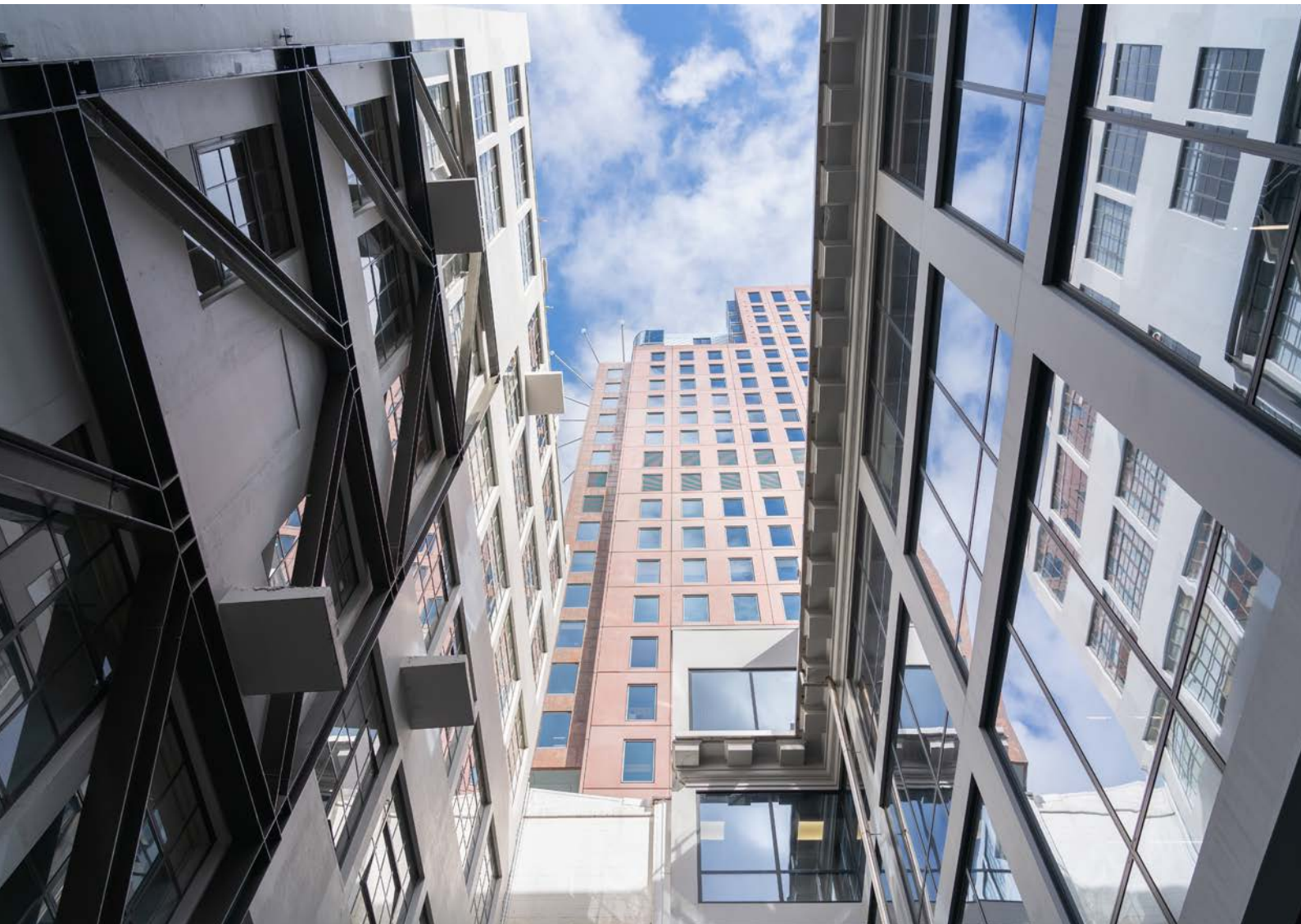
MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

Te Kāwanatanga o Aotearoa
New Zealand Government

National Construction Pipeline Report 2023

A forecast of Building and Construction Activity

11TH EDITION



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1. Introduction

1.1 Overview

The National Construction Pipeline Report 2023 (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 2028. It includes national and regional breakdowns of actual and forecast residential building, non-residential building and infrastructure activity.[1] The report is based on residential and non-residential building and construction forecasts from BRANZ and data on researched non-residential building and infrastructure intentions from Pacifecon.[2] Pacifecon provides no residential data to the report.

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, and
- coordination of construction procurement (particularly central and local government) to enable improved scheduling of construction projects.

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

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

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

The report includes:

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

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

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

[2] See section 7.3 for more information on forecast and research data.

1.3 Context

Inflation, high interest rates, and cyclone recovery work provide important context to the 2023 National Construction Pipeline Report and the forecasts/research that follows.

Our forecast last year had assumed that the Reserve Bank would increase the official cash rate (OCR) to a peak of 3%. However, the Reserve Bank has since increased the OCR to 5.5%, affecting the ability to borrow, particularly for new build properties where build costs continue to increase.

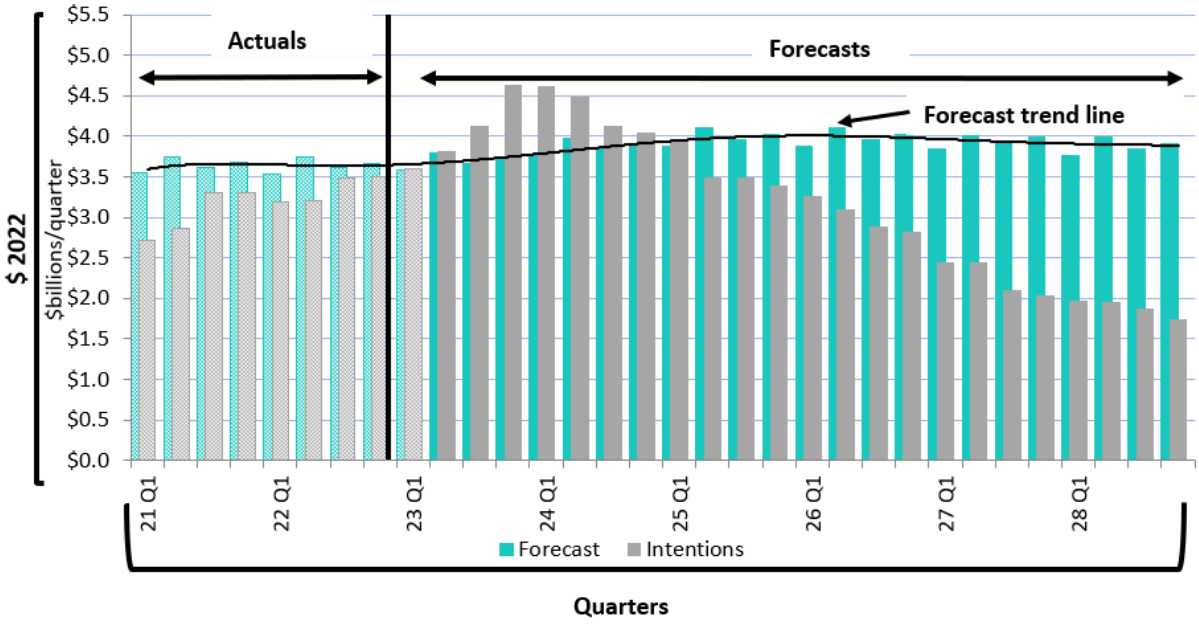
Inflation in build costs remain significant. The capital goods price index (CGPI) for residential buildings shows inflation hit 13%, for non-residential buildings inflation was 10%, and for infrastructure construction was 16% in 2022. This follows inflation of 14%, 8% and 7% in 2021 for residential buildings, non-residential buildings, and infrastructure construction respectively. This has resulted in some local councils re-evaluating and re-costing projects in their long-term plans.

Early 2023 also saw two severe weather events, with both the Auckland floods and Cyclone Gabrielle causing damage to housing and significant infrastructure such as roads and bridges. This has caused a re-prioritisation of work over the short term as important infrastructure was brought back online. At the same time, uncertainty around the future of three-waters reform and major transport projects means that some significant projects remain in limbo.

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 2022 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 2022 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, 2023 represents January 2023 through to December 2023.
- *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, 2023 Q2 represents July 2022 through to June 2023.

A glossary of key terms is presented in section 7.2.

2. Key findings

This section discusses the major findings in the report:

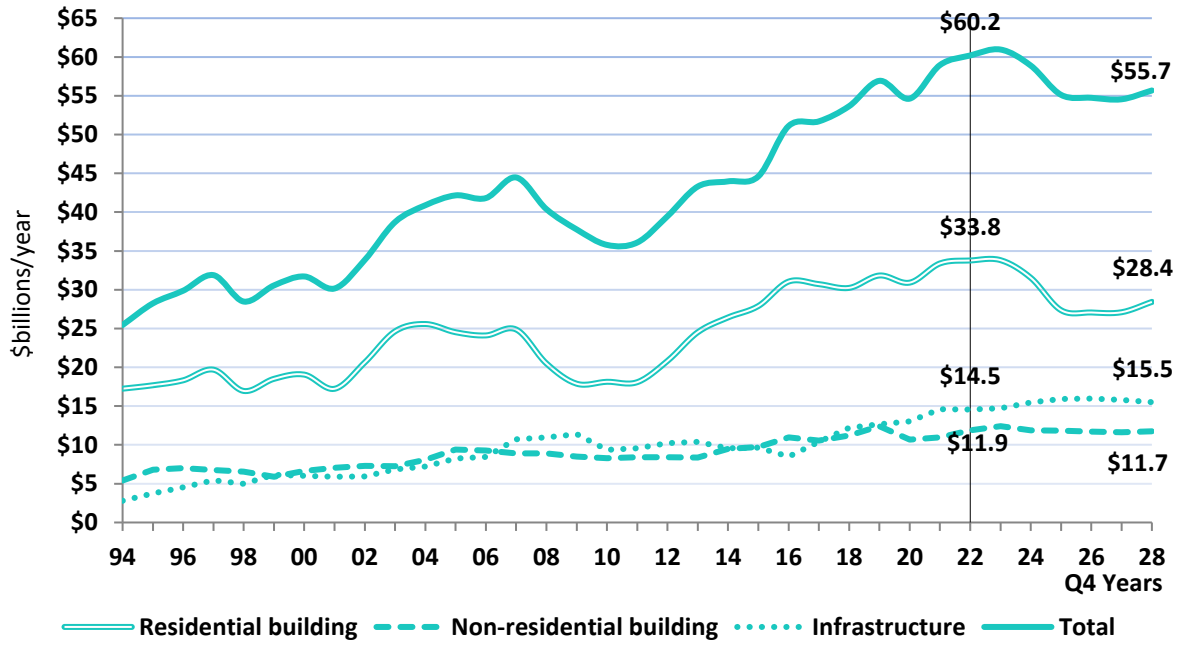
- *Construction activity returns to 2020 levels*
- *New dwelling consents returning to more sustainable levels*
- *Strong pipeline of work from the private sector*
- *Strong infrastructure pipeline*

2.1 Construction activity returns to 2020 levels

Construction experienced a period of significant growth post-COVID-19. Growth was strong in the residential sector where activity went from *$31.8b* in 2019 to *$33.8b* in 2022, and in the infrastructure sector where activity went from *$12.7b* to *$14.5b* over the same period.

In 2019, total construction activity was *$56.9b*, and this fell slightly in 2020 to *$54.6b* as a result of COVID-19 related restrictions. Our forecast is for activity to fall to a low of *$54.6b* in 2027, consistent with activity levels in 2020.

Figure 2.1.1 All construction nationally, by value



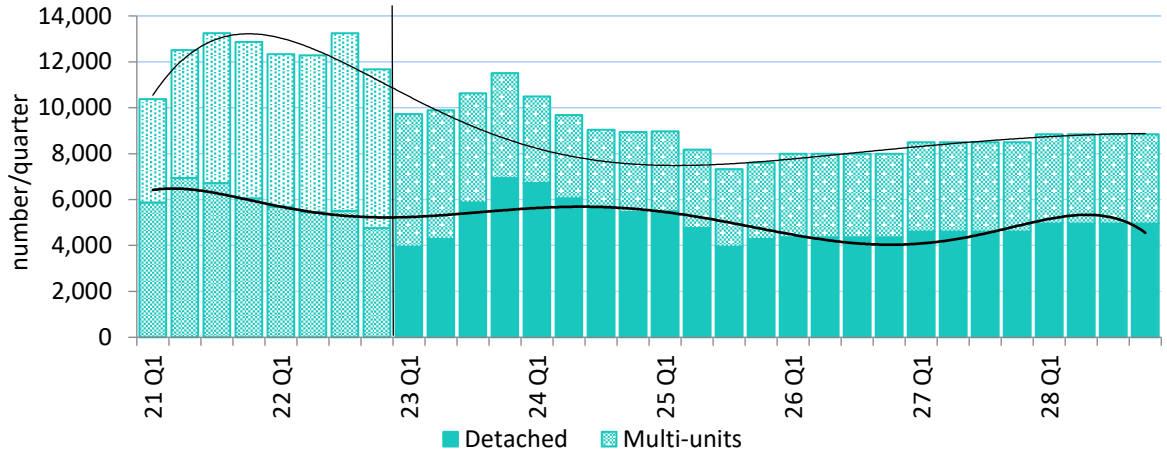
Source: BRANZ/Pacifecon/Stats NZ

2.2 New dwelling consents returning to more sustainable levels

The last two years have been very strong for new dwelling consents, with 49,003 new dwelling consents issued in 2021 and a further 49,537 consents in 2022. However, Stats NZ data on Code Compliance Certificates suggests that the number of completions, and therefore, the capacity of the industry to deliver, is well below that number.[3]

We forecast that new dwelling consents will fall to a low of 29,990 in 2025 as fewer multi-unit consents are issued and detached consents fall slightly. New dwelling consents are then forecast to increase throughout the remainder of the forecast period to 35,400 in 2028.

Figure 2.2.1 Dwelling units consented nationally



Source: BRANZ

[3] See the Stats NZ Experimental building indicators: March 2022 quarter.

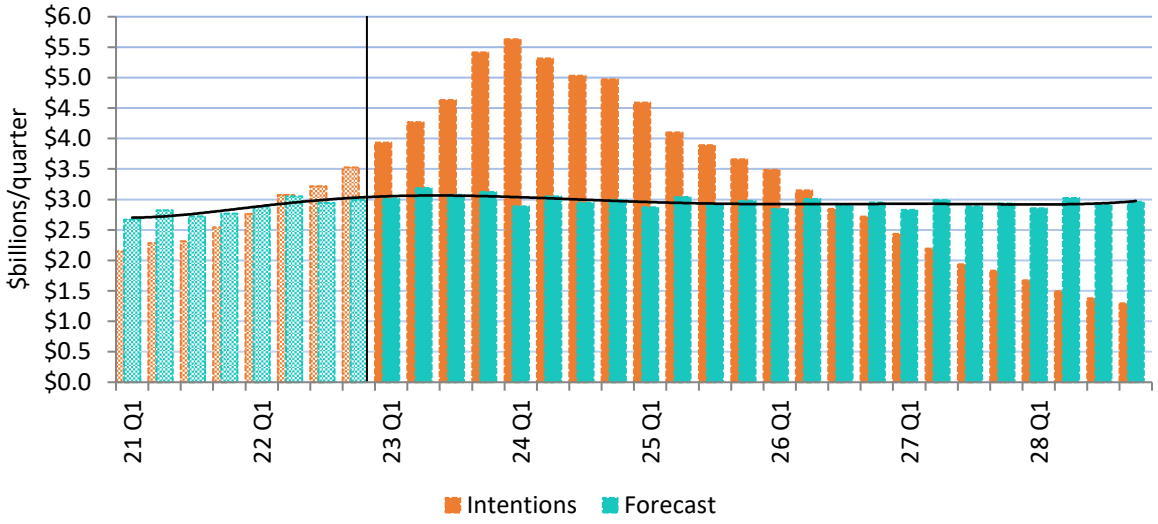
2.3 Strong pipeline of work from the private sector

Non-residential building activity nationally is expected to peak at *$12.4b* in 2023. We forecast activity in the sector to remain steady throughout the forecast period based on consenting activity and a strong pipeline of project intentions data.

The private sector is the largest initiator of non-residential building, contributing 66% of the value of researched intentions over 2023–2028, while central and local government make up 22% and 12% respectively.

Private sector intentions are more heavily skewed towards the short term due to optimism bias and more variable private funding,[4] which can result in intentions falling away in the medium term as there is less certainty. Furthermore, as the operating environment changes, project commencement may be delayed, timeframes for completion altered or projects rescoped to match conditions.

Figure 2.3.1 Non-residential building activity nationally



Source: BRANZ/Pacifecon

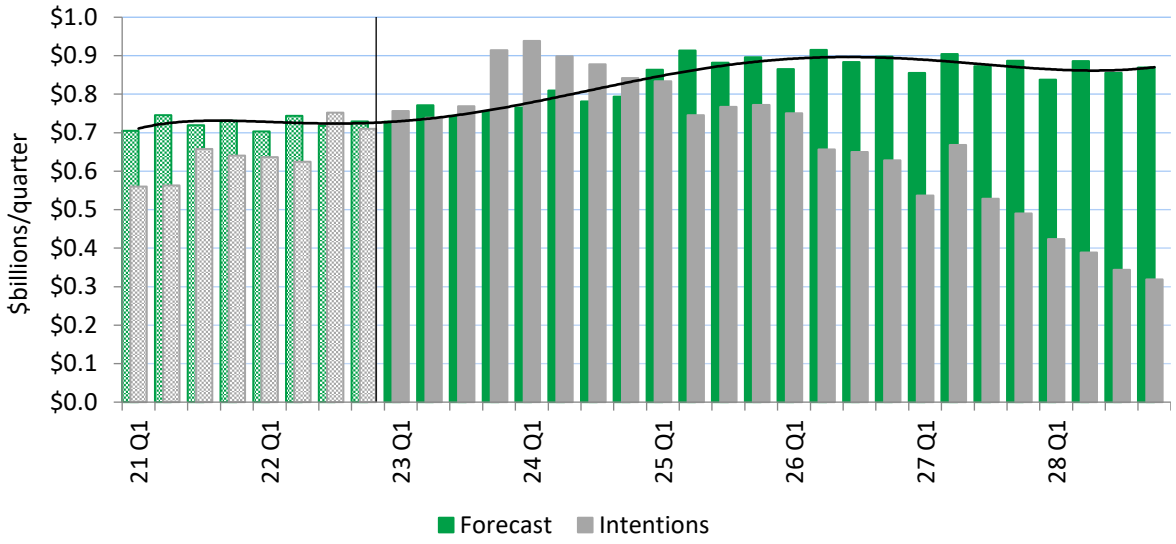
[4] See section 5.5 for more information on optimism bias.

