MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

National Construction Pipeline Report 3

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Prepared by

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Building intelligence

New Zealand Government

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3rd National Construction Pipeline Report

1 Introduction

This third National Construction Pipeline Report provides a forward view of national construction demand for the six years ending 31 December 2020. It was commissioned by the Ministry of Business, Innovation and Employment (MBIE) and jointly prepared by Pacifecon (NZ) Ltd and BRANZ. The previous reports were commissioned by the Building and Construction Productivity Partnership. The first report was released in November 2013, the second in October 2014 and both were well received.

This report is based on a compilation of construction projects known to Pacifecon and BRANZ's economic forecasts of building and construction. It includes graphs and commentary on forecast and actual building and construction work. The year beginning January 2013 is used as the base year for any comparison with the forecasts. The forecasts show the nature and timing of future building and construction work, by type and region, through to December 2020. These forecasts are complemented by information on known non-residential building and construction intentions from January 2015 to December 2020 and actual building and construction data from January 2013 to December 2014.

Visibility of a pipeline of forward building and construction work can provide the basis for improved:

- planning by all participants in the sector
- scheduling of investment in skills and capital
- coordination between construction clients (particularly central and local government) that can lead to better scheduling of construction projects.

These improvements could moderate boom – bust cycles that have contributed to resource clashes, low sector productivity and poor building quality.

This report is also a source of general information for any group or individual connected or concerned with the future of the building and construction sector in New Zealand.

It is intended that these reports will be produced every year.

A glossary of terms is included in Appendix B.

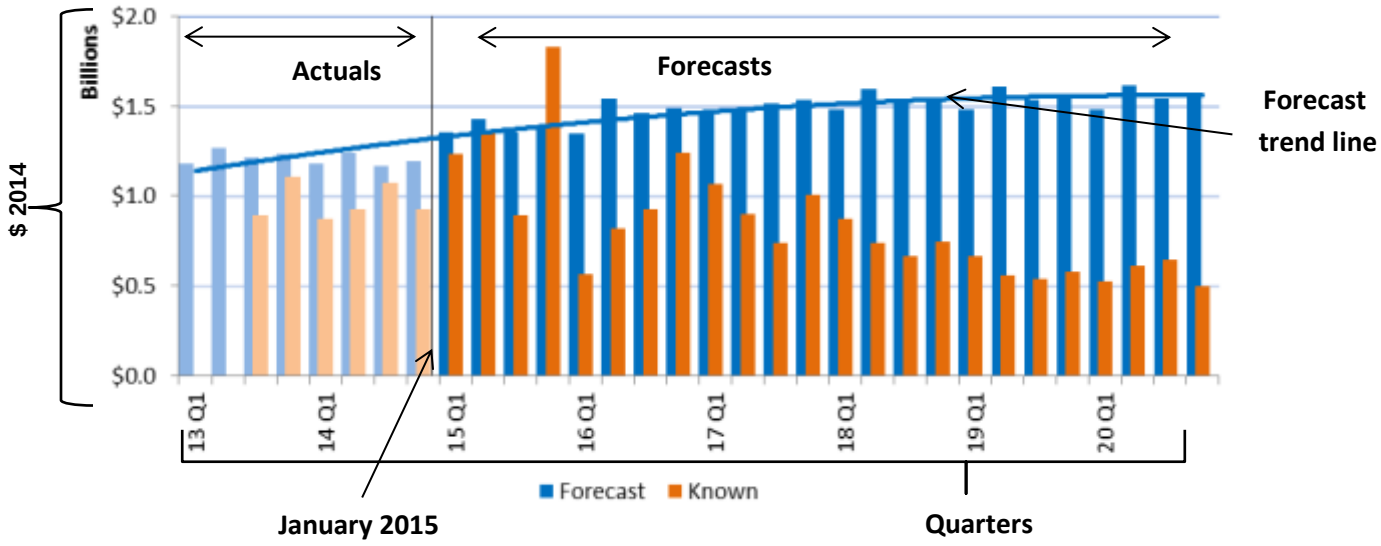
A detailed description of the methodology is provided in Appendix C.

A full set of the known and forecast data by region and year is included in Appendix E.

1.1 How to read the graphs

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

Example graph



Source: Pacifecon / BRANZ

Values are in constant December 2014 dollars and are expressed in $billions per quarter or per annum, unless otherwise stated (ie, inflation has been removed from all dollar values).

Values are for 'fixed capital formation', as reported by Statistics New Zealand (see definitions in Appendix B for more detail).

'Known projects' refer to construction projects included in the Pacifecon data set and projections are based on the expected construction costs over time of these known projects. It is not an exhaustive list of all construction projects.

The forecast period is the six years from 1 January 2015 to 31 December 2020.

'Years' are calendar years; the twelve months beginning January (unless otherwise stated).

Where rolling years are used, each point on the graph represents the aggregate of the 12 months immediately preceding that point, ie, 2015 Q2 is the aggregate of values from July 2014 through June 2015.

Quarters are of the calendar year referred to, ie, 2015 Q2 is the quarter from 1 April to 30 June 2015.

Actual values (from January 2013 through December 2014) have been included.

The year beginning January 2013 is used as the base year for any comparison with the forecasts. 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 lighter colour.

Trend lines have been included to demonstrate the general direction the forecasts are heading.

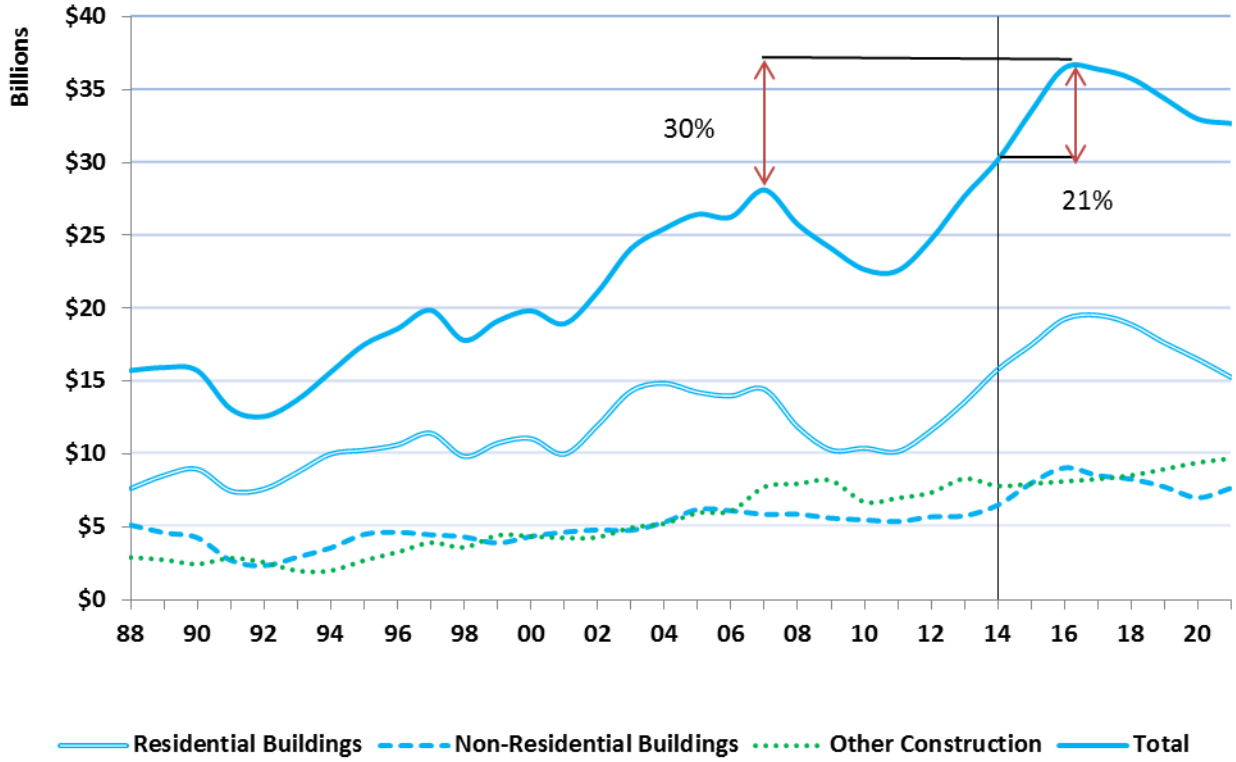
2 Key findings

This section discusses the six most significant findings.

2.1 Unprecedented levels of construction activity are still being forecast

The value of all building and construction nationally is still forecast to reach unprecedented levels with a sustained rate of growth not seen in 40 years. These forecasts indicate the peak in 2016 will represent another 21% ($6.3b) more construction than at the end of 2014. This peak will be 30% higher than the previous peak in 2007.

Figure A - Value of all construction (historic and forecast)

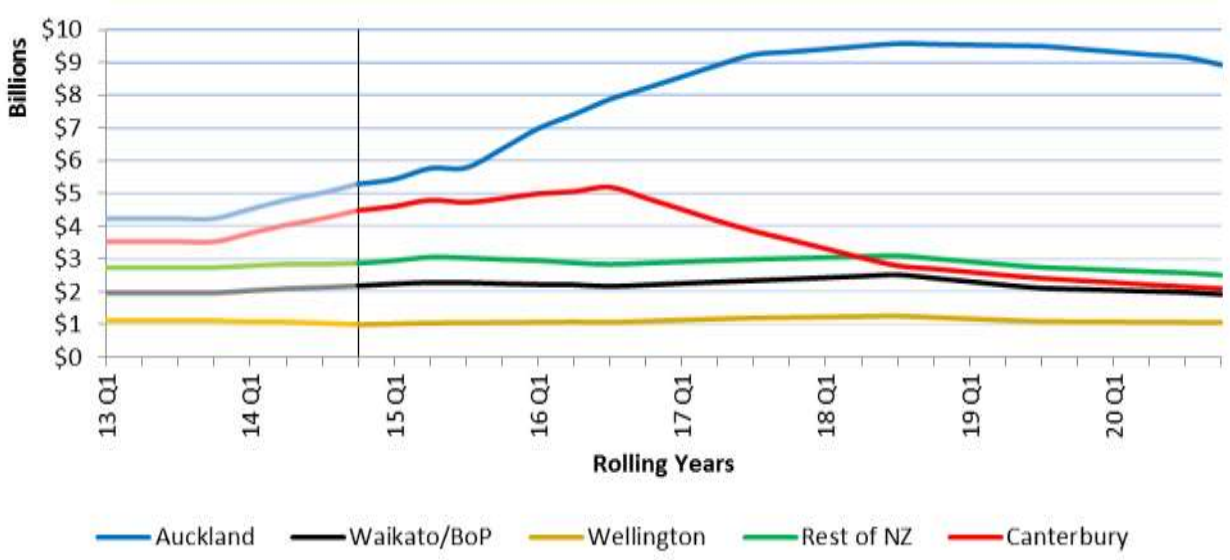


Source: Stats NZ/BRANZ/Pacifecon

2.2 Demand is mainly being driven by Auckland residential construction

Auckland continues to dominate the national demand for building and construction, accounting for over a third of all building and construction, by value, from 2013 to 2020. The forecast value of all building and construction in Auckland increases steadily to a peak in 2018 ($16.3b). Residential building in Auckland grows faster than non-residential building and construction to the peak, and represents almost 60% of all building and construction in the region by value in 2018.

Figure B - Value of residential building by region, by year

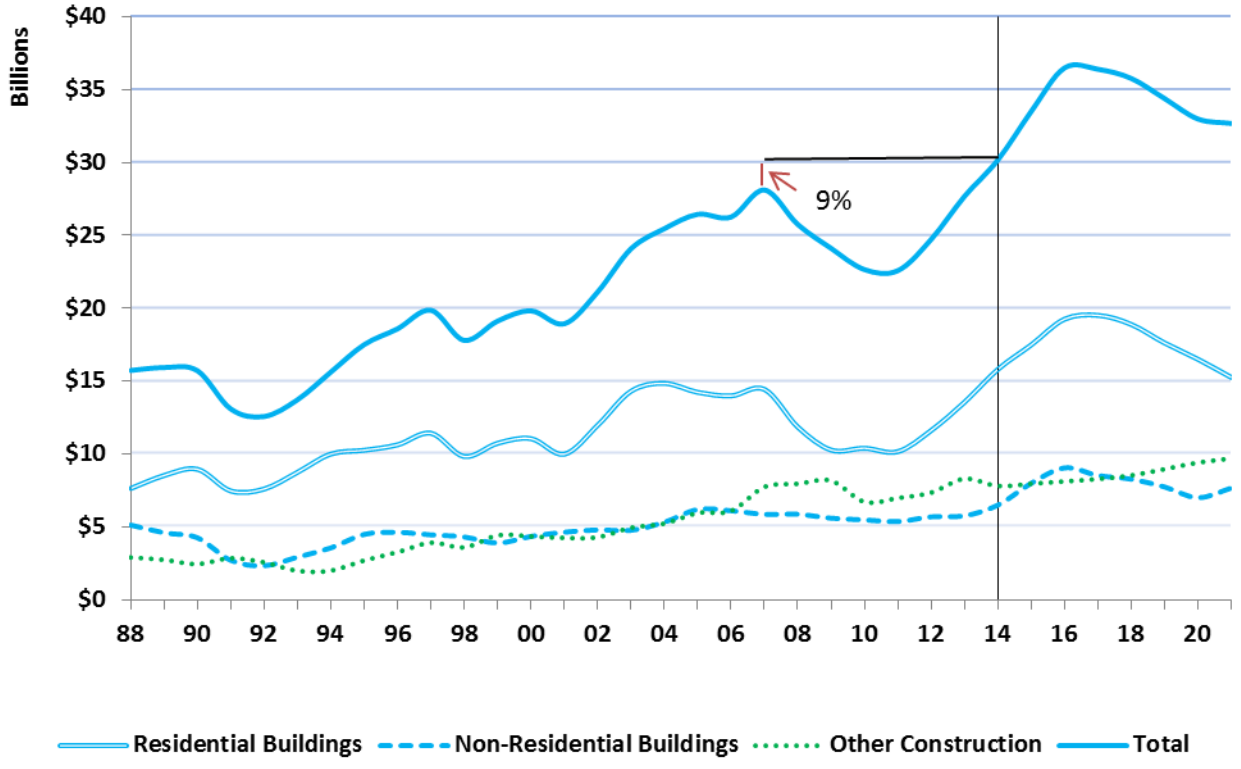


Source: BRANZ

2.3 New Zealand is constructing more by value than ever before

The value of all building and construction by the last quarter of 2014 was $30b, 9% higher than the previous peak in construction of $28b in 2007.

Figure C - Value of all construction (historic and forecast)



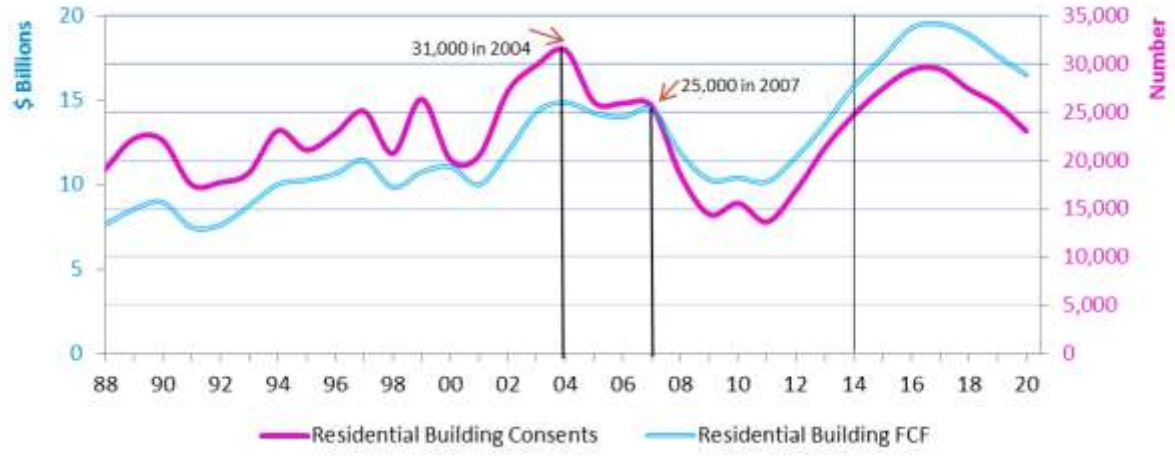
Source: Stats NZ/BRANZ/Pacifecon

2.4 Although we're building more by value, the cost per dwelling [1]is rising

The peak in the number of dwellings built nationally was in 2004 when 31,000 dwellings were built. The average cost per dwelling has increased over time. By the end of 2007, roughly the same value of residential construction was delivering about 6,000 fewer dwellings per annum. See section 4.3 for a fuller discussion on the underlying changes that are increasing the average cost of each dwelling consented.

Auckland is forecast to have a new peak in the number of dwellings built in 2017/18 of 14,000, compared with 12,000 built in 2005.

