



Physical Works and Professional Services Survey

Detailed Survey Analysis and Findings
Abridged Version
29 April 2020

Supply Chain Survey and Findings April 2020 - Overview

Context

Waka Kotahi have a near fully outsourced operating model with respect to the design and delivery of transport infrastructure projects. Under normal practices, Waka Kotahi relies on suppliers to match the supply of labour, materials and plant/equipment to meet project demand. This model has and can work well in a steady state environment without fluctuating demands.

COVID-19 disrupted this steady state. To remain an informed customer and to provide capacity clarity through a number of future scenarios, a survey was created. This survey was designed to allow Waka Kotahi to understand constraints across the construction sector for the delivery of transport projects which might inhibit either the restart or the recovery of the sector, or any increased or accelerated projects to drive economic stimulus.

Industry participants responded to this survey during the initial Covid-19 Level 4 Physical Works recipients responded to this survey during the Covid-19 Level 4, and over the period 15 – 20 April. Professional Service providers responded over the period 16 – 20 April, noting the government announced on 20 April the intent to move from COVID-19 level 4 to level 3 at 2359 on 27 April. This timing means that while some have responded before the government's announcement, the actual movements applicable under level 3 remained unclear and would not distort the findings.

Distribution

Two versions of this report have been created. A **full** version which includes commercially sensitive information and which is intended for internal and controlled Waka Kotahi use only, and an **abridged** version which is not deemed commercially sensitive and intended for sector and approved agency use.

This report is the **abridged version** of this report and is dated 29 April 2020.

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Introduction

The global COVID-19 pandemic has hit economies across the world incredibly hard, and New Zealand is no exception. Large scale infrastructure works are a proven stimulator after/during an economic downturn and with this in mind Waka Kotahi has initiated a survey to get an understanding of the state of play across the industry.

The survey was designed to gather critical information about contractors and their readiness for work in three activity scenarios: immediate restart; recovery phase; and economic stimulus phase, with the intent to identify key areas of concern in the short term, as well as highlighting areas that may require further analysis. Respondents were given the opportunity to respond to questions about their own business concerns, to comment on their ability to support work delivery and to voice ideas or concerns about the way in which Waka Kotahi is currently engaging with their contractors.

Both physical works (PW) and professional services (PS) were in scope. Lead contractors in the PW space were targeted, and were engaged about possible constraints across their workforce, materials and plant. For PS, workforce was the primary area of analysis.

The survey was deployed through Qualtrics, an online survey platform. The response rate was very high with 12 of 14 PW contractors, and 10 of 12 PS contractors participating. This has rapidly provided Waka Kotahi with a complete view of the issues facing the key players in the industry.

This report outlines the analysis from the responses and considers these in the context of the work phasing, resources, locations and contractors.

Survey respondents

Physical works survey

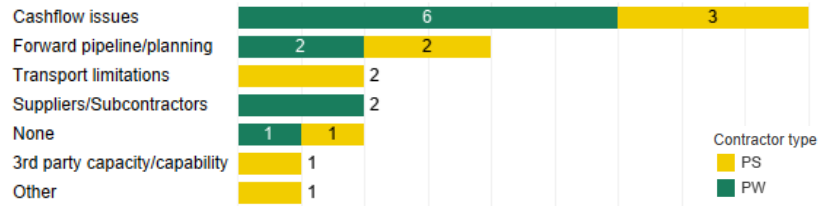
Abseil Access	Fulton Hogan
Broad Spectrum	HEB Construction
Cambridge Construction	McConnell Dowell
CPB	Russell Roads
Downer NZ	SouthRoads
Fletcher Construction	Splice Construction

Professional services survey

AECOM	Jacobs
Aurecon	Stantec
Beca	Tonkin & Taylor
Bloxham, Burnett & Olliver	WSP-Opus
GHD	RCP

Challenges facing our contractors

Contractor Concerns



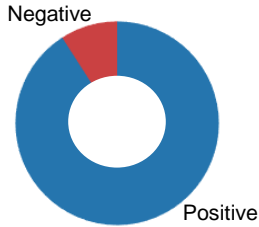
Across both surveys, contractors were asked to identify their top concern as they look forward. Cashflow was the significant leader of the options, particularly amongst physical works contractors. This is a clear indicator that careful consideration should be taken when determining how projects are funded, and what sort of payment approach may be viable for contractors across the industry.