2.4 Strong infrastructure pipeline

Representing one-quarter of total building and construction value in 2022, we forecast infrastructure activity to increase steadily year on year and reach *$16b* in 2026. Pacifecon's research data indicates strong intentions throughout the forecast period.

Infrastructure activity for Rest of New Zealand[5], in particular, shows good strength. Having reached *$2.9b* per annum, activity is expected to continue to increase reaching *$3.5b* by 2028. It is anticipated that a proportion of this increase will be related to cyclone recovery and building further resilience into infrastructure networks.

Figure 2.4.1 Rest of New Zealand infrastructure activity



Source: BRANZ/Pacifecon

[5] Gisborne, Hawke's Bay, Manawatu-Whanganui, Marlborough, Nelson, Northland, Southland, Taranaki, Tasman and West Coast.

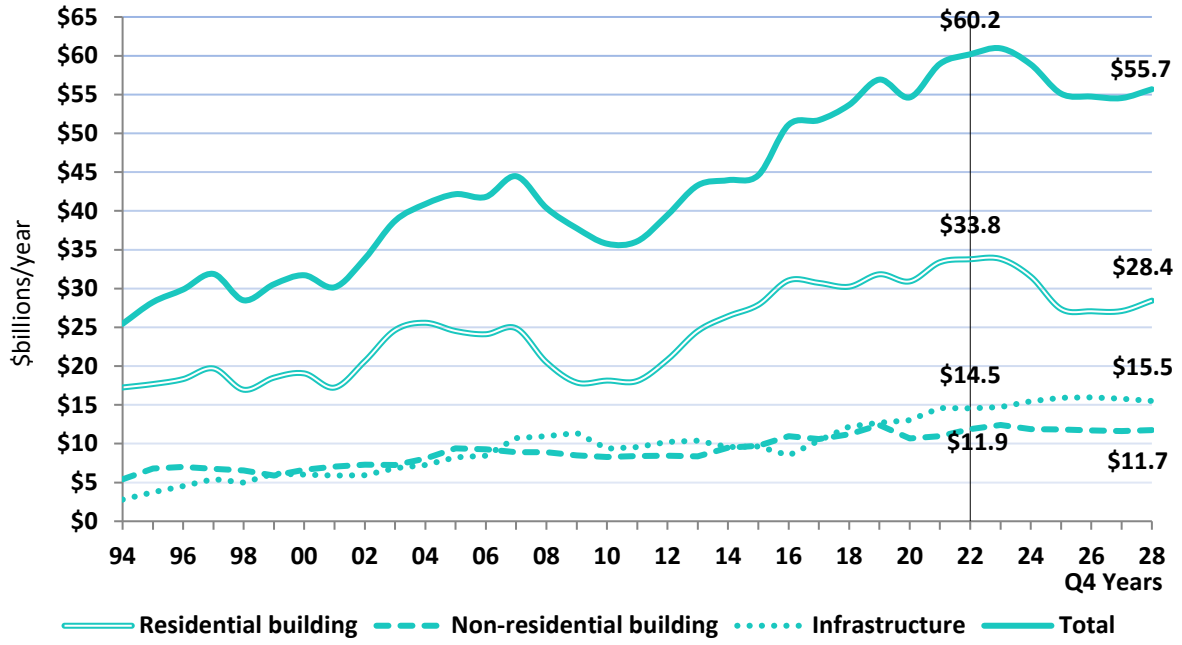
3. Forecast results

This section includes national and regional 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 2.1% in 2022 to *$60.2b*. This year's forecast is for construction activity to decrease steadily to about *$55.7b* in 2028, driven largely by the reduced strength of the residential sector.

Figure 3.1.1 All construction nationally, by value

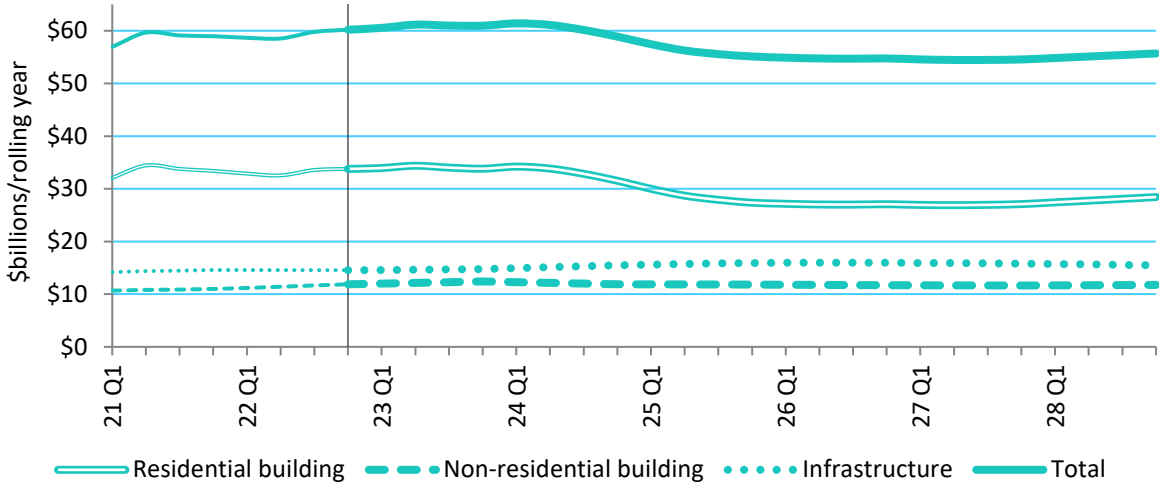


Source: BRANZ/Pacifecon/Stats NZ

3.2 National construction, by activity

Residential buildings are the largest contributor to national construction. Residential buildings contributed 56% of total construction activity in 2022. We forecast that residential building activity will decrease from *$33.8b* in 2022 to a low of *$27.1b* in 2026–2027, then rise to *$28.4b* in late 2028. We forecast non-residential activity to reach a high of *$12.4b* in 2023 and then remain steady on *$11.7b* from 2027 onwards. Infrastructure activity is forecast to increase through to 2026, peaking at *$16b* then decreasing to *$15.5b* by the end of the forecast period.

Figure 3.2.1 All construction nationally, by activity

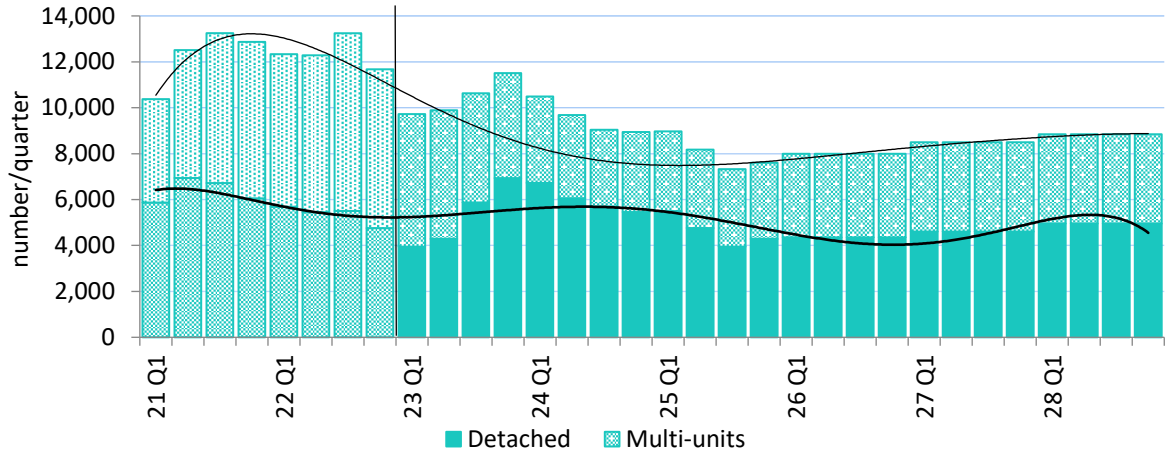


Source: BRANZ

3.3 National residential building, by dwelling number

Multi-unit dwellings accounted for 57% of all dwellings consented in 2022. We are forecasting 20,710 multi-unit consents in 2023, falling to 13,570 by 2025, before rising for the rest of the forecast period. The forecast is for almost 200,000 new dwellings to be consented over the next six years at an average of over 33,000 dwellings a year.

Figure 3.3.1 Dwelling units consented nationally[6]

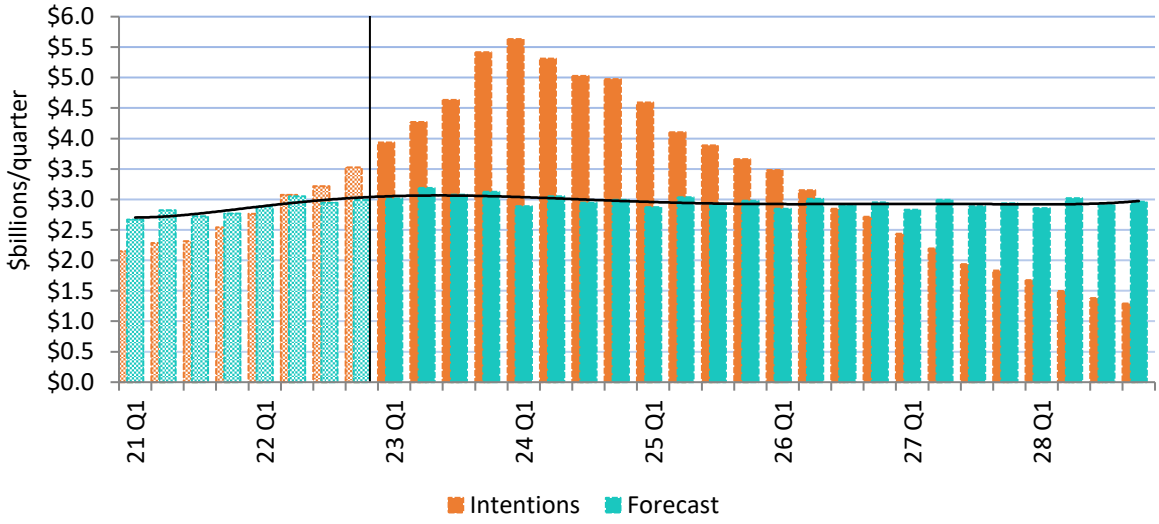


Source: BRANZ

3.4 National non-residential building

Non-residential building activity nationally is expected to peak at *$12.4b* in 2023. We forecast activity in the sector to remain steady throughout the forecast period based on consenting activity and strong pipeline of project intentions data, before slowly falling to *$11.8b* in 2028.

Figure 3.4.1 Non-residential building activity nationally



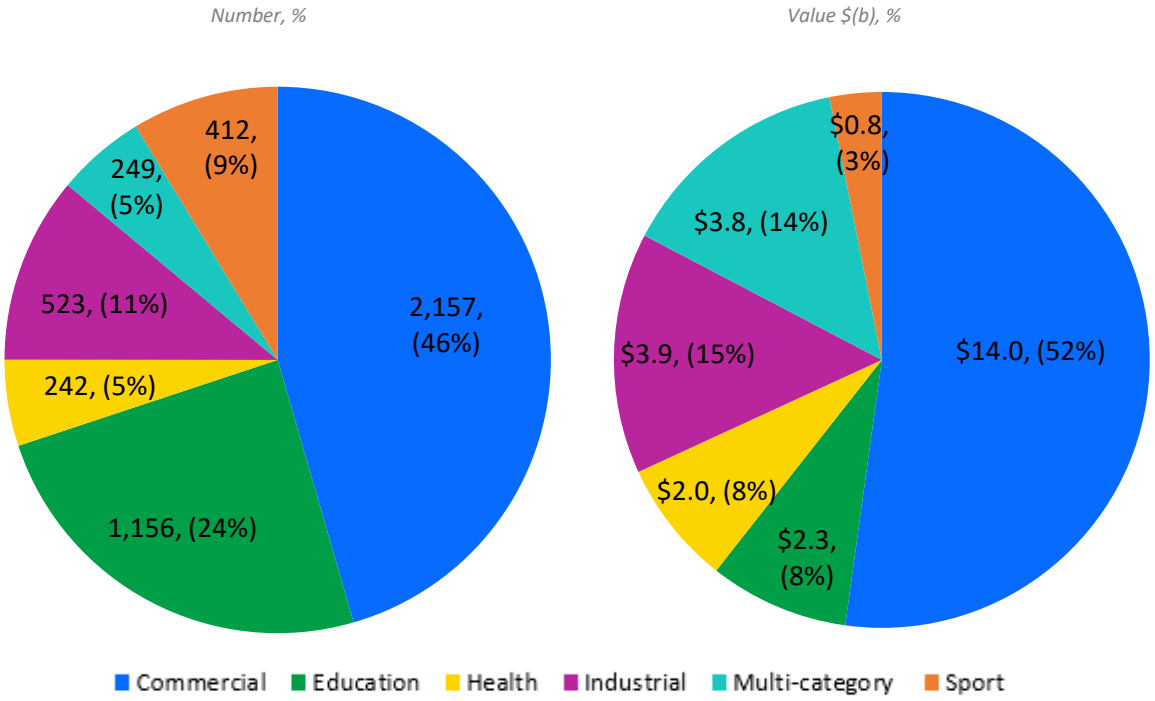
Source: BRANZ/Pacifecon

[6] 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 2023, contributing 46% of the total number of projects and 52% of total value. Not only is the reported number of commercial projects higher than last year (12%), the value of the projects is also higher – *$2.9b* higher than we saw in the 2022 report. Projects are similar to last year with a predominance of redevelopments, refurbishments and upgrades of commercial and office buildings. Education has many projects (24% of the total number of projects) but only accounts for 8% of the total value.

Figure 3.5.1 Non-residential building types anticipated to start in 2023,[7] by number and total project value



Source: Pacifecon

[7] Actuals and construction intentions, year ending December 2023.

3.6 Project initiators for non-residential building, by sector

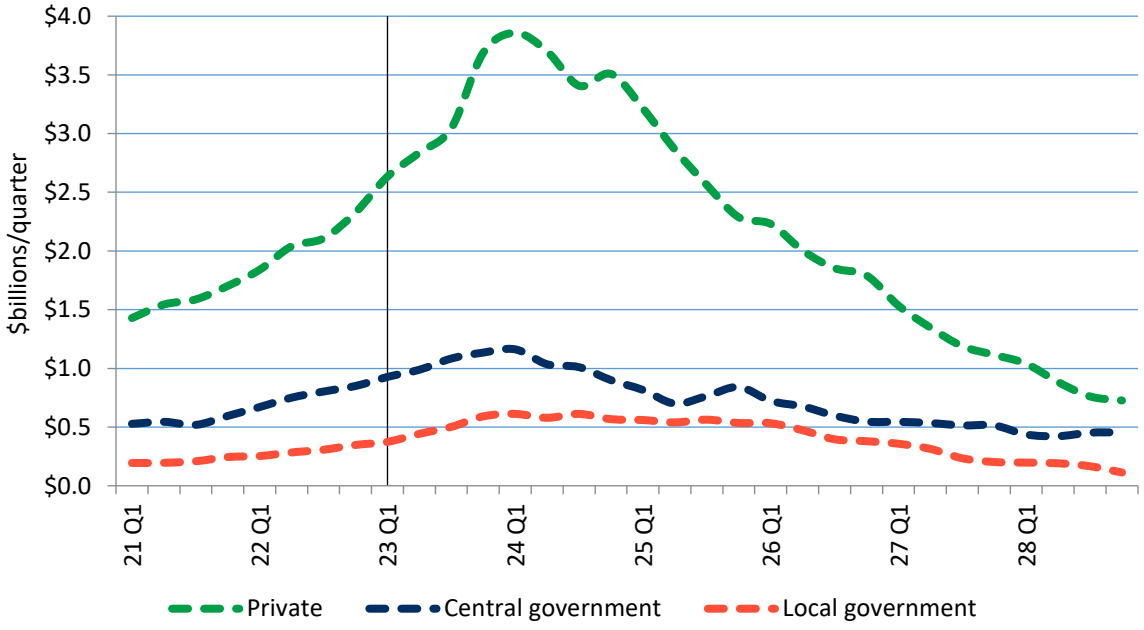
The private sector is the largest initiator of non-residential building, contributing 66% of the value of researched intentions for 2023–2028, while central and local government make up 22% and 12% respectively. These are very similar proportions to last year for all sectors.

Central and local government-initiated projects benefit from having good long-term visibility of funding,[8] 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 and more variable private funding,[9] which can result in intentions falling away in the medium term as there is less certainty. Furthermore, as the operating environment changes, project commencement may be delayed, timeframes for completion altered or projects rescoped to match conditions.

Pacifecon has found that the trend that started post-COVID-19 lockdowns of businesses reassessing their physical location and work-space needs has continued and projects for shared spaces are becoming more frequent.

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



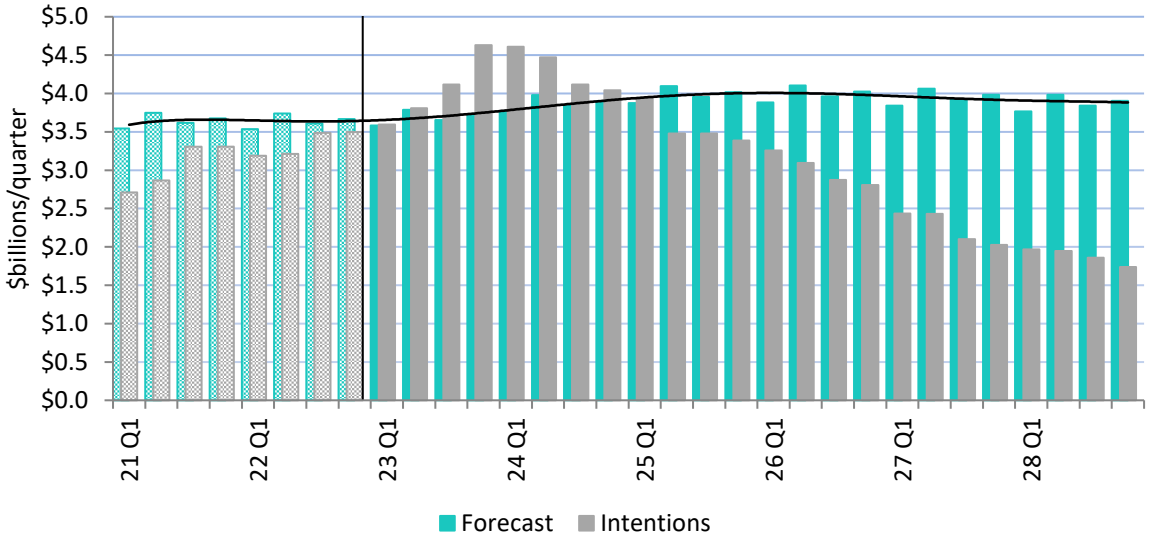
Source: Pacifecon

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

3.7 National infrastructure activity

In 2022, infrastructure represented one-quarter of total building and construction value. Infrastructure activity fell slightly between 2021 and 2022 to *$14.5b*. We forecast activity to increase steadily year on year and reach *$16b* in 2026. Pacifecon's research data indicates strong intentions throughout the forecast period.