Figure D - Historic and forecast value and number of consents for residential building



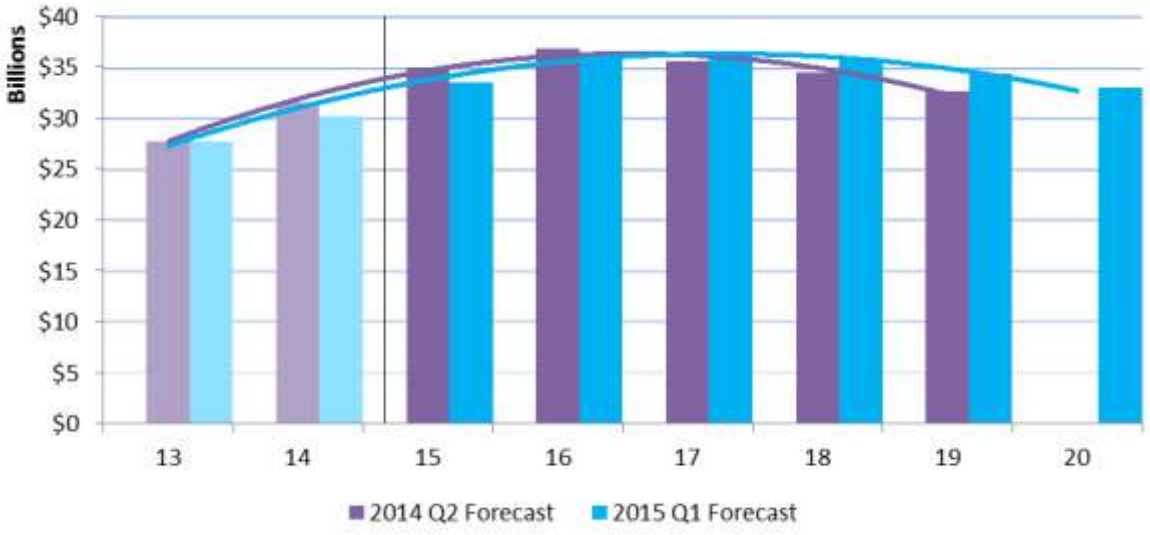
Source:Stats NZ/ BRANZ

2.5 Our forecasts are reasonably accurate

Actual data has shown that the 2014 National Construction Pipeline Report forecasts were accurate, but a little high. The forecast value of all national building and construction in the 2014 report was 4.4% higher than actual. The residential forecast was 0.8% higher and the non-residential building forecast was 8.1% higher than actual. Even allowing for over-estimation, the higher value of work forecast in 2019 means that, overall, the forecasts in this report have been raised by 1% or $2b.

[1] Dwellings include stand-alone houses and multi-unit dwellings such as apartments, terraced and town houses.

Figure E - Comparison of 2014 and 2015 forecasts and actuals for all construction nationally

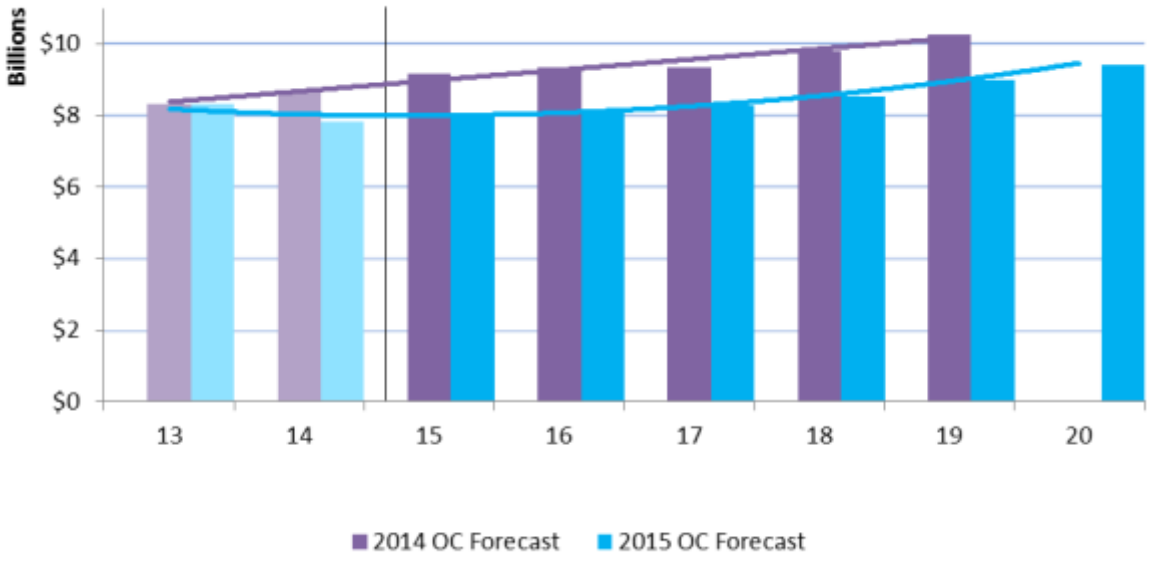


Source: BRANZ/Pacifecon

2.6 We have more to learn on forecasting other construction

Other construction forecast in the 2014 National Construction Pipeline Report was 9.5% ($0.8b) higher than actual. The reduction in other construction in 2014 was sufficient to make 2013 a peak. There is sufficient projected other construction to be confident that its value will increase in the future. However, the peak in 2013 makes the trend line in other construction different from most other forecasts in this report. BRANZ has significant experience in forecasting residential and non-residential building work, consistent with its focus on buildings. Therefore, forecasts for other construction are likely to be less reliable. See section 4.6 and Appendix C for more information on our approach to forecasting other construction.

Figure F - Comparison of 2014 and 2015 forecasts and actuals for 'other construction' nationally



Source: BRANZ

3 Comparison with the 2014 National Construction Pipeline Report

3.1 Adjustments to data from the 2014 report

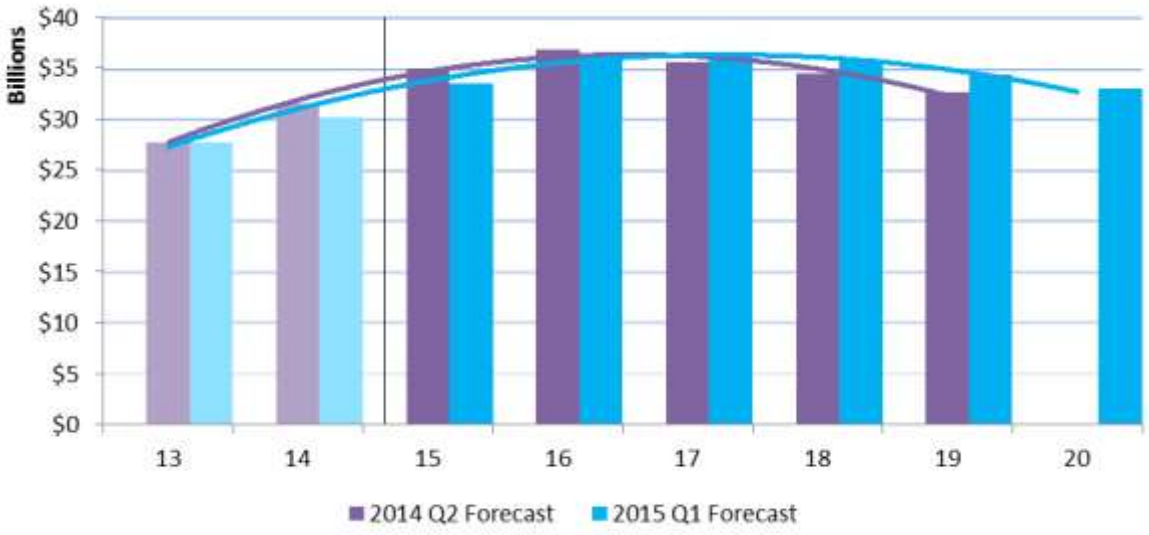
The following adjustments have been made to the forecasts in the 2014 report to enable a like-for-like comparison with those in this report.

- Conversion from $March 2014 to $December 2014 to account for inflation as follows:
    - residential buildings 4.2%,
    - non-residential buildings 3.0%
    - other construction 1.5%.
- An upward revision in Statistics New Zealand's fixed capital formation data:
    - residential buildings – no adjustment
    - non-residential buildings 6.1%
    - other construction 6.3%.

3.2 How well did we do with the last forecasts?

The second set of national construction pipeline forecasts were a good prediction of what happened in 2014 but were high for non-residential building and other construction. The forecast value of all building and construction nationally in 2014 was 4.4% higher than actual. This was caused by a combination of a 0.8% over-estimate for residential building activity and an 8.1% over-estimate for non-residential building and other construction.

Figure 1 - Comparison of 2014 and 2015 forecasts and actuals for all construction nationally



Source: BRANZ/Pacifecon

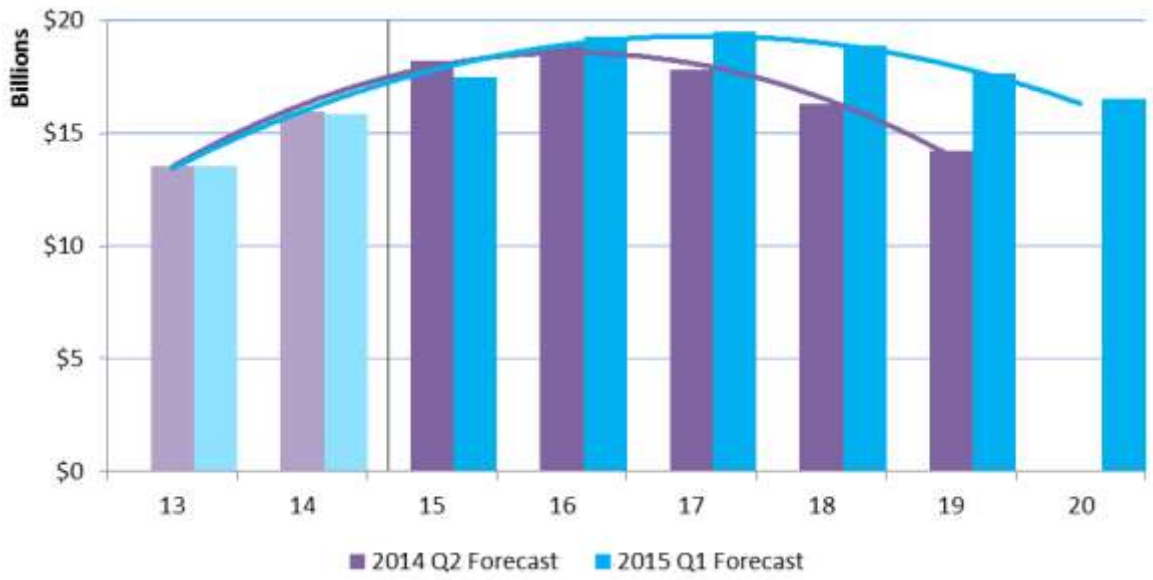
3.3 The revised forecast for all activity from 2015 to 2018 shows a smoother and longer peak

The revised forecast for 2015 to 2020 for all construction, as shown in figure 1, has a smoother and longer peak than previously forecast. The overall value of all building and construction for 2015 through 2019 is expected to be 1.2% higher than that forecast in the 2014 report.

Residential building is a major driver of the smoother, longer peak and the overall increase in forecast building and construction. This is largely due to the expectation that unmet demand for

housing in Auckland and continued growth in immigration will extend the growth in residential building for longer than previously forecast.

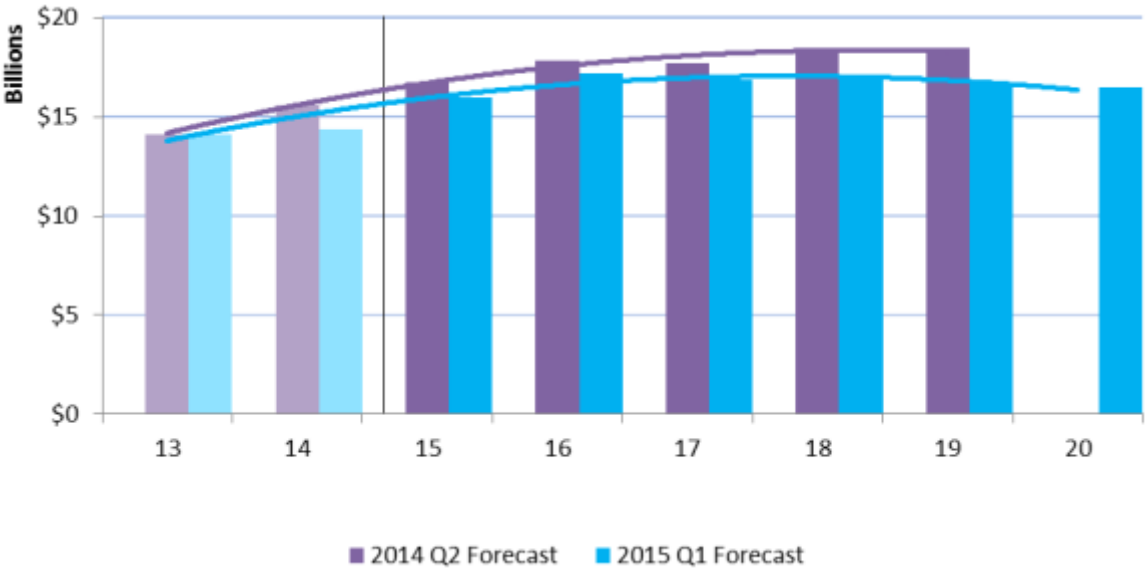
Figure 2 - Comparison of 2014 and 2015 forecasts and actuals for national residential building



Source: BRANZ

The non-residential building and construction forecast was 8.1% higher than actual. This was due to the non-residential building forecast being 6.3% higher than actual and other construction forecast being 9.5% higher than actual. Non-residential building and construction is now forecast to peak in 2016 (previously it was 2019), and with a lower peak value. This primarily reflects the impact of changes in the forecasts for other construction.

Figure 3 - Comparison of 2014 and 2015 forecasts and actuals for national non-residential building and construction



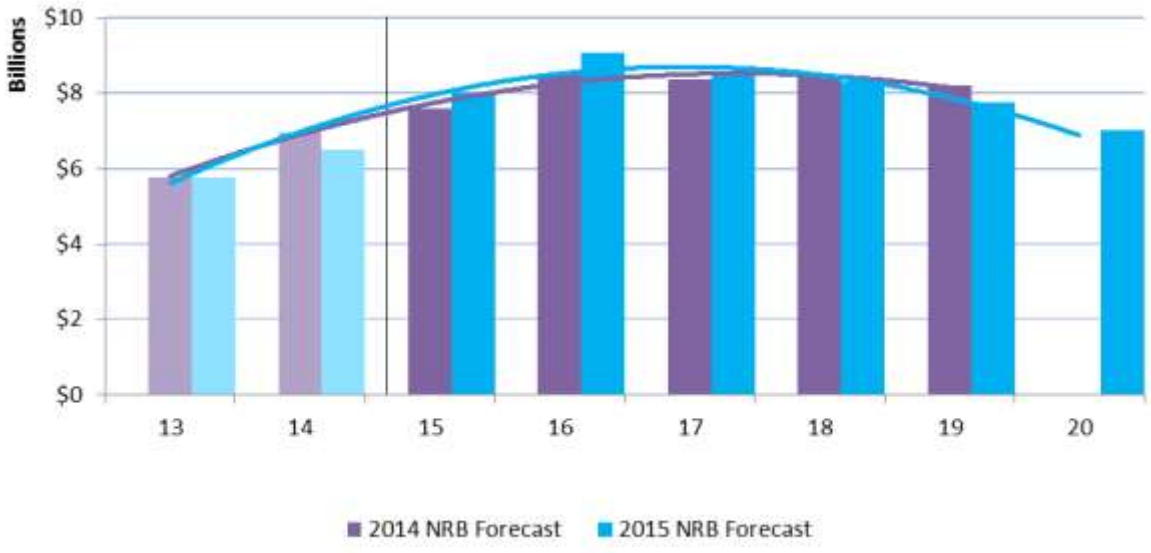
Source: BRANZ/Pacifecon

While the previous forecast for non-residential building was higher than actual, we continue to forecast growth in non-residential building, which is consistent with the continued increase in the

total value of construction intentions in the Pacifecon data set. We are now forecasting a more distinct peak in non-residential building in 2016 due to:

- the deferred construction of some of the Canterbury anchor projects
- a number of major university developments
- the continued increase in Auckland non-residential building (such as schools and retail) as new suburbs are established or existing suburbs are expanded.

