New Zealand Building and Construction Productivity Partnership

National Construction Pipeline

Prepared by Pacifecon (NZ) Ltd.
In conjunction with BRANZ

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Pacifecon
Building intelligence

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BUILDING AND CONSTRUCTION
PRODUCTIVITY
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Five Year National Construction Pipeline

1. Introduction

Pacifecon (NZ) Ltd, with the support of BRANZ, has been commissioned by the Building and Construction Productivity Partnership (the Productivity Partnership) to forecast national construction demand for the next six years ending March 2019.[1]

This report is derived from both known project and forecast data. It includes graphs and commentary on future building and construction. It 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.

For ease of reading 'years' are the twelve months beginning April of the year (unless otherwise stated) ie 2013 is the year from April 2013 to March 2014.

Quarters are of the calendar year referred to, ie 2013 Q3 is the quarter from July to September 2013.

Fixed capital formation has been used as a common basis for estimating the value of forecasts. This will include a wider range of construction related costs (eg, design, planning, and legal costs). Therefore these forecasts may appear 'high' compared with other forecasts.

All values are in constant 2013 dollars. Statistics New Zealand series for gross domestic product, chain volume, asset type have been used as the basis for future forecasts.

Actual Figure s[2] (from 2012 Q1) have been included in graphs where available and relevant. The year beginning April 2012 is used as the base year for any comparisons with the forecasts. The forecast period is from July 2013 to March 2019, and the start of the forecast is indicated by a vertical line on the graphs.

A full set of the known and forecast data by region and year is included in Appendix F (v).

[1] See Appendix A - Parties Involved in Preparing this Report

[2] For tables of values, see Appendix F (v) - Figures for Forecast and known Data ($ millions) by region - Annual Totals.

2. Key findings

Pacifecon (NZ) Ltd, with the support of BRANZ, has been commissioned by the Building and Construction Productivity Partnership (the Productivity Partnership) to forecast national construction demand for the next six years ending March 2019.[3] This report is based on a compilation of known / documented construction projects and economic drivers of building and construction. It is intended to repeat these forecasts.

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

- Planning by all participants in the sector
- Scheduling of investment in skills and plant
- Coordination between construction clients (particularly central and local government) that could lead to adjusted procurement timing

These could moderate boom – bust cycles that have contributed to resource clashes, poor sector productivity and affordability issues in the past.

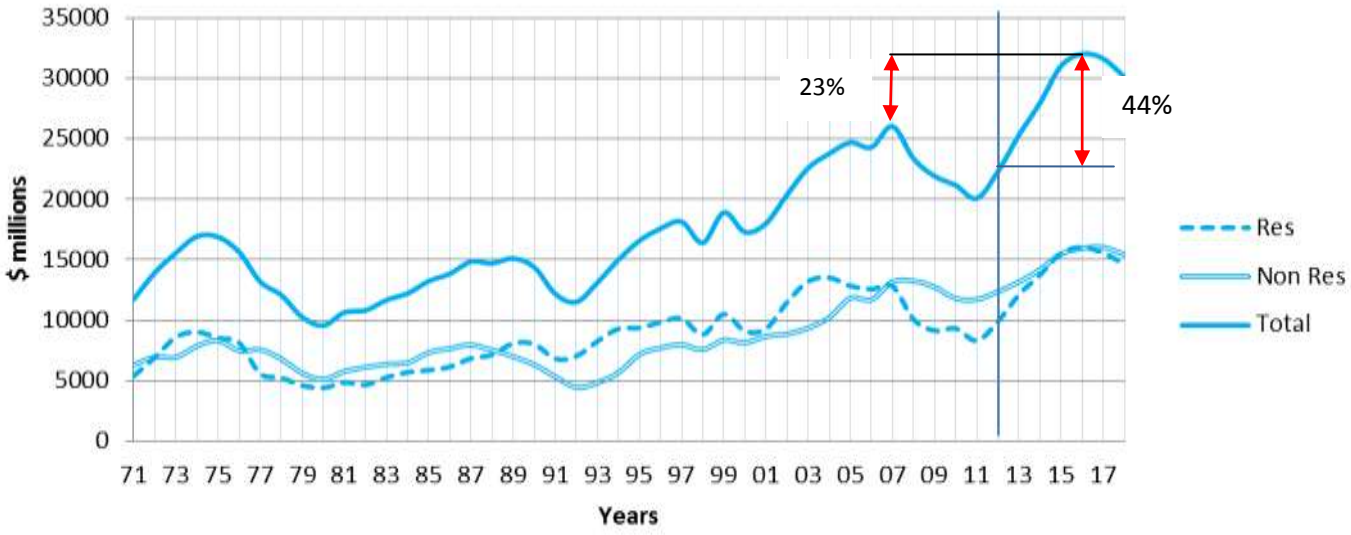
This report forecasts the nature and timing of future building and construction work by type and region over the next six years. These forecasts are complemented by information on known non-residential building and construction intentions.

There are five significant findings highlighted in this report.

2a. Unprecedented levels of demand

The forecasts show unprecedented levels of demand for building and construction. The forecast shows an unprecedented level of building and construction activity in the immediate future (Figure 2.1). The previous highest level of building and construction was in 2007 when over $26 billion was constructed.[4] The forecast peak in 2016 is $32 billion, 23% higher. Activity is forecast to remain at these elevated levels for the rest of the period.

Figure 2.1 Value[5] of building and construction historic and forecast



Source: Pacifecon / BRANZ

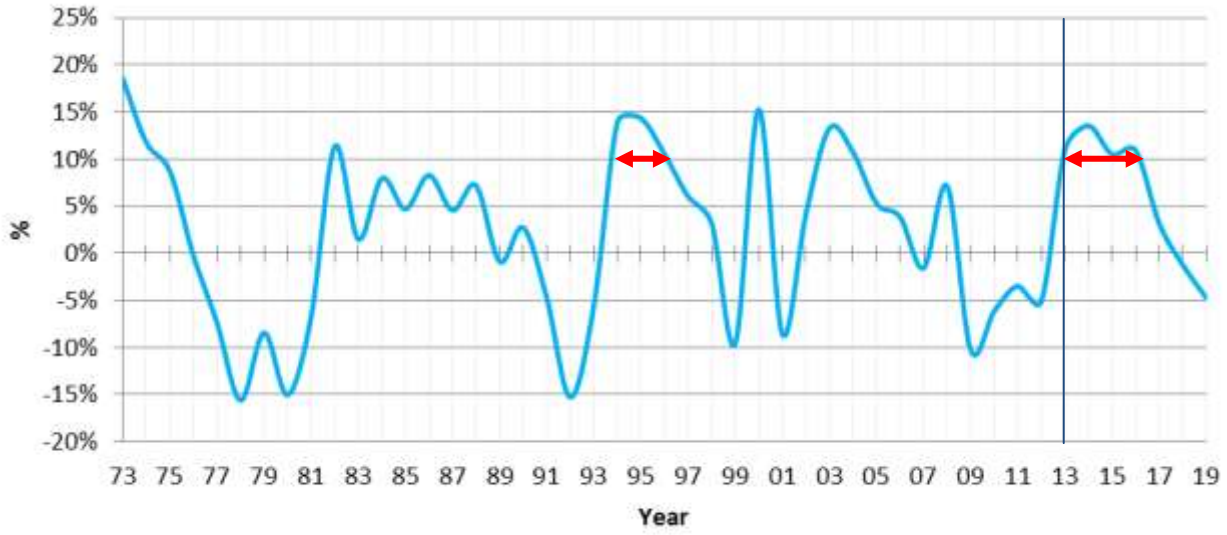
[3] See Appendix A - Parties Involved in Preparing this Report See Appendix A - Parties Involved in Preparing this Report
[4] Source: BRANZ
[5] Value is measured as 'fixed capital formation' to include all building and construction.

The increase in building and construction is primarily driven by residential housing growth in Auckland and the Canterbury rebuild. A more widely distributed increased demand including in Waikato / Bay of Plenty and Wellington is adding to the increased demand (see Figure 2.3 Value of all building and construction by region (by quarter)). This is consistent with Pacifecon's dataset of known non-residential projects; there are a number of private sector clients who have been waiting for a change in economic conditions to implement plans developed during the most recent recession.

2b. High rates of growth

The forecast also shows high rates of growth over a longer period than at any time in the past 40 years (Figure 2.2). This sustained high level of growth is comparable with the mid-1990s boom. This forecast indicates that the building and construction growth would be greater than 10% for longer than previous booms. The challenge for the sector will be how to sustain four or more years of 10%+ growth.

Figure 2.2 Year on year change in value of building and construction



Source: Pacifecon / BRANZ

The total value of work is forecast to grow steadily by 44% (see Figure 2.1 Value of building and construction historic and forecast) from 2012 to a peak in 2016.

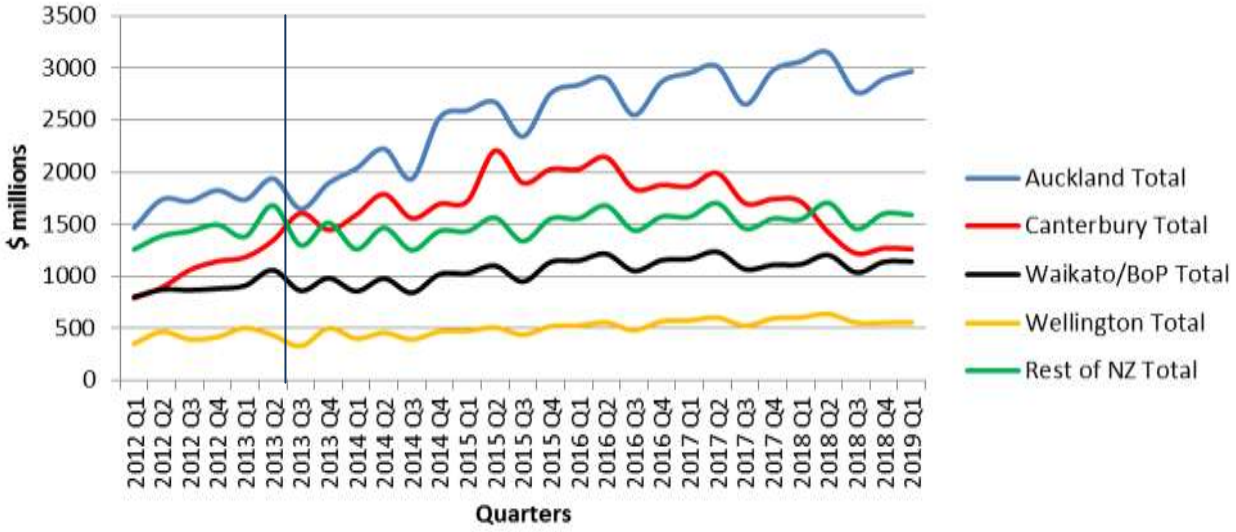
2c. Auckland dominates demand

Auckland dominates the national demand for building and construction, even taking into account the Canterbury rebuild (Figure 2.3). Auckland accounts for about a third of all building and construction work and is expected to grow by 68% over the forecast period. All regions are forecast to experience growth through to about 2016.

The forecast national peak in construction (in 2016) coincides with the:

- Extremely high levels of activity in Auckland (peaking in 2018)
- Canterbury rebuild (peaking in 2015)
- A national peak in residential construction
- A peak in building and construction in Waikato / Bay of Plenty
- The expected peak for the roads of national significance programme

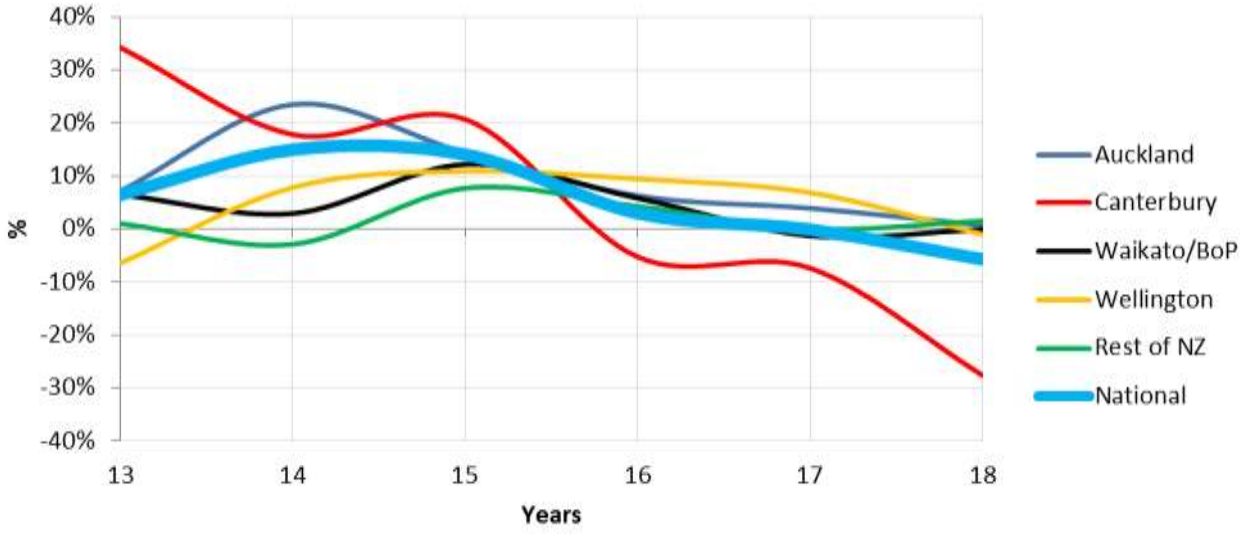
Figure 2.3 Value of all building and construction by region (by quarter)[6]



Source: Pacifecon / BRANZ

Auckland's rate of growth remains above average, and positive, for the entire forecast period. The forecast predicts the Canterbury rebuild peaks by about 2015, and is followed by a strong contraction. If the rebuild takes longer, or does not peak as high, the contraction may be later, slower or both. Detailed breakdown of regional forecast can be found in Appendix F (v) - Figures for forecast and known data ($ millions) by region - annual totals.

