

# National Construction Pipeline Report 2022

A FORECAST OF BUILDING AND CONSTRUCTION ACTIVITY | 10<sup>TH</sup> EDITION



MINISTRY OF BUSINESS,  
INNOVATION & EMPLOYMENT  
HĪKINA WHAKATUTUKI



Pacifecon  
Building Intelligence

Te Kāwanatanga o Aotearoa  
New Zealand Government



**MINISTRY OF BUSINESS,  
INNOVATION & EMPLOYMENT**  
HĪKINA WHAKATUTUKI

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**ONLINE: ISBN 978-1-99-104124-1**

**JULY 2022**

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# 1. Introduction

## 1.1 Overview

The National Construction Pipeline Report 2022 (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 2027. It includes national and regional<sup>1</sup> 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.<sup>2</sup> Pacifecon provides no residential data to the report.

## 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:

- [\*summary of the report's key findings\*](#)
- [\*national\*](#) and [\*regional\*](#) forecasts of residential buildings, non-residential buildings and infrastructure activity
- [\*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](mailto:info@building.govt.nz)

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<sup>1</sup> 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).

<sup>2</sup> See section 7.3 for more information on forecast and research data.

### 1.3 Context

Construction is currently experiencing a period of significant uncertainty, characterised by:

- construction material price inflation
- labour constraints
- supply chain disruptions
- credit constraints
- Building Code changes.

Construction material price inflation and labour constraints have led to high inflation in construction costs. The capital goods price index (CGPI) for residential buildings shows inflation in the residential sector in 2021 hit 14%. Inflation in the non-residential sector and other construction was not as high but still above the long-run average at 8% and 7% respectively.

High demand both domestically and internationally and supply chain disruptions have put pressure on material prices. The producer's price index (PPI) shows that inflation for the output of wood and timber was 26% in 2021. In comparison, ready-mixed concrete and fabricated metal increased by 8% and 7% respectively.

The first five months of 2022 have already seen the official cash rate (OCR) move from 0.75% at the start of the year to 2%.<sup>3</sup> At the same time, the amendments to the Credit Contracts and Consumer Finance Act 2003 have made it more difficult for consumers to get loans.

MBIE has also announced changes to the Building Code, which include increasing the number of climate zones and changing insulation requirements.

ANZ Business Outlook survey construction intentions show that the residential sector is generally expecting a deterioration, whereas the non-residential (commercial) sector is still positive about the outlook.

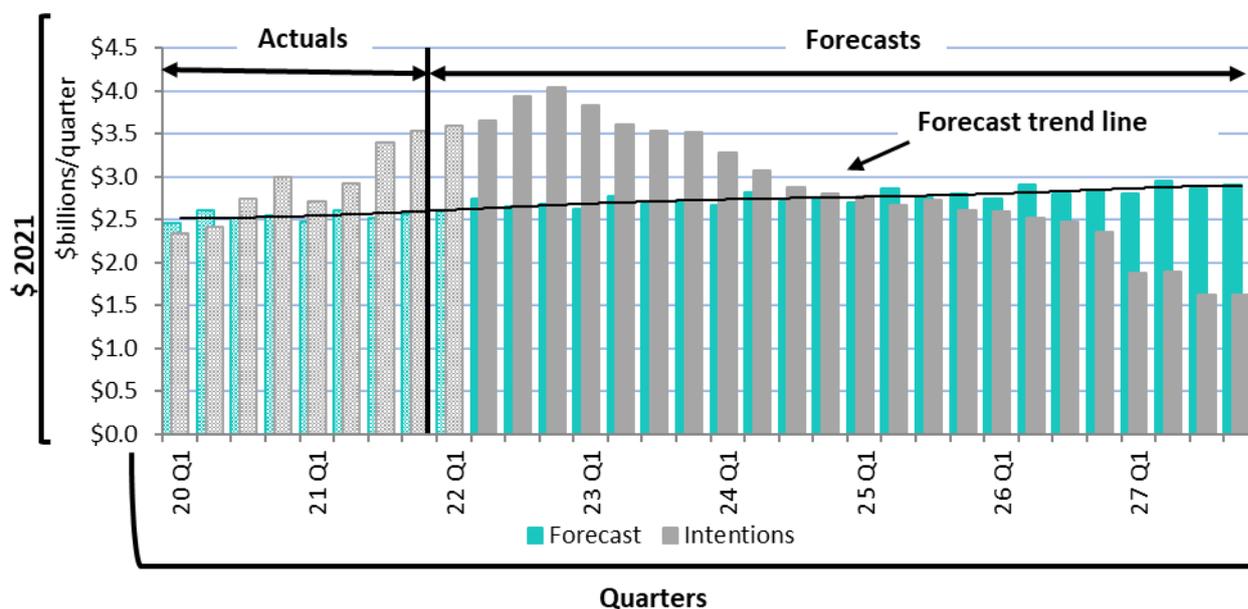
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<sup>3</sup> As at 25 May 2022.

## 1.4 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 1.4.1 Example graph



Source: BRANZ/Pacifecon

- Values are in constant December 2021 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 2021 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, 2022 represents January 2022 through to December 2022.
- *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, 2022 Q2 represents July 2021 through to June 2022.

A glossary of key terms is presented in section 7.2.

## 2. Key findings

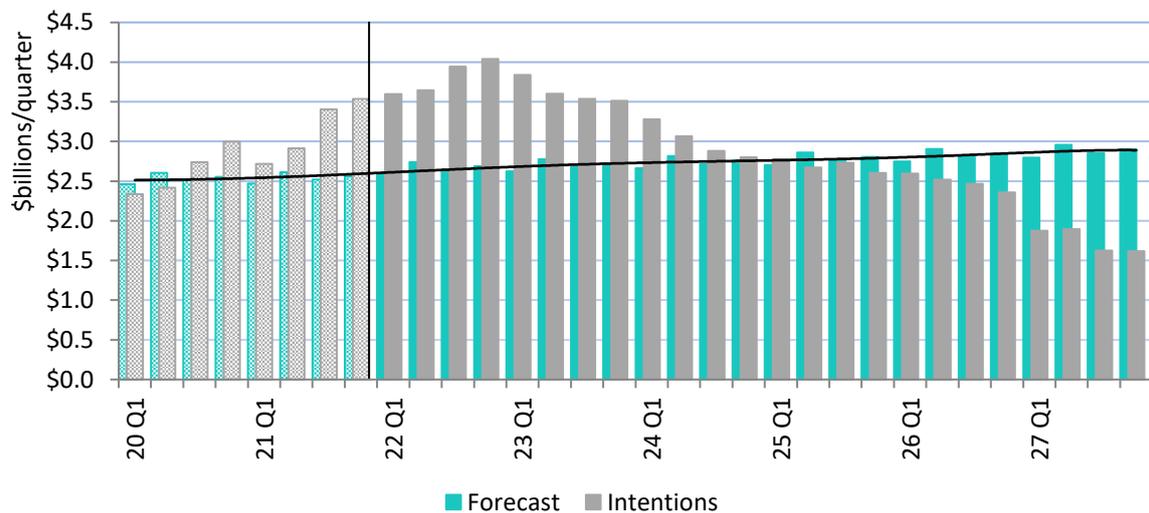
This section discusses the major findings in the report:

- [Steady growth in infrastructure activity throughout the forecast period](#)
- [Non-residential activity to peak in 2023](#)
- [Strong pipeline of work in the non-residential sector in Otago](#)
- [Residential activity to fall from record high](#)

### 2.1 Steady growth in infrastructure activity throughout the forecast period

In 2021, infrastructure represented one-fifth of total building and construction activity. By the end of the forecast period, we are forecasting infrastructure's share of total activity to increase to over one-quarter. Pacifecon's intentions data indicates strong short-term intentions, and these remain at high levels throughout the forecast period.

Figure 2.1.1 Infrastructure activity nationally

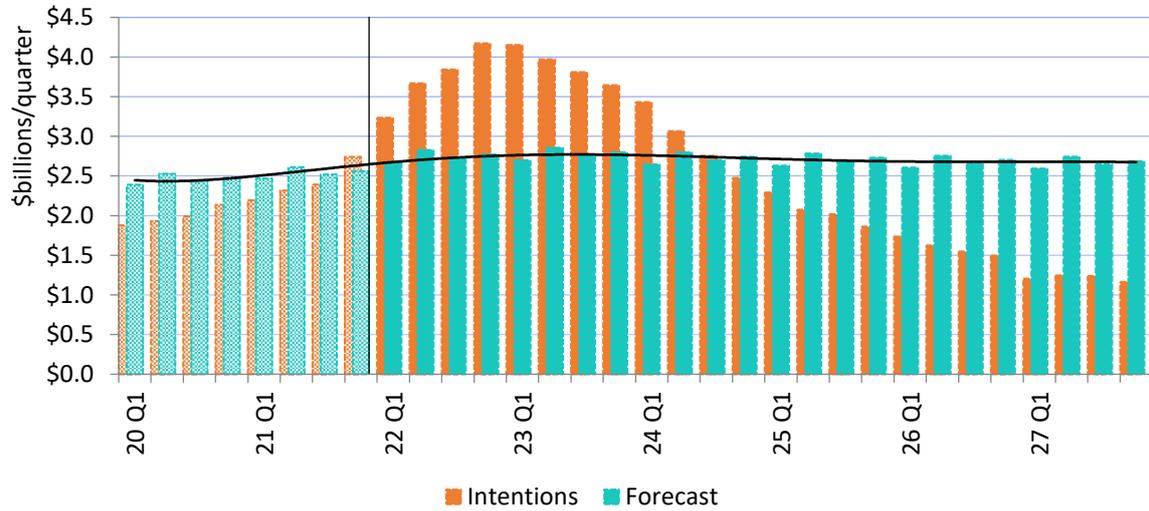


Source: BRANZ/Pacifecon

## 2.2 Non-residential activity to peak in 2023

Non-residential activity is forecast to peak in 2023 at **\$11.1b**, up from **\$10.2b** in 2021. From 2023, we forecast a modest fall in activity to **\$10.7b** at the end of the forecast period. Strong project intentions in the sector remain in the short term, as can be seen by Pacifecon's intentions data.

Figure 2.2.1 Non-residential activity nationally



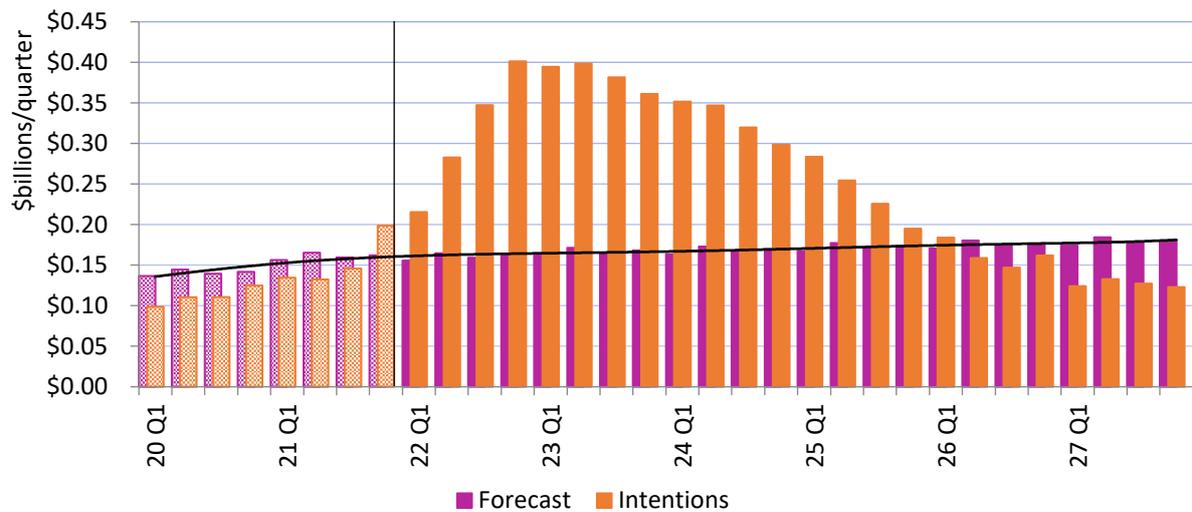
Source: BRANZ/Pacifecon

### 2.3 Strong pipeline of work in the non-residential sector in Otago

Non-residential project intentions is particularly strong in the Otago region. Pacifecon’s intentions data in Otago is at least double what is being forecast. This is largely due to the Otago region not having sufficient capability for all the projects that are ongoing or due to start over the next couple of years. Large on-going or upcoming projects in Otago include:

- Dunedin hospital
- KiwiRail Hillside railway workshop
- University of Otago Te Rangi Hiroa College rebuild
- Radisson Collection Hotel
- Queenstown gondola redevelopment

Figure 2.3.1 Otago non-residential building activity

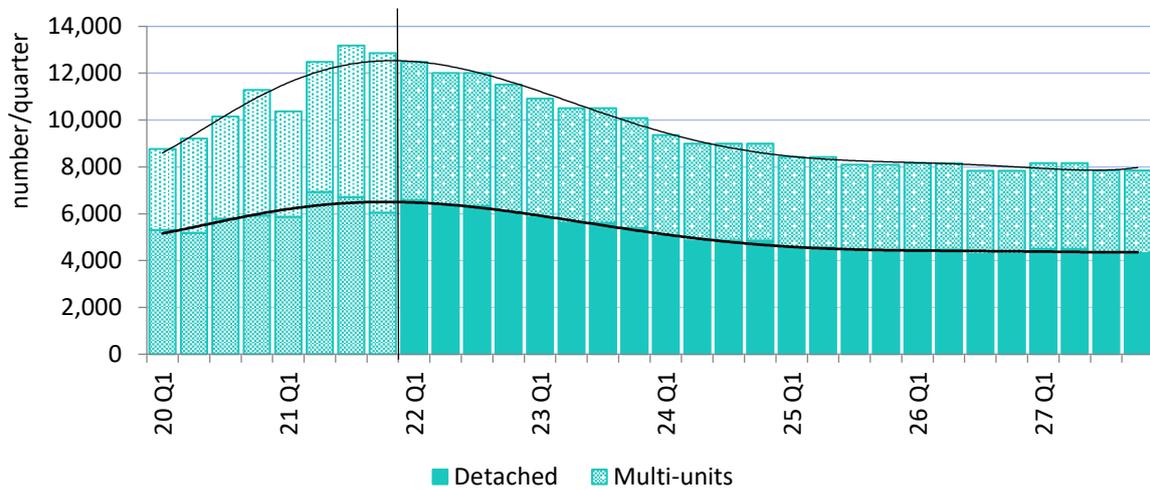


Source: BRANZ/Pacifecon

## 2.4 Residential consents to fall from record high

We are forecasting 223,000 new dwellings to be consented over the forecast period at an average of just over 37,000 dwellings per year. Despite the fall from the elevated levels of the last couple of years, an average of 37,000 dwelling consents per year takes us back to 2019 levels.

Figure 2.4.1 Dwelling units consented nationally



Source: BRANZ

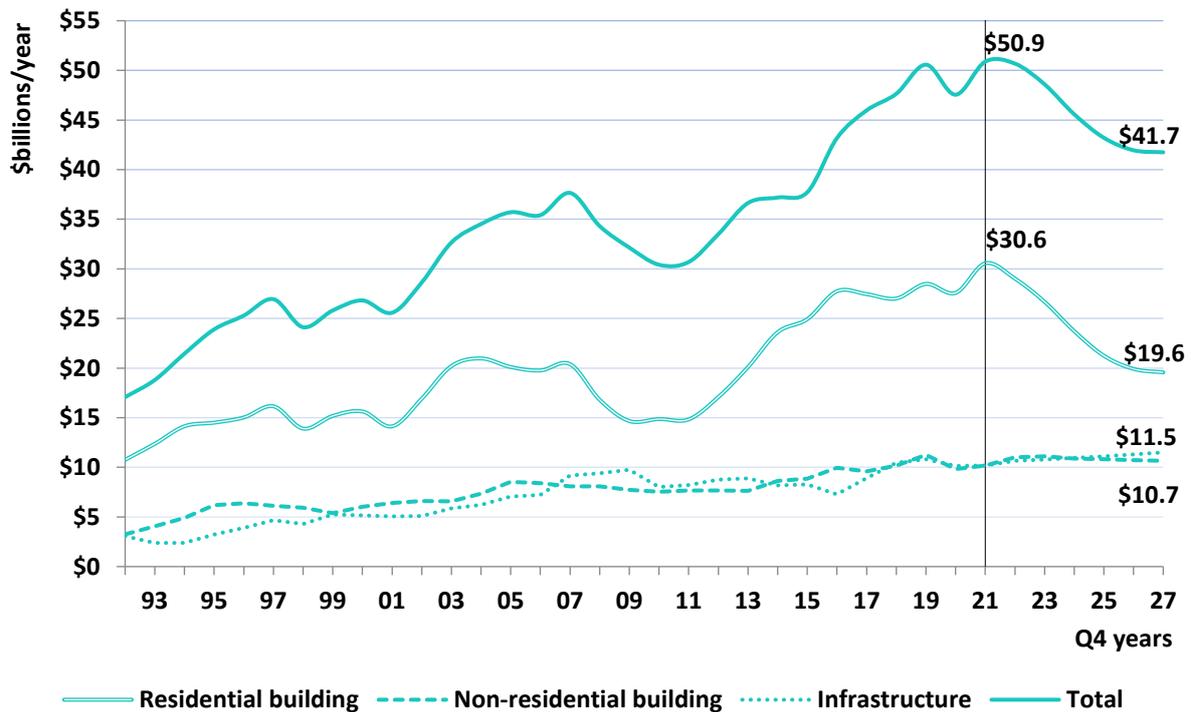
### 3. National forecast

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.

#### 3.1 National construction, by value

New Zealand’s total construction activity increased by 7% in 2021 to **\$50.9b**. This year’s forecast is for construction activity to decrease steadily to about **\$41.7b** in 2027, driven largely by the reduced strength of the residential sector.

