NOT GOVERNMENT POLICY.

Review of the Investment in Operating and Maintaining New Zealand's State Highways

Arotake o te Haumitanga ki te Whakahaere me te Tiaki i ngā Huarahi Matua o Aotearoa Wāhanga 1

Part 1: Summary Report | Pūrongo Whakarāpopoto

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Contents

FOREWORD - REVIEW STEERING COMMITTEE

Tēnā koutou,

On behalf of our organisations, the review's Joint Steering Committee welcomes and accepts the findings of the Review on State Highway Maintenance. This review is a great result of the collaboration between Te Manatū Waka and Waka Kotahi, bringing together the experience of these organisations to identify clear recommendations on how to further improve return on investment for operating and maintaining the state highway network.

Our two organisations are committed to ensuring New Zealanders have access to an effective, efficient, and safe land transport system that supports economic growth and maximises value for money for taxpayers, passengers, and road users. For us to succeed, we must continually pursue opportunities to improve our efficiency and effectiveness in all that we do - making sure that we get the best possible return on every dollar we spend – whilst also ensuring other objectives such as emissions reduction and resilience are being met.

This review is a testament to this commitment and sets out a roadmap to further enhance the value that we get from our state highway network. Aotearoa's state highway network plays a pivotal role in connecting people and businesses, supporting society, and enabling the economy to thrive. They contribute to economic development and growth and bring important social benefits. Maintaining roads and road infrastructure is, therefore, essential to preserve and enhance these benefits. In achieving these benefits, Waka Kotahi must meet the challenges of increasing cost pressures and quality concerns as well as sector-wide skills and resource shortages by being flexible and undergoing the significant transformation associated with emissions reduction.

The review team saw evidence of positive efforts already underway to address these challenges within Waka Kotahi and concluded that investment is generally effective in terms of outcomes, user experience, customer satisfaction, and is cost effective given the volume of use. As a result of the review, areas requiring further work and/or improvement have been identified and Waka Kotahi is currently in the process of launching a fully resourced improvement programme to address these.

It is our belief that the best organisations are also those that are committed to continually driving for greater efficiency and effectiveness in all that they do. The Joint Steering Committee are committed to the continuous long-lasting improvement of how we operate and maintain state highways and in showing this commitment will actively monitor and report progress against each of the recommendations from this review.

Yours sincerely,

Tim Herbert

Manager, Investment - Te Manatū Waka

Vanessa Browne

National Manager, Programme and Standards – Waka Kotahi

EXECUTIVE SUMMARY

Te Manatū Waka - The Ministry of Transport, in collaboration with Waka Kotahi – The New Zealand Transport Agency, has reviewed the investment in state highway maintenance to ensure it is giving effect to the Government Policy Statement on land transport (GPS) in an efficient and effective manner.

The review is timely given growing maintenance costs and degradation of the state highway network across all condition measures.

The Review has identified potential improvement opportunities, including that:

- The GPS needs to more clearly signal the outcomes sought from maintenance activities
- Internal financial/budget management processes need further refinement to ensure the planned level of work is programmed and delivered on time and to budget
- Improvements are required to ensure that all work (maintenance and renewal) is completed to the required specification the first time, with reduced performance and quality issues
- Statement of Performance Expectations (SPE) measures are not fully representative of the difficulties Waka Kotahi is facing, and they appear to mask degradation in condition and service.

Work is already underway to implement improvements to enhance the efficiency and effectiveness of investment for 2021-24 (and beyond). Where opportunities still exist, several recommendations have been provided to build on the lessons learnt from the 2018-21 funding period, including:

- Getting the investment signals and forecasts right
- Enhancing sector wide capability and competency
- Asset Management Business Process Improvement
- Strengthening Waka Kotahi’s performance monitoring
- Having more robust assurance and at the right level
- Enhancing monitoring and evaluation of performance to drive continuous improvement

These are explored in more detail in the *recommendation section*.

RECOMMENDATIONS

The following opportunities for improvement have been identified for the consideration of Te Manatū Waka and Waka Kotahi to action:

Key Recommendations: Te Manatū Waka – The Ministry of Transport
Investment levels

1. Refining Government Policy Statement on land transport (GPS) investment signals and requirements to be better relate to the contribution and expectations from the maintenance investment and the emerging context.
2. Working closely with Waka Kotahi in the development of 10-year forecasts to ensure these are more reflective of trends and pressures faced by the industry.

Assurance and evaluation

3. Work with Waka Kotahi to determine the appropriate level of monitoring and/or re-conducting of this review (or similar) between GPS periods.
4. Consider undertaking further reviews under the GPS Work Programme to determine the efficiency and effectiveness of the Local Road Maintenance Activity Class.

Capability and competency

5. Work with Waka Kotahi to determine how best to enhance sector-wide capability and competency.

Key Recommendations: Waka Kotahi – The New Zealand Transport Agency
Asset management business process improvement

6. Finalising and approving (preferably by Chief Executive) an appropriate asset management policy and asset management strategy which clearly set out the organisation's plans and objectives for the assets it manages.
7. Developing an overarching Asset Management Framework to manage its assets. This should aim to facilitate improved integration, planning, and management of the assets and to align with the delivery of the Waka Kotahi Strategic Plan and attain successful performance in asset management.
8. Refining asset sustainability performance measures (or similar) within an Asset Management Strategy to better understand appropriate targets and manage the associated longer-term risk exposure.
9. Document the approach to prioritisation of available funding across the maintenance, operations and renewals work categories and their associated work tasks/programmes as part of NLTP business case development.
10. Developing a suitable suite of lifecycle asset management plans for all asset types to increase the robustness of the 2024-27 funding submission.
11. Identifying and implementing a programme of business processes and procedure improvements such as those associated with programme development, budget monitoring and reporting, managing, and approving contractual variation, managing, and approving changes to programmes (Change Management Requests).
12. Establishing a governance function for emergency works and undertake a review of existing processes, controls, and monitoring.

13. Developing a Quality Manual in a way that both serves ISO 9001 but also enables Waka Kotahi to align itself with ISO 55001.
14. Formalising the management approach for collecting condition and performance data linked to the asset lifecycle, based on asset type. Including identifying asset condition and data quality gaps across the entire asset base and developing a prioritised programme of data quality improvement initiatives to close these gaps. This may require the development of an asset criticality framework and formal identification of critical vs non-critical assets to help address data quality issues for asset groups outside of pavements and surfacing.

Capability and competency

15. Establishing a centralised team within the Transport Services Group to ensure an ongoing commitment to continual professional/technical development of internal workforce skills and capabilities is maintained. This may likely build from the work already undertaken by the Operating Model embedment project and Draft Asset Management Competency Framework developed by Waka Kotahi from the Treasury's Investor Confidence Rating review.
16. Developing and implementing a training programme to further enhance internal staff awareness and use of the systems and processes underpinning programme development, management, and delivery of asset renewal projects.
17. Initiating joint-training activities with Suppliers to further embed the processes and procedures within all Contract Plans under the Network Outcome Contract to help ensure consistent use and adherence to the processes set out in these plans, notably forward works programme development within the Network Outcome Contract Maintenance Management Plans for more robust forward works programmes outside of (1) pavement and surfacing and (2) bridges & structures.
18. Undertake awareness level training in the Waka Kotahi Emergency Works funding and delivery processes across relevant personnel.

Performance monitoring

19. Quantifying the proposed outputs for all asset types/ programmes for the 2021-24 funding period to enable more robust analysis of variance of budget versus actual.
20. Implementing a stage expansion of programme tracking activities to cover all asset types (such as guardrails, Side Water Channel reshaping, Reforming Side Drains, delineation, signs, ITS, traffic signals, streetlights, rutting and roughness treatments, environmental renewal sites, tree removals, etc.)
21. Expanding the use of the pavement and surfacing performance tracker to capture actual as-built costs.
22. Compiling a detailed national annual programme for bridge and structures component replacements and its delivery performance tracked monthly to ensure transparency in the efficient and effective use of this investment.
23. Compiling a national consolidation of bridge and structures component replacement programme, using the latest revision (and future revisions) of the regional Lifecycle Management Plans (or other similar sources) to identify the proposed 10-year programme.
24. Developing and tracking a suitable performance metric(s) to monitor the improvement in the post construction design assessment performance.
25. Developing congestion and travel time metrics across the entire State Highway system to better enable more focused system optimisation investment opportunities to be identified.