Figure 2.4 Year on year change in the value of all building and construction, by region



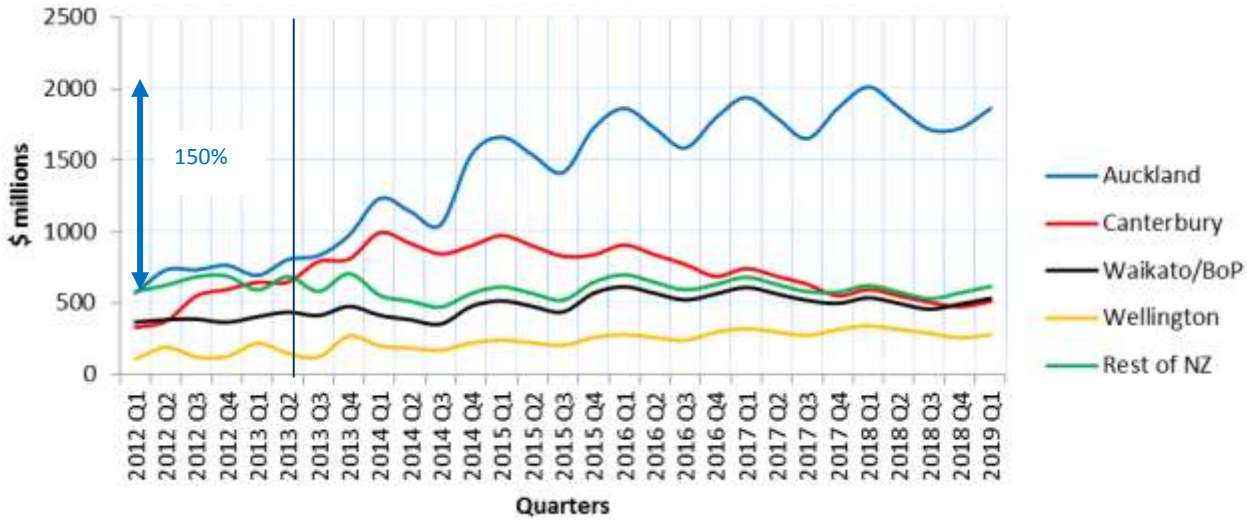
Source: Pacifecon / BRANZ

[6] The forecasts are generated as annual forecasts, which are converted to quarterly projections, based on historic seasonal patterns. Between completing the forecasts and this report, actual data for 2013 Q2 has been posted. This actual data is higher than the forecast suggested. This could imply that the forecast is conservative. A reforecasting has not been undertaken. Instead the 2013 data has been redistributed within the year. This has resulted in an obvious dip between Q3 2013 and Q2 2014 – particularly in quarterly non-residential data.

2d. Auckland's residential building to double

Auckland's residential building is forecast to more than double between now and 2017 (Figure 2.5). Over the forecast residential building accounts for about half the value of national building and construction work. The rate of residential construction slowed following the global financial crisis. Therefore there was a relatively low level of residential construction in the base year. The forecast indicates that between 2012 and 2017 residential building in Auckland increases from $2.9 to $7.3 billion (150%). Wellington is the only other region to experience above the 62% national average growth in residential construction from 2012 ($0.7 billion) to 2017 ($1.2 billion) (an 85% growth for Wellington).

Figure 2.5 Forecast residential building by region (by quarter)

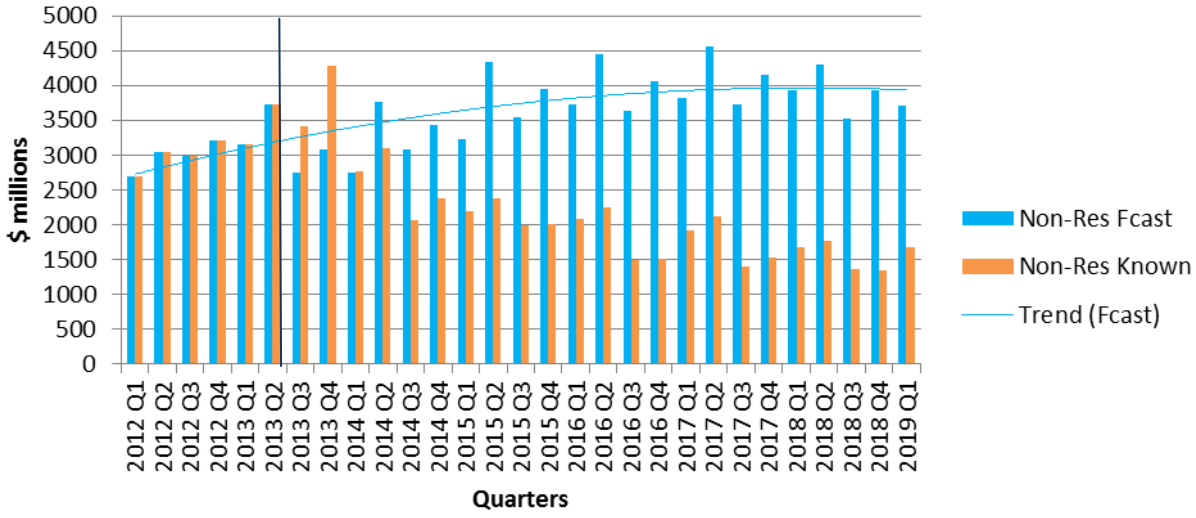


Source: Pacifecon / BRANZ

2.e Forecasts supported by known construction intentions

The non-residential building and construction forecasts are supported by known construction intentions (Figure 2.6). The BRANZ forecasts have been combined with Pacifecon's database of over 6,000 known projects. Pacifecon's dataset of known non-residential building and construction intentions includes both public and private sector intentions. Private sector investment tends to be of greater value, but also greater uncertainty. Private developers will usually not announce intentions early, unless there is a good reason to do so. The timing of these projects is also more sensitive to factors such as access to financing / tenanting developments.

Figure 2.6 Forecast and known non-residential building and construction, nationally (by quarter)



Source: Pacifecon / BRANZ

3. Methodology

This report has been prepared from a combination of BRANZ[7] forecasts, which have been cross-referenced with Pacifecon's[8] dataset of known future non-residential projects.

The BRANZ residential sector forecasts are based on modelling historic building consents and economic activity forecasts indicators from Statistics New Zealand's household formation forecasts. These forecasts are also compared with observed levels of activity. The BRANZ non-residential forecasts are based on forecasts of gross fixed capital formation and have been validated against data held by Pacifecon.

Fixed capital formation has been used for the forecasts to ensure there is a common basis between the datasets and historic data. It is also the only data series that accounts for construction (horizontal infrastructure) in addition to building of houses and other vertical buildings and construction. It also accounts for construction related costs such as planning and design work. As a consequence these forecasts may appear high compared with similar forecast using different measures of value of work, as described in Appendix F (ii) - Abbreviations and general.

Pacifecon has over 6,000 known projects included in its non-residential dataset. Project information is gathered from a range of sources and is primarily used to provide business intelligence to Pacifecon's clients. This is the first time Pacifecon has used its dataset to generate aggregate demand forecasts.

A more detailed description of the methodology and assumptions is included in Appendix F (iv) - Data, Statistics and Assumptions used in this Report

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

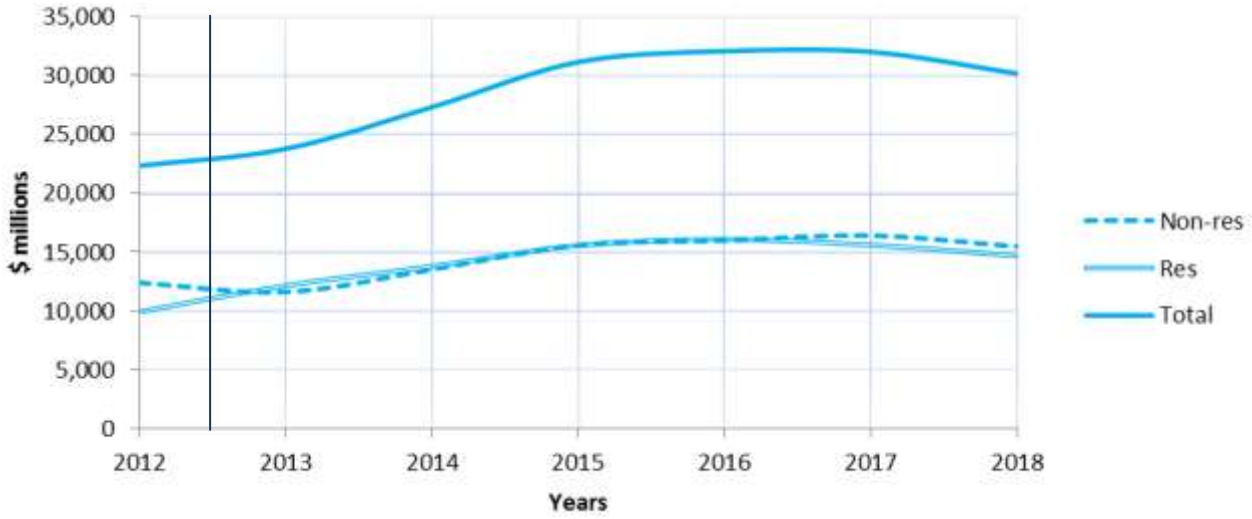
[8] Pacifecon provides business intelligence in the form of future project information to a client base. It focusses exclusively on the NZ and Pacific Islands building and construction industry

4. National

This section includes a national forecast of residential and non-residential building and construction. It also briefly considers the regions relative to each other.

4a. Total – national

Figure 4a.1 Value of all building and construction nationally



Source: Pacifecon / BRANZ

The forecast for national building and construction is at an unprecedented level, and with a sustained rate of growth that has not been seen in the past 40 years. (For more detail see Figure 2.1 Value of building and construction historic and forecast and Figure 2.2 Year on year change in value of building and construction). The forecast for all building and construction, nationally, shows an increase of 35% over the forecast period, and by 44% to the peak in 2016. Over the forecast period the value of non-residential work grows by 25% and residential by 48%.

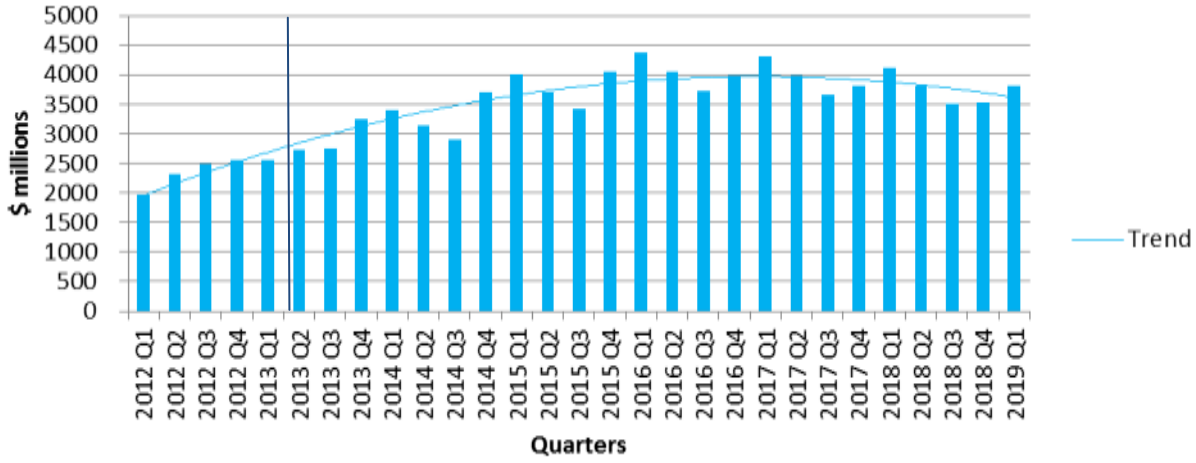
The value of all building and construction peaks in 2016 with an increase of 44% from the base year; non-residential peaks in 2017 by 32% from the base year; and residential peaks in 2016 by 62%.

4b. Residential – national

Residential work includes new detached homes, multi-unit dwellings and additions and alterations.[9] The forecast for residential building shows continued strong growth over the forecast period and peaks in 2016. There is forecast growth of 48% between the base year and the end of the forecast period, and 62% between 2012 and the 2016 peak.

[9] See Appendix F (iv) - Data, Statistics and Assumptions used in this Report for BRANZ assumptions and definitions.

