

Road maintenance procurement: Delivery model selection guidelines



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Disclaimer:

This document provides guidance to local authorities; it is not intended to provide a final result and approved organisations may still chose to undertake their own selection process or develop their own form of delivery model.

The guidance provided within this report may form a basis for local authorities' considerations in reaching any final decision.

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Glossary of terms

AMA	Auckland Motorway Alliance
Dayworks	payment based on input costs
Delivery model	road maintenance procurement delivery model
HCC	Hamilton City Council
HMEP	Highways Maintenance Efficiency Programme
HNO	Highways and Network Operations Group (NZ Transport Agency)
KPI	key performance indicator
LoS	level of service
M	million
Measure and value	payment based on the tendered price of scheduled item times the actual quantities used
NOC	network outcomes contract
PSMC	performance–specified road maintenance contract
RCA	road controlling authority
RDC	Ruapehu District Council
REG	Road Efficiency Group (NZ Transport Agency and Local Government NZ)
RFP	request for proposal
RMTF	Road Maintenance Task Force (2012 report)
SME	small to medium enterprise
TDC	Tasman District Council

Executive summary

The Road Efficiency Group (REG) has produced these guidelines to assist road controlling authorities (RCAs) when making and improving their road maintenance delivery model decisions and affirming value for money for ratepayers and road users. New Zealand road maintenance, operations and renewals annual expenditure is around \$1.4 billion, so small improvements can mean substantial value-for-money gains.

The guidance material has been produced by looking at 11 New Zealand case studies involving road maintenance procurement delivery models and comparing the findings from these studies with a national and international literature review. This has been done to validate the case study findings internationally and ensure the quality of the guidance.

Facilitated workshops, involving key RCA staff and other elected representatives or members of the leadership team who will finally approve the contract, together with one or two independent industry experts, can help RCAs work through the delivery selection matrix and review process. It is expected that the RCA will engage interactively with the contracting and consulting industry when carrying out a market analysis and use the findings as an input into the workshop. There should also be engagement with industry during the briefings on the RCA's preferred model.

Chapter 3 provides a selection matrix of key drivers for guiding RCAs in selecting an appropriate delivery model for their circumstances. This matrix uses an assessment of the four standard types of delivery models by the various key drivers to determine a preferred model. A process is suggested for reviewing and testing this preferred model.

It is recognised that many delivery models are hybrids of the standard models, so the guidance has been developed not only for the assessment of each delivery model against each key driver but also to assist with the design of RCAs' specific delivery models. This will enable a number of specific delivery model options to be developed and tested to determine a preferred hybrid model.

The proposed matrix approach aligns well with the UK Highway Maintenance Efficiency Programme's (2014) toolkit and guidance document 'Procurement route choices for highway maintenance services'. This is a user-friendly web tool for assisting RCAs to determine the right model for them; however, if RCAs were to use the tool in its current form, they would need to recognise there are some parts of the toolkit that would not be appropriate for New Zealand, eg in-house delivery of physical works. A two-page guidance document on applying the HMEP toolkit in New Zealand circumstances is available from the REG procurement website.

The case studies and literature review suggest the following delivery models generally suit the following circumstances:

- Traditional models are used when the RCA wants to retain control over the programme of work, deliver on a measure and value basis, or encourage a healthy market when there are limited suppliers.
- Performance models are used when the RCA wants to set performance measures and hold the contractor accountable for delivering them through their work programme.
- The alliance/collaborative agreement model is used for flexibility and risk-sharing in a structured, incentivised and formalised one-team approach with the contractor to focus on best-for-network outcomes and to understand cost structures to optimise investment.

- Framework models are used when the RCA wants to have a number of specialist suppliers on hand to work as directed.

Not all delivery models will work in all circumstances. The following are some exceptions:

- Traditional models are not suitable when aspects of the scope, work programme or risk are uncertain, and an accurate schedule cannot be developed.
- Performance-based contracts are not suitable when there is either a lack of data to enable the contractor to determine the optimal way to deliver the performance specified, or when the RCA cannot determine appropriate key performance indicators. Also, if the contract is a lump sum and it is likely that funding levels or levels of service may change over the contract term, a performance-based contract is not appropriate.
- Alliance/collaborative agreement models should not be used when either the RCA or contractor's staff do not have the right collaborative non 'master/servant' culture, or the RCA does not want to risk share or there is a lack of collaborative culture and capability.
- Framework/panel contracts are not suitable when the RCA is not able to provide the resources to manage multiple suppliers, where specialist skills are not required, or when the industry needs certainty of work. Framework/panel contracts are relatively untested in the New Zealand road maintenance market and should be given careful consideration before use.

It should be noted that delivery models for road maintenance are constantly evolving and whereas in the past particular contract types were associated with particular methods of payment or supplier selection methods this is no longer the case as they may be mixed. For example, the competitive alliance model can use price in the supplier selection process, or price may not be considered in a traditional model if a purchaser nominated price is used.

REG is keen to identify and promulgate successful new procurement models and will be doing this in the future through its Procurement Work Group.

1 Introduction

The Road Efficiency Group (REG) has set up the REG Procurement Work Group primarily to:

- identify and promote procurement opportunities that will enhance the sector's ability to obtain value for money
- enable and publish the development of tools and templates that will improve procurement practice and increase efficiency
- build procurement capability amongst road controlling authorities (RCAs).

The Procurement Work Group has produced this guidance to explore the value-for-money opportunities and risks that various road maintenance delivery models produce, drawing from New Zealand and international experience. In particular, it provides guidance to RCAs on selecting a delivery model that is right for them, especially when carrying out a service delivery review under section 17A of the Local Government Act (LGA), as it may be appropriate to change the delivery model. The guidance will also enable RCAs to identify gaps that need addressing to achieve better alignment between their particular circumstances, their procurement strategies and plans, delivery models and business plans.

The first step in preparing this guidance was to look at 11 selected case studies across New Zealand (see chapter 3 and appendix D) where the following road maintenance delivery models have been used (appendix C, section C3 provides a definition of each model):

- traditional
- performance-based, aggregated and bundled and/or performance-specified maintenance contracts (PSMCs)
- alliance/collaborative agreements, including cost reimbursable and fixed fee
- framework/panels.

The findings from the case studies were supplemented by a national and international literature review to validate the case study findings and ensure the quality of the guidance developed as a result of the research.

From these initial steps a selection matrix relating key organisational and market drivers with delivery models was developed to enable quick comparison of models (see chapter 4). This will give RCAs the confidence to adapt and innovate around their road maintenance delivery models and enhance value for money.

The proposed matrix approach aligns well with the UK Highway Maintenance Efficiency Programme's (2014) toolkit and guidance document 'Procurement route choices for highway maintenance services', available at www.hmepprct.co.uk/. This is a user-friendly web tool for assisting RCAs to determine the right model for them; however, if RCAs were to use the tool in its current form, they would need to recognise there are some parts of the toolkit that would not be appropriate for New Zealand, eg in-house delivery of physical works. . A two-page guidance document on applying the HMEP toolkit in New Zealand circumstances is available from the REG procurement website.

Context

The New Zealand road maintenance, operations and renewals annual budget is around \$1.4 billion so small improvements can mean substantial value for money gains. Delivery models can have a significant impact on value for money, as some models are better suited to different market conditions and the achievement of different RCA objectives. This has resulted in significant sector discussion over the past 10 years or so, with no consensus being formed over which models suit which conditions. This review has sought to address that.

In 2012, the Road Maintenance Task Force (RMTF) found that around 80% of New Zealand local authority road maintenance contracts by number were traditional contracts. A survey by the Transport Agency's Planning and Investment Group in early 2015 found this had reduced to 70% because of the tangible benefits of other delivery models.

This review explores some of the reasons for this change, such as modifications to the delivery model drivers and influencers contained in RCAs' procurement strategies and procurement plans. Also, important from a strategic perspective is the RCA's capability as a smart buyer. (See appendix A for the RMTF definition of a smart buyer.)

2 Case studies, literature review and discussion of findings

2.1 Case studies

The REG Leadership Group, through the REG Procurement Work Group, agreed on a representative sample of case studies across New Zealand where road maintenance procurement delivery models had been used. A key finding for all case studies was that the delivery model being used had developed because the previous delivery model was not meeting the RCA's objectives.

The following characteristics were examined:

- in-house capability, delivery model dimensions/scope and strategic objectives
- delivery model size, risk and market analysis
- evaluation of model options, delivery model performance to date and supplier selection success.

The 11 case studies, together with the model chosen and the corresponding key drivers/objectives are listed below (see appendix D for more detailed information):

- 1 Ruapehu: Traditional model was chosen due to the lack of a competitive market of capable performance-based suppliers and to target middle-sized contractors.
- 2 Tasman: Traditional model was chosen due to the RCA wanting flexibility to programme the work in response to network needs, and to address work needing to be done but not required by key performance indicators (KPIs).
- 3 NZ Transport Agency, Highways and Network Operations (HNO): Outcome focused to align with objectives. Also focused on developing an internal strategic asset management capability and strengthening externally tactical and operational asset management capability. Subcontractor requirements were included to allay the market concerns of small to medium enterprises (SME).
- 4 Kaikoura: Performance based to ensure the RCA got what it asked for, to minimise RCA time and commitment of resources, and to ensure the contract was enforceable. Also had strong subcontractor requirements due to local market considerations.
- 5 Western Bay of Plenty: Performance-based lump sum to minimise RCA resources, to enable the RCA to focus on strategic high-level issues and to achieve value for money through supplier innovation.
- 6 Waikato: Alliance/collaborative agreement due to flexibility, sustainable pricing, performance-based and customer focus.
- 7 Hamilton: Alliance/collaborative agreement to grow asset management capability and to have flexibility, customer focus and a known overrun cost while needing to make cost savings of 25%.
- 8 NZ Transport Agency, HNO Auckland Motorways: Alliance/collaborative agreement due to complexity of network, customer focus and to make cost savings.
- 9 Southland: Alliance/collaborative agreement due to flexibility around levels of service/funding levels and to flat-line expenditure.
- 10 Central Otago: Alliance/collaborative agreement due to flexibility, the need for cost savings and the ability to remove the gaming of traditional and performance-based contracts.

11 Kaikoura: Framework as a temporary measure to have the required number of specialist contractors on tap to carry out the work.

All RCAs invited to participate in the case studies agreed to take part. Sixteen participants (mostly RCAs and not contractors) were interviewed across 11 case studies using a questionnaire of 39 questions. Most of the interviews were face to face and all were conducted in an open manner to allow for further questioning to determine underlying issues and drivers when needed. Contractors were surveyed separately through a questionnaire focusing on their perspectives. Only 30% of contractors responded to this survey.

The above process gave a total of around 650 responses. A copy of the questionnaire is included in appendix H.

2.2 Literature review

The literature review considered:

- definitions of delivery models
- characteristics of delivery models
- processes and criteria for the section on delivery models.

A summary of the key findings from the literature review is included in appendix E detailing the circumstances in when each particular delivery model should be used.

Papers researched through the literature review are included in the bibliography in chapter 6.

2.3 Discussion of findings from the case studies and literature review

2.3.1 Delivery models, their drivers and characteristics

This section considers and discusses the key findings of the case studies and literature review to determine the key attributes of the different delivery models. It does this by comparing the case study results with the literature review findings to establish for the various delivery models their recognised and authentic characteristics and features (see appendix C3).

Delivery models are defined as a combination of contract type and contract features/parameters.

The RCAs' sought outcomes and objectives as listed in the case studies were found to be the drivers for each delivery model. The drivers have been interpreted as the RCAs' value for money definitions. Good correlation was found between delivery models and their drivers.

Tables C.1, C.2 and C.3 of appendix C assess how well each delivery model achieves the key drivers, secondary drivers and contract characteristics based on the case studies and literature review findings. Appendix C also includes commentary on each of the key drivers and the definitions, advantages and disadvantages of each delivery model.

The following three sub-sections list the key drivers, secondary drivers and key delivery model characteristics for RCAs to consider when designing their specific delivery models.

2.3.1.1 Key drivers of delivery models

The following key drivers of delivery models are proposed:

- What is the RCA's smart buyer capability?
- What is the RCA's smart buyer capacity?
- How strong is the RCA's desire to control the work programme?
- How healthy is the RCA's supplier market, including the number of potential players?
- How good is the availability of quality network data?
- How flexible, as opposed to stable, are the RCA's funding levels and levels of service?
- What is the RCA's risk appetite?
- What is the RCA's appetite for improved value for money (VfM) and continuous improvement?
- What is the RCA's appetite for commercial tension?
- What is the RCA's appetite for a collaborative model?
- What is the RCA's appetite for sustainable pricing?
- What is the RCA's appetite for outstanding customer care?

These key drivers influence both the delivery model and supplier selection method. In the past the supplier selection process and delivery model have been linked; however, it is not uncommon now to mix and match these. For example, price can be considered in an alliance/collaborative agreement supplier selection process if a competitive alliance model is used, or price may not be considered in a traditional model if a purchaser nominated price is used.

RCA's key drivers should be identified and discussed in their procurement strategies.

