Roads & Maintenance Summary

- We're planning to invest about $11 billion during the 2018-21 National Land Transport Programme to maintain and improve the 80,000kms of roads that New Zealand relies on to keep people and freight moving.

- More than half the amount - $5.7 billion – will be spent on maintaining the network and $1.8 billion on local road and regional improvements to improve access. A further $3.5 billion is being spent on regional state highway improvements that support interregional freight, tourism connections and making the network safer.

- In addition, the NLTP has allocated $380 million to emergency works for repairing and restoring roads to get people and freight moving again following major events, such as rainstorms and earthquakes.

- Our investment is aimed at keeping our roads well-maintained and improving these to get goods to market, to support regional growth and keep our communities connected to jobs, educational opportunities and essential services, such as health facilities.

- We're working closer with local government to target their roading investment to achieve greater efficiencies and reduce maintenance costs for ratepayers.

- We're investing more in local road maintenance in the Waikato, Bay of Plenty, Gisborne, Hawke's Bay, Greater Wellington, Otago and Southland – regions that rely on their roading network to get primary produce to export markets and to support prosperity through tourism.

- Our planned state highway investment is about keeping everyone moving and building resilience into our regional roading network, particularly in high-risk locations and areas prone to road closures.

- We're focused on replacing end-of-life infrastructure and making infrastructure improvements on key freight and tourism routes to minimise disruption from extreme weather events and rock fall.

- Our investment is also responding to the effects of climate change and sea level rise on communities and infrastructure in low-lying coastal areas – investigating options to strengthen alternate routes to deliver better levels of service.

- We're also supporting regions to continue to extend network access, enabling bigger trucks to transport bigger loads to market for greater efficiencies and better economic returns.

- We're completing key large-scale roading projects, such as the new northern and southern corridors into Christchurch; the $850 million Transmission Gully and the Peka Peka to Ōtaki expressway in the Wellington region; the Hamilton section of the Waikato Expressway; and investing $700 million in Auckland's Northern Motorway and more than $250 million in the Southern Motorway. These investments support regional economic growth and provide safe, reliable interregional access to markets.

- Our investment in state highways is focused on delivering infrastructure that supports a safe system, improves resilience of critical interregional connections important to freight and tourism, and supports planned urban growth.

- Our state highway investment also complements local road projects, integrates with land use planning, and supports connections to other travel choices, such as public transport and walking and cycling.

MINISTERIAL BRIEFING NOTE

Subject	State Highway Maintenance White Paper
Date	31 October 2019
Briefing number	BRI-1737

Contact(s) for telephone discussion (if required)				
Name	**Position**	**Direct line**	**Cell phone**	**1st contact**
Brett Gliddon	General Manager Transport Services		9(2)(a)	✓

Action taken by Office of the Minister

- ☐ **Noted**
- ☐ **Seen by Minister**
- ☐ **Agreed**
- ☐ **Feedback provided**
- ☐ **Forwarded to**
- ☐ **Needs change [please specify]**
- ☐ **Withdrawn**
- ☐ **Overtaken by events**

31 October 2019

Minister of Transport

STATE HIGHWAY MAINTENANCE WHITE PAPER

Purpose

1. This briefing provides you with the NZ Transport Agency State Highway Maintenance White Paper of 27 September 2019.

Background

2. The State Highway Maintenance White Paper describes how the state highway system contributes to NZTA's desired transport outcomes, what future changes may be required to how we operate, maintain and renew this asset and the options to deliver these changes.

3. The paper describes the need to significantly increase investment in state highway maintenance in order to sustain current service levels. It recommends lifting the upper funding range for state highway maintenance from $2.26 billion to $2.75 billion to enable increased investment in more robust road surfaces and pavements, replacement of end of life safety features, and increases in the cost of labour, plant and materials. We engaged with sector consultant and contractor partners when developing this paper.

4. This paper is now informing submission on the forthcoming Government Policy Statement on land transport, as well as the development of Arataki, the Transport Agency Investment Proposal and the National Land Transport Programme in conjunction with the Ministry of Transport.

It is recommended that you:

1. **Note** the contents of this briefing
2. **Note** the attached State Highway Maintenance White Paper

9(2)(a) [redacted]

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Brett Gliddon

General Manager Transport Services

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Hon Phil Twyford, Minister of Transport

Date: 2019

NZ TRANSPORT AGENCY WHITE PAPER ON STATE HIGHWAY ASSET MANAGEMENT

27 September 2019

PURPOSE

This paper describes how the state highway system contributes to the Transport Agency's desired transport outcomes, what future changes may be required to how we operate, maintain and renew[1] this asset and the options to deliver these changes. The paper describes the need to significantly increase investment in state highway maintenance in order to sustain current service levels. It recommends lifting the upper funding range for SH maintenance from $2.26 billion to $2.75 billion to enable increased investment in more robust road surfaces and pavements, replacement of end of life safety features, and increases in the cost of labour, plant and materials. We engaged with sector consultant and contractor partners when developing this paper.

This paper will inform submission on the forthcoming GPS, as well as the development of Arataki, the Transport Agency Investment Proposal (TAIP) and the National Land Transport Programme (NLTP).

EXECUTIVE SUMMARY

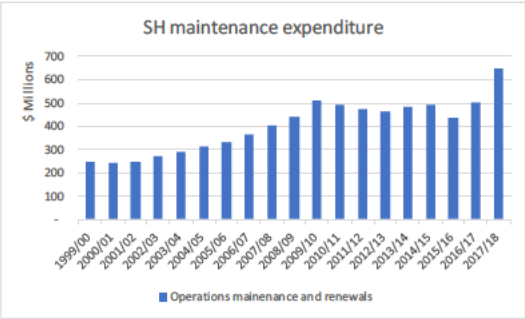
The state highway network is a critical asset for New Zealand

At $43 billion, the state highway network is New Zealand's largest value social asset and of critical importance to the country's social and economic outcomes. Investment in the maintenance of this asset occurs via the state highway maintenance activity class in the NLTP.

The context in which we carry out maintenance has changed

Over the past 10 years a number of key changes have occurred which have impacted on how we maintain the state highway network.

From 2003 to 2009, maintenance expenditure was increasing at a rate of 6% per annum. In response the Road Maintenance Task Force was established and recommended changes to asset management practice the Government has held expenditure at a constant rate between 2009/10 and 2016/17 by constraining growth in the funding range for State highway maintenance in the GPS.



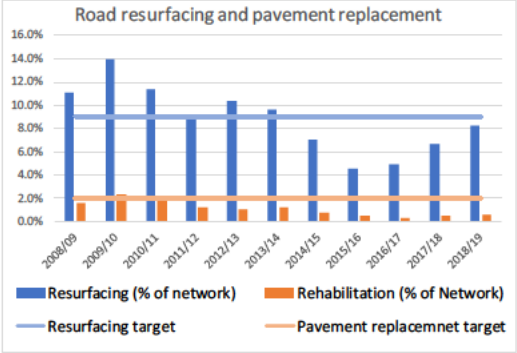
Over the same period the cost of labour, plant and materials grew by 12%, general traffic grew by 22% and freight distance travelled by 32%. The size and complexity of our asset has increased by over 9% because of the significant investment in the improvement programme, and net transfers of local roads to the state highway network.

Our asset management approach has responded accordingly

Since 2009 we have varied our investment to focus on critical activities nationwide. We have stopped investment in less important activities, implemented more efficient practices and deferred less critical works.

[1] We use the term "renewal" to descr be those works which restore the function of infrastructure by either replacing un unserviceable element, eg a bridge beam, or building a new element such as a new road surface built on top of the prior unserviceable road surface. While a capital expense a renewal work programme maintains the average condition of the network so doesn't improve service levels on average.

Fewer road surfaces and pavements have been renewed since 2009 than before 2009. We need to replace 9% of road surfaces each year, on average, to cost effectively sustain access.[2] As the graph shows we have replaced fewer road surfaces than the sustainable rate from 2014/15 to 2018/19, and less than half the sustainable rate over 2015/17. . We targeted replacement of road surfaces and road pavements using more robust processes and field validation, and selected treatments better matched to context using premium materials where warranted to improve their effectiveness.



Our modelling of road surface and pavement deterioration showed that a decline in work was sustainable until 2017/18 after which an increase was required in order to avoid a critical loss of condition. Field validation and analytical review of network performance data confirmed that works had been well targeted and that the uplift in required work quantity occurred in 2018/19 when forecast.

In 2013 a new maintenance contract (the Network Outcomes Contract) was introduced and progressively applied to all networks to clarify accountabilities and improve customer service performance. Industry has recently confirmed that this model has largely been a success.

Other responses have included:

- Developing and implementing new materials and practices to improve impacts and reduce costs.
- Introducing the One Network Road Classification and fit for purpose service levels for road classes with different functions
- Working with local government partners via the Road Efficiency Group (REG) to improve asset management practices; the NZTA Board and Local Government NZ (LGNZ) have continued to endorse the value of REG.
- The introduction of more efficient freight vehicles by adding 50Max vehicles as of right, and High Capacity Motor Vehicles under permit where roads and bridges have capacity.
- Deferring works which focus on long term cost effectiveness rather than current infrastructure condition.

The budget for 2018/21 was increased by about 20% over prior budgets. This was sufficient to increase road surface and pavement replacement work quantities but not to the sustainable level, and nor did it allow use of sufficiently robust designs to sustain the significant increase in freight over a practical service life. Recent field work has confirmed the need for more robust treatments, and reviews of investment decisions has confirmed the validity of decisions to resurface or replace pavements, and the decisions to defer or not perform such works on marginal sites.

Our approach to state highway maintenance needs to change

We have effectively managed the maintenance of the state highway asset over a period of funding constraints. Skid resistance, traffic incident and event management have all improved, increasing throughput and reducing the impact of events. We have improved the value for money of activities, improved efficiency and effectiveness and continued to deliver service levels while responding to cost pressures.

However recent approaches are no longer sustainable. The strong condition of road surfaces and road pavements that existed in 2009/10 has been consumed, and network condition has declined to a point where increased investment is now critical. Recent research has shown that the slight but definite deterioration to the network condition in terms of skid resistance, roughness texture depth and increased patching, coupled with the increase in exposure of the deteriorated areas of the network to traffic has contributed to the increased number of road crashes, deaths and serious injuries, over the last 5 years.

[2] Road surfaces and pavements provide safe reliable access for general traffic and freight. Road surfaces provide skid resistance, noise mitigation and protect pavements from moisture, road pavements provide the structural capacity to carry freight. A more detailed explanation of this infrastructure is provided in an appendix to this paper.

The amount of road resurfacing and road pavement renewal work must increase if we are to avoid accelerated decay in condition, excessive potholes and repairs and eventual loss of safe and reliable access.

An increasing proportion of road pavements and road surfaces are old allowing water to seep into pavements making them vulnerable to damage from freight loads. The risk of rapid deterioration of road surfaces is greater than before and will either require un-economic repairs to maintain service levels or result in reduced safety and travel reliability for customers as potholes proliferate and grow in size.

Because freight has increased significantly more robust road surfaces and pavements must be used than before to carry traffic safely and reliably, and to reduce the disruption of frequent road works on traffic flows on high traffic routes.

An increasing investment is required to support improved reliable access for all NZers particularly on more trafficked roads where it is appropriate to use more robust treatments at higher cost to extend service lives and reduce traffic reduction from repairs, or road surface and pavement replacement. Our customers have greater expectations today that the network will be available to meet their needs and demands.

The quantity of safety maintenance works must also be increased if we are to close current safety gaps in network performance and maintain new safety infrastructure in fit for purpose condition. An increased skid resistance programme is required to remedy the 2% of the network that is below standard, and more maintenance works are required than before to ensure that new safety infrastructure is maintained in a fit for purpose state and replaced when it reaches the end of service life.

We continue to work with our supply partners to provide a safer and healthier work environment. Recent road worker fatalities have highlighted the increased risk to contractor staff resulting from increased traffic on the road, inattention and compliance issues from road users. Activities that were once able to be completed by a single worker or under a mobile closure are no longer acceptable. Three and four-person crews and static closures are now more prevalent, increasing cost and reducing productivity.

We are now recalibrating and re-running our deterioration models to provide detailed estimates of requirements for maintenance and replacement of road surfaces and pavements for the 2021/24 NLTP.

Changes are now recommended to investment practice

We recommend changes in practice so that current service levels are supported, new infrastructure kept in fit for purpose condition, and road works on high volume routes minimised. We recommend:

- Using more robust road surface and pavement designs to meet increasing freight demand while delivering continued safety and environmental service levels because road surface and pavement designs are not strong enough any more
- Increasing the skid resistance programme to address the deteriorating trend in network performance
- Increasing pavement renewal works to stabilise the deteriorating trend in condition
- Increasing maintenance and replacement programmes to maintain new infrastructure in fit for purpose condition
- Increasing investment to ensure a safer work environment for roading staff
- Using emulsion based road surfaces rather than hot spray bitumen to reduce worker risk
- Increasing investment to respond to changes in labour, plant and material costs
- Increasing provision for emergency works to maintain service levels despite the increasing frequency and impact of events.

These changes are not to increase service levels. These changes are to sustain current service levels, following a period of underinvestment and in an environment of increasing traffic, heavy vehicles and unexpected weather events.

The forecast investment required over 2021/24 is shown in the table in steps of improving impact from the current 2018/21 budget, alongside indicators of road surface and pavement works and impact, these works represent about 60% of core expenditure:

	Change $M	3 years 2021/24 $M	Length of network renewals 2021/24 Lane km	% network renewed pa	Length of Surface in poor condition Lane km	Length of Pavement in poor condition Lane km	Excess Skid related DSI on poor network	Additional days repairs required pa
Base operations, maintenance and renewals for 2018/21		$1,815						
Increase in the cost of labour, plant and materials on base programme with reduced road surface and pavement renewals to deliver at current real cost	$165	$1,980	5,385	7.5%	2,634	3,432	50	12,330
Deliver a sustainable level of resurfacing and pavement rehabilitation but use chip seal in rural areas	$32	$2,012	6,150	8.5%	2,167	3,237	41	6,900
Use a sustainable quantity of robust treatments	$150	$2,162	6,345	8.8%	2,108	3,072	40	3,210
Increase skid resistance programme to halt deteriorating trend	$7	$2,168						
Expand pavement renewal works quantities to stabilise unsafe rut formation rates	$106	$2,274						
Adopt emulsion based resurfacing rather than hot spray bitumen to reduce workforce risk	$65	$2,339						
Operation and maintenance of new safety infrastructure	$52	$2,391						
		$2,391						
Emergency works	$45	$210						
Total SH maintenance cost		**$2,601**						
Eliminate surface condition deficit, improve skid performance		$75	7,200	10.0%	774	2,997	26	0
		$2,676						
2018/21 GPS range for 2021/24		**$1,930**						
		$2,260						
Proposed GPS range for 2021/24		**$2,050**						
		$2,750						

The activities forecast to be required to maintain service levels over 2021/24 cost $491M more than the upper funding range in the current GPS for 2021/24.

We propose that the funding ranges for state highway maintenance be increased for 2021/24 from a total of $2.26 billion over three years to $2.75 billion to enable consideration of the issues presented in this paper and to the results of our road surface and pavement modelling works.

Consequences of continuing previous investment intent

Should we wish to deliver service constrained by previous investment intent then:

- Recommended investment must be reduced in cost by at least $335,000,000 to meet the upper bound of $2.26 billion (or a further 13% saving beyond the 35% already delivered since 2009/10). There will be a commensurate reduction in service levels and future service potential of state highway infrastructure net of efficiency gains
- Uncommitted contractual expenditure will be reduced resulting in
    - A reduction in the amenity of the state highway network causing a deterioration in appearance and utility from a build-up of litter and graffiti and unsightliness
    - Inability to respond in a timely manner to network incidents and restoring service
    - Delayed drainage maintenance works which protect the service potential of the road pavements by protecting them from water damage causing more rapid decay of road pavements eventually requiring expensive replacement to restore access
    - Delayed structural maintenance works which protect bridges and other structures from the consequences of deteriorating customer safety features as a result of ineffective barriers, fire suppressant and air quality maintenance systems, and increased replacement costs incurred to replace decayed structural infrastructure
    - Deterioration of delineation (guidance) devices (signs & lines) guiding safe travel by customers
    - Use of less robust road surface and pavement designs leading to shorter service lives, more frequent repairs and earlier replacement.
    - A decline in the skid resistance of the network increasing risk to customers
    - A loss in the service potential of new safety infrastructure due to repair and replacement works being below the sustainable level.
    - A further reduction in the vulnerability of road surfaces and pavements resulting in an increase in the frequency of potholes forming and growing in extent requiring more frequent repair and, additionally, more widespread replacement of sub-optimal road pavement structure over broader areas
    - More frequent repairs being required exposing workers to more frequent risk..

Proposed improvements to practice improving value for money

There are many challenges and opportunities affecting the service levels, costs and risk of the impact of future SH maintenance programmes.

A number of responses and proposed changed practices are available that would offer improvements in achievable value for money. These responses are presented as practice changes or developments of existing practice and as optional investment strategies. We are currently developing the detail of these approaches. The proposals relate to:

Service level enhancements:

- Supporting mode shift through enhanced traffic management practices
- Changes to environmental practice to improve operational sustainability
- Maintaining transport system throughput as demand increases and mode shift occurs
- Improving travel reliability on arterial routes through integrated road works programming
- Reviewing road pavement replacement practice on higher classification roads, through towns and at challenging sites potentially introducing premium treatments to increase durability and reduce traffic disruption from repairs or replacement works
- Eliminating the deficient skid resistance of the network to improve safety
- Widening road surfaces and shoulders to improve safety for all modes and to provide safe pull off areas and reduce the impact of minor slips

Potential efficiency gains and practice changes:

- Taking a more systematic approach to asset management governance, strategic and tactical planning to better direct activities
- Reviewing road pavement replacement practice on lower classification roads where there is the potential to use simpler treatments and lower grade materials
- Reviewing road pavement replacement practice through towns to develop an efficient approach to addressing poor quality pavements causing rapid deterioration of road surfaces
- Eliminating the substandard pavement condition on the network
- Extending the drainage maintenance programme to improve pavement service life and network resilience
- Retendering maintenance contracts as current contracts expire
- Reviewing maintenance requirements of traffic & safety furniture and equipment in response to the new safety strategy
- Improving asset management information systems and data capture to improve the evidence base for decisions, improve the efficiency and effectiveness of asset management information system across the sector, and exploit the potential of current and emerging technology
- Responding to reduced research and development investment
- Developing the capability and capacity of the sector to consistently deliver works programmes to high quality
- Reviewing work place safety requirements

Conclusion

Because fewer road resurfacing works and pavement replacement works have been completed since 2009/10 than necessary to sustain network condition it has deteriorated. The deterioration has now reached the point where service levels will reduce significantly unless work quantities are increased. We recommend that works be increased sufficiently to address the decline in road surface and pavement condition that are contributing to adverse safety outcomes and are required to sustain cost effective access and that the adequacy road surface and pavement condition maintenance and replacement works be closely monitored.

We must increase the quantity of safety features being replaced to maintain customer safety. The replacement programme must increase to match prior installation of features including barriers and rumble strips.

We must increase investment to address recent rises in input prices, and address forecast increases to 2021/24 or reduce service levels.

We must increase the provision for emergency works in response to the greater frequency and impact of storms.

The proposed three-year total investment of $2,601,500,000 is above the total of the upper funding range in the current GPS for 2021/24. We recommend that we seek an increase in the total of the upper range in the forthcoming GPS to $2,750,000,000 to enable the proposed increase, and that we continue with our detailed analysis of investment requirements and impacts continue and that a decision on the final programme to be proposed in the TAIP be considered in February 2020.

THE ROLE OF THE STATE HIGHWAY AND HOW IT IS MAINTAINED

Network Use and Characteristics

The state highway network comprises 11,039 km of road, which has 24,062 km of lanes. It runs from Cape Reinga in the north to Bluff in the south, from Te Anau in the west to Tikitiki in the east.

All land transport trips use some elements of the state highway or local road[3] networks each day. While the network comprises only 15% of the road length in New Zealand it carries 50% of general vehicle traffic and 72% of road freight.

At $43 billion, the SH network is the largest value social asset in New Zealand.

The state highway network is critical to New Zealand's social and economic development. It connects people to their destinations, plays a significant role in our tourism market and provides key freight routes connecting goods and services to markets. It is the only land transport access to much of rural New Zealand and provides high occupancy vehicle access in urban areas.

The corridor and bridges carry trunk power, communication and water infrastructure, and are the routes that will be used to carry replacement parts to power and communication networks should these be damaged in an earthquake or storm.

The size and complexity of the state highway network infrastructure has grown, and will continue to grow, as we:

- build new safety features including rumble strips and crash barriers
- better configure and manage infrastructure in towns and centres to support social and economic activity where place based activity is more important than movement
- install and use electronic equipment to monitor, inform and manage travel to improve flows across the state highway and adjacent networks, and to safely manage incidents and promptly restore service
- enhance state highway resilience by mitigating the impacts of intense storms, sea-level rise and slips

The role the state highway network has in supporting our social and economic wellbeing is developing as New Zealand grows, and this development is driving change in the activities funded through the state highway maintenance activity class.

Contribution of activities to outcomes

The maintenance of the state highway network is funded through the SH maintenance activity class. The table below links this investment to our desired transport outcomes. It indicates the current contribution and potential for further contribution in the future (refer appendix for more detail). The current investment reflects the asset management approach we take to the state highway system.

			Transport Outcomes				
Activity	Description	Proposed investment	Inclusive access	Economic prosperity	Resilience and security	Health and safety	Environment
Road surface and pavements	Repair and replace road surfaces and pavements to safely and reliably carry general and freight traffic day after day after day, using safe and noise mitigating surface types.	44% $268M	++	+++++	++	+++	--^^

[3] We use the term road because the definition used in the Local Government Act of "Road" is relied on in transport legislation, and is described as including footpaths, cycleways as well as vehicle carriageways. The word "Street" is now commonly used in place of Road, which has come to mean vehicle carriageway.

Bridges, tunnels	Maintain safe access across and around rivers, valleys, ridges and places	14%	++^^	++++++	++	+	
Walls and slope management	Mitigate risk of rockfall and slips above and below the roadway	$85M	++	++	+++^^^	++	
Traffic management	Guide and manage travel demand to make best use of current capacity across inter-dependant multi-modal transport networks	18%	++	+++++^	+++^	+	
Manage incidents and events	Mitigate impact of events and incidents on system capacity, providing alternatives, restoring service	$106M		++++	++++	++	
Storm water management	Repair and replace drainage infrastructure to reduce flooding, protect infrastructure and treat or contain pollutants	4% $26M	++	++	+++^^		+++^
Safety devices, barriers and delineation	Maintain lighting, road markings and signs safety barriers and devices to support, guide and direct safe network use and mitigate risk and harm from any error	12% $78M			+++	++++++ +^^	
Vegetation management	Manage roadside vegetation to maintain sightlines for travellers, eliminate pest plants, encourage bio-diversity, reduce risk for traffic	1% $7M				++++	++++
Amenity	Remove litter & graffiti, provide rest areas	5% $34M	+	+++		++++^	++^^^
Emergency works	Repair and replace infrastructure damaged by natural events to restore access, then restore service levels			++^^	++++++ ^^	++	

Current indicative contribution +

Potential contribution from enhanced maintenance beyond current levels +

Potential enhanced contribution as a result of improvement programmes ^

This table shows that 94% of investment provides access that is safe and reliable by optimising use of reliable infrastructure. 6% of expenditure targets is on sustainable practice and amenity.

CONTEXT

Service levels

The state highway network needs to provide a sustained level of reliable safe access by providing fit for purpose roads, bridges tunnels and related safety infrastructure across New Zealand despite its varied topography. There has only been a slight general decline road condition for most characteristics over the past decade, however roughness has increased, and there are more portions of the network in poor condition.

Optimisation of area wide traffic management has improved throughput and mitigated the impact of growing traffic demand on the interdependent state highway and local road arterial routes. For example, throughput on Auckland's North Shore busway is dependent on access to the trunk bus services, their reliable travel on the busway and into Auckland on local arterial routes. There are now more than 1000 bus crossings a day on the Auckland Harbour Bridge and, in the morning peak, 38 per cent of all people using the bridge are bus passengers.

The potential impacts of events and incidents are better managed, even as the number of weather events and crashes have increased.

These are managed centrally and increasingly coordinated with local road networks, so customer communications are consistent, and the response is planned and actioned similarly across the 23 maintenance contract areas.