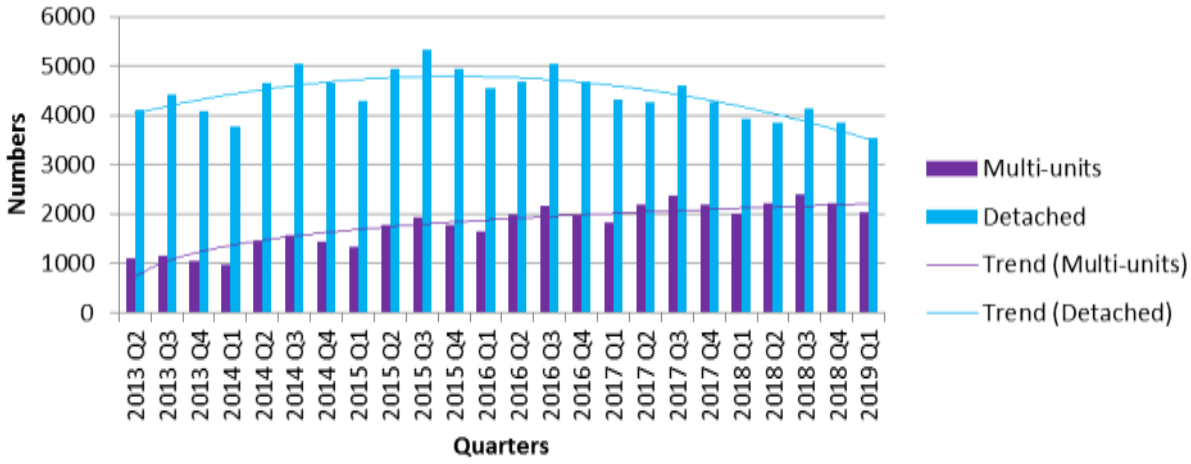
Figure 4b.1 Value of residential buildings nationally



Source: BRANZ

Higher density housing will become more prevalent by the end of the forecast period. The forecast number of new detached[10] homes built rises to a peak in 2015, especially in Auckland. There is an almost doubling in the number of multi-unit dwelling by the end of the forecast. In almost all regions there is a gradual increase in the share of multi-unit dwellings. The exception is Wellington, which already has a comparatively high level of multi-unit dwellings and this continues throughout the forecast period.

Figure 4b.2 Number of new dwellings by type, nationally



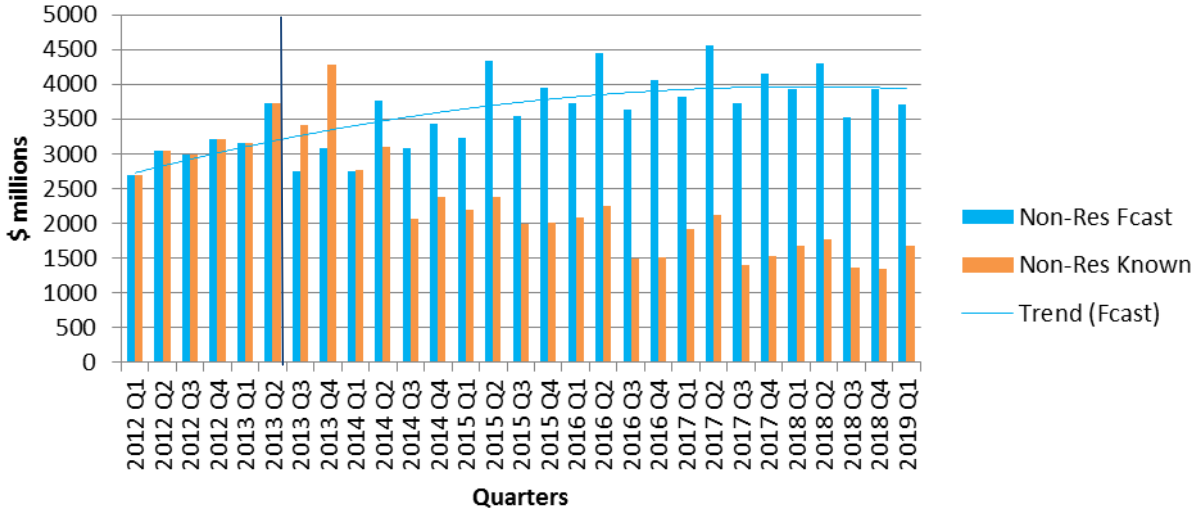
Source: BRANZ

4c. Non-residential – national

The value of non-residential work is forecast to increase to a sustained new level by 2017. The forecast growth in value is 25% from the base year to the end of the six year forecast period and 32% to the 2017 peak.

[10] ie Additions and alterations not included

Figure 4c.1 Forecast and known non-residential building and construction, nationally



Source: Pacifecon / BRANZ

$13.2billion[11] of known non-residential projects have anticipated start dates in 2013, compared with the $12.4 billion completed in 2012. It must be stressed that these start dates are anticipated and may be optimistic. It is expected some of these projects will be pushed to the next quarter or beyond. Since this data was gathered (mid-July 2013) one $100million+ project has had its start date revised from 2013 Q3 to 2017. This is a project that was first detected in 2009 and is an example of how start dates can change and how long the design and planning phase of larger projects can be.[12]

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

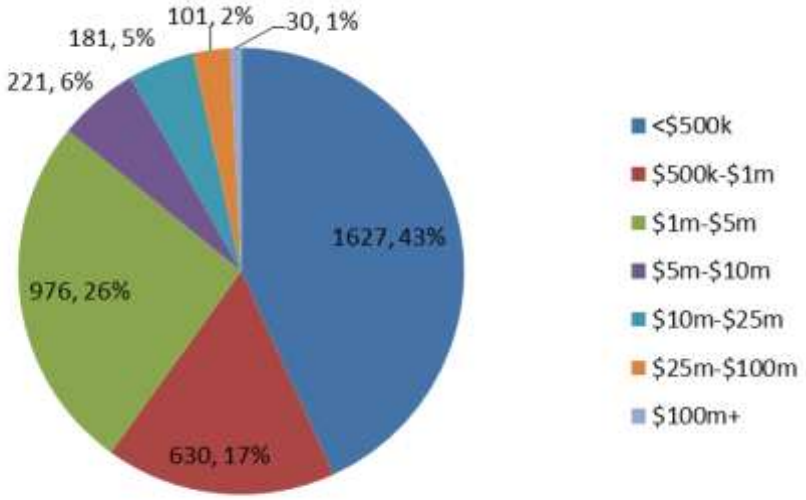
- Ultra-fast broadband
- Roads (eg roads of national significance) and other transport projects
- Energy (especially geothermal and hydro)
- Canterbury rebuild and strengthening
- Water / wastewater
- Commercial (office and retail). [13]

4d. Value of work

There are more than 3,700 known projects that are anticipated to start within the next year. 60% of these have an estimated value of less than $1million and 86% less than $5million. These less than $5million projects represent 13% of the value of non-residential projects. The major value of building and construction is completed on a small number of very large projects. Three percent (by number) of projects of $25m+ account for 68% by value[14] and the one percent (by number) of projects which are $100m+ account for 47% by value. Approximately half of this value is likely to be spent in future years.

[11] See Appendix F (iv) - Data, statistics and assumptions used in this report description of the treatment of Pacifecon non-residential figures.
[12] See Appendix E - Stages of design, planning and tender prior to start of work
[13] Source: Pacifecon
[14] See 6. The different types of building and construction, and Appendix F (iv) - Data, statistics and assumptions used in this report.

Figure 4d.1 Number of known national non-residential projects due to start by June 2014, by value
(Number, %)



Source: Pacifecon

Pacifecon does not report many smaller projects.[15] If all projects were reported then the number of projects below $500,000 and total projects would increase. If residential work was included in the chart above, the percentage of projects below $5million (and particularly below $1million) would be considerably higher.

4e. Project initiators

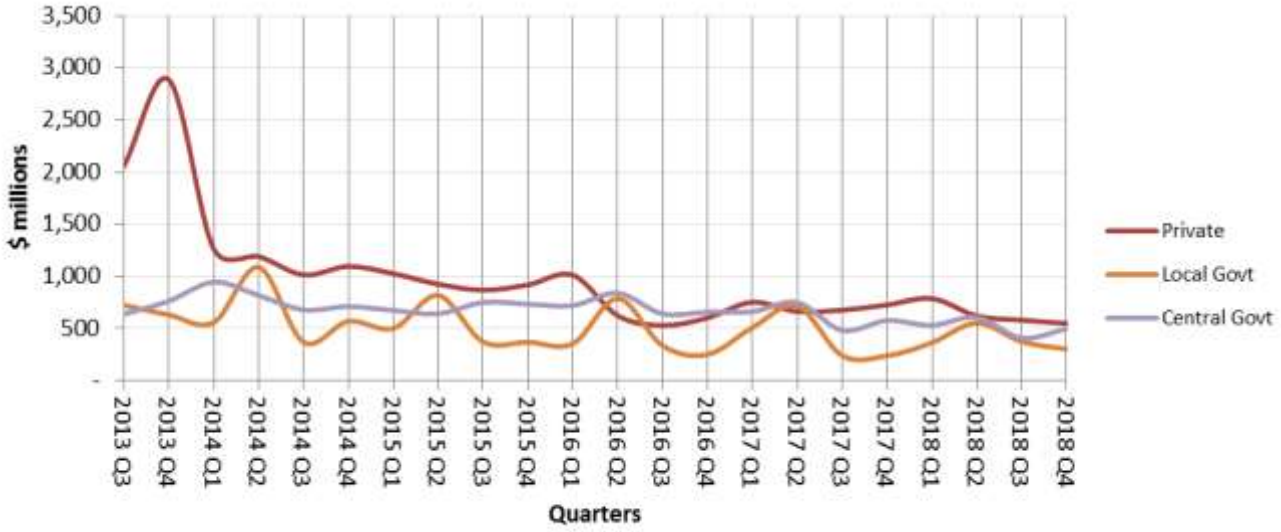
The private sector is the single largest contributor of known non-residential projects (40% by value over the next year). Private sector projects are also the most uncertain as they tend to have shorter planning horizons, and start dates may be deferred due to factors such as securing tenancy agreements and / or accessing finance. Much of the immediate peak in known non-residential construction will be private sector projects. These have less certainty that they will proceed as planned. Public works tend to have longer planning horizons, with requirements for wider public consultation. Central government investment in non-residential projects tends to be in larger projects that take longer to complete than local government projects investment.[16]

The peak in privately initiated projects in 2013 Q4 is consistent with the short timeframes between identification of the project and its anticipated start date. Unlike the public sector, project information is not communicated unless it is of benefit to the developer to do so. For example:

- Projects run by charities that raise money by public donation and finance from grants such as Lottery tend to be made public at an early stage and their start date is defined when enough funds are available.
- A developer for a large commercial property may need to confirm tenancy prior to start of construction.

[15] Building consents less than $200,000, projects less than $100,000 (unless linked to other larger project), low $'00,000 projects, where there is no opportunity for Pacifecon clients.
[16] See 4e. Project Initiators

Figure 4e.1 Value of known non-residential projects by initiator and start date



Source: Pacifecon

There are often peaks at Q2, particularly for government. Central and local government and financial years run from July to June. Often projects are assigned an expected start date for the final quarter of the financial year. Historically Pacifecon has found that January – March quarter is the quietest of the year and July to September the busiest.[17]

There are a greater number of government non-residential projects. Government projects tend to be known well in advance of starting, but the privately initiated non-residential projects are generally of higher value.

40% of known projects with an expected start date in the next 12 months are privately initiated. These projects account for 57% ($6.9 billion) by value.

Local government is expected to initiate 37% of the known projects in the next 12 months representing 23% ($2.8 billion) by value.

Central government is expected to initiate 23% of the known projects in the next 12 months representing 20% ($2.4 billion) by value.[18]

4f. Regional comparisons

The regions are discussed individually in section 5. The regions. This section considers the distribution of forecast work across the regions for:

- All building and construction
- Residential building
- Non-residential forecasts and known projects (over the six year forecast and for the next 12 months)

[17] Quarters: Q1 Jan-Mar, Q2 Apr-Jun, Q3 Jul-Sept, Q4 Oct-Dec.
[18] The next 12 months is defined as 2013 Q3 – 2014 Q2.

Figure 4f.1 Value and percentage change in all forecast work by periods and regions

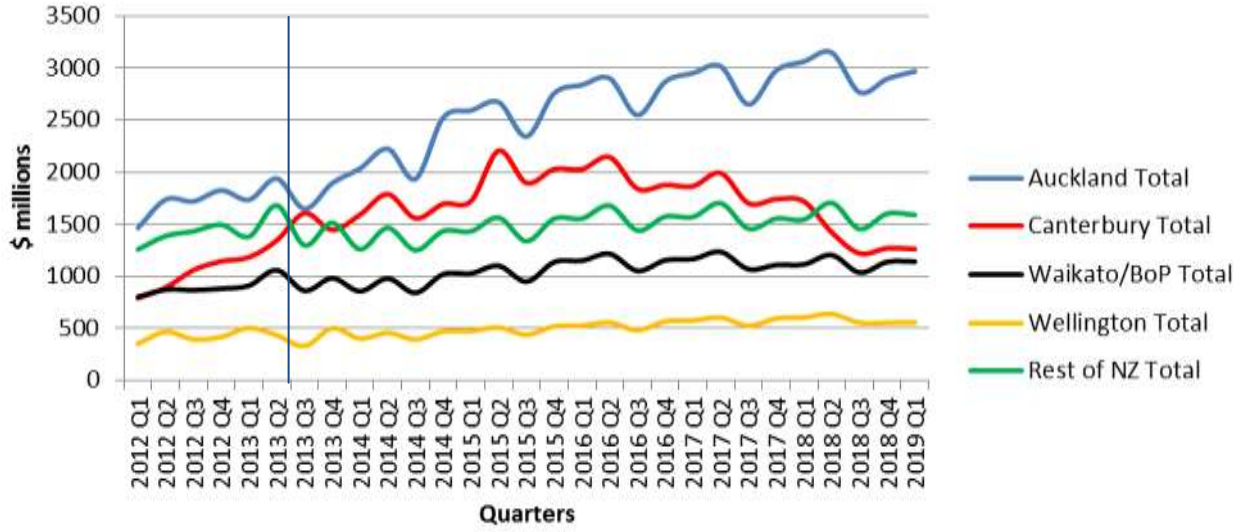
(Note – number may not total due to rounding. Values in $ million are in Appendix F (v))

Region	Actual value all work 2012 ($ billion)	Forecast value all work 2016 ($ billion)	Change from 2012 to 2016 (%)	Forecast value all work 2018 ($ billion)	Change from 2012 to 2018 (%)
National:					
Total	22.3	32.0	*44*	30.1	*35*
Res	9.9	16.0	*62*	14.7	*48*
Non-res	12.4	16.0	*29*	15.5	*25*
Auckland:					
Total	7.0	11.3	*61*	11.8	*68*
Res	2.9	7.0	*141*	7.2	*145*
Non-res	4.1	4.2	*3*	4.6	*13*
Canterbury:					
Total	4.3	7.7	*81*	5.2	*21*
Res	2.2	3.0	*40*	2.1	*-5*
Non Res	2.1	4.7	*122*	3.1	*48*
Waikato / Bay of Plenty:					
Total	3.5	4.6	*30*	4.5	*28*
Res	1.6	2.3	*47*	2.0	*28*
Non-Res	2.0	2.3	*17*	2.5	*28*
Wellington:					
Total	1.8	2.2	*22*	2.3	*29*
Res	0.7	1.1	*68*	1.2	*72*
Non-Res	1.1	1.1	*-5*	1.2	*3*
Rest of New Zealand:					
Total	5.7	6.3	*10*	6.4	*12*
Res	2.6	2.6	*-2*	2.3	*-11*
Non-Res	3.1	3.7	*20*	4.0	*31*

Source: Pacifecon / BRANZ

Auckland dominates the national demand for building and construction, even taking into account the Canterbury rebuild. Auckland accounts for about a third of all building and construction work and is expected to grow by 68% over the forecast period. All regions are forecast to experience growth through to about 2016.