Figure 3.7.1 Infrastructure activity nationally



Source: BRANZ/Pacifecon

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.

At the time of writing, the public sector was in the process of reviewing plans for future work programmes.

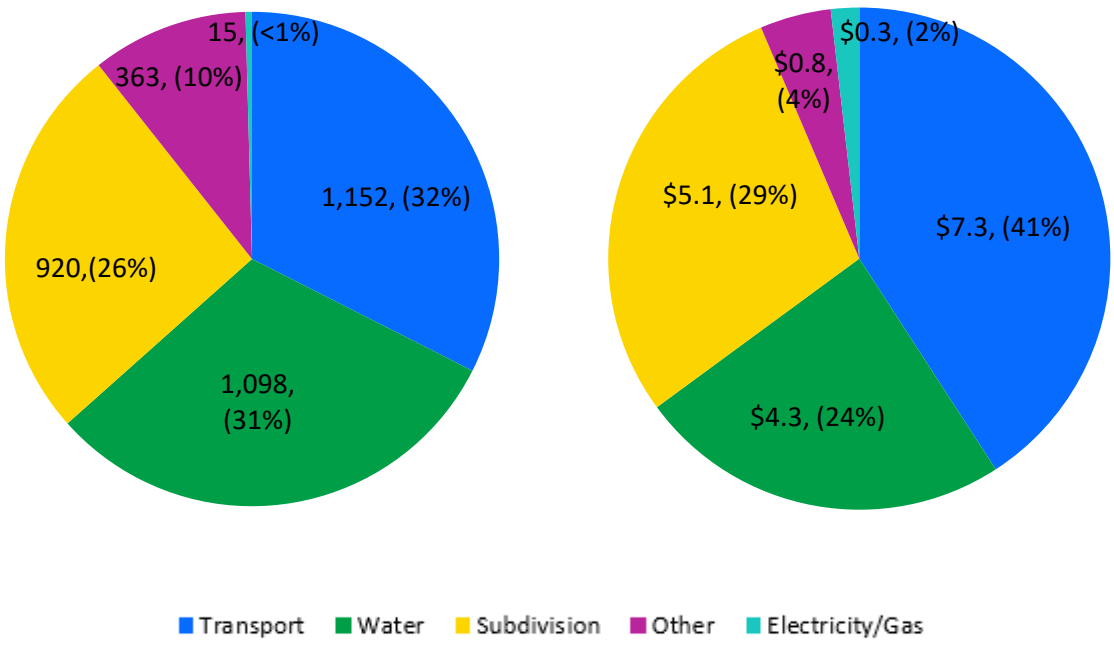
- Waka Kotahi NZ Transport Agency continues to work with local government towards its next National Land Transport Programme (NLTP).[10] It is expected that resilience will be a key theme of the revised programme in light of the significant weather events – cyclones Hale and Gabrielle – in early 2023.
- Local councils are undertaking the three-yearly reviews of long-term plans due for adoption in June 2024. Similar to Waka Kotahi, priorities for council funding are anticipated to have a strong focus around risk and resilience.
- Specific work programmes for the three waters services – drinking water, wastewater and stormwater – are somewhat uncertain until the new government has had an opportunity to give direction on the reforms proposed by the previous administration.

[10] The NLTP is a three-year programme of prioritised activities with a 10-year forecast of revenue and expenditure.

3.8 Types of infrastructure construction

Transport, water and subdivision projects continue to dominate new infrastructure activity in 2023, contributing 89% of the projects and 94% of the total value, similar to the proportions in the 2022 report. Of note is the 8% increase in the number of transport projects over the 2022 report. This increase reflects the growing level of activity being undertaken to address roading damage from the cyclonic weather events in early 2023.

Figure 3.8.1 Infrastructure project types anticipated to start in 2023,[11] by number and total project value[12]



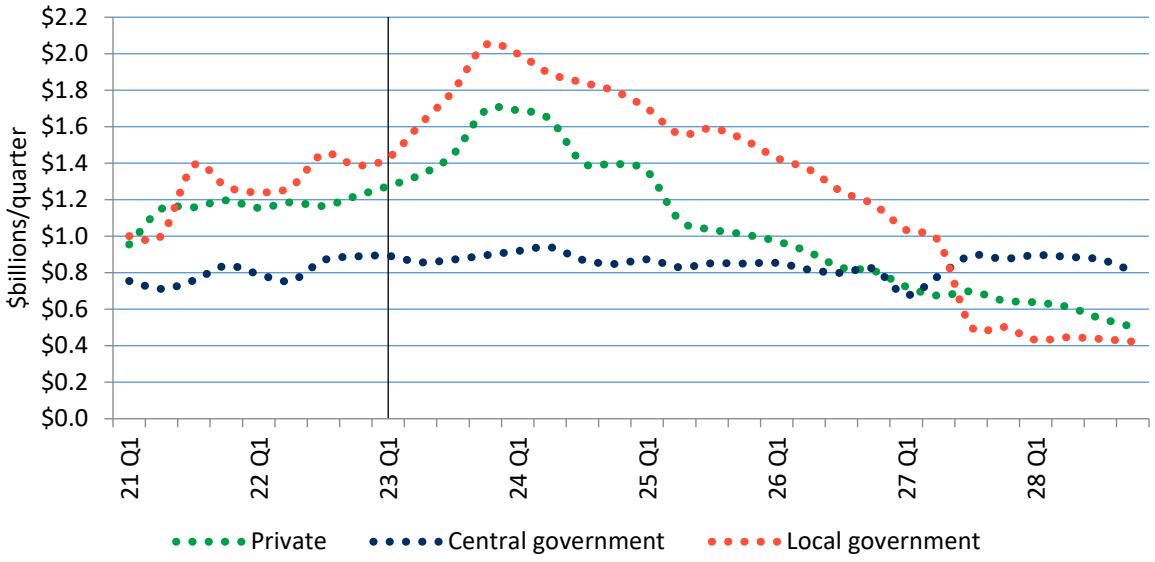
Source: Pacifecon

[11] Actuals and construction intentions, year ending December 2023.
[12] 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 40% of projects initiated over the forecast period. This is a slight decrease on the 2022 report. Projects initiated by central government have increased slightly, to 27%; these are mainly transport projects. The private sector is also up slightly, to 33%, with most of the value due to subdivisions. Late 2023 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

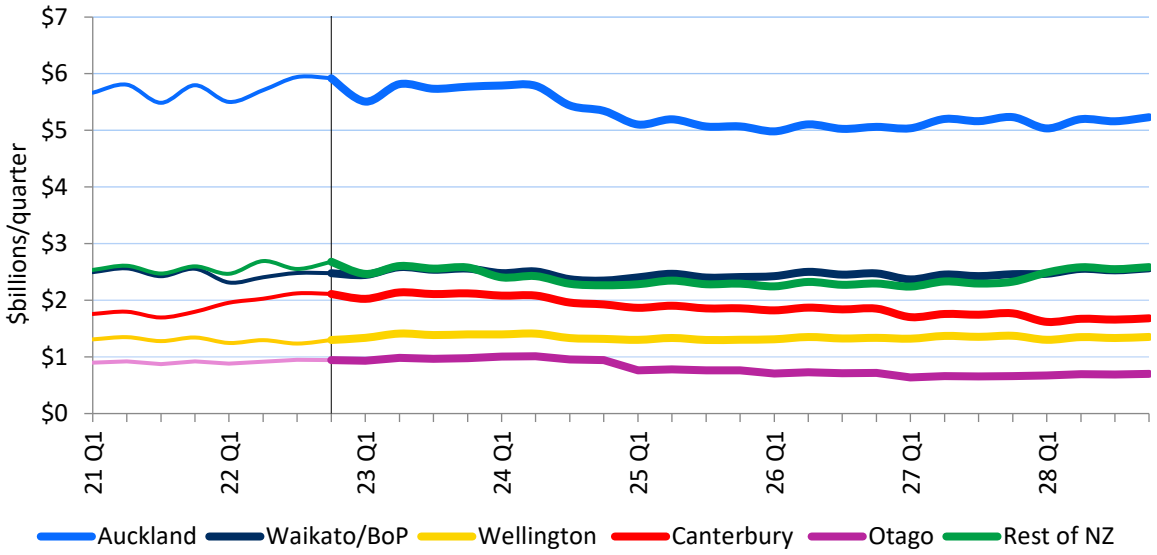
This section examines the differences in the forecast values for residential buildings, non-residential buildings and infrastructure activity across the regions defined in the report. The individual regions are discussed in more detail in sections 4.2 to 4.7.

Total building and construction value regional comparison

The majority of regions saw increases for total construction in 2022 except Wellington and Waikato/Bay of Plenty, which both experienced a 4% decrease. The Canterbury region showed the greatest growth, increasing 17% to *$8.2b*. Of the remaining regions, Auckland increased by 1% to *$23.1b*, Otago 2% to *$3.7b,* and Rest of New Zealand 2% to *$10.4b*. The dip in activity in quarter 1 of 2023 for the Auckland region and the Rest of New Zealand is likely to be related to the impact of cyclones Hale and Gabrielle on the North Island.

Through the first four years of the forecast period, all regions except for Wellington are expected to see decreased levels of total construction activity followed by a gradual rise toward the end of the period. Compared with 2022, Otago is expected to see the greatest decrease in activity, by 22% to *$2.9b* by 2026, Auckland is forecast to decrease by 13% to *$20.2b*, Waikato/Bay of Plenty by 1.2% to *$9.9b*, Canterbury by 10.1% to *$7.4b*, and Rest of New Zealand by 12.1% to *$9.1b*. Total construction activity in the Wellington region is expected to remain relatively steady throughout the period.

Figure 4.1.1 Value of total building and construction, by region



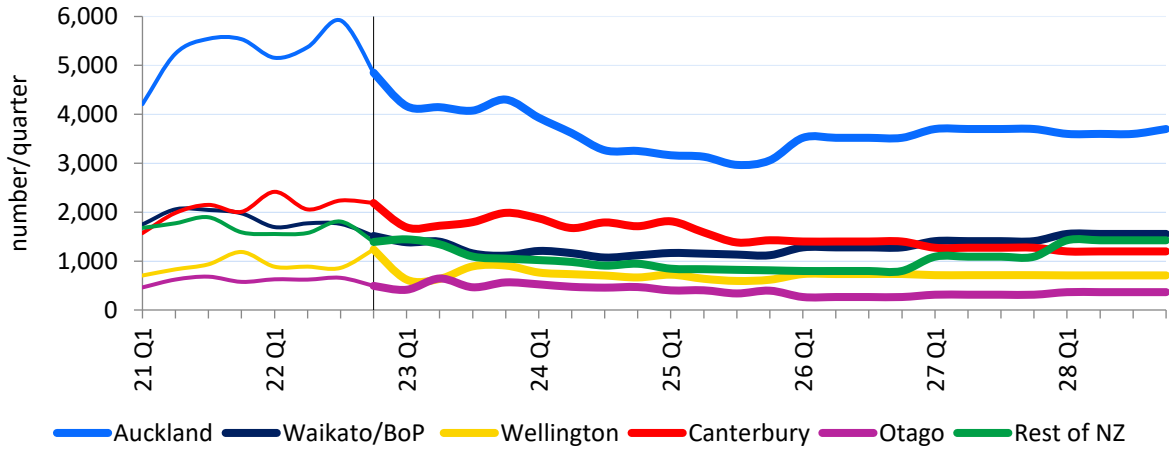
Source: BRANZ/Pacifecon

Residential building regional comparison

The number of new residential consents has increased slightly over the last 12 months, as total consents went from *49,003* in 2021 to *49,537* in 2022. The Auckland region represented 43% of consents in 2022. Waikato/Bay of Plenty, Canterbury and Rest of New Zealand regions each represented 13–18% of the total number of new residential building consents.

All regions are forecast to track downwards, to different extents, over the short term. Auckland is the most noticeable, with consents forecast to fall from *21,301* in 2022 to a low of *13,110* in 2025.

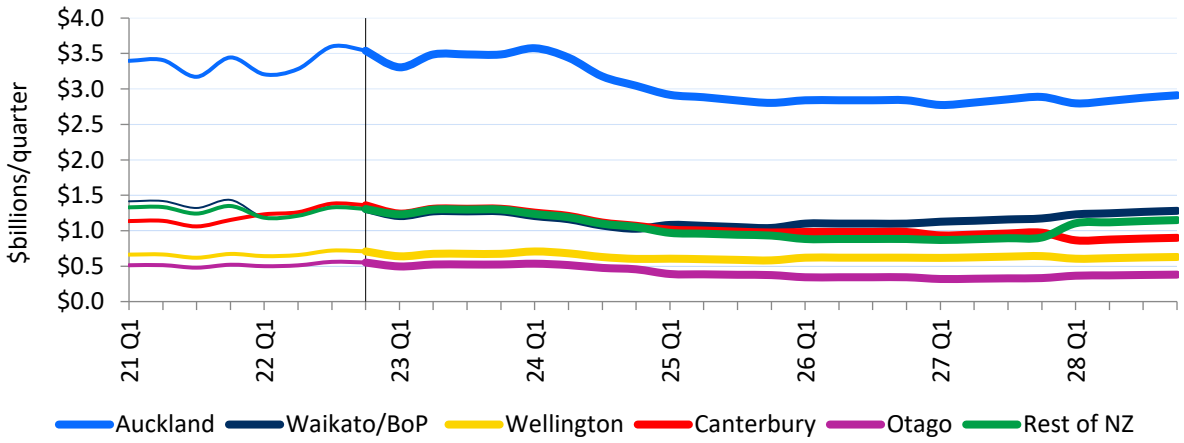
Figure 4.1.2 Number of residential consents, by region



Source: BRANZ

Activity in the residential sector has been strong over the last couple of years, buoyed by historically low interest rates. We have witnessed the effects of increased borrowing costs since mid-2022, with the number of new residential building consents falling away from record highs. As the backlog of building consents are worked through, activity levels will fall away across the country. This effect is most obvious in the Auckland region, where building activity in the residential sector is forecast to drop from *$13.8b* in 2023 to *$11.3b* in 2027.

Figure 4.1.3 Value of residential buildings, by region

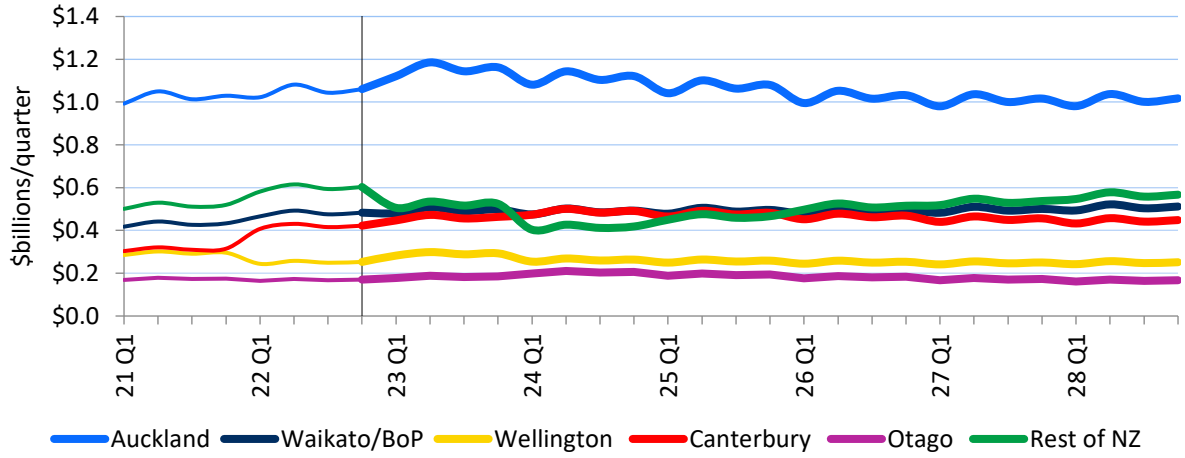


Source: BRANZ

Non-residential building regional comparison

Growth in non-residential building activity at the national level was strong in 2022. The Canterbury region showed the most significant growth in 2022, up 42% to *$1.7b* in 2022. Waikato/Bay of Plenty and the Rest of New Zealand regions grew by 12–14%. Wellington was the only region that saw a decrease in activity between 2021 and 2022.

