
National Construction Pipeline Report 2019

A forecast of Building and Construction activity | 7th Edition



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HĪKINA WHAKATUTUKI

ABOUT THIS REPORT

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1. Introduction

1.1 Overview

The National Construction Pipeline Report 2019 (the report) was commissioned by the Ministry of Business, Innovation and Employment (MBIE) and jointly prepared by BRANZ and Pacifecon (NZ) Ltd (Pacifecon). It projects building activity for the next six years, ending 31 December 2024. It includes national and regional¹ breakdowns of actual and forecast residential building, non-residential building and infrastructure activity. The report is based on building and construction forecasts from BRANZ and Pacifecon data on researched non-residential building and infrastructure intentions².

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

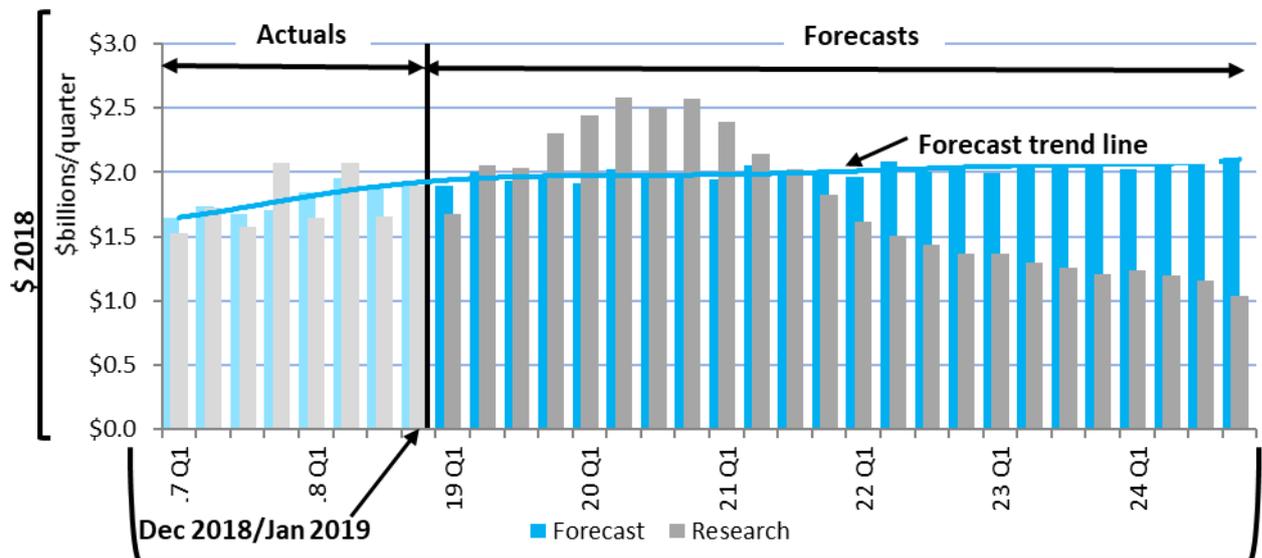
¹ The regional areas reported are Auckland, Waikato/Bay of Plenty, Wellington, Canterbury and Rest of New Zealand (which includes all other regions not stated).

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



- Values are in constant December 2018 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 2018 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.
- **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, 2019 Q2 represents July 2018 through to June 2019.

A glossary of key terms is presented in section 7.2.

2. Key findings

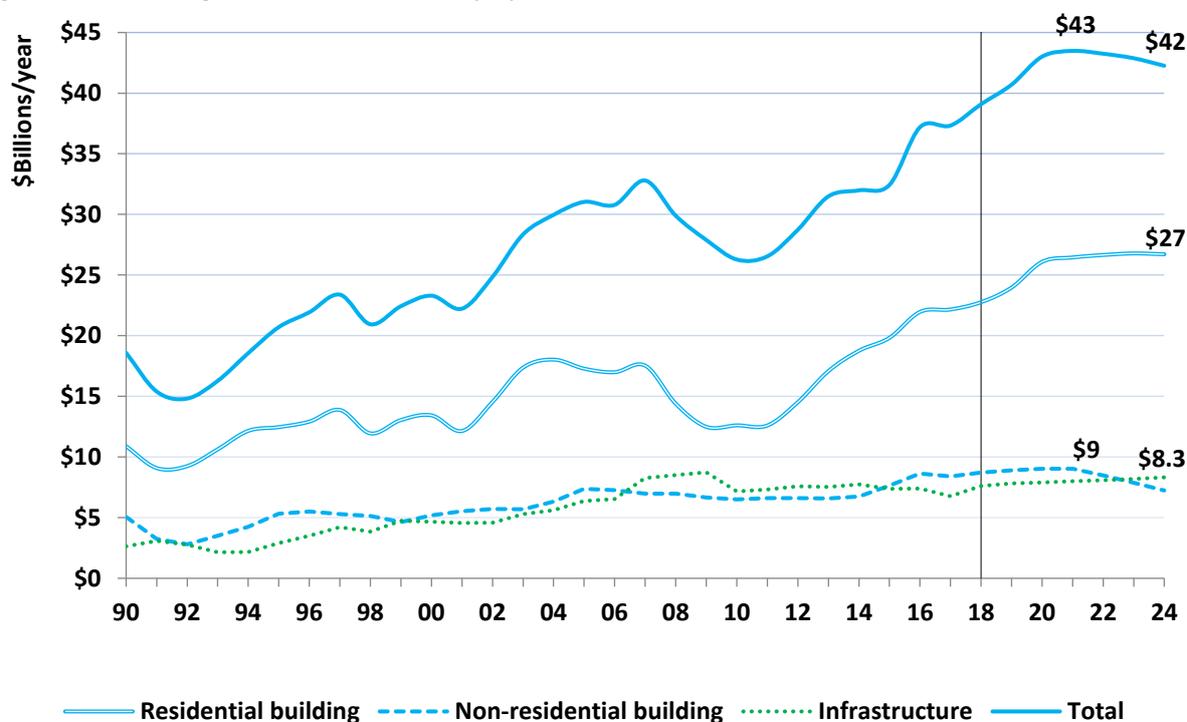
This section discusses the major findings in the report:

- Construction activity growth is forecast to continue through to 2021.
- Residential building activity in Auckland is forecast to continue to grow.
- Non-residential building activity is forecast to peak in 2021.
- Infrastructure activity is forecast to overtake non-residential activity by 2023.

2.1 Construction activity growth is forecast to continue through to 2021

This year's report returns to forecasting a peak in total construction value at **\$43b** in 2021.³ This has been driven by an anticipated levelling out of residential activity from 2020 onwards as well as a tailing off of non-residential activity in 2021.

Figure 2.1.1 All building and construction nationally, by value



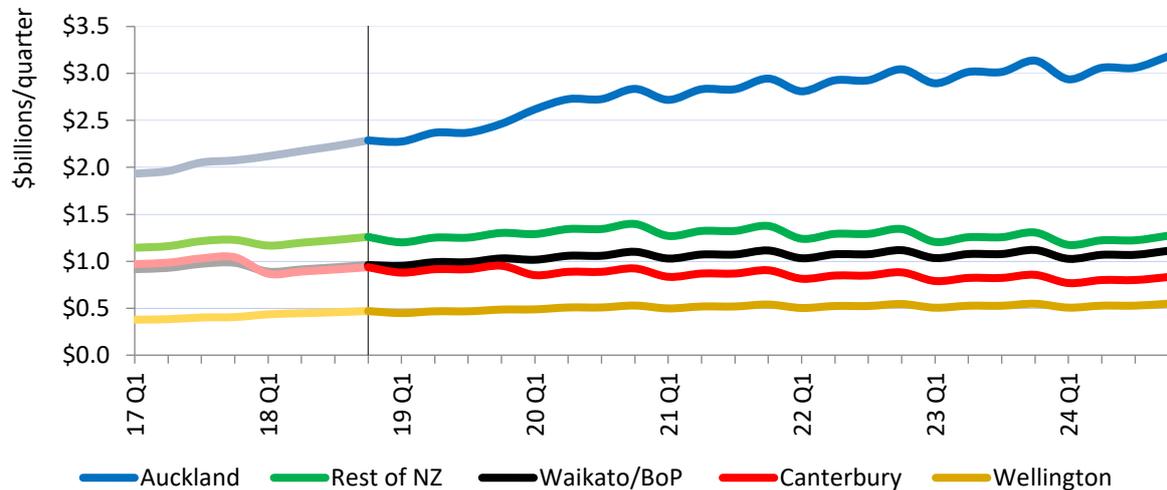
Source: BRANZ/Pacifecon/Stats NZ

³ The National Construction Pipeline Report 2018 was the first to forecast moderate sustained growth throughout the forecast period.

2.2 Residential activity in Auckland is forecast to continue to grow

Nationally, residential activity is forecast to level out from 2020 onwards. However, Auckland bucks this trend, with strong growth in residential activity forecast throughout the forecast period. Last year, the value of residential activity in Auckland was **\$8.8b**. This is forecast to reach **\$12.2b** by the end of the forecast period, 39% above 2018 levels.

Figure 2.2.1 Value of residential buildings, by region

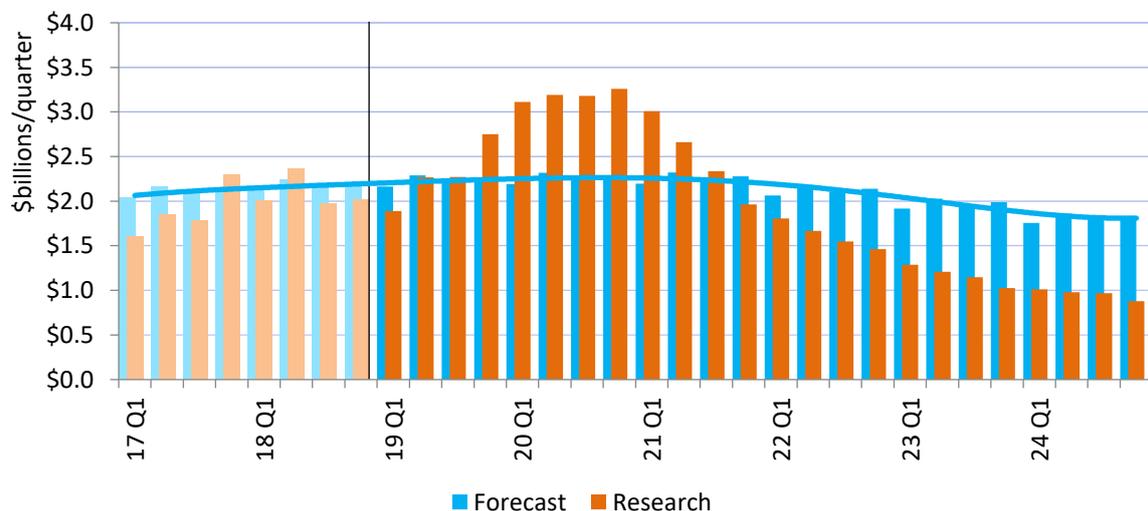


Source: BRANZ

2.3 Non-residential building activity is forecast to peak in 2021

Non-residential activity is forecast to peak in 2021 at just over **\$9b**, an increase of 3.7% over current levels. Activity is then forecast to fall away, falling 20% from the 2021 peak by the end of the forecast period to **\$7.2b**.

Figure 2.3.1 Non-residential building activity nationally

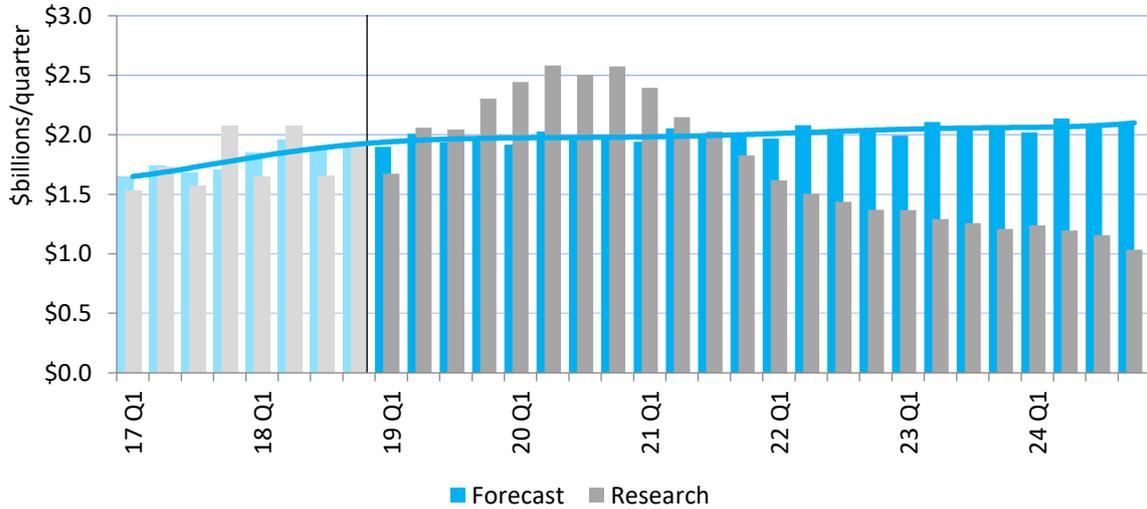


Source: BRANZ/Pacifecon

2.4 Infrastructure activity is forecast to overtake non-residential activity by 2023

Infrastructure activity has not exceeded non-residential activity since 2013. Sustained growth in infrastructure activity combined with a decrease in non-residential activity has led to infrastructure activity forecast to overtake non-residential activity by 2023.

Figure 2.4.1 Infrastructure activity nationally



Source: BRANZ/Pacifecon

3. National forecast

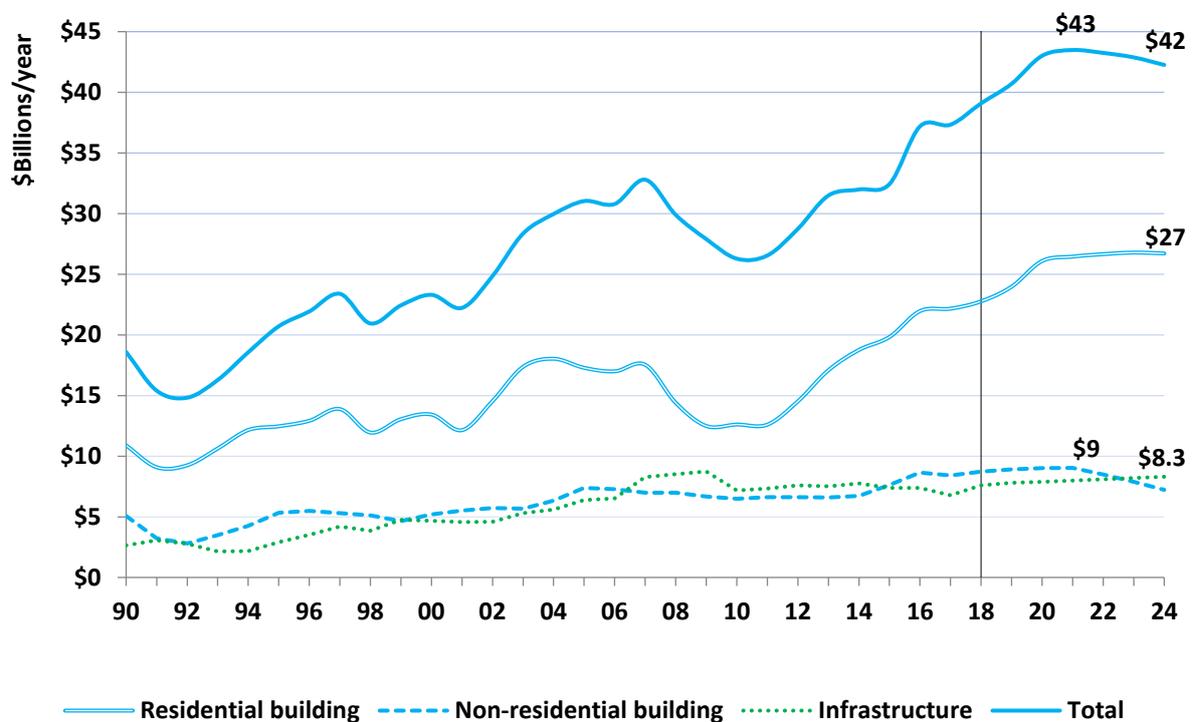
This section includes national forecasts for each activity type as well as:

- 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 increased by 5% in 2018 to **\$39b**. This year's forecast is for continued growth in the value of construction to **\$43b** in 2021. Post this peak in 2021, the forecast is for a slight tailing off in construction value to **\$42b** in 2024.

