33
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$774.9	$784.2	$793.6	$803.1	$812.8	$822.5	$832.4	$842.4	$852.5	$862.7
	114	Structures Maintenance	$573.1	$580.0	$586.9	$594.0	$601.1	$608.3	$615.6	$623.0	$630.5	$638.1
Corridor Maintenance	121	Environmental Maintenance	$1,035.7	$1,048.1	$1,060.7	$1,073.4	$1,086.3	$1,099.3	$1,112.5	$1,125.9	$1,139.4	$1,153.1
	122	Traffic Services Maintenance	$1,717.8	$1,738.4	$1,759.2	$1,780.4	$1,801.7	$1,823.3	$1,845.2	$1,867.4	$1,889.8	$1,912.4
	123	Operational Traffic Management	$329.9	$333.9	$337.9	$341.9	$346.0	$350.2	$354.4	$358.6	$362.9	$367.3
	124	Cycle Path Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$1,865.1	$1,887.5	$1,910.1	$1,933.1	$1,956.3	$1,979.7	$2,003.5	$2,027.5	$2,051.9	$2,076.5
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$8,796.5	$8,902.0	$9,008.9	$9,117.0	$9,226.4	$9,337.1	$9,449.1	$9,562.5	$9,677.3	$9,793.4
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$1,453.8	$1,471.3	$1,488.9	$1,506.8	$1,524.9	$1,543.2	$1,561.7	$1,580.4	$1,599.4	$1,618.6
	213	Drainage Renewals	$101.2	$102.4	$103.6	$104.9	$106.1	$107.4	$108.7	$110.0	$111.3	$112.7
	214	Pavement Rehabilitation	$1,293.6	$1,309.1	$1,324.8	$1,340.7	$1,356.8	$1,373.1	$1,389.6	$1,406.3	$1,423.1	$1,440.2
	215	Structures Component Replacements	$167.0	$169.0	$171.0	$173.1	$175.1	$177.2	$179.4	$181.5	$183.7	$185.9
Corridor Renewals	221	Environmental Renewals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	222	Traffic Services Renewals	$536.4	$542.8	$549.3	$555.9	$562.6	$569.3	$576.2	$583.1	$590.1	$597.1
Associated Improvements	231	Associated Improvements	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Associated Improvements	3xx	Capital Improvement Opportunities	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	-	ROAD RENEWALS SUB TOTAL	$3,552.0	$3,594.6	$3,637.7	$3,681.4	$3,725.6	$3,770.3	$3,815.5	$3,861.3	$3,907.6	$3,954.5
	-	TOTAL REQUEST	$12,348.4	$12,496.6	$12,646.6	$12,798.3	$12,951.9	$13,107.3	$13,264.6	$13,423.8	$13,584.9	$13,747.9

6.8 BOP East

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and	erations											
Structural Maintenance	111	Sealed Pavement Maintenance	$4,631.2	$4,631.2	$4,631.2	$4,723.82	$4,631.2	$4,723.8	$4,631.2	$5,776.86	$5,892.4	$6,010.2
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$489.7	$489.7	$489.7	$499.5	$489.7	$499.5	$489.7	$610.8	$623.1	$635.5
	114	Structures Maintenance	$970.0	$308.2	$308.2	$314.4	$308.2	$314.4	$308.2	$384.4	$392.1	$400.0
Corridor Maintenance	121	Environmental Maintenance	$1,147.5	$1,147.5	$1,147.5	$1,170.5	$1,147.5	$1,170.5	$1,147.5	$1,431.4	$1,460.0	$1,489.2
	122	Traffic Services Maintenance	$1,883.6	$1,883.6	$1,883.6	$1,921.3	$1,883.6	$1,921.3	$1,883.6	$2,349.6	$2,396.6	$2,444.5
	123	Operational Traffic Management	$475.0	$475.0	$475.0	$484.5	$475.0	$484.5	$475.0	$592.5	$604.4	$616.4
	124	Cycle Path Maintenance	$37.7	$37.7	$37.7	$38.5	$37.7	$38.5	$37.7	$47.1	$48.0	$49.0
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$2,017.5	$2,017.5	$2,017.5	$2,057.9	$2,017.5	$2,057.9	$2,017.5	$2,516.6	$2,566.9	$2,618.3
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$11,494.7	$10,832.9	$10,832.9	$11,049.6	$10,832.9	$11,049.6	$10,832.9	$11,049.6	$11,270.6	$11,496.0
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$2,083.2	$2,944.0	$2,944.0	$3,002.9	$2,944.0	$3,002.9	$2,944.0	$3,672.3	$3,745.7	$3,820.6
	213	Drainage Renewals	$161.5	$280.0	$280.0	$285.6	$280.0	$285.6	$280.0	$349.3	$356.3	$363.4
	214	Pavement Rehabilitation	$525.0	$1,470.0	$1,470.0	$1,499.4	$1,470.0	$1,499.4	$1,470.0	$1,833.6	$1,870.3	$1,907.7
	215	Structures Component Replacements	$1,534.0	$1,080.0	$1,080.0	$1,101.6	$1,080.0	$1,101.6	$1,080.0	$1,347.2	$1,374.1	$1,401.6
Corridor Renewals	221	Environmental Renewals	$55.0	$55.0	$55.0	$56.1	$55.0	$56.1	$55.0	$68.6	$70.0	$71.4
	222	Traffic Services Renewals	$278.7	$393.4	$393.4	$401.2	$393.4	$401.2	$393.4	$490.7	$500.5	$510.5
Associated Improvements	231	Associated Improvements			$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Associated Improvements	3xx	Capital Improvement Opportunities			$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	-	ROAD RENEWALS SUB TOTAL	$2,555.9	$4,894.9	$4,894.9	$4,992.8	$4,894.9	$4,992.8	$4,894.9	$6,105.8	$6,227.9	$6,352.4
	-	TOTAL REQUEST	$14,050.6	$15,727.8	$15,727.8	$16,042.4	$15,727.8	$16,042.4	$16,818.9	$17,155.3	$17,498.5	$17,848.4

