National Construction Pipeline Report 2021

A Forecast of Building and Construction Activity

9th Edition

BP 7208

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
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The National Construction Pipeline Report 2020 (the report) was commissioned by the Ministry of Business, Innovation and Employment (MBIE) and jointly prepared by BRANZ and Pacifecon (NZ) Ltd (Pacifecon).

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1. Introduction

1.1 Overview

The National Construction Pipeline Report 2021 (the report) was commissioned by the Ministry of Business, Innovation and Employment (MBIE) and jointly prepared by BRANZ and Pacifecon (NZ) Ltd (Pacifecon). The report projects building activity for the next six years, ending 31 December 2026. It includes national and regional[1] breakdowns of actual and forecast residential building, non-residential building and infrastructure activity. The report is based on residential and non-residential building and construction forecasts from BRANZ and data on researched non-residential building and infrastructure intentions from Pacifecon.[2] Pacifecon provides no residential data to the report.

An important aspect of this report is the continued uncertainty presented by the COVID-19 pandemic. The analysis presented within this report is our best effort at estimating the likely impact of the pandemic on construction activity moving forward. However, a lot of uncertainty remains throughout the sector, and the ramifications of the pandemic are likely to be felt for several years.

1.2 Purpose and content

The report aims to provide awareness of the expected pipeline of building and construction work to support:

- planning by all participants in the sector
- scheduling of investment in skills and capital to meet the future needs of the sector
- coordination of construction procurement (particularly central and local government) to enable improved scheduling of construction projects.

Improvements in these areas could help moderate the boom-bust cycles that have negatively impacted productivity, innovation, employment, skill levels and quality in the construction sector.

In this report, building and construction is split into three activity types:

- Residential building – detached and multi-unit dwellings.
- Non-residential building – structures of a building type (vertical) other than residential, including hotels, offices, retail outlets and industrial buildings.
- Infrastructure – structures of a non-building type (horizontal), such as roads, subdivisions and civil works. Infrastructure projects do not typically require a building consent.

The report includes:

- *a summary of the report's key findings*
- *national* and *regional* forecasts of residential buildings, non-residential buildings and infrastructure activity
- *a comparison of this year's forecasts against last year's*
- *appendices, including tables of forecast and research data*.

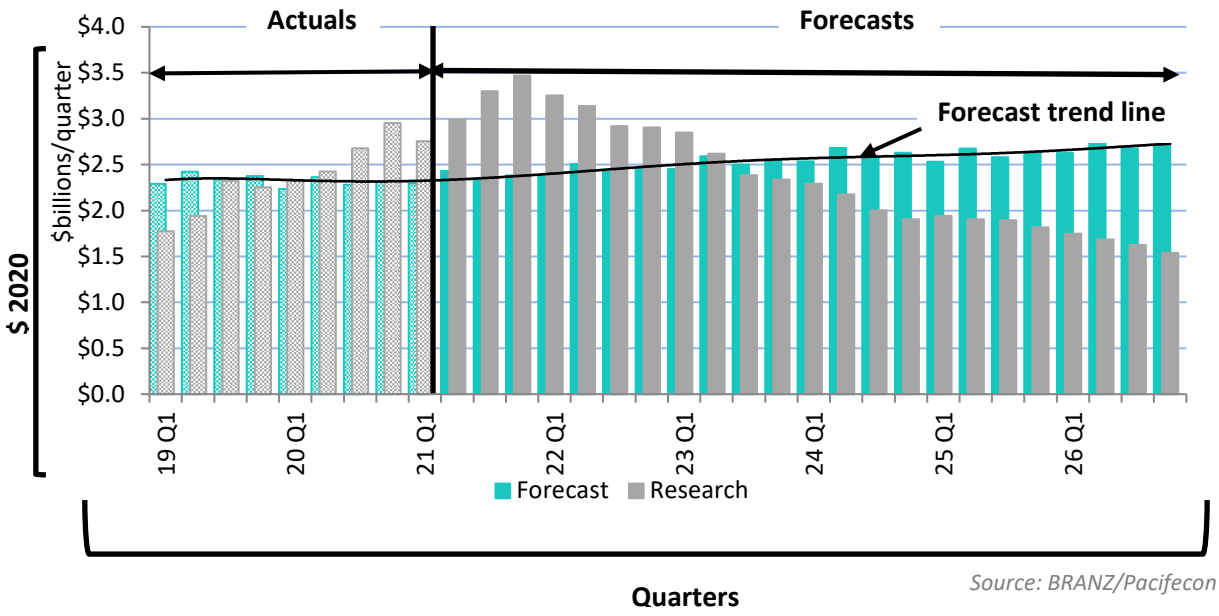
Queries and feedback can be emailed to *info@building.govt.nz*

[1] The regional areas reported are Auckland, Waikato/Bay of Plenty, Wellington, Canterbury, Otago and Rest of New Zealand (which includes all other regions not stated).
[2] See section 7.3 for more information on forecast and research data.

1.3 Understanding the graphs and data

Different types of graphs are used in this report to illustrate relevant information. The key features of the graphs are discussed below using the following example.

Figure 1.3.1 Example graph



Source: BRANZ/Pacifecon

- Values are in constant December 2020 dollars and are expressed in $billions (*b*) per quarter or per year, unless otherwise stated. Inflation has been removed from all dollar values.
- *Forecast* refers to forecast data from BRANZ.
- *Research* refers to construction project intentions data provided by Pacifecon.
- *Actuals* are the actual values or activity from official statistics. The year beginning January 2019 is used as the base year for the actual data in the report. A vertical line on the graphs indicates the start of a forecast. Actuals are to the left of the vertical line and are generally shown in a faded colour shade.
- *Years* are calendar years – the 12 months beginning January. Where years are used, each point on the graph represents 31 December of that year – for example, 2021 represents January 2021 through to December 2021.
- *Quarters* refer to parts of the calendar year as follows:
    - Q1 = 1 January to 31 March.
    - Q2 = 1 April to 30 June.
    - Q3 = 1 July to 30 September.
    - Q4 = 1 October to 31 December.
- Where *rolling years* are used, each point on the graph represents the total of the 12 months immediately preceding that point – for example, 2021 Q2 represents July 2020 through to June 2021.

A glossary of key terms is presented in section 7.2.

2. Key findings

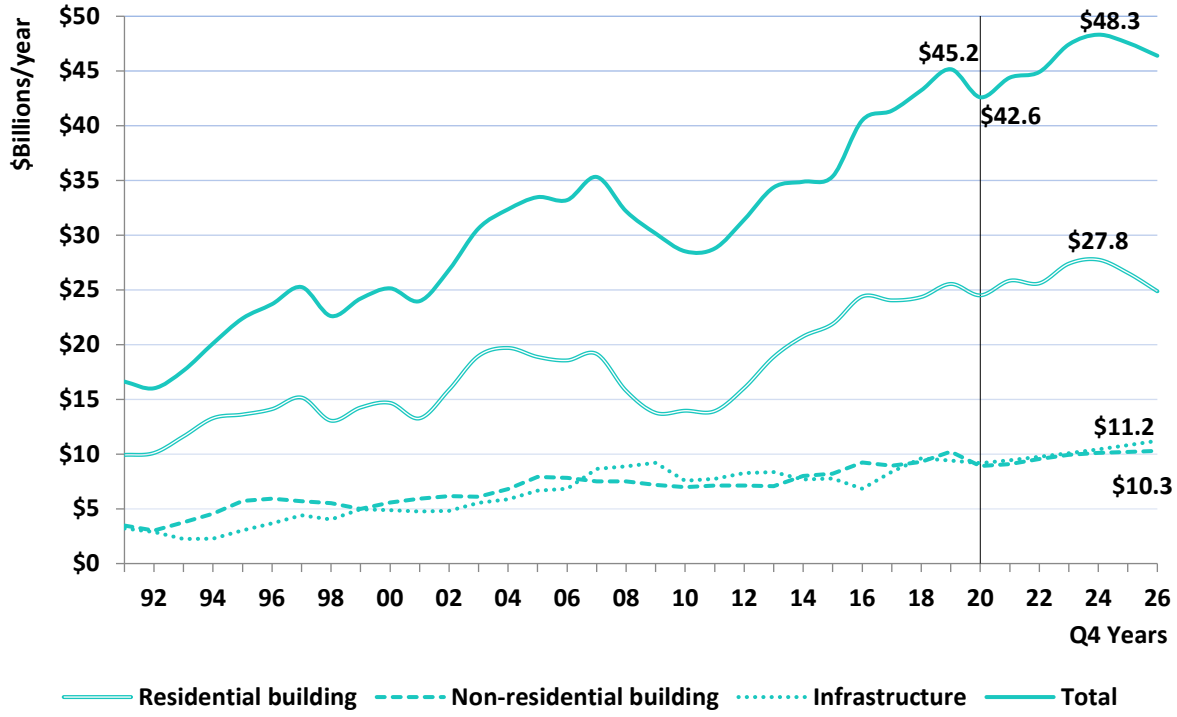
This section discusses the major findings in the report:

- *Construction activity has held up well against the COVID-19 pandemic and is expected to continue to do so.*
- *Residential construction grows through to 2023.*
- *Growth in non-residential activity throughout the forecast period.*
- *Growth in infrastructure activity throughout the forecast period.*

2.1 Construction activity has held up well against the COVID-19 pandemic and is expected to continue to do so

New Zealand's total construction value decreased by 5.7% in 2020 to *$42.6b*. This year's forecast is for construction activity to grow steadily to about *$48.3b* in 2024, driven largely by the continued strength of the residential sector. Residential buildings contributed 58% of total construction value in 2020.

Figure 2.1.1 All construction nationally, by value

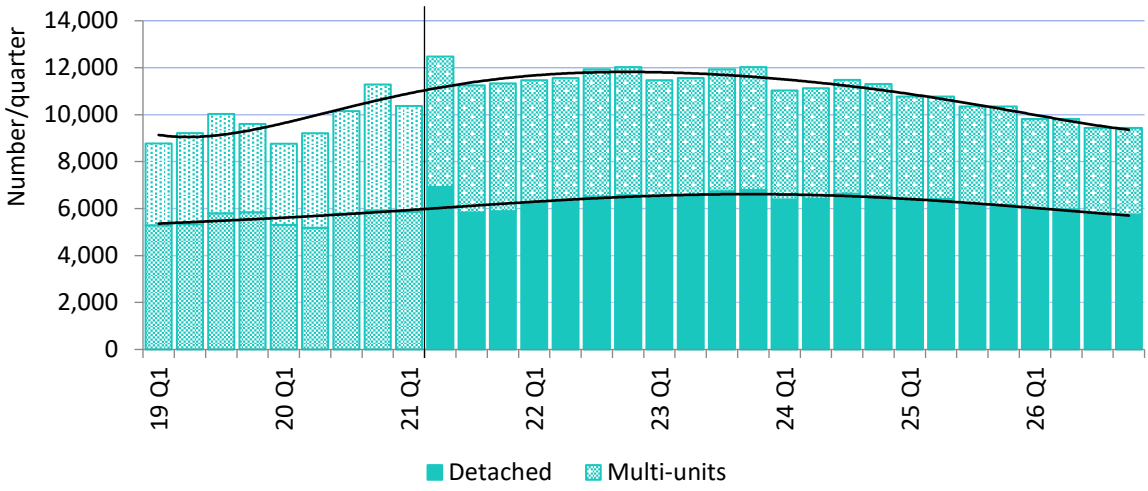


Source: BRANZ/Pacifecon/Stats NZ

2.2 Residential construction grows through to 2023

Multi-unit dwellings accounted for 44% of all dwellings consented in 2020. We forecast detached dwellings to peak at about *26,500* consents in 2023, whereas multi-unit consents will peak slightly earlier at *21,300* in 2022. The forecast is for *265,000* new dwellings to be consented over the next six years at an average of over 44,000 dwellings a year.

Figure 2.2.1 Residential building consents nationally

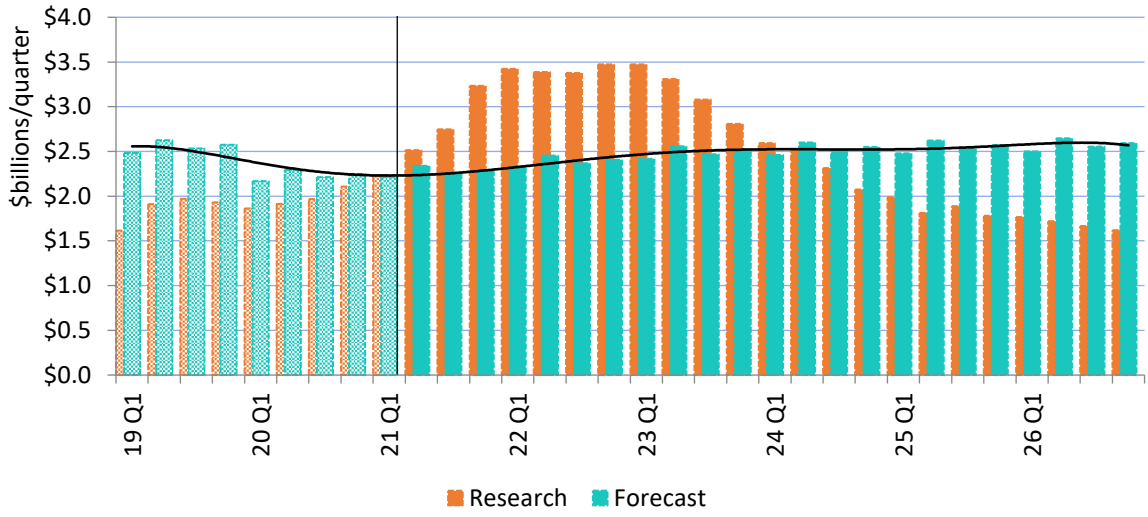


Source: BRANZ

2.3 Growth in non-residential activity throughout the forecast period

Non-residential building value nationally peaked in 2019 at *$10.2b*. However, strong project intentions in the sector remain, as can be seen by Pacifecon's researched project data. We forecast activity to reach the 2019 levels towards the end of the research period, with a forecast of *$10.2b* in 2025 and *$10.3b* in 2026.

Figure 2.3.1 Non-residential activity nationally

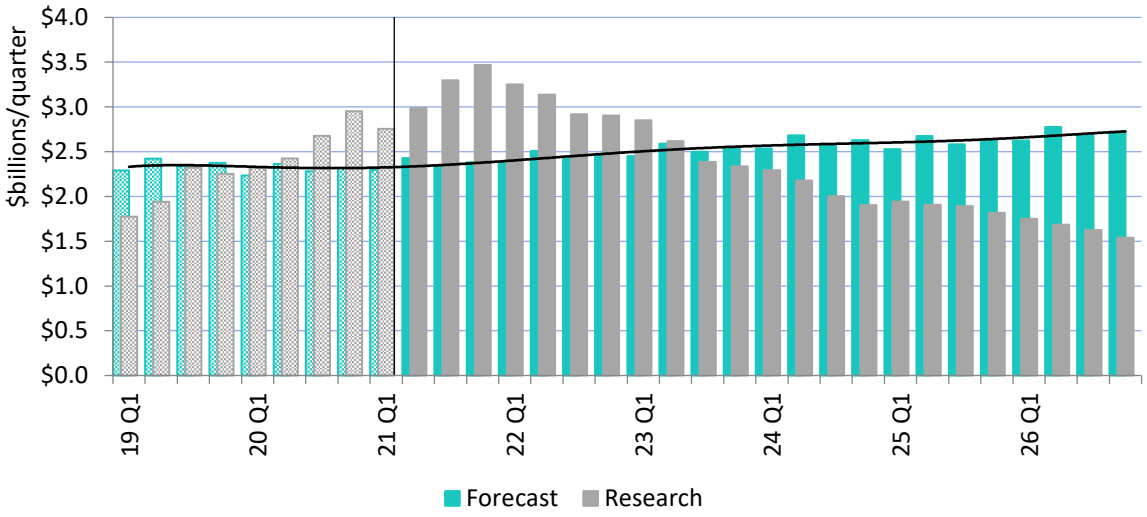


Source: BRANZ/Pacifecon

2.4 Growth in infrastructure activity throughout the forecast period

In 2020, infrastructure represented one-fifth of total building and construction value. Infrastructure activity fell slightly between 2019 and 2020 to *$9.2b*, but we forecast activity to increase steadily throughout the forecast period and reach *$11.2b* in 2026. Pacifecon's research data indicates strong short-term intentions, and these remain at high levels through to 2026.

Figure 2.4.1 Infrastructure activity nationally



Source: BRANZ/Pacifecon

3. National forecast

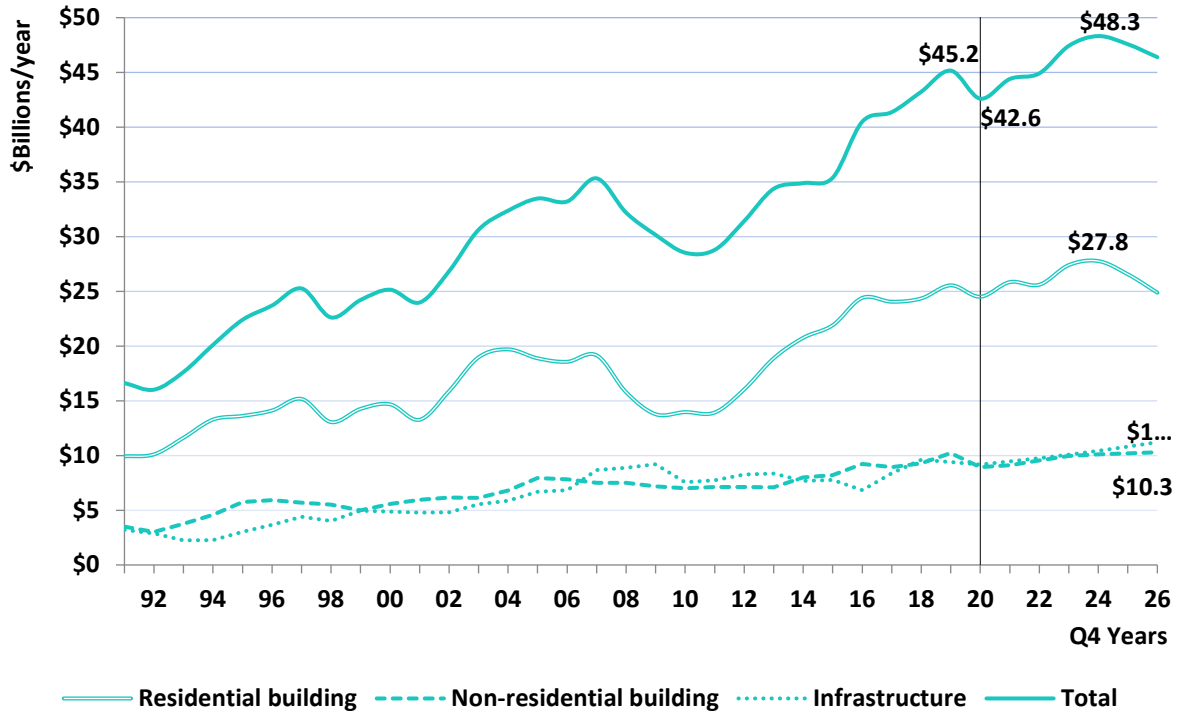
This section includes national forecasts for each activity type as well as:

- a breakdown of *non-residential building* and *infrastructure* research data by type and initiator
- *regional comparisons*.

3.1 National construction, by value

New Zealand's total construction value decreased by 5.7% in 2020 to *$42.6b*. This year's forecast is for construction activity to grow steadily to about *$48.3b* in 2024, driven largely by the continued strength of the residential sector.