Professional services: the detailed comments provided, in addition to the single select question, detailed the intertwining of cashflow and forward pipeline issues for contractors. It was clear that with sufficient forward planning and stable cashflows these contractors can successfully deliver on work as they will be able to retain staff on a full-time basis with confidence. The broader industry has seen many shifts with contractors being asked to deliver projects with significant changes putting pressure on the workload and workforce planning. Concerns around transport limitations generally arise from domestic mobility restrictions as the need to have specialists working nationally is common. As Alert Level 3 guidelines are confirmed, these concerns will likely be alleviated.

Physical works: most contractors went into significant detail about the nature of the cashflow issues they are facing, driven by fixed on- and off-site costs. The stability of subcontractors both from a financial and workforce capacity standpoint was raised. It was also noted that the upcoming winter season will result in deferment of some projects that are not viable or approved for winter months. As with professional services, robust forward planning and certainty on demand will be a major contributor to surviving cash flow risks and constraints for the lead contractors, their subcontractors, and the broader industry.

Contractor viewpoints

Satisfaction with NZTA Communications



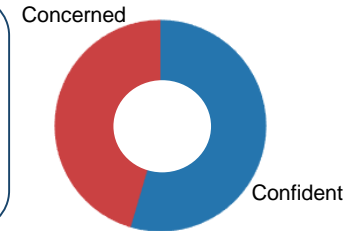
Contractors were asked to provide their **satisfaction level of the communications** that have been received from Waka Kotahi related to the COVID-19 response and the implications for the industry.

All but two contractors were satisfied or very satisfied with the communication. One each from physical works and professional services were very unsatisfied. In one case, the contractor said they had not received any communications from Waka Kotahi, no further detail was provided by the other.

Subcontractors are viable

There is variability across contractors about their **concern for subcontractors** they engage. Those who are concerned are taking steps to aid their subcontractors by providing cashflow relief, staying in communication and maximising allowances and government assistance where possible.

Contractors believe that the best way to assist subcontractors in the market is to provide as much visibility of forward demand as possible to generate downstream requirements for resources. Subcontractors may be facing more pressing cashflow issues so greater proportions of upfront payment may be required in some cases.



Contractors were very forthcoming with ideas about **how the industry can bounce back** quickly from the COVID-19 arresting of activity. Streamlining processes across procurement, project governance, health & safety planning, and RMA featured strongly as it was recognised that there is unnecessary duplication in the market currently. Waka Kotahi's support to navigate the implications of the COVID-19 alert levels on operations, and continued clarity on support that is available through this time was also highlighted.

Stability of the market was another key focus from contractors. Quick wins, direct award, variable fee structures, and diversity in project size were considered high priority to stimulate the market for many players rather than a select few.

Work delivery challenges

Three work activity phases

Understanding the level of risk and constraint facing contractors in the delivery of projects was a critical requirement. Both the physical works and professional services surveys were developed so that Waka Kotahi could understand the likelihood, impact and nature of any risks and constraints related to project resources (workforce, material, plant and equipment) across three different scenarios: immediate restart; recovery phase; and economic stimulus phase. Each of these scenarios pose their own challenges and identifying and understanding these challenges will guide Waka Kotahi's next steps as we look forward.

The three scenarios are described in more detail below:

Immediate restart

Period immediately after lockdown when projects can be reinitiated. This scenario covers the first three months after the lockdown ends where international travel may still be significantly restricted, and some limitation on domestic travel.

Recovery phase

Period extending beyond three months after the lockdown ends when New Zealand is back to business as usual. International travel restrictions may still remain, however domestic travel is unrestricted.

Economic stimulus

Period where the government could seek to stimulate the economy through scaled up investment in infrastructure. For the purpose of this survey, contractors were asked to consider a 30% increase in work.