Figure 3.1.1 All construction nationally, by value

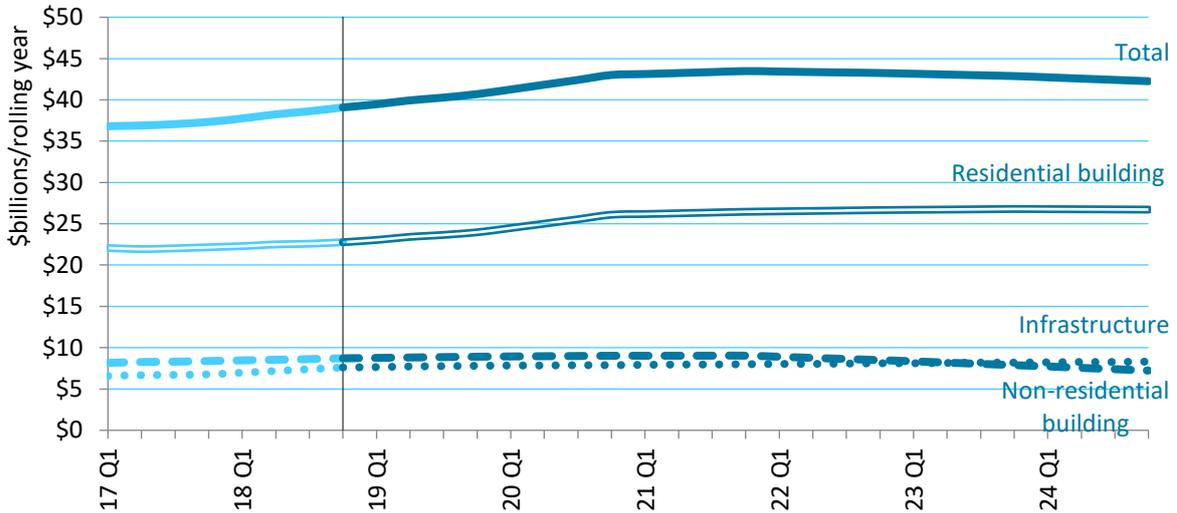


Source: BRANZ/Pacifecon/Stats NZ

3.2 National construction, by activity

Residential buildings are the largest contributor to national construction. Residential buildings contributed 58% of total construction value in 2018. Residential buildings are expected to grow moderately through the forecast period to **\$26.8b** in 2023. Non-residential building (22% of current total value) is expected to peak in 2021 at **\$9b**. Infrastructure activity (20% of total current value) is forecast to moderately increase throughout the forecast period to **\$8.3b** in 2024.

Figure 3.2.1 All construction nationally, by activity

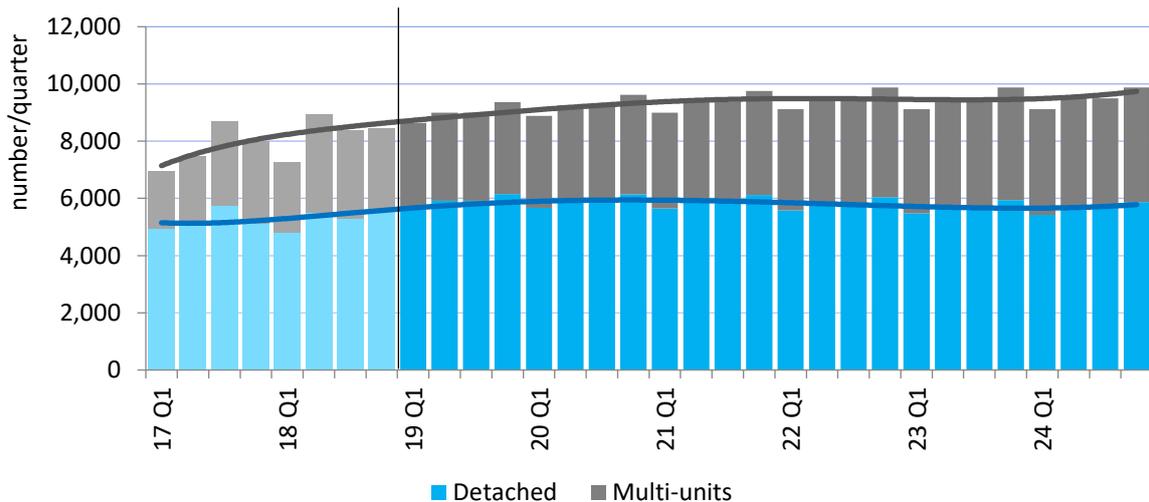


Source: BRANZ

3.3 National residential building, by dwelling number

Multi-unit dwellings accounted for 36% of all dwellings consented in 2018. We anticipate this to increase to **41%** of all residential dwellings in 2024. Nationwide, dwelling consents increased by 6% in 2018 over 2017 and are forecast to increase by a further 9% in 2019. The forecast is for **224,500** new dwellings to be consented over the next six years, an average of over **37,000** per year.

Figure 3.3.1 Dwelling units consented nationally⁴



Source: BRANZ

⁴ A table of annual total dwelling units, actual and forecast, is provided in section 7.6.

3.4 Residential dwelling types

Analysis of historical consent data for the number of different types of dwellings has been undertaken this year. Stats NZ group dwelling consent data into four types:

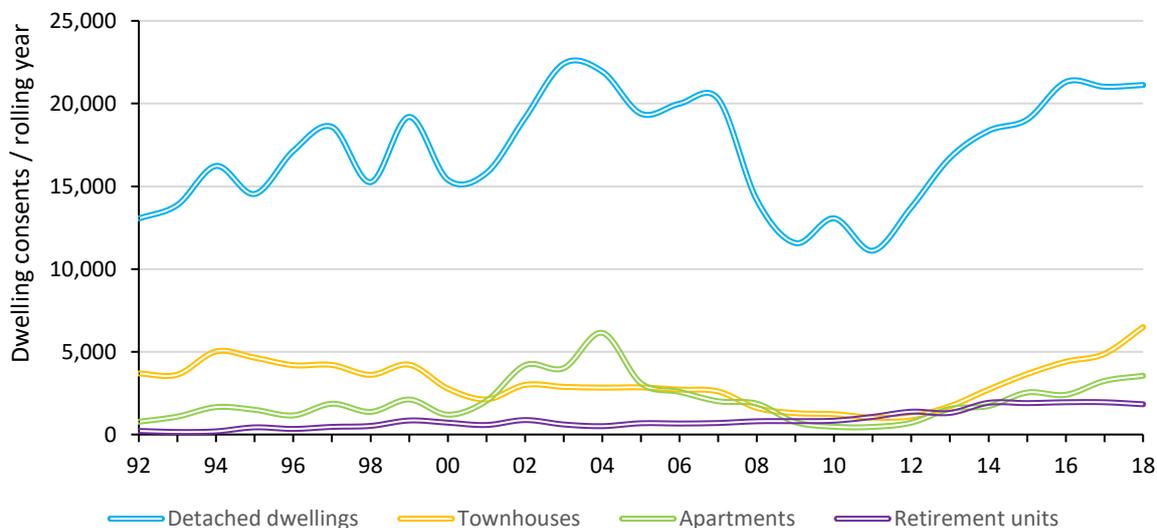
- detached dwellings - any stand-alone dwelling that is not attached to any other unit
- townhouses - all dwellings that are attached horizontally to another dwelling unit
- apartments - any dwelling unit that is attached to another dwelling unit above or below it or is part of a commercial building
- retirement units - all retirement village units from detached houses to apartments and rooms

Detached dwellings (houses) are the most common type of new dwelling in New Zealand and have remained well above the levels of the other types of dwellings. Detached dwellings peaked most recently in 2004 at just under 24,000 dwellings. In 2018, just over 21,000 detached dwellings were consented, 1.5 times the amount consented in 2012.

Townhouses are the next most common type of dwelling, and since 2005 have been consistently consented in higher numbers than apartments. In 2018, nearly six-times as many townhouses were consented than were consented in 2012. This was the largest growth of any dwelling type over the period.

Apartments are typically the densest form of dwelling type. Apartment consents are nearing the levels of the apartment boom of the early-to-mid-2000s, but have not grown to quite the same extent as townhouses over the last few years. There were nearly five-times as many apartments consented in 2018 than in 2012.

Figure 3.4.1 Dwellings units consented nationally by dwelling type

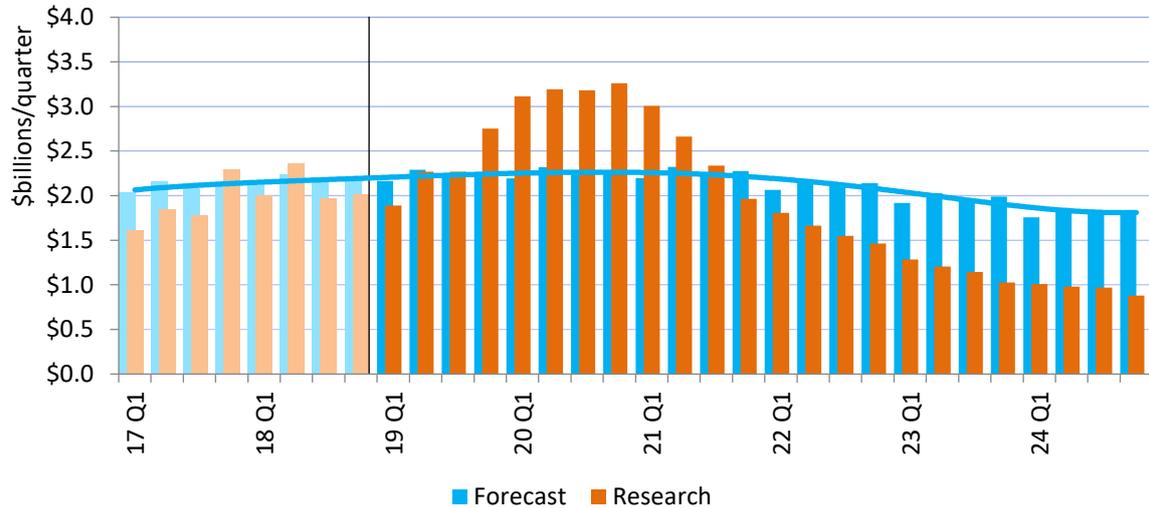


Source: Stats NZ

3.5 National non-residential building

Non-residential building value nationally is forecast to grow to a peak of **\$9b** in 2021. This is largely driven by activity in Auckland, which is expected to tail off after 2021. Only Waikato/Bay of Plenty and Rest of New Zealand are anticipated to have relatively steady non-residential workloads over the forecast period. The high value in Pacifecon’s researched project data indicates strong national non-residential building project intentions.

Figure 3.5.1 Non-residential building activity nationally

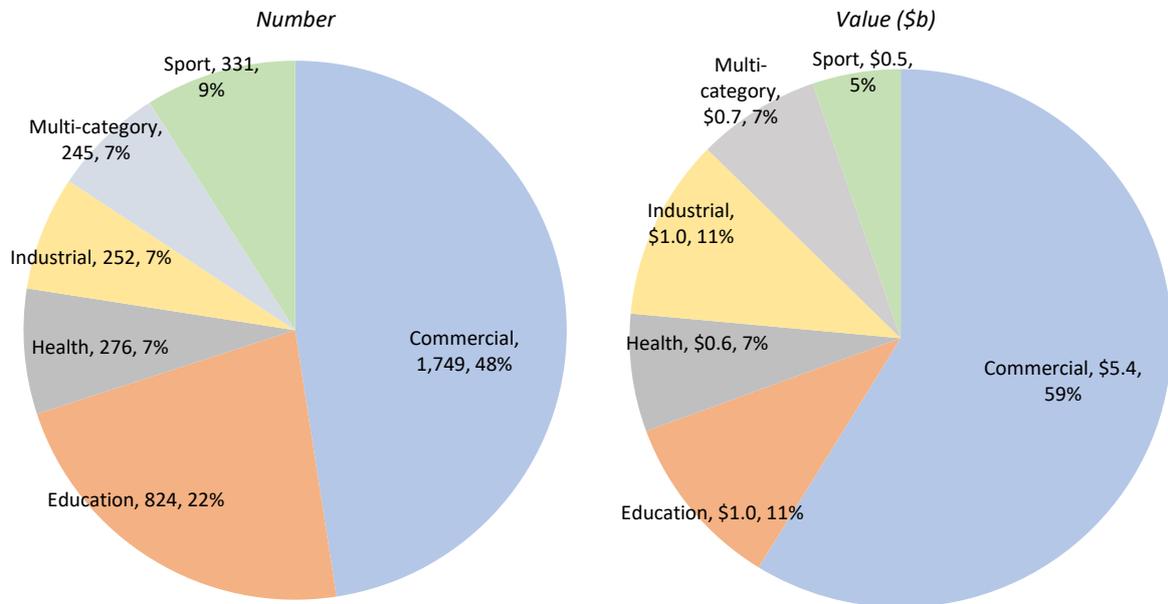


Source: BRANZ/Pacifecon

3.6 Types of non-residential building projects

Commercial buildings dominate non-residential building work expected to start in the year to December 2019, contributing 48% of the total number of projects and 59% of total value. Education has a large number of projects (22% of the total number of projects) but accounts for a similar share of the total value as industrial buildings (11% of the value for both education buildings and industrial buildings).

Figure 3.6.1 Non-residential building types anticipated to start in 2019,⁵ by number and value



Source: Pacifecon

⁵ Year ending December 2019.

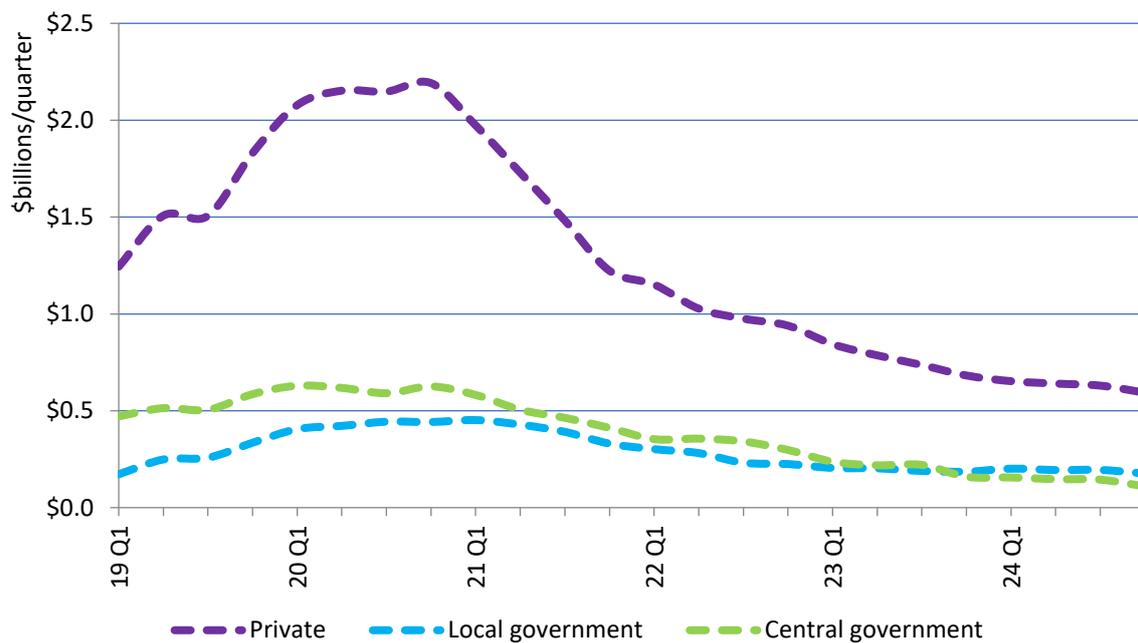
3.7 Project initiators for non-residential building, by sector

The private sector is the largest initiator of non-residential building, contributing 65% of the value of intentions over the forecast period, while central and local government make up 20% and 15% respectively. New non-residential building intentions for all sectors are forecast to peak through 2020, most markedly for the private sector.

Central and local government-initiated projects continue to benefit from having good long-term visibility of funding⁶, 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 bias⁷ and more variable private funding, which can result in intentions falling away in the medium term as there is less certainty.

Figure 3.7.1 Non-residential building intentions, by sector initiator and start date



Source: Pacifecon

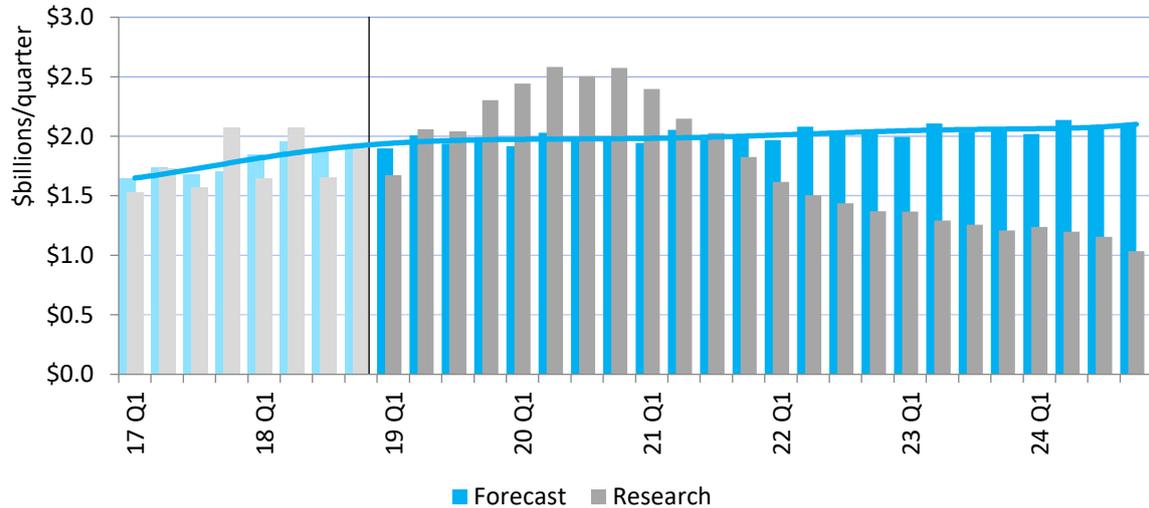
⁶ Council long-term plans and central government budget statements.