Figure 3.1.1 All construction nationally, by value

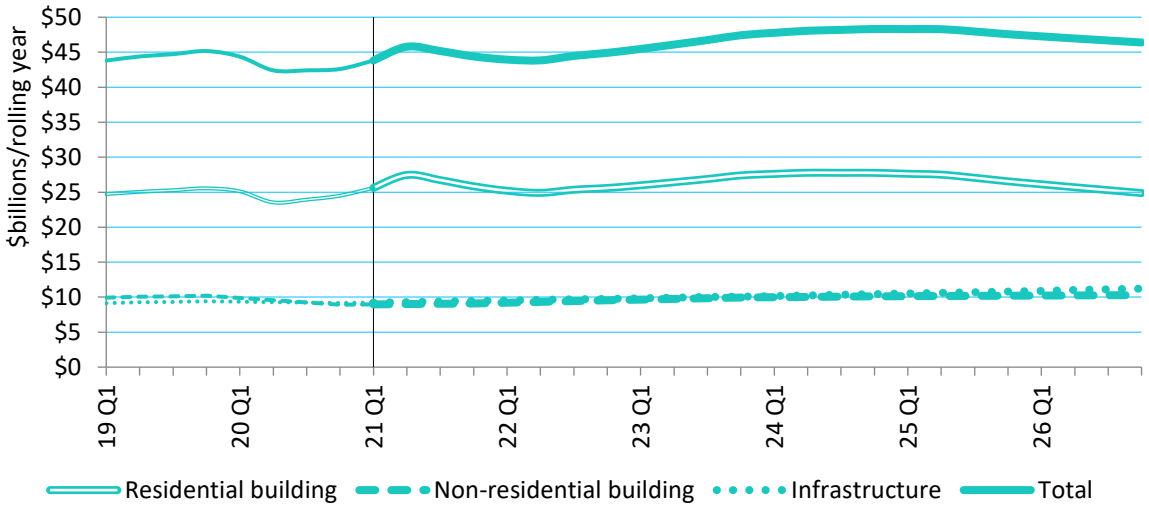


Source: BRANZ/Pacifecon/Stats NZ

3.2 National construction, by activity

Residential buildings are the largest contributor to national construction. Residential buildings contributed 58% of total construction value in 2020. The impact of the COVID-19 pandemic and subsequent Level 3 and Level 4 lockdowns were most significant in the residential sector, although the impact can also be seen in the non-residential sector. We forecast that residential building activity will increase from *$24.5b* in 2020 to a peak of *$27.8b* in 2024. We also forecast both non-residential and infrastructure activity to increase, peaking at the end of the forecast period at *$10.3b* and *$11.2b* respectively.

Figure 3.2.1 All construction nationally, by activity

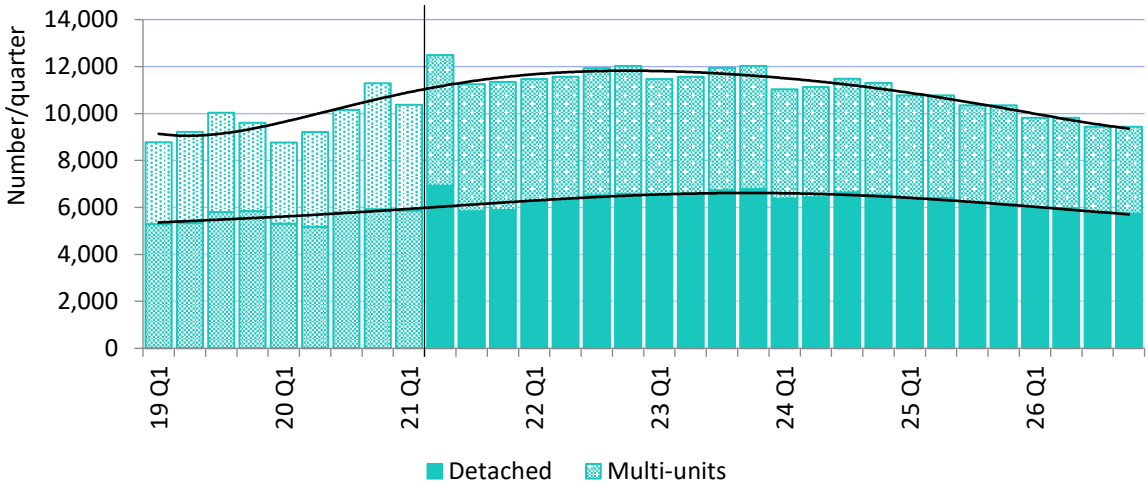


Source: BRANZ

3.3 National residential building, by dwelling number

Multi-unit dwellings accounted for 44% of all dwellings consented in 2020. We forecast detached dwellings to peak at about *26,500* consents in 2023, whereas multi-unit consents will peak slightly earlier at *21,300* in 2022. The forecast is for *265,000* new dwellings to be consented over the next six years at an average of over *44,000* dwellings a year.

Figure 3.3.1 Dwelling units consented nationally[3]



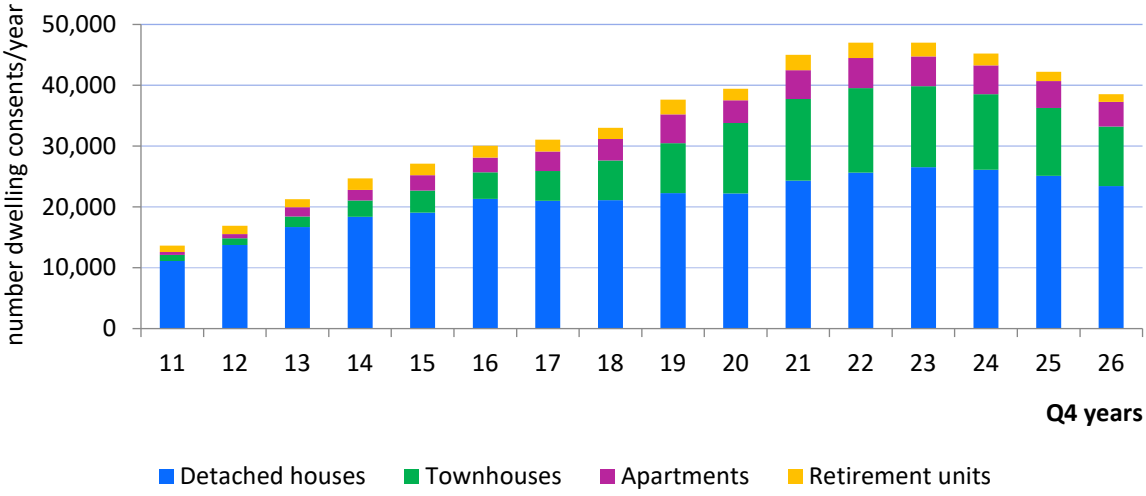
Source: BRANZ

Initial growth in dwelling unit consents post-global financial crisis occurred in the detached dwelling market. Detached dwelling consents grew from just over *11,000* in 2011 to over *18,000* in 2014. Attached dwelling growth over the same period was focused on the townhouse market, with the number of townhouse consents increasing from just over *1,000* to *2,700* over the same period. Growth in townhouse consents continued to accelerate through to 2020, with *11,603* townhouse consents last year. Apartment and retirement village consents have also grown over the last 10 years, with apartment consents increasing from *460* to *3,739* and retirement village consents increasing from *1,067* to *1,866*.

We forecast that detached dwelling consents are going to increase from *22,200* in 2020 to just over *26,500* consents at their peak in 2023. Attached dwelling consents will increase by a similar number, from *17,200* in 2020 to a high of *21,300* in 2022. Much of this growth will be in the townhouse market, with an anticipated increase of *2,250* consents. In comparison, we anticipate the apartment market to grow by *1,200* consents and the retirement village market to increase by just over *670* consents.

[3] A table of annual total dwelling units, actual and forecast, is provided in section 7.6.

Figure 3.3.2 New dwelling consent types

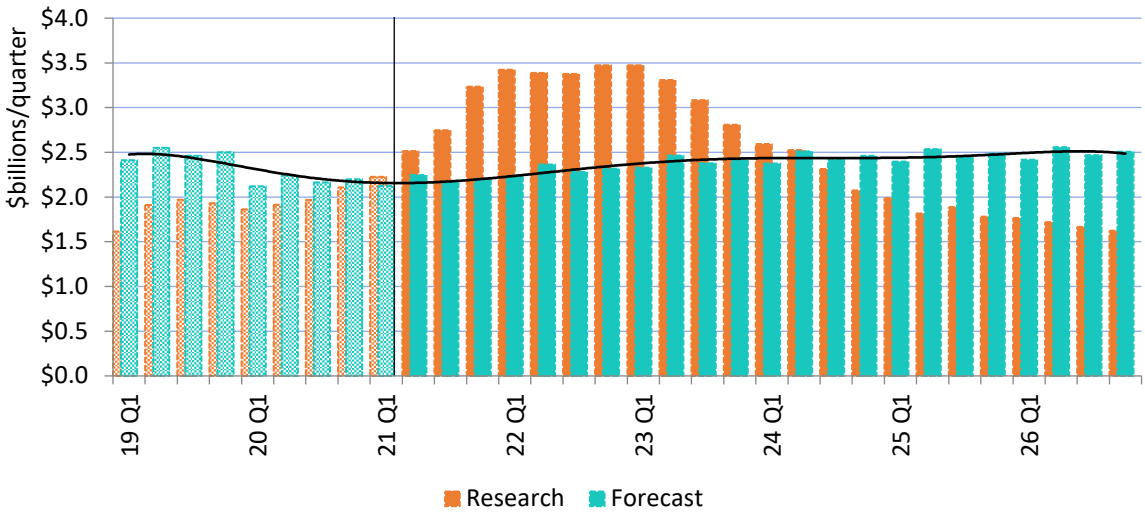


Source: BRANZ/Stats NZ

3.4 National non-residential building

Non-residential building value nationally peaked in 2019 at *$10.2b*. However, strong project intentions in the sector remain, as can be seen by Pacifecon's researched project data. We forecast activity to reach the 2019 levels towards the end of the research period, with a forecast of *$10.2b* in 2025 and *$10.3b* in 2026.

Figure 3.4.1 Non-residential building activity nationally

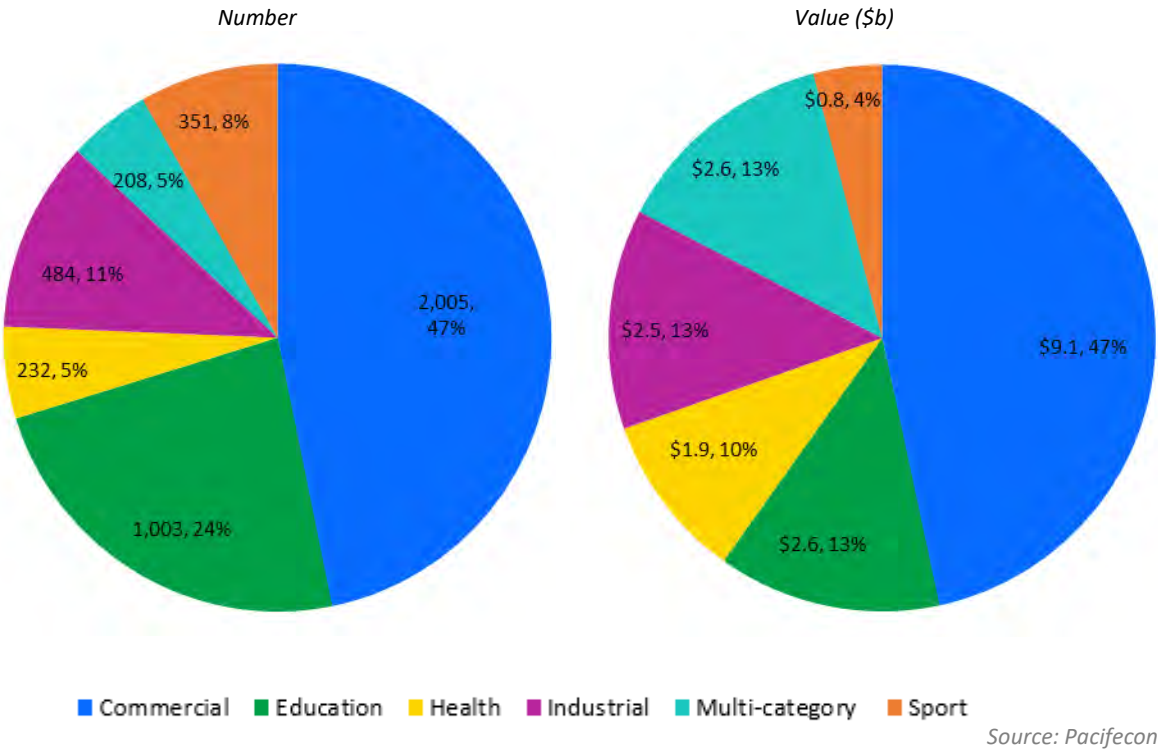


Source: BRANZ/Pacifecon

3.5 Types of non-residential building projects

Commercial buildings are the most prominent non-residential building work expected to start in the year to December 2021, contributing 47% of the total number of projects and 47% of total value. This is a higher proportion by number than we saw in the 2020 report when many planned visitor accommodation and office building projects were being delayed. These are now being progressed. Education has many projects (24% of the total number of projects) but only accounts for 13% of the total value.

Figure 3.5.1 Non-residential building types anticipated to start in 2021,[4] by number and total project value



Source: Pacifecon

[4] Actuals and construction intentions, year ending December 2021.

3.6 Project initiators for non-residential building, by sector

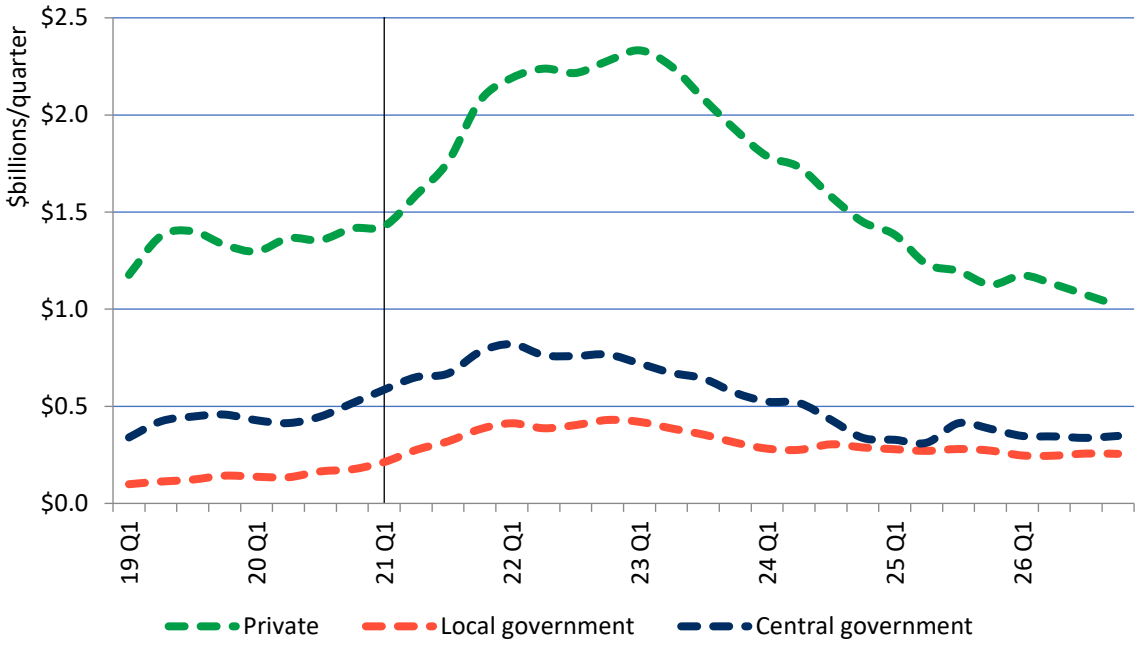
The private sector is the largest initiator of non-residential building, contributing 66% of the value of researched intentions over 2021 to 2026, while central and local government make up 21% and 13% respectively. Compared to last year, central government has decreased its overall share slightly, whilst local government has maintained and the private sector has increased marginally. New non-residential building intentions for all sectors are forecast to peak through 2022.

Central and local government-initiated projects continue to benefit from having good long-term visibility of funding,[5] which means intentions tend to remain strong throughout the forecast period.

Private sector intentions are more heavily skewed towards the short term due to optimism bias[6] and more variable private funding, which can result in intentions falling away in the medium term as there is less certainty.

Pacifecon has found that, due to the COVID-19 pandemic, rather than seeing very many cancellations, visitor accommodation projects have been put on hold or delayed, in some cases by several years. This has kept the overall pipeline high. Additionally, since the Level 4 lockdown of April 2020, an increase in shop refits and new storage facilities have been reported due to businesses moving out of the high street, reducing outlets or furthering their online presence.

Figure 3.6.1 Non-residential building intentions, by project initiator and start date



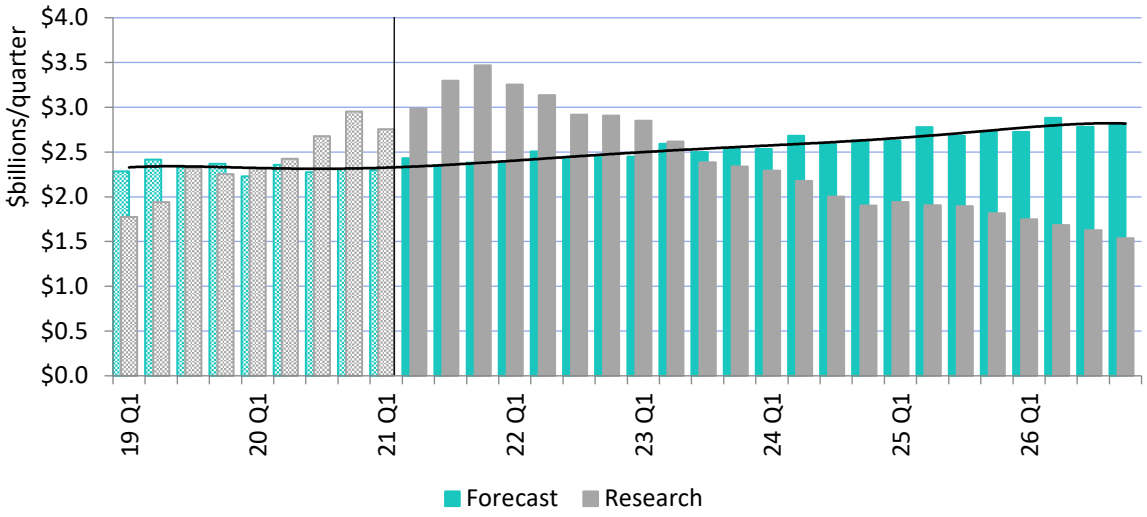
Source: Pacifecon

[5] Local government long-term plans and central government budget statements.
[6] See section 5.5 for more information on optimism bias.

3.7 National infrastructure activity

In 2020, infrastructure represented one-fifth of total building and construction value. Infrastructure activity fell slightly between 2019 and 2020 to *$9.2b*, but we forecast activity to increase steadily throughout the forecast period and reach *$11.2b* in 2026. Pacifecon's research data indicates strong short-term intentions.

