

New Zealand  
Transport Agency:  
Maintaining and  
renewing the state  
highway network  
– follow-up report

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# Auditor-General's overview

In 2010 and 2011, my staff carried out two performance audits looking at how well the New Zealand Transport Agency (NZTA) planned and delivered maintenance and renewals services on the state highway network (the network).

In the first of those audits, we found that NZTA had incomplete information about the condition of the network (particularly for bridges, tunnels, and other structures). Our report also highlighted the importance of NZTA consistently monitoring supplier performance and regularly consulting road users on what they expect from the network.

Our second report highlighted the importance of NZTA having specific strategies to encourage more suppliers into the maintenance and renewals market, particularly the professional services market. It also stressed the importance of NZTA monitoring and benchmarking contractor performance.

In those reports, I said that my staff would follow up on NZTA's progress with our recommendations, and we have now completed our follow-up work.

Since we published the two earlier reports, NZTA has significantly changed many features of its maintenance and renewals activities. NZTA's intent is to make these activities more efficient, to get better value for money, and to provide its customers with better services. We acknowledge the progress that NZTA has made in developing and putting in place the new arrangements.

This follow-up report describes some of those changes where they are relevant to our earlier findings. On those matters, my staff concluded that it was too early to be able to tell whether the changes NZTA has made are delivering the intended effects.

NZTA has changed the way it procures maintenance and renewals services. It is gradually introducing a new contracting model (Network Outcomes Contracts) to 23 geographical areas. Compared with most existing contracts, the new contracts have a longer duration, cover larger areas, and include a wider range of services. NZTA considers that the new contracts will reduce the costs of tendering and administering contracts, and should improve contractor performance.

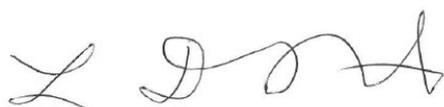
There is a risk that fewer, longer, and more extensive contracts could reduce competition in the maintenance and renewals market. This could have adverse long-term effects, such as fewer suppliers and increased costs. NZTA must continue to closely monitor the risks arising from implementing the new contracts, including changes in market behaviour and whether it is obtaining the anticipated benefits, and further adjust its procurement process if necessary.

NZTA told us that it is improving the quality of the data it uses for asset management as a priority. Good quality data is critical to NZTA's success in making informed asset management decisions about spending priorities for assets across the entire network. For example, NZTA is changing its approach to pavement renewals to achieve savings. The new approach means that NZTA will leave renewals as long as possible and will aim to do them "just in time". NZTA will require accurate and timely data to enable it to deliver this approach successfully.

We found that there are still gaps in NZTA's asset data – for example, the information about the structural assets, such as bridges, that make up the highway network. NZTA is putting in place a new information system for collating and recording information about the network's structural assets. NZTA hopes that the new system will help it to monitor its structural assets in a consistent manner and will support better planning and budgeting.

We have made two suggestions to assist NZTA in ensuring that Network Outcomes Contracts deliver the intended benefits and in making further improvements to its asset management information.

I thank NZTA staff for their help and co-operation during our follow-up work.



Lyn Provost  
Controller and Auditor-General

7 October 2014

# Summary of suggestions for further improvement

We consider that it is important that the New Zealand Transport Agency:

1. ensures that Network Outcomes Contracts deliver the intended financial and customer benefits, without a detrimental effect on the market, by:
  - monitoring Network Outcomes Contracts for their effect on market behaviour and pricing and the benefits they deliver, and adjusting the procurement process if necessary;
  - establishing robust baseline information, so that meaningful cost comparisons can be made; and
  - ensuring that performance monitoring of Network Outcomes Contracts happens in practice, by consistently and accurately reporting the results of performance monitoring of the Network Outcomes Contracts to suppliers, and enforcing any required performance improvements.
2. completes its work to improve the quality of the asset information that it collects, holds, and uses to make decisions about spending priorities for asset maintenance and renewal across the state highway network.

# 1

## Introduction

- 1.1 The New Zealand Transport Agency (NZTA) is responsible for managing the state highway network (the network). The network has a value of \$28 billion and is one of the New Zealand's most important assets. It comprises almost 11,000km of roads, with 5,981km in the North Island and 4,924km in the South Island. The network carries half of New Zealand's traffic, and NZTA spends about \$500 million on the network each year.<sup>1</sup>
- 1.2 In 2010 and 2011, we carried out two performance audits assessing how effectively NZTA delivered maintenance and renewals work on the network.
- 1.3 We published *New Zealand Transport Agency: Information and planning for maintaining and renewing the state highway network* (our first report) in September 2010. Our first report looked at how NZTA:
  - collected and stored information about the condition of the network, with an emphasis on the network's structural assets (such as tunnels and bridges); and
  - planned its maintenance and renewals work, including ensuring that service levels were aligned with users' expectations.
- 1.4 We published *New Zealand Transport Agency: Delivering maintenance and renewals work on the state highway network* (our second report) in September 2011. Our second report looked at how NZTA:
  - designed and selected its service delivery models, including how it encouraged and supported more suppliers into the maintenance and renewals contracting market; and
  - monitored the performance of its contractors, including how NZTA benchmarked contractor performance and how it responded to problems with that performance.
- 1.5 The two reports contained 15 recommendations. This follow-up report looks at how NZTA has responded to our findings and main recommendations from the two earlier reports.

### Developments since our two earlier reports

- 1.6 Since we published our two earlier reports, several causes have led NZTA to significantly change the way it delivers its network maintenance and renewals activity.
- 1.7 First, through the *Government Policy Statement on Land Transport Funding*, the Government held funding for state highway maintenance and operations constant between 2012 and 2015. This required NZTA to find savings of \$160 million during that period.

<sup>1</sup> This includes network maintenance as well as costs for planning and legal issues, emergency works, specialist work (including traffic counting), and expenditure specific to NZTA's National Office.