The existing delineation, road surfaces, barriers and other safety devices have been maintained in a stable fit for purpose condition maintaining personal risk levels.

Environmental activities have generally achieved regulatory compliance for water quality, pest plant management and noise control.

Changing approach to SH Maintenance over the last 10 years

Over the past 10 years there was a changed approach to road maintenance with changed impacts:

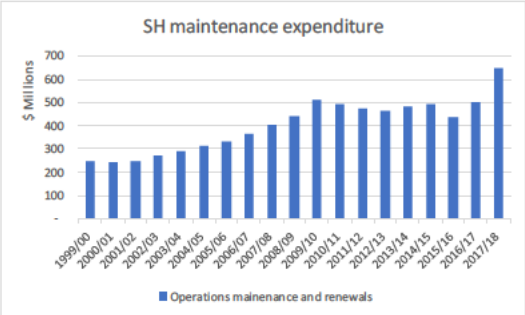
1. Expenditure was constant between 2009/10 and 2016/17 because of constraint in the GPS budget range
2. The cost of labour plant and materials grew by 12%
3. General traffic grew by 22% and freight volumes grew by 32%
4. The size and complexity of infrastructure increased as a result of the significant improvement programme, and net transfers of local roads to the state highway network
5. Approaches to investment were changed to focus on critical activities nationwide
6. New maintenance contracts were introduced to clarify accountabilities and improve customer service performance
7. The good initial condition of road surfaces and road pavements were consumed because fewer road surfaces and road pavements were replaced than the sustainable level
8. New materials and practices have been developed and introduced to improve impacts and reduce costs
9. We have worked with local government partners to improve asset management practice
10. We have introduced more efficient freight vehicles by adding 50Max vehicles as of right, and High Capacity Motor Vehicles under permit where roads and bridges have capacity
11. Service levels have generally been maintained
12. Targeted road skid resistance practices have improved
13. Road traffic, incident and event management has improved
14. But recent approaches are no longer sustainable. An increasing proportion of road pavements and road surfaces are old and vulnerable to damage by freight and the deteriorating condition of a number of variables, combined with traffic growth, are contributing to the decline in performance on the SH network.

We have improved the value for money of activities, improved efficiency and effectiveness and continued to deliver service levels while responding to cost pressures and a changing environment.

1. Constant Expenditure

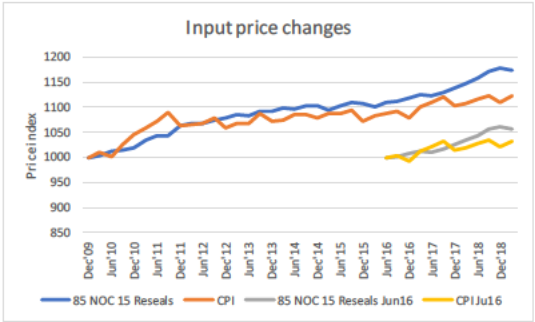
Investment in SH Operations, Maintenance and Renewal activities has been at or below the level in 2009/10 in response to the GPS funding targets for the period.

The dip in activity in 2015/16 and expenditure occurred during the transition to the new Network Outcome Contracts.



2. Cost of inputs

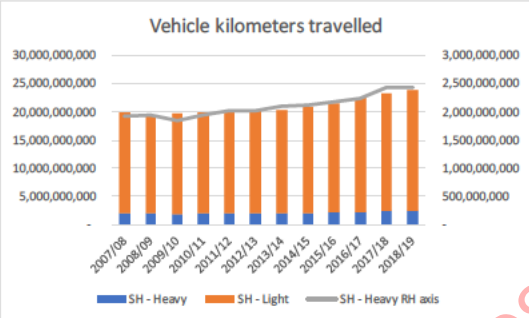
The cost of labour plant and materials rose 17% between 2009/10 and 2018/19. The costs rose by 5.7% from Jun 16 to December 18 whereas forecast used when developing the 2018/21 NLTP were that increases would only be 4.5%.



3. Traffic increase

General traffic rose 22% between 2009/10 and 2018/19, and freight by 32%.

Road freight is a small proportion of total traffic on the state highway network, however freight directly affects the cost of maintaining road surfaces and pavements. Conventional trucks cause 10,000 times as much damage as cars for each km travelled. Increasing freight causes more rapid consumption of road surface and pavement strength. This requires more frequent repair of defects such as potholes and shortens the life of road surfaces and pavements. Earlier replacement with more robust surfaces and pavements are required if treatments are to be cost effective and deliver a practical service life.



4. Size and complexity of network increased

The size and complexity of the state highway infrastructure has grown as new highways are built, as traffic management and safety infrastructure were added to existing highways to improve service levels, and as safety equipment was added to tunnels to reduce fire risk and improve ventilation.

	2009/10	2018/19
Road Length (km)	10,917	11,039
Road Length (Lane km)	22,138	24,062
Rumble strips (approx. km)	3,900	11,055
Barriers (approx. km)	1,206	2,244

New barriers require continuing repairs and replacement when they are unserviceable as a result of environmental decay or a crash.

New roads in urban or peri-urban contexts now have noise mitigating surfaces which are more expensive to replace than traditional chip seal or smooth asphaltic concrete surfaces.

There are now more traffic monitoring and control devices on the network, providing better throughput, and faster response to incidents. These require replacement just before they fail or when obsolete.

5. Investment approach

All proposals for works programmes are benchmarked against need and comparative networks. Challenge sessions are held for each network proposal.

We have introduced consistent nationwide focussed field validation of proposals for road surface and pavement replacement, significantly improving the scope, timing of works and treatment type. These have been picked up by local authority regional clusters who now review each other's work proposals, spreading and validating good practice.

We enhanced the default economic analysis supporting significant investments by requiring three options to be considered, and by considering the impacts of these on traffic delays for arterial roads.

A single nationwide contingency fund was established to manage programme risks at a nationwide level rather than regional level to reduce total expenditure while still managing risk and supporting regional staff responding to changed circumstances.

6. New Network Outcome Maintenance Contracts

In 2014 we implemented Network Outcomes Contracts on 21 networks, alongside two alliance contracts for Auckland and Milford, replacing 200 maintenance contracts in 37 contract areas. The Network Outcome Contracts simplify accountability by having one maintenance contractor in each area. They have a greater customer service focus, differentiate service levels by road function and classification and require contractors to have an operational asset management role. The contracts have a performance management regime that penalises substandard delivery, with increasing penalties for repeated defects and reduction in payment. Good performance can result in additional payment and potentially extension of term.

The performance management regime focusses impact on 5 key results areas:

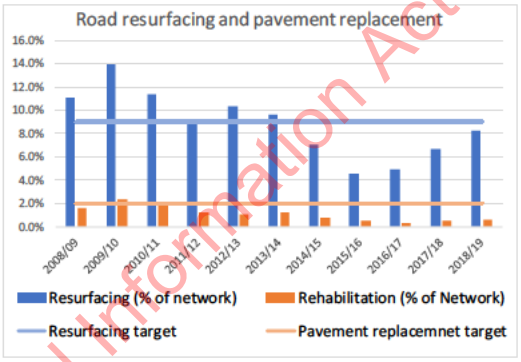
- Health and safety
- Road user safety
- Customer access and engagement
- Sustainability
- Assurance and value

We brought contract and network management roles in house improving risk management, customer service focus and consistent service delivery across New Zealand.

We took the risk on quantity and timing of road resurfacing and road pavement renewal to manage the prior use of excessive quantities. The expected quantity and timing of works for 7 years was defined in each contract and alternative approaches invited. These works are paid on a piecework basis.

7. Consumption of road surface and pavement condition

Recent modelling shows that, as a national average, road surfaces have a service life of about 11 years. About 9% or 2,160 kms, of the 24,000 lane-kms of network must be resurfaced each year to maintain its condition. The modelling also shows that pavements have a life of about 50 years requiring average replacement rates to be 480 lane km pa or 2% of network length.



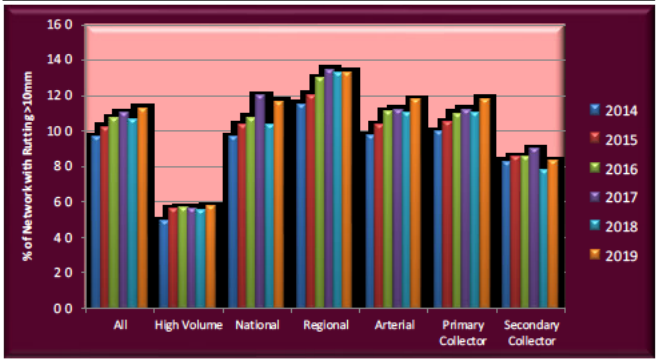
Recent road resurfacing and road pavement replacement works have been significantly less than the sustainable amounts. Resurfacing rates have dipped to half the sustainable amount, and that road pavement renewal has been less than 50% of the sustainable amount for the past 5 years.

The reduced work quantities have caused the condition of the network to deteriorate to a point which will become critical unless work quantities return to at least the sustainable level.

The state highway network is in poor condition, and some portions in an unacceptable condition with potholes forming frequently, requiring increasingly extensive repair. This exposes customers to risk, disrupts traffic flow, and increasingly repairs cost more than timely resurfacing and pavement replacement works.

Repeated traffic eventually compresses the road pavement materials under wheel tracks forming ruts. These can hold water, which increases the risk of vehicles aquaplaning and is dangerous for motorcycles moving across lanes. Ruts grow rapidly as the pavement material collapses at the end of its service life.

Proportion of network with rutting > 10mm by year

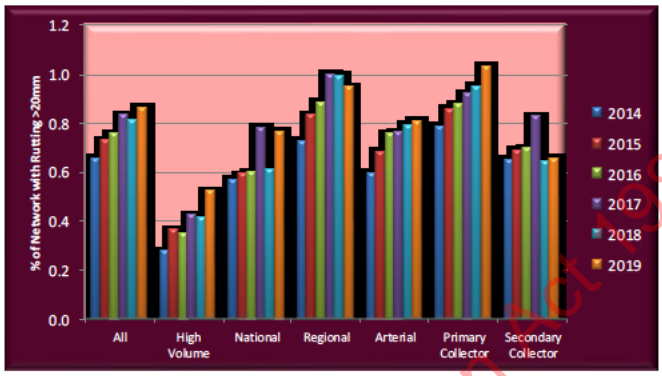


An indication of the deteriorating pavement condition is that the amount of poor condition pavements with ruts greater than 10mm has increased by 390 lane km from 2,310 to 2,700 lane kms in five years indicating that annual replacement rates have been at least 80 lane km too small. There are 0.86% or 210 lane km of pavements with rutting of 20mm or more.

We use industry standard forecasting models to predict road pavement and road surface condition. These models forecast the amount and timing of road resurfacing and road pavement woks required to maintain service levels for the minimum cost, or what service levels will be provided by optimal works programmes.

Past modelling showed that resurfacing rates should rise in 2018 in response to deteriorating condition. This forecast was validated in the field and is reflected in the recent increase in work quantities.

Proportion of network with rutting > 20mm by year



A recent review of network performance (being finalised[4]) shows that the recent lower rate of road surface and pavement replacement over 2009/18 has caused no widespread impact on service levels but the decay in condition is now becoming critical, some road sections have required excessive repair where works were delayed or substandard.

8. New materials and innovative practices

We have developed, trialled and implemented innovative improvements to our practices and materials. These include:

- using epoxy modified porous asphaltic concrete surfaces on appropriate sites. The material can only be made in modified plants. It costs over twice the normal cost of similar material but is forecast to have a service life of at least 40 years compared to 7 to 8 years for the material it replaces. The Netherlands has commenced using this product too.
- We built a weigh in motion site adjacent to the Rakaia bridge, better mitigating the risk of excessive freight loading, and instrumented bridge elements to measure the ability of the old structure to remain in service. Collectively these actions have addressed the risk of bridge damage from freight sufficiently to defer bridge replacement.

9. Collaborative approach with local government

We have supported the Road Efficiency Group, a collaborative partnership with LGNZ delivering collective responses to the 2012 Road Maintenance Task Force including:

- the One Network Road Classification system which has unified fit for purpose customer performance targets for roads with the same function across New Zealand. The One Network Framework is being developed as a replacement adding all land transport modes, and reflecting service levels appropriate for different locations with different movement and place based activities to mitigate transport impacts on the liveability of communities
- a comparative reporting tool for all Councils so peer comparisons of value for money can be made, and data quality reporting tools to daylight poor practice
- an asset management competency framework, now being developed and implemented as micro-credentials
- a safe forum for our practitioners to share ideas, challenges and learn from each other
- guidance on improving transport asset management, developing evidence-based business cases

[4] The Agency is working with a consortium of expert consultants to recalibrate, improve and re-run our road surface and pavement deterioration and works planning models to provide current estimates of the work required to maintain service levels for least ongoing cost, and the impacts and consequences of different work programme levels on service levels and transport outcomes, and the impacts on future work programmes.

10. More efficient freight vehicles

In 2013 we introduced '50Max' freight vehicles increasing the payload of common 44t trucks by 5t payload by adding another axle, with no greater road deterioration, and only marginal increase in Road User Charges. High Productivity Motor Vehicles were introduced as a new freight category allowing heavier or larger vehicles and loads across the state highway and local road networks where bridges and road pavements have sufficient capacity with commensurate RUC being charged. Collectively, these changes have improved freight efficiency for logistic operators.

11. Service levels have been maintained but ride quality decreased because more road surfaces are uneven

While customer access and safety service levels have generally been maintained by providing improved access and safety, road roughness has increased, reducing ride quality and there has been an increase in the quantity of road surfaces near or below our minimum skid resistance targets.

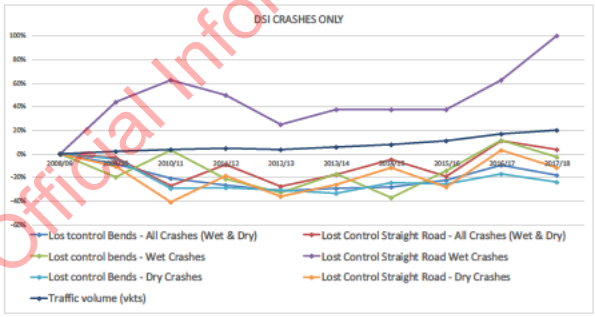
Road surfaces are increasingly described as a "patchwork quilt" because more repairs are done and remain uncovered by new road surfaces than before 2009. However, road patches only defer the need for resurfacing roads. They are not a permanent solution, some repairs require replacement when work quality is poor disrupting traffic for a second time. The aesthetic impact of changed practice has been greatest in areas such as Taranaki which were in excellent condition before 2009.

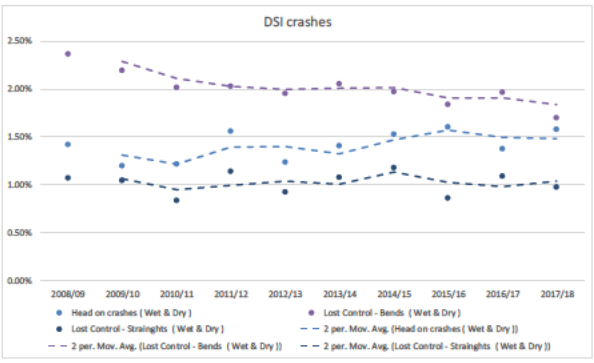
12. Skid resistance improved though there is a recent decline

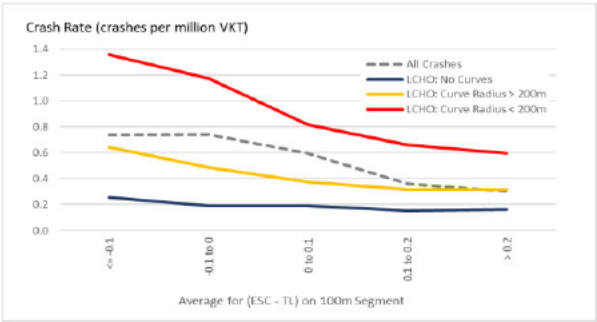
Traffic increased by 20% from 2008/9 until 2017/18. Loss of control and head on crashes causing death or serious injury grew by a smaller amount, except for the few loss of control crashes on straight roads in the wet. However the improving trend reversed since 2013/14, although skid related crash rate is still smaller than it was in 2009/10 but crash numbers have grown because of increasing travel.

Other factors are thought to have caused most of the recent trend in total crashes because the proportion of crashes that are loss of control or head on has remained constant.[5]

The targeted $10M pa skid resistance improvement programme has improved skid resistance on the sites by using premium material on corners and intersections where skid resistance is most critical and where stresses cause more rapid deterioration of road surfaces. As a result, loss of control crashes have not risen as fast as traffic volumes even when road surface treatments have been significantly below the sustainable level. The specialist treatments used have extended service lives about 2.6 times longer than previous types. This demonstrates the







[5] The agency has commissioned detailed statistical analysis of the relationship between road condition and crash rates to confirm whether or not there is any effect not revealed in network level statistics. This will be completed before Christmas.

merits of better targeted treatments using premium materials.

However the proportion of the network that is below the investigatory level (IL) for treatment has increased from around 15% pre 2014 to around 18%, and we now have 3% of the network below the minimum skid r4esistance level. The growth in traffic has exposed more amount of VKT exposed more users to than before compounding the impact of poor network condition.

13. Traffic and incident management improved

We have improved collaborative traffic, event and incident management of urban networks in partnership with urban Councils. We successfully run the Transport Operations Centres, including the Auckland Transport Operations Centre together with Auckland Transport, to manage traffic flow. We have introduced "journey management" and optimisation roles that work with customers to better understand their needs and deliver travel time improvement on networks by making small improvements to infrastructure and better configuring and operating traffic flows in real time.

We mitigate potential impacts of snow and ice by spreading ice formation retardant where thermal models predict ice may form, and we maintain weather stations to provide data informing prediction of ice formation.

14. Past practice unsustainable

The collective impact of recent challenges has required a 40% expenditure reduction through:

- Efficiency gains
- Stopping lower priority or discretionary work
- Differentiating service levels by road function
- Doing fewer road resurfacing, and road pavement renewal activities, and more repair and road patching works once this was validated. We validated this approach by using our deterioration modelling tools which showed it was possible to reduce works in the short term until 2018. We only continued this practice when field measurements confirmed the approach was working and acceptable.

But the past approach is not sustainable because the good condition of the network has been consumed. The condition of the network is now such that further deterioration would risk significant ingress of water and rapid decay from freight loads requiring frequent repair, and replacement of collapsed road pavements.

Safety features such as barriers and rumble strips must be replaced when they become ineffective and unserviceable at the end of the life or when we replace road surfaces and pavements. We must increase the current small replacement rate in order to retain the safety effect of rumble strips installed 7 years ago, and barriers 25 years ago.

CONTINUING CURRENT SERVICE LEVELS

To continue current service levels over 2021/24 we must:

1. Increase the quantity and improve the quality of road surface and pavement replacement programmes
   a) Use more robust road surface and pavement designs to meet increasing freight demand while delivering continued safety and environmental service levels
   b) Increase the skid resistance programme to address the deteriorating trend in network performance
   c) Increase pavement renewal works to stabilise the deteriorating trend in condition
2. Increase maintenance and replacement programmes to maintain new infrastructure in fit for purpose condition
3. Use emulsion based road surfaces rather than hot spray bitumen to reduce worker risk
4. Increase investment to respond to changes in labour plant and material costs
5. Increase provision for emergency works to maintain service levels despite the increasing frequency and impact of events.

1 Improved road surface and pavement replacement programmes

a. Fit for purpose road surface and road pavement designs

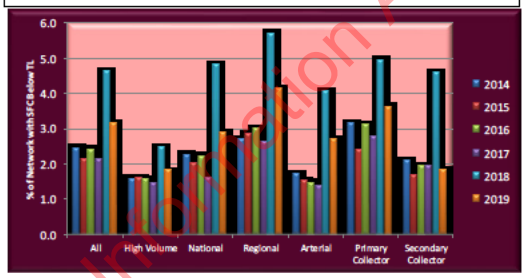
Asphaltic concrete surfaces and pavement renewal works required now are more robust and 45-50% more expensive than those forecast as required for the 2018-21 programme when it was prepared. Chip seal surface costs are similar to those previously forecast. This reflects the increased use of greater depth and strength pavements and road surfaces to support heavier loads for longer than would be achieved with thinner pavements, and a lower risk tolerance on higher classification roads to reduce the number of repairs and replacement works and consequent traffic disruption.

The price changes are based on the cost of designs being developed for works required over the 2018/21 period compared to their forecast prepared in 2016/17. The designs have been validated by the nationwide review and prioritisation team.

b. Stabilising the deteriorating trend in skid resistance

There has been an increase of 0.15% or 36 lane kms of network with deficient skid resistance over the past five years. Our intervention must increase by this amount to stabilise the skid resistance of the network, which will require investment of about $2 M per annum. There was a peak in deficient skid resistance on all road classes in 2018, when the summer was particularly hot. This slowed the normal embedment of aggregate chips into the bitumen layer on new chip seal road surfaces, allowing stones to roll over and expose some bitumen thereby degrading skid resistance until the exposed bitumen was worn off the stones by traffic.

Proportion of network with deficient skid resistance



c. Eliminating the skid deficiencies in the network

There are also about 3.16% or 760 lane kms of the network with deficient skid resistance. More work is required to understand what portion of this is short sections that are the first signs of a more widespread failure warranting a more general treatment. We estimate that remedial work might be required over 1,500 lane km and this would require investment of about $87 M to remedy, however final proposals will only be available once current modelling is complete in early 2020.

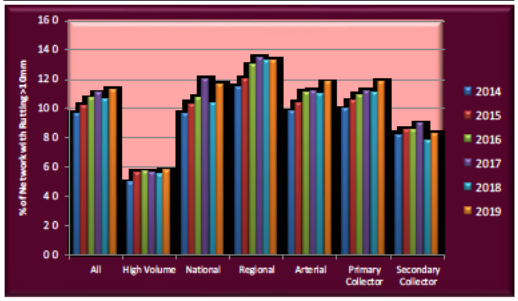
a. Stabilising the deteriorating trend in road pavement condition

Since 2014 there has been an increase of 80 lane kms of poor condition pavements per annum. Stabilising this trend requires $35M per annum, which would increase the current quantity of pavement replacement works by 50%.

Increased pavement replacement will reduce the growth in repairs that would otherwise have to be conducted by about 1,500 sites pa.

Heavy traffic compresses road pavements under the wheel tracks eventually forming ruts. Which lower safety and become an indicator for a potential collapse of the road pavement structure.

Proportion of network with rutting > 10mm



There are about 0.86% or 206 lane km with ruts that are potentially dangerous particularly for motorcyclists because they are > 20 mm, and a further 10.4% or 2,495 lane km with poor condition pavements where ruts are between 10 and 20 mm which will continue to deteriorate. If we took a 10-year approach to rectifying these poor condition pavements this would require 270 lane km of pavement renewal each year at a cost of $111 M pa. This investment is not included in the proposal for 2021/24.

This approach would bring our pavement renewal to 500 lane km pa or 2.1% of the network, slightly above the forecast long run sustainable rate of 2%. The pavement replacement programme

must increase towards this amount if we are to sustain access. We are working to finalise a recommended timing for this increase.

We are recalibrating our deterioration models and rerunning these this year. This will better define the need for increased pavement works to remove the current safety risk, and the work required to address the developing risk from pavements with rutting between 10 and 20 mm. The results will be available early in 2020.

Summary

The following programme is recommended as the base renewal programme required to deliver current levels of performance but stabilise condition, it reflects three elements:

1. Continuing past intervention practice but with robust fit for purpose road surface and pavement designs that can sustain increased freight loads
2. Increased road surface safety resurfacing to halt the decline in the recent reduction in skid resistance
3. Increased road pavement replacement sufficient to halt the decline in pavement condition

	3 year Quantity lane km	Proportion of network pa	Forecast rate $ / lane km	As built rate $ / lane km	3 year Cost
2021/24					
Replacement of chipseal road surfaces	5,100	7.08%	$32,307		$164,765,700
Increased safety road surfaces to halt skid resistance decline	110	0.15%	$58,152		$6,396,720
Increased safety road surfaces to address skid deficient road surfaces	1,500	2.08%	$58,152		$87,228,000
Replacement of asphaltic concrete road surfaces	600	0.83%	$312,298		$187,378,800
Replacement of road pavements	645	0.90%	$441,525		$284,783,625
Increased pavement replacement to halt increase in poor condition pavements	240	0.33%	$441,525		$105,966,000
	6,695	**9.30%**			**$749,290,845**
2018/21					
Replacement of chipseal road surfaces	4920	6.83%	$30,050	$32,000	$147,846,000
Replacement of asphaltic concrete road surfaces	750	1.04%	$183,000	$290,000	$137,250,000
Replacement of road pavements	480	0.67%	$286,700	$410,000	$137,616,000
	6,150	**8.54%**			**$422,712,000**
Input price effects from 2018/21 to 2021/24					$32,502,590
					$455,214,590
Change in cost due to changed quantities and more robust treatments from 2018/21 to 2021/24					**$294,076,255**

Note: As-built rates for 2018/21 reflect the cost of treatment designs and works used to treat sites in 2018/19. The proposed designs and treatments were field validated and moderated by the nationwide Review and Prioritisation Technical team. The

higher than forecast costs reflect the need for more robust treatments than expected because of increased freight and the current condition of rod surfaces and pavements.