⁷ See section 5.5 for more information on optimism bias.

3.8 National infrastructure activity

In 2018, infrastructure represented one-fifth of total building and construction value. The last year saw an increase in infrastructure activity of just over 12% from 2017 to **\$7.6b** in 2018. This is expected to steadily increase year on year throughout the forecast period, reaching **\$8.3b** by 2024. Pacifecon’s research data indicates strong sector intentions to initiate new infrastructure projects nationally.

Figure 3.8.1 Infrastructure activity nationally

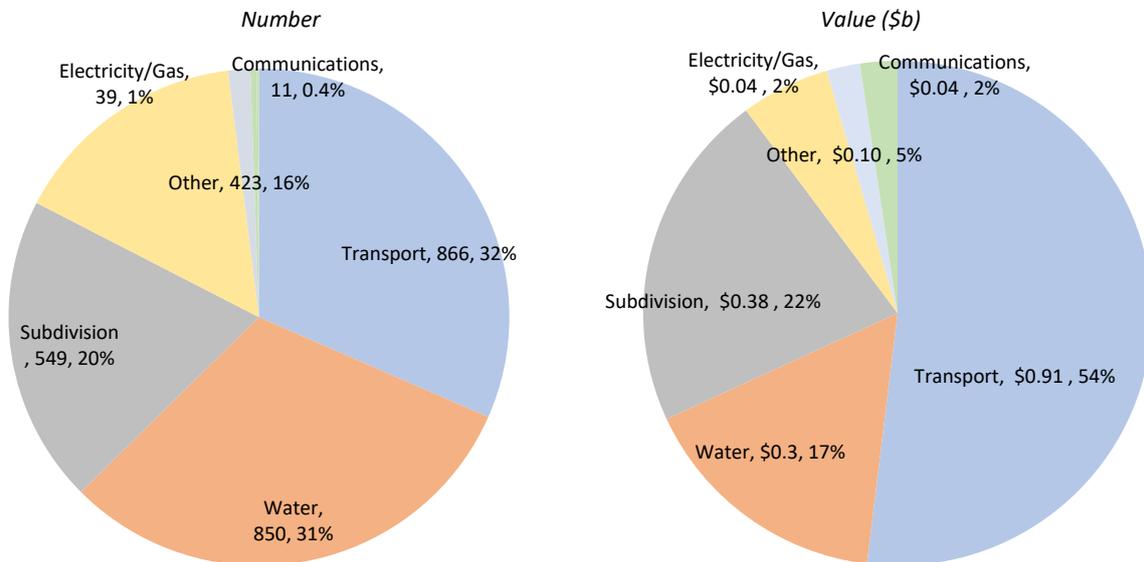


Source: BRANZ/Pacifecon

3.9 Types of infrastructure construction

Transport, water and subdivision projects will dominate new infrastructure activity in 2019, contributing 83% of the projects and 93% of the total value. This year, transport intentions stand out, with high-value projects contributing a much higher proportion of value (54%) than the number of projects (32%).

Figure 3.9.1 Infrastructure project types anticipated to start in 2019,⁸ by number and value



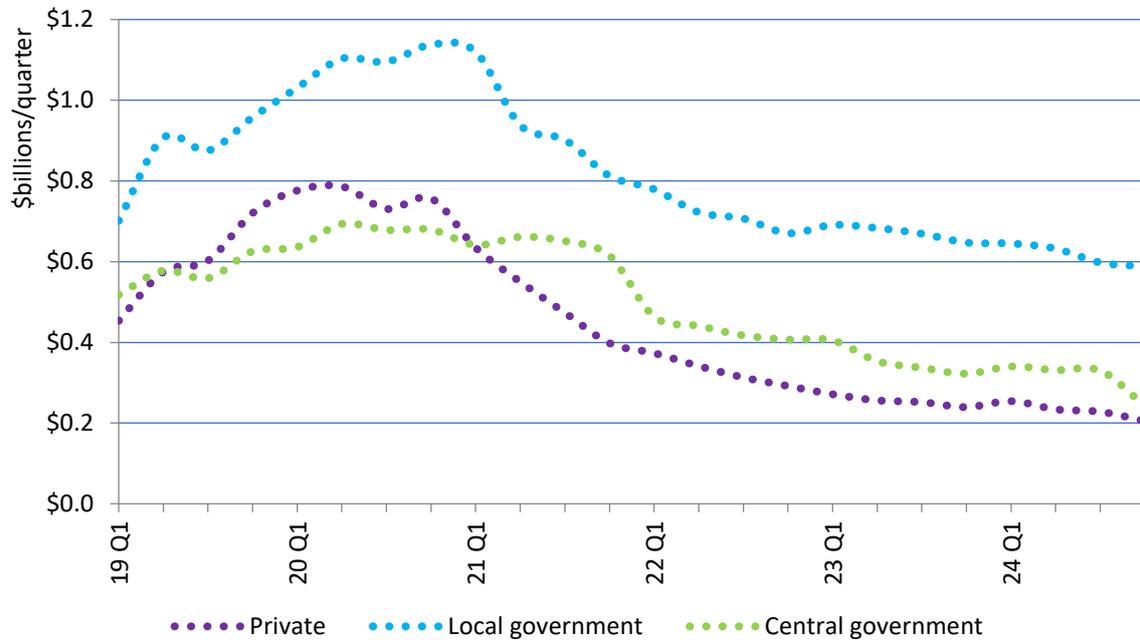
Source: Pacifecon

⁸ Year ending December 2019.

3.10 Project initiators for infrastructure projects, by sector

Local government is, as usual, the main initiator of infrastructure intentions, contributing 47% of projects initiated over the forecast period. Central government (28%, mostly transport) and the private sector (25%, mostly subdivisions) are very similar to each other in the total value initiated. Late 2019 through to early 2021 shows the peak for infrastructure intentions.

Figure 3.10.1 Project initiators for infrastructure projects, by sector



Source: Pacifecon

3.11 Regional comparisons

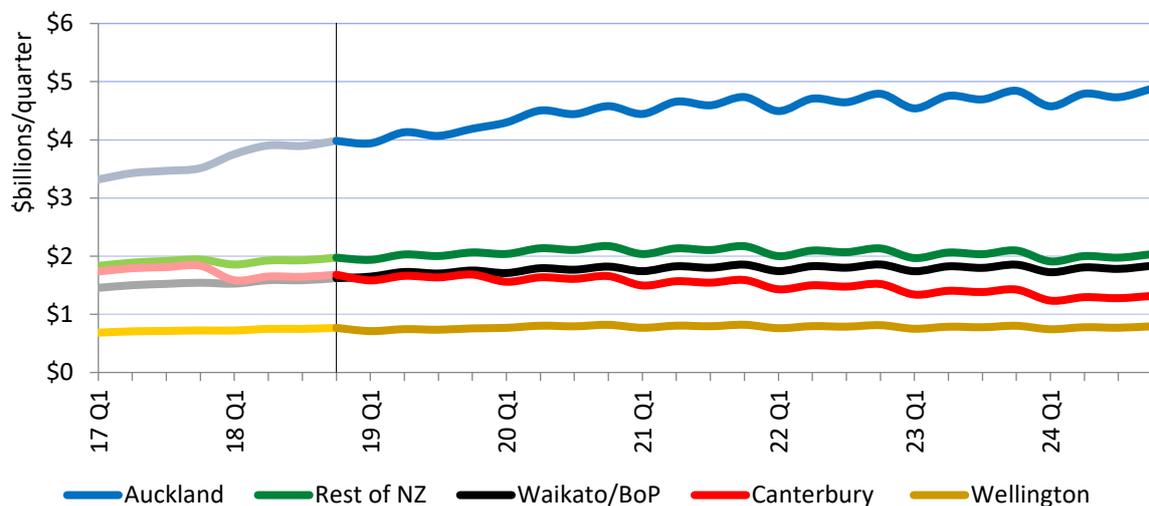
This section examines the differences in the forecast values for residential buildings, non-residential buildings and infrastructure activity across the regions defined in the report. The individual regions are discussed in more detail in section 0.

Total building and construction value regional comparison

All the regions except Canterbury saw growth in total construction in 2018. The Auckland region saw the strongest growth, up 13% on the previous year. Wellington experienced 6% growth, Waikato/Bay of Plenty 5% and Rest of New Zealand saw just 1% growth in total construction. Canterbury decreased total construction activity by 9%, which follows an 11% decrease in 2017.

Throughout the forecast period, all the regions (except Canterbury) are expected to continue to grow. Auckland in particular is expected to see strong growth at 22%. Waikato/Bay of Plenty is forecast to grow by 13%, and Wellington and Rest of New Zealand are both expected to grow by 3% over the period to 2024. Canterbury is forecast to reduce a further 22% to just above **\$5b** in 2024.

Figure 3.11.1 Value of total building and construction, by region



Source: BRANZ/Pacifecon

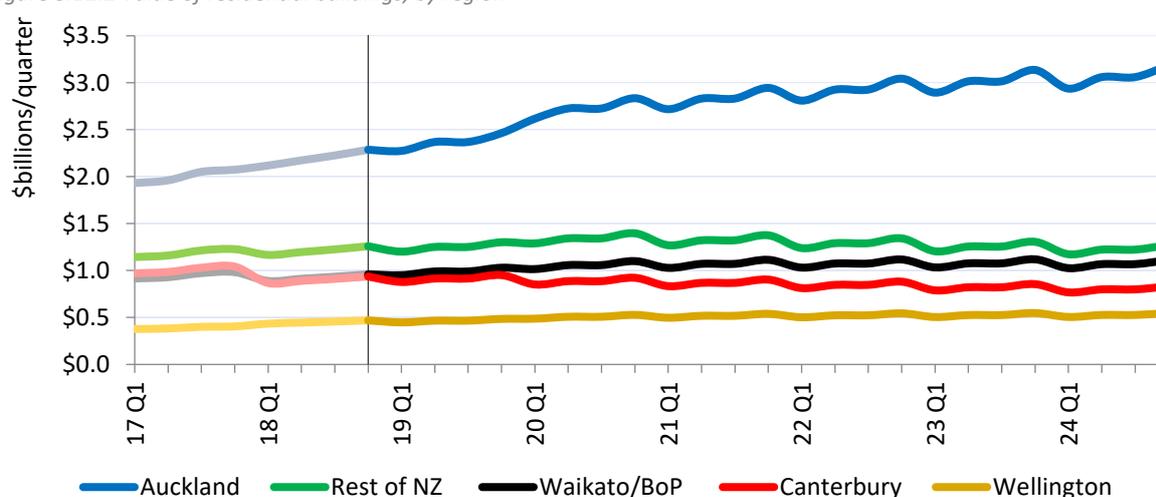
Residential building regional comparison

Auckland’s strong growth in total construction value is driven by the forecast for residential buildings. The value of residential buildings in Auckland increased from **\$8b** in 2017 to **\$8.8b** in 2018, an increase of 10%. This is forecast to increase to **\$12.2b** by 2024, an increase of 39% over 2018.

The Wellington region follows Auckland as the next-largest forecast growth in residential building value over the forecast period. Wellington is forecast to increase residential building value by 17% over the forecast period from **\$1.8b** to **\$2.1b**.

Canterbury is the only region to have a forecast decrease in residential building value. Residential building value in Canterbury was **\$3.6b** in 2018, falling from **\$4b** in 2017 (a fall of 10%). This decrease in activity in Canterbury is forecast to continue throughout the forecast period, although not to the same extent as was seen between 2017 and 2018.

Figure 3.11.2 Value of residential buildings, by region



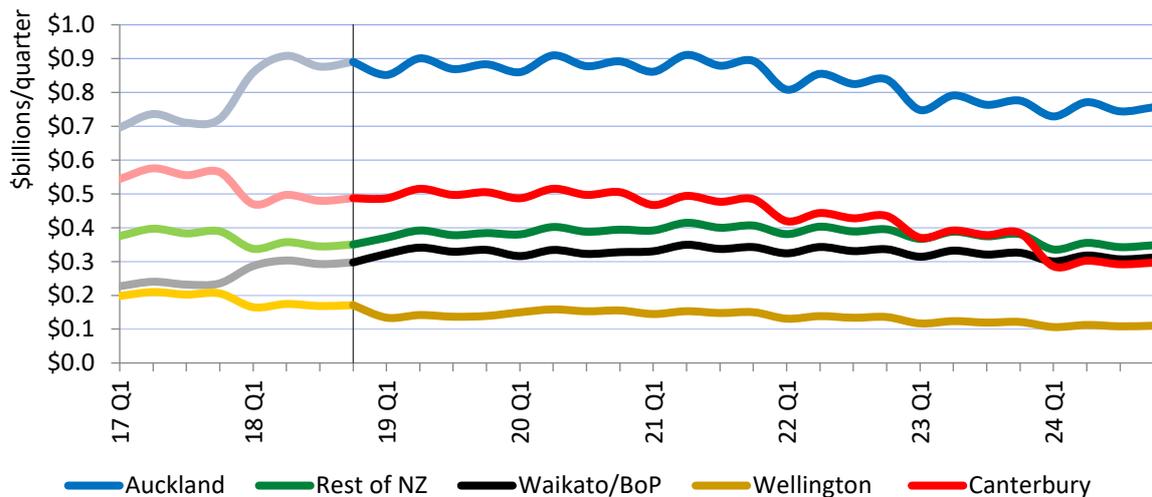
Source: BRANZ

Non-residential building regional comparison

Last year saw a levelling out in non-residential activity for the two largest regions – Auckland after a large increase in the value of non-residential buildings (up 23% between 2017 and 2018) and Canterbury after a large decrease (down 14% between 2017 and 2018). Non-residential activity is forecast to stay relatively stable across the two regions over the next two to three years though, before tailing away towards the end of the forecast period.

Rest of New Zealand and Waikato/Bay of Plenty are the only two regions expected to grow substantially over the next three years and are forecast to increase by 16% and 15% respectively between 2018 and 2021.

Figure 3.11.3 Value of non-residential building, by region

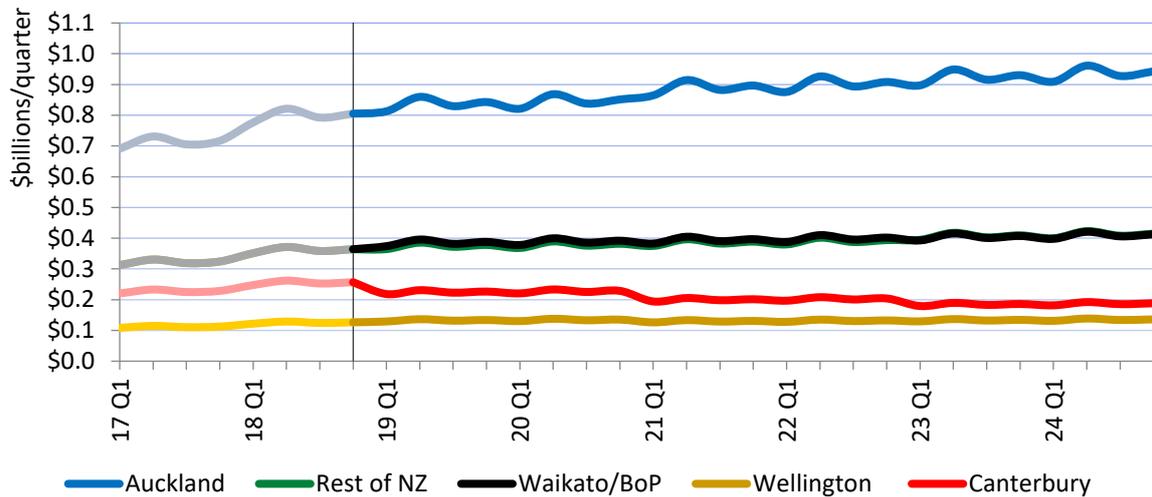


Source: BRANZ

Infrastructure activity regional comparison

Infrastructure activity grew strongly (by 12%) in 2018. Infrastructure forecasts overall are for continued steady growth to 2024. Growth is being driven by transport, subdivisions and water (see Figure 3.9.1). Growth in infrastructure is expected in all regions except Canterbury throughout the forecast period. Auckland is expected to grow 17%, Rest of New Zealand 14%, Waikato/Bay of Plenty 13%, Wellington 8% and a decrease of 27% is expected in Canterbury.