Contractor readiness summary

	Workforce	Materials	Plant and equipment
Immediate restart	<p>PW contractors at greater risk of constraint than professional services</p> <p>PW contractors foresee a shortage in high skilled site staff and subcontractors</p> <p>Domestic travel restrictions exacerbate regional skill shortages</p> <p>Pooled resources may reduce skill shortages across both PW and PS</p>	<p>11/12 PW contractors see risk in material supply chains, 3 with high likelihood</p> <p>NZ supply chain seen as a constraint</p> <p>Few specific materials identified as constrained across a number of contractors, requiring further investigation</p>	<p>No evidence of plant and equipment being a constraint during this phase</p>
Recovery	<p>PW contractors at greater risk of constraint than PS providers</p> <p>Greater breath in at risk roles, including middle managers and low-skilled site staff</p> <p>Pooled resources may reduce skill shortages across both PW and PS</p>	<p>8/12 PW contractors see risk in material supply chains, and lower likelihood than immediate restart</p> <p>NZ and global supply chain were the primary drivers for concern</p> <p>Base course material, reinforcing steel, piles and wire rope barriers were highlighted as facing constraints</p>	<p>Increased view of riskiness in plant and equipment, though low likelihood</p> <p>If risks become a reality, high impact on delivery</p>
Economic stimulus	<p>PW contractors have identified constraints across numerous roles, at numerous skill levels, including labour hire</p> <p>PS contractors will face shortages in specialist roles including RMA advisors, planning and consenting and PMO</p> <p>Project optimisation at a higher level likely required to smooth demand on critical resources</p>	<p>9/12 foresee risks, 4 considering this to have a high likelihood</p> <p>NZ supply chain is the primary driver for concern</p> <p>Base course material, reinforcing steel, piles and wire rope barriers were highlighted as facing constraints</p>	<p>Similar view of riskiness in plant and equipment, though low likelihood</p> <p>If risks become a reality, high impact on delivery</p> <p>Lack of qualified operators is the main cause</p>

Tackling an immediate restart

Commencing at Alert Level 3



Physical works:

When considered at an aggregate level, all roles have a BALANCED capacity, except minor underutilisation of Labour Hire overall.

Individual contractors called out major constraints in Project Managers and Traffic Managers. Other constraints were minor. Labour and subcontractor hire were generally highly underutilised.

Any constraints were identified primarily for upper North Island based resources.

Professional services:

Across the market, all roles are BALANCED or underutilised. One contractor identified Tender Evaluators as a major constraint.

Ecologists, geotechnical, environmental and construction estimation expertise are most underutilised. Followed by Business Analysts.



All contractors except one see a risk in the material supply chain.

Various materials have been identified as at risk by contractors. On investigation, most pose a risk, rather than a minor, or greater constraint.

Base course material is the most frequently mentioned material (4) due to quarry capacity. Regional shortages are anticipated here. Smelter slag is rated a major constraint by one contractor, and a minor constraint by another.

Moderate constraints have been identified in lighting, reinforcing steel and post tensioning strand and couplers.

The New Zealand supply chain is considered to be the major contributing factor to risk in the material availability, selected by 7 contractors, however many specific materials have restrictions in the global supply chain.



Plant and equipment was only identified as a risk or constraint by two contractors, one based solely in the Waikato/Bay of Plenty region (risk) and the other providing services nationally. In both cases, the likelihood was marked as low.

Servicing was highlighted as the main driver for any concern at this stage.

Contractors were asked to identify specific items of plant and equipment that they thought could be at risk. These included large machinery such as: cranes, excavators, bitumen sprayers, highway and road tip trucks, rollers, front end loaders, graders and bulldozers. Most of which were deemed to have limitations at a national level.

Bitumen sprayers were identified as a moderate risk, and global constraints.

Preparing for recovery

Three month lead in



Physical works:

When considered at an aggregate level, all roles have a BALANCED capacity, except minor underutilisation of Labour Hire overall.

Very few roles are majorly or moderately constrained – these are driven mainly by one contractor. Minor constraints are established across management roles, particularly project management. No clear regional impacts.

The greatest underutilisation is seen in Labour Hire.

Professional services:

Constraints are not yet seen at market level (3 contractors). Various engineers, Road Safety Auditors and Business Case Writers are BALANCED roles. Levels of underutilisation are much lower across all roles. Business and Data Analysts remain underutilised.



Most contractors see a risk in material supply in the recovery phase, however only one considers the likelihood of this risk to be high.

Base course material remains the most frequently identified material as being a constraint. The overall risk however, has been identified as low. Major or moderate constraints are identified on only four occasions (lighting, reinforcing steel, post tensioning strand and couplers, smelter slag) each by one contractor. One is a national contractor, whilst the other are active in key regions of Auckland/Northland, Waikato/BOP and Canterbury.