2.3.1.2 Secondary drivers of delivery models

The following secondary drivers of delivery models are proposed:

- What is the RCA's ability to decide all requirements prior to tendering
- What is the RCA's appetite to appoint multiple suppliers on a skills basis?
- What is the RCA's appetite for better ownership of network by suppliers?
- What is the RCA's appetite to enforce the contract using performance indicators?
- What is the scale; is the network greater than 500 km?
- What is the RCA's appetite for close involvement and collaboration with the work?
-

2.3.1.3 Key characteristics of delivery models

- Required supplier capability
- Ability to provide cost transparency
- Good levels of governance
- Growing ideas and improving innovation
- Encouraging competition between local suppliers
- RCA or supplier succession planning
- Simplicity

- Method of payment
- Contract duration
- Selection process
- Ability to enable clustering.

2.3.2 Ensuring selection of an appropriate model

The case studies and literature review suggest the following delivery models generally suit the circumstances indicated:

- Traditional models for when the RCA wants to retain control over the programme of work, deliver on a measure and value basis, or encourage a healthy market when there are limited suppliers.
- Performance models for when the RCA wants to set performance measures and hold the contractor accountable for delivering them through their work programme.
- The alliance/collaborative agreement model delivers flexibility, risk sharing in a structured, incentivised and formalised one team approach to focus on best-for-network outcomes and to understand cost structures to optimise investment.
- Framework models for when the RCA wants to have a number of specialist suppliers on hand to work as directed.

The following circumstances may not suit the following delivery models:

- Traditional models when aspects of the scope, work programme or risk are uncertain, and an accurate schedule cannot be developed.
- Performance-based contracts when there is either a lack of data to enable the contractor to determine the optimal way to deliver the performance specified, or when the RCA cannot determine suitable KPIs. Also, if the contract is lump sum and it is likely that funding levels or levels of service may change over the contract term.
- Alliance/collaborative agreement models when either the RCA or contractor's staff do not have the right collaborative non 'master/servant' culture, the RCA does not want to risk share or there is a lack of collaborative culture and capability.
- Framework/panel contracts when the RCA is unable to provide the resources to manage multiple suppliers, where specialist skills are not required, or when panel members needs certainty of work. Framework/panel contracts are relatively untested in the New Zealand road maintenance market and should be given careful consideration before use.

The names given to delivery models in these guidelines are those commonly used for maintenance but are not always the same as the names used in the Transport Agency's (2014) *Procurement manual*. There are also some subtle delivery model definitional differences between the *Procurement manual* and this guidance.

2.3.3 Development of the delivery model selection matrix

A guidance matrix of key drivers and delivery models is developed in chapter 4 to assist RCAs identify the delivery model that best suits their needs. The matrix requires RCAs to assess the level of each key driver for their organisation, weight the various drivers and score each delivery model for each driver according to appendix C, table C.1.

A process is also suggested for reviewing and testing the matrix outcome to ensure it is robust.

2.3.4 Difference between road construction and road maintenance contracts

It was difficult to find literature with a strong emphasis on road maintenance contracts. Many international references related more to construction than road maintenance. Comparing the findings from the literature review with the findings from the case studies has shown the following key differences between construction and road maintenance contracts. These differences impact on the key drivers of road maintenance delivery models.

- There is less complex but ongoing design work associated with road maintenance contracts, meaning the consultant's role is mainly as a contract administrator and/or asset manager.
- There are a substantial number of third party customer interactions with the contractor requiring assessment and action. Delivery models can have a significant impact on the responsiveness to these and the efficiency of processes around them.
- The work itself is not confined to a site but is across a whole network with multiple activities meaning there is a lot of choice around the size of the contract in terms of the length of the network and the number of activities included.
- The work is ongoing, unlike a project with a completion date, meaning there can be opportunities for ongoing work and continuous improvement.

2.3.5 Comparing the results of the case studies and literature review

Overall there was very good similarity between the case study results and the literature review findings except for the definition of traditional contracts where the case studies indicated the key differentiator for defining traditional maintenance contracts was that the RCA, or their agent or consultant, controls the work programme. The literature review on the other hand found that the traditional model was commonly referred to as the staged delivery model where an activity is delivered through one or more separate contracts between the purchaser and supplier(s)

3 Process for selecting a preferred delivery model

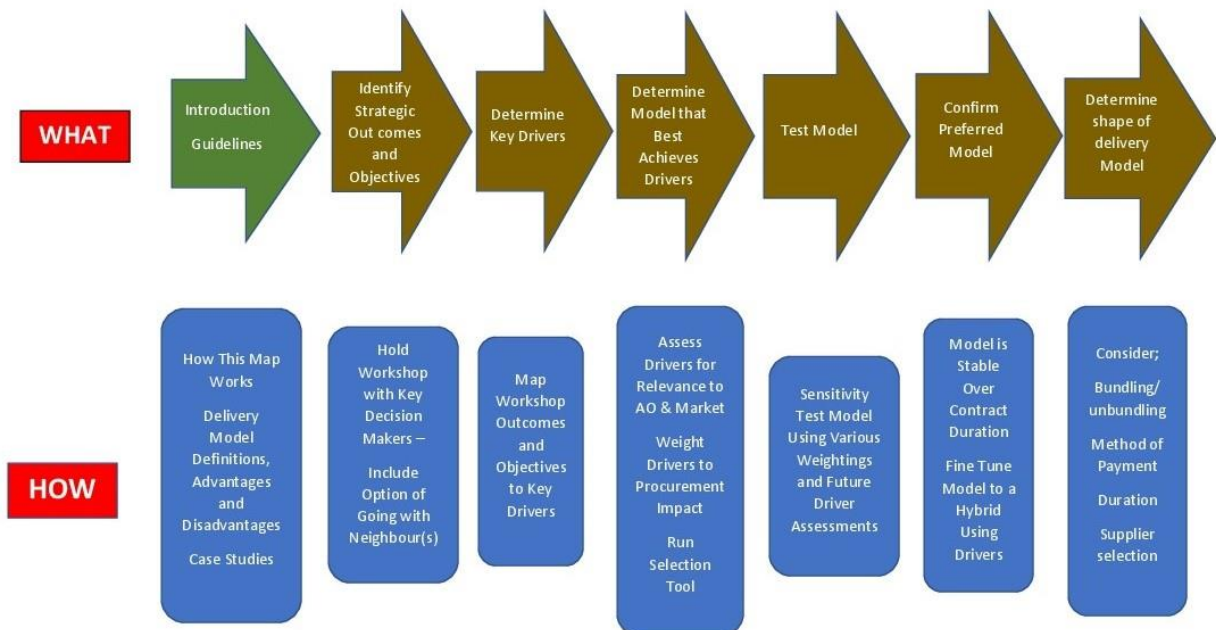
3.1 Selection using standard delivery models

Three selection matrix tools were identified through the case studies and literature review and these have been used together with the identified key drivers and delivery models to develop the REG proposed delivery model selection matrix for key drivers (see figure 4.2). We have focused here on just the one matrix for key drivers so as not to make the selection process too complex. However, the secondary drivers and key characteristics identified from the case studies and literature review and listed in section 3.3 may be useful for those RCAs who need to use different key drivers.

An Excel delivery model selection tool matrix with hard wiring of how well different delivery models achieve key drivers is available from the REG procurement website.

Before the selection tool matrix can be used it is important to identify strategic outcomes/objectives, market conditions and RCA capability/capacity, which are then used to determine the key drivers for inclusion in the selection matrix tool. Key drivers need to be assessed and weighted and any preferred model tested. This process is shown in the flow chart in figure 4.1 and explained further in section 4.2.

Figure 4.1 Delivery model selection flow chart



3.2 Steps to creating a preferred delivery model

3.2.1 Identify strategic outcomes/objectives, market conditions and RCA capability/capacity

This is best achieved through a facilitated workshop environment attended by those who will approve the awarding of the contract (these may be elected members), key RCA staff and one or two independent industry experts. This mix of attendees should ensure the development of sound key drivers.

The organisation's sought outcomes, outcomes not wanted, procurement expectations and desired culture need to be defined. The option of clustering with a neighbour also needs to be considered. Annual plans, longer-term plans, infrastructure strategies, procurement strategies and activity management plans contain the RCA's strategic outcomes and objectives.

Markets should be assessed as an input into this workshop process. This can be done by identifying potential bidders, understanding what would attract new tenderers and how suppliers believe the RCA could achieve better value for money. There should be a good understanding around:

- the number of potential suppliers
- their capabilities
- their competencies
- their views on how your organisation could maximise value through procurement
- what type of contract would be attractive to them.

The capability and capacity of the RCA can be determined using REG's smart buyer self-assessment tool described in appendix A.

Spreading this process across two workshops may be better when there is limited knowledge on the pros and cons of different delivery models, with the first workshop focusing on information to bring attendees up to speed and the second to complete the selection matrix and help shape the contract(s).

Topics covered in the first workshop could include:

- the RCA's smart buyer self-assessment
- the RCA's sought outcomes and procurement expectations (including those outcomes they do not want)
- a description of the various contract models as per the guidelines and when they should and should not be used
- how well models achieve the different key drivers, as per appendix C, table C.1.

The second workshop would cover:

- completing the delivery model selection tool, testing the preferred model and building consensus around the preferred model
- considering the shape and application of this preferred delivery model across the network, eg:
 - whether the RCA should collaborate with its neighbouring RCAs
 - the extent of bundling and aggregation
 - the number, size and duration of contracts

- the method of payment.

Between workshops, the outcomes and expectations can be mapped to the key drivers and the outcomes and expectations into problem statements, benefits and KPIs using the business case approach. An example of this is attached as appendix F.

It is recommended that there is engagement with the contracting and consulting industry when carrying out a market analysis and when briefing industry on the RCA's preferred model.

3.2.2 Determine key drivers

Map the RCA's strategic outcomes/objectives, market conditions and its capability/capacity against the following key drivers of the selection tool matrix.

- What is the RCA's smart buyer capability?
- What is the RCA's smart buyer capacity?
- How strong is the RCA's desire to control the work programme?
- How healthy is the RCA's supplier market, including the number of potential players?
- How good is the availability of quality network data?
- How flexible, as opposed to stable, are the RCA's funding levels and levels of service?
- What is the RCA's risk appetite?
- What is the RCA's appetite for improved value for money (VfM) and continuous improvement?
- What is the RCA's appetite for commercial tension?
- What is the RCA's appetite for a collaborative model?
- What is the RCA's appetite for sustainable pricing?
- What is the RCA's appetite for outstanding customer care?

Other potential relevant key drivers are listed in appendix C, table C.2, with key characteristics of delivery models in table C.3. These may be useful for RCAs whose circumstances require different input to their delivery models.

Once the key drivers have been determined, give each one an importance weighting ranging from most to least important. The sum of all weighting should be 100. A quick way to rank the importance of your key drivers is to use the above workshop process to prioritise your key drivers. If you find that one of the above key drivers has not been identified by your workshop give it a zero weighting.

Then assess each of your key drivers by rating them as high, medium or low, as they pertain to your organisation and supplier market. For example, you may assess your expertise as a smart buyer to be strong and the health of the supplier market as medium. The delivery model that matches this rating (as per appendix C, table C.1) will be the preferred model for that particular key driver.

When assessing your key drivers as they pertain to your organisation and market you may consider them current or future states, depending on whether you are considering your current situation or where you would like to be in the future.

Your key drivers will determine both the delivery model and supplier selection method and attributes. In the past it has been necessary to decide only the delivery model because the supplier selection process and delivery model have been linked; however, it is now not uncommon to mix and match these. For

example, price can be considered in an alliance/collaborative agreement supplier selection process if a competitive alliance model is used, or price may not be considered in a traditional model if a purchaser nominated price is used.

3.2.3 Determine a delivery model that best achieves key drivers

The case studies and literature review identified the key drivers as being differentiators for selecting the right delivery model. Other key drivers besides those in table C.1 may also be considered providing there is evidence to support how well each delivery model achieves them.

For clarity, appendix C, section C2 includes a commentary on each of the key drivers followed by the definitions, advantages and disadvantages of each delivery model (section C3).

Once you have accessed the Excel delivery model selection tool matrix ([click here](#)), click on the drop-down menu for each driver and input the assessment rating determined in section 4.2.2. Next input the key driver weightings also determined as above. The spreadsheet will automatically calculate the scores for each delivery model option with the preferred model having the highest score. A copy of this delivery model selection tool follows.

Figure 4.2 Proposed delivery model selection tool matrix

No	Key Driver	Key Driver Assessment (High/Medium/Low)	Key Driver Importance Weighting	Delivery Model Ratings								
				Traditional		Performance		Alliance		Framework		
				Raw	Wgted	Raw	Wgted	Raw	Wgted	Raw	Wgted	
1	What is the RCA's smart buyer capability?											
2	What is the RCA's smart buyer capacity?											
3	How strong is the RCA's desire to control the work programme?											
4	How healthy is the RCA's supplier market, including the number of potential players?											
5	How good is the availability of quality network data?											
6	How flexible, as opposed to stable, are the RCA's funding levels and levels of service?											
7	What is the RCA's risk appetite?											
8	What is the RCA's appetite for improved value for money (VfM) and continuous improvement?											
9	What is the RCA's appetite for commercial tension?											
10	What is the RCA's appetite for a collaborative model?											
11	What is the RCA's appetite for sustainable pricing?											