Assurance and evaluation

26. Refining the organisation’s contract variation processes to include the role of the Activity Class Manager to ensure that funding is available before agreements are made.
27. Undertaking an efficiency and effectiveness review (or similar) on the Waka Kotahi Alliance maintenance contracts to verify that the Waka Kotahi is getting value for money for the services provided from these contracts.
28. Investigating cost variances to understand if there are further controls that could be put in place to ensure expenditure better aligns with targets and budget.
29. Carrying out financial forecasting accuracy reviews across work categories on a quarterly basis as opposed to annually.
30. Undertaking more in-depth variance analysis to understand the trends for each work category for all contracts. Then undertake suitable ‘deep-dives’ into those contracts to explore root causes and areas where efficiency savings could be applied locally and nationally (where practicable).
31. Conducting further analysis on OPM trends to understand the root causes of breaches and actions that could be implemented to enhance corresponding processes and procedures utilised by the Network Outcome Contract Suppliers.
32. Reviewing the OPM and KRA to ensure they are measuring the right parameters given that they may not be reflecting the outcomes observed.
33. Increasing independent surveillance/audit activities on OPM and KPI reporting from the Network Outcome Contract Suppliers (in a nationally consistent manner).
34. Increases in key materials costs require further investigation (including bitumen, steel and aggregates) to understand possible opportunities to better manage inflationary risk.
35. Putting further arrangements in place to ensure compliance with its ‘out-of-season’ work approval process and reviewing the performance of ‘out-of-season’ pavement and surfacing works against the performance of those that were ‘in-season’ and disseminating lessons learnt across the teams that manage renewal delivery.
36. Increasing independent surveillance/audit activities on the Network Outcome Contract Supplier construction works to help enhance the effectiveness and/or adherence of the quality assurance and control activities undertaken by Network Outcome Contract Suppliers.
37. Carrying out a root cause analysis on the post-construction performance challenges to develop and implement a prioritised programme of initiatives to rectify quality issues.
38. Establishing a ‘national’ team to undertake Post-Construction Design Assessment reviews of completed pavement and surfacing works and leading negotiations to drive enhanced compliance and continual improvements in a nationally consistent manner.
39. Undertaking a like-for-like benchmarking comparison of ONRC classification performance across both state highway and local roads.
40. Undertaking a review of the economic justification (NPV) for pavement renewals using actual pavement renewal costs (for a sample or all rehabilitation projects) to review if the economic assessment used to justify the projects were still valid. Consider developing more robust renewal justification process that broadens the investment considerations beyond just economic justification to aspects such as constructability, impact on customers, materials, environment etc.
41. Quantifying the impact of the sites delivered that are not performing to required standards on the network’s condition and performance measures.

INTRODUCTION

This summary report presents the overall findings of a jointly conducted review by Te Manatū Waka – The Ministry of Transport (The Ministry) and Waka Kotahi – The New Zealand Transport Agency on the investment into state highway maintenance and operations services. It addresses the expenditure and outcomes achieved against the Government Policy Statement on land transport (GPS) for both the previous (2018-21) and current (2021-24) investment period.

This review is intended to inform the development of future GPSs and National Land Transport Programmes (NLTPs). The two organisations share responsibility for the findings of this review which will be implemented in partnership.

The Review Team wishes to acknowledge Waka Kotahi on the open, transparent and collaborative approach it has provided to this review. We have based our findings on the Waka Kotahi investment proposals[1] for the two funding periods (2018-21 and 2021-24), the data and information presented to the Review Team by Waka Kotahi, interviews with the Waka Kotahi staff, information provided by Waka Kotahi and responses to subsequent written questions. Our findings are also informed by recent audits of the organisation[2]. This final report considers the comments made by Waka Kotahi on our draft report. This report is supported by a technical report (part two).

Transport context

The Transport and Logistics sector (road, logistics, rail, coastal shipping, and air) plays a critical role in the economic growth of New Zealand, supporting 94,000 jobs and contributing $12b to the country's national income (4.7% of GDP)[3]. With 91% of all freight transported by truck, New Zealand's roading network provides a crucial service in supporting our economy at both national and local levels.

State highways (although they comprise only 12% of New Zealand's total road network) carry 70% of freight and 55% of vehicle journeys, making them major connectors between New Zealand's cities, towns, regions, and wider transport networks (air, rail, sea, local roads). Growing freight and general traffic volumes on the state highway network are a direct reflection of growing economic production and population. Heavy vehicle use and volumes on the network has grown by 28% over the past 10 years. There was a 7% increase in kilometres travelled by heavy vehicles across state highways during the 2018-21 funding period alone, compared to 2015-18.

Investment context

Investment in operating and maintaining state highways occurs via the State Highway Maintenance Activity Class[4] as part of the wider National Land Transport Programme (NLTP). The programme is funded from National Land Transport Fund (NLTF) permanent legislative authority (PLA), in accordance with the requirements and priorities of the applicable GPS issued by the Minister.

The GPS is the Government's main statutory lever to ensure investment in land transport by Waka Kotahi and local government reflects government priorities over the next three to ten years. The GPS

[1] State Highway Investment Proposal (SHIP): https://nzta.govt.nz/assets/planning-and-investment/docs/Draft-Transport-Agency-Investment-Proposal-201827.pdf

[2] New Zealand Transport Agency: Maintaining state highways through Network Outcomes Contracts (oag.parliament.nz)

[3] AT THE CROSSROADS: THE NEW ZEALAND TRANSPORT AND LOGISTICS SECTOR, ANZ CLIENT INSIGHTS: https://comms.anz.co.nz/businsights/article/report.html?industry=Transport and https://www.anz.co.nz/about-us/economic-markets-research/truckometer/

[4] Road Maintenance Waka Kotahi NZ Transport Agency. https://www.nzta.govt.nz/planning-and-investment/planning-and-investment-knowledge-base/201821-nltp/activity-classes-and-work-categories/road-maintenance/.

describes how spending is to be prioritised across all the activity classes with consideration of the long-term outcomes for the entire transport system when each NLTP is developed. Each Regional Transport Committee[5] submits proposals for investment in local road and state highway activities in their region and these are supported by evidence and business cases prepared by the relevant agency, Waka Kotahi for state highway activities.

In setting investment levels for the GPS activity classes, the Ministry considers, as part of its advice to the Minister, the expenditure required to maintain existing levels of service as well as the expenditure needed to achieve the strategic priorities (i.e., the outputs under "how to deliver these outcomes" under each strategic priority). Activity class funding ranges provide an ability to flex the level of investment and balance the delivery of GPS priorities against base expenditure requirements such as maintenance and renewals, particularly with regard to not creating large future spending backlogs[6].

The investment level in operating and maintaining state highways represents about 20% of NLTF revenue and is approximately 1/3rd of all road maintenance expenditure across New Zealand. The investment represents an annual user cost of service of less than 2.7 cents per vehicle kilometre[7] travelled on state highways. This is 37% less than the equivalent cost of service of local roads.

From the late 90's and early 2000's maintenance and operations investment increased until 2009/10, peaking at approximately $500M per annum. The next 7 years witnessed a targeted 'flatlining' of road maintenance investment (sparked by the Global Financial Crisis) until the 2017/18 Kaikoura earthquake increased expenditure. The 2018-21 GPS period has seen a 22% increase from the 2015-18 period to approximately $600M per annum. The 2021-24 period has sought another 'step-up' to an investment level of approximately $850M per annum (which will be partly debt funded).