Figure 3.7.1 Infrastructure activity nationally

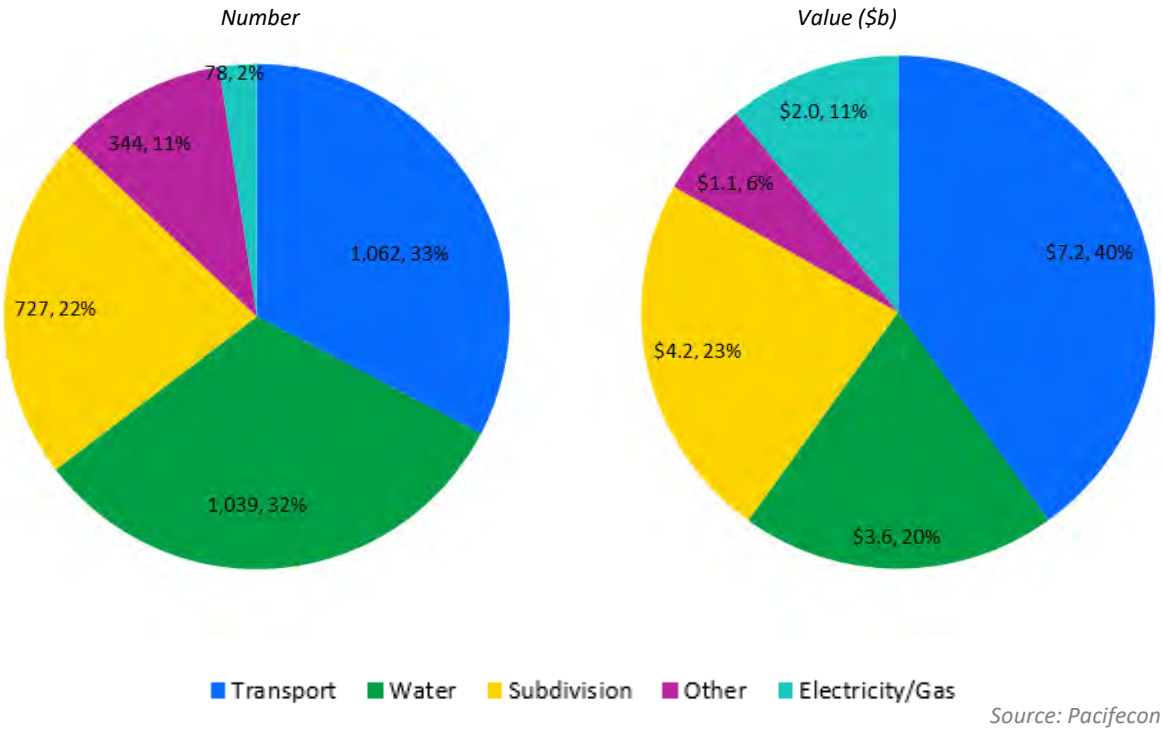


Source: BRANZ/Pacifecon

3.8 Types of infrastructure construction

Transport, water and subdivision projects will dominate new infrastructure activity in 2021, contributing 87% of the projects and 83% of the total value, very similar to the 2020 report. As with last year, transport intentions stand out, with high-value projects contributing a much higher proportion of value (40%) than the number of projects (33%).

Figure 3.8.1 Infrastructure project types anticipated to start in 2021,[7] by number and total project value[8]



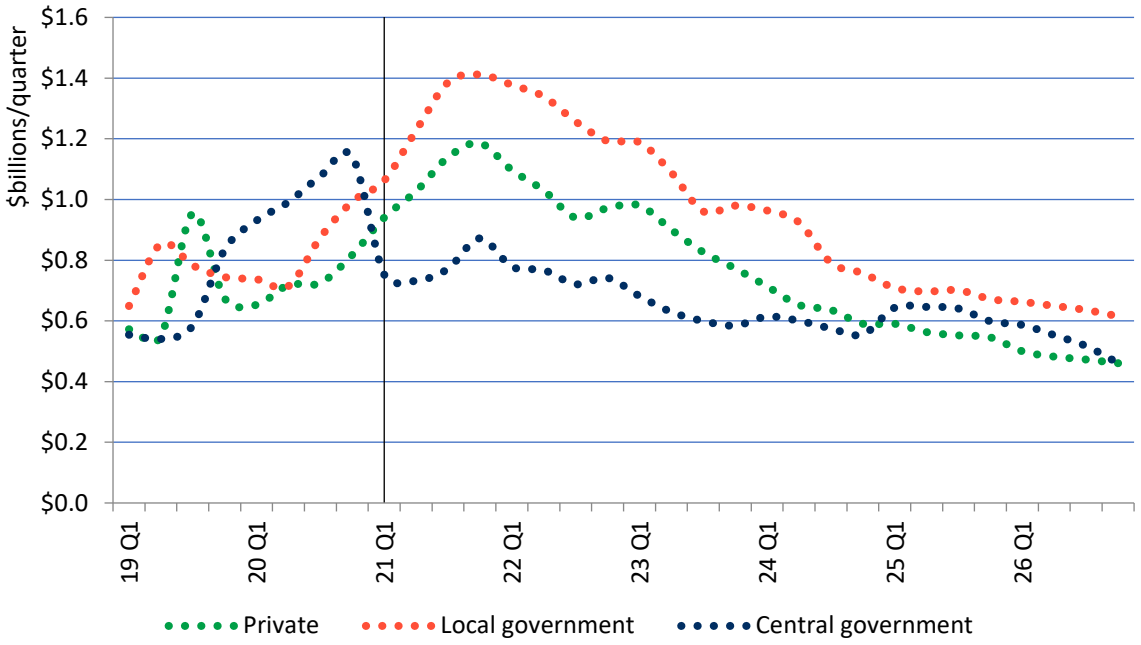
Source: Pacifecon

[7] Actuals and construction intentions, year ending December 2021.
[8] Other includes communications, seismic upgrades, parks/recreation etc.

3.9 Project initiators for infrastructure projects, by sector

As in previous reports, local government is the main initiator of infrastructure intentions, contributing 41% of projects initiated over the forecast period. This is an increase on the 2020 report. Central government has reduced to 28% with mainly transport projects. The private sector has increased to 32% with yet more subdivisions reported. 2021 shows the peak for infrastructure intentions. Private sector-initiated subdivisions are dependent on other infrastructure developments such as transport, water and power, particularly for greenfield sites.

Figure 3.9.1 Infrastructure intentions by project initiator and start date



Source: Pacifecon

3.10 Regional comparisons

This section examines the differences in the forecast values for residential buildings, non-residential buildings and infrastructure activity across the regions defined in the report. The individual regions are discussed in more detail in section 4.

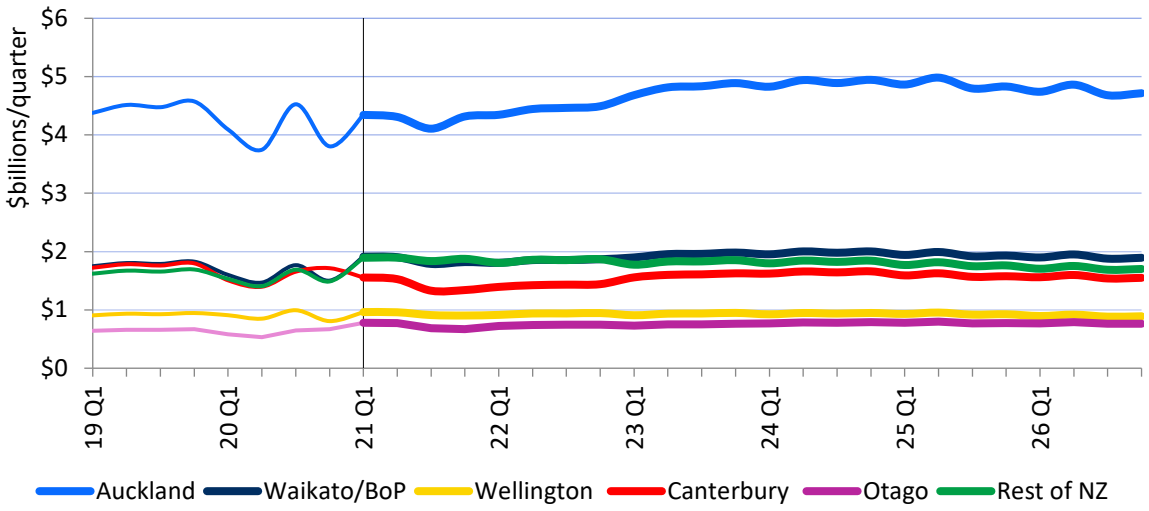
Total building and construction value regional comparison

COVID-19 was the story of 2020. The nationwide Level 4 lockdown and subsequent restrictions under Level 3 meant that there were large periods of time where activity either was not able to happen or productivity on site was hampered. However, all regions showed good signs of recovery and strong activity towards the end of the year.

Following growth in all regions for total construction in 2019, reductions were seen in 2020 for all regions except Wellington, which experienced a 2% increase to *$3.8b*. The Auckland region decreased 5% to *$17.1b* on the previous year, Waikato/Bay of Plenty 7% to $6.7b, Canterbury 11% to *$6.3b*, Otago 8% to *$2.4b* and Rest of New Zealand 4% to *$6.4b*.

Throughout the forecast period, some regions are now expected to see increased levels of activity whilst some may see a moderate reduction. The peak for total construction nationally is forecast to be 2024, after which a slowdown is anticipated. Compared to 2020, Auckland is expected to see an increase in activity of 11% to *$19.0b* by 2026, Waikato/Bay of Plenty is forecast to increase by 14% to *$7.6b*, Otago by 27% to *$3.1b* and Rest of New Zealand by 7% to *$6.8b*. Slight reductions are expected for Wellington by 5% to *$3.6b* and Canterbury by 0.5% to *$6.2b* over the six years to 2026.

Figure 3.10.1 Value of total building and construction, by region



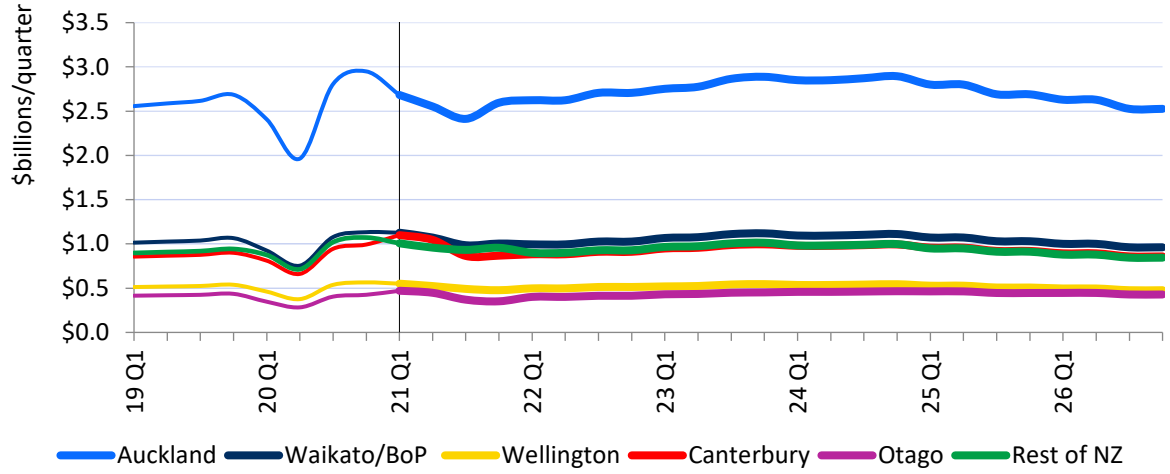
Source: BRANZ/Pacifecon

Residential building regional comparison

COVID-19 was a significant blip to residential building activity throughout much of 2020. This can be seen most significantly in our largest region, as activity in Auckland fell from *$2.4b* in 2020 Q1 to *$2.0b* in Q2. Overall, activity in the residential sector fell by 18% between the first two quarters of 2020 due to the Level 4 lockdown.

Impediments remain that may prevent activity in the residential sector from growing in the short term. These impediments include access to skilled workers, access to materials and the potential for lockdowns in the future.

Figure 3.10.2 Value of residential buildings, by region

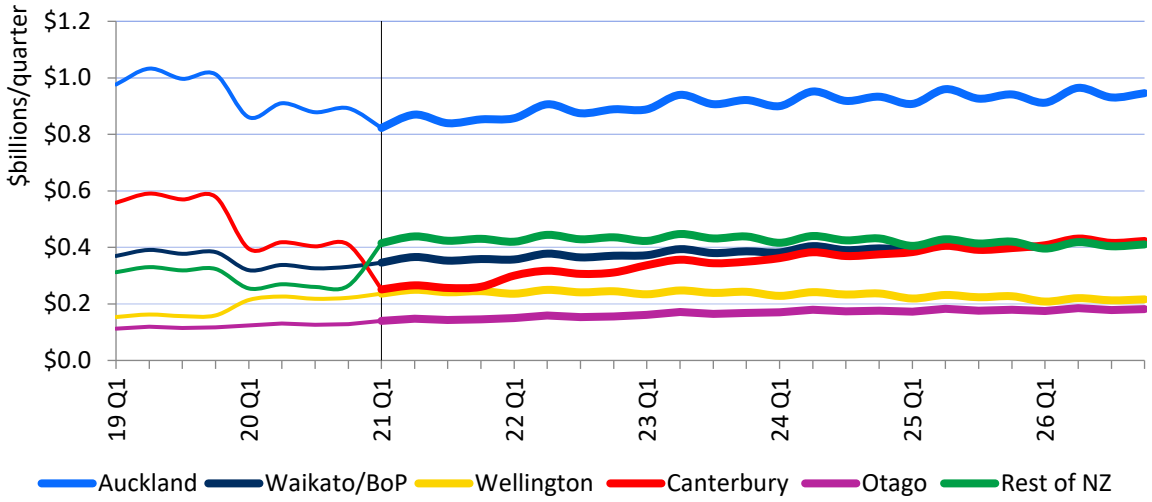


Source: BRANZ

Non-residential building regional comparison

Like the residential sector, the non-residential sector was hit hard by last year's lockdowns. However, we did not see the same level of bounce back that the residential sector achieved towards the end of the year. We forecast continued reduced levels of activity for most regions (excluding the Rest of NZ) over the next 12 months, but the longer-term forecast shows an upward trend, particularly for Auckland, Canterbury and Otago.

Figure 3.10.3 Value of non-residential building, by region

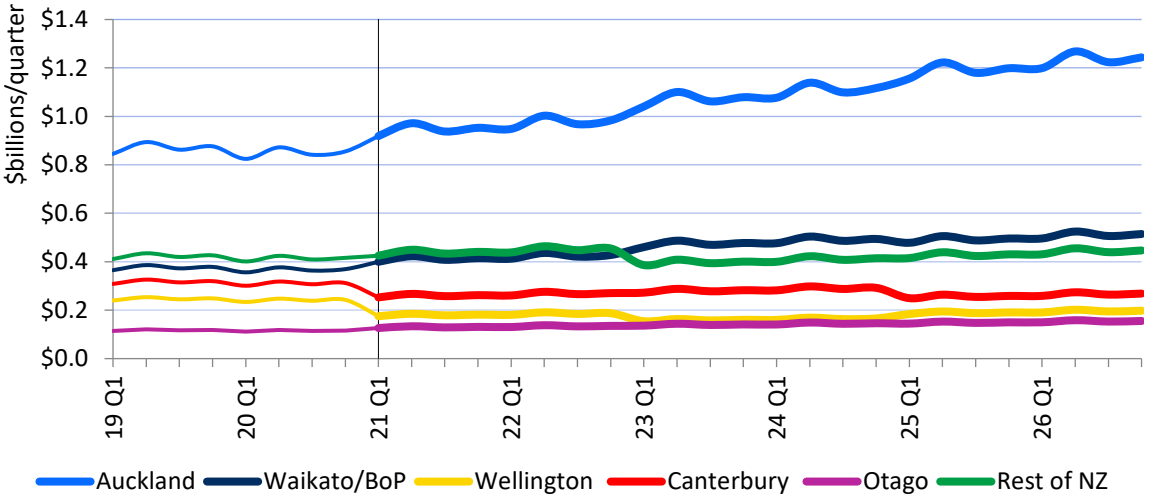


Source: BRANZ

Infrastructure activity regional comparison

Infrastructure activity reduced (by 2%) in 2020. Infrastructure forecasts overall are for continued steady growth to 2026. Growth is being driven by transport, subdivisions and water (see Figure 3.8.1). Growth in infrastructure is expected to be particularly strong in Auckland and Waikato/Bay of Plenty, as in previous years..

Figure 3.10.4 Value of infrastructure activity, by region



Source: BRANZ/Pacifecon

4. Regional forecast

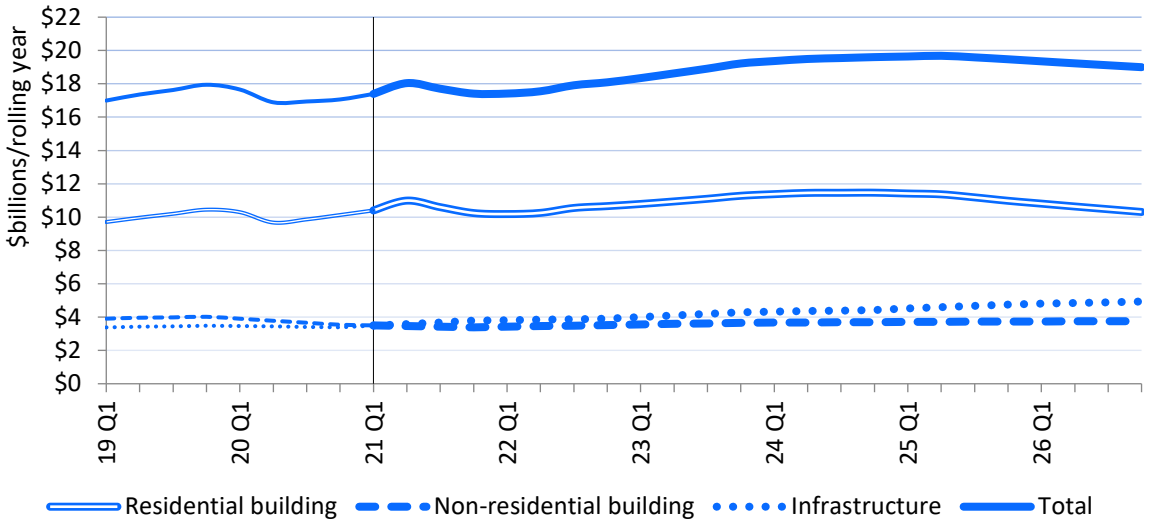
4.1 Auckland[9]

Auckland has always been New Zealand's largest market for building and construction, contributing 40% of total national construction value and 42% of new dwelling unit consents in 2020, an increase of 2 percentage points for consents from 2019. Auckland is forecast to continue to grow to 2024 and to represent 41% of total national construction value and 42% of dwelling unit consents in 2026.

Decreases in value for all sectors was seen in 2020. The total reduction in 2020 was 5% to *$17.1b*. The forecast for Auckland is now for an increase in activity to *$19.6b* by the end of 2024, growth of 15%. In 2026, total growth is forecast at 11% compared to 2020.

Both non-residential building and infrastructure are forecast to grow throughout the forecast period by 6% and 45% respectively. After peaking at *$11.5b* in 2024, residential building value is forecast to reach *$10.3b* in 2026.

Figure 4.1.1 All construction in Auckland, by value



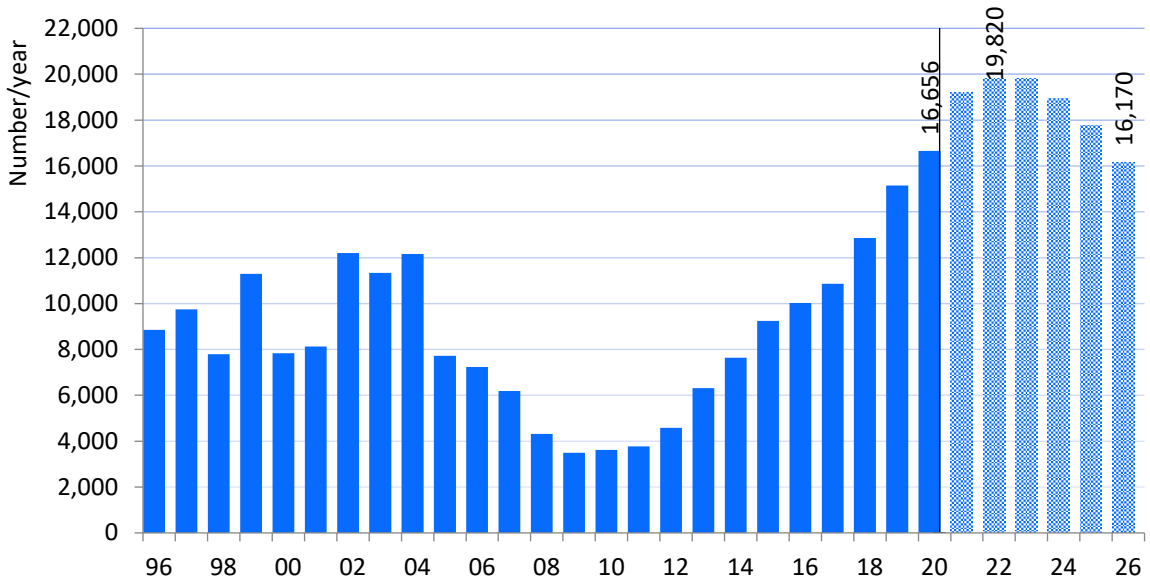
Source: BRANZ/Pacifecon

[9] The area covered by Auckland Council.