2 Maintaining new safety infrastructure in fit for purpose condition

New infrastructure must be maintained if it is to be effective and replaced when at the end of its service life.

New specifications: New expressways which have replaced two lanes with four, replaced chipseal surfaces with noise mitigating porous asphalt, added median and roadside barriers, premium road marking, and new bridges at interchanges and for local roads crossing the new route. The greatest mid term impact is from the need to resurface the greater area while maintaining noise mitigation.

Safety: New safety features and devices. The greatest impact is from the frequent repairs required to restore barriers after minor or injury crashes and replace these after 25 years when they become unserviceable, and from the replacement of premium marking (rumble strips, and profile marking visible in the wet) after 6 - 8 years when it has degraded. All flexible barriers require constant maintenance to return them to a fit for purpose state after nuisance or potential injury crashes. Barriers deteriorate over time and require replacement with more effective designs.

We expect to maintain an additional 1000 km of barriers over the 2021/24 requiring additional investment of $2.5 M per annum. We expect to replace 240 km of old barriers requiring additional investment of $51M, and to replace 2,700 km of rumble strips at the end of its life for an investment of $20M.

Technical equipment: Additional equipment used to monitor and control traffic and to capture and analyse traffic data and provide advice to customers of incidents, their impact and optional responses.

3 Use emulsion based road surfaces rather than hot spray bitumen to reduce worker risk

Most chipseal surfaces are built by spraying hot bitumen onto the road and then covering the 1-2mm film with stone chip. The bitumen is between 180 -190 C presenting a severe burn risk to workers. An alternative is to use emulsified bitumen which is applied at about 100 C so is much safer. Fewer harmful chemicals are required to environmental risk is lower. The relative risks are shown in the table. We recommend adopting the use of emulsified bitumen as it is a practicable way to reduce the risk to workers. The direct cost to the SH maintenance activity class is about $65,000,000 over 2021/24.

If the agency adopted full use of emulsion seals it is likely the practice would be applied across all RCAs adding about $45,000,000 over 2021/24 to local roads maintenance expenditure.

As can be seen the frequency of incidents is similar for cutback and emulsified bitumen but there is a difference in the severity of the incidents. The WSP Opus report has attempted to place costs against the incidents using the Ministry of Transport figures for fatal, serious and minor accidents. Using these figures the injury costs in a typical year when using 100% hot spray bitumen would be $1,940 million compare to $0.306 million when using 100% emulsion, a reduction of $1,634 million.

Accident data 2009-2019 for use of hot spray and emulsions from Olsen (2014) and CCNZ (2019).

Incident	Number of incidents		Number of incidents per 100,000 tonnes of binder sprayed	
	Hot spray bitumen	Emulsions	Hot spray bitumen	Emulsions
Fatality	1	0	0.255	0
ACC claims- minor injury	16	5	3.347	6.820
ACC claims involving serious harm	6	0	1.438	0
Serious incident (close call)	128	22	24.482	21.740
Total	156	27	29.522	28.560

Note: A serious harm incident was based on the ACC definition.

A decision to universally adopt emulsions is supported by industry. We should develop a sector wide implementation approach so that plant is adapted, work crews trained, and practices adapted for the 2021/24 NLTP period, with the required developments in budget reflected for that period.

4 Maintaining investment levels in response to commercial, labour plant and material cost pressures

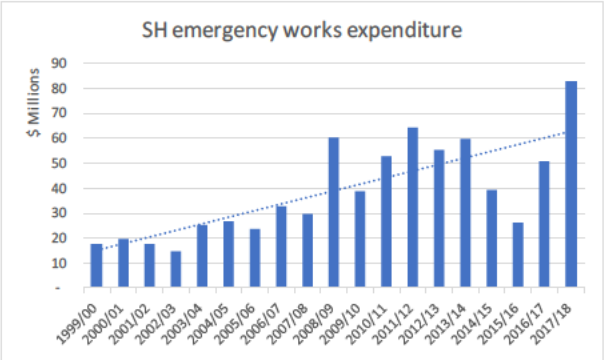
Recent increases in the cost of plant and materials have been above the rate used when planning and adopting the 2018/21 NLTP adding $25M cost pa. Forecast increases at 2.5% pa add $115M to 2018/21 costs which must also be met in 2021/24. The net impact is expected to be $190M over 2021/24 compared to the forecast for the current period for the same programme.

Road maintenance costs are more sensitive to oil price changes than the CPI because of the greater proportional reliance on fuel and bitumen.

5 Increasing emergency works provisions to respond to increasing frequency and intensity of events

Emergency works requirements are growing as storm events become more intense and frequent.

It would be prudent to provide for expenditure of $70M pa over 2021-24.



The forecast investment required over 2021/24 is shown in the table in steps of improving impact,

	Change $M	3 years 2021/24 $M	Length of network renewals 2021/24 Lane km	% network renewed pa	Length of Surface in poor condition Lane km	Length of Pavement in poor condition Lane km	Excess Skid related DSI on poor network	Additional days repairs required pa
Base operations, maintenance and renewals for 2018/21		$1,815						
Increase in the cost of labour, plant and materials on base programme with reduced road surface and pavement renewals to deliver at current real cost	$165	$1,980	5,385	7.5%	2,634	3,432	50	12,330
Deliver a sustainable level of resurfacing and pavement rehabilitation but use chip seal in rural areas	$32	$2,012	6,150	8.5%	2,167	3,237	41	6,900
Use a sustainable quantity of robust treatments	$150	$2,162	6,345	8.8%	2,108	3,072	40	3,210
Increase skid resistance programme to halt deteriorating trend	$7	$2,168						
Expand pavement renewal works quantities to stabilise unsafe rut formation rates	$106	$2,274						
Adopt emulsion based resurfacing rather than hot spray bitumen to reduce workforce risk	$65	$2,339						
Operation and maintenance of new safety infrastructure	$52	$2,391						
		$2,391						
Emergency works	$45	$210						
Total SH maintenance cost		**$2,601**						
Eliminate surface condition deficit, improve skid performance		$75	7,200	10.0%	774	2,997	26	0
		$2,676						
2018/21 GPS range for 2021/24		**$1,930**						
		$2,260						
Proposed GPS range for 2021/24		**$2,050**						
		$2,750						

The activities forecast to be required to maintain service levels over 2021/24 cost $490M more than the upper funding range in the current GPS for 2021/24.

Exclusions and assumptions

This projection makes no allowance for:

- Additional safety management costs, assuming past practice will continue. However, we are reviewing what, if anything, can and should be done to make manual roadside work safer, or modify practice to avoid the need for such work
- Additional traffic management operations
- Enhanced environmental practice dependent on the recommendations of the Sustainability Action Plan currently being developed, and at particularly sensitive sites where mitigation approaches are being developed as is the case in Northland regarding Kauri dieback. Because areawide change programmes are required to develop and implement effective bio-diversity, vegetation management and water quality improvement programmes, and to mitigate the impacts of structures such as culverts on aquatic life tactical response will be developed with our partner agencies.

CHALLENGES & OPPORTUNITIES

There are many challenges and opportunities affecting the service levels, costs and risk of the impact of future state highway maintenance programmes. What follows are optional responses and proposed changes to practices that offer potential improvements in achievable value for money. These responses are presented as practice changes and as optional investment strategies. We are currently developing the detail of these approaches. The proposals relate to:

Service level enhancements:

1. Supporting mode shift through enhanced traffic management practices
2. Changes to environmental practice to improve operational sustainability
3. Maintaining transport system throughput as demand increases and mode shift occurs
4. Improving travel reliability on arterial routes through integrated road works programming
5. Reviewing road pavement replacement practice on higher classification roads, through towns and at challenging sites potentially introducing premium treatments to increase durability and reduce traffic disruption from repairs or replacement works
6. Eliminating the deficient skid resistance of the network to improve safety
7. Widening road surfaces and shoulders to improve safety for all modes and to provide safe pull off areas and reduce the impact of minor slips

Potential efficiency gains and practice changes:

8. Taking a more systematic approach to asset management governance, strategic and tactical planning to better direct activities
9. Reviewing road pavement replacement practice on lower classification roads where there is the potential to use simpler treatments and lower grade materials
10. Reviewing road pavement replacement practice through towns to develop an efficient approach to addressing poor quality pavements causing rapid deterioration of road surfaces
11. Eliminating the substandard pavement condition on the network
12. Extending the drainage maintenance programme to improve pavement service life and network resilience
13. Retendering maintenance contracts as current contracts expire
14. Reviewing maintenance requirements of traffic & safety furniture and equipment in response to the new safety strategy
15. Improving asset management information systems and data capture to improve the evidence base for decisions, improve the efficiency and effectiveness of asset management information system across the sector, and exploit the potential of current and emerging technology
16. Responding to reduced research and development investment
17. Developing the capability and capacity of the sector to consistently deliver works programmes to high qualityp
18. Reviewing work place safety requirements

Optional service level enhancements

1 Mode Shift Action Plan

The mode shift action plan is expected to require changes to traffic management to prioritise throughput of higher occupancy vehicles and increased travel reliability for priority modes. We expect that this will change the focus and settings of traffic management but not materially affect the investment required through the state highway maintenance activity class. We expect that more integrated traffic management over a greater network will be needed to improve travel time reliability of passenger transport and that this will require significant changes in practice and traffic management equipment on local road networks plus some change on State highway networks funded from the SH improvements activity class.

We expect to develop detailed investment plans by February 2020 for inclusion in the 2021 proposal for investment in State highway activities.

2 Sustainability Action Plan

We are developing a Sustainability Action plan. The scope is environmental sustainability (climate change mitigation, water quality, biodiversity and resource efficiency) and public health (physical activity, air quality and noise).

We expect the plan to be agreed at the end of 2019.

Several of the implementation packages are likely to have direction setting relevance for the state highway maintenance activity class. In particular the Investment and Urban Access packages will be relevant to the work of the Traffic Operation Centres, in terms of how network optimisation supports the reduction of emissions from vehicles. The Protect and Enhance work package is particularly relevant as it calls for a shift in practice from environmental permit compliance to environmental best practice. It also includes a remediation component to address cumulative environmental impacts. Future Ready is relevant in terms of spend on research, monitoring and innovation whilst Corporate Sustainability has a focus on staff travel.

While we meet the requirements of stormwater discharge and similar consents we will need to implement and operate better treatment and capture facilities to meet more stringent water quality discharge requirements.

However, there are examples of current deficient practice. We are developing an approach to retrofitting devices to facilitate fish passage through older culverts. It may be that these and similar works can be staged alongside those required to increase the capacity of culverts to carry the greater flow from the more intense storms increasingly prevalent and implemented across the network over a defined period.

Sustainability practice improvement proposed:

- Develop collaborative approach to implementing the action plan by capability improvement with partner agencies, consultants and contractors, and with construction sector partners
- Develop proposal for submission to the 2021/24 NLTP by March 2020. Potential impact: an increase in cost of $20 M Pa in the improvements activity class with subsequent maintenance requirements of $10M pa.

3 Maintaining transport system throughput as demand increases and mode shift occurs

Rapid growth in New Zealand's urban areas is increasing demand across all modes. Together with our partners we are driving a mode shift change to multi-occupant vehicles through the deliberate allocation of existing road space to support all modes, such as through cycle or bus lanes or increased pedestrian priority in town centres and for this priority to be allocated in different ways, at different time of day.

Within urban areas, such as Auckland, the increasing inter-dependencies between SH, local road, bus, cycling and walking networks are critical for all customers. This is driving a need for a larger and more integrated approach to network management to maintain throughput and minimise the disruptions to customers caused by events and incidents.

We are developing proposals to extend and enhance traffic management in collaboration with our urban partners.

We currently estimate that an additional $15-20M pa is required over 2021/24 period to enhance and extend traffic management in Auckland to cover the key corridors that impact the overall throughput of the transport system and to increase the integration of transport operations in Wellington.

In Auckland, together with our partners we have started to amalgamate transport operations centres to allow a more integrated operation across more of the relevant parts of networks, but challenges remain in implementing a unified approach. There are opportunities to explore similar approaches in other urban centres in the medium term.

Transport operations options requiring continued focus

- Maintain current capacity and capability levels, despite increased transport demand and network complexity, putting current throughput levels at risk
- Increase capacity and capability to keep pace with increasing demand and network complexity within urban areas to maintain current throughput, potentially requiring $20M pa increase in the state highway maintenance activity class.

Transport operations practice improvement:

- Develop business case for amalgamation of Transport Operations centres across all key urban areas with partner agencies, while maintaining service resilience.

4 Improving travel reliability on arterial routes through road works programming

There are opportunities to improve travel time reliability and throughput for all modes on arterial routes by reducing the number of roadworks. This can be achieved by proactively replacing road surfaces, before they require repair and using premium materials and robust designs to make infrastructure more durable thereby reducing the frequency of future works. Scheduling more work outside peak hours, including night works in locations where noise is no issue, reduces the impact on traffic but costs more.

Road works programming options:

- Maintain existing approach
- Scheduling works outside peak hours to reduce disruption when working on arterial routes more often than is done now
- Improving forward works planning to amalgamate activities planned for the same area requiring a spatial information system

5 Reviewing the need for road resurfacing and pavement replacement

We are revalidating, enhancing and rerunning our deterioration models to refresh our forecast requirements for road resurfacing and pavement replacement. We are targeting three scenarios: a minimum cost programme to provide adequate service levels, and enhanced programme amalgamating adjacent works by advancing works by one year to reduce traffic impacts, and a programme at 90% of the minimum adequate programme to reveal the impact of sub-optimal renewal quantities on service levels and future cost to maintain safe access. The results are expected early in 2020, and will inform about 45% of annual expenditure.

There may be additional requirements arising from this safe access sustainability action plan, such as greater use of noise mitigating road surfaces.

Optional requirements for road replacement:

- Proactive replacement of road surfaces and use of premium treatments to reduce impact of roadworks on traffic flow potentially $10M pa to implement 10 lane km of structural pavements rather than unbound aggregate pavements reducing risk of failure and establishing a regime of fewer repairs and disruptions to traffic from defect repairs
- Use less robust road surface treatments, decrease service lives, increase pothole repairs, increase future works to avoid pavement decay, reduce short term cost and reduce safety
- Use robust fit for purpose treatments, minimise long run costs, but increase short term costs as proposed in the base case of this paper

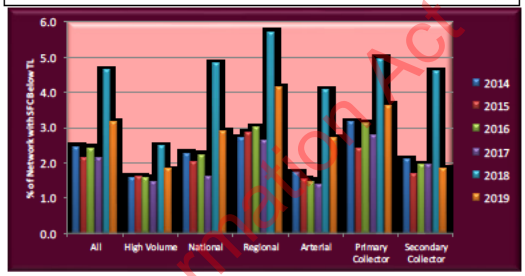
Road surface and pavement replacement practice improvement proposed whatever the investment approach adopted:

- Review the case for building replacement pavements on top of existing pavements instead of in situ replacement to exploit residual strength of existing pavements potentially reducing the cost of pavement renewal half of the network
- Develop the case for use of more durable road surface treatments types against enhanced quality requirements to ensure proper construction on high volume network
- Review the impact of the sustainability action plan on requirements of noise mitigating road surfaces on business as usual programmes

6 Eliminating the deficient skid resistance of the network

There is about 3.16% or 760 lane kms of network with deficient skid resistance. This requires an investment of about $45 M to rectify.

Proportion of network with deficient skid resistance



Eliminating this condition deficit may reduce DSI by more than 50 per annum. We are reviewing the impact and cost of closing the skid resistance deficit.

Requirements for road skid resistance improvement options:

- retain current practice
- gradually eliminate the skid resistance deficit, cost $45M impact potentially reduce DSI by 50 per annum

Practice improvements:

- Confirm safety impact of potential skid resistance programme, and develop implementation strategy

7 Widen road surfaces to improve safety, and reduce maintenance cost

Many rural State highways have a seal width of 8m or less and narrow unsealed road shoulders. This means that:

- Cyclists have no place to go to avoid traffic
- There is no sustainable recovery or pull off area for general traffic
- Secondary routes are unable to carry freight loads after events without rapid improvement, as was required of SH 63 after the Kaikoura earthquake
- There is no ability to provide wide painted median areas which reduce head-on crashes by 45-85%
- It is difficult and dangerous for traffic to pass maintenance vehicles mowing roadside vegetation or repairing potholes

This issue will become more critical as central wire rope barriers are built on narrow roads. SH 88 to Mt Cook is an example of this situation where the two marked lanes cover the entire sealed roadway giving no sealed shoulder.

We propose that we develop a strategy to widen road surfaces over time focussing on priority roads. We expect the strategy to identify the benefits, costs and risks of this approach

Optional efficiency enhancements

8 Systematic Asset Management

While the recent Treasury Investor Confidence Rating found the Transport Agency's asset management practice had improved it noted areas for improvement. The review recommended governance be more strategic and explicit, strategic planning improved, and asset information management be improved. We engaged Aecom and have now received their recommendations regarding improvements to strategic planning. These proposals are being considered and will likely result in the establishment of a senior governance group, a fully developed strategic asset management plan and lifecycle plans for each asset class and an improvement plan by mid 2020.

9 Reviewing road pavement replacement practice on lower classification roads

Premium road pavement materials are increasingly scarce and expensive but not critical for effective service on lower traffic road classifications. Lower classification rural state highways have fewer constraints than other roads so we can potentially build a new road pavement on top of the prior road more cheaply and with less disruption than replacing the prior pavement in situ.

Road pavement replacement practice improvement proposed:

- Review the opportunities and triggers for using lower specification road pavement designs where the context allows and quantify the benefits, costs and risks of such an approach

10 Reviewing road pavement and road surface requirements in towns

Road pavements in towns are frequently low strength. The traditionally preferred expensive asphaltic concrete road surfaces are not flexible so crack and deteriorate rapidly requiring frequent replacement. Asphaltic concrete surfaces are preferred because they have low noise and are pedestrian friendly because there is no risk of bitumen tracking. Cheaper surface designs are available that are low noise, pedestrian friendly and flexible. Some have been implemented (eg in Greytown) but are not favoured by Council staff generally because they are built in the same way as chipseal road surfaces so are thought to risk bitumen tracking and stone chip loss even though these designs have solved these problems of conventional chipseal surfaces. Replacing the road pavements requires significant investment but would reduce the flexibility of the pavements and therefore extend the lives of the preferred asphaltic concrete surfaces.

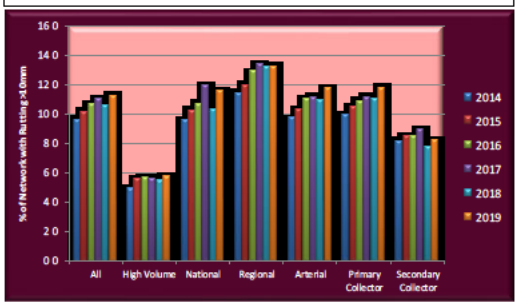
Road surface & pavement replacement in towns practice improvement:

- Review the development of optimal treatment strategies in collaboration with local government partners.

11 Eliminating the substandard pavement condition on the network

There are about 10.4% or 2,495 lane kms with poor condition pavements where ruts are between 10 and 20 mm. If we took a 10 year approach to rectifying these poor condition pavements this would require 270 lane km of pavement renewal each year at a cost of $111 M pa.

Proportion of network with rutting > 10mm



This approach would bring our pavement renewal to 500 lane km pa or 2.1% of the network, slightly above the forecast long run sustainable rate of 2%

We are recalibrating and rerunning our deterioration models this year. That work will better define the need for increased pavement works to remove the current safety concerns, and those work required to address the developing risk from pavements with rutting between 10 and 20 mm.

Requirements for road pavement improvement options that improve cost effective provision of safe and reliable access:

- retain current practice
- gradually eliminate the road pavement condition deficit, cost $111M pa over 10 years returning pavement replacement to the long run sustainable level.

12 Extending the drainage maintenance programme to improve pavement service life and network resilience

We have researched the impact of roadside drainage on pavement durability and shown that doubling the renewals programme would beneficially extend pavement lives. The processes for a systematic approach ensuring good works targeting and effective delivery will be operational by 2021. We are reviewing our approach to network resilience and climate change impacts and will merge resulting work programmes.

Drainage options:

- Maintain minimum surface water management programme
- Increase programme to remove water from pavements making them more durable with an investment of $10M pa

Drainage practice improvement:

- Develop response to sustainability action plan by March 2020
- Note that the Transport Agency resilience programme is developing response to climate change impacts and current service gaps that will influence this programme

13 Retendering maintenance contracts

Maintenance contracts will be retendered as the current contract terms expire. We have drafted a new Network Outcomes contract with a greater emphasis on customer service, works quality and operational asset management. The first tenders will be let before the 2021-24 period and inform investment decisions for that period. There is the potential for cost increases of 5-10% beyond input price pressures depending on commercial and economic conditions at the time of tender.

Procurement practice improvement:

- Review cost and effectiveness of NOC 2019 contracts let before 2021, and make appropriate adjustments to contract or budgets

14 Reviewing maintenance requirements of traffic & safety furniture and equipment in response to new safety strategy

We are improving the safety of the SH network by adding centreline and edge barriers as well as other features such as rumble strips. Previous experience on expressways where these were first used is that these barrier systems requires about $10,000 pa per km to rectify strike damage. The strike rate that will occur on the narrower roads where barriers are now being used is still to be determined.

The extent of the growth of ITS infrastructure is uncertain. This depends on the nature of real time traffic management operations and their extent.

Additional infrastructure options:

- Maintain current work programme size
- Increase safety maintenance to ensure safety features remain in fit for purpose condition at a cost of $52M over 2021/24.

Additional infrastructure practice improvement:

- Monitor and review the design and maintenance of safety and ITS features as they are implemented, and optimise long term approach
- Review use, contractual and application approach of premium product, eg rumble strips , developing a case for a regional or nationwide approach to replacement rather than current piecework approach

15 Improving asset management information systems and data capture

There are over 150 information systems and apps used to acquire, store, analyse and report asset management data and information. RAMM, the core system, was initially developed in the 1980s to

manage road surfaces and pavements. While it has been developed and new functionality added since then it is not as capable as modern tools.

The Transport Agency is developing an Asset Management data standard in collaboration with Local Government through the Road Efficiency Group. When implemented this will make the transmittal of information more reliable and cheaper, better enable shared services, comparative reporting, and increased uptake of improved practice. It is critical that client agencies require use of data standards if we are to make asset management information and decisions transparent and meaningful and avoid vendor capture as we implement new digital engineering information systems.

16 Research and development capacity

Research and development activities have reduced because the NLTP research programme is increasingly focussed on emerging strategic issues rather than improving the efficiency of road maintenance, and because direct investment from the maintenance activity class has been reduced in response to the budget constraints. This change has reduced the opportunity to improve the effectiveness and efficiency of road maintenance practices.

17 Capability and capacity

The capacity of the sector is barely sufficient for the total quantity of work for the Transport Agency and its partners invest in. The proposed programme requires an increased amount of work. The sector struggles to match resource to need efficiently when requirements change frequently.

The construction sector as a whole has a current and growing capability challenge for its traditional business because fewer skilled technicians and engineers are available than required, and demand is growing as the abnormally large proportion of older skilled resource retires and is replaced by an increasingly large number of school leavers that represent the next generation that will find careers in the creation, operation and maintenance of transport infrastructure that society depends on. During this transition there is potential that the availability of skilled technicians, engineers and trades people will diminish before recovering.