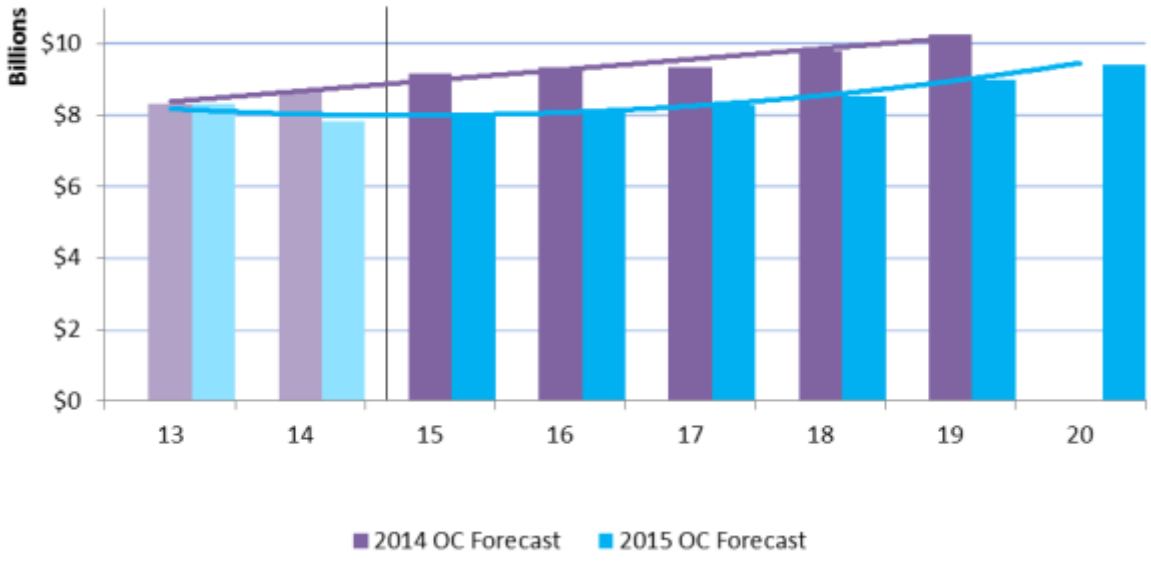
Figure 4 - Comparison of 2014 and 2015 forecasts and actuals for national non-residential building



Source: BRANZ/Pacifecon

We predicted steady growth in other construction, but actual other construction in 2014 was $0.9 billion lower than in 2013. The 2013 peak was a consequence of a peak in infrastructure repairs in Canterbury in 2013 and the slowdown in mining after 2013. The forecast in this report has other construction overtaking the 2013 level in 2018.

Figure 5 - Comparison of 2014 and 2015 forecasts and actuals for national other construction

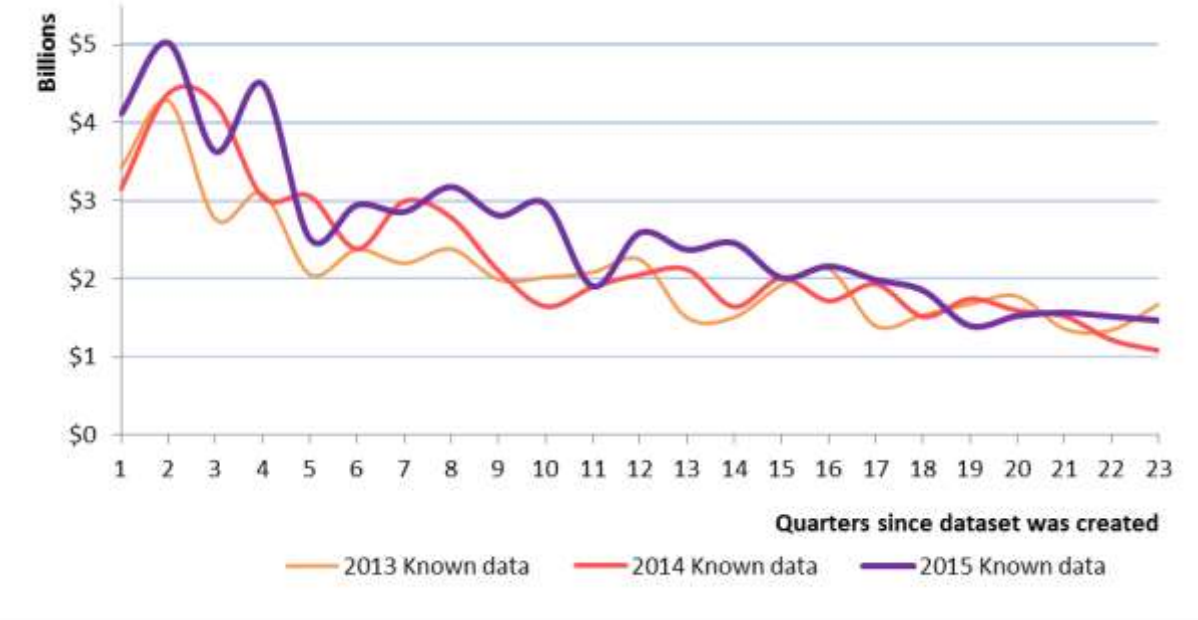


Source: BRANZ

3.4 Comparison of Pacifecon's 2015 known data with the previous reports

Pacifecon's aggregated data series contains anticipated values and start dates of non-residential building and construction projects. Figure 6 compares 2015 known data with 2014 and 2013 known data. This comparison shows a similar distribution in the data series, ie, a higher value of non-residential work is anticipated to start between three and nine months from the start of each data series. This distribution is described in more detail in Section 4.7. $30b of non-residential building and construction activity is anticipated in the first two years of the 2015 known data. This compares with $26b in the 2014 known data.

Figure 6 - Comparison of known, non-residential projects from when each data series was created



Source: Pacifecon

Section 4.7 describes the 'optimism bias' behind the early peak in Pacifecon's projections. Comparing the projections with what happens over time may inform adjusting for this bias. Table 1 compares what was projected with what happened between the three reports. The 2014 report included 20 known projects valued $100m and over that were anticipated to start between 1 April 2014 and 31 March 2015. Nine of these 20 projects (45%) started as anticipated, compared with 17 out of 30 projects (57%) in the 2013 report. Approximately $12b (82%) of the total value of work anticipated to start within 2014 did start, compared with $11b (77%) from the 2013 report.

Table 1 - Outcome of projects valued $100m and over and anticipated to start in previous reports

Outcome	Number of projects 2013 report	Number of projects 2014 report
Started as anticipated	17	9
Anticipated to start within the coming year	5	8
Start date anticipated beyond 1 year	7	3
Cancelled since previous report	1	0
Total	**30**	**20**
Additional projects starting[2]	3	11
Number of projects started in time frame	**20**	**20**

Source: Pacifecon

[2] Additional projects starting since the 2014 report: One project new to Pacifecon. Ten other projects whose values were raised to over $100m prior to commencing, or were accelerated so that they started within the April 2014 – March 2015 time period.

4 National

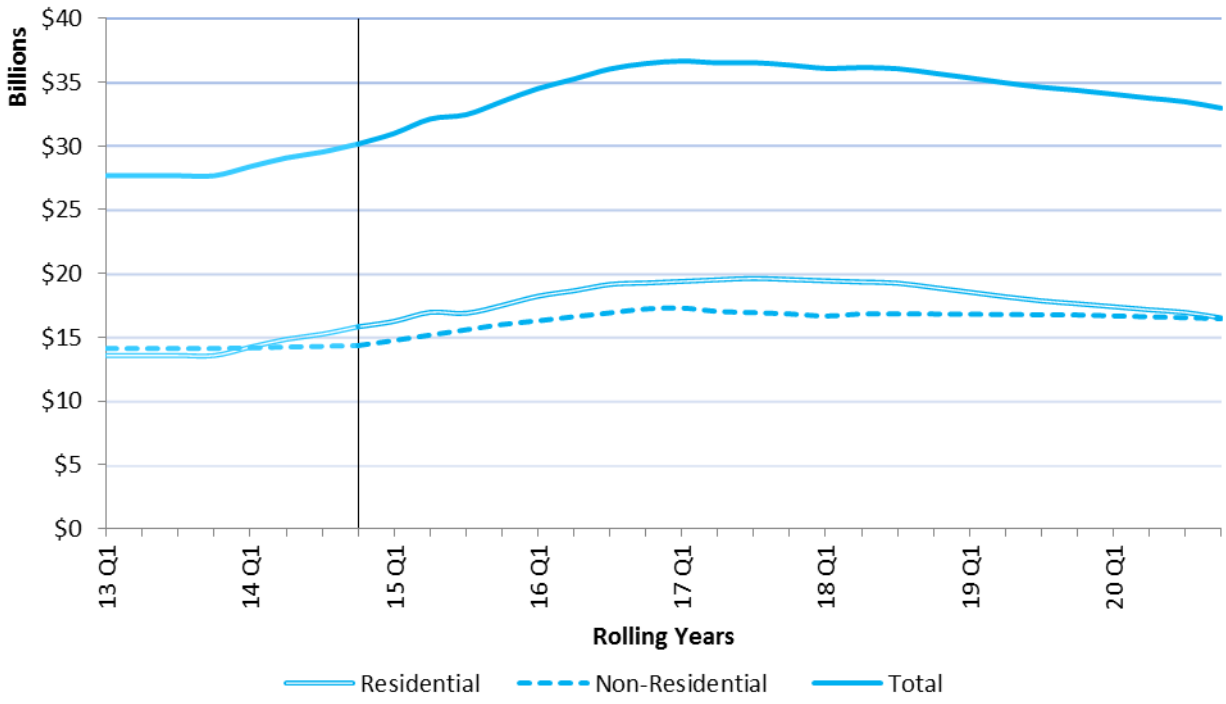
This section includes national forecasts of residential building and non-residential building and construction. It also considers:

- the relationship between the value of residential building and the number of dwellings built
- the different types of non-residential building and construction
- regional comparisons.

4.1 Total – national

New Zealand is now constructing more by value than it ever has. The forecast value for national building and construction continues at an unprecedented level and shows a sustained high[3] rate of growth that has not been seen in 40 years. The annual value of all building and construction, nationally, is projected to increase 32% from 2013 to the peak in 2016/17 ($36.4b) and by 19% from 2013 to 2020. The annual value of non-residential building and construction is forecast to grow by 17% from 2013 to 2020, and residential building by 22%.

Figure 7 - Value of all building and construction nationally



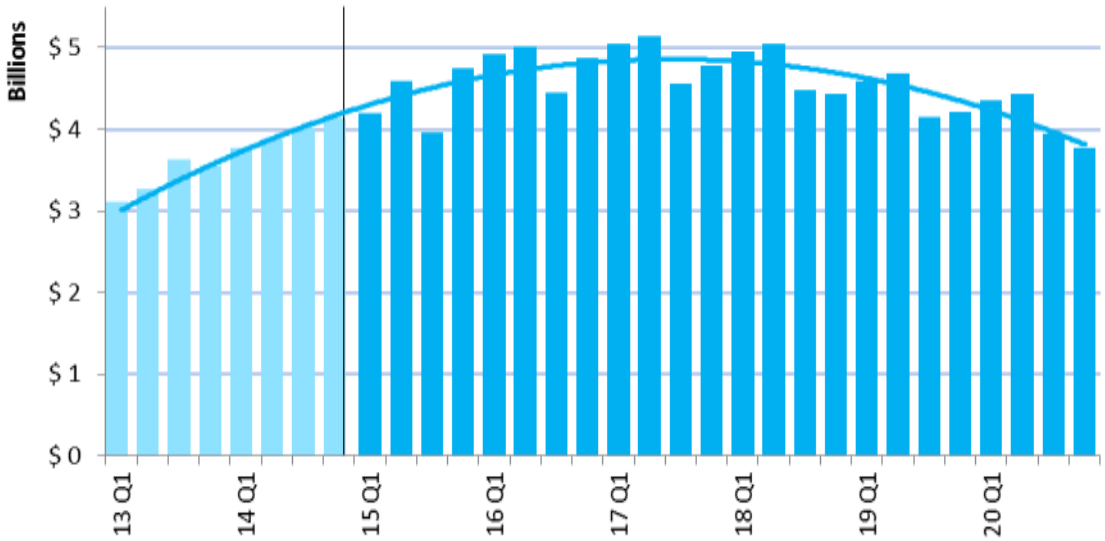
Source: BRANZ/Pacifecon

[3] The value of all building and construction has grown between 9% and 12% over each of the past three years.

4.2 Residential – national

The forecast for residential building shows strong growth from 2013 to a peak of $19.5b in 2017, an increase of 44%. After the peak, the value of residential building is expected to fall to $16.5b.

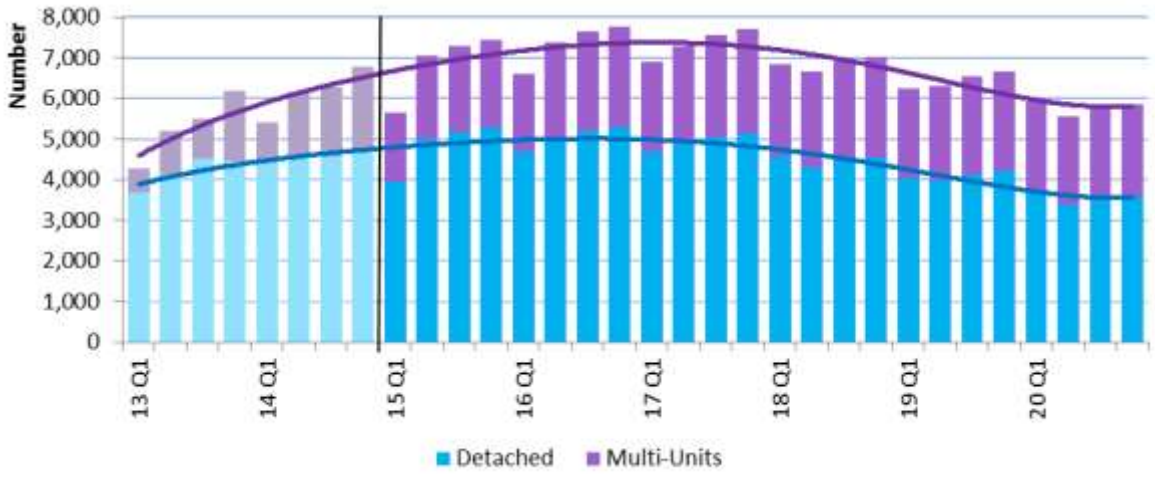
Figure 8 - Value of residential building nationally



Source: BRANZ

Higher density housing increases its share of residential construction over the forecast period. This is mainly due to more multi-unit dwellings in Auckland. Nationally, the annual number of multi-unit dwellings consented peaks in 2017, when they will make up about a third of all new dwellings consented, (increasing from a fifth in 2013). The number of detached homes consented nationally peaks at 20,200 in 2016, then declines each year through to the end of 2020.

Figure 9 - Number of new dwellings consented nationally, by type



Source: BRANZ

4.3 Residential building value and dwelling numbers

The value of residential building nationally is forecast to reach a higher peak than ever before (see figure A), but it is not expected to result in a higher number of dwellings than ever before (see figure D). This is due to an increase in the average cost per dwelling. There are a number of potential drivers for this increase. Figure 10 shows the relationship between average value and the average floor area of dwellings consented.

Figure 10 - Average value and floor area for new dwellings consented

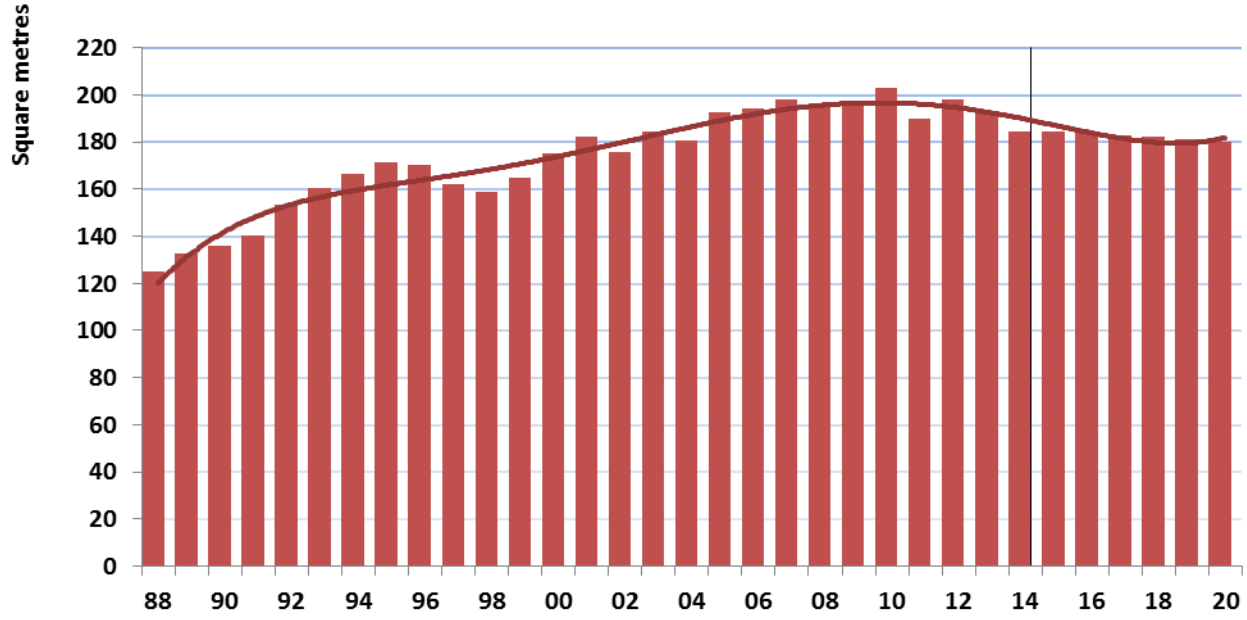
Source: Stats NZ/ BRANZ

A number of changes in the type or specification of dwellings could account for the increase in the cost of dwellings. Two immediate explanations are:

- dwellings are getting larger and, therefore, more expensive
- dwellings are getting more expensive per square metre built.