Figure 4.1.4 Value of non-residential building, by region

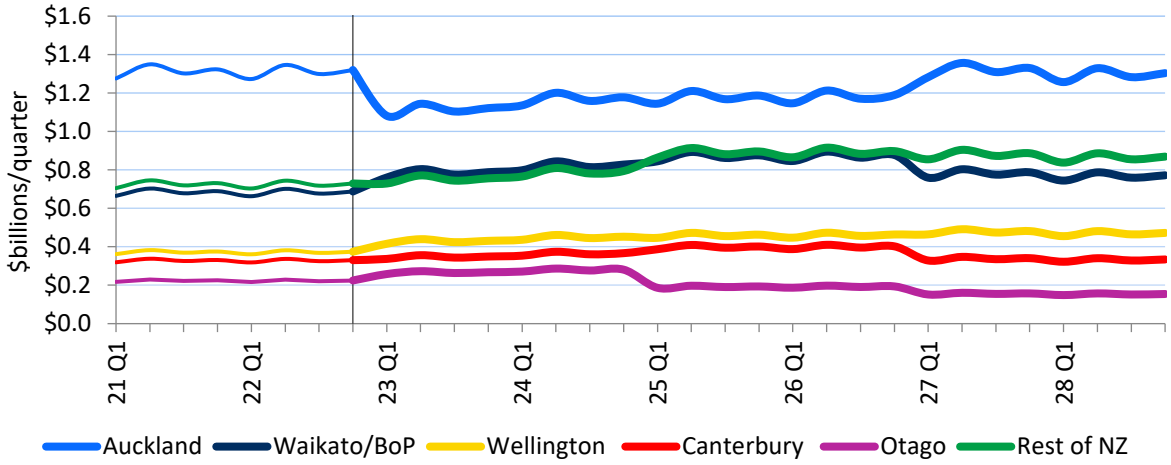


Source: BRANZ

Infrastructure activity regional comparison

Infrastructure activity decreased by 0.2% in 2022 following a 0.3% increase in 2021. Infrastructure forecasts overall are expected to be relatively consistent through to 2028. However, regional variations are likely, with activity forecast to decrease 15% in the Auckland region in 2023 before returning to 2022 levels in 2027. The Wellington region and the Rest of New Zealand are expected to show steady growth over the forecast period – 10% and 15% respectively. Infrastructure continues to be driven by transport, water and subdivisions (see Figure 3.8.1).

Figure 4.1.5 Value of infrastructure activity, by region



Source: BRANZ/Pacifecon

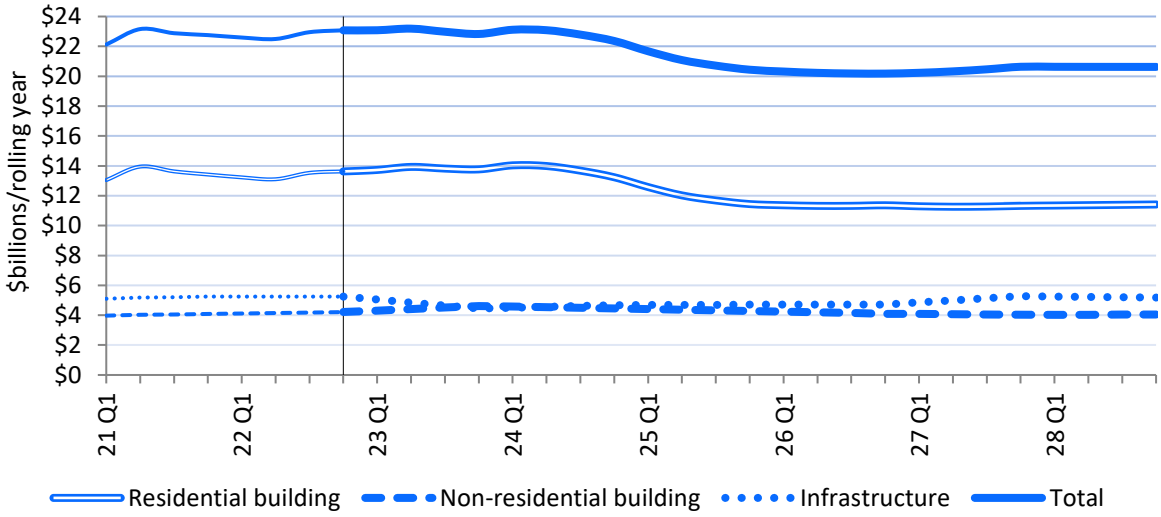
4.2 Auckland[13]

Auckland has always been New Zealand's largest market for building and construction, contributing 38% of total national construction value and 43% of new dwelling consents in 2022, similar proportions as 2021's. Activity in Auckland is forecast to be maintained throughout 2023, then begin to fall away in mid-2024 before rising slightly towards the end of the forecast period. It is anticipated activity in the Auckland region will represent 37% of total national construction value and 40% of dwelling consents in 2028.

Differences for each sector were seen in 2022. The total growth in 2022 was 1.4%, to *$23.1b*. The forecast for Auckland is now for a decrease in activity to *$20.6b* by the end of 2028, a reduction of 10.6% compared with 2022.

While infrastructure construction is forecast to remain relatively consistent through to 2028, non-residential building is anticipated to peak in 2023 at *$4.6b* and then reduce by 12% by the end of the forecast period. Residential building is anticipated to have peaked at *$13.8b* in 2023 and is forecast to reduce to *$11.4b* in 2028.

Figure 4.2.1 All construction in Auckland, by value



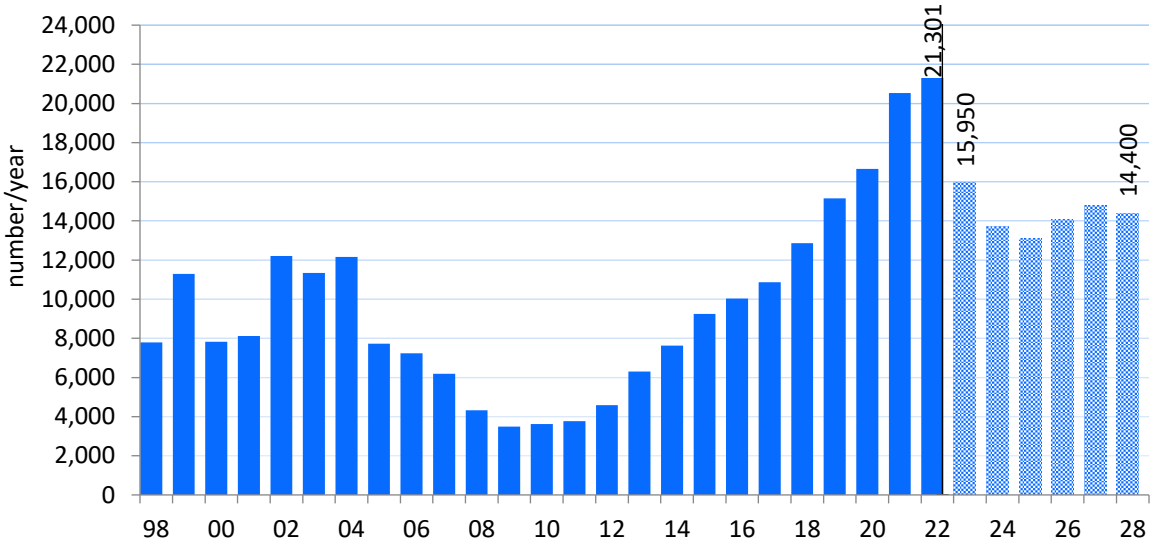
Source: BRANZ/Pacifecon

[13] The area covered by Auckland Council.

Auckland dwelling consent activity

The number of new dwellings consented in Auckland grew by 4% to *21,301* in 2022. Consent growth had been strong in Auckland prior to 2022, with growth of 18% in 2019, 10% in 2020 and 23% in 2021. The forecast for Auckland is for consents to fall to a low of *13,110* in 2025, before trending back up to a high of *14,800* in 2027. Over *85,000* dwelling units are expected to be consented in the six years from 2023 to 2028 (*95,000* were anticipated over the six years in the 2022 report and *111,000* in the 2021 report).

Figure 4.2.2 Dwelling units in Auckland, 1998 to 2028

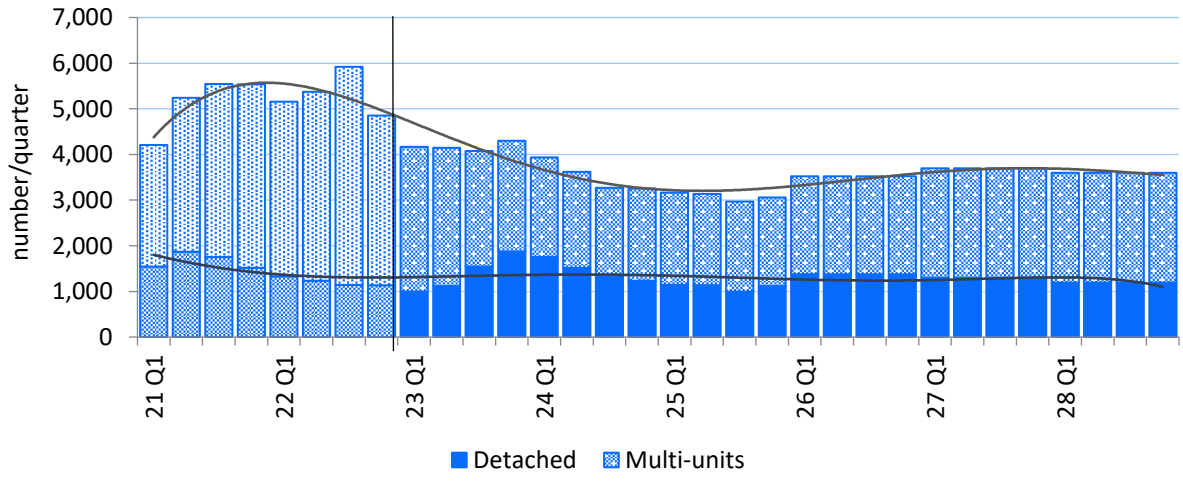


Source: BRANZ/Stats NZ

Auckland multi-unit consents

In recent years, dwelling growth in Auckland has been driven by multi-unit consents. And while it is expected that multi-unit consents will remain dominant in Auckland in the future, we forecast that the number of multi-unit consents is going to decrease in the short term, from *16,462* in 2022 to a low of *7,930* in 2025. Detached consents in Auckland, however, are forecast to remain relatively steady throughout the forecast period to 2028.

Figure 4.2.3 Dwelling units in Auckland

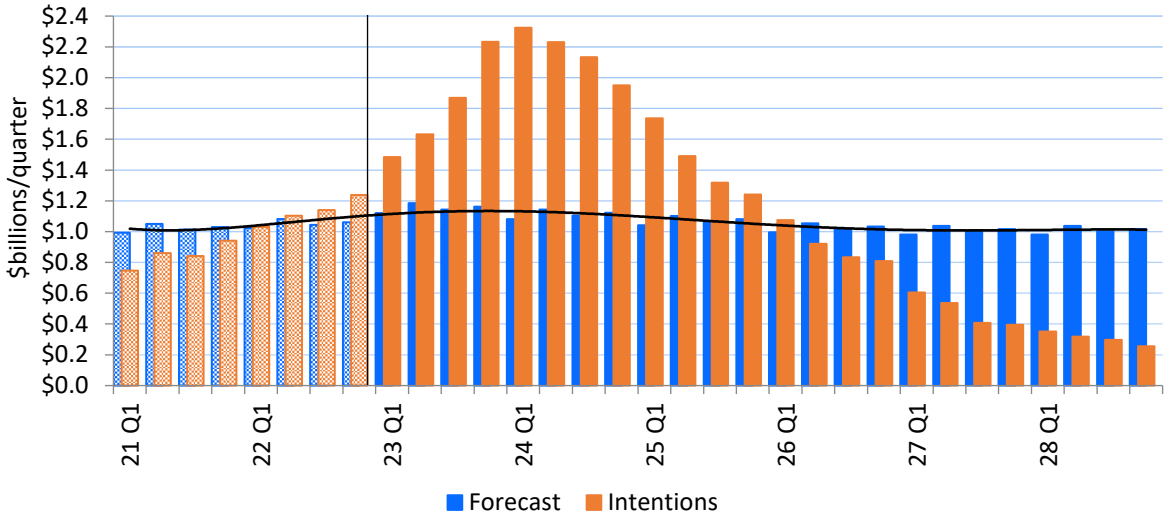


Source: BRANZ

Auckland non-residential building activity

Non-residential building activity in Auckland increased by 3% to *$4.2b* in 2022. We forecast non-residential building activity in Auckland to increase by 10% to peak at *$4.6b* in 2023. The remainder of the forecast period shows a decline year on year in non-residential building activity, to a low of *$4b* in 2028. Pacifecon continues to report strong non-residential construction intentions despite many projects having been delayed. The total value of forecast work is around 10% below the intentions work.

Figure 4.2.4 Auckland non-residential building activity

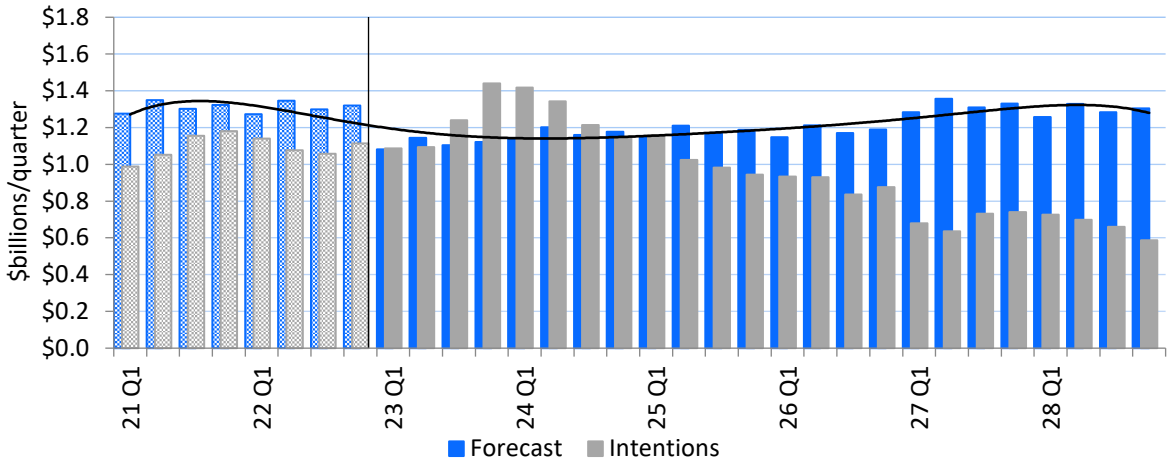


Source: BRANZ/Pacifecon

Auckland infrastructure activity

Infrastructure activity in Auckland decreased slightly by 0.2% in 2022 to *$5.2b*, following a slight increase of 0.3% in 2021, and is forecast to remain relatively stable, ending the forecast period in 2028 at 2022 levels. 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:

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

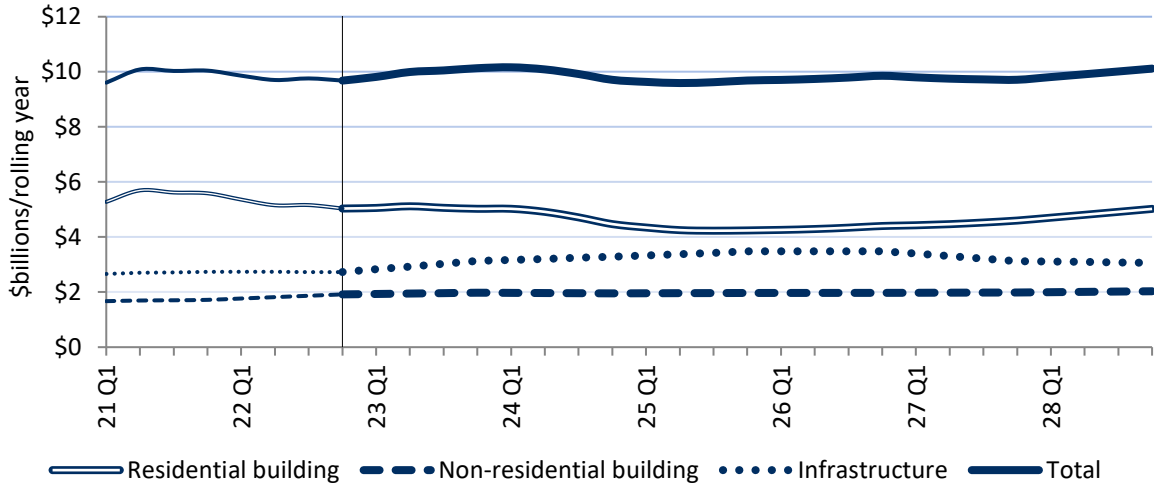
Source: Pacifecon

4.3 Waikato/Bay of Plenty[14]

The total value of construction in Waikato/Bay of Plenty decreased by 4% in 2022 to *$9.7b* following an 8% increase in 2021. Contrary to the overall trend, non-residential activity increased by 11% while residential activity decreased by 9% and infrastructure experienced a slight decrease of 0.2%.

Residential building peaked in 2021 and is now forecast to decrease from *$5.0b* in 2022 to *$4.2b* in 2025, before rising again to *$5.0b* by 2028. Non-residential building is forecast to remain steady over the forecast period, reaching *$2.0b* by 2028. Infrastructure activity in this region continues to be expected to make gains, reaching *$3.5b* in 2026, before decreasing to *$3.1b* at the end of the forecast period.