No	Key Driver	Key Driver Assessment (High/Medium/Low)	Key Driver Importance Weighting	Delivery		Model		Ratings				
				Traditional		Performance		Alliance		Framework		
				Raw	Wgted	Raw	Wgted	Raw	Wgted	Raw	Wgted	
12	What is the RCA's appetite for outstanding customer care?											
	Total Weighted Score		100		0		0		0			0

3.2.4 Sensitivity test the model

It is important to sensitivity test the preferred delivery model to ensure it can remain robust and enduring for the period of the contract.

The biggest changes likely to occur over the contract's duration could be those resulting from boom bust cycles, changing political objectives or changing organisational maturity. All these could change the importance and/or assessment of key drivers. It is therefore suggested:

- As a minimum, the matrix selection tool is run with equal weightings for all key drivers to see if there is any significant difference in the preferred model from that used for the weightings developed through the workshop process.
- If there is a reasonable risk of the assessment of key drivers changing in the foreseeable future, then the matrix selection tool should be run with the revised assessment to see if there is any significant difference in the preferred model.

It is important to stand back and consider at a high level if you have chosen the appropriate model. A quick test for this is to ensure your preferred model aligns with when you should and should not be using it, as set out in section 3.3.2.

3.2.5 Confirm preferred model and fine tune to a hybrid if necessary

The case studies have shown that many currently used delivery models are a mix of the traditional, performance and alliance/collaborative models.

In recognition of this an RCA's delivery model evaluation team might consider identifying a number of feasible alternative options, including the status quo, and evaluating them using the selection matrix in figure 4.2. The team could do this by using table C.1 of appendix C to design from first principles a number of delivery model options that would suit their key drivers by matching these with the delivery model characteristics they were seeking. These would identify the most important key drivers for the RCA's purposes and use table C.1 to find the delivery model that best delivers the key drivers. It is most unlikely that one delivery model will dominate this process, so a number of options could be developed and tested. This would lead to a custom built bespoke delivery model.

Alternatively, the delivery model that best suits the most important key drivers could be used and enhanced with the characteristics of other key drivers. For example, this approach could end up with an enhanced traditional model with performance measures and a collaborative culture.

4 Conclusions

The following conclusions can be drawn:

- 1 The case studies and literature review have enabled the identification of RCA key drivers for delivery models and the development of a delivery model selection matrix tool.
- 2 Key drivers of road maintenance delivery models are not fixed and change according to the RCA's and the market's changing needs/desires thereby resulting in the development of new delivery models.
- 3 Similar key drivers suit particular road maintenance delivery models thereby enabling the development of a delivery model selection matrix tool.
- 4 RCAs need to understand the key drivers, the importance to their organisation and the characteristics of the various delivery models in order to use the matrix approach suggested for determining a road maintenance delivery model that is right for them.
- 5 A workshop process facilitated by an independent facilitator and involving key RCA staff as well as those who will be approving the contract, and one or two independent industry experts should be used to determine the best delivery model when applying the matrices for individual RCAs.
- 6 The proposed delivery model selection matrix tool aligns with the UK Highway Maintenance Efficiency Programme's (HMEP) (2014) toolkit and guidance document *Procurement route choices for highway maintenance services*, but note that New Zealand has some different conditions and model options.

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Appendix A: REG smart buyer self-assessment tool

Assessment is based on the smart buyer characteristics identified in the RMTF (2012) report. This statement of characteristics is included at the end of this appendix.

Score the following by ticking the appropriate box – (1) Disagree to (5) Strongly Agree

Whenever you score yourself '4' or '5' think of an example you can use to justify your score to an independent auditor or the other attendees at this workshop

Assessment statement Our organisation	Score				
	1	2	3	4	5
1. Fully understands the different contracting models available					
2. Holds meetings that update the contracting industry on the forward works programme and any changes it is taking in approach, and proactively engages with the contracting industry to ensure that it gains optimal value out of any changes being implemented					
3. Has sufficient robust data (or is in the process of gathering robust data) on networks that enables optimal integrated decision making					
4. Has access to expertise that fully enables best use of the data available					
5. Is open to alternative solutions to those proposed in the contract documents					
6. Understands risk and how to allocate and manage it					
7. Has a council that is prepared to pay more now to achieve a lower whole-of-life cost					
8. Actively pursues value for money and does not always award contracts to the lowest price					
9. Is able to manage supplier relationships/contracts to ensure that expenditure is optimal and sustains infrastructural assets at appropriate levels of service					
10. Supports ongoing skill and competency training and development for its staff					
11. Actively participates in gatherings to share and gain knowledge within the sector					
12. Is effective in keeping up with best practice in procurement including best practice RFP/contract documentation					
13. Regularly seeks and receives candid feedback from suppliers on its own performance as a client and consistently looks to improve its performance					
14. Explores opportunities for collaboration by either sharing in-house resources with neighbours, or by procuring together or tendering together. That exploration could be through an LGA s17A evaluation of transport function delivery options.					
Number of ticks in each column					
Multiplying factor	x1	x2	x3	x4	x5
Total score in column					
Total score					

Score: Interpretation

65 to 70:	Our organisation is a smart buyer – people love working for us and with us!
55 to 64:	Our organisation has embraced smart buyer principles but still has some areas where it can improve
45 to 54:	Our organisation gets by but has opportunities for improvement
30 to 44:	Our organisation is not rocking the boat when it comes to pursuing value for money
0 to 29:	Our organisation is a bit of a basket case!

If you were to repeat this assessment in say one or two years' time, how do you expect it will have changed, which questions will show the greatest change (up or down) and what action/inaction on the part of your organisation will have been the driver of that change?

A1 The need for 'smarter buyers' (source: Road Maintenance Task Force 2012, pp36 and 37)

A theme that underpins a number of the conclusions of this review is that RCAs must be both efficient and effective managers of their road assets and smart buyers of the services they require. These issues strongly relate to the concept of 'smart procurement' with a balanced focus across 'the three Es':

- 1 Economy – through securing (or supporting) the provision of products, materials and expertise with the quality, in the volumes and at the times and locations required, at the lowest price
- 2 Efficiency – through the processes used, including standard documentation and contracting forms selected for achieving best cost/quality and outcomes; and knowledge of the product/materials and supplier market applied
- 3 Effectiveness – taking opportunities for changing from traditional products and materials by maintaining support for innovation in the nature and characteristics of products and materials, and for a strong supplier market.

The impact of raising the capability of RCAs includes reduced supplier selection process costs, better management of risk and more objective assessment of performance for use in future supplier selection processes.

The contracting industry has provided the following useful analysis of the characteristics of a smart buyer: Some RCAs are smart buyers, but this is believed to be the exception.

Smart buyers have:

- an improved understanding of costs that better inform their decision-making process
- an understanding of the impact delivery models and supplier selection criteria can have on the value of contracts
- robust forward work programmes that are communicated to the industry and supported by budgets that allow the work to be completed
- knowledge of the network to determine treatments required based on physical evidence and supported by knowledge of the costs involved
- in-house expertise that aids the decision-making process and allows acceptance of innovative solutions possibly with or without the involvement of consultants

- a clear understanding of risk and how it is allocated and managed
- an understanding that lowest price will not always deliver desirable outcomes
- an understanding that being prepared to pay more may result in enhanced whole-of-life value for money.

Not so smart buyers:

- award contracts predominately based on price – with little appreciation of any risk to best value for money
- outsource work to the detriment of asset knowledge
- choose contract forms that are fashionable, not well understood and poorly managed
- lack technical and contractual management skills
- lack asset management skills, which prevents the development of robust forward work programmes
- do not support forward work programmes with appropriate budgets.

The RMTF members debated the nuances around individual items in these lists but believe that they provide a platform on which to build a list of the characteristics that would be exhibited by an RCA with the capability and the capacity to be a smart buyer.

One RMTF member described a smart buyer in the following terms:

A 'smart buyer' RCA ensures its staff are up-to-date, regularly shares best practice experiences with colleagues from other agencies and supports and resources their teams appropriately in the recognition that getting the strategic direction right is a very small cost compared to the consequence of getting it wrong. This requires staff to be involved in regular training, attendance and participation in sector gatherings, and involvement in NZTA investigating teams and the like. Ironically in the interests of 'cost-saving' many agencies are limiting staff involvement in these activities. A smart buyer does not ask the question – what if I train my staff and they leave? – but rather asks the question – what if I don't train them and they stay.

Appendix B: Different delivery model drivers

This appendix lists findings from the case studies and literature review relating to the drivers of different delivery models:

B1 Traditional

- RCA has reasonable certainty of contract scope and the required performance and programme
- RCA wants to drive the work programme
- Improved contractor performance from previous contract
- Contractor is better aligned to community needs
- Sustainability of market in remote rural market by:
 - encouraging competition through the option of unbundling and supplying metal
 - valuing bids with succession planning
- Flexibility to enable change
- Simple and easily understood
- Better targeting of each asset type and a healthy market
- Method of payment usually ‘measure and value’ to share quantity risk but the contractor takes cost risk
- Better quality supplier through:
 - price quality trade-off selection method
 - medium-to-long term contract duration with potential rollover
 - small-to-medium size contracts, unbundled.

B2 Performance-based contract (PBC)

- RCA has enough network information for contractor to price contract
- Good levels of contract governance established
- Being a smart purchaser
- Improved performance outcomes through better definition
- Improved value for money through:
 - a whole of corridor fence to fence approach
 - the right treatment at the right place
- Flexibility to deal with funding and level of service (LoS) change through performance measures
- Benchmarking across contracts
- Healthy market through subcontractor input and up-skilling

- Change in culture, NZ Transport Agency and suppliers
- Healthy working relationships
- Maintaining some form of commercial tension
- Self-certification with RCA-controlled checks
- A well-balanced risk profile
- Contract drivers aligned with RCA's objectives through meeting the social, environmental and cultural requirements of the council's procurement plan
- Quality assurance and clear defects liability requirements
- Implementation process management
- Resources provided in emergency situations
- Competition for and employing local subcontractors
- Seeking higher quality workmanship
- Better quality supplier through:
 - price-quality trade-off selection method
 - long-term contract duration with potential rollover
 - large contract size, greater than 500 km
- RCA risk optimised through lump sum, measure and value and dayworks method of payment.

B2a Performance-specified road maintenance contracts (PSMC)

- No internal staff so can better target areas and can focus on governance and strategic issues
- Certainty in expenditure and rates
- Minimised and controlled input costs through competition
- Specified outcomes
- Stability in workforce
- Drive innovation
- Better quality supplier through:
 - price-quality trade-off selection method
 - long-term contract duration with potential rollover
 - large contract size
- RCA risk minimised through lump sum method of payment.

B3 Alliance

- RCA wants to and has the capability to be directly involved in the contract

- RCA is uncertain of contract scope, required performance and programme as needs to make significant cost savings
- RCA needs flexibility around funding and LoS
- Sustainable pricing
- Performance management
- Aligned with business objectives
- Improved customer service and management
- Best for asset/network approach
- Financial asset sustainability
- Customer care
- Value for money
- Delivering operational excellence
- Enabling smarter journeys
- Growing ideas
- Sharing knowledge and experience
- Flat-lined expenditure and fit-for-purpose network
- Safety
- Succession planning
- Market stability and sustainability
- Cost effectiveness
- Achievement of programmes and reducing backlog
- Better quality supplier through:
 - quality-based selection method
 - long-term contract duration with potential rollover
 - large contract size
- RCA risk optimised through cost input payment overheads and profit, with the RCA and contactor sharing all risk.

B4 Frameworks

- Availability of RCA resources
- RCA wants access to a number of specialist skills
- Better competitiveness
- Flexibility around appointing suppliers
- No work if no performance

- Ability to up-skill suppliers
- Method of payment measure and value to share quantity risk but have the contractor take cost risk
- Selection processes price/quality trade-off
- Duration short/medium term
- Size both very small and large.

Appendix C: Key drivers and delivery models

C1 Overview

The case studies and literature review identified a number of drivers as being differentiators for selecting the right delivery model.

The following tables contain an assessment derived from the case studies and literature review on how well each delivery model achieves particular drivers. Table C.1 relates to key drivers used in the delivery model selection matrix (see chapter 5), table C.2 secondary drivers and table C.3 other delivery model characteristics.

Commentary on each of the drivers is provided after these tables, followed by the definitions, advantages and disadvantages of each delivery model.