- 1.8 Secondly, the Government established the Road Maintenance Taskforce (the Taskforce) in July 2011 to identify opportunities for road controlling authorities (including NZTA) to deliver maintenance and operations more effectively and efficiently.
- 1.9 The Taskforce reported in October 2012 and identified four general areas for improvement:
- adapting the business models used to deliver maintenance, renewals, and operations;
  - improving procurement practices;
  - improving prioritisation and optimisation of activities by differentiating levels of service; and
  - introducing advanced asset management practices throughout New Zealand.
- 1.10 In October 2012, the Minister of Transport announced that NZTA would implement the Taskforce's recommendations.
- 1.11 Finally, NZTA carried out its own reviews, including in 2012 a review of how it procures maintenance and renewals services.<sup>2</sup>
- 1.12 As a result, NZTA has made many changes to the way it organises and delivers its maintenance and renewals activity.
- 1.13 The most significant change is to the way NZTA procures its maintenance and renewals work. NZTA has introduced Network Outcomes Contracts for this work (see Part 4). The new contracts are being introduced over the next two years. Compared with most existing contracts, the new contracts have a longer duration, cover larger areas, and include a wider range of services.
- 1.14 NZTA has established a Network Outcomes Team in its National Office with the aim of delivering better strategic asset management and optimise investment for all state highway activities. NZTA is also:
- restructuring the way in which professional services are provided, including bringing the state highway maintenance and renewals contract management function in-house to increase accountability and ownership;
  - providing a nationally consistent highway classification system (which includes different levels of service for different road classifications);
  - developing a nationwide resurfacing and pavement renewals programme to determine optimal maintenance times; and
  - placing a greater emphasis on effective performance monitoring.

<sup>2</sup> New Zealand Transport Agency, *State Highway Maintenance and Operations Review*, consultation document, July 2012.

- 1.15 We did not review all of these changes in our follow-up work. It was significantly smaller than the original audits and comprised:
- a request to NTZA to provide us with written information on the progress it had made on our previous recommendations;
  - a desk-based review of that information, which included plans, reports, strategies, and contract documentation; and
  - a small number of interviews with NZTA staff, to check out aspects of progress.
- 1.16 Accordingly, we have included only those changes that are relevant to the two earlier reports and their recommendations. We discuss the Network Outcomes Contracts in some detail in Parts 4 and 5 because these directly relate to several of our findings.

# Information about the condition of the state highway network

# 2

## Assessing the condition of the state highway network and structural assets

- 2.1 Our first report concluded that NZTA regularly assesses the general condition of the network's surface. For example, it assesses the skid resistance and pavement strength of the network.
- 2.2 However, we found that NZTA needed to do more to bring together information about the condition of all structures on the network (such as bridges, tunnels, and retaining walls). We recommended that NZTA introduce, as a priority, a new information system for collating and recording information about all of the network's structural assets and their condition. Because of the risks associated with tunnels, we also recommended that NZTA review its policy for inspecting structures to ensure that it contained a consistent and appropriate approach to tunnels.

### **New system for collating and recording information about all structural assets**

- 2.3 NZTA told us that it has not yet implemented a new information system for structural assets. It said that a lack of resourcing has delayed the work.
- 2.4 However, NZTA is in the process of procuring a new system. It has carried out a *Request for Information* process, prepared a business case, drafted high-level requirements, and investigated several systems.

### **Review of policy for inspecting structures**

- 2.5 Since our first report, NZTA has implemented a formal policy for inspecting tunnels. The policy sets out the main roles and responsibilities of the various parties involved in ensuring that the 16 tunnels on the network are safe and effective. The policy also sets out the requirements for inspecting the tunnels. The policy is consistent with our recommendation that NZTA review its policy for inspecting structures.
- 2.6 NZTA has also:
- developed and issued a Tunnels Guide to supplement the Australian Tunnels Standard and Austroads Guide;<sup>3</sup>
  - carried out quantitative risk assessments for the Homer, Lyttelton, and Mount Victoria tunnels;
  - appointed tunnel managers for each tunnel and an independent safety manager to reinforce tunnel safety requirements; and
  - purchased a specific asset management system for tunnels that has been implemented for one tunnel in Auckland. Other information is now being put into the system.

<sup>3</sup> Austroads is the Association of Australian and New Zealand road transport and traffic authorities. It provides expert technical input to national policy development on road and road transport issues.

### Condition rating system for bridges

- 2.7 As part of its response to our recommendations set out in paragraph 2.2, NZTA decided to introduce a condition rating system for bridges. The rating system is consistent with the *International Infrastructure Management Manual - 2011 Edition* produced by NAMS.<sup>4</sup> NZTA stores the ratings information in the bridge database that we describe in paragraph 2.34.
- 2.8 Broadly, a condition rating system involves defining an asset's condition against a scale, which is typically 1-5. A rating of "1" means that the asset is in very good condition and requires only normal maintenance. A rating of "5" means that the asset is unserviceable and that more than half of the asset requires replacement.<sup>5</sup> The asset's rating can then be used to estimate the appropriate type and timing of maintenance or rehabilitation during the planning period, as well as the asset's remaining useful life and replacement programme. The rating can also be used to determine current or future funding requirements.<sup>6</sup>
- 2.9 NZTA told us it has found that the rating system is not particularly useful as a way to determine the condition of a bridge. This is because:
- a condition rating system is based solely on visual inspections and does not include more detailed engineering investigations and evaluations;
  - it is difficult to see how the 1-5 condition rating system can adequately cover the condition of a bridge during its life cycle; and
  - a lot of important variables are not included in the model (for example, the model cannot predict the future deterioration or structural implications of design faults, different environmental conditions, traffic management, or different construction materials).
- 2.10 Because of these problems, NZTA has decided to replace the condition rating system with an "engineering condition assessment".
- 2.11 This approach involves regularly inspecting each bridge to accepted engineering standards. An experienced engineer then carries out more detailed investigations to produce optimised treatments and prioritised medium-term and long-term maintenance and renewals programmes. The specific data collected depends on the structural form and material type of each bridge. However, in general terms, it involves identifying current defects, assessing those defects to determine the optimal treatment type and timing, and identifying or forecasting future defects that might occur.

4 The NAMS group is a New Zealand based organisation that develops asset management best practice publications, knowledge, and services.

5 Condition rating systems have been introduced in all Australian states, the United Kingdom, and the United States of America.

6 NZTA's *Bridge Condition Indicator Guide* provides more details on how a condition rating system applies.

- 2.12 It is important that NZTA has a reliable system for determining the condition of bridges to allow it to monitor their condition and to plan for appropriate maintenance and rehabilitation treatment during their life. In our view, the system also needs to enable NZTA to rank its assets according to the priority need for investment in those assets.