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



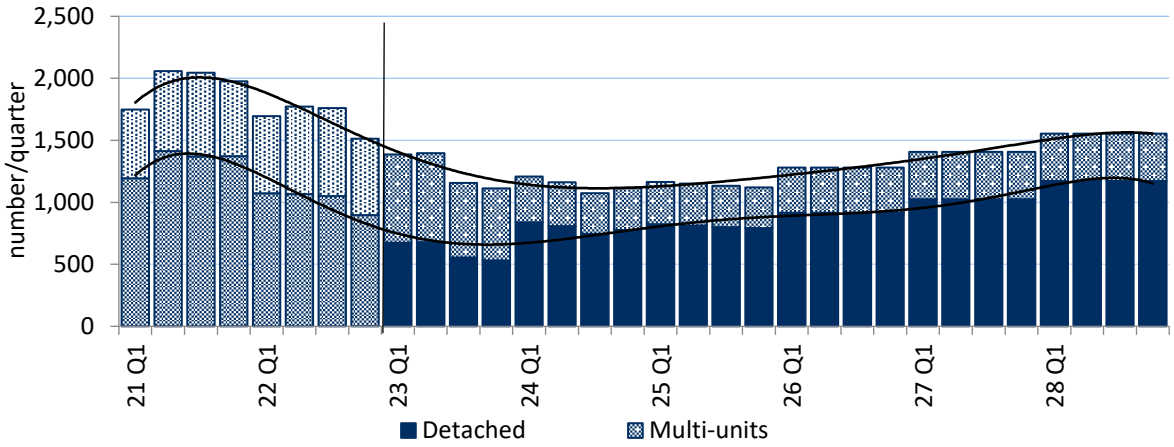
Source: BRANZ/Pacifecon

[14] 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 more than *6,000* dwelling consents since 2016. Approximately *6,740* dwelling consents were issued for Waikato/Bay of Plenty in 2022, down from *7,827* in 2021. The forecast includes more than *31,000* dwelling consents from 2023 to 2028 for Waikato/Bay of Plenty. Multi-unit consents reached 39% of all dwelling consents in 2022. We forecast that this is going to increase to more than 50% in 2023, before reducing to 26% at 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

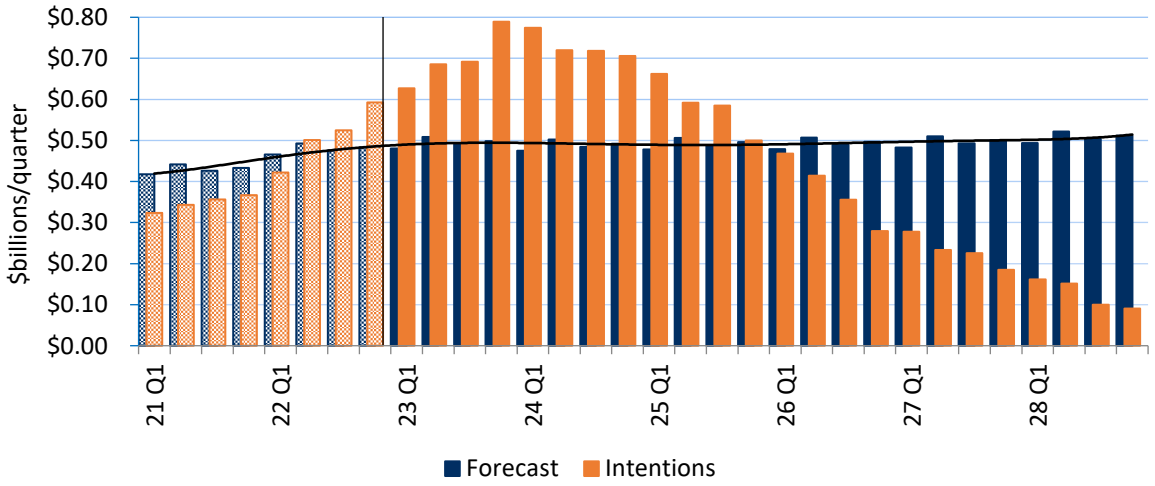


Source: BRANZ

Waikato/Bay of Plenty non-residential building activity

Non-residential building activity in the region increased by 12% to *$1.9b* in 2022 following an increase of 9% in 2021. Non-residential building activity is forecast to remain relatively steady throughout the forecast period at about *$2b*.

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

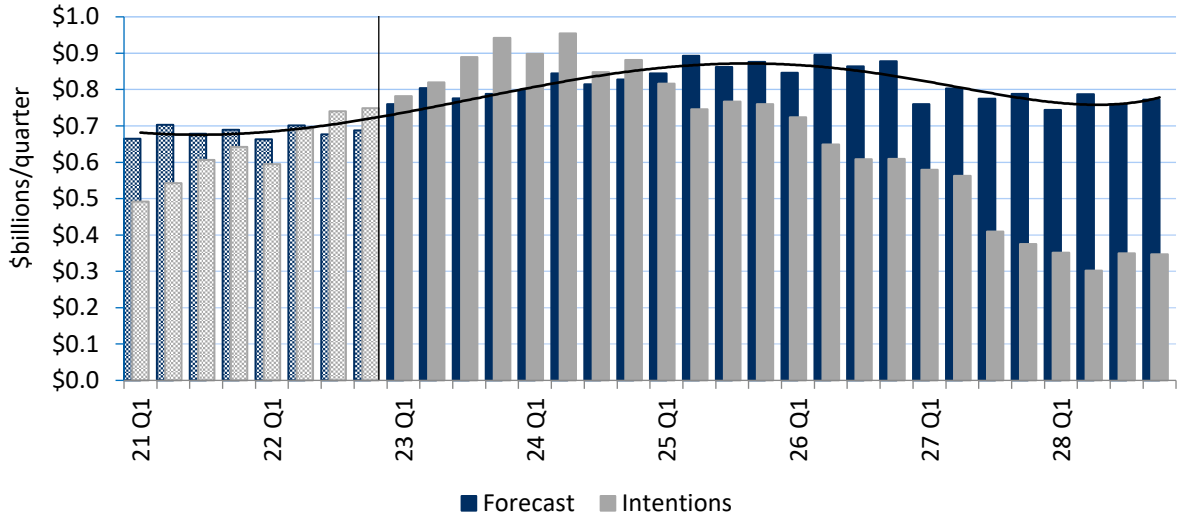


Source: BRANZ/Pacifecon

Waikato/Bay of Plenty infrastructure activity

Infrastructure activity in the region decreased slightly in 2022 to *$2.7b*. Over the forecast period, steady growth is expected to *$3.5b* in 2026, then growth is expected to reduce to *$3.1b* in 2028.

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), and
- electricity production and transmission (including windfarms and solar farms).

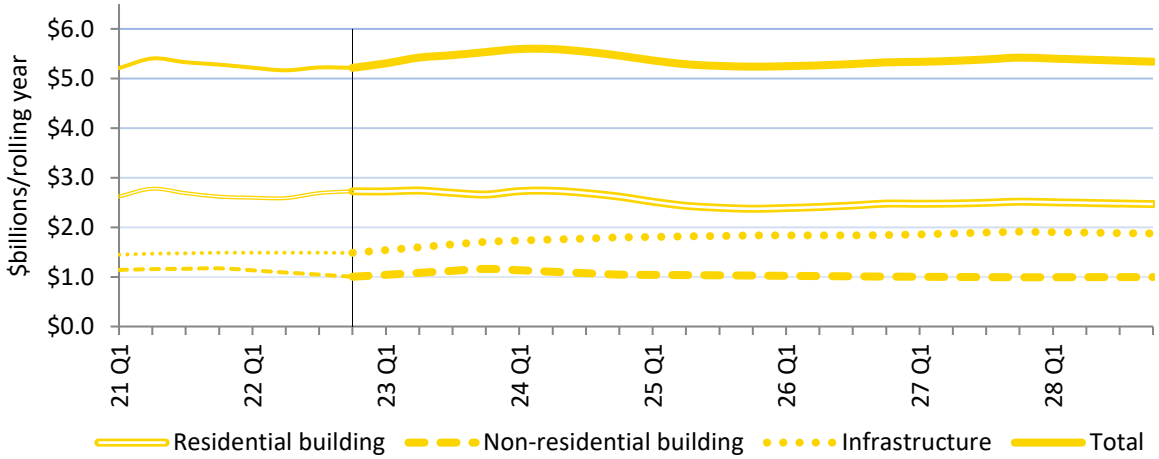
Source: Pacifecon

4.4 Wellington[15]

Wellington's total construction activity reduced by 4% in 2022, to *$5.1b*, following growth of 9% in 2021. While all sectors experienced reductions, non-residential building experienced a decrease of 15%.

Wellington's total construction value is forecast to increase by 9% to *$5.5b* in 2023, mainly due to a 15.2% increase in infrastructure activity. Activity across all sectors is expected to remain relatively constant over the forecast period, dipping slightly to *$5.3b* in 2028.

Figure 4.4.1 All construction in Wellington, by value



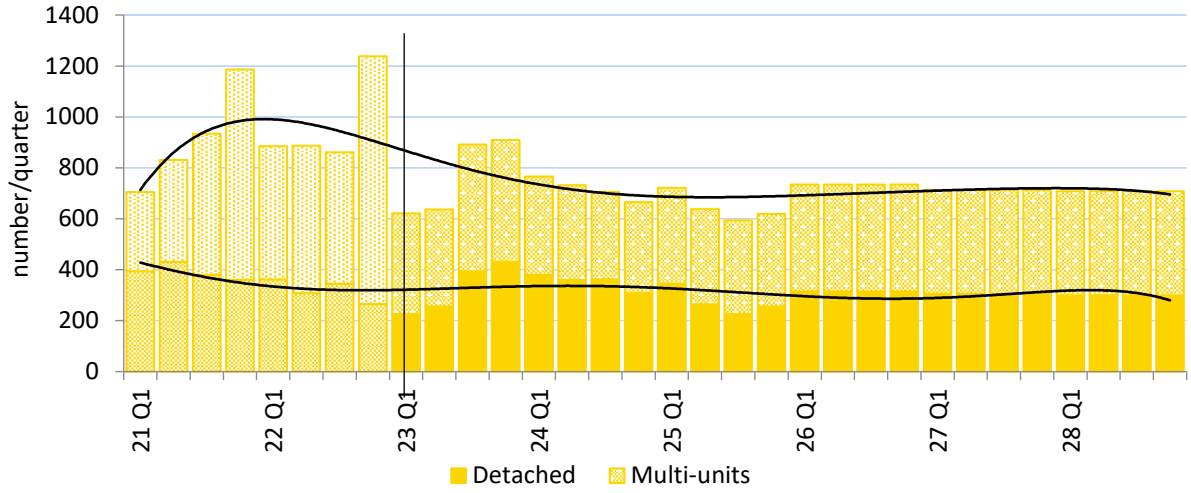
Source: BRANZ/Pacifecon

[15] 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 *3,057* in 2020 to *3,871* in 2022. We forecast just under *16,500* 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 – two-thirds of dwelling consents were for multi-units in 2022. This proportion is expected to fall back to about 57% over the forecast period.

Figure 4.4.2 Dwelling units in Wellington

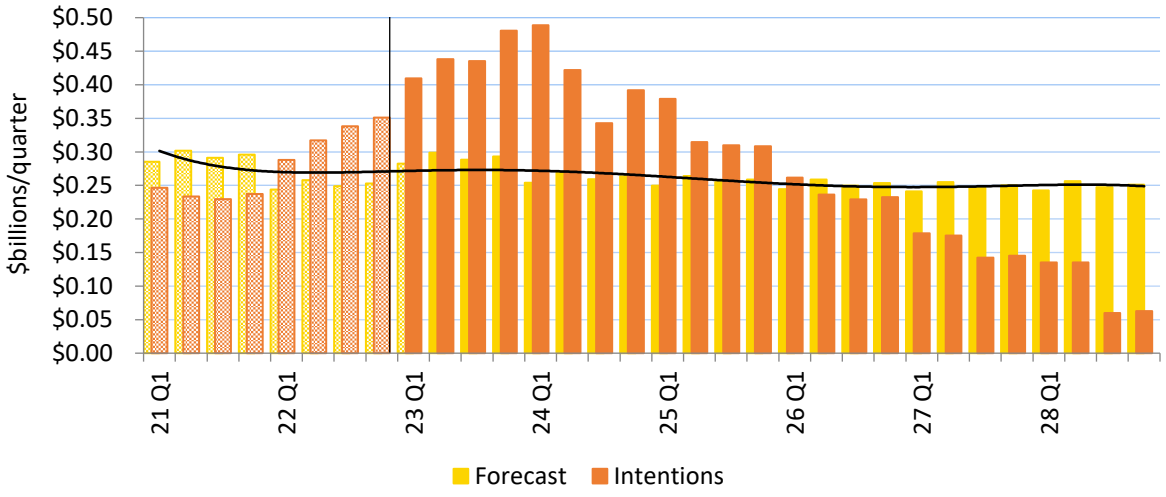


Source: BRANZ

Wellington non-residential building activity

Non-residential building activity in Wellington fell by 15% to *$1b* in 2022. We anticipate that non-residential building activity in Wellington will increase back to 2021 levels in 2023, before falling to just under *$1b* throughout the remainder of the forecast period.

Figure 4.4.3 Wellington non-residential building activity

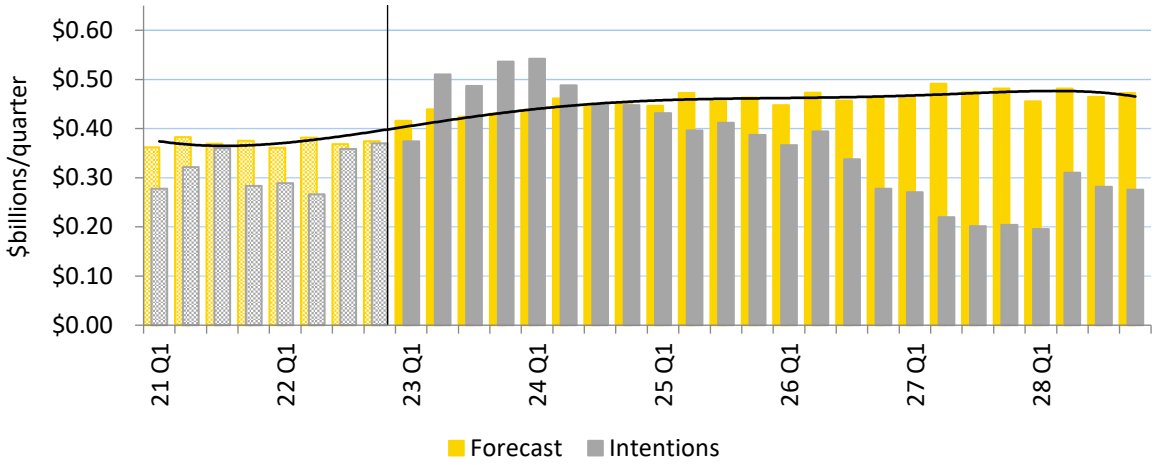


Source: BRANZ/Pacifecon

Wellington infrastructure activity

Wellington infrastructure activity in 2022 remained consistent with the previous year, at *$1.5b*. Further increases to a high in 2027 of just over *$1.9b* 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
- infrastructure, including roads, bridges and walkways/cycleways
- three waters developments (drinking water, wastewater and stormwater) and flood protection.

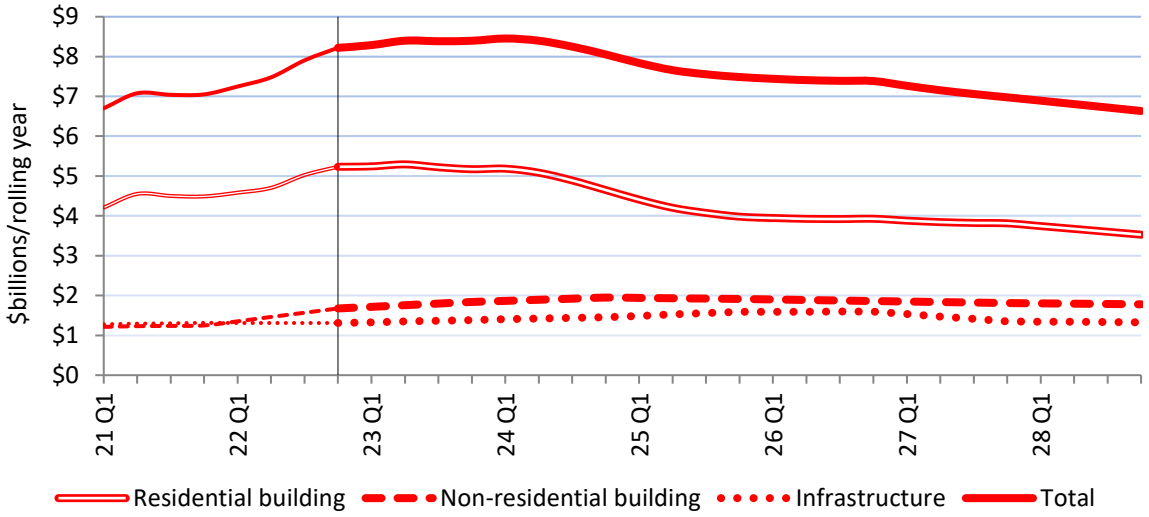
Source: Pacifecon

4.5 Canterbury[16]

An increase in total construction value of 17% occurred in 2022. This was driven by growth in residential activity of 17% and a significant increase in non-residential activity of 34%, offsetting the 36% reduction reported in the previous year.

Residential building value is now expected to have peaked at *$5.2b* in 2022, and this level is expected to be maintained throughout 2023. A decrease in activity is then forecast to lower residential building activity to *$3.5b* per annum by 2028. Non-residential building activity is expected to rise to *$1.9b* in 2024, and a gentle decrease to *$1.8b* is then expected to 2028. Infrastructure is forecast to remain steady, ending the forecast period at *$1.3b* in 2028.

Figure 4.5.1 All construction in Canterbury, by value



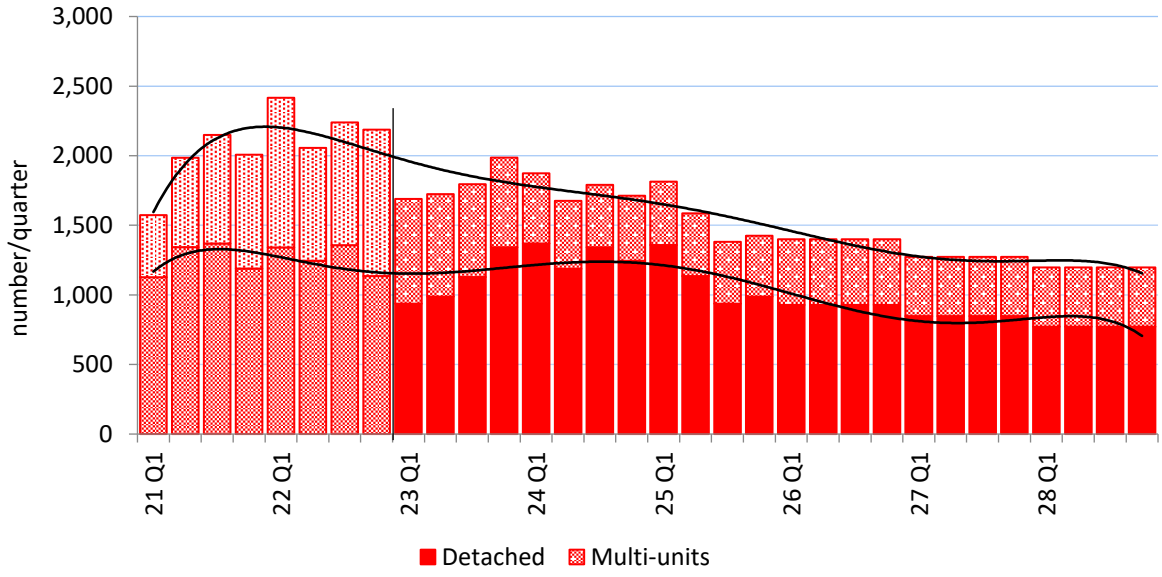
Source: BRANZ/Pacifecon

[16] 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 15% in 2022 to *8,898*. Consents in Canterbury are forecast to fall throughout the forecast period to *4,790* in 2028. Detached homes have historically been popular in Canterbury, with the proportion of multi-unit dwellings standing at 43% in 2022. We forecast that this will fall to 35% by 2028.