Table C.1 Key drivers and delivery models

Key drivers	Delivery model assessment			
	Traditional	Performance	Alliance	Framework
What is the RCA's smart buyer capability?	Low Additional professional services may be used to supplement the RCA's capability	Medium These contracts involve: <ul style="list-style-type: none"> • strategic asset management • performance management and reporting systems 	High These contracts involve: <ul style="list-style-type: none"> • strategic and tactical asset management • collaboration • commercial acumen • performance management and reporting systems 	Low
What is the RCA's smart buyer capacity?	Medium if only one contract High if multiple contracts	Medium because although RCA needs to monitor performance data, it does not have to programme work	Medium because more client involvement but offset by reduced interface administration	High because of multiple contracts and allocation of work packages during contract term
How strong is the RCA's desire to control the work programme?	High	Low as work programming carried out by contractor	Medium as work programming carried out by RCA and contractor	High
How healthy is the RCA's supplier market, including the number of potential players?	All contractor sizes	Medium , with large contractors as main contractor but can utilise subcontractors to maintain healthy market	Large contractors as main contractor but can utilise subcontractors to maintain healthy market	All contractor sizes
How good is the availability of quality network data?	Minimal	Extensive	Medium	Minimal
How flexible, as opposed to stable, are the RCA's funding levels and levels of service?	High	Low	High	High

Key drivers	Delivery model assessment			
	Traditional	Performance	Alliance	Framework
What is the RCA's risk appetite?	Some risk sharing	Most risk with contractor	Total risk sharing between RCA and contractor	Some risk sharing
What is the RCA's appetite for improved value for money and continuous improvement?	Low	High	High	Low to medium
What is the RCA's appetite for commercial tension?	High	High	Low, unless a competitive alliance	Medium
What is the RCA's appetite for a collaborative model?	Medium	Low	High	Medium
What is the RCA's appetite for sustainable pricing?	Low as subject to market conditions, unless nominated purchaser price	Low as subject to market conditions, unless nominated purchaser price	High as open book	Medium as can switch to another supplier
What is the RCA's appetite for outstanding customer care?	Medium	Medium	High due to one structured team approach	Medium

Table C.2 Secondary drivers

Secondary drivers	Delivery model assessment			
	Traditional	Performance	Alliance	Framework
Is What is the RCA's ability to decide all requirements prior to tendering?	High	High	Low	High
What is the RCA's appetite to appoint multiple suppliers on a skills basis?	Medium	Medium	Medium	High
What is the RCA's appetite for better ownership of network by suppliers?	Low as RCA controls programme	Medium as supplier controls programme	High as supplier and RCA work together to achieve in empowering environment	Low as only brought in when needed
What is the RCA's appetite to enforce the contract using performance indicators?	Low	High	Medium	Low

Secondary drivers	Delivery model assessment			
	Traditional	Performance	Alliance	Framework
What is the scale; is the network greater than 500 km?	Small to medium	Medium to large	Large to medium	Medium
<ul style="list-style-type: none"> What is the RCA's appetite for close involvement and collaboration with the work? 	Limited to culture and not enhanced by form of contract	Medium if there is a Management Board	High because of culture, form of contract and KPIs	Limited to culture and not enhanced by form of contract

Table C.3 Other characteristics of delivery models

Characteristics	Delivery model assessment			
	Traditional	Performance	Alliance	Framework
Required supplier capability	Low	High <ul style="list-style-type: none"> Asset management and analysis Performance management analysis and reporting systems 	Medium <ul style="list-style-type: none"> Strategic and tactical asset management Collaboration Performance management and reporting systems 	Low In required area of expertise
Ability to provide cost transparency	Limited	None	All	None
Good levels of governance required	Limited due to contract size	Medium due to KPI reporting	Strong due to joint objective of best for road	Limited due to multiple suppliers
Growing ideas and improving innovation	Limited	Medium/high because of emphasis on results and not method	High because of: <ul style="list-style-type: none"> collaborative nature best for network Possible payment for R & research and development	Limited but can be incentivised if work linked to performance
Encouraging competition between local suppliers	Suits normal but difficult to attract bids in a boom	Can be used at any time but useful in a recession as it requires the contractor to take the risk	Can be used at any time but useful in a boom as it shares the risk and encourages bids. Can eliminate the risk of unsustainable prices in a recession	Suits normal, but can be used in a boom to secure bidders
RCA or supplier succession planning	Limited if short term Medium if long term	High	High	Medium

Characteristics	Delivery model assessment			
	Traditional	Performance	Alliance	Framework
Simplicity	Simple and well known	Complex	Complex	Medium Simplicity
Method of payment	Lump sum or measure and value or dayworks	Predominantly lump sum	Cost inputs plus profit margin plus overheads with profit margin adjustment for non-performance	Lump sum or measure and value or dayworks
Contract duration	Short to medium term	Medium or long term	Long term	Medium or long term
Typical supplier selection	Lowest price or quality price trade-off	Quality price trade-off	Non-price attributes	Quality price trade-off
Ability to enable clustering	Most popular current model, so easy to implement currently if wanting to cluster	More difficult to get agreement on model	More difficult to get agreement on model	More difficult to get agreement on model

C2 Comment on the drivers

Section C2.1 provides comment on each of the key drivers. Section C.2.2 provides comments on a selection of other drivers and characteristics of delivery models.

C2.1 Key drivers

What is the RCA's smart buyer capability?

- The NZ Transport Agency's *Procurement manual* suggests this is a critical consideration as different models require different levels of expertise from the RCA. If this expertise is not present the delivery model is very likely to fail.
- It is also important that there should be a general match of skill level between the RCA and the contractor. Uneven skill levels can lead to the frustration for one of the parties due to the lack of capability of the other party or can lead to one party having an unfair advantage over the other.
- In terms of future RCA capability, the alliance/collaborative agreement model can be used to grow the RCA's expertise if the RCA and contractor have a collaborative best for network approach.

What is the RCA's smart buyer capacity?

- Some delivery models are very demanding on the RCA and require the availability and commitment of significant resources. If these resources are not made available, the contract is likely to fail.

How strong is the RCA's desire to control the work programme?

- RCA involvement occurs because the RCA wants to ensure it gets what it wants.
- Some years ago, RCAs were very involved and prescriptive about their requirements focusing on the 'how' and not on the 'why'. This often limited innovation because it was out of scope and sometimes produced sub-optimal outputs.

How healthy is the RCA's supplier market, including the number of potential players?

- Healthy competitive markets have been noted as essential by the Productivity Commission and the Auditor-General. The Productivity Commission has published the following criteria for determining healthy competitive markets:
 - domestic tradability – the number of actual and potential competitors
 - import penetration – the number of overseas competitors
 - rate of firm entry and exit – the amount of activity
 - price-cost margins (PCMs) – that they are not excessive
- It is important to analyse the market prior to determining the type of contract to ensure there are sufficient potential tenderers for the contract. Time may sometimes be needed to enable suppliers to form joint ventures to improve competition.

How good is the availability of quality network data?

- Good quality data is vital for some contracts to enable the supplier to price the work. The more performance based the contract, the higher quality the data needed for the supplier to price the work.
- Tenders based on poor quality data may cause the contractor to fail.

How flexible, as opposed to stable, are the RCA's funding levels and levels of service?

- This was seen as important to accommodate changes in available funding levels, changing customer expectations and requirements, and trade-offs in the level of service. This has become more necessary since the global financial crisis and is likely to remain so for some time given NZ Transport Agency's One Network Road Classification system.

What is the RCA's risk appetite?

- Risk is always best allocated to the party who can best mitigate or manage it. This means an extra cost (risk premium) to the RCA when suppliers are required to take risks they cannot control. However, this may be acceptable to a RCA as the cost for price certainty.

What is the RCA's appetite for improved VfM and continuous improvement?

- Some of the newer contract types of longer duration build in continuous improvement and provide drivers for this. In some ways this supplements competitive market price tensions, which over time also drives efficiency.

What is the RCA's appetite for commercial tension?

- Commercial tension is required in all contracts to ensure the contract price/costs are not inflated. There are two ways to achieve commercial tension, the first being competition on price and the second being benchmarking against market rates.

What is the RCA's appetite for a collaborative model?

- Collaboration occurs when two parties with different objectives work together for a common goal.
- Collaboration is very effective at improving value for money because different parties see things from different perspectives, and collaborating brings them together, creating a synergy greater than the sum of the parts.

What is the RCA's appetite for sustainable pricing?

- Cost transparency is important for those RCAs that wish to focus on making sustainable cost savings that are independent of price swings in the market resulting from changes in supply and demand or risk transfer. Cost transparency enables cost structures to be determined so cost efficiencies can be identified and targeted.

What is the RCA's appetite for outstanding customer care?

- A customer outcome focus is one of the objectives of the One Network Road Classification system and all RCAs measure customer satisfaction. The delivery model can either impede or enhance customer care with some being more customer oriented than others.

C.2.2 Selection of other drivers/characteristics

Required supplier capability

- It is important to assess the supplier (as well as the RCA's) market capability before the delivery model is decided to ensure the potential supplier market has sufficient supplier capability to carry out the contract.

Encouraging competition between local suppliers

- Boom/bust cycles cause issues for RCAs. In boom times most suppliers are busy so RCAs need to use delivery models that are attractive to the supplier making them a client of choice. The opposite is the case in a recession where there are too many tenderers wanting to win the work. This can lead to unsustainable price situations, which is not desirable for the RCA. Different models are better suited to preventing these situations.

Contract duration

- All case studies across all contract types were of long-term duration.
- It appears that RCAs recognise the value of the stability of long-term contracts to:
 - build and maintain relationships and teams
 - build, maintain and utilise network knowledge
 - enable the contractor to plan and invest.

Cost of developing and running delivery model

- RCAs are usually resource constrained and prefer models with low administration costs. Long-term contracts and prequalification can assist this.

Growing ideas and improving innovation

- Innovation creates value for money benefits.
- Innovation can be as much about systems and processes as about the design or construction. It requires a culture of continuous improvement as a learning organisation. It is often difficult for suppliers to be innovative without the input of the RCA as technical and commercial risk is often increased for a time.

C3 Delivery model definitions, advantages and disadvantages

C3.1 Traditional

This delivery model requires the RCA or its agent to undertake the work programming along with any design work, asset management and contract administration. The physical works contract can be developed and managed by either the RCA or its consultant and for maintenance contracts the design function is usually minimal.

Payment to the contractor is usually by measure and value based on the work programme outputs set by the RCA/consultant with elements of lump sum and cost reimbursable work for those items with outputs that are difficult to measure (eg surface detritus) or where risk is difficult to assess (eg emergency works). Measure and value shares the risk of variable quantities between the supplier and RCA but the cost risk remains with the contractor as the contract rates are fixed. Cost is therefore reasonably certain, provided the schedule of rates is accurate.

Work activities are determined by the RCA/consultant. However, this can lead to an artificially high contract cost if there are loaded rates in the schedule, or the contractor is not confident that efficient work packages will be programmed. Items not included in the original contract scope prepared by the consultant and RCA are paid as extras through variations. This implies contract documents must be of a high standard before going to tender.

Table C.4 shows the advantages and disadvantages of traditional contracts.

Table C.4 Advantages and disadvantages of traditional contracts

Advantages	Disadvantages
Widespread use, experience and familiarity	Can be adversarial because of conflicting objectives
Direct owner participation and control, including cost control	Large RCA or consultant resource needed to administer extensive management
Suitable for both experienced and inexperienced RCAs	High transactional cost
Suitable for all sizes of contractors	Can result in overly conservative design specifications, if design/asset management function is included
Consultant enhances the RCA's smart buyer capacity if needed	Not suitable for very complex networks
RCA can minimise risk	Potential disconnect between asset management and suppliers because of divided responsibilities
The RCA has certainty provided the contract is scoped correctly	Less incentive for innovation
Can overcome the risk of a lack of competition using SME local contractors	All doubts and errors in documentation need to be identified by the contractor at the time of preparing the tender
Flexible	Contractor can load rates when measure and value is used
Simple	Contractor unlikely to own the outcome of the work they perform
	May not give contractor efficient work packages

C3.2 Performance

This approach combines the design/asset management and construction functions to ensure production is optimised. The RCA specifies their performance requirements through performance indicators/material properties specifications and the contractor is required to meet them in delivering the maintenance services. The RCA usually specifies basic material standards, but not method.

The method of payment is usually lump sum and failure to comply with the performance indicators or to promptly rectify revealed deficiencies adversely affects the contractor's payment through a series of clearly defined penalties. In case of compliance the payment is regularly made, usually in equal monthly instalments.

Performance-specified road maintenance contracts (PSMCs) define the minimum conditions of road, bridge and traffic assets that must be met by the contractor.

The choice of work activities and application of technology along with the pursuit of innovation in materials, processes and management are all up to the contractor. This usually means all work activities need to be included in the one contract, so the contractor can optimise the work programme and look for innovation over all activities. If the performance measures are not set correctly they can lead to perverse outcomes not in line with the RCA's expectations such as unintentional transfer of risk (network condition) back to the RCA.

Typical performance standards are the:

- International Roughness Index to measure the roughness of the road surface, which affects vehicle operating cost
- absence of potholes and the control of cracks and rutting

- minimum amount of friction between tyres and the road surface for safety reasons
- maximum amount of siltation or other obstruction of the drainage system
- retro-reflexivity of road signs and markings
- control of vegetation close to the roadway to a specific height.

Table C.5 shows the advantages and disadvantages of performance contracts.