### **Gathering and storing information about maintenance, renewals, and capital works**

- 2.13 NZTA's Highway and Network Operations Group has two main inventory databases: the Road Assessment and Maintenance Management (RAMM) database and the Bridge Data System database. For our limited follow-up work, we chose to sample data in the RAMM database.
- 2.14 The RAMM database contains detailed information about the road pavement and other related assets. The Bridge Data System database contains information about bridges, tunnels, and other structures.
- 2.15 When we carried out our first audit, independent network management consultants and physical works contractors were responsible for gathering, collating, and maintaining information in the RAMM database. Regional bridge consultants were responsible for gathering information about bridges and providing it to NZTA, which then entered it into the Bridge Data System database.
- 2.16 Our first report concluded that there was a high degree of variability in the completeness of information in the databases. This was because those responsible for providing the information did not always provide NZTA with timely, complete, and quality information about completed work. Accordingly, NZTA needed to ensure that external parties provided timely and complete information about the works carried out on the network. NZTA also needed to ensure that the information in the two databases was as complete and up to date as possible.
- 2.17 Also, NZTA needed to ensure that those providing the information had their own quality assurance systems and validation procedures, and were appropriately certified.

#### **Providing timely and complete information**

- 2.18 NZTA has introduced, or is in the process of introducing, some new procedures for ensuring that information contained in the RAMM database is complete, accurate, and reliable. For example, the new Network Outcomes Contracts require the primary supplier (that is, the party contracted to provide the maintenance and renewals services) to provide updates for the RAMM database monthly, rather

than quarterly or annually. NZTA has requested suppliers that are not on Network Outcomes Contracts to do the same.

- 2.19 NZTA now has a new Network Outcomes Team in the National Office to deliver better strategic asset management, planning, and performance management. This includes introducing enhanced asset information collection requirements, monitoring, and analysis.
- 2.20 The Network Outcomes Team carries out RAMM database health checks to improve the quality of data. The checks will provide a snapshot of the completeness of RAMM data and establish a baseline against which improvements can be made. The checks will highlight:
- the data for each network area contained in the database;
  - how current the RAMM data is; and
  - any gaps in the RAMM data.
- 2.21 The Network Outcomes Team also carries out a monthly reconciliation between expenditure on surfacing and pavement renewal, and activity as recorded in the RAMM database. The Network Outcomes Team provides this reconciliation to relevant NZTA staff each month to alert them to gaps in the information.
- 2.22 In addition, the new Network Outcomes Contracts (see Part 4) place stringent requirements on the primary supplier to prepare and comply with a data quality plan.
- 2.23 Contract penalties may apply if timely and accurate information is not provided.

#### **Information in the RAMM database**

- 2.24 Our limited sampling of the information in the RAMM database shows that it still contains substantial gaps in data. This means that the changes NZTA has put in place have not yet had the desired effect on data quality.
- 2.25 For example, Figure 1 shows pavement renewals for four different regions from 1 June 2013 to February 2014, as reported in the RAMM database. Figure 1 shows that actual renewals (202km) were significantly lower than target (692km) for the period. NZTA documents show that the discrepancy was caused by a lack of reporting rather than low performance.

**Figure 1**  
**Pavement renewals for four different regions at February 2014**

	February 2014 Target km (year to date)	February 2014 Actuals (RAMM) km (year to date)	Variance km	% completed
SH Auckland	106	64	-42	60
SH Hamilton	191	93	-98	48
SH Wellington	179	43	-136	24
SH Christchurch	216	2	-214	1
<b>Total</b>	<b>692</b>	<b>202</b>	<b>-490</b>	<b>29</b>

Source: Redrawn from a table supplied by NZTA.

- 2.26 We also reviewed NZTA information showing cumulative carriageway length of resealing or second-coat sealing for 24 regions from July 2013 to June 2014.
- 2.27 During that period, no resealing or sealing was reported for 13 regions. Again, NZTA documents show that this reflects substantial gaps in data rather than no work being done.
- 2.28 It is essential that the RAMM database contain complete and accurate information. Such information allows NZTA to determine the current status and condition of its assets and to make informed asset management decisions, including how to prioritise spending.
- 2.29 Complete and accurate information in the RAMM database is also important because:
- one of the main findings of the Taskforce was the need for improved asset management, which requires accurate, complete, and timely updates to the RAMM database;
  - the RAMM database is used to value the network for financial reporting purposes; and
  - the RAMM database is used for management reporting to the NZTA Board.
- 2.30 NZTA accepts that information contained in the RAMM database is incomplete and has now placed a high priority on improving it. For example, we reviewed the 2014/15 draft business plan of NZTA's Performance Management Team, which lists its first priority as improving data quality.

### **Quality assurance systems for the RAMM database**

- 2.31 The new Network Outcomes Contracts and NZTA's State Highway Database Operations Manual (the Manual) provide primary suppliers with detailed instructions about the type of information that should be entered into the RAMM database, and how and when it should be entered.
- 2.32 The Manual provides:
- for all RAMM database users to be certified;
  - that all RAMM database users should have their own internal quality assurance system;
  - for field validation procedures to ensure that RAMM database users submit accurate data; and
  - a process for RAMM database users to check the information they have entered and provide the results to NZTA.
- 2.33 We consider that NZTA has put in place clear and regular requirements for primary suppliers to validate asset information. NZTA also requires those providing the information to be appropriately certified.

### **Information in the Bridge Data System database**

- 2.34 We did not need to test information contained in the Bridge Data System database. This was because NZTA acknowledged the limitations of that database, and the consequences for data quality. For example:
- It has limited functionality and does not allow for inspection and work programmes to be stored.
  - Regional bridge consultants, who collect the information, cannot access the database and have to send the information to NZTA for uploading. This has resulted in some data entry errors.
  - Because regional bridge consultants are unable to access the Bridge Data System, they might be unaware of all relevant information about an asset.
  - To fill the gaps in information, regional bridge consultants have developed their own information systems, which are available only to them. The information might be lost if a regional bridge consultant's contract is not renewed.
- 2.35 NZTA told us that implementing the new information system for structures (see paragraphs 2.3-2.5) should solve these problems.

# Planning for maintenance and renewals work

- 3.1 Our first report concluded that NZTA had all the main elements of a planning framework for maintenance and renewals work, and a detailed set of levels of service. NZTA also had good short- to medium-term asset management planning and was in the process of finalising its State Highway Activity Management Plan.
- 3.2 However, NZTA needed to make it clearer how it determined levels of service for road maintenance and renewals work and ensure that road users' views were taken into account in developing levels of service. NZTA also needed to complete its State Highway Asset Management Plan and refine the way it delivered its maintenance and renewals work to ensure that the right work was being done cost-effectively.