Figure 3.1.1 All construction nationally, by value

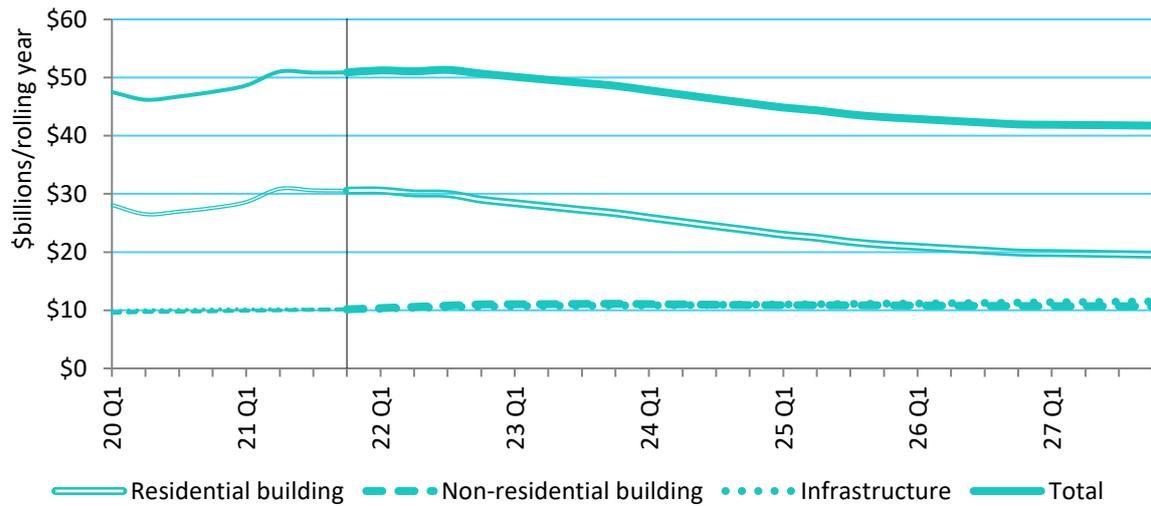


Source: BRANZ/Pacifecon/Stats NZ

### 3.2 National construction, by activity

Residential buildings are the largest contributor to national construction. Residential buildings contributed 60% of total construction activity in 2021. 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 was also seen in the non-residential and infrastructure sectors in 2020. We forecast that residential building activity will decrease from **\$30.6b** in 2021 to a low of **\$19.6b** in 2027. We forecast non-residential activity to reach a high of **\$11.1b** in 2023 and then fall away to 2027. However, infrastructure activity is forecast to increase year on year, peaking at the end of the forecast period at **\$11.5b**.

Figure 3.2.1 All construction nationally, by activity

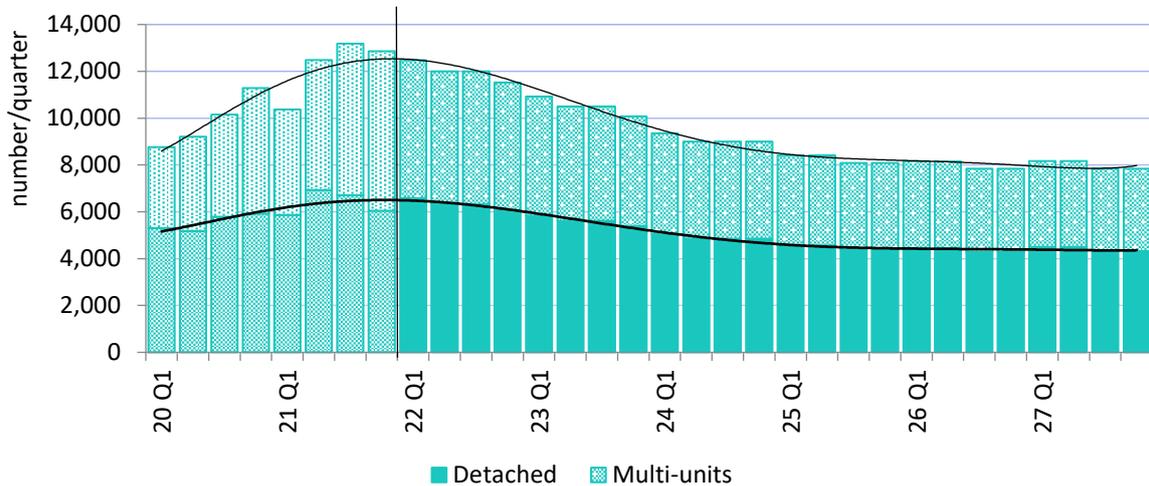


Source: BRANZ

### 3.3 National residential building, by dwelling number

Multi-unit dwellings accounted for 48% of all dwellings consented in 2021. We are forecasting 22,680 multi-unit consents in 2022, falling to 14,380 by 2027. The forecast is for a total of 223,000 new dwellings to be consented over the next six years at an average of just over 37,000 dwellings a year.

Figure 3.3.1 Dwelling units consented nationally<sup>4</sup>

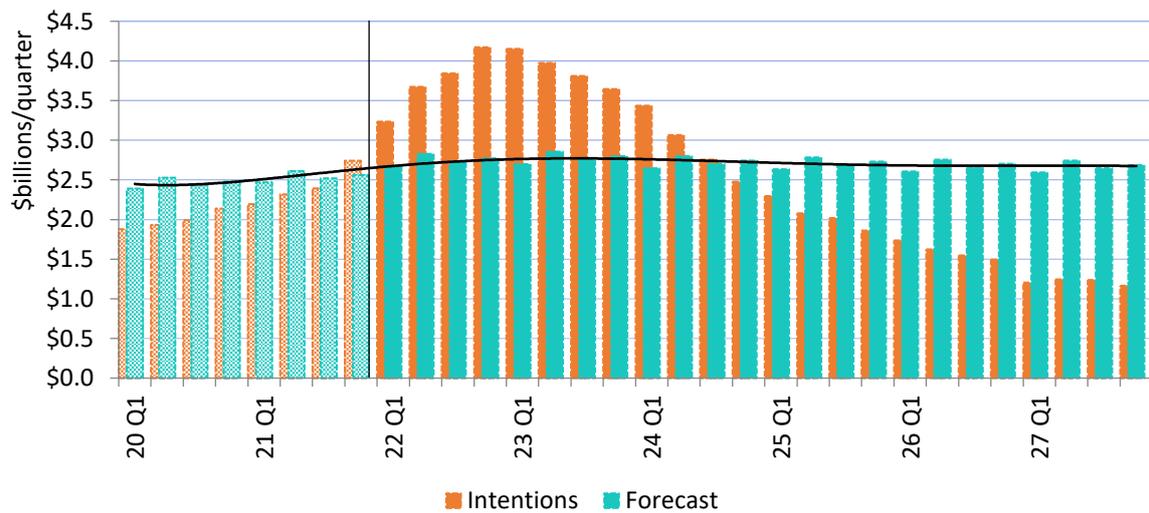


Source: BRANZ

### 3.4 National non-residential building

Non-residential building activity nationally peaked in 2019 at **\$11.3b**. However, strong project intentions in the sector remain, as can be seen by intentions data. We forecast activity in the sector to remain strong for the next couple of years based on strong consenting activity, peaking in 2023 at **\$11.1b**, before falling away to **\$10.7b** at the end of the forecast period.

Figure 3.4.1 Non-residential building activity nationally



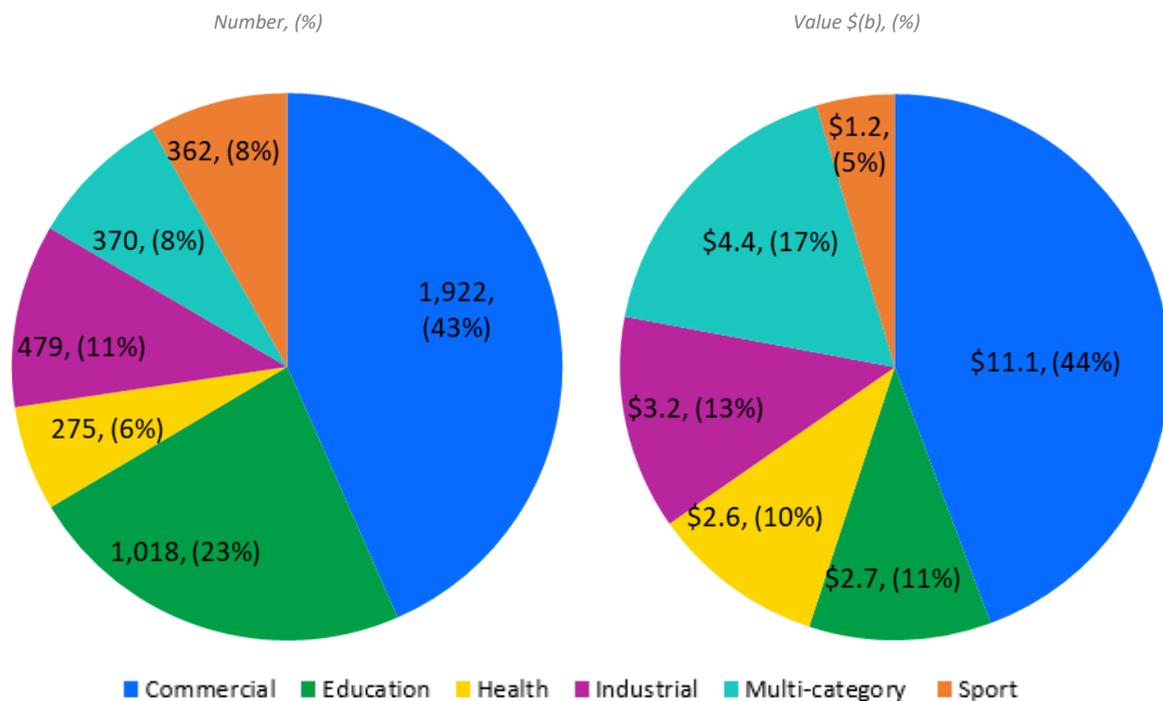
Source: BRANZ/Pacifecon

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

### 3.5 Types of non-residential building projects

Commercial buildings dominate non-residential building work expected to start in the year to December 2021, contributing 43% of the total number of projects and 44% of total value. This is a lower proportion by number than we saw in the 2021 report. During 2020, several planned visitor accommodation and office building projects were delayed. These started to be progressed during 2021, and this trend, particularly for visitor accommodation, has continued in 2022. Education has many projects (23% of the total number of projects) but only accounts for 11% of the total value.

Figure 3.5.1 Non-residential building types anticipated to start in 2022,<sup>5</sup> by number and total project value



Source: Pacifecon

<sup>5</sup> Actuals and construction intentions, year ending December 2022.

### 3.6 Project initiators for non-residential building, by sector

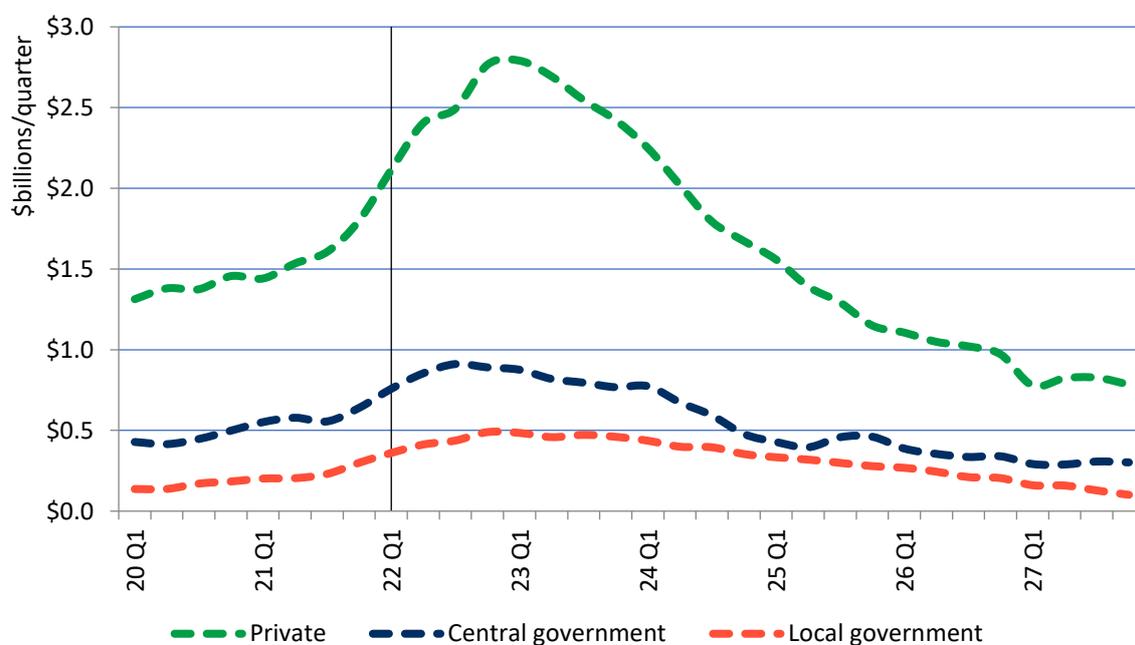
The private sector is the largest initiator of non-residential building, contributing 66% of the value of researched intentions over 2022–27, while central and local government make up 22% and 13% respectively. These are very similar proportions to last year for all sectors.

Central and local government-initiated projects continue to benefit from having good long-term visibility of funding,<sup>6</sup> 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<sup>7</sup> 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, post COVID-19 lockdowns, an increase in shop refits and new storage and logistics facilities have been reported due to businesses moving out of the high street, reducing outlets or furthering their online presence. In 2022, we have started to see the commencement of visitor accommodation and tourist facility projects.

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



Source: Pacifecon

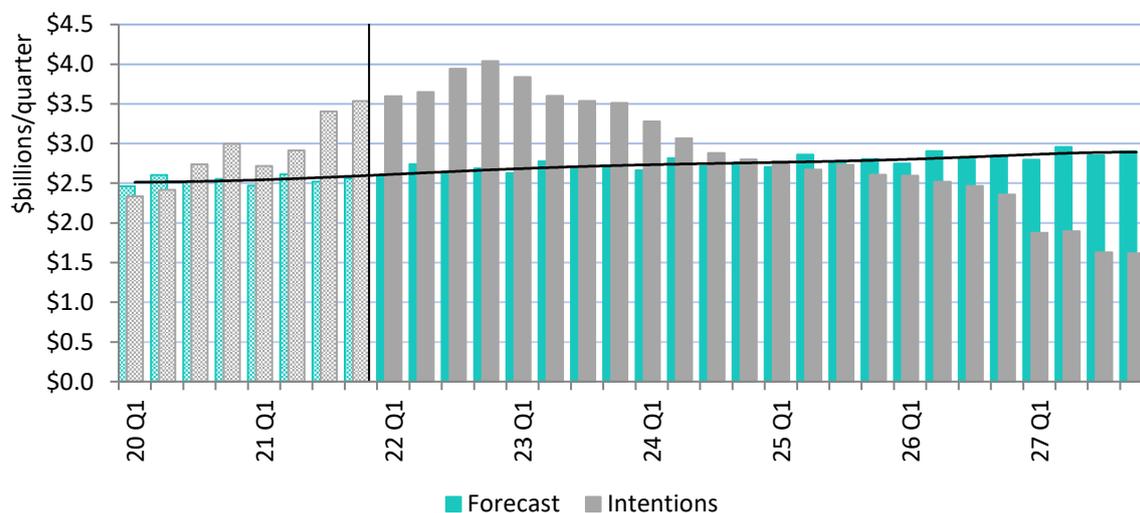
<sup>6</sup> Local government long-term plans and central government budget statements.

<sup>7</sup> See section 5.5 for more information on optimism bias.

### 3.7 National infrastructure activity

In 2021, infrastructure represented one-fifth of total building and construction value. Infrastructure activity fell slightly between 2019 and 2020 but grew to **\$10.2b** in 2021. We forecast activity to continue to increase steadily year on year and reach **\$11.5b** in 2027. Pacifecon’s research data indicates strong intentions throughout the forecast period.

Figure 3.7.1 Infrastructure activity nationally



Source: BRANZ/Pacifecon

This year’s forecast is for growth in infrastructure of 5% in 2022 followed by steady growth of about 1.5% per annum for the rest of the forecast period.

Each year, the values for forecast and intentions (based on data for planned and ongoing infrastructure projects) are similar. This is due to nearly 70% of the intended work being initiated by the public sector, which shows better long-term visibility of funding than the private sector and means intentions tend to remain strong throughout the forecast period. The forecast by BRANZ is based on mining, electricity, water, gas, transport, telecommunications and other.