Figure 4.5.2 Dwelling units in Canterbury

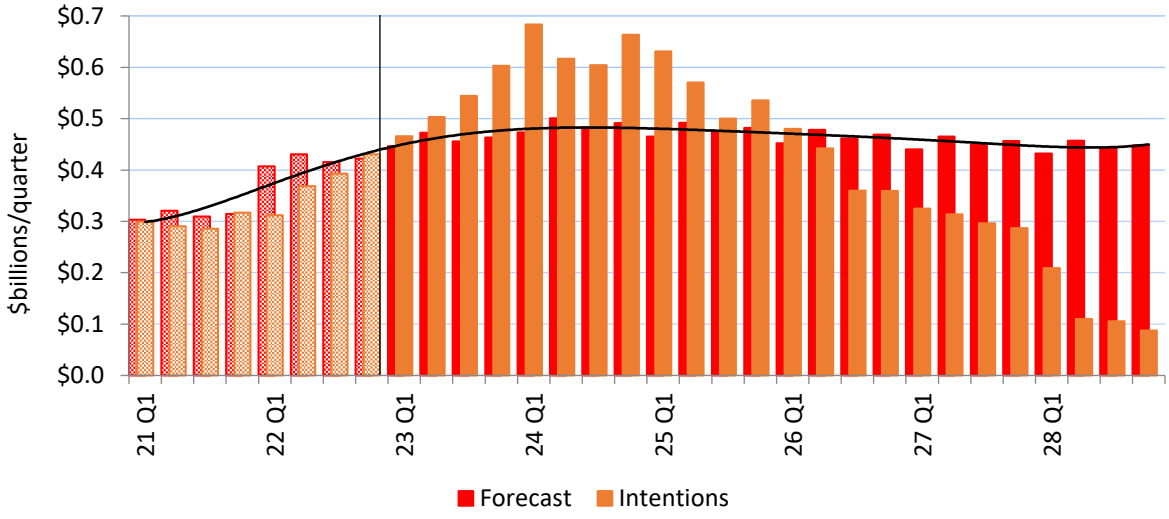


Source: BRANZ

Canterbury non-residential building activity

Non-residential building activity increased by 34% to *$1.7b* in 2022 after a fall of 36% in 2021. We forecast Canterbury non-residential building activity to increase to *$1.9b* in 2024, before gradually reducing back to *$1.8b* at the end of the forecast period.

Figure 4.5.3 Canterbury non-residential building activity

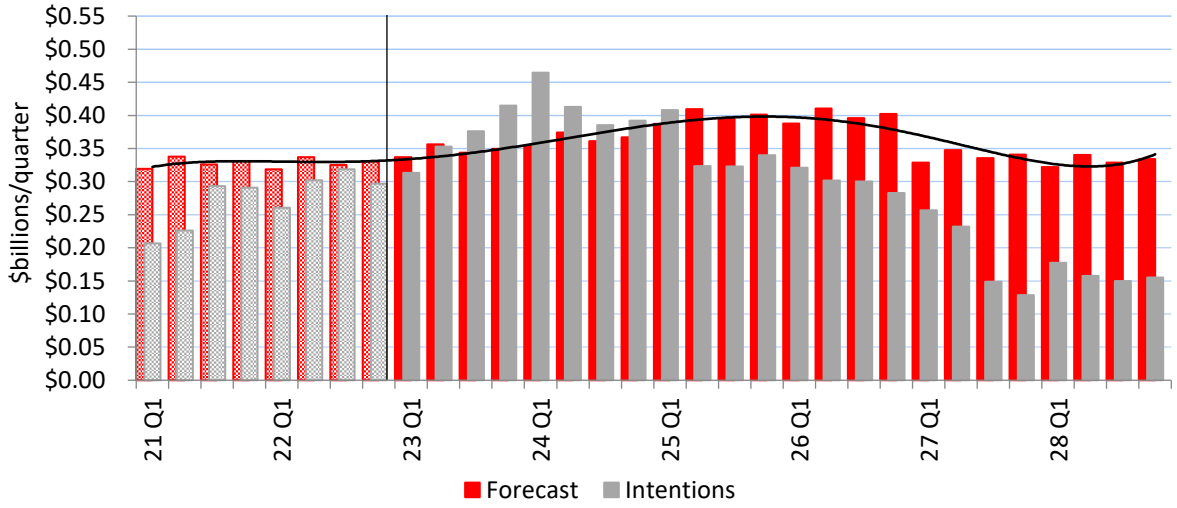


Source: BRANZ/Pacifecon

Canterbury infrastructure activity

Canterbury infrastructure activity in 2022 was similar to the previous year's, at *$1.3b*. Consistent growth is then expected to the end of the forecast period, with activity reaching *$1.6b* by 2026 and then reducing back to *$1.3b* in 2028. Pacifecon's construction intentions are closely aligned with the forecast.

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

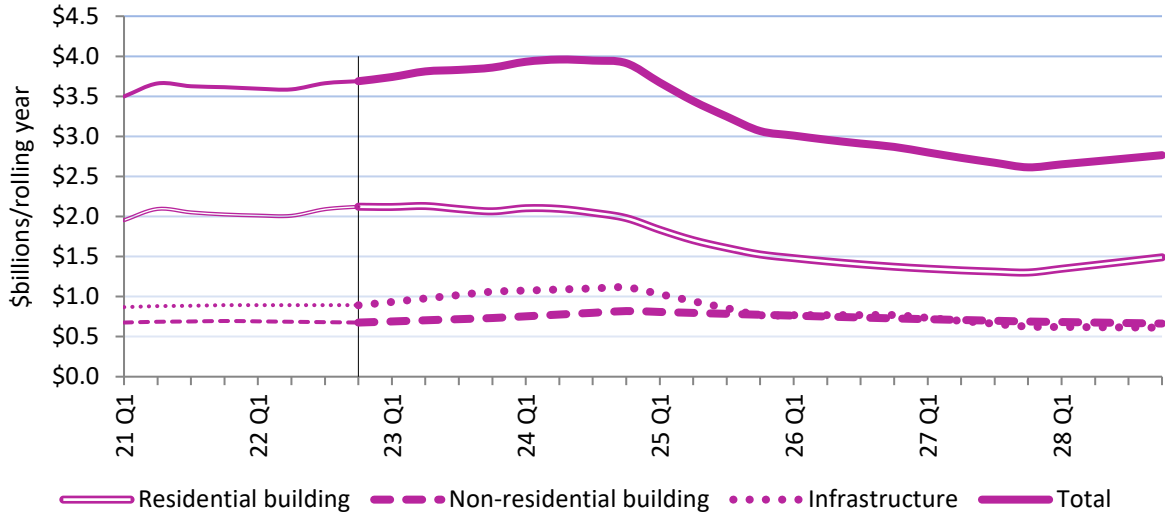
4.6 Otago[17]

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

Total construction in Otago increased by 2% to *$3.7b* in 2022, due to a 5% rise in residential building activity.

Non-residential building activity is expected to continue to make gains throughout the forecast period, reaching *$0.82b* per annum by 2024 then gradually reducing to *$0.66b* in 2028. Infrastructure is forecast to increase, reaching *$1.1b* per annum by 2024 then decreasing year on year to *$0.61b* in 2028. Residential building peaked in 2022, and a decrease is now expected for the rest of the forecast period, with a slight rise to *$1.5b* in 2028.

Figure 4.6.1 All construction in Otago, by value



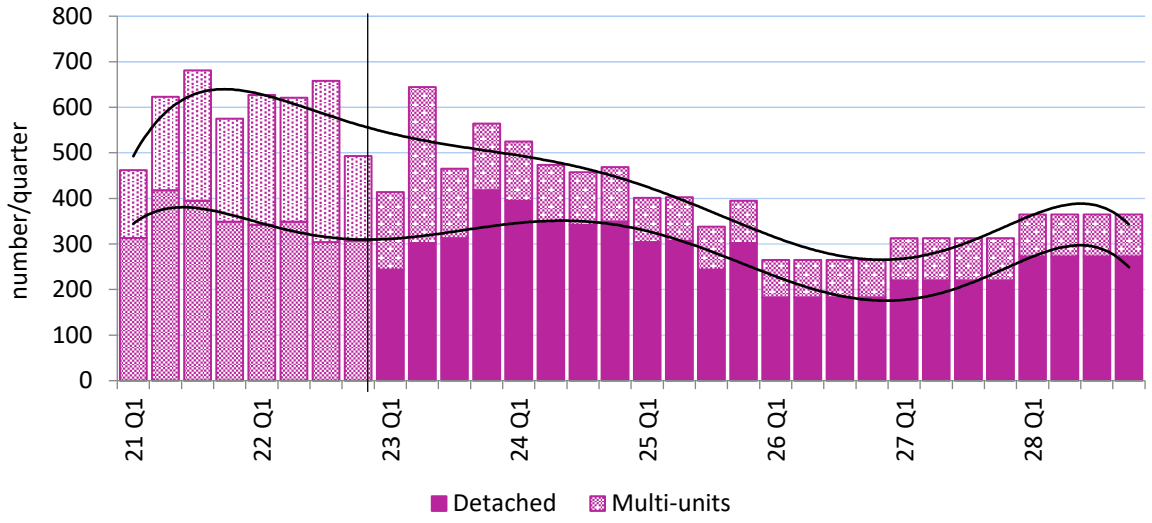
Source: BRANZ/Pacifecon

[17] Otago includes the Otago region, Dunedin City, Central Otago District, Clutha District, Queenstown-Lakes District and Waitaki District.

Otago dwelling consent activity

Strong consenting activity continued last year in Otago, with *2,399* dwelling consents in 2022 compared with *2,341* in 2021. Over the forecast period, we anticipate Otago will consent over *8,000* dwellings, the majority of which will be detached. Multi-units were 46% of all dwelling consents in 2022. We forecast this to decrease throughout the forecast period, to 28% by 2028.

Figure 4.6.2 Dwelling units in Otago

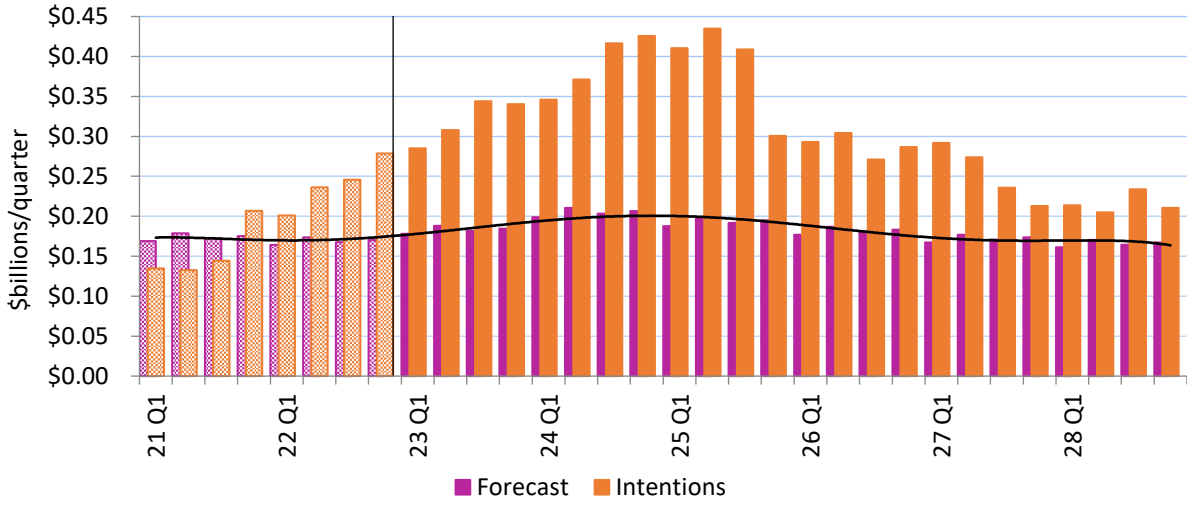


Source: BRANZ

Otago non-residential building activity

Non-residential building activity decreased by 3% to *$0.68b* in 2022, following an increase of 14% in 2021. We forecast non-residential activity to grow to *$0.82b* in 2024, before decreasing for the remainder of the forecast period, to *$0.66b* in 2028. 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

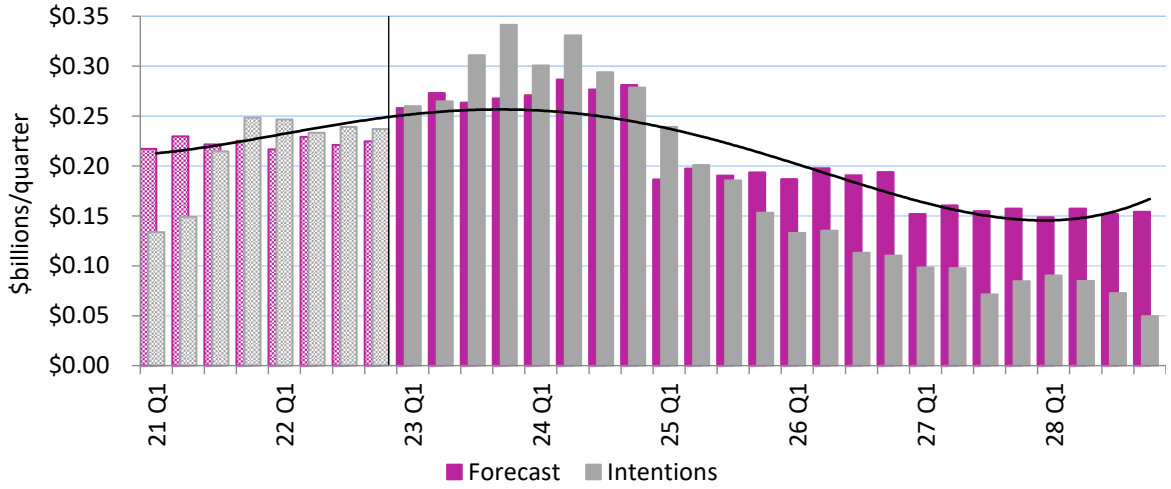


Source: BRANZ/Pacifecon

Otago infrastructure activity

Overall infrastructure activity in 2022 was *$0.89b*, which is similar to the previous year's value. Infrastructure activity is forecast to rise to *$1.1b* per annum in 2024, then reduce to *$0.61b* in 2028.

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

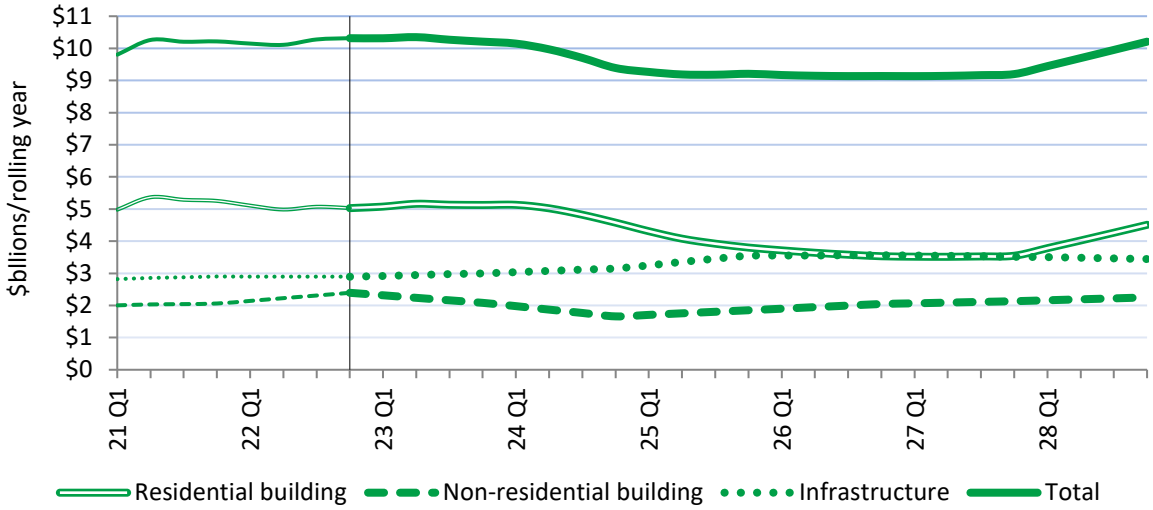
4.7 Rest of New Zealand

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 smaller populations than the other regions considered in this report.[18]

Total construction value for Rest of New Zealand increased by 2% to *$10.4b* in 2022, maintaining the gains from the previous year. The growth was as a result of non-residential building activity, which grew by 16%. Residential building and infrastructure reduced slightly.

Total construction value for Rest of New Zealand is forecast to slowly reduce to *$9.1b* in 2026 and then increase to *$10.2b* in 2028.

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



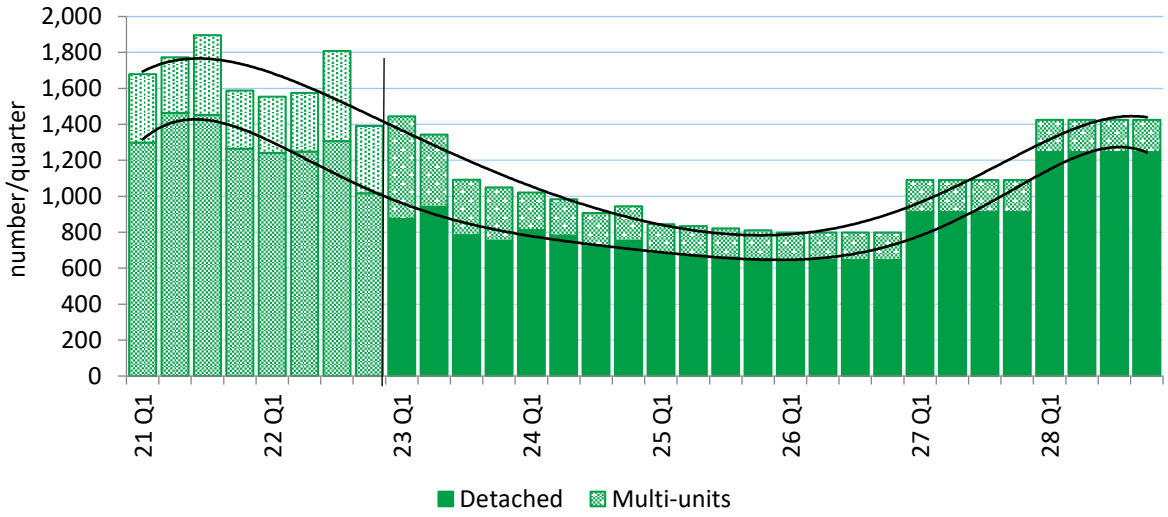
Source: BRANZ/Pacifecon

[18] Some regions have static or decreasing populations.