It is critical that appropriate steps are taken to accelerate training, development and lifelong career pathways now that will provide the emerging generations with the necessary skills, capabilities and experience to secure meaningful careers that contribute to society through delivering great outcomes, not only for current transport modes but also for our future transport system. Currently there is an opportunity for the sector to seek involvement in the Review of Vocational Education (ROVE) to help shape these desired outcomes.

The Transport Agency has added detail to the Road Efficiency Group's new competency framework and we are investigating how this will be used through the transport micro-credential frameworks to support training of in professional service staff alongside internal capability programmes.

The changing nature of transport requires new skills. We require experts in technical equipment and digital information management, as well as greater capability in identifying and adopting responses to rapidly, emerging issues and technologies. There is also a need for greater commercial and project development ability to work alongside and partner with public and private development projects.

Feedback from civil engineering and professional services has reconfirmed that inhibitors to increased value for money, productivity and improved health & safety and quality performance in the provision of services are influenced by a number of variables, including:

- Industry capacity (as referenced above in regards to workforce) – Getting the right number of people trained and directed to the right areas of demand
- Sector volatility – Income and tenure impacting the ability to invest for the long-term and plan effectively for efficient delivery of services
- Constraints on innovation – Traditional methodologies and material specifications are difficult to change without a 'shared risk' environment being fostered
- A bias in project economics favouring initially cheaper but short-lived solutions over more durable designs
- Disaggregated systems – Core management systems can vary significantly in nature and use across the country, limiting the opportunity to achieve benefits of scale and efficiency

Addressing these variables and others in a partnering environment will help unlock desired improvement.

18 Reviewing work place safety requirements

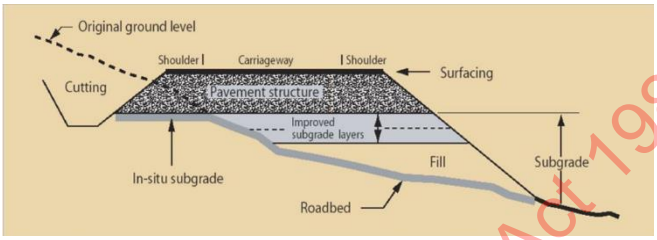
Road maintenance works are potentially dangerous because of the proximity of work sites to traffic. Temporary traffic management procedures for longer duration works are reasonably established and effective, though being improved. However, short term operations such as manual litter collection from the roadside, or repair and cleaning of road signs and edge marker posts are being reviewed currently. There is the potential for greater protection to be warranted and in some cases alternative practices used to eliminate risk.

HASIE practice improvement:

- Develop case for change in approach and impact on maintenance contracts in time to inform 2021/24 NLTP.

Appendix 1 Network vulnerability

New Zealand roads, like those of Australia and rural America were built using a low capital high maintenance design to enable the development of an extensive network in a sparsely populated country. Roads and bridges are consequently narrow and decay rapidly compared to similar function roads in Europe. While main roads have been widened and strengthened since they were built lower classification roads, and those in challenging topographical situations, are generally narrow with no sealed shoulder, or with no shoulder at all, so do not provide an ideal safe multi modal environment.



NZ roads have typically been built by forming a platform for the roadway, then laying and compacting aggregates to provide a pavement structure able to withstand the traffic loads expected over the pavement service life and distribute these to the subgrade so there is minimal deformation or defects. Hot bitumen has then been sprayed on top to provide a waterproof surface and to bind the aggregate chips spread and rolled into the bitumen to provide a skid resistant surface and to protect the 1-2mm thick bitumen layer from vehicle damage.

European roads typically have pavements which are stronger because either bitumen or cement is used to bind the aggregate particles together, and they use asphaltic concrete surface layers (as used in urban NZ) which carry heavier loads for longer without damage. NZ is increasingly using these “structural pavements” and asphalt concrete surfaces where loads and traffic volumes are high.

NZ roads are vulnerable to rapid decay and growth in the number and size of potholes if water seeps into the pavement structure below the road surface through cracks or from poor roadside drainage. It is crucial that the waterproofing qualities of road surfaces, and the capacity of roadside drains are maintained to extract the maximum benefit of past investment and defer the need to replace expensive road pavements.

Freight vehicles cause about 10,000 times as much damage to road surface and road pavements as a single passenger car because of their heavier loads, this ratio is about 1,000,000 :1 on weak roads, or 100:1 on strong roads. Increasing freight volumes and loads are causing more rapid deterioration of road surfaces and road pavement than before. Sudden increases in freight loads from harvesting mature forestry plantations, for example, can overwhelm the capacity of local roads in a year. The diversion of freight from SH1 to SH63 after the Kaikoura earthquake increased damage there by about 50 times more than before.

Growing freight demand from conversion of pastoral to dairy land use and growth in production increasing the carriage of goods to market are increasing loads, consuming the capacity of road surfaces and road pavements faster than once expected. Consequently, we must replace road surfaces and road pavements earlier and with more robust surfaces and pavements than previously expected.

Road surfaces and pavements should be replaced before they fail, otherwise significantly more expensive treatments are required to restore cost effective service. If road surfaces are not replaced before they deteriorate and admit water to the pavement below we see the rapid development of potholes, more frequent and extensive bumpy and costly patches and consequent deterioration of road pavements leading to earlier replacement. It typically costs about $30,000 per lane km to resurface a road with chipseal, and about $400,000 per lane km to replace a road pavement, so it is economically better to replace road surfaces before they crack and allow water to penetrate the pavement causing it to pothole and require replacement to restore safe and reliable travel.

We are increasingly using modern “structural” road pavement designs on routes with greater traffic because these are less vulnerable to damage, have a longer service life, require less frequent repair and resurfacing activities, reducing the impact of works on customers, and have net benefit to NZ inc, despite the greater direct cost. Structural pavement works cost about $1,000,000 - $1,300,00 per lane km. They provide stronger roads which can carry heavier loads for longer. They

deform less than traditional road pavements, carry higher loads without damage, and are less vulnerable to water damage. They significantly reduce the need for frequent replacement of road surfaces and for repairs.

Table 1 The current proportional contribution to outcomes as *

The potential for further contribution through the maintenance programme as +

Where an improved contribution requires a change or improvement programme implemented through the SH improvements activity class as ^

where this will be sustained by increased subsequent activity in the maintenance programme

			Transport Outcomes								
Activity	Description	Recent Cost	Inclusive access	Economic prosperity	Resilience and security	Health and safety	Environment	Spend	Current performance	Gap & challenge	Implication
Road surface and pavements	Repair and replace road surfaces and pavements to safely and reliably carry general and freight traffic day after day.	44% $268M	**	*****+	*+	**+	-- ^^		Access is generally safe and reliable but could be better. Development and use of new and premium materials and designs and targeted treatments on demanding sites has sustained safety performance despite recent work quantities being 50% of sustainable levels	2% of road surface have poor skid resistance Common road surfaces do not mitigate road noise A growing proportion of the network is in poor condition and will deteriorate rapidly unless more poor condition road surfaces and pavements are replaced each year High cost on less demanding routes Traditional road surface and pavement designs are not sufficiently robust for increasing freight traffic	More durable high performance road surfaces and pavements to make road surfaces safe for longer on high stress sites Work quantities must increase to sustainable levels to obviate need for increased retain cost effective access and reduce disruption from repairs Develop and use of fit for purpose designs and materials on less demanding sites to reduce cost Replace hotspray chipseal with emulsion based to improve worker safety
Bridges, tunnels	Maintain structures	14% $85M	** ^^	*****+	**	*			Access is safe and reliable	Older bridges can't carry HPMV freight or pedestrians and cyclists safely	Replace end of life bridges with high capacity fit for use bridges through SH improvement programme
Walls and slope management	Mitigate risk of rockfall and slips above and below the roadway		**	**	**+ ^^^	**			While there are few impediments to free travel because of slips the vulnerability of slopes is	Increasing risk from the deteriorating condition of slopes and retaining structures, coupled with increasingly frequent intense	Remove unstable material Improve network resilience through improvement programme by protecting slopes from decay, mitigating

									increasing as environmental decays occurs. New Zealand's mountainous topography and increasingly intense rain storms are causing larger more frequent slips reducing the reliability of access	rain is making slips and rockfall events larger and more frequent. Increased reliance on reliable access for access to services or for goods to market is making the impact of any disruption greater	risk of collapse, and widening roadsides or providing barriers to reduce impact of slips then maintain new infrastructure.
Traffic management	Guide and manage travel demand to make best use of current capacity across inter-dependant multi-modal transport networks	18% $106M	**	****+ ^	**+ ^	*			Throughput and travel time reliability has improved though gains have been offset by demand growth on routes with significant traffic growth	The potential capacity of multi-modal networks is constrained because processes and systems used to monitor and manage traffic flows do not cover all key inter-dependant networks	Extend and integrate the monitoring and management of inter-dependant traffic flows through an improvement programme, optimise system wide management, maintain additional infrastructure Remove capacity bottlenecks by making minor improvements to operating systems or infrastructure through the H improvement activity class
Manage incidents and events	Mitigate impact of events and incidents on system capacity, providing alternative routes, restoring service			****	****	**			The potential adverse impacts of incidents and events has been reduced because of improved information, planning consistent and cohesive management and implementation of proactive and reactive responses. Contractors promptly and effectively mitigate imminent risk, make safe and restore service	The impacts of incidents and events is more widespread and prolonged than would be the case if integrated systemwide responses were easier to prepare and implement	ditto

Storm water management	Repair and replace drainage infrastructure to reduce flooding, protect infrastructure and treat or contain pollutants	4% $26M	*+	*+	**+ ^^		**+ ^		The storm water infrastructure has adequate capacity for common rain storm events. Water quality monitoring demonstrates general compliance with requirements	Insufficient drainage capacity is reducing the service life of pavements, and not able to carry increasing flows from intense storms without road surface flooding, or increasing slips. The extent of deficient environmental practice is uncertain The extent of infrastructure and practice change required to deliver on good environmental performance is uncertain, e.g barriers to fish passage To be effective responses must be area wide	Develop change programme to delivery on sustainability actin plan and resilience programme business case Change programme required through SH improvement activity class Environmental programme must be developed and implemented with regional partners to be effective Programme extension over time as infrastructure grows in size and complexity
Safety devices, barriers and delineation	Maintain lighting, road markings and signs safety barriers and devices to support, guide and direct safe network use and mitigate risk and harm from any error	12% $78M			***	******+ ^^			Safety devices are maintained in fit for purpose condition. Devices damaged by crashes are promptly replaced or repaired.	The optimal mix and condition of devices in different circumstances is uncertain New materials and devices provide opportunities for improved maintenance practices and procurement to reduce costs. The road safety improvement programme is increasing the quantity and complexity of road safety devices requiring a greater programme to maintain it in a fit for purpose condition. There are insufficient improvement funds to replace	Develop programme in response to new safety action plan for 202124 NLTP Programme extension over time as infrastructure grows in size and complexity Change programme required through SH improvement activity class Review contextual device requirements and delivery mechanisms. Increase investment to replace expiring safety equipment coming to the end of its life to

										obsolescent irreplaceable lights with LEDs	ensure it is kept in fit for purpose condition
Vegetation management	Manage roadside vegetation to maintain sightlines for travellers, eliminate pest plants, encourage bio-diversity	1% $7M				****+	**+++		Regulatory requirements are met Roadside vegetation is managed so that it does not obscure sight of the road ahead	Pest plant management and biodiversity are inconsistently managed in regions across state highways, local roads and adjacent land but require consistent action to be effective	Develop change programme to deliver on sustainability action plan
Amenity	Remove litter & graffiti, provide rest areas	5% $34M	*	*++		**++ ^	** ^^^		Offensive graffiti is removed or obscured promptly Roadside litter is maintained to an acceptable standard	Litter removal is a manual process. It is expensive to meet customer expectations while keeping the work force safe. Significant fly tipping occurs. There is inconsistent practice by agencies. A nationwide change in behaviour is required to reduce need. A more cohesive approach to providing rest areas across agencies	Develop response following development of any revised HASIE response Develop change programme to delivery on sustainability action plan
Emergency works	Repair and replace infrastructure damaged by natural events to restore access, then restore service levels			** ^^	****** ^^	**			Affected sites are made safe, alternate routes established and customers informed, then temporary and full service restored.	The frequency and intensity of rain storms are increasing requiring 40% more extensive and costly works to restore service over the last decade. Obtaining competitive offers of service to promptly restore service and make final repairs in a civil engineering market with little spare or available resource.	Increase proposal to match need Implement resilience action plan through SH improvement activity class following release of programme business case to mitigate hazards, modify emergency response provision over time dependant on the impact of that change programme

										Not all nominated detour routes have the capacity for the number of potential vehicles or for freight	

MINISTERIAL BRIEFING NOTE

Subject	National Land Transport Programme
Date	11 September 2019
Briefing number	BRI-1790

Contact(s) for telephone discussion (if required)				
Name	**Position**	**Direct line**	**Cell phone**	**1st contact**
Howard Cattermole	Chief financial Officer, Investment and Finance	s 9(2)(a)		✓

Action taken by Office of the Minister

- ☐ **Noted**
- ☐ **Seen by Minister**
- ☐ **Agreed**
- ☐ **Feedback provided**
- ☐ **Forwarded to**
- ☐ **Needs change [please specify]**
- ☐ **Withdrawn**
- ☐ **Overtaken by events**

11 September 2019

Minister of Transport

National Land Transport Programme

Purpose

1. To provide further detail on the underspend across the National Land Transport Programme (NLTP) and Crown funded projects reported by the Transport Agency as at 30 June 2019.

Overview

2. Land transport revenue in 2018/19 was under budget by one percent ($26.5 million) at $3,929.7 million. This was because of lower Fuel Excise Duty ($72 million) and motor vehicle registration and licensing ($6.5 million), offset by higher Road User Charges ($56.6 million).

3. Expenditure for the NLTP, including road policing, was seven percent below budget ($4,017.4 million). The underspend is related to projects that have not progressed as quickly as expected or have been significantly delayed, meaning the costs have yet to be realised (notably rapid transit and state highway improvements but also transitional rail, walking and cycling, and public transport). Offsetting this, spend is ahead of budget for state highway maintenance, regional improvements and local road improvements. Expenditure for Crown-funded projects was 48 percent below budget – primarily due to lower than planned expenditure on the Kaikoura earthquake response.

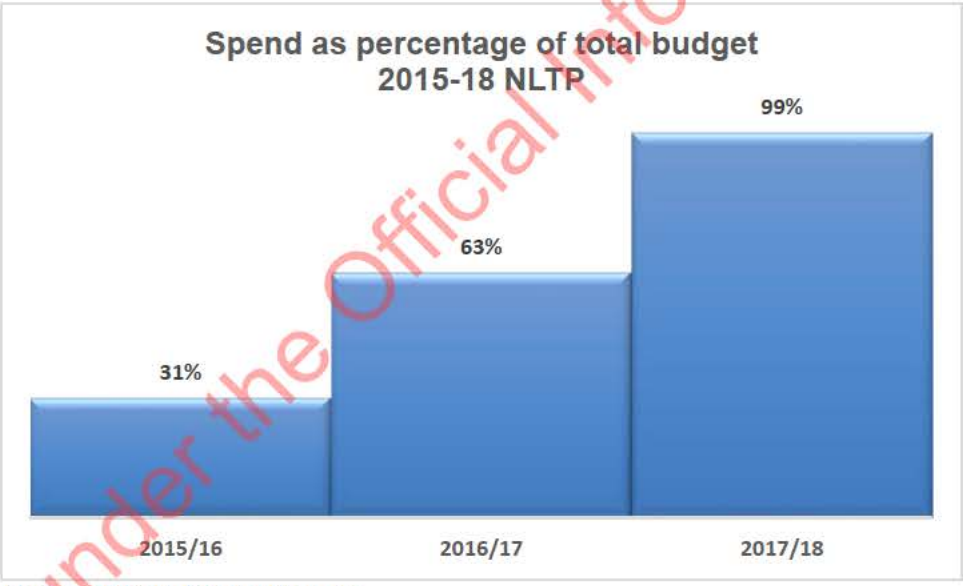
Activity Class ($m)	2018/19 Actual[1]	2018/19 Budget	Variance	%
State highway maintenance	715.4	666.9	(48.5)	(7%)
Regional improvements	137.9	112.3	(25.6)	(23%)
Local road improvements	218.2	192.8	(25.4)	(13%)
Investment management[2]	65.4	71.1	5.7	8%
Road safety promotion/demand management	44.0	52.9	8.9	17%
Transitional rail	18.2	35.4	17.2	49%
Walking and cycling	57.1	79.0	21.9	28%
Public transport	508.7	549.0	40.3	7%
Local road maintenance	643.7	690.5	46.8	7%
Rapid transit	9.9	130.4	120.5	92%
State highway improvements	1,260.9	1,407.7	146.8	10%
Sub-total	3,679.4	3,988.0	308.6	8%
Road Policing Programme	337.5	353.0	15.5	4%
Total including Road Policing Programme	4,016.9	4,341.0	324.1	7%

[1] 2018/19 actuals are unaudited figures
[2] includes $1.8m of NZTA costs for oversight of the Road Policing Programme

Activity Class ($m)	2018/19 Actual	2018/19 Budget	Variance	%
Auckland Transport Package	12.5	12.5	-	0%
Housing Infrastructure Fund	3.0	23.3	20.3	87%
SuperGold card	29.4	29.5	0.1	0%
Urban Cycleways Programme	13.0	25.4	12.4	49%
Provincial Growth Fund	17.0	40.0	23.0	58%
Accelerated Regional Roading Programme	18.8	33.4	14.6	44%
Kaikoura earthquake response	113.1	237.0	123.9	52%
Total Crown funded expenditure	206.8	401.1	194.3	48%

Comparison to expenditure trend in the previous NLTP

4. Expenditure in the first year of the 2018-21 NLTP of $4,017.4 million epresents 31 percent of the total 2018-21 NLTP investment – this is tracking at a similar level as that of the first year of the 2015-18 NLTP. The progression of spend over the three years of the 2015-18 NLTP is shown in the chart below:



Source: NLTF Annual Reports

Key reasons for variances to 2018/19 budget

5. NLTP expenditure was below budget primarily due to underspends in the following activity classes:

- **State highway improvements:** Lower activity than planned across several projects, most notably: Auckland Northern Corridor Improvements, Auckland Western Ring Route, Mackays to Peka Peka, Christchurch Northern Arterial, Peka Peka to Otaki, Waikato Expressway Rangiriri and Ngaruawahia sections, Western Belfast Bypass. There is no systemic issue across the portfolio with each underspend reflecting project-specific factors.
- **Rapid transit:** Budgeted spend was based on anticipated progress on the original plan for the city centre to Mangere light rail project.

- **Local road maintenance:** Delivery of the base programme is close to budget. Funding approvals for emergency works are above budget but claims for some payments have not yet been received from approved organisations.
- **Public transport:** The bulk of the underspend is related to under-delivery in public transport infrastructure, the largest of which is the national ticketing programme which is under review. There were also small underspends for continuous programmes (services) and low-cost low-risk public transport programmes.
- **Walking and cycling:** Due to delays in the NLTF expenditure component of Urban Cycleways Projects, primarily in Auckland, and in several other large projects including Dunedin to Port Chalmers and Tauranga Baypark to Bayfair Link.

6. These underspends are partly offset by spend ahead of budget as follows:
   - **State highway maintenance:** Emergency works are above budget largely from work associated with Manawatu Gorge, Takaka Hill, and Waiho Bridge; plus, other unbudgeted activities.
   - **Regional improvements:** Several projects progressing ahead of plan
   - **Local road improvements:** Carry over of expenditure on projects approved in the 2015-18 NLTP

7. Crown-funded activities were below budget in 2018/19, funding for which is being carried forward into 2019/20:
   - **Kaikoura earthquake response:** Unspent risk provision and cost savings, carried over into 2019/20, will enable several previously deferred resilience and safety works to reduce the risk of future significant outages.
   - **Urban Cycleways Programme:** Delayed spend by Auckland Transport as it reviewed its cycleways programme; delayed spend for Petone to Melling.
   - **Provincial Growth Fund:** Delays in approved organisations' project starts.
   - **Accelerated Regional Roading Programme:** Mt Messenger and Awakino Tunnel projects are behind schedule, offset by higher than forecast spend on Kawarau Falls Bridge.

Prospects for spend to budget for Transport Agency projects

8. The Transport Agency is currently forecasting to make-up the underspend in state highway improvements over the remainder of the NLTP. There are some significant potential risks to budget, most notably the potential appeal and delay of Te Ahu a Turanga: Manawatū Tararua Highway, late completion of Transmission Gully (with a resulting delay in budgeted PPP repayments) and delay of Mt Messenger (mixed NLTP/Crown funding). The forecast includes funding approvals or allocation to meet in full the state highway component of the Safe Networks Programme as well as a programme of essential bridge replacements.

9. Rapid transit will not meet budget over the remainder of the NLTP. Progress and expenditure on Auckland Light Rail have been impacted by the evaluation process now underway to assess the alternate approaches of the Transport Agency and NZ Infra. Funding of business case and other preliminary work related to future rapid transit activity in Auckland, Wellington and other centres will not significantly offset the underspend.

Reallocation of funding from the Rapid Transit Activity Class

10. Given the underspend in the rapid transit activity class, the Transport Agency Board has approved re-allocating $313 million of rapid transit funding as follows: state highway improvements ($190 million); public transport ($60 million); walking and cycling improvements ($30 million); state highway maintenance ($20 million); local road

improvements ($13 million). As a result, funding allocated to rapid transit in this NLTP has been reduced to $150 million (i.e. the bottom of the GPS funding range).

11. The table below outlines the adjustments to activity class funding ranges as a result of the re-allocation of rapid transit activity class funds compared with the allocations approved by the Transport Agency Board at NLTP adoption:

2018-21 NLTP Activity Classes - $millions	Recommended Allocations		Revised Allocations		GPS funding ranges	
	Target	Upper limit	Target	Upper limit	Lower	Upper
Public Transport	1,765	1,835	1,825	1,895	1,490	2,040
Rapid transit	463	760	150	150	150	760
Walking and cycling improvements	300	330	330	330	235	360
Local road improvements	740	800	753	800	430	1,030
Regional improvements	405	450	405	450	200	530
State highway improvements	3,425	3,600	3,615	3,850	3,000	3,850
Road policing	1,063	1,063	1,063	1,110	980	1,110
Road safety, demand management	188	200	188	200	155	225
State highway maintenance	1,987	1,997	2,007	2,047	1,810	2,130
Local road maintenance	2,019	2,055	2,019	2,055	1,800	2,120
Investment management	215	225	215	225	195	235
Transitional rail	376	435	376	435	145	435
Draft target allocation total	**12,946**		**12,946**			

Outlook for other activity classes

12. The Transport Agency Board has resolved to recommend that Ministers support increasing the funding allocated to the Road Safety Partnership with NZ Police up to the maximum of the GPS funding range ($1,100 million). If approved by the Minister, based on delivery progress, a re-allocation of funding from other activity classes will be required to meet this commitment in due course.

13. In most other activity classes, funding is fully allocated to projects or activities that are either approved for funding or that have been communicated to approved organisations as “likely” to be funded, as and when they are submitted for funding approval.

14. The level of funding allocated includes significant over-programming (to counter optimism bias in delivery). The estimated level of over-programming is most significant in local road improvements and walking and cycling. The extent of over-programming has been accentuated by the commitment of NLTF funding to Auckland Transport for all eligible Auckland Transport Alignment projects in this NLTP.

15. An acceleration of Public Transport activity and expenditure is forecast from 2019/20 and driven by delivery of local authority infrastructure projects and funding increases to meet input cost pressures (including Employment Relations Amendment Act requirements), indexation and patronage growth.

16. Transitional rail expenditure is at risk of being materially underspent over the NLTP. Spend in 2018/19 was 49 percent below budget and represented only 5 percent of total allocated funding for the three-year NLTP. The nature of the activity class is such that approved organisations (and via them Kiwi Rail) would expect any un-utilised funding to be carried over into the next NLTP – i.e. similar to directly Crown-funded activities.

Conclusion

17. Managing NLTF funding within the defined constraints of a three-year NLTP period requires balancing the risks of over and under commitment of funding. This is made more complex by significant uncertainties over individual project delivery. For example, the Transport Agency has several key capital programmes (Manawatu Gorge replacement, Transmission Gully and Mt Messenger Bypass) underway that create significant funding and cash flow pressures and uncertainty for the NLTF.

18. There are also uncertainties in the cash flow requirements of projects co-funded with approved organisations and KiwiRail in regard to Transitional Rail.