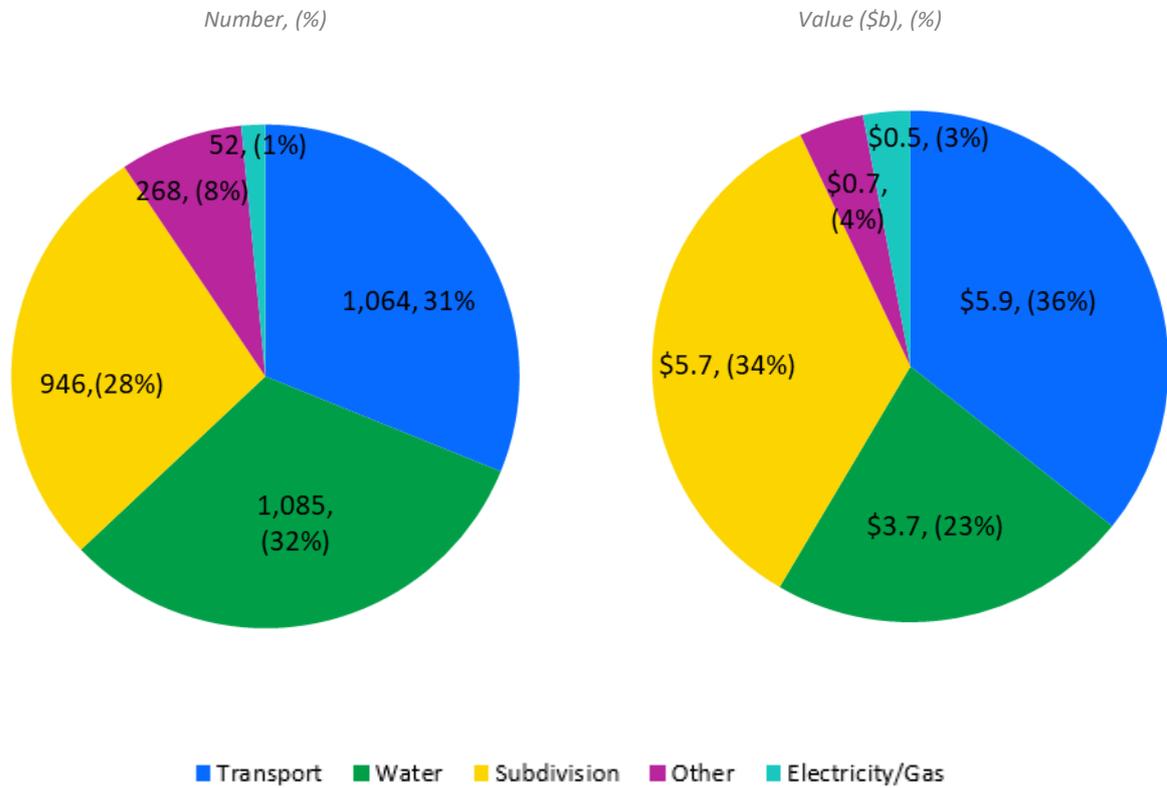
Recent government announcements have included:

- Budget 2022 lifting infrastructure investment over the next four years from \$57.3b to \$61.9b, representing an increase of \$4.6b
- three waters reforms to transform the system for delivering three waters services: drinking water, wastewater and stormwater
- a second Auckland Harbour crossing – Waka Kotahi NZ Transport Agency is looking for registrations of interest to work on the planning for the crossing.

### 3.8 Types of infrastructure construction

Transport, water and subdivision projects will again dominate new infrastructure activity in 2022, contributing 91% of the projects and 93% of the total value, considerably above the 2021 report. Transport and subdivisions intentions are notable, contributing a much higher proportion of value (70%) than the number of projects (59%).

Figure 3.8.1 Infrastructure project types anticipated to start in 2022,<sup>8</sup> by number and total project value<sup>9</sup>



Source: Pacifecon

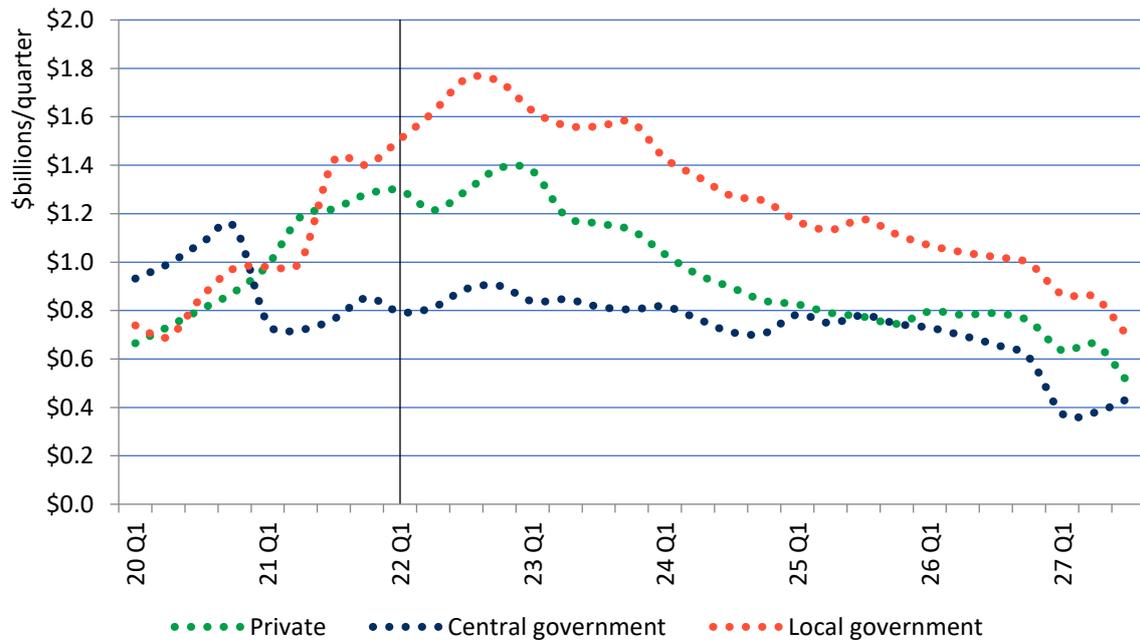
<sup>8</sup> Actuals and construction intentions, year ending December 2022.

<sup>9</sup> 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 43% of projects initiated over the forecast period. This is a slight increase on the 2021 report. Central government has reduced to 25% with mainly transport projects. The private sector has remained at 32% with most of the value due to subdivisions. Late 2022 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

## 4. Regional forecast

### 4.1 Regional comparisons

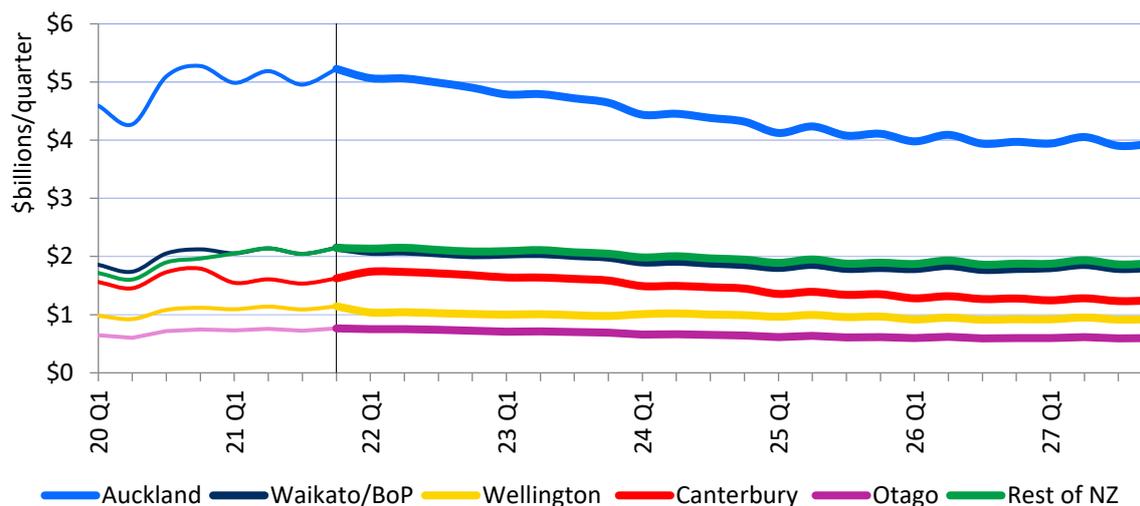
This section examines the differences in the forecast values for residential buildings, non-residential buildings and infrastructure activity across the regions defined in the report. The individual regions are discussed in more detail in sections 4.2 to 4.7.

#### Total building and construction value regional comparison

All regions saw increases for total construction in 2021 except Canterbury, which experienced a 3% decrease to **\$6.3b**. The Auckland region increased by 6% to **\$20.4b** on the previous year, Waikato/Bay of Plenty 8% to **\$8.4b**, Wellington 9% to **\$4.5b**, Otago 10% to **\$3.0b** and Rest of New Zealand 17% to **\$8.4b**.

Throughout the forecast period, all regions are now expected to see decreased levels of total construction activity. The peak for total construction nationally is forecast to have been 2021, and a slowdown is now anticipated for the remainder of the forecast period. Compared to 2021, Auckland is expected to see a decrease in activity of 22% to **\$15.8b** by 2027, Waikato/Bay of Plenty is forecast to decrease by 14% to **\$7.2b**, Wellington by 17% to **\$3.7b**, Canterbury by 21% to **\$5.0b**, Otago by 19% to **\$2.4b** and Rest of New Zealand by 10% to **\$7.6b** over the six years to 2027.

Figure 4.1.1 Value of total building and construction, by region



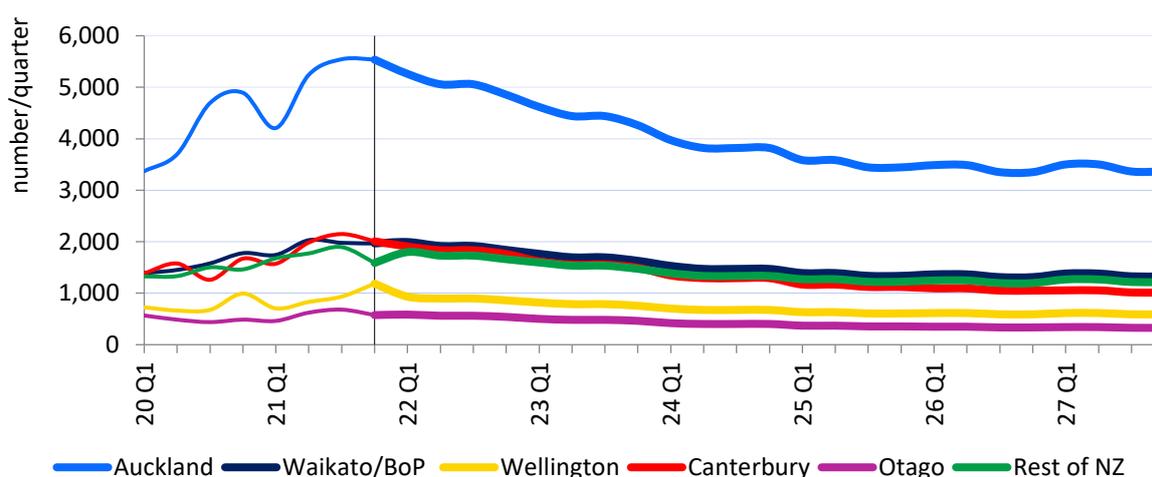
Source: BRANZ/Pacifecon

## Residential building regional comparison

The number of new residential consents has increased steadily across the whole country over the last 12 months as total consents went from 39,412 in 2020 to 48,895 in 2021. The Auckland region represented 42% of consents in 2021. Waikato/Bay of Plenty, Canterbury and Rest of New Zealand regions each represented 14–16% of the total number of new residential consents.

All regions are forecast to track downwards to different extents over the forecast period. Auckland is the most noticeable, with consents falling from 20,529 in 2021 to a low of 13,680 in 2026.

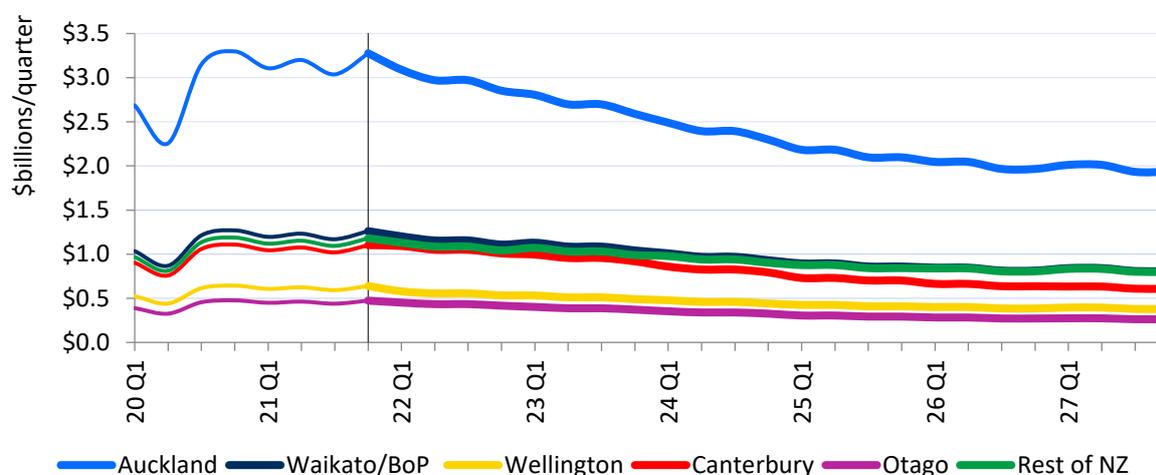
Figure 4.1.2 Number of residential consents, by region



Source: BRANZ

2021 can be characterised as the year of recovery after the lockdowns of 2020. Activity in the residential sector was strong, buoyed by high levels of consenting and work that was planned to be completed in 2020. However, the impact of material and labour constraints can be seen across the regions as activity has plateaued throughout 2021.

Figure 4.1.3 Value of residential buildings, by region

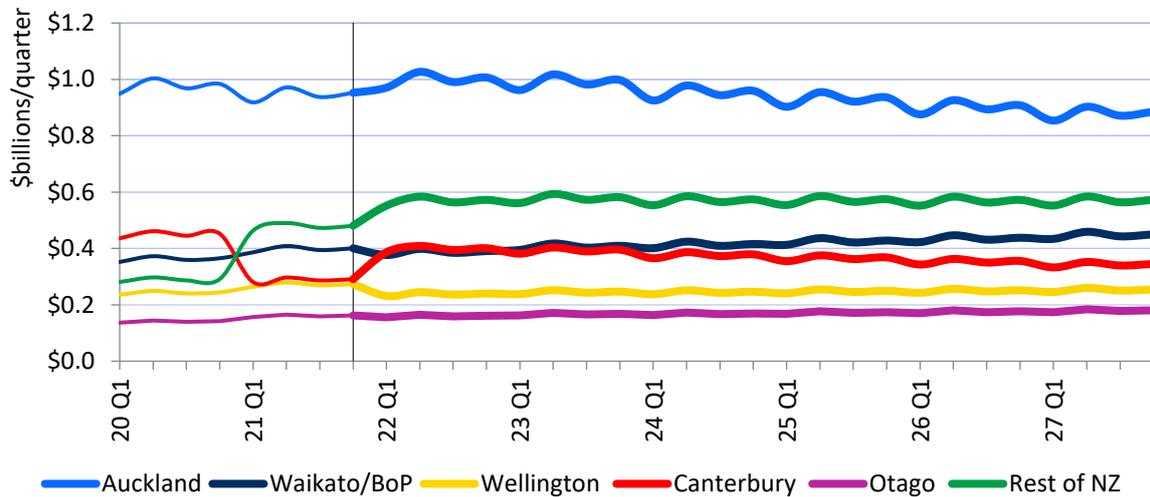


Source: BRANZ

## Non-residential building regional comparison

Despite the relatively modest growth in non-residential building activity at the national level, many of the regions showed improvement in activity in 2021 compared to 2020. The Rest of New Zealand showed the most significant growth in 2021, up 65% to **\$1.9b** in 2021. Waikato/Bay of Plenty, Wellington and Otago all grew by 10–15%. However, Auckland and Canterbury had a decrease in activity by 3% and 36% respectively in 2021.

Figure 4.1.4 Value of non-residential building, by region

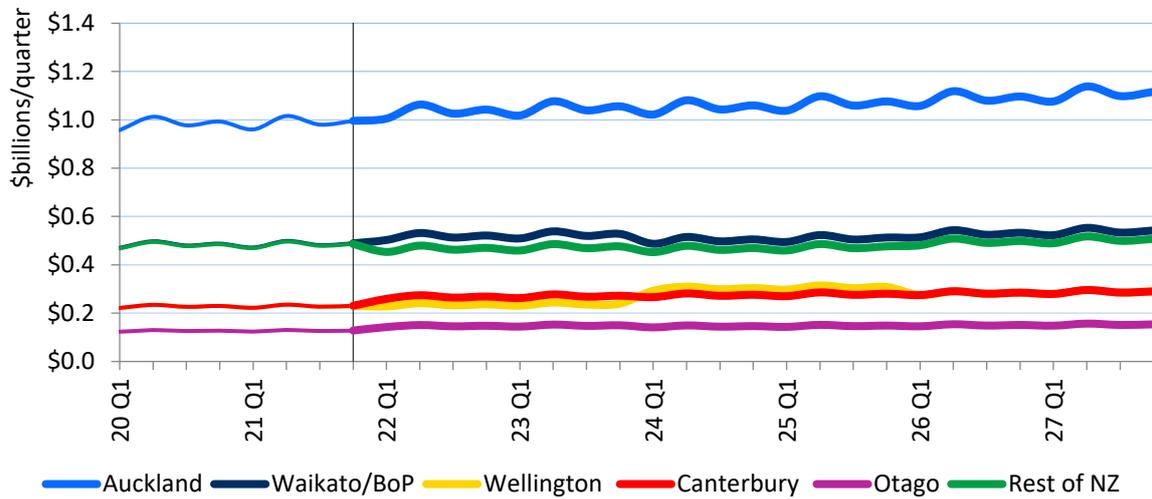


Source: BRANZ

## Infrastructure activity regional comparison

Infrastructure activity increased by 0.3% in 2021 following a 2% reduction in 2020. Infrastructure forecasts overall are for continued steady growth to 2027. Growth is being driven by transport, subdivisions and water (see Figure 3.8.1). Growth in infrastructure activity is expected to be largest in Auckland and Waikato/Bay of Plenty, as in previous years.