## National road classification system and new levels of service

- 3.3 NZTA has done significant work to introduce a new national road classification system. NZTA has also made significant changes to the way it determines its levels of service for the network.
- 3.4 The new national road classification system, which the NZTA Board has now adopted, has three broad elements.
- 3.5 A **functional classification** categorises all New Zealand public roads based on their function (such as the road's main purpose and traffic volume). NZTA has completed this work, and there are six different road classifications and two sub-classifications.<sup>7</sup>
- 3.6 Different **customer levels of service** have been established for each road classification. A provisional set of customer levels of service covers six service areas:
- travel time reliability (that is, consistency of travel times users can expect);
  - road resilience;
  - optimal speed for each road;
  - safety;
  - amenity (that is, travel quality and aesthetics); and
  - accessibility (that is, ease with which people can reach their destination).
- 3.7 **Performance measures and targets** for each of the customer levels of service determine how the road classifications and customer levels of service translate into specific maintenance, operational, and investment decisions. The performance measures and targets are due to be completed in 2014.

<sup>7</sup> The classifications are National (sub-classification National – High Volume), Regional, Arterial, Primary Collector, Secondary Collector, and Access (sub-classification Access – Low Volume).

- 3.8 An important finding from our first report was that NZTA needed to make clear how it determined its levels of service, and how those levels were informed by users.
- 3.9 NZTA had a clear process for determining the customer levels of service. For example, it established a set of “Overarching Principles” and “Foundation Principles”. It also reviewed other work done internationally, such as recent work by Austroads.
- 3.10 NZTA carried out extensive consultation to discuss the proposed road classification and draft customer levels of service. For example, 10 regional workshops were held during July and August 2013. Attendees included representatives from the Automobile Association, planning staff from local government, mayors, councillors, and local government chief executives.
- 3.11 In our view, the new classification system and associated differentiated customer levels of service could have several potential benefits. These include:
- making asset management more consistent throughout New Zealand;
  - allowing better value for money to be achieved by targeting investment decisions;
  - allowing for better benchmarking of service outcomes; and
  - allowing road users to expect and have similar experiences on roads in the same classification.
- 3.12 However, NZTA needs to complete this programme of work and then ensure that it:
- monitors and periodically reviews classifications to incorporate new thinking and recognise any changes in the operating environment; and
  - establishes acceptable customer levels of service and maintenance standards for each road classification.

### State Highway Asset Management Plan

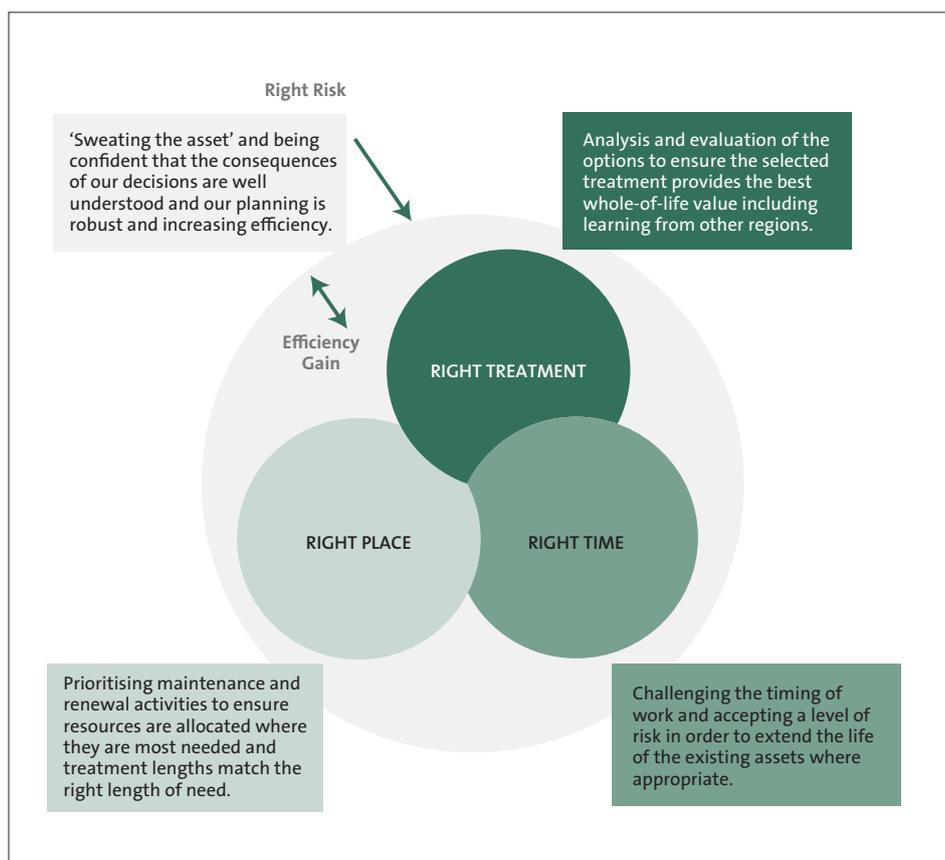
- 3.13 Our first report recommended that NZTA complete its State Highway Asset Management Plan to give more consistency to longer-term asset management planning. The Plan was finalised in October 2011 and covers the period 2012 to 2015.
- 3.14 NZTA intends to update the Plan when the National Land Transport Programme is adopted in mid-2015.
- 3.15 In our limited review, we did not test how effectively NZTA carried out the activities associated with effective planning. NZTA acknowledges that the State

Highway Asset Management Plan is just a document, and to be successful NZTA will need to align its everyday activities to the guidance the Plan contains.

### **Refining the ways maintenance and renewals work is delivered**

- 3.16 NZTA is refining the way it delivers its maintenance and renewals work to ensure that the right work is being done in the best way to deliver high-quality and cost-effective work.
- 3.17 For example, NZTA prepares a State Highway Plan annually. NZTA Regional staff, including Network Managers, prepare proposals for regional programmes that are consistent with nationwide goals and objectives, reflect regional contexts, and are consistent with the State Highway Activity Management Plan 2015-18. NZTA moderates the proposals and then combines them into a draft State Highway Plan. This forms the nationwide programme for delivery by each regional network.
- 3.18 NZTA told us that it is adopting a much more robust approach to this planning. In particular, it is challenging proposals more, requiring stringent economic analysis, and removing work from proposals when it cannot be justified.
- 3.19 NZTA has estimated that the more rigorous approach has seen renewal works reduce by 15%, and the cost of proposed network programmes reduce by 20% compared to those previously submitted by Network Managers working alone.
- 3.20 NZTA is also placing an increased focus on its renewals activity. Its planning framework now requires all pavement renewals to be “The Right Treatment in the Right Place at the Right Time with the Right Risk”.
- 3.21 This is part of NZTA’s approach of maintaining its assets within a reduced funding package. NZTA has estimated that reducing renewals by 10% will yield \$20 million in savings. Also, internal work has indicated that up to 30% of NZTA’s pavement renewals were done too early, so it considers that there are opportunities to defer some of this work without compromising safety.
- 3.22 Figure 2 sets out NZTA’s renewals planning framework.