6.9 BOP West

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and	erations											
Structural Maintenance	111	Sealed Pavement Maintenance	$4,278.90	$4,364.48	$4,451.77	$4,540.80	$4,631.62	$4,724.25	$4,818.74	$5,221.20	$5,325.63	$5,432.14
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$528.7	$539.3	$550.1	$561.1	$572.3	$583.7	$595.4	$645.2	$658.1	$671.2
	114	Structures Maintenance	$480.4	$490.0	$499.8	$509.8	$520.0	$530.4	$541.0	$586.2	$597.9	$609.9
Corridor Maintenance	121	Environmental Maintenance	$1,641.2	$1,674.0	$1,707.5	$1,741.6	$1,776.5	$1,812.0	$1,848.2	$2,002.6	$2,042.7	$2,083.5
	122	Traffic Services Maintenance	$1,377.0	$1,404.5	$1,432.6	$1,461.3	$1,490.5	$1,520.3	$1,550.7	$1,680.2	$1,713.8	$1,748.1
	123	Operational Traffic Management	$739.4	$754.2	$769.3	$784.7	$800.3	$816.4	$832.7	$902.2	$920.3	$938.7
	124	Cycle Path Maintenance	$31.6	$32.3	$32.9	$33.6	$34.2	$34.9	$35.6	$38.6	$39.4	$40.1
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$2,055.8	$2,096.9	$2,138.9	$2,181.6	$2,225.3	$2,269.8	$2,315.2	$2,508.5	$2,558.7	$2,609.9
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$11,133.0	$11,355.7	$11,582.8	$11,814.5	$12,050.8	$12,291.8	$12,537.6	$13,584.8	$13,856.5	$14,133.6
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$700.0	$714.0	$728.3	$742.8	$757.7	$772.8	$788.3	$854.1	$871.2	$888.6
	213	Drainage Renewals	$255.0	$260.1	$265.3	$270.6	$276.0	$281.5	$287.2	$311.2	$317.4	$323.7
	214	Pavement Rehabilitation	$1,683.9	$1,717.6	$1,751.9	$1,787.0	$1,822.7	$1,859.2	$1,896.4	$2,054.8	$2,095.8	$2,137.8
	215	Structures Component Replacements	$632.4	$645.0	$657.9	$671.1	$684.5	$698.2	$712.2	$771.7	$787.1	$802.8
Corridor Renewals	221	Environmental Renewals	$15.3	$15.6	$15.9	$16.2	$16.6	$16.9	$17.2	$18.7	$19.0	$19.4
	222	Traffic Services Renewals	$107.1	$109.2	$111.4	$113.7	$115.9	$118.2	$120.6	$130.7	$133.3	$136.0
Associated Improvements	231	Associated Improvements	$71.4	$72.8	$74.3	$75.8	$77.3	$78.8	$80.4	$87.1	$88.9	$90.6
Associated Improvements	3xx	Capital Improvement Opportunities	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	-	ROAD RENEWALS SUB TOTAL	$3,465.1	$3,534.4	$3,605.1	$3,677.2	$3,750.7	$3,825.7	$3,902.3	$4,228.2	$4,312.7	$4,399.0
	-	TOTAL REQUEST	$14,598.1	$14,890.1	$15,187.9	$15,491.7	$15,801.5	$16,117.5	$17,463.7	$17,812.95	$18,169.2	$18,532.6

6.10 Gisborne

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and erations												
Structural Maintenance	111	Sealed Pavement Maintenance	$2,603.6	$2,480.0	$2,480.0	$2,480.0	$2,480.0	$2,480.0	$2,480.0	$2,480.0	$2,480.0	$2,480.0
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$683.1	$675.0	$675.0	$675.0	$675.0	$675.0	$675.0	$675.0	$675.0	$675.0
	114	Structures Maintenance	$197.3	$290.0	$290.0	$312.0	$312.0	$312.0	$345.0	$345.0	$345.0	$345.0
Corridor Maintenance	121	Environmental Maintenance	$1,828.7	$1,937.0	$1,937.0	$1,937.0	$1,937.0	$1,937.0	$1,937.0	$1,937.0	$1,937.0	$1,937.0
	122	Traffic Services Maintenance	$712.4	$704.0	$704.0	$704.0	$704.0	$704.0	$704.0	$704.0	$704.0	$704.0
	123	Operational Traffic Management	$111.3	$110.0	$110.0	$110.0	$110.0	$110.0	$110.0	$110.0	$110.0	$110.0
	124	Cycle Path Maintenance	$10.1	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0	$10.0
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$2,097.6	$1,571.8	$1,571.8	$1,571.8	$1,571.8	$1,571.8	$1,571.8	$1,591.8	$3,631.8	$1,571.8
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$8,244.1	$7,777.8	$7,777.8	$7,799.8	$7,799.8	$7,799.8	$7,832.8	$7,852.8	$9,892.8	$7,832.8
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$1,367.1	$1,725.8	$2,112.8	$2,117.5	$2,117.5	$2,117.5	$2,117.5	$2,117.5	$2,117.5	$2,117.5
	213	Drainage Renewals	$202.4	$200.0	$200.0	$200.0	$200.0	$200.0	$200.0	$200.0	$200.0	$200.0
	214	Pavement Rehabilitation	$641.9	$1,700.8	$1,630.8	$2,250.0	$2,250.0	$2,250.0	$2,250.0	$2,250.0	$2,250.0	$2,250.0
	215	Structures Component Replacements	$448.3	$464.3	$753.9	$931.0	$476.0	$476.0	$516.0	$516.0	$516.0	$516.0
Corridor Renewals	221	Environmental Renewals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	222	Traffic Services Renewals	$118.4	$117.0	$117.0	$117.0	$87.0	$87.0	$87.0	$87.0	$87.0	$87.0
Associated Improvements	231	Associated Improvements	$106.3									
Associated Improvements	3xx	Capital Improvement Opportunities	$3.5									
	-	ROAD RENEWALS SUB TOTAL	$2,887.9	$4,207.8	$4,814.5	$5,615.5	$5,130.5	$5,130.5	$5,170.5	$5,170.5	$5,170.5	$5,170.5
	-	TOTAL REQUEST	$11,132.04	$11,985.6	$12,592.2	$13,415.3	$12,930.3	$12,930.3	$13,003.3	$13,023.3	$15,063.3	$13,003.3

6.11 Hawkes Bay

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and	erations											
Structural Maintenance	111	Sealed Pavement Maintenance	$2,408.56	$2,437.46	$2,466.71	$2,496.31	$2,526.27	$2,556.58	$2,587.26	$2,618.31	$2,649.73	$2,681.53
	112	Unsealed Pavement Maintenance	$141.68	$143.38	$145.10	$146.84	$148.60	$150.39	$152.19	$154.02	$155.87	$157.74
	113	Routine Drainage Maintenance	$708.40	$716.90	$725.50	$734.21	$743.02	$751.94	$760.96	$770.09	$779.33	$788.68
	114	Structures Maintenance	$465.52	$471.11	$476.76	$482.48	$488.27	$494.13	$500.06	$506.06	$512.13	$518.28
Corridor Maintenance	121	Environmental Maintenance	$1,973.40	$1,997.08	$2,021.05	$2,045.30	$2,069.84	$2,094.68	$2,119.82	$2,145.25	$2,171.00	$2,197.05
	122	Traffic Services Maintenance	$1,119.27	$1,132.70	$1,146.30	$1,160.05	$1,173.97	$1,188.06	$1,202.32	$1,216.74	$1,231.34	$1,246.12
	123	Operational Traffic Management	$179.12	$181.27	$183.45	$185.65	$187.88	$190.13	$192.41	$194.72	$197.06	$199.42
	124	Cycle Path Maintenance	$25.30	$25.60	$25.91	$26.22	$26.54	$26.85	$27.18	$27.50	$27.83	$28.17
	131	Level Crossing Warning Devices	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Asset Management	151	Network and Asset Management	$3,253.83	$3,292.88	$3,332.39	$3,372.38	$3,412.85	$3,453.81	$3,495.25	$3,537.19	$3,579.64	$3,622.60
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$10,275.09	$10,398.39	$10,523.17	$10,649.45	$10,777.24	$10,906.57	$11,037.45	$11,169.90	$11,303.94	$11,439.58
Structural Renewals	211	Unsealed Road Metalling	$136.62	$138.26	$139.92	$141.60	$143.30	$145.02	$146.76	$148.52	$150.30	$152.10
	212	Sealed Road Resurfacing	$1,450.87	$1,468.28	$1,485.90	$1,503.73	$1,521.78	$1,540.04	$1,558.52	$1,577.22	$1,596.15	$1,615.30
	213	Drainage Renewals	$222.64	$225.31	$228.02	$230.75	$233.52	$236.32	$239.16	$242.03	$244.93	$247.87
	214	Pavement Rehabilitation	$754.42	$763.47	$772.63	$781.90	$791.28	$800.78	$810.39	$820.11	$829.96	$839.91
	215	Structures Component Replacements	$506.00	$512.07	$518.22	$524.44	$530.73	$537.10	$543.54	$550.07	$556.67	$563.35
Corridor Renewals	221	Environmental Renewals	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	222	Traffic Services Renewals	$156.86	$158.74	$160.65	$162.57	$164.53	$166.50	$168.50	$170.52	$172.57	$174.64
Associated Improvements	231	Associated Improvements	$116.38	$117.78	$119.19	$120.62	$122.07	$123.53	$125.01	$126.51	$128.03	$129.57
Associated Improvements	3xx	Capital Improvement Opportunities	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
	-	ROAD RENEWALS SUB TOTAL	$3,343.79	$3,383.92	$3,424.52	$3,465.62	$3,507.20	$3,549.29	$3,591.88	$3,634.98	$3,678.60	$3,722.75
	-	TOTAL REQUEST	$13,618.88	$13,782.31	$13,947.69	$14,115.07	$14,284.45	$14,455.86	$14,629.33	$14,804.88	$15,992.54	$16,184.45

