NAPIER CITY COUNCIL
Te Kaunihera o Ahuriri

Napier City Council

Construction sector constraints

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MorrisonLow

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Executive Summary

In June, Napier City Council (NCC) adopted its 2021 Long Term Plan, which included an increased capital programme with over half associated with three waters services and a significant proportion of the remaining on transport and building and structure related renewals. Council noted that the volume of demand for physical works within its boundaries is risky in a constrained industry with lots of competition. Council modelling and delivery of capital plans over the last four years suggests that these combined pressures outstrip NCC's immediate capability to respond. With the long-running impact of COVID-19, three waters reform, climate change and natural hazards, legislation change and other pressures on funding and capability, these pressures are only intensifying.

To mitigate the economic impacts to New Zealand of the Covid 19 outbreak, after April 2020, Crown Infrastructure Partners facilitated the development of a national programme of infrastructure works. This was over and above the normal investment cycle and was funded directly from the Crown. Currently, there is a total of $2.43B funding towards a total of $4.03B Covid stimulus projects funded across 225 projects. An underlying factor in accepting projects for this funding was that they had to be "shovel ready" as the objective as to accelerate programmes of work to stimulate the economy and get people back to, or into, work.

The NZ Upgrade Programme was announced in January 2020 and comprised a $12B programme of infrastructure works. While this predated Covid, it was also intended to boost the economy, with $6.8B alone allocated to transport.

Both programmes created a significant, surplus demand on finite resources (and indeed created overseas interest due to the scale) and delivery of the programme was already generating difficulties prior to Covid. Although there are very low unemployment figures now in New Zealand, there is no sign that any of the work in these programmes will now be deferred.

NCC's ability to deliver infrastructure projects and programmes is subject to forces acting on the construction sector that have a range of origins:

- Locally
- Nationally
- Globally

This occurs at a time of unprecedented infrastructure investment by NCC. Council is also facing real constraints in terms of:

- Labour market (construction and professional services)
- Materials; and
- The capacity of the construction sector to scale up and meet the demand.

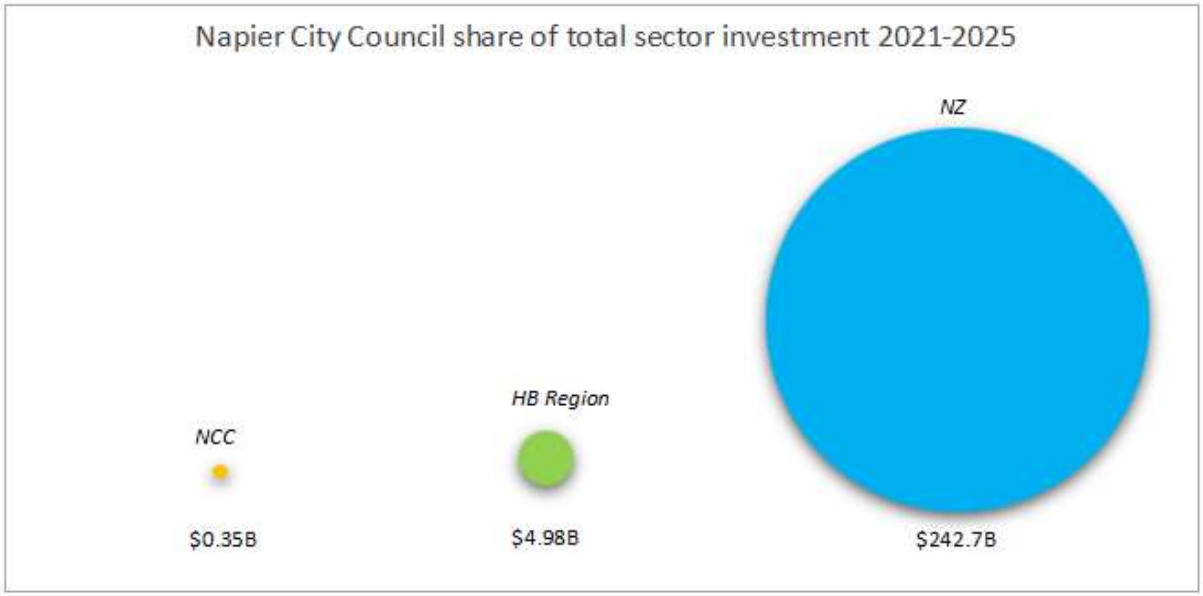
These pressures are also impacting prices for services, materials and labour, which will put further pressure on Council's ability to address its needs in a timely and cost-effective manner. This paper outlines the unprecedented scale of the planned investment at various levels (including at NCC level) and, while it compares well nationally, given that NCC has delivered 57% of its planned capital works over the past four years, strongly suggests that delivering a larger programme in competition with the rest of New Zealand and also Australia, is potentially unlikely.

While some may be short term and caused or exacerbated by COVID-19 (e.g. NZ's closed borders or disrupted supply chains, skilled visa shortage), others are deeper and longer term.

The issue for Napier, and the issue for NCC is that the same factors – a constrained construction sector and a significantly increased infrastructure investment programme are occurring across New Zealand. Napier City is required to compete with the rest of NZ for finite resources.

Napier City is a small player in the overall New Zealand infrastructure story, and its share of the infrastructure pipeline across New Zealand is relatively static, and potentially in decline as other regions (for example Tauranga and other higher growth urban areas) are pressing ahead with ambitious infrastructure plans.

Figure 1 NCC capital works programme share of total sector investment across 2021 - 2025



This report highlights some of the practices and processes observed around New Zealand to deal with the constraints also identified in the report.

Introduction and Background

Background

It is recognised globally that there are significant constraints and barriers to trade and supply of materials. This is prevalent in global building and construction markets. The current infrastructure development environment in New Zealand is similarly affected.

The New Zealand Government has an ambitious approach to infrastructure development (housing, roading, three waters, etc). Under normal circumstances this would create pressure on the industry's capacity and risk the construction sector overheating, leading to price escalation and the risk of delays.

Due to international conditions, and governments around the world engaged in quantitative easing, the cost of debt is at almost unprecedented low levels, which has stimulated the construction sector, and encouraged public and private sector investors to bring projects forward.

Thirdly, the Government's response to the Covid pandemic has removed our ability to bring in skilled people and organisations; and building materials and equipment. This has exacerbated the challenges all infrastructure projects face.

This report provides an objective and evidence-led assessment of external factors which are likely to impact the delivery of infrastructure project programmes, and in particular, those of NCC. The report will examine the context at:

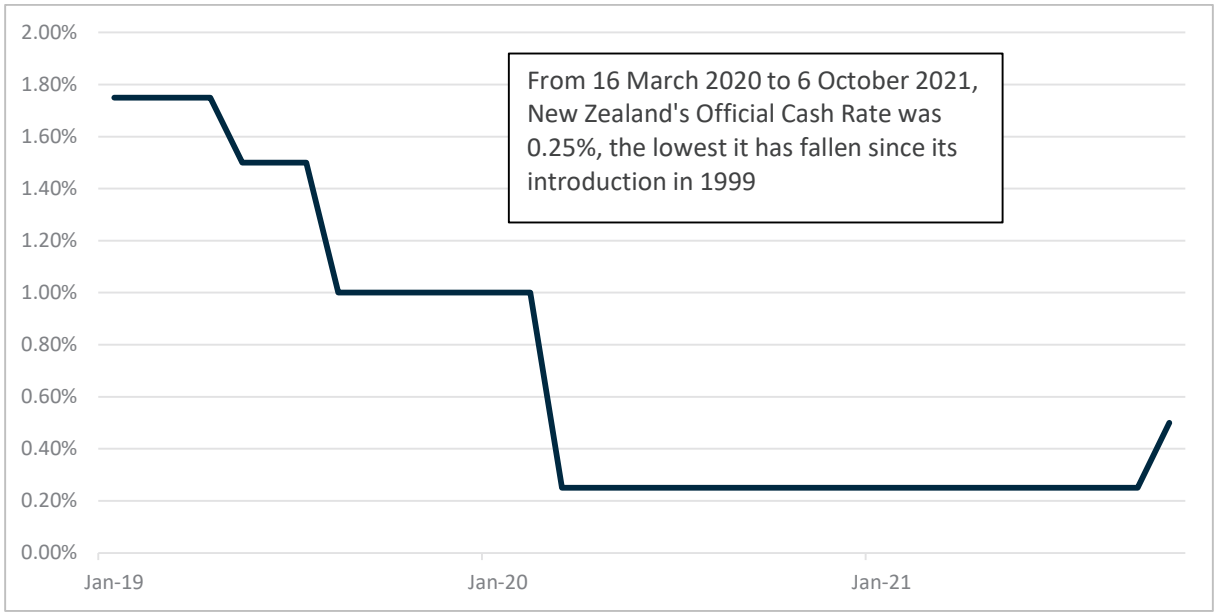
- Global
- Australasian
- National; and
- Local (i.e. Hawke's Bay region) scales.

This report will demonstrate the cascade effect that issues at each of the above scales and ultimately presents to the delivery of the infrastructure works programme detailed in the NCC 2021 Long Term Plan (LTP). The constraints that they cause are affecting delivery of existing work in New Zealand and making it more challenging to plan timing and cost of upcoming works.

Money has never been so cheap…

New Zealand's official cash rate, which is effectively the wholesale borrowing rate in New Zealand, was recently as low as 0.24% - the lowest it has been since its introduction in 1999.

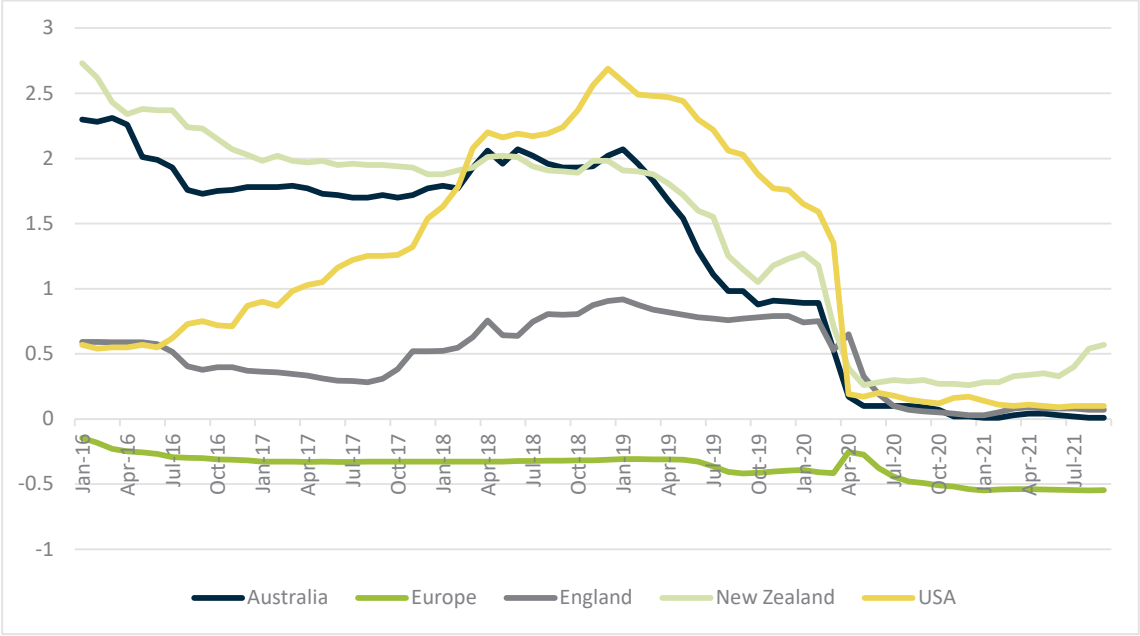
Figure 2 New Zealand official cash rate



When the official cash rate is low, banks pay less interest on savings, and charge less interest on borrowings. This encourages spending and investment.