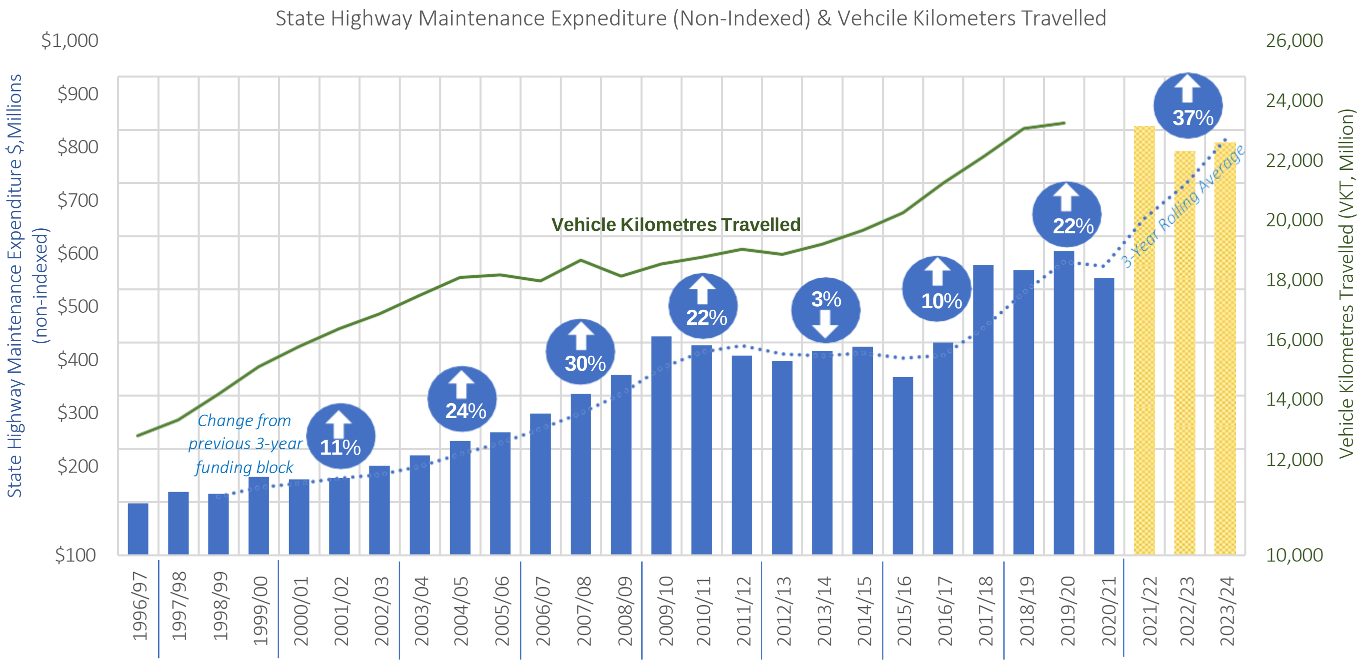


Figure 1. State Highway Maintenance Investment (excluding emergency work)

5 The role of regional authorities: https://www.nzta.govt.nz/planning-and-investment/planning/our-role-in-planning/the-role-of-local-government/the-role-of-regional/

6 You can find more information on this here: InvestmentstrategyscenariosforGPS2021briefing.pdf (transport.govt.nz) and FurtherinformationonbaseexpenditureinGPS2021AideMemoire.pdf (transport.govt.nz)

7 Cost in 'Real' terms account for CPI, 2020 base

While NLTF revenue has increased over the past 10 years, the GPS has signalled the targeting of investment into the need to transform the transport system for improved safety and capacity, enhancing alternative modes of travel and respond to climate change. This has increased investment challenges for Waka Kotahi in preparing the NLTP alongside those presented by growing cost drivers. Factors driving cost are the growing travel demand for people and goods, increasing cost of transport activities, growing expectations for improved services and the growth in the extent and complexity of transport infrastructure and the associated requirements for operation and maintenance.

Operating environment

Waka Kotahi manages the country's state highway network on behalf of the Crown and is directly responsible for the operation and maintenance of over 11,830km or 24,193 lane km of roads. This includes the management of traffic flows and the response to crashes and natural events using traffic operations centres staffed and operated in partnership with local road network providers.

Waka Kotahi also manages the maintenance of state highway infrastructure including a network of roads, bridges, tunnels, and retaining walls and supporting assets such as drains and water channels, Intelligent Transport Systems (i.e., equipment which supports traffic operations and incident management), delineation (road markings/lines), and signage. Road maintenance services are outsourced through 5-10-year contracts tendered on a multi-year staggered schedule.

Each NLTP period (triennially), Waka Kotahi prepares a detailed business case that provides the proposed investment in the operating, maintenance and renewal expenditure required to best give effect to the words written in the GPS and to meet its obligations relative to One Network Road Classification[8] (ONRC) outcomes for Access & Resilience, Mobility, Amenity and Safety. In 2018, this was called the State Highway Investment Proposal (SHIP) and in 2021 it was renamed the State Highway Activity Management Plan (SHAMP).

Waka Kotahi has been through a significant amount of change with a number of organisational restructures since its formation, with major changes occurring at the start of the 2018-21 investment period and another at the start of the 2021-24 investment period. The latest restructure intends to enhance the operating model of the Transport Services group responsible for overseeing design, delivery and management of the land transport system and its infrastructure.

Both the NLTF and Road Controlling Authorities[9] are under significant financial pressures and face wider industry resourcing challenges. For this reason, it is important for The Ministry and Waka Kotahi to ensure value for money is front of mind for everything they do, whilst ensuring investment decisions deliver the best outcomes possible for New Zealand.

[8] One Network Road Classification: https://www.nzta.govt.nz/roads-and-rail/road-efficiency-group/projects/onrc

KEY REVIEW FINDINGS

The Review Team considered the process underpinning the development of the proposed investment levels for each funding period to be consistent with good industry practice. The proposals reflect the influence of external factors, proposed efficiency savings and changes in the balance of maintenance vs. renewal work. Both the 2018 and 2021 submissions presented a sound analysis of investment required to meet the various pressures on the network, however, greater supporting evidence outside of pavement and surfacing assets is needed going forward.

For the 2018-21 period, the Waka Kotahi Board approved an investment level of $1.95B (including emergency works, overheads and administrative expenses) within GPS bands $1.8B and $2.13B. Final expenditure over this period was $2.17b, approximately $220M more than the targeted investment level. This variance is detailed in the observations section below.

For the 2021-24 period, the Waka Kotahi Board approved an investment level of $2.804B (including emergency works, overheads, and administrative expenses), within GPS bands funding bands of $2.26B and $2.9B (which will be partly debt funded as part of $2B borrowings made available by the Crown to support the delivery of the NLTP).

In determining a view on the value for money from the State Highway Maintenance Activity Class, the Review Team considered the context of how the investment level was established and how the investment was delivered.

Establishing investment priority

The Review Team recognises that in establishing investment priorities an increased breadth and depth of investment needs, alongside growing cost drivers has had to be considered. Investment priorities have also needed to respond to challenges in mode shift, reliability, capacity, climate change response, safety improvements and rail and public transport.

Although investment levels into this activity class have increased (see figure 1), it appears that successive 10-year investment signals within the GPS have remained lower than necessary when compared to actual expenditure used to maintain the desired service levels and respond to cost drivers. This has potentially contributed to an increased risk of future spending backlog as evidenced by the increase for the 2021-24 period.

Successive GPSs have focused on improvements to the system (rather than maintaining it), including within the strategic priorities, and the outcomes sought. Despite state highway maintenance making up around 20% of the NLTF investment, we estimate the maximum contribution to the GPS measures is around 12% (attributable mainly to the value for money and safety measures). This means maintenance activities are delivering approximately 2/3 of the theoretical maximum (see figure below). This is somewhat driven by minimal alignment between the metrics used to measure outcomes sought from maintenance.

	Percentage of GPS Outcome Measures
Total possible contribution to GPS outcomes	~12%
Achieved contribution to GPS outcomes	~8%

Maintenance activities attributed towards the achievement of strategic outcomes.

When split across the GPS outcomes, maintenance contribution was highest amongst value for money and safety objectives (achieving 80% of their possible contribution), followed by accessibility and environment (where 50% of their possible contribution was achieved). This shows that although, maintenance activities cannot contribute significantly to the GPS overall, the performance in the relevant measures are considered to meet the requirements set out in the GPS.

Delivering the investment

Overall, the Review Team concluded investment enabled the successful delivery of a significant work programme, resulting in 5,965 lane kms of roads being resurfaced or rehabilitated, more than 760,000 maintenance interventions being undertaken, 65,335 incidents responded to (including 13,514 crashes attended) and 9,717 customer enquires managed. Waka Kotahi also managed to resolve 82% of all incidents within targeted timeframes despite growing demand on the network and number of incidents closing the State Highways.