6.12 Taranaki

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and	erations											
Structural Maintenance	111	Sealed Pavement Maintenance	$1,576.7	$1,595.6	$1,614.8	$1,634.1	$1,653.8	$1,673.6	$1,693.7	$1,714.0	$1,734.6	$1,755.4
	112	Unsealed Pavement Maintenance	$17.2	$17.4	$17.6	$17.8	$18.0	$18.3	$18.5	$18.7	$18.9	$19.2
	113	Routine Drainage Maintenance	$479.9	$485.6	$491.5	$497.4	$503.3	$509.4	$515.5	$521.7	$527.9	$534.3
	114	Structures Maintenance	$366.1	$370.5	$375.0	$379.5	$384.0	$388.6	$393.3	$398.0	$402.8	$407.6
Corridor Maintenance	121	Environmental Maintenance	$968.2	$979.9	$991.6	$1,003.5	$1,015.6	$1,027.7	$1,040.1	$1,052.6	$1,065.2	$1,078.0
	122	Traffic Services Maintenance	$1,199.5	$1,213.9	$1,228.4	$1,243.2	$1,258.1	$1,273.2	$1,288.5	$1,303.9	$1,319.6	$1,335.4
	123	Operational Traffic Management	$535.2	$541.6	$548.1	$554.7	$561.4	$568.1	$574.9	$581.8	$588.8	$595.9
	124	Cycle Path Maintenance	$25.3	$25.6	$25.9	$26.2	$26.5	$26.9	$27.2	$27.5	$27.8	$28.2
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$2,176.9	$2,203.0	$2,229.4	$2,256.2	$2,283.27	$2,310.7	$2,338.4	$2,366.5	$2,394.9	$2,423.6
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$7,345.0	$7,433.1	$7,522.3	$7,612.6	$7,704.0	$7,796.4	$7,890.0	$7,984.6	$8,080.5	$8,177.4
Structural Renewals	211	Unsealed Road Metalling	$53.7	$54.4	$55.0	$55.7	$56.4	$57.0	$57.7	$58.4	$59.1	$59.8
	212	Sealed Road Resurfacing	$970.2	$981.8	$993.6	$1,005.5	$1,017.6	$1,029.8	$1,042.1	$1,054.7	$1,067.3	$1,080.1
	213	Drainage Renewals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	214	Pavement Rehabilitation	$875.7	$886.2	$896.8	$907.6	$918.5	$929.5	$940.7	$951.9	$963.4	$974.9
	215	Structures Component Replacements	$728.6	$737.4	$746.2	$755.2	$764.2	$773.4	$782.7	$792.1	$801.6	$811.2
Corridor Renewals	221	Environmental Renewals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	222	Traffic Services Renewals	$450.3	$455.7	$461.2	$466.7	$472.3	$478.0	$483.8	$489.6	$495.4	$501.4
Associated Improvements	231	Associated Improvements	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Associated Improvements	3xx	Capital Improvement Opportunities	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	-	ROAD RENEWALS SUB TOTAL	$3,078.6	$3,115.5	$3,152.9	$3,190.7	$3,229.0	$3,267.8	$3,307.0	$3,346.7	$3,386.8	$3,427.5
	-	TOTAL REQUEST	$10,423.6	$10,548.7	$10,675.2	$10,803.3	$11,589.0	$16,728.0	$16,928.8	$17,131.9	$17,337.5	$17,545.5

6.13 Manawatu

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and	erations											
Structural Maintenance	111	Sealed Pavement Maintenance	$1,925.2	$1,948.35	$1,971.73	$1,995.39	$2,019.33	$2,043.56	$2,068.09	$2,092.90	$2,118.02	$2,143.44
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$428.2	$433.4	$438.6	$443.8	$449.1	$454.5	$460.0	$465.5	$471.1	$476.7
	114	Structures Maintenance	$566.8	$573.6	$580.5	$587.5	$594.5	$601.7	$608.9	$616.2	$623.6	$631.1
Corridor Maintenance	121	Environmental Maintenance	$904.2	$915.1	$926.1	$937.2	$948.4	$959.8	$971.3	$983.0	$994.8	$1,006.7
	122	Traffic Services Maintenance	$2,479.6	$2,509.4	$2,539.5	$2,570.0	$2,600.8	$2,632.0	$2,663.6	$2,695.6	$2,727.9	$2,760.7
	123	Operational Traffic Management	$1,177.9	$1,192.1	$1,206.4	$1,220.8	$1,235.5	$1,250.3	$1,265.3	$1,280.5	$1,295.9	$1,311.4
	124	Cycle Path Maintenance	$70.7	$71.5	$72.4	$73.2	$74.1	$75.0	$75.9	$76.8	$77.7	$78.7
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$1,950.7	$1,974.1	$1,997.8	$2,021.8	$2,046.0	$2,070.6	$2,095.4	$2,120.6	$2,146.0	$2,171.8
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$9,503.5	$9,617.5	$9,732.9	$9,849.7	$9,967.9	$10,087.5	$10,208.6	$10,331.1	$10,455.1	$10,580.5
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$1,879.5	$1,902.0	$1,924.8	$1,947.9	$1,971.3	$1,995.0	$2,018.9	$2,043.1	$2,067.7	$2,092.5
	213	Drainage Renewals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	214	Pavement Rehabilitation	$383.0	$387.6	$392.3	$397.0	$401.7	$406.6	$411.4	$416.4	$421.4	$426.4
	215	Structures Component Replacements	$509.8	$515.9	$522.1	$528.4	$534.7	$541.2	$547.7	$554.2	$560.9	$567.6
Corridor Renewals	221	Environmental Renewals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	222	Traffic Services Renewals	$321.0	$324.9	$328.8	$332.7	$336.7	$340.8	$344.9	$349.0	$353.2	$357.4
Associated Improvements	231	Associated Improvements	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Associated Improvements	3xx	Capital Improvement Opportunities	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	-	ROAD RENEWALS SUB TOTAL	$3,093.4	$3,130.5	$3,168.1	$3,206.1	$3,244.5	$3,283.5	$3,322.9	$3,362.8	$3,403.1	$3,443.9
	-	TOTAL REQUEST	$12,596.85	$12,748.0	$12,901.0	$13,055.8	$13,212.5	$13,371.0	$14,333.7	$14,505.7	$14,679.8	$14,856.0