This is a global phenomenon. All countries have experienced quantitative easing, and this has accelerated as most of the countries we compare ourselves against have borrowed to fund COVID mitigation measures. New Zealand is not alone in setting low interest rates. The Bank of England's base rate is currently as low as 0.1% (the lowest it has been since records begin in 1694).

Figure 3 Global short term interest rates



Nor has it been so abundant…

Central banks across the world are typically tasked with controlling inflation within a pre-defined band (typically around 2 – 3% per annum). When economic activity reduces, so too does inflation.

While traditionally, the main tool for banks to control inflation has been the official cash rate or base lending rate, more recently central banks have also used quantitative easing to control inflation. This tool is particularly likely to be used when lending rates are already at, or approaching, zero.

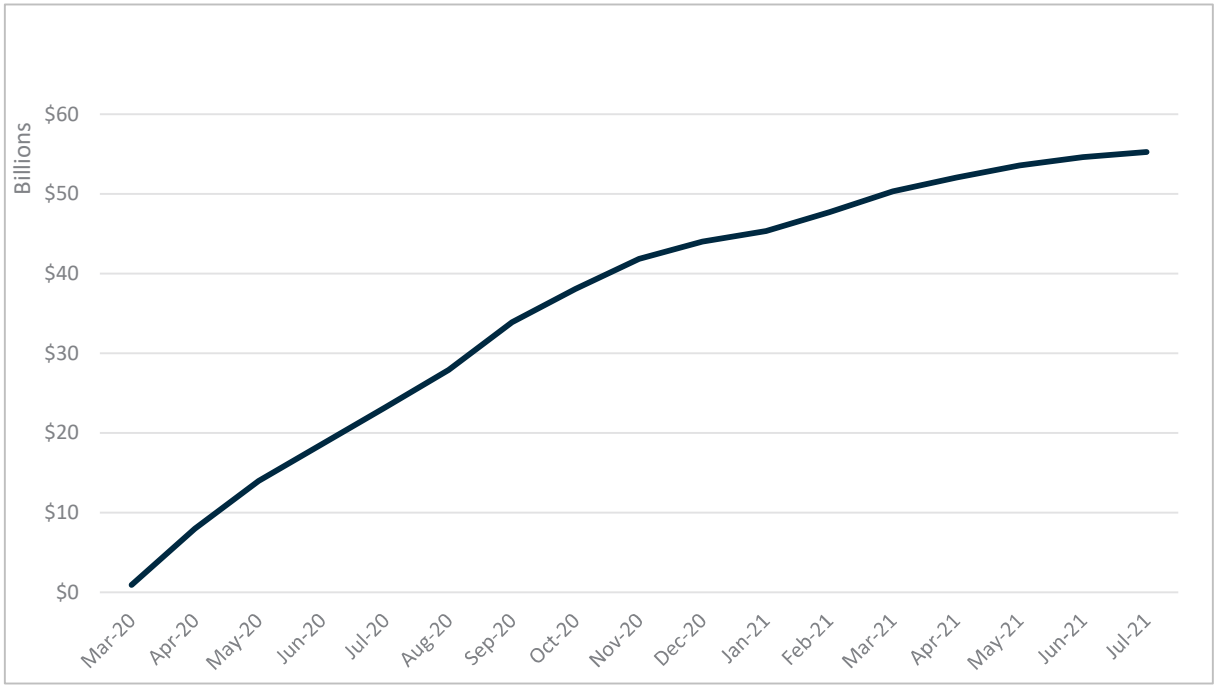
In short, quantitative easing involves central banks buying back government bonds, and sometimes private bonds, from the market. This increases the balance sheets of the central banks. It also:

- Reduces the effective interest rate on government bonds because it drives up price.
- Frees up money from lenders, who now have cash to invest in shares or other securities which offer a higher potential yield.
- Overall increases the supply of money available for spending and investment.

In March 2020, in response to the COVID-19 pandemic, the Reserve Bank embarked on a large-scale asset purchase programme, whereby it bought back a total of $55 billion of central government and local government bonds.

In addition to quantitative easing, governments around the world have sought to borrow to fund COVID relief programmes. New Zealand has provisioned approximately $95 billion for this purpose. The impact of available cash, and historically low interest rates has led to price inflation in key asset classes (in particular property) and a consumption boom.

Figure 4 Cumulative large scale asset purchases by RBNZ since March 2020



Taken together, these steps have created the appearance of GDP growth (spending borrowed money on

goods and services will show up as positive spending when GDP is calculated, as it is a mechanism that sums economic activity in a market). The challenge for governments is how to withdraw from this cycle of quantitative easing without triggering adverse shocks to the economy.

The RBNZ has started to signal a slow move to increase the Official Cash Rate to start to return the economy to a more normal footing.

Similarly, the Bank of England increased its total quantitative easing from £445 billion to £895 billion since March 2020 – effectively injecting £450bn into the global investment market.[1]

In the New Zealand context, this therefore means that the Government has been able to borrow significant amounts of cheap money to inject funding into large public infrastructure programmes. It also fuels competition in the market by making it easier and more attractive for private developers to borrow money. The increased demand is within the context of resource and delivery constraints and competition also discussed further in this document.

[1] https://www.bankofengland.co.uk/monetary-policy/quantitative-easing

Unprecedented infrastructure investment

Australia

In order to understand the landscape in New Zealand, it is important to understand the trans-Tasman implications. Australia is also facing the same issues as New Zealand which means that there will be significant influence and competition (for all forms of resource) from across the Tasman. This also validates the perception that the issues facing New Zealand are real and enduring.

An October 2021 report by Infrastructure Australia[2] shows that investment and constraints at scale are also prevalent in Australia.

- Known annual investment will peak at $52 billion in 2023.
- Demand for labour, plant and materials expected to be two-thirds higher than compared to the previous five years.
- Demand peak for skills is 48% higher than supply (noting that part of this supply often comes from New Zealand).
- 34 of 50 public infrastructure occupations are potentially in shortage.
- Growth in demand for materials, plant and equipment is expected to range between 120 and 140% over the next three years.
- Covid-related border closures have compounded these challenges.

New Zealand

This section sets out the current landscape in New Zealand with respect to infrastructure delivery. It is not exhaustive but seeks to demonstrate the scale of works currently programmed across New Zealand. This is important to understand as it points to the level of resource (human and materials) that will be required to deliver them.

The level of infrastructure investment is significant and in part is funded by Government stimulus programmes and the availability of cheap borrowing.

National Infrastructure Programme

New Zealand has sought to understand national infrastructure needs, and the scale of the pipeline of projects. This led to the creation of the National Infrastructure Unit under the previous government. That led to the first robust national stocktakes of infrastructure, and more recently to the Creation of The Infrastructure Commission, Te Waihanga. The latest Te Waihanga quarterly report[3] notes the total pipeline currently comprises 2588 projects across 159 organisations and is valued at $64 billion.

[2] Infrastructure Australia – Infrastructure Market Capacity, dated October 2021
[3] https://www.tewaihanga.govt.nz/assets/Quarterly-Reports/210102-INFR-Te-Waihanga-2nd-Quarterly.pdf

This includes:

- Energy: $3.4 billion
- Housing: $5.6 billion
- Water: $10.4 billion
- Community facilities: $4.3 billion

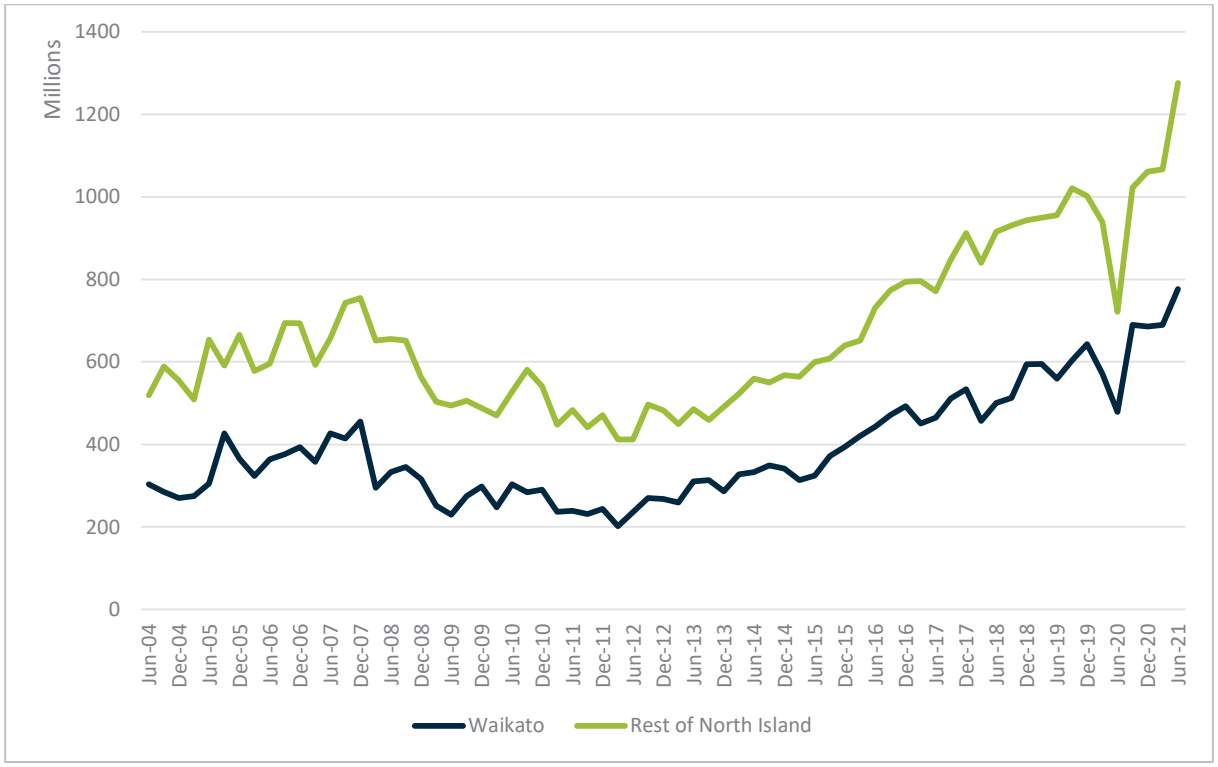
Together with the above, there are $24 billion of projects under construction and $29 billion of projects in planning stage. Transport and water comprise the bulk of the projects, as they do for the spend in the NCC LTP.

It has not been possible to produce a direct comparison to previous years at the time of preparing this report as the pipeline and data collated by Te Waihanga has not been produced previously (and indeed is part of the reason for the creation of Te Waihanga).