Figure 3.11.4 Value of infrastructure activity, by region



Source: BRANZ/Pacifecon

4. Regional forecast

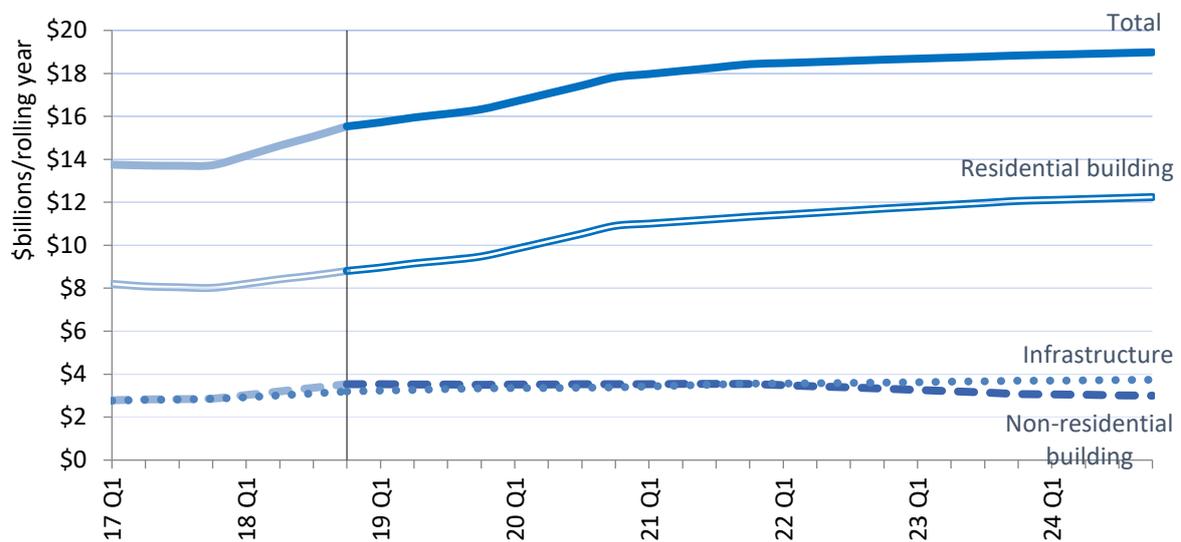
4.1 Auckland⁹

Auckland has always been New Zealand's largest market for building and construction, contributing 40% of total national construction value and 39% of dwelling unit consents in 2018, an increase of 4% for both measures in 2017. Auckland is forecast to continue to grow to represent 45% of both total national construction and dwelling unit consents in 2024.

Following a very slight reduction in Auckland's total construction value in 2017, there was a 13% rise in 2018 to **\$16b**, which represents the largest growth of any region. The forecast for Auckland is for year-on-year growth until the end of the forecast period reaching **\$19b** in 2024, a 22% increase on current activity.

All types of construction activity grew in Auckland in 2018. Growth over the next two years is expected to be driven by strong residential building demand of approximately 10% per annum. From 2021, growth is still expected but at a slower rate of 4% per annum. Residential building value is forecast to reach **\$12.2b** in 2024.

Figure 4.1.1 All construction in Auckland, by value



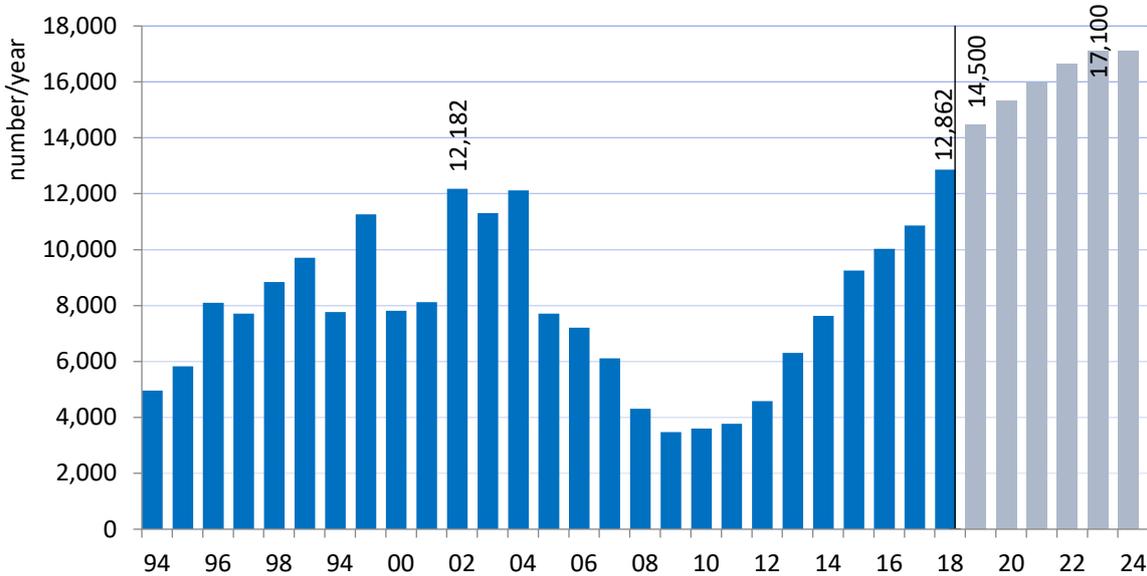
Source: BRANZ/Pacifecon

⁹ The area covered by Auckland Council.

Auckland dwelling consent activity

The number of dwelling units consented in Auckland grew by 18% to nearly 13,000 in 2018 exceeding the previous peak in 2002 by 6%. Consistent growth is expected throughout the forecast period resulting in a 33% increase in dwelling unit consents from current levels to a high of over 17,000 in 2023. This is a similar forecast to last year's resulting in over 96,000 dwelling units expected to be consented in the six years from 2019 to 2024.

Figure 4.1.2 Dwelling units in Auckland, 1994 to 2024

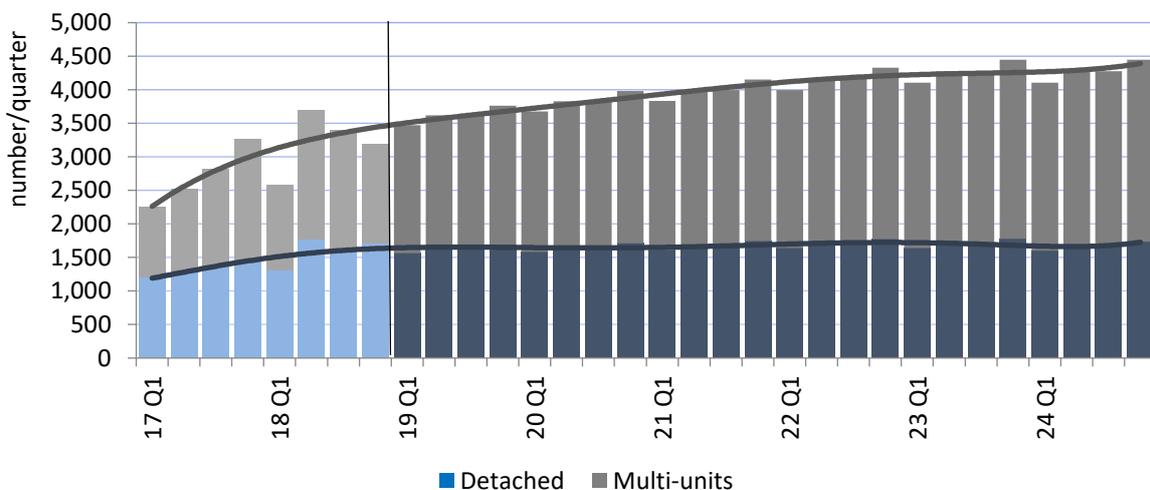


Source: BRANZ/Stats NZ

Auckland multi-unit consents

Dwelling growth in Auckland continues to be driven by multi-unit consents. In 2018 (as in 2017), the number of multi-units consented exceeded the number of detached consents contributing just over 50% of the 12,862 dwellings consented. In 2016, multi-units represented 44%. This trend is expected to become more apparent over the forecast period with 58% of the more than 96,000 dwellings to be consented by 2024 being multi-unit.

Figure 4.1.3 Dwelling units in Auckland

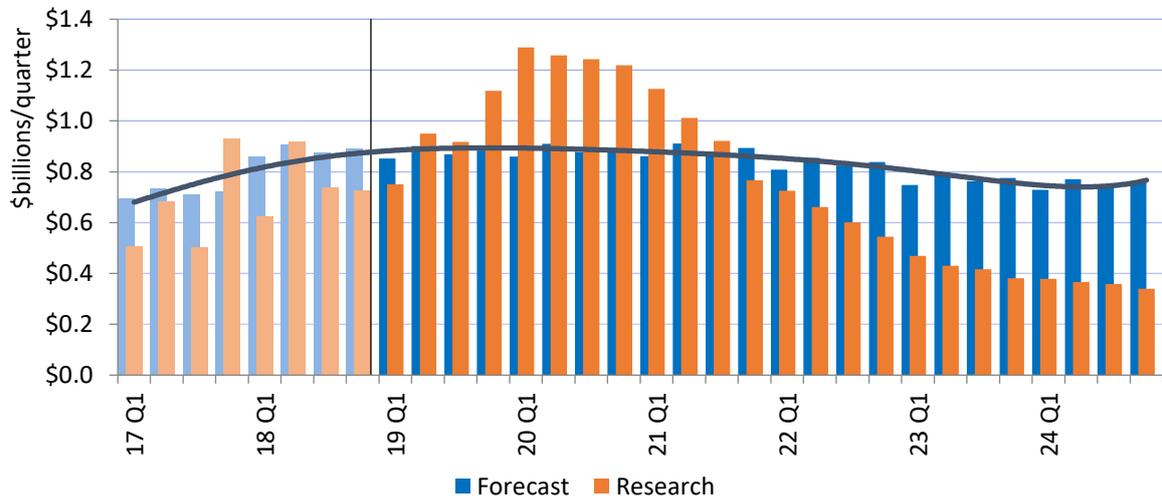


Source: BRANZ

Auckland non-residential building activity

Non-residential building activity in Auckland grew by 23% in 2018 and is forecast to remain at this high level and peak at **\$3.5b** in 2021. This coincides with a peak in research values over the next two years that indicate strong non-residential building intentions for the region. Non-residential building is then expected to reduce by 15% to the end of the forecast period.

Figure 4.1.4 Auckland non-residential building activity

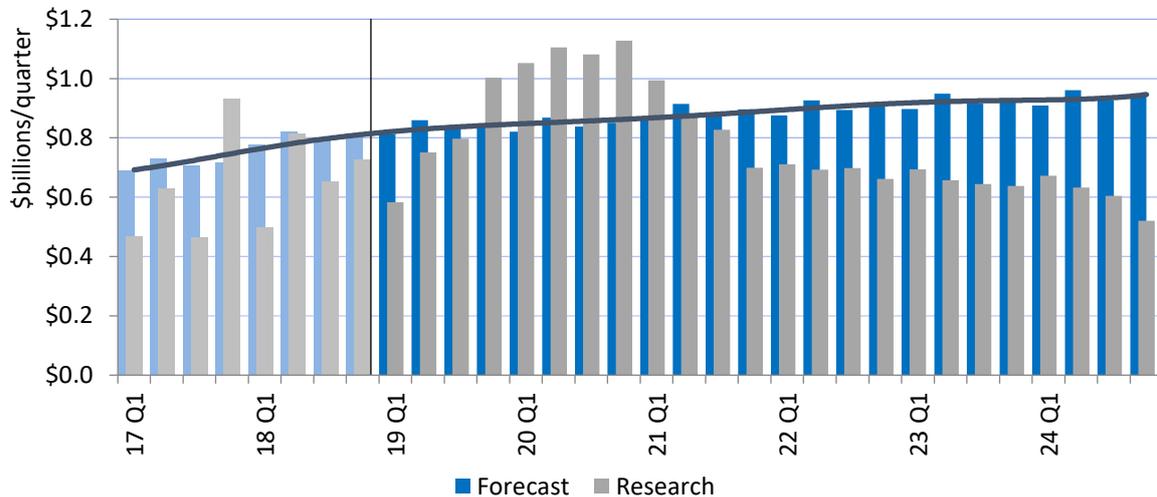


Source: BRANZ/Pacifecon

Auckland infrastructure activity

Infrastructure activity in Auckland increased by 12% in 2018 to **\$3.2b** and is forecast to increase by 17% to over **\$3.7b** by 2024. 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 buildings and infrastructure work for Auckland includes:¹⁰

- mixed-use buildings – apartments/hotels and retail/offices
- expansion at the airport – terminal buildings and infrastructure and tourist accommodation
- city centre development leading up to 2021
- infrastructure including roads, rail and subdivisions to support growth in residential building and public transport
- three waters expansion – drinking water, wastewater and stormwater.

Source: Pacifecon

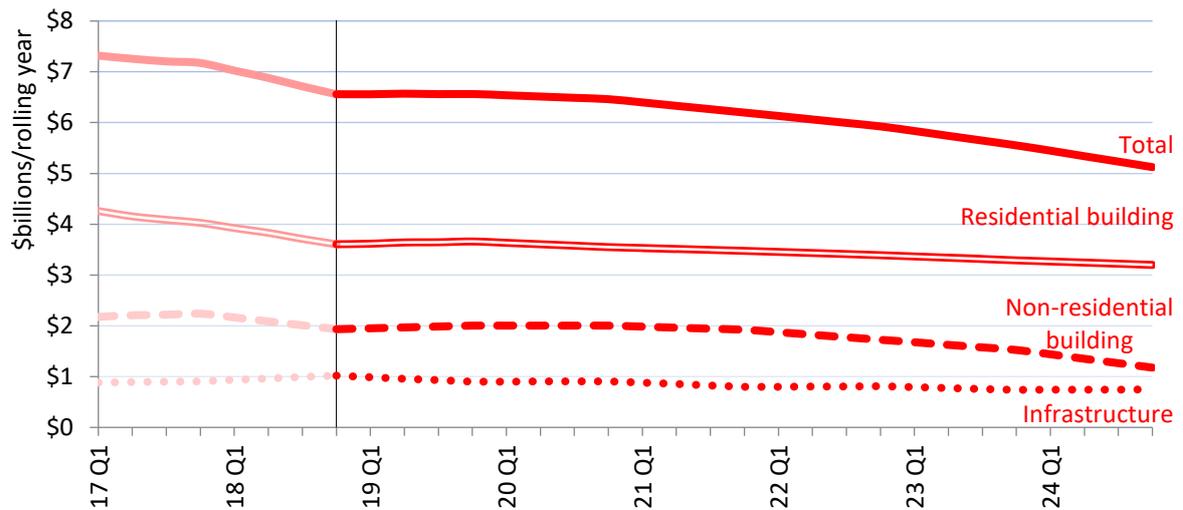
¹⁰ For more information, refer to section 0.

4.2 Canterbury¹¹

Total construction value in the Canterbury region reduced 9% to **\$6.6b** in 2018, a lower rate of decrease than 2017 and as forecast. This decrease was driven mainly by non-residential building, reducing by 14% and residential building reducing by 10%. Infrastructure activity rose very slightly.

Non-residential building value is expected to maintain at **\$2b** per annum to 2021 and then gradually reduce to **\$1.2b** in 2024. This reduction is more gradual than previously forecast. Residential building value, which was at **\$3.6b** in 2018, was lower than expected and is likely to gradually reduce to **\$3.2b** in 2024. Infrastructure remains at **\$0.9b** per year to 2020, after which it is forecast to reduce to **\$0.7b** in 2024.

Figure 4.2.1 All construction in Canterbury, by value



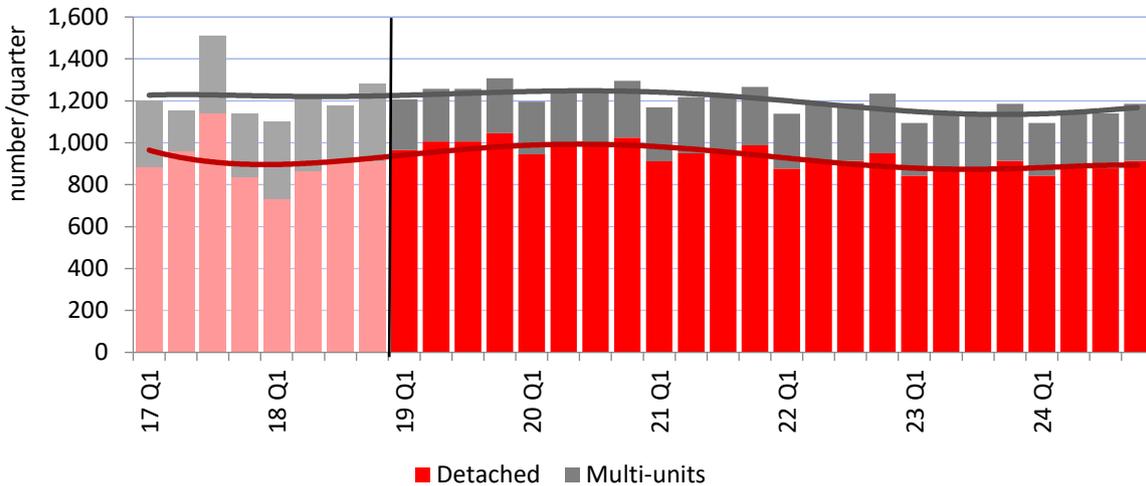
Source: BRANZ/Pacifecon

¹¹ 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 reduced by 5% in 2018, exactly as forecast, driven predominantly by an 11% decrease in the number of detached dwellings consented. Unlike the previous year, the number of multi-units consented rose by 15%. As in 2018, the forecast remains that the number of dwelling consents will maintain at current levels to the end of the forecast period with the proportion of multi-unit dwellings standing at approximately 25% each year.