The impact of multi-units makes trends a little more difficult to observe. In general, houses are getting larger. Multi-units tend to have a smaller floor area, although they too are increasing in size. As the proportion of multi-units built increases, it offsets the increasing floor area of houses and results in a lower, average floor area for new dwellings consented, as shown in figure 11. These forecasts assume an increasing proportion of multi-units over time and this results in a lower average floor area per consented dwelling over time.

Figure 11 - Average floor area of new dwelling consents (historic and forecast)



Source: Stats NZ/BRANZ

The average cost per square metre of houses has been constantly increasing over time. The average cost per square metre for multi-units is more variable, but over the past couple of years it too has been increasing (see figure 12). These forecasts keep the cost per square metre constant for both detached and multi-unit dwellings.

Figure 12 - Consent cost per square metre for houses and multi-unit dwellings

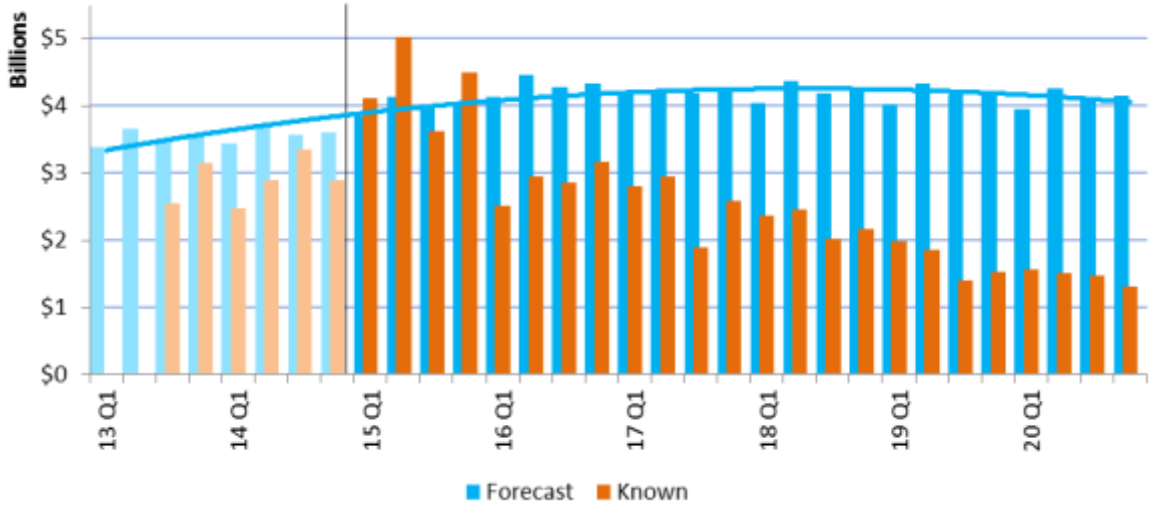
Source Stats NZ/BRANZ

On balance, it would appear that the primary driver of the increasing cost of dwellings is an increase in quality and, therefore, cost per square metre built. For more discussion on the increasing cost of each new dwelling see the Productivity Commission's 2012 report on housing affordability[4].

4.4 Non-residential – national

The value of non-residential building and construction steadily increases throughout the forecast period to a high point of $17.2b in 2016. The annual value of non-residential work is forecast to be 17% higher in 2020 than in 2013 (when it was $14.1b). $16.5b of known non-residential building and construction projects are anticipated to start in 2015.

Figure 13 - Forecast and known non-residential building and construction, nationally



Source: Pacifecon/BRANZ

Nationally, the following types of non-residential projects are financially significant over the next six years:

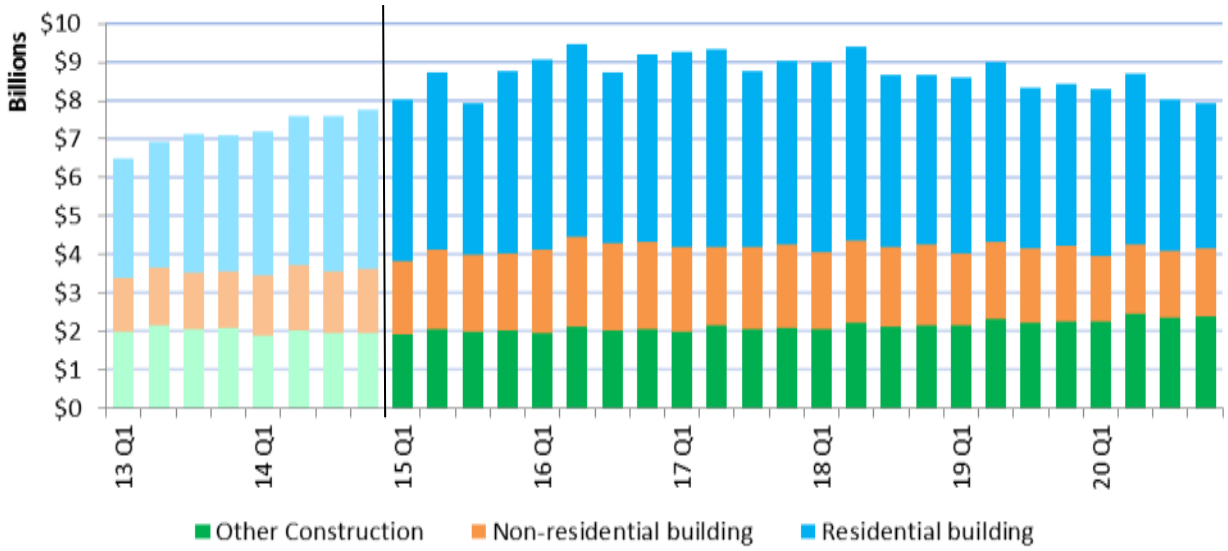
- transport projects, eg, roads of national significance
- Canterbury rebuild and earthquake strengthening
- mixed use developments, eg, office and retail, residential and commercial
- water/wastewater projects
- industrial developments, eg, milk processing and timber plants

4.5 Different types of building and construction (residential, non-residential building and other construction)

In this section, forecast building and construction is split into three types: residential, non-residential building (vertical buildings) and other construction (horizontal construction). The value of residential building is higher and more variable across quarters than either non-residential building or other construction. The value of non-residential building is forecast to peak in 2016, whilst other construction gradually increases throughout the forecast period.

[4] http://www.productivity.govt.nz/inquiry-content/1509?stage=4

Figure 14 - Value of all building and construction by type of work



Source: Pacifecon/BRANZ

4.6 Other construction

Other construction represents about 25% of all building and construction by value (see figure 14). It includes any type of construction that is not a building, eg:

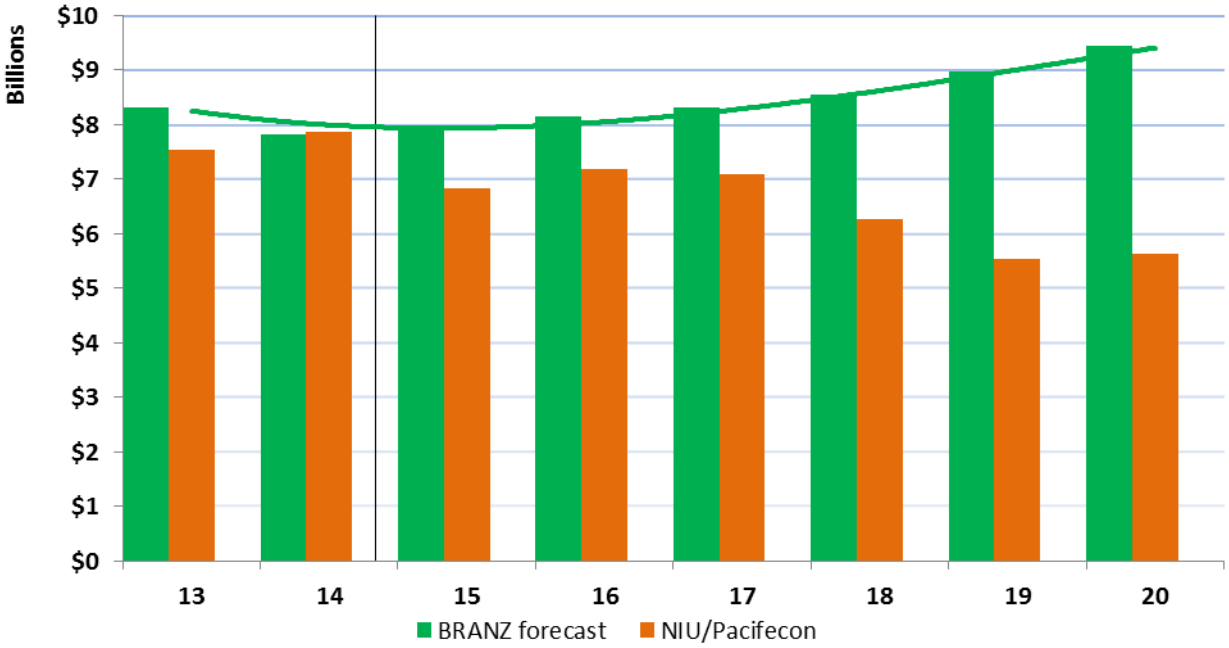
- infrastructure, including
    - road and rail, including building and maintaining bridges and tunnels, lighting, etc
    - cabling for electricity and telecommunication
    - pipe laying and maintenance for water, including waste and storm water, as well as gas pipes
- mining
- power projects (wind, thermal, hydro).

Local government initiates about half of this other construction, central government a fifth and the private sector initiates the rest.

Other construction was the largest source of variance in the 2014 forecasts. BRANZ has significant experience in forecasting residential and non-residential building work, consistent with its focus on buildings. Therefore, forecasts for other construction are likely to be less reliable.

To improve our forecast of other construction we have reviewed our methodology and other data sources such as initiators' intentions in the National Infrastructure Unit's evidence base and the Pacifecon data set. A comparison of the two data sets follows (section 4.7). Aggregating intentions from these data sets is subject to the 'optimism bias' described in section 4.10 and figure 20. Figure 15 shows the relationship between the BRANZ forecasts and projections of other construction captured in the combined Pacifecon and National Infrastructure Unit's evidence bases.

Figure 15 - Comparison of BRANZ forecast for other construction with NIU and Pacifecon data



Source BRANZ/Pacifecon/NIU

There was a clear reduction in other construction in 2014. However, increases in the value of other construction in Pacifecon's private sector (only) data set , combined with the increase in intentions captured in the National Infrastructure Unit evidence base (which covers central and local government projects), suggests that other construction will grow during the forecast period.

4.7 Comparing the Pacifecon known projects with the National Infrastructure Unit's evidence base[5]

The National Infrastructure Unit (NIU) published a refresh of its evidence base in March 2015. It includes data on all government infrastructure expenditure (capital) intentions for the next ten years.[6] The NIU evidence base was compared with the Pacifecon data set[7] of anticipated non-residential building and construction projects (known data). The following steps were taken to compare the data sets:

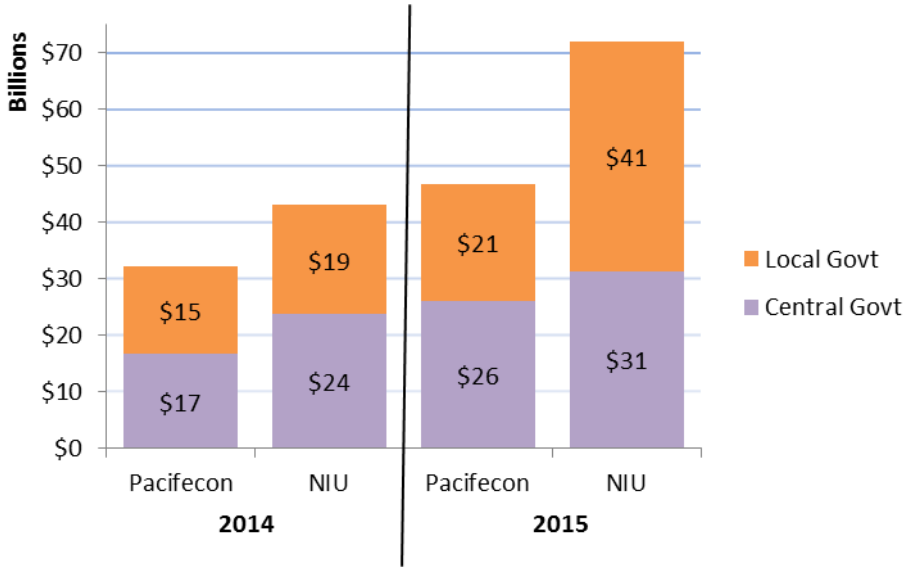
1. All infrastructure expenditure that is not expected to result in non-residential building and construction was removed from the NIU evidence base, where identifiable, eg, land purchases, military, residential building.
2. Central and local government-initiated, non-residential building and other construction were extracted from Pacifecon's data.
3. The two resulting data sets were compared (see figure 16).

[5] Inclusion of a project does not mean that it has been funded or approved, will proceed, or that if it does proceed, it will be to the scale and timeframe indicated in this report. It is, however, the best available picture at this particular point in time.

[6] See http://www.infrastructure.govt.nz/plan/evidencebase .

[7] This is the only place in this report where Pacifecon data past December 2020 is used. This data is unsmoothed (raw) to allow comparison with the NIU's data, which is also unsmoothed.

Figure 16 - Comparison of Pacifecon known projects with NIU evidence base



Source: NIU/Pacifecon

The two data sets capture different data. The NIU's evidence base represents reported intentions to invest in infrastructure projects. Pacifecon's known projects capture non-residential building and construction projects, based on when specific work is expected to occur. The NIU's data includes a government agency's best view of future infrastructure spending at that time. These are often subject to a variety of approval requirements. As such, they may not have been included in Pacifecon's known projects when its data was closed off.[8] Once an intention is more clearly defined, it is likely to be included in Pacifecon's known project data.

There is a significant increase in identified intentions in both data sets from the 2014 National Construction Pipeline Report. Both data sets appear to capture around an $8 billion increase in infrastructure construction by central government. Both capture an increase in local government infrastructure construction, with significantly higher value reflected in the NIU evidence base. This may reflect an increase in construction intentions, more project data being captured, and some of the NIU data including non-construction expenditure.

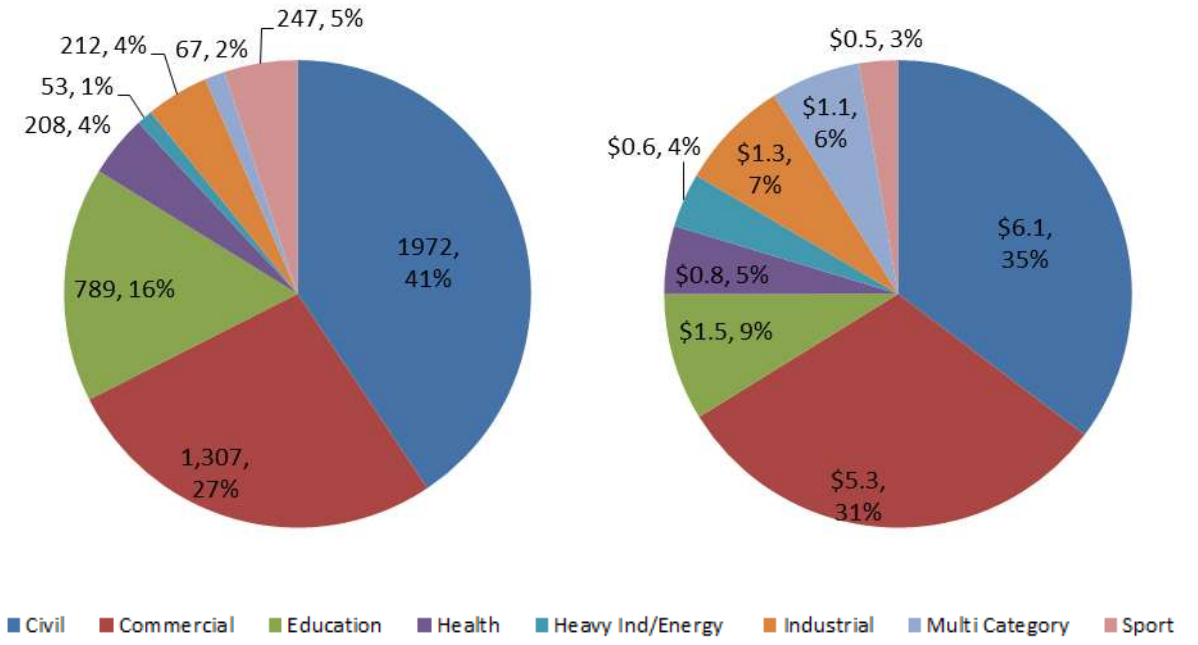
4.8 Types of non-residential projects anticipated to start in the year to December 2015

Civil and commercial projects dominate the non-residential projects anticipated to start in the year to December 2015 (66% by value). Generally, the share of projects by number and value are about the same, eg, commercial projects represent 27% of all projects by number, and 31% of the total value of work anticipated to start in the year to December 2015. The exceptions are:

- education and sport, where there are many projects (21% by number) with a lower value (12%)
- heavy industry/energy and industrial have fewer projects (5% by number) with a greater value (11%).