Figure 4f.2 Value of all building and construction by region (by quarter)

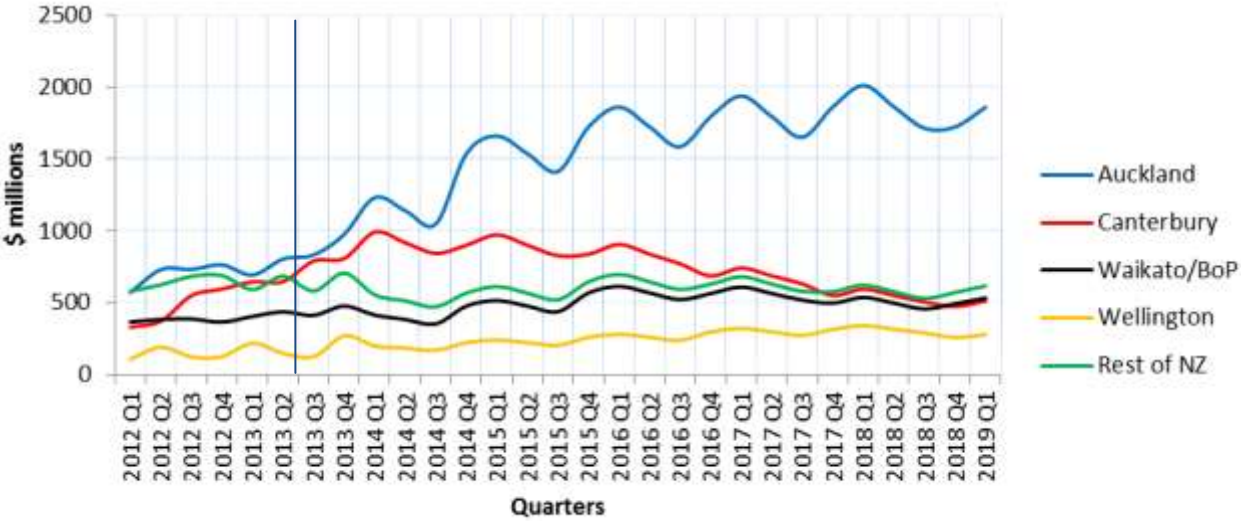


Source: Pacifecon / BRANZ

The requirements of the rebuild drive Canterbury's share of work. Canterbury's share of work is relatively high at the beginning of the forecast, and peaks in 2015. It is then forecast to reduce (particularly residential).

Residential building work is forecast to grow rapidly over the forecast period (48%) with a peak in 2016 (62% from the base year). This is driven in large part by the more than doubling of Auckland's residential building. Auckland's share of residential construction increases over the forecast period, even with the effects of the Canterbury rebuild. Wellington is the only other region whose share of residential building increases over the forecast period.

Figure 4f.3 Value of residential buildings by region (by quarter)

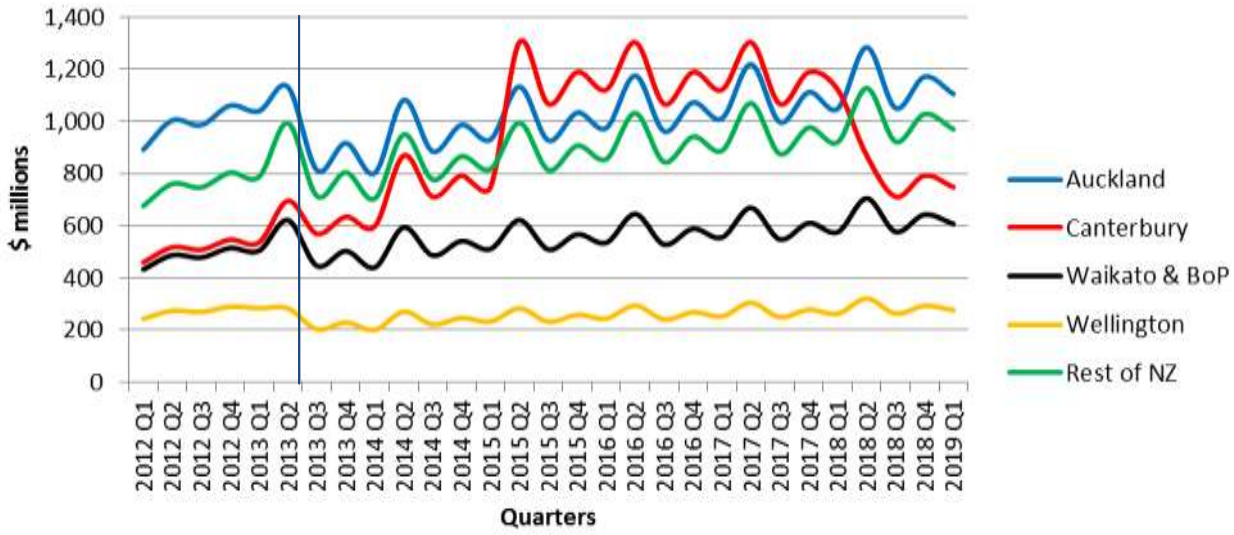


Source: BRANZ

The major regional difference in the distribution of non-residential work is the impact of the Canterbury rebuild. Canterbury's non-residential construction rises from $2.1 billion in 2012 to a peak of $4.7 billion per annum for 2015 to 2017 (122%) before dropping back to $3.1 billion at the end of the forecast period. In

most regions there is a consistent (if relatively low) level of growth in non-residential building and construction.

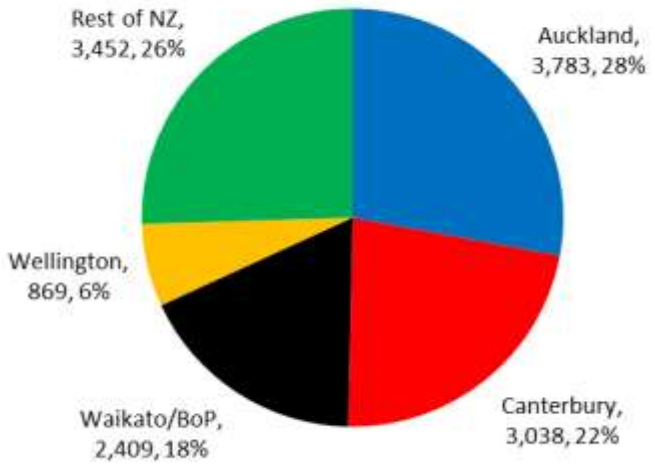
Figure 4f.4 Value of non-residential building and construction by region (by quarter)



Source: Pacifecon / BRANZ

All regions have similar patterns of forecast and known non-residential projects as the national pattern (see Figure 4c.1 Forecast and known non-residential building and construction, nationally). Auckland and Canterbury make up 37% of the known number of projects initiated by June 2014, followed by Waikato / BoP (12%), Wellington (10%), and Otago (9%).[19] Auckland's 19% (by number) of known projects represent 28% by value, indicating they are high value projects. Canterbury has 18% of the number of projects, and 22% by value. These two regions dominate planned non-residential work in the next 12 months with 50% of work by value.[20]

Figure 4f.5 Value of non-residential projects anticipated to start by June 2014 and region ($ millions, %)



Source: Pacifecon

[19] Source: Pacifecon
[20] Source: Pacifecon, Year 2013 Q3 – 2014 Q2

5. The regions

There are 5 regions discussed in greater detail:

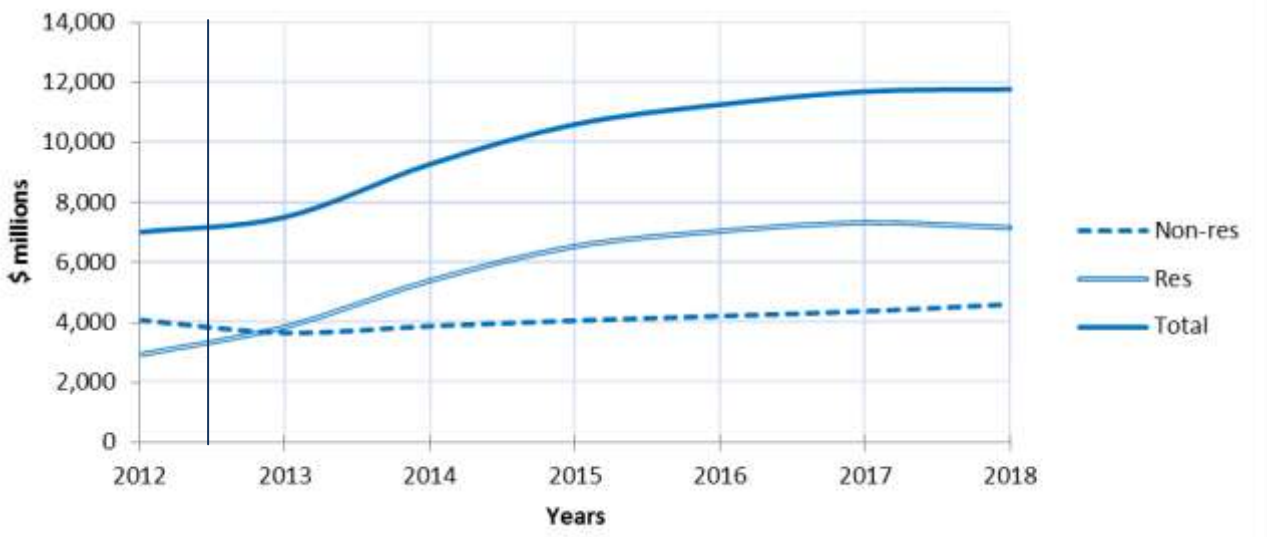
5a. Auckland
5b. Canterbury
5c. Waikato / Bay of Plenty (which together form the third largest region (by value of work) in the country)
5d. Wellington (which has predicted residential growth over the next 5 years)
5e. Rest of New Zealand (some detail about individual regions is given)

The volume of work in Canterbury now, and for the next few years, is unique for the region. Waikato / Bay of Plenty would be the second largest region after Auckland, if the Canterbury rebuild were not occurring.

5a. Auckland

Auckland has the largest share of building and construction in New Zealand. It accounts for about a third of all New Zealand's building and construction by value over the forecast period (even with the impact of the Canterbury rebuild). The value of all building and construction in Auckland increases by 68% over the forecast period.

Figure 5a.1 Value of all building and construction for Auckland

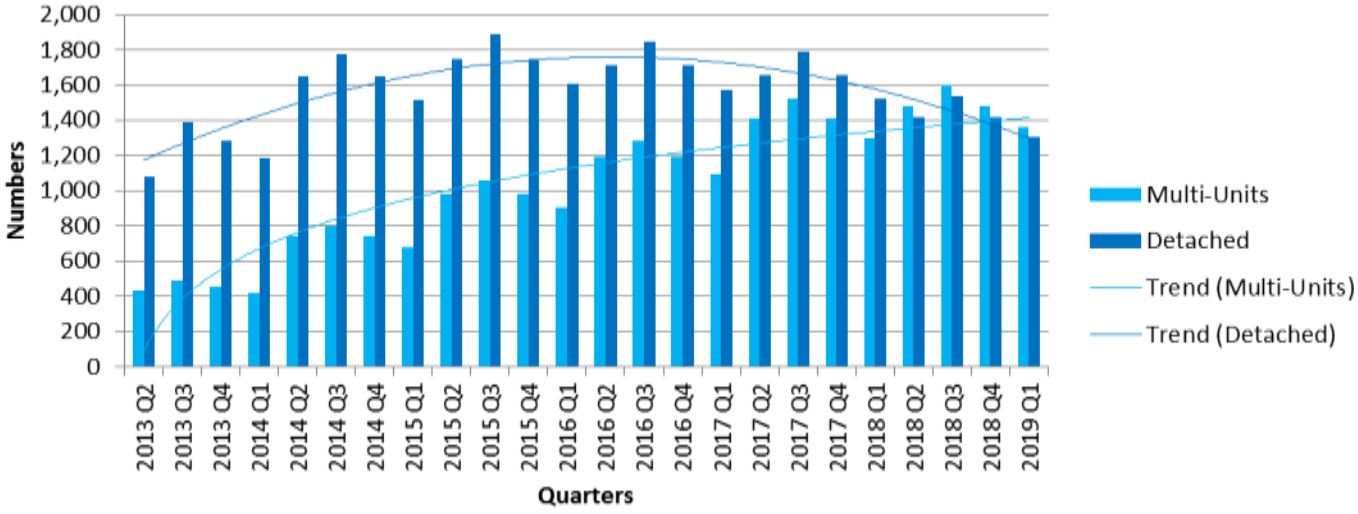


Source: Pacifecon / BRANZ

Auckland was the fastest-growing region by population from 2006 to 2013, increasing 8.5% to 1.4million in the 2013 census. There was a significant slowdown in residential construction after the global financial crisis, (Figure 2.1 Value of building and construction historic and forecast) that has only just reversed. Central and local government have recently introduced measures to increase the rate of residential construction in Auckland to increase the availability of affordable housing. It will be ambitious for the Auckland construction sector to reach and sustain the rate of growth predicted in this forecast.