Figure 4.2.2 Dwelling units in Canterbury

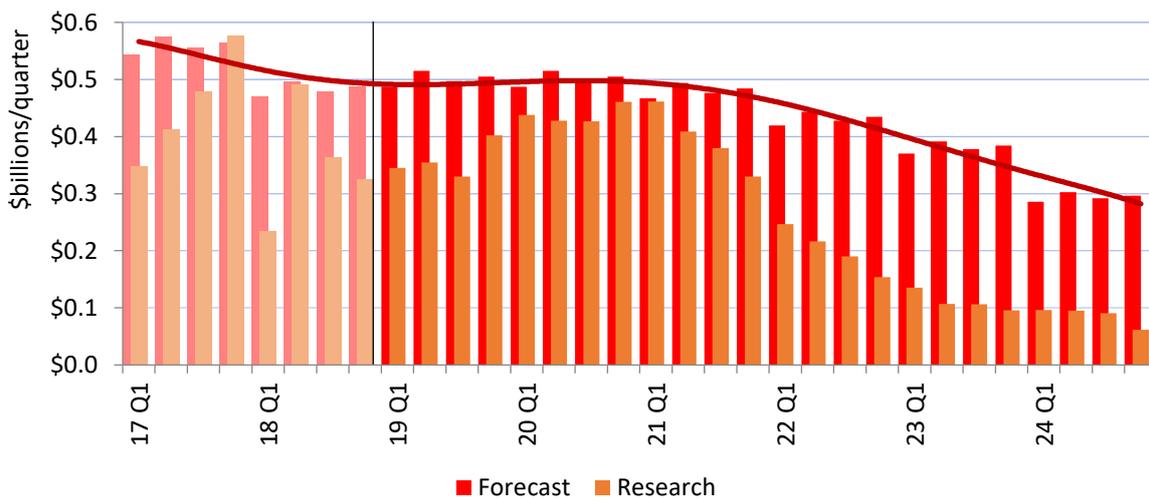


Source: BRANZ

Canterbury non-residential building activity

Non-residential building activity reduced by 14% in 2018, less than previously forecast. Canterbury non-residential building is now expected to maintain current levels to 2020 and then reduce over the next four years to around \$1.2b in 2024.

Figure 4.2.3 Canterbury non-residential building activity

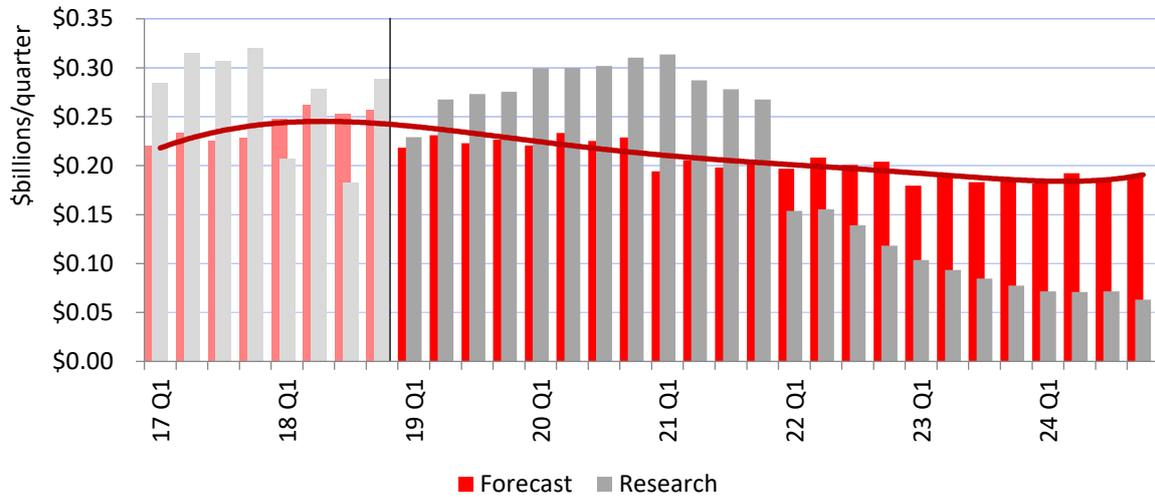


Source: BRANZ/Pacifecon

Canterbury infrastructure activity

Infrastructure activity increased in 2018 – it had been forecast to decrease further. For the rest of the forecast period, infrastructure value is expected to decrease slowly to *\$0.7b* by 2023.

Figure 4.2.4 Canterbury infrastructure activity



Source: BRANZ/Pacifecon

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

- retail, offices and tourist accommodation
- education, health, sports facilities, places of worship and civic buildings
- dairy processing plants – new and expansion of existing facilities
- infrastructure – public transport and streetscapes
- residential subdivisions.

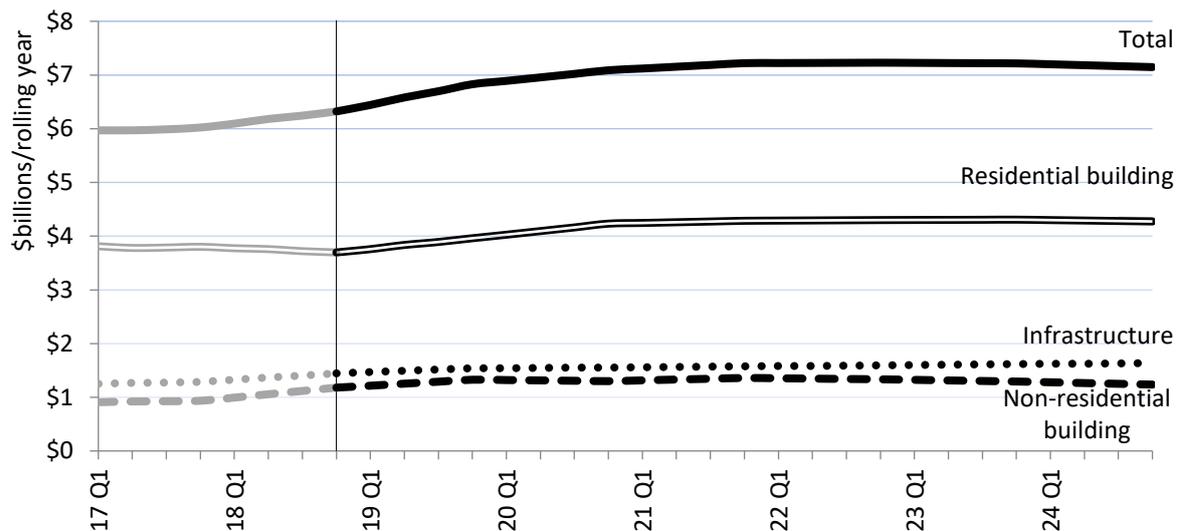
Source: Pacifecon

4.3 Waikato/Bay of Plenty¹²

The total value of construction in Waikato/Bay of Plenty increased by 5% in 2018 to **\$6.3b**. Both non-residential building and infrastructure value grew but residential building value fell slightly.

Residential building is forecast to grow for the next two years to **\$4.2b** per annum before levelling out from 2021 to the end of the forecast period. Non-residential building is forecast to grow by 12% in 2019 to **\$1.3b** and to remain at this level until 2024. Infrastructure activity in the region increased in 2018 by 12% following a slight reduction in 2017. Value is expected to remain around **\$1.5–1.6b** per annum to 2024.

Figure 4.3.1 All construction in Waikato/Bay of Plenty, by value



Source: BRANZ/Pacifecon

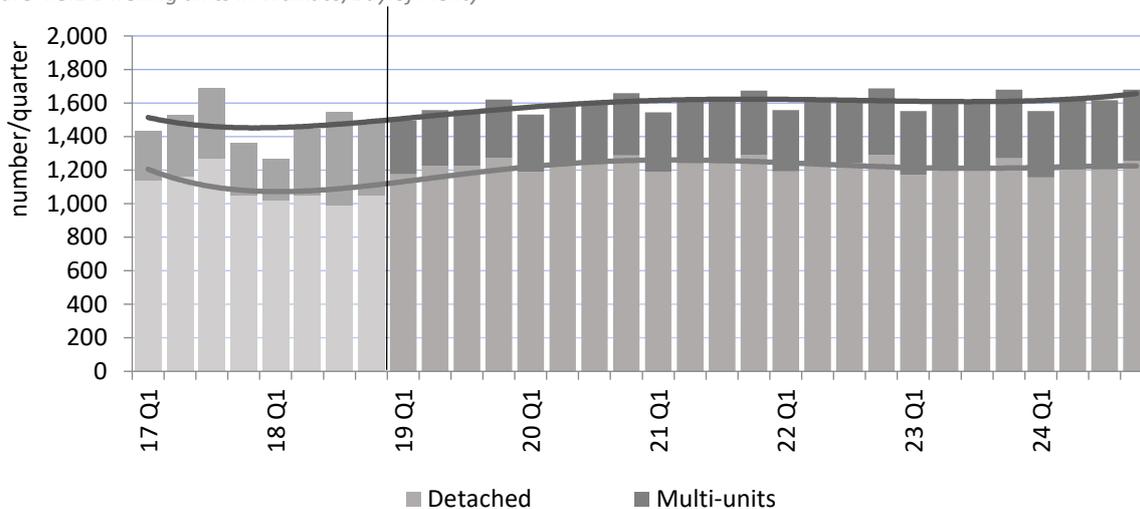
¹² Waikato/Bay of Plenty includes Hamilton City, Hauraki District, Kawerau District, Matamata-Piako District, Opotiki District, Otorohanga District, Rotorua District, South Waikato District, Taupo District, Tauranga City, Thames-Coromandel District, Waikato District, Waipa District, Waitomo District, Western Bay of Plenty District and Whakatane District.

Waikato/Bay of Plenty dwelling consent activity¹³

Waikato/Bay of Plenty experienced strong dwellings consent growth to 2016. In 2018, there was a decrease of 5% to 5,738 dwelling consents, very slightly more than forecast, caused by an increase in dwelling consents in Waikato but a considerable reduction in Bay of Plenty. Growth to over 6,000 dwelling consents is again expected in 2019. This growth is forecast to continue with nearly 6,500 dwelling units forecast for 2022 onwards.

The forecast growth includes over 38,000 dwellings consented from 2019 to 2024, less than was previously forecast for the region. Growth is expected to be driven by increases in both detached and multi-unit dwelling consents. Multi-unit consents are anticipated to remain at approximately 25% of all dwelling consents. Waikato/Bay of Plenty is expected to consent the second-largest number of multi-unit dwellings after Auckland between 2019 and 2024. Historical consents show multi-units are more popular in Waikato than Bay of Plenty.

Figure 4.3.2 Dwelling units in Waikato/Bay of Plenty



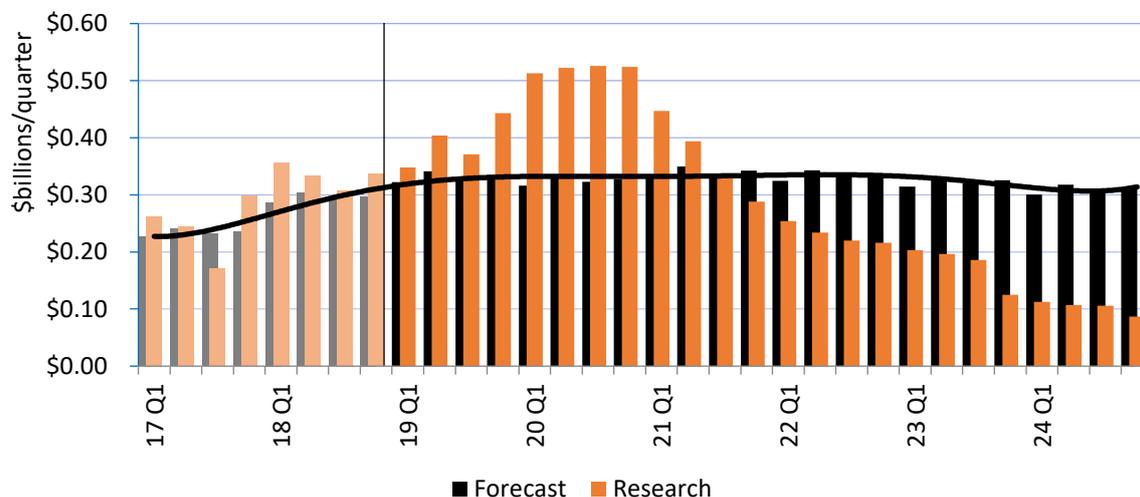
Source: BRANZ

¹³ See the [National Construction Pipeline Report 2016](#) for a historical comparison of dwelling consent activity for Waikato and Bay of Plenty separately.

Waikato/Bay of Plenty non-residential building activity

Non-residential building activity in the region increased as forecast by 26% to **\$1.2b** in 2018, following a fall of 12% in 2017. Non-residential building activity is forecast to increase yet further by 12% in 2019 and to remain around **\$1.3b** per year, with a peak of **\$1.4b** at 2021, through to 2024.

Figure 4.3.3 Waikato/Bay of Plenty non-residential building activity

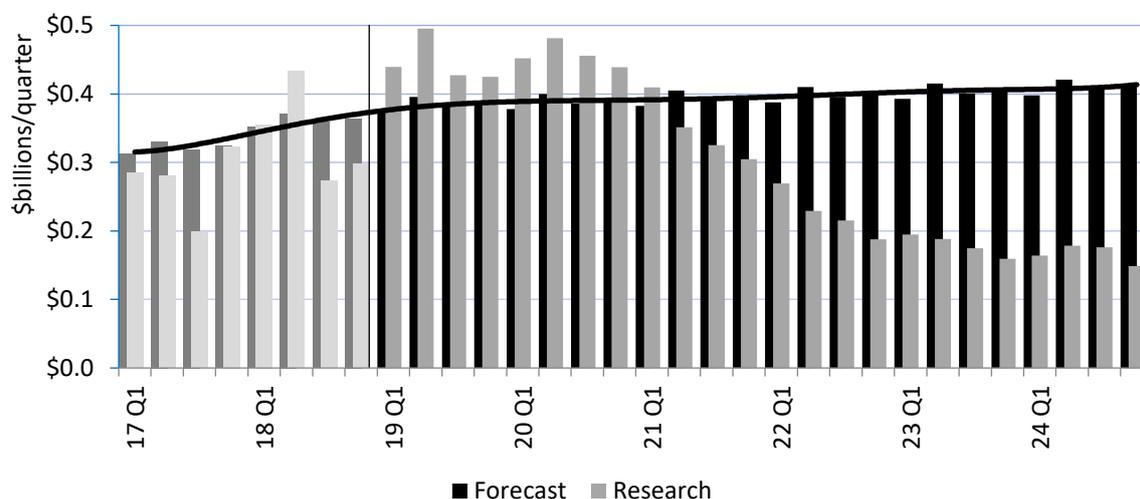


Source: BRANZ/Pacifecon

Waikato/Bay of Plenty infrastructure activity

Infrastructure activity in the region increased in 2018 to **\$1.4b**. It is expected there will be moderate growth from this level throughout the rest of the forecast period.

Figure 4.3.4 Waikato/Bay of Plenty infrastructure activity



Source: BRANZ/Pacifecon

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

- manufacturing and processing plants including dairy
- cultural, community, education and health buildings
- residential, commercial and industrial subdivisions
- tourist accommodation and attractions
- infrastructure including transport, electricity, water and town centre improvements.