[8] Pacifecon's known project data set was created on 21 February 2015.

Figure 17 - Number and value of known non-residential projects anticipated to start in the year to December 2015, by project type ($m, %)



Source: Pacifecon

4.9 Value of work

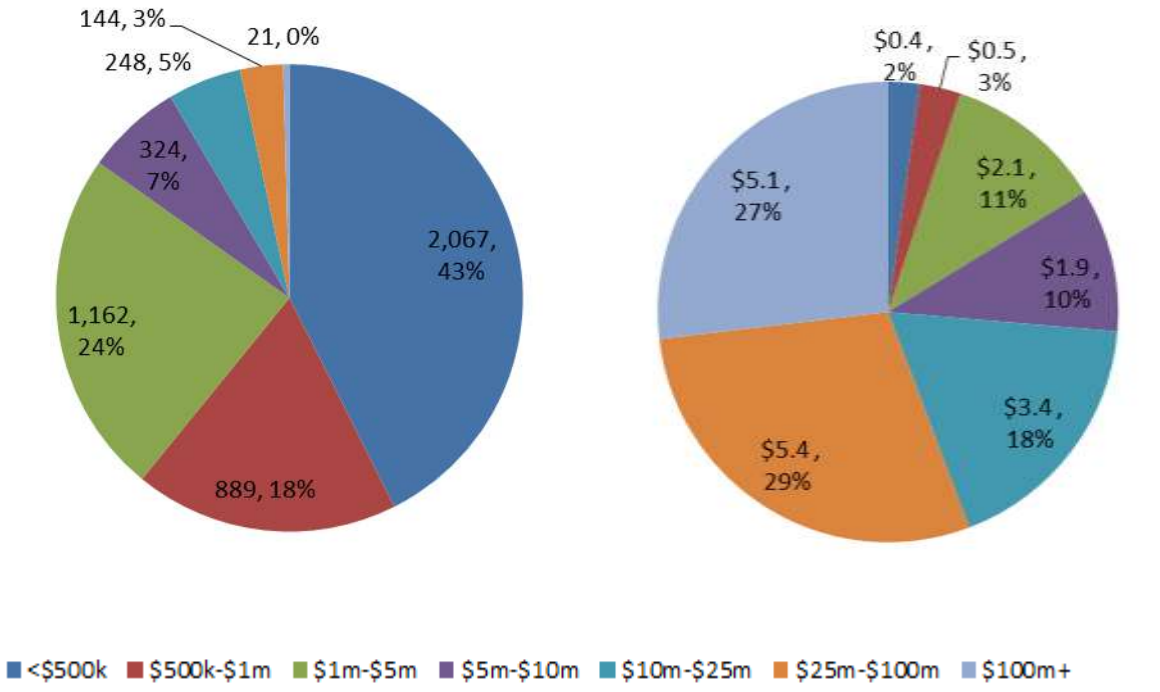
A relatively small number of non-residential building and construction projects account for most of the value of non-residential building and construction nationally – this is consistent with findings in the previous reports. More than 4,800 known projects are anticipated to start between January and December 2015. 61% of these projects have an estimated value of less than $1 million and 85% less than $5 million.

There are 165 projects valued at $25 million and over, which are anticipated to start in the year to December 2015, accounting for 56% by value. There are 21 projects valued at $100 million and over, accounting for 27% by value.[9]

If residential work were included in figure 18, the number and percentage of projects under $5 million (and particularly under $1 million) would be considerably higher.

[9] See Appendix D for a list of projects, with an approximate value of $100m and over, likely to start in the year to December 2015.

Figure 18 - Number and value of known non-residential projects anticipated to start in the year to December 2015, by value band[10]



Source: Pacifecon

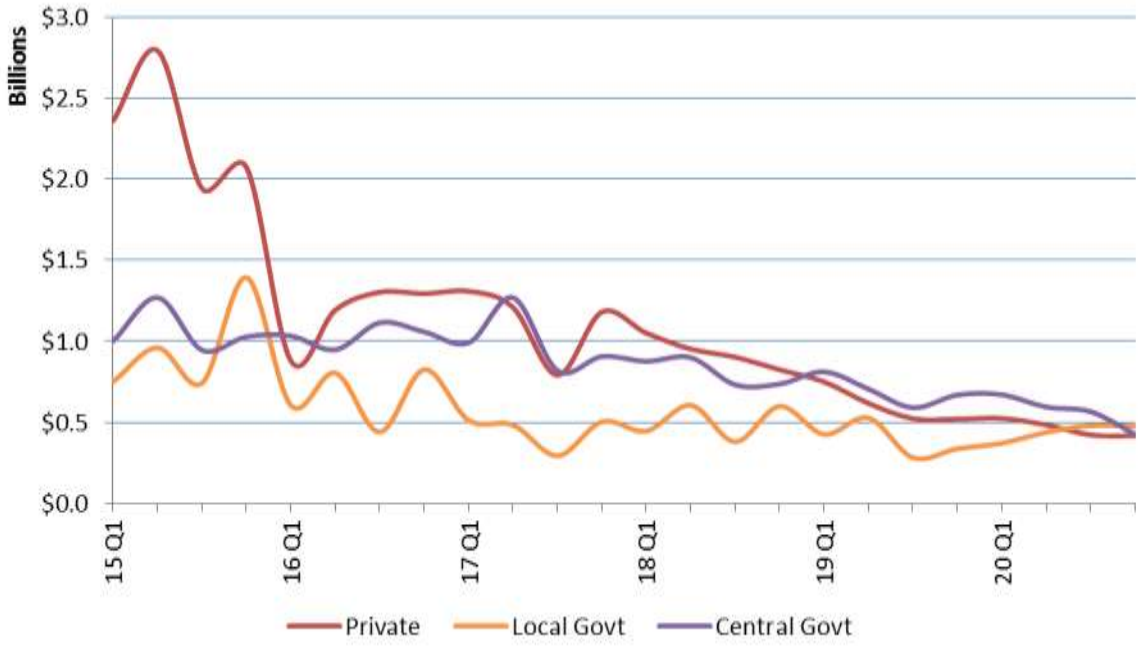
4.10 Project initiators

The private sector contributes more to the value of known non-residential projects than either local or central government. The peak in privately initiated projects in mid-2015 is consistent with the shorter timeframes between identification of a project and its anticipated start date. The share of privately initiated projects through to 2016 is lower in Canterbury where there is a very high number of government funded repair and rebuild projects.

The share of local and central government initiated projects increases with time. Large public projects tend to have longer visibility and firmer start dates, due to the requirements for public consultation and notification.

[10] Raw data from February 2015 is used. See Appendix C.

Figure 19 - Value of known non-residential projects by initiator and start date



Source: Pacifecon

Previous reports showed a similar pattern[11] – a sharp increase in the value of known (mainly private sector) projects expected to commence six to nine months into the forecast period, followed by a substantial decrease in value and a gradual decline through to the end of the forecast period.

The private sector accounts for 37%, by number, of non-residential projects anticipated to start in the year to December 2015. These privately initiated projects make up 53% ($9.2b) by value.

Local government is expected to initiate 39% by number, representing 22% ($3.8b) by value.

Central government is expected to initiate 23% by number, representing 25% ($4.2b) by value.

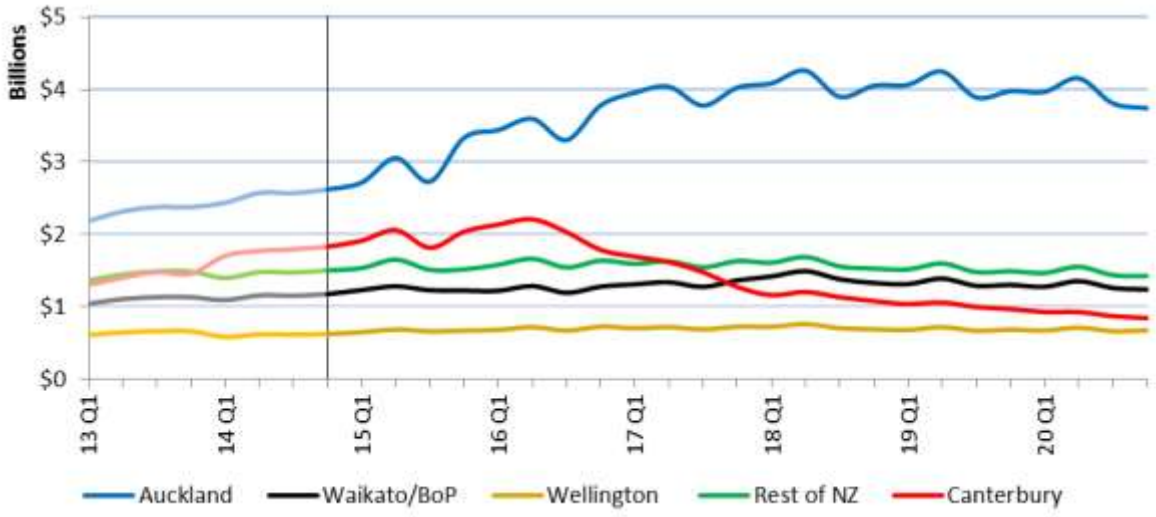
4.11 Regional comparisons

This section considers the differences in forecast building and construction work across the regions. The regions are discussed individually in section 5.

Auckland dominates the national demand for building and construction, even with the impact of the Canterbury rebuild.

[11] See figure 6.

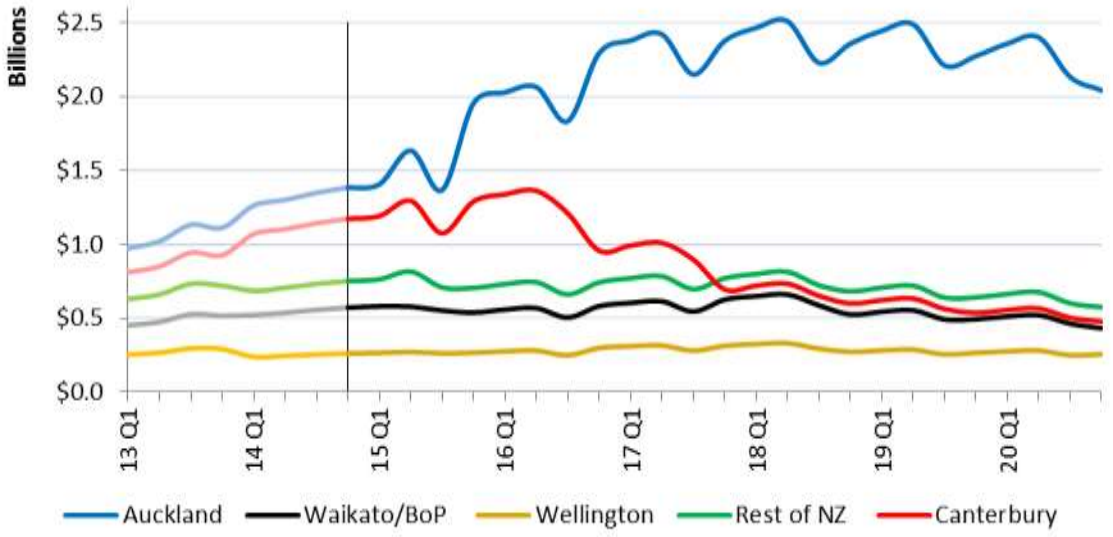
Figure 20 - Value of all building and construction by region (by quarter)



Source: BRANZ/Pacifecon

Growth in residential building nationally is driven by the continued rapid growth of Auckland's activity (126% growth from 2013 to the $9.6b peak in 2018) and Canterbury's current peak in residential rebuild requirements (about $4.8b in 2015 and 2016) which then falls from 2017 onwards. Auckland's residential building slows after 2018 and falls to $8.9b in 2020.

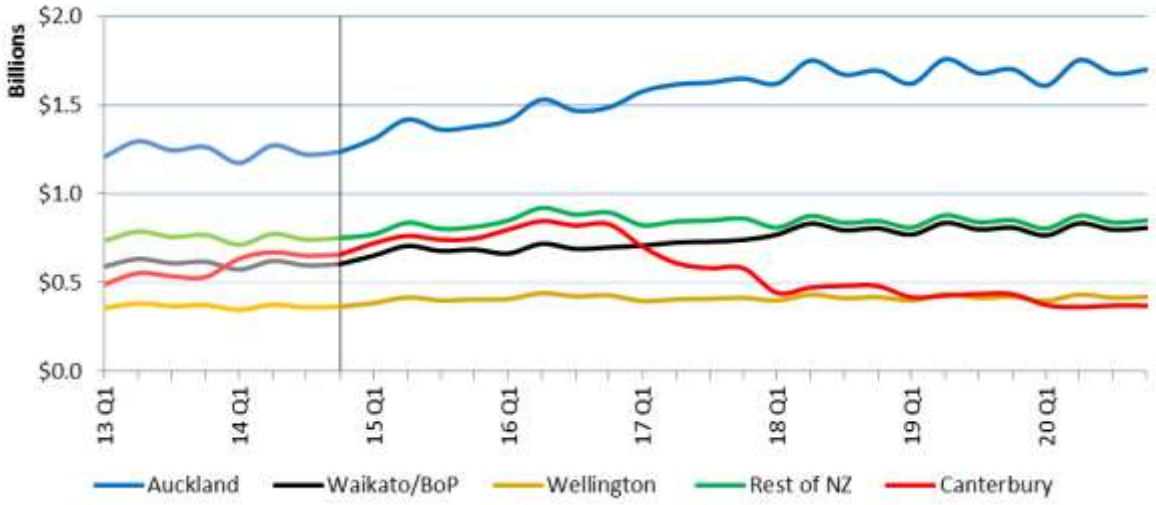
Figure 21 - Value of residential building by region (by quarter)



Source: BRANZ

Most of the regions are forecast to experience reasonably constant, if slow growing, non-residential building and construction. The main regional variation in non-residential work is caused by the rebuild in Canterbury where the value of work is projected to increase to a peak of $3.3b in 2016, before dropping below all of the other regions by 2020. The constant growth in Auckland non-residential building and construction plateaus toward the end of the forecast period. Waikato/Bay of Plenty and Wellington are forecast to experience steady annual rates of non-residential work.

Figure 22 - Value of non-residential building and construction by region (by quarter)



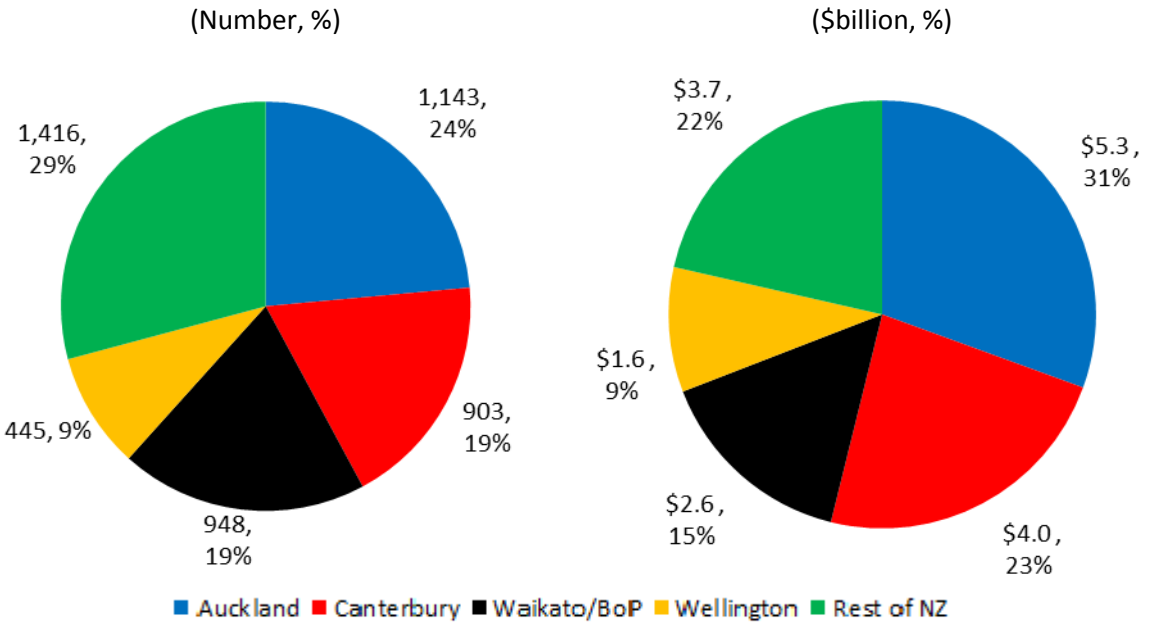
Source: BRANZ/Pacifecon

Auckland and Canterbury dominate anticipated known non-residential building and construction in the year to December 2015, with 43% of work by number of projects and 54% by value; indicating that the non-residential projects in Auckland and Canterbury are of a higher value than the national average. Individually:

- Auckland 24% (by number) represents 31% of the value ($5.3b)
- Canterbury has 19% of the number of projects in the year to December 2015, representing 23% by value ($4.0b).