Residential building is the major driver of growth in Auckland (peaking at 150% in 2017, see Figure 2.5 Forecast residential building by region (by quarter). The value of residential work will increase from $2.9 billion in 2012 to $7.2 billion by 2018.

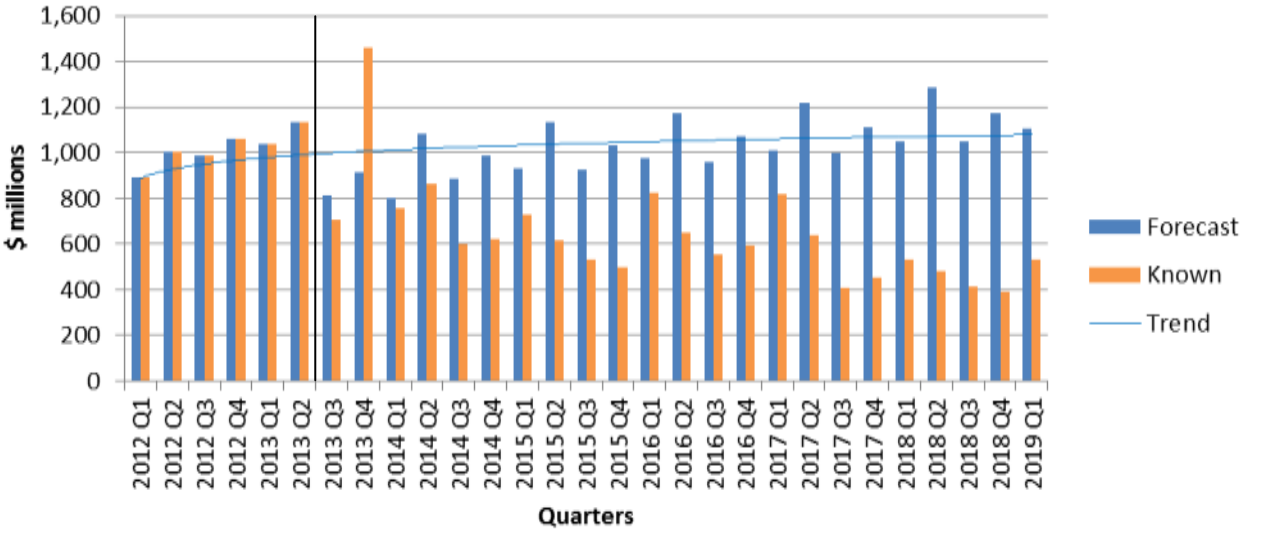
Figure 5a.2 Number of new dwellings by type in Auckland (by quarter)



Source: BRANZ

The number of detached homes being built in Auckland grows to a peak at 2015. Multi-unit dwellings show a different picture, with a rapid increase in the number being built from 2013 to 2018. By 2018 the number of multi-unit dwellings being built exceeds the number of detached houses. It is forecast that by the end of 2018 approximately three times as many multi-unit dwelling will be built than in 2013. It appears multi-unit dwellings will heavily influence the projected growth in residential value in Auckland.

Figure 5a.3 Forecast and known non-residential construction for Auckland (by quarter)



Source: Pacifecon / BRANZ

Non-residential building and construction is forecast to increase by about 13% over the forecast period.

Planned non-residential work includes:

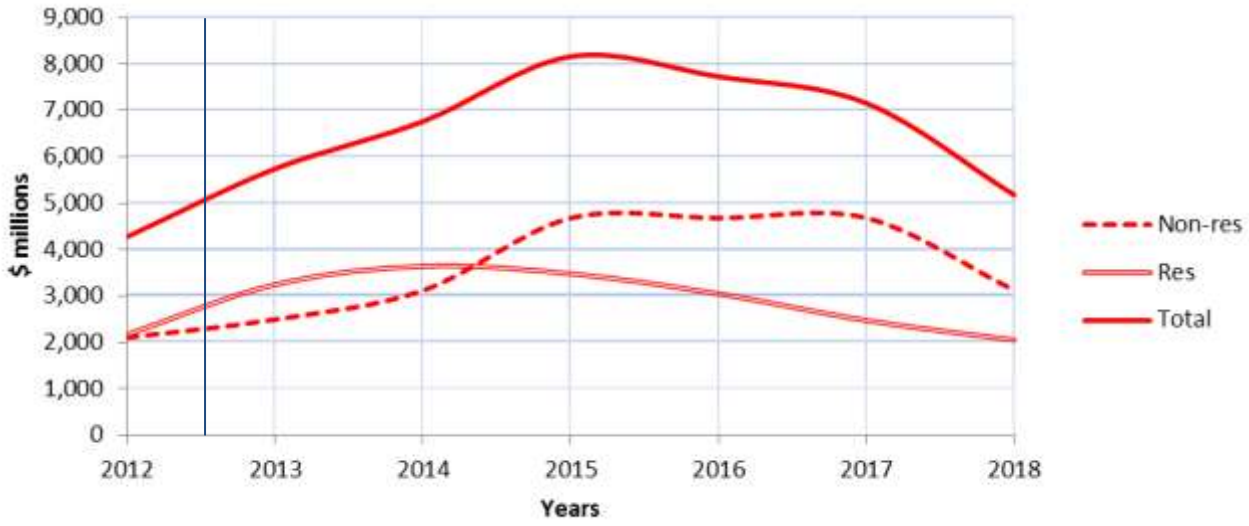
- Many civil projects: water and wastewater
- Bus, rail, and particularly road improvements
- The commercial sector is strongly represented: retail, offices and hotels
- Retirement villages and town centres
- Prison and university projects[21]

[21] Source: Pacifecon

5b. Canterbury

The Canterbury forecast reflects the rebuild requirements. The forecast has total building and construction almost doubling between 2012 and the peak in 2015; from $4.3 billion in 2012 to $8.2 billion in 2015. The residential rebuild peaks in 2015, after which the non-residential construction becomes more dominant, before the overall rate of construction begins to decline, reasonably rapidly. By the end of the forecast period total building and construction is 21% higher than the base year.

Figure 5b.1 Value of all building and construction for Canterbury



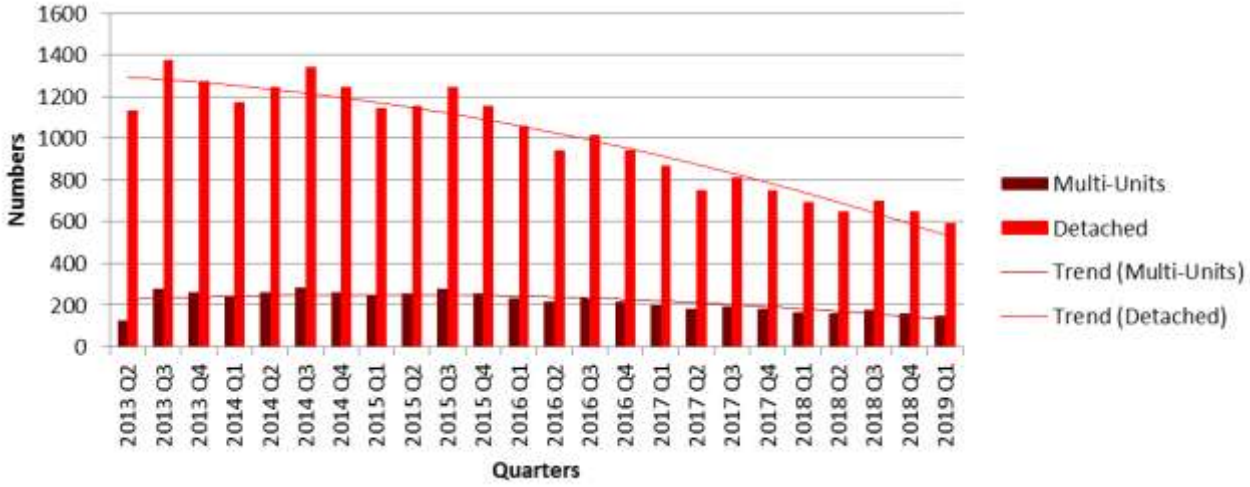
Source: Pacifecon / BRANZ

The majority of earthquake affected residential work is forecast to be completed within five to six years of the earthquake. The value of residential building in Canterbury is forecast to grow by 68% between 2012 and 2014, and then decline to a lower level (-5%) than at the beginning of the forecast period. The population of Christchurch has fallen[22] and is forecast to decrease further. [23] Current and short-term future building work is expected to be replacement of existing homes rather than accommodating a net population increase.

The pattern of detached and multi-unit dwellings in Canterbury is not consistent with the national pattern. The numbers of detached homes predicted to be built in Canterbury are forecast to peak in late 2013 (probably driven by the requirements of the rebuild). After 2015 there is a pronounced decline in the rate of building of detached homes so that by the end of the forecast period detached dwellings will be built at about half the current rate. The Canterbury multi-unit dwellings forecast has a very small increase to 2015, followed by a flattening off. The number forecast to be built in 2018 is less than 2013. This is in contrast to most other regions where multi-unit dwellings will be higher by the end of the forecast period.

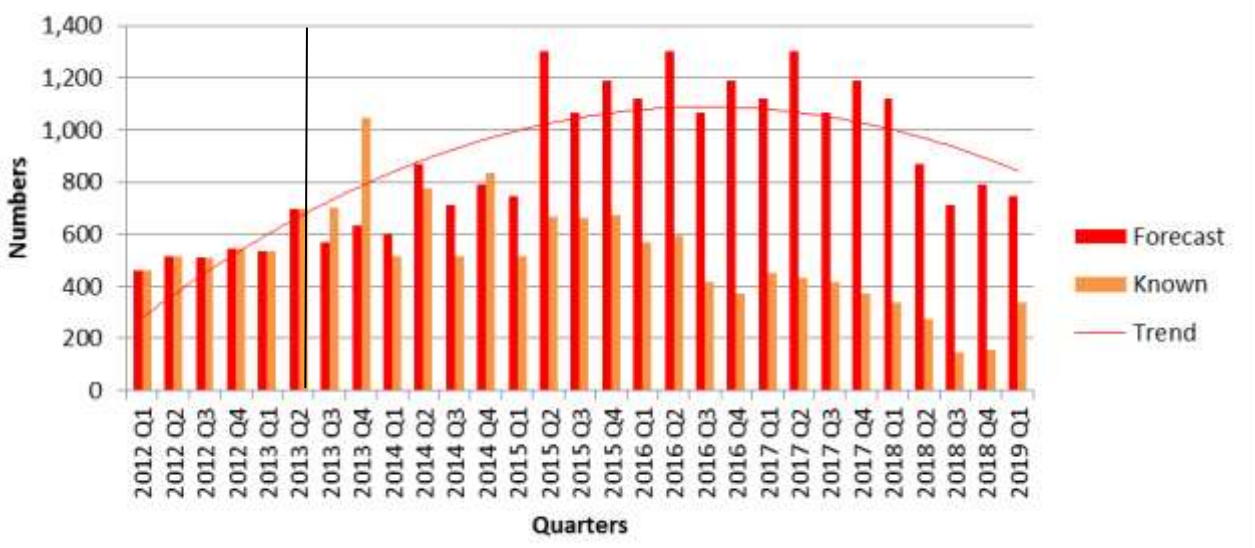
[22] By 2% from 2006 to 2013
[23] Based on present estimates, Source: NZ Statistics

Figure 5b.2 Number of new dwellings in Canterbury (by quarter)



Source: BRANZ

Figure 5b.3 Forecast and known non-residential building and construction for Canterbury (by quarter)



Source: Pacifecon / BRANZ

There is a forecast increase in non-residential building and construction from $2.1 billion in 2012 to $4.7 billion per annum (122%) for the three years 2015 – 2017. This is a very large increase in the rate of construction in a very short time, and it is unlikely that the increased capacity can be sourced from a decline in residential activity in Canterbury.