These are numbers from government departments and government agencies and it should be noted they will be augmented by private activity. On top of commercial infrastructure investment (businesses, commercial buildings, rest homes, airports etc), the biggest source of infrastructure activity is private housing.

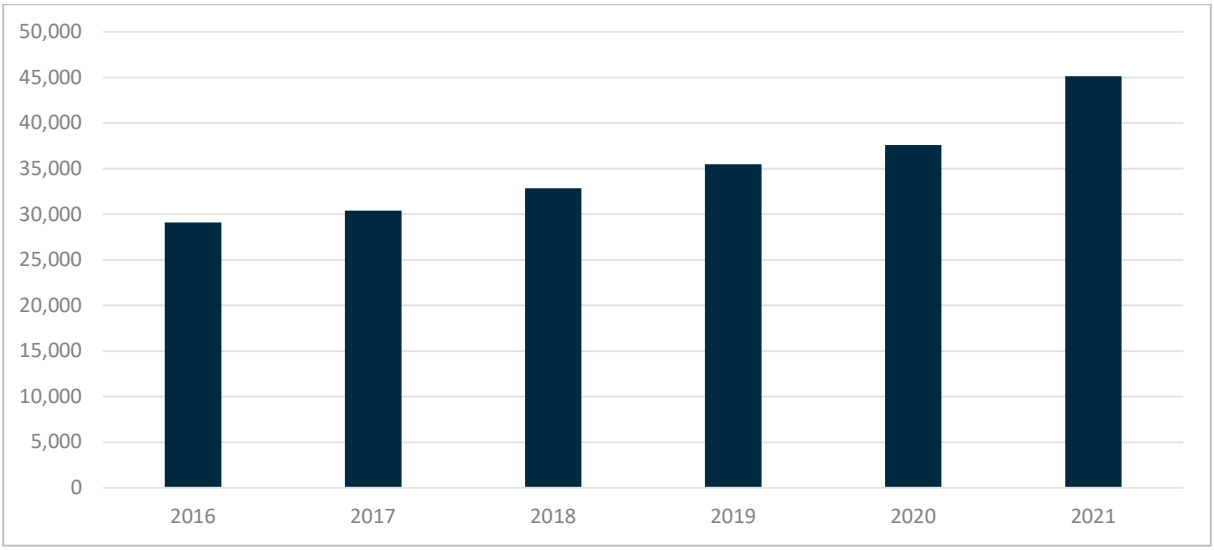
Figure 5 below shows the drop due to the initial Covid lockdown and the rate of the subsequent increase (graph extends to June 2021) and also shows the difference in scale to the current pipeline. This graph illustrates the likely trends for Hawke's Bay (for which there is no data) comparing instead the Waikato with the rest of the North Island.

Figure 5 Stats NZ graph of building work to June 2021



The following chart from Stats NZ shows that there has been a 20% increase in building consents issued over the last year. While consents issued is not a direct proxy for houses constructed, and some of these dwellings will be government developments, overall, the increase in private housing activity taken together is sufficiently material to impact on the supply of skills and materials across the infrastructure sector.

Figure 6 New buildings consents in New Zealand



source: Stats NZ

Looking at what this means for Napier and Hawke's Bay

Covid stimulus programme

The June update[4] from the Industry Reference Group stated a total of $2.49 billion government funding towards a total of $4.18 billion Covid stimulus "shovel ready" projects funded across 230 projects.

756 FTE were projected for regional projects but as at September 2021, only about 246 are currently working on the projects. There is a significant shortfall to deliver the 11 funded projects in the Hawke's Bay region. Of these nine have commenced and two have been completed, so there is a high latent demand for resources.

NZ Upgrade (Transport)

The NZ Upgrade programme being delivered by Waka Kotahi comprises around $14.2 million of $300 million regional budgeted funding in the Hawke's Bay region, across two projects. This work is being done in competition with other packages nationally. Significantly, the Auckland package is valued at $4.3 billion and Wellington package at $1.87 billion so intra-regional competition for resources in the North Island alone will be fierce. The projects delivered as the Hawke's Bay package are:

- College Road to Silversteam Station (SH2)
- Tahaenui Bridge (SH2)

The bridge project has been completed and the 1.7km of SH2 upgrade is nearing completion. This may free up some resources in the area.

Waka Kotahi NLTP

The overall value of work in the 2021 - 24 NLTP for New Zealand is $24.3 billion. Of this, $376 million has been allocated to the Hawke's Bay region, broken down as follows:

- Maintenance and operations: $214 million
- Public transport investment: $17 million
- Walking and cycling: $18 million
- Provincial Growth Fund: $33 million
- Road to Zero: $53 million

The above includes contributions to a reliable and resilient road and rail connections particularly to the Napier Port (the largest in the North Island) and to the neighbouring region of Palmerston North. Also improving road safety in urban areas and high-risk rural roads.

[4] https://www.crowninfrastructure.govt.nz/wp-content/uploads/CIP-IRG-Quarterly-Sep-2021-FINAL.pdf

These will be delivered by a mix of Waka Kotahi, NCC and other city council projects.

Other scoping work is currently being undertaken on possible realignment of the Waikara Gorge and avenues to support tourism with possible improvements to SH38 through to Lake Waikaremoana.

Napier Infrastructure Programme

The LTP identifies that Council is intending to spend $827 million in capex over the next 10 years. This comprises $111.5 million for transport and $404.5 million on three waters assets with major projects included below

- Water supply $133.8M, including
  - the replacement of Enfield Reservoir
  - installation of two new borefields
- Wastewater $154.8M including
  - replacing the and upgrading the Awatoto marine outfall
- Stormwater $115.9M
- Transportation $111.4M
- Civic Precinct building development $54M
- Napier Library rebuild $26.39M
- Regional Park development $12.49M
- Te Pihinga community facility $11.5M
- Inner Harbour Iron Pot Upgrade $6.02M
- Additional CBD parking $4.53M
- Cemetery land purchase $3.59M
- Faraday Centre building development $2.3M

In addition, NCC is loan funding the $1.8 million deficit in the housing portfolio for the 2021/22 financial year until a strategic review can be completed of this provision of affordable housing.

Non- Council infrastructure projects

NCC is only one of the players in the regional market. Other large investors are likely to include:

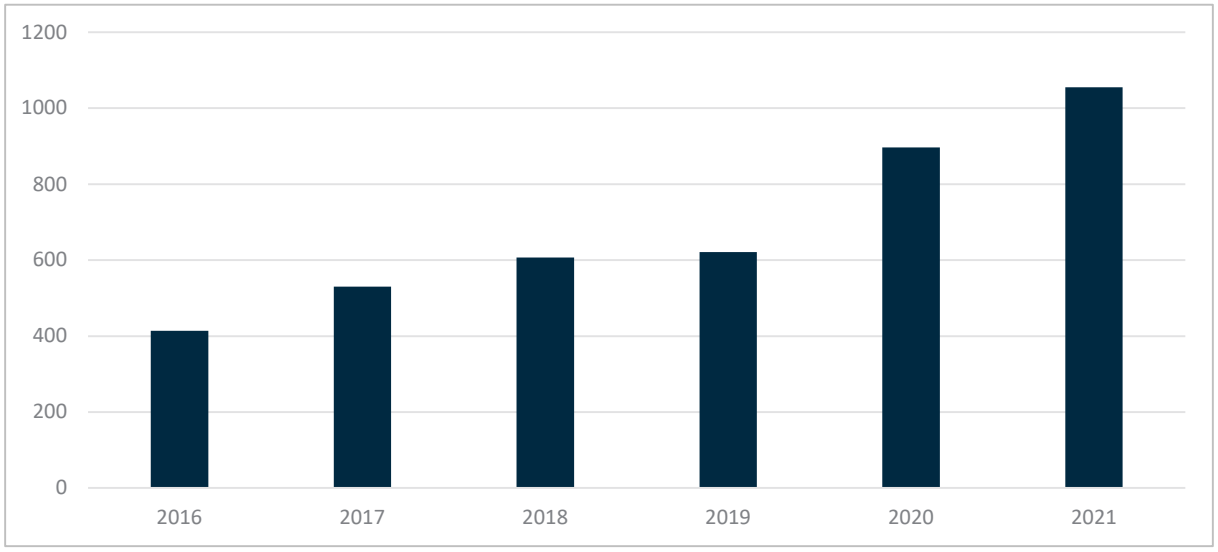
- Commercial building owners and developers - earthquake prone buildings upgrades and new builds and fit-outs.
- Residential developers and property owners. While not many of the individual developers are large, collectively they represent significant activity.

Napier is a medium growth city with a requirement to enable and provide affordable development under a National Policy Statement – Urban Development and NCC is looking at how to encourage intensification through the District Plan Review. Napier needs 3,500 new homes in the next ten years.

Hastings District Council is in a similar situation where the increased population has outpaced supply of homes. A design guide for housing was recently released to address the medium intensification strategy. By 2045, 60% intensification is projected.

Figures 7 shows that new dwelling consents are on the rise. The number granted in 2021 representing a 154% increase from 2016. While Hawke's Bay region's consents for new dwellings may be small compared to other parts of the county, as illustrated in Figure 8, the impact for Hawke's Bay is significant when put in context (Figure 9) and this will put pressure on the already stretched local industry to deliver the demand. Hawke's Bay tops the chart in Figure 10 for the region with the greatest number of dwellings consented across New Zealand in 2021.