Auckland and Canterbury have the highest value of non-residential construction of the regions considered in this report.

Figure 23 - Number and value of known non-residential projects anticipated to start in the year to December 2015, by region



Source: Pacifecon

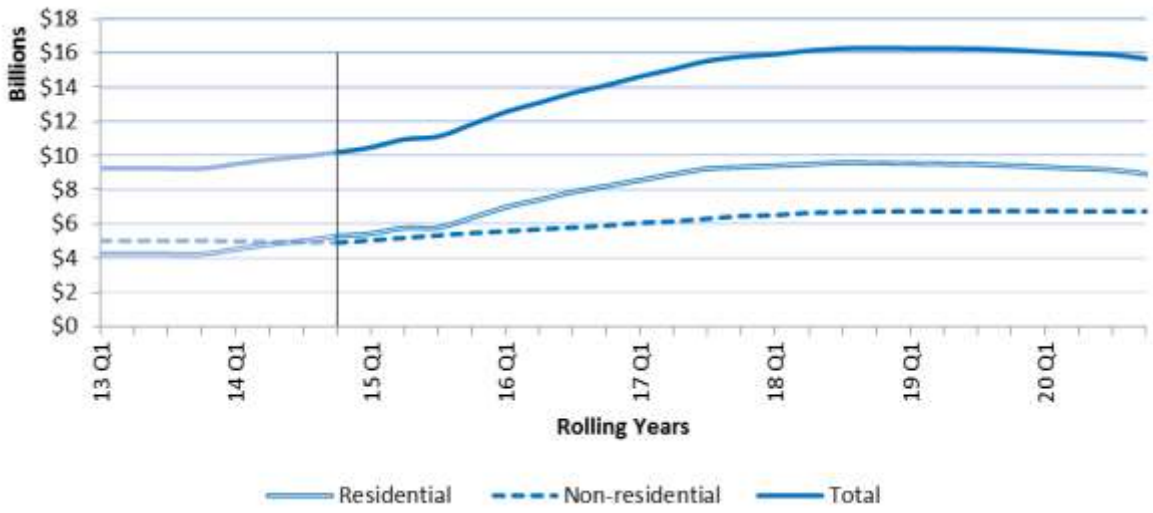
5 The regions

In this section of the report, four regions are discussed in greater detail, with aggregated data provided for the rest of New Zealand:

5.1 Auckland[12]

Auckland dominates the national demand for building and construction, accounting for over a third of all building and construction, by value, from 2013 to 2020. The value of building and construction in Auckland is forecast to grow steadily to a peak in 2018/19. This represents growth of over 70% from 2013 to the 2018/19 peak. The forecast pattern of Auckland's growth for all building and construction is very similar to the forecast pattern of growth in residential building in the region.

Figure 24 - Value of all building and construction for Auckland



Source: BRANZ/Pacifecon

Auckland was the fastest growing region by population from 2006 to 2013, increasing 8.5% to 1.4 million in the 2013 census. Residential building demand in Auckland has played a significant role in reversing the national slowdown in residential construction that occurred after the global financial crisis in 2007/08. The value of residential construction in Auckland is predicted to grow by 126% from 2013 ($4.2b) to a peak in 2018 ($9.6b).

The forecast shows 94,400 new dwelling consents in Auckland between January 2013 and December 2020. This is more than was forecast in the 2014 report for an equivalent period.[13]

Over 53,500 detached homes are forecast to be consented in Auckland from 2013 through 2020, peaking at over 8,200 in 2017. The number of multi-unit dwellings consented each year is forecast to

[12] The area covered by Auckland Council.
[13] 70,800 new dwelling consents were forecast between January 2012 and December 2019 in the 2014 report.

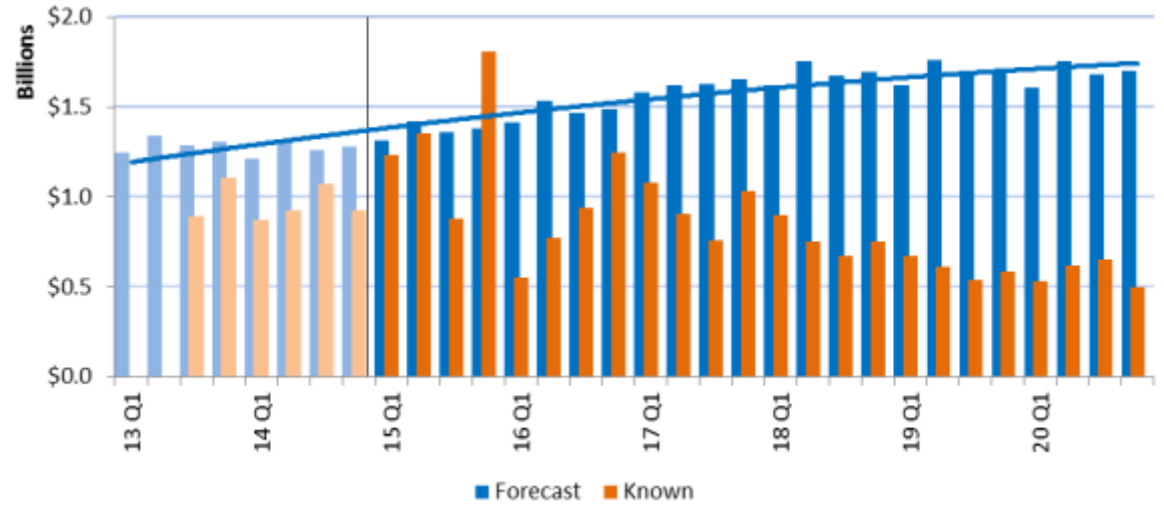
grow rapidly between 2013 and 2018 before the rate of growth slows. The number of detached and multi-unit dwellings is forecast to be almost the same by 2020 although it is likely there will still be more houses (6,800) than multi-unit dwellings consented (6,200).

Figure 25 - Number of consents for detached and multi-unit dwellings in Auckland

Source: BRANZ

Non-residential building and construction in Auckland is forecast to steadily increase by 30% from 2013 to 2020.

Figure 26 - Forecast and known non-residential construction for Auckland



Source: Pacifecon/BRANZ

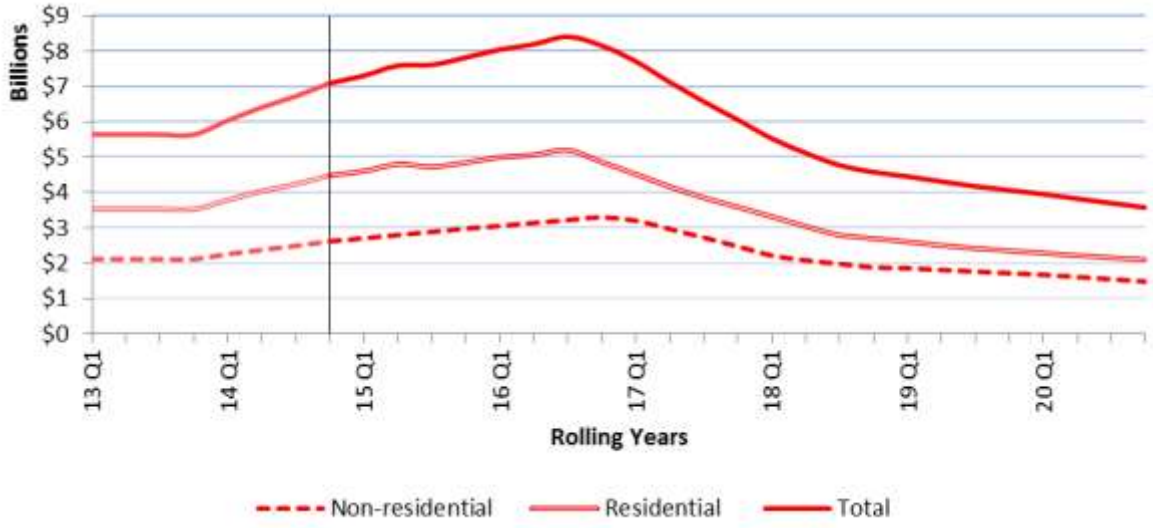
Planned work in Auckland includes:

- new residential builds
- civil work, eg, roads, rail, residential subdivisions, water and wastewater
- retirement villages
- town centres for new suburbs
- commercial (including mixed use developments), eg, retail outlets, office blocks, hotels, prison, land-based marine activities, car-parking, civic buildings, tourist and sporting facilities, university – academic buildings and student accommodation.

5.2 Canterbury[14]

Building and construction activity in Canterbury, particularly residential building, rises between now and 2016 then falls away quite quickly; halving in three years. Residential building in Canterbury is forecast to peak from about now for the next two years ($4.8b), before dropping back to $2.1b in 2020. Similarly, the value of all building and construction in Canterbury is forecast to peak in 2016 ($8.2b), then drop back strongly, decreasing to less than half from the 2016 peak to $3.6b in 2020.

Figure 27 - Value of all building and construction for Canterbury

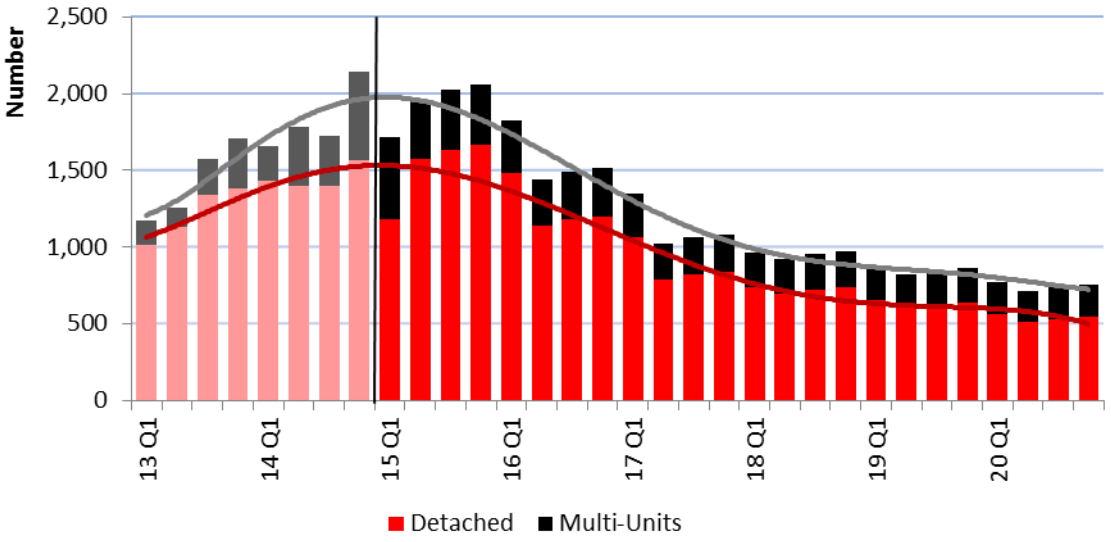


Source: BRANZ/Pacifecon

41,800 dwellings are forecast to be consented in Canterbury between January 2013 and December 2020. This is more than was forecast in the 2014 report and is based on consent numbers in Canterbury tracking strongly upwards in 2013. Over 22,000 detached houses are forecast to be consented in Canterbury in the six years ending December 2020; three times more than multi-unit consents. The forecast shows the number of detached houses consented each year in Canterbury peaking across 2014 and 2015 (around 6,000 in each of these years). While the number of residential consents decline in 2016, the value of residential building is forecast to remain at about the same level as 2015. This is a reflection of the delay in consents resulting in construction.

[14] Canterbury includes: Christchurch City, and Hurunui, Waimakariri, Selwyn, Ashburton, Timaru, Mackenzie and Waimate Districts.

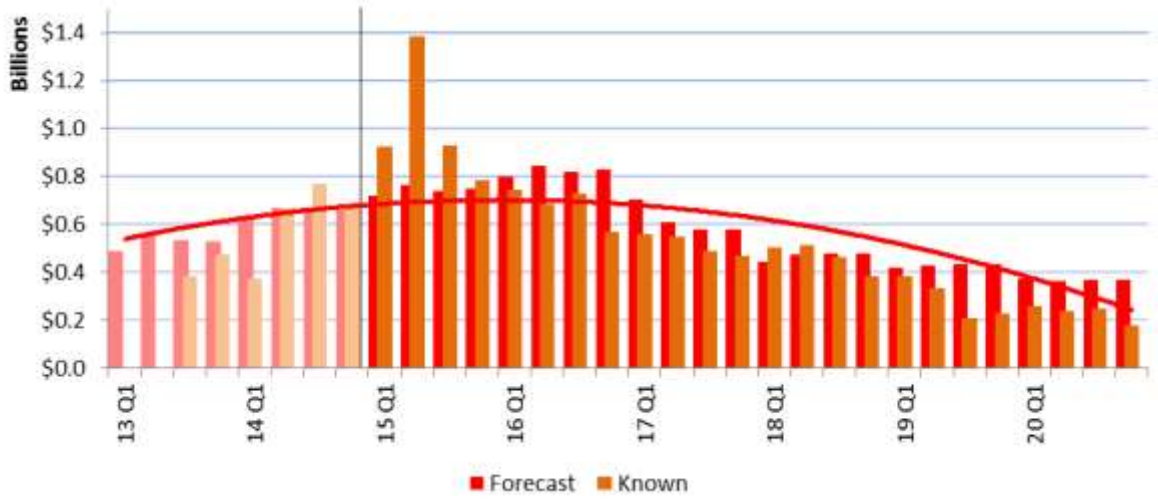
Figure 28 - Number of consents for detached and multi-unit dwellings in Canterbury



Source: BRANZ

Non-residential building and construction is forecast to experience continued growth, peaking in 2016 ($3.3b) and then steadily reducing in 2020 to $1.5b.

Figure 29 - Forecast and known non-residential building and construction for Canterbury



Source: Pacifecon/BRANZ

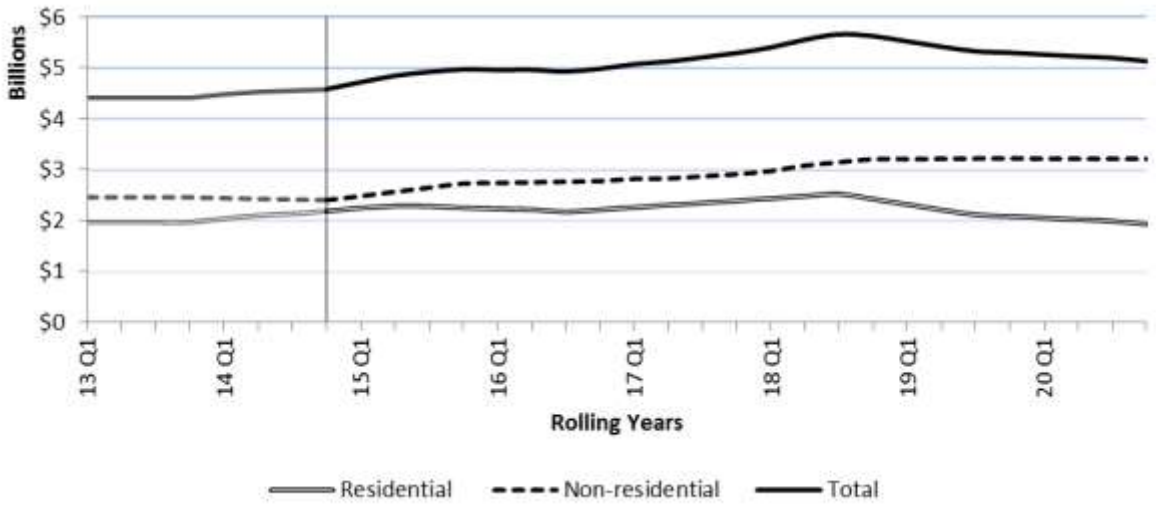
Planned work in Canterbury includes:

- housing repairs, rebuilds and new builds
- civil projects, eg, Stronger Christchurch Infrastructure Rebuild Team (SCIRT) work, roads
- new , replacement or earthquake strengthening of commercial buildings, eg, retail outlets, car-parking, business premises, civic buildings, tourist, recreation and sporting facilities, schools, universities and hospitals
- retirement villages
- rural activities, eg, milk processing plants and irrigation works.