Table C.5 Advantages and disadvantages of performance contracts

Advantages	Disadvantages
Enable RCA to focus on big picture outcomes and not get distracted operationally	Defining performance standards can be challenging
RCA performance expectations are clearly defined	Lengthy and expensive procurement process
Significant risk transfer to contractor	Requires extensive data for procurement and definition of outcomes
Potential cost certainty and savings resulting from aggregation and bundling	
Can be used to engage multiple specialist suppliers	Only suited to medium to large contractors with SMEs as subcontractors
Provide a clear financial incentive for contractors to meet performance standards	Self-auditing of own work to meet performance measures
Contractors are incentivised to improve their efficiency and minimise waste because they are paid at a set level for performance	Lack of direct RCA participation, control and flexibility
Minimal transactional costs	
Single point of contract and responsibility thereby removing the risk of dispute between design/asset management and contractor	Change management needed as model not familiar to all
	Reduced flexibility regarding funding levels and level of service changes

C3.3 Alliance/collaborative agreement

This approach not only combines design/asset management with construction to ensure production is optimised, but the RCA is included as part of the alliance/collaborative agreement as well. All parties work collaboratively to ensure a 'best for network' result. Performance measures are developed and agreed by all the parties who operate in a positive, no blame culture. All parties also agree the specifications.

Alliance/collaborative agreements rely not on market prices to deliver value for money (which can fluctuate depending on supply and demand), but efficiency KPIs combined with benchmarking. By understanding the cost structures of work activities, sustainable and genuine value for money improvements can be targeted. The RCA in an alliance/collaborative agreement receives a percentage of the savings made during the contract term, rather than any savings all going to the supplier.

The alliance/collaborative agreement payment mechanism is based on input costs, overheads and an agreed profit margin. In essence the supplier is paid on inputs. Once the alliance/collaborative agreement team has agreed the performance measures and the work plan to achieve them, a total cost estimate is produced and independently peer reviewed using recent market rates. This total cost estimate is in effect the RCA's annual maintenance budget and can be further peer reviewed by comparing it with budgets of

previous years. A number of case studies showed the achievement of flat-lined maintenance costs for several years, with one up to seven years. The flat-lined cost had not been adjusted for inflation.

In essence this approach identifies at an early stage any inappropriate performance measures and has the mechanisms to correct them.

Table C.6 shows the advantages and disadvantages of alliance/collaborative agreements.

Table C.6 Advantages and disadvantages of alliance/collaborative agreements

Advantages	Disadvantages
RCA gains a share of any cost savings and value for money initiatives.	More difficult to ascertain and fix contract price at outset and the total cost estimate can be set too high
Direct RCA participation, control and flexibility	Not all RCAs are familiar with this procurement method, which requires a high level of RCA involvement
Collaborative and non-adversarial	Have been a lengthy and expensive procurement process in past but not more recently
Provide for continuous improvement and value for money	RCA can be exposed to capped cost overrun
Joint responsibility	Only suited to skilled RCAs
Allow long-term strategic partnerships	Only suited to medium to large contractors with SMEs as subcontractors
Support a best for network approach	May be seen as non-competitive and difficult to show any price tension
Sharing of risk rather than transfer	Relatively complex and require extensive coordination
Usually reduce customer response times by half	Only work for a collaborative RCA contractor consultant and their staff
Provide flexibility to handle budget and levels of service changes	
Performance defined	
Good for managing complex networks	
Allow optimal use of combined RCA/contractor resource	

C3.4 Framework

This approach divides the design/asset management and construction functions making them separate sequential processes. The RCA establishes panels of contractors or consultants based on their expertise. It then engages specific contactors or consultants as needed to match the skills and experience sought.

Appointment to the panel is mainly based on the scoring of attributes according to the skills and experience required, as determined by the RCA. Measure and value is usually the method of payment with a schedule of rates also submitted with the bid.

Framework contracts have mainly been used for road maintenance consultant work in New Zealand and rarely for physical works. Kaikoura District Council used a framework contract as an interim measure while it was developing its new maintenance contract but discontinued it because it was too resource intensive.

All work activities to be carried out are determined by the RCA.

Table C.7 shows the advantages and disadvantages of framework contracts:

Table C.7 Advantages and disadvantages of framework contracts

Advantages	Disadvantages
Achieve consistency when there are a number of similar activities across a programme	Very resource intensive for the RCA in terms of determining work programmes, scope and coordination
Develop a long-term relationship with supplier(s)	Do not promise the supplier work but agree on processes for when work comes along
Provide specialist skills	There is no performance framework and the RCA accepts all risk
Effective for a large volume of work involving a number of activities.	
Provide a choice of suppliers for selection at short notice.	
Provide opportunities for a panel of suppliers to work together to provide increased value for money to the RCA.	

Appendix D: Case studies and findings

D1 List of case studies

Table D.1 lists the case studies, including the lead interviewee for each delivery model.

Table D.1 List of case studies

Delivery model	Organisation	Lead interviewee
Traditional	Ruapehu District Council – RDC Tasman District Council – TDC	Warren Furner Jamie McPherson
Performance based – bundled and aggregated	NZ Transport Agency Highways and Operations – NOCs Kaikoura District Council – KDC Western Bay of Plenty – Westlink PSMC	Jack Hansby, Gerry Essenberg Jim Patterson
Alliance/collaborative agreement	Waikato District Council – WDC Hamilton District Council – HDC NZ Transport Agency Highways & Operations – Auckland Motorway Alliance (NZ Transport Agency – AMA) Southland District Council – SDC Central Otago District Council – CODC	Chris Clarke Chris Allen Steve Mutton Joe Bourque Julie Muir
Framework	Kaikoura District Council – KDC	Gerry Essenberg

D2 Case study findings

Table D.2 (1) Ruapehu			
In-house capability	Contract dimensions and scope	Strategic objectives of contract	Contract special characteristics
<ul style="list-style-type: none"> Only two staff, most professional services by consultants also two staff. Consider themselves to be smart purchasers because of virtual alliance with consultants. Strengths: the right people now and succession planning – very important because of remoteness. Weakness is the need to have specialist consultants available. 	<p>Urban sealed 105 km Urban unsealed 9 km Rural sealed 374 km Rural unsealed 858 km</p> <p>Total 1,346 km</p> <p>Nine traditional contracts covering:</p> <ul style="list-style-type: none"> sealed maintenance \$2.1M unsealed maintenance \$3.5M bridges \$0.8M environment x3 \$0.3M traffic services x3 \$1.7M metal supply \$0.7M <p>Total \$9.1M</p> <p>Method of payment:</p> <ul style="list-style-type: none"> Lump sum, measure and value, and dayworks. <p>Supplier selection:</p> <ul style="list-style-type: none"> Price quality method. 	<ul style="list-style-type: none"> Improved contractor performance from previous contract by using the price quality supplier selection. Contractor aligned to community needs. Sustainability of market in remote rural market by: <ul style="list-style-type: none"> encouraging competition through the option of unbundling and supplying metal valuing bids with succession planning. 	<ul style="list-style-type: none"> Tailored for remote rural market. Mainly measure and value because lump sum items not carried out. RCA supplies metal to enable participation by other contractors who otherwise could not compete. Request for tender (RFT) allowed bundling but unbundled was best offer. Five contractors delivering on nine contracts. Reintroduces ‘roadman’ but with a vehicle to respond to customer complaints (not the traditional roadman role). Aggregate supply arranged by RCA. Contractors collaborate amongst themselves. Carrying out cyclic maintenance on cost-plus basis.
Contract size	Risk and mitigation	Market analysis	
<ul style="list-style-type: none"> Determined by market. RFT invited offers for full bundling or unbundled. Within each bundle work was aggregated across the district. 	<ul style="list-style-type: none"> Remoteness and market failure – sustainability in tender evaluation. Non-performance from lump sum items – measure and value and dayworks. RDC de-risked the contract by taking 	<ul style="list-style-type: none"> Suppliers indicated stable long-term contracts with smaller scope would suit their operations and ability to grow. Suppliers also indicated that if RDC supplied the metal more contractors could compete. 	

Table D.2 (1) Ruapehu			
	<p>all risk.</p> <ul style="list-style-type: none"> Having so many contractors for the RCA to manage. 		
Delivery options considered	Contract performance results	Supplier selection process successful	
<ul style="list-style-type: none"> Performance – rejected because of very poor result of current performance contract. Alliance with Whanganui neighbour – rejected because too far away for efficiencies. Traditional delivery model accepted because it met the assessment of model selection criteria from the RMTF report (Opus) on delivery models, utilised local contractors and enabled them to grow. 	<p>Rated 6.5 out of 10 after one year evidenced by:</p> <ul style="list-style-type: none"> a new workforce emerging and gaining confidence absolutely achieving quality results professional communication between parties. 	<p>RCA rated 8 out of 10 as evidenced by:</p> <ul style="list-style-type: none"> year one has exceeded expectations suppliers are responsive and willing to cooperate trust and confidence exist. <p>Contractor rated 6 out of 10 as evidenced by:</p> <ul style="list-style-type: none"> still a way to go for all contractors to work seamlessly can improve on transparency and vision. 	

Table D.3 (2) Tasman			
In-house capability	Contract dimensions and scope	Strategic objectives of contract	Contract special characteristics
<ul style="list-style-type: none"> Eight in-house staff do 80% of the work. Consultant does dTIMS, reseals programme and structures. Consider themselves to be smart purchaser. Strength is in skills and experience – two very experienced young engineers. Weakness is they are a new team and still settling in. 	<p>Urban sealed 219 km Urban unsealed 3 km Rural sealed 745 km Rural unsealed 758 km</p> <p>Total 1,725 km</p> <p>Three traditional contracts</p> <p>Urban maintenance \$1.0M Rural maintenance \$3.5M Murchison \$0.8M Reseals \$1.7M</p>	<ul style="list-style-type: none"> Flexibility to enable change. Simplicity and easily understood. Better targeting of each asset type and a healthy market. Better ownership of network by suppliers. 	<ul style="list-style-type: none"> Measure and value and keeping approval of works with RCA. Plain language and simple intervention levels. Unbundling. Separated into four areas.

Table D.3 (2) Tasman			
In-house capability	Contract dimensions and scope	Strategic objectives of contract	Contract special characteristics
	Road marking \$0.2M One NOC with NZ Transport Agency \$2.5M Total \$9.7M Method of payment (both contracts): <ul style="list-style-type: none"> • Measure and value and dayworks. Supplier selection (both contracts): <ul style="list-style-type: none"> • Quality price trade-off. 		
Contract size	Risk and mitigation	Market analysis	
Decided by unbundling and district split into four areas.	<ul style="list-style-type: none"> • Potential disconnect between asset management and suppliers – in-house staff need to work hard to avoid this. • Non-performance of Murchison contract as very small – local supplier used. 	<ul style="list-style-type: none"> • Only two main players so fear of monopoly. Hence unbundling. • Other main players work for other clients. 	
Delivery options considered	Contract performance results	Supplier selection process successful	
<ul style="list-style-type: none"> • Framework panel – rejected because of resource effort required from in-house staff and no continuity for contractors to upskill due to uncertainty. • Performance based – rejected because of previous bad experience where the asset was consumed due to not having have the right KPIs and because the consultant was in the middle and prevented TDC getting close to its customers. • Traditional delivery model accepted because it enabled the outcomes and 	<ul style="list-style-type: none"> • Too early to tell as contract just let. • Will be looking at annual report LoS, achievement of customer LoS and network state to determine contract performance. 	Rated 8 out of 10 as evidenced by: <ul style="list-style-type: none"> • very close tender which shows contract documents were well written • happy with contractor performance. 	

Table D.3 (2) Tasman			
In-house capability	Contract dimensions and scope	Strategic objectives of contract	Contract special characteristics
objectives to be achieved.			
Table D.4 (3) NZ Transport Agency NOC			
In-house capability	Contract dimensions and scope	Strategic objectives of contract	Contract special characteristics
<ul style="list-style-type: none"> Improved capability to undertake some professional services that are nationally planned and regionally delivered. Considerable extra capacity along with substantial upskilling of in-house staff required to provide the capability previously provided by consultants. Growing to be a smart purchaser. Strategic asset management. Have adopted a philosophy of right time, right place, right treatment. 	<p>23 maintenance contracts across New Zealand's 10,000 km of state highways. Management of bridges and structures in separate contracts.</p> <p>Method of payment:</p> <ul style="list-style-type: none"> lump sum, measure and value, and dayworks single single contract form for 21 contracts. <p>Supplier selection:</p> <ul style="list-style-type: none"> quality price trade-off. 	<ul style="list-style-type: none"> Include a whole of corridor approach. Flexibility to deal with funding and LoS change. Value for money through the right treatment at right place. Deliver performance outcomes. Benchmarking across contracts. Healthy market. Change in culture – NZ Transport Agency and suppliers. Working together with supply chains. Maintaining some form of commercial tension. Self-certification with RCA controlled checks. Balanced risk profile. Contract outcomes aligned with RCA objectives. Quality assurance and defects liability requirements. Implementation process management Good levels of governance. 	<ul style="list-style-type: none"> Aggregated and bundled. Collaborative contract. Primarily supplier model, consultant no longer between contractor and RCA. Focus on plans developmental and continual use. Contract Board.
Contract size	Risk and mitigation	Market analysis	

Table D.3 (2) Tasman			
In-house capability	Contract dimensions and scope	Strategic objectives of contract	Contract special characteristics
<ul style="list-style-type: none"> • The outcome from the options selection criteria favoured a move towards larger network areas. • Network segmentation analysis of previous contracts showed optimal length to be between 500 km and 1,000 km. • Aggregated all physical works and professional services into a single primary supplier. 	<ul style="list-style-type: none"> • Reduce future competition. Contracting capacity for other NZ Transport Agency and non-NZ Transport Agency works could reduce costs. • If changes are implemented too quickly or not well managed they will have adverse effects – provide sufficient time for industry to adapt. • New network areas will be implemented before the asset management group is in place and fully functioning. Use existing consulting resources if needed. • Due to the time to implement the outcome there will be variations of standards across contract areas – asset management group to develop strong relationships with regional asset managers. • SME contractors could be eliminated from the market – minimise barriers to entry and encourage joint arrangements • As network size increases RCA collaborations could reduce. Larger areas may not be perceived as responsive to local needs. 	<ul style="list-style-type: none"> • Sufficient competition with around six large capable contractors available. • Consultant industry comfortable with the new role of consultants. • Sub-contractors play a key role. • Undertook a market analysis to a set % of sub-contractors. 	
Delivery options considered	Contract performance results	Supplier selection process successful	
<ul style="list-style-type: none"> • Traditional delivery model rejected because of not working directly with the primary supplier. • PSMC rejected because of the lack of flexibility with the lump sum model. • Hybrid rejected as does not have a direct 	Too early to tell.	Too early to tell.	