Much of the non-residential work involves:

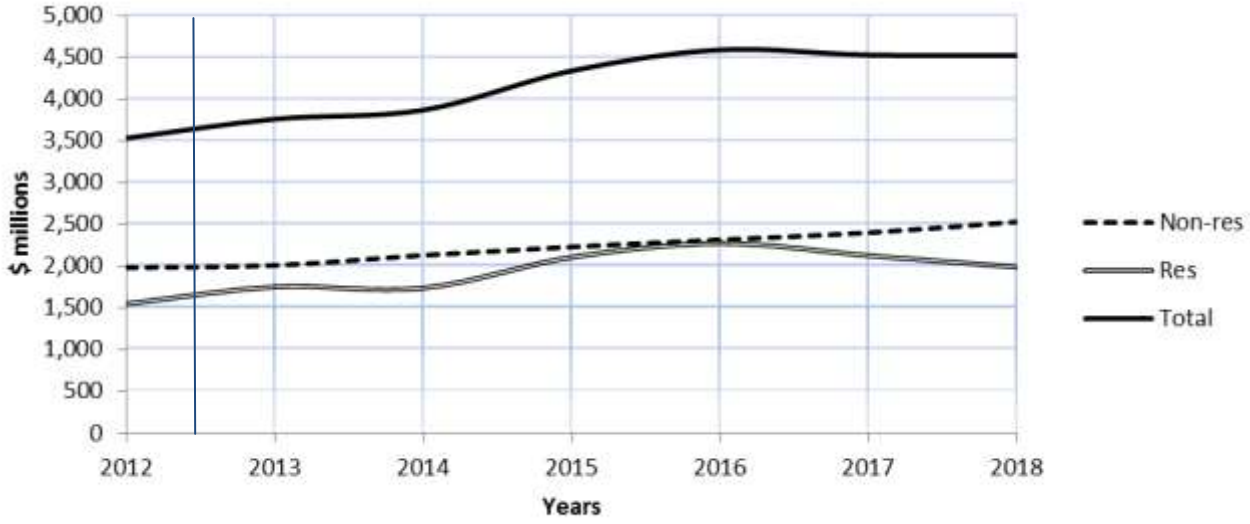
- Infrastructure rebuild and strengthening
- Replacement, or earthquake strengthening, of commercial buildings, churches, hospitals, retail outlets, sports facilities, museums, schools etc
- In the more rural parts of the region agricultural projects such as dairy factories and irrigation schemes are scheduled to commence [24]

[24] Source: Pacifecon

5c. Waikato / Bay of Plenty

The Waikato / Bay of Plenty tend to follow the national trends. There is consistent growth in both residential and non-residential building and construction to a peak in about 2016, when growth flattens. Waikato / BoP together form the third largest region (by value of work) in the country. Waikato accounts for about 60% of the building and construction activity in this region. In the absence of the Canterbury rebuild this region would be second after Auckland in value.

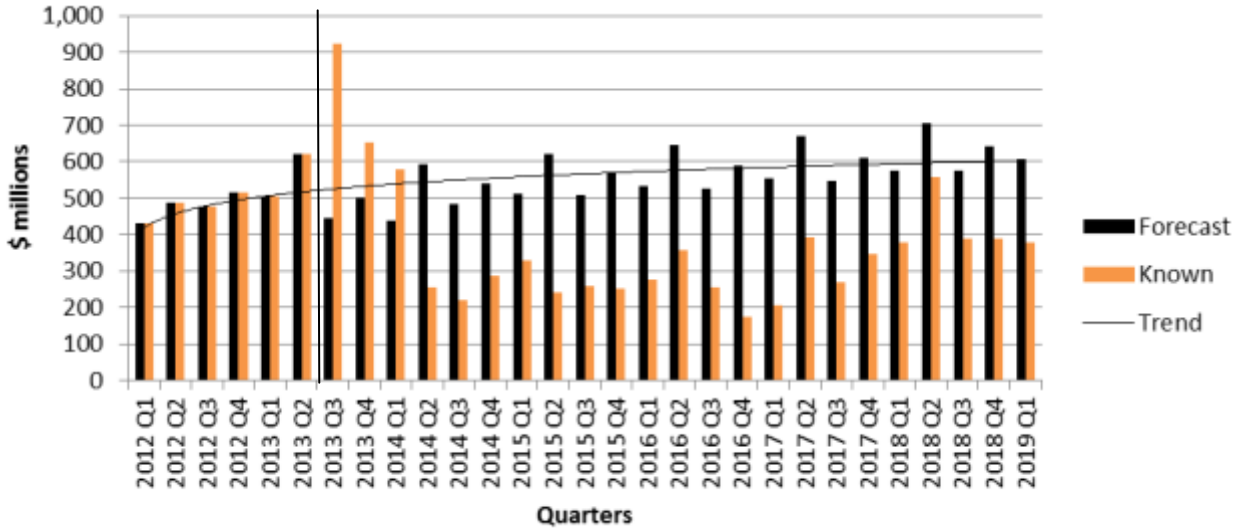
Figure 5c.1 Value of all building and construction for Waikato / BoP



Source: Pacifecon / BRANZ

All building and construction in Waikato / BoP is forecast to increase by 28% over the forecast period. For both residential building by 28% and non-residential by 28%. The two sectors are of equal value to the region (in terms of value of building and construction)

Figure 5c.2 Forecast and known non-residential building and construction for Waikato / BoP (by quarter)



Source: Pacifecon / BRANZ

The value of residential building in Waikato / Bay of Plenty is forecast to grow from $1.6 billion in 2012 to a peak of $2.3 billion in 2016 (47%). The pattern of detached versus multi-unit dwellings is consistent with the

national pattern; a small increase in multi-unit dwellings by the end of the period with a higher rate of detached dwellings (see Figure 4b.2 Number of new dwellings by type, nationally).

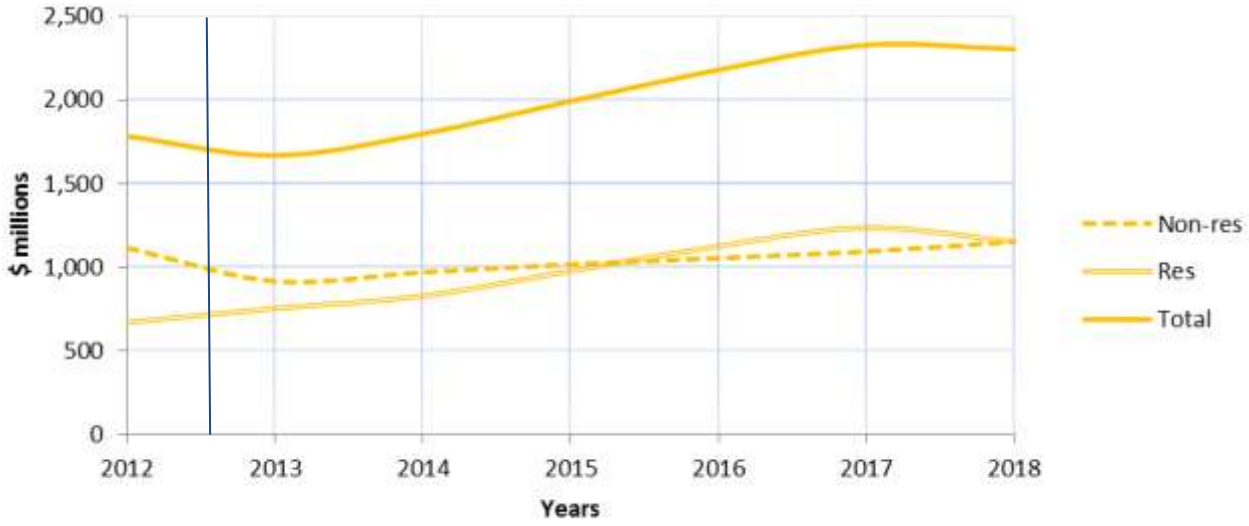
There are numerous known future projects for both the Waikato and the Bay of Plenty. They include:

- Large road and other civil improvements
- Light and heavy industrial activities including; geothermal power stations and dairy factories
- Large retail outlets and business parks
    - Retirement villages. [25]

5d. Wellington

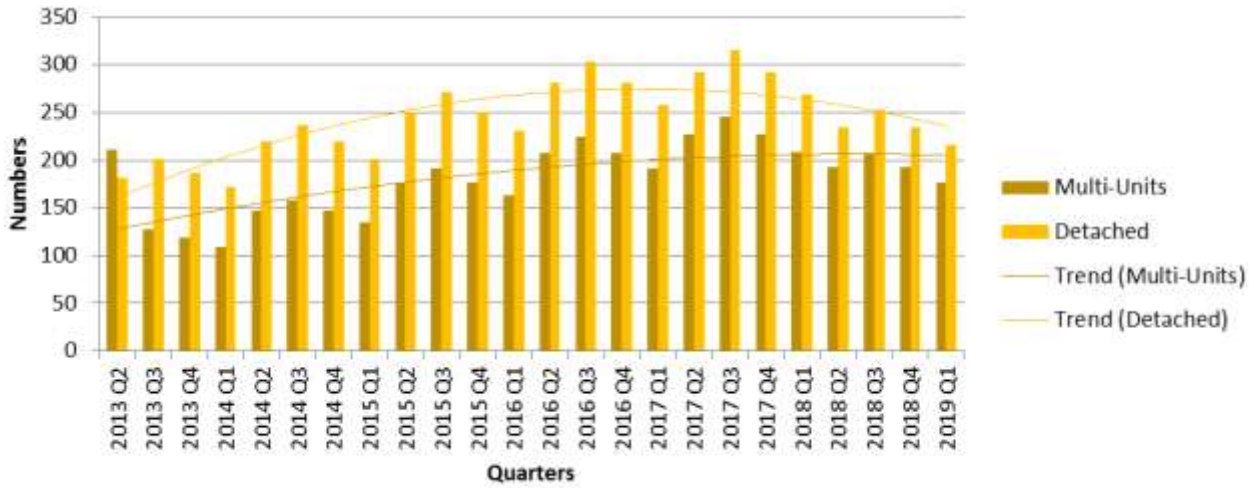
Wellington is the lowest value region considered separately in this report. It is second only to Auckland in having forecast growth exceeding the national average over the forecast period. It is expected to experience consistently strong growth from $1.8 billion in 2012 to a peak of $2.3 billion in 2017 (31%).

Figure 5d.1 Value of all building and construction for Wellington



Source: Pacifecon / BRANZ

Figure 5d.2 Number of new dwellings in Wellington by type (by quarter)



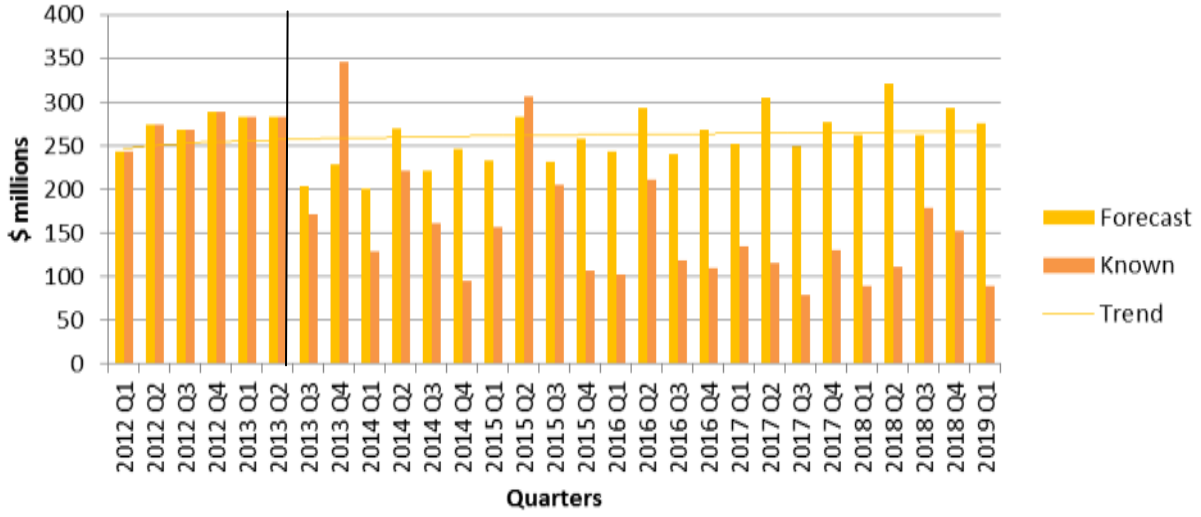
[25] Source: Pacifecon

Source: BRANZ

The majority of this building and construction growth is in residential 72%; Non-residential increases slightly by 3% over the forecast period. The rate of growth appears relatively consistent.

Wellington has a different pattern of growth for detached and multi-unit dwellings than the other regions discussed in this report. Wellington starts with a higher proportion of high-density dwellings, that continues to grow over the forecast period. Building of detached houses gently peaks in 2017. In other regions, there tends to be an increase in multi-unit dwellings, and a reduction in detached dwellings by the end of the forecast.

Figure 5d.3 Forecast and known non-residential building and construction for Wellington (by quarter)



Source: Pacifecon / BRANZ

For this region large works planned include

- Industrial activities and retirement villages
- Transport (air, sea, road and rail) Figure s very strongly
- Other civil works include water and wastewater projects [26]

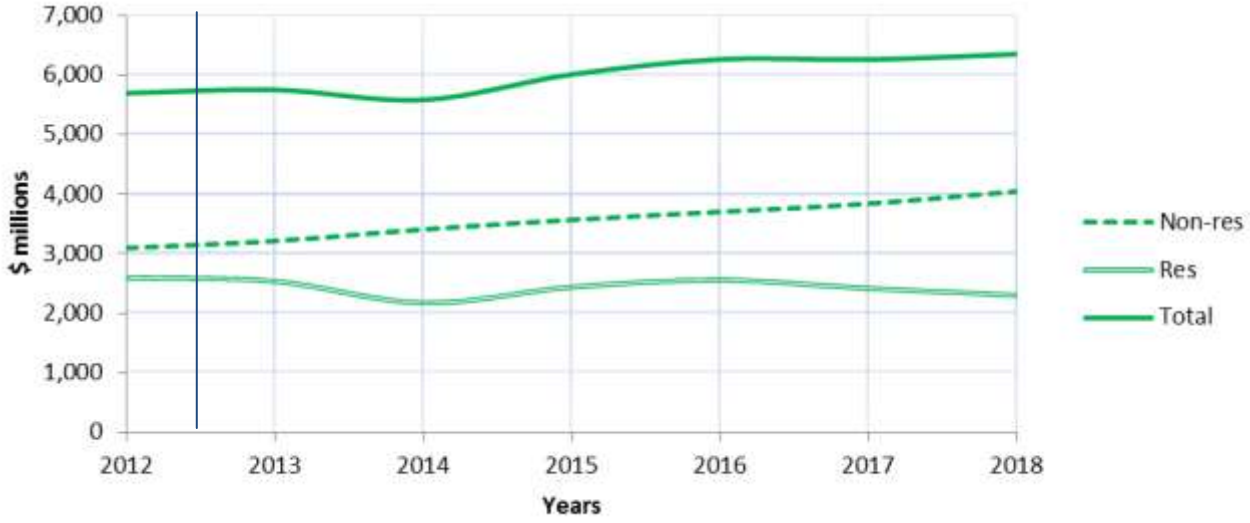
5e. Rest of New Zealand

The rest of New Zealand includes all regions not described elsewhere in this report. This area includes the least populated regions of the country, some of which have a static or decreasing population.[27] Like the rest of the country these regions are expecting to experience a growth in building and construction activity over the forecast period. Unlike the rest of the country, this will be in the non-residential sector.