**Figure 2**  
The New Zealand Transport Agency's renewals planning framework



Source: Redrawn from a figure supplied by NZTA.

- 3.23 NZTA considers that renewing pavements on a “just in time” basis makes good sense. Ultimately, this is a risk management exercise, and NZTA has a renewals planning framework to address the main risks and issues. In applying its framework, NZTA is balancing the trade-off between wasting money renewing pavements too early, and doing the work too late and so risking pavements and roads becoming sub-standard. The latter may increase NZTA's whole-of-life costs, and may adversely affect road users' experience.
- 3.24 To make the right decisions, NZTA will require reliable and up-to-date asset information, so the accuracy of the RAMM database is critical to successfully implementing its renewals strategy.

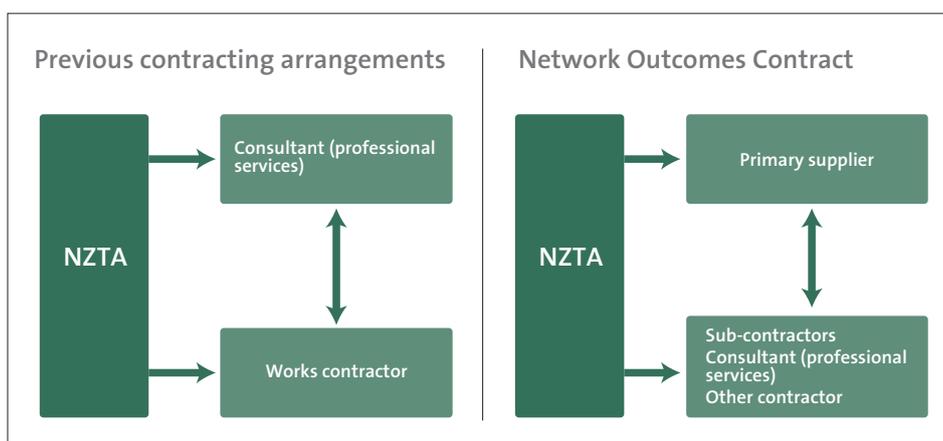
# Designing and selecting service delivery models

- 4.1 When we carried out our second audit, NZTA used a range of service delivery models to deliver maintenance and renewals work on the network. The models used were Traditional, Hybrid, Performance Specified Maintenance, and Alliance.
- 4.2 These models took different forms. However, they typically involved a contract between NZTA and a professional consultant, and a further contract between NZTA and the physical works contractor. The professional consultant was responsible for strategic asset management and for managing the contract with the physical works contractor.
- 4.3 Our second report concluded that NZTA had a clear understanding of its supplier market and had been responsive to recent market conditions. Also, NZTA sought to achieve cost-effectiveness by using a range of different models for employing consultants and contractors to do maintenance and renewals work.
- 4.4 However, NZTA needed to prepare, and review on an ongoing basis, specific strategies to encourage more suppliers into some areas of maintenance and renewals work, such as the professional services area.

## The new Network Outcomes Contracts

- 4.5 NZTA is now introducing new Network Outcomes Contracts for all its maintenance and renewals work. These will replace the previous models.
- Main features of the new Network Outcomes Contracts**
- 4.6 Under a Network Outcomes Contract, NZTA usually engages a primary supplier to provide all network management and maintenance activities. The primary supplier then engages consultants and sub-contractors to deliver the required services. For at least one contract, the primary supplier is a joint-venture company. NZTA continues to engage separate suppliers to deliver some specialist asset management activities.
  - 4.7 Figure 3 compares the previous contracting arrangements and Network Outcomes Contract contracting arrangements.

**Figure 3**  
Previous and new contracting arrangements for maintenance and renewals work



Source: Office of the Auditor-General.

- 4.8 Other features of the Network Outcomes Contracts include:
- increased contract tenure (up to nine years, subject to primary supplier performance);
  - increased bundling of contracts (that is, including different types of activities in one contract);
  - fewer contracts – there will be 23 geographically focused contracts;<sup>8</sup>
  - using key performance indicators and performance incentives to ensure that desired outcomes are achieved;
  - two fee components – a lump sum (fixed fee) component and a “measure and value” component based on a schedule of unit rates;
  - standardised terms for all contracts; and
  - enhanced data-reporting requirements.

#### Reasons for introducing Network Outcomes Contracts

- 4.9 NZTA set out the reasons for introducing Network Outcomes Contracts in a July 2012 consultation document.<sup>9</sup> The main reasons were to increase effectiveness and efficiency, and to reduce costs. In particular:
- Longer-term contracts would save NZTA money through economies of scale and scope. For suppliers, longer-term contracts would reduce the

<sup>8</sup> There were previously 37 network contract areas. The Auckland Motorway Alliance will still be an alliance arrangement.

<sup>9</sup> New Zealand Transport Agency, *State Highway Maintenance and Operations Review*, consultation document, July 2012.

administrative costs of re-tendering after shorter terms and give them increased certainty after they have been awarded the contract.

- Fewer contracts, based on the 23 regions, would deliver increased efficiency. It would also significantly reduce administrative and tendering costs, enable optimal use of resources, and support enhanced capability-building throughout the industry by more strategically allocating people and expertise.
- All-inclusive contracts would encourage greater accountability by suppliers for the overall performance of the network and therefore deliver efficiencies. As well as financial savings from improving the co-ordination of works on any specific road, it could improve the road users' experience by ensuring that there is co-ordinated programming of works.

4.10 Other potential benefits from Network Outcomes Contracts are that they:

- should help to benchmark contractor performance by using a standard contract;
- shift the emphasis from what services a contractor will offer to what outcomes they will achieve; and
- allow NZTA to have greater influence over the timing and type of some works.

#### **Network Outcomes Contracts and market competition**

4.11 Under section 25(2) of the Land Transport Management Act 2003, in approving any procurement procedure, NZTA must have regard to “encouraging competitive and efficient markets for the supply of outputs required for approved activities”.