Auckland dwelling consent activity

The number of dwelling units consented in Auckland grew by 10% to almost *16,700* in 2020. Consent growth in each of 2018 and 2019 was 18%. Further increases in residential consents are forecast for 2021–23. A reduction in number of consents is anticipated from 2024, falling to *16,000* consents in 2026. Over *111,000* dwelling units are now expected to be consented in the six years from 2021 to 2026 (*96,000* were anticipated over six years in the 2019 report and just *73,000* in the 2020 report).

Figure 4.1.2 Dwelling units in Auckland, 1996 to 2026

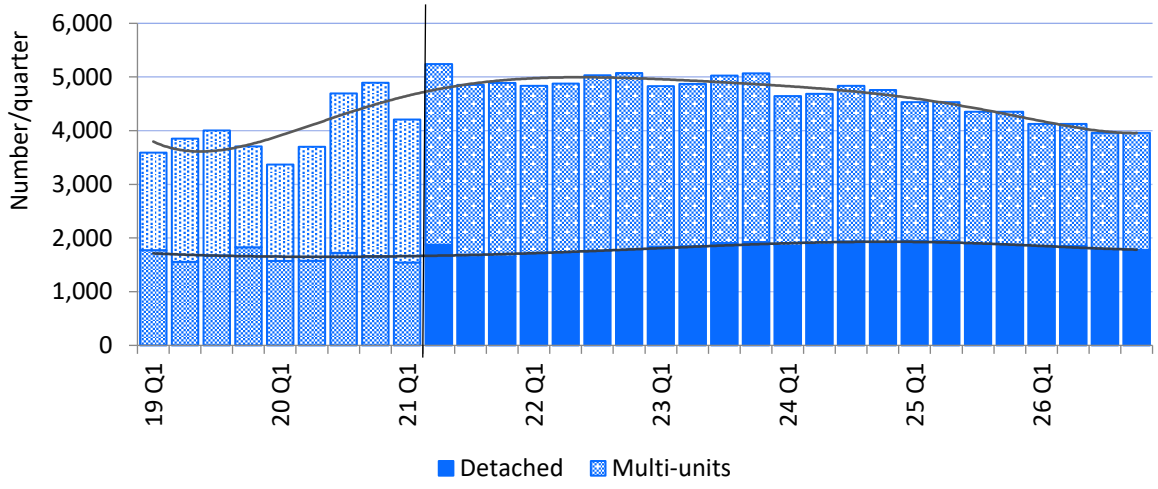


Source: BRANZ/Stats NZ

Auckland multi-unit consents

In recent years, dwelling growth in Auckland has been driven by multi-unit consents. We forecast that the number of detached dwelling consents is going to stay relatively constant throughout the forecast period. Growth is likely to occur in multi-unit consents over the next couple of years. In 2019, multi-units represented 55% of new dwellings consented rising to 61% in 2020. The proportion of multi-units is expected to increase to 65% in 2022 at the peak of our forecasts for dwelling consents in Auckland.

Figure 4.1.3 Dwelling units in Auckland

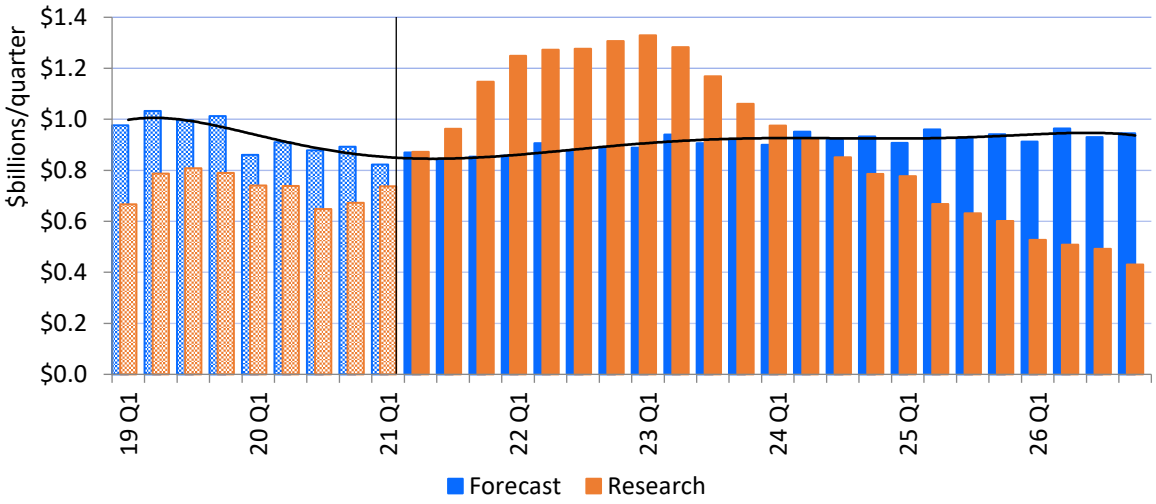


Source: BRANZ

Auckland non-residential building activity

Non-residential building activity in Auckland fell by 12% to *$3.5b* in 2020. Further reduction in activity is now forecast to the end of 2021, when *$3.4b* non-residential building activity is forecast. From this low, a rise to *$3.8b* is forecast by 2026. Pacifecon continues to report strong non-residential construction intentions, despite many projects having been delayed. The total value of forecast work is just slightly below the researched work.

Figure 4.1.4 Auckland non-residential building activity

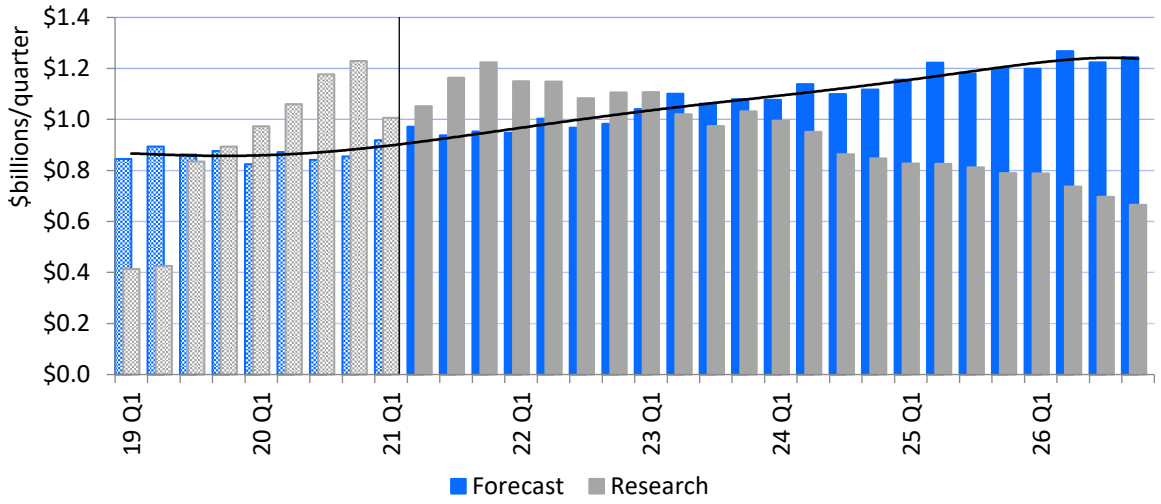


Source: BRANZ/Pacifecon

Auckland infrastructure activity

Infrastructure activity in Auckland decreased by 2% in 2020 to *$3.4b*, following an increase of 13% in 2019, and is forecast to increase to *$4.9b* by 2026. The research data shows a high value of known infrastructure project intentions throughout the forecast period, which is typical of large publicly funded civil projects that have long complex planning processes.

Figure 4.1.5 Auckland infrastructure activity



Source: BRANZ/Pacifecon

Planned non-residential building and infrastructure work for Auckland includes:

- retirement village facilities and care units
- hospitals
- schools and universities
- supermarkets – new and expanded
- warehouses and storage facilities, distribution centres and light industrial units – particularly for agricultural activities
- data centres
- infrastructure including roads, bridges, rail and subdivisions to support growth in residential building and public transport
- three waters expansion (drinking water, wastewater and stormwater).

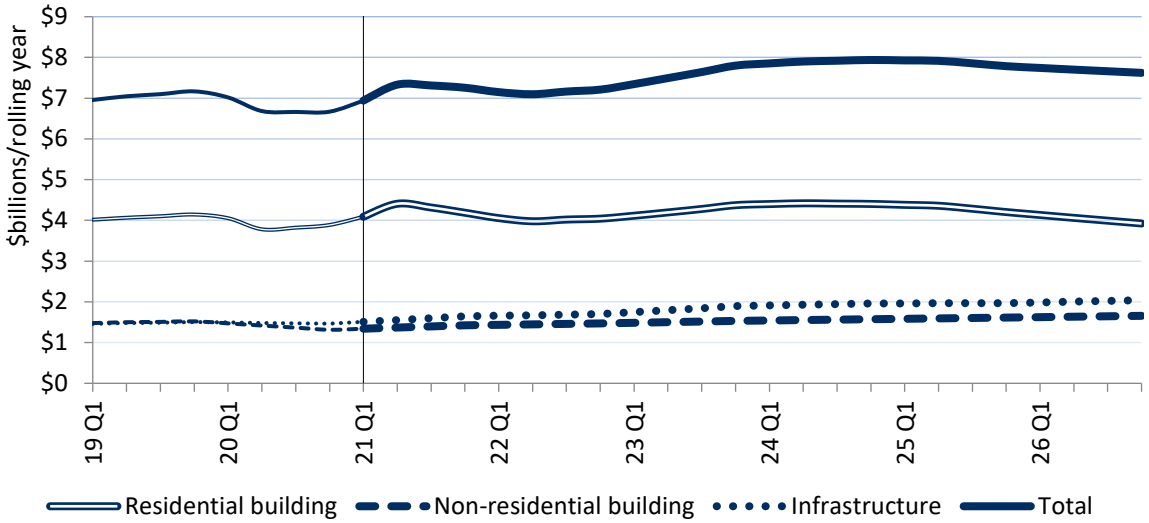
Source: Pacifecon

4.2 Waikato/Bay of Plenty[10]

The total value of construction in Waikato/Bay of Plenty decreased by 7% in 2020 to *$6.7b*, following 9% growth in 2019. All sectors saw reductions, with non-residential activity decreasing by the greatest percentage, 14%.

Residential building is now forecast to increase to the end of 2024 to *$4.4b* per annum before falling again to *$3.9b* by the end of the forecast period. Following the 2020 low non-residential building is forecast to increase year on year and by 26% to *$1.7b* by 2026. Infrastructure activity in this region continues to be expected to make gains throughout the forecast period, reaching *$2.0b* per annum by 2024.

Figure 4.2.1 All construction in Waikato/Bay of Plenty, by value



Source: BRANZ/Pacifecon

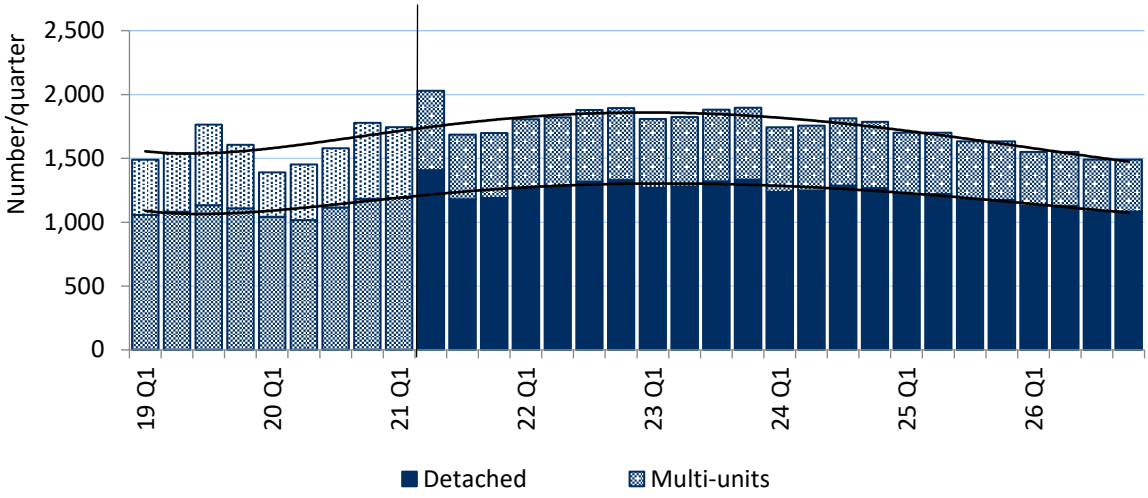
[10] Waikato/Bay of Plenty includes Hamilton City, Hauraki District, Kawerau District, Matamata-Piako District, Opotiki District, Otorohanga District, Rotorua District, South Waikato District, Taupo District, Tauranga City, Thames-Coromandel District, Waikato District, Waipa District, Waitomo District, Western Bay of Plenty District and Whakatane District.

Waikato/Bay of Plenty dwelling consent activity

Waikato/Bay of Plenty has had strong consenting activity for several years now, with an average of over *6,000* dwelling consents since 2016. We forecast consenting activity to increase to over *7,000* over the next few years.

The forecast includes almost *42,000* dwelling consents from 2021 to 2026 for Waikato/Bay of Plenty. Multi-unit consents are anticipated to increase to 31% of all dwelling consents in 2021, before reducing back to 27% by the end of the forecast period. Historical consents show multi-unit consents are more popular in Waikato than Bay of Plenty.

Figure 4.2.2 Dwelling units in Waikato/Bay of Plenty

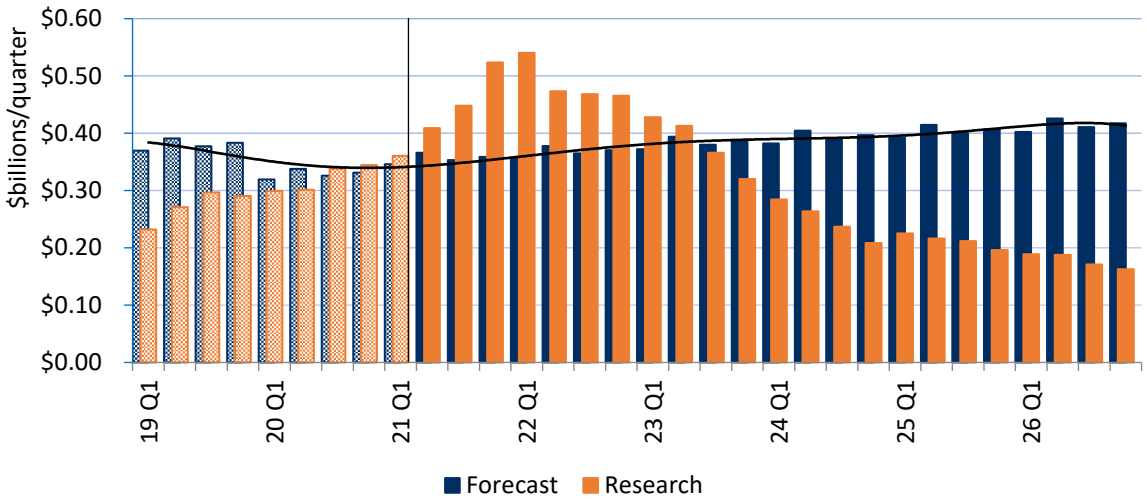


Source: BRANZ

Waikato/Bay of Plenty non-residential building activity

Non-residential building activity in the region decreased by 14% to *$1.3b* in 2020 following a rise of 21% in 2019. Non-residential building activity is now expected to increase throughout the forecast period to *$1.7b* by 2026.

Figure 4.2.3 Waikato/Bay of Plenty non-residential building activity

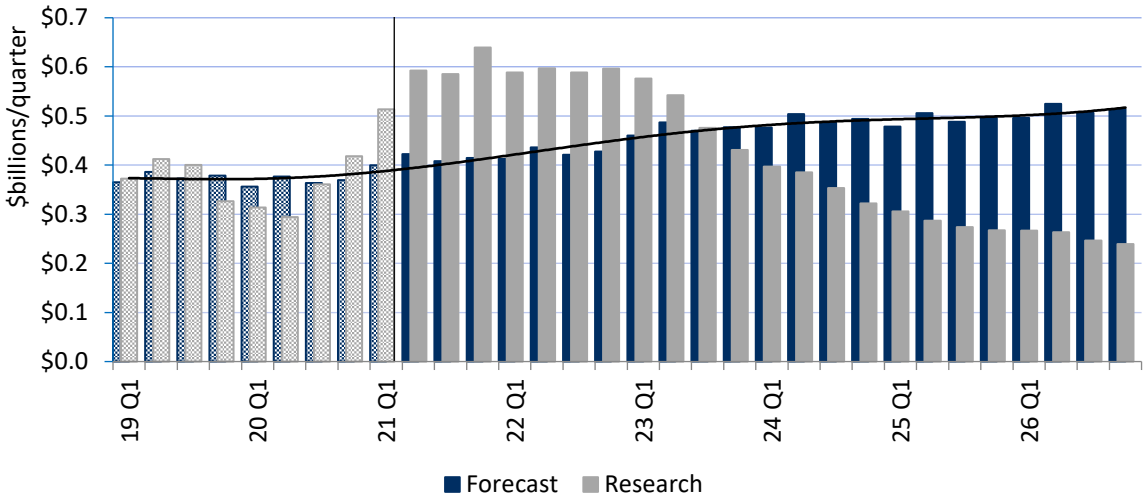


Source: BRANZ/Pacifecon

Waikato/Bay of Plenty infrastructure activity

Infrastructure activity in the region decreased slightly in 2020 to *$1.5b*. Continued infrastructure growth is expected throughout the rest of the forecast period.

Figure 4.2.4 Waikato/Bay of Plenty infrastructure activity



Source: BRANZ/Pacifecon

Planned non-residential building and infrastructure work for Waikato/Bay of Plenty includes:

- schools, universities and research buildings
- hospitals
- manufacturing facilities and processing plants including dairy, warehouses and distribution
- sports facilities
- community buildings and town centres
- subdivisions, mainly residential

- infrastructure including roads, rail and streetscapes
- three waters developments (drinking water, wastewater and stormwater).

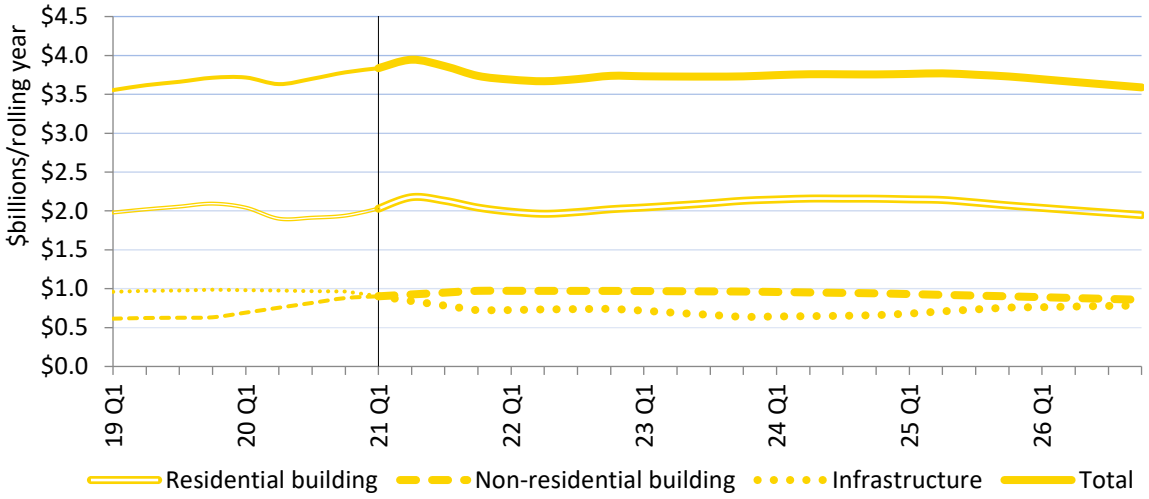
Source: Pacifecon

4.3 Wellington[11]

Wellington's total construction activity grew by 2% in 2020 to *$3.8b* the only region to show growth last year. This was despite falls in residential building of 7% and infrastructure of 2%. However, non-residential building grew by 39% to *$0.9b*.