As work continues both the New Zealand and global supply chains are considered drivers of risk. The ability of suppliers to produce in quantities required by the global market is an area of concern for materials like smelter slag and reinforcing steel.



During the recovery phase a single contractor, based on the Waikato/BOP region has identified plant and equipment as a risk of being a constraint. This contractor considers this risk to be high due to a lack of qualified operators which could lead to major delays. Excavators, road tip trucks, rollers, front end loaders, bulldozers and graders were the specific items identified as being at risk.

Movement of plant and equipment into the Waikato may help to ease some of this risk.

Despite not foreseeing risks themselves, other contractors also highlighted parts, national availability and importation into New Zealand as primary drivers for risk in the plant and material area.

Stimulating the economy

30% increase in activity



Physical works:

When considered at an aggregate level, all roles have a BALANCED capacity at a general level. However as the work level increases the need for larger resource pools like Labour Hire, Subcontractor Hire and Junior Contributors does increase. The largest contractors do not have major constraints in any roles.

Project Managers continue to be an area of constraint, as well as Quantity Surveyors, Estimators, Site Engineers and Commercial/Contract Managers. There are no clear trends in underutilisation.

Professional services:

All roles across the market have MINOR CONSTRAINTS or are BALANCED. However nine contractors foresee a MAJOR or MODERATE constraint in at least one role. Project Managers are the most frequently identified constraint.



For the stimulus phase, many contractors foresee a much higher likelihood of risk in the material supply chain, with four sharing this view. They are a mixture of large and small contractors, together servicing demand nationally.

Competing demand has been flagged for the first time as the primary cause of risk, signalling the importance of forward planning in securing contractor supply. However, the New Zealand supply constraints continue to be the number one cause for concern.

As demand increases more materials have been identified as at risk by contractors. Aggregate materials are certainly at the highest risk, with three contractors marking base course material as a moderate constraint. Regional hotspots in Taranaki, Northland and Gisborne are a driver for this constraint with lower regional supply.

Reinforcing steel is also viewed as greater risk.



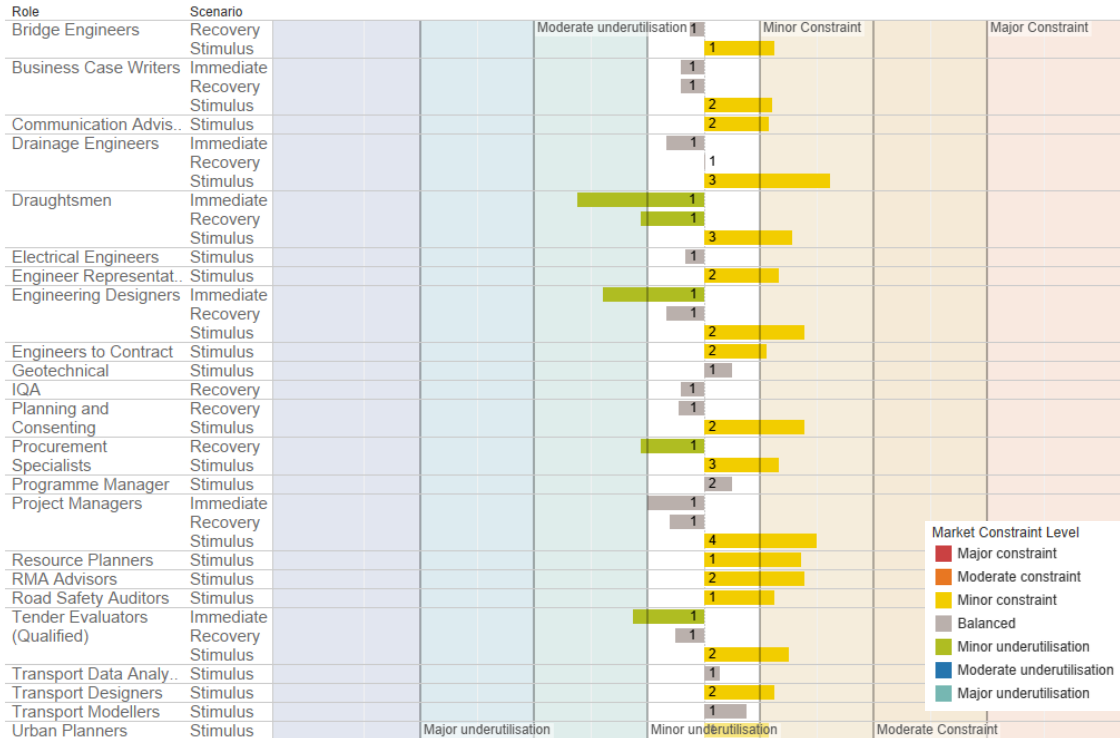
As activity increases during the stimulus phase there is a clear upswing in risk related to plant and equipment, with four contractors identifying risks, compared to one for previous scenarios.