Rest of New Zealand dwelling consents

Dwelling unit consents in Rest of New Zealand fell by 9% in 2022 to *6,328*, and are forecast to fall to a low of *3,190* in 2026. Multi-units are not as popular in these 10 regions, and their proportion is expected to maintain between 14% and 20%. However, uncertainty remains as decisions are made around repair/rebuild intentions post-cyclone on the east coast of the North Island.

Figure 4.7.2 Dwelling units in Rest of New Zealand

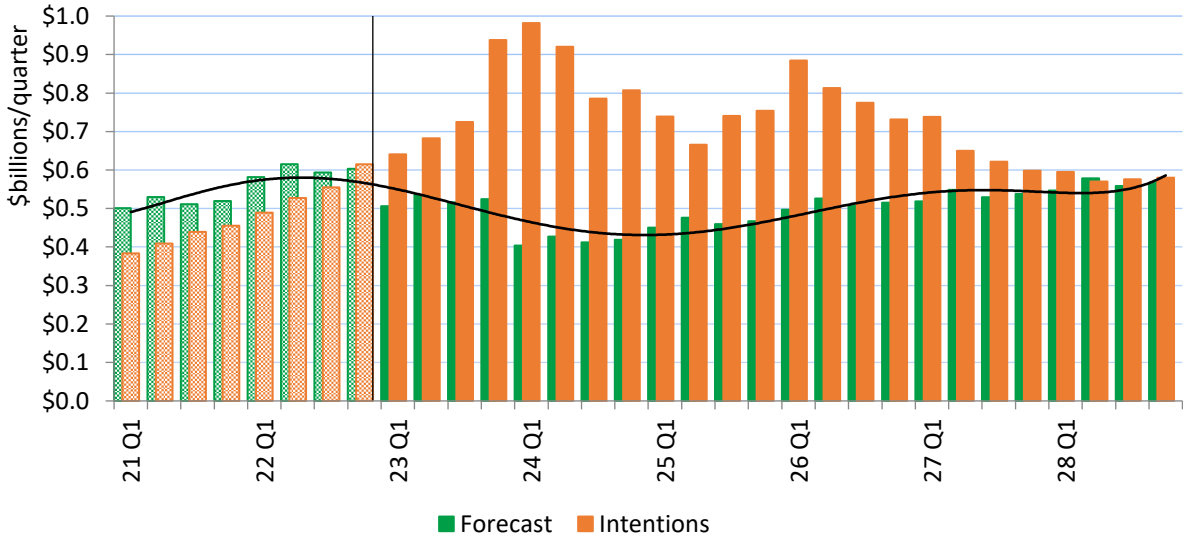


Source: BRANZ

Rest of New Zealand non-residential building activity

The Rest of New Zealand has experienced strong growth in non-residential building activity over the last two years, increasing by 65% in 2021 and by a further 16% in 2022, to *$2.4b*. Activity is forecast to fall to *$1.7b* in 2024, before increasing for the remainder of the forecast period to *$2.2b* in 2028. 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

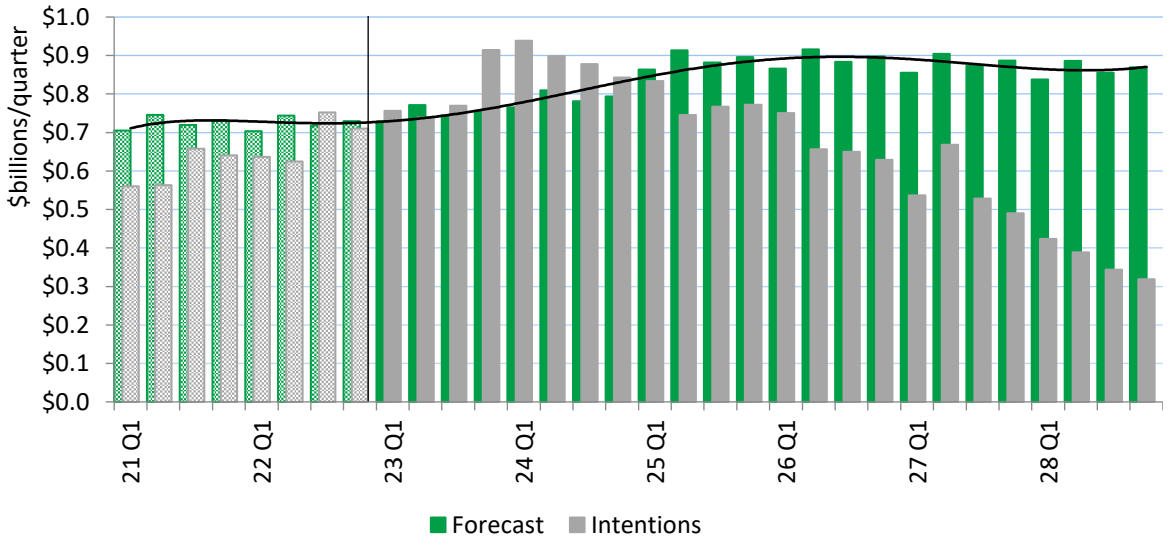


Source: BRANZ/Pacifecon

Rest of New Zealand infrastructure activity

Infrastructure activity has reached *$2.9b* per annum for Rest of New Zealand and is expected to increase, reaching *$3.5b* by 2028. It is anticipated that a proportion of this increase will be related to cyclone recovery and building further resilience into infrastructure networks.

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 in the Rest of New Zealand group and provides approximately 25% of the group's new dwelling consents.[19]

Table 4.7.1 All building and construction in the year to 31 December 2023 for Rest of New Zealand, by region and construction type

Region	Forecast residential building ($m)	Non-residential building intentions ($m)[20]	Infrastructure activity intentions ($m)
Northland	$1,283	$523	$615
Manawatu-Whanganui	$1,055	$457	$558
Hawke's Bay/Gisborne	$815	$747	$600
Nelson/Marlborough	$1,012	$302	$381
Taranaki	$441	$300	$282
Southland	$364	$359	$202
West Coast	$158	$88	$139
New Zealand wide[21]	—	$210	$401
Total	**$5,127**	**$2,985**	**$3,179**

Source: BRANZ/Pacifecon

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

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

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

5. Comparison with the National Construction Pipeline Report 2022

5.1 Adjustments to data from the 2022 report

The following adjustments have been made to the forecast data from the 2022 report to enable a closer comparison with actuals and forecasts in this report:

- Conversion from December 2021 dollars to December 2022 dollars to account for inflation as follows:[22]
  - Residential building 13.1%
  - Non-residential building 10.1%
  - Infrastructure construction 15.5%
- Adjustments for Stats NZ's revisions to the December 2021 gross fixed capital formation data:[23]
  - Residential building 2.4%
  - Non-residential building 1.9%
  - Infrastructure construction −22.9%

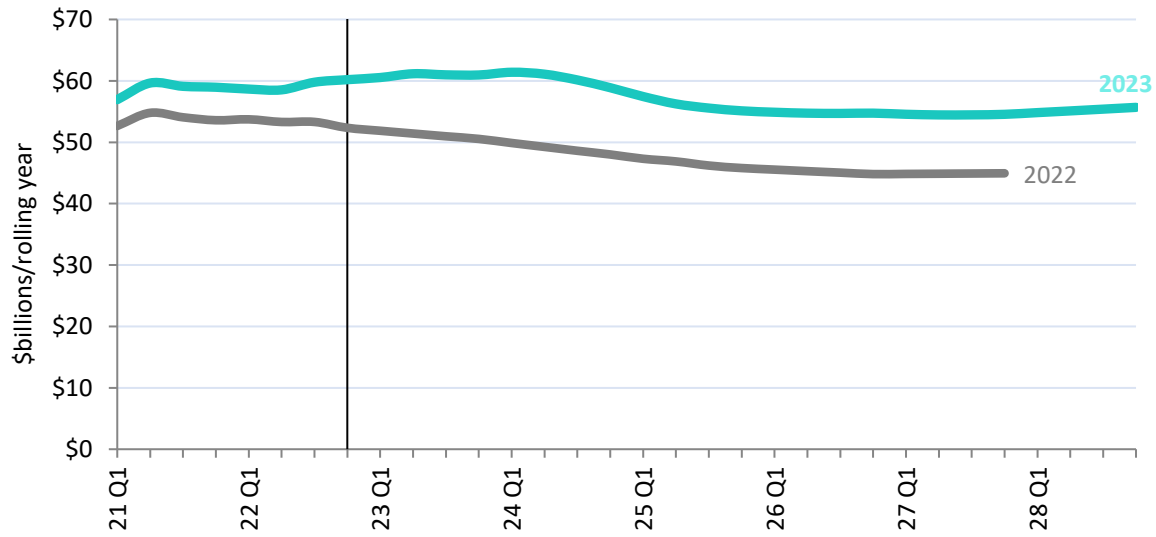
5.2 How did BRANZ do with the 2022 forecast?

The total value of construction nationally increased by 2.1% in 2022, whereas the 2022 report had forecast a slight decrease of 0.4% in total construction activity.

Residential building increased by 1.1%, non-residential building increased by 8%, and infrastructure construction decreased by 0.2%.

This year's forecast is for construction activity to decrease steadily to about *$54.6b* in 2027, driven largely by the reduced strength of the residential sector.

Figure 5.2.1 All construction nationally, 2022 and 2023 forecasts compared



Source: BRANZ/Pacifecon

[22] The 2022 report has been adjusted to December 2022 dollars for comparison.

[23] 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 2022 report forecast a 5% reduction in residential building activity for 2022 nationally, whereas there was actually a slight increase of 1.1%, to *$33.8b*. The current report forecasts residential building activity to remain relatively steady at just below *$35b* through to early 2024, before falling to a low of *$27.1b* in 2026–2027.

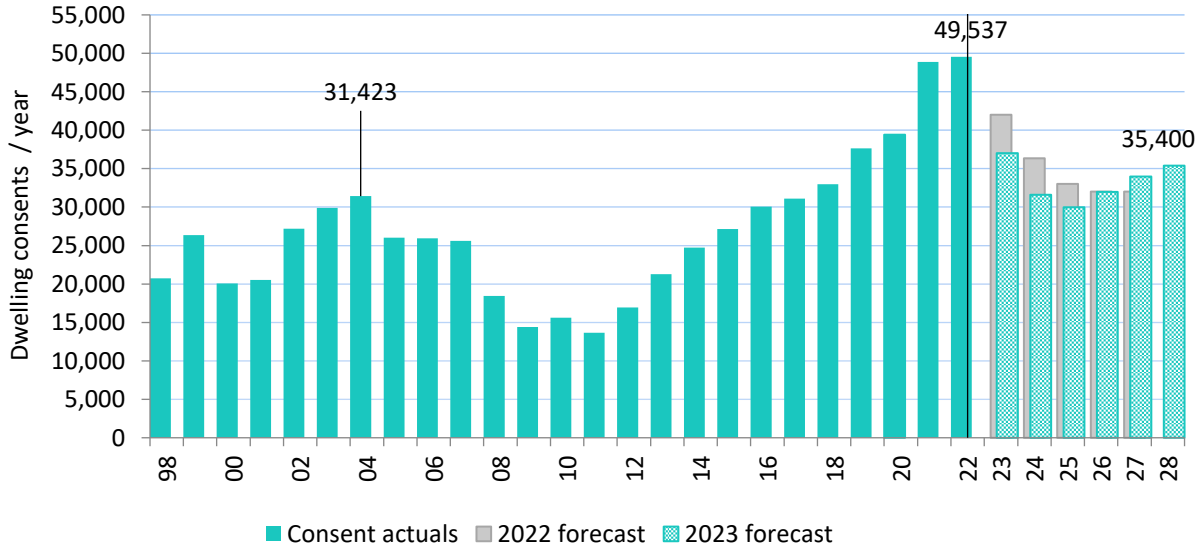
Figure 5.2.2 All residential building nationally, 2022 and 2023 forecasts compared

Source: BRANZ

Dwelling unit forecast comparison

The 2022 report forecast an 8% decrease in dwelling consents for 2022 nationally; actual consents, however, grew by 1%. This year's forecast is for a slight decrease in the number of dwelling consents from 2022 for the majority of the forecast period. However, we are forecasting an increase in consents by 4% from 2027.

Figure 5.2.3 Dwelling units consented nationally, 2022 and 2023 forecasts comparison

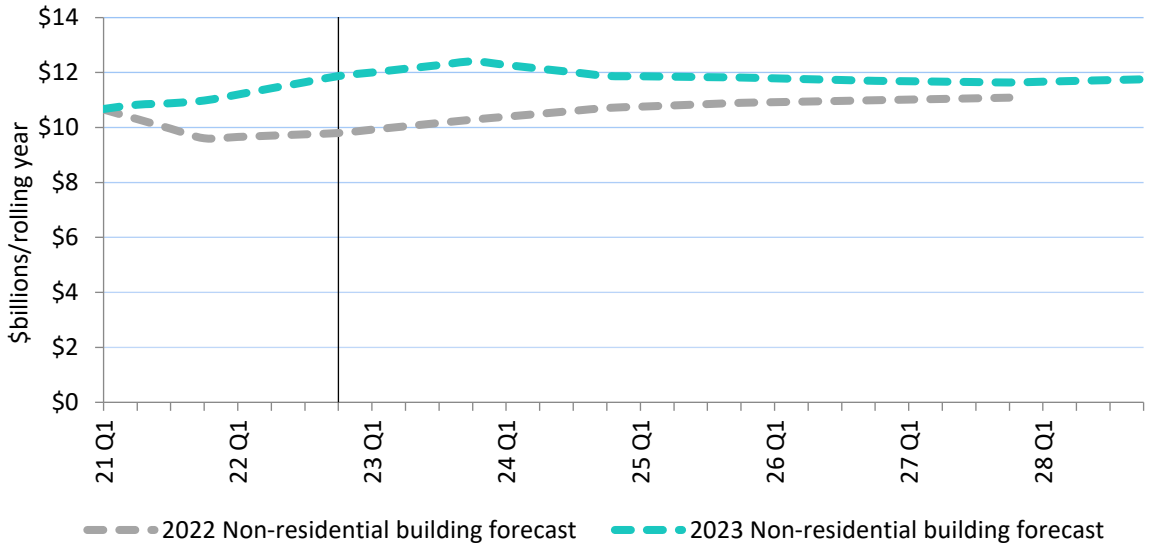


Source: BRANZ/Stats NZ

Non-residential building forecast comparison

The 2022 report forecast an 8% increase in non-residential building activity for 2022 nationally, which was equal to the actual growth rate. Revisions in previous years' gross fixed capital formation has caused the variation in the figure below.

Figure 5.2.4 Non-residential building nationally, 2022 and 2023 forecasts compared

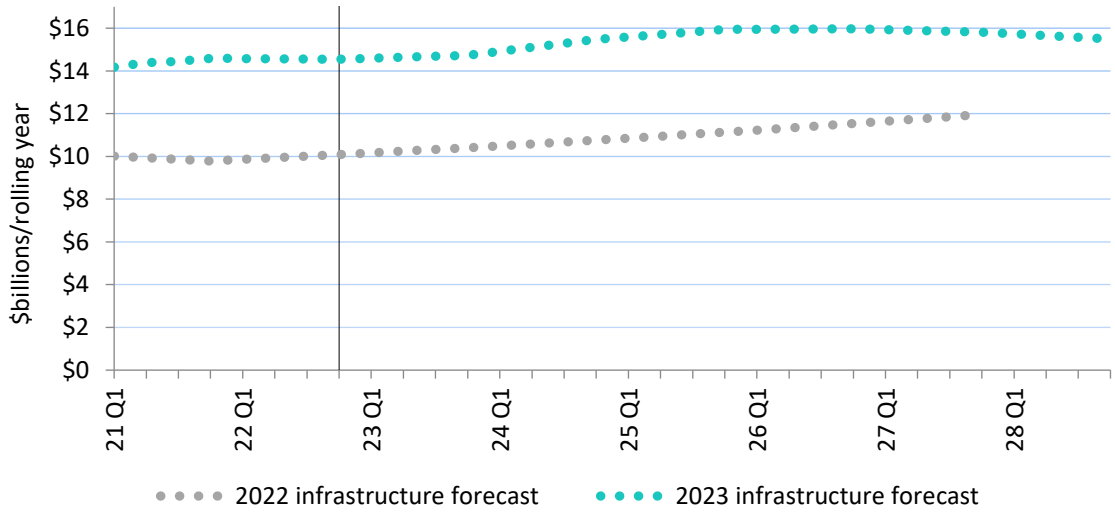


Source: BRANZ

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 5% increase in infrastructure activity, whereas actual activity recorded a 0.2% decrease. Infrastructure gross fixed capital formation has seen significant revisions over recent years.

Figure 5.2.5 Infrastructure activity nationally, 2022 and 2023 forecasts compared



Source: BRANZ

5.3 Comparison of Pacifecon's 2023 construction intentions data with previous reports

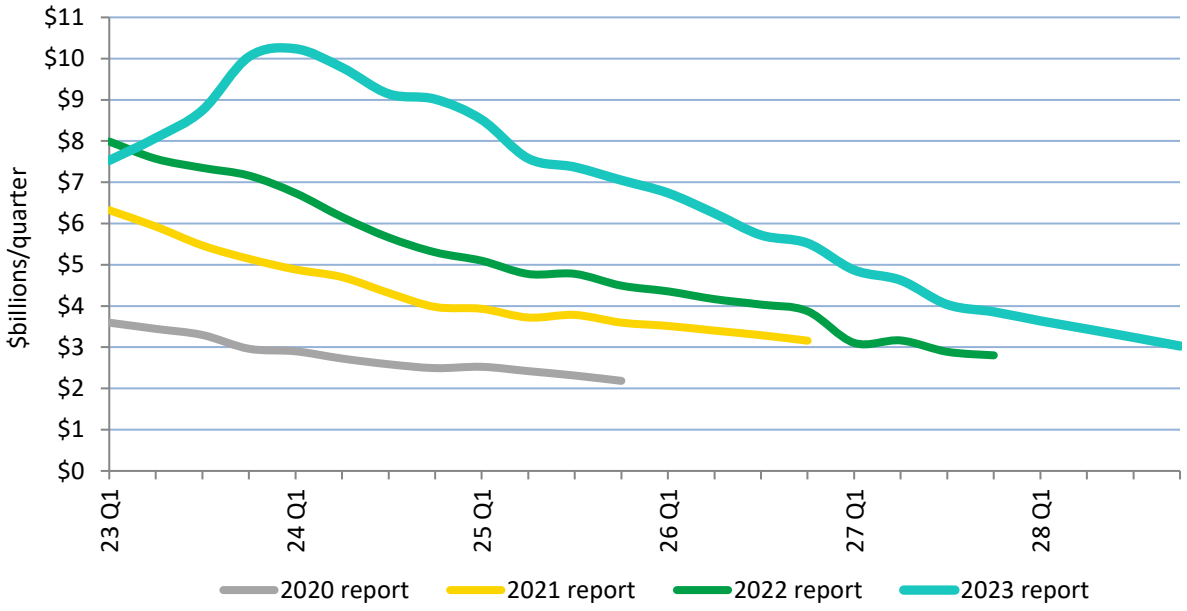
Pacifecon's database of construction intentions contains anticipated values and start dates for non-residential buildings and infrastructure projects. This section compares Pacifecon's 2023 data with the data used in preceding reports. It compares how the value and timeline of Pacifecon's researched project intentions have varied across reports.