Figure 7 Hawke's Bay region new dwellings consented



source: Stats NZ

Figure 8 New dwellings consented by region

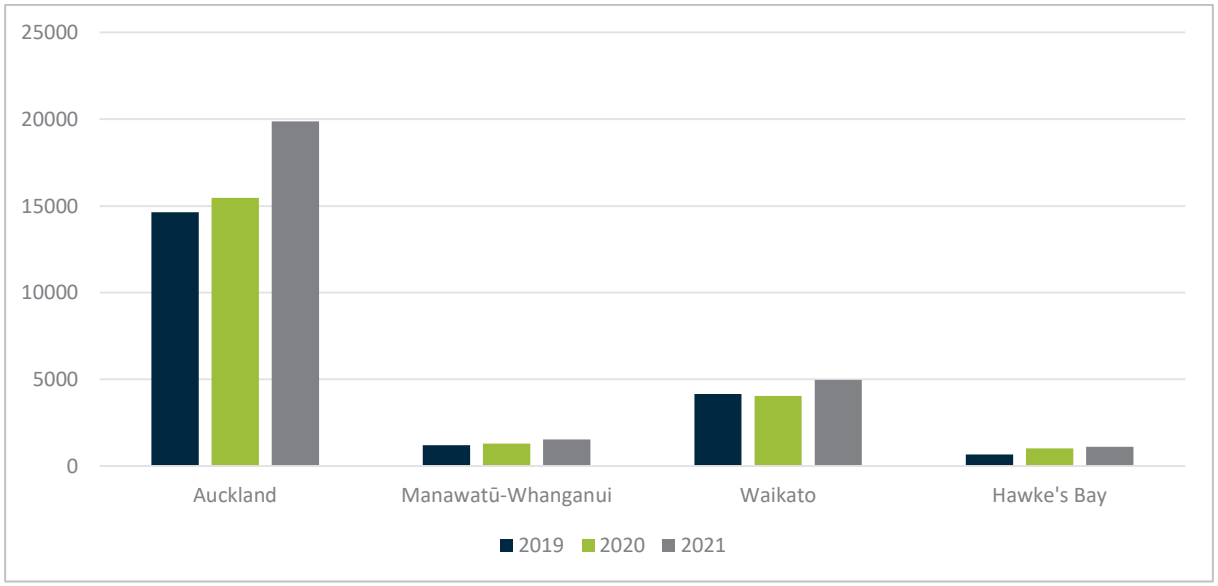


Figure 9 New dwellings consented per 1,000 residents by region

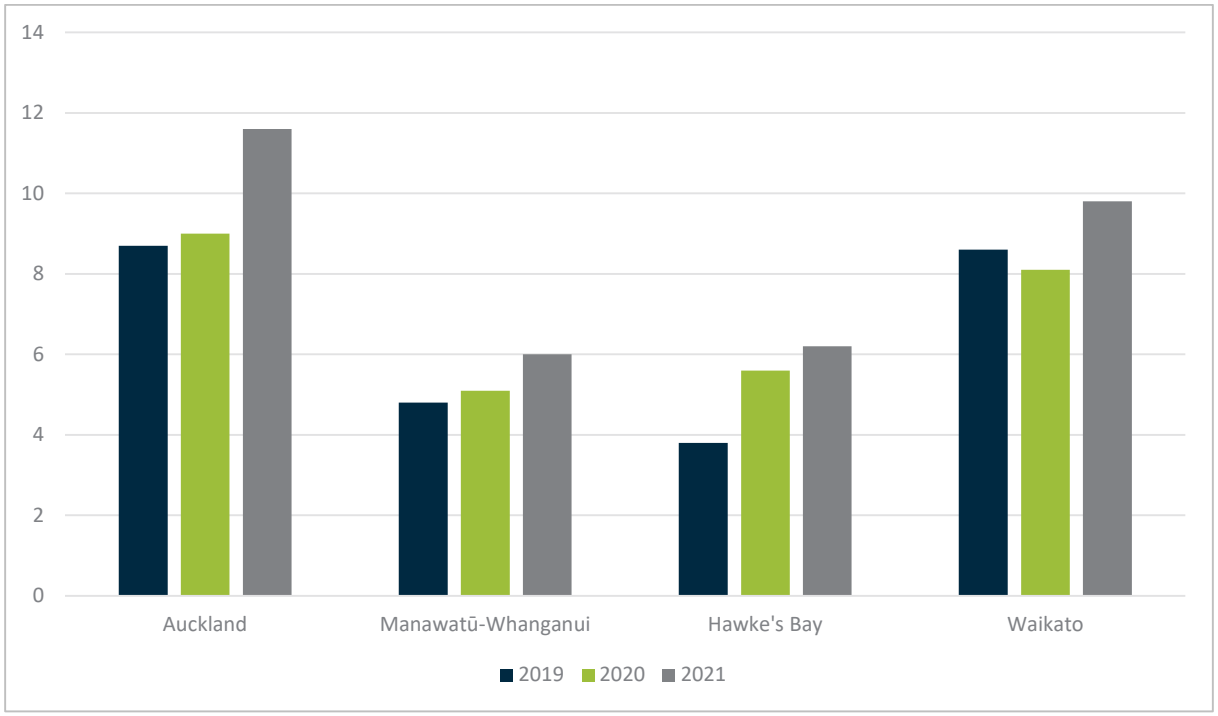
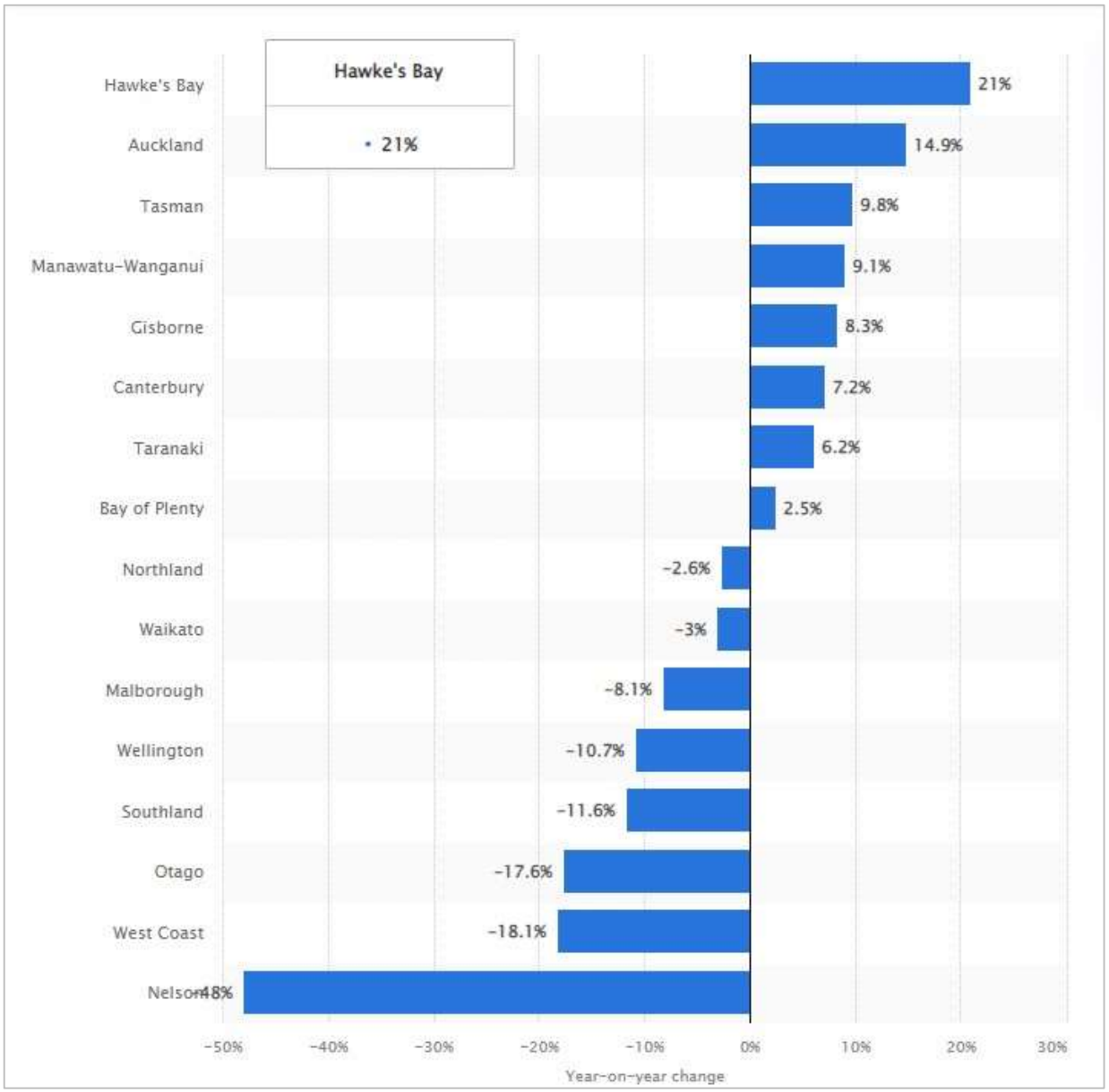


Figure 8 New Zealand year-on-year change in the number of dwellings consented in New Zealand in 2021, by region



Source: Statista

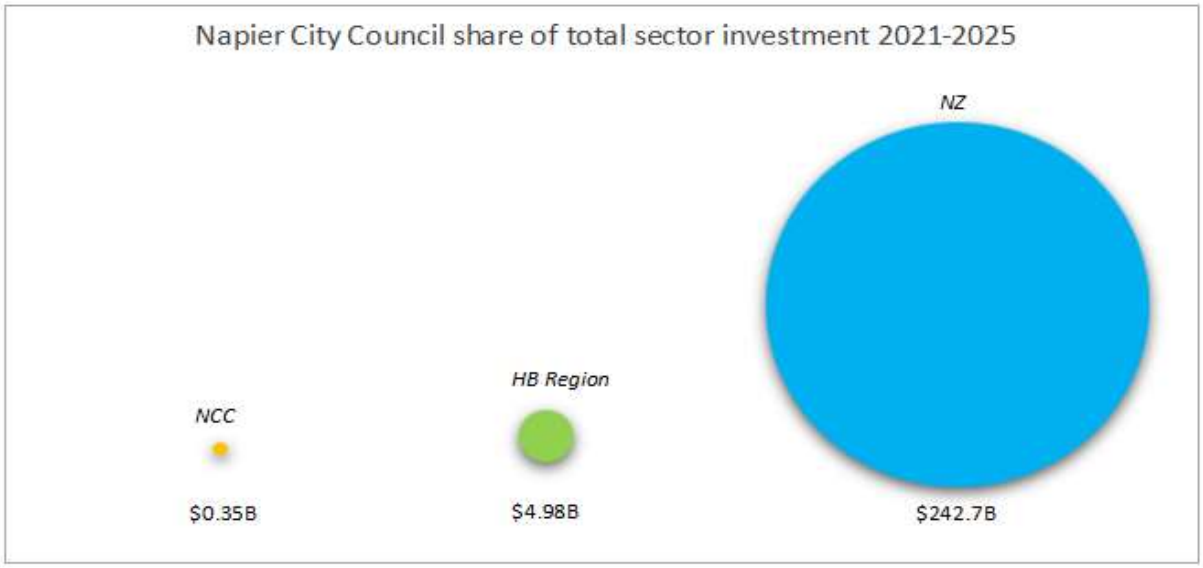
Construction Activity Competition Context

Excerpts from NCC LTP have been presented in more detail already in this document but what is important in the context of that programme, is competition for resources. Napier is facing significant and growing competition from the rest of the country for skills and all forms of resources. For example, a brief comparison with Tauranga shows:

- Tauranga has itself committed to a $6.4billion capital programme, allocated to a very similar format of projects to those in NCC's LTP.
- Te Waihanga also reports[5] that there is up to $1.25billion of major projects also in the pipeline for the wider Bay of Plenty (either ongoing or planned).

NCC's share of total investment is relatively small.[6] Between 2021 and 2025 NCC plans to invest $353 million, compared to $4.958 billion across all sectors in the region, and $242.7.3 billion across all sectors in New Zealand.[7] In a competitive market, suppliers can pick and choose and if the majority of the projects are outside the Hawke's Bay region, then Napier and NCC face significant challenges.

Figure 9 NCC share of total sector investment



Hawke's Bay Regional Skills Leadership Group reported that the region will be unable to deliver the $2.7B of known work of the next three years, let alone work that it is yet to be announced.[8] Current demand could not be met due to:

- Demand far exceeding the current rate of supply of skilled/semi-skilled labour.

2.7 B

Work unable to be delivered in Hawke's Bay over next 3 years

[5] https://www.tewaihanga.govt.nz/projects/pipeline/
[6] https://wip.org.nz/project-pipeline
[7] https://wip.org.nz/project-pipeline
[8] https://www.mbie.govt.nz/dmsdocument/13946-local-insights-report-hawkes-bay-interim-rslg-march-2021

- Twice the number of qualified Licensed Building Practitioners needed to cope with current demand However, the demand for projects in the Hawke's Bay is up for the next three years compared to the previous three. 271% for civil, 466% commercial and 158% for residentials.