All building and construction in the rest of New Zealand is forecast to increase by 12% between the base year and the end of the forecast period. This is the lowest rate of growth in the regions discussed in the report. Residential building decreases slowly over the forecast period to a total decrease of 11%. Non-residential building and construction increases by 31%. Unlike most other regions, non-residential building and construction is forecast to be higher than residential for the entire forecast period.

[26] Source: Pacifecon
[27] Source: NZ Statistics

Figure 5e.1 Value of all building and construction for the rest of NZ



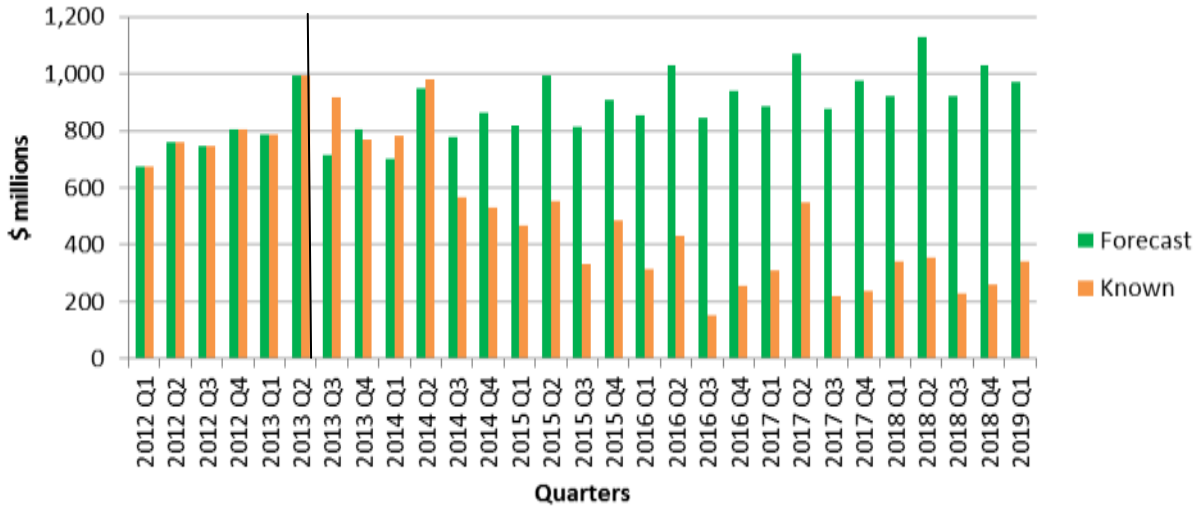
Source: Pacifecon / BRANZ

Otago has over 24% of the total residential building being undertaken over the forecast period, followed by Northland (16%). Both are popular domestic and international tourist destinations and locations for holiday homes. Both regions are also experiencing population growth. Manawatu / Whanganui and Nelson / Marlborough are third in total value of residential building (14%). [28]

The distribution of forecast numbers of dwellings is consistent with the value of buildings; Otago has the greatest number (20%), followed by Northland (17.5%), Manawatu / Whanganui (17%), and Nelson / Marlborough (15%). The distribution of values and numbers of dwellings indicates that Otago has comparatively higher value dwellings being built than the other regions.

The pattern of multi-unit and detached dwellings being constructed is consistent with the national pattern (see Figure 4b.2 Number of new dwellings by type, nationally).

Figure 5e.2 Forecast and known value of non-residential construction for the rest of NZ (by quarter)



Source: Pacifecon / BRANZ

[28] Statistics New Zealand, Census 2013

All of the building and construction growth in this region is from non-residential projects. It increases from $3.1 billion in 2012 to a peak at the end of the forecast period of $4.0 billion (31%). For this region large non-residential projects planned include:

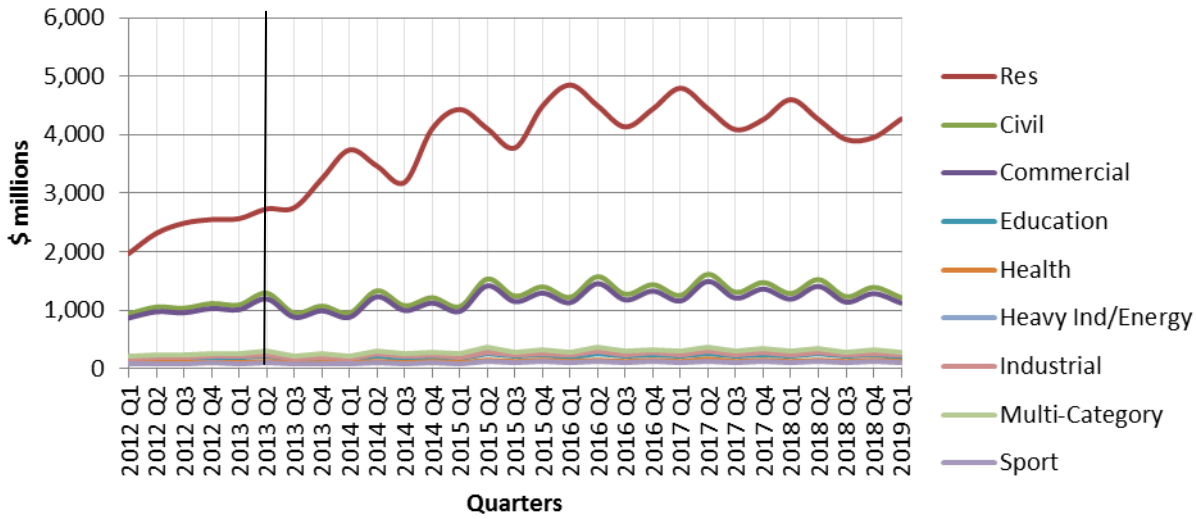
- Industrial activities and retirement villages
- Transport (air, sea, road and rail) figures very strongly
- Other civil works include water and wastewater projects[29]

[29] Source: Pacifecon

6. The different types of building and construction

The definitions of types of work and infrastructure are being developed by the National Infrastructure Unit. It may be possible to align definitions in a future version of this report. This section looks at the breakdown of types of projects held by Pacifecon, including residential. [30]

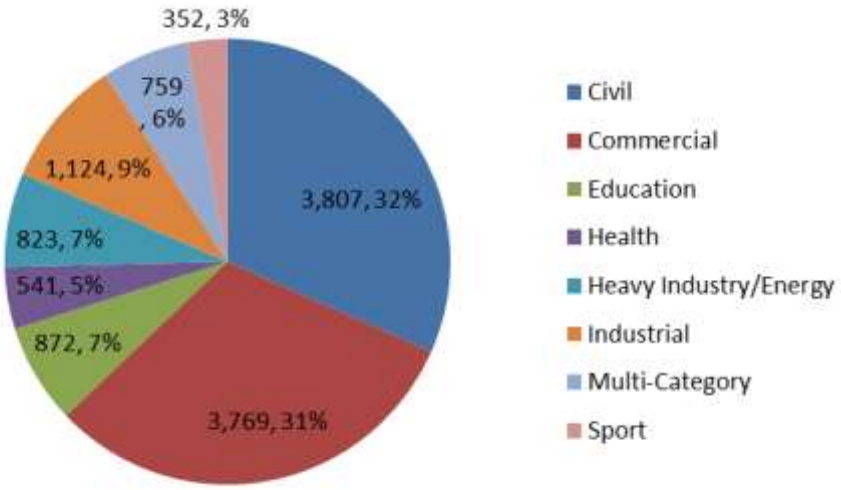
Figure 6.1 Value of all building and construction by type of project (by quarter)



Source: Pacifecon / BRANZ

Residential building is the largest single type of work in the building and construction sector. The civil and commercial sectors have the highest value non-residential building and construction.

Figure 6.2 Value of non-residential projects anticipated to start by June 2014, by project type
($ millions, %)



Source: Pacifecon

[30] See Appendix D - Building and Construction Type Definitions

Civil and commercial projects dominate the non-residential sector (63% by value), with a large proportion of commercial projects being in the private sector. Generally the number of projects and their value are proportionate. The exceptions are:

- Education and sport, where there are many (23%) projects with a lower value (10%). A large number of education projects are expected to start in the next 12 months.
- Heavy industry / energy and industrial have fewer projects (6%) with a greater value (16%).

7. Disclaimer

This is the first time Pacifecon (NZ) Ltd. has used 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.

Appendices

Appendix A - Parties involved in preparing this report

The Productivity Partnership is a partnership of industry and government, established in 2011 to address low productivity in the building and construction sector.

The Productivity Partnership aims to build the value of New Zealand's building and construction sector and empower it to become more productive, safe and profitable, so that it delivers good quality homes, buildings and infrastructure to provide a foundation for strong communities and a prosperous economy.

Ministry of Business, Innovation and Employment (MBIE)'s purpose is to 'grow New Zealand for all'. MBIE will do this by helping businesses to 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.

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

Pacifecon uses a nationwide team of 30 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 of far beyond 2018.

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

It's aims are to:

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

Appendix B - Project initiators

The project Initiator is considered to be the party without whom the project would not proceed.
There are three project Initiators:

- Private (the private sector),
- Local government (all councils, whether regional, district etc. and local projects which may be paid for from local government funding or in partnership with the private sector, but with the local government as the driving force behind the project), and,
- Central government (national projects which may be paid for from government funding or in partnership with the private sector, but with the government as the driving force behind the project).

Appendix C - Region definitions

Northland
Far North District
Whangarei District
Kaipara District

Auckland
Auckland local government

Waikato
Waikato District
Hamilton City
Waipa District
Otorohanga District
Waitomo District
Thames-Coromandel District
Hauraki District
Matamata-Piako District
South Waikato District
Taupo District: *Mangakino*

Bay of Plenty
Taupo District:
Taupo / Turangi
Western Bay of Plenty District
Tauranga City
Rotorua District
Kawerau District
Whakatane District
Opotiki District

Hawkes Bay / Gisborne
Gisborne District
Wairoa District
Hastings District
Napier City
Central Hawkes Bay District

Taranaki
New Plymouth District
Stratford District
South Taranaki District

Manawatu / Whanganui
Tararua District
Ruapehu District
Whanganui District
Rangitikei District
Manawatu District
Palmerston North City
Horowhenua District

Wairarapa
Masterton District
Carterton District
South Wairarapa District

Wellington
Upper Hutt City
Hutt City
Wellington City
Kapiti Coast District
Porirua City

Nelson / Marlborough
Marlborough District
Kaikoura District
Nelson City
Tasman District

West Coast
Buller District
Grey District
Westland District

Canterbury
Hurunui District
Waimakariri District
Christchurch City
Selwyn District
Ashburton District
Timaru District
Mackenzie District
Waimate District

Otago
Waitaki District
Dunedin City
Clutha District
Central Otago District
Queenstown-Lakes District

Southland
Gore District
Invercargill City
Southland District

Source: Pacifecon

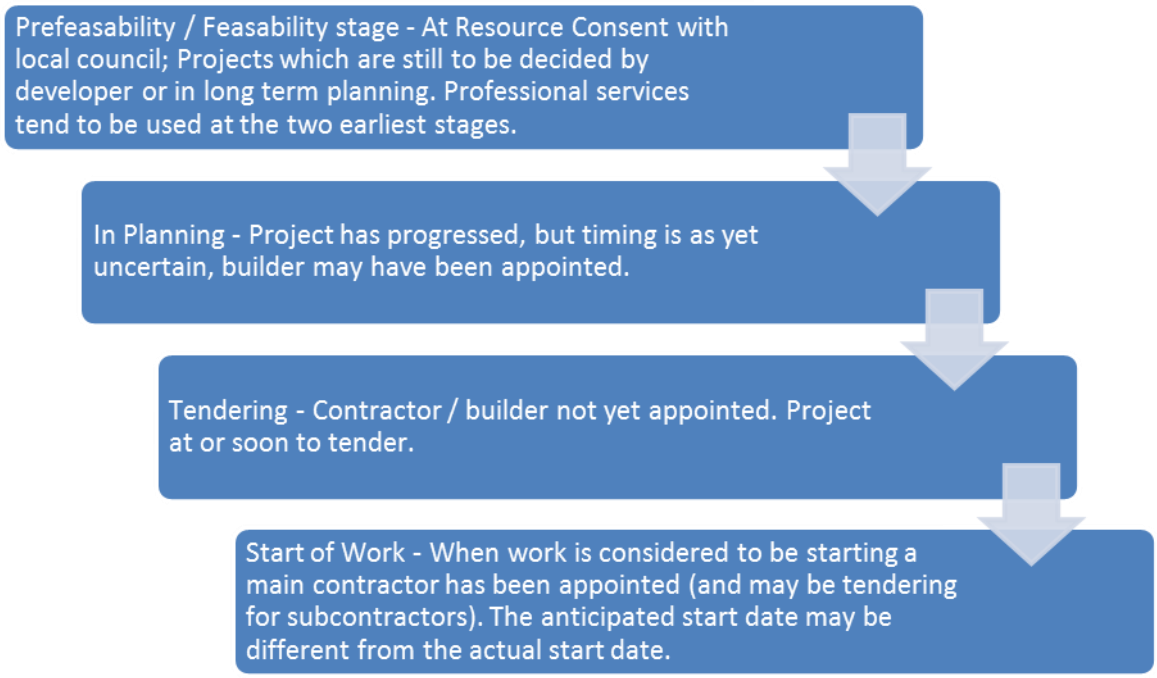
Appendix D - Building and construction type definitions

The following examples for each construction type are an indication only, eg a wharf might be considered to be civil, commercial or industrial, depending on the type of work that is being carried out.