6.14 Wellington

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and	erations											
Structural Maintenance	111	Sealed Pavement Maintenance	$3,735.7	$3,735.7	$3,735.7	$3,735.7	$3,735.7	$3,735.7	$3,735.7	$3,735.7	$3,735.7	$3,735.7
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$242.9	$242.9	$242.9	$242.9	$242.9	$242.9	$242.9	$242.9	$242.9	$242.9
	114	Structures Maintenance	$2,210.4	$2,185.4	$2,185.4	$2,185.4	$2,185.4	$2,185.4	$2,185.4	$2,185.4	$2,185.4	$2,185.4
Corridor Maintenance	121	Environmental Maintenance	$2,676.9	$2,676.9	$2,676.9	$2,676.9	$2,676.9	$2,676.9	$2,676.9	$2,676.9	$2,676.9	$2,676.9
	122	Traffic Services Maintenance	$3,359.9	$3,359.9	$3,359.9	$3,359.9	$3,359.9	$3,359.9	$3,359.9	$3,359.9	$3,359.9	$3,359.9
	123	Operational Traffic Management	$38.4	$38.4	$38.4	$38.4	$38.4	$38.4	$38.4	$38.4	$38.4	$38.4
	124	Cycle Path Maintenance	$46.3	$46.3	$46.3	$46.3	$46.3	$46.3	$46.3	$46.3	$46.3	$46.3
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$3,340.0	$3,340.0	$3,340.0	$3,340.0	$3,340.0	$3,340.0	$4,290.0	$3,340.0	$3,340.0	$3,340.0
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$15,650.5	$15,625.5	$15,625.5	$15,625.5	$15,625.5	$15,625.5	$16,575.5	$15,625.5	$15,625.5	$15,625.5
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$7,580.4	$4,724.5	$7,922.7	$4,378.6	$4,019.2	$5,085.6	$6,398.5	$2,880.0	$1,394.8	$3,077.7
	213	Drainage Renewals	$147.9	$120.0	$159.9	$150.0	$126.1	$169.8	$123.8	$85.4	$85.4	$85.4
	214	Pavement Rehabilitation	$4,244.6	$2,511.3	$1,460.0	$817.4	$972.5	$464.1	$0.0	$564.1	$1,815.7	$1,367.3
	215	Structures Component Replacements	$1,942.5	$2,057.5	$2,000.0	$1,942.5	$2,000.0	$1,310.0	$2,000.0	$1,942.5	$1,942.5	$2,057.5
Corridor Renewals	221	Environmental Renewals	$40.0	$40.0	$40.0	$40.0	$40.0	$40.0	$40.0	$40.0	$40.0	$40.0
	222	Traffic Services Renewals	$652.0	$636.0	$584.0	$696.0	$682.0	$683.0	$652.0	$517.0	$417.0	$417.0
Associated Improvements	231	Associated Improvements	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Associated Improvements	3xx	Capital Improvement Opportunities	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	-	ROAD RENEWALS SUB TOTAL	$14,607.4	$10,089.3	$12,166.6	$8,024.5	$7,839.7	$7,752.5	$9,214.3	$6,029.0	$5,695.4	$7,044.9
	-	TOTAL REQUEST	$30,257.9	$25,714.8	$27,792.1	$23,650.0	$23,465.2	$23,378.0	$25,789.8	$21,654.5	$21,320.9	$22,670.4

6.15 Marlborough

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and erations												
Structural Maintenance	111	Sealed Pavement Maintenance	$624.0	$629.0	$634.0	$730.0	$735.0	$740.0	$745.0	$750.0	$755.0	$760.0
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$154.0	$158.0	$162.0	$182.5	$186.5	$190.5	$194.5	$198.5	$202.5	$206.5
	114	Structures Maintenance	$251.0	$256.0	$261.0	$314.0	$320.0	$326.0	$332.0	$338.0	$344.0	$350.0
Corridor Maintenance	121	Environmental Maintenance	$855.0	$855.0	$855.0	$970.0	$970.0	$980.0	$980.0	$990.0	$990.0	$990.0
	122	Traffic Services Maintenance	$765.0	$765.0	$770.0	$845.0	$850.0	$850.0	$850.0	$850.0	$850.0	$850.0
	123	Operational Traffic Management	$45.0	$46.0	$47.0	$51.0	$51.5	$51.5	$51.5	$51.5	$51.5	$51.5
	124	Cycle Path Maintenance	$20.0	$20.0	$20.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$1,006.1	$1,007.1	$1,008.1	$1,580.1	$1,170.0	$1,171.0	$1,172.0	$1,173.0	$1,174.0	$1,175.0
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$3,720.1	$3,736.1	$3,757.1	$4,697.6	$4,308.0	$4,334.0	$4,350.0	$4,376.0	$4,392.0	$4,408.0
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$1,200.0	$1,200.0	$1,200.0	$1,370.0	$1,370.0	$1,370.0	$1,370.0	$1,370.0	$1,370.0	$1,370.0
	213	Drainage Renewals	$150.0	$150.0	$150.0	$150.0	$150.0	$150.0	$150.0	$150.0	$150.0	$150.0
	214	Pavement Rehabilitation	$700.0	$700.0	$700.0	$750.0	$750.0	$750.0	$750.0	$750.0	$750.0	$750.0
	215	Structures Component Replacements	$150.0	$150.0	$150.0	$170.0	$170.0	$170.0	$170.0	$170.0	$170.0	$170.0
Corridor Renewals	221	Environmental Renewals	$20.0	$20.0	$20.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0
	222	Traffic Services Renewals	$80.0	$80.0	$80.0	$100.0	$100.0	$100.0	$100.0	$100.0	$100.0	$100.0
Associated Improvements	231	Associated Improvements										
Associated Improvements	3xx	Capital Improvement Opportunities										
	-	ROAD RENEWALS SUB TOTAL	$2,300.0	$2,300.0	$2,300.0	$2,565.0	$2,565.0	$2,565.0	$2,565.0	$2,565.0	$2,565.0	$2,565.0
	-	TOTAL REQUEST	$6,020.1	$6,036.1	$6,057.1	$7,262.6	$6,873.0	$6,899.0	$6,915.0	$6,941.0	$6,957.0	$6,973.0