4.12 Our second report recommended that NZTA have specific strategies to encourage more suppliers into the professional services market for maintenance and renewal work. We consider that NZTA should also encourage competitive and efficient markets for physical works services.

4.13 NZTA also wants to see more competition in the market. For example, it would like to have four to six primary suppliers competing in all parts of the country. This would be a significant change to its current risk of having one supplier in the consultancy/designer market and two suppliers in the maintenance physical works contractor market.

4.14 To increase market competition, NZTA has introduced several mechanisms to reduce barriers to entry into the contracting market. These include:

- allowing consultants and contractors to be involved in more than one bid for each Network Outcomes Contract, but be the primary supplier in only one;
- requiring each bid to provide for sub-suppliers up to a minimum level depending on the road maintenance market for each contract, with a default minimum of 20%; and

- requiring suppliers to state how they will support a competitive market as part of the bidding process.
- 4.15 NZTA sought advice on its approach from consultants in November and December 2013. The consultants' reports supported the steps NZTA had taken to lessen the risk of its actions reducing market competitiveness.
- 4.16 However, Network Outcomes Contracts have not been without adverse comment.
- 4.17 For example, in November 2013, the New Zealand Institute of Economic Research (NZIER) reviewed cost escalations in the road building, maintenance, and operations sector for the Ministry of Transport. In doing so, it looked at NZTA's introduction of Network Outcomes Contracts. The NZIER concluded that:
- A key additional factor looking forward is the effect that the procurement approach will have on market structure and conduct. There is a risk that reducing the number of contracts and holding those contracts for periods of up to 9 years will create barriers to entry leading to further market concentration. This would create the risk of significant reductions in competition over the long term and consequential increases in prices.<sup>10</sup>*
- 4.18 The NZIER also expressed doubts about the underlying rationale for moving to Network Outcomes Contracts.<sup>11</sup>
- 4.19 We are aware of some potential risks with Network Outcomes Contracts:
- It is possible that the market will comprise a small number of big contractors and a large number of small sub-contractors, with no sub-contractors in the middle. This has been referred to as a "hollowing-out" of the market. It would reduce the likelihood of a small player having a legitimate chance to grow to be a mid-tier firm and then win a major contract.
  - Although long-term contracts might encourage suppliers to invest in their capacity, it also could result in fewer contractors having the capacity to enter bids.
- 4.20 The new contracting model has changed the way in which the professional services market operates. For example, some former professional services consultants now work as part of NZTA's staff, and others now work for a primary supplier. We did not look at how these changes might have affected the overall capacity in the professional services market, as this was outside the scope of our follow-up work.

10 New Zealand Institute of Economic Research, *Construction industry study, Implications for cost escalation in road building, maintenance and operation*, report prepared for the Ministry of Transport, November 2013, page i.

11 New Zealand Institute of Economic Research, *Construction industry study, Implications for cost escalation in road building, maintenance and operation*, report prepared for the Ministry of Transport, November 2013, pages 61-62.

**Early indications of application of the new contracting model**

- 4.21 NZTA began implementing the new contracting model in 2013. It intends to phase in the 23 geographical contracts over three years. The Appendix sets out the 23 geographical areas.
- 4.22 NZTA is on track with its implementation programme. To date, NZTA has entered into four new Network Outcomes Contracts (South Canterbury, Taranaki, Bay of Plenty East, and Wellington) and two contract conversions (Marlborough Roads and Wanganui East.) A further two network areas are at various stages of contract procurement (Bay of Plenty West and Central Waikato).
- 4.23 Figure 4 shows the contracts tendered and converted to date.

**Figure 4**  
**Network Outcomes Contracts that have been tendered and converted**

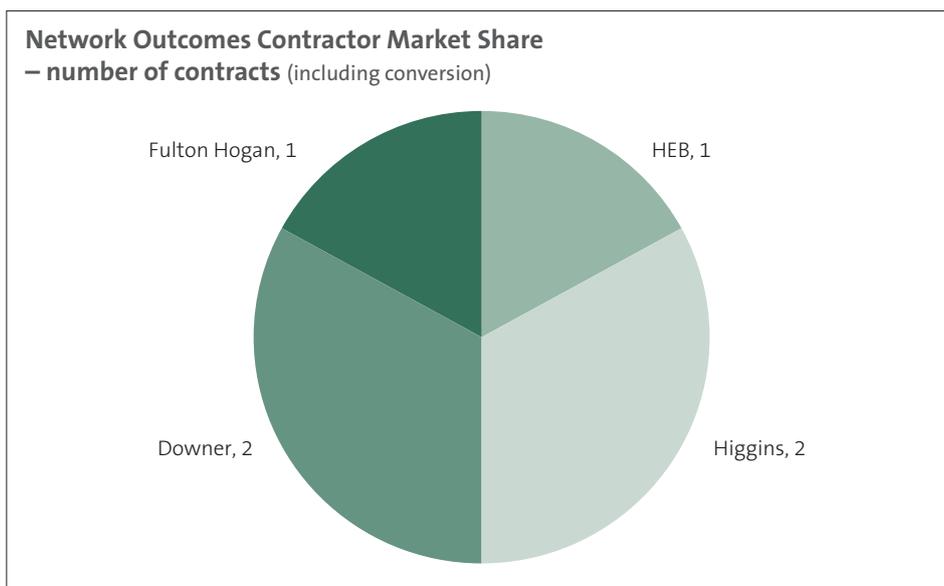
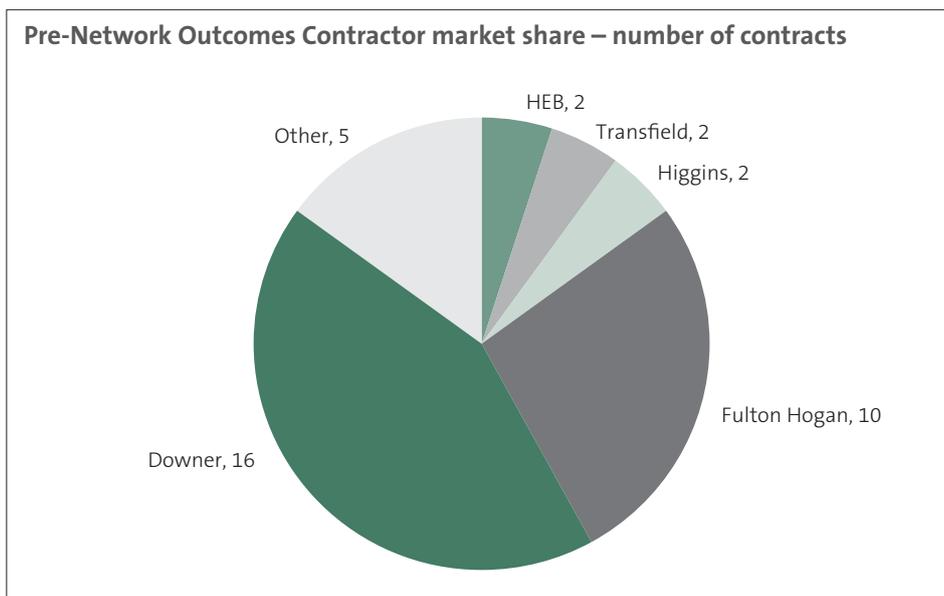
Network Area	Number of tenderers	Price	Term
South Canterbury	4	\$70 million	7 years
Taranaki	3	\$56 million	7 years
Bay of Plenty East	3	\$79 million	7 years
Wellington	3	\$106 million	7 years
Marlborough Roads*	n/a	\$66 million	5 years
Wanganui East*	n/a	\$19 million	2 years