An assessment of the relationship between input and outputs for the 2018-21 period was conducted to determine whether the investment delivered optimal outputs with minimal wasted effort, resources, or expense. To do this we reviewed a range of efficiency and effectiveness measures (identified in the table below). This was done with the intent of assessing whether we are getting the best value for money from this investment, taking into consideration whole of life costs.

Efficiency Measures	Evaluation
Unit Costs (Cost per lane km)	◔
Budget cost variance	◔
Regional costs by lane density (VKT/lane km)	◑
Asset renewal costs variance	◔
Cost indices against CPI	◕

Effectiveness Measures	Evaluation
Statement of Performance Expectation measures	◑
Key Results Area measures	◑
Operational Performance Measures (OPMs)	◑
Pavement and Surfacing Health Index	◔
Community Perceptions Standard	◑
Asset Consumption and Sustainability Ratio	◔

Table 2. Efficiency and Effectiveness Measures Assessed

Key:		
○	Inadequate / unacceptable	Evidence shows large deficiencies in meeting key requirements/targets. Significant improvement required of systems, processes and procedures which are not understood or performed. Inadequate controls are established to achieve performance and could pose a risk of impact on customers/road users.
◔	Below expectation / improvement required	Evidence shows performance below expectation/target, with minimum targets inconsistently achieved. Process and procedures documentation and systems are not fully fit-for-purpose, incomplete or require significant improvement. These are not fully understood or followed by staff and there are inadequate controls are in place and need significant improvements that may have a moderate impact on customers/road users.
◑	Adequate / some improvement required	There is sufficient evidence observed to confirm expectations are generally sufficiently met. Suitable systems and processes are in place and generally applied appropriately with only minor shortcomings which do not compromise the ability to achieve performance. Controls are in-place to ensure performance expectations/targets are achieved and minimal risk of impact to customer/road user.
◕	Acceptable / best practice	Most processes, procedures, system and data are robust and the identified deficiencies do not have a material impact on overall integrity of performance. Documented policies, processes, practices and procedures are embedded, fully understood and implemented well. Adequate controls are in place to ensure consistent levels of performance is achieved.
●	Robust/Advanced	Evidence confirms that requirements are being met above and beyond expectations. No further improvements are required.

The lack of proposed outputs from the investment and documented achievement (outside of pavement and surfacing activities) made it difficult for the Review Team to form a view on the efficiency and effectiveness of all maintenance, operations and renewal activities undertaken. From the information that was available, we determined there are opportunities to improve value for money of the investment in road maintenance by closing identified efficiency and effectiveness gaps and by better targeting investment in maintenance. For example,

- The GPS needs to more clearly signal the outcomes sought from maintenance activities
- Internal financial/budget management processes need further refinement to ensure the planned level of works is programmed and delivered on time and to budget
- Improvements are required to ensure that all work (maintenance and renewal) is completed to the required specification the first time, with reduced performance and quality issues
- Statement of Performance Expectations (SPE) measures are not fully representative of the challenges being experienced and appear to mask degradation in condition and service.

These findings are explored further in the observation section and recommendations of this report.

The Review Team recognises that a range of external cost pressures were experienced in delivering the investment, including cost escalation, traffic and freight growth, health and safety requirements, more significant and frequent natural events requiring more extensive emergency works to retore service, and growing complexity of the network (in terms of length, assets, and technological advancement). Quality issues were also experienced, alongside sector-wide skills and resource shortages.

Waka Kotahi has also experienced significant organisation transformation over this period. The latest restructure is intended to enhance the operating model of the Transport Services group responsible for overseeing design, delivery and management of the land transport system and its infrastructure. The Review Team recognises the current organisational changes will likely enable improvements; however, it was noted that Waka Kotahi still does not have an approved asset management policy or strategy for what was stated as New Zealand's largest social asset (at $65B current replacement value).The Review Team considered that an asset management policy and asset management strategy could further assist in the robustness of the organisation's business planning in this area and could assist in efforts to reduce variances both in terms of monetary investment, but also in terms of program development and delivery.

Based on available information at the time of this review, the Review Team determined with a reasonable (or better) level of confidence that investment was delivered with an efficiency and effectiveness of approximately 60-65% (~$1.4b). The Review Team considered that while the investment is being used to do a lot of things well, particularly given the breadth of services and work programmes delivered in the face growing external pressures, there are greater opportunities to:

- enhance the GPS outcomes and associated investment levels to prioritise improved value for money from investment in this activity class, and
- close potential efficiency and effectiveness gaps that could be holding the delivery of this investment back from realising optimal value for money.

The Review Team assessed output and performance of the investment over the 2018-21 period in determining confidence in the 2021-24 proposed investment and determined the proposed investment seeks to address a number of the findings from this Review. Several improvements have already been implemented in the definition of governance roles, operational and financial planning processes and performance monitoring and reporting procedures. Where opportunities persist, recommendations have been provided to further build on the lessons learnt from the 2018-21 funding period.

KEY REVIEW OBSERVATIONS

The delivery of maintenance and operations services are primarily outsourced through a range of contracts, including twenty-one [21] Network Outcomes Contracts (NOCs), nine [9] Structures Maintenance Contracts (SMC), two [2] specialist ITS contracts and three [3] Alliances. The organisation's three Transport Operations Centres (TOCs) support the day-to-day operation of the system. Over the 2021-24, Waka Kotahi will operate two [2] Transport Operations Centres. Two Public-Private-Partnerships (PPP) are in-place and will draw funding from this activity class over their operating periods.

In the past ten years, the length of road has expanded from 22,138 lane kms to 24,193 lane kms. This represents a 2,055 lane kms (or 913 centreline kms), a 9.3% increase which is equivalent to driving almost the entire length of State Highway 1 one-way from Northland to Southland. The increased quantity and complexity of assets to manage is beginning to impact the level of maintenance investment required to sustain the level of service for road users.

Over the 2018-21 period, more than 760,000 maintenance interventions were undertaken with 65,335 incidents responded to (including 13,514 crashes attended) and 9,717 customer enquires managed. Even with a growing usage and number of incidents closing state highways, Waka Kotahi have managed to ensure 82% of the incidents were resolved within targeted timeframe.

The vast majority of use on state highways is exposed to good skid resistance and smooth travel:

- 96.6% of the traffic on state highways exposed to surfaces with good skid resistance (less than 5% of the network length with less than desired skid resistance).
- 98.9% of the travel on state highways is exposed to 'smooth' roads with low levels of roughness (with approximately 5% of the network length exceeding acceptable roughness threshold levels).

Of the 4,675 bridges managed by Waka Kotahi only ~18 (0.3% of the total bridge assets) had a speed or weight restriction in place in any one year over the 2018-21 funding period.

Waka Kotahi entered the 2018-21 funding block with an expectation to maintain service standards set out in the Waka Kotahi Statement of Performance Expectations, the ONRC levels of service, contract performance frameworks and associated technical standards and specifications. Key observations include:

- The organisation's performance against the investment proposal, as measured by the Statement of Performance Expectations, is generally consistent with targets. The Review Team however, questions whether these measures are truly demonstrative of the challenges the organisation and industry more broadly are facing. It was noted that network availability fell below the desired standard and appears to have been adversely impacted by weather events resulting in longer closures.
- Expenditure over the 2018–21 NLTP has been generally consistent with the GPS 2018 bands, although when we analyse variance across the activities, material differences occurred across a number of investment areas and all regions. This is consistent with findings of an internal looking-back review in 2015 and signals a potential ongoing effectiveness issue of existing budgetary development and control processes, as well as the potential impact of controllable/uncontrollable cost increases.
- Contract frameworks such as Key Results Areas (KRA) and Operational Performance Measures (OPM) indicate that, on average, contract teams are meeting acceptable standards of contract performance against expectations. However, due to their self-reporting and self-auditing structure, the full credibility of these measures is questionable without an appropriate level of

independent scrutiny to transparently validate and verify results. The Review Team also questions if this framework is measuring the right parameters given declining condition parameters across the state highways.