6.16 Nelson

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and erations												
Structural Maintenance	111	Sealed Pavement Maintenance	$2,672.1	$2,670.0	$2,954.80	$3,013.9	$2,954.8	$2,954.8	$3,013.9	$3,074.18	$3,135.66	$3,198.4
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$297.0	$355.0	$387.5	$395.3	$387.5	$387.5	$395.3	$403.2	$411.2	$419.5
	114	Structures Maintenance	$556.3	$555.0	$516.6	$527.0	$516.6	$516.6	$527.0	$537.5	$548.2	$559.2
Corridor Maintenance	121	Environmental Maintenance	$1,558.0	$1,520.0	$1,460.9	$1,490.1	$1,460.9	$1,460.9	$1,490.1	$1,520.0	$1,550.3	$1,581.4
	122	Traffic Services Maintenance	$1,195.0	$1,075.0	$1,307.5	$1,333.7	$1,307.5	$1,307.5	$1,333.7	$1,360.4	$1,387.6	$1,415.3
	123	Operational Traffic Management	$122.5	$63.0	$111.7	$113.9	$111.7	$111.7	$113.9	$116.2	$118.5	$120.9
	124	Cycle Path Maintenance	$35.0	$30.0	$29.9	$30.5	$29.9	$29.9	$30.5	$31.1	$31.7	$32.3
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$2,404.0	$2,521.0	$2,080.0	$2,121.6	$2,080.0	$2,080.0	$2,121.6	$2,164.0	$2,207.3	$2,251.5
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$8,839.9	$8,789.0	$8,849.0	$9,025.9	$8,849.0	$8,849.0	$9,025.9	$9,977.34	$10,176.9	$10,380.4
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$1,515.2	$2,337.0	$603.9	$616.0	$603.9	$603.9	$616.0	$628.3	$640.9	$653.7
	213	Drainage Renewals	$215.0	$240.0	$241.9	$246.8	$241.9	$241.9	$246.8	$251.7	$256.8	$261.9
	214	Pavement Rehabilitation	$0.0	$800.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	215	Structures Component Replacements	$1,006.0	$790.0	$638.3	$651.1	$638.3	$638.3	$651.1	$664.1	$677.4	$690.9
Corridor Renewals	221	Environmental Renewals	$0.0	$0.0	$248.1	$253.1	$248.1	$248.1	$253.1	$258.1	$263.3	$268.6
	222	Traffic Services Renewals	$175.0	$105.0	$241.9	$246.8	$241.9	$241.9	$246.8	$251.7	$256.8	$261.9
Associated Improvements	231	Associated Improvements	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Associated Improvements	3xx	Capital Improvement Opportunities	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	-	ROAD RENEWALS SUB TOTAL	$2,911.2	$4,272.0	$1,974.2	$2,013.7	$1,974.2	$1,974.2	$2,013.7	$2,054.0	$2,095.1	$2,137.0
	-	TOTAL REQUEST	$11,751.1	$13,061.0	$10,823.18	$11,039.6	$10,823.2	$10,823.2	$11,039.6	$12,031.3	$12,271.9	$12,517.4

6.17 North Canterbury

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and	erations											
Structural Maintenance	111	Sealed Pavement Maintenance	$2,846.3	$2,790.9	$2,730.3	$2,702.5	$2,674.9	$2,647.6	$2,620.6	$2,593.9	$2,567.4	$2,541.2
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$227.3	$221.9	$216.6	$214.4	$212.2	$210.0	$207.9	$205.8	$203.7	$201.6
	114	Structures Maintenance	$494.3	$491.6	$489.0	$487.8	$486.7	$485.7	$484.6	$483.5	$482.5	$481.4
Corridor Maintenance	121	Environmental Maintenance	$2,042.2	$1,996.2	$1,945.8	$1,927.0	$1,908.3	$1,889.9	$1,871.7	$1,853.6	$1,835.7	$1,818.1
	122	Traffic Services Maintenance	$835.4	$817.8	$800.3	$793.5	$786.8	$780.1	$773.5	$767.0	$760.6	$754.3
	123	Operational Traffic Management	$47.8	$47.4	$46.8	$46.8	$46.8	$46.7	$46.7	$46.7	$46.7	$46.7
	124	Cycle Path Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$2,127.2	$1,897.2	$2,060.3	$2,046.0	$2,031.9	$2,018.0	$2,004.2	$1,990.6	$2,686.3	$1,963.9
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$8,620.6	$8,263.0	$8,289.1	$8,218.0	$8,147.6	$8,078.0	$8,009.2	$7,941.1	$8,582.9	$7,807.2
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$2,190.0	$2,389.9	$2,093.0	$2,319.1	$2,295.4	$2,272.0	$2,248.8	$2,225.9	$2,203.2	$2,180.7
	213	Drainage Renewals	$50.0	$50.0	$50.0	$50.0	$50.0	$50.0	$50.0	$50.0	$50.0	$50.0
	214	Pavement Rehabilitation	$2,233.4	$2,199.5	$2,166.1	$1,352.2	$1,338.4	$1,324.7	$1,311.2	$1,297.8	$1,284.6	$1,271.5
	215	Structures Component Replacements	$300.0	$300.0	$300.0	$300.0	$300.0	$300.0	$300.0	$300.0	$300.0	$300.0
Corridor Renewals	221	Environmental Renewals	$50.0	$50.0	$50.0	$50.0	$50.0	$50.0	$50.0	$50.0	$50.0	$50.0
	222	Traffic Services Renewals	$57.0	$66.0	$70.0	$68.0	$67.8	$57.6	$57.5	$57.3	$57.1	$56.9
Associated Improvements	231	Associated Improvements										
Associated Improvements	3xx	Capital Improvement Opportunities										
	-	ROAD RENEWALS SUB TOTAL	$4,880.5	$5,055.5	$4,729.1	$4,139.2	$4,101.6	$4,054.4	$4,017.5	$3,981.0	$3,944.9	$3,909.1
	-	TOTAL REQUEST	$13,501.0	$13,318.5	$13,018.2	$12,357.2	$12,249.2	$12,132.4	$12,026.7	$11,922.1	$12,527.8	$11,716.4

6.18 Christchurch

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and	erations											
Structural Maintenance	111	Sealed Pavement Maintenance	$1,795.7	$1,754.0	$1,721.1	$1,719.0	$1,731.1	$1,735.7	$1,768.8	$1,760.5	$1,771.4	$1,781.2
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$82.3	$84.0	$84.9	$92.6	$98.3	$99.7	$103.0	$101.9	$100.9	$99.8
	114	Structures Maintenance	$1,662.4	$1,680.8	$1,695.0	$1,721.5	$1,737.4	$1,751.9	$1,767.2	$1,781.1	$1,795.2	$1,809.4
Corridor Maintenance	121	Environmental Maintenance	$1,354.8	$1,335.0	$1,333.7	$1,444.0	$1,525.1	$1,543.5	$1,589.4	$1,573.8	$1,558.4	$1,543.2
	122	Traffic Services Maintenance	$1,880.4	$1,948.0	$1,959.4	$2,137.9	$2,276.7	$2,323.8	$2,413.9	$2,411.4	$2,409.1	$2,407.0
	123	Operational Traffic Management	$17.3	$18.0	$18.3	$18.5	$18.8	$18.9	$19.1	$19.3	$19.4	$19.6
	124	Cycle Path Maintenance	$60.2	$60.5	$60.2	$63.2	$65.3	$65.5	$66.5	$65.8	$65.2	$64.5
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$1,784.5	$1,537.7	$1,710.5	$1,776.4	$1,821.8	$1,829.2	$1,852.2	$1,840.0	$2,607.4	$1,816.0
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$8,637.6	$8,418.0	$8,583.1	$8,973.1	$9,274.5	$9,368.2	$9,580.1	$9,553.8	$10,327.0	$9,540.7
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$1,652.3	$1,601.6	$1,565.8	$1,747.8	$1,771.7	$1,795.9	$1,878.2	$1,881.5	$1,929.0	$1,973.2
	213	Drainage Renewals	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0	$25.0
	214	Pavement Rehabilitation	$743.0	$722.3	$707.5	$700.3	$709.9	$719.6	$752.5	$753.9	$772.9	$790.6
	215	Structures Component Replacements	$275.0	$320.0	$305.0	$280.0	$280.0	$280.0	$280.0	$280.0	$280.0	$280.0
Corridor Renewals	221	Environmental Renewals	$75.0	$75.0	$75.0	$75.0	$75.0	$75.0	$75.0	$75.0	$75.0	$75.0
	222	Traffic Services Renewals	$372.0	$459.0	$450.0	$451.5	$452.5	$362.7	$363.2	$362.8	$362.5	$362.2
Associated Improvements	231	Associated Improvements										
Associated Improvements	3xx	Capital Improvement Opportunities										
	-	ROAD RENEWALS SUB TOTAL	$3,142.3	$3,202.9	$3,128.3	$3,279.6	$3,314.1	$3,258.1	$3,374.0	$3,378.2	$3,444.3	$3,506.0
	-	TOTAL REQUEST	$11,779.9	$11,620.9	$11,711.4	$12,252.7	$12,588.6	$12,626.4	$12,954.0	$12,932.0	$13,771.4	$13,046.8