Figure 4.1.5 Value of infrastructure activity, by region



Source: BRANZ/Pacifecon

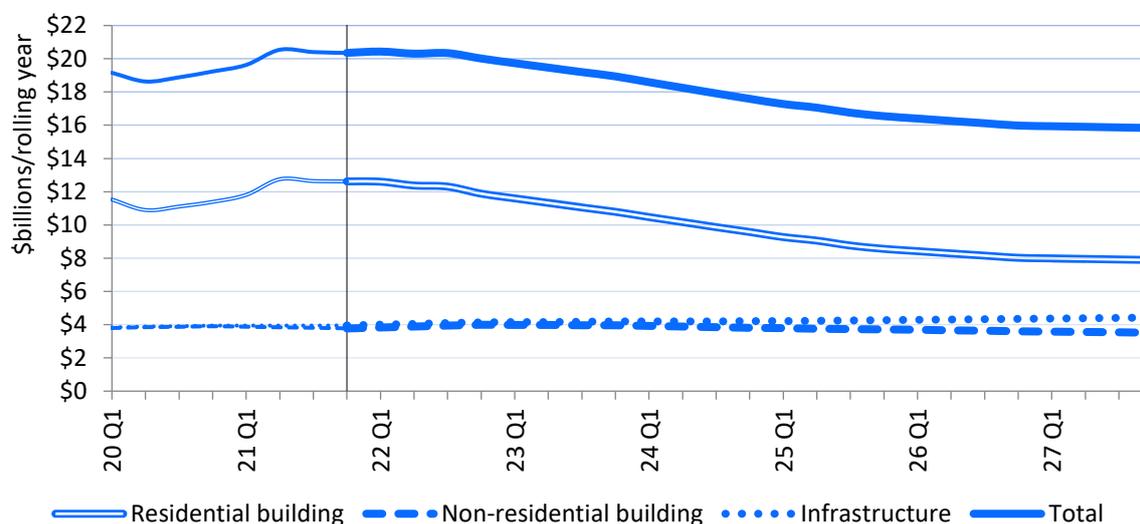
## 4.2 Auckland<sup>10</sup>

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 2021, the same proportions as 2020. Auckland is forecast to remain steady throughout 2022 and then fall away towards the end of the forecast period. It is anticipated to represent 38% of total national construction value and 43% of dwelling unit consents in 2027.

Differences for each sector were seen in 2021. The total growth in 2021 was 6% to **\$20.4b**, which was largely due to 11% increase in residential activity. The forecast for Auckland is now for a decrease in activity to **\$15.8b** by the end of 2027, a reduction of 22% compared to 2021.

Whilst infrastructure is forecast to grow consistently and by 12% to 2027, non-residential building is anticipated to peak in 2022 at **\$4.0b** and then reduce by 12% by the end of the forecast period. Residential building is anticipated to have peaked at **\$12.6b** in 2021 and is forecast to reduce to **\$7.9b** in 2027.

Figure 4.2.1 All construction in Auckland, by value



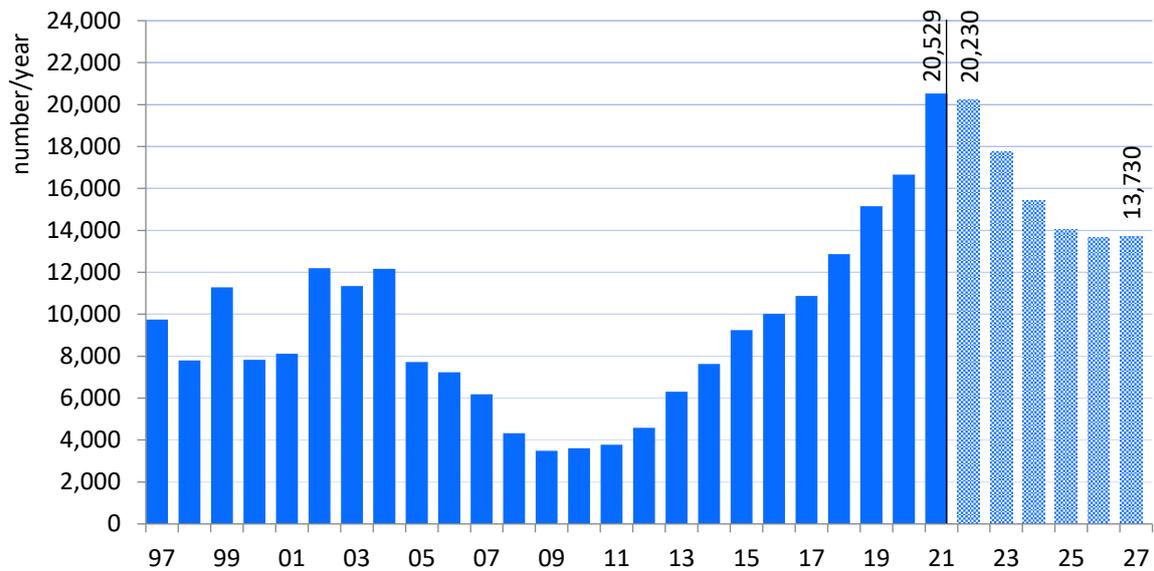
Source: BRANZ/Pacifecon

<sup>10</sup> The area covered by Auckland Council.

## Auckland dwelling consent activity

The number of dwelling units consented in Auckland grew by 23% to **20,529** in 2021. Consent growth in each of 2018 and 2019 was 18% but was slightly lower in 2020 at 10%. We forecast that Auckland reached its peak in dwelling consent activity in 2021. The forecast is for a slight decline in the number of consents in 2022 before falling to **13,730** at the end of the forecast period. Just under **95,000** dwelling units are expected to be consented in the six years from 2022 to 2027 (**111,000** were anticipated over six years in the 2021 report and **73,000** in the 2020 report).

Figure 4.2.2 Dwelling units in Auckland, 1997 to 2027

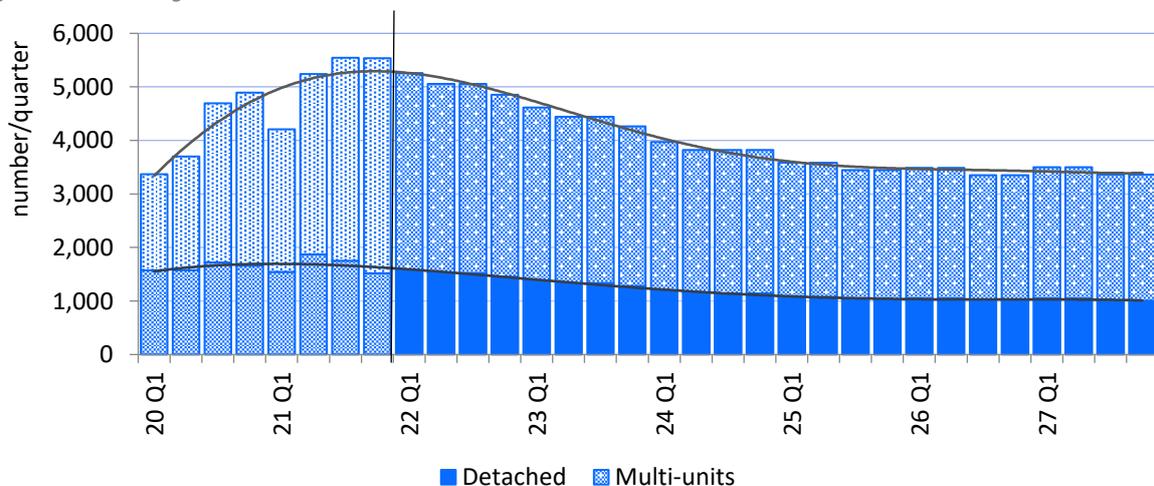


Source: BRANZ/Stats NZ

## 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 gradually decrease throughout the forecast period. Multi-unit consents are going to remain dominant in Auckland, representing 70% of new dwelling consents in 2027. However, we do forecast that multi-unit consents in Auckland are going to reduce from **13,843** in 2021 to **9,580** in 2026.

Figure 4.2.3 Dwelling units in Auckland

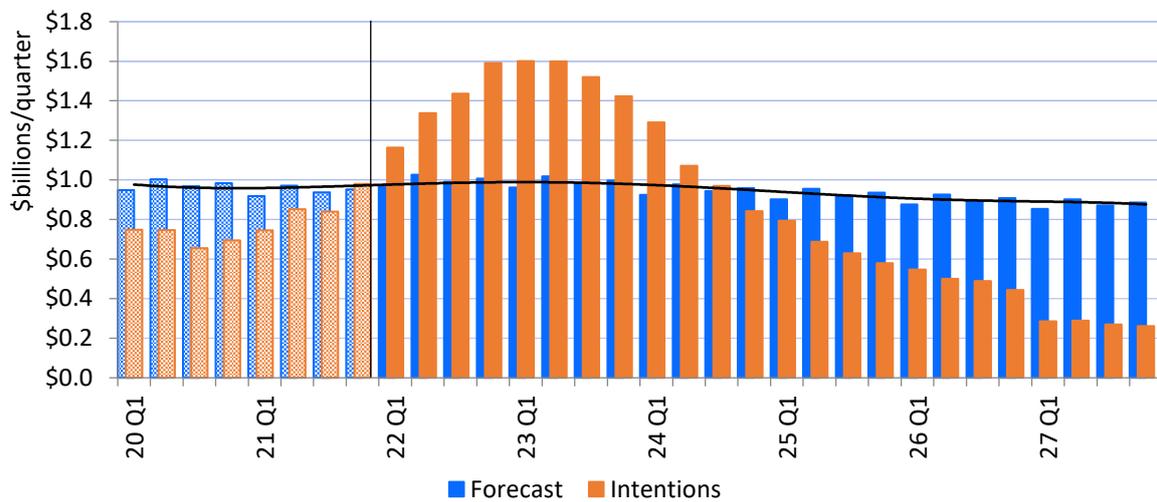


Source: BRANZ

## Auckland non-residential building activity

Non-residential building activity in Auckland fell by 3% to **\$3.8b** in 2021. We forecast non-residential building activity in Auckland to increase by 6% to peak at **\$4b** in 2022. The remainder of the forecast period shows a small decline year on year in non-residential building activity to a low of **\$3.5b** in 2027. 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 intentions work.

Figure 4.2.4 Auckland non-residential building activity

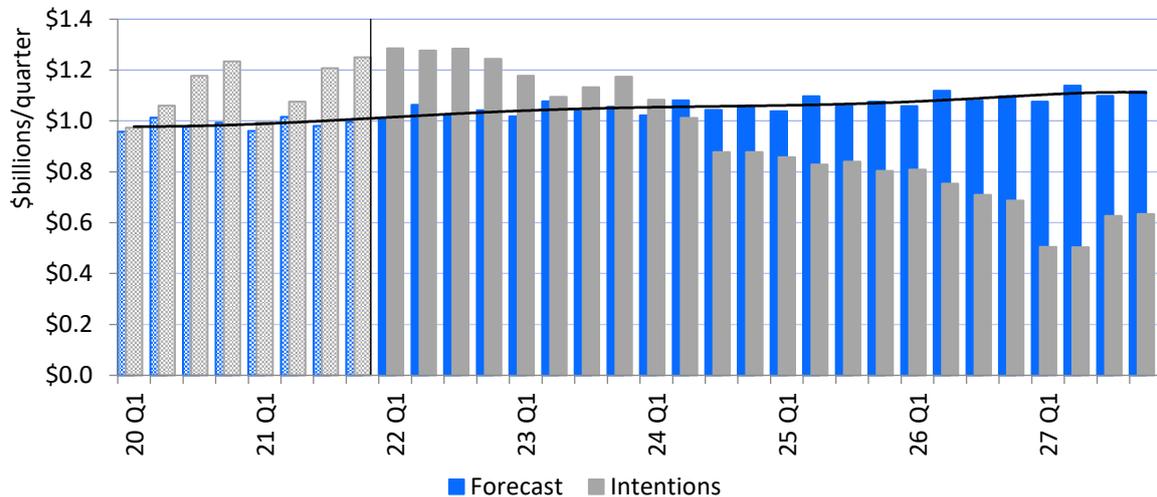


Source: BRANZ/Pacifecon

## Auckland infrastructure activity

Infrastructure activity in Auckland increased slightly by 0.3% in 2021 to *\$4.0b*, following a decrease of 2% in 2020, and is forecast to increase to *\$4.4b* by 2026. The intentions 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 4.2.5 Auckland infrastructure activity



Source: BRANZ/Pacifecon

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

- retirement village communal facilities
- hospitals and aged care facilities
- schools and universities
- warehouses and storage facilities, logistics facilities and light industrial units
- data centres
- offices and retail
- airport terminal buildings
- visitor accommodation
- subdivisions and transport, including roads, rail, bridges/interchanges, airport runways and cycleways to support growth in residential building and public transport
- three waters expansion (drinking water, wastewater and stormwater) – wastewater in particular features strongly in the short term.

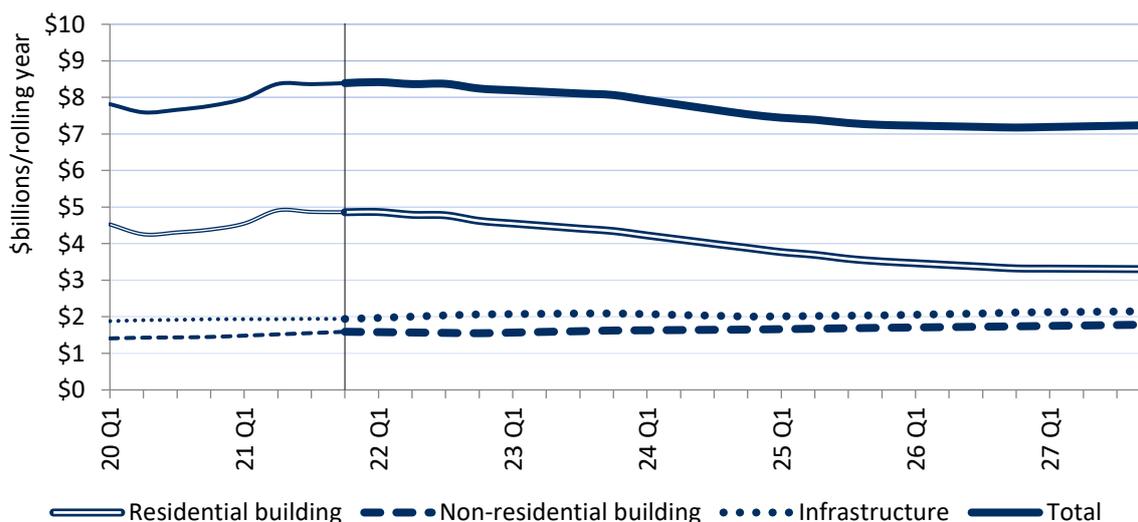
Source: Pacifecon

### 4.3 Waikato/Bay of Plenty<sup>11</sup>

The total value of construction in Waikato/Bay of Plenty increased by 8% in 2021 to **\$8.4b** following 7% reduction in 2020. All sectors saw growth, with residential activity increasing by 11%, non-residential activity increasing by 10% and slight growth also seen for infrastructure activity.

Residential building is now forecast to have peaked and to decrease slightly in 2022 to **\$4.6b** per annum before falling again to **\$3.3b** by 2026. Non-residential building is forecast to make gains from 2023, reaching **\$1.7b** by 2024. Infrastructure activity in this region continues to be expected to make gains throughout the forecast period, reaching **\$2.2b** per annum by 2027.

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



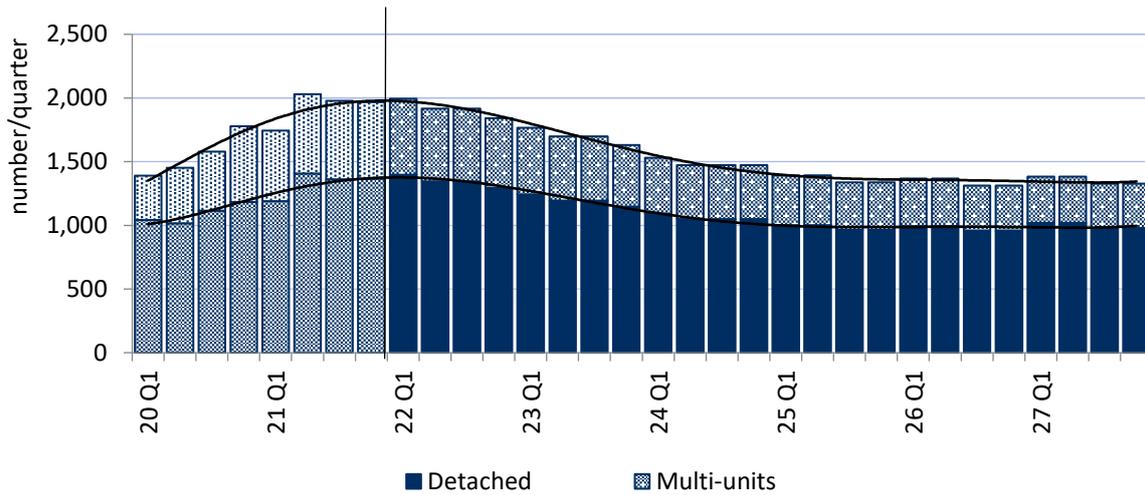
Source: BRANZ/Pacifecon

<sup>11</sup> 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. Just over 7,700 dwelling consents were issued for Waikato/Bay of Plenty in 2021, up from 6,199 in 2020. The forecast includes over 36,000 dwelling consents from 2022 to 2027 for Waikato/Bay of Plenty. Multi-unit consents reached 31% of all dwelling consents in 2021 and are forecast to reduce to 26% by the end of the forecast period. Historical consents show multi-unit consents are more popular in Waikato than Bay of Plenty.