19. Given the uncertainties over cost forecasts and delivery across both the Transport Agency and approved organisations (and indirectly KiwiRail in Transitional Rail), there is a wide range of possible cash flow outcomes. The range of outcomes may be exacerbated to the extent that revenue continues to vary from forecast.

It is recommended that you:

1. **Note** the contents of this briefing

.....

Howard Cattermole

Chief Financial Officer

.....

Hon Phil Twyford, Minister of Transport

Date: 2019

MINISTERIAL BRIEFING NOTE

Subject	Impact of weather events on road maintenance costs (February 2020 Update)
Date	21 February 2020
Briefing number	BRI-1900

Contact(s) for telephone discussion (if required)				
Name	**Position**	**Direct line**	**Cell phone**	**1st contact**
Brett Gliddon	General Manager Transport Services		s 9(2)(a)	✓

Action taken by Office of the Minister

- ☐ **Noted**
- ☐ **Seen by Minister**
- ☐ **Agreed**
- ☐ **Feedback provided**
- ☐ **Forwarded to**
- ☐ **Needs change [please specify]**
- ☐ **Withdrawn**
- ☐ **Overtaken by events**

21 February 2020

Minister of Transport

BRI-1900: Impact of weather events on road maintenance costs (February 2020 update)

Purpose

1. In August 2019, Waka Kotahi, the NZ Transport Agency provided a briefing to your office on the costs associated with extreme weather events that have occurred during the 2015-2018 and 2018-2021 National Land Transport Programme (NLTP) periods [BRI-1738 and BRI-1887 refers].

2. This briefing provides you with an update on the total emergency works spend as at 31 December 2019, and the impact that severe weather events are having on local road spend.

Background

3. Events that qualify for funding through the National Land Transport Fund (NLTF) Emergency Works activity class will:

   - be of unusually large magnitude or severity for the particular area in which they occur (as a guide, they would be expected to have an annual return period greater than 1 in 10 years).
   - originate from natural, short duration triggering events, including very high intensity rainfall, severe wind, severe drought in government declared drought areas or seismic events.
   - have reduced, or will reduce within a 12-month period, levels of transport service significantly below those that existed prior to the event.
   - involve a total cost of $100,000 or more per event per Approved Organisation or Transport Agency (state highways) region.
   - be clearly defined, named and described, with a separate funding application required for each event.

4. While emergency works include seismic events, the Transport Agency is often unable to separate these from other emergency works spend unless the seismic activity is of a significant magnitude. This is because the Transport Agency cannot be certain that the damage, such as a slip, was the result of seismic activity or other factors such as heavy rainfall.

5. However, due to the scarcity of significant seismic events, it is unlikely that these would have an impact on the emergency works spend over the last five years. Further, damage caused by a significant seismic event may be funded by the Crown outside of the NLTF – as was the case with the Kaikoura Earthquake Recovery Fund.

6. The on-going spend primarily relates to work continuing in the West Coast, East Waikato, Takaka and Manawatu Gorge.

7. The following table provides the updated Emergency Works spend as at 31 December 2019 for both State Highways and Local Roads:

State Highway

	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20 (31 Dec)
Emergency works spend	$35,976,759	$24,627,705	$29,883,809	$78,964,853	$72,127,811	$35,124,365

Local Road (NLTF Share)

	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20 (31 Dec)
Emergency works spend	$85,473,032	$124,245,516	$128,736,575	$127,417,897	$105,389,179	$81,489,106

It is recommended that you:

1. **Note** the contents of this briefing

.....

Brett Gliddon

General Manager, System Design & Delivery

.....

Hon Phil Twyford, Minister of Transport

Date: 2020

MINISTERIAL BRIEFING NOTE

Subject	National Land Transport Fund expenditure update – August 2020
Date	25 August 2020
Briefing number	BRI-2002

Contact for telephone discussion (if required)				
Name	**Position**	**Direct line**	**Cell phone**	**1st contact**
Howard Cattermole	Chief Financial Officer	04 978 2621	s 9(2)(a)	✓

Action taken by Office of the Minister

- ☐ **Noted**
- ☐ **Seen by Minister**
- ☐ **Agreed**
- ☐ **Feedback provided**
- ☐ **Forwarded to**
- ☐ **Needs change [please specify]**
- ☐ **Withdrawn**
- ☐ **Overtaken by events**

25 August 2020

Minister of Transport

National Land Transport Fund expenditure update August 2020

Purpose

1. To provide an update of National Land Transport Fund (NLTF) activity class expenditure for the delivery of the 2018/21 National Land Transport Programme (NLTP).

2. To highlight those activity classes that are forecast to spend either outside, or close to, the Government Policy Statement 2018 (GPS) funding ranges.

3. To demonstrate the impact of debt financing, COVID-19 costs and COVID-19 Crown funding on reported expenditure against the activity class ranges.

Executive summary

4. Activity class reporting is complicated by the treatment and apportionment[1] of the additional funding and financing provided by the Crown to mitigate the impacts of COVID-19 on the NLTF and NLTP.

5. Based on the reporting approach adopted by Waka Kotahi:
   a. for two activity classes (rapid transit and road safety promotion & demand management), expenditure is forecast to fall outside of the activity class ranges post-apportionment of financing costs:
   b. for two other activity classes (state highway improvements and state highway maintenance), expenditure may exceed the maximum GPS range, prior to the apportionment of financing costs.

Background

6. This briefing summarises the forecast position at the end of July 2020, ie approximately two-thirds of the way through the 2018/21 NLTP. The forecast position does not reflect any impacts from the return to elevated COVID-19 alert levels in August 2020. This will be reflected in future forecasts, when a better understanding of impacts is available.

7. Reporting is affected, and made more complex, by financing to offset reductions in land transport revenue from Fuel Excise Duty (FED), Road User Charges (RUC) and Motor Vehicle Register (MVR) during the Alert Level 4 lockdown.

8. Further complication arises from:
   a. the Crown directly funding COVID-related Public Private Partnership (PPP) settlements, ie outside of the NLTF. Previous PPP settlements (ie for non COVID-related claims) were required to be funded from the NLTF and reported as state highway improvement expenditure
   b. the impact of COVID-19 on NLTP expenditure, including additional support for public transport services and COVID-related contractual claims.

[1] Apportionment refers to the allocation between activity classes of financing costs provided for the purposes of general revenue replacement

Reporting options

9. Given the unprecedented issues arising from the COVID-19 response, there is no single approach to activity class reporting that fully captures these impacts.

10. The future reporting of activity class expenditure is subject to ongoing discussions with Ministry of Transport officials, especially around the treatment of debt. How this is resolved will impact not only reporting for this NLTP but may also impact on the approach to reporting and setting of activity class ranges for GPS 2021 and future NLTPs.

Treatment of debt

11. The introduction of debt relating to lost revenue due to COVID-19 creates a novel reporting issue, particularly because the debt is not related to a specific project or activity, as has previously been the case with debt financing applied to the NLTF.

12. The treatment of financing costs to date has been for the relevant activity class spend to reflect the costs of financing (debt servicing and principal repayment), not the spend on the activity when it occurs. For example, state highway improvements financed by the Auckland Transport Package[2], have not been reflected in previously reported activity class spend. As repayments started in 2019/20, reported spend includes the first scheduled repayment and will continue over the next eight years until the debt is fully repaid. The PPPs are another example with activity class spend to be recorded in state highway improvements from the start of the unitary charge payments[3].

13. The use of debt for revenue "replacement" rather than for specified activities raises the issue of how to allocate this debt between activity classes, ie expenditure on which activities is assumed to be financed. The methodology chosen to allocate the "use" of the debt has a material impact on activity class reporting.

14. The overall approach adopted by Waka Kotahi for reporting of debt finance activity is to:

    a. continue the approach of reporting activity class spend based on the cash flows from the fund (ie financing costs rather than the actual expenditure on activities). This approach is reflective of the key impact of debt financing – to defer the cash flow impacts and allow activity to be brought forward

    b. allocate revenue related debt preferentially to those activity classes that are at risk of overspends against the current (2018-21) GPS funding ranges. Future spending in those activity classes to which debt is allocated will have to be managed so that the debt can be repaid when it falls due.

Treatment of COVID-related funding

15. For reporting purposes, there are also choices over the treatment of funding provided to offset the revenue and expenditure impact of COVID-19 (up to $600 million). The approach proposed is as follows:

    a. where funding has been used to meet forecast increased COVID-related expenditure in certain activity classes (notably state highway improvements and public transport[4]), expenditure has been classified as Crown funded and excluded (reported separately) from the activity class funding ranges

    b. other funding has been treated as other land transport revenue into the NLTF, to reflect the purpose of the funding, ie to offset revenue reductions.

16. Similarly, COVID-related PPP settlement costs funded by the Crown have also been excluded from the activity class range spend. This treatment contrasts with the earlier pre-COVID PPP settlements, which were funded from the NLTF and are included in the reported state highway

[2] A $375 million interest-free loan to accelerate Auckland transport projects approved as part of Budget 2014

[3] Consistent with this approach, the pre-COVID PPP settlements have been recorded in state highway improvements expenditure in the period in which the spend occurred.

[4] Specifically, payments to offset reduction in farebox revenue from 1 July 2020.

improvements activity class expenditure. The forecast spend may increase further if the NLTF is required to incur any further cost for COVID-related PPP claims.

17. **Appendix 1** sets out the 2018/21 activity class forecast expenditure (as at July 2020) and the GPS funding ranges with the 'at risk' classes highlighted. For transparency, Appendix 1 presents the forecast activity class position adopted by Waka Kotahi while also showing:
    a. the position prior to, and after, apportionment of debt financing
    b. the inclusion, and exclusion, of Crown-funded expenditure.

18. Commentary on the at-risk activity classes is set out in the following paragraphs. The commentary is based on our adopted approach, including the effects on debt apportionment and Crown funding. Based on this reporting approach, there are currently two activity classes where expenditure is forecast to fall outside of the activity class ranges (post-debt apportionment): rapid transit; and road safety promotion & demand management.

State highway improvements activity class

19. The forecast expenditure for state highway improvements for the 2018/21 period is forecast to exceed the upper end of the GPS range (prior to debt apportionment). Unplanned pre-COVID PPP settlements for Transmission Gully ($191 million) and Puhoi to Warkworth ($83 million) have added $274 million to expenditure. Increases in forecast expenditure for several other major projects have also increased, notably: Christchurch Southern Motorway; Hamilton section of the Waikato Expressway; SH2 Baypark to Bayfair Link Upgrade and Peka Peka to Otaki Expressway. These increases are partly offset by approximately $100 million of state highway improvement activities that will now receive Crown funding from the NZ Upgrade Programme (NZUP).

20. As noted above, recent additional COVID-related settlement costs have been excluded (ie shown separately) from the activity class reporting (refer Appendix 1). The settlements include additional costs relating to COVID-19 for cost variation claims for both PPPs and other projects[5]. The forecast spend may increase further if the NLTF is required to incur any further cost for COVID-related PPP claims.

21. The focus for the remainder of the NLTP will be on continuing to deliver the current programme with a focus on safety-related activities, including the Safe Network Programme.

State highway maintenance activity class

22. State highway maintenance expenditure is forecast to exceed the upper GPS range (prior to debt apportionment). The increase in spend is driven by two factors:
    a. a material increase in emergency works across the network, which has been the result of an increase in frequency of severe weather events. Annual expenditure is averaging $75-80 million per annum, above the $57 million per annum allowed for in the initial NLTP budget
    b. cost pressures associated with: bitumen price increases; higher traffic volumes on some parts of the network (leading to increased maintenance); and an increase in traffic management around work sites for health and safety reasons.

23. Reducing spend is an option to bring spend back within the GPS range. However, this would defer essential expenditure into the next NLTP and would exacerbate the trend of deteriorating asset condition. It would also have a detrimental impact on regional employment and incur de-mobilisation and re-mobilisation costs, as well as lead to contractual issues and potential claims, and a reduction in levels of service and safety.

[5] At 30 June 2020, the impact was estimated at $120 million, comprising Advanced Entitlement Payments (AEP) of $14 million, $86 million accrued for claims not yet lodged and $20m forecast commitments.

Rapid transit activity class

24. Rapid transit expenditure is forecast to be below the GPS range. Waka Kotahi had previously reduced targeted spend to $150 million, ie to the bottom of the GPS range (BRI-1663 refers).

25. Progress and expenditure on the Auckland Light Rail project have continued to be affected by the Crown evaluation process to assess alternate approaches to project design and delivery. Spend in the activity class is not expected to reach the lower end of the GPS range.

26. Funding of business cases and other preliminary work related to future rapid transit activity in Auckland, Wellington and other centres does not materially offset the underspend.

Road safety promotion & demand management activity class

27. Within road safety promotion & demand management, we are forecasting expenditure just below the lower limit of the GPS range.

28. The forecast has fallen in recent months. Alert Levels 3 and 4 impacted advertising activity and resulted in media cancellations and postponement of some productions. Additionally, locally delivered demand management has also faced cost reduction pressures from local councils facing shortfalls in revenue and budgetary pressures.

29. A review of the programme is underway to look at options for boosting spend, where this offers value for money.

Other at-risk activity classes

30. As a result of both rescheduling of delivery and the addition of Crown funding (through NZUP) for certain transitional rail projects, forecast expenditure is below our previous target, albeit just within the lower end of the GPS range. Further programme slippage could mean expenditure falls outside the range.

31. Walking and cycling expenditure is close to the lower end of the GPS range. Forecast expenditure has increased due to measures such as the Innovating Streets programme and development of a national programme of low-cost improvements. Waka Kotahi is continuing to focus attention in this activity class to reduce the risk of the forecast falling below the GPS range.

Overall NLTP position

32. Forecast expenditure, prior to debt apportionment, exceeds the original NLTP forecast ($13,173 million versus $12,946 million). This increase reflects additional unplanned expenditure as a result of COVID-19 public transport fare subsidies in 2019/20 estimated at $95 million, which is not met by any Crown funding; the PPP payments of $191 million and $83 million respectively; and additional state highway maintenance costs due to emergency works and cost increases.

Conclusion

33. Given uncertainties over project delivery and approved organisations' activity levels and with 11 months of the NLTP remaining, there is still material uncertainty as to final expenditure outcomes. The outlook could also change significantly with further impacts of COVID-19. For example, these forecasts do not take account of any further financial impacts of the return to elevated alert levels in August 2020, which will be reflected in future forecasts.

34. Our view is that the forecast variances from the GPS funding ranges signalled above are not "significant" in the context of Section 90 of the Land Transport Management Act 2003 (LTMA) and thus do not trigger the provisions in Section 67 of the Act, requiring consultation for any necessary GPS amendment.

35. The treatment of financing costs has been highlighted by the increased use of debt to cope with COVID-19 impacts. Our approach is to continue the treatment of debt in line with practice to date. However, to ensure transparency of the spend against the activity classes, additional disclosures of the impact of financing may be required in future.

36. Waka Kotahi understands that the Ministry of Transport is intending to review the treatment of financing to determine how best to record financed expenditure against each activity class, including addressing any transitional arrangements, as well as any GPS and LTMA changes that may be required.

It is recommended that you:

1. **Note** the content of this briefing

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Howard Cattermole

Chief Financial Officer

……

Hon Phil Twyford, Minister of Transport

Date:

Appendix 1

2018/21 activity class forecast expenditure and GPS funding ranges

Expenditure vs. Activity Class	Excluding additional COVID-related expenditure			Impact of COVID-related expenditure			Waka Kotahi adopted view		
	Excluding financing costs	Apportionment of financing[6]	Including financing costs	Estimated COVID related expenditure[7]	Total expenditure	Crown funding for COVID-related expenditure[8]	Total NLTF activity class expenditure	GPS range - bottom	GPS range - top
State highway improvements	3,965	(247)	**3,718**	400	**4,118**	(400)	**3,718**	3,000	3,850
Local road improvements	797	(13)	**784**	10	**794**	(10)	**784**	430	1,030
Regional improvements	365		**365**		**365**		**365**	200	530
Public transport	1,797	(109)	**1,688**	177	**1,865**	(82)	**1,783**	1,490	2,040
Walking & cycling	254		**254**		**254**		**254**	235	360
Transitional rail	184		**184**		**184**		**184**	145	435
Rapid transit	90		**90**		**90**		**90**	150	760
State highway maintenance	2,200	(173)	**2,027**		**2,027**		**2,027**	1,810	2,130
Local road maintenance	1,959	(33)	**1,926**		**1,926**		**1,926**	1,800	2,120
Road safety promotion & DM	147		**147**		**147**		**147**	155	225
Investment management	223		**223**		**223**		**223**	195	235
Road policing	1,097		**1,097**		**1,097**		**1,097**	980	1,110
Total	**13,078**	**(575)**	**12,503**	**587**	**13,090**	**(492)**	**12,598**		

[6] Total COVID-19 revenue related financing = $575million (ie $325 million has been drawn down of $425 million additional facility plus full drawdown of the $175 million seasonal facility and $75 million shock facility).

[7] State highway improvement COVID-related costs comprises: $120 million for non-PPP claims, $280 million estimated PPP claims in the current NLTP, and $30 million in the next NLTP (subject to ongoing negotiation).

[8] Public transport subsidy pre 30 June 2020 (estimated at $95 million) was not Crown funded. Subsidy post 30 June 2020 (estimated at $82 million) was supported by $600 million funding package and is therefore treated as Crown funded.

MINISTERIAL BRIEFING NOTE

Subject	Waka Kotahi Funding and Financing
Date	13 November 2020
Briefing number	BRI-2049

Contact(s) for telephone discussion (if required)				
Name	**Position**	**Direct line**	**Cell phone**	**1st contact**
Matthew Walker	General Manager Corporate Support	s 9(2)(a)		✓
Howard Cattermole	Chief Financial Officer	s 9(2)(a)		

Action taken by Office of the Minister

- ☐ **Noted**
- ☐ **Seen by Minister**
- ☐ **Agreed**
- ☐ **Feedback provided**
- ☐ **Forwarded to**
- ☐ **Needs change [please specify]**
- ☐ **Withdrawn**
- ☐ **Overtaken by events**

12 November 2020

Minister of Transport

Waka Kotahi Funding and Financing

Purpose

1. This briefing informs you of the current financial position of Waka Kotahi NZ Transport Agency (Waka Kotahi) and the National Land Transport Fund (NLTF).

2. Waka Kotahi has had to rely on Crown funding and financing for the NLTF and its regulatory business to continue operations including to deal with the impacts of COVID-19. Both have ongoing fiscal challenges that will require ministerial intervention to allow them to operate as planned and deliver on ministerial objectives.

Current funding and financing arrangements

3. Waka Kotahi is primarily funded through revenue received from the NLTF, third party fees for regulatory services and the Crown. The majority of the revenue is from the NLTF.

4. Waka Kotahi allocates and invests the NLTF and prepares the National Land Transport Programme (NLTP) to give effect to the Government Policy Statement on Land Transport (GPS). The GPS sets out the government's priorities for land transport and the results it wishes to achieve through the allocation of funding from the NLTF. Activity classes are set out in the GPS and are used to provide direction to Waka Kotahi on funding allocations for types of investment (e.g. walking and cycling, state highway maintenance, local road improvements) and to provide signals about the balance of investment across the GPS. The GPS sets target expenditure levels and funding ranges for each activity class. The current GPS will be replaced by the recently published GPS 2021 from July 2021.

5. The Government provides Crown funding to Waka Kotahi to progress transport activities outside those that can be delivered using the NLTF. This may be because the activities do not have adequate priority to be delivered in an NLTP within the available funding in the NLTF or because they deliver on government policy not covered by the Land Transport Management Act 2003. Waka Kotahi delivers these activities as directed by the government, for example the New Zealand Upgrade Programme (NZUP).

6. As part of the response to COVID-19, additional Crown support was provided to Waka Kotahi through both funding and financing. Cabinet approved $600 million funding to support the NLTF, alongside up to $425 million in additional borrowing (detailed further below). The Crown also provided funding (up to $435 million) to offset the additional COVID-19 related costs on public-private partnerships (PPPs). These measures should enable Waka Kotahi to continue to meet its commitments, pay COVID-19 related costs and mitigate reductions in revenue due to COVID-19, including support for essential public transport services.

7. The Crown has also provided $45 million in financing to support Waka Kotahi's regulatory function and up to $60 million in funding to offset the impacts of COVID-19 on the regulatory function.

Regulatory services and the Memorandum Accounts

8. Waka Kotahi keeps memorandum accounts (notional accounts that record the accumulated balance of surpluses and deficits incurred for regulatory outputs), for driver licensing and testing, vehicle safety and certification, regulation of commercial transport operators and the rail transport

system, plus road user charges collections. Memorandum accounts are expected to balance to zero over the medium term.

9. Around $165 million is received annually from regulatory fees and charges to fund most of the costs of regulation of the land transport system. Currently, around $180 million is spent annually on the regulatory business, i.e. there is an operating deficit at present. The aggregated memorandum account balance is currently in deficit. Crown financing, to meet the current operating deficit, has been provided, which will require repayment in future. The deficit has arisen due to previous regulatory failures, discussed below.

10. Financing to date for regulatory service comprises two loans. The first loan of $30 million was to meet operational requirements, including additional resources. The second loan of $15 million was to meet third party costs of re-testing and re-issuing Warrants of Fitness (WoFs) and other repairs (such as tow bar repairs) that were required as a result of the regulatory failures. The first loan was intended to keep the regulatory business operating until a fees and funding review was implemented.

11. Previously, Waka Kotahi was not permitted to use funding from the NLTF to meet regulatory costs unless in response to an urgent health and safety risk. Legislative changes in 2020 to the Land Transport Management Act 2003 (LTMA) mean that the NLTF can now be used to fund expenses or capital expenditure incurred for Waka Kotahi's regulatory functions (subject to agreement by you and the Minister of Finance). Waka Kotahi may be seeking the ability to draw down money from the NLTF[1] to provide some funding for its regulatory activities.

Past failures have led to increased costs to improve the regulatory business,

12. Waka Kotahi has a statutory obligation to regulate the New Zealand land transport system, including: driver licensing; driver testing; Warrants of Fitness (WoFs); Certificates of Fitness (CoFs); taxis; vehicle imports; and certifying heavy vehicle engineers.

13. In the recent past, these regulatory tasks were not being carried out to the necessary standard and significant issues were discovered, leading to two independent reviews.

14. The regulatory business has incurred substantial costs addressing the findings of those reviews. For example, an additional 114 permanent resources have been approved which has increased the underlying cost base of Waka Kotahi. As noted earlier, in order to meet the costs of those resources and other costs, additional financing has been obtained from the Crown.

15. A review of regulatory fees and funding is in progress to ensure that the regulatory business is sustainably and appropriately funded in the long-term.

16. Waka Kotahi is preparing to finalise the review of its existing regulatory funding arrangements, which has faced COVID-19 related delays. The review has examined whether the existing funding sources are fit for purpose, can enable an assessment of value for money, and whether there are alternative and more appropriate charging points in the system. The Treasury's approach to cost recovery and the Ministry of Transport's funding principles have informed the work.

17. It is likely the review will recommend a new approach: one that best allocates costs to those who generate risk within, or derive benefit from, the regulatory system.

18. At this stage the review may request to draw down money from the NLTF to fund, in part, the increased costs of regulatory operations under section 9(1A) of the LTMA ('top-slice'). This is to offset the extent of third-party fee increases that would otherwise be required. This approach would create further pressure on the NLTF.

[1] Strictly speaking the funding is "top-sliced" from land transport revenue prior to going into the NLTF.

19. In addition to the third-party fees, Waka Kotahi intends to make a bid under section 9(2) of the LTMA for additional funding from the NLTF to meet the costs of certain regulatory activities not recovered through fees, such as collecting road user charges and providing fuel excise duty refunds. This increase in costs is separate from the top-slice outlined above.

20. The review of regulatory fees and funding is scheduled to be considered by the Board in the next few months. From there, the Board will recommend proposals to you, including a draft consultation document. The proposals will be supported with advice from the Ministry of Transport. The Ministry of Transport is working with our review team.

21. Until such time as the funding and fees review is completed and successfully implemented, the regulatory business has an ongoing requirement to borrow to continue operations, including the ongoing employment of additional resources. Completion of the review is expected in 2022/23, and a 2021 Budget bid or separate Cabinet approval (preferred) is required to seek additional financing to cover this period.

NLTF debt funding – current borrowing facilities and limits

22. The NLTF has been significantly impacted by COVID-19 and the related Alert Level changes, with a substantial reduction in fuel taxation revenue and some cost increases.