6.19 South Canterbury

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and	erations											
Structural Maintenance	111	Sealed Pavement Maintenance	$1,561.0	$1,561.0	$1,561.0	$1,561.0	$1,561.0	$1,561.0	$1,561.0	$1,561.0	$1,561.0	$1,561.0
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$461.0	$461.0	$461.0	$461.0	$461.0	$461.0	$461.0	$461.0	$461.0	$461.0
	114	Structures Maintenance	$310.0	$310.0	$310.0	$350.0	$350.0	$350.0	$350.0	$350.0	$350.0	$350.0
Corridor Maintenance	121	Environmental Maintenance	$991.1	$991.1	$991.1	$991.1	$991.1	$991.1	$991.1	$991.1	$991.1	$991.1
	122	Traffic Services Maintenance	$877.0	$877.0	$877.0	$877.0	$877.0	$877.0	$877.0	$877.0	$877.0	$877.0
	123	Operational Traffic Management	$148.0	$148.0	$148.0	$148.0	$148.0	$148.0	$148.0	$148.0	$148.0	$148.0
	124	Cycle Path Maintenance	$0.5	$0.5	$0.5	$0.5	$0.5	$0.5	$0.5	$0.5	$0.5	$0.5
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$1,855.0	$1,855.0	$1,855.0	$1,855.0	$1,855.0	$1,855.0	$1,855.0	$1,855.0	$1,855.0	$1,855.0
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$6,203.6	$6,203.6	$6,203.6	$6,243.6	$6,243.6	$6,243.6	$6,243.6	$6,243.6	$6,243.6	$6,243.6
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$1,981.7	$4,182.0	$3,664.0	$3,835.0	$3,835.0	$3,835.0	$2,344.0	$3,034.0	$3,835.0	$3,835.0
	213	Drainage Renewals	$67.0	$67.0	$67.0	$67.0	$67.0	$67.0	$67.0	$67.0	$67.0	$67.0
	214	Pavement Rehabilitation	$2,000.0	$2,000.0	$1,750.0	$1,750.0	$1,750.0	$1,750.0	$2,000.0	$2,000.0	$1,750.0	$1,750.0
	215	Structures Component Replacements	$236.0	$236.0	$236.0	$236.0	$236.0	$236.0	$236.0	$236.0	$236.0	$236.0
Corridor Renewals	221	Environmental Renewals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	222	Traffic Services Renewals	$144.0	$114.0	$164.0	$114.0	$114.0	$114.0	$114.0	$114.0	$114.0	$114.0
Associated Improvements	231	Associated Improvements					$0.0	$0.0			$0.0	$0.0
Associated Improvements	3xx	Capital Improvement Opportunities					$0.0	$0.0			$0.0	$0.0
	-	ROAD RENEWALS SUB TOTAL	$4,428.7	$6,599.0	$5,881.0	$6,002.0	$6,002.0	$6,002.0	$4,761.0	$5,451.0	$6,002.0	$6,002.0
	-	TOTAL REQUEST	$10,632.3	$12,802.6	$12,084.6	$12,245.6	$12,245.6	$12,245.6	$11,004.6	$11,694.6	$12,245.6	$12,245.6

6.20 West Coast North

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and	erations											
Structural Maintenance	111	Sealed Pavement Maintenance	$1,728.3	$1,693.7	$1,659.9	$1,626.7	$1,594.1	$1,562.2	$1,531.0	$1,500.4	$1,470.4	$1,441.0
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$575.3	$457.8	$448.7	$439.7	$430.9	$422.3	$413.8	$405.6	$397.5	$389.5
	114	Structures Maintenance	$551.0	$540.0	$529.2	$518.6	$508.2	$498.1	$488.1	$478.3	$468.8	$459.4
Corridor Maintenance	121	Environmental Maintenance	$1,307.4	$1,281.2	$1,255.6	$1,230.5	$1,205.9	$1,181.7	$1,158.1	$1,134.9	$1,112.3	$1,090.0
	122	Traffic Services Maintenance	$786.9	$771.1	$755.7	$740.6	$725.8	$711.3	$697.0	$683.1	$669.4	$656.0
	123	Operational Traffic Management	$89.5	$87.7	$86.0	$84.3	$82.6	$80.9	$79.3	$77.7	$76.2	$74.6
	124	Cycle Path Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$1,756.5	$1,235.8	$1,215.5	$1,195.6	$1,176.1	$1,156.9	$1,138.2	$1,612.6	$1,101.8	$1,084.2
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$6,794.8	$6,067.4	$5,950.5	$5,835.8	$5,723.5	$5,613.5	$5,505.6	$5,892.6	$5,296.3	$5,194.8
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$1,738.1	$1,757.0	$1,701.6	$1,658.2	$1,771.6	$1,743.6	$1,728.4	$1,745.9	$1,507.8	$1,728.2
	213	Drainage Renewals	$100.0	$100.0	$100.0	$100.0	$100.0	$100.0	$100.0	$100.0	$100.0	$100.0
	214	Pavement Rehabilitation	$349.0	$422.5	$275.5	$349.0	$569.5	$477.6	$422.5	$385.8	$514.3	$367.4
	215	Structures Component Replacements	$551.2	$540.1	$529.3	$529.3	$521.6	$514.0	$506.5	$499.2	$492.1	$485.1
Corridor Renewals	221	Environmental Renewals	$2.5	$2.5	$2.5	$2.5	$2.5	$2.5	$2.5	$2.5	$2.5	$2.5
	222	Traffic Services Renewals	$79.5	$79.5	$79.5	$79.5	$79.5	$79.5	$79.5	$79.5	$79.5	$79.5
Associated Improvements	231	Associated Improvements										
Associated Improvements	3xx	Capital Improvement Opportunities										
	-	ROAD RENEWALS SUB TOTAL	$2,820.2	$2,901.6	$2,688.5	$2,718.6	$3,044.6	$2,917.2	$2,839.4	$2,812.9	$2,696.2	$2,762.6
	-	TOTAL REQUEST	$9,615.1	$8,969.0	$8,639.0	$8,554.4	$8,768.2	$8,530.6	$8,345.0	$8,705.5	$7,992.5	$7,957.4