Wellington's total construction value is forecast to decrease slightly to *$3.6b* by 2026, due to minor reductions in non-residential building and infrastructure. However, residential building is forecast to increase marginally by 0.3% over the forecast period. A peak of *$2.2b* for residential building in 2024 is forecast. We expect to see *$1.0b* of non-residential building work for each of the years 2021 to 2023. For infrastructure, a decrease is forecast to just above *$0.6b* by 2023, rising to *$0.8b* per annum from 2025.

Figure 4.3.1 All construction in Wellington, by value



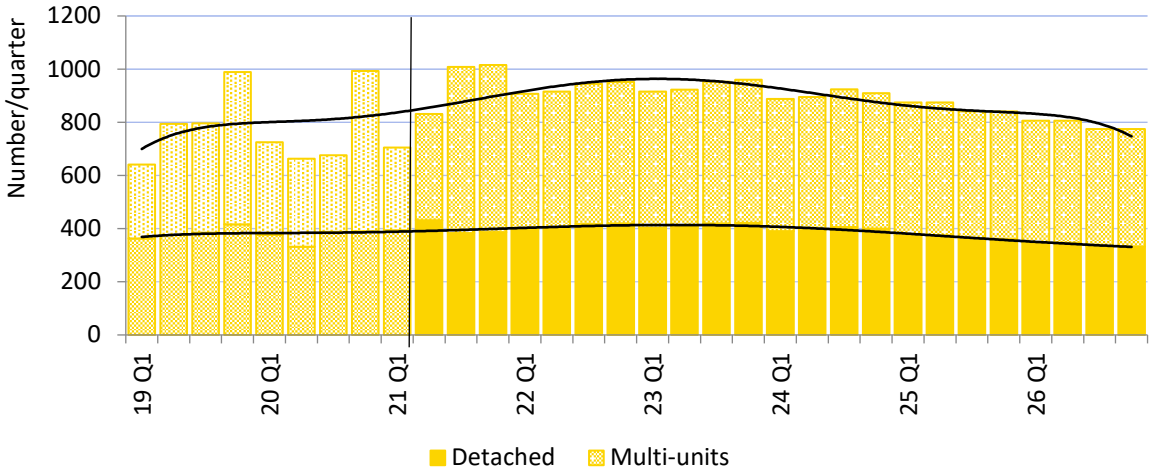
Source: BRANZ/Pacifecon

[11] Wellington includes Carterton District, Kapiti Coast District, Lower Hutt City, Masterton District, Porirua City, South Wairarapa District, Upper Hutt City and Wellington City.

Wellington dwelling consent activity

Wellington has had strong consent numbers over the last three years, increasing from *2,294* in 2017 to *3,220* in 2019. The last year saw a slight decrease in dwelling consents to *3,057*, but we anticipate increases in dwelling consents in Wellington over the next few years. We forecast over *21,000* dwelling consents in Wellington over the forecast period, the majority of which are anticipated to be multi-units. Historically, multi-unit dwellings have been popular in Wellington – 51% of dwelling consents were for multi-units in 2020. This proportion is expected to increase over the forecast period to an average of 56%.

Figure 4.3.2 Dwelling units in Wellington

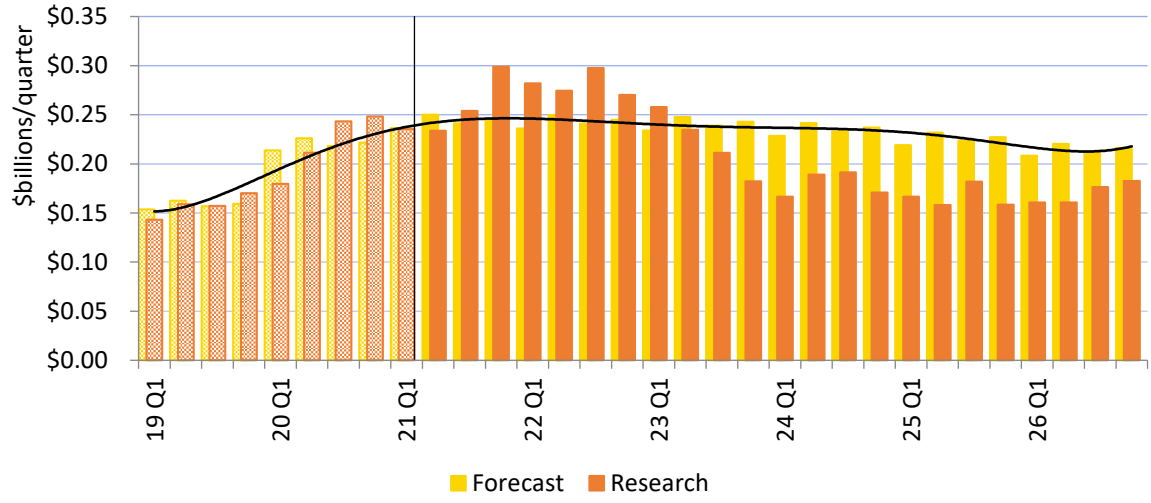


Source: BRANZ

Wellington non-residential building activity

Non-residential building activity in Wellington grew by 39% to *$0.9b* in 2020. This was very strong growth, and a further rise of 11% to *$1.0b* is anticipated for 2021. From 2021, a small year-on-year reduction is anticipated with non-residential building activity expected to reduce back to *$0.9b* by 2024 per annum for the remainder of the forecast period.

Figure 4.3.3 Wellington non-residential building activity

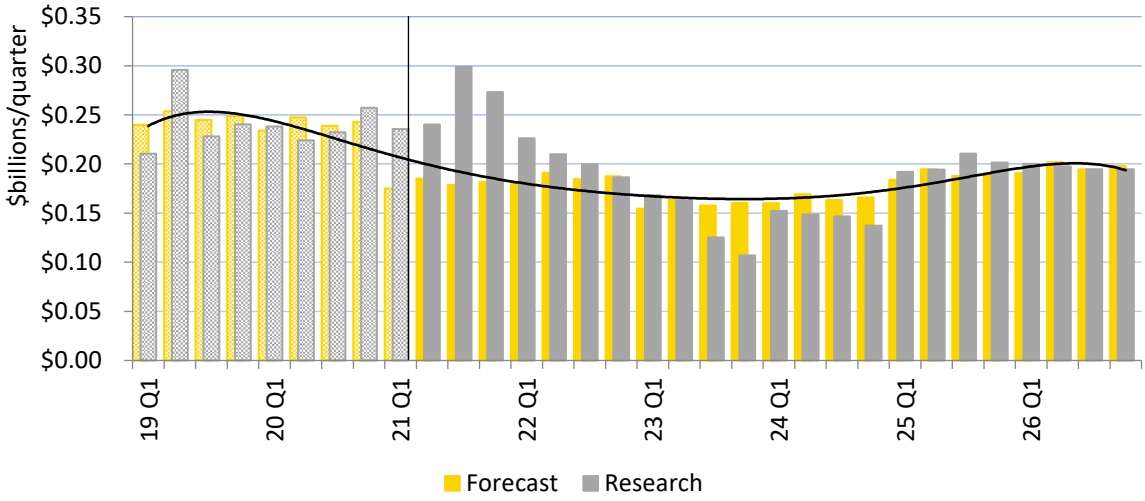


Source: BRANZ/Pacifecon

Wellington infrastructure activity

Wellington infrastructure activity decreased slightly to *$1.0b* in 2020. Further decreases to a low in 2023 of *$0.6b* are anticipated. Growth of 15% to *$0.8b* is then expected for 2025 over 2024, followed by a slight increase in 2026. The research data is in alignment with the forecast.

Figure 4.3.4 Wellington infrastructure activity



Source: BRANZ/Pacifecon

Planned non-residential and infrastructure work for Wellington includes:

- retirement village communal buildings and care suites
- offices and warehouses – bulk retail and supermarkets
- hospitals
- education and research buildings
- three waters developments (drinking water, wastewater and stormwater) and flood protection
- residential subdivisions
- infrastructure for rail and road
- seismic strengthening.

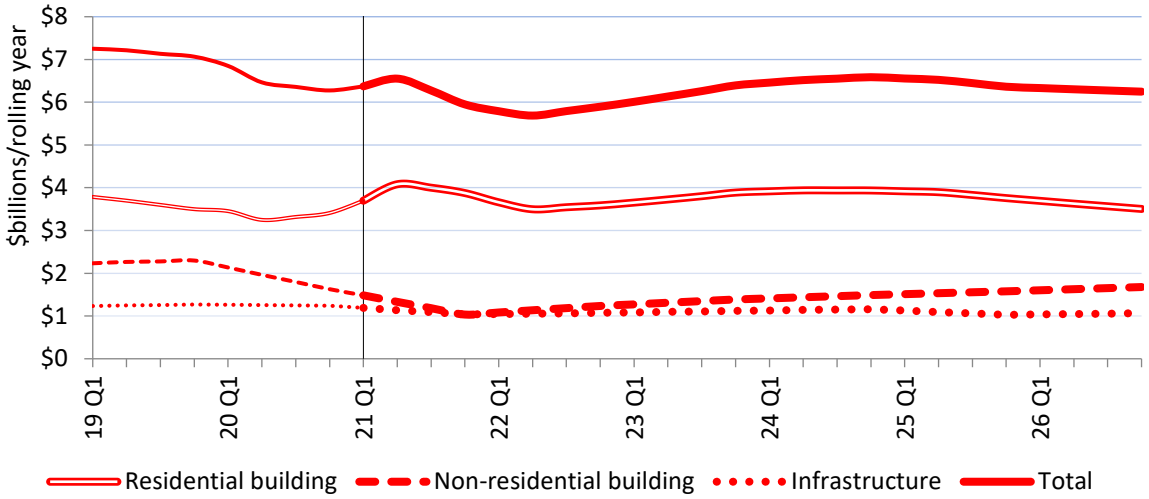
Source: Pacifecon

4.4 Canterbury[12]

A reduction in total construction value of 11% occurred in 2020 (following a rise of 8% in 2019). This was driven by reductions across all three sectors, with a 29% decrease in non-residential building activity being the most influential.

Residential building value is now expected to peak at *$3.9b* in 2024. A decrease in activity is then forecast to lower residential building activity to *$3.5b* per annum by 2026. Non-residential building activity is again expected to reduce by 36% to *$1.0b* in 2021, a per annum increase to *$1.7b* is then expected to 2026. Following a slight reduction in 2020, infrastructure is forecast to reduce to *$1.0b* in 2021, rising to *$1.1b* per annum from 2022 and *$1.2b* in 2024.

Figure 4.4.1 All construction in Canterbury, by value



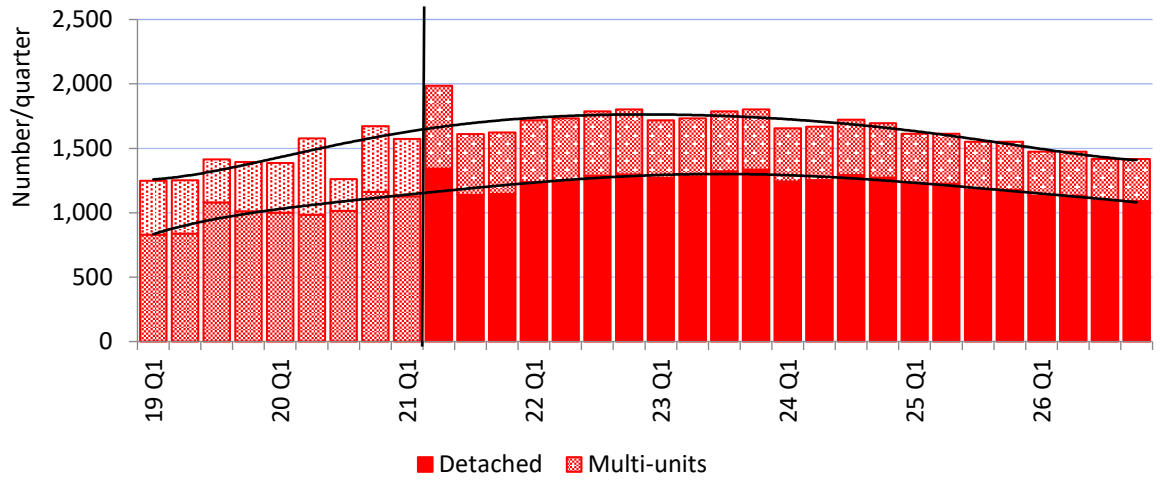
Source: BRANZ/Pacifecon

[12] Canterbury includes Ashburton District, Christchurch City, Hurunui District, Kaikoura District, Mackenzie District, Selwyn District, Timaru District, Waimakariri District and Waimate District.

Canterbury dwelling consent activity

The number of dwellings consented in Canterbury grew by 11% in 2020 to *5,896*. Consents in Canterbury are forecast to increase slightly over the next couple of years to a high of *7,040* in 2023. Detached homes have historically been popular in Canterbury, with the proportion of multi-unit dwellings standing at 29% in 2020.

Figure 4.4.2 Dwelling units in Canterbury

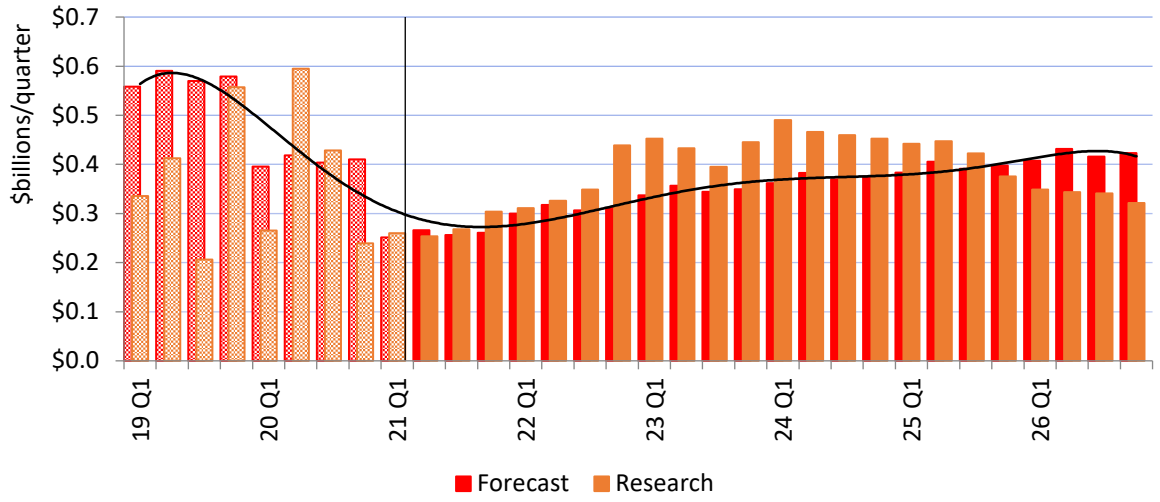


Source: BRANZ

Canterbury non-residential building activity

Non-residential building activity reduced by 29% to *$1.6b* in 2020. Canterbury non-residential building is now expected to further reduce to a low of *$1.0b* in 2021. Growth is then forecast for the remainder of the forecast period, reaching *$1.7b* in 2026. Pacifecon's construction intentions are very closely aligned with the forecast.

Figure 4.4.3 Canterbury non-residential building activity

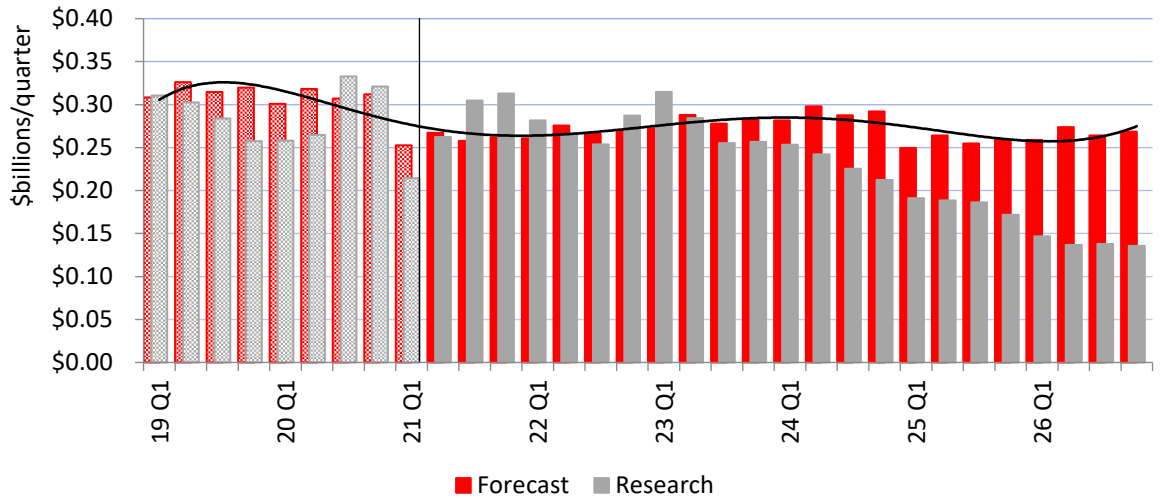


Source: BRANZ/Pacifecon

Canterbury infrastructure activity

Following a slight reduction in 2020, infrastructure activity is anticipated to decrease in 2021 to *$1.0b* and remain close to that level for the rest of the forecast period. Pacifecon's construction intentions are generally aligned with this.

Figure 4.4.4 Canterbury infrastructure activity



Source: BRANZ/Pacifecon

Planned non-residential buildings and infrastructure work for Canterbury includes:

- hospitals
- bulk retail, and dairy processing plants – new and expansion of existing facilities
- schools and universities
- sports facilities
- places of worship
- infrastructure – roads and three waters developments (drinking water, wastewater and stormwater)
- residential subdivisions.

Source: Pacifecon

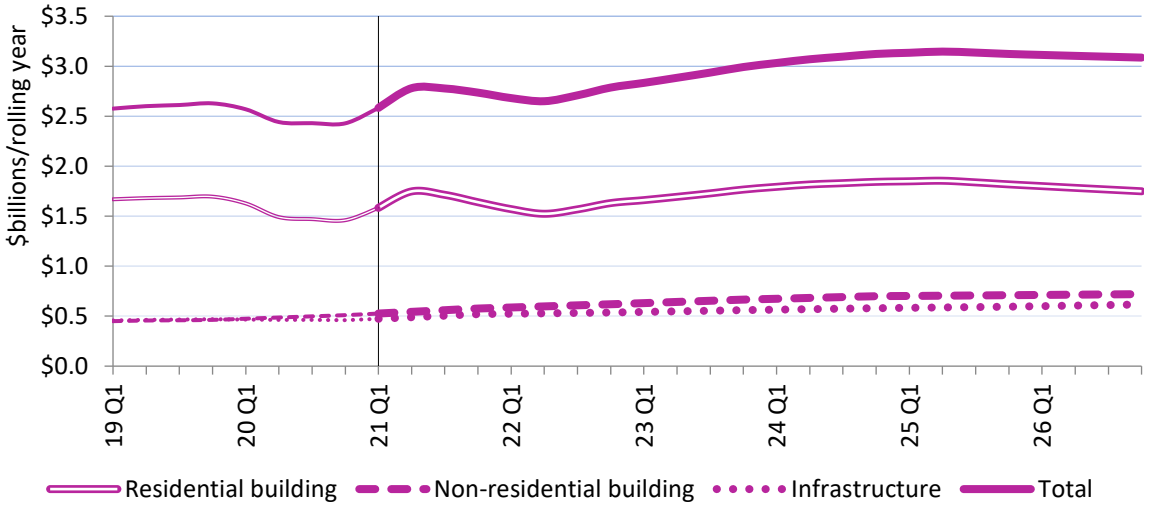
4.5 Otago[13]

From 2013 to 2019, this report included Otago within the Rest of New Zealand region. Since 2020 it has been treated separately.