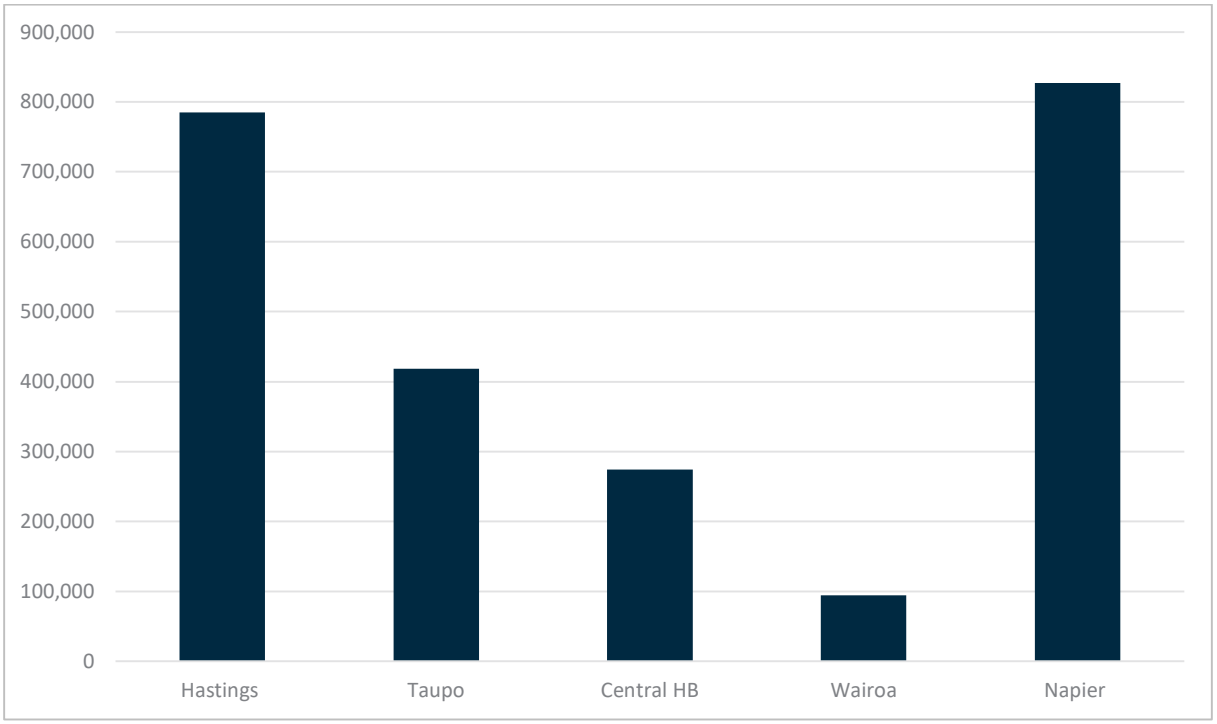
NCC has increased its capital investment in its 2021 LTP and NCC's share of regional investment is increasing.

Project demand has increased significantly

While total investment through the LTPs of the six territorial authorities in the region has risen from $1.77 to $2.62B, Napier City Council's share of that investment is projected to increase from 26.3% to 31.2%. This is important as the investment made by NCC is the market seen by suppliers.

Opportunities exist to work today with other councils in the region to bundle work together to increase market share, however this will not solve the limited supply of labour identified above.

Figure 10 Comparison from neighbouring councils 10-year capex investments ($000)



Indicators of activity

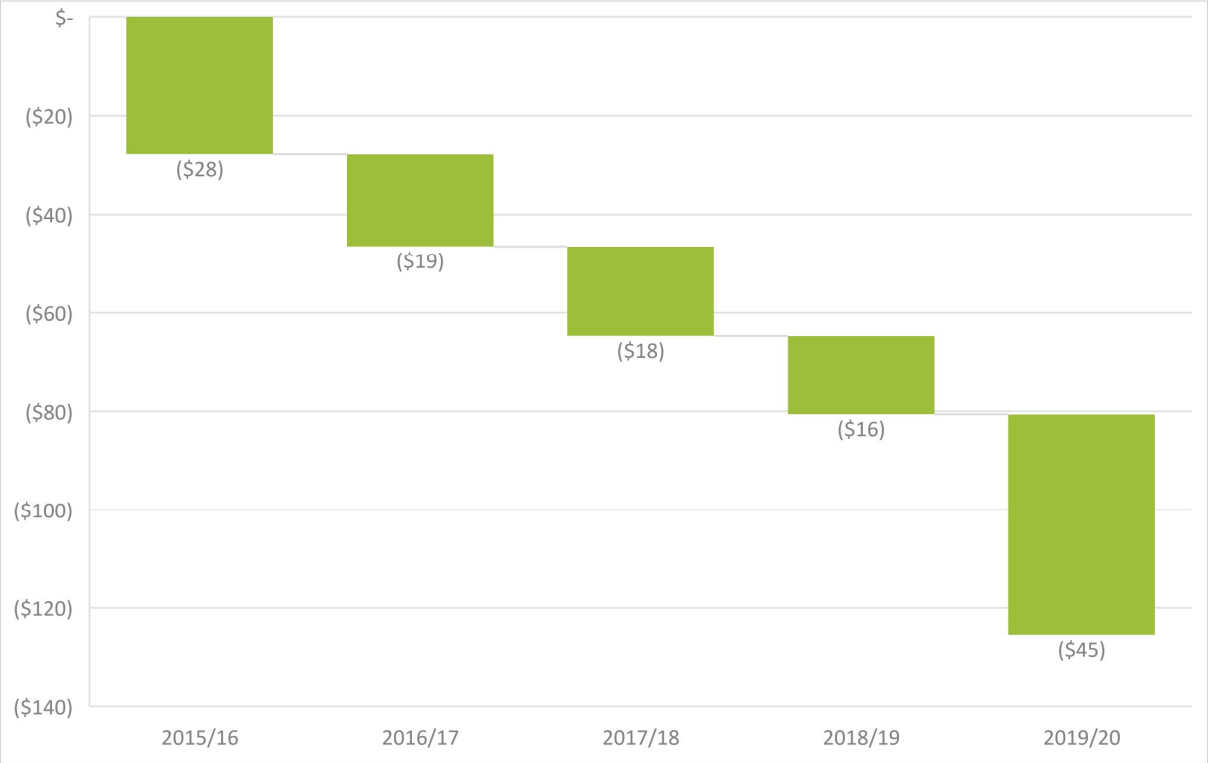
Some indicators of construction activity are presented in the following graphs. As shown in Figure 11 below, Ready Mix concrete production in Napier has not dropped as low as Auckland and the rest of New Zealand. Demand is still high and growing. This is likely to be unsustainable in the long term.

Figure 11 Ready mix concrete volumes, quarterly growth (seasonally adjusted)

Delivery

Over the last four years, NCC delivered an average of 57%[9] of the planned capital works from its Long Term Plan. Within the local government sector, this is below average. Therefore, the cumulative effect is significant – almost $125.5 million of undelivered capital works. As noted in the LTP consultation document, NCC has been able to deliver between $20 - $50 million worth of capital project annually despite planning to deliver almost double that. Partly due to the under-delivery of capital works, the current programme includes a 50% increase compared to the last ten year plan. The risk of falling short on delivery has been identified as possible but NCC believes this can be mitigated through staffing and contractors supplementing resources, and an inhouse civil works capability. Given the increase in spend in this LTP together with the constraints covered later in this report, this indicates a high level of risk of non-delivery which requires proactive mitigation and planning.

Figure 12 Annual and cumulative NCC capital works under-delivery



The reasons for under-delivery are outside the scope of this report. However, all works programmes have risks and the combination of level of previous success, significant increases in planned investment in this LTP and the various and enduring constraints discussed below, indicates that there is a high degree of risk of under-delivery.

[9] Based on annual reporting

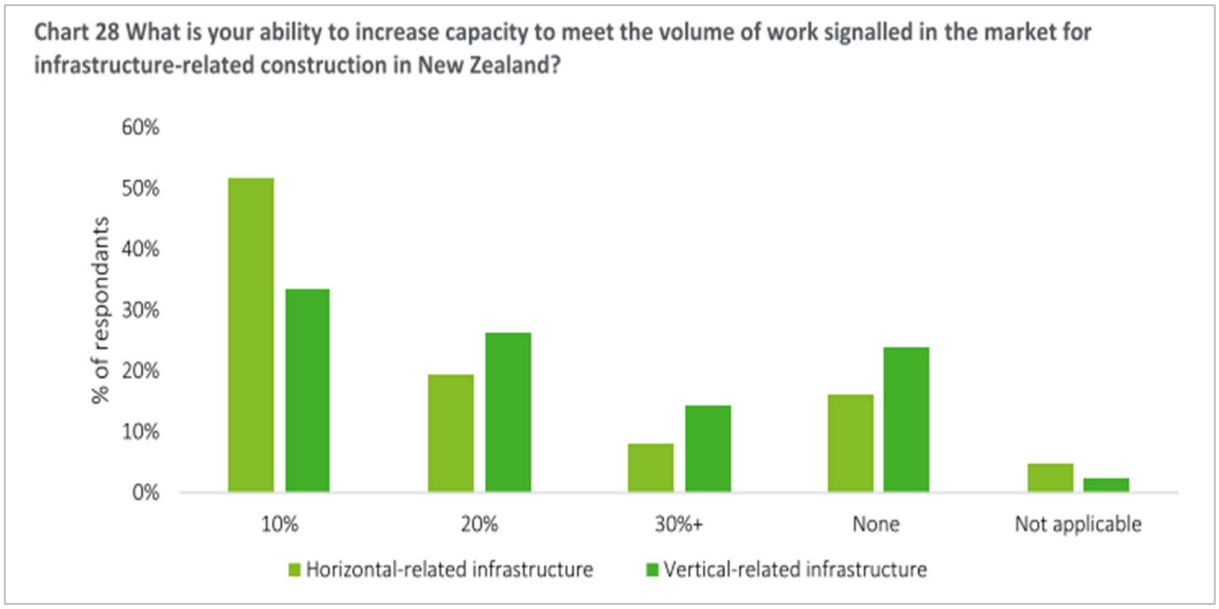
Constraints

The entire infrastructure industry in New Zealand is under pressure resulting from forward works programmes, maintenance backlogs and external constraints. The external constraints are examined below.

Construction capacity

A survey of construction companies[10] in New Zealand for Te Waihanga (The infrastructure Commission) showed that 70% of current suppliers in the horizontal infrastructure market are only able to increase their capacity to deliver by less than 20%. The proportion is even less in the vertical infrastructure market. This points to significant constraints in the market's ability to deliver. Meeting demand will require dedicated and careful pipeline management to enable the sector to sustainably grow and scale operations to ensure delivery.

Figure 13 Ability to increase capacity



Resource Constraints

There has been significant growth in the number of filled jobs within the construction sector in New Zealand, with a 21% increase in filled jobs during the year ended 30 June 2021.