Figure 4.3.2 Dwelling units in Waikato/Bay of Plenty

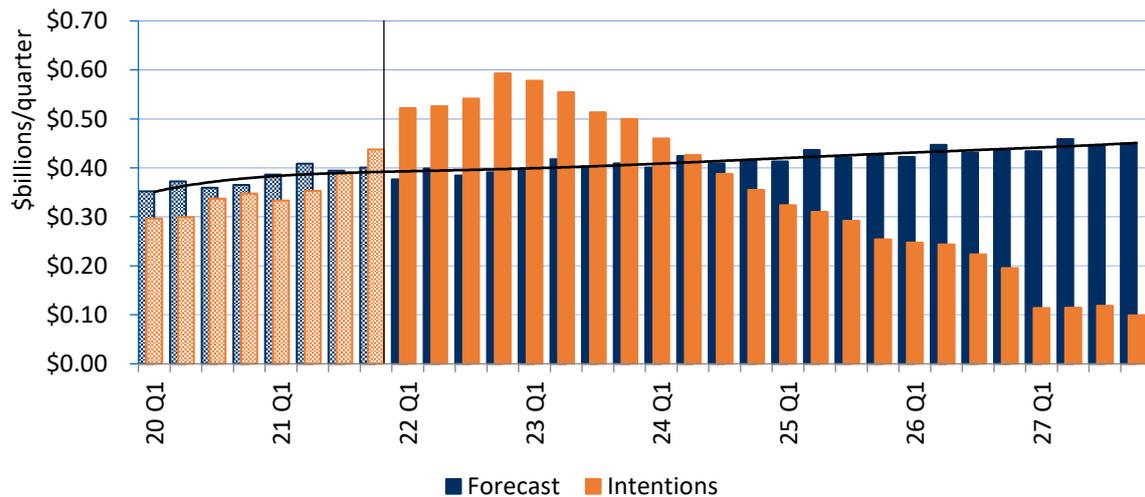


Source: BRANZ

### Waikato/Bay of Plenty non-residential building activity

Non-residential building activity in the region increased by 10% to \$1.6b in 2021 following a fall of 14% in 2020. Non-residential building activity is expected to increase throughout the forecast period to \$1.8b by 2027.

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

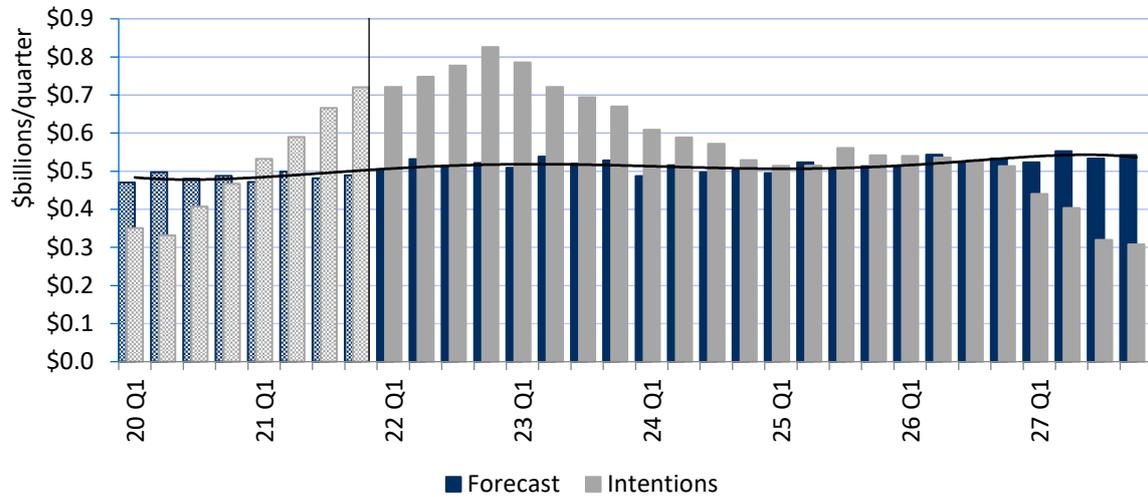


Source: BRANZ/Pacifecon

## Waikato/Bay of Plenty infrastructure activity

Infrastructure activity in the region increased slightly in 2021 to **\$1.9b**. Continued infrastructure growth is expected 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:

- offices, retail, libraries and museums
- visitor accommodation
- schools and tertiary research buildings
- hospitals
- manufacturing facilities and processing plants, including dairy, cold stores and distribution
- sports facilities
- subdivisions, mainly residential
- infrastructure, including roads, bridges and walkways/cycleways
- three waters developments (drinking water, wastewater and stormwater).
- electricity production and transmission.

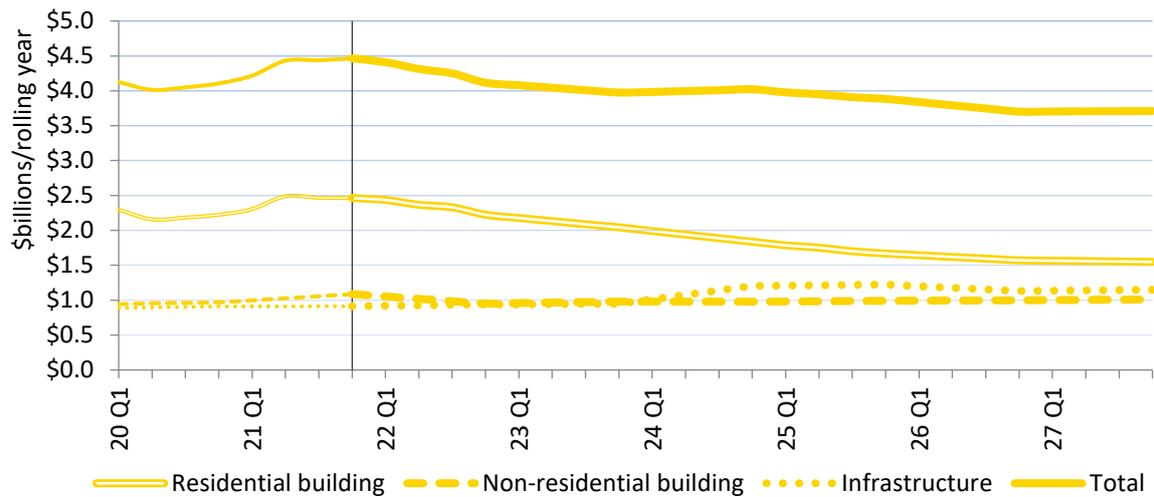
Source: Pacifecon

#### 4.4 Wellington<sup>12</sup>

Wellington’s total construction activity grew by 9% in 2021 to **\$4.5b** following growth of 2% in 2020, the only region to show growth in that year. This was due to rises of 11% in residential building and 12% in non-residential building, and infrastructure increased very slightly.

Wellington’s total construction value is forecast to decrease by 8% to **\$4.1b** in 2022, mainly due to reductions in residential building. Reductions each year in residential building activity are then forecast for the rest of the forecast period, reaching **\$1.5b** in 2027. We expect to see approximately **\$1.0b** of non-residential building work for each year to 2027. For infrastructure, an increase is forecast to **\$1.0b** in 2023. This is then anticipated to continue, rising again in 2024.

Figure 4.4.1 All construction in Wellington, by value



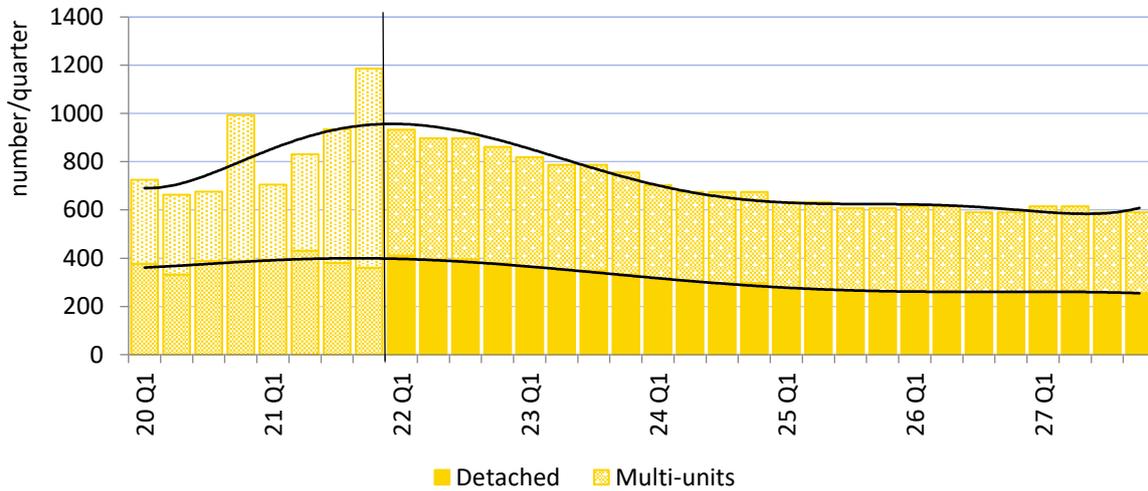
Source: BRANZ/Pacifecon

<sup>12</sup> 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 3,656 in 2021. We forecast just under 17,000 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 – 57% of dwelling consents were for multi-units in 2021. This proportion is expected to remain relatively steady over the forecast period.

Figure 4.4.2 Dwelling units in Wellington

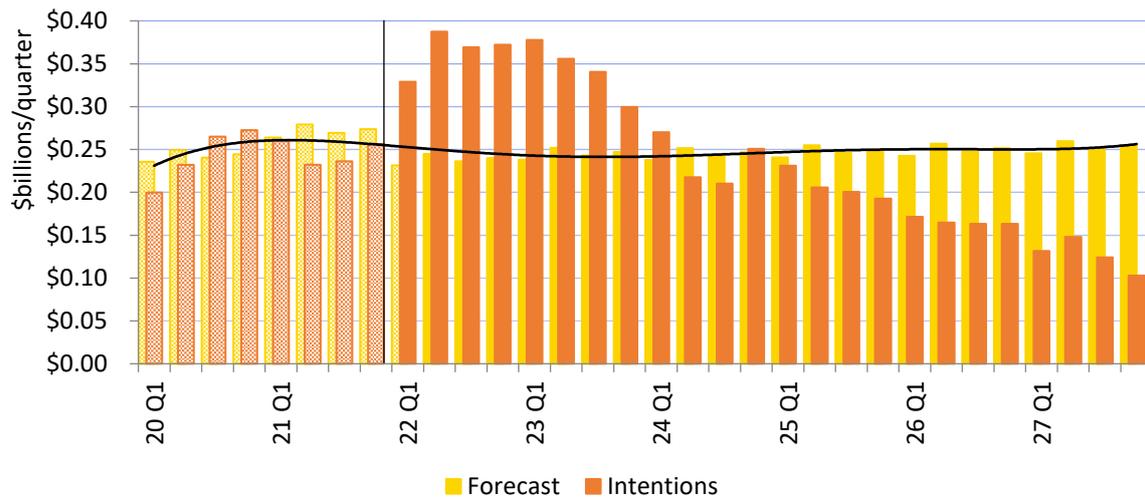


Source: BRANZ

### Wellington non-residential building activity

Non-residential building activity in Wellington grew by 12% to \$1.1b in 2021. We anticipate that non-residential building activity in Wellington will fall in 2022 back to similar levels as 2020 before growing very gradually for the rest of the forecast period.

Figure 4.4.3 Wellington non-residential building activity

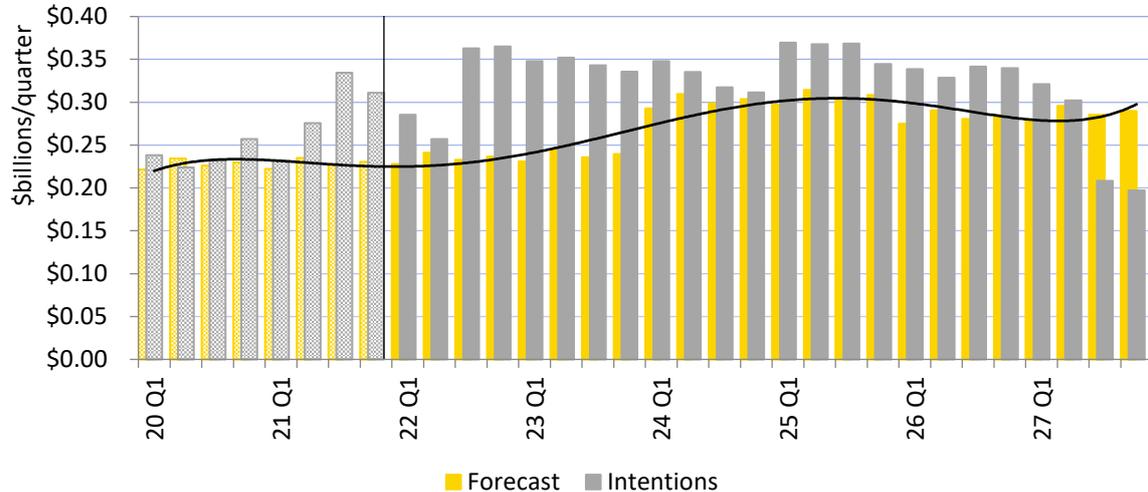


Source: BRANZ/Pacifecon

## Wellington infrastructure activity

Wellington infrastructure activity increased very slightly to **\$0.9b** in 2021. Further increases to a high in 2025 of just over **\$1.2b** are anticipated. This level is then expected to be maintained to the end of the forecast period.

Figure 4.4.4 Wellington infrastructure activity



Source: BRANZ/Pacifecon

Planned non-residential and infrastructure work for Wellington includes:

- retirement village communal buildings
- community facilities
- offices and warehouses – bulk retail, supermarkets and shopping centres
- visitor accommodation
- hospitals and aged care facilities
- three waters developments (drinking water, wastewater and stormwater) and flood protection
- rail and road.

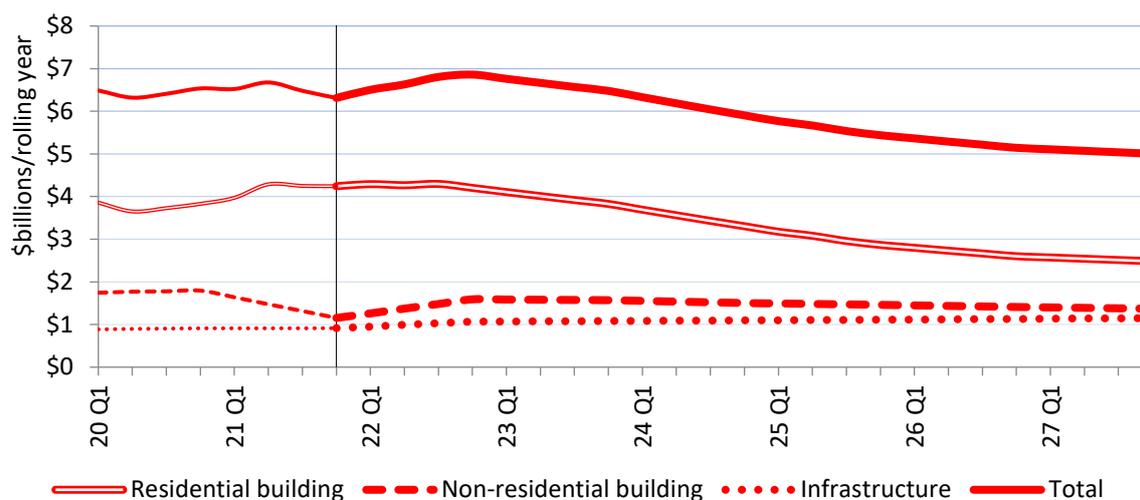
Source: Pacifecon

## 4.5 Canterbury<sup>13</sup>

A reduction in total construction value of 3% occurred in 2021. This was driven by growth in residential activity of 11%, a very slight increase in infrastructure activity and significant reduction in non-residential activity of 36%.

Residential building value is now expected to have peaked at **\$4.2b** in 2021, and this level is expected to be maintained throughout 2022. A decrease in activity is then forecast to lower residential building activity to **\$2.5b** per annum by 2027. Non-residential building activity is expected to rise by 38% to **\$1.6b** in 2022, and a gentle decrease to **\$1.4b** is then expected to 2026. Infrastructure is forecast to maintain increases year on year rising to **\$1.2b** in 2027.

Figure 4.5.1 All construction in Canterbury, by value



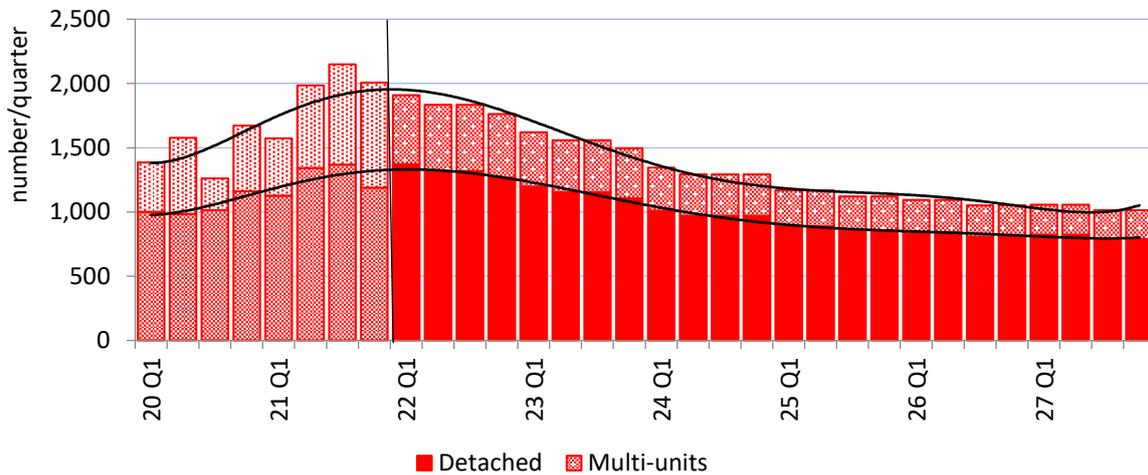
Source: BRANZ/Pacifecon

<sup>13</sup> 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 31% in 2021 to 7,714. Consents in Canterbury are forecast to fall throughout the forecast period to 4,140 in 2027. Detached homes have historically been popular in Canterbury, with the proportion of multi-unit dwellings standing at 35% in 2021. We forecast that this will fall to 22% by 2027.