A rise of 7% in total construction to *$2.6b* in 2019 has been followed by a reduction of 8% to *$2.4b* in 2020, despite a rise of 10% in non-residential building activity.

Residential building is now expected to increase by 12% to *$1.6b* in 2021. A gentle increase in activity is then forecast to bring residential building to a peak of *$1.8b* in 2024, a slight reduction to *$1.7b* is then expected by 2026. Non-residential building activity is expected to make gains throughout the forecast period reaching *$0.7b* per annum by 2023. Infrastructure is forecast to rise to *$0.6b* per annum by 2023 and remain at that level to the end of the forecast period.

Figure 4.5.1 All construction in Otago, by value



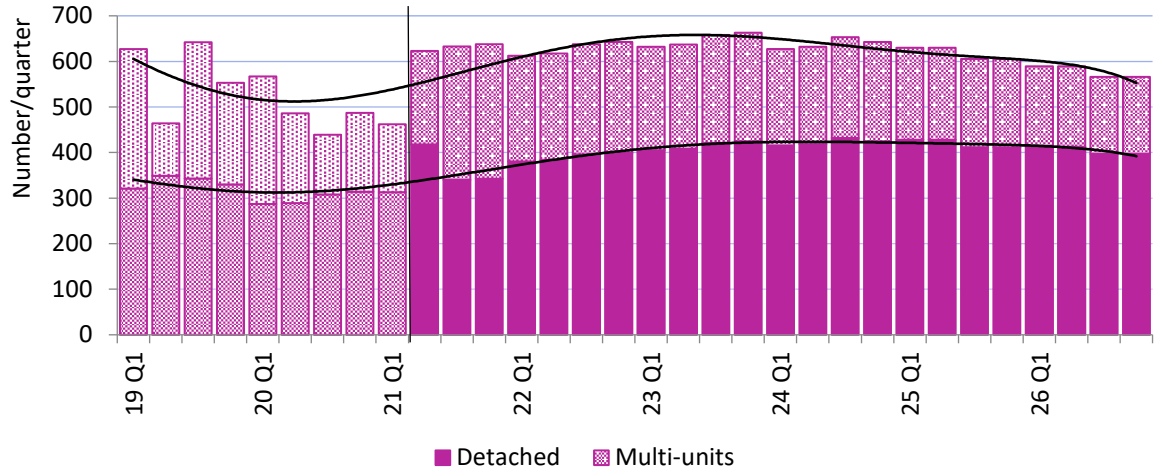
Source: BRANZ/Pacifecon

[13] Otago includes Otago Region, Dunedin City, Central Otago District, Clutha District, Queenstown-Lakes District and Waitaki District.

Otago dwelling consent activity

Otago dwelling consent activity seemed to be the most impacted by COVID-19, as consents decreased by 13% from 2019 to *1,979* in 2020. We forecast that Otago will return to pre-COVID-19 levels in 2021 and then grow to a high of just under *2,600* by 2023. Over the forecast period, we forecast Otago will consent almost *15,000* dwellings, the majority of which will be detached. Multi-units were 39% of all dwelling consents in 2020. We forecast this to increase slightly in the short term, before reducing to 30% by the end of the forecast period.

Figure 4.5.2 Dwelling units in Otago

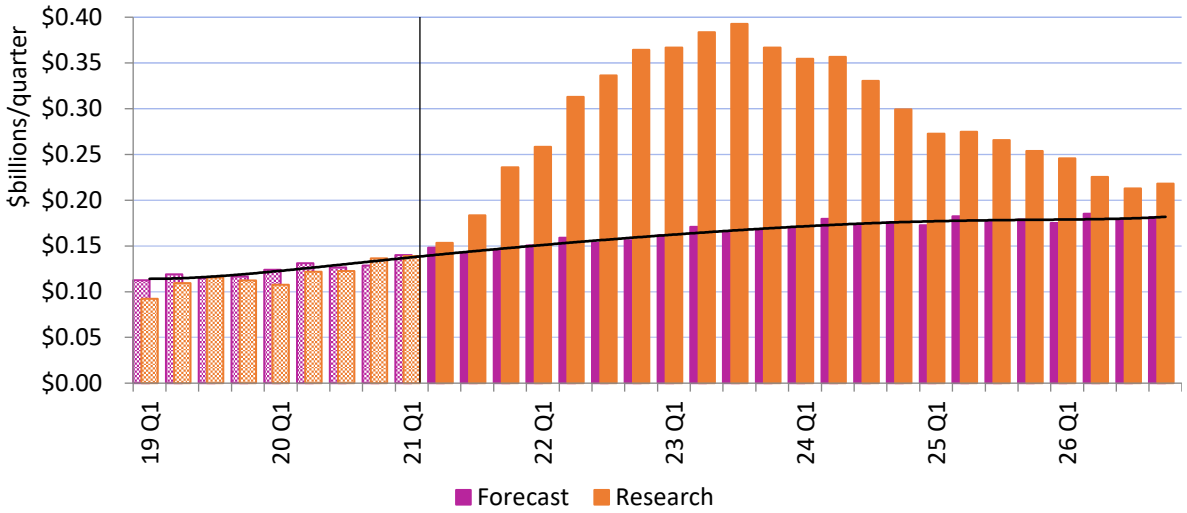


Source: BRANZ

Otago non-residential building activity

Non-residential building activity grew by 10% to *$0.5b* in 2020, following an increase of 8% in 2019, and is forecast to continue to increase for the remainder of the forecast period, reaching *$0.7b* in 2026.

Figure 4.5.3 Otago non-residential building activity

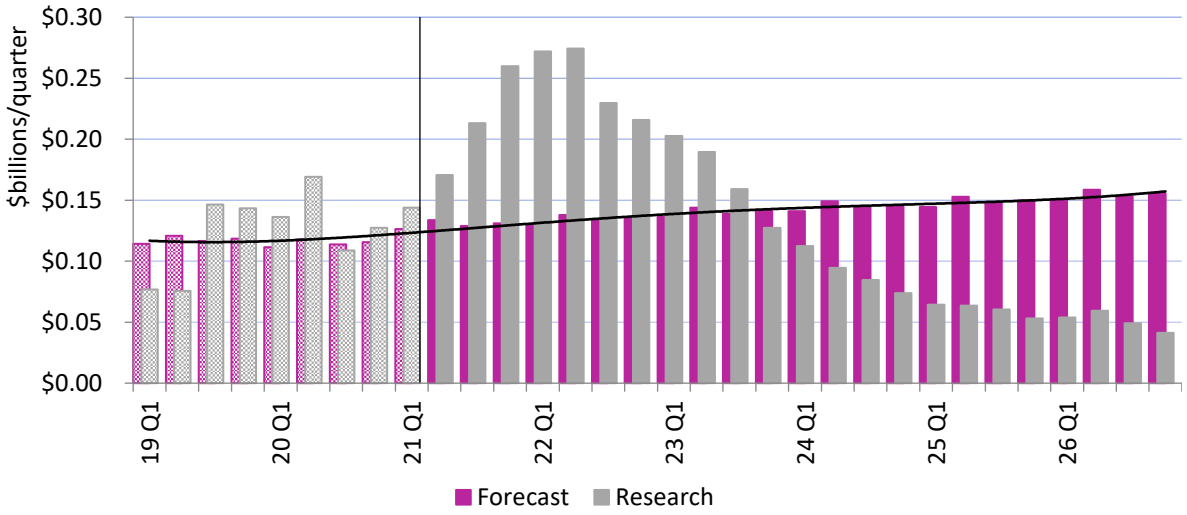


Source: BRANZ/Pacifecon

Otago infrastructure activity

Infrastructure activity decreased in 2020 to *$0.5b*. It is forecast to rise to *$0.6b* per annum in 2023 and remain at that level for the rest of the forecast period.

Figure 4.5.4 Otago infrastructure activity



Source: BRANZ/Pacifecon

Planned non-residential buildings and infrastructure work for Otago includes:

- hospitals
- tertiary education buildings
- infrastructure – roads, cycleways and walkways
- three waters developments (drinking water, wastewater and stormwater) and flood protection
- residential subdivisions.

Source: Pacifecon

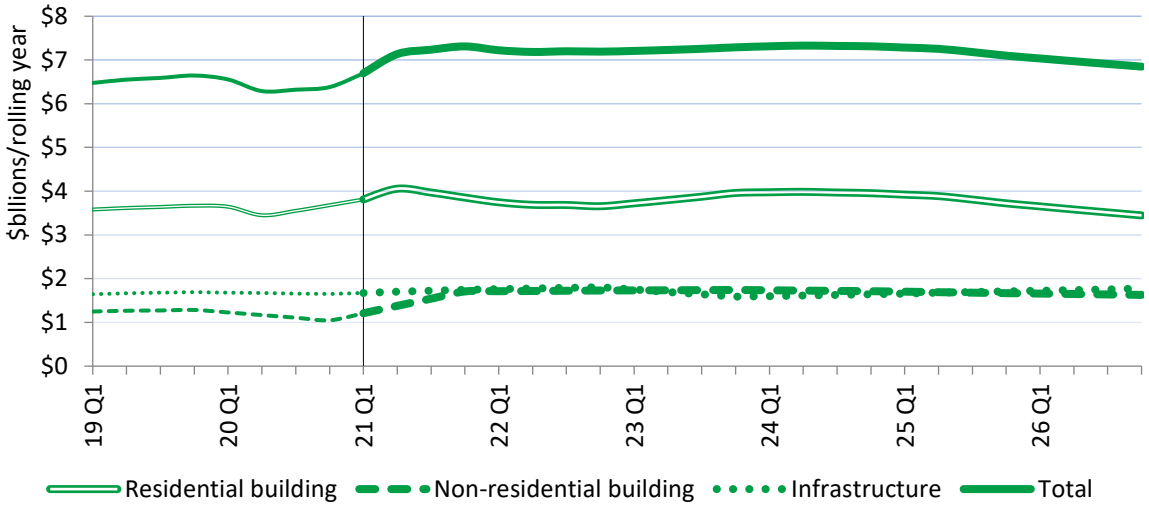
4.6 Rest of New Zealand

Rest of New Zealand contains the remaining 10 regions of New Zealand – Gisborne, Hawke's Bay, Manawatu-Whanganui, Marlborough, Nelson, Northland, Southland, Taranaki, Tasman and West Coast. These regions individually all have a lower value of total construction activity and populations[14] than the other regions considered in this report.

For Rest of New Zealand, total construction value reduced by 4% to *$6.4b* in 2020, following 10% growth in 2019. Slight growth in residential building of 0.3% was mitigated by an 18% decrease in non-residential building and 2% in infrastructure.

Total construction value for Rest of New Zealand is forecast to increase by 15% to *$7.3b* in 2021 and then remain close to that level until 2024, decreasing to *$6.8b* in 2026.

Figure 4.6.1 All construction in Rest of New Zealand, by value



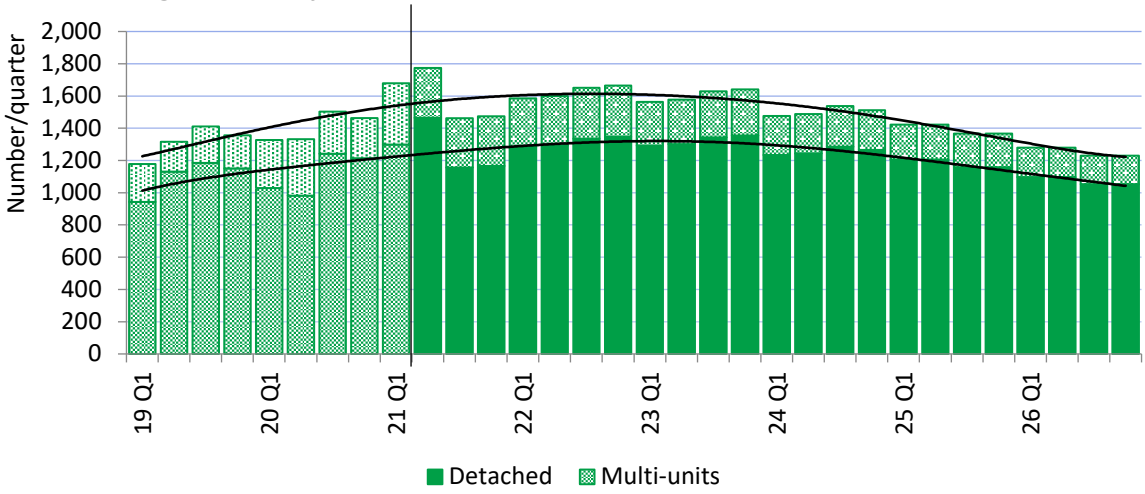
Source: BRANZ/Pacifecon

[14] Some regions have static or decreasing populations.

Rest of New Zealand dwelling consents

Dwelling unit consents in Rest of New Zealand grew by 7% in 2020 to *5,600*. Dwelling unit consents are forecast to increase through to 2022 to *6,500*, before falling to about *5,000* at the end of the forecast period. Multi-units are not as popular in these regions, and their proportion is expected to maintain between 15–20%.

Figure 4.6.2 Dwelling units in Rest of New Zealand

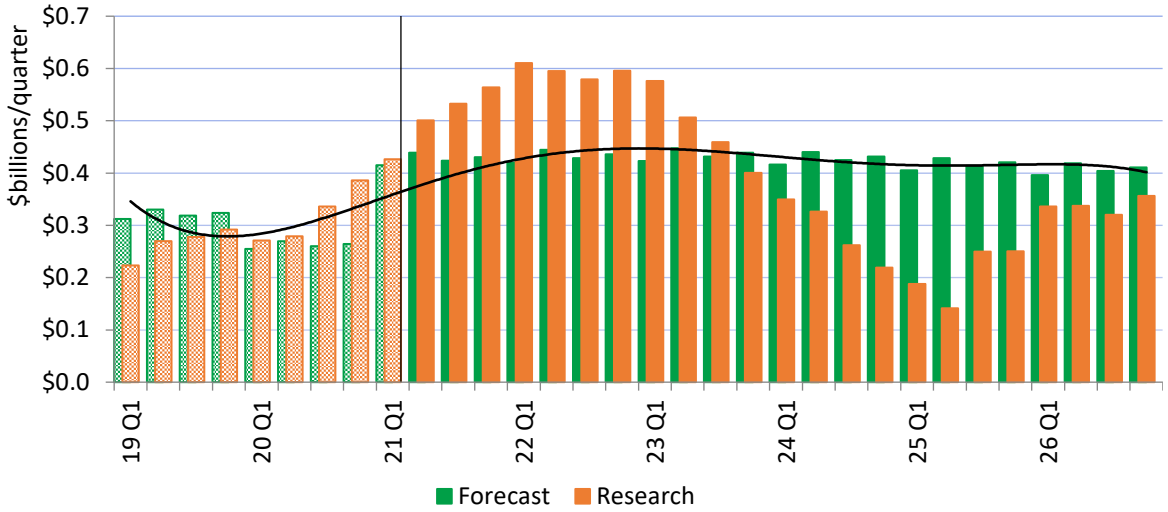


Source: BRANZ

Rest of New Zealand non-residential building activity

Following growth of 22% in 2019, Rest of New Zealand's non-residential building activity reduced by 18% to *$1.0b* in 2020. Activity is forecast to bounce back to *$1.7b* in 2021 and remain around this level to 2026. The very high value in the research data indicates that there are strong intentions for non-residential buildings in Rest of New Zealand, but Pacifecon anticipates many will be pushed further into the future.

Figure 4.6.3 Rest of New Zealand non-residential building activity

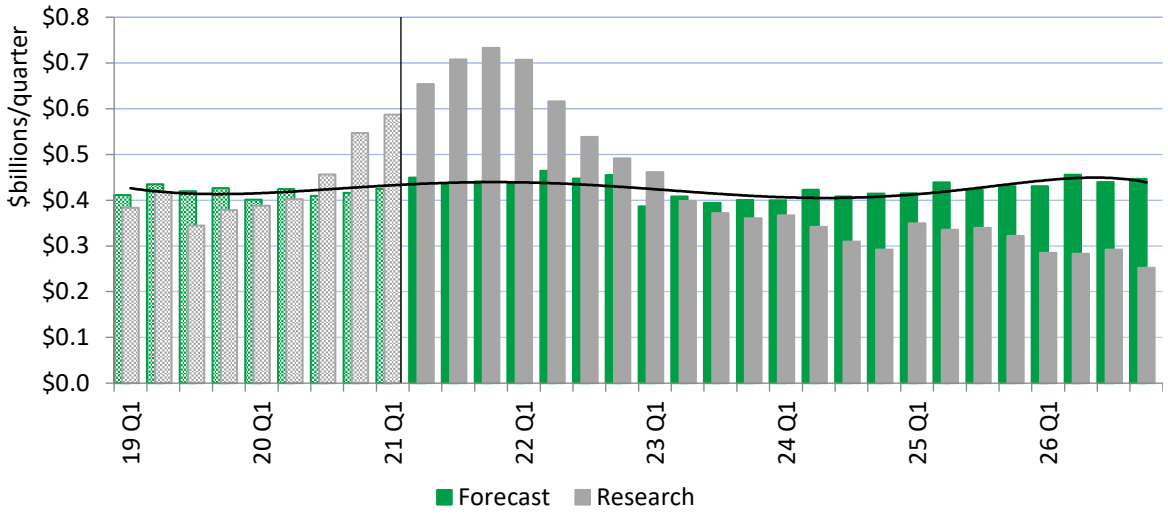


Source: BRANZ/Pacifecon

Rest of New Zealand infrastructure activity

Infrastructure activity is forecast to grow to *$1.8b* by 2022. A slight reduction is then anticipated for the next two years, followed by growth reaching *$1.8b* again by 2026.

Figure 4.6.4 Rest of New Zealand infrastructure activity



Source: BRANZ/Pacifecon

Individual regions within Rest of New Zealand

Between 2013 and 2019, Otago formed a part of Rest of New Zealand but in 2020 became an individual region. Otago has been included in Table 4.6.1 below for comparison with Northland.

Northland is now the largest region[15] in the Rest of New Zealand group and provides approximately 15% of the group's new dwelling unit consents.

Table 4.6.1 All building and construction in the year 31 December 2021 for Rest of New Zealand and Otago, by region and construction type

Region	Forecast residential building ($m)	Researched non-residential building ($m)[16]	Researched infrastructure activity ($m)
Otago	$1,640	$712	$788
Northland	$891	$331	$535
Manawatu/Whanganui	$786	$378	$654
Nelson/Marlborough	$712	$204	$355
Hawke's Bay/Gisborne	$663	$450	$435
Taranaki	$411	$225	$465
Southland	$236	$173	$83
West Coast	$76	$78	$120
New Zealand wide[17]	-	$184	$34
Total – Rest of New Zealand	**$3,774**	**$2,024**	**$2,681**

Source: BRANZ/Pacifecon

[15] By total construction value and number of new dwelling consents.

[16] Values in red are from Pacifecon's database of anticipated project values and may be subject to optimism bias.

[17] New Zealand wide is used in Pacifecon's dataset to define work that covers all New Zealand – for example, ultra-fast broadband rollout.