23. Under existing appropriations, Waka Kotahi can access a “shock” borrowing facility of $75 million and a “seasonal” overdraft facility of $175 million to manage NLTF cash flows. Both facilities were fully drawn down in 2019/20.

24. The Crown provided an additional $425 million facility to finance the reduction in NLTF revenue to 30 November 2020 as a result of COVID-19, thus increasing Waka Kotahi’s current Crown borrowing facilities to $675 million. $325 million of the additional $425 million has been drawn down to date.

25. Waka Kotahi would like to increase its overdraft facilities and remove some of the specific requirements that reduce the utility of these facilities. We will be working with the Ministry of Transport over the coming months to seek Cabinet approval for an increase in these facilities to better enable us to manage the challenges of uncertain timing of revenue and expenditure.

26. As part of additional Crown support to Waka Kotahi, Cabinet noted that Ministers intend to enable Waka Kotahi to borrow a further $300 million to respond to lower revenue and higher costs in 2020/21 as a result of COVID-19. Further advice is to be provided to you and the Minister of Finance on the exact form of this borrowing.

27. Debt financing, in conjunction with the $600 million of Crown funding, to mitigate COVID-19 impacts should provide sufficient cash flow to deliver the NLTP to 30 June 2021, provided there is not a prolonged return to higher Alert Levels.

28. In addition to the overdraft and COVID-19 borrowing facilities detailed above, Waka Kotahi has substantial PPP repayment obligations and further borrowings used to finance capital infrastructure projects including the Auckland Transport Package and the Housing Infrastructure Fund, which will be required to be repaid from the future revenues of the NLTF.

29. The status of Waka Kotahi borrowings is reported to you quarterly. At 30 September 2020, total liabilities (including fair value adjustments on financial derivatives) were $3.6 billion.

30. Waka Kotahi also believes that an increase in borrowing facilities, over and above the additional overdraft facilities sought, would lead to better transport outcomes and better enable Waka Kotahi to meet the challenges of GPS 2021. The amount that could be borrowed and serviced by the NLTF requires further analysis and assessment and is dependent on revenue assumptions and Government priorities. Waka Kotahi will work with the Ministry of Transport and the Treasury to advance the case for additional borrowing.

NLTF: Performance against the GPS

2018-21 Period

31. Forecast expenditure for the period 2018-21, prior to debt apportionment[2], exceeds the original NLTP forecast ($13,156 million versus $12,946 million). This increase reflects additional unplanned expenditure as a result of COVID-19: public transport fare subsidies which was not met by Crown funding (estimated at $90 million); PPP (pre COVID-19) settlement of $191 million and $83 million respectively for the two PPP projects (Transmission Gully and Pūhoi to Warkworth); and additional state highway maintenance costs due to emergency works and cost increases.

32. A separate briefing note on likely performance against the activity class ranges and the treatments of the additional financing and funding was previously provided to the Minister in August 2020 (refer BRI-2002). As set out in this briefing, Waka Kotahi is likely to underspend against the bottom of the Rapid Transit activity class due to delays caused by the evaluation process on the two bids to construct the Auckland Light Rail project.

33. Costs for the remainder of the current NLTP will require careful management, as Waka Kotahi has limited cash resources and has already utilised its shock and seasonal borrowing facilities.

2021-24 Period

34. The GPS for the period 2021-24 has set activity class ranges where the sum of the lower end of the activity class ranges is very close to the total revenue expected to be received for the period. In other words, the maximum available to spend (on a pay-go basis[3]) is almost the same as the very minimum required to be spent.

35. This creates significant challenges for Waka Kotahi. Targeting minimum expenditure limits (i.e. at the bottom of the activity class range) would require cuts to current service levels and may lead to unsafe outcomes. For example, State Highway Maintenance is likely to require $300 million-$600 million more than the bottom of the activity class range in 2021-24, while Public Transport Services will require a further $150 million above the minimum to meet 2021-24 expenditure expectations, which include cost pressures for driver meal breaks and living wages. To target the minimum expenditure limits for all activity classes would require trade-offs in the form of reduced service levels which are not supported by Waka Kotahi.

36. GPS 2021 also sets ambitious minimum spend targets for new activity classes (Public Transport Infrastructure, Road to Zero, and Coastal Shipping). The long planning cycles associated with infrastructure projects mean that it will be difficult to ramp-up spend to meet this level in a three-year window. These challenging minimums could result in lower-quality investments occurring in certain activity classes that have funds available, while more GPS-aligned, higher priority activities are deferred in activity classes without the funds available. The Waka Kotahi Board previously wrote to the then Minister of Transport requesting greater flexibility in the funding ranges (refer Ministry of Transport briefing note OC200624). The greater flexibility requested would have assisted with the issues in Public Transport Services and State Highway Maintenance.

37. There are continuing uncertainties around the cost and revenue impacts of COVID-19 in the longer term, the ability of our co-funding partners to deliver on their local share of NLTF investment, and

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[2] When Waka Kotahi has borrowed money for projects, it has to date recognised the repayment of that borrowing in the activity class when it has occurred, with the initial expenditure regarded as having been made from outside the NLTF. In line with this approach Waka Kotahi apportioned the borrowing to address the revenue reductions associated with COVID-19 across those activity classes that were most in need of the investment. This has had the effect of reducing spend in these activity classes in the current NLTP and of increasing spend in future when the loan is repaid. There is some uncertainty as to whether the proceeds of borrowing should be considered as “NLTF revenue” and as such recognised against activity classes at the time of drawdown, as opposed to when repayment occurs.

[3] Pay-go references a model where revenue received is spent as it is earned, rather than using borrowing.

the carryover of both liabilities and general funds from the current NLTP. The current minimum expenditure targets give extremely limited flexibility to Waka Kotahi to manage these challenges, whilst delivering on the Government's ambitions in GPS 2021.

38. A minor amendment to GPS 2021 to lower the bottom of the funding ranges in certain key activity classes, better reflecting the revenue realities and uncertainties, and/or increased funding and/or borrowing facilities being made available, would help address these concerns.

It is recommended that you:

1. **Note** work is underway with the Ministry of Transport to address the significant financial pressure facing both the regulatory business and the activities funded by the NLTF

2. **Note** the NLTF has significantly increased borrowing recently, and is likely to require access to further financing in order to meet GPS objectives

3. **Note** GPS 2021 funding ranges have been set at a level that could result in lower levels of spend in certain activity classes than advisable, in particular State Highway Maintenance and Public Transport Services.

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Howard Cattermole

Chief Financial Officer

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Michael Wood, Minister of Transport

Date: 2020

MINISTERIAL BRIEFING NOTE

Subject	Implications of recommended investment levels on maintaining levels of service on local roads, state highways, public transport services and infrastructure and road safety promotion
Date	27 May 2021
Briefing number	BRI-2181

Contact(s) for telephone discussion (if required)				
Name	**Position**	**Direct line**	**Cell phone**	**1st contact**
Matthew Walker	General Manager Corporate Support	s 9(2)(a)	s 9(2)(a)	✓
Howard Cattermole	Chief Financial Officer	s 9(2)(a)	s 9(2)(a)	

Action taken by Office of the Minister

- ☐ **Noted**
- ☐ **Seen by Minister**
- ☐ **Agreed**
- ☐ **Feedback provided**
- ☐ **Forwarded to**
- ☐ **Needs change [please specify]**
- ☐ **Withdrawn**
- ☐ **Overtaken by events**

27 May 2021

Minister of Transport

Implications of recommended investment levels on maintaining levels of service on local roads, state highways, public transport and road safety promotion

Purpose

1. This briefing provides you with an update on recent Waka Kotahi NZ Transport Agency Board recommendations on indicative funding allocations for the continuous programmes of Councils and Waka Kotahi, along with the downstream implications of these levels of funding. These recommendations were endorsed by the Waka Kotahi Board at its meeting on 27 May 2021. The indicative allocations for continuous programmes seek to maintain levels of service on local roads, state highways, public transport and road safety promotion.

2. Waka Kotahi anticipates significant sector and media interest as well as potential reputational and relationship risks from the communication of these indicative allocations. Waka Kotahi had previously committed to communicating the Board recommendations to the local government sector by 31 May 2021, and we are still aiming to meet that commitment.

Background and context

The process of developing the National Land Transport Programme

3. The release of indicative allocations for the continuous programmes is done ahead of the adoption of the National Land Transport Programme (NLTP). They are released earlier to allow Councils to continue planning and budgeting for their maintenance and public transport programmes, which they are required to complete by 30 June of each year.

4. Board endorsement of investment indicative levels signals a firm (but not yet binding) commitment to the funding allocations for the final NLTP. Further analysis may result in changes to these allocations, although given limited funding discretion, there is little scope for the allocations to change materially.

5. In addition to continuous programmes, final bids from Councils for improvement activities were received on 21 May 2021. These are now being assessed and prioritised. Waka Kotahi Board members will be asked to consider the remaining issues, the draft recommendations for final funding allocations across all activity classes, and the implications of these decisions on the Road to Zero, the Auckland Transport Alignment Programme (ATAP), the Rail Network Investment Plan and Let's Get Wellington Moving (LGWM), respectively, in July 2021. Waka Kotahi Board endorsement of the final NLTP will then take place at the scheduled August 2021 meeting.

Indicative investment levels

6. The following table provides an overview of the indicative allocations and the estimated level of funding required to maintain the existing levels of service (LoS).

Table 1 – indicative allocations and estimated funding required to maintain LoS

Funding category	Maintain LoS ($million)	Recommended ($million)	Current 2018-2021 ($million)
Public Transport (PT) Services	$1,313	$1,313	$936
PT Infrastructure (Maintenance, Ops and Renewals)	$104	$104	$68
Local road maintenance	$2,340	$2,181	$2,032
State highway maintenance	$2,804	$2,464	$2,195
Road safety promotion	$160	$160	$150

7. The recommended indicative investment levels balance the competing priorities given the constraints imposed by the Activity Class funding range settings in GPS 2021. The proposed allocations provide a balanced approach to meeting GPS objectives; are affordable from a short-term NLTF perspective and will ensure that Waka Kotahi is able to fund to the GPS lower ranges for the coming NLTP period. The level of investment required in both road maintenance activity classes to avoid an increase in DSIs is significantly higher than the remaining available funding.

Key implications

8. The proposed allocations to continuous programmes represent a 16 percent increase ($6,222 million vs $5,381 million) compared to the 2018-21 NLTP. They meet 100 percent of the funding required in Waka Kotahi's view to maintain Public Transport Services at current levels and approximately 93 percent and 88 percent, respectively, of estimated funding required to maintain levels of service for Local Road Maintenance and State Highway Maintenance.

9. The recommended allocations are significantly lower than the bids from a number of Councils see Attachments 1-4[1].

10. As a result of the indicative allocation of funding allocations for continuous programmes, the available funding for the improvement activity classes are expected to be set at the bottom of the respective activity class ranges.

11. The lack of remaining funding discretion for improvement activity classes also has the potential to significantly impact our ability to meet investment expectations and Government commitments in 2021-24 for Road to Zero, ATAP and Rail Network Investment Plan and LGWM.

12. We anticipate significant sector and media interest in the indicative allocations and their likely implications. The detailed implications of investing at the levels indicated for each activity class are provided in attachments 1-4.

[1] Final checking of allocations and communications to councils is in progress.

Engagement with the sector

13. Our communication with Councils since the release of the GPS 2021-31 has proactively highlighted the funding constraints. However, we expect there will be heightened Council and media attention with the release of the indicative allocations.

14. There is some urgency to communicating the indicative allocations, as Councils seek to finalise their Long-Term Plans by 30 June 2021. Failure to release the indicative allocations at the end of May could negatively impact Waka Kotahi's reputation and compound the challenges with NTLP and LTP alignment.

15. Relevant staff, including key senior managers, will be equipped with key messages and supporting material to mitigate any risk of misunderstanding or misinterpretation as well as to address any questions. Where allocations are significantly lower than may have been anticipated, or there are specific local/regional issues arising from the allocation that represent a high reputational risk, Waka Kotahi will contact council Chief Executives directly.

16. Indicative allocations and broader NLTP funding will continue to be a part of the ongoing conversation by our Chief Executive at our regular live calls with Councils. The next of these is on 15 June 2021. The Chief Financial Officer is also speaking at the Road Controlling Authorities forum on 4 June 2021.

It is recommended that you:

1. **Note** the implications of the indicative funding allocations.

2. **Note** sector and media interest and potential reputational and relationship risks arising from the communication of these indicative allocations.

3. **Provide feedback** to Waka Kotahi on the proposed allocation, by 31 May 2021 if possible.

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Matthew Walker

General Manager, Corporate Support

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Hon Michael Wood, Minister of Transport

Date: 2021

Attachment 1

Public Transport Services and Infrastructure

Component $million	2021-24 investment to maintain LoS	2021-24 recommended	2018-2021 Current Allocation	2021-24 Bid sought by Councils	Allocation as % of total bids
Bus services	$708	$708	$556	$764	93%
Rail services	$299	$299	$237	$303	99%
Ferry services	$32	$32	$26	$35	94%
Total mobility	$39	$39	$41	$40	98%
PT service opex	$87	$87	$77	$87	100%
PT service improvements, contingency & commitments	$148	$148	N/A	$148*	N/A
Total (PT Services)	**$1,313**	**$1,313**	**$936**	**$1,377**	**N/A**
Total PT infrastructure MOR	**$104**	**$104**	**$68**	**$127**	**82%**

*Based on initial PT service improvement bids & commitments excl. contingency

Recommended indicative allocations of $1,313m and $104m from PT Infrastructure are considered sufficient to maintain existing levels of service with provision for some service improvements (approx. $70m, to be confirmed during the moderation of improvement activities).

Impacts of the investment in maintaining levels of service in PT

The right-sized investment level is $86.5m lower than the total combined bids from Councils, for maintaining existing services. The majority ($64m) comes following the moderation of Auckland Transport's final bid, which included a reduction in costs considered 'low impact' and/or that lacked sufficient evidence.

Waka Kotahi has advised councils that in planning for their 2021-24 public transport programmes, they need to prepare for a 'new normal' reflecting the ongoing impact of COVID-19 on fare revenue forecasts related costs (i.e. to plan and budget based on normal FARs from 1 July 2021). This means that any (continued) deficit in fare revenue during the 2021-24 NLTP period will impact both local share and the NLTF contribution for public transport services, with any increased subsidy costs (as a result of decreased fare revenue) being shared between the NLTF and local rates.

The SuperGold Card is excluded from the recommended indicative allocation as it is to be exclusively Crown funded during the 2021-24 NLTP.

Public transport services and maintenance of public transport infrastructure will be critical in meeting the GPS Climate Change and Better Travel Options strategic priorities. Where investment in public transport reduces the number of cars on the road, it also supports the Safety and Improving Freight Connections strategic priorities.

Allocations by Approved Organisation

Public Transport Services and Public Transport Infrastructure (MOR)	2021-24 Investment required to maintain LoS ($000 NLTF)	2021-24 Recommended ($000 NLTF)	2018-2021 Current Allocation ($000 NLTF)	2021-24 Bid sought by Councils ($000 NLTF)	Allocation as a % of bid
Auckland Transport	$736,758	$736,758	$597,065	$800,581	92%
Greater Wellington	$278,631	$278,631	$214,981	$289,524	96%
Environment Canterbury	$108,143	$108,143	$80,811	$117,603	92%
Bay of Plenty Regional Council	$37,320	$37,320	$29,354	$36,678	102%
Waikato Regional Council	$39,026	$39,026	$29,451	$38,712	101%
Otago Regional Council	$29,069	$29,069	$20,841	$29,069	100%
Horizons Manawatu	$12,348	$12,348	$9,407	$13,492	92%
Hawkes Bay Regional Council	$7,375	$7,375	$6,108	$7,375	100%
Taranaki Regional Council	$6,164	$6,164	$4,594	$6,164	100%
Northland Regional Council	$4,424	$4,424	$3,461	$5,493	81%
Nelson City Council	$3,124	$3,124	$1,900	$3,662	85%
Tasman District Council	$516	$516	$299	$727	71%
Invercargill City Council	$3,564	$3,564	$3,577	$3,564	100%
Gisborne District Council	$1,810	$1,810	$963	$1,810	100%
Marlborough District Council	$635	$635	$548	$925	69%
West Coast Regional Council	$206	$206	$154	$206	100%
Buller District Council	$112	$112	$103	$112	100%
Westland District Council	$56	$56	$61	$56	100%
PT continuous programme total (includes allocations for PT infrastructure MOR)	**$1,269,280**	**$1,269,280**	**$1,003,677**	**$1,355,752**	94%
PT services commitments & continuous programme contingency	$78,000	$78,000	N/A	$28,000*	N/A
PT services improvements	$70,000	$70,000	N/A	$120,000*	N/A
Total Indicative Allocation to PT	**$1,417,280**	**$1,417,280**	**$1,003677**	**$1,503,752**	**94%**

Comprising:

PT Infrastructure MOR	**$104,375**	**$104,375**	**$67,611**	**$127,085**	**82%**
PT Services activity class	**$1,312,905**	**$1,312,905**	**$936,066**	**$1,376,667***	**N/A**

*Based on initial PT service improvement bids & commitments excl. contingency

Attachment 2

Local Road Maintenance

Component $million	2021-24 Investment required to maintain LoS	2021-24 Recommended	2018-2021 Current Allocation	2021-24 Bid sought by Councils	Allocation as % of total bids
Maintenance, operation and renewal	$2,094	$1,940	$1,763	$2,343	83%
Other commitments and provision	36	$41	30	21	N/A
Emergency works provision	$210	$200	$239	$210	95%
Total	**$2,340**	**$2,181**	**$2,032**	**$2,575**	**85%**

The recommended indicative allocation is $2,181m. This represents a $159m total reduction from the investment level Waka Kotahi considers is needed to maintain levels of service and a $394m total reduction from submitted bids.

The reduced funding level will likely result in an overall deterioration in network condition and an increased backlog in maintenance and renewal activities, with an associated need for higher investment levels in future NLTPs. There is an increased risk of asset failures with the potential for increased DSIs (e.g. due to reduced skid resistance), requiring greater reactionary works at the expense of programmed replacements. This risk is elevated as there is minimal contingency to support any cost scope adjustments that may arise during the NLTP 2021-24 period.

Impact of the Constrained Affordable Programme for Local Roads

The potential/ forecast consequences for this reduced investment include:

- a 15% reduction in road resurfacing and pavement renewals, with an associated increase in faults and repair work and a risk of significant future costs to restore network condition
- 20% reduction in footpath repairs and replacement, resulting in more cracked and uneven surfaces and a reduced level of service for pedestrians
- 20% reduction in bridge and structure renewals, with a potential reduction in network resilience and freight accessibility if more bridge closures or weight restrictions are needed
- 10% reduction in unsealed maintenance and metalling costs, reducing levels of service across the lower volume rural network, increased corrugations, and ongoing dust issues in some areas
- minimal funds to respond to minor events and larger emergency works beyond a base level, meaning less capacity for network resilience and increased disruption.

Local Road Maintenance is a key 'enabler' of all GPS strategic priorities including Safety, with road condition an important factor in reducing deaths and serious injuries. Road maintenance also plays a key role in ensuring efficient access to social and economic opportunities (for private and commercial vehicles, buses, pedestrians and cyclists), route security and resilience (including to the impacts of climate change). It therefore also contributes to the Better Travel Options, Improving Freight Connections and Climate Change strategic priorities. The allocation of funding below that required to maintain current levels of service will likely result in deteriorating road condition with associated safety, access and resilience risks.

Allocations by Approved Organisation

Local Road Maintenance	2021-24 Investment to maintain LoS ($000 NLTF)	2021-24 Recommended ($000 NLTF)	2018-2021 Current Allocation ($000 NLTF)	2021-24 Bid sought by Councils ($000 NLTF)	Allocation as a % of bid
Ashburton District Council	20,055	19,734	18,999	20,367	97%
Auckland Transport	479,452	441,789	402,056	562,397	79%
Buller District Council	10,469	9,601	7,498	10,469	92%
Buller District Council – SPR	4,251	4,251	2,352	4,251	100%
Carterton District Council	5,393	5,256	4,874	5,442	97%
Central Hawkes Bay District Council	20,268	20,268	20,368	20,268	100%
Central Otago District Council	14,216	13,502	12,435	16,019	84%
Chatham Islands Council	10,001	10,001	9,228	10,001	100%
Christchurch City Council	104,016	96,008	87,581	115,164	83%
Clutha District Council	28,905	27,757	22,212	31,347	89%
Clutha District Council – SPR	1,033	994	679	1,239	80%
DOC (Auckland)	39	22	31	39	56%
DOC (BoP)	95	95	177	95	100%
DOC (Canterbury)	1,382	1,238	722	1,382	90%
DOC (Hawkes Bay)	126	126	104	126	100%
DOC (Manawatu-Whanganui)	869	757	1,043	869	87%
DOC (Marlborough)	280	245	548	280	88%
DOC (Northland)	78	78	180	78	100%
DOC (Otago)	130	130	90	130	100%
DOC (Southland)	824	824	41	824	100%
DOC (Taranaki)	10	10	6	10	100%
DOC (Tasman)	351	209	274	351	60%
DOC (Waikato)	437	371	580	437	85%
DOC (Wellington)	789	789	317	789	100%
DOC (West Coast)	1,612	1,603	1,094	1,612	99%
Dunedin City Council	54,213	47,939	45,251	65,843	73%
Environment Southland	99	97	74	105	92%
Far North District Council	66,224	61,015	48,598	72,912	84%
Gisborne District Council	55,303	53,519	52,946	55,711	96%
Gore District Council	9,219	8,736	7,923	9,883	88%
Grey District Council	9,872	9,510	8,733	11,818	80%
Hamilton City Council	48,214	41,565	38,146	69,765	60%
Hastings District Council	36,147	33,216	32,221	47,562	70%
Hauraki District Council	16,079	14,474	11,839	17,044	85%
Horowhenua District Council	12,648	12,178	11,010	12,787	95%
Hurunui District Council	11,248	11,248	11,018	11,773	96%

Local Road Maintenance	2021-24 Investment to maintain LoS ($000 NLTF)	2021-24 Recommended ($000 NLTF)	2018-2021 Current Allocation ($000 NLTF)	2021-24 Bid sought by Councils ($000 NLTF)	Allocation as a % of bid
Hurunui District Council - SPR	607	607	64	607	100%
Hutt City Council	24,991	23,307	22,226	27,167	86%
Invercargill City Council	18,616	17,126	17,374	22,656	76%
Kaikoura District Council	2,700	2,413	2,296	3,591	67%
Kaipara District Council	32,880	30,723	28,511	34,587	89%
Kapiti Coast District Council	14,973	12,597	10,993	16,572	76%
Kawerau District Council	2,232	2,025	1,850	2,382	85%
Mackenzie District Council	5,567	5,249	4,821	7,115	74%
Manawatu District Council	17,555	16,666	16,188	18,202	92%
Marlborough District Council	26,363	22,236	19,908	27,379	81%
Masterton District Council	20,862	16,900	14,663	20,944	81%
Matamata-Piako District Council	17,502	17,340	16,484	18,012	96%
Napier City Council	11,230	10,583	10,046	12,084	88%
Nelson City Council	13,428	12,279	11,394	13,428	91%
New Plymouth District Council	24,348	22,938	21,039	35,361	65%
New Plymouth District Council - SPR	326	326	106	326	100%
Opotiki District Council	8,536	8,250	7,626	9,061	91%
Otago Regional Council	268	230	211	312	74%
Otorohanga District Council	13,783	13,420	11,704	14,884	90%
Palmerston North City Council	18,972	17,445	16,455	20,259	86%
Porirua City Council	12,465	10,474	10,114	20,246	52%
Queenstown-Lakes District Council	24,979	22,933	24,896	30,361	76%
Rangitikei District Council	21,544	19,800	19,043	22,993	86%
Rotorua Lakes Council	22,768	22,400	18,589	23,387	96%
Ruapehu District Council	35,951	34,818	28,060	37,551	93%
Ruapehu District Council - SPR	2,084	2,084	2,723	2,084	100%
Selwyn District Council	25,210	22,649	20,684	26,606	85%
South Taranaki District Council	26,289	25,915	23,659	26,733	97%
South Waikato District Council	13,102	12,800	10,728	14,489	88%
South Wairarapa District Council	6,313	6,182	5,276	6,791	91%
South Wairarapa District Council - SPR	1,666	1,529	1,414	1,666	92%
Southland District Council	47,975	44,395	36,963	51,852	86%
Southland District Council - SPR	458	425	315	557	76%
Stratford District Council	12,086	12,017	9,340	12,591	95%
Stratford District Council - SPR	711	711	542	711	100%
Tararua District Council	29,127	28,131	25,826	29,921	94%
Tasman District Council	26,713	23,154	19,084	27,859	83%

Local Road Maintenance	2021-24 Investment to maintain LoS ($000 NLTF)	2021-24 Recommended ($000 NLTF)	2018-2021 Current Allocation ($000 NLTF)	2021-24 Bid sought by Councils ($000 NLTF)	Allocation as a % of bid
Tasman District Council - SPR	404	404	398	404	100%
Taupo District Council	11,950	11,220	9,465	11,950	94%
Taupo District Council - SPR	31	31	18	31	100%
Tauranga City Council	33,238	26,520	22,645	37,842	70%
Thames-Coromandel DC	21,469	20,400	17,907	23,140	88%
Timaru District Council	23,203	21,497	19,744	30,432	71%
Upper Hutt City Council	10,326	9,231	8,511	10,326	89%
Waikato District Council	53,347	50,079	47,116	60,604	83%
Waikato Regional Council	306	306	138	337	91%
Waimakariri District Council	18,124	17,652	16,895	18,761	94%
Waimate District Council	9,971	9,853	8,932	10,781	91%
Waipa District Council	22,471	21,165	18,815	22,726	93%
Wairoa District Council	21,914	21,824	20,029	22,123	99%
Wairoa District Council - SPR	2,019	2,019	1,902	2,019	100%
Waitaki District Council	19,960	18,728	16,887	21,768	86%
Waitangi Trust	479	479	168	479	100%
Waitomo District Council	26,000	24,000	22,707	28,824	83%
Wellington City Council	75,404	68,391	65,485	79,745	86%
Western BoP District Council	21,857	20,910	19,241	23,176	90%
Westland District Council	8,523	7,898	6,705	9,061	87%
Westland District Council - SPR	3,000	3,000	2,487	3,000	100%
Whakatane District Council	21,602	20,893	18,516	23,851	88%
Whakatane District Council - SPR	8,406	5,129	4,653	8,406	61%
Whanganui District Council	23,739	22,091	20,975	24,535	90%
Whangarei District Council	47,145	43,560	40,056	48,565	90%

Attachment 3

State Highway Maintenance

Component $million	2021-24 Investment to maintain LoS	2021-24 Recommended	2018-2021 Current Allocation	2021-24 Bid sought by Councils	Allocation as % of total bids
Maintenance, operation and renewal	$2,579	$2,284	$1,945	$2,979	77%
Emergency works	$225	$180	$250	$237	76%
Total	**$2,804**	**$2,464**	**$2,195**	**$3,216**	**77%**

Impact of the Constrained Affordable Programme on State Highway Maintenance

The State Highway network is already under stress from deferred maintenance and growth in traffic using the network. Evidence suggests increased costs of between $400m and $1,052m are needed to recover the network back to a sustainable level. In seeking to manage a constrained affordable allocation, Waka Kotahi will likely maximise service delivery on the highest volume roads, restricting adverse impacts from underinvestment to the less critical routes.