Figure 4.5.2 Dwelling units in Canterbury

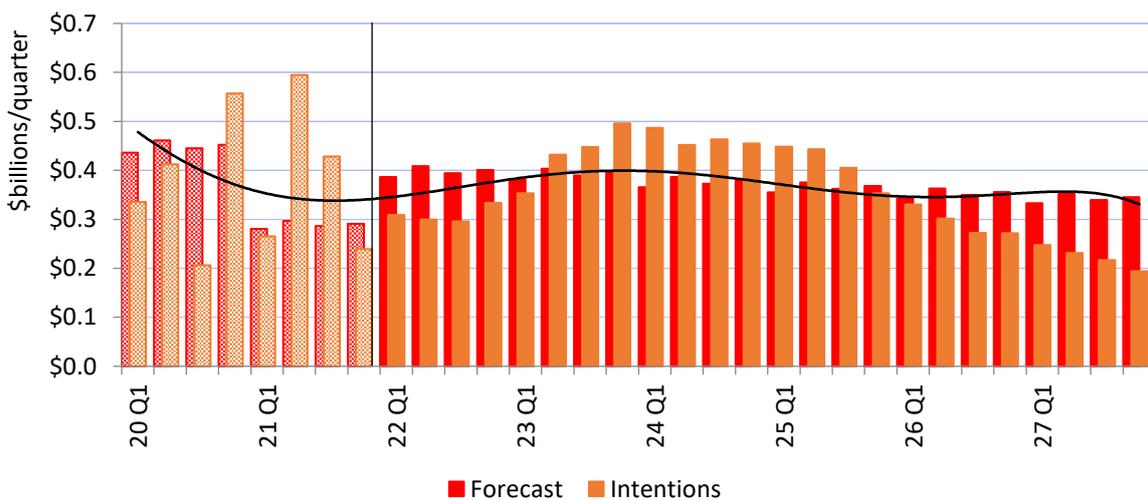


Source: BRANZ

### Canterbury non-residential building activity

Non-residential building activity reduced by 36% to \$1.2b in 2021 after a fall of 29% in 2020. We forecast Canterbury non-residential building activity to increase to \$1.6b in 2022 before gradually reducing back to \$1.4b in 2026. Pacifecon’s construction intentions are very closely aligned with the forecast.

Figure 4.5.3 Canterbury non-residential building activity

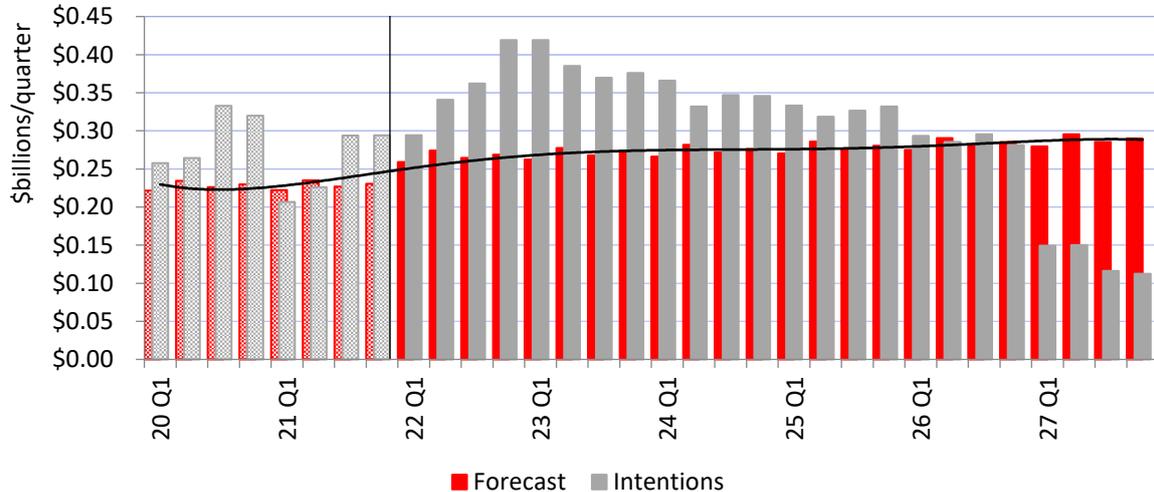


Source: BRANZ/Pacifecon

## Canterbury infrastructure activity

Canterbury infrastructure activity increased very slightly to **\$0.9b** in 2021. Consistent growth is then expected to the end of the forecast period, reaching **\$1.2b** by 2027. Pacifecon's data shows strong construction intentions for Canterbury through to 2026.

Figure 4.5.4 Canterbury infrastructure activity



Source: BRANZ/Pacifecon

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

- hospitals and aged care facilities
- bulk retail and manufacturing facilities
- schools and universities
- sports facilities
- places of worship, offices, theatres and museums
- visitor accommodation
- infrastructure – roads and three waters developments (drinking water, wastewater and stormwater)
- residential subdivisions.

Source: Pacifecon

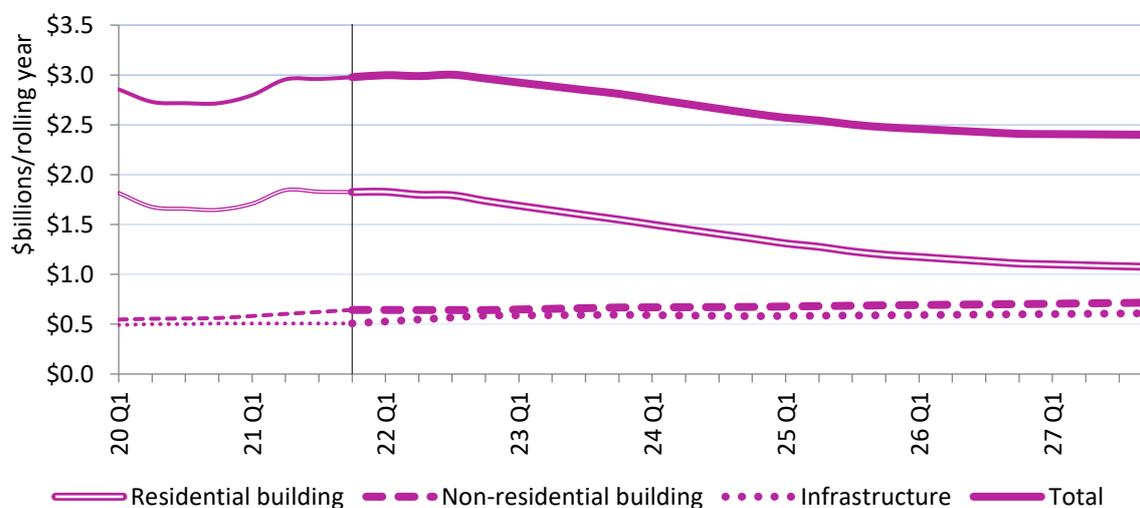
## 4.6 Otago<sup>14</sup>

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

A reduction of 8% in total construction in 2020 has been followed by an increase of 10% to **\$3.0b** in 2021, due to an 11% rise in residential activity and a 14% rise in non-residential building activity. Infrastructure activity increased very slightly.

Residential building is now expected to decrease by 5% to **\$1.7b** in 2022. This reduction is expected to continue for the rest of the forecast period, reaching **\$1.1b** in 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 increase gently year on year, reaching **\$0.6b** per annum by 2022 and remaining at that level to the end of the forecast period.

Figure 4.6.1 All construction in Otago, by value



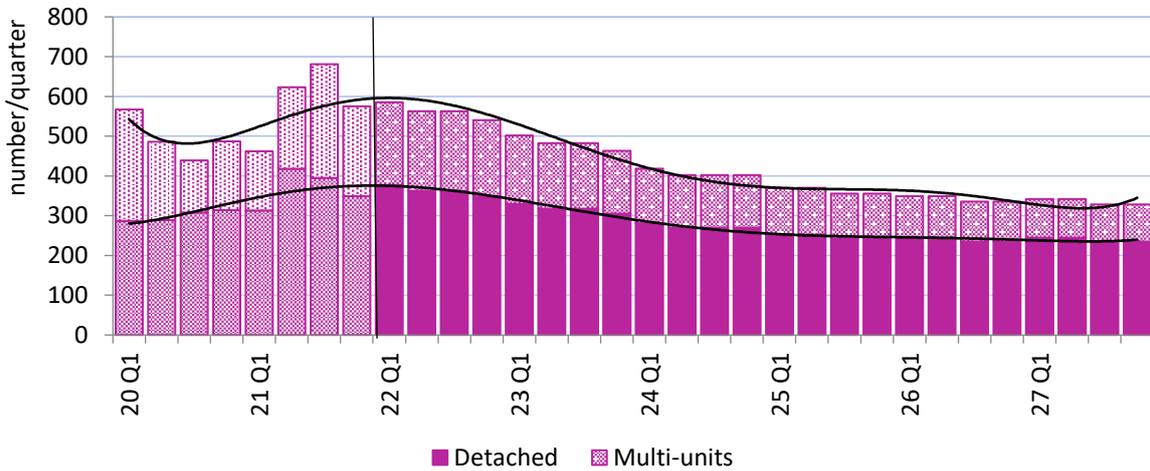
Source: BRANZ/Pacifecon

<sup>14</sup> Otago includes Otago Region, Dunedin City, Central Otago District, Clutha District, Queenstown-Lakes District and Waitaki District.

### Otago dwelling consent activity

Last year saw a recovery in dwelling consent activity in Otago, with **2,341** dwelling consents in 2021 compared to **1,979** in 2020. Over the forecast period, we anticipate Otago will consent almost **10,000** dwellings, the majority of which will be detached. Multi-units were 37% of all dwelling consents in 2021. We forecast this to decrease throughout the forecast period to 28% by 2027.

Figure 4.6.2 Dwelling units in Otago

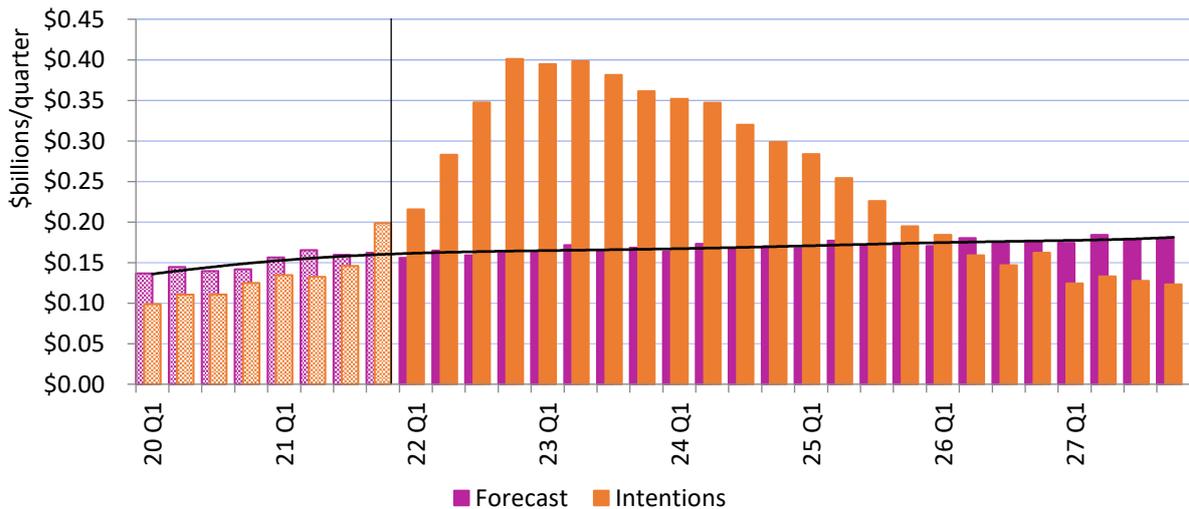


Source: BRANZ

### Otago non-residential building activity

Non-residential building activity grew by 14% to **\$0.64b** in 2021, following an increase of 10% in 2020, and is forecast to continue to increase for the remainder of the forecast period, reaching **\$0.72b** in 2027. Intentions data shows that market constraints are limiting non-residential building activity in Otago, as intentions data is significantly higher than our forecast for most of the forecast period.

Figure 4.6.3 Otago non-residential building activity

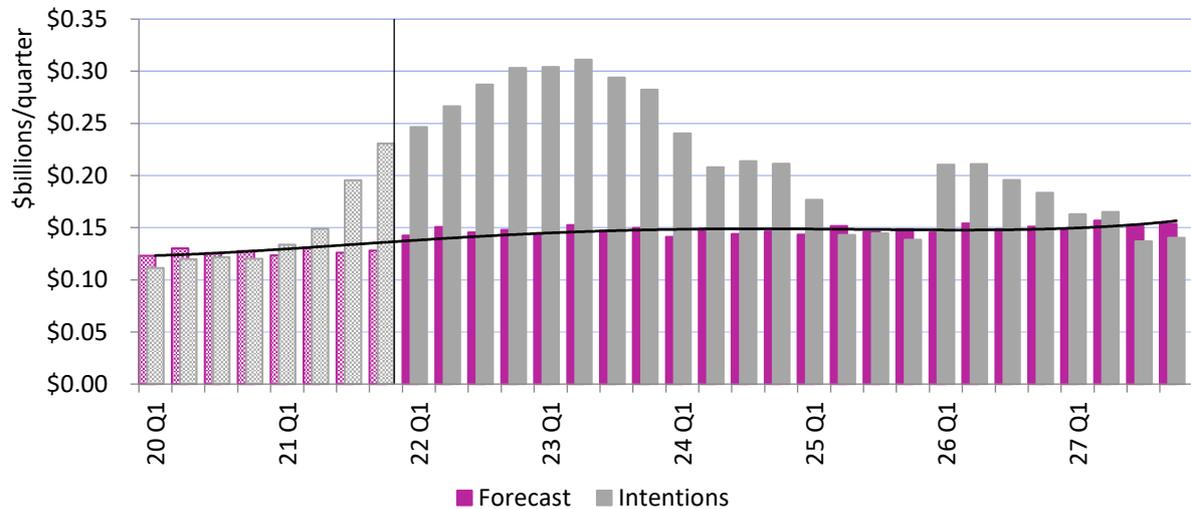


Source: BRANZ/Pacifecon

## Otago infrastructure activity

Infrastructure activity increased very slightly in 2021 to *\$0.5b*. It is forecast to rise to *\$0.6b* per annum in 2022 and remain at that level for the rest of the forecast period.

Figure 4.6.4 Otago infrastructure activity



Source: BRANZ/Pacifecon

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

- visitor accommodation and tourist facilities
- hospitals and aged care facilities
- university buildings and student accommodation
- roads, cycleways and walkways
- three waters developments (drinking water, wastewater and stormwater)
- electricity production and transmission
- residential subdivisions.

Source: Pacifecon

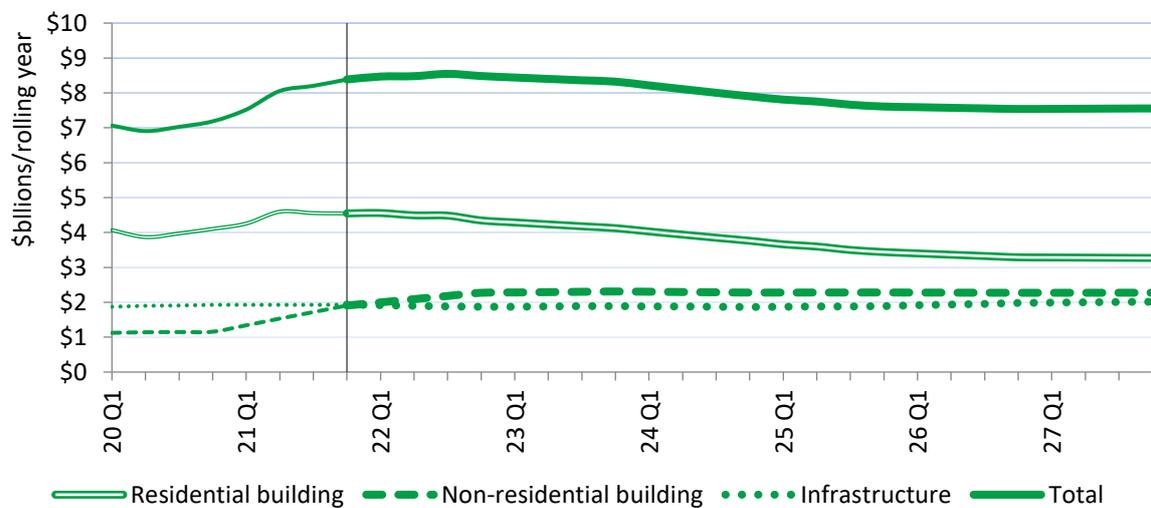
## 4.7 Rest of New Zealand

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<sup>15</sup> than the other regions considered in this report.

For Rest of New Zealand, total construction value increased by 17% to **\$8.4b** in 2021 following a 4% reduction in 2020. Growth was seen across all sectors: residential building grew by 11%, non-residential building grew by 65% and there was a very slight increase in infrastructure.

Total construction value for Rest of New Zealand is forecast to increase by 1% to **\$8.5b** in 2022 and then slowly reduce, decreasing to **\$7.6b** in 2025, after which it is expected to level out for the remainder of the forecast period.

Figure 4.7.1 All construction in Rest of New Zealand, by value



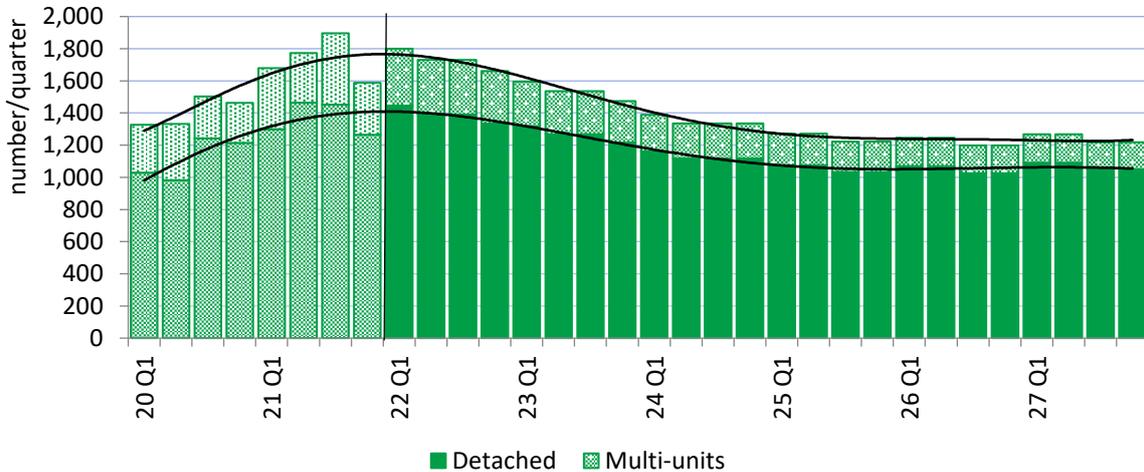
Source: BRANZ/Pacifecon

<sup>15</sup> Some regions have static or decreasing populations.