- Looking at more technical asset condition measures such as the pavement and surfacing health index, less than desirable findings were illustrated with overall results indicating a deteriorating pavement and declining health of the worst performing sections of the network. These findings are supported by the annual pavement condition reports which also record declining trends overall (with exception to overall network texture).

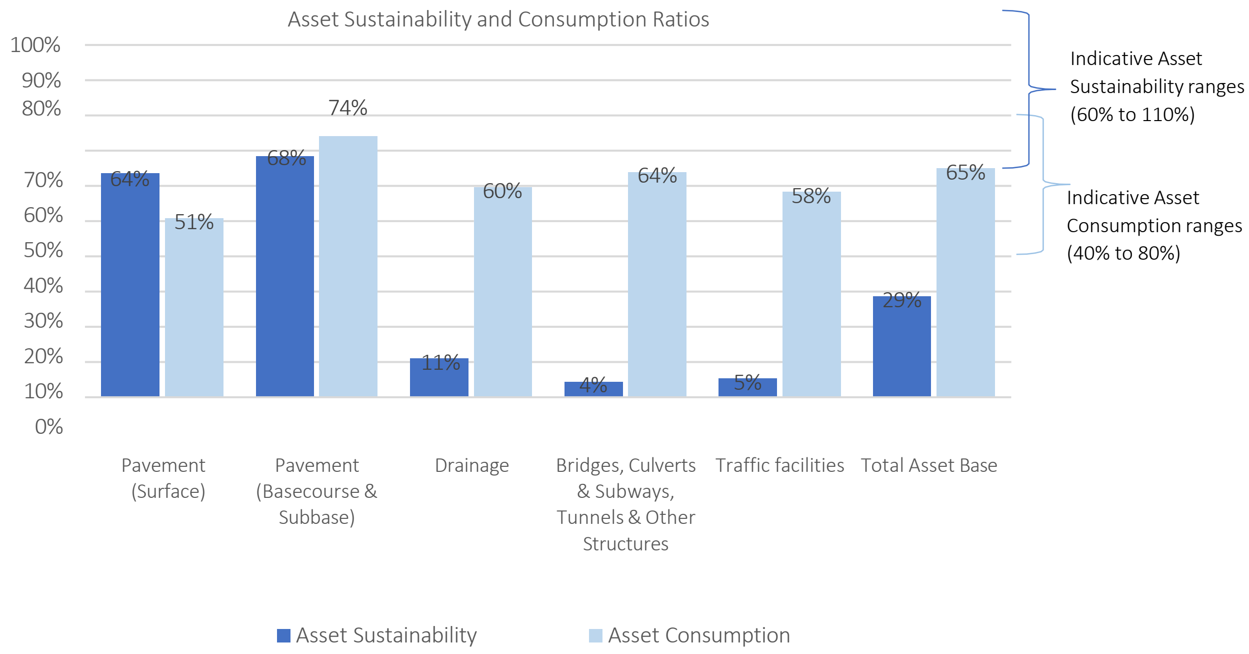
Pressures

Waka Kotahi has faced a range of pressures over the funding period including increasing demand on the network, a growing asset base, a more complex network, all whilst managing organisational restructures. This has been perpetuated by a range of other internal and external factors (outlined below) which have restricted the potential efficiency of the investment with the final spend reconciling nearer to the upper GPS band of $2.2B, for example:

- Greater focus on health and safety risk management associated with the Code of Practice for Temporary Traffic Management (CoPTTM) has resulted in increased costs over the 2018-21 period (and periods moving forward). Variations directly attributed to this were observed totalling $29.8M over the three years 2018-21.
- Recovering from more severe emergency works over the period resulted in an additional $84M spend. The majority of this cost increase appears to be outside of the organisation's control, however, more robust governance and adherence to more effective processes would further assist in managing these events.
- Increased maintenance on new assets accounted for $10M (direct cost impacts). The ongoing costs of managing reinstatement of the network and costs associated with new assets installed following the Kaikoura earthquake and Manawatu Gorge was in the order of ~$24M over the funding period.
- The significant amount of change and restructures Waka Kotahi have experienced since its formation may have led to a level of ambiguity in accountabilities and responsibilities that could have resulted in some level of duplication of some activities and functions and possibly contributed to a lower than desired level of efficiency and effectiveness in service delivery. Increasing administrative overheads may require some offsetting of service delivery spend in future investment periods if funding is constrained.
- Heavy vehicle use and volumes on the network has grown by 28% over the past 10 years, with a 7% increase in kilometres travelled by heavy vehicles experienced across the State highways during the 2018-21 funding period alone, compared to 2015-18. Growth has been largest on Arterial and Primary Collector class roads. This may have resulted in Waka Kotahi changing its investment strategy to accommodate the greater wear-and-tear caused by trucks on those roads.
- It was noted that the 2018-21 budget, forecasted a financial impact of $147M from external/ 'uncontrollable' cost pressures for cost escalation/inflation, traffic, and freight growth that was realised.

Asset investment sustainability

The Review team assessed Asset Investment Sustainability and Consumption as a proxy measure to determine whether levels of investment were suitable to maintain assets.



The level of asset consumption (i.e., the percentage of assets that are in 'as new' condition) was determined to be about 65%. This has been consistent over the past ten years and is within indicative ranges[10] (40% to 80%) across all asset types. This is likely reflective of the contribution to the valuation from the investment in extensive capital improvement programmes (which tends to be on a very small but important portion of the network such as Waterview Tunnel or the Waikato Expressway).

At 29%, the total level of asset sustainability (i.e., rate assets are wearing out compared to being renewed) is considered lower than indicative ranges of 60% to 110% (depending on asset type and organisation). The proposed investment in pavement and surfacing renewals for 2021-24 represents a maintained asset sustainability ratio (ASR) of approximately 68%. This very crudely infers investment is at 68% of the level needed to sustain the asset base condition.

In general, spending less on renewals compared to the rate of depreciation can indicate a potential 'gap'[11] in investment that may increase the level of risk to the Agency's long-term ability to maintain the condition of the State Highways. Over the 2018-21 funding period this potential 'gap' is estimated to be approximately $1.08b between how much Waka Kotahi expensed on depreciation compared to how much was invested in renewing the asset stock (excluding capital improvements).

The Review Team acknowledges, however, that this is a high-level indicator, and it is not necessary to fund 100% of the annual depreciation if the level of shortfall is less than the actual renewal demand based on condition and service performance/ capacity of the asset base. We also note that half of this potential 'gap' can be attributed to bridges, culverts, subways, tunnels, and other structures that have experienced significant asset growth and associated depreciation expense. These assets typically have longer life and lower renewal demands than the annual depreciation calculated on a straight-line

10 IPWEA Australian Infrastructure Financial Management Guidelines (AIFMG)

11 Lifecycle gap is calculated each year by subtracting annual depreciation (lifecycle cost) from renewal (asset lifecycle expenditure) for the asset types. The three years for 2018-21 have been added to determine any total potential 'gap' over the funding period. If there is a shortfall between life cycle cost and life cycle expenditure it can give an indication of the life

cycle gap / possible funding shortfalls to be addressed.