5. Comparison with the National Construction Pipeline Report 2020

5.1 Adjustments to data from the 2020 report

The following adjustments have been made to the forecast data from the 2020 report to enable a closer comparison with actuals and forecasts in this report:

- Conversion from December 2019 dollars to December 2020 dollars to account for inflation[18] as follows:
  - Residential building 3%
  - Non-residential building 1.9%
  - Infrastructure construction -0.1%
- Adjustments for Stats NZ's revisions to the December 2019 gross fixed capital formation data:[19]
  - Residential building 2.4%
  - Non-residential building 0.3%
  - Infrastructure construction -2.7%

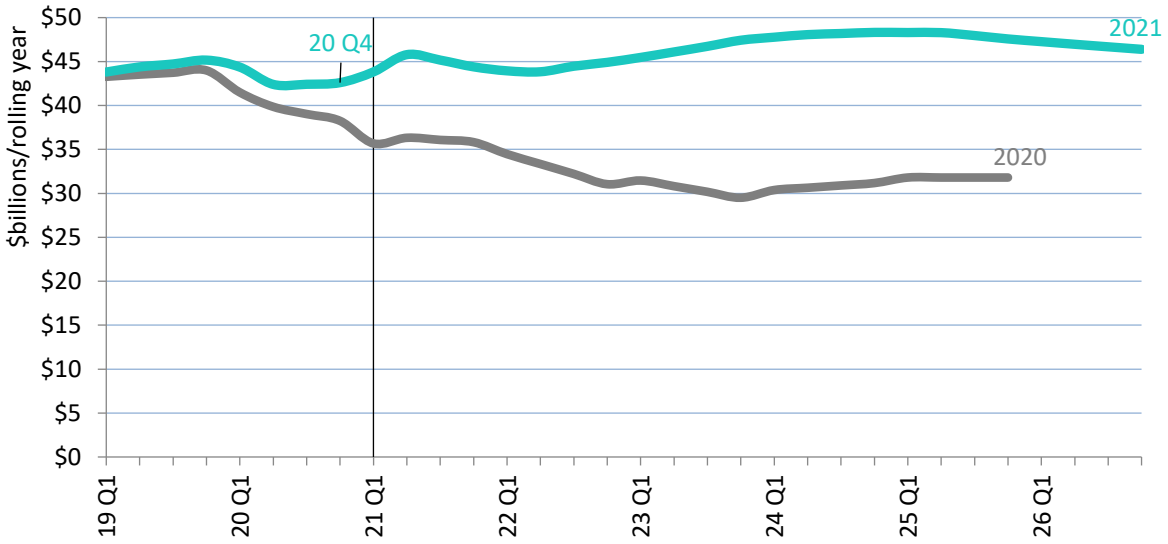
5.2 How did BRANZ do with the 2020 forecast?

The total value of construction nationally decreased by 6% in 2020, whereas the 2020 report had expected a reduction of 13% in total construction activity.

Residential building decreased by 11% which was 14% less than the 25% decrease expected. Non-residential building decreased by 13% which was 5% less than the 18% decrease expected. Infrastructure construction decreased by 2% which was 1% less than the 3% decrease expected.

This year's forecast is for a reduction in growth to $43.8b at mid-2022, followed by growth to $48.3b at end 2024, then a gentle reduction for the remaining two years to $46.4b in 2026.

Figure 5.2.1 All construction nationally, 2020 and 2021 forecasts compared



Source: BRANZ/Pacifecon

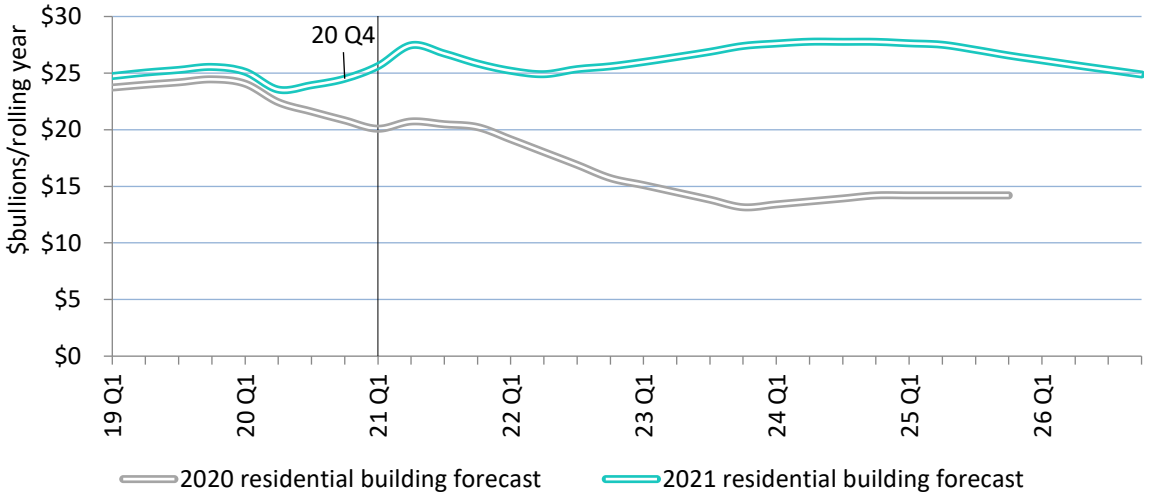
[18] The 2020 report has been adjusted to December 2020 dollars for comparison.

[19] Stats NZ adjusts the gross fixed capital formation data following its initial release for a couple of years. It is likely this data will be adjusted again, either up or down, in the next 12 months.

Residential building forecast comparison

The 2020 report forecast a decrease of 25% residential building growth for 2020 nationally whereas the actual recorded decrease was 11% to *$24.5b*. The current report forecasts residential building to decrease slightly from 2021 Q2 to *$24.9b* by 2022 Q2. Growth is then forecast to mid-2024, followed by lower levels of activity to end 2026.

Figure 5.2.2 All residential building nationally, 2020 and 2021 forecasts compared



Source: BRANZ

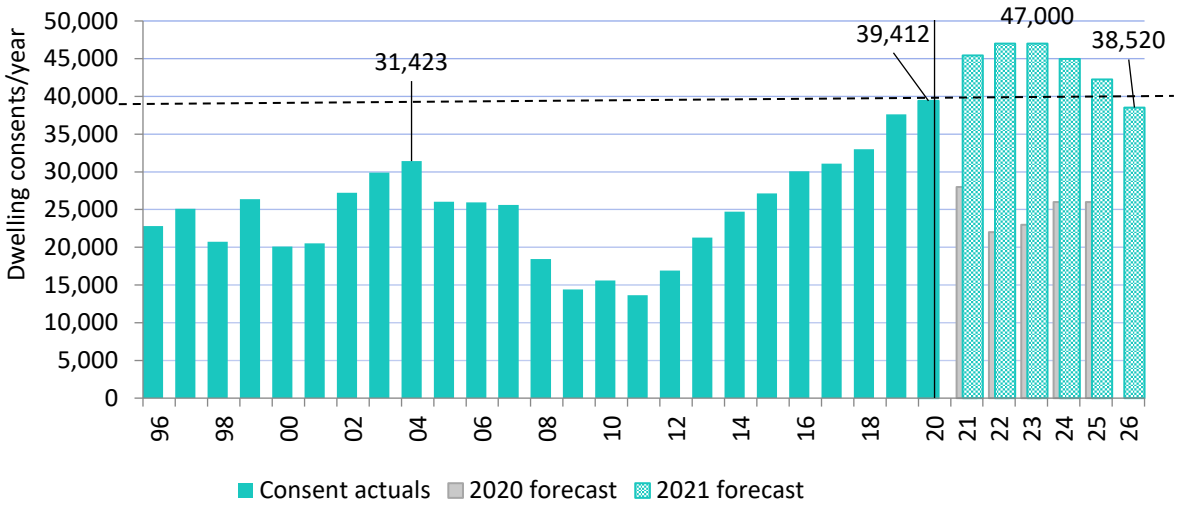
Dwelling unit forecast comparison

The 2020 report forecast a 4% reduction in dwelling consents for 2020 nationally. Actual consents grew by 5%. The number of consents for detached homes was just 1% higher than the 2020 forecast, while the number of consents for multi-units was considerably higher than forecast at 22%; the 2020 forecast was for an 8% decrease.

The 2021 forecast is for growth to 2023, followed by year-on-year decreases to the end of the forecast period. This is significantly different to the 2020 forecast as the expected effect of the pandemic at the time had a significant impact upon the forecasts.

Over the next three years, the number of dwelling units consented is forecast to increase by 19% to *47,000* dwelling units in 2023. A modest fall is then anticipated each year through to 2026.

Figure 5.2.3 Dwelling units consented nationally, 2020 and 2021 forecasts comparison

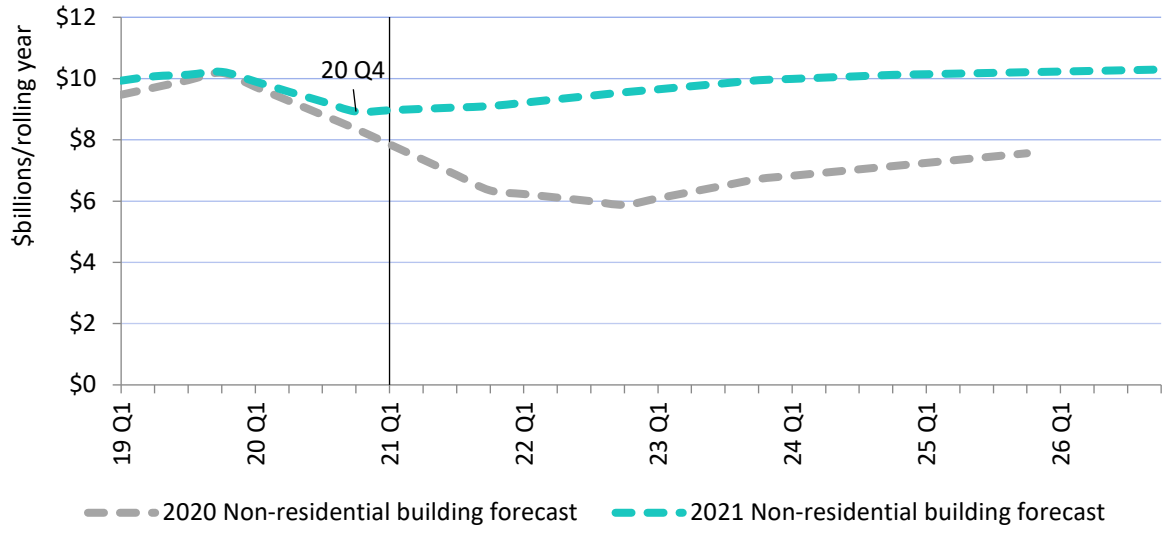


Source: BRANZ/Stats NZ

Non-residential building forecast comparison

The 2020 report forecast an 18% decrease in non-residential building activity for 2020 nationally. Whilst a decrease was recorded, it was a more modest 13%. This year's report forecasts a rise in non-residential building activity to 2026.

Figure 5.2.4 Non-residential building nationally, 2020 and 2021 forecasts compared

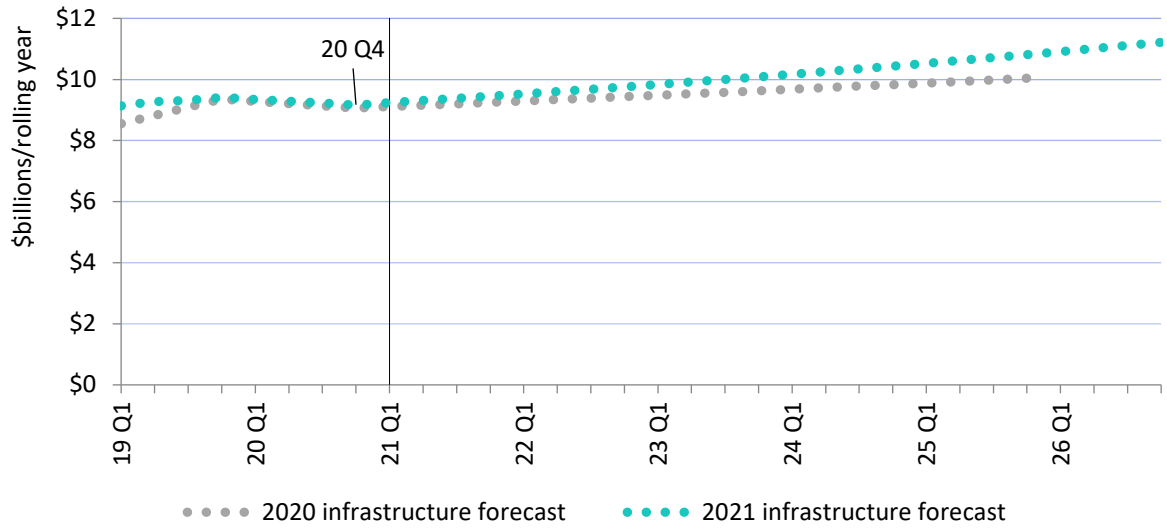


Source: BRANZ

Infrastructure construction forecast comparison

National infrastructure values are historically more consistent year on year than residential or non-residential building activity values. Last year's report expected a 3% decrease in infrastructure activity, whereas actual recorded activity was a 2% decrease. Infrastructure activity nationally is expected to grow at a similar rate to that previously forecast.

Figure 5.2.5 Infrastructure activity nationally, 2020 and 2021 forecasts compared



Source: BRANZ

5.3 Comparison of Pacifecon's 2021 research data with previous reports

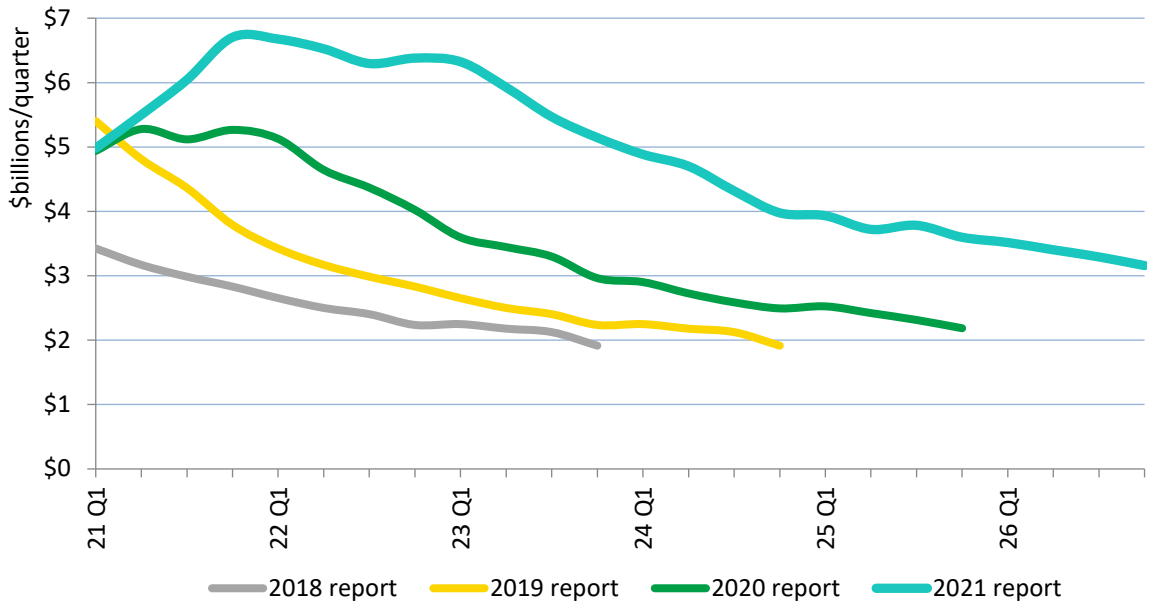
Pacifecon's research dataset contains anticipated values and start dates for non-residential buildings and infrastructure construction projects. This section compares Pacifecon's 2021 researched data with the data used in preceding reports. It compares how the value and timeline of Pacifecon's researched project intentions have varied across reports.

The 2021 planned research data has risen to late 2021 and maintains at a high level through to late 2023. This has been caused by delays due to the lockdowns in April 2020 and August–September 2021 and ensuing uncertainty. The 2021 data has been adjusted to account for delays.

The research data for the 2018 and 2019 reports shows similar curves to each other. Pacifecon's researchers are constantly adjusting projects' values and estimated started dates. Whilst some work is expected to start later than anticipated and work is frequently of a longer duration than expected, a minority of projects may be brought forward.

The report highlights where the research data has indicated strong known project intentions for non-residential and infrastructure projects throughout the forecast period.

Figure 5.3.1 Value of all Pacifecon known non-residential and infrastructure project intentions data, by report year



Source: Pacifecon

5.4 Comparison of previous reports' project intentions with project outcomes

The actual number of $100m+ projects that started each year has increased each year over the last five years, from 22 in 2016 to 37 in 2020.

The total number of $100m+ projects in the database anticipated to start in 2020 (25) was considerably lower than the number that started (37). This was due to expectations being reduced due to COVID-19. In all previous years, more projects were expected to start than did start. Section 5.5 describes the optimism bias that usually occurs with specific project intentions. Comparing the projections with actuals over time helps to inform how to accurately adjust for this bias. Pacifecon was most accurate in anticipating which high value projects would start in the 2019 report.

Table 5.4.1 compares what was projected with actuals over the previous five reports. There were 25 known projects (non-residential building and infrastructure construction) valued at $100m or more included in the 2020 report that were anticipated to start between 1 April 2020 and 31 March 2021. Of these 25 projects 21 actually started. An additional 16 projects started bringing the total to 37.

The number of researched projects valued at over $100m expected to start between 1 April 2021 and 31 March 2022 is now anticipated to be 36 projects (20 non-residential building and 16 infrastructure projects, see Appendix D for details).

Table 5.4.1 Outcome of projects valued at $100 million and over anticipated to start in the current year across the current and previous reports

Outcome	Number of projects initiated				
	2016 report	2017 report	2018 report	2019 report	2020 report
Started as anticipated	15	18	23	16	21
Anticipated to start within the coming year	10	9	12	2	2
Anticipated to start beyond one year's time	4	9	11	13	2
Cancelled since previous report	0	0	1	0	0
Total	**29**	**36**	**47**	**31**	**25**
Additional projects starting[20]	7	10	6	14	16
Number of projects started in timeframe	**22**	**28**	**29**	**30**	**37**

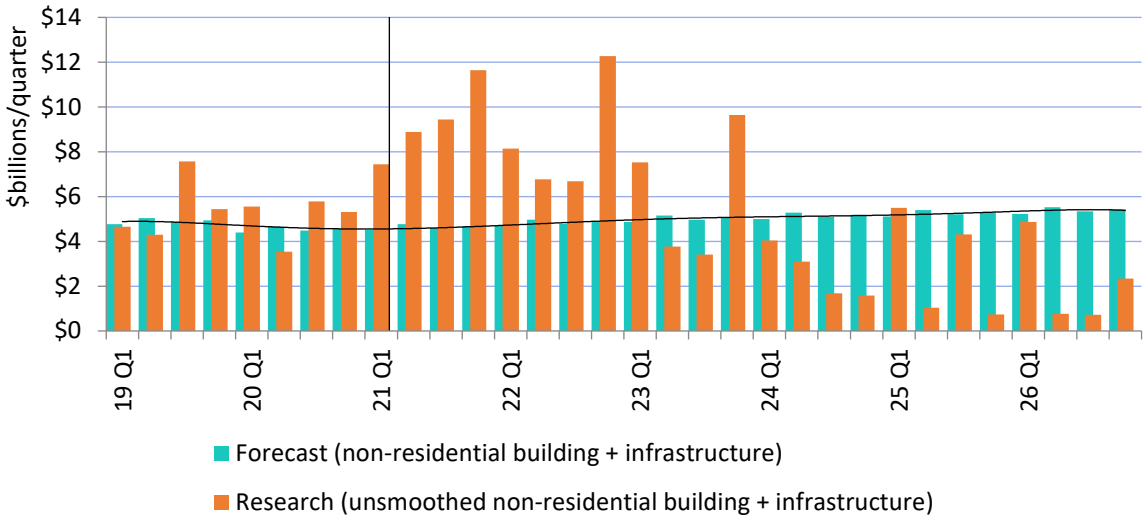
Source: Pacifecon

[20] Additional projects starting since 2020 report: one project new to Pacifecon, the values of six projects increased to over $100m prior to commencing, nine projects were accelerated so they started during the April 2020 - March 2021 timeframe.

5.5 Construction intentions and optimism bias

All intentions in building and construction come with some level of overconfidence – this is termed 'optimism bias'. Projects may lag their original timelines or are occasionally cancelled. This optimism bias of non-residential building and infrastructure construction intentions in the Pacifecon dataset can be seen in the raw (unsmoothed) researched intentions data. Compared to the forecast this results in a higher than expected number of projects over the next few years and a lower than expected number of projects over the longer term.