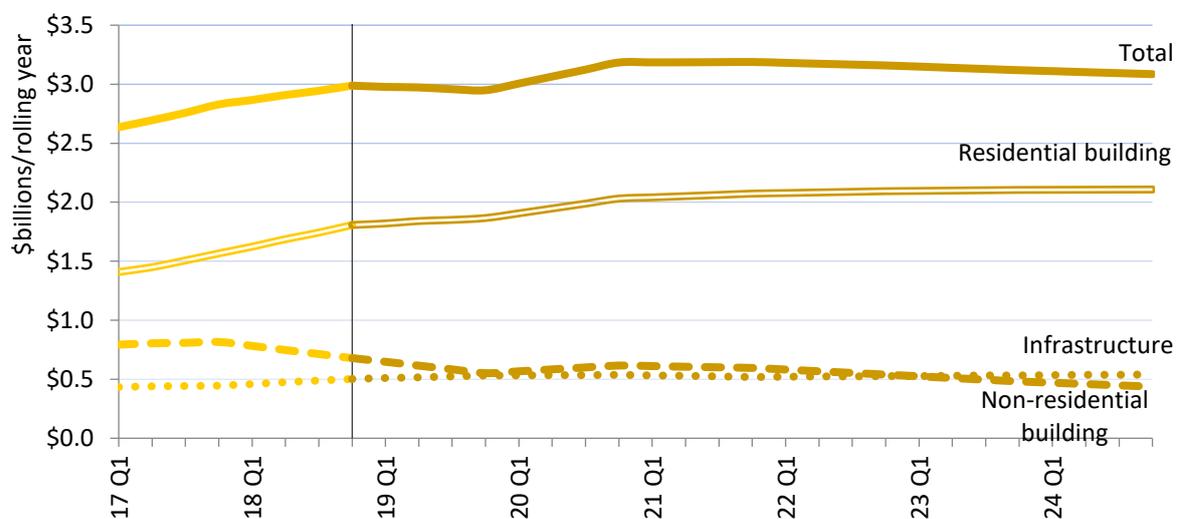
Source: Pacifecon

4.4 Wellington¹⁴

Wellington experienced very strong (15%) residential building value growth in 2018, which led to total construction in the region rising by 6% to **\$3b**. Whilst infrastructure value also rose, it was the reduction in non-residential building activity by 17% that pulled down total construction value in the region.

Wellington's total construction value is forecast to remain at **\$3b** in 2019. In 2020, a further increase is forecast due to levelling out of non-residential activity and a rise in residential building activity. This elevated level of **\$2b** or just above of residential activity per annum is forecast to be sustained through to 2024 and to maintain total construction levels in Wellington at just above **\$3b** each year. Non-residential building activity is expected to reduce gradually from **\$0.8b** in 2017 through **\$0.7b** in 2018 to around **\$0.4b** in 2024. Infrastructure activity is forecast to increase slowly throughout the forecast period.

Figure 4.4.1 All construction in Wellington, by value



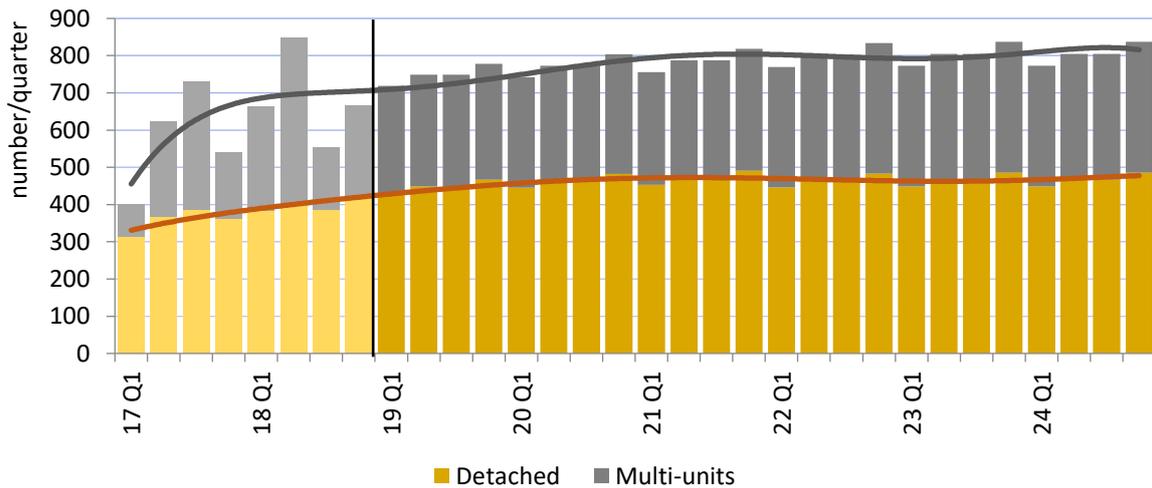
Source: BRANZ/Pacifecon

¹⁴ 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

Strong dwelling growth continues to be forecast for Wellington with nearly **19,000** dwelling units expected to be consented between 2019 and 2024. Wellington dwelling numbers increased by 19% in 2018, considerably more than was forecast. This growth is forecast to continue with **3,200** dwellings each year from 2022. Dwelling growth is expected to be driven by both detached and especially multi-unit dwelling consent growth to 2024. The proportion of multi-units (42%) forecast for Wellington by 2024 is second only to Auckland (61%). This year, the forecast is for slightly more multi-units than previously.

Figure 4.4.2 Dwelling units in Wellington

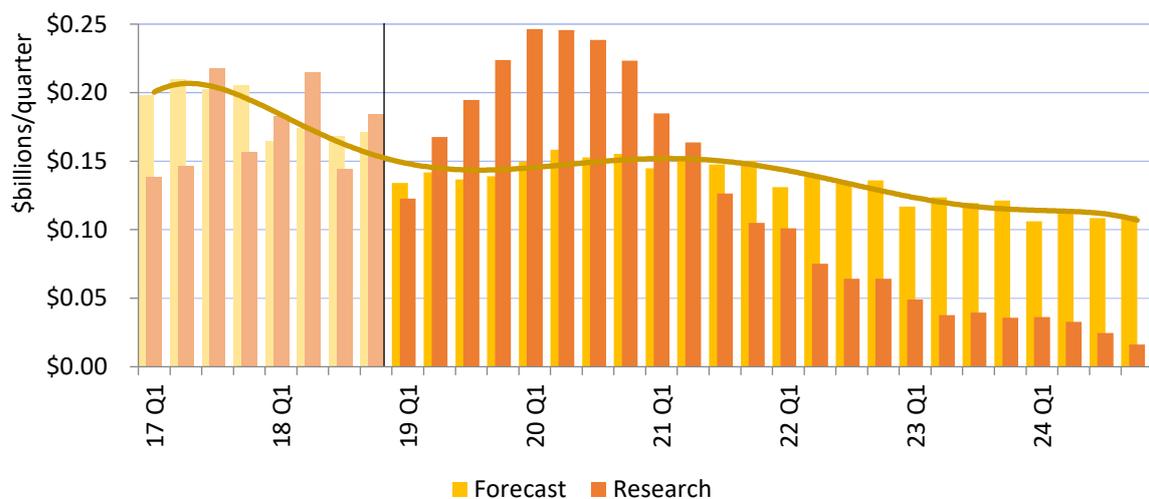


Source: BRANZ

Wellington non-residential building activity

Non-residential building activity in Wellington was higher than previously forecast at **\$0.7b**. This was still a decrease of 17% on the high of 2017. Current levels are expected to be maintained through to 2020 when a reduction is anticipated with non-residential building activity expected to reduce further to **\$0.4b** by 2024.

Figure 4.4.3 Wellington non-residential building activity

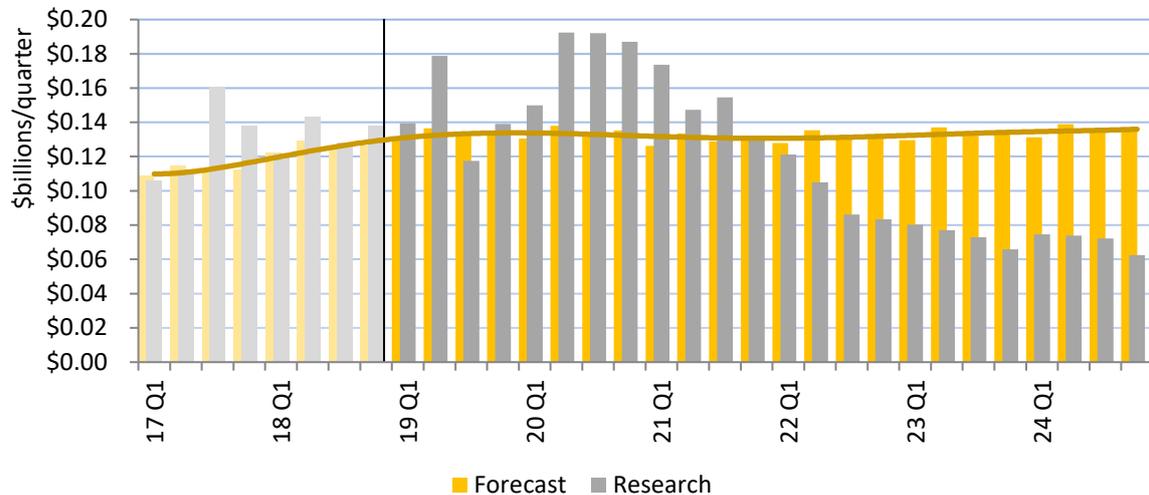


Source: BRANZ/Pacifecon

Wellington infrastructure activity

Wellington infrastructure activity has remained around *\$0.5b* per annum since 2015, and this is expected to continue through the forecast period. The high value of research data indicates strong infrastructure project intentions in the region.

Figure 4.4.4 Wellington infrastructure activity



Source: BRANZ/Pacifecon

Planned non-residential and infrastructure work for Wellington includes:

- office, conference centre, retail, visitor accommodation, entertainment and sporting facilities
- hospital, education and civic buildings
- non-residential building work arising from the Kaikoura earthquake
- demolitions, reinstatements, repairs and ongoing earthquake strengthening
- three waters developments – drinking water, wastewater and stormwater
- residential subdivisions
- public transport.

Source: Pacifecon

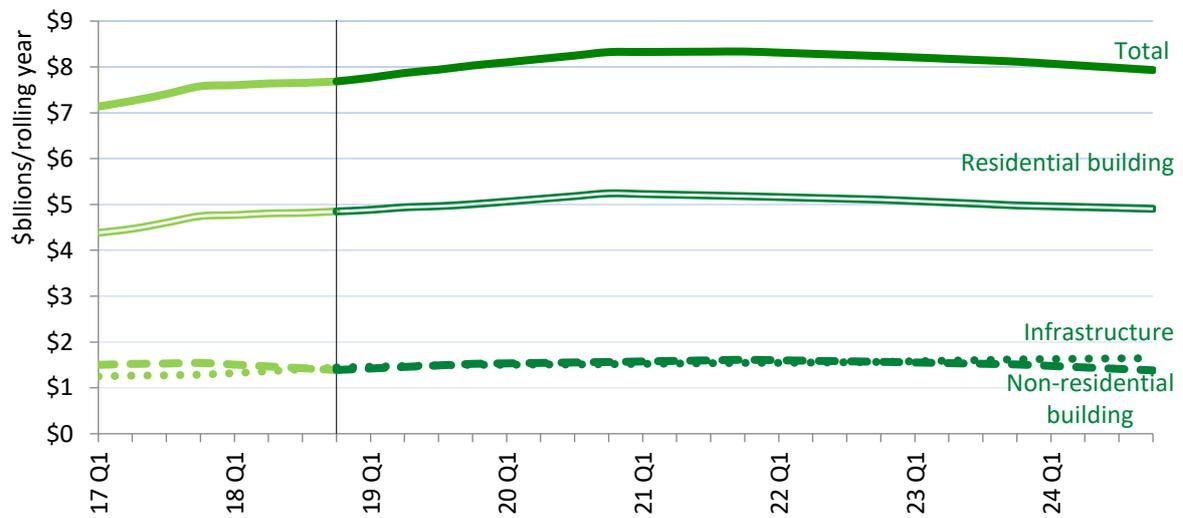
4.5 Rest of New Zealand

Rest of New Zealand contains the remaining 11 regions of New Zealand – Gisborne, Hawke’s Bay, Manawatu-Whanganui, Marlborough, Nelson, Northland, Otago, Southland, Taranaki, Tasman and West Coast. These regions individually all have a lower value of total construction activity and populations¹⁵ than the other regions considered in this report.

For Rest of New Zealand, total construction value grew 1% to **\$7.7b** in 2018. Growth was driven by a 2% increase in residential building and infrastructure growth but held back by a 10% fall in non-residential building activity.

Total construction value for Rest of New Zealand is forecast to grow for the next two years to **\$8.4b** per annum. This growth is underpinned by residential building. Following a peak in 2021, a gradual reduction in activity is forecast to **\$7.9b** in 2024.

Figure 4.5.1 All construction in Rest of New Zealand, by value



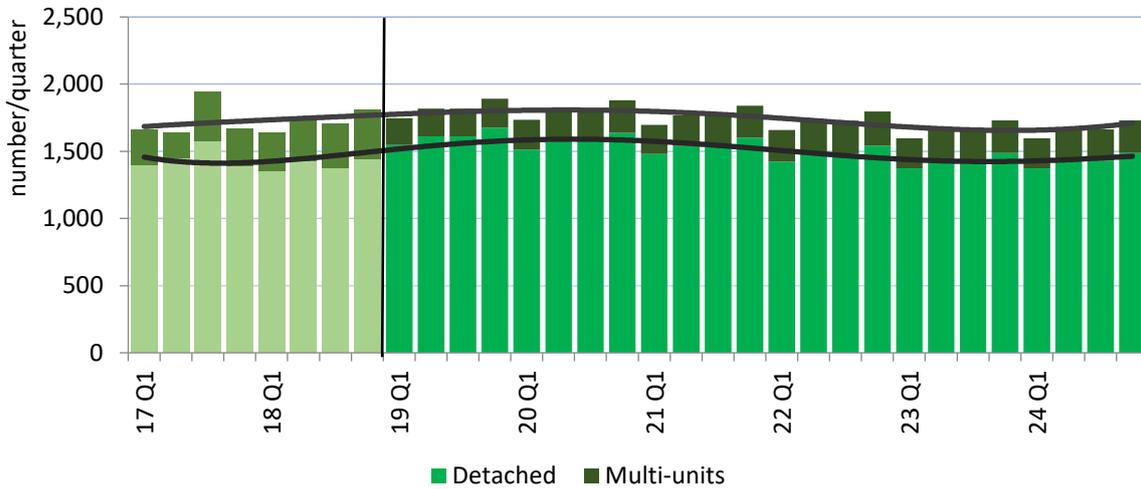
Source: BRANZ/Pacifecon

¹⁵ Some regions have static or decreasing populations.

Rest of New Zealand dwelling consents

Following strong growth of 14% in 2017, dwelling consents in Rest of New Zealand remained static at just below 7,000 in 2018. Dwelling unit consents are forecast to stay at current levels until the end of the forecast period. Nearly 42,000 dwelling unit consents are forecast between 2019 and 2024 with over 7,000 dwelling units expected each year to 2021. Multi-units are not as popular in these regions, and their proportion is expected to maintain at approximately 15%.

Figure 4.5.2 Dwelling units in Rest of New Zealand

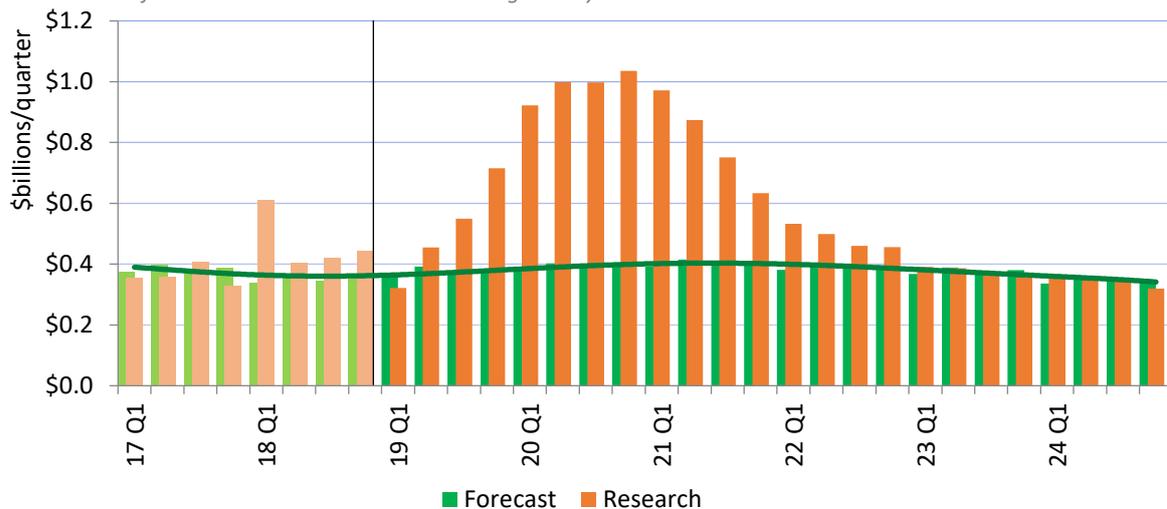


Source: BRANZ

Rest of New Zealand non-residential building activity

Rest of New Zealand’s non-residential building activity increased 9% to \$1.5b in 2017. In 2018, non-residential building value decreased by 10% to \$1.4b, still above forecast (\$1.3b). Activity is forecast to rise again in 2019 by 10% and maintain at \$1.5–1.6b to 2023. A decrease to below \$1.4b is forecast for 2024. The very high value in the research data indicates that there are strong intentions for non-residential buildings in Rest of New Zealand.