Of the five contractors who selected a primary cause for the risk, three selected Operators. A lot of the plant requires certification/qualification to operate and that skill base is limited in New Zealand.

Bitumen sprayers, highway trucks and graders were rated as moderate constraints by two contractors. Other contractors identified low risk across the highlighted plant and equipment. One of these contractors has projects nationally, the other is based in Auckland/Northland, Waikato/BOP and Wellington – generally areas of higher demand. Limitations are considered to be at a National level for the most part.

Professional services - constraints

Constrained Roles



Market Constraint Value ↗

To the left, roles identified as being majorly or moderately constrained by at least one contractor are shown, including the scenario within which they are constrained. The number at the base of the bar represents the number of contractors who are constrained (major or moderate) for the given situation.

Roles and/or scenarios identified as neither underutilised nor constrained are not shown.

Project Management is the role with the most frequent constraint identified (four contractors in Stimulus phase).

Despite risk in some areas of the market, overall there is less constraint with no roles reaching moderate constraint overall.

It is evident that greater pressure will be put on the market in the Stimulus phase, particularly for Drainage Engineers.

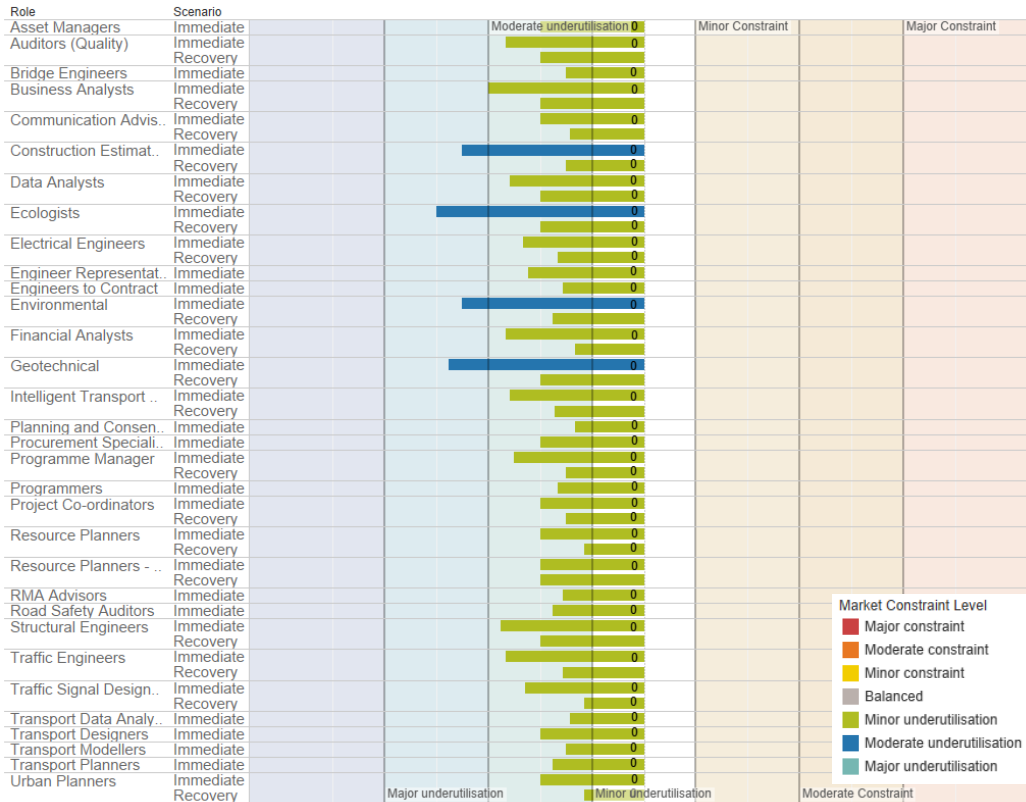
Draughtsmen, through Immediate Restart and Recovery are underutilised across the market, however this changes swiftly at the Stimulus phase when market level constraints are foreseen.