6.21 West Coast South

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and	erations											
Structural Maintenance	111	Sealed Pavement Maintenance	$1,720.8	$1,686.4	$1,652.7	$1,619.6	$1,587.2	$1,555.5	$1,524.4	$1,493.9	$1,464.0	$1,434.7
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$574.2	$456.8	$447.7	$438.7	$430.0	$421.4	$412.9	$404.7	$396.6	$388.7
	114	Structures Maintenance	$711.8	$702.6	$693.5	$684.7	$676.0	$667.4	$659.1	$650.9	$642.9	$635.0
Corridor Maintenance	121	Environmental Maintenance	$1,672.3	$1,638.9	$1,606.1	$1,574.0	$1,542.5	$1,511.7	$1,481.4	$1,451.8	$1,422.8	$1,394.3
	122	Traffic Services Maintenance	$763.2	$747.9	$732.9	$718.3	$703.9	$689.8	$676.0	$662.5	$649.3	$636.3
	123	Operational Traffic Management	$20.9	$20.4	$20.0	$19.6	$19.2	$18.8	$18.5	$18.1	$17.7	$17.4
	124	Cycle Path Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$1,991.2	$1,470.5	$1,450.2	$1,430.3	$1,410.8	$1,391.6	$1,372.9	$1,880.3	$1,336.5	$1,318.9
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$7,454.5	$6,723.5	$6,603.1	$6,485.2	$6,369.6	$6,256.3	$6,145.2	$6,562.2	$5,929.8	$5,825.3
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$1,784.6	$1,862.1	$1,584.4	$1,834.2	$1,631.9	$1,485.8	$1,462.1	$1,400.6	$1,395.9	$1,728.2
	213	Drainage Renewals	$70.0	$70.0	$70.0	$70.0	$70.0	$70.0	$70.0	$70.0	$70.0	$70.0
	214	Pavement Rehabilitation	$440.9	$275.5	$349.0	$422.5	$312.3	$312.3	$257.2	$440.9	$514.3	$367.4
	215	Structures Component Replacements	$562.3	$551.0	$540.0	$540.0	$532.0	$524.2	$516.6	$509.1	$501.7	$494.5
Corridor Renewals	221	Environmental Renewals	$2.5	$2.5	$2.5	$2.5	$2.5	$2.5	$2.5	$2.5	$2.5	$2.5
	222	Traffic Services Renewals	$82.7	$82.7	$82.7	$82.7	$82.7	$82.7	$82.7	$82.7	$82.7	$82.7
Associated Improvements	231	Associated Improvements	$220.0	$138.0	$174.0	$212.0	$156.0	$156.0	$128.0	$220.0	$258.0	$184.0
Associated Improvements	3xx	Capital Improvement Opportunities	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	-	ROAD RENEWALS SUB TOTAL	$3,162.9	$2,981.9	$2,802.6	$3,163.8	$2,787.4	$2,633.5	$2,519.0	$2,725.7	$2,825.1	$2,929.3
	-	TOTAL REQUEST	$10,617.3	$9,705.4	$9,405.7	$9,649.0	$9,156.9	$8,889.7	$8,664.3	$9,287.9	$8,754.9	$8,754.6

6.22 Central Otago

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and	erations											
Structural Maintenance	111	Sealed Pavement Maintenance	$1,170.5	$1,209.8	$1,245.0	$1,282.6	$1,320.9	$1,360.0	$1,400.8	$1,441.1	$1,441.1	$1,526.4
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$306.4	$306.4	$306.4	$306.4	$306.4	$306.4	$306.4	$306.4	$306.4	$306.4
	114	Structures Maintenance	$323.6	$323.6	$323.6	$323.6	$323.6	$323.6	$323.6	$323.6	$323.6	$323.6
Corridor Maintenance	121	Environmental Maintenance	$1,436.0	$1,431.9	$1,431.9	$1,432.2	$1,432.7	$1,433.0	$1,433.7	$1,433.8	$1,433.8	$1,434.5
	122	Traffic Services Maintenance	$767.1	$792.9	$789.2	$801.0	$813.4	$826.6	$855.6	$885.0	$885.0	$950.9
	123	Operational Traffic Management	$264.2	$267.7	$267.7	$277.7	$277.7	$276.6	$286.6	$286.6	$286.6	$286.6
	124	Cycle Path Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$2,208.4	$2,351.6	$2,351.6	$2,351.6	$2,351.6	$2,351.6	$2,351.6	$2,408.4	$3,368.1	$2,351.6
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$6,476.3	$6,683.9	$6,715.4	$6,775.1	$6,826.3	$6,877.9	$6,958.2	$7,085.0	$8,044.7	$7,180.1
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$2,523.7	$1,965.8	$1,843.6	$2,308.7	$1,806.7	$2,885.8	$2,351.7	$1,937.4	$1,937.4	$1,875.4
	213	Drainage Renewals	$120.0	$0.0	$0.0	$120.0	$0.0	$0.0	$170.0	$0.0	$0.0	$120.0
	214	Pavement Rehabilitation	$1,390.0	$410.0	$340.0	$330.0	$800.0	$830.0	$560.0	$800.0	$800.0	$950.0
	215	Structures Component Replacements	$345.0	$345.0	$345.0	$345.0	$345.0	$345.0	$345.0	$345.0	$345.0	$345.0
Corridor Renewals	221	Environmental Renewals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	222	Traffic Services Renewals	$115.5	$115.5	$115.5	$17.5	$17.5	$17.5	$17.5	$17.5	$17.5	$17.5
Associated Improvements	231	Associated Improvements	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Associated Improvements	3xx	Capital Improvement Opportunities	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	-	ROAD RENEWALS SUB TOTAL	$4,494.2	$2,836.3	$2,644.1	$3,121.2	$2,969.2	$4,078.3	$3,444.2	$3,099.9	$3,099.9	$3,307.9
	-	TOTAL REQUEST	$10,970.5	$9,520.2	$9,359.5	$9,896.3	$9,795.5	$10,956.1	$10,402.5	$10,184.8	$11,144.55	$10,488.0

6.23 Coastal Otago

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and	eration:											
Structural Maintenance	111	Sealed Pavement Maintenance	$3,038.3	$3,036.7	$3,097.41	$2,859.6	$2,802.4	$2,746.4	$2,691.5	$2,637.6	$2,584.9	$2,533.2
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$659.1	$659.1	$672.3	$620.3	$607.9	$595.8	$583.9	$572.2	$560.7	$549.5
	114	Structures Maintenance	$247.1	$247.1	$252.0	$232.6	$227.9	$223.4	$218.9	$214.5	$210.2	$206.0
Corridor Maintenance	121	Environmental Maintenance	$1,785.0	$1,751.3	$1,786.3	$1,696.4	$1,665.8	$1,635.8	$1,606.3	$1,577.5	$1,549.2	$1,521.6
	122	Traffic Services Maintenance	$1,845.2	$1,391.2	$1,419.0	$1,769.2	$1,744.1	$1,719.4	$1,695.3	$1,671.6	$1,648.4	$1,625.7
	123	Operational Traffic Management	$332.1	$339.4	$346.2	$329.0	$329.0	$329.0	$329.0	$329.0	$329.0	$329.0
	124	Cycle Path Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$2,873.4	$2,143.4	$2,186.3	$2,716.2	$2,665.9	$2,616.5	$2,568.2	$3,415.4	$2,474.4	$2,428.9
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$10,780.2	$9,568.2	$9,759.5	$10,223.3	$10,043.0	$9,866.2	$9,693.0	$10,417.8	$9,356.9	$9,193.9
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$3,515.8	$3,515.8	$3,586.1	$3,309.0	$3,242.8	$3,178.0	$3,114.4	$3,052.1	$2,991.1	$2,931.3
	213	Drainage Renewals	$307.1	$307.1	$313.2	$289.0	$283.3	$277.6	$272.0	$266.6	$261.3	$256.0
	214	Pavement Rehabilitation	$1,623.9	$1,623.9	$1,656.4	$1,528.4	$1,497.8	$1,467.9	$1,438.5	$1,409.8	$1,381.6	$1,353.9
	215	Structures Component Replacements	$449.0	$449.0	$458.0	$422.6	$414.1	$405.9	$397.7	$389.8	$382.0	$374.4
Corridor Renewals	221	Environmental Renewals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	222	Traffic Services Renewals	$306.4	$306.4	$312.5	$289.5	$284.0	$278.7	$273.5	$268.4	$263.4	$258.5
Associated Improvements	231	Associated Improvements	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Associated Improvements	3xx	Capital Improvement Opportunities	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	-	ROAD RENEWALS SUB TOTAL	$6,202.2	$6,202.2	$6,326.2	$5,838.5	$5,722.1	$5,608.0	$5,496.3	$5,386.7	$5,279.3	$5,174.1
	-	TOTAL REQUEST	$16,982.4	$15,770.36	$16,085.8	$16,061.8	$15,765.1	$15,474.3	$15,189.3	$15,804.5	$14,636.2	$14,368.0