Figure 4.5.3 Rest of New Zealand non-residential building activity

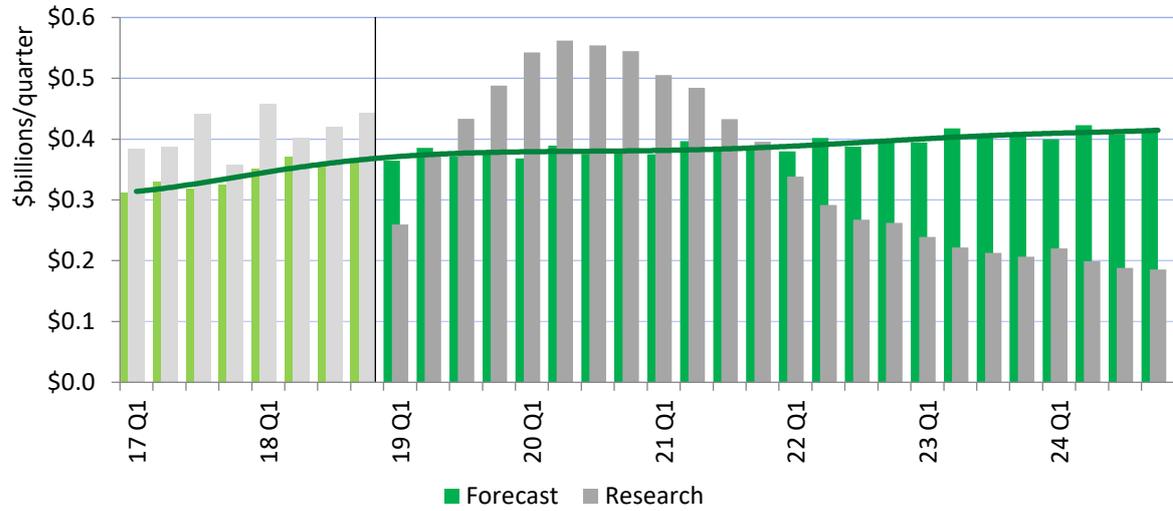


Source: BRANZ/Pacifecon

Rest of New Zealand infrastructure activity

Infrastructure activity rose in 2018 and is forecast to continue a consistent rise over the forecast period from **\$1.4b** currently to **\$1.6b** in 2024.

Figure 4.5.4 Rest of New Zealand infrastructure activity



Source: BRANZ/Pacifecon

Individual regions within Rest of New Zealand

Otago is the largest region¹⁶ in the Rest of New Zealand group and provides 28% of the group's new dwelling unit consents. Wellington (the fourth-largest region) has pulled ahead of the Otago region for dwelling consents and infrastructure since 2018, with BRANZ forecasting indicating 16% more residential building value expected for Wellington in 2019 and Pacifecon's research data indicating considerably more infrastructure. Pacifecon's research data again indicates a higher value of known non-residential building intentions for Otago. Wellington has been included in Table 4.5.1 below for comparison with Otago.

Table 4.5.1 All building and construction in the year 31 December 2019 for Rest of New Zealand and Wellington, by region and construction type

Region	Forecast residential building (\$m)	Researched non-residential building (\$m) ¹⁷	Researched infrastructure activity (\$m)
Wellington	\$1,866	\$733	\$601
Otago	\$1,615	\$806	\$322
Northland	\$861	\$197	\$313
Manawatu/Whanganui	\$670	\$160	\$226
Hawke's Bay/Gisborne	\$520	\$188	\$202
Nelson/Marlborough	\$659	\$138	\$187
Taranaki	\$350	\$88	\$195
Southland	\$195	\$97	\$34
West Coast	\$66	\$51	\$68
New Zealand wide ¹⁸	-	\$314	\$0
Total – Rest of New Zealand	\$4,935	\$2,040	\$1,547

Source: BRANZ/Pacifecon

¹⁶ By total construction value and number of new dwelling consents.

¹⁷ Values in red are from Pacifecon's database of anticipated project values and are subject to optimism bias.

¹⁸ New Zealand wide is used in Pacifecon's dataset to define work that covers all of New Zealand – for example, ultra-fast broadband rollout.

5. Comparison with the National Construction Pipeline Report 2018

5.1 Adjustments to data from the 2018 report

The following adjustments have been made to the forecast data from the 2018 report to enable a closer comparison with actuals and forecasts in this report:

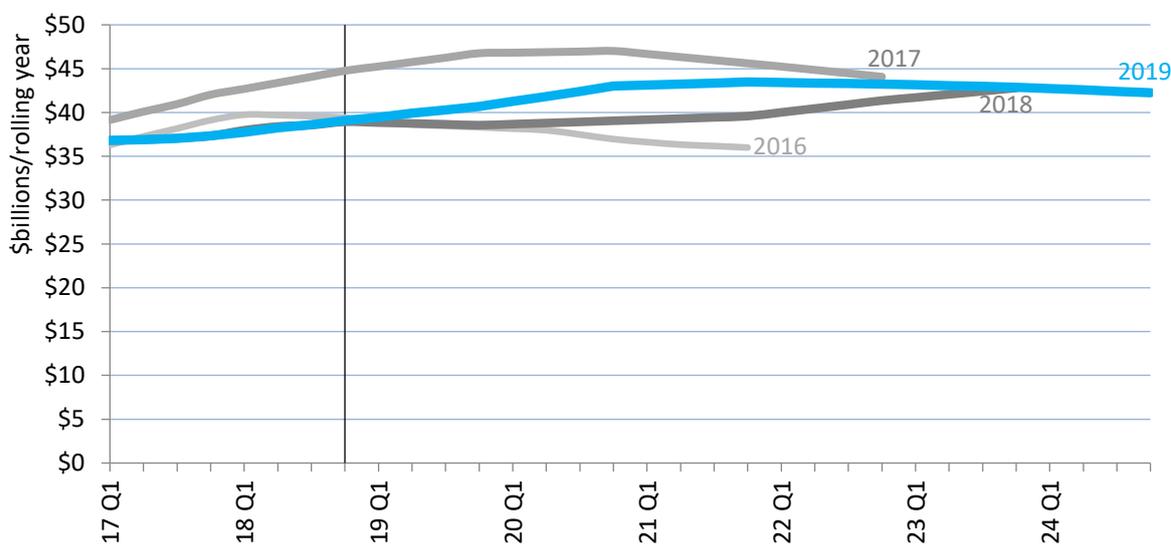
- Conversion from December 2017 dollars to December 2018 dollars to account for inflation¹⁹ as follows:
 - Residential building 3.9%
 - Non-residential building 4.5%
 - Infrastructure construction 3.6%
- Adjustments for Stats NZ's revisions to the December 2017 gross fixed capital formation data:²⁰
 - Residential building 1.0%
 - Non-residential building -0.9%
 - Infrastructure construction -5.5%

5.2 How did BRANZ do with the 2018 forecast?

The total value of construction nationally grew by 5% in 2018, whereas the 2018 report had expected 3% growth. All three construction types (residential buildings, non-residential buildings and infrastructure construction) grew as expected or slightly more than expected.

This year's forecast to 2024 remains for moderate and sustained growth to a peak of \$43b in 2021. The forecast anticipates construction activity to be slightly stronger than forecast in 2018 through to 2023.

Figure 5.2.1 All construction nationally, last four years of forecasts compared



Source: BRANZ

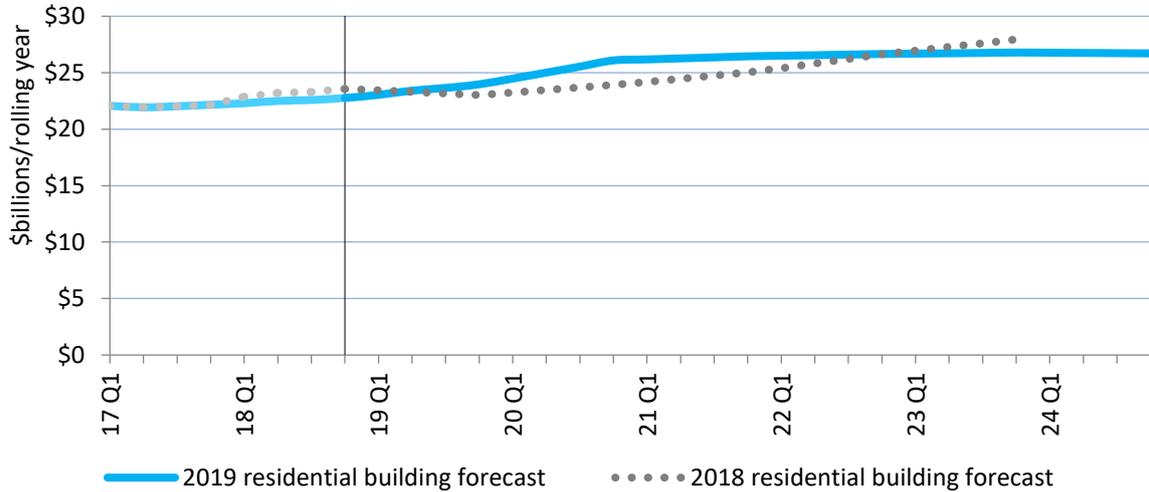
¹⁹ All previous reports have been adjusted to December 2018 dollars for comparison.

²⁰ 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 2018 report forecast 4% residential building growth for 2018 nationally while actual recorded growth was slightly lower at 3%. The current report forecasts residential building to increase by 18% over the six-year forecast to almost \$27b by 2023. This is not dissimilar to the 2018 report but shows higher growth to 2022 then slower growth thereafter.

Figure 5.2.2 All residential building nationally, 2018 and 2019 forecasts compared



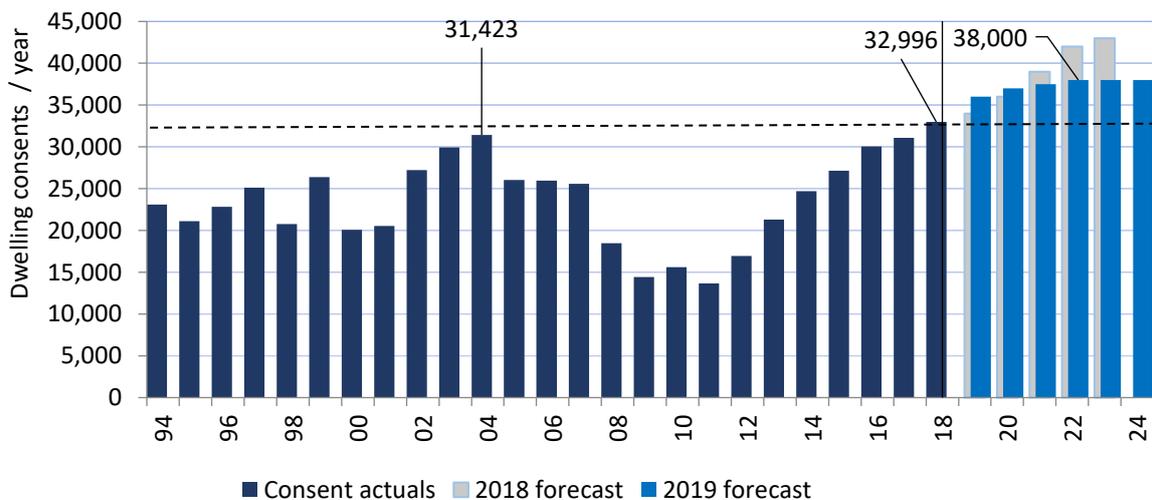
Source: BRANZ

Dwelling unit forecast comparison

The 2018 report forecast 3% dwelling consent growth for 2018 nationally while actual consent growth was double that at 6%. The 2019 forecast is for year-on-year growth to 2022. Compared to the 2018 forecast, this is higher short-term dwelling growth followed by maintenance to 2024.

Over the next four years, the number of dwelling units consented is forecast to increase by 15% to a high of 38,000 dwelling units in 2022. Dwelling unit consents went past the 2004 peak (31,423 dwellings) in 2018 as was forecast last year.

Figure 5.2.3 Dwelling units consented nationally, 2018 and 2019 forecasts comparison

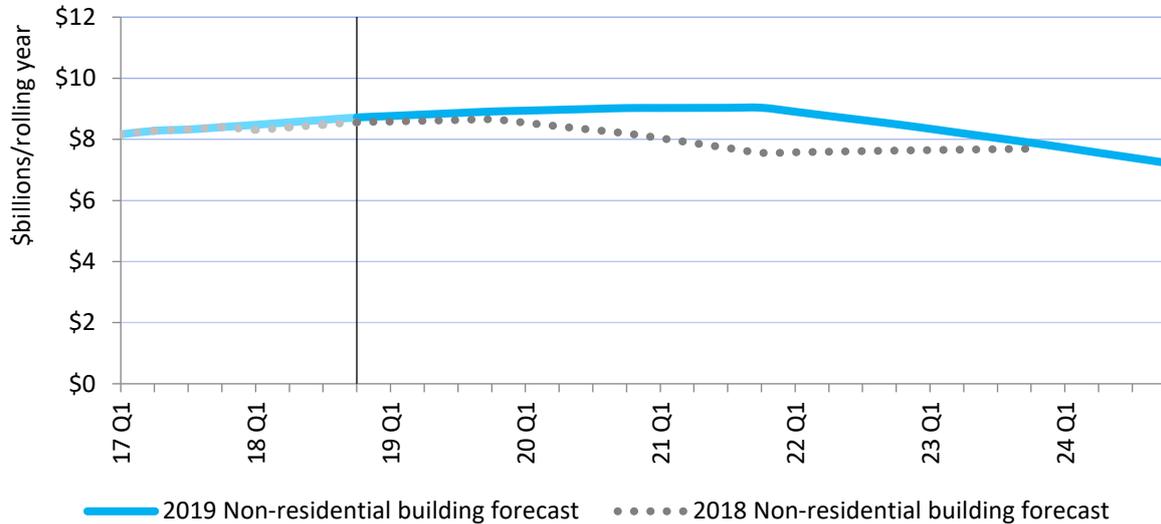


Source: BRANZ/Stats NZ

Non-residential building forecast comparison

The 2018 report was accurate forecasting 4% non-residential building growth for 2018 nationally. This year’s report forecasts a non-residential building peak in 2021, higher and later than the peak forecast previously.

Figure 5.2.4 Non-residential building nationally, 2018 and 2019 forecasts compared

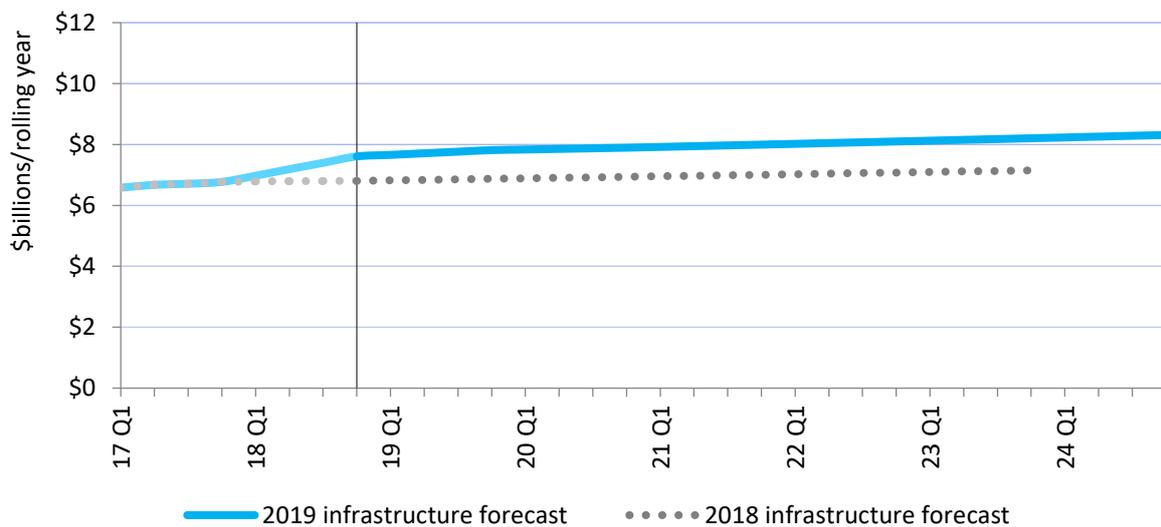


Source: BRANZ

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 less than 1% infrastructure growth, whereas actual recorded activity was a 12% increase. Infrastructure activity nationally is expected to grow at a similar rate to that previously forecast.