Tender Evaluators is a role where a steady increase in market constraint is seen, moving through minor underutilisation, balanced, then minor constraint.

Viewing both market and individual constraints can identify where pooled resources could ease issues, and where capability needs to be built.

Professional services – underutilised roles

Underutilised Roles



The professional services roles presented to the left are those that are underutilised across the market and that no contractors considered to be majorly or moderately constrained. From this, it becomes clear that market underutilisation is only seen during the first two work phases, and for many roles only in the first phase.

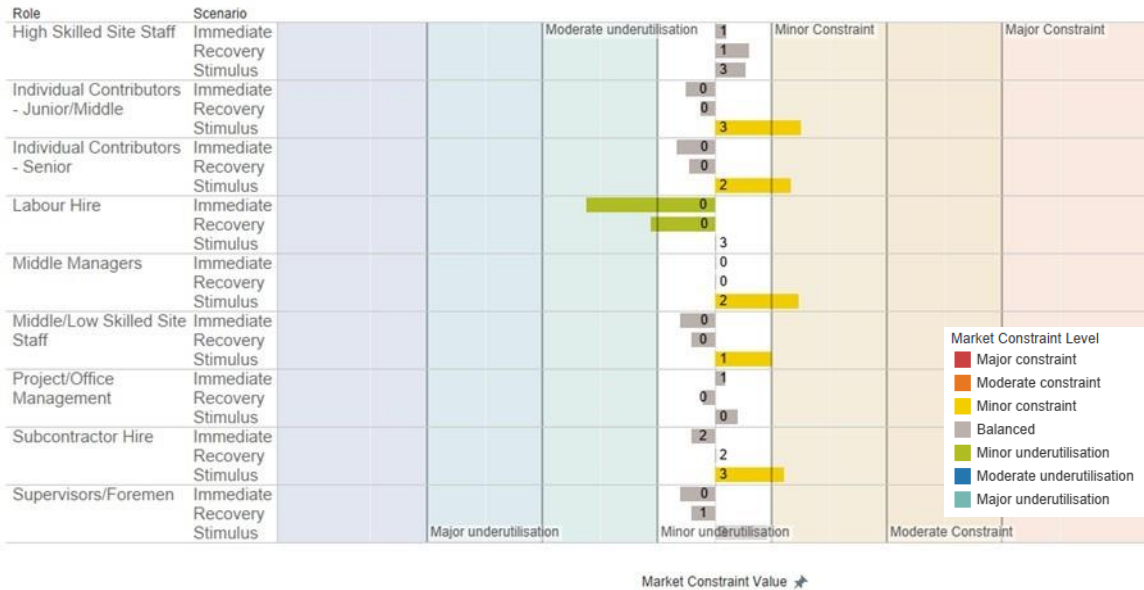
Roles and/or scenarios identified as neither underutilised nor constrained are not shown.

Most roles have minor underutilisation, as shown by the green bar, however Construction Estimators, Ecologists, Environmental and Geotechnical see the lowest level of utilisation, especially in the Immediate Restart phase.

Nearly all contractors have underutilised roles within their business. Most of these are a low level of underutilisation, however there was one contractor who identified 18 roles with underutilised capacity in the Immediate Restart phase, and another with eight. Both of these contractors have active projects nationally for both Waka Kotahi and local governments.

Physical works – workforce constraints

Constrained Roles



In physical works the workforce is balanced from the market perspective, as demonstrated by the overall grey look. All roles presented for physical works are presented here, across all scenarios to give an understanding of the pressure as work activity increases.

Eight different contractors have identified at least one moderate or major constraint, however major constraints are limited to two contractors.

The first is delivering work in Auckland/Northland, Canterbury and Otago/Southland and is facing major constraints in Project Management roles. The second has specifically called out traffic management subcontractors as a major constraint for works they are delivering in all regions, except Auckland/Northland and Otago/Southland.