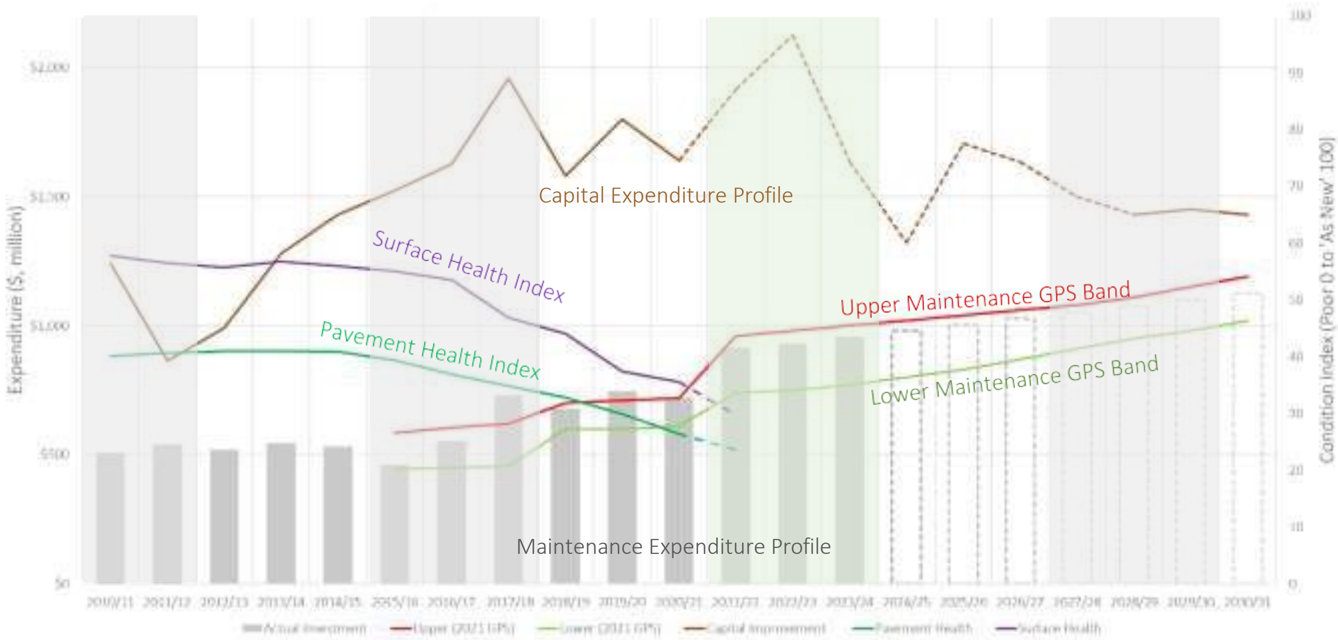
financial profile. The ASR for Bridges, Culverts, Tunnel includes only asset component renewal spend (i.e., not the cost to renew/replace a bridge or tunnel) as such the ASR is lower and not reflective of the total investment in this asset type.

Investment profile and asset health

Although the majority of state highways' pavement and surfacing condition is performing adequately, there is a dramatic degradation in the state highways' worst performing sections (as illustrated by the 'Health' indices in the figure below). This bottom 1-15% (approximately 240-3650 lane kms) of the network shows significant and rapidly reducing pavement and surfacing health, and the extent of infrastructure in this condition is growing.

The agreed investment level for the 2021-24 funding period is intended to start to arrest the rate of declining health of the worst performing sections of the network as well as maintain the remaining standards of the remaining network.

State Highway Investment Profile 2010 to 2031



Increased levels of capital expenditure (typically on 'new' or 'improved' assets) is contributing the level of maintenance investment needed (noting the increased length and complexity of assets requiring maintenance). It was observed that the investment forecast to account for this over the 2018-21 period was realised and similar provisions made for the 2021-24 period.

The Review Team acknowledges that GPS investment priorities, means Waka Kotahi has had to prioritise investment across all activity classes to best give effect to the GPS. This has resulted in Waka Kotahi having to trade-off investment in maintaining the existing assets with investments that address signalled priorities through capital improvement, mode-shift, rail and public transport. It will be important that GPS 2024 provides improved signalling of priorities and outcomes (and metrics) for local road and state highway maintenance to return the system to appropriate levels of service without creating large future spending backlogs. Future funding periods will also need to consider the effect of the substantial capital improvement programmes will have on the corresponding maintenance investment need.

Spend

Expenditure performance over the current funding block has been generally consistent with the GPS 2018 bands. The proposed investment level was reflective of the upward expenditure trend as observed in figure below and this represents a 22% increase on the previous funding period, coming on the back of a 10% increase experienced over 2015-18.

Actual expenditure for the 2018-21 period is at the upper end of the GPS band at $2.17B with increases experienced across all targeted One Network Road Classification outcomes. After considering adjustments for uncontrollable cost impacts such as Covid-19, market and demand increases, there is still a material difference between actual expenditure and the investment proposal. The material increase in expenditure is related to increased costs incurred through emergency works events, administrative costs and contractor costs notably associated with Agency approved measure and value works (such as renewing a culvert, replacing a streetlight etc.).

A relative plateauing of expenditure occurred from 2010/11 in response to the Global Financial Crisis (GFC) with the GPS targeting a more "flatlined" road maintenance investment. The Government established the Road Maintenance Task Force[12] to identify opportunities to increase the effectiveness of road maintenance. Findings resulted in reduced spending in maintaining the state highway network and seeking efficiency gains across all activities. The Office of the Auditor General review[13] on Waka Kotahi noted that in response Waka Kotahi effectively reduced the quantum of early renewals being undertaken stating:

> *"The Agency has strengthened the process it uses to decide when to resurface and rehabilitate state highways to ensure that this work is done at the right time, the right place. The Agency told us that it had previously over-invested in the condition of the network by renewing state highways too early."*

The 2018-21 business case set cost saving targets at 2% per year ($80M over 3 years) through value for money initiatives, with the Network Outcomes Contracts considered a significant contributor to this target. Further analysis is needed to understand the organisation's approach to chase down cost savings and identify any lessons learnt for future funding periods.

Although the Waka Kotahi Alliance maintenance contracts equating to approximately 15% of total expenditure, the Review Team, at the time of this review, was not able test the efficiency and effectiveness of the investment in these contracts to determine if Waka Kotahi is realising optimal value for money for the services provided. A further review would be required to verify that Waka Kotahi is getting value for money for the services provided from these contracts.

Cost variances

The Review Team analysed variance by work category, both (1) Operations and Maintenance and (2) asset renewal, it showed a total increasing trend of 11% investment over the period 2018 to 2021 with annual budget variances across the regions averaging 29% over targets for the first two years of the period and an improvement to 8% variance in the final year. Waka Kotahi noted that it implemented tighter nationally controlled budget management for regional spending in the final year of the funding period.

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[12] Road Maintenance Task Force 2011 Report: https://www.nzta.govt.nz/assets/resources/rmtf-report/docs/report.pdf

[13] New Zealand Transport Agency: Maintaining state highways through Network Outcomes Contracts (2020): https://oag.parliament.nz/2020/nzta-contracts/docs/nzta-contracts.pdf

Increasing cost pressures of labour, plant and materials are mainly outside the control of the business, although actions have been taken to mitigate these increases through initiatives such as design standardisation through the use of 'catalogue' design and smarter energy procurement of street lighting. Some of this cost pressure has been borne within the Contractor's lump sum activities, which may be impacting the activities delivered.

The Review Team estimated a cost increase of approximately between \$50-\$80M (~2-4% of total expenditure) over the period for additional work and/or increased costs by service contractors. Further analysis would be required to understand the composition of additional services and any potential cost trends in the discretionary measures and value items under the maintenance contracts.

Over the 2018-21 funding period, Waka Kotahi approved contract variations of ~\$62M, with approximately half arising from changes in traffic volumes and the other half from enhanced Temporary Traffic Management activities.

Over the funding period, Waka Kotahi maintenance activities accommodated the operating costs for Waterview Tunnel, ongoing network recovery activities associated with the Kaikoura earthquake and the Manawatu Gorge landslide and an increased level of services from retendered contracts.

Programme delivery performance

Based on available information at the time of this review, the Review Team was able to form a view on the efficiency and effectiveness of approximately 60-65% (~\$1.4b) of the investment with a reasonable (or better) level of confidence. The most material aspects are discussed in the section below.

The Review Team was informed that the delivery of works programmes in the final year of the funding period was impacted by Covid 19, which has also led to reduced delivery notably with the bridge and structures works programmes.

Operations and maintenance delivery performance

Over the three years of the programme, 34% (\$732M) of expenditure is related to activities where performance is linked to the Network Outcomes Contract Key Results Area performance framework and associated Operational Performance Measures. Overall, results indicate that contract teams are, on average, meeting acceptable (or better) standards of contract performance against the key areas. However, 43 instances were observed where a supplier exceeded thresholds in operational performance measures and triggered a performance penalty.

Waka Kotahi revised the performance framework in 2020 to move away from a self-assessment model, although operational performance measures which reflect the Contractors' ability to successfully manage the network, physical works programmes, incident, and customer care remain self-audited.