\* Conversions.

Source: Redrawn from a table supplied by NZTA.

- 4.24 Figure 5 compares market share for the pre-Network Outcomes Contracts environment and for Network Outcomes Contracts.

**Figure 5**  
Comparison of market share for the pre-Network Outcomes Contracts environment and for Network Outcomes Contracts



Source: Redrawn from a figure supplied by NZTA.

- 4.25 Although only a small number of Network Outcomes Contracts have been tendered, NZTA considers that it is seeing encouraging signs of market competitiveness. Three to four tenderers have been involved in each tendered contract, and contracts have been awarded to a good mix of primary suppliers. However, the number of tenderers does not necessarily mean a healthy and competitive market, particularly in the short term. A better measure is the number of different tenderers awarded contracts.
- 4.26 NZTA told us that initial results show tangible savings to NZTA from reduced contracting costs and through revised specifications. The revised specifications include changes in customer levels of service and more targeted activities, particularly with renewals investment.
- 4.27 NZTA has analysed the pricing for the tendered contracts. It compared Network Outcomes Contracts pricing to pre-Network Outcomes Contracts pricing. NZTA told us that this analysis shows predicted savings over historical costs. As noted above, these savings are derived from reduced costs and reduced activities.
- 4.28 NZTA needs to establish robust baseline information, so it can accurately compare the effects of the new contracting arrangements with historical costs. For example, it needs to be clear about which costs savings arise from reduced volumes of activity, rather than efficiency gains. Baseline costs should also reflect the changes to organisational arrangements, such as NZTA bringing some professional services capacity in-house.
- 4.29 In our view, it is too early to come to any definitive conclusions. It is critical that NZTA continues to monitor market behaviour and be prepared to adjust its procurement practices if necessary. We also expect NZTA management to report regularly to the NZTA Board on the state of the market, given the importance of the issue.

# 5

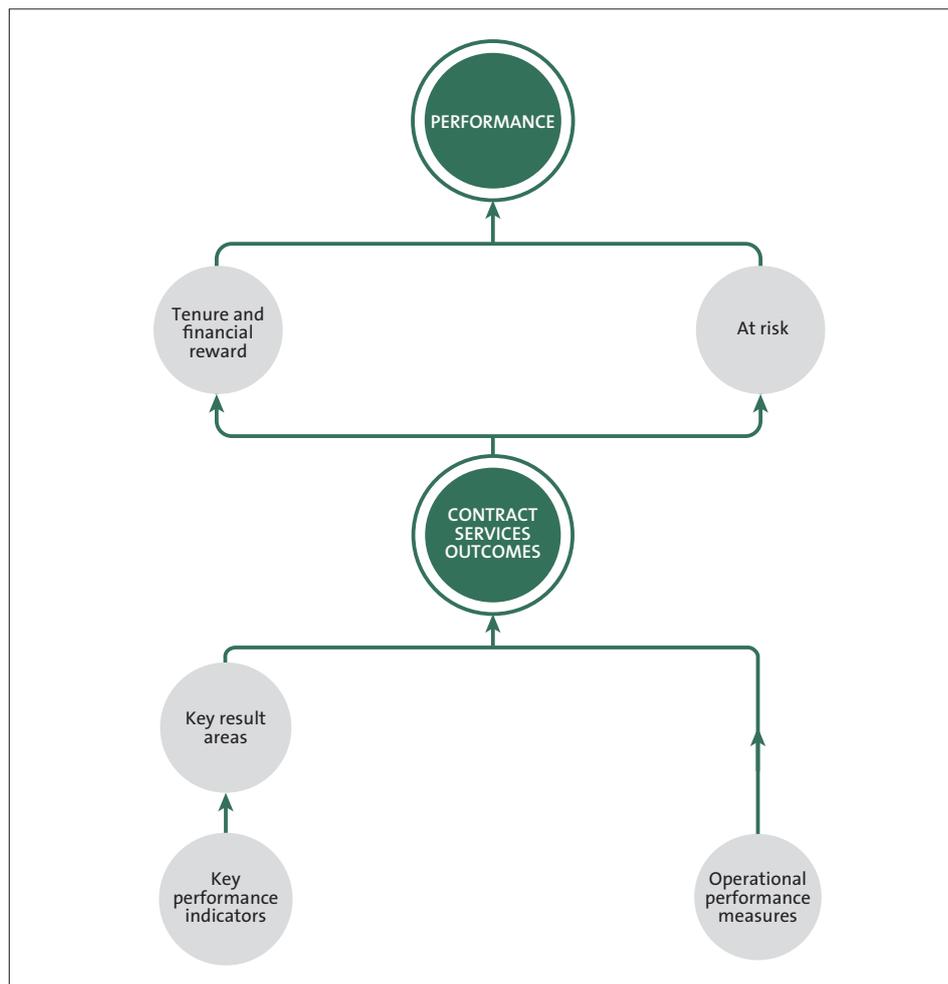
## Monitoring performance and improving the cost-effectiveness of maintenance work

- 5.1 Our second report concluded that NZTA regularly monitored the performance of its contractors.
- 5.2 However, NZTA needed to be more consistent in carrying out its performance monitoring and reviews. It also needed to respond better to contractor performance issues. NZTA did not systematically or consistently assess information at a national level or benchmark contractor performance.