Figure 5.5.1 All non-residential and infrastructure construction intentions, raw (unsmoothed) data



Source: BRANZ/Pacifecon

6. Disclaimer

All reasonable care has been taken in gathering, compiling and producing the information specified in this report. Pacifecon (NZ) Ltd, BRANZ and MBIE will not be responsible for errors, omissions or inaccuracies or liable for any claims, actions or suits arising directly or indirectly therefrom.

Pacifecon (NZ) Ltd does not typically use its database for this type of analysis. This has required additional data manipulation and changes to its database and processes. Over time, the techniques and processes have been refined.

Advice has been sought from a variety of sources, and it is believed that the methodology has a sound basis for future reporting.

Queries and feedback can be emailed to *info@building.govt.nz*

7. Appendices

7.1 Appendix A: About the parties involved in preparing this report

BRANZ is an independent and impartial research, testing and consulting organisation challenging Aotearoa New Zealand to create a building system that delivers better outcomes for all. This is achieved by transforming insightful research into accessible actionable knowledge.

BRANZ is focused on:

- researching and investigating the design, construction and performance of buildings that impact the built environment in New Zealand
- enabling the transfer of knowledge from the research community into the building and construction industry.

www.branz.co.nz

Pacifecon focuses exclusively on the New Zealand and Pacific Islands construction industry, providing business intelligence in the form of future residential, non-residential and infrastructure project information to its client base. Information is also held on projects that may have a work start date far beyond 2026 including local government long-term plans.

Pacifecon has over 30 researchers spread throughout New Zealand. Using their local knowledge in each of the regions and sectors, they deliver thorough, timely and accurate information on construction projects from the earliest planning stages to start of work across all construction sectors:

- Residential building - detached houses, townhouses, apartments and retirement villages.
- Non-residential building - commercial, industrial, education, health and sport.
- Infrastructure - civil, heavy engineering and energy.

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7.2 Appendix B: Terminology, abbreviations and definitions used in this report

actuals	Documented historical values that have been realised.
apartment	Any dwelling unit that is attached to another dwelling unit above or below it or that is part of a commercial building is considered an apartment. Apartments in retirement villages are not included.
b	Billion (1,000,000,000 or 10^9).
boom-bust cycle	A process of economic expansion (boom) and contraction (bust) that occurs repeatedly.
building consent	A formal approval from a building consent authority to construct or alter a building.
COVID-19	A worldwide pandemic that has resulted in restrictions and economic measures being undertaken in New Zealand.
detached dwelling	Any stand-alone dwelling unit that is not attached to any other unit (i.e. a typical house on its own section).
dwelling	A building that is used for the purpose of human habitation. Dwellings include detached and multi-unit dwellings
forecast	Refers to BRANZ's information on expected future activity.
forecast period	The six years from 1 January 2021 to 31 December 2026 for which building and construction activity is forecast in this report.
gross fixed capital formation	Net/gross increase in physical assets (investment minus disposals) within the measurement period. It does not account for the consumption (depreciation) of fixed capital or the cost of land purchases. It is a component of the expenditure approach to calculating gross domestic product (expenditure). This report uses gross fixed capital formation. Routine maintenance is not included. Alterations and additions that significantly extend the life or capacity of an asset are included (i.e. all work done with an addition and alteration consent).
infrastructure	Infrastructure covers all construction that is not a building, including: • transport – roads, rail, bridges, tunnels, runways, harbours, marinas, reservoirs, shelters, parking and lighting • ground works – residential, commercial and industrial subdivisions, earthmoving, landscaping, parks and landfill • amenities – telecommunications, water and energy services • mining and energy – wind, thermal, hydro, oil and gas. Infrastructure is termed 'other construction' in Stats NZ classifications.

lockdown	The period of Alert Level 4 in New Zealand in response to the COVID-19 pandemic.
m	Million (1,000,000 or 10^6).
multi-unit dwelling	Separate occupancy dwelling with a wall, ceiling and/or floor in common with another dwelling unit. This category includes apartments, townhouses and retirement village units.
non-residential buildings	Values include new construction, additions and alterations to vertical structures, including hostels, boarding houses, prisons, hotels, motels, hospitals, nursing homes, schools, libraries, museums, churches, shops, restaurants, bars, offices, factories and warehouses.
optimism bias	Overconfidence that is associated with building and construction intentions.
p.a.	Per annum
quarters	Q1: January to March. Q2: April to June. Q3: July to September. Q4: October to December.
research	Refers to Pacifecon's researched construction project intentions data.
residential buildings	Includes houses and multi-unit dwellings. Value of residential buildings includes the value of additions and alterations. The number of dwelling consents excludes additions and alterations.
retirement village units	All retirement village units from detached houses to apartments and rooms. The common areas are captured as non-residential buildings.
rolling years	The aggregation of values from the 12 months immediately preceding a particular point in time – for example, 2021 Q2 is the aggregate of the values from July 2020 to June 2021.
smoothing process	Process of spreading the total cost of a project over its intended construction duration and adjusting for optimism bias.
townhouse	The Stats NZ category of townhouses, flats, units and other dwellings. All dwellings that are attached horizontally (side by side) to another dwelling unit are included in this category. A terraced house is included in this category, as is a minor dwelling or 'granny flat'.
years	The 12 months ending 31 December of the year referred to.

7.3 Appendix C: Methodology, data, statistics and assumptions used in this report

This report is built from two independent but complementary sources of information on national building and construction activity.

Forecast: Produced by BRANZ based on Stats NZ's gross fixed capital formation data series. The gross fixed capital formation measure includes all types of construction (whether a building consent is required or not), providing a common measure across the three fixed asset classes of:

- residential building
- non-residential building
- infrastructure construction.

Research: Pacifecon's construction project intentions database contains expected costs over time for non-residential and infrastructure projects. Information is collected by Pacifecon on pre-construction project intentions. It is an extensive list of non-residential and infrastructure intentions across New Zealand.

Forecasting methodology

The forecasting that provides the basis of this report was completed on 15 July 2021, based on the Stats NZ March 2021 release of 2021 gross fixed capital formation data and other relevant data.

The key variables used in the forecast were as follows:

- GDP growth will average about 3.5% annually over the next three years, before trending towards the long-run average to the end of the forecast period.
- The Official Cash Rate is forecast to increase from early next year, peaking at 2.5% in late 2026.
- Net migration is forecast to slowly increase over the next few quarters, peaking at 9,000 for Q1 2023 and then remaining relatively steady at that level for the remainder of the forecast period.
- House prices will continue to grow through to late 2022.

Residential methodology

The residential building sector forecasts in this report are produced by BRANZ. They are based on modelling of historical building consents and economic forecast indicators. This sector has much shorter lead times than the non-residential sector.

Key assumptions

- BRANZ has assumed a direct relationship between household formation and demand for new dwelling construction.
- BRANZ has assumed zero unsatisfied residential building demand at the 2013 Census. However, there is assumed to now be a housing shortfall.
- The net result is an average of just over 44,000[21] dwellings per annum through to 2026.
- An average of a nine-month time lag is assumed between the building consent issue and value of work completed.
- Value of work includes detached houses, multi-unit dwellings and additions and alterations to existing dwellings and is based on consent values multiplied by 1.4 to allow for variations after the consent has been issued and other costs included in the gross fixed capital formation measure. The multiplication factor is calculated from historical ratios of fixed capital formation/consent values.

[21] This was 26,250 dwellings in the 2020 report and 37,500 in the 2019 report.

- Historical consents are first published data, and there may be subsequent changes in some locations. Usually these revisions are minor.

All non-residential building and infrastructure

The non-residential building and infrastructure forecasts are based on BRANZ forecasts and charted alongside researched project intentions data held by Pacifecon throughout the report.

Non-residential building methodology

BRANZ forecasts of non-residential buildings are based on forecasts of non-residential building consent values provided by Stats NZ. The consent values are multiplied by a factor of 1.12 for gross fixed capital formation using historical ratios between consents and gross fixed capital formation and allowing for an average of a 12-month time lag between building consent issue and value of work completed.

Ten categories of non-residential building consents are forecast based on the Stats NZ data. Single equation regression models have been developed for most of the categories.

Infrastructure methodology

BRANZ forecasts for infrastructure are based on modelling the historical trends for industry commissioning and ownership of assets and expected growth in the five main sectors of:

- mining – about 5% of other construction fixed capital formation
- electricity/gas/water sectors – 30%
- transport – 42%
- telecommunications – 11%
- other – 12%.

Real growth is based on historical growth trends and planned work (for example, the Government Policy Statement on Land Transport Funding). Real growth in gross fixed capital formation for the five sectors is assumed to be -10% per year for mining, 7% for electricity/gas/water, 2% for transport, 5.5% for telecommunications and 1% for other infrastructure works.

Research data methodology

Pacifecon's anticipated projects

A dataset of over 24,800 researched projects known to Pacifecon has been used in this report. The data is up to date as of 9 May 2021, and larger-value projects have been added, adjusted or removed up to 10 September 2021.

The Pacifecon dataset of project values shows the value of all projects, smoothed across future quarters for the duration of the project (as far as this is known or estimated). Work on all high-value (over $50m) non-residential construction initiated since the beginning of 2011 and that is still in progress is also included. The dataset includes both non-residential building and infrastructure.

Pacifecon's refinement of the smoothing process

Pacifecon's data used in this report consists of:

- projects that have started since 2011 and are over $50 million
- projects (of all values) that have started since 1 January 2019
- projects (of all values) that are at pre-construction stages, from the very earliest planning through to tendering.

This real project activity data is collected and retained by Pacifecon.

The total number of projects reported by Pacifecon has increased from over 6,000 in the 2013 report to over 10,100 planned projects and over 14,700 commenced projects in the current report (over 24,800 projects in total). When using researched project intentions to forecast activity, Pacifecon accounts for optimism bias. Not all projects in the planning process will progress to actual constructions at the intended value or proposed timeframes. To account for this optimism bias in the dataset, Pacifecon undertakes a smoothing process to prepare the data for the report.

Pacifecon has refined its smoothing process over the years by studying the highest-value projects to ascertain the most likely allocation of their value of work over the forecast period.

- First report (2013): projects over $100 million were individually scrutinised.
- Second report (2014): projects over $90 million were scrutinised.
- Third report (2015): projects over $75 million were scrutinised.
- Fourth report (2016): projects over $60 million were scrutinised.
- Fifth (2017), sixth (2018), seventh (2019), eighth (2020) and current report (2021): projects over $50 million were scrutinised.

In some (but not all) cases for 2021, projects with values lower than $50m were examined individually.

The thousands of lower-value projects in the research data are smoothed as follows:

- $30m to <$50m projects – value of work is spread over 12 quarters.
- $5m to <$30m projects – value of work is spread over eight quarters.
- $1m to <$5m projects – value of work is allocated to four quarters.
- <$1m – value of work is allocated to two quarters.

7.4 Appendix D: Projects likely to start within the year valued over $100m

Table 7.4.1 Non-residential building projects likely to start within the year[22] valued at over $100m[23]

Region	Type	Project initiator
Auckland		
University building	Education	Central government
Telecommunications	Industrial	Private
Retirement village communal facilities	Multi-category	Private
Hotel and offices	Commercial	Private
Hotel	Commercial	Private
Offices and retail	Commercial	Private
Data centre	Commercial	Private
Data centre	Commercial	Private
Commercial building	Commercial	Private
Offices	Commercial	Private
Hotel	Commercial	Private
Business park	Commercial	Private
Commercial development	Commercial	Private
Waikato/Bay of Plenty		
Dairy factory	Industrial	Private
Canterbury		
Research and laboratories	Education	Central government
Church	Commercial	Private
Otago		
Business park	Commercial	Private
Commercial redevelopment	Commercial	Private
Rest of New Zealand		
Commercial development	Commercial	Central government
Data centre	Commercial	Private

Source: Pacifecon

[22] Year is the 12 months ending 31 March 2022.

[23] Inclusion of a project does not mean it will proceed to the scale and timeframe indicated above. It is, however, the best available picture on 10 September 2021. Pacifecon's building and construction information is constantly updated.

Table 7.4.2 Infrastructure projects likely to start within the year[24] valued at over $100m[25]

Region	Type	Project initiator
Auckland		
Railway	Transport	Central government
Railway tunnel	Transport	Central government
Roads	Transport	Central government
Roads	Transport	Central government
Road maintenance	Transport	Local government
Wastewater	Water	Local government
Roads	Transport	Local government
Waikato/Bay of Plenty		
Roads	Transport	Central government
Roads	Transport	Central government
River projects	Water	Central government
Industrial subdivision	Subdivision	Private
Electricity transmission	Electricity/Gas	Private
Wellington		
Cycleway	Transport	Local government
Rest of New Zealand		
Windfarm	Electricity/Gas	Central government
Subdivision	Subdivision	Local government
Subdivision/development	Subdivision	Private

Source: Pacifecon

[24] Year is the 12 months ending 31 March 2022.

[25] Inclusion of a project does not mean it will proceed to the scale and timeframe indicated above. It is, however, the best available picture on 10 September 2021. Pacifecon's building and construction information is constantly updated.

7.5 Appendix E: Forecast and known table

Table 7.5.1 Forecast and known data ($ billions) by region – annual totals[26]

	Actual		Forecast					
Residential	2019	2020	2021	2022	2023	2024	2025	**2026**
Auckland	10.4	10.1	10.2	10.7	11.3	11.5	11.0	10.3
Waikato/BoP	4.1	3.9	4.2	4.0	4.4	4.4	4.2	3.9
Wellington	2.1	1.9	2.0	2.0	2.1	2.2	2.1	1.9
Canterbury	3.5	3.4	3.9	3.6	3.9	3.9	3.8	3.5
Otago	1.7	1.5	1.6	1.6	1.8	1.8	1.8	1.7
Rest of NZ	3.7	3.7	3.9	3.7	4.0	4.0	3.7	3.4
TOTAL	**25.5**	**24.5**	**25.8**	**25.6**	**27.4**	**27.8**	**26.6**	**24.9**
Non-residential building								
Auckland	4.0	3.5	3.4	3.5	3.7	3.7	3.7	3.8
Waikato/BoP	1.5	1.3	1.4	1.5	1.5	1.6	1.6	1.7
Wellington	0.6	0.9	1.0	1.0	1.0	0.9	0.9	0.9
Canterbury	2.3	1.6	1.0	1.2	1.4	1.5	1.6	1.7
Otago	0.5	0.5	0.6	0.6	0.7	0.7	0.7	0.7
Rest of NZ	1.3	1.0	1.7	1.7	1.7	1.7	1.7	1.6
TOTAL	**10.2**	**8.9**	**9.1**	**9.6**	**9.9**	**10.1**	**10.2**	**10.3**
Infrastructure								
Auckland	3.5	3.4	3.8	3.9	4.3	4.4	4.8	4.9
Waikato/BoP	1.5	1.5	1.6	1.7	1.9	2.0	2.0	2.0
Wellington	1.0	1.0	0.7	0.7	0.6	0.7	0.8	0.8
Canterbury	1.3	1.2	1.0	1.1	1.1	1.2	1.0	1.1
Otago	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6
Rest of NZ	1.7	1.7	1.7	1.8	1.6	1.6	1.7	1.8
TOTAL	**9.4**	**9.2**	**9.5**	**9.8**	**10.1**	**10.4**	**10.8**	**11.2**
All construction								
Auckland	17.9	17.1	17.4	18.1	19.2	19.6	19.5	19.0
Waikato/BoP	7.2	6.7	7.3	7.2	7.8	7.9	7.8	7.6
Wellington	3.7	3.8	3.7	3.7	3.7	3.8	3.7	3.6
Canterbury	7.1	6.3	6.0	5.9	6.4	6.6	6.4	6.2
Otago	2.6	2.4	2.7	2.8	3.0	3.1	3.1	3.1
Rest of NZ	6.6	6.4	7.3	7.2	7.3	7.3	7.1	6.8
TOTAL	**45.2**	**42.6**	**44.4**	**44.9**	**47.4**	**48.3**	**47.6**	**46.4**
Researched non-residential building								
Auckland	3.1	2.8	3.7	5.1	4.8	3.5	2.7	2.0
Waikato/BoP	1.1	1.3	1.7	1.9	1.5	1.0	0.8	0.7
Wellington	0.6	0.9	1.0	1.1	0.9	0.7	0.7	0.7
Canterbury	1.5	1.5	1.1	1.4	1.7	1.9	1.7	1.4
Otago	0.4	0.5	0.7	1.3	1.5	1.3	1.1	0.9
Rest of NZ	1.1	1.3	2.0	2.4	1.9	1.2	0.8	1.4
TOTAL	**7.8**	**8.3**	**10.3**	**13.3**	**12.4**	**9.6**	**7.8**	**7.0**
Researched infrastructure								
Auckland	2.6	4.4	4.4	4.5	4.1	3.7	3.3	2.9
Waikato/BoP	1.5	1.4	2.3	2.4	2.0	1.5	1.1	1.0
Wellington	1.0	1.0	1.0	0.8	0.6	0.6	0.8	0.8
Canterbury	1.2	1.2	1.1	1.1	1.1	0.9	0.7	0.6
Otago	0.4	0.5	0.8	1.0	0.7	0.4	0.2	0.2
Rest of NZ	1.5	1.8	2.7	2.4	1.6	1.3	1.3	1.1
TOTAL	**8.2**	**10.3**	**12.4**	**12.1**	**10.1**	**8.3**	**7.5**	**6.6**

Source: BRANZ/Pacifecon

[26] Any differences between figures within Appendix E and other tables and charts in this report are due to rounding to two significant figures.

7.6 Appendix F: Residential dwelling consents actual and forecast data table

Table 7.6.1 Residential dwelling numbers actual consented and forecast, by region – annual totals[27]

	Actual		Forecast					
Detached	2019	2020	2021	2022	2023	2024	2025	2026
Auckland	6,835	6,535	6,650	6,940	7,520	7,620	7,640	7,280
Waikato/BoP	4,381	4,356	4,920	5,190	5,200	5,070	4,790	4,420
Wellington	1,540	1,487	1,580	1,640	1,650	1,600	1,470	1,360
Canterbury	3,759	4,162	4,710	5,070	5,210	5,090	4,810	4,450
Otago	1,343	1,198	1,400	1,560	1,660	1,700	1,680	1,620
Rest of NZ	4,411	4,474	5,040	5,260	5,290	5,060	4,730	4,300
TOTAL	**22,269**	**22,212**	**24,300**	**25,660**	**26,530**	**26,140**	**25,120**	**23,430**
Multi-units								
Auckland	8,319	10,121	12,350	12,880	12,280	11,420	10,120	8,890
Waikato/BoP	2,016	1,843	2,170	2,210	2,210	2,070	1,880	1,660
Wellington	1,680	1,570	1,940	2,080	2,100	2,040	1,960	1,800
Canterbury	1,549	1,734	2,020	1,970	1,830	1,690	d1,520	1,330
Otago	943	781	930	950	930	870	790	690
Rest of NZ	851	1,159	1,290	1,250	1,120	990	860	720
TOTAL	**15,358**	**17,208**	**20,700**	**21,340**	**20,470**	**19,080**	**17,130**	**15,090**
All dwellings								
Auckland	15,154	16,656	19,000	19,820	19,800	19,040	17,760	16,170
Waikato/BoP	6,397	6,199	7,090	7,400	7,410	7,140	6,670	6,080
Wellington	3,220	3,057	3,520	3,720	3,750	3,640	3,430	3,160
Canterbury	5,308	5,896	6,730	7,040	7,040	6,780	6,330	5,780
Otago	2,286	1,979	2,330	2,510	2,590	2,570	2,470	2,310
Rest of NZ	5,262	5,633	6,330	6,510	6,410	6,050	5,590	5,020
TOTAL	**37,627**	**39,420**	**45,000**	**47,000**	**47,000**	**45,220**	**42,250**	**38,520**

Source: BRANZ/Stats NZ

[27] Any differences between figures within Appendix F and other tables and charts in this report are due to rounding to the nearest 100.