Based on the performance framework results, the performance indicates that this component (34%) of the investment, although \$78M above budget, can be considered generally efficient. However, the breaches in operational performance measures are potentially indicating a lower level of effectiveness in the underpinning systems and processes used by Network Outcomes Contract Suppliers to meet requirements. A level of independent supervision on operational performance measures by Waka Kotahi would increase transparency and credibility of this performance framework. Given the declining condition of the State Highways, further consideration is needed to ensure the framework is measuring the right parameters to ensure optimal value for money is realised from this investment.

Pavement and surfacing renewal programme delivery performance

Over the three years of the programme, approximately 30% of expenditure is related to pavement and surfacing renewals. Waka Kotahi maintains comprehensive information on this aspect of the investment. A large pavement and surfacing work programme were successfully delivered, achieving 90% of targeted quantities, treating 5,965 lane kilometres, approximately 24% of the network.

Whilst the majority (~90%) of the pavement and surfacing renewal outputs were delivered to target quantities across the funding block and recognised by the Review Team as a significant achievement, it was observed that:

i. 7% of the targets were 'not-delivered' and 3% 'unapproved[14]' work was completed

ii. material cost variances from budgets occurred, indicating a level of inefficiency converting agreed investment into delivered outputs. The pavement rehabilitation programme delivered 4% less length and cost 38% more than targeted (resulting in unit costs being 53% more than budgeted). Across the surfacing programme, 7% less was resurfaced than expected at 25% more cost than budgeted correlating to a 35% increase in unit cost.

iii. 73% of all works completed were identified as having potential post-construction performance issues (from very minor texture deficiencies through to significant rutting and roughness issues). This equates to a potential contractual refund to Waka Kotahi of approximately $55M, which represents approximately 3% of the total state highway maintenance investment over the period.

iv. Waka Kotahi also appeared to have deviated somewhat from its treatment intervention strategy with lower classification roads receiving greater quantities of work than proposed in the 2018-21 Business Case. The level of variance and related condition health is illustrated below.

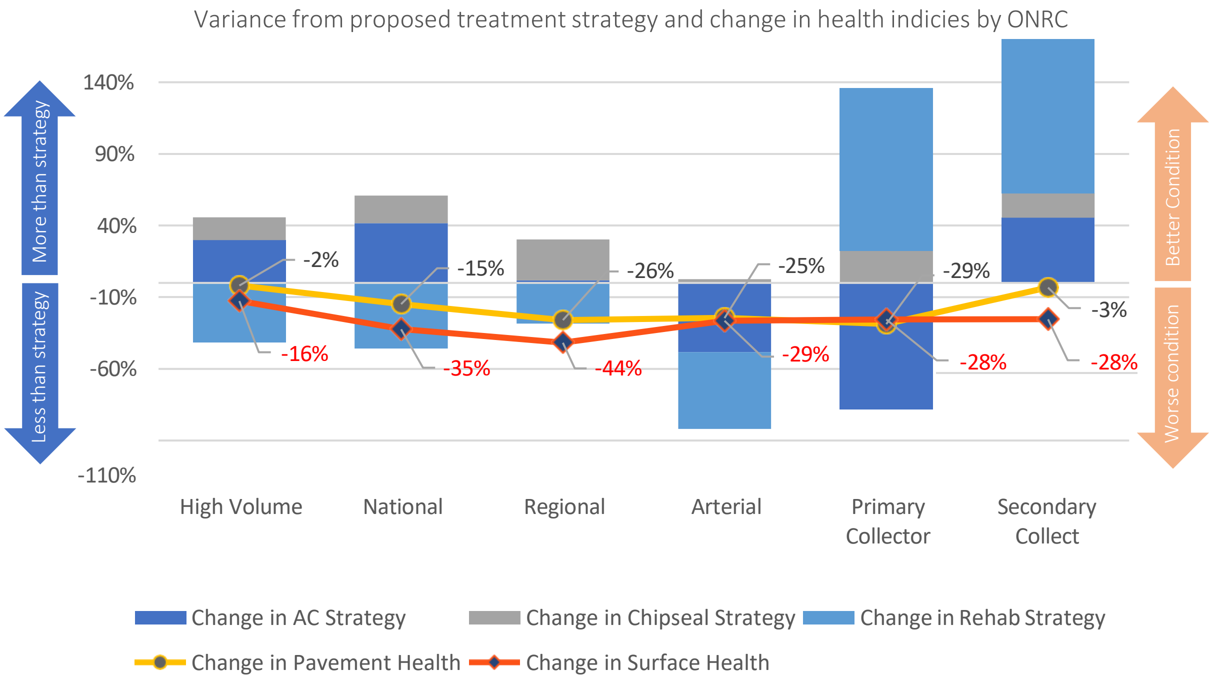

Figure 3. Variance from proposed treatment strategy and health indices

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14 'unapproved' works: The Review Team acknowledges that some 'unapproved' works could have been agreed by Waka Kotahi regionally but not formally reported through the organisation's change management processes.

For the effectiveness of how well the investment has translated into desired results in terms of performance, the Review Team concluded that for the pavement and surfacing investment, whilst Waka Kotahi has, in general, achieved compliance with expectations, delivered a substantial amount of their proposed programme (~90%), some effectiveness issues exist which need to be addressed.

The Review Team considers this is likely to be partly driven by the organisation's effectiveness to control internal and external inputs to its programme planning and delivery processes (including: budget planning, financial management/control, project management/ construction oversight, and quality control). Further adherence in needed in the application of processes and procedures used by the Network Outcome Contract suppliers under the contract and Contract Plans (notably: Maintenance Management Plans and Quality Management plans).

Despite delivery of the pavement and surfacing programme, these assets have seen a continued decline in 'health'. Declining 'health' has also occurred where the renewal programme deviated from the targeted strategy (Figure above), even where some lower classification roads received greater levels of rehabilitation. When combined with the large number of newly renewed pavements and surfaces with condition performance issues, if not robustly managed, this may put an additional early burden on the state highway maintenance programme. It was noted that this likely applies to all maintenance contracts, not just the Network Outcome Contracts.

A significantly larger pavement and surfacing renewal programme has been proposed over the 2021-24 period with total renewal quantities equating to 6,562 lane kilometres (27% of network) of resurfacing and a more comprehensive pavement rehabilitation programme of 734 (3% of network) lane kilometres.

Other renewal programme delivery performance

Bridge and structures maintenance work is prioritised as high, medium, or low priority on the basis of risk, with all high priority works put forward for funding each year (with some medium priorities). The difference between prioritised and funded works is termed "backlog". Maintenance backlog is evaluated and recorded each year on any unfunded high and medium priority works. The backlog trend is monitored at a regional and national level and is a key indicator for funding and also as a pseudo 'condition indicator' because it is directly based on the observed structure defects. Over the funding period Waka Kotahi has maintained, what the Review Team considered, a relatively acceptable level of 'backlog' of approximately 10-20% of the annual structures budget.

The drainage asset renewal programme delivered 60% less per annum at a higher cost of 30% more than targeted over the three years. It was observed that four contracts did not deliver any of their programme in 2020/21 and only 1/3 delivered more than half of their target. In 2019/20, 43% of agreed programme was delivered and 70% of the total delivered length was not identified in the agreed annual plan.

The Audio Tactile Profile (ATP) renewal programme delivered 76% less than its scheduled programme.

At the time of this Review, data and information were not available to assess the effectiveness and efficiency of the proposed and delivered asset renewal investment across all asset types and maintenance contracts. As such, the Review Team was unable to form a view on all asset renewal/maintenance programmes. However, given the trends observed with asset renewal programmes that had achievement data, it is the Review Team's opinion that there is likely to be similar issues to address across all physical works programmes.

Delivery/ output measures are required to be clearly documented so that the progress in the delivery of the programmes set out in the Waka Kotahi State Highway Activity Management Plan submission can be monitored and better inform future reviews. Further investigation is needed to understand if an approach has been undertaken which may decrease risk to the contractor whilst increasing cost to Waka Kotahi which may have resulted in discretionary measures and value items under the Network Outcome Contracts being greater than expected.

Emerging issues

The review team think it worth noting emerging issues that should be considered when responding to this review.

Changing road classification will affect the maintenance approach by:

- Reprioritisation of operational and maintenance activities under the One Road Network Framework, notably in discrete areas of network where potential conflict arises between place and movement, such as urban environments on freight corridors.