5.3 Waikato/Bay of Plenty[15]

Waikato and the Bay of Plenty combine to form the third largest region, by value of work. Overall building and construction growth in the region is driven by non-residential work. The value of all building and construction in the Waikato and Bay of Plenty is forecast to peak in 2018 ($5.6b) and then plateau at around $5.2b pa in 2019 and 2020.

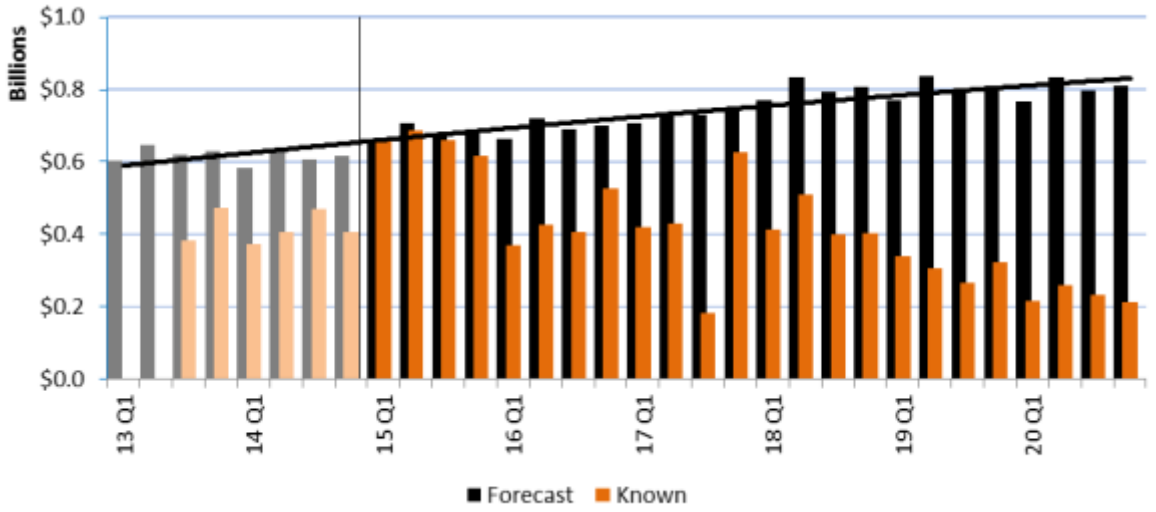
Figure 30 - Value of all building and construction for Waikato/Bay of Plenty



Source: BRANZ/Pacifecon

Steady growth in non-residential work is projected over the forecast period, rising from $2.4b in 2014 to a peak of $3.2b in 2018 for the rest of the forecast period (32% growth). Non-residential work in the Waikato and Bay of Plenty accounts for 57% of all building and construction activity in the region from January 2013 through December 2020.

Figure 31 - Forecast and known non-residential building and construction for Waikato/Bay of Plenty



Source: Pacifecon/BRANZ

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

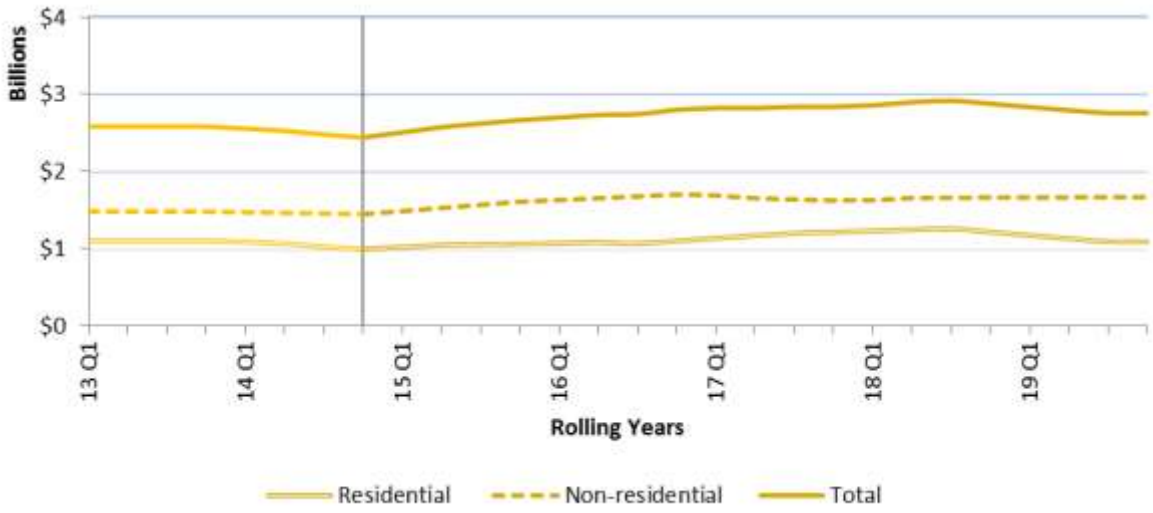
Planned work in Waikato/Bay of Plenty includes:

- civil projects, eg, roads of national significance, residential/industrial subdivisions, transport/freight hub
- industrial buildings, eg, timber mill, milk processing plants
- commercial developments, eg, business/retail park
- energy sector developments, eg, geothermal plants.

5.4 Wellington[16]

Wellington remains the lowest value region considered separately in this report. Wellington shows weak growth, then decline, in all construction over the forecast period. All building and construction in Wellington is expected to grow by 6% from 2013 to 2020. The forecast shows an increase from 2013 of $0.3b to a peak of $2.9b in 2019 (11%). Residential building is expected to gently peak in 2017/18 ($1.2b and 10%) before returning to a similar value of work as 2013.

Figure 32 - Value of all building and construction for Wellington

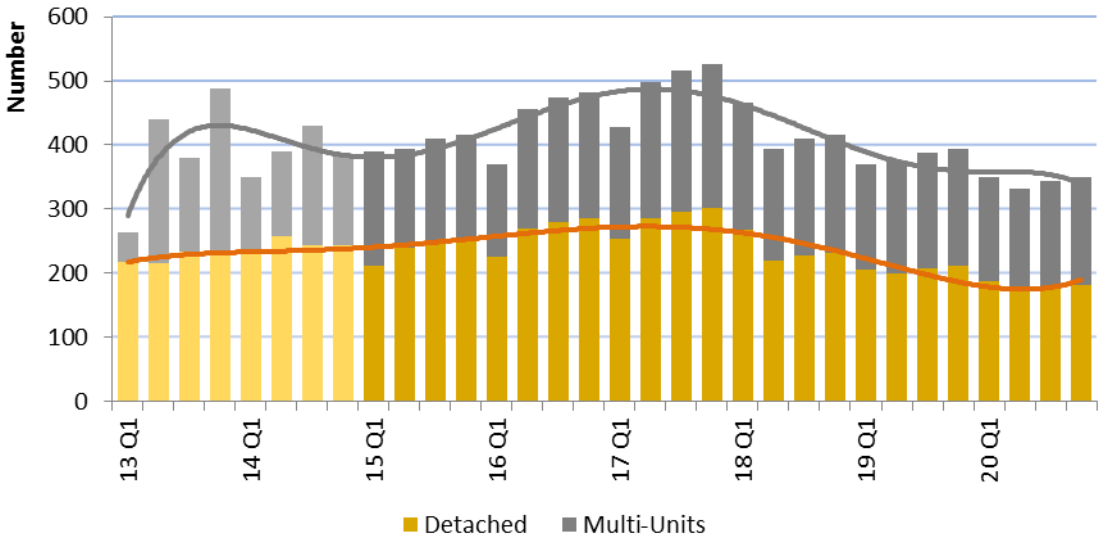


Source: BRANZ/Pacifecon

Wellington starts with a higher proportion of high-density housing than the other main regions. Annual consents for detached houses are forecast to peak in 2017, at around 1,100 consents. Multi-unit dwelling consents are also forecast to peak in 2017, at around 830.

[16] Wellington includes: Upper Hutt, Lower Hutt, Wellington City, Porirua City, Kapiti Coast District, Masterton, Carterton and South Wairarapa Districts. Note: in the 2013 report Wellington did not include Masterton, Carterton or South Wairarapa.

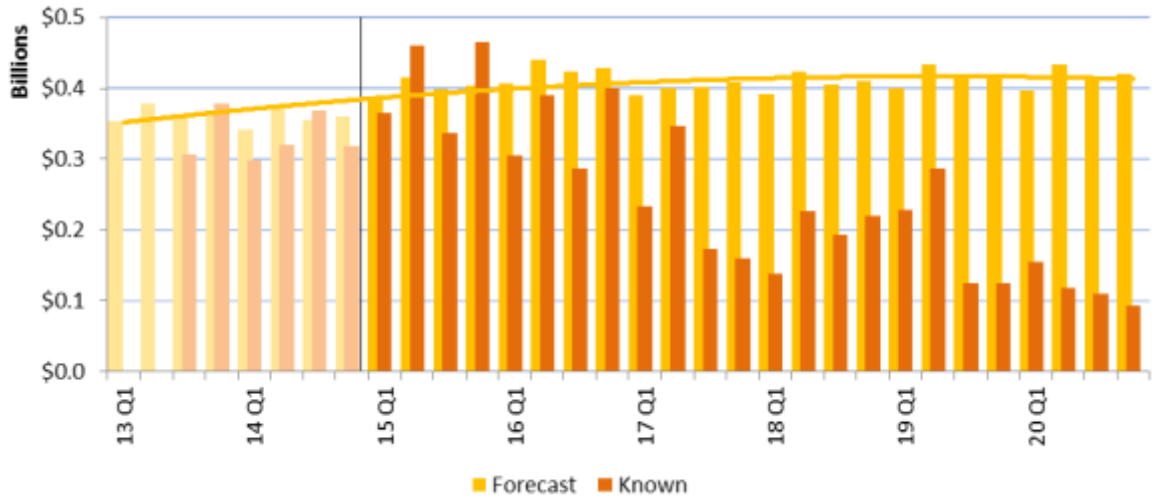
Figure 33 - Number of consents for detached and multi-unit dwellings in Wellington



Source: BRANZ

Annual non-residential building and construction activity is forecast to grow by $0.2b from 2013 to 2020 with no strong peak.

Figure 34 - Forecast and known non-residential building and construction for Wellington



Source: Pacifecon/BRANZ

Planned work in Wellington includes:

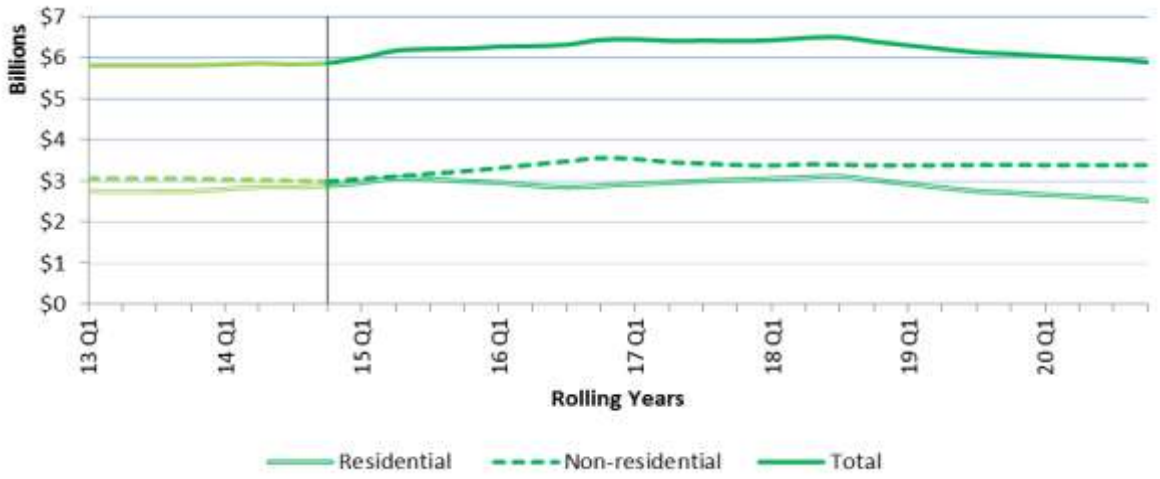
- transport, especially roads and airport
- other civil projects, eg, power, reservoir
- commercial developments, eg, business and tourist facilities.

5.5 Rest of New Zealand[17]

The rest of New Zealand includes regions not discussed elsewhere in this report. This includes the least populated regions of the country, some of which have a static or decreasing population. For these regions combined, the annual value of all building and construction is about the same at the beginning and end of the forecast period. Non-residential activity gently grows through much of the forecast period but is offset by the gently declining value of residential building.

Residential building is forecast to rise by $0.3b from $2.7b in 2013, to a plateau of $3b in 2017 and 2018, and then fall back to $2.5b by 2020.

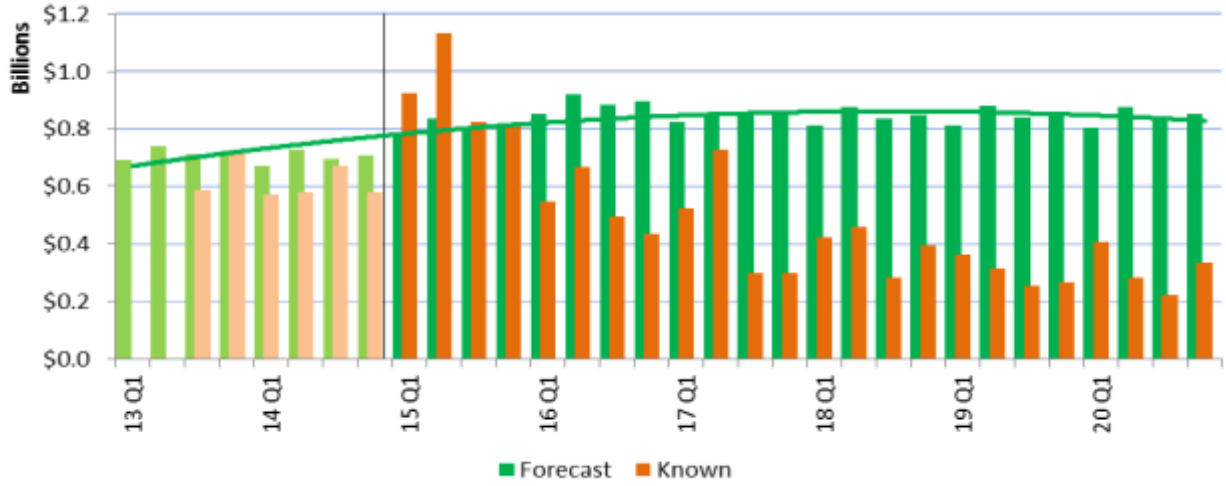
Figure 35 - Value of all building and construction for the rest of New Zealand



Source: BRANZ/Pacifecon

The value of non-residential building and construction is forecast to increase by 24% from $2.9b in 2013 to $3.6b in 2016, before falling back to $3.4b in 2020.

Figure 36 - Forecast and anticipated value of non-residential building and construction for the rest of New Zealand



Source: Pacifecon/BRANZ

[17] Rest of New Zealand includes: Napier, Palmerston North, Nelson, Dunedin, Invercargill, Far North, Whangarei, Kaipara, Gisborne, Wairoa, Hastings, Central Hawkes Bay, New Plymouth, Stratford, South Taranaki, Tararua, Ruapehu, Whanganui, Rangitikei, Manawatu, Horowhenua, Marlborough, Kaikoura, Tasman, Buller, Grey, Westland, Waitaki, Clutha, Central Otago, Queenstown-Lakes, Gore and Southland Districts.

Planned work in the rest of New Zealand includes:

- energy sector developments, eg, hydro and geothermal plants
- heavy industry and industrial projects, eg, milk processing plants
- civil projects, eg, roads, rail, ports, dams, irrigation schemes
- commercial and recreational developments, eg, retail, ICT, tourist facilities
- educational facilities, including both universities and schools.

Wellington is the smallest main region by value of work. However, the value of work in Wellington is still considerably higher than Otago, the next highest-value individual region in the rest of New Zealand. By comparison, Wellington is forecast to have 18% ($160m) more residential building and considerably more non-residential building and construction in the year to December 2015 than Otago. As Otago continues to grow, these differences will reduce over time. Table 2 provides the forecast value of residential building and Pacifecon's anticipated non-residential projects in each of the smaller regions for the year to December 2015.

Table 2 - Value of forecast residential and anticipated non-residential work in the year to 31 December 2015 for the rest of New Zealand's regions

Region	**Residential building ($m)**	**Anticipated non-residential projects ($m)** [18]
Otago	897	869
Nelson/Marlborough	396	531
Manawatu/Whanganui	314	367
Northland	469	531
Hawkes Bay/Gisborne	331	425
West Coast	78	190
Southland	176	269
Taranaki	326	221
NZ wide[19]	-	295
Total	**2,987**	**3,698**

Source: Pacifecon/BRANZ

6 Disclaimer

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

Advice has been taken from a variety of sources. It is believed that the methodology used is a sound basis for future reporting.