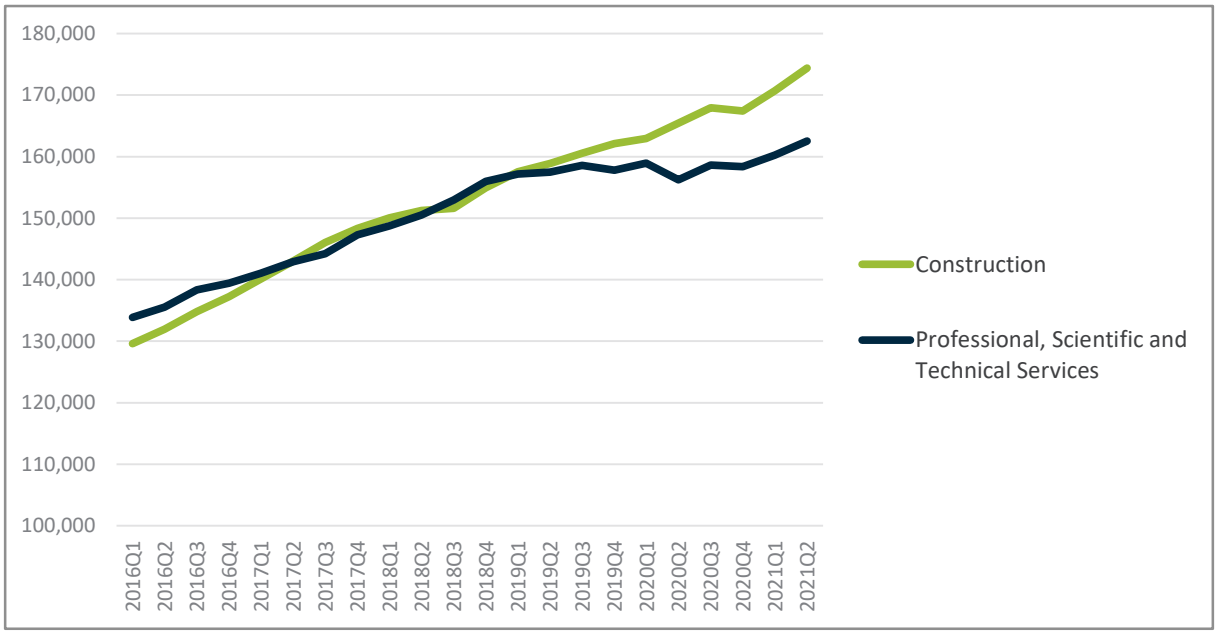
[10] Source: Deloitte: "A better way forward. Building the road to recovery together: Construction sector COVID-19 recovery study" January 2021.

However, while traditionally growth in the number of filled jobs in the "Professional, Scientific, and Technical Services" category has kept pace with those in the construction industry, this has not been the case in the last 24 months.

Labour has never been harder to find. Construction labour shortages are at their highest since 1975 (as reported by NZIER, QSBO)[11] and Te Waihanga reports in their Infrastructure Strategy that the share of construction firms reporting labour shortages is now at its highest ever level which is exacerbated by the competition for talent in other countries (especially Australia where wages are significantly higher than New Zealand). Forecasts are referenced that show New Zealand will have a 118,500 shortfall of construction workers by 2024.

Shortage of 118,500 construction workers by 2024

Figure 14 Total filled jobs in construction sector, seasonally adjusted



This also has an impact on labour costs. Salaries in the professional services sector continue to rise. The median base engineering salary rose from $90,700 p.a. in 2019 to $100,000 in 2020. This trend is likely to continue due to the labour shortage which will in turn cause rates to rise annually. However, the current lack of availability of international travel is showing signs of improving in 2022 and Australia will return to being an attractive work option for many New Zealanders in both trades and professions, particularly given their borders have commenced opening which opens a path for overseas workers, particularly from New Zealand.

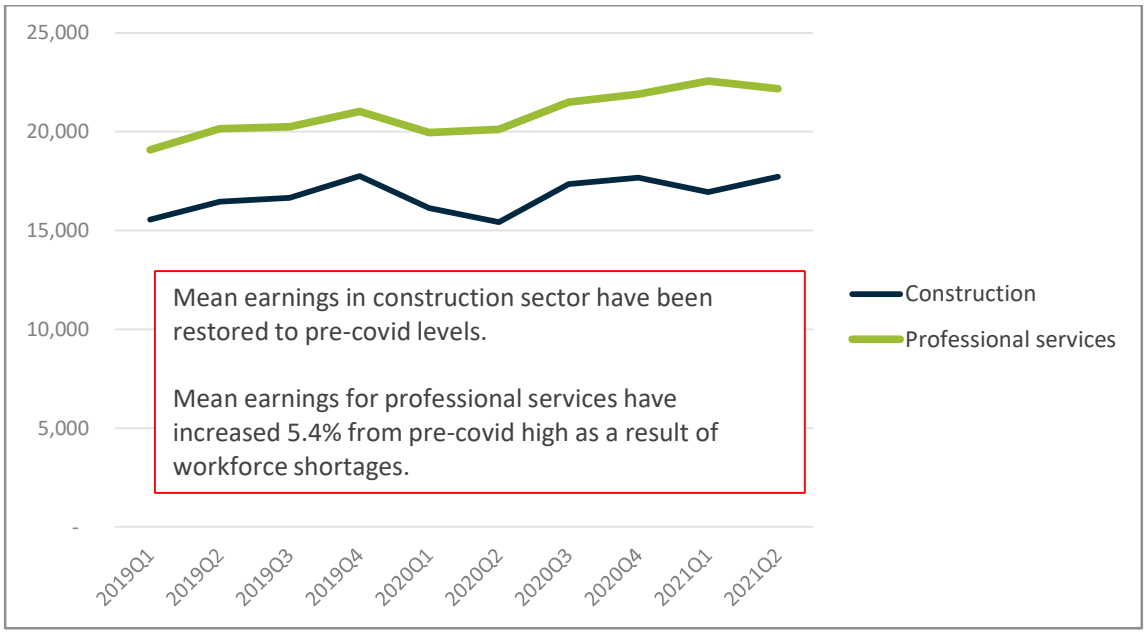
Median base engineering salaries increased by $10k p.a. from 2019 to 2020

[11] https://wip.org.nz/supply-and-demand/

A further consequence of this is the ongoing disparity of salaries between local government and other sectors. Given the reduced numbers of candidates in the market, NCC may continue to struggle to fill roles and risk internal delivery capability if prospective employees are more attractive to consultancies, or even central government.

LTP staff recruitment has been highlighted as an area of concern. Resources are stretched and external assistance will be needed for example in the areas of technical expertise or project management assistance. This is a significant hurdle to jump through to ensure the Council can deliver the planned capital programme.

Figure 15 Mean quarterly earnings in construction and professional services sectors



While growth in the construction workforce has been sustained, and constant, this is unlikely to be able to continue within the current environment. Unemployment in New Zealand is now lower than 3.4% (to quarter ended 30 September 2021). This means New Zealand is nearing "full employment" and further reductions in unemployment rates may give rise to further labour cost inflation[12,13]

[12] Per RBNZ the natural rate of unemployment in New Zealand is between 4 and 5.5%. Reserve Bank of New Zealand Analytical Notes: Estimating the NAIRI and the Natural Rate of Unemployment for New Zealand, March 2018 (https://www.rbnz.govt.nz/-/media/reservebank/files/publications/analytical%20notes/2018/an2018-04.pdf)

[13] The EPMU suggests that unemployment below 4% is not ideal for employers and is likely to lead to labour cost increases. https://www.newsroom.co.nz/too-many-people-have-jobs-say-employers

Figure 16 Unemployment in New Zealand

Impact of Covid-19 Border Restrictions

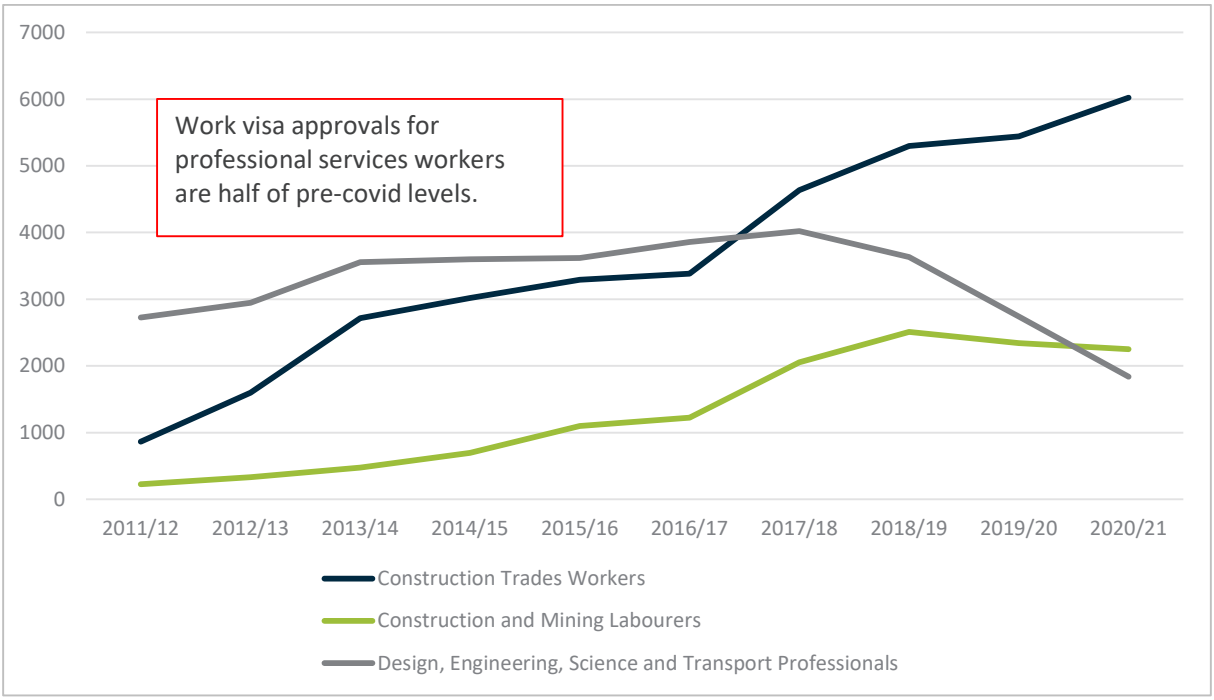
An ACE NZ Report[14] as at August 2021 (including Civil Contractors NZ, NZ Institute of Architects, Registered Master Builders Association) found there were 3229 total advertised vacancies currently in New Zealand. These vacancies are across all types of skilled resource, from engineers, architects, planners, project managers, site managers, plant operators, tradespeople – essentially across the whole project lifecycle. Note these were vacancies current at the time, not a forecast of resource required.

The report also found that 90% of firms were having difficulty recruiting in New Zealand with 66% also getting no domestic applicants. 28% were attempting to recruit from overseas where this figure would normally be 81%. A majority of the firms trying to recruit from overseas found the process too complex and those not trying stated that they weren't because the process was too hard.

While construction trade workers are still seeing an increase in approved work visas, there has been a reduction in approved work visas for "Design, Engineering, Science, and Transport Professionals" since 2017/18.