## Rest of New Zealand dwelling consents

Dwelling unit consents in Rest of New Zealand grew by 23% in 2021 to **6,936**. Dwelling unit consents are forecast to remain relatively steady in 2022, before falling to about **4,890** in 2026. Multi-units are not as popular in these regions, and their proportion is expected to maintain between 14–20%.

Figure 4.7.2 Dwelling units in Rest of New Zealand

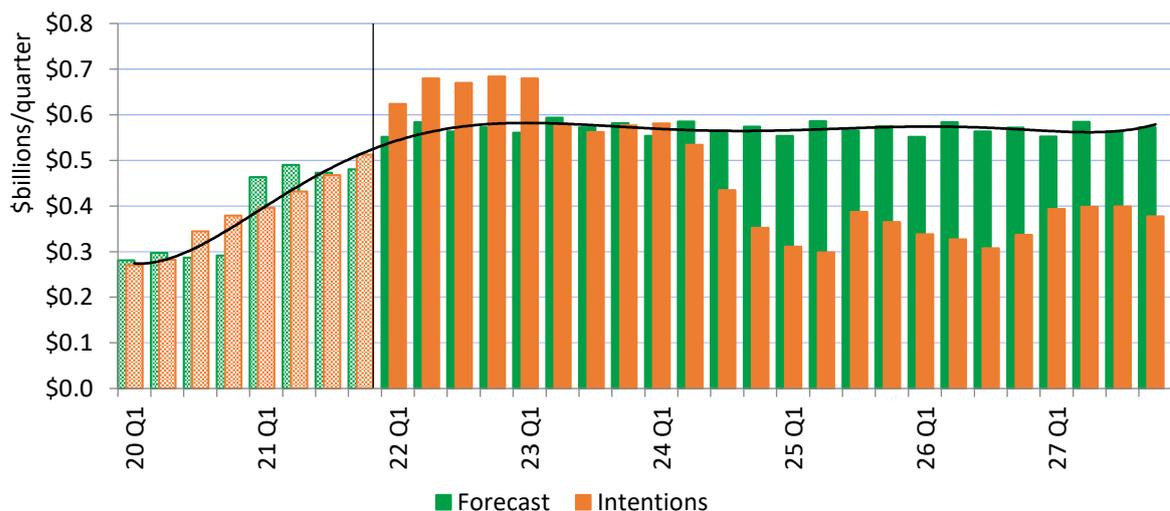


Source: BRANZ

## Rest of New Zealand non-residential building activity

Following a fall of 18% in 2020, Rest of New Zealand’s non-residential building activity increased by 65% to **\$1.9b** in 2021. Activity is forecast to increase further to **\$2.3b** in 2022 and remain around this level to 2027. 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 4.7.3 Rest of New Zealand non-residential building activity

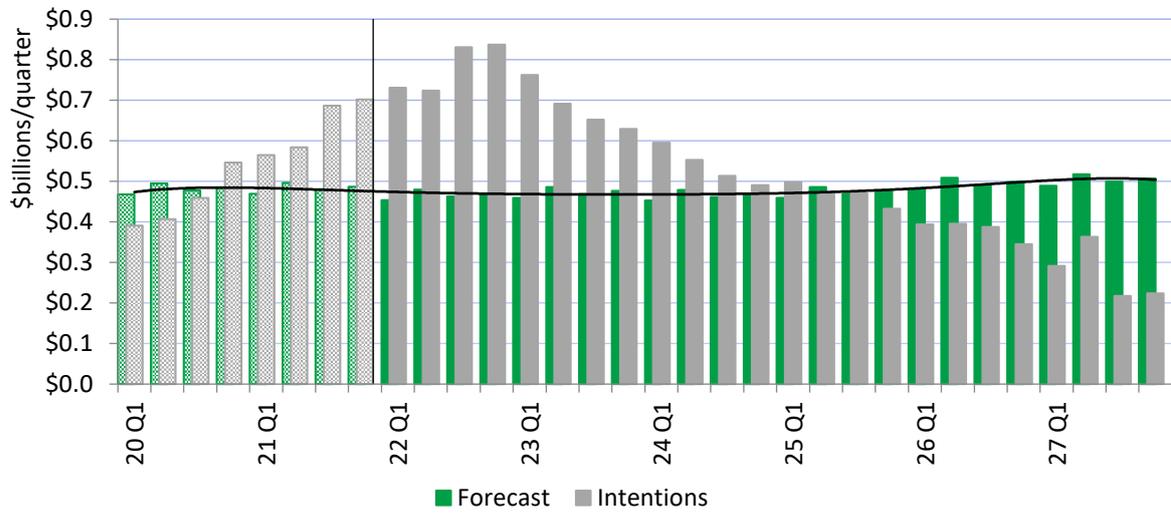


Source: BRANZ/Pacifecon

## Rest of New Zealand infrastructure activity

Infrastructure activity has reached **\$1.9b** per annum for Rest of New Zealand. A slight reduction is anticipated for the next four years, followed by growth reaching **\$2.0b** by 2026.

Figure 4.7.4 Rest of New Zealand infrastructure activity



Source: BRANZ/Pacifecon

## Individual regions within Rest of New Zealand

Northland is the largest region<sup>16</sup> in the Rest of New Zealand group and provides approximately 21% of the group's new dwelling unit consents.

Table 4.7.1 All building and construction in the year to 31 December 2022 for Rest of New Zealand, by region and construction type

Region	Forecast residential building (\$m)	Non-residential building intentions (\$m) <sup>17</sup>	Infrastructure activity intentions (\$m)
Northland	\$967	\$454	\$574
Manawatu/Whanganui	\$902	\$482	\$701
Hawke's Bay/Gisborne	\$711	\$681	\$568
Nelson/Marlborough	\$684	\$265	\$441
Taranaki	\$508	\$280	\$318
Southland	\$330	\$199	\$146
West Coast	\$113	\$106	\$104
New Zealand wide <sup>18</sup>	-	\$191	\$270
<b>Total</b>	<b>\$4,216</b>	<b>\$2,658</b>	<b>\$3,122</b>

Source: BRANZ/Pacifecon

<sup>16</sup> By total construction value and number of new dwelling consents.

<sup>17</sup> Values in red are from Pacifecon's database of anticipated project values and may be subject to optimism bias.

<sup>18</sup> 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 2021

### 5.1 Adjustments to data from the 2021 report

The following adjustments have been made to the forecast data from the 2021 report to enable a closer comparison with actuals and forecasts in this report:

- Conversion from December 2020 dollars to December 2021 dollars to account for inflation<sup>19</sup> as follows:
  - Residential building 14%
  - Non-residential building 7.7%
  - Infrastructure construction 7.3%
- Adjustments for Stats NZ's revisions to the December 2020 gross fixed capital formation data:<sup>20</sup>
  - Residential building 1.1%
  - Non-residential building -2.4%
  - Infrastructure construction -4.3%

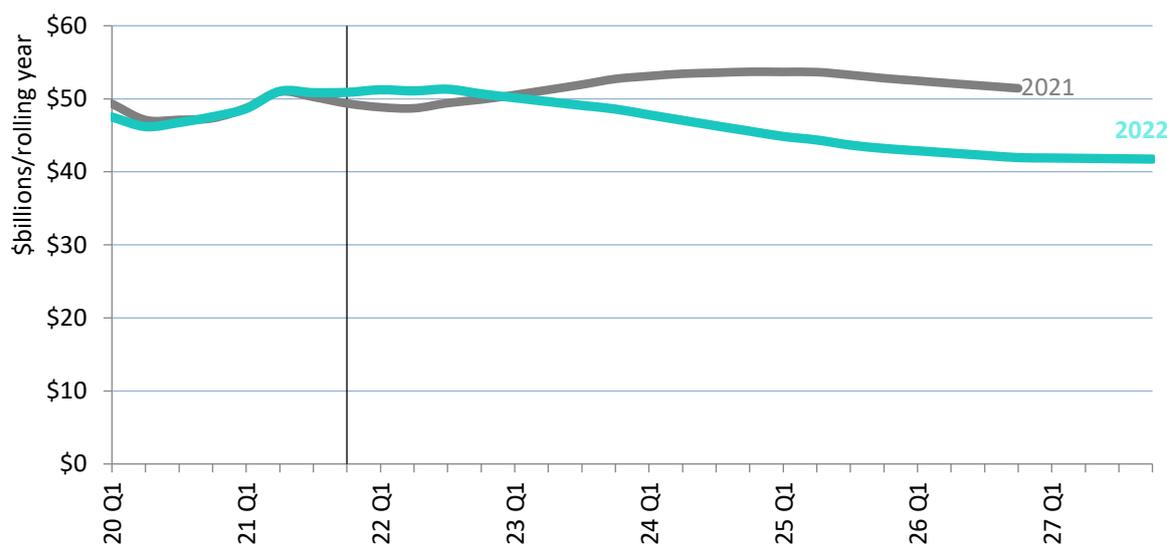
### 5.2 How did BRANZ do with the 2021 forecast?

The total value of construction nationally increased by 7% in 2021, whereas the 2021 report had expected growth of 4% in total construction activity.

Residential building increased by 11%, which was 6% more than the 5% increase expected. Non-residential building increased by 3%, which was 1% more than the 2% increase expected. Infrastructure construction increased by 0.3%, which was 2.7% less than the 3% increase expected.

This year's forecast is for construction activity to decrease steadily to about **\$41.7b** in 2027, driven largely by the reduced strength of the residential sector.

Figure 5.2.1 All construction nationally, 2021 and 2022 forecasts compared



Source: BRANZ/Pacifecon

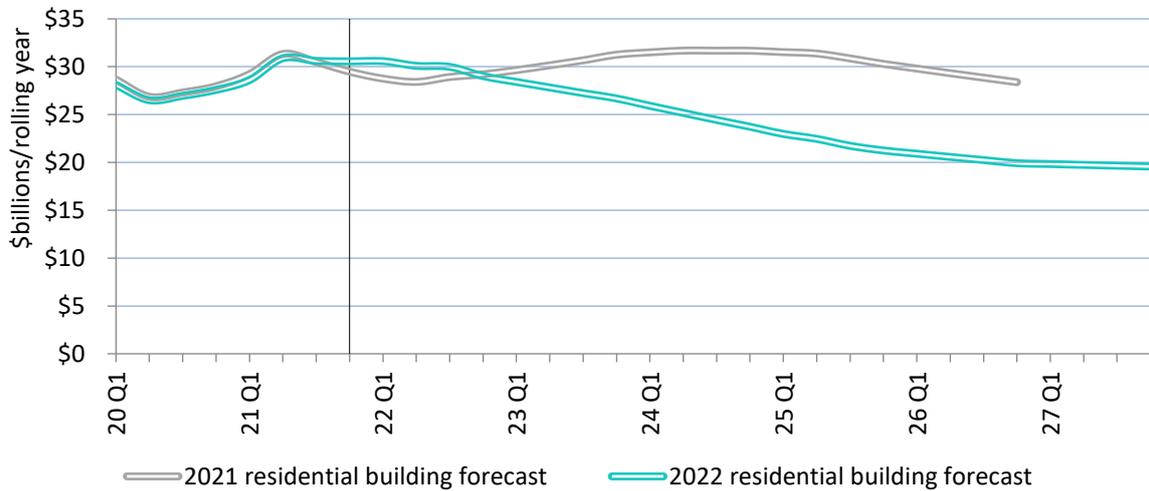
<sup>19</sup> The 2021 report has been adjusted to December 2021 dollars for comparison.

<sup>20</sup> 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 2021 report forecast a 5% residential building growth for 2021 nationally whereas the actual recorded increase was 11% to **\$30.6b**. The current report forecasts residential building to maintain through to 2022 Q3. This year, we forecast that residential building activity will decrease from **\$30.6b** in 2021 to a low of **\$19.6b** in 2027.

Figure 5.2.2 All residential building nationally, 2021 and 2022 forecasts compared



Source: BRANZ

## Dwelling unit forecast comparison

The 2021 report forecast a 15% increase in dwelling consents for 2021 nationally. Actual consents grew by 24%. The number of consents for detached homes was 4% higher than the 2021 forecast, while the number of consents for multi-units was 12% higher than forecast.

The 2022 forecast is for a slight decrease in the number dwelling consents from 2021 before a more pronounced decrease through the remainder of the forecast period. This is a higher but earlier peak than the 2021 forecast.

Figure 5.2.3 Dwelling units consented nationally, 2021 and 2022 forecasts comparison

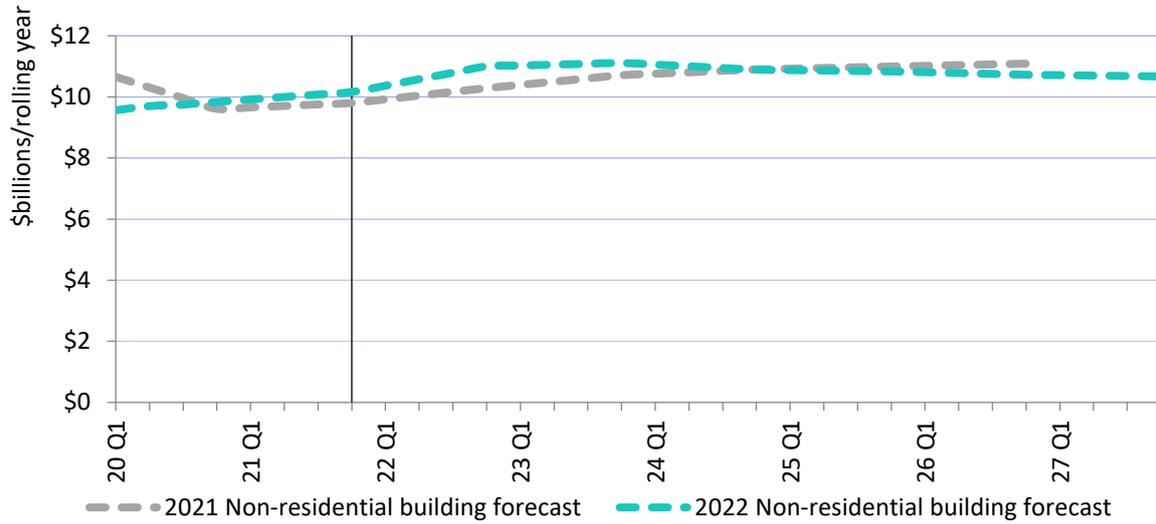


Source: BRANZ/Stats NZ

### Non-residential building forecast comparison

The 2022 report forecast a 2% increase in non-residential building activity for 2021 nationally, whilst actual growth was 3%. This year's report forecasts a rise in non-residential building activity to 2023.

Figure 5.2.4 Non-residential building nationally, 2021 and 2022 forecasts compared

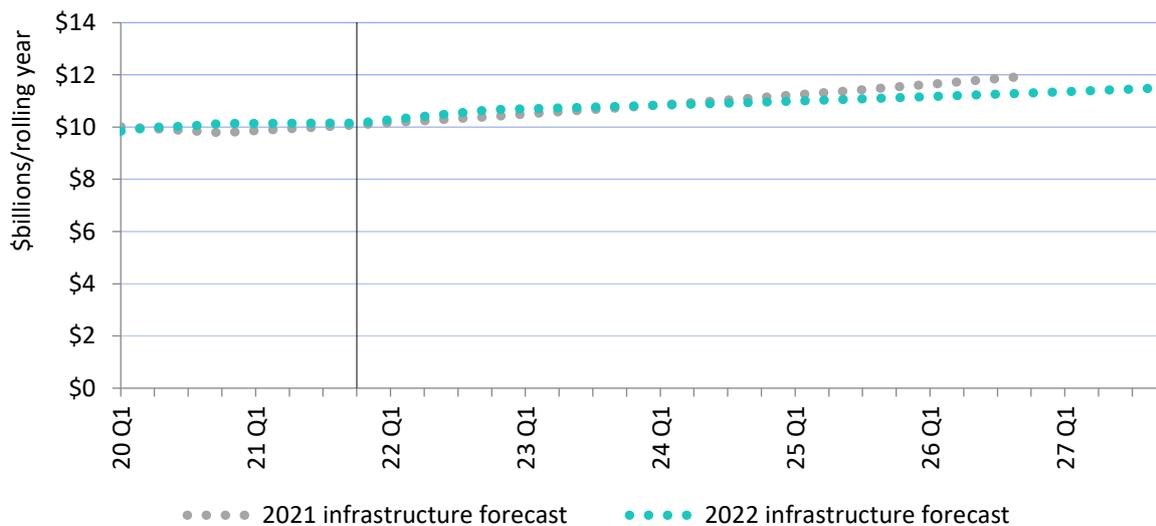


Source: BRANZ

### 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% increase in infrastructure activity, whereas actual recorded activity was a 0.3% increase. Infrastructure activity nationally is expected to grow at a similar rate to that previously forecast.