Table D.3 (2) Tasman			
In-house capability	Contract dimensions and scope	Strategic objectives of contract	Contract special characteristics
<p>relationship with supplier alliance, option delivery model 2 – preferred for complex Auckland network.</p> <ul style="list-style-type: none"> NOC accepted as allowed for a primary supply model and built on the best elements from all contracts. 			
Table D.5 (4) Kaikoura (performance based)			
In-house capability	Contract dimensions and scope	Strategic objectives of contract	Contract special characteristics
<ul style="list-style-type: none"> One in-house senior engineer who does everything. Considered adequate for a smart purchaser. Strength is having competencies required. Weakness is other priorities at times. 	<p>Urban sealed 20 km Urban unsealed 1 km Rural sealed 80 km Rural unsealed 100 km Total 201 km One performance-based contract \$1.0M. Method of payment:</p> <ul style="list-style-type: none"> Lump sum, measure and value, and dayworks. <p>Supplier selection</p> <ul style="list-style-type: none"> Price quality method. 	<ul style="list-style-type: none"> Meets the social, environmental and cultural requirements of the council's procurement plan. Provides resources in emergency situations. Competition for upskilling and employing local subcontractors. Seeking higher quality workmanship. Despite remoteness, have expertise available as required. 	<ul style="list-style-type: none"> Contractor is to source a significant amount of work from local subcontractors. Increased management. Improve abilities of local subcontractors.
Contract size	Risk and mitigation	Market analysis	
<ul style="list-style-type: none"> The whole network due to its relatively small size and to minimise council resource demands. 	<ul style="list-style-type: none"> Contractor performance given remoteness. Strengthen contract's performance measures so they are truly enforceable. Market failure due to remoteness. Talk up market. 	<ul style="list-style-type: none"> Low interest from two large contractors as difficult for them to deliver. Adjacent medium to large contractor interested. Local contractors interested 	
Delivery options considered	Contract performance results	Supplier selection process successful	

Table D.3 (2) Tasman			
In-house capability	Contract dimensions and scope	Strategic objectives of contract	Contract special characteristics
<ul style="list-style-type: none"> Traditional delivery model rejected because difficult to enforce and existing potential contractors were poor performers. Framework rejected because of intense resourcing (it was used as an interim solution). Performance accepted because of its ability to measure performance. 	<p>Too early to tell but 60–70% of work is being undertaken by local contractors, which meets one of the strategic objectives.</p>	<p>Too early to tell but contractor is willing and cooperative.</p>	

Table D.6 (5) Western Bay of Plenty			
In-house capability	Contract dimensions and scope	Strategic objectives of contract	Contract special characteristics
<ul style="list-style-type: none"> Two in-house staff. Professional services delivered through the one service provider. Consider themselves smart purchasers because they know very clearly what they want, ie specific outcomes Strengths are systems, information and asset management expertise and governance and strategic issues. Weakness is cannot rely on documents to create culture. 	<p>Urban sealed 149 km Urban unsealed 1 km Rural sealed 695 km Rural unsealed 189 km Total 1,034 km</p> <p>One PSMC performance-based contract \$10.70M/pa. Method of payment:</p> <ul style="list-style-type: none"> Lump sum maintenance, measure and value for improvement works. <p>Supplier selection:</p> <ul style="list-style-type: none"> Quality price trade-off. 	<ul style="list-style-type: none"> Minimise and control input costs. Specified outcomes. No internal staff so can better target areas and can focus on governance and strategic issues. Certainty in expenditure and rates. Stability in workforce. Drive innovation. 	<ul style="list-style-type: none"> Joint NZ Transport Agency and Western Bay of Plenty contract. One lump sum contract. Specified LoS. Long-term – nine years. Professional services and physical works together under one contract. Performance measures drive behaviours.
Contract size	Risk and mitigation	Market analysis	
<p>The whole network to optimise asset management, which is performed by</p>	<ul style="list-style-type: none"> Funding levels may change. Traffic growth. 	<ul style="list-style-type: none"> Contract was big enough to attract national and international bids. 	

Table D.6 (5) Western Bay of Plenty			
contractor, and to have one stop shop.	<ul style="list-style-type: none"> • Network growth. <p>These are all mitigated through a variation, which is difficult due to lump sum nature of contract.</p> <ul style="list-style-type: none"> • Emergency works, price on dayworks. • LoS may change and impact on funding levels, allow for modification in contract. • LoS threshold may be too high, allow for modification in contract. 	<ul style="list-style-type: none"> • Enough interest to know there would be a good competitive market. • Any new player that won the contract would probably employ most of the existing workforce. 	
Delivery options considered	Contract performance results	Supplier selection process successful	
<ul style="list-style-type: none"> • NOC, but rejected because RCA, not the supplier, does asset management. • Alliance/collaborative agreement but rejected because not favoured by the NZ Transport Agency. • Traditional rejected because wanted a one supplier model that carried out both contractor and consultant functions. • PSMC chosen because previous contract performed very well and had 12 years of data on LoS. 	<p>Rated 9 out of 10 as evidenced by:</p> <ul style="list-style-type: none"> • all improvement works were completed • key performance measures passed • operational performance measures passed and modified successfully when required • management KPIs passed • no non-performance • value for money was achieved with savings of \$34M over 10 years. 	<p>Rated 8 out of 10 as evidenced by:</p> <ul style="list-style-type: none"> • wanted a knowledgeable asset manager and not a physical works contractor as lead – and got this • teething problems sorted. 	

Table D.7 (6) Waikato			
In-house capability	Contract dimensions and scope	Strategic objectives of contract	Contract special characteristics
<ul style="list-style-type: none"> • Five in-house staff being reduced to two because of alliance/collaborative agreement. 	<p>Urban sealed 149 km</p> <p>Urban unsealed 1 km</p> <p>Rural sealed 695 km</p>	<ul style="list-style-type: none"> • Flexible sustainable pricing. • Performance management drivers. • Reasonable resources requirements. 	<ul style="list-style-type: none"> • Able to respond to change without commercial implications. • One stop shop and one team.

Table D.7 (6) Waikato			
<ul style="list-style-type: none"> Consider themselves as 100% smart purchaser. Strengths are a blended transfer of knowledge, more commercial awareness for council and use of contractor management systems. Weakness is that the whole team is not yet under one roof. 	<p><u>Rural unsealed</u> 189 km</p> <p>Total 1,034 km</p> <p>One alliance/collaborative agreement \$30M/pa.</p> <p>Road marking</p> <p>Method of payment:</p> <ul style="list-style-type: none"> Cost inputs plus overheads and profit. <p>Total cost estimate: Supplier selection was based on attributes only.</p>	<ul style="list-style-type: none"> Ability for RCA management. Aligned with business. Good customer management. Politically acceptable. Best for asset/network. 	<ul style="list-style-type: none"> No man hunting and arguing. High customer response. No walking past other people's defective work. Fixed overhead. No gaming. No buying work. Open book. No reporting through to parent organisations. All supply partners are engaged on the same terms. Systems and processes from all organisations are used to ensure the best and most efficient method is employed. Flexibility to adapt to changes in funding or reprioritisation of work types.
Contract size	Risk and mitigation	Market analysis	
<p>The whole network to optimise asset management which is performed by contractor and to have one stop shop.</p>	<ul style="list-style-type: none"> Funding levels may change. Traffic growth. Network growth. <p>These are all mitigated through the cost reimbursement model coupled with the tension of the pain/gain mechanism.</p> <ul style="list-style-type: none"> Emergency works, price on actual cost. LoS may change and impact on funding levels, allow for modification in contract. 	<ul style="list-style-type: none"> Contract was big enough to attract national and international bids. Enough interest to know there would be a good competitive market. Any new player that won the contract would probably employ most of the existing workforce. 	

Table D.7 (6) Waikato			
	<ul style="list-style-type: none"> LoS threshold may be too high, allow for modification due to ONRC and possible funding constraints from unplanned storm events. 		
Delivery options considered	Contract performance results	Supplier selection process successful	
<ul style="list-style-type: none"> Traditional delivery model rejected, key reason being lack of performance management. Hybrid rejected, key reason being high RCA management and resource requirements. PSMCs rejected because of lack of flexibility and the risk of unsustainable prices. NOCs rejected because of lack of business alignment, high RCA management and resource requirements. Alliance/collaborative agreement accepted because flexible, no unsustainable prices, has performance management, savings generated through efficiency gains are available to RCA, swift decision making and responsiveness, a shared risk environment which promotes innovation, and is best for network. 	<p>RCA believes too early to tell. Contractor rated performance as 7 out of 10 as evidenced by:</p> <ul style="list-style-type: none"> Customer and councillor feedback has been very positive. Service request response times have been the lowest ever with >95% of requests being responded to within the 5-day requirement. The network has seen noticeable improvement in the LoS. 	<p>Rated 10 out of 10. CEO and politicians are extremely pleased with the supplier.</p>	

Table D.8 (7) Hamilton City (HCC)			
In-house capability	Contract dimensions and scope	Strategic objectives of contract	Contract special characteristics

Table D.8 (7) Hamilton City (HCC)			
<ul style="list-style-type: none"> 10 in-house staff with access to a professional services panel. Consider themselves to be smart purchaser. Strengths are road safety, network operations. Active modes and strategic asset management. Weakness is lack of traffic systems manager. 	<ul style="list-style-type: none"> Urban sealed 605 km Urban unsealed 1 km Rural sealed 49 km Rural unsealed 1 km <p>Total 657km</p> <p>One alliance/collaborative agreement contract \$19M/pa.</p> <p>Method of payment:</p> <ul style="list-style-type: none"> Cost inputs plus overheads and profit. <p>Total cost estimate:</p> <ul style="list-style-type: none"> Supplier selection. <p>Attributes only.</p>	<ul style="list-style-type: none"> Financial sustainability. Asset sustainability. Customer care. Value for money. Flexibility. 	<ul style="list-style-type: none"> Collaborative approach. Integration of budgets. Understanding of cost structure for improving value for money. Holistic coordination. Whole of life focus. Best practice. Continuous improvement. Effective LoS. Proactive and responsive. Open book. The project team is a co-located and fully integrated blend of HCC, Downer and supply chain partner managers. All parties have as much 'skin in the game'. Alliance maintains a degree of separation from the parent organisations enabling more flexibility and responsiveness, while still complying with relevant policy and strategy. All asset management team members are employees of HCC. This was a key objective for HCC - to retain and enhance RCA capability.
Contract size	Risk and mitigation	Market analysis	
<p>The whole network to remove duplicated costs, optimise across the whole network and collaborate as one body.</p>	<ul style="list-style-type: none"> Impact on local supplier, involve them. New industry growth, assist industry. Are LoS correct, test them. Sustainability of the asset, manage 	<ul style="list-style-type: none"> Several key suppliers interested and with experience. HCC 12-16% of local market. 	