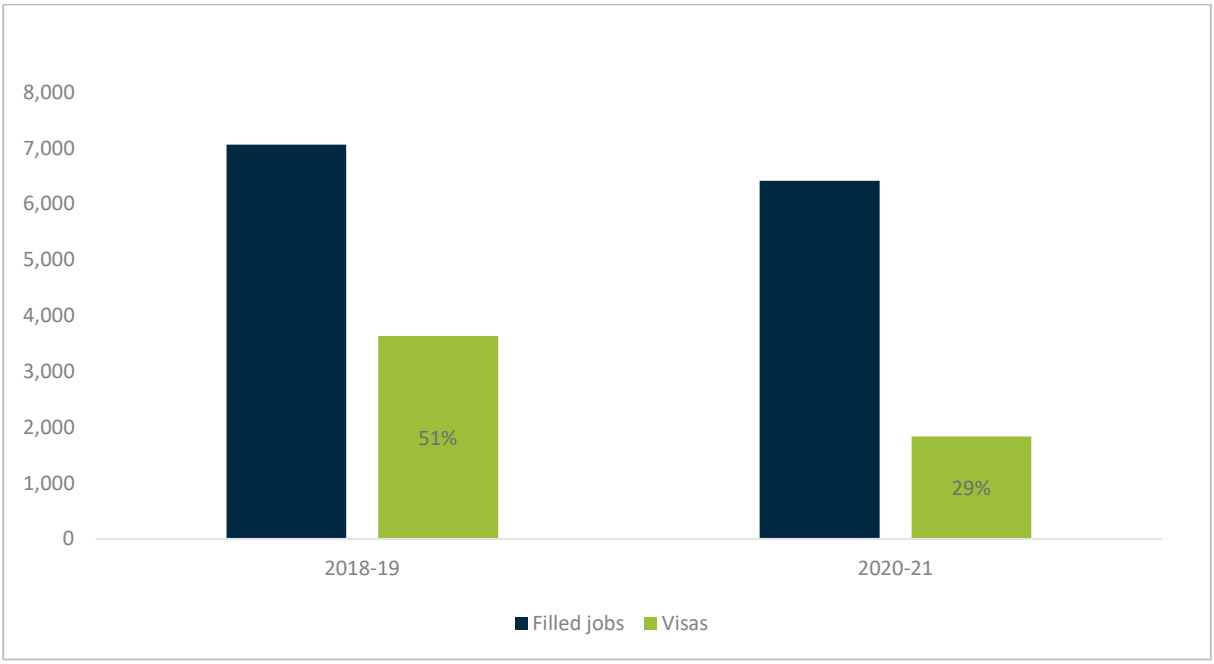
[14] 2021_4_August_Industry_Partners_MIQ_survey_Report_V6_FINAL.pdf

Figure 17 Approved work visas by occupation subgroup



In 2018/19 approved work visas in this category equated to 51% of filled jobs in the "Professional, Scientific, and Technical Services" category. In 2020/21 approved work visas only equalled 29% of filled jobs in the same category.

Figure 18 Professional services filled jobs versus approved work visas



Work visa approvals are indicative of the demand for immigrants in New Zealand. However, Covid restrictions mean that only a small percentage of those that have been granted a work visa have actually entered the country. That is despite a significant decrease in the number of visas being approved.

Figure 19 Percentage of work visas versus approved

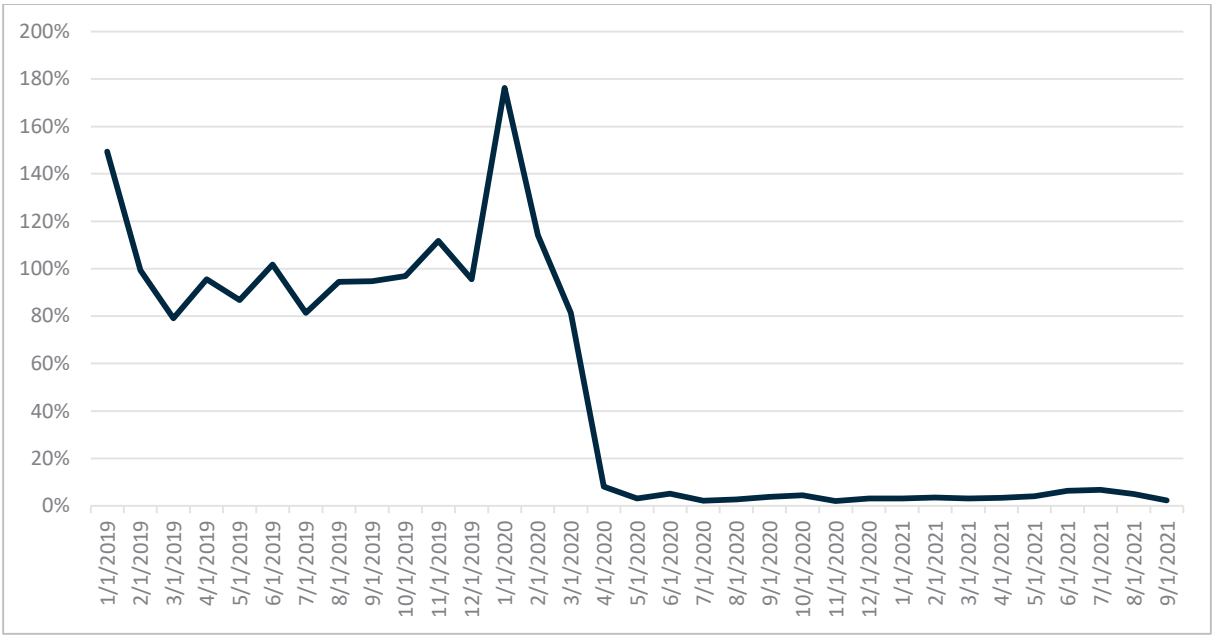
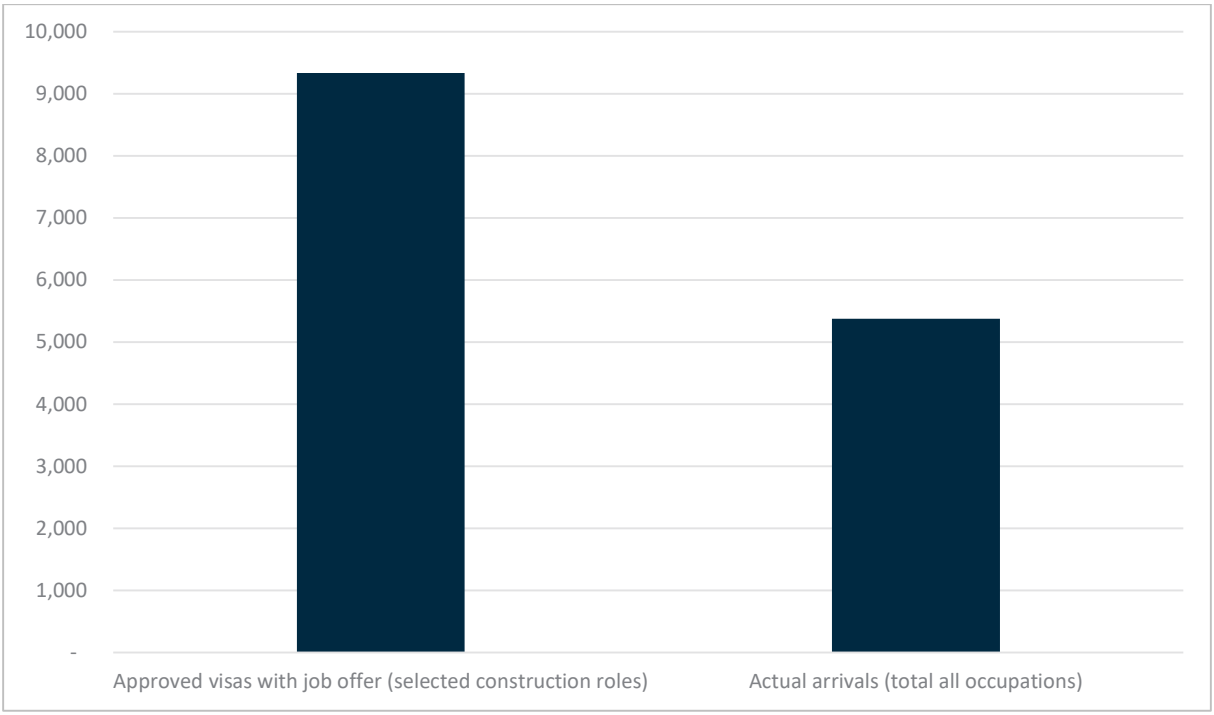


Figure 20 Visa applicants in selected construction roles versus actual arrivals 2020/21



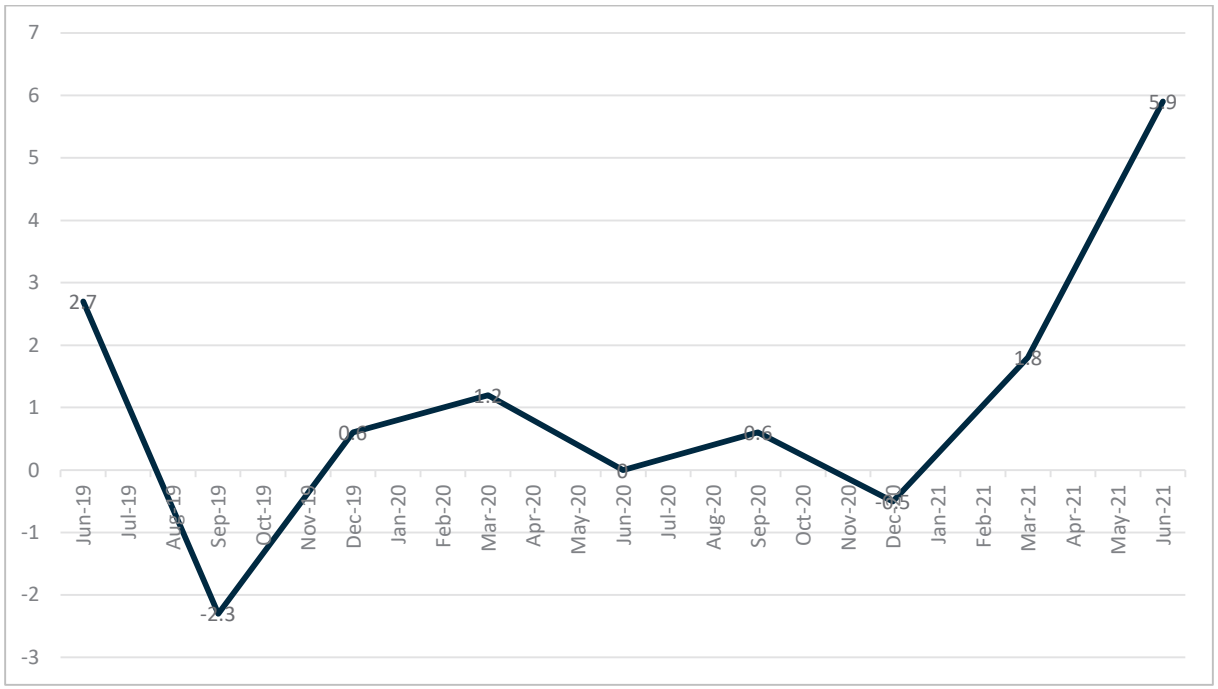
Inflation and the cost of materials

We are hearing that New Zealand is currently facing constraints in the supply of building materials, dressed timber, concrete, fastenings, Gibraltar board, electrical equipment and other materials. Part of this supply squeeze is due to the lockdown of Auckland, and hopefully may alleviate during 2022, but other factors reflect the global slow-down in supply chains, with the cost of shipping a container having increased by up to 400% in some places.