Further risks/costs arising from the constrained programme allocation include:

- a 'run to failure' approach allowing for increased pavement failure, which in the short to medium term is likely to result in greater use of speed management and/or increased DSIs and higher routine maintenance
- there will likely be an increase of 30-40 DSI on the State Highway network by 2023/24 arising from the deterioration in road condition (e.g. reduced skid resistance and increased road roughness)
- bridge maintenance/renewal delays likely result in speed and or weight restrictions
- reduced funding for the upgrade of urban areas from chip seal to asphalt with a reduction in environmental benefits (e.g. from noise)
- additional investment of about $1.5-2.0bn will be required in future NLTP periods, to recover service levels as a result of the need for more extensive treatment due to the deteriorated state of roads in 2021-24

Investment in State Highway Maintenance delivers a range of benefits contributing to the GPS strategic priorities of Better Travel Options, Improving Freight Connections and Climate Change. It strongly supports the Safety priority, through reduced DSIs. It supports economic activity (including tourism) and the movement of freight, as well as access to employment and social opportunities, along with route security and resilience. The allocation of funding below that required to maintain levels of service will likely impact the achievement of safety, access and resilience objectives.

Attachment 4

Road Safety Promotion

Component $million	2021-24 Investment to maintain LoS	2021-24 Recommended	2018-2021 Current Allocation	2021-24 Bid sought by Councils	Allocation as % of total bids
National Road Safety Advertising & Education	$109	$109	$102	$124	88%
Council and Waka Kotahi Regional Road Safety Promotion programmes	$48	$48	$44	$54	89%
Alcohol Interlock and Vehicle Impoundment Schemes and contingency	$3	$3	$4	$5	60%
Total	**$160**	**$160**	**$150**	**$183**	**87%**

The recommended indicative investment to ensure appropriate investment in Road Safety Promotion activities is $160m, which is 6% of the activity class' lower range.

Impacts of a right-sized investment in Road Safety Promotion

The proposed investment buys delivery of the education and advertising programmes at an appropriate level. The benefits of appropriately scaled investment include:

- appropriate reach of advertising spend ensuring impact across target audiences
- leveraging local programmes to deliver Road to Zero messaging and support local safety issues
- Alcohol Interlock and Vehicle Impoundment schemes will continue as essential regulatory functions, noting demand is driven by court-imposed judgements and by the need to remove abandoned or damaged vehicles off State highways.

With Road to Zero, a transformative change is required with a greater focus on system change rather than addressing human error alone. Road Safety Promotion activities have a critical role in supporting the behavioural change through national and local/regional campaigns and initiatives to achieve the GPS safety outcomes.

Allocations by Approved Organisation

Road Safety Promotion	2021-24 Investment to maintain LoS ($000 NLTF)	2021-24 Recommended ($000 NLTF)	2018-2021 Current Allocation ($000 NLTF)	2021-24 Bid sought by Councils ($000 NLTF)	Allocation as a % of bid
Ashburton District Council	208	208	195	247	84%
Auckland Transport	13,384	13,384	12,567	14,776	91%
Bay of Plenty Regional Council	323	323	317	323	100%
Buller District Council	66	66	69	66	100%
Central Otago District Council	117	117	151	117	100%
Chatham Islands Council	18	18	6	18	100%
Christchurch City Council	2,553	2,553	2,397	2,736	93%
Clutha District Council	211	211	213	211	100%
Dunedin City Council	738	738	679	968	76%
Far North District Council	3,701	3,701	2,356	3,919	94%
Gisborne District Council	851	851	787	851	100%
Greater Wellington	815	815	765	1,003	81%
Grey District Council	58	58	68	58	100%
Hawkes Bay Regional Council	785	785	737	1,232	64%
Hamilton City Council	934	934	922	985	95%
Horizons Manawatu	1,952	1,952	2,143	1,952	100%
Hurunui District Council	123	123	94	123	100%
Hutt City Council	237	237	306	237	100%
Invercargill City Council	821	821	756	898	91%
Kaikoura District Council	15	15	17	15	100%
Kaipara District Council	307	307	288	636	48%
Kapiti Coast District Council	149	149	135	149	100%
Marlborough District Council	225	225	211	268	84%
Masterton District Council	394	394	354	394	100%
Napier City Council	46	46	-	46	100%
Nelson City Council	190	190	179	333	57%
New Plymouth District Council	1,122	1,122	-	1,422	79%
Northland Regional Council	278	278	259	278	100%
Otorohanga District Council	387	387	363	433	89%
Palmerston North City Council	122	122	-	122	100%
Porirua City Council	311	311	281	373	83%
Queenstown-Lakes District Council	240	240	225	409	59%
Rotorua Lakes Council	664	664	825	664	100%
Selwyn District Council	370	370	348	500	74%
South Taranaki District Council	1,058	1,058	1,332	1,058	100%
South Waikato District Council	190	190	168	190	100%
Southland District Council	-	-	-	-	N/A

Road Safety Promotion	2021-24 Investment to maintain LoS ($000 NLTF)	2021-24 Recommended ($000 NLTF)	2018-2021 Current Allocation ($000 NLTF)	2021-24 Bid sought by Councils ($000 NLTF)	Allocation as a % of bid
Tasman District Council	322	322	302	380	85%
Taupo District Council	315	315	295	347	91%
Tauranga City Council	1,261	1261	1,184	1,639	77%
Thames-Coromandel District Council	314	314	294	396	79%
Timaru District Council	503	503	472	887	57%
Upper Hutt City Council	203	203	190	244	83%
Waikato District Council	521	521	490	708	74%
Waikato Regional Council	1,836	1,836	1,823	1,836	100%
Waimakariri District Council	314	314	291	314	100%
Waipa District Council	244	244	228	272	90%
Waitaki District Council	306	306	291	306	100%
Waitomo District Council	173	173	146	173	100%
Wellington City Council	657	657	617	719	91%
Westland District Council	57	57	56	57	100%
Whakatane District Council	838	838	772	838	100%
Whangarei District Council	1,406	1,406	725	1,406	100%
Interlock and Vehicle Impoundment (Regulatory Functions)	2,850	2,850	4,427	5,440	52%
National Road Safety Advertising & Education Programmes	108,500	108,500	101,630	123,200	88%
Waka Kotahi Regional Programmes	4,500	4,500	4,328	6,000	75%

MINO-0404 National and regional maintenance infographics

8 June 2022

The Minister's Office has requested copies of national and regional infographics on maintenance.

Waka Kotahi NZ Transport Agency's response:

Please see the attached infographics.

WAKA KOTAHI
NZ TRANSPORT AGENCY

Maintenance update, **all of Aotearoa** New Zealand

Jan–Mar 2022

National fact:

A total of 57,053 maintenance activities were logged across NZ during the first three months of 2022.

Resurfacing asphalt		**82.8**km
Resealing chipseal		**1099.7**km
Rehabilitation rebuilding the road		**43.1**km
SCRIM skid safety resurfacing		**43.9**km
ATP audio tactile profiled roadmarkings		**121**km
Drainage installation		**43**
Signs maintained		**892**
Marker posts		**5302**

State highway centreline length:
11,069.9km
(Length of highway from beginning to end)

Total lane kilometres:
24,260.1km
(Combined length of all lanes, in both directions)

Percentage of network sealed:
5.2%
(January-March 2022)
excludes SH1 Transmission Gully

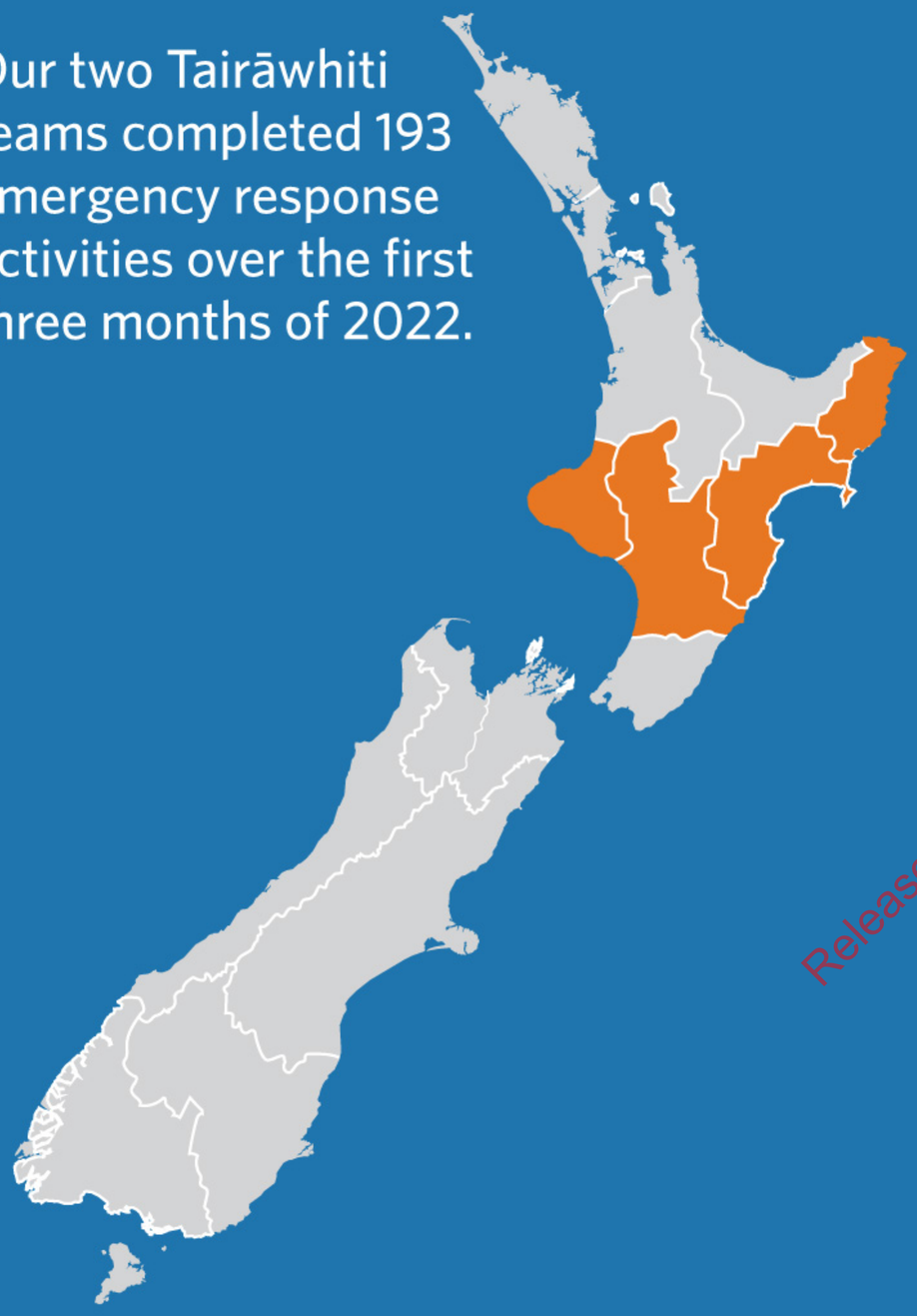
WAKA KOTAHI
NZ TRANSPORT AGENCY

Maintenance update, Central North Island

Jan–Mar 2022

Regional fact:

Our two Tairāwhiti teams completed 193 emergency response activities over the first three months of 2022.



Resurfacing asphalt		**7.2**km
Resealing chipseal		**200.7**km
Rehabilitation rebuilding the road		**7.4**km
SCRIM skid safety resurfacing		**12.9**km
Drainage installation		**6**
Signs maintained		**256**
Marker posts		**1623**

State highway centreline length:
2094.3km
(Length of highway from beginning to end)

Total lane kilometres:
4378.5km
(Combined length of all lanes, in both directions)

Percentage of network sealed:
5.2%
(January-March 2022)

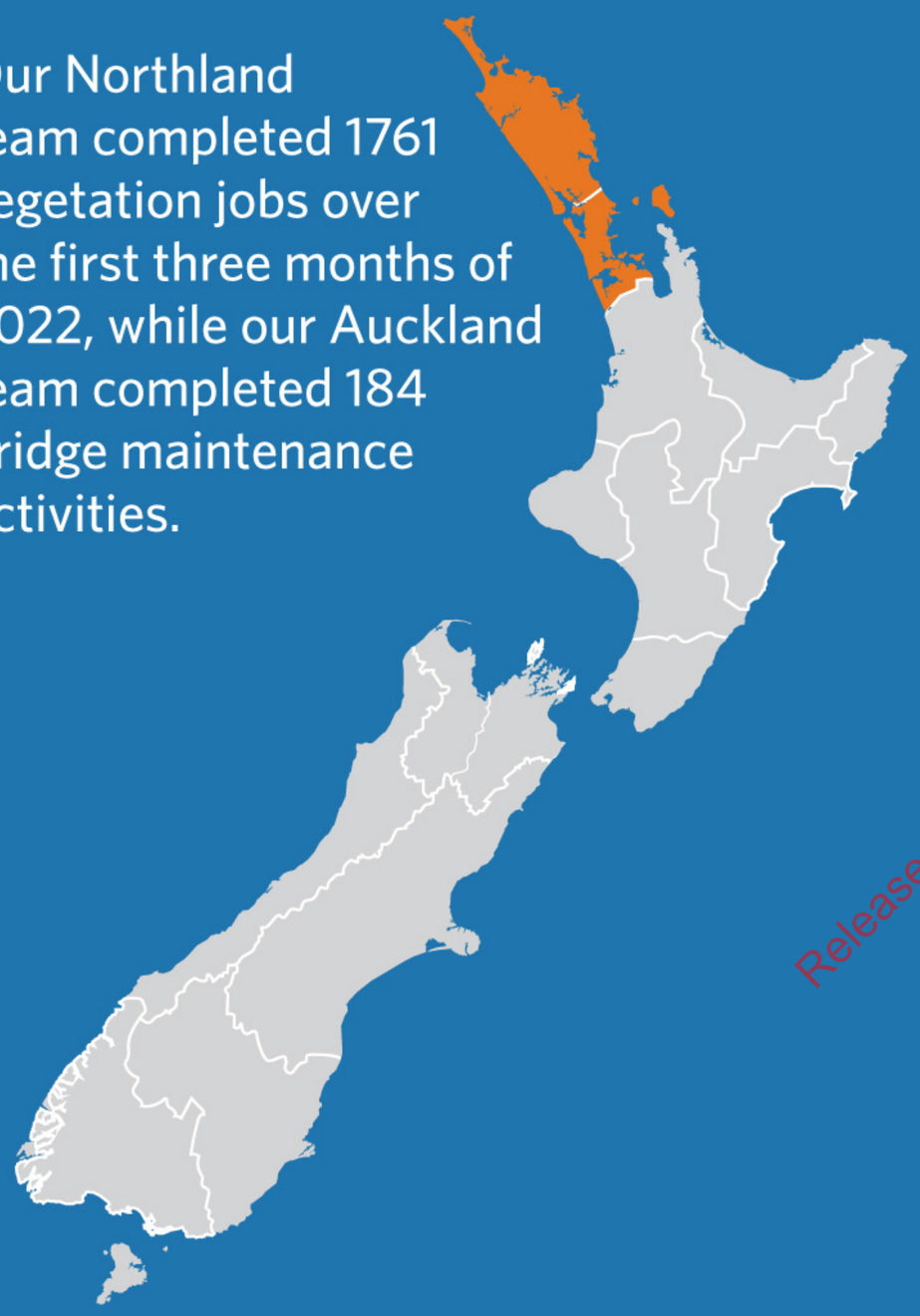
WAKA KOTAHI
NZ TRANSPORT AGENCY

Maintenance update, **Auckland** and **Northland**

Jan–Mar 2022

Regional fact:

Our Northland team completed 1761 vegetation jobs over the first three months of 2022, while our Auckland team completed 184 bridge maintenance activities.



Resurfacing asphalt	**42.9**km
Resealing chipseal	**44.7**km
SCRIM skid safety resurfacing	**5.8**km
ATP audio tactile profiled roadmarkings	**65**km
Signs maintained	**277**
Marker posts	**1359**

State highway centreline length:
1201.7km
(Length of highway from beginning to end)

Total lane kilometres:
3173km
(Combined length of all lanes, in both directions)

Percentage of network sealed:
2.9%
(January-March 2022)

22-116

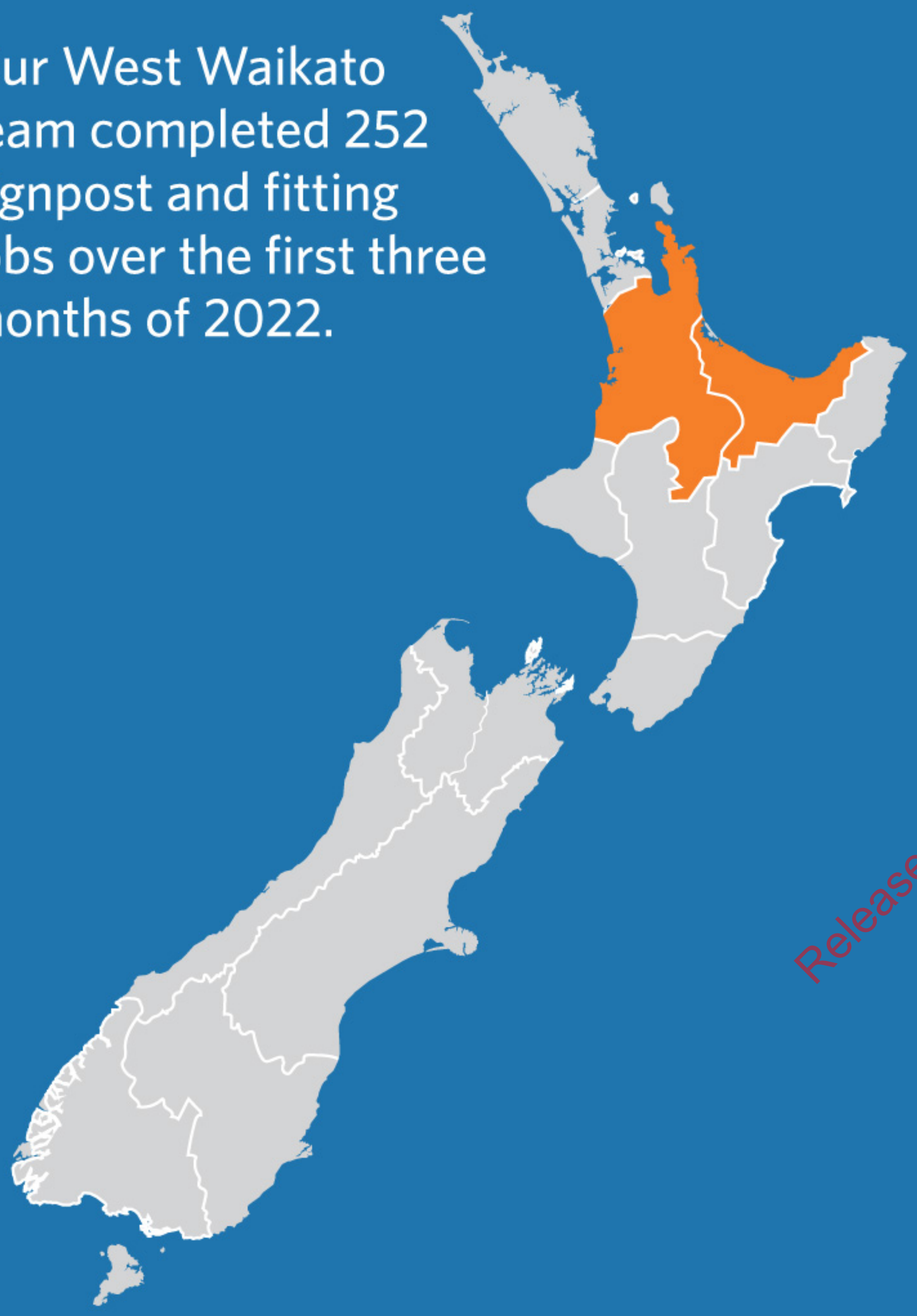
WAKA KOTAHI
NZ TRANSPORT AGENCY

Maintenance update, **Waikato** and **Bay of Plenty**

Jan–Mar 2022

Regional fact:

Our West Waikato team completed 252 signpost and fitting jobs over the first three months of 2022.