### New performance monitoring framework

- 5.3 A new performance monitoring framework exists under the Network Outcomes Contracts. NZTA considers that this will strengthen monitoring, allow it to apply a more consistent approach to all contracts, and allow it to benchmark performance. Figure 6 shows the framework, which is made up of:
- operational performance measures;
  - key result areas and key performance indicators;
  - contract service outcomes;
  - performance-based at-risk payments; and
  - tenure rewards.
- 5.4 Operational performance measures reflect NZTA's expectation of the contractor's service, performance, management, and capability. There are about 140 operational performance measures, which cover construction quality, asset condition, night-time condition, and management activities. The primary supplier measures operational performance measures through a monthly self-compliance audit process, which is overseen by NZTA's Maintenance Contract Manager.
- 5.5 Key result areas are the outcomes sought at the strategic level. They help NZTA to achieve the Government's strategic objectives, NZTA's strategic priorities, and compliance with the Land Transport Act 1998 and the Resource Management Act 1991. Key performance indicators specify the key result areas in more detail.
- 5.6 The key result areas cover:
- safety;
  - customer satisfaction;
  - sustainability;
  - assurance and value;
  - network performance; and
  - the health of the relationship between NZTA and the primary supplier.

**Figure 6**  
Performance monitoring framework under Network Outcomes Contracts



Source: Redrawn from a figure supplied by NZTA.

- 5.7 Contract incentives and rewards underpin the performance management system. These include:
- An at-risk component of 10% of the primary supplier's tendered base lump sum amount is assessed monthly. Any amount withheld is deducted from the primary supplier's monthly lump sum payment.

- A “key result area reward” payment (up to \$200,000 each year) is assessed annually. It is based on an overall assessment of a primary supplier’s performance against the key result areas.
- Contract terms can be extended or reduced depending on performance.

5.8 We consider that the revised performance framework and contract incentives are an important development. They have the potential to improve the provision of maintenance and renewals works by:

- shifting the focus of the contract from what services the primary supplier must provide to the outcomes they must achieve;
- enhancing NZTA’s ability to focus on the outcomes that matter, such as customer service, safety, quality, network availability, and reliability;
- delivering better performance by consistently applying the at-risk, key result area reward, and contract extension incentives;
- making it easier for NZTA and the primary supplier to measure, discuss, and improve performance; and
- allowing NZTA to benchmark performance for all contracts and use that information to manage the network better.

### Monitoring primary supplier performance

5.9 NZTA now adopts a three-tier approach to monitoring performance.

5.10 NZTA’s Maintenance Contract Manager and Contract Management Team hold monthly performance meetings with the primary supplier to review a monthly performance report created by the primary supplier. There is one Maintenance Contract Manager for each Network Outcomes Contract.

5.11 Each Network Outcomes Contract has a Contract Management Board, which is made up of two representatives from NZTA and two representatives from the primary supplier. These Boards review contract progress, review the annual key result area achievement result, and recommend the appropriate tenure implications and reward achievements to NZTA’s Value Assurance Committee. The Boards also have a role in resolving conflicts between NZTA and the supplier.

5.12 The Value Assurance Committee has delegations for state highway matters. It consolidates and considers performance results annually and determines the appropriate key result area reward payment and any tenure implications.

5.13 Figure 7 shows the main elements of the performance monitoring framework.

**Figure 7**  
**Main elements of the New Zealand Transport Agency’s performance monitoring framework**

Levels of Reporting				
Level	Key focus	Measured against	Reporting interval	Impact/output
Contract Manager/ Contract Management Team	Operational elements of the contract	Operational performance measures	Monthly	Financial pain (At-risk payment)
Contract Management Board	Review key result areas at a regional level	Key performance indicators aggregated into the key result areas	Four-monthly	Financial reward and contract tenure
Value Assurance Committee	Review key result areas at a national level	Key result areas over the national network	Annually	Report to the Performance Framework Regulator Publication of the Performance Results report

Source: Redrawn from a table supplied by NZTA.

- 5.14 NZTA designed the performance framework so that each role, at each level, could have maximum oversight of the areas they are accountable for. However, NZTA will need to ensure that this delegated performance monitoring happens in practice. It will need assurance that accurate and consistent reporting to contractors is being done, and that contractors are carrying out any required performance improvements.
- 5.15 NZTA has systems for responding to any problems with primary supplier performance. As well as the mechanisms set out in paragraphs 5.9-5.14 and Figure 7, Network Outcomes Contracts provide for arranging informal meetings to discuss any emerging issues, including performance issues.
- 5.16 Network Outcomes Contracts adopt a strong collaborative and partnering framework for the relationship between NZTA and the primary supplier. For example, the contracts establish a series of “Key Elements” underpinning the relationship. These include “Honesty in all dealings”, “An environment where each party communicates freely in an open manner on all issues”, “An environment of mutual trust to be developed”, and “All issues to be considered with fairness to the parties involved”.

## Benchmarking

- 5.17 NZTA is placing increased emphasis on benchmarking. A Performance Management Team is responsible for monitoring, benchmarking, and reporting on the performance of Network Outcomes Contracts.
- 5.18 This team analyses the factors influencing the cost of maintenance and renewals work, and the balance between the costs of preventative and reactive maintenance. It also compares, contrasts, and analyses the performance of primary suppliers and benchmark performance.
- 5.19 NZTA is preparing a framework to estimate and measure the value derived from Network Outcomes Contracts compared to the previous contract regime.
- 5.20 NZTA is also preparing a Performance Framework Tool to provide a nationally consistent measurement system for supplier performance. This tool will:
- record audit results and performance information from primary suppliers;
  - identify and report non-compliances and poor performance to the Maintenance Contract Managers;
  - complete accurate and consistent calculations of financial penalties, incentives, and tenure extensions; and
  - allow for analysis and reporting of consolidated performance results for all 23 contracts.<sup>12</sup>
- 5.21 In summary, NZTA has, or is putting in place, a variety of tools to monitor and benchmark primary supplier performance. The application of these tools, combined with operational performance measures and key result areas, should enable NZTA to compare and contrast the relative performance of each of its maintenance and operations suppliers and identify opportunities for improvement, including getting better value for money and better performance outcomes.

<sup>12</sup> NZTA expects to deploy the system in 2014. The system will be completed in January 2015, ready for “go live” in February 2015.

# Appendix

## Twenty-three Network Outcomes Contract areas



Source: NZTA.



Source: NZTA.