6.24 Southland

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and	erations											
Structural Maintenance	111	Sealed Pavement Maintenance	$2,295.4	$2,323.0	$2,350.8	$2,379.0	$2,407.6	$2,436.5	$2,465.7	$2,495.3	$2,495.3	$2,495.3
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$404.8	$409.7	$414.6	$419.5	$424.6	$429.7	$434.8	$440.1	$440.1	$440.1
	114	Structures Maintenance	$371.4	$375.9	$380.4	$384.9	$389.6	$394.2	$399.0	$403.7	$403.7	$403.7
Corridor Maintenance	121	Environmental Maintenance	$1,406.9	$1,423.8	$1,440.9	$1,458.1	$1,475.6	$1,493.3	$1,511.3	$1,529.4	$1,529.4	$1,529.4
	122	Traffic Services Maintenance	$1,082.8	$1,095.8	$1,109.0	$1,122.3	$1,135.8	$1,149.4	$1,163.2	$1,177.1	$1,177.1	$1,177.1
	123	Operational Traffic Management	$91.1	$92.2	$93.3	$94.4	$95.5	$96.7	$97.8	$99.0	$99.0	$99.0
	124	Cycle Path Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$2,252.0	$2,279.1	$2,306.4	$2,334.1	$2,362.1	$2,390.4	$2,419.1	$2,448.2	$2,448.2	$2,448.2
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$7,904.5	$7,999.3	$8,095.3	$8,192.4	$8,290.8	$8,390.2	$8,490.9	$8,592.8	$8,592.8	$8,592.8
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$1,562.8	$1,581.6	$1,600.6	$1,619.8	$1,639.2	$1,658.9	$1,678.8	$1,698.9	$1,698.9	$1,698.9
	213	Drainage Renewals	$50.6	$51.2	$51.8	$52.4	$53.1	$53.7	$54.4	$55.0	$55.0	$55.0
	214	Pavement Rehabilitation	$920.3	$931.4	$942.5	$953.8	$965.3	$976.9	$988.6	$1,000.5	$1,000.5	$1,000.5
	215	Structures Component Replacements	$349.1	$353.3	$357.6	$361.9	$366.2	$370.6	$375.0	$379.5	$379.5	$379.5
Corridor Renewals	221	Environmental Renewals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	222	Traffic Services Renewals	$131.6	$133.1	$134.7	$136.4	$138.0	$139.6	$141.3	$143.0	$143.0	$143.0
Associated Improvements	231	Associated Improvements	$10.6	$10.8	$10.9	$11.0	$11.1	$11.3	$11.4	$11.6	$11.6	$11.6
Associated Improvements	3xx	Capital Improvement Opportunities	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	-	ROAD RENEWALS SUB TOTAL	$3,025.1	$3,061.4	$3,098.1	$3,135.3	$3,172.9	$3,211.0	$3,249.5	$3,288.5	$3,288.5	$3,288.5
	-	TOTAL REQUEST	$10,929.5	$11,060.7	$11,193.4	$11,327.7	$11,463.7	$11,601.2	$11,740.4	$12,602.8	$12,602.76	$12,602.8

6.25 Milford

Activity	WC No.	Work Category & Description	Funding Request 2015/2016 ($000)	Funding Request 2016/2017 ($000)	Funding Request 2017/2018 ($000)	Funding Request 2018/2019 ($000)	Funding Request 2019/2020 ($000)	Funding Request 2020/2021 ($000)	Funding Request 2021/2022 ($000)	Funding Request 2022/2023 ($000)	Funding Request 2023/2024 ($000)	Funding Request 2024/2025 ($000)
Road Maintenance and erations												
Structural Maintenance	111	Sealed Pavement Maintenance	$2,155.7	$2,181.5	$2,207.7	$2,234.2	$2,261.0	$2,288.1	$2,315.6	$2,343.4	$2,371.5	$2,400.0
	112	Unsealed Pavement Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	113	Routine Drainage Maintenance	$227.2	$229.9	$232.7	$235.5	$238.3	$241.2	$244.1	$247.0	$249.9	$252.9
	114	Structures Maintenance	$268.2	$271.4	$274.7	$278.0	$281.3	$284.7	$288.1	$291.5	$295.0	$298.6
Corridor Maintenance	121	Environmental Maintenance	$876.4	$886.9	$897.6	$908.3	$919.2	$930.3	$941.4	$952.7	$964.1	$975.7
	122	Traffic Services Maintenance	$165.0	$166.9	$168.9	$171.0	$173.0	$175.1	$177.2	$179.3	$181.5	$183.7
	123	Operational Traffic Management	$1,652.6	$1,672.4	$1,692.5	$1,712.8	$1,733.4	$1,754.2	$1,775.2	$1,796.5	$1,818.1	$1,839.9
	124	Cycle Path Maintenance	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	131	Level Crossing Warning Devices	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Asset Management	151	Network and Asset Management	$303.6	$307.2	$310.9	$314.7	$318.4	$322.3	$326.1	$330.0	$334.0	$338.0
	-	ROAD MAINTENANCE & OPERATIONS SUB TOTAL	$5,648.6	$5,716.4	$5,785.0	$5,854.4	$5,924.6	$5,995.7	$6,067.7	$6,140.5	$6,214.2	$6,288.7
Structural Renewals	211	Unsealed Road Metalling	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	212	Sealed Road Resurfacing	$32.4	$32.8	$33.2	$33.6	$34.0	$34.4	$34.8	$35.2	$35.6	$36.1
	213	Drainage Renewals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	214	Pavement Rehabilitation	$205.8	$208.3	$210.8	$213.3	$215.9	$218.5	$221.1	$223.8	$226.5	$229.2
	215	Structures Component Replacements	$10.1	$10.2	$10.4	$10.5	$10.6	$10.7	$10.9	$11.0	$11.1	$11.3
Corridor Renewals	221	Environmental Renewals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	222	Traffic Services Renewals	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Associated Improvements	231	Associated Improvements	$10.1	$10.2	$10.4	$10.5	$10.6	$10.7	$10.9	$11.0	$11.1	$11.3
Associated Improvements	3xx	Capital Improvement Opportunities	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
	-	ROAD RENEWALS SUB TOTAL	$258.5	$261.6	$264.7	$267.9	$271.1	$274.3	$277.6	$281.0	$284.3	$287.8
	-	TOTAL REQUEST	$5,907.0	$5,977.9	$6,049.7	$6,122.3	$6,195.7	$6,646.3	$6,726.0	$6,806.7	$6,888.4	$6,971.1