The other consequence of fiscal stimulus as noted above, is that the Consumer Price Index is running at 4.9% for the year to September 2021. This is unheard of in recent times.

The Producer Price Index is perhaps more material to the construction sector and the following chart shows percentage changes in the PPI year on year:

Figure 21 Percentage change in PPI on previous year



source: Stats NZ

A significant portion of the current increase is due to energy price changes, but these will directly affect the construction sector in prices for asphalt, and transport fuels.

Cost increases impacting the construction sector are discussed in more detail below.

Supply Chain

Materials

Raw resource extraction and processing has been hit globally by resource and logistic issues brought about by Covid-19.

There is a global shortage of semi-conductors, which is affecting the vehicle construction sector, leading to increased waitlists for new trucks.

"China is still focussing on a Covid-19 elimination strategy so will shut ports down as soon as any covid appears which then has a knock-on effect to the world."

Fighting over timber – the shortages hitting construction, RNZ The Detail

Materials

60% of house builds in Auckland were hit by material or equipment availability problems as of Dec 2020

All this has a direct impact on new homes particularly because of the materials needed but also on most vertical infrastructure projects.

Logistics

Shipping

Cost of a 40' shipping container from Asia has increased from $750 to $4,000

Transport problems and blockages / shortages are a global issue.

Border restrictions have slowed imports, which are lower than expected levels since early 2020. This has equated to a 1.6 month trade backlog (i.e. it would take 1.6 months of normal volumes to recover).

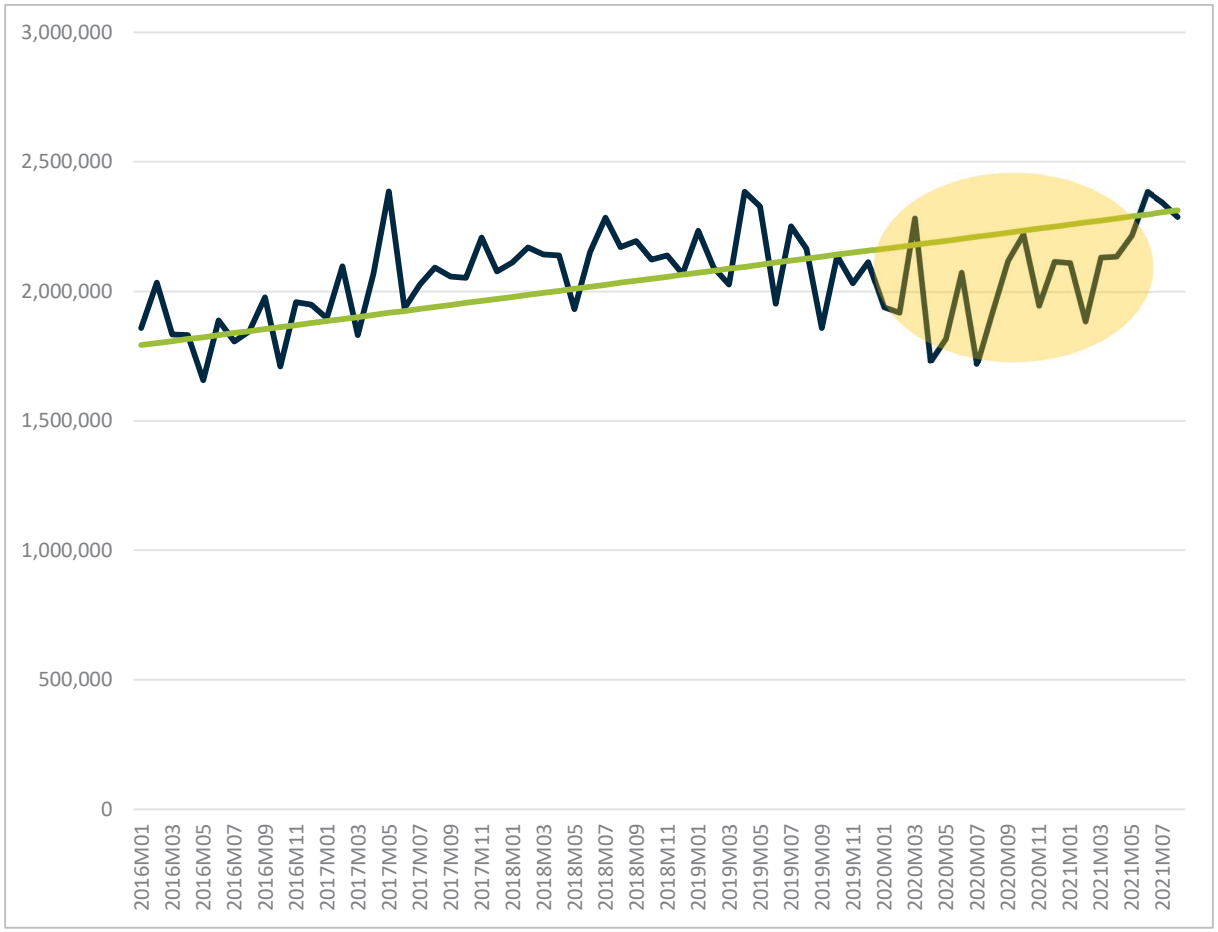
Some global shipping companies are no longer serving New Zealand ports. The impact of all of this on imports can be seen in Figure 22[15] below.

Supply chain issues

- Ordering of 50 trucks with delivery date now not until July 2023
- Materials for a weighbridge not available until Feb 22

[15] www.buildmagazine.org.nz/assets/PDF/Build-184-68-Feature-Supply-Chain-In-Short-Supply.pdf

Figure 22 Total import volumes, seasonally adjusted



Feeling the impacts of the constraints

General

Concerns about the impact of these constraints is not new. They have been present in the market for some time and Council has been aware of the potential impacts and been taking steps to address them. It was specifically referenced in the audit of the LTP.

Uncertainty over the delivery of the capital programme

Volume 1 page 4 and Volume 2 page 42 outline that the Council is proposing to spend $811 million on capital projects over the next 10 years. Although the Council is taking steps to deliver its capital programme, there is uncertainty over the delivery of the programme due to a number of factors, including the significant constraints in the construction market. If the Council is unable to deliver on a planned project, it could impact on levels of service.

The impact of these factors is forecast to be cost increases and higher inflation. These are seen in the projections of NZIER in both the capital goods and non-residential building indices, as well as the increase in general inflation and reserve bank rates.

Cost escalation issues

- Weigh Right Programme for Waka Kotahi had construction estimated at $49.6M in 2017 for 12 sites. By 2020 prices were coming back from contractors at around $11M per site. Business Case had to be re-evaluated.
- In late September Placemakers wrote to suppliers outlining price increases across a range of materials in October, November and December and highlighting quotes for materials only being held for 7 days due to ongoing increases

It is also impacting:

- Valuation of existing assets, driving up depreciation and costs of renewal programmes (particularly in three waters).
- Individual projects and contracts.

NZIER expect non-residential construction cost inflation to be strong over the coming year, reflecting the perfect storm of strong demand and acute supply constraints.

Figure 23 RLB Forecast report 99 (Third Quarter 21), Pg. 17

What can be done?

Our work with public sector clients means we have observed and have been involved in many different approaches to responding to these challenges. Some of these 'real-world' examples are highlighted in the boxes in this section.

Figure 24 Typical responses from public sector

Risk

Risk sharing is becoming a feature of contracts. The more traditional approach of passing risk to contractor is no longer the standard. Suppliers are limiting their risk and passing this back to the principle. This may be because:

- Better understanding of what risks are, where risk lies and as a result, the allocation of that is evolving.
- Suppliers have been 'caught out' on existing contracts, so more careful on future ones.
- Volume of work allows for this.

One example of assessing risk and allocating it is one council that has decided to take on the constructions works insurance

Some characteristics of good responses

- Realistic timeframes for procurement and delivery which allow project commencement and phasing to be accurate.
- Early contractor involvement.
- Alliancing, partnering, or risk sharing contracts where scale and complexity is appropriate.
- Major projects on individual contracts but bundle /segments others into.
- Sensible packages or panels that provide certainty to contractors and consultants allowing them to resource up and invest.

There are examples where suppliers are requiring advanced payment for materials on construction contracts, and 'free issue' contracts where the client is responsible for providing the materials

- Analysis of the specific local market constraints and mechanisms to address those.
- Staggering procurement opportunities to maintain a pipeline of 'shovel ready work' so that lead times on projects are minimised.
- Developing detailed forward works programmes that are shared with the market.
- Separating out the base or standard projects from the 'specials'.
- Evaluate the models to be used:
  - Traditional approach
  - ECI
  - Design/build
  - Cost re-imbursement (modify traditional though)
  - Alliances
- Recognising that building internal capability to plan, procure and project manage is as critical to delivery as the market capacity.
- Clients that take a medium to long term view of relationships (e.g. understand the challenges of contractors/consultants and mobilising workforces).

Some examples of practices to avoid

- Traditional procurement approaches that require a lot of time to tender and respond.
- Complicated special conditions of contract.
- Panel agreements that then require full tender processes for each package or project.
- Complicated approaches to cost fluctuations.

Traditional process of pricing design work is becoming problematic – either difficulties in getting projects priced, or the price becomes set but then changes by time of construction

Case Study - Ministry of Education

Ministry of Education – innovative, multi-year partnering contracts

MoE's $160M national programme to upgrade the learning environments in small or remote schools across the country has taken a completely different approach to their usual manner of delivery. MoE changed from their traditional school by school delivery method where, once a project is agreed, funding is supplied to the school and the school engages individual Project Managers to procure and deliver the works with the burden of time, effort and risk lying with individual schools.

Instead, in this coordinated programme MoE undertook early contractor involvement to design and procure multi-year, linked national & regional contracts that bring together freight & logistics, product supply, project management & installation services into a nationally consistent & coordinated partnership style of delivery. Now underway, this change has allowed MoE to:

- leverage the skills and capability of industry
- provide a multi-year pipeline of work to the contractors
- maintain quality of works & minimise disruption to the schools
- allocate risk between all parties
- provide confidence in the cost of delivery to MoE; and
- incentivise its partners to invest in their businesses and to deliver ahead of schedule.
- avoid a focus on lowest price in the procurement phase and use value narrative which balanced methodology, quality, risk allocation and price.

A key mechanism that reaffirms the collaborative nature of the programme is a monthly Programme Control Group meeting that involves all 8 parties involved in delivery. This occurs after the individual project control group meetings. Using the insights from each party's progress, issues and innovations, the meetings focus almost exclusively on what can be done to speed up the roll out or deliver further benefits.