The 2023 planned construction intentions data has risen to late 2023 and maintains at a high level through to late 2024.

The data for intentions for the 2020, 2021 and 2022 reports show similar curves to each other. Pacifecon's researchers are constantly adjusting projects' values and estimated started dates. While 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 36 in 2017 and 37 in 2022.

The number of $100m+ projects in the dataset anticipated to start in 2022 (29) was below the number that actually 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 30 known projects (non-residential building and infrastructure construction) valued at $100m or more included in the 2022 report that were anticipated to start between 1 April 2022 and 31 March 2023. Of these 30 projects, 21 started. An additional 16 projects started, bringing the total to 37.

The number of researched projects valued at over $100m expected to start between 1 April 2023 and 31 March 2024 is now anticipated to be 37 projects (24 non-residential building and 13 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				
	2018 report	2019 report	2020 report	2021 report	2022 report
Started as anticipated[24]	23	16	21	26	21
Anticipated to start within the coming year	12	2	2	6	2
Anticipated to start beyond one year's time	11	13	2	4	6
Cancelled since previous report	1	0	0	0	0
Total	**47**	**31**	**25**	**36**	**29**
Additional projects starting[25]	6	14	16	11	16
Number of projects started in timeframe	**29**	**30**	**37**	**37**	**37**

Source: Pacifecon

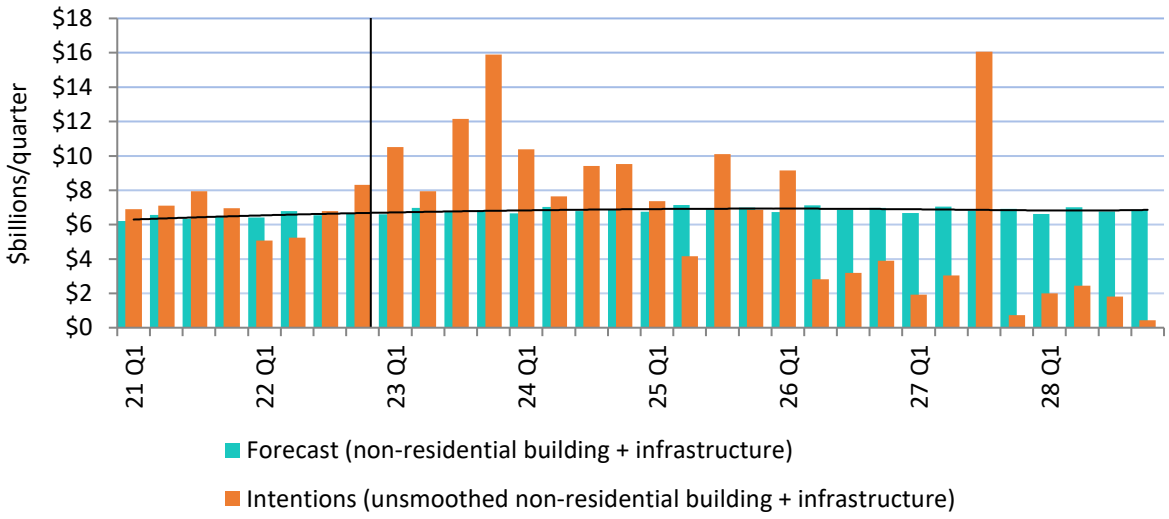
[24] A further five projects over $100m were included in the 2022 report. All five projects have started but have not been reported in this table: four have been broken into a number of smaller, connected projects which have an aggregated value of >$100m, and the other was below $100m on commencement.

[25] Additional projects starting since the 2022 report: seven projects new to Pacifecon; the values of four projects increased to over $100m prior to commencing; four projects were brought forward so they started during the April 2022–March 2023 timeframe; one project was restarted after been suspended due to the COVID-19 pandemic.

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. Compared with the forecast, optimism bias results in a higher than expected number of intended projects over the next few years and a lower than expected number of intended projects over the longer term.

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



Source: BRANZ/Pacifecon

6. Disclaimer

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

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

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

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

7. Appendices

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

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

BRANZ is focused on:

- researching and investigating the design, construction and performance of buildings that impact the built environment in New Zealand, and
- 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 2028, 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

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

actuals	Documented historical values that have been realised.
apartment	Any dwelling unit that is attached to another dwelling unit above or below it or that is part of a commercial building is considered an apartment. Apartments in retirement villages are not included.
b	Billion (1,000,000,000 or 10^9).
boom-bust cycle	A process of economic expansion (boom) and contraction (bust) that occurs repeatedly.
building consent	A formal approval from a building consent authority to construct or alter a building.
COVID-19	A worldwide pandemic which 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 2023 to 31 December 2028 for which building and construction activity is forecast in this report.
gross fixed capital formation	Net/gross increase in physical assets (investment minus disposals) within the measurement period. It does not account for the consumption (depreciation) of fixed capital or the cost of land purchases. It is a component of the expenditure approach to calculating gross domestic product (expenditure). This report uses gross fixed capital formation. Routine maintenance is not included. Alterations and additions that significantly extend the life or capacity of an asset are included (i.e. all work done with an addition and alteration consent).
infrastructure	Infrastructure covers all construction that is not a building, including: • transport – roads, rail, bridges, tunnels, runways, harbours, marinas, reservoirs, shelters, parking and lighting • ground works – residential, commercial and industrial subdivisions, earthmoving, landscaping, parks and landfill • amenities – telecommunications, water and energy services • mining and energy – wind, thermal, hydro, oil and gas. Infrastructure is termed 'other construction' in Stats NZ classifications.

intentions	Refers to Pacifecon's research into the construction industry's intentions of future activity.
lockdowns	The periods of Alert Level 4 in New Zealand in response to the COVID-19 pandemic
m	Million (1,000,000 or 10^6).
multi-unit dwelling	Separate occupancy dwelling with a wall, ceiling and/or floor in common with another dwelling unit. This category includes apartments, townhouses and retirement village units.
non-residential buildings	Values include new construction, additions and alterations to vertical structures, including hostels, boarding houses, prisons, hotels, motels, hospitals, nursing homes, schools, libraries, museums, churches, shops, restaurants, bars, offices, factories and warehouses.
optimism bias	Overconfidence that is associated with building and construction intentions.
p.a.	Per annum
quarters	Q1: January to March. Q2: April to June. Q3: July to September. Q4: October to December.
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, 2023 Q2 is the aggregate of the values from July 2022 to June 2023.
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, and
- 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 8 September 2023, based on the Stats NZ March 2023 release of 2022 gross fixed capital formation data and other relevant data.

The key variables used in the forecast were as follows:

- Annual average GDP growth will sit at around 0.5% annually through to mid-2025, before peaking at 3.6% in mid-2027.
- The official cash rate is forecast to peak at 5.75% in September 2023 and will slowly trend down to 3.5% by late 2026.
- Net migration is forecast to slowly fall from current highs throughout the forecast period.
- House prices are forecast to increase by an average of 1.2% per quarter throughout the forecast period.

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 33,500 dwellings per annum through to 2028.[26]
- 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 1.6 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.

[26] This was 37,000 dwellings in the 2022 report and 44,450 in the 2021 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 1.27 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 – 33%
- transport – 39%
- telecommunications – 9%
- other – 14%.

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 -1% per year for mining, 2% for electricity/gas/water, 1% for transport, −1% for telecommunications and 2% for other infrastructure works.

Intentions data methodology

Pacifecon's anticipated projects

A database of over 30,300 researched projects known to Pacifecon has been used in this report. The data is up to date as of 13 June 2023, and larger-value projects have been added, adjusted or removed up to 29 September 2023.

The Pacifecon database 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 2013 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 2013 and are over $50 million
- projects (of all values) that have started since 1 January 2021
- 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 dataset for this report has increased from over 6,000 in the 2013 report to over 13,300 planned projects and over 17,000 commenced projects in the current report (over 30,300 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 database, 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), tenth (2022) and current report (2023): projects over $50 million were scrutinised.

In some (but not all) cases for 2023, projects with values lower than $50m were examined individually.

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

- $40m to <$50m projects – value of work is spread over twelve quarters.
- $30m to <$40m projects – value of work is allocated to ten quarters.
- $15m to <$30m projects – value of work is spread over eight quarters.
- $8m to <$15m projects – value of work is allocated to six quarters.
- $5m to <$8m projects – value of work is allocated to four quarters.
- $3m to <$5m projects – value of work is allocated to three quarters.
- $1m to <$3m projects – value of work is allocated to two quarters.
- <$1m – value of work is allocated to one quarter.

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[27] within the year[28] valued at over $100m[29]

Region	Type	Project initiator
Northland		
Waste management	Industrial	Private
Commercial development	Multi-Category	Private
Auckland		
Retail	Commercial	Private
Data centre	Commercial	Private
Data centre	Industrial	Private
Electricity	Heavy Industry/Energy	Private
Commercial development	Commercial	Private
Commercial development	Multi-Category	Private
Furnace replacement	Industrial	Private
Industrial park	Industrial	Private
Mixed-use development	Multi-Category	Private
Mixed-use development	Multi-Category	Private
Data centre	Industrial	Private
Business park	Commercial	Private
Hawkes Bay/Gisborne		
Wood processing	Industrial	Private
Taranaki		
Mixed-use development	Multi-Category	Private
Wellington		
Terminal building	Commercial	Local government
Electricity	Heavy Industry/Energy	Private
Offices	Commercial	Central government
Hospital	Health	Central government
Canterbury		
Research and laboratories	Education	Central government
Museum and Art Gallery	Commercial	Local government
Southland		
Site remediation	Industrial	Private
New Zealand Wide		
Electricity	Heavy Industry/Energy	Private

Source: Pacifecon

[27] At the time of writing, seven projects had commenced.
[28] Year is the 12 months ending 31 March 2024.
[29] 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 29 September 2023. Pacifecon's building and construction information is constantly updated.

Table 7.4.2 Infrastructure projects likely to start[30] within the year[31] valued at over $100m[32]

Region	Type	Project initiator
Northland		
Road safety improvements	Transport	Central government
Auckland		
Road maintenance	Transport	Local government
Public transport	Transport	Local government
Toll road	Transport	Local government
Subdivision	Subdivision	Private
Waikato/Bay of Plenty		
Road maintenance	Transport	Local government
Wastewater	Water	Private
Hawkes Bay/Gisborne		
Flood protection	Water	Local government
Wellington		
Road improvements	Transport	Local government
Wastewater	Water	Local government
Water supply/wastewater	Water	Local government
Flood protection	Water	Local government
Canterbury		
Subdivision	Subdivision	Private

Source: Pacifecon

[30] At the time of writing, nine projects had commenced.

[31] Year is the 12 months ending 31 March 2024.

[32] 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 29 September 2023. 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[33]

	Actual		Forecast					
Residential	2021	2022	2023	2024	2025	2026	2027	2028
Auckland	13.4	13.6	13.8	13.2	11.4	11.4	11.3	11.4
Waikato/BoP	5.6	5.0	5.0	4.5	4.2	4.4	4.6	5.0
Wellington	2.6	2.7	2.7	2.6	2.4	2.5	2.5	2.5
Canterbury	4.5	5.2	5.2	4.6	4.0	3.9	3.8	3.5
Otago	2.0	2.1	2.1	2.0	1.5	1.4	1.3	1.5
Rest of NZ	5.3	5.0	5.1	4.6	3.8	3.5	3.5	4.5
TOTAL	**33.4**	**33.8**	**33.8**	**31.5**	**27.4**	**27.1**	**27.1**	**28.4**
Non-residential building								
Auckland	4.1	4.2	4.6	4.5	4.3	4.1	4.0	4.0
Waikato/BoP	1.7	1.9	2.0	2.0	2.0	2.0	2.0	2.0
Wellington	1.2	1.0	1.2	1.0	1.0	1.0	1.0	1.0
Canterbury	1.2	1.7	1.8	1.9	1.9	1.9	1.8	1.8
Otago	0.7	0.7	0.7	0.8	0.8	0.7	0.7	0.7
Rest of NZ	2.1	2.4	2.1	1.7	1.9	2.0	2.1	2.2
TOTAL	**11.0**	**11.9**	**12.4**	**11.9**	**11.8**	**11.7**	**11.6**	**11.8**
Infrastructure								
Auckland	5.3	5.2	4.4	4.7	4.7	4.7	5.3	5.2
Waikato/BoP	2.7	2.7	3.1	3.3	3.5	3.5	3.1	3.1
Wellington	1.5	1.5	1.7	1.8	1.8	1.8	1.9	1.9
Canterbury	1.3	1.3	1.4	1.5	1.6	1.6	1.4	1.3
Otago	0.9	0.9	1.1	1.1	0.7	0.8	0.6	0.6
Rest of NZ	2.9	2.9	3.0	3.1	3.6	3.6	3.5	3.4
TOTAL	**14.6**	**14.5**	**14.7**	**15.5**	**15.9**	**16.0**	**15.8**	**15.5**
All construction								
Auckland	22.8	23.1	22.8	22.4	20.4	20.2	20.6	20.6
Waikato/BoP	10.0	9.7	10.1	9.7	9.7	9.8	9.7	10.1
Wellington	5.3	5.1	5.5	5.5	5.2	5.3	5.4	5.3
Canterbury	7.1	8.2	8.4	8.0	7.5	7.4	7.0	6.6
Otago	3.6	3.7	3.9	3.9	3.1	2.9	2.6	2.8
Rest of NZ	10.2	10.4	10.2	9.4	9.2	9.1	9.2	10.2
TOTAL	**59.0**	**60.2**	**61.0**	**58.9**	**55.1**	**54.7**	**54.6**	**55.7**
Non-residential building intentions								
Auckland	3.4	4.5	7.2	8.6	5.8	3.6	1.9	1.2
Waikato/BoP	1.4	2.0	2.8	2.9	2.3	1.5	0.9	0.5
Wellington	0.9	1.3	1.8	1.6	1.3	1.0	0.6	0.4
Canterbury	1.2	1.5	2.1	2.6	2.2	1.6	1.2	0.5
Otago	0.6	1.0	1.3	1.6	1.6	1.2	1.0	0.9
Rest of NZ	1.7	2.2	3.0	3.5	2.9	3.2	2.6	2.3
TOTAL	**9.2**	**12.5**	**18.2**	**20.8**	**16.1**	**12.1**	**8.3**	**5.8**
Infrastructure intentions								
Auckland	4.4	4.4	4.9	5.1	4.1	3.6	2.8	2.7
Waikato/BoP	2.3	2.8	3.4	3.6	3.1	2.6	1.9	1.3
Wellington	1.2	1.3	1.9	1.9	1.6	1.4	0.9	1.1
Canterbury	1.0	1.2	1.4	1.7	1.4	1.2	0.8	0.6
Otago	0.7	1.0	1.2	1.2	0.8	0.5	0.4	0.3
Rest of NZ	2.4	2.7	3.2	3.6	3.1	2.7	2.2	1.5
TOTAL	**12.1**	**13.3**	**16.0**	**17.0**	**14.1**	**12.0**	**9.0**	**7.5**

Source: BRANZ/Pacifecon

[33] 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[34]

	Actual		Forecast					
Detached	2021	2022	2023	2024	2025	2026	2027	2028
Auckland	6,686	4,839	4,790	5,380	5,180	5,490	5,180	4,780
Waikato/BoP	5,349	4,086	2,440	3,110	3,230	3,670	4,100	4,690
Wellington	1,565	1,280	1,020	1,070	1,110	1,260	1,220	1,200
Canterbury	5,028	5,078	3,710	3,570	3,470	3,710	3,390	3,090
Otago	1,475	1,302	1,000	870	770	730	880	1,090
Rest of NZ	5,480	4,814	3,350	3,010	2,660	2,580	3,650	4,990
TOTAL	**25,583**	**21,399**	**16,310**	**17,010**	**16,420**	**17,440**	**18,420**	**19,840**
Multi-units								
Auckland	13,843	16,462	11,160	8,070	7,930	8,590	9,620	9,620
Waikato/BoP	2,478	2,654	2,610	1,360	1,340	1,450	1,530	1,560
Wellington	2,091	2,591	1,750	1,430	1,480	1,680	1,630	1,610
Canterbury	2,686	3,820	2,800	1,870	1,790	1,890	1,700	1,700
Otago	866	1,097	810	480	380	330	370	350
Rest of NZ	1,456	1,514	1,580	770	650	610	710	720
TOTAL	**23,420**	**28,138**	**20,710**	**13,980**	**13,570**	**14,550**	**15,560**	**15,560**
All dwellings								
Auckland	20,529	21,301	15,950	13,450	13,110	14,080	14,800	14,400
Waikato/BoP	7,827	6,740	5,050	4,470	4,570	5,120	5,630	6,250
Wellington	3,656	3,871	2,770	2,500	2,590	2,940	2,850	2,810
Canterbury	7,714	8,898	6,510	5,440	5,260	5,600	5,090	4,790
Otago	2,341	2,399	1,810	1,350	1,150	1,060	1,250	1,440
Rest of NZ	6,936	6,328	4,930	3,780	3,310	3,190	4,360	5,710
TOTAL	**49,003**	**49,537**	**37,020**	**30,990**	**29,990**	**31,990**	**33,980**	**35,400**

Source: BRANZ/Stats NZ

[34] 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

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