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

[18] Values in red are from Pacifecon's dataset of anticipated project values and are subject to optimism bias.
[19] NZ wide is used in the Pacifecon dataset to define work that covers all of New Zealand, eg, ultra-fast broadband rollout.

Appendix A – Parties involved in preparing this report

Pacifecon (NZ) Ltd. (referred to as Pacifecon in this report) was established in 1982. It is a wholly New Zealand operated business focusing exclusively on the New Zealand and Pacific Islands construction industry, providing business intelligence in the form of future residential and non-residential project information to its client base.

Pacifecon uses a nationwide team of 30 people to liaise with key decision makers in the construction industry (in both the private and public sectors) to compile thorough, timely and accurate information on building projects from the earliest planning stages. Newspapers, journals, industry publications and websites are checked for relevant information, as well as consents. Information is held on projects that may have a work start date far beyond 2020.
See www.pacifecon.co.nz

BRANZ is an independent and impartial research, testing, consulting and information company providing services and resources for the building industry.

Its aims are to:

- research and investigate the design, construction and performance of buildings that impact on the built environment in New Zealand
- enable the transfer of knowledge from the research community into the residential and commercial building and construction industry.

See www.branz.co.nz

Ministry of Business, Innovation and Employment (MBIE). MBIE's purpose is to 'grow New Zealand for all'. MBIE does this by helping businesses become more productive and internationally competitive, and by increasing opportunities for all New Zealanders to contribute to the economy. This means providing more jobs and increasing the opportunities for New Zealanders to participate in more productive and higher paid work. Growth for all also means providing better quality housing that is safe and affordable for New Zealanders.
See www.mbie.govt.nz

Appendix B – Terminology, abbreviations and definitions used in this report

Actuals	Values that have been realised and collated to form data based on fact
Additions and alterations	Changes or additions to an existing building or structure. These include repair work post-earthquake
b	Billion (10^9)
Base year	The year beginning 1 January 2013
Calendar years	The 12 months ending 31 December of the year referred to
Commercial construction	Includes: shopping centres and retail outlets, hotels, motels, conference centres, theatres, libraries, museums, offices, welfare homes, hostels, laboratories, telecommunications and electronics, churches, bars, restaurants, defence, law, police stations, prisons, camp grounds, buildings with a commercial kitchen, etc
Constant 2014 dollars	Real New Zealand dollar value as at December 2014. All values are at December 2014 quarter prices and are inflation adjusted using the capital goods price index
Dwellings	Dwellings include detached (stand-alone) houses and multi-unit dwellings such as apartments, terraced and town houses
Education construction	Includes: schools, childcare centres, universities
FCF/GFCF - Fixed capital formation/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, and also does not include land purchases. It is a component of the expenditure approach to calculating GDP (E). This report uses GFCF. Routine maintenance is not included. Alterations and additions that significantly extend the life or capacity of an asset are included (ie, all work done with an addition and alteration building consent is included)
Forecast period	The six year period from 1 January 2015 to 31 December 2020
GDP (E) - Gross Domestic Product (expenditure)	A measure of the final purchases of goods and services produced in New Zealand's domestic territory. Exports are added to domestic consumption, as they represent goods and services produced in New Zealand. Imports are subtracted, as they represent goods and services produced by other economies
Health construction	Includes: hospitals, hospices, rest homes, health centres, ambulance stations, Plunket rooms, etc
Heavy industry/energy construction	Includes: mines, wind farms, plant and equipment, cranes, service stations, hydro, dams, irrigation, electricity, etc

Industrial construction	Includes: breweries, airports, harbours, ports and terminals, railways, warehouses, fire stations, abattoirs, cold stores, fisheries, boatsheds, marine farms, fuel storage, tankage for service stations, wineries, milk factories, dairy farms, laboratories
Known projects	Construction projects included in the Pacifecon data set. Projections are based on the expected construction costs over time of these known projects. It is not an exhaustive list of all construction projects
Multi-category construction	Development falls into multiple categories
Multi-unit dwelling	Separate occupancy dwelling with either/and a wall, ceiling or floor in common with another dwelling
National Infrastructure Unit	Based within Treasury. Its responsibilities include: •formulating, and monitoring progress on, a 20-year National Infrastructure Plan (NIP) •establishing robust and reliable cross-government frameworks for infrastructure project appraisal and capital asset management, and monitoring the implementation and use of those frameworks •providing support to, and acting as a secretariat for, the new National Infrastructure Advisory Board
Non-residential building and construction	The combination of all non-residential building and other construction work defined below
Non-residential building	Non-residential vertical building includes: shopping centres and retail outlets, hotels, motels, conference centres, theatres, libraries, museums, offices, welfare homes, hostels, laboratories, telecommunications and electronics, churches, clubs, bars, restaurants, defence, law, security, police stations, prisons, camp grounds. Values include additions and alterations
'optimism bias'	The over-estimate of construction intentions in the first year of the known projects data – see sections 3.4 and 4.7 for further information
Other construction	Horizontal structures (often civil works) including: roads, bridges, tunnels, reservoirs, street lighting, runways, harbours, marinas, dredging/flood control, outlets to the sea, subdivisions, earthmoving, landscaping, parks, agriculture, demolitions, transport and car park buildings, bus stops, water supply and wastewater, refuse, landfill
pa	Per annum
Project initiator - Central government	Projects that may be paid for from central government funding or in partnership with the private sector, but with central government as the driving force behind the project
Project initiator - Private	The private sector

Project initiator -Local government	All council and local projects which may be paid for from local government funding or in partnership with the private sector, but with local government as the driving force behind the project
Quarters	Q1 Jan-Mar, Q2 Apr-Jun, Q3 Jul-Sept, Q4 Oct-Dec
Raw data	Data that has not been subject to smoothing, processing or any other manipulation
Residential building	Includes: houses, and multi-unit dwellings. Value of residential building includes the value of additions and alterations. The number of residential consents excludes additions and alterations
Retirement villages	Detached houses, flats, apartments, and self-contained units in retirement villages are residential buildings. The common areas (dining, TV rooms, kitchens, gyms, pools, heath centres, etc) are non-residential building and construction. This split is accounted for in the forecasts
Roads of national significance	Seven State highway projects identified by the New Zealand Transport Agency as being strategically significant investments needed to enable New Zealand's economic growth. Other roads of national significance may be added in the future www.nzta.govt.nz/network/rons/#rons
Rolling years	The aggregate of values from the 12 months immediately preceding a particular point in time (eg, 2015 Q2 is the aggregate of values from July 2014 through June 2015)
Smoothed	Spreading the total cost of a project over its duration to provide a clearer view of underlying trends and remove seasonal or cyclical components
Sport construction	Includes: swimming pools, sports centres, sports pitches, golf courses
Statistics New Zealand	A government department and New Zealand's national statistical office. New Zealand's major source of official statistics, administers the Statistics Act 1975, and leads the Official Statistics System. See www.stats.govt.nz

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

Residential

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

Key assumptions include:

- Value of work placed includes detached houses, multi-unit dwellings and additions and alterations work. Work placed is based on new dwelling and alterations and additions consent values, multiplied by 1.78 to allow for variations after consent time and other costs included in the fixed capital formation measure (ie, legal and other transaction costs). The multiplication factor is from historic ratios of fixed capital formation/consents values.
- Household formation forecasts have been calculated based on 2013 census data for regional population growth and are used for new dwelling demand. Demolition replacements and holiday homes are included. Regional housing shares are based on regional population growth, demolition replacements are based on regional housing stock age, likelihood of holiday homes, and Canterbury earthquake recovery.
- Historic consents are first published data and there may be subsequent changes in some locations. Usually these revisions are minor. Includes both detached and multi-unit dwellings.

Changes in residential methodology from the 2014 report

Assumptions used to forecast residential fixed capital formation have changed from the 2014 report. Changes include:

- A revised factor for calculating the value of residential work placed (1.78)[20]. Firstly, because it is now applied to consents for alterations and additions, as well as for new dwellings. Secondly, to account for an upward revision of historical residential fixed capital formation by Statistics New Zealand (discussed below).
- Household formation forecasts have been calculated based on 2013 census data for regional population growth (Statistics New Zealand's household formation forecasts were used in the 2013 National Construction Pipeline Report, based on 2006 census data). Regional population growth was assumed to be midway between medium and high population forecasts. The national long-term net migration assumption is 12,500 per year. Persons per household, by region, were assumed to decline at the most recent inter-census rates. In the case of Auckland and Canterbury, persons per household increased in the last census but the forecast is for a reversal in this trend, with a decline at historic rates. Total earthquake demolition replacements in Canterbury are assumed to be 12,000 over a period of eight years. In the rest of New Zealand, demolition replacements are assumed to be 1,500 pa. New, occasionally occupied houses (holiday homes, apartments) are assumed to be 1,400 per year. The total is an average of 27,100 dwelling units per year over the next six years.

[20] This factor was 2.06 in the 2013 report and 1.82 in the 2014 report.

- Adjustments to historic building consent data following Statistics New Zealand's upward revision of 10.6% for fixed capital formation data for residential buildings in March 2012 and March 2013 years.
- The proportion of multi-unit dwelling consents in Auckland has increased in these forecasts due to the higher rate of multi-unit dwelling consents in 2014. The share of multi-unit dwelling consents in Wellington has decreased in this forecast due to the decrease in multi-unit consents in Wellington in 2014.
- The distribution of work across seasons has been adjusted, based on changes in previous seasonal distribution of work.
- The total number of forecast residential consents in Auckland is capped at 10,500 dwellings this year, growing to 14,000 pa from 2017 to the end of the forecast period. This reflects the need for time to allow the industry to grow to meet the demand for housing.

The 2015 report's forecasts were recalculated using the revised 2014 fixed capital formation as the start point. These are the actuals shown for the years 2013 and 2014 in the graphs.

Non-residential building and construction

The non-residential sector forecasts are based on BRANZ forecasts and combined with data held by Pacifecon. Non-residential building and construction is made up of **non-residential building** and **other construction**.

Non-residential building

BRANZ forecasts of non-residential building are based on forecasts of building consent values (which do not include other non-residential construction). The consent values are adjusted for fixed capital formation using historic ratios between consents and fixed capital formation value, and allowing for an average twelve month lag between the two series. Eleven categories of non-residential consents are forecast, based on the Statistics New Zealand data. Single equation regression models have been developed for most of the categories. These models have been limited to good success in forecasting, to approximately five years ahead.

Pacifecon has provided specific data for rebuild activity in Canterbury, but other regions have been extrapolated from BRANZ data, based on Pacifecon's known projects spread.

Other construction

BRANZ forecasts for other construction are based on modelling the historic trends for industry commissioning (and ownership) of assets and expected growth in each sector. The three main sectors are:

- mining (approximately 17% of other construction fixed capital formation)
- electricity/gas/water sectors (approximately 38%)
- transport (approximately 33%).

The remaining 12% of other construction fixed capital formation is held by a variety of industries. Real growth is based on historic trends and planned work (eg, the Government Policy Statement on Land Transport Funding). Real growth in fixed capital formation for the three sectors is assumed to be 3% pa for mining, 1.5% pa for electricity/gas/water, 4% pa for transport, and 2.5% pa for other sectors.

Historical trends are not used for modelling other construction in Canterbury, due to the effect of the Canterbury earthquakes on demand for building and construction in the region. Projections for other construction in Canterbury are based on the Government's $5b post-earthquake infrastructure budget split between 2011 (post-quake) to the end of 2016 and validated against data held by Pacifecon.

Pacifecon's anticipated non-residential projects

A data set of over 7,000 future projects known to Pacifecon has been used in this report. The data is up to date as at 21 February 2015. Smoothed data as at 15 May 2015 has been used in this report. The Pacifecon data set of project values shows the value of all projects of $75m and over smoothed across future quarters for the duration of the project (as far as this is known or estimated). Work on non-residential building and construction started since the beginning of 2011, and which is still in progress, is also included. The data set includes both non-residential building and other construction.

Pacifecon's non-residential data used in this report consists of projects which are at preconstruction stages – from the very earliest planning through to tendering. This real project activity data is collected and retained by Pacifecon.

In general, Pacifecon does not report on:

- projects valued at less than $100,000 (unless linked to other larger projects)
- low $'00,000 projects, where there is no opportunity for Pacifecon clients.

For timing of quarters see Appendix B.

Appendix D – Projects likely to start within the next year valued over $100 million[21]

Name	Type	Project initiator
Auckland		
Orakei Point Village	Mixed development	Private
Alexandra Park Development	Residential/retail	Private
Wynyard Quarter Hotel	Hotel	Private
Walmsley Road Subdivision	Civil	Private
St Georges Bay Road Commercial	Office Block	Private
Auckland Prison PPP	Prison	Central Govt.
SH 1 Orams Road to Hill Road Widening	Roads	Central Govt.
Three Kings Precinct Plan	Town Centre	Local Govt.
Mangere Biological Nutrient Removal Phase 1	Wastewater	Local Govt.
Canterbury		
The Crossing Retail Precinct	Retail /car parking	Private
Health Precinct Development	Commercial	Private
Dairy factory	Industrial	Private
Christchurch Hospital Acute Services Building	Hospital	Central Govt.
The Rutherford Science & Innovation Centre	University	Central Govt.
Lincoln University Selwyn Campus Master Plan	University	Central Govt.
Christchurch Town Hall - Conservation	Non-residential building	Local Govt.
Christchurch cycleways - overall	Cycleways	Local Govt.
Waikato / Bay of Plenty		
Timber mill	Industrial	Private
SH 1 Waikato Expressway Huntly Section from Ohinewai to Taupiri	Roads	Central Govt.
East Waikato Network Outcomes Contract	Roads	Central Govt.
Wellington		
Replacement of conductors on both the Bunnythorpe - Haywards A & B lines	Electricity	Central Govt.

[21] Inclusion of a project does not mean that it will proceed to the scale and timeframe indicated above. It is, however, the best available picture at this point in time (15 May 2015). Pacifecon's building and construction information is constantly updated.

Appendix E – Forecast and known data ($ billions) by region – annual totals

	Actual		Forecast						
Residential	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**Total**
Auckland	4.2	5.3	6.4	8.2	9.3	9.6	9.4	8.9	61.3
Canterbury	3.5	4.5	4.8	4.9	3.6	2.7	2.3	2.1	28.5
Waikato/BoP	2.0	2.2	2.2	2.2	2.4	2.4	2.1	1.9	17.4
Wellington	1.1	1.0	1.1	1.1	1.2	1.2	1.1	1.1	8.8
Rest of NZ	2.7	2.9	3.0	2.9	3.0	3.0	2.7	2.5	22.7
TOTAL	13.6	15.8	17.5	19.3	19.5	18.9	17.6	16.5	138.7
Non-residential									
Auckland	5.2	5.1	5.5	5.9	6.5	6.7	6.8	6.7	48.0
Canterbury	2.1	2.6	3.0	3.3	2.5	1.9	1.7	1.5	18.5
Waikato/BoP	2.5	2.4	2.7	2.8	2.9	3.2	3.2	3.2	22.9
Wellington	1.5	1.4	1.6	1.7	1.6	1.6	1.7	1.7	12.8
Rest of NZ	2.9	2.8	3.2	3.6	3.4	3.4	3.4	3.4	26.3
TOTAL	14.1	14.3	16.0	17.2	16.9	16.8	16.7	16.5	128.6
Residential & non-residential									
Auckland	9.4	10.4	11.8	14.1	15.8	16.3	16.2	15.7	109.3
Canterbury	5.6	7.1	7.8	8.2	6.1	4.6	4.1	3.6	47.0
Waikato/BoP	4.5	4.6	5.0	5.0	5.3	5.6	5.3	5.1	40.3
Wellington	2.6	2.4	2.7	2.8	2.8	2.9	2.8	2.7	21.7
Rest of NZ	5.6	5.6	6.2	6.4	6.4	6.4	6.1	5.9	49.0
TOTAL	27.7	30.2	33.5	36.5	36.4	35.8	34.4	33.0	267.3
Known non-residential	**Anticipated**								
Auckland		3.8	5.3	3.5	3.8	3.1	2.4	2.3	24.1
Canterbury		2.5	4.0	2.7	2.1	1.9	1.2	0.9	15.2
Waikato/BoP		1.7	1.9	1.7	1.6	1.6	1.7	1.7	11.8
Wellington		1.3	1.6	1.4	0.9	0.8	0.8	0. 5	7.2
Rest of NZ		2.4	3.7	2.1	1.9	1.6	1.2	1.3	14.1
TOTAL		11.6	16.5	11.5	10.2	8.9	7.2	6.6	72.5

Any differences between figures within Appendix E and tables and charts in other sections of this report are due to rounding.
Actuals in blue.
National and regional peaks in red.

Questions or feedback?

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