Resurfacing asphalt		**7.6**km
Resealing chipseal		**361.9**km
Rehabilitation rebuilding the road		**21.7**km
SCRIM skid safety resurfacing		**11.8**km
Drainage installation		**20**
Signs maintained		**158**
Marker posts		**2222**

State highway centreline length:
2558.9km
(Length of highway from beginning to end)

Total lane kilometres:
5619.3km
(Combined length of all lanes, in both directions)

Percentage of network sealed:
7.2%
(January-March 2022)

22-116

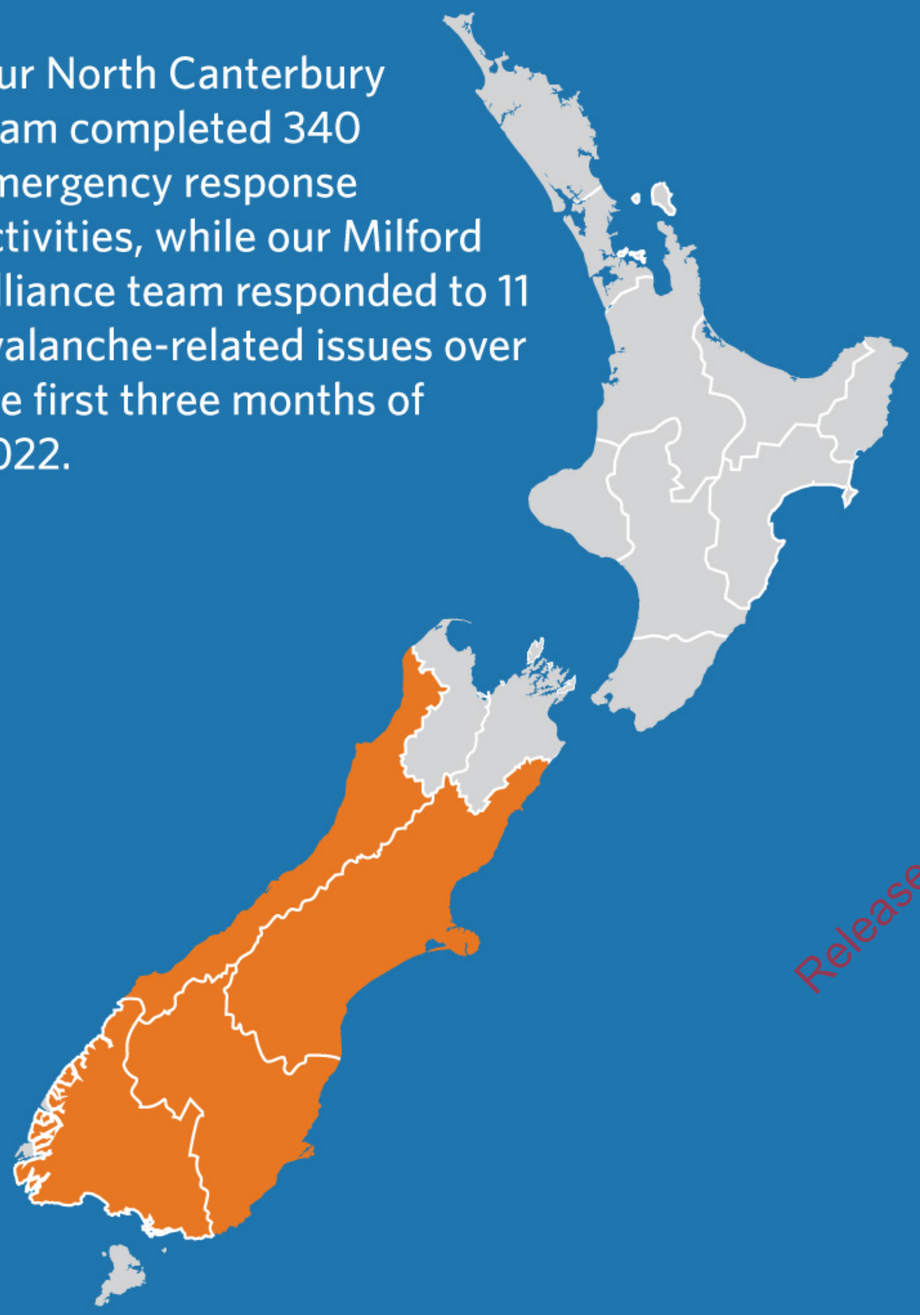
WAKA KOTAHI
NZ TRANSPORT AGENCY

Maintenance update, **West Coast, Canterbury, Otago** and **Southland**

Jan–Mar 2022

Regional fact:

Our North Canterbury team completed 340 emergency response activities, while our Milford Alliance team responded to 11 avalanche-related issues over the first three months of 2022.



Resurfacing asphalt	**13.9**km
Resealing chipseal	**422.4**km
Rehabilitation rebuilding the road	**5.7**km
SCRIM skid safety resurfacing	**9**km
ATP audio tactile profiled roadmarkings	**56**km
Drainage installation	**16**
Signs maintained	**138**
Marker posts	**5302**

State highway centreline length:
4299km
(Length of highway from beginning to end)

Total lane kilometres:
8953.8km
(Combined length of all lanes, in both directions)

Percentage of network sealed:
5%
(January-March 2022)

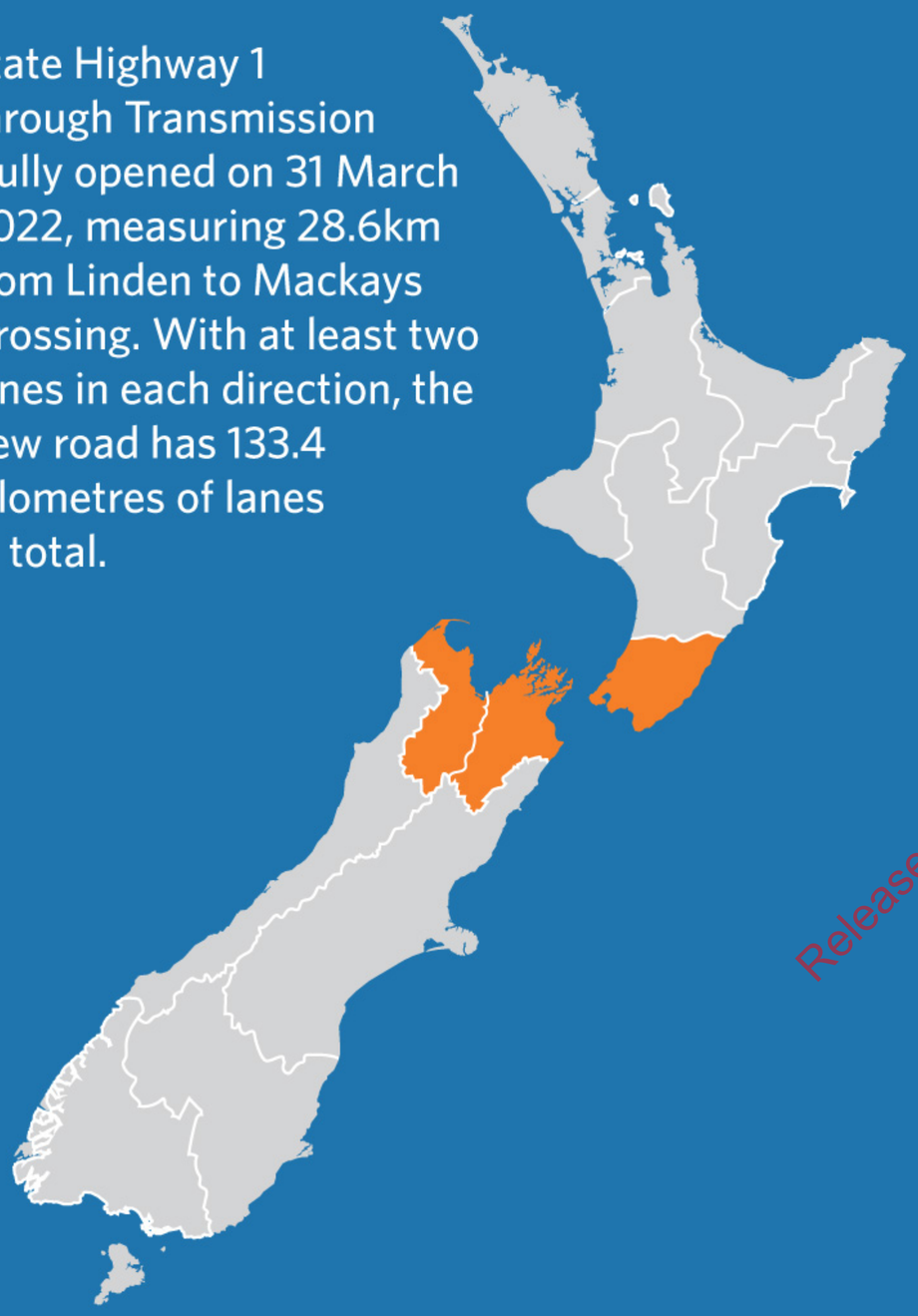
WAKA KOTAHI
NZ TRANSPORT AGENCY

Maintenance update, **Wellington** and **Top of the South**

Jan–Mar 2022

Regional fact:

State Highway 1 through Transmission Gully opened on 31 March 2022, measuring 28.6km from Linden to Mackays Crossing. With at least two lanes in each direction, the new road has 133.4 kilometres of lanes in total.



Resurfacing asphalt	**11.2**km
Resealing chipseal	**70**km
Rehabilitation rebuilding the road	**8.3**km
SCRIM skid safety resurfacing	**4.4**km
Drainage installation	**1**
Signs maintained	**63**
Marker posts	**1563**

State highway centreline length:
916km
(Length of highway from beginning to end)

Total lane kilometres:
2135.5km
(Combined length of all lanes, in both directions)

Percentage of network sealed:
4.4%
(January-March 2022)
excludes SH1 Transmission Gully

22-116

MINO-0435 Potholes, road maintenance funding and new initiatives

4 August 2022

The Associate Minister's Office has requested data for pothole repairs around New Zealand since 2017, funding allocated for state highway maintenance, and what new initiatives are underway to improve road conditions.

Waka Kotahi NZ Transport Agency's response:

1. **Has the number/rate of reported but unrepaired potholes on New Zealand roads increased or decreased since 2017?**
    - **What is the urban / regional / rural breakdown of these numbers?**

The appendix below details potholes repaired per region since 2017 in a graph. Please note that we have a continuous programme of maintenance in place to ensure that potholes are continually being repaired. This data is not broken down at the urban or rural level (this can be provided by Waka Kotahi however it will require a significant amount of work). Generally speaking, the pothole frequency in an urban environment is less frequent due to more durable pavements and road materials as compared to rural environments.

It has been a particularly challenging winter with unseasonal intense winter rain accompanied by frequent snowfall events. Much of our rural networks were built with flexible pavements, chip seal surfacing for waterproofing and traction (skid resistance). With climate change and increased heavy traffic loading, higher specified pavements will be necessary for improved longevity and less maintenance interventions on these more highly trafficked routes.

There has been a significant impact on our maintenance programme from COVID-19. During the first lockdown in 2020, none of the Network Outcome Contractors (NOCs) were able to complete heavy maintenance or renewals work, which had a flow on effect after the lockdown. This had a significant and longer flow-on effect on the pavement maintenance activities.

Other issues can be related to supplier performance, through poor treatment selection and/or workmanship. In the three most effected regions, Northland, Central Waikato and Taranaki:

- potholes are appearing in renewal sites that have been deferred due to budget or resourcing constraints,
- preventative maintenance work is being carried out very late in the season, or not at all,
- some maintenance patches and renewals were completed last year with only one seal coat (typically a minimum of two seal coats, 12 months apart are necessary for improved waterproofness).

2. **Has the funding allocated to State Highways maintenance increased or decreased in real terms?**
    - **What is the urban / regional / rural breakdown of this funding?**

Please see the Attachment which details the actual spend on state highway road maintenance since 2012/13 as well as the remaining allocation for the 2021-24 National Land Transport Programme (NLTP).

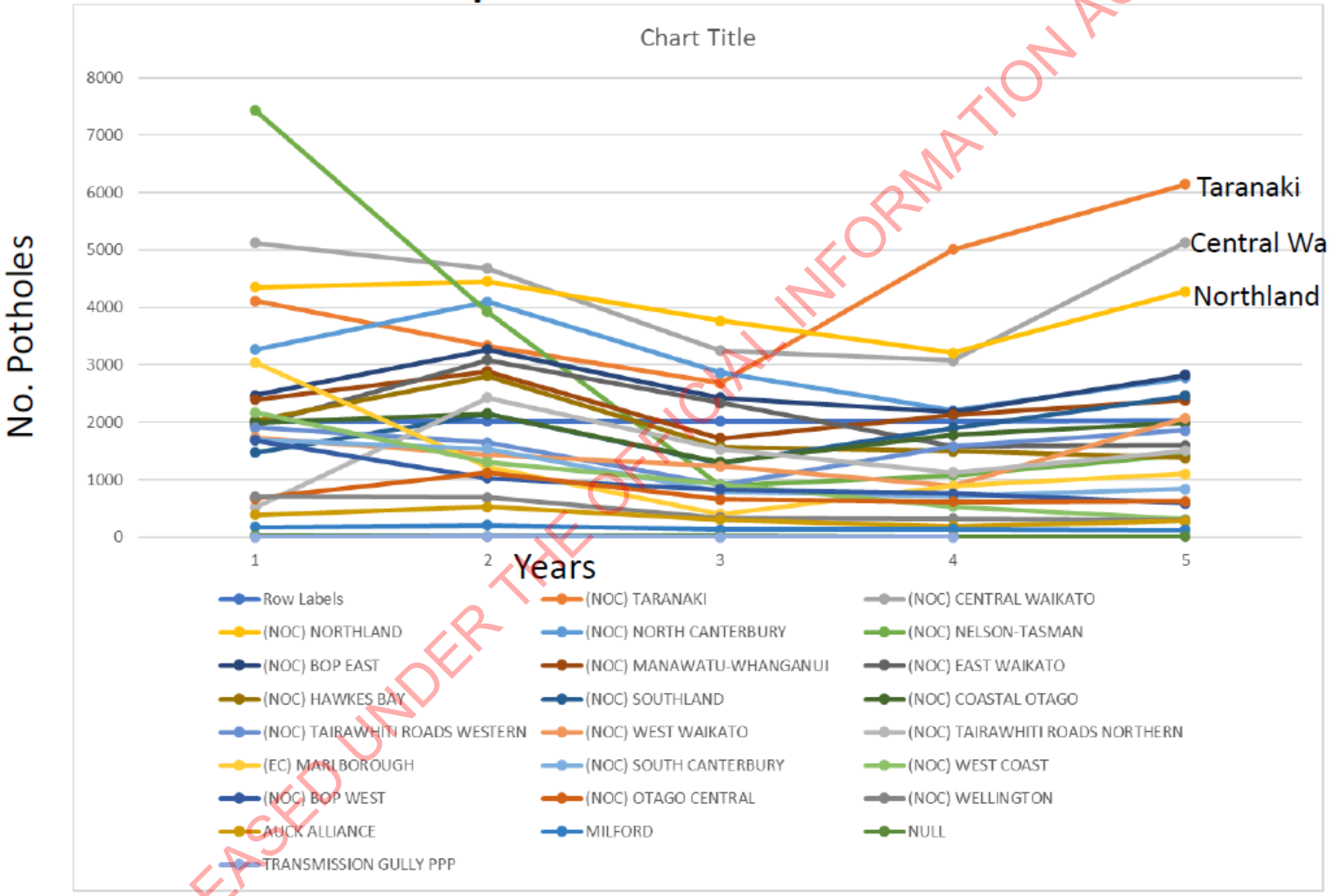
We are only able to provide a breakdown of this information at a regional level. The data shows that, when adjusted for CPI, the amount allocated to state highway maintenance has increased from $460 million in 2012/13, to $671 million for 2023/24.

3. **What new initiatives, if any, does the Government have underway to improve the condition of our worst regional roads, broken down by region, funding allocated, and progress made?**

The state highway programme is developed nationally and responds to individual network needs, taking pavement and surfacing condition into account. From a national perspective, the renewal programme of pavement rehabilitation, thin asphalt surfacing and chip sealing, has increased from the 2018-21 National Land Transport Programme (NLTP) of 5,481 lane kms to the forecasted 7,070 lane kms in the 2021-24 NLTP. This is an increase in this category of nearly 30 percent.

Appendix:

Pothole Trends per NOC



Organisation type NZTA-Region NB MOR Programme spend only, excludes PPP payments allocated to SH Maintenance and Emergency Works
Template type (Multiple Items) ADJUSTED - IN 2012/13 DOLLARS

Local government region	Sum of 2012/13 NZTA Spend	Sum of 2013/14 NZTA Spend	Sum of 2014/15 NZTA Spend	Sum of 2015/16 NZTA Spend	Sum of 2016/17 NZTA Spend	Sum of 2017/18 NZTA Spend	Sum of 2018/19 NZTA Spend	Sum of 2019/20 NZTA Spend	Sum of 2020/21 NZTA Spend	Sum of 2021/22 NZTA Spend	Approved funding for 2022/23	Approved funding for 2023/24
Auckland	90,798,251.00	100,119,284.28	105,436,720.37	93,600,984.17	105,981,170.13	134,881,135.33	131,501,601.31	137,789,851.82	129,183,762.16	120,544,012.75	163,988,475.50	163,425,215.38
Bay of Plenty	38,776,122.00	37,976,113.98	29,061,642.29	23,778,668.88	32,952,803.52	31,836,940.93	40,527,361.01	40,421,013.48	43,039,519.55	35,591,027.84	57,124,496.22	56,819,226.31
Canterbury	37,998,961.00	41,365,664.49	44,160,599.23	43,242,820.23	54,018,662.15	86,335,491.86	62,980,105.32	61,755,353.68	48,774,332.74	47,709,058.98	56,486,094.42	56,203,680.94
Gisborne	13,557,802.00	11,718,035.54	11,450,814.38	10,387,667.91	8,908,480.71	14,863,378.90	25,044,620.14	18,353,461.48	15,458,169.68	18,849,804.99	19,030,028.87	18,951,923.89
Hawkes Bay	20,028,059.00	19,674,347.39	17,198,797.34	14,677,070.90	12,362,091.59	12,921,619.86	13,197,220.56	15,753,963.46	19,231,540.11	14,865,595.27	19,446,473.69	19,353,028.14
Manawatu/Whanganui	14,203,860.00	12,686,003.26	14,220,849.55	12,332,998.16	15,123,667.72	14,628,098.00	18,178,509.43	25,498,221.68	22,142,284.16	21,865,988.09	23,247,657.50	23,144,779.92
Marlborough	7,999,853.00	6,990,859.80	7,692,256.33	6,025,247.05	15,768,515.71	19,485,278.59	8,012,814.36	7,361,160.60	12,333,397.45	15,685,354.14	11,292,675.88	11,263,194.42
Nelson	2,209,186.00	2,077,409.91	1,813,086.98	1,861,072.57	1,693,345.60	137,857.15	104,173.12	154,569.77	149,993.44	267,958.27	736,752.87	749,774.48
Northland	33,656,004.00	32,946,002.73	36,412,115.54	26,073,559.85	22,980,100.76	30,698,178.79	30,412,950.33	28,709,876.95	24,612,412.19	42,019,960.59	34,015,864.85	33,852,994.05
Otago	27,620,833.00	28,188,051.08	26,647,247.91	26,574,815.21	26,585,186.92	37,150,551.35	41,646,813.50	40,749,899.17	37,646,251.73	38,291,885.32	41,732,872.72	41,529,241.45
Southland	20,902,420.00	22,243,089.78	15,960,243.68	15,454,671.14	14,937,566.39	19,818,290.63	21,294,442.77	24,163,749.20	20,881,322.70	23,293,099.11	33,087,787.98	32,932,369.63
Taranaki	28,344,521.00	23,276,988.86	11,029,620.02	10,121,709.57	11,580,220.35	14,617,370.87	17,958,277.49	17,743,740.76	19,564,723.35	27,424,532.54	18,722,241.32	18,636,584.56
Tasman	12,521,319.00	11,425,488.64	10,274,186.93	10,546,068.80	22,530,695.35	35,309,020.32	16,031,254.04	14,915,038.96	13,615,197.84	14,924,575.34	6,433,164.83	6,406,822.83
Waikato	65,545,856.00	66,919,907.30	77,013,181.52	64,410,387.30	62,655,933.32	86,950,388.52	87,316,789.47	109,213,523.32	96,178,110.11	83,920,594.96	110,330,216.01	109,750,176.20
Wellington	26,121,811.00	37,332,512.76	43,340,774.07	47,050,113.39	55,576,142.54	53,258,929.94	51,991,219.44	44,645,846.37	45,000,406.43	50,286,327.16	53,021,570.87	52,747,008.76
West Coast	20,209,737.00	19,059,913.23	18,477,376.13	16,547,544.11	16,865,652.21	18,415,753.83	19,227,905.67	20,086,441.35	18,579,768.81	17,170,122.99	25,656,205.35	25,521,720.77
Grand Total	**460,494,595.00**	**473,999,673.05**	**470,189,512.26**	**422,685,399.24**	**480,520,235.00**	**611,308,284.89**	**585,426,057.97**	**607,315,712.07**	**566,391,192.45**	**572,709,898.32**	**674,352,578.87**	**671,287,741.74**

Initial TOTAL NLTP budget (static)												
TIO Allocation at start of NLTP												
NB may not be fully approved at start of the NLTP	476,000,000	474,581,339	485,342,774	495,386,782	490,127,297	484,243,575	557,055,624	550,653,367	543,399,607	704,905,043	695,482,075	689,920,451
CPI ADJUSTMENT to 2012 Dollars	100.00%	98.46%	97.85%	97.52%	96.10%	94.58%	92.84%	91.02%	89.08%	82.79%	79.79%	77.79%

Organisation type NZTA-Region NB MOR Programme spend only, excludes PPP payments allocated to SH Maintenance and Emergency Works
Template type (Multiple Items) NOT ADJUSTED IN REAL TERMS

Local government region	Sum of 2012/13 NZTA Spend	Sum of 2013/14 NZTA Spend	Sum of 2014/15 NZTA Spend	Sum of 2015/16 NZTA Spend	Sum of 2016/17 NZTA Spend	Sum of 2017/18 NZTA Spend	Sum of 2018/19 NZTA Spend	Sum of 2019/20 NZTA Spend	Sum of 2020/21 NZTA Spend	Sum of 2021/22 NZTA Spend	Approved funding for 2022/23	Approved funding for 2023/24
Auckland	90798251	101684350	107751915	95984192	110278283	142612406	141639286	151388996	145016842	145594859	205514432	210073938
Bay of Plenty	38776122	38569757	29699782	24384106	34288908	33661807	43651685	44410358	48314549	42987375	71589838	73037925
Canterbury	37998961	42012293	45130284	44343841	56208903	91284168	67835350	67850287	54752235	57623714	70789777	72246676
Gisborne	13557802	11901212	11702253	10652152	9269684	15715335	26975353	20164853	17352761	22767076	23848905	24361634
Hawkes Bay	20028059	19981897	17576451	15050769	12863325	13662276	14214617	17308798	21588605	17954888	24370804	24877231
Manawatu/Whanganui	14203860	12884311	14533113	12647013	15736872	15466568	19579922	28014764	24856097	26410067	29134542	29751315
Marlborough	7999853	7100141	7861164	6178658	16407866	20602158	8630536	8087669	13845009	18945005	14152262	14478204
Nelson	2209186	2109884	1852899	1908458	1762004	145759	112204	169825	168377	323644	923317	963793
Northland	33656004	33461015	37211658	26737428	23911852	32457772	32757537	31543393	27628970	50752336	42629527	43516123

Local government region	Sum of 2012/13 NZTA Spend	Sum of 2013/14 NZTA Spend	Sum of 2014/15 NZTA Spend	Sum of 2015/16 NZTA Spend	Sum of 2016/17 NZTA Spend	Sum of 2017/18 NZTA Spend	Sum of 2018/19 NZTA Spend	Sum of 2019/20 NZTA Spend	Sum of 2020/21 NZTA Spend	Sum of 2021/22 NZTA Spend	Approved funding for 2022/23	Approved funding for 2023/24
Otago	27620833	28628687	27232372	27251446	27663110	39279989	44857438	44771703	42260269	46249511	52300673	53383508
Southland	20902420	22590794	16310701	15848168	15543225	20954258	22936068	26548586	23440589	28133753	41466438	42332712
Taranaki	28344521	23640855	11271810	10379422	12049752	15455226	19342712	19494956	21962624	33123760	23463178	23956283
Tasman	12521319	11604092	10499789	10814586	23444225	37332903	17267131	16387076	15283910	18026125	8062202	8235611
Waikato	65545856	67966000	78704248	66050363	65196381	91934310	94048191	119992332	107965936	101360548	138268568	141077689
Wellington	26121811	37916095	44292457	48248073	57829533	56311686	55999312	49052160	50515767	60736577	66447950	67803318
West Coast	20209737	19357858	18883105	16968867	17549487	19471329	20710218	22068869	20856951	20738331	32152994	32806739
Grand Total	460494595	481409241	480514001	433447542	500003410	646347950	630557560	667254625	635809491	691727569	845115407	862902699

Initial NLTP budget (static) TIO Allocation at start of NLTP NB may not be fully approved at start of the NLTP	476,000,000	482,000,000	496,000,000	508,000,000	510,000,000	512,000,000	600,000,000	605,000,000	610,000,000	851,394,839	871,595,416	886,854,000