Table D.8 (7) Hamilton City (HCC)			
	<p>through contract.</p> <ul style="list-style-type: none"> • Success is highly dependent on people from strong governance to the field staff. • Diminishing returns from gain for both contractor and RCA, as target costs are adjusted to more closely match actual costs each year. • Condition of bridges and structures monitored. 		
Delivery options considered	Contract performance results	Supplier selection process successful	
<ul style="list-style-type: none"> • Traditional rejected because of lack of continuous improvement, best practice customer care and continuous improvement. • Hybrid and PSMC/PBC rejected because inflexible re customer and LoS, minimal involvement by RCA, no cost transparency, negative impacts on supplier market and no budget flexibility. • Alliance/collaborative agreement accepted as best fit against the above strategic outcomes, the RMTF matrix and alignment with HCC business requirements. Also, because RCA gains in-depth knowledge of the actual cost of delivering services, only work that is done, is paid for, RCA and contractor share in potential 'gain' – the RCA may then choose to reinvest this as they see 	<p>Rated 9 out of 10 as evidenced by:</p> <ul style="list-style-type: none"> • managing to smoothly remove the \$5m over budget deficit • improved customer responsiveness from five to two days • HCC now has an evidenced based understanding of its assets • a pain/gain was paid in year 2. <p>Contractor rated performance as 9 out of 10 as evidenced by:</p> <ul style="list-style-type: none"> • senior RCA representatives are fully engaged in alliance governance • RCA is outwardly supportive and clearly proud of the achievements to date, and sees it as an exemplar for the rest of their business • alliance team gained industry recognition by winning the Hirepool 	<p>Rated 7 out of 10 as evidenced by:</p> <ul style="list-style-type: none"> • success of outcomes • some churn over moving call centre and finances to alliance 	

Table D.8 (7) Hamilton City (HCC)			
fit and no ability for contractor to 'game' or increase margin through work type selection/ avoidance.	Construction Excellence award.		

Table D.9 (8) NZ Transport Agency AMA			
In-house capability	Contract dimensions and scope	Strategic objectives of contract	Contract special characteristics
<ul style="list-style-type: none"> 50 in-house staff. Considered to be a smart purchaser, about the right resource. Strengths are asset knowledge and work closely together for best outcome. Weakness is the ability to benchmark as the network is unique. 	Urban sealed 177 km Urban unsealed 0 km Rural sealed 38 km Rural unsealed 0 km Total 215 km One alliance/collaborative agreement \$662M/pa. Method of payment: <ul style="list-style-type: none"> Cost inputs plus overheads and profit. Total cost estimate <ul style="list-style-type: none"> Supplier selection. Attributes only.	<ul style="list-style-type: none"> Delivering operational excellence. Enabling smarter journeys. Growing ideas. Sharing our knowledge and experience. Living alliancing at its best. 	<ul style="list-style-type: none"> Strong relationships. Contributions from the best people around the world. No blame and continuous improvement. Collaboration. Innovation and knowledge sharing. Flexibility. Pain/gain share linked to both savings and service/asset management outcomes. Three total cost estimate periods provide for commercial resets every three years to effectively lock the best performance from the previous total cost estimate into the next one. All intellectual property (including pricing and productivity) is shared with the RCA, and available for all participants to use freely.
Contract size	Risk and mitigation	Market analysis	
The whole motorway network to provide a seamless approach and to bundle skills	<ul style="list-style-type: none"> Very complicated network often with conflicting requirements, eg work at 	<ul style="list-style-type: none"> Major players interested. 20 originally were interested. 	

Table D.9 (8) NZ Transport Agency AMA			
needed.	<p>night to minimise delays but then noise complaint.</p> <ul style="list-style-type: none"> • Safety issues. • Large congestion issue. • Very heavy traffic. • Not being able to improve value. • Can be time consuming and expensive. • Requires an engaged, informed and smart RCA to ensure that value is obtained. • Risk of consultant capture through formation of consortia by tenderers due to large package size. • Assessment of value for the non-physical delivery aspects can be difficult. • Mitigated through group risk analysis. 	<ul style="list-style-type: none"> • Other opportunities existed at the time with the other eight local authorities. • Auckland is a very big market. 	
Delivery options considered	Contract performance results	Supplier selection process successful	
<p>PSMC rejected because was not flexible enough for ever-changing Auckland environment and customer demand. It also has high risk in delivering. Alliance/collaborative agreement accepted because gave a very tailored and focused outcome.</p>	<p>Rated 8 out of 10 as evidenced by higher demand yet:</p> <ul style="list-style-type: none"> • health and safety total recordable frequency rate reduced from 5 to 1.8 • customer satisfaction improving from 83% to 92% • achievement of LoS consistently 96% • savings \$11M pa • over 500 individual innovations. 	<p>Rated 9 out of 10 as evidenced by the good mix of required skills.</p>	

Table D.10 (9) Southland			
In-house capability	Contract dimensions and scope	Strategic objectives of contract	Contract special characteristics
<ul style="list-style-type: none"> Six in-house staff plus a consultant. Considered adequate for being a smart purchaser. Strengths are: able to deliver value for money, have the right delivery skills and culture to stimulate conversations. Road engineering supported by MWH with 7 seconded and dedicated SDC staff – one team contract – new model. 	<p>Urban sealed 204 km Urban unsealed 44 km Rural sealed 1,757 km <u>Rural unsealed 2,960 km</u> Total 4,915 km</p> <p>Three alliance/collaborative agreements \$13–15M/pa. One reseals contract \$10–12M/pa.</p> <p>Method of payment:</p> <ul style="list-style-type: none"> Alliance cost inputs plus overheads and profit. Also, total cost estimate. Reseals measure and value. <p>Supplier selection:</p> <ul style="list-style-type: none"> Alliance attributes only. <p>Reseals quality price trade-off open tender price conforming – max scale achieved district wide.</p>	<ul style="list-style-type: none"> Flat lined expenditure and fit for purpose network. Customer service. Sustainable network condition. Safety. Succession planning. Market stability and sustainability. 	<ul style="list-style-type: none"> True collaboration, trust and alignment of objectives. A relationship contract. Flexibility to respond to network needs and budgets to change LoS. Contractors have ownership of the network like a RCA has. Full understanding of RCA’s needs. Strong governance and reporting. Road users (Fonterra) are part of the alliances providing direct customer feedback and network data through Roadroid. Alliance model helps to be able to reconcile the value-for-money proposition with political considerations. Alliance model enables market stability, unlike previous models.
Contract size	Risk and mitigation	Market analysis	
<p>Three contracts across the network:</p> <ul style="list-style-type: none"> 1,200 km 1,500 km 2,200 km <p>These are based on topography, geography and community boards. Reseals contract across whole network.</p>	<ul style="list-style-type: none"> Loss of specialist skills, eg grader driver. Breach of trust. Loss of key people. Relationships break down. Mitigated through alliance contracts. 	<ul style="list-style-type: none"> A contractor had significantly under bid previous contracts and damaged the sustainability of the market. Contractors were still recovering from this. Concern over SMEs disappearing from the market so kept reseals out of alliance. Alliance has helped to stabilise the market with no one player 	

Table D.10 (9) Southland			
		able to win all alliance contracts.	
Delivery options considered	Contract performance results	Supplier selection process successful	
<ul style="list-style-type: none"> Traditional and performance rejected because: <ul style="list-style-type: none"> no transparency no trust no incentives. Alliance accepted because met the strategic goals above. 	Rated 9 out of 10 as evidenced by: <ul style="list-style-type: none"> seven years flat lined budgets all key result areas and KPIs meet politicians very satisfied. 	Rated 10 out of 10 as evidenced by delivery of outcomes.	
Table D.11 (10) Central Otago			
In-house capability	Contract dimensions and scope	Strategic objectives of contract	Contract special characteristics
<ul style="list-style-type: none"> Five in-house staff plus consultant. Considered to be a smart purchaser. Strengths are: know network, long serving, collaborative, run lean, practical experience and not just knowledge. Weaknesses are: small team so can struggle when someone is sick, and a lack of traffic safety expertise. 	Urban sealed 140 km Urban unsealed 2 km Rural sealed 372 km <u>Rural unsealed 1,398 km</u> Total 1,912 km One alliance/collaborative agreement \$6M/pa. Method of payment: <ul style="list-style-type: none"> Cost inputs plus overheads and profit. No total cost estimate <ul style="list-style-type: none"> Supplier selection. Attributes only.	<ul style="list-style-type: none"> Cost effectiveness. Improved customer services. Achievement of programmes and reducing backlog. 	<ul style="list-style-type: none"> Partnership based on trust and integrity. Not collocated. No pain gain mechanism. Track outputs to determine cost effectiveness.
Contract size	Risk and mitigation	Market analysis	
The whole network based on systems thinking to save tendering costs and optimise plant efficiency and economies	<ul style="list-style-type: none"> Breakdown of relationship and trust. An inefficient programme that waste resources. 	<ul style="list-style-type: none"> CODC is a small player in a big market. Only received one tender. 	

Table D.10 (9) Southland			
of scale.	<ul style="list-style-type: none"> Inefficient work flow. Poor public perception. <p>These are all mitigated using a termination clause in the contract.</p>		
Delivery options considered	Contract performance results	Supplier selection process successful	
<ul style="list-style-type: none"> Alliance/collaborative agreement accepted because of flexibility and transparency so no gaming can occur. No other options considered as fundamentally believed to be on the right path. 	<p>RCA rated 8 out of 10 as can always improve. Rating evidenced by:</p> <ul style="list-style-type: none"> councillors comfortable flat-lined expenditure since 2009, mainly through reducing LoS (although have struggled to measure cost effectiveness of activities) reduction in the number of public calls always achieved work programmes. <p>Contractor rated 7 out of 10 based on NZ Transport Agency's PACE evaluation scores and how excellence one year becomes business as usual the next.</p>	Rated as 9 out of 10 as evidenced by delivery of outcomes. Maintenance management plan needed some improvement work.	

Table D.12 (11) Kaikoura			
In-house capability	Contract dimensions and scope	Strategic objectives of contract	Contract special characteristics
<ul style="list-style-type: none"> One in-house senior engineer who does everything. Considered adequate for a smart purchaser. Strength is: has the required competencies. Weakness is: other priorities at times. 	<p>Urban sealed 20 km Urban unsealed 1 km Rural sealed 80 km Rural unsealed 100 km</p> <p>Total 201 km</p> <p>One framework contract with a panel of local contractors \$1.0M.</p>	Provide the required services and deliver the required work over a six-month period while a new performance contract is written.	A panel of suppliers chosen for their skills and expertise in individual contract requirements.

Table D.12 (11) Kaikoura			
	Method of payment: <ul style="list-style-type: none"> • Measure and value, and dayworks supplier selection • Quality price trade-off. 		
Contract size	Risk and mitigation	Market analysis	
The whole network with local suppliers chosen for their expertise.	Non-performance mitigated by extensive monitoring.	Local suppliers very interested.	
Delivery options considered	Contract performance results	Supplier selection process successful	
Was the best option as a temporary measure until the main contract was ready.	Good as provided maintenance activities in the interim.	Good as provided maintenance activities in the interim.	

Appendix E: Summary of literature review

Table E.1 When to use which model

Model type			
Traditional	Performance	Alliance/collaborative agreement	Framework
<ul style="list-style-type: none"> • Cost can be firmly fixed before committing to construction. • RCA wants to be involved in construction. • RCA able to decide all requirements prior to construction. • RCA does not want to pass maximum risk to contractor. 	<ul style="list-style-type: none"> • Fast project completion required. • Cost can be firmly fixed before committing to construction. • RCA does not want to be involved in construction. • RCA able to decide all requirements prior to construction. • RCA wishes to pass maximum risk to contractor. 	<ul style="list-style-type: none"> • RCA wants to be involved in construction. • RCA requires close involvement with design development. • RCA unable to decide all requirements prior to construction. • RCA does not want to pass maximum risk to contractor. • RCA wants to be closely involved in project. • Alliancing is used to deliver the larger, more complex and high-risk infrastructure projects (with capital costs exceeding \$50 million) and where the RCA has particular capability to contribute their skills and expertise to deliver the project. • Projects suitable for potential delivery as alliance/collaborative agreements are generally characterised by one or more of the following factors: <ul style="list-style-type: none"> – The project has risks that cannot be adequately defined or measured in the business case or prior to tendering – The cost of transferring project risks to the contractor is prohibitive – The project needs to start as early as possible before the risks can be fully identified and/or project scope can be finalised, and the RCA is prepared to take the commercial risk of a sub-optimal price outcome – The RCA has superior knowledge, skills, preference and capacity to influence or participate in the development and delivery of the project – A collective approach to assessing and managing project risks will produce a better outcome than contracted allocation risk. 	<ul style="list-style-type: none"> • RCA wants to appoint one or more suppliers on an instructed basis over a set term based on specialist skills.