Emissions reduction and the responses to this will affect the nature and location of demand for road maintenance by:

- Targeting reduced private vehicle travel and increased use of active modes and public transport, (particularly in urban areas) will lead to the investment needing to account for changes to road maintenance arising from aspects such as:
    - increasing the public transport fleet (and their increased travel and loading on the infrastructure),
    - adding more cycle lanes and paths, and
    - reducing the wear and tear caused by private vehicle travel
- Transferring freight from road to rail and coastal shipping potentially offsetting aggregate growth in road freight.
- Changing materials and practices used in road maintenance to reduce the quantity of embedded carbon with a potential change in asset service lives and maintenance costs.
- In the face of greater quantities of network posing resilience challenges there will be an increasing reliance on emergency works funding and potentially declining network availability. Consideration should be placed on enhancing network resilience through the State Highway Improvement Activity Class to balance the response through emergency works and optimise network availability.

A continued growth in the complexity of infrastructure arising from road safety programmes and from the introduction of autonomous vehicles and electric vehicles characterised by:

- Increasing safety barriers and similar infrastructure requiring ongoing maintenance to ensure they are restored after crashes and in a fit-for-purpose condition
- Electronic devices to better interface with and support vehicle management and control systems, combined with ITS infrastructure to monitor and manage multi model traffic flows maximising throughput of people and goods.

OPERATIONAL RESPONSE

The GPS sets clear expectations of the results the Minister expects to see from NLTF and how Waka Kotahi should go about delivering this. The GPS 2021 specifically requires that each applicant into the NLTF (i.e., the funding application for each activity and its business cases) shows how they have considered alternatives, and how they compare against a set of indicators.

The purpose for including this in GPS 2021 was to ensure that at project level funding applicants had carefully considered the alignment of their project (and alternative options) against GPS objectives. This should support Waka Kotahi in delivering the NLTP by ensuring robust proposals are put forward through Regional Land Transport Plans. The GPS also sets expectations for Waka Kotahi on achieving value for money and better asset management and performance.

To support enhanced reporting, monitoring and evaluation of GPS investment, the Ministry have developed an ongoing GPS monitoring and evaluation work programme. This programme comprises of three core components:

- developing a set of reporting measures for each GPS
- producing and publishing annual monitoring reports against these measure sets
- conducting up to two "in-depth reviews" per year to examine specific aspects of the GPS in more detail

This Review, along with the parallel *Cost Drivers Review*[15] represent the first of these and demonstrates the Ministry's commitment to improving the quantity and quality of their GPS monitoring and evaluation. The Ministry are currently scoping their next potential Review which intends to gather feedback on the way GPS 2018 was developed, implemented, and reported on, as a means to apply lessons learnt to the current funding period. However, the GPS is a ten-year document so outcomes will take a long time to be achieved and be impacted by external factors beyond National Land Transport Fund investment. The Ministry wants to work more closely with Waka Kotahi during the course of the NLTP to see how it is giving effect to the GPS each year.

The Review Team challenged Waka Kotahi on how it could give the Minister greater confidence that the significant increase in expenditure planned in 2021-24 will deliver on defined and measurable outputs for all work activities and will yield robust governance and accountability, improved budget development and control, enhanced capacity/ competency, improved asset condition/ performance and improved construction quality performance.

The Waka Kotahi response was:

- A significant work programme is being implemented to embed the new business operating model for the Transport Services Group. This operating model is intended to help drive more effective planning and delivery of investment programmes. Key aspects include:
    - A number of teams have been established to enhance different aspects of asset management, with works underway to refine the organisations asset management policy and strategy, lifecycle management plans and delivery programmes.

[15] The Cost Drivers Review was conducted by Deloitte and AECOM on behalf of the Ministry and Waka Kotahi and was intended to review the transport investment cost drivers to determine the scope of the pressure impacting on the transport sector.

- A working group has been tasked with enhancing existing capacity and competencies under the new operating model.
- A revised governance structure for portfolio delivery is being established across the Transport Services Group to have oversight of the entire delivery portfolio including performance and health of delivery against baseline expectations/ commitments (including outcomes, costs, time, risks, resourcing, and Supplier performance).
- The delivery functions have a new Regional Management structure with clear accountability for the successful performance of the investment delivery.
- The Activity Class Management structure has been established to be accountable for ensuring the investment best contributes to desired outcomes.
- The organisation has established a regional quality management/surveillance team to monitor the quality of contractors works.
- An internal assurance function has also been established that will report to the Ministry and undertake regular efficiency and effectiveness review of the expenditure.
- An investment planning team has been established to better inform high-level investment prioritisation and trade-off decisions. This team will provide better strategic investment direction through multi-year programmes and packages of activities.

o A detailed work programme has been established to action the findings of the OAG report and report internally and externally quarterly on achievement on this programme.

o The Network Outcomes Contract Key Results Area (KRA) performance management framework has been modified, with a number of key performance measure assessed as pre-requisite requirements that must be satisfied each quarter to achieve performance.

o Individual Contract Boards have been established to provide greater accountability for the results arising from the performance framework. This will be achieved through improved 'ownership' of the contract's performance to those best able to influence change, enhance transparency of results and to further stimulate delivery/ service improvement.

o A detailed national annual programme is being compiled for bridge and structures component replacements and its delivery performance will be tracked monthly to ensure transparency in the efficient and effective use of this investment.

o An approach for collecting condition and performance data for all asset type is underway in collaboration with industry including establishing a consistent defect framework (being developed jointly by Waka Kotahi, the Road Efficiency Group (REG) and industry/Suppliers).

o Waka Kotahi are investigating options for greater standardisation of pavement design through a 'catalogue' style design selection and the use of shorter-life serviceability treatments to address customer ride issues.

o Work is underway to expand the capability of the asset renewal performance tracker ('the tracker') to include more asset types/ works programmes (such as side water channels, side drains and high lips) and should be implemented by the start of 2022. The tracker also has an in-built function to capture actual as-built costs (for pavement and surfacing) but at current this does not appear to be used. Achievement guidelines have recently been updated, emphasising that this should be occurring.

o A reconciliation of the proposed pavement and surfacing programme with the intended investment by ONRC has been undertaken and will updated during the funding period to ensure the investment aligns with the agreed strategy.

- A full review of the Operational Performance Measures is being initiated to inform the procurement of future Network Outcomes Contracts. A programme in response to a perceived deterioration of the network condition was initiated in 2020 (named the 'call-to-action') to audit the performance of the network to identify opportunities for improvement.

Waka Kotahi also stated they have implemented the following budget process for the State Highway Maintenance and Operations activity:

- The annual Waka Kotahi state highway maintenance programme is now endorsed by the National Manager Maintenance and Operations and funding is approved annually by the Senior Manager Programme and Standards.
- An approach for the prioritisation of available funds across the maintenance, operations and renewals work categories and their associated work programmes is being refined and proposed to be documented in State highway annual plan instructions manual (SM018).
- Monthly reports are now prepared by the Programme and Standards team for the five Regional Managers – Maintenance and Operations to review and approve. Regional Managers are required to explain variances in budget, delivery and performance to the National Manager - Maintenance and Operations and Senior Manager - Programme and Standards.
- It is understood that under the new Transport Service Operating Model the Programme and Standards team will lead the development of the renewal programmes for the 2024-27 funding block. These programmes will provide a 10-year proposed investment programme. This will be developed in collaboration with regional teams and their suppliers. Final programmes will be issued to the Maintenance and Operations team for delivery.
- A suite of detailed Lifecycle Asset Management Plans (LAMPs) are being developed to inform the proposed forward works programmes for asset renewals and help with future funding proposals.
- A detailed review and approval process has been established for investments in bridge and structures assets including a specific technical approval gateway process. Detailed Lifecycle Management Plans are being maintained. Regular reporting from the Structures Maintenance Contracts is provided to regional maintenance delivery teams. A prioritisation process is being developed to ensure funding is directed appropriately across the regions. A process is being developed to better track the delivery against risk.
- Refinement of the Emergency Works funding and works delivery processes is underway. The Activity Class Manager is now required to endorse any funding request prior to release of funds. A detailed workflow process is being developed and will be implemented to establish a consistent approach to recovering the affected sections of network following significant events (Over $5M).