Figure 5.2.5 Infrastructure activity nationally, 2018 and 2019 forecasts compared



Source: BRANZ

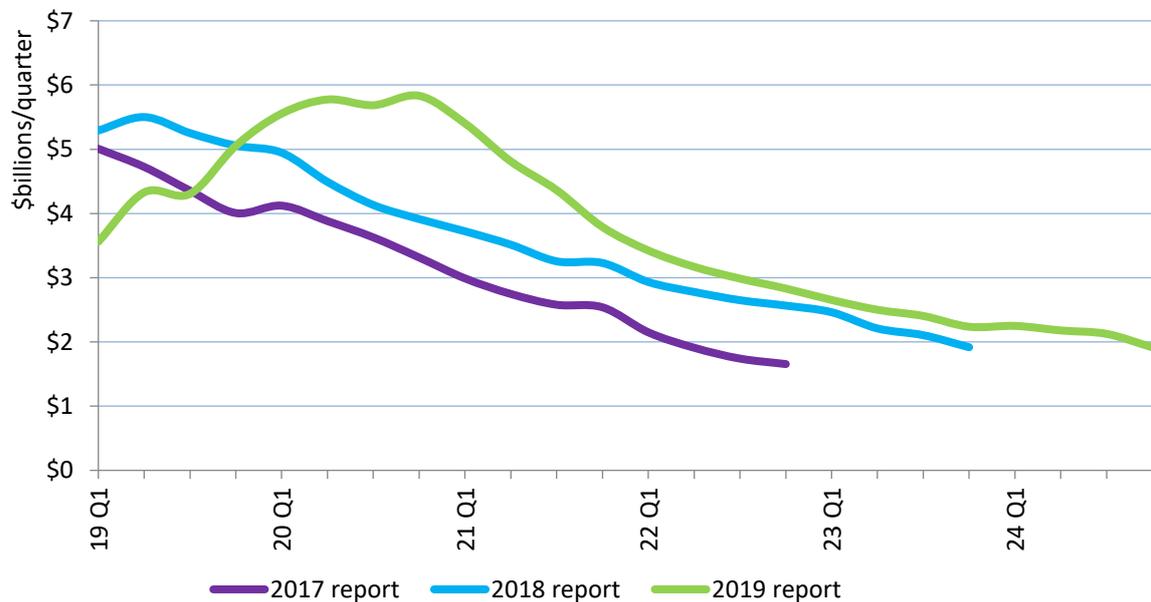
5.3 Comparison of Pacifecon’s 2019 research data with previous reports

Pacifecon’s research dataset contains anticipated values and start dates for non-residential buildings and infrastructure construction projects. This section compares Pacifecon’s 2019 researched data with the data used in preceding reports. This section compares how the value and timeline of Pacifecon’s researched project intentions have varied across reports.

The 2019 research data shows strong intentions through 2020 and represents a greater volume of intentions in the pipeline than any previous report. Unlike previous years, the peak is pushed further out to 2020 Q4 and the decline is steeper. The research data for the 2017 and 2018 reports show reasonably similar curves to each other. Pacifecon’s view is there are still further adjustments to come before 2020 – projects always take longer than anticipated.

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

Pacifecon's research dataset has shown an increase in the number of projects totaling over \$100m anticipated to start each year. The total number of \$100m projects in the database expected to start in 2018 (47) was the highest number recorded since the report's initiation. This indicated an expectation of growth in very large non-residential building and infrastructure projects over the coming years. Section 5.5 describes the optimism bias that ultimately occurs with specific project intentions. Comparing the projections with actuals over time helps to inform how to accurately adjust for this bias.

Table 5.4.1 compares what was projected and actuals over the previous five reports. There were 47 known projects (non-residential building and infrastructure construction) valued at \$100m or more included in the 2018 report that were anticipated to start between 1 April 2018 and 31 March 2019. Half of these projects (23 out of 47) started as anticipated. The number of known projects valued at over \$100m expected to start between 1 April 2018 and 31 March 2019 has since decreased to 31 projects (16 non-residential building and 15 infrastructure projects).

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 anticipated to be initiated				
	2014 report	2015 report	2016 report	2017 report	2018 report
Started as anticipated	9	15	15	18	23
Anticipated to start within the coming year	8	3	10	9	12
Anticipated to start beyond one year's time	3	0	4	9	11
Cancelled since previous report	0	2	0	0	1
Total	20	20	29	36	47
Additional projects starting ²¹	11	8	7	10	6
Number of projects started in timeframe	20	26	22	28	29

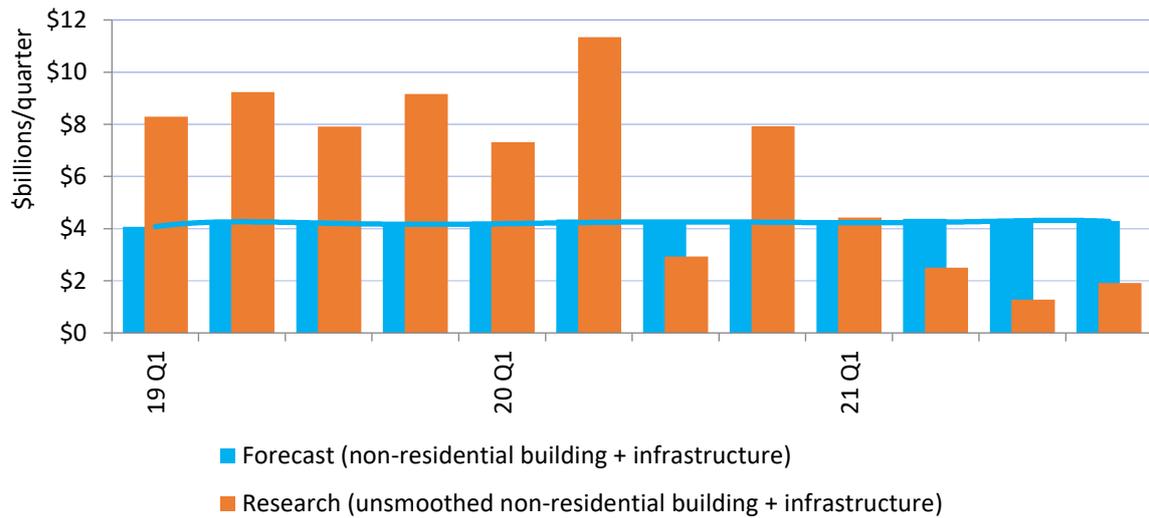
Source: Pacifecon

²¹ Additional projects starting since 2018 report: one project new to Pacifecon, the values of two projects increased to over \$100 million prior to commencing, three projects were accelerated so they started within the April 2018–March 2019 time period.

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 behind 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. 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 may be further 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 inspiring the building and construction industry to provide better buildings for New Zealanders.

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 2024 including local government long-term plans.

Pacifecon have 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 – subdivisions, houses, 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.
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 2019 to 31 December 2024 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	<p>Infrastructure covers all construction that is not a building, including:</p> <ul style="list-style-type: none">• 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. <p>Infrastructure is termed 'other construction' in Stats NZ classifications.</p>
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.
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, 2019 Q2 is the aggregate of the values from April 2018 to June 2019.
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 1 June 2019, based on the Stats NZ March 2018 release of 2018 gross fixed capital formation data and other relevant data.

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

- Residential building demand is based on Stats NZ December 2015 household formation subnational projections using a scenario between their high and medium scenario. This gives a net new household formation of 28,000 per year through to 2024.
- 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.
- The net result is an average of about 37,500²² dwellings per annum through to 2024.
- 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 1.54 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.
- Historical consents are first published data, and there may be subsequent changes in some locations. Usually these revisions are minor.

Changes in residential methodology from the 2018 report

Assumptions used to forecast residential building fixed capital formation have changed from the 2018 report. Changes include:

²² This was 35,250 dwellings in the 2018 report.

- the distribution of work across quarterly seasons has been adjusted based on changes in previous seasonal distribution of work
- a reduction in the impact of KiwiBuild on the total number of dwelling consents.

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 1.25 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 11% of other construction fixed capital formation
- electricity/gas/water sectors – 30%
- transport – 40%
- telecommunications – 7%
- 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 -3% per year for mining, 1% for electricity/gas/water, 3% for transport, 0.5% for telecommunications and 1% for other infrastructure works.

Research data methodology

Pacifecon's anticipated projects

A dataset of over 9,000 researched future projects known to Pacifecon has been used in this report. The data is up to date as at 16 February 2019. Smoothed data as at 26 June 2019 has been used in this report.

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 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 first report to over 9,000 projects in the current report. 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 consistently refined its smoothing process by studying the highest-value projects to ascertain the most likely allocation of their value of work over time.

- 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) and current report (2019): projects over \$50 million were scrutinised.

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

- \$30m to <\$50m projects – value of work is spread over eight quarters.
- \$5m to <\$30m projects – value of work is spread over six quarters.
- <\$5m projects – 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 year²³ valued at over \$100m²⁴

Region	Type	Project initiator
Auckland		
Mills Lane Tower	Mixed-use building	Private
Weiti Bay Villages	Mixed-use development	Private
Wynyard Quarter Marine Facility	Mixed-use development	Private
St Lukes Shopping Centre	Commercial development	Private
Queen Street Hotel	Commercial building	Private
Hobson Street Hotel	Commercial building	Private
Albert Street Hotel	Commercial building	Private
Auckland Airport Hotel	Commercial building	Private
Auckland Airport Carpark Building	Airport	Private
Auckland Airport Terminal Plaza and Transport Centre	Airport	Private
Canterbury		
Metro Sports Facility	Sports facility EQ	Local government
Dairy Processing Plant	Industrial buildings	Private
Waikato/Bay of Plenty		
Hautapu Industrial Precinct	Industrial precinct	Private
Te Rapa Gateway Industrial Stage	Industrial building	Private
Dairy Processing Plant	Industrial building	Private
Wellington		
Bowen Street Offices	Commercial building	Private

Source: Pacifecon

²³ Year is the 12 months ending 31 March 2020.

²⁴ Inclusion of a project does not mean it will proceed to the scale and timeframe indicated above. It is, however, the best available picture at 26 June 2019. Pacifecon's building and construction information is constantly updated.

Table 7.4.2 Infrastructure projects likely to start within the year²⁵ valued at over \$100m²⁶

Region	Type	Project initiator
Auckland		
America's Cup Wynyard Wharf Bases	Civil	Central government
SH22 Improvements	Roads	Central government
City Rail Link Wider Network Improvements	Railway	Central/local government
City Rail Link Line Wide Systems	Railway	Central/local government
City Rail Link Stations and Tunnels	Railway	Central/local government
AMETI Panmure to Pakuranga	Roads	Local government
Central Interceptor Wastewater Tunnel	Wastewater	Local government
North Harbour Watermain Duplication	Watermain	Local government
Clevedon Quays	Subdivision	Private
Waikato/Bay of Plenty		
Tauranga Northern Link	Roads	Central government
Bay of Plenty	Electricity	Private
Waikato Power Plant	Electricity/gas	Private
Rest of New Zealand		
Infrastructure Maintenance	Infrastructure maintenance	Local government
Electricity/gas	Electricity/gas	Private
Electricity/gas	Electricity/gas	Private

Source: Pacifecon

²⁵ Year is the 12 months ending 31 March 2020.

²⁶ Inclusion of a project does not mean it will proceed to the scale and timeframe indicated above. It is, however, the best available picture at 26 June 2019. 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 totals²⁷

Residential	Actual		Forecast							Total
	2017	2018	2019	2020	2021	2022	2023	2024		
Auckland	8.0	8.8	9.5	10.9	11.3	11.7	12.1	12.2	84.6	
Canterbury	4.0	3.6	3.7	3.6	3.5	3.4	3.3	3.2	28.2	
Waikato/BoP	3.8	3.7	4.0	4.2	4.3	4.3	4.3	4.3	32.9	
Wellington	1.6	1.8	1.9	2.0	2.1	2.1	2.1	2.1	15.6	
Rest of NZ	4.7	4.8	5.0	5.4	5.3	5.2	5.0	4.9	40.3	
TOTAL	22.2	22.8	24.0	26.1	26.5	26.7	26.8	26.7	201.6	
Non-residential building										
Auckland	2.9	3.5	3.5	3.5	3.5	3.3	3.1	3.0	26.4	
Canterbury	2.2	1.9	2.0	2.0	1.9	1.7	1.5	1.2	14.5	
Waikato/BoP	0.9	1.2	1.3	1.3	1.4	1.3	1.3	1.2	10.0	
Wellington	0.8	0.7	0.6	0.6	0.6	0.5	0.5	0.4	4.7	
Rest of NZ	1.5	1.4	1.5	1.6	1.6	1.6	1.5	1.4	12.1	
TOTAL	8.4	8.7	8.9	9.0	9.0	8.5	7.9	7.2	67.7	
Infrastructure										
Auckland	2.8	3.2	3.3	3.4	3.6	3.6	3.7	3.7	27.4	
Canterbury	0.9	1.0	0.9	0.9	0.8	0.8	0.7	0.7	6.8	
Waikato/BoP	1.3	1.4	1.5	1.6	1.6	1.6	1.6	1.6	12.3	
Wellington	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	4.1	
Rest of NZ	1.3	1.4	1.5	1.5	1.5	1.6	1.6	1.6	12.1	
TOTAL	6.8	7.6	7.8	7.9	8.0	8.1	8.2	8.3	62.7	
All construction										
Auckland	13.7	15.5	16.3	17.8	18.4	18.6	18.8	19.0	138.3	
Canterbury	7.2	6.6	6.6	6.5	6.2	5.9	5.6	5.1	49.6	
Waikato/BoP	6.0	6.3	6.8	7.1	7.2	7.2	7.2	7.1	55.1	
Wellington	2.8	3.0	2.9	3.2	3.2	3.2	3.1	3.1	24.5	
Rest of NZ	7.6	7.7	8.0	8.5	8.4	8.3	8.2	7.9	64.6	
TOTAL	37.3	39.1	40.7	43.0	43.5	43.2	42.9	42.3	332.0	
Researched non-residential building										
Auckland	2.6	3.0	3.6	4.8	3.8	2.6	1.8	1.5	23.6	
Canterbury	1.8	1.4	1.4	1.7	1.6	0.8	0.5	0.4	9.6	
Waikato/BoP	1.0	1.3	1.5	1.9	1.3	0.9	0.8	0.5	9.2	
Wellington	0.7	0.7	0.7	0.9	0.5	0.2	0.2	0.2	4.0	
Rest of NZ	1.5	1.9	2.0	3.4	2.7	1.9	1.5	1.3	16.2	
TOTAL	7.5	8.4	9.2	12.7	9.9	6.5	4.6	3.8	62.6	
Researched infrastructure										
Auckland	2.5	2.7	3.1	4.3	3.5	2.9	2.8	2.5	24.3	
Canterbury	1.2	1.0	1.0	1.2	1.1	0.6	0.4	0.3	6.8	
Waikato/BoP	1.1	1.4	1.8	1.8	1.4	0.9	0.7	0.7	9.7	
Wellington	0.5	0.5	0.6	0.7	0.6	0.4	0.3	0.3	3.9	
Rest of NZ	1.6	1.7	1.5	2.2	1.8	1.1	0.9	0.8	11.5	
TOTAL	6.9	7.3	8.0	10.1	8.4	5.9	5.1	4.6	56.2	

Source: BRANZ/Pacifecon

²⁷ 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 totals²⁸

Detached	Actual		Forecast							Total
	2017	2018	2019	2020	2021	2022	2023	2024		
Auckland	5,318	6,398	6,500	6,600	6,700	6,800	6,800	6,700	51,900	
Canterbury	3,829	3,422	4,000	3,900	3,800	3,700	3,500	3,500	29,700	
Waikato/BoP	4,626	4,103	4,900	5,000	5,000	5,000	4,900	4,800	38,200	
Wellington	1,432	1,595	1,800	1,900	1,900	1,900	1,900	1,900	14,200	
Rest of NZ	5,811	5,599	6,400	6,300	6,200	5,900	5,700	5,700	47,700	
TOTAL	21,016	21,117	23,700	23,600	23,500	23,200	22,800	22,600	182,000	
Multi-units										
Auckland	5,549	6,464	8,000	8,700	9,300	9,800	10,300	10,400	68,500	
Canterbury	1,175	1,347	1,000	1,000	1,100	1,100	1,000	1,000	8,800	
Waikato/BoP	1,387	1,635	1,300	1,400	1,500	1,500	1,600	1,600	12,000	
Wellington	862	1,136	1,200	1,200	1,300	1,300	1,400	1,400	9,700	
Rest of NZ	1,092	1,289	800	900	900	1,000	900	900	7,900	
TOTAL	10,065	11,871	12,300	13,400	14,000	14,800	15,200	15,400	107,000	
All dwellings										
Auckland	10,867	12,862	14,500	15,300	16,000	16,600	17,100	17,100	120,300	
Canterbury	5,004	4,769	5,000	5,000	4,900	4,700	4,600	4,600	38,500	
Waikato/BoP	6,013	5,738	6,200	6,400	6,400	6,500	6,500	6,500	50,200	
Wellington	2,294	2,731	3,000	3,100	3,100	3,200	3,200	3,200	23,900	
Rest of NZ	6,903	6,888	7,300	7,200	7,100	6,900	6,700	6,700	55,600	
TOTAL	31,081	32,988	36,000	37,000	37,500	38,000	38,000	38,000	289,000	

Source: BRANZ/Pacifecon

²⁸ Any differences between figures within Appendix F and other tables and charts in this report are due to rounding to the nearest 100.