A Waikato/Bay of Plenty based contractor is particularly constrained, identifying all roles except Project Managers as having moderate constraints in the Stimulus phase.

Conversely a contractor active in Gisborne/Hawke's Bay has underutilisations in most roles throughout the activity phases. High Skilled Site Staff are an immediate constraint however.

Physical works – material constraints

Contractor Risk Status

Scenario	Status	Count
Immediate Restart	Constrained	1
	Risk	10
	No issues	1
Recovery Phase	Risk	8
	No issues	4
Economic Stimulus	Risk	9
	No issues	3

PW contractors are in agreement that there is risk in the material market that could impact on delivery of work across the three scenarios for Waka Kotahi. To the left the number of contractors per rating is shown. The immediate restart does pose a constraint for one contractor, based on international freight limitations.

However, as demonstrated by the contractor risk profiles, majority of contractors believe this risk to be low in both likelihood and impact, particularly through the first two phases.

Primary Risk Drivers

Scenario	Risk Driver	Count
Immediate Restart	NZ supply constraint (input materials)	8
	Global supply constraint (input materials)	2
	International Freight	1
	Null	1
Recovery Phase	NZ supply constraint (input materials)	4
	Global supply constraint (input materials)	3
	Null	3
	Other	1
	International Freight	1
Economic Stimulus	NZ supply constraint (input materials)	5
	Global supply constraint (input materials)	2
	Competing project demand outside NZTA	2
	Other	1
	International Freight	1
	Null	1

Supply chains for input materials are the overwhelming front runner for risk drivers as demonstrated by the number of responses by contractors for each category. The New Zealand supply chain appears to be at greater vulnerability.

Aggregate materials were most at risk across the three scenarios with concerns raised about the capacity of quarries and the ability to push materials out to the regions to service demand there.

With causes for concerns primarily driven by the New Zealand market, there is opportunity for enhanced collaboration to optimise all components of the supply chain.

Contractor Risk Profiles

Scenario	Likelihood	Impact	
		Low	High
Immediate Restart	Low	4	4
	High	1	2
Recovery Phase	Low	8	1
	High		1
Economic Stimulus	Low	5	1
	High		4

Physical works – plant and equipment constraints

Contractor Risk Status

Scenario	Status	Count
Immediate Restart	Constrained	1
	Risk	1
	No Issues	9
Recovery Phase	Risk	1
	No Issues	10
Economic Stimulus	Risk	5
	No Issues	6

Primary Risk Drivers

Scenario	Primary Cause	Count
Immediate Restart	Null	7
	Servicing	2
	Parts	1
	National availability	1
Recovery Phase	Null	7
	Parts	1
	Operators	1
	National availability	1
	Importation into NZ	1
Economic Stimulus	Null	5
	Operators	3
	Parts	1
	National availability	1
	Global availability	1

Plant and equipment was a particularly straight forward category with very few contractors foreseeing risks and constraints in this area. It does become clear however that availability of skilled, qualified operators will be a risk as movement is made in the Economic Stimulus phase. Much of the workforce filling these roles are from overseas, which is likely to be a restricted resource pool if borders restrictions remain in place for an extended period. Only one contractor considered plant and equipment risk to be of high likelihood.

The contractor who identified that their plant and equipment was constrained in the short term, expressed this base on servicing limitations. The contractor is active across the country.

This section of the survey required respondents to specify the at risk plant and equipment, rather than selecting from a provided list. The following equipment was provided by respondents as being at risk, with those identified with an * being constrained, and the number of mentions marked in brackets:

- Highway truck (2)*
- Asphalt plant (1)*
- Grouting plant (1)
- Grader (2)*
- Drill rig (1)
- Roller (1)
- Crane (2)
- Compressor (1)
- Bulldozer (1)
- Excavator (2)
- Cartage (1)
- Front end loader (1)
- Bitumen sprayer (1)*
- Road tip truck (1)
- Traffic management attenuator (1)

Supply Chain Survey and Findings April 2020 – Report End

This survey and report have been produced by Waka Kotahi NZ Transport Agency in partnership with its key partners. Waka Kotahi thanks all industry partners who contributed to this survey.

Waka Kotahi takes commercial confidentiality very seriously. The **full** version of this report is password protected and not to be shared externally without GM approval via the correspondence address below. **Abridged** version may be distributed without approval.

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