Figure 5.2.5 Infrastructure activity nationally, 2021 and 2022 forecasts compared



Source: BRANZ

### 5.3 Comparison of Pacifecon’s 2022 construction intentions data with previous reports

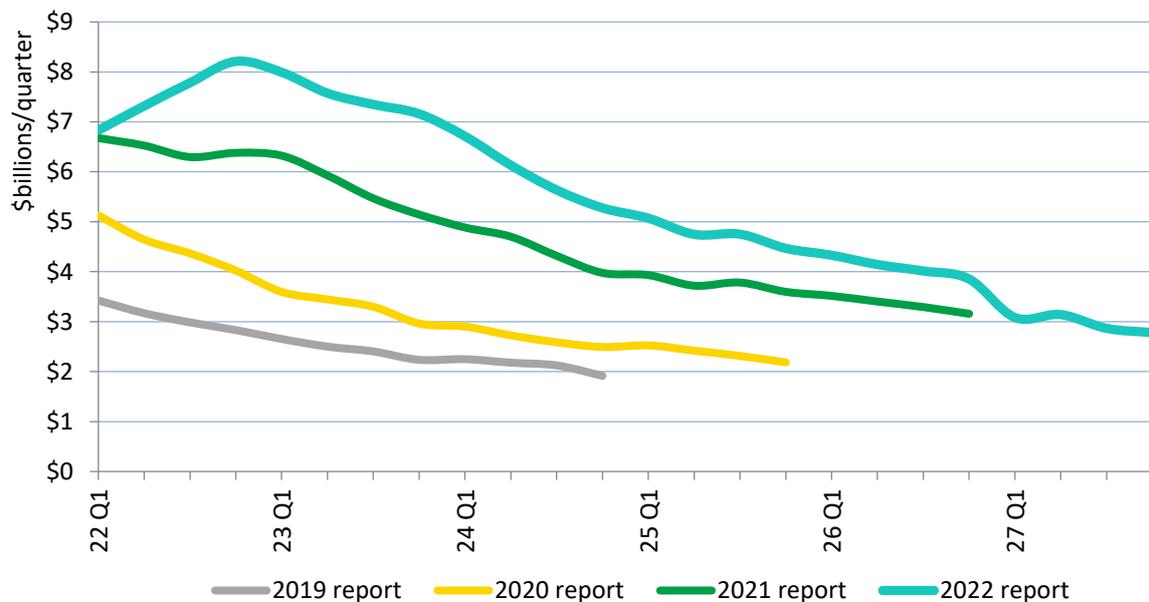
Pacifecon’s dataset of construction intentions contains anticipated values and start dates for non-residential buildings and infrastructure projects. This section compares Pacifecon’s 2022 data with the data used in preceding reports. It compares how the value and timeline of Pacifecon’s researched project intentions have varied across reports.

The 2022 planned construction intentions data has risen to late 2022 and maintains at a high level through to late 2023.

The data for intentions for the 2019, 2020 and 2021 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 small number of projects may be brought forward.

The report highlights where the 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 year on year, from 20 in 2013 to 28 in 2016 and 37 in 2021.

The total number of \$100m+ projects in the database anticipated to start in 2021 (36) was almost identical to the number that started (37). 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 and the 2021 report.

Table 5.4.1 compares what was projected with actuals over the previous five reports. There were 36 known projects (non-residential building and infrastructure construction) valued at \$100m or more included in the 2021 report that were anticipated to start between 1 April 2021 and 31 March 2022. Of these 36 projects, 26 started. An additional 11 projects started, bringing the total to 37.

The number of researched projects valued at over \$100m expected to start between 1 April 2022 and 31 March 2023 is now anticipated to be 34 projects (17 non-residential building and 17 infrastructure projects, see Appendix D for details).

Table 5.4.1 Outcome of projects valued at \$100 million and over anticipated to start across previous reports

Outcome	Number of projects initiated				
	2017 report	2018 report	2019 report	2020 report	2021 report
Started as anticipated	18	23	16	21	26
Anticipated to start within the coming year	9	12	2	2	6
Anticipated to start beyond one year's time	9	11	13	2	4
Cancelled since previous report	0	1	0	0	0
<b>Total</b>	<b>36</b>	<b>47</b>	<b>31</b>	<b>25</b>	<b>36</b>
Additional projects starting <sup>21</sup>	10	6	14	16	11
<b>Number of projects started in timeframe</b>	<b>28</b>	<b>29</b>	<b>30</b>	<b>37</b>	<b>37</b>

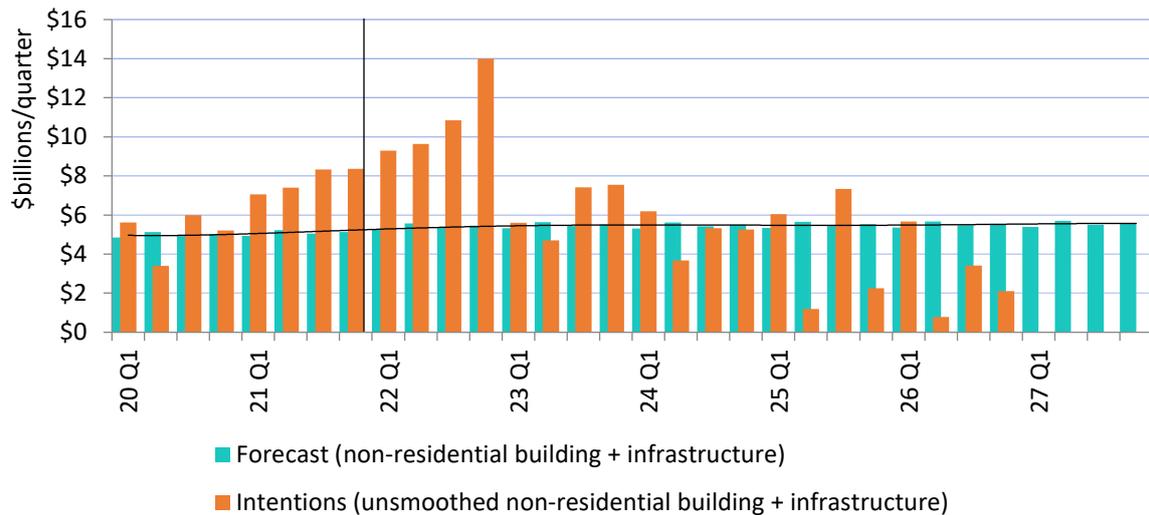
Source: Pacifecon

<sup>21</sup> Additional projects starting since 2021 report: five projects new to Pacifecon, the values of three projects increased to over \$100m prior to commencing, three projects were accelerated so they started during the April 2021 – March 2022 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](mailto: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](http://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 2027, 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.

[www.pacifecon.co.nz](http://www.pacifecon.co.nz)

## 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 <sup>9</sup> ).
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 2022 to 31 December 2027 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"><li>• transport – roads, rail, bridges, tunnels, runways, harbours, marinas, reservoirs, shelters, parking and lighting</li><li>• ground works – residential, commercial and industrial subdivisions, earthmoving, landscaping, parks and landfill</li><li>• amenities – telecommunications, water and energy services</li><li>• mining and energy – wind, thermal, hydro, oil and gas.</li></ul> <p>Infrastructure is termed 'other construction' in Stats NZ classifications.</p>

intentions	Refers to Pacifecon’s research into the construction industry’s intentions of future activity.
lockdown	The period of Alert Level 4 in New Zealand in response to the COVID-19 pandemic.
m	Million (1,000,000 or 10 <sup>6</sup> ).
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.
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, 2022 Q2 is the aggregate of the values from July 2021 to June 2022.
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.

**Intentions:** 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 and projects under way. 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 22 April 2022, based on the Stats NZ March 2022 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 just over 3% annually over the next three years, before trending towards 1.6% at the end of the forecast period.
- The official cash rate is forecast to 3% in September 2023 and will slowly trend down to 2% at the end of 2025.
- Net migration is forecast to slowly increase over the next few quarters to 6,250 in Q4 2023 and then remain relatively steady at that level for the remainder of the forecast period.
- House prices are forecast to fall by 10% between December 2021 and March 2024.

### 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 37,000<sup>22</sup> dwellings per annum through to 2027.
- 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 1.35 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.

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<sup>22</sup> This was 44,000 dwellings in the 2021 report and 26,250 in the 2020 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 1.3 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 – 40%
- telecommunications – 10%
- other – 20%.

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 -12% per year for mining, 5% for electricity/gas/water, 0% for transport, 1% for telecommunications and 1% for other infrastructure works.

#### Intentions data methodology

##### Pacifecon's anticipated projects

A dataset of over 28,800 researched projects known to Pacifecon has been used in this report. The data is up to date as of 17 March 2022, and larger-value projects have been added, adjusted or removed up to 20 May 2022.

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 2020
- 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 and included in the database for this report has increased from over 6,000 in the 2013 report to over 13,300 planned projects and over 15,500 commenced projects in the current report (over 28,800 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), ninth (2021) and current report (2022): projects over \$50 million were scrutinised.

In some (but not all) cases for 2022, 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<sup>23</sup> valued at over \$100m<sup>24</sup>

Region	Type	Project initiator
<b>Auckland</b>		
Commercial subdivision	Commercial	Private
Commercial development	Commercial	Private
Air terminal	Commercial	Private
Carpark building	Commercial	Private
Data centre	Commercial	Private
<b>Waikato/Bay of Plenty</b>		
Dairy factory	Industrial	Private
Retail hub	Commercial	Private
Commercial development	Commercial	Private
Manufacturing facility	Industrial	Private
<b>Wellington</b>		
Public building seismic strengthening	Commercial	Local government
Port terminal	Industrial	Local government
<b>Canterbury</b>		
Research and laboratories	Education	Central government
Sports stadium	Sport	Central government
Church	Commercial	Private
<b>Otago</b>		
Railway buildings	Industrial	Central government
Hospital	Health	Central government
<b>Rest of New Zealand</b>		
Port terminal	Commercial	Private

Source: Pacifecon

<sup>23</sup> Year is the 12 months ending 31 March 2023.

<sup>24</sup> 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 20 May 2022. Pacifecon's building and construction information is constantly updated.

Table 7.4.2 Infrastructure projects likely to start within the year<sup>25</sup> valued at over \$100m<sup>26</sup>

Region	Type	Project initiator
<b>Auckland</b>		
Road maintenance	Transport	Central government
Road AMETI	Transport	Local government
Road maintenance	Transport	Local government
Pipeline	Water	Local government
Asset management	Electricity/Gas	Private
<b>Waikato/Bay of Plenty</b>		
Road Mt Messenger	Transport	Central government
<b>Wellington</b>		
Ferry precinct	Transport	Central government
Road maintenance	Transport	Central government
Flood prevention	Water	Local government
Asset management	Electricity/Gas	Private
<b>Canterbury</b>		
Road maintenance Christchurch	Transport	Local government
Road maintenance CCC	Transport	Local government
Bellgrove Subdivision	Subdivision	Private
Prebbleton Subdivision	Subdivision	Private
<b>Rest of New Zealand</b>		
Capital expenditure	Electricity/Gas	Central government
Ferry precinct	Transport	Central government
Enabling works	Transport	Private

Source: Pacifecon

<sup>25</sup> Year is the 12 months ending 31 March 2023.

<sup>26</sup> 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 20 May 2022. 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<sup>27</sup>

Residential	Actual		Forecast					
	2020	2021	2022	2023	2024	2025	2026	2027
Auckland	11.4	12.6	11.9	10.8	9.6	8.6	8.0	7.9
Waikato/BoP	4.4	4.9	4.6	4.3	3.9	3.5	3.3	3.3
Wellington	2.2	2.5	2.2	2.0	1.8	1.7	1.6	1.5
Canterbury	3.8	4.2	4.2	3.8	3.3	2.9	2.6	2.5
Otago	1.6	1.8	1.7	1.5	1.4	1.2	1.1	1.1
Rest of NZ	4.1	4.5	4.3	4.1	3.8	3.4	3.3	3.3
<b>TOTAL</b>	<b>27.6</b>	<b>30.6</b>	<b>29.0</b>	<b>26.7</b>	<b>23.7</b>	<b>21.2</b>	<b>19.9</b>	<b>19.6</b>
<b>Non-residential building</b>								
Auckland	3.9	3.8	4.0	4.0	3.8	3.7	3.6	3.5
Waikato/BoP	1.4	1.6	1.6	1.6	1.7	1.7	1.7	1.8
Wellington	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0
Canterbury	1.8	1.2	1.6	1.6	1.5	1.5	1.4	1.4
Otago	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7
Rest of NZ	1.2	1.9	2.3	2.3	2.3	2.3	2.3	2.3
<b>TOTAL</b>	<b>9.8</b>	<b>10.2</b>	<b>11.0</b>	<b>11.1</b>	<b>10.9</b>	<b>10.8</b>	<b>10.7</b>	<b>10.7</b>
<b>Infrastructure</b>								
Auckland	3.9	4.0	4.1	4.2	4.2	4.3	4.4	4.4
Waikato/BoP	1.9	1.9	2.1	2.1	2.0	2.0	2.1	2.2
Wellington	0.9	0.9	0.9	1.0	1.2	1.2	1.1	1.2
Canterbury	0.9	0.9	1.1	1.1	1.1	1.1	1.1	1.2
Otago	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6
Rest of NZ	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0
<b>TOTAL</b>	<b>10.1</b>	<b>10.2</b>	<b>10.7</b>	<b>10.8</b>	<b>11.0</b>	<b>11.1</b>	<b>11.3</b>	<b>11.5</b>
<b>All construction</b>								
Auckland	19.2	20.4	20.0	18.9	17.6	16.5	16.0	15.8
Waikato/BoP	7.8	8.4	8.2	8.1	7.5	7.2	7.2	7.2
Wellington	4.1	4.5	4.1	4.0	4.0	3.9	3.7	3.7
Canterbury	6.5	6.3	6.9	6.5	5.9	5.4	5.1	5.0
Otago	2.7	3.0	3.0	2.8	2.6	2.5	2.4	2.4
Rest of NZ	7.2	8.4	8.5	8.3	7.9	7.6	7.5	7.6
<b>TOTAL</b>	<b>47.5</b>	<b>50.9</b>	<b>50.7</b>	<b>48.6</b>	<b>45.6</b>	<b>43.2</b>	<b>42.0</b>	<b>41.7</b>
<b>Non-residential building intentions</b>								
Auckland	2.8	3.4	5.5	6.1	4.2	2.7	2.0	1.1
Waikato/BoP	1.3	1.5	2.2	2.2	1.6	1.2	0.9	0.4
Wellington	1.0	1.0	1.5	1.4	0.9	0.8	0.7	0.5
Canterbury	1.5	1.5	1.2	1.7	1.9	1.7	1.2	0.9
Otago	0.4	0.6	1.2	1.5	1.3	1.0	0.7	0.5
Rest of NZ	1.3	1.8	2.7	2.4	2.0	1.5	1.4	1.7
<b>TOTAL</b>	<b>8.3</b>	<b>9.9</b>	<b>14.3</b>	<b>15.3</b>	<b>11.9</b>	<b>8.8</b>	<b>6.8</b>	<b>5.1</b>
<b>Infrastructure intentions</b>								
Auckland	4.4	4.5	5.1	4.6	3.9	3.3	3.0	2.3
Waikato/BoP	1.6	2.5	3.1	2.9	2.3	2.1	2.1	1.5
Wellington	1.0	1.2	1.3	1.4	1.3	1.5	1.3	1.0
Canterbury	1.2	1.0	1.4	1.6	1.4	1.3	1.2	0.5
Otago	0.5	0.7	1.1	1.2	0.9	0.6	0.8	0.6
Rest of NZ	1.8	2.5	3.1	2.7	2.2	1.9	1.5	1.1
<b>TOTAL</b>	<b>10.4</b>	<b>12.5</b>	<b>15.1</b>	<b>14.3</b>	<b>11.9</b>	<b>10.7</b>	<b>9.9</b>	<b>7.0</b>

Source: BRANZ/Pacifecon

<sup>27</sup> 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<sup>28</sup>

	Actual		Forecast					
Detached	2020	2021	2022	2023	2024	2025	2026	2027
Auckland	6,535	6,686	6,070	5,330	4,580	4,220	4,100	4,120
Waikato/BoP	4,356	5,326	5,380	4,780	4,200	3,930	3,900	4,000
Wellington	1,487	1,565	1,580	1,390	1,190	1,070	1,040	1,040
Canterbury	4,162	5,028	5,280	4,610	3,880	3,480	3,300	3,230
Otago	1,198	1,475	1,450	1,270	1,080	990	960	960
Rest of NZ	4,467	5,480	5,560	5,070	4,470	4,220	4,190	4,280
<b>TOTAL</b>	<b>22,205</b>	<b>25,560</b>	<b>25,320</b>	<b>22,450</b>	<b>19,400</b>	<b>17,910</b>	<b>17,490</b>	<b>17,630</b>
<b>Multi-units</b>								
Auckland	10,121	13,843	14,160	12,430	10,700	9,840	9,580	9,610
Waikato/BoP	1,843	2,393	2,290	2,010	1,690	1,530	1,460	1,420
Wellington	1,570	2,091	2,010	1,760	1,510	1,410	1,370	1,370
Canterbury	1,734	2,686	2,060	1,620	1,290	1,100	990	910
Otago	781	866	800	660	530	460	410	380
Rest of NZ	1,158	1,456	1,360	1,070	870	770	700	690
<b>TOTAL</b>	<b>17,207</b>	<b>23,335</b>	<b>22,680</b>	<b>19,550</b>	<b>16,590</b>	<b>15,110</b>	<b>14,510</b>	<b>14,380</b>
<b>All dwellings</b>								
Auckland	16,656	20,529	20,230	17,760	15,280	14,060	13,680	13,730
Waikato/BoP	6,199	7,719	7,670	6,790	5,890	5,460	5,360	5,420
Wellington	3,057	3,656	3,590	3,150	2,700	2,480	2,410	2,410
Canterbury	5,896	7,714	7,340	6,230	5,170	4,580	4,290	4,140
Otago	1,979	2,341	2,250	1,930	1,610	1,450	1,370	1,340
Rest of NZ	5,625	6,936	6,920	6,140	5,340	4,990	4,890	4,970
<b>TOTAL</b>	<b>39,412</b>	<b>48,895</b>	<b>48,000</b>	<b>42,000</b>	<b>35,990</b>	<b>33,020</b>	<b>32,000</b>	<b>32,010</b>

Source: BRANZ/Stats NZ

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



**Te Kāwanatanga o Aotearoa**  
New Zealand Government

DDI 8552