Civil	Horizontal structures such as roads, bridges, tunnels, reservoirs, street lighting, car parks, runways, harbours, marinas, dredging and marine / flood control, outlets to the sea, subdivisions, site preparation, earthmoving, landscaping, parks, agriculture, demolitions, transport and car park buildings, bus stops and shelters, water supply and wastewater, reservoirs, refuse, landfill
Commercial	Shopping centres and retail outlets, hotels, motels, conference centres, theatres, libraries, museums, offices, retirement villages, welfare homes, hostels, laboratories, telecommunications and electronics, churches, clubs, bars, taverns, restaurants, defence, law, security, police stations, prisons, holiday parks and camp grounds, camp sites and huts any building with a commercial kitchen
Education	Schools, childcare centres, universities
Health	Hospitals, hospices, rest homes, health centres, ambulance stations, plunket rooms
Heavy industry / energy	Mines, Wind Farms, Plant and Equipment, Cranes, Mineral, Oil and Gas Exploration, Service Stations, Hydro Power, Dams, Irrigation, Electricity and other non-Oil Energy
Industrial	Light industrial, breweries, airports, harbours, ports and terminals, railways, materials handling, warehouses, fire stations, abattoirs, cold stores, fisheries, boatsheds, marine farms, fuel storage, tankage for service stations, wineries, milk factories, dairy farms, laboratories, plant and equipment (for wind farms, dairy farms, factories), cranes / pumps for wastewater
Multi-category	Development falls into multiple categories
Residential	Houses, Low-rise Apartments, High-rise Apartments
Sport	Swimming Pools, Sports Centres, Sports pitches, Golf Courses

Source: Pacifecon

Appendix E - Stages of design, planning and tender prior to start of work



Source: Pacifecon

At any of the three early stages work may be cancelled or deferred. There are many reasons for this; - a major one being changes in the economy.

The stages shown above are indicative of the process prior to start of work. Individual projects may pass through all stages, or remain in one only (usually 'in planning') until commencement.

The following observations are important:

- The closer the project is to the start of work the fuller and more accurate the information will be, especially with regard to value and timings.
- More advanced public notice is given to publicly funded plans and projects than is the case with the private sector.
- The longer design and planning phase required by larger projects results in more time in the project pre-work phase; therefore there is more information about larger / higher value projects for a greater length of time prior to commencement of work.
- Many of the larger non-residential projects will have a duration of several years and value of work would be expected to be spread over the life of the project, according to payment plans negotiated at tender or prior to the project's commencement.
- Non-residential work is frequently broken down into stages.

For Professional Services, see Appendix F (iii) - Professionals working in the industry.

Appendix F - Terminology, definitions, data and statistics

Appendix F (i) - Planning terms

Appeal Period – Once the decision is announced affected people have a set time in which to lodge an appeal. If an appeal is lodged, parties work through mediation to try and resolve the problem before proceeding to the Environment Court.

Building Consent / Permit – Permission to start the project, whether it is alterations, additions, new building. Must comply with local government guidelines.

Certificate of Compliance – Shows that the intended project complies with the rules of the District Plan. Issued in the early stages of the project.

CoC - Code of Compliance – Issued on completion. It shows that under the Building Act the completed work complies with the various rules and regulations.

District Plan – The guidelines each local government have showing how land is zoned ie residential, commercial, industrial. Different rules and regulations apply to each zone.

Notification – The proposal under the Resource Management legislation should be publicly notified. This is usually done by putting the notification in newspapers or by doing a limited notification, where only certain parties are involved. Once notified, affected parties have a set time to lodge an objection - including their reasons for objecting - to the project. A hearing is held and the decision announced.

Resource Consent – District Plans are prepared under the Resource Management Act. Most (larger) projects require both Resource Consent (non-notified if the project complies) and Building Consent. If a project does not comply, the local government may either do a limited notification or a full notification.

Appendix F (ii) - Abbreviations and general terms

ECC - Estimated cost of construction - May include items that are not part of the construction cost eg Total cost of project including plant / equipment, or cost of land purchase, or cost of all furnishings etc. not included in construction cost.

Value assigned to specific projects may be obtained from developer or contact or they may be an estimate. They are adjusted throughout the time that information about a project is held. The projected values have been validated against information held by Statistics New Zealand, but will always be an indication only.

EOI / ROI - Expressions of interest / registrations of interest – When Developer / project Manager is requesting parties who might be interested in working on a project register their interest.

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 expenditure approach to calculating GDP(E). This report uses GFCF.

RFI – Request for information – Following on from EOI / ROI the developer / project manager wants more information on the parties who may be a good fit for handling the project.

RFP – Request for proposals –Asking for specific information on how the company plans to handle the project and the people involved.

Negotiated contract – Usually a preferred builder and the project manager negotiate the terms of the deal.

Quarters –Q1 Jan-Mar, Q2 Apr-Jun, Q3 Jul-Sept, Q4 Oct-Dec.

Smoothed – Spreading the total cost of a project over its duration; in order to provide a clearer view of underlying trends and remove seasonal or cyclical components.

Staged – Many larger projects are staged; these would usually be logical splits of work into geographical / temporal units.

Tender – When builders or contractors are asked to submit a price for doing a particular task

Open tender – Anyone that wants to can put in a quote for the work

Selected tender – After the EOI, the project manager selects specific (@ 2-6) companies to tender.

Work Start – This is considered to be 'first spade in ground' and the term 'work' may include: building, construction, demolition, ground-works etc.

Year – For this report years run from April to March. .

Appendix F (iii) - Professionals working in the industry

Architect – Draws plans for new builds and building amendments. Has a degree in Architecture. May specialise, eg Commercial or residential.

Builder – Tend to work in construction **above** ground. Usually commercial or residential may also be health and education.

Construction Manager – Handles the construction side of the project. While the Construction Manager may be involved in some technical aspects of the design, s/he mainly deal with the construction methodology - procuring subcontractors, tendering and getting the project built.

Consultants - May be used for planning or land development eg Surveyors, Engineers, Resource Management, Legal, Architects, Draughtspersons.

Contractor – Term used for companies working on industrial type projects. Tend to work **on** the ground eg Roads, earthworks, drains – using heavy machinery. Often on civil or subdivision projects and heavy industry / oil exploration.

Designer / Draughtsman – Can draw plans, but does not have the architectural qualification.

Engineer – There are both consulting engineers and council engineers. The term consulting is used to differentiate between professional engineers and engineering companies who carry out welding, fitters and turners etc. local government engineers assess the designs, provide engineering input, carry out site inspections and accept the assets into council ownership. Consulting engineers may be of the following main types:

- Civil (eg traffic, roads, water)
- Mechanical
- Geotechnical (soil foundations and retaining walls)
- Electrical
- Structural

Landscape Architect –Designs landscape layouts for properties or subdivisions.

Project Manager – Manages the whole project on behalf of the client – can be engaged to help with appointment of consultants / architects being appointed (during the EOI / ROI stage). Manages the design phase, development programme, budgets, tendering.

Quantity Surveyor - Looks at plans for building projects, estimates the quantities of materials and labour needed and works out the budgets accordingly.

Surveyor – Measures land, establishes boundaries of existing blocks of land and measures and defines boundaries (usually for new subdivisions).

Appendix F (iv) - Data, statistics and assumptions used in this report

The **residential** sector forecasts are by BRANZ; based on modelling historical Building Consents and economic forecast indicators. This sector has much shorter lead-times than the non-residential sector. Assumptions for residential forecasting include:

- Value of work placed includes detached houses, multi-unit dwelling and alterations and additions work. Work placed is based on new dwelling consent values, multiplied by 2.06 to allow for variations after consent time, alterations and additions work and other costs included in the fixed capital formation (GFCF) measure (ie legal and other transaction costs). A six month lag is assumed between consents issued and FCF. All values are in constant 2013 dollars. This includes leaky buildings repairs.
- Statistics NZ sub-national median household formation forecasts are used for new dwelling demand. Demolition replacements and holiday homes are included. Regional housing shares are based on regional population growth, demolition replacements based on regional housing stock age, likelihood of holiday homes, and Canterbury EQ recovery. The medium household formation forecasts assume middle trends for fertility, mortality, migration, and age specific likelihoods to form households. As an example the long-term net migration assumption is 10,000 per year.
- Historic consents in the table are first published data and there may be subsequent changes in some locations. Usually these revisions are minor. Includes detached houses and multi-units.
- Multi-units include dwelling units with a floor / ceiling and / or a wall in common with another unit. It includes duplexes, terraced housing, attached townhouses, and medium and high-rise apartments.

The **non-residential** sector forecasts are based on BRANZ forecasts and combined with data held by Pacifecon.

BRANZ forecasts of non-residential building are based on forecasts of building consent values (which may not include other non-residential construction). The consent values are adjusted for fixed capital formation using historic ratios between consents and fixed capital formation (FCF) value, and allowing for an average 18 month lag between the two series. Eleven categories of non-residential consents are forecast based on the Statistics NZ data. Single equation regression models have been developed for most of the categories. These models have limited to good success in forecasting, to approximately five years ahead.

BRANZ 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.

The forecasts are for the periods July 2013 to March 2019. All values are expressed in 2013 $constant.

Non-residential building FCF has been made using a 57% addition to the BRANZ non-residential building forecasts, based on the average factor over the last 5 years.

The Pacifecon dataset of project values show the value of all projects of $100m and over smoothed across future quarters for the duration of each project (as far as this is known) or over 10 quarters where the time scales are unknown. 10 quarters was chosen because many projects fall into the 2-3 year construction timeframe. Exceptions are:

- Dairy factories, presumably of simpler construction than some projects, taking 3 quarters.
- Retirement villages all $100-$150m taking 20 quarters.

Work on non-residential building and construction started since the beginning of 2011, and which is still in progress, is also included. The dataset includes both non-residential building and other construction.

The non-residential data used in this report is classified into the first three stages of a project's life cycle (see Appendix E - Stages of design, planning and tender prior to start of work). This real project activity data is collected and retained by Pacifecon.

In general Pacifecon does not report:

- building consents less than $200,000
- projects less than $100,000 (unless linked to other larger project)
- Low $'00,000 projects, where there is no opportunity for Pacifecon clients.

For timing of quarters, see Appendix F (ii) - Abbreviations and general terms. Over 6,000 known future projects are included for this time period.

Appendix F (v) - Figures for forecast and known data ($ millions) by region - annual totals

Regions – Res forecast	Actual 2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	7 yr Total
Auckland	2,928	3,852	5,393	6,540	7,047	7,326	7,166	40,252
Canterbury	2,172	3,245	3,641	3,479	3,045	2,471	2,052	20,107
Waikato / BoP	1,550	1,750	1,738	2,106	2,273	2,126	1,990	13,533
Wellington	669	753	827	977	1,126	1,235	1,152	6,739
Rest of NZ	2,598	2,537	2,174	2,439	2,558	2,418	2,304	17,028
TOTAL	9,917	12,137	13,773	15,541	16,049	15,576	14,664	97,658
Regions - Non-res forecast								
Auckland	4,087	3,661	3,882	4,066	4,218	4,374	4,609	24,810
Canterbury	2,105	2,495	3,119	4,678	4,678	4,678	3,119	22,767
Waikato / BoP	1,982	2,009	2,130	2,230	2,314	2,400	2,529	13,612
Wellington	1,115	915	970	1,016	1,054	1,093	1,152	6,200
Rest of NZ	3,096	3,213	3,407	3,568	3,702	3,839	4,045	21,774
TOTAL	12,385	12,293	13,508	15,558	15,966	16,384	15,454	89,163
Regions Res + non-res forecast								
Auckland	7,015	7,513	9,274	10,605	11,265	11,700	11,775	62,133
Canterbury	4,277	5,740	6,760	8,157	7,723	7,149	5,171	40,701
Waikato / BoP	3,532	3,759	3,867	4,337	4,587	4,525	4,518	25,594
Wellington	1,784	1,668	1,798	1,993	2,180	2,329	2,304	12,271
Rest of NZ	5,694	5,750	5,581	6,008	6,261	6,257	6,350	36,206
TOTAL	22,302	24,430	27,280	31,100	32,016	31,960	30,118	176,904
Regions known non-res								
Auckland		3,681	2,813	2,465	2,616	2,033	1,817	
Canterbury		2,930	2,639	2,572	1,837	1,553	909	
Waikato / BoP		2,572	1,089	1,025	994	1,386	1,715	
Wellington		837	634	722	576	415	533	
Rest of NZ		3,135	2,548	1,687	1,150	1,347	1,182	
TOTAL		13,155	9,723	8,471	7,173	6,734	6,156	

Source: Pacifecon / BRANZ

Any differences between Figure s in Appendix F(v) and tables and charts in other sections of this report are due to rounding. Regional peaks in red.

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