Appendix F: Mapping of RCA outcomes, RCA capability and market conditions to key drivers

Figure F.1 Worked example of mapping RCA outcomes, capability and market conditions to key drivers

Key Driver	Factors Identified at first workshop		
	Outcomes wanted	Outcomes not wanted	Council's expectations
What is the RCA's smart buyer capability?	The smart buyer self-assessment places Council as "the organisation gets by but has opportunities for improvement"		
What is the RCA's smart buyer capacity?	Low		
How strong is the RCA's desire to control the work programme?	Contractor to programme work to performance requirements		
How healthy is the RCA's supplier market, including the number of potential players?	To be discussed following healthy market analysis		Use of locally based resources (to ensure responsiveness) and local knowledge
How good is the availability of quality network data?	Self assessment showed this was good		
How flexible, as opposed to stable, are the RCA's funding levels and levels of service?	Gradual improvement of network acknowledging rising customer expectations	Flexibility for scope changes	Flexibility to respond to changing circumstances
What is the RCA's risk appetite?	Well managed risks – identified risks	Council taking on too much risk	Innovation
What is the RCA's appetite for improved value for money (VfM) and continuous improvement?	Improved value for money / bang for buck		Improved levels of service across the board (through adherence to standard in the contract)
	Quality delivery of tasks		

Key Driver	Factors Identified at first workshop		
	Outcomes wanted	Outcomes not wanted	Council's expectations
What is the RCA's appetite for commercial tension?	There may have been too much commercial tension leading to unsustainable prices		
What is the RCA's appetite for a collaborative model?	Great communication	Poor relationship between council and contractors	Team culture
	Collaboration		Healthy working relationships
What is the RCA's appetite for sustainable pricing?	A reasonable & sustainable price		Sustainability- contract is appropriately priced to ensure both council and contractor can afford it
What is the RCA's appetite for outstanding customer care?	Bridges safety	No degradation of the road network	Quality assurance and control
	Non performance	Minimal rework	Contract delivery performed to specification (not necessarily a need to raise levels of service)
	Safety for road users and people working on the road		
Total Weighted Score			

Appendix G: Other delivery model selection tools

Three selection tools were determined from the literature review and case studies. The first example is from the Ruapehu District Council and uses the selection guide contained in the Opus (2012) report to the RMTF.

Selection Criteria	Day Works	Traditional	Hybrid	PSMC/ PBC	Alliance
Scale	<\$1m	<\$15m	<\$15m	>\$15m	>\$15m
Network Size & Shape	<100km	<500km	>500km	>500km	>500km
	Accessible	Accessible	Accessible	Accessible	Accessible
Network Complexity	Simple	Moderate	Moderate	Complex	Complex
	Very Basic Data	Good data available	Good data available	Excellent data available	Good data available
Supplier Market Conditions	Rural	Rural/ Urban	Rural/ Urban	Rural/ Urban	Rural/ Urban
	Excellent	Very Good	Good	Limited Suppliers	Limited Suppliers
Level of Client Involvement	High	Medium	Medium	Low	High
Flexibility to deal with change	High	High	Medium	Low	High
Innovation Potential	Low	Medium	Medium	High	High
Transfer of Client Risk	Low	Medium	Medium	High	High
Stakeholder and customer requirements	Low	Medium	Medium	Medium	High
Focus on Non-Cost Areas	Low	Medium	Medium	Low	High

The third example from the literature review identified a selection tool developed by the UK Highway Maintenance Efficiency Programme (HMEP 2014). This kit covers both the procurement strategic context and the operational delivery model to establish whether change is necessary.

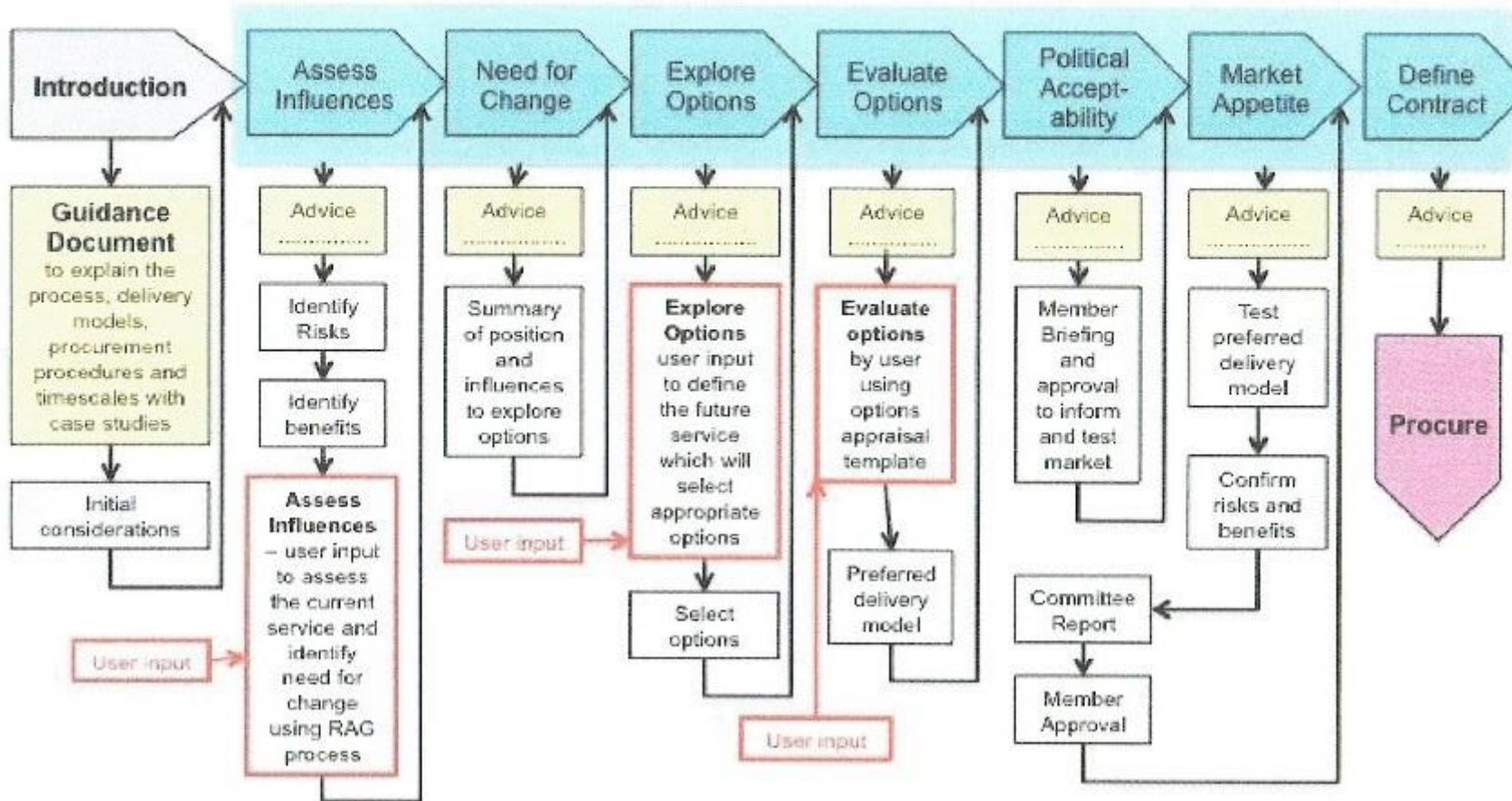
A matrix evaluation is carried out on three options determined by answering a number of questions about:

- assessing the key influences
- considering need for change
- exploring options.



Highways Maintenance Efficiency Programme

Procurement Route Choices: the process



Appendix H: Case studies questionnaire

H1 RCA road maintenance contract models

Questionnaire v.18

Thank you for agreeing to take part in this case study questionnaire on RCA road maintenance contract models and the appropriate supplier selection processes and methods of payment for each contract type.

Your case study has been identified as a very valuable contributor to this project which aims to develop a matrix table relating input drivers with procurement models to enable a quick comparison of models that best suit the needs of local authorities and provide value for money. As well as case studies we are also carrying out a national and international literature review on procurement models.

The purpose of this questionnaire is to explore the value for money opportunities and risks that various road maintenance procurement and delivery models can produce using a sample of existing models in order to provide guidance to RCAs and assist them with selecting a model that is right for them given their particular circumstances.

In completing this questionnaire, we will be able to make your learnings available to the roading sector and deliver on the following two objectives of the Road Efficiency Group (REG) Procurement Work Group:

- To identify and promote procurement opportunities that will enhance the sector's ability to obtain value for money.
- To gather, moderate and publish (through the REG Best Practice Asset Management Group) good practice procurement examples.

You will also help us progress recommendation 17 from the RMTF, namely:

- Pursue the use of new materials, technology and methods where appropriate, including alternative procurement methods and delivery models.

Thank you again for giving us your time and expertise and we are sure you will also benefit through this project.

The questionnaire has the following sections – Organisation Information, Contract information, Procurement strategy, Critical success factors and Contract model performance.

Please note that the questions regarding procurement strategy are not assessing any procurement strategy you may have produced. They are simply helping us to understand why you choose your contract type. You may have other reports that state your reasons.

1 YOUR ORGANISATION INFORMATION

1.1 Your organisation

.....

1.2 Your name and position

.....

.....

1.3 Your phone number

.....

1.4 In-house or external (consultant) network management/professional services

.....

.....

1.5 In-house professional services capability, if relevant

.....

1.5.1 Number of staff

.....

1.5.2 Is this considered adequate for a smart purchaser

.....

1.5.3 What are the team's capabilities/strengths?

.....

.....

.....

1.5.4 What are the team's weaknesses?

.....

.....

.....

1.6 Overall network length

	Urban	Rural
Sealed		
Unsealed		

2 YOUR CONTRACT INFORMATION

2.1 Number of road maintenance contracts your organisation has

.....

2.2 Contract number, dimensions and types

Contract no.	Network length km	Term in years	Type				
			Traditional	Performance	Alliance	Ppp	Framework

Where:

- **Traditional contracts** are where the RCA has separate contracts with the consultant and contractor
- **Performance contracts** have performance requirements set by the RCA for a one-party supplier to meet
- **Alliance contracts** are relationship contracts where the RCA, consultant and contractor all work for the best outcome as a virtual organisation with a pain gain share mechanism
- **PPP** are where the private sector provides finance to fund some of the work
- **Framework contracts** have a number of short-listed suppliers who with the RCA allocate the work amongst themselves.

2.3 Contract scope

Contract no.	Work activities										
	Sealed mtce	Unsealed mtce	Routine drainage	Structures	Environment	Traffic services	Traffic operations	Cycle paths	Level crossings	Emergency works	Renewals

2.4 Contract payment types and supplier selection method

Contract no.	Payment type				Supplier selection				
	Lump sum	Measure & value	Lump sum and measure & value	Target outturn cost	Cost plus	Lowest price conforming	Weighted attributes	Quality/price	Prequal

2.5 Contract costs

Contract no.	Costs		
	Physical works \$M	Professional services \$M	Total \$M

Note: Professional services are as defined by the NZ Transport Agency and may be in-house or external consultants

2.6 Special characteristics of your contract model(s)

Please list the top four special characteristics of your contract model(s) and why they are important to you.

- (a)
-
-
-
- (b)
-
-
-
- (c)
-
-
-
- (d)
-
-
-

3 PROCUREMENT STRATEGY

3.1 Please list your strategic outcomes and objectives to achieve these outcomes

Sought outcome

1.....

Sought outcome

2.....

Sought outcome

3.....

Objective 1

.....

Objective 2

.....

Objective 3

.....

3.2 How did you determine the following?

3.2.1 The optimal size for your contract(s), ie aggregation and/or bundling

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3.2.2 Any complexity in your contract(s) and how to address it.

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3.2.3 Any specialist skills required in your contract(s) and how to address them

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3.2.4 The risk(s) associated with your contract(s) and how to address it/them

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3.3 What did you find regarding the procurement environment, in particular?

3.3.1 From the analysis of the supplier market

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3.3.2 From the analysis of the impact of the size of your procurement programme

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.....
.....
.....

3.3.3 From the analysis of the impact of the size of your neighbour’s procurement programme

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.....
.....
.....
.....

3.4 Did you consider collaborative shared services with other local authorities or with the NZ Transport Agency?

Please tick the appropriate box

No Please go to question 3.5

Yes then:

What was the result?

.....
.....
.....
.....

Were there any particular barriers to investigating collaborative shared services?

Please tick the appropriate box

o lack of trust?

o limited understanding of common goals and perceptions of nil benefits?

- o lack of leadership?
- o fears of loss of control and will self-interest frustrate progress?
- o was there no time?
- o other – what were they

.....

.....

.....

.....

Are you considering collaborative shared services in the future?

No Why

.....

Yes What

.....

3.5 What procurement options did you consider in the light of the inputs from 3.1 to 3.4 above

3.5.1 Option 1: Model type

.....

Accepted or rejected because:

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3.5.2 Option 2: Model type

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Accepted or rejected because:

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3.5.3 Option 3: Model type

.....

Accepted or rejected because:

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.....
.....
.....

4 CRITICAL SUCCESS FACTORS OF YOUR MODELS

4.1 What special capabilities and capacity did your contract model(s) require of you or your suppliers and how did you address these?

4.1.1 Your organisation

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4.1.2 Your suppliers

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4.2 Did you take any special measures to ensure your expectations were aligned with your supplier, and if so what were they?

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4.3 Did you take any special measures to ensure you had good contractual relationships with your supplier, and if so what were they?

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5 CONTRACT MODEL PERFORMANCE

5.1 How would you measure the success of your contract model(s)?

5.1.1 Success outcome 1

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.....
.....

5.1.2 Success outcome 2

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.....
.....

5.1.3 Success outcome 3

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.....

5.2 Please rate out of 10 how well you consider your contract model(s) have achieved your sought outcomes

0 – poor 10 – excellent

0	1	2	3	4	5	6	7	8	9	10
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5.3 What is your evidence to support your rating?

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5.4 Please rate out of 10 how well you consider your supplier selection process(es) achieved your sought outcomes

0 – poor 10 – excellent

0	1	2	3	4	5	6	7	8	9	10
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5.5 What is